

Improving Weld Reliability in Challenging RRP Applications

**26 transition
joints installed in
17 wells with no
failures!**

CHALLENGE



As Endless Rod™ is used in more challenging reciprocating rod pump (RRP) applications, weld performance becomes increasingly important. Tapered welds can create a higher-risk area in the rod string because the diameter transition and its associated stress concentration occurs in the weld area where the material has been detrimentally impacted by the welding process.

Failure inspections identified mechanical fatigue as the primary failure mechanism in weld area failures, with some cases classified as corrosion-fatigue. Most failures occur in the weld heat affected zone on the smaller diameter side of taper welds since those are normally the most highly stressed locations in the rod string.

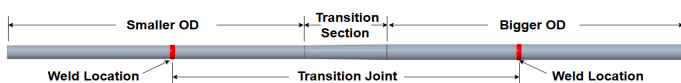
SOLUTION



Lifting Solutions developed the Endless Rod™ Weld Transition Joint* to overcome the challenges commonly associated with tapered welds. Rather than combining the diameter change and weld in the same location, the transition joint separates the weld area from the rod size transition.

The design eliminates the traditional center tapered weld and instead incorporates a gradual, shot-peened transition between rod diameters. Size-on-size welds are used and enhanced through a specialized rotary peening process.

By separating the weld and its heat-affected zone from the diameter transition area, stress concentrations are reduced and overall durability is improved. The rotary-peened weld further enhances fatigue resistance, resulting in increased service life and reliability under demanding operating conditions.



PERFORMANCE

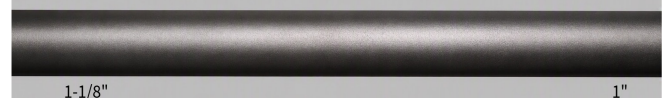


Initial field use has focused on demanding RRP applications where weld performance is critical. By July 2026, 26 transition joints have been installed across 17 wells, including full string installations and taper replacement applications.

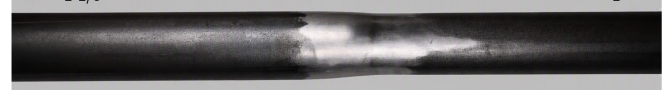
No transition joint failures have been reported to date, and the longest runtime has reached 105 days. In one installation, a tapered weld failed after 29 days, while the transition joints in the same string remained in good condition. The failed tapered weld was then replaced with a transition joint.

These early field trial results are demonstrating the potential of the Endless Rod™ Weld Transition Joint to improve weld reliability in challenging RRP applications where there are incidences of taper weld failures.

Weld Transition Joint



Tapered Weld



The Endless Rod™ Weld Transition Joint gives operators a practical way to address a known challenge in tapered weld applications. By separating the weld area from the diameter transition, Lifting Solutions reduces stress concentration at the weld and supports continued evaluation of weld performance in demanding RRP wells.

The early field results are encouraging, with 26 transition joints installed in 17 wells and no transition joint failures reported to date.