

Extending our reach... turnout welding solutions.

The Challenge

Over the last 6 years, the oil-by-rail business in North America has experienced phenomenal growth, straining the capacities of virtually all the major U.S. and Canadian railroads. This has created a need for extensive improvements to existing lines, and the construction of new rail yards, mainline tracks and sidings to handle the huge increase in tank car traffic.

Turnouts are one of the most costly components of track structure, and critical to the capacity and velocity improvements the railroads are seeking. Railroads plan to install thousands of turnouts over the next several years to support their new construction programs. These programs are over and above their historical annual track maintenance needs.

Each turnout requires a number of joints or welds in its construction and installation in track. For example, a No. 11 turnout requires 12 welds, and a No. 24 turnout requires 22 welds. Mechanical joints are ill-suited to heavy tonnage and high speed lines, where rail-end batter and cracking becomes a persistent future maintenance issue. Welding the rails in the turnouts is a preferred solution, either by thermite or electric flash-butt welding processes. Of those options, electric flash-butt welding has been proven to reduce post-installation maintenance burdens because of the superior metallurgical properties of parent metal to parent metal fusion compared to a thermite weld's filler metal.

In comparing the cost of thermite welding crews for turnouts vs. flash-butt welding crews, the quality of welds and the productivity of welding operations is critical. The initial cost for thermite welding may seem attractive, but future maintenance outlays will be substantially higher than for a flash-butt welded turnout, and some railroads are struggling to find and train sufficient thermite welding personnel to do this work.

Conventional flash-butt welding trucks have to spend a significant portion of the available work hours repositioning for welder head access to the weld locations, thus reducing the crew's daily productivity.

The Holland Solution

Holland is introducing its new Extended Reach MobileWelder®, a boom-crane equipped portable welding system, which is capable of

deploying the welder head up to 40 feet (32 feet with welder head and puller) to the side of the truck. On a flat working surface with turnouts laid out for welding, it can move along one side of the turnout and make the required welds with minimal repositioning of the truck. Productivity of the operation is significantly enhanced. The Extended Reach MobileWelder® is hi-rail equipped so it can weld on track together with Holland's Puller Lite, like conventional Holland MobileWelders®, and has the capability of welding from a right of way road onto the track, or from one track to an adjacent track, depending on the distance between track centers. It can be used effectively for various flash-butt welding applications including joint elimination and defect repair.

Holland's Extended Reach MobileWelder® has been introduced to three major railroads, and has demonstrated the capacity to weld a No. 20 turnout in a single workday. With multiple turnouts laid out on a pad and an experienced crew, even greater levels of productivity are possible.

These productivity enhancements will assist railroads in meeting critical turnout installation program deadlines, dramatically reduce the up-front cost differential between high-quality flash-butt welding and less desirable joining alternatives, and reduce long-term turnout maintenance expenses.

View Case Study Footage on the [Holland LP YouTube Channel](#).
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