



TURNOUT WELDING CASE STUDY

EXTENDING OUR REACH TURNOUT WELDING SOLUTIONS



CHALLENGE

Turnouts are one of the most costly components of track structure, and critical to the capacity and velocity improvements that railroads undertake.

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.

SOLUTION

Holland's 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.

These efficiency and productivity enhancements 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.

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