

# Holland<sup>®</sup> HAMR<sup>™</sup>

## Holland Automated Manganese Repair

**Railroads report that traditional repairs to frogs and diamond inserts often only last weeks to a few months before requiring additional maintenance.** These specialty track components are manufactured out of cast austenitic high manganese steel known for its excellent work hardening characteristics and high toughness. However, this material creates a unique challenge to repair or refurbish in the field as it cannot exceed 500 degrees Fahrenheit.

**Holland's Automated Manganese Repair (HAMR<sup>™</sup>) service includes pre-weld material removal using plasma cutting and finish grinding. Our teams use robotically controlled welding procedures to build back the damaged area.** This specialized welding process minimizes heat input to the base material, keeping temperatures below 500 degrees. This leads to a 33% reduction in heat input compared to conventional welding methods and enables us to deposit weld material at twice the speed without overheating the manganese. This repair is higher quality, longer lasting and can be completed two to three times faster than the traditional repair welding process. This helps reduce costs and track maintenance time by eliminating the need for repetitive repairs.



## HAMR<sup>™</sup> BENEFITS

### SAFETY

- Operator not required to work over fumes for prolonged periods of time
- Robot can continue welding while the operator moves away for a passing train on adjacent track
- Back strain from long hours working over a frog eliminated
- Follows standard MIG welding PPE
- Reduced fire risk
- Reduced hot scale or slag when welding
- Reduced risk of arc flash exposure

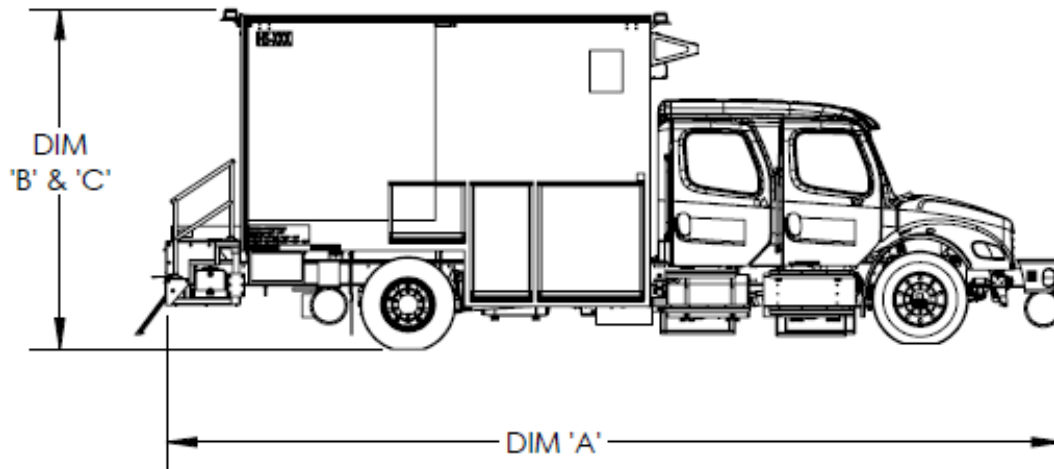
### PRODUCTIVITY

- Material laid down 2-3x faster than the manual process
- Ability to completely refurbish, in-track or trackside, versus patch repairs, which may allow for the cost to be capitalized
- Money and time saved by refurbishing components that may otherwise be scrapped
- Capable of performing repairs in most weather conditions

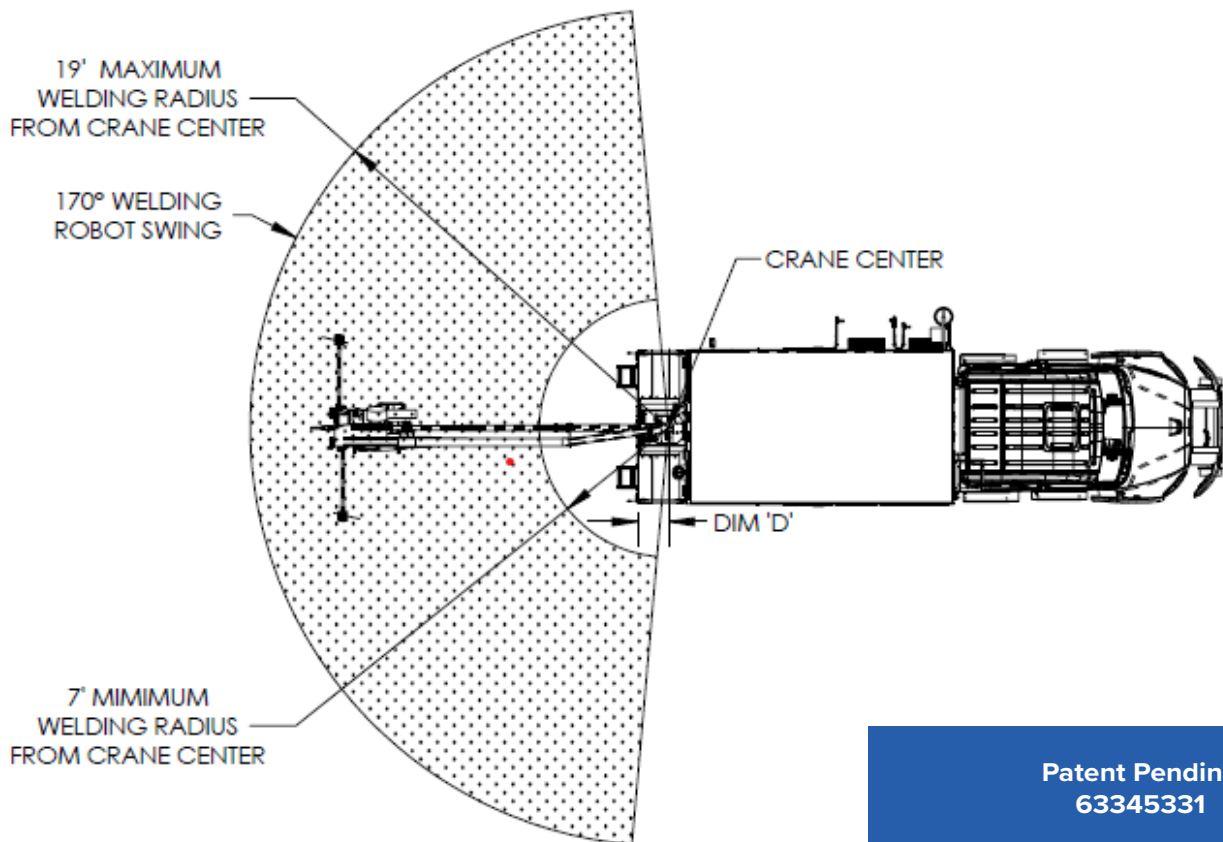
### QUALITY

- Automated wire feed and movement leads to uniform and highly repeatable weld bead
- Low heat input monitored to keep base material below 500° F
- Full repair demonstrates excellent wear resistance and is proven to handle heavy MGT
- Gauges are used to make sure frogs are built back to OEM standards

# HAMR™ Unit Specifications



Specification	Unit 1	Unit 2	Unit 4	Unit 5	Unit 6	Unit 7
Dim 'A' Truck Length	39'7"	40'0"	29'0"	29'0"	32'2"	32'2"
Dim 'B' Truck Height-Road	13'1"	12'6"	11'2"	11'8"	12'0"	12'0"
Dim 'C' Truck Height-Rail	13'4"	12'10"	11'6"	12'0"	12'4"	12'4"
Dim 'D' Crane Center to Rear Bumper	52"	52"	22"	22"	22"	22"
GVWR	53,000 lb	53,000 lb	33,000 lb	33,000 lb	33,000 lb	33,000 lb
Recommended Min Crossing Size	40'	40'	30'	30'	40'	40'



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