



TipMate Noxxles™

Richard L. Holdren
Arc Welding, Lasers & Automation

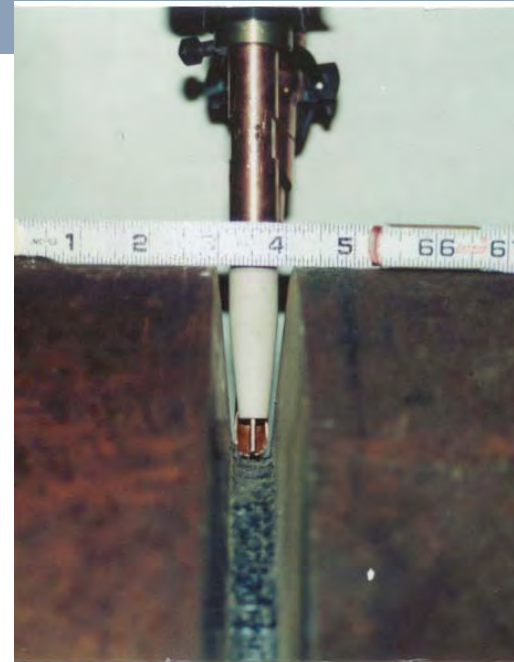
614.688.5139
dholdren@ewi.org

Project objectives

- Quantify productivity improvements
 - Increased deposition rate for groove welds
 - Increased travel speed for fillet welds
- Quantify effective heat input rate and develop correction factor
- Validate this correction factor on HSLA-100

TipMate principles

- TipMate Noxxle™ a ceramic device added to SAW contact tip
 - Forces increased electrode extension
 - Sized to guide preheated electrode
- Results in increased deposition and reduced heating of the workpiece



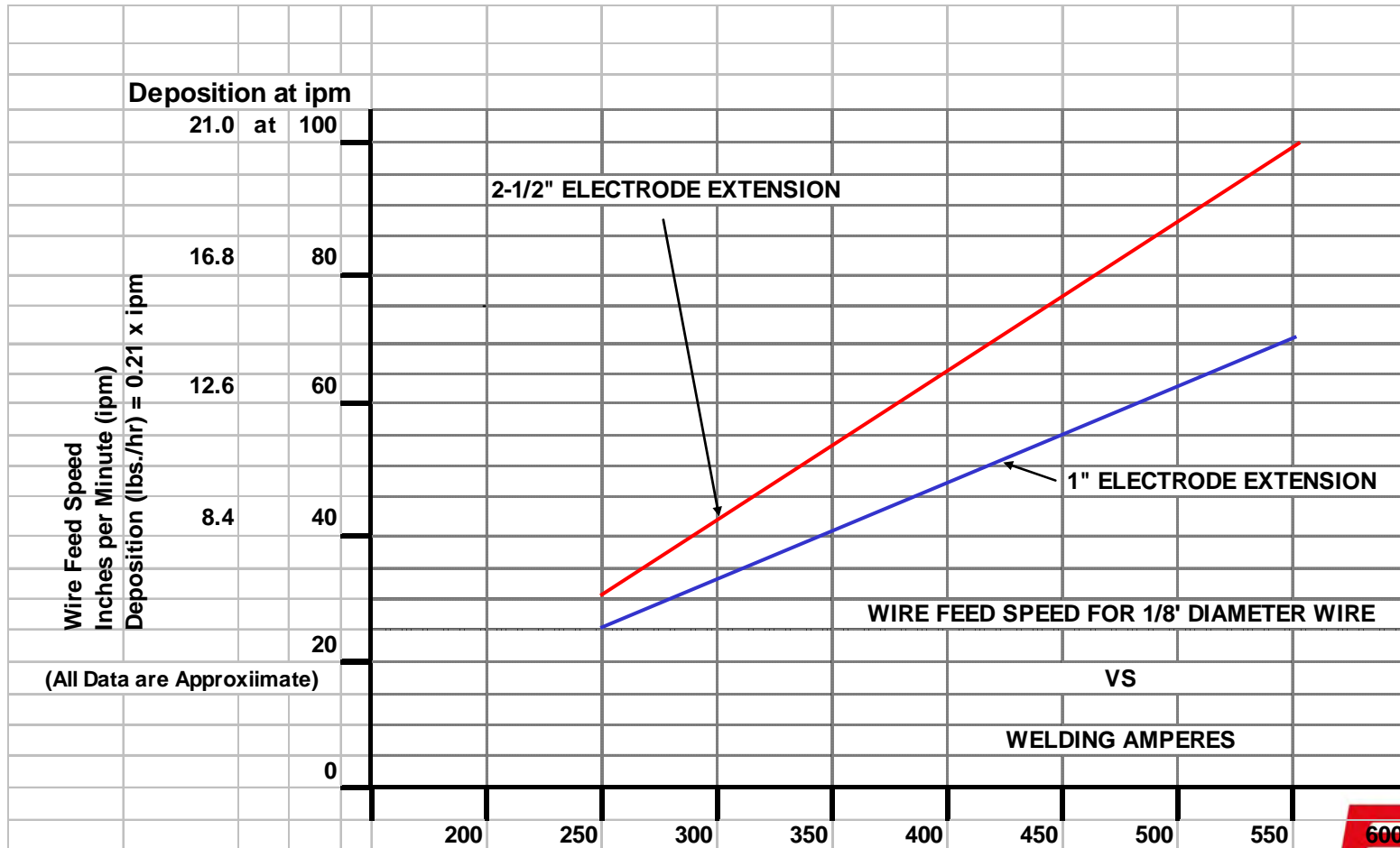
TipMate attributes

- Increased deposition rate
- Ability to weld thin materials with SAW
 - Increased travel speed
 - Reduced number of passes
 - Ability to weld over thin root beads without burn-through
- Reduced tendency for distortion
- Reduced flux consumption
- Eliminate double-arcing in narrow grooves
- Narrower heat-affected zone
- Reduced heat input to allow for increased deposition rates for heat input-limited materials
- An inexpensive productivity solution

Productivity/cost improvement cases

- Reduced arc time
 - 24" diameter x 2" wall: From 5 to 3¼ hours (35% reduction)
 - 24" diameter x 0.375" wall: From 29 to 20 minutes (31% reduction)
 - 24" diameter x 5" wall: From 18 to 12 ½ hours (31% reduction)
- Maintained 500° F maximum interpass temperature for P91 pipe with minimal stops
- Consistent welding over GMAW and GTAW root beads at 300 amperes without burn-through or need for hot pass
- Typical flux consumption reduced by 20%

Deposition rate comparison



Summary

- TipMate Noxxles™ offer significant cost and productivity improvement opportunities
- Requires only minimal capital investment
 - Cost of units roughly \$75-100 each



Questions

Richard L. Holdren
Arc Welding, Lasers & Automation

614.688.5139
dholdren@ewi.org