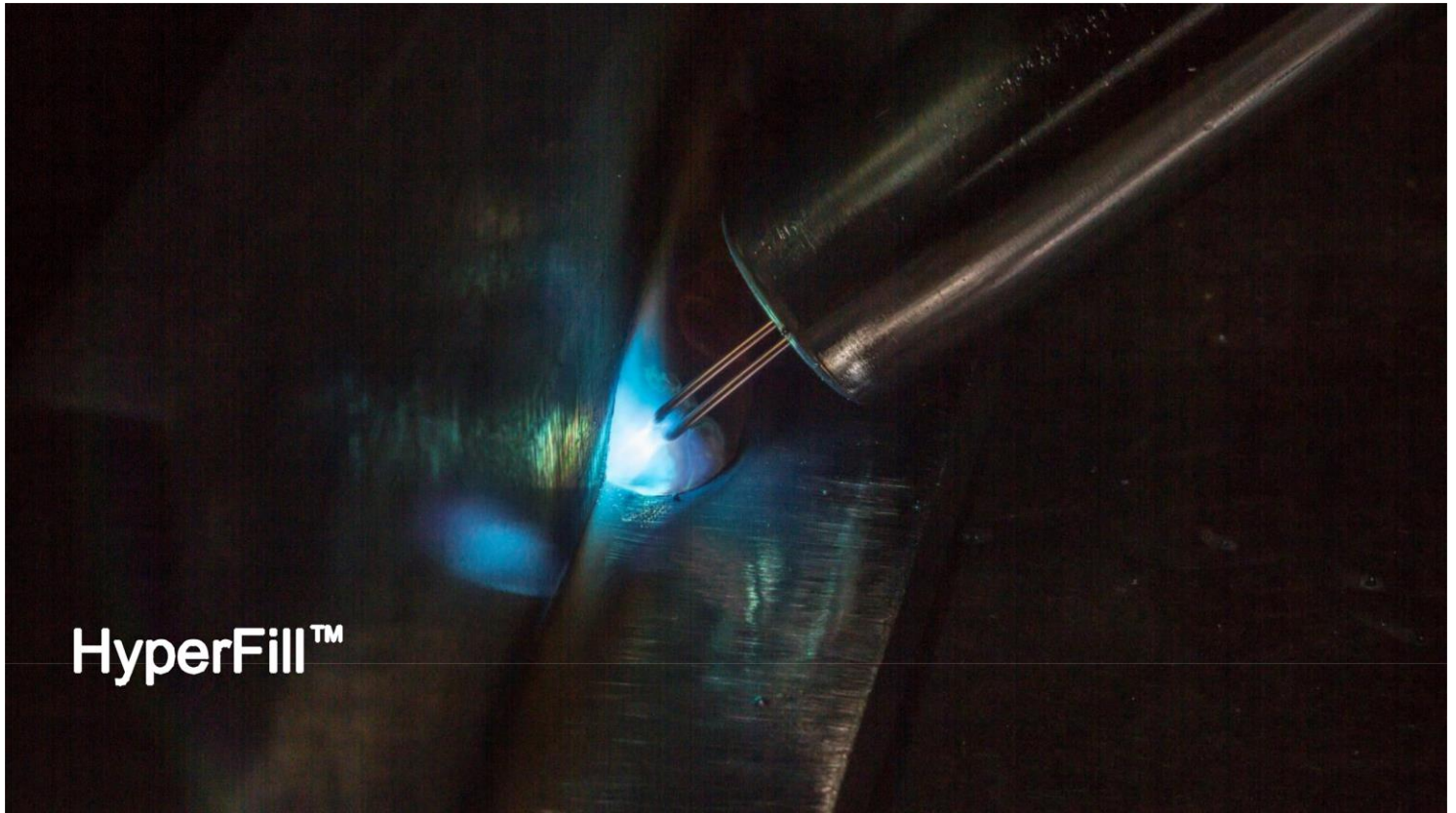


**KOMERCIJALNO-TEHNIČKO PREDAVANJE / *COMMERCIAL-
TECHNICAL PRESENTATIONS***



Outline

- Industry Challenge and Value Proposition
- HyperFill™ Process Overview
 - Mechanical
 - Arc Characteristics
- Value Proposition - Details

Industry Challenge

Create a process that enables customers to be more productive in the heavy fabrication industry specifically by:

- Making it simpler for the operator to setup
- Making it simpler for the operator to manage a large weld puddle
- Increasing the usable deposition rate of GMAW operation
- Minimize system setup complexity



IMPLEMENT. CONTROL. VERIFY.

Process Overview - Mechanical

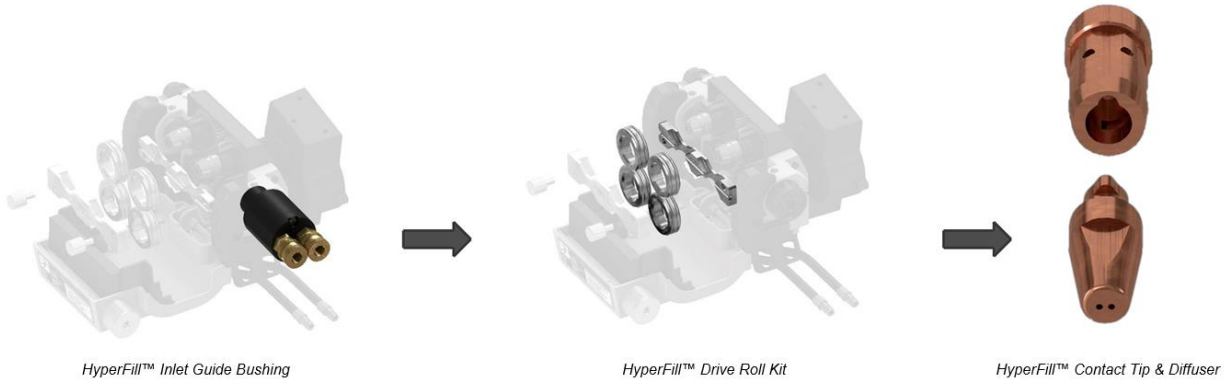
- Process that uses two wires but:
- A single power source
- A single feeder
- A single gun liner
- A single contact tip



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Process Overview - Mechanical

- Minimal changes to a standard Power Wave[®] system setup



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Process Overview – Arc Characteristics

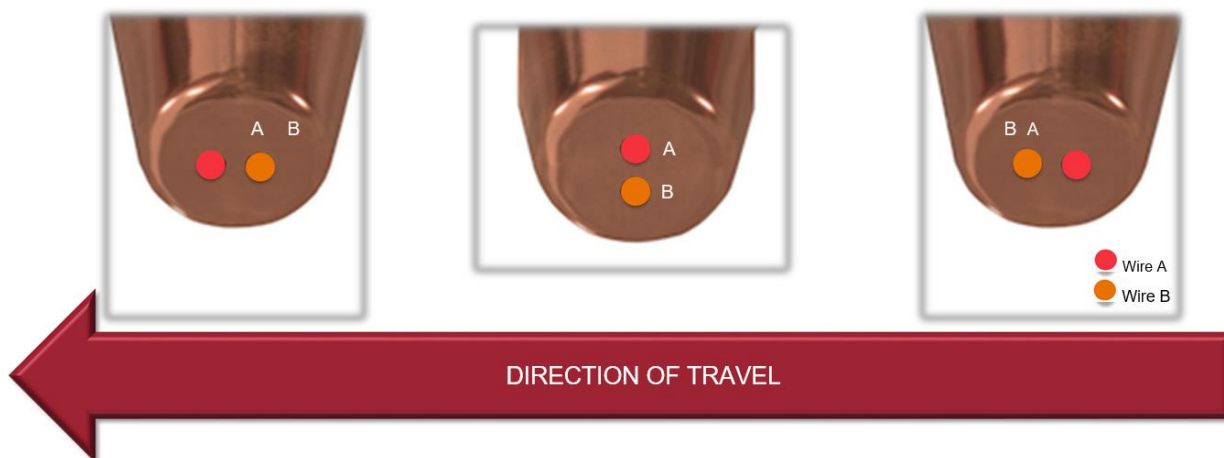
- A “liquid bridge” connects both the wires, producing a larger droplet and a single arc column
- Specific HyperFill Waveform
 - Free Waveform Update
- Lincoln SuperArc[®] Wire



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Process Overview – Arc Characteristics

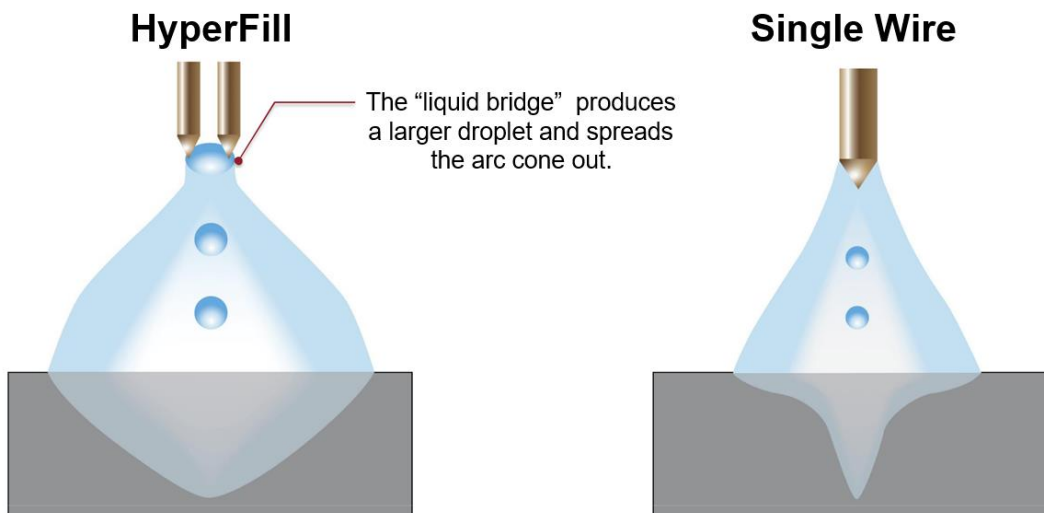


Wire orientation does not affect arc characteristics

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Process Overview – Arc Characteristics

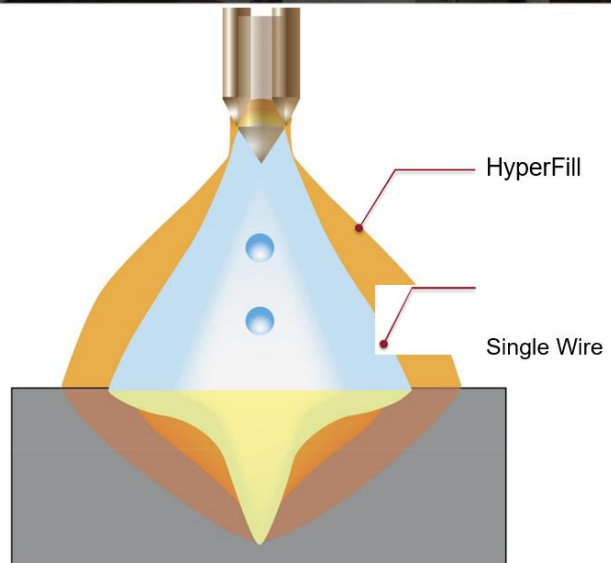


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Value Proposition - Simpler

- The wider arc cone more evenly distributes the arc energy - making it easier to use.



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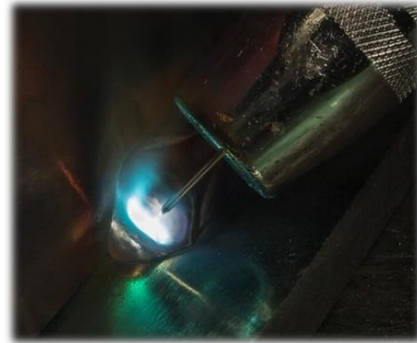
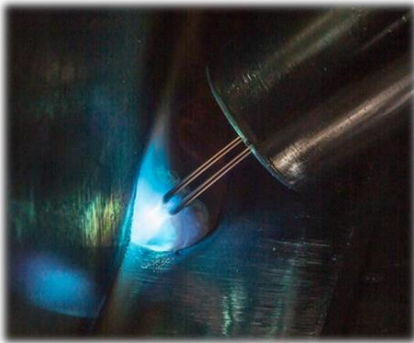
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Value Proposition – Simpler

HyperFill

18 lbs/hr
(8.2 kg/hr)

CV & Pulse

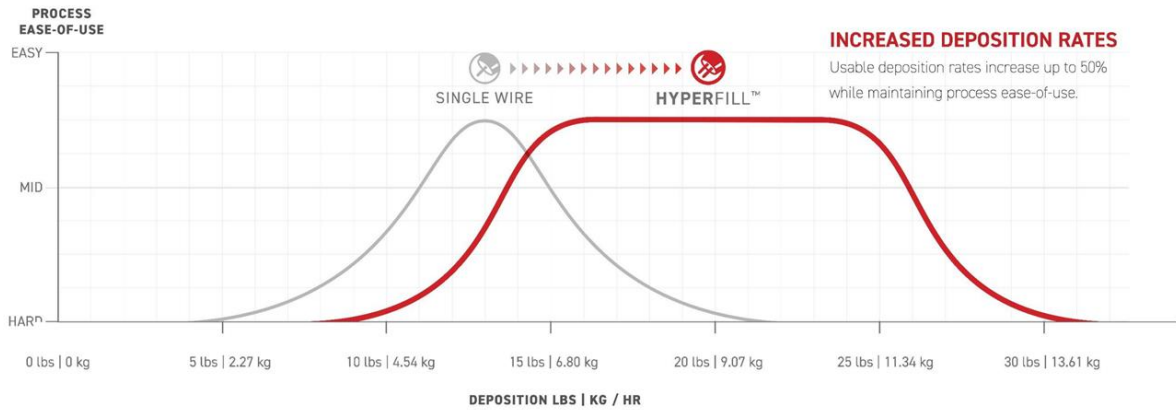


Wider arc cone makes it easier maintain control and manipulate a larger puddle

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Value Proposition – Higher Productivity

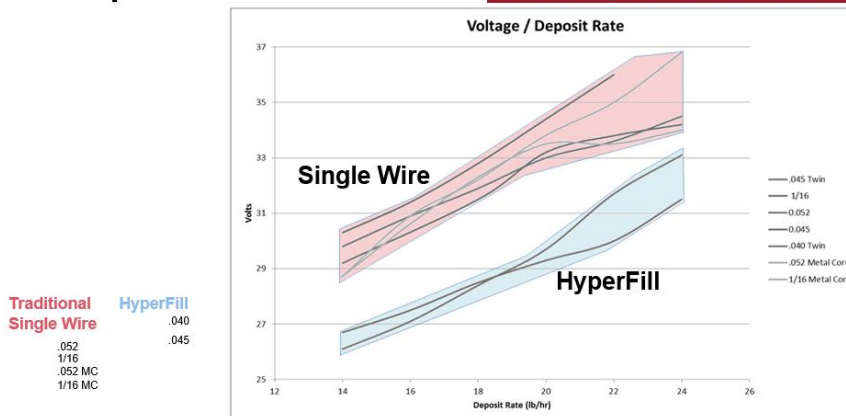


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Value Proposition – Better Quality

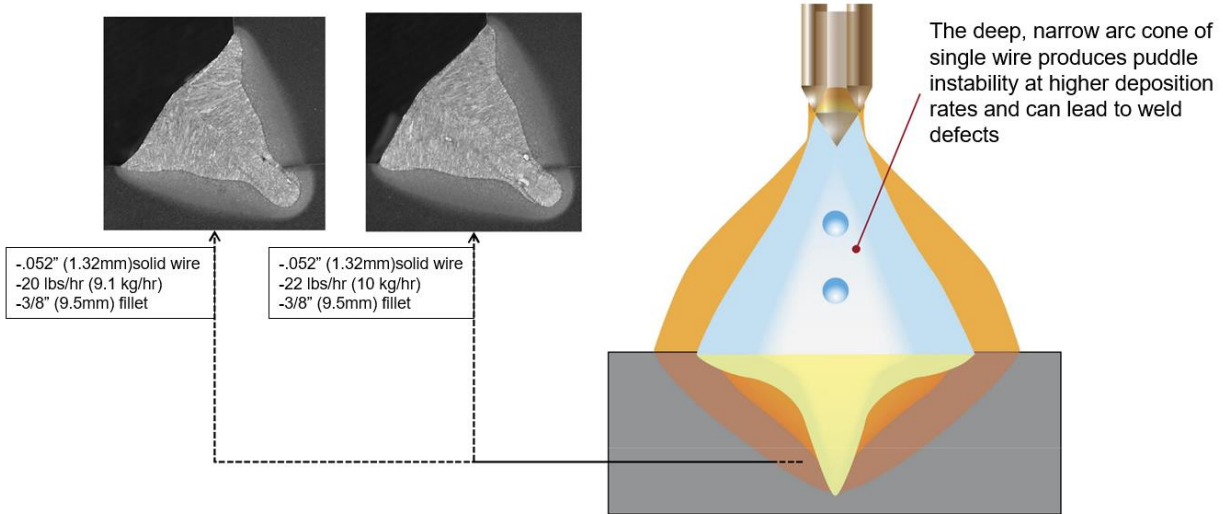
- Lower Voltage enables the use of higher deposition rates & **reduces undercut**



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Value Proposition – Better Quality

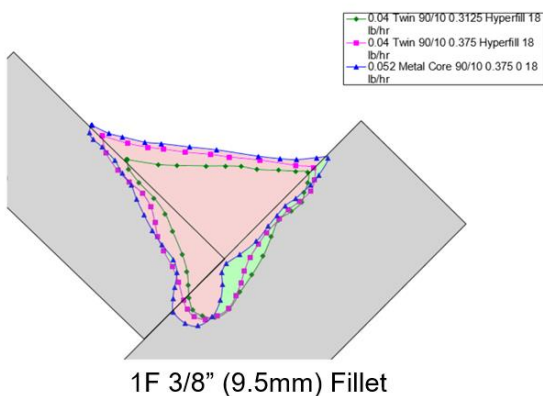


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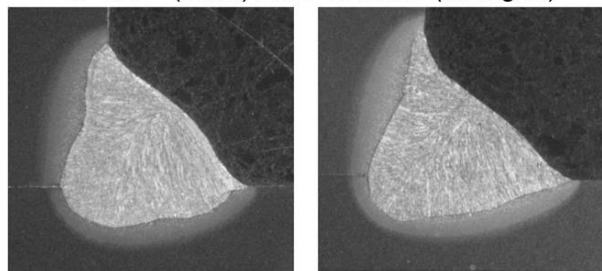
IMPLEMENT. CONTROL. VERIFY.

Value Proposition – Better Quality

- Larger arc cone & and more evenly distributed arc energy equates to **more robust penetration profiles**



2F 5/16" (8mm) Fillet 18 lbs/hr (8.2 kg/hr)



HyperFill .040 (1.0mm)

HyperFill .045 (1.2mm)

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Value Proposition – Low Complexity

- A single power source
- A single feeder
- A single gun liner
- A single contact tip



Power Wave S500
Bulk Wire Payout



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Application Scope

- Mild Steel
- GMAW Only
- Fillet and Groove Welds (1G/1F, 2G/2F)
- Semi-Auto limited to 20 lbs/hr (9.1kg/hr)
- Automated up to 25 lbs/hr (11.3 kg/hr)

Further development work ongoing but support restricted to the above parameters at this time.



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HyperFill - Ready-Pak®

- Dual Feeder Ready-Pak®
 - Includes everything needed to run the HyperFill process
 - Assembled and shipped on one pallet.
- **K4650-1**



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HyperFill - Ready-Pak®

- Dual Feeder Ready-Pak®
- Easily switch between processes
 - HyperFill on one gun
 - Single Wire on another gun



Single Wire Side



HyperFill Side

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HyperFill – Component One-Paks®

- Component One-Paks®
 - Includes all gun and wire drive components needed to run the HyperFill process.
 - Magnum® PRO Water-Cooled Gun
 - HyperFill Gun Expendables (contact tip / diffuser)
 - HyperFill Drive Roll Kit
 - HyperFill Inlet Bushing
 - Available in Semi-automatic or Robotic packages
 - See Spec Sheet (E12.360) for ordering info



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HyperFill – Mounting Kits

- Reel Stand Conversion Kit
 - Dual Reel Stand kit for Inverter Cart (K3059-4)
- **K4630-1**



Shown: Conversion Kit (K4630-1)



Shown: Conversion Kit with full inverter cart set-up



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HyperFill – Mounting Kits

- Bench Top Mounting Kit
- **K4630-2**



Shown: Bench Top Mounting Kit (K4630-2)



Shown: Full set-up with PowerFeed 84

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HyperFill – Mounting Kits

- Undercarriage Mounting Kit
 - For Undercarriage Cart (K163) & Cool Arc® 55 Water Cooler (K3086-1)



Shown: Undercarriage Mounting Kit (K4630-3)

- **K4630-3**
 - Full set-up shown requires:
 - Undercarriage Cart (K163)
 - Undercarriage Mounting Kit (K4630-3)
 - Bench Top Mounting Kit (K4630-2)
 - Cool Arc 55 Water Cooler (K3086-1)
 - Power Feed 84 Wire Feeder (K3328-3)



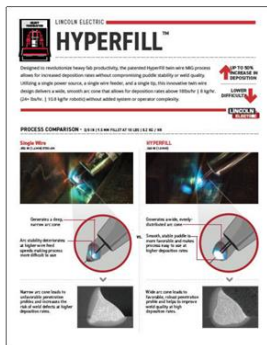
Shown: Mounting kit with Power Feed 84 and Cool Arc set-up

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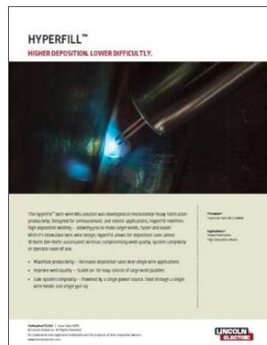
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HyperFill Documents

HyperFill Brief



HyperFill Spec Guide



HyperFill Process Guide



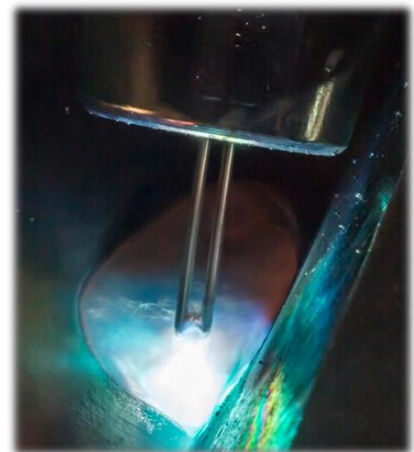
Landing Page: www.lincolnelectric.com/hyperfill



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Summary

- Higher Deposition Rates – Increased Productivity
 - Arc characteristics allow for higher deposition rates verses single wire processes
 - Proprietary tip and waveform combination
- Wider Arc Cone – Improved Quality
 - More robust penetration profile
 - Less prone to undercut
 - Less prone to internal discontinuities
- More Desirable for Welder – Better Adoption
 - The sound of the arc is much more desirable
 - Same look and feel as a typical single wire process running at a much lower deposition rate

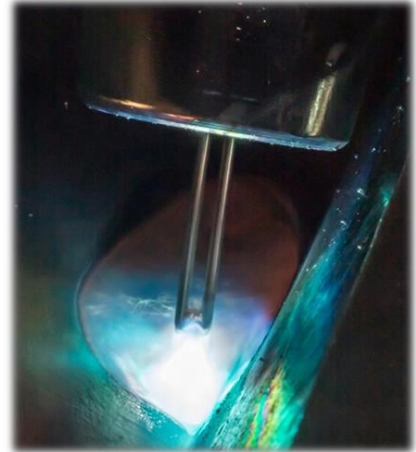


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Summary

THANK YOU

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