

# MATHESON *Select*® Shielding Gas He-25 for GTAW and GMAW on Aluminum

## Faster travel speed and reduced porosity

This mixture of Helium and Argon enables higher arc energy than possible with 100% Argon. As a result, porosity is reduced, weld shape and penetration are improved, and higher travel speed is made practical. MATHESON *Select*® He-25 is also ideal for use on most other non-ferrous materials.

## Typical challenges when welding on aluminum

- 100% Argon used on aluminum can often lead to porosity in the weld root
- Finger-shaped penetration is common with 100% Argon
- The low arc energy of 100% Argon fails to adequately clean out the oxides on aluminum surface, allowing them to be driven into and contaminate the weld

## Key Benefits of He-25

- Higher arc energy leads to reduced porosity
- Higher arc energy allows faster travel speed
- Higher arc energy yields better penetration characteristics
- Higher arc energy promotes cleanup of oxides on the aluminum surface
- Faster travel speeds result in a reduced heat affected zone
- Better arc starting (GTAW)
- Better mechanical properties
- Improved bead appearance
- Lower ozone formation

## Other Benefits

- Excellent arc stability
- Excellent wetting out characteristics
- Wider arc plasma allows larger gap and less demanding fit-up
- Less sensitive to arc voltage disruptions
- Certified homogenous mixture produces consistent results throughout the life of the cylinder
- More versatile than 100% Argon, He-25 can also be applied in fabrication with copper, magnesium, titanium, zirconium, and nickel-steel alloys (ask about application advantages on these materials)



**All MATHESON *Select*® Shielding Gas Mixtures are certified to AWS A5.32 and ISO 14.175 Standards - the best choice for mixture quality, welding efficiency, and to ensure compliance in certified welding operations.**

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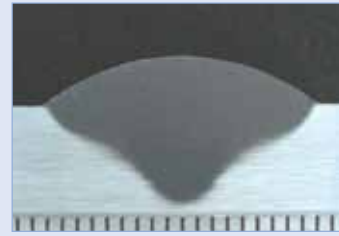
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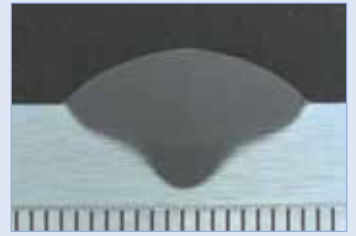
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### Spray Arc

MATHESON *Select*® He-25

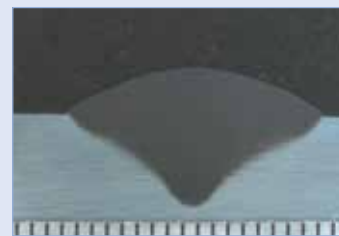


100% Argon

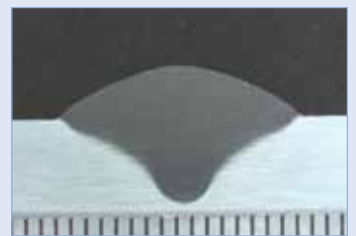


### Pulsed Spray Arc

MATHESON *Select*® He-25



100% Argon



*These cross-section photographs compare welds on aluminum made using MATHESON *Select*® He-25 (left) and 100% Argon (right). The top set of welds shows Normal Spray Arc; with Pulsed Spray Arc on the bottom. Improved weld shape and penetration with MATHESON *Select*® He-25 are apparent when using either Normal or Pulsed Spray.*