MATHESON *Select*® Shielding Gas
APN-10 GMAW on Aluminum

Greatly reduced porosity and improved weld penetration

MATHESON *Select*® APN-10 is an exclusive* shielding gas mixture containing Argon doped with Nitrogen. Compared to 100% Argon, MATHESON *Select*® APN-10 delivers increased arc energy, reduced porosity, and an overall better weld.

Typical challenges when welding on aluminum

- 100% Argon leaves a clean and attractive surface, but the weld solidifies quickly, trapping porosity in the root
- Finger-style weld penetration can be problematic
- The low arc energy of 100% Argon fails to clean the oxides on the aluminum surface adequately, allowing them to be driven into the weld and cause contamination

Key Benefits of APN-10

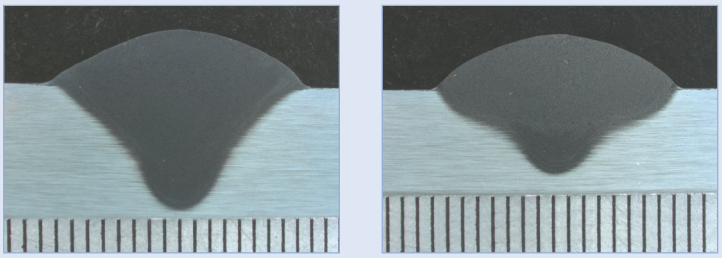
- Porosity is greatly reduced - nearly eliminated - enabling easier code compliance
- More stable arc with increased energy, but at lower voltages - contributes to weld integrity and better mechanical characteristics
- Improved weld shape and penetration
- Increased travel speed - higher productivity
- Improved performance at lower voltages compared to Ar/He mixtures (smaller heat affected zone)

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
- Can be applied in fabrication with copper, magnesium, titanium, zirconium, and nickel-steel alloys (ask about application advantages on these materials)

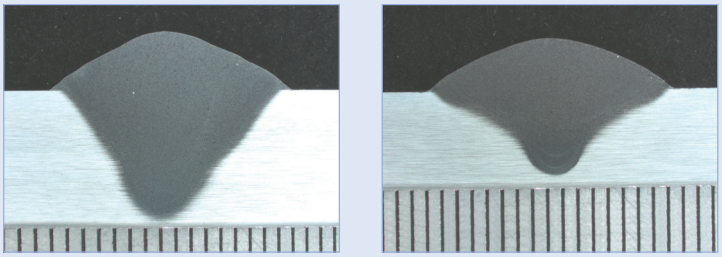
Normal Spray Arc

MATHESON *Select*® APN-10 | **100% Argon**



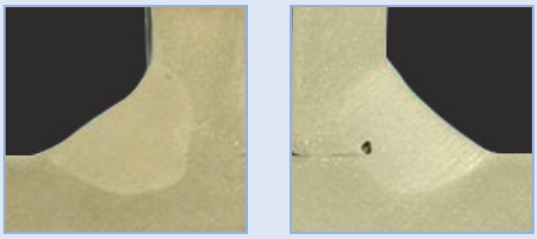
Pulsed Spray Arc

MATHESON *Select*® APN-10 | **100% Argon**



Weld cross-sections from welds made with MATHESON *Select*® *APN-10 (left) and 100% Argon (right). Normal Spray Arc shown at the top; Pulsed Spray Arc at the bottom. Note the improved penetration and shape of welds made with* MATHESON *Select*® *APN-10.*

MATHESON *Select*® APN-10 | **100% Argon**



Fillet welds made using APN-10 (left) versus 100% Argon (right). Weld made using APN-10 shows greater penetration; porosity is evident in the weld made with 100% Argon.

** Patent pending*

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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