

Performance Benefits with NANO-CHEM® Purifiers

Overall Dimensions*

Welding of Aluminum 6061 T3, GTAW Process



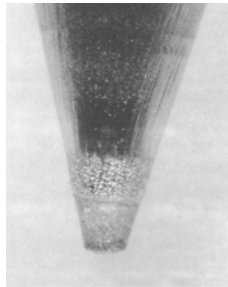
Without Purification

(Impurity Content = 40 ppm)
Surface Oxides, Porosity,
Poor Cleaning Action,
Poor Wetting
Rough Weld Surface

With Purification

No Porosity, Clean X-Rays
Good Cleaning Action,
Excellent Wetting,
Excellent Ductility
Very Smooth Surface

Welding of Titanium, PAW Process



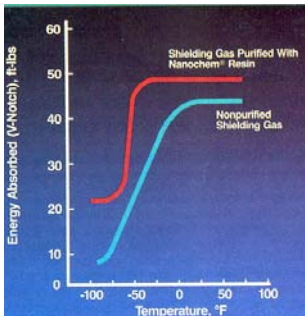
Without Purification

Tungsten Deposits on electrode
($\frac{3}{32}$ " EWT-2) after 30 minutes.

With Purification

Tungsten erosion at electrode tip
greatly reduced

Welding of Ferralium 255, GTAW Process



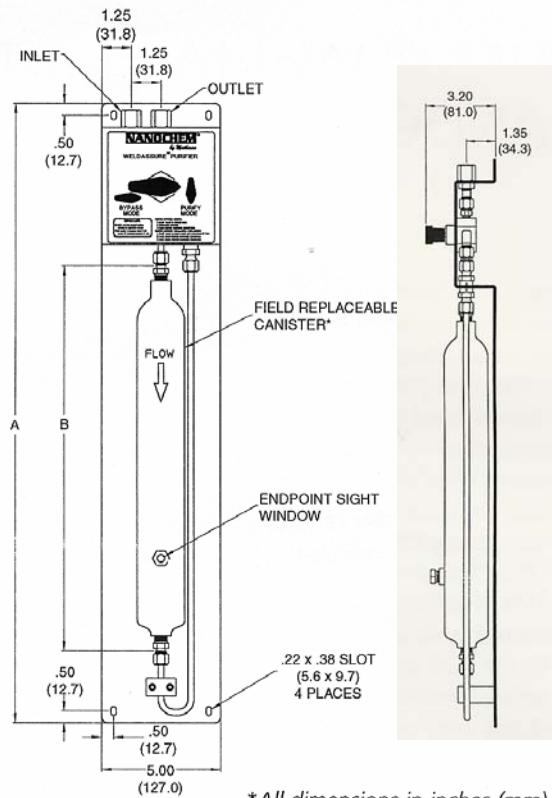
With Purification:

Welds bright and shiny without oxidation or heat tints. Clean Radiographs — welds free of defects. Significant improvement in weld strength (Charpy V Notch impact energy) at lower temperatures. Improvements in Mils lateral expansion and percent ductile shear fracture.

Specifications are subject to change.

MATHESON TRI-GAS and NANO-CHEM are registered trademarks of Matheson Tri-Gas Inc. OMX, In2GO, HCX, and MSA, L-Series, MegaShield are trademarks of Matheson Tri-Gas Inc. Swagelok is a trademark of Swagelok Companies, Solon, Ohio, USA

Printed in USA PB R04/08



*All dimensions in inches (mm)

NOTE: Endpoint Sight Window not available for Ar/O₂ and Ar/CO₂ purifiers

Purifier Data	Purifier Model		
	WA-150	WA-300	WA-500
Media bed volume (mL)	150	300	500
NANO-CHEM Media	OMX	In2Go	OMX
NANO-CHEM Media for Ar/CO ₂ or Ar/O ₂ blends	MSA	MSA	MSA
Canister Material	Aluminum Al6061-T6	Stainless SS 304	Aluminum Al6061-T6
Maximum Flow (cfh argon)	30	60	100
(slpm argon)	14	28	47
(NM ³ argon)	0.85	1.7	2.8
Dimension A / B (inches)	17 / 7	21 / 11.1	26 / 16.2
(mm)	432 / 178	533 / 282	660 / 411
Lifetime (approximate)*			
Number of cylinders purified	31	63	105

* Based upon argon of 99.998% purity ("Pre-purified" grade) containing 3 ppm O₂ and 10 ppm H₂O. Cylinder size – 280 ft³ (7.9 NM³) – Matheson 1A, BOC 200, Air Products B, Air Liquide 44, Praxair K. NOTE: Additional impurities contributed by gas delivery system can significantly reduce predicted lifetime.

CAUTION! Only NANO-CHEM WeldAssure purifiers specifically labeled for CO₂ or O₂ applications can be used for purifying Ar/CO₂ and Ar/O₂ blends.

DO NOT use NANO-CHEM WeldAssure purifiers containing NANO-CHEM OMX or In2Go media with Ar/CO₂ or Ar/O₂ blends. The Media will get very hot. OMX media will breakdown causing hydrocarbon contamination.

Ar/CO₂ and Ar/O₂ blends are often used for GMAW (MIG) welding. Benefits include a stable arc, easier arc initiation, reduced arc wandering, and reduced arc spatter. For such applications, Matheson Tri-Gas offers WeldAssure purifiers containing NANO-CHEM® MSA™ media, specifically designed for CO₂ and O₂ blends.

Ar/CO₂ and Ar/O₂ blends, however, can result in deposition of oxides and carbides in the weld. Hence, for very clean GMAW welding, Matheson Tri-Gas recommends use of argon / helium blends. Use of a 75% Ar / 25% He blend and NANO-CHEM OMX purification has been demonstrated to provide a very stable arc with greatly reduced weld spatter, fumes, and pyrotechnics. Weld quality of GMAW (MIG) welds with aluminum and Ferralium 255 (a duplex stainless steel) is excellent; porosity is eliminated and weld strength is as good as welds made with the GTAW (TIG) process.