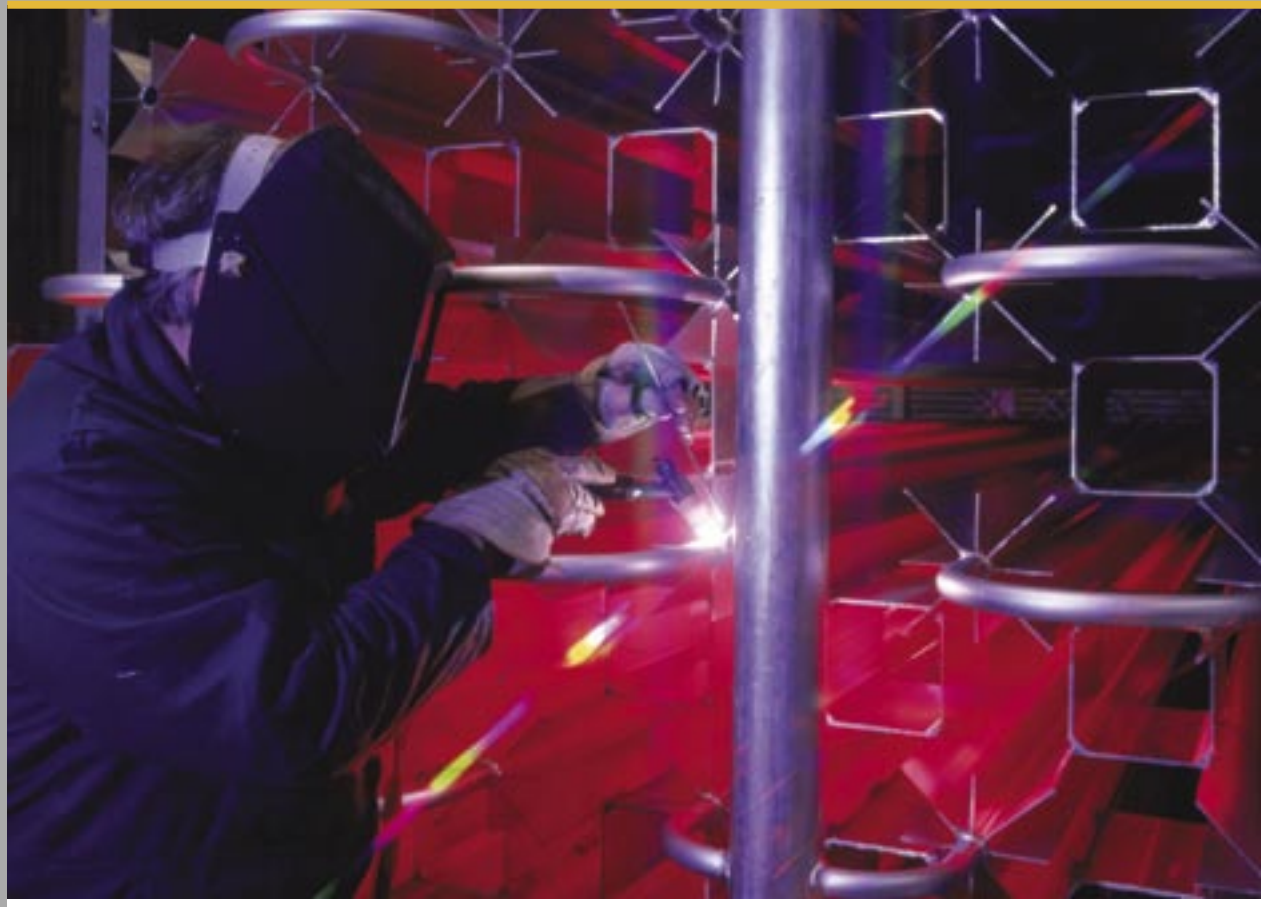


# Alumaxx® Plus

## The universal gas for aluminium

Specially designed for MIG and TIG welding aluminium, Alumaxx® Plus is the only gas that you need for the high quality welding of aluminium and its alloys. The higher ionisation potential of helium, mixed with argon, produces a higher arc voltage, which increases the temperature of the weld pool. This also increases the welding speed and improves penetration.

## The best and only gas you need

- Improves weld quality and reduces rejects through excellent penetration. Reduces spatter in MIG welding and produces high quality TIG welds.
- Higher productivity - increases the weld speed by almost 24% in MIG welding and up to 35% in TIG welding when compared with argon.
- Cuts cylinder stocks, multi-purpose shielding gas (MIG and TIG. Weld thicknesses of over 3 mm).
- Protects the work environment - minimal ozone generation.

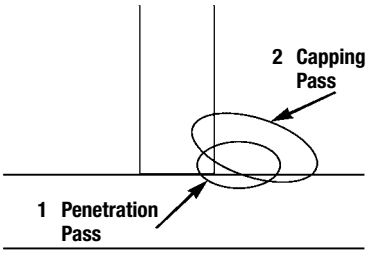
## Approved MIG welding procedure Alumaxx® Plus

| | |
|---|---|
| Manufacturer: | Air Products PLC<br>Air Products Ireland Ltd |
| Welding process: | MIG 131 |
| Root welding process: | MIG 131 |
| Joint type: | Fillet |

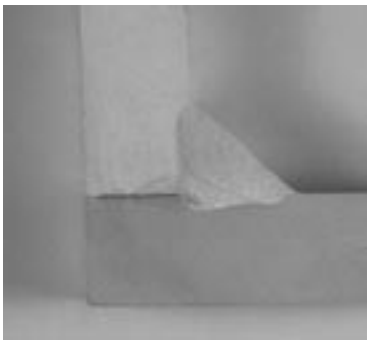
## Welded joint design

| | |
|---|---|
| Preparation of parts | Solvent degrease and oxide removal |
| Parent material and specification | Aluminium - AWS SB 209 Grade 5083 |
| Composition | Si - 0.40% max.<br>Fe - 0.40% max.<br>Cu - 0.045% max.<br>S - 0.10% max.<br>Mn - 0.40-1.0%<br>Mg - 4.0-4.9%<br>Cr - 0.05-0.25%<br>Zn - 0.25% max.<br>Ti - 0.15% max.<br>Al remainder |
| Material thickness | 10 mm |
| Outside diameter | n/a |
| Welding position | Flat (PB) |

## Welding sequence




## Macrography



## Welding details

| Run | Process | Diameter of filler metal (mm) | Current (A) | Voltage (V) | Type of Current & Polarity | Wire feed Speed (m/min) | Travel Speed (mm/min) | Heat Input (KJ) |
|---|---|---|---|---|---|---|---|---|
| 1 | MIG | 1.6 | 290 | 25 | DC+ | 10 | 625 | 0.70 |
| 2 | MIG | 1.6 | 282 | 24 | DC+ | 9.5 | 555 | 0.73 |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

| | |
|---|---|
| Filler metal and specification | AWS SFA - 5.10 Grade 5556 |
| Filler metal composition | Si - 0.25% max. - Fe 0.40% max.<br>Cu - 0.10% max. -Mn - 0.50-1.0%<br>Mg - 4.7-5.5% - Cr - 0.05-0.2%<br>Zn - 0.25% max. - Ti - 0.05-0.20%<br>Al |
| Classification of shielding gas | EN 439-I3 |
| Shielding gas | Alumaxx® Plus |
| Gas flow rate – Shield | 18 to 22 l/max |
| Purge | n/a |
| TIG electrode type | n/a |
| Underside protection | n/a |
| Preheat temperature | Ambient |
| Interpass temperature | 60°C max |
| Heat treatment | n/a |
| Stand off distance | 12 mm |
| Torch angle | 15° in the direction of welding |
| Nozzle bore diameter | 20 mm |

**n/a : non applicable*

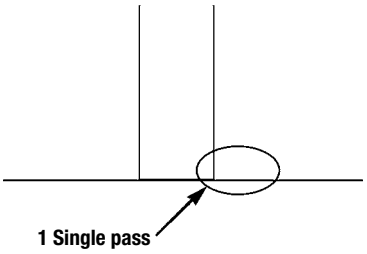
## Approved TIG welding procedure Alumaxx® Plus

| | |
|---|---|
| Manufacturer: | Air Products PLC<br>Air Products Ireland Ltd |
| Welding process: | TIG 141 |
| Root welding process: | n/a |
| Joint type: | Fillet |

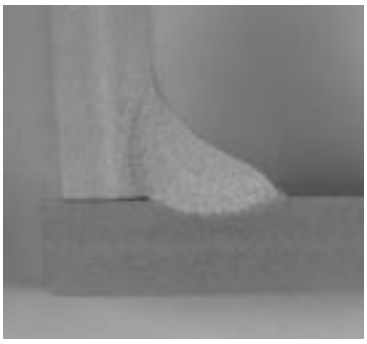
## Welded joint design

| | |
|---|---|
| Preparation of parts | Solvent degrease and oxide removal |
| Parent material and specification | Aluminium - AWS SB 209 Grade 5083 |
| Composition | Si - 0.40% max.<br>Fe - 0.40% max.<br>Cu - 0.045% max.<br>S - 0.10% max.<br>Mn - 0.40-1.0%<br>Mg - 4.0-4.9%<br>Cr - 0.05-0.25%<br>Zn - 0.25% max.<br>Ti - 0.15% max.<br>Al remainder |
| Material thickness | 6 mm |
| Outside diameter | n/a |
| Welding position | flat (PB) |

## Welding sequence




## Macrography



## Welding details

| Run | Process | Diameter of filler metal (mm) | Current (A) | Voltage (V) | Type of Current & Polarity | Wire feed Speed (m/min) | Travel Speed (mm/min) | Heat Input (KJ) |
|---|---|---|---|---|---|---|---|---|
| 1 | TIG | 2.4 | 230 | 19 | AC | n/a | 90 | 2.91 |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

| | |
|---|---|
| Filler metal and specification | AWS SFA - 5.10 Grade 5356 |
| Filler metal composition | Si - 0.25% max. - Fe 0.40% max.<br>Cu - 0.10% max. - Mn - 0.50-1.0%<br>Mg - 4.7-5.5% Cr - 0.05-0.2%<br>Zn - 0.25% max. - Ti - 0.05-0.20%<br>Al |
| Classification of shielding gas | EN 439-I3 |
| Shielding gas | Alumaxx® Plus |
| Gas flow rate – Shield | 8 to 12 l/max |
| Purge | n/a |
| TIG electrode type | 3.2 mm zirconiated electrode |
| Underside protection | n/a |
| Preheat temperature | Ambient |
| Interpass temperature | 60°C max |
| Heat treatment | n/a |
| Stand off distance | n/a |
| Torch angle | 15° in the direction of welding |
| Nozzle bore diameter | 20 mm |

**n/a: not applicable*

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