

Technical Newsletter from  
**ADOR WELDING LIMITED**  
Formerly Advani Oerlikon Ltd.

## **INCREASING WELD PRODUCTIVITY OF STAINLESS STEELS BY MIG, SAW AND TIG WELDING PROCESSES**

In the last issue, we explained the use of 17 classification MMAW electrodes to increase weld productivity of stainless steels. In this issue we will explore the use of MIG, SAW and TIG welding to not only improve productivity but also improve quality of stainless steel weld deposits.

### **Metal Inert Gas (MIG) Welding Process**

In this process a consumable wire travels through a nozzle and tip before it makes an arc with the work piece. The arc atmosphere is shielded either by pure gases like 100% Argon or a mix of 99% Argon with 1% Oxygen or 97% Argon with 3% Carbon Dioxide. MIG welding is a high productivity process. Which does not need expensive machinery. The welding machines are easily transportable making this process very popular. Shielding gas, welding parameters and the consumable assume an important role. Shielding gases are chosen considering quality of weld in various materials, cost and ease of operations.

#### **Some advantages of MIG welding stainless steels are**

- Deposition rates are much higher than in stick welding
- All position capability

## **Product Update**

### **SILENT CHALLENGER MULTI - 2X301**



India's First Double operator welding set with multiprocess welding capabilities and conforming to latest CPCB norms for Noise & Emission level.

Ideal for heavy duty fabrication & site applications.

Versatile applications, suitable for manual and semi-automatic welding process for cross country,

- Less operator skill required
- Longer welds can be made without stops and re starts and
- Minimal (post welding) cleaning required due to low spatter

AWL has a wide range of wires for MIG welding of most stainless steels. Please click on the respective link to know more about our range of MIG consumables.

### **MIGINOX Series Consumables**

MIGINOX 308 - Suitable for 20% Cr & 10% Ni SS

MIGINOX 308L - Suitable for low carbon 20% Cr & 10% Ni SS

MIGINOX 309 - Suitable for dissimilar metal joints

MIGINOX 309L - Suitable for dissimilar metal joints (low carbon)

MIGINOX 316 - Suitable for 19% Cr, 12% Ni & 2% Mo

MIGINOX 316L - Suitable for 19% Cr, 12% Ni & 2.5% Mo (low carbon)

MIGINOX 310 - Suitable for welding of 26.5% Cr, 12Ni & Austenitic Steels

MIGINOX 312 - Suitable for joining all grades of steels

MIGINOX 347 - Suitable for welding of 20% Cr, 10Ni & 0.5% Nb SS

MIGINOX 410 - Suitable for 13% Cr SS

MIGINOX 430 - Suitable for 18% Cr SS

### **Submerged Arc Welding (SAW) Process**

In SAW, the flux is separately fed in to the joint where the consumable wire establishes an arc beneath the flux. In the heat generated from the arc, the wire as well as some part of the flux melts. As the welding head moves along the joint, slag and metal separate by virtue of difference in their specific gravities. Heat input is high in SAW, leading to higher productivity.

in-plant pipeline welding applications.

Highly reliable even in hostile site conditions.

Big savings in fuel and longer runs before next re-fueling.

Specially proven with cellulosic (6010 & 7010 types) and other special types of electrodes.

Super Silent Operation.



**Solid Stainless Steel Wires  
For Tig / Mig / Saw Welding**

**ADOR Institute of  
Welding Technology**



**Click here to learn more  
about our Certification**

**Some advantages of Submerged Arc Welding stainless steels are**

- Extremely high deposition rates
- High quality welds
- Low operator skill
- Process can be easily automated
- High speed single pass welds
- Twin wires with one head as well as multiple wires and heads can be used for high deposition and high travel speeds

AWL has a wide range of wires and fluxes for submerged arc welding of most stainless steels. Please click on the respective link to know more about particular SAW consumables in the range.

**SUBINOX Series Wires**

SUBINOX 308 - Suitable for 20% Cr & 10% Ni SS

SUBINOX 308L - Suitable for low carbon 20% Cr & 10% Ni SS

SUBINOX 309 - Suitable for dissimilar metal joints

SUBINOX 309L - Suitable for dissimilar metal joints (low carbon)

SUBINOX 316 - Suitable for 19% Cr, 12% Ni & 2% Mo

SUBINOX 316L - Suitable for 19% Cr, 12% Ni & 2.5% Mo (low carbon)

SUBINOX 310 - Suitable for welding of 26.5% Cr, 12Ni & Austenitic Steels

SUBINOX 312 - Suitable for joining all grades of steels

SUBINOX 347 - Suitable for welding of 20% Cr, 10Ni & 0.5% Nb SS

SUBINOX 410 - Suitable for 13% Cr SS

SUBINOX 430 - Suitable for 18% Cr SS

### **AUTOMELT series fluxes**

AUTOMELT S 33 - Suitable for high alloy austenitic stainless steels

AUTOMELT S 76 - Suitable for high alloy Cr. - Ni stainless steels

### **TIG Welding Process**

In this process the consumable is melted in the arc atmosphere and Inert-gases like Argon or Helium (or mixtures) are used as shielding gases. TIG welding is extremely suited to join thin sheets, tubes and making root pass welds in pipes, since the heat input in this process is minimal. TIG welds do not cause any undercuts or lack of penetration defects and distortion is the lowest compared to other welding processes. TIG welding offers superior quality welds thereby making up for lower welding speeds. It is, however not recommended for thick sections.

#### **Some advantages of TIG welding stainless steels are**

- Popular choice of welding when high quality precision welding is required
- Welds can be made with or without filler metal
- Superior quality weld deposits
- Precise control of welding variables like heat input
- Free of spatter and
- No / very low distortion

AWL has a wide range of wires for TIG welding of most stainless steels. Please click on the respective link to know more about a particular TIG consumable in the range

### **TIGINOX Series Consumables**

TIGINOX 308 - Suitable for 20% Cr & 10% Ni SS

TIGINOX 308L - Suitable for low carbon 20% Cr & 10% Ni SS

TIGINOX 309 - Suitable for dissimilar metal joints

TIGINOX 309L - Suitable for dissimilar metal joints (low carbon)

TIGINOX 316 - Suitable for 19% Cr, 12% Ni & 2% Mo

TIGINOX 316L - Suitable for 19% Cr, 12% Ni & 2.5% Mo (low carbon)

TIGINOX 310 - Suitable for welding of 26.5% Cr, 12Ni & Austenitic Steels

TIGINOX 312 - Suitable for joining all grades of steels

TIGINOX 347 - Suitable for welding of 20% Cr, 10Ni & 0.5% Nb SS

TIGINOX 410 - Suitable for 13% Cr SS

TIGINOX 430 - Suitable for 18% Cr SS

Please contact **Mr. B. S. Kohli (+91 95940 98021)** for assistance in increasing weld productivity of stainless steels in your shop floor.

Suggested precaution for improved results when welding stainless steels: **weld must be cleaned only with a stainless steel brush.**



Project Engineering Solutions



ADOR Institute of Welding Technology



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