



Leading China Fabricator of Hydrogenation Reactors Selects ESAB For Stainless Steel Cladding Strip, Flux and Welding Equipment.

- One ESAB flux for all layers.
- ESAB OK Band 309L ESW for buffer layer, ESAB OK Band 347 for second layer.
- ESAB provides timely delivery of small or large consumable quantities, local technical support.

Situation

Sichuan Province is home for several of the China’s most important energy equipment manufacturers, and ESAB has been making a positive contribution to advancing the capabilities of these manufacturers for several decades. Because of the successful relationships, ESAB was invited to bid on consumables for electroslag cladding one of the largest hydrogenation reactors ever built: the project required 116 tons of stainless steel strips and 81 tons of flux.

Complication

On previous projects, the reactor fabricator had experienced intermittent quality issues with a competitor’s consumables, specifically problems related to undercuts and poor slag detachability. Another issue was the need to use one type of flux for the buffer layer and different flux for the second layer, increasing the risk of mixing up two fluxes.

Solution

ESAB OK Flux 10.10 used with ESAB OK Band 309L ESW (buffer layer) and OK Band 347 (second layer), both in 90 mm x 0.5 mm and 60 mm x 0.5 mm dimensions designed for the electroslag cladding (ESW) process.

Results

By using a single flux, the fabricator eliminated the potential for error on the shop floor while simultaneously reducing re-work to gain higher productivity and lower manufacturing cost.



BENEFIT #1

One Flux, Superior Results

The ESAB consumable solutions have made the reactor production process easier to control through very good weldability and avoiding welding defects.

OK Flux 10.10 is an agglomerated flux designed for surfacing with stainless strips of the Cr, CrNi and CrNiMo type (with or without Nb stabilization), enabling the fabricator to use a single flux for both layers. Compared to the competitor's flux, it offers better slag detachability and superior performance for building up the 6-7 mm thick cladding.

The ESAB flux reduces the amount of work required to remove the slag by a few percentage points. While that might seem like a small amount of improvement, the savings become significant when depositing more than 100 tons of cladding strip.



BENEFIT #2

Local Technical Support

Cladding with OK Flux 10.10 in this application enables travel speeds of approximately 20 cm/min. After providing success with this flux, ESAB gained the customer's trust to explore the use of a high-speed flux for the reactor application.

The ESAB global product management, R&D team and local China technical experts collaborated to test OK Flux 10.14, a high basic agglomerated flux engineering for ESW cladding with austenitic stainless steel strips at higher travel speeds. Preliminary results at the customer site show that cladding speeds of 34 cm/min and deposition rates of 43 kg/h may be achieved.

BENEFIT #3

Supply Chain Flexibility

While reactor manufacturers require many tons of filler metal and flux for large projects such as hydrogenation reactors, they do not want to purchase all consumables at once. However, at the same time that fabricators want to manage their expenses, they also want a secure supply of consumables.

Understanding these needs, ESAB works with the customer to plan demand and ensure a reliable supply of local safety stock. As a result, ESAB was able to offer the reactor fabricator superior lead times on delivery of OK Band stainless strips and OK Flux.

BENEFIT #4

Total Solution Provider

In addition to its leadership with consumables development for petrochemical industry customers, ESAB is also a leading supplier of high-amperage welding power sources, manipulators and controllers for electroslag cladding and submerged arc welding.

For more than a decade, the reactor fabricator has been using ESAB's LAF 1251 and LAF 1601 DC power sources, which have a 100% duty cycle at maximum output of 1250 amps and 1600 amps, respectively. Other equipment includes the PEK welding controller and A6S Arc Master cladding head.



ESAB also offers a full portfolio of filler metals and equipment for Petrochemical applications. Contact your ESAB sales representative to learn more, or visit esab.com/petrochemical.



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