

Cooling towers: When experts work together...

Hamon d'Hondt is a company that manufactures finned tubes for cooling towers, welded tubes of all types such as spiral fins, parallel fins (carbon steel, alloy steels, cast iron sleeves), cooling towers, air condensers, energy savers, air and fume heaters, sets of finned tubes. Also a specialist in the manufacture and distribution of cooling systems (CS), process heat exchangers (PHE), air quality systems (AQS), chimneys, heat recovery steam generators (HRSG) and waste heat boilers (WHB).

Hamon d'Hondt has been asked to **produce cooling tower systems** destined for a gas-fired power plant at Fadhili. This colossal project, awarded to Saudi Aramco, is an entirely new development to be built 30 km west of Jubail, in the eastern province of Saudi Arabia. <http://www.hydrocarbons-technology.com/projects/fadhili-gas-plant-jubail/>.

What makes producing this type of cooling tower complex is welding the tubes in the rear plate, where access is restricted. The quality of the welding must be beyond reproach and consistent on all tubes because re-doing it in the event of a defect is practically impossible. Under the circumstances, only TIG welding offers the right quality. Although the choice of welding equipment is important, preparing the joints for welding is equally so.

In the context of the Fadhili project, the problem in practical terms is to ensure excellent preparation of the joints despite the distance between the front plate and the area to be machined (450mm) and the need to do two different types of machining - machining a weld joint and flattening the weld area then levelling the tube end before welding. To this is added the machining tolerance constraints, repeatability on several hundred holes and equipment portability.

With the plant scheduled to open in late 2019, Hamon d'Hondt had to react quickly and chose to rely on experts in their field to guarantee production.

The COFIM solution

Based on more than 30 years of experience and with Hamon D'Hondt already having several TU2 machines, COFIM decided to respond with a modified version of that model. The result is a TU2 ALR which operates in a similar way to the standard machine but is equipped with a clamping system and a special tool holder. Furthermore, with this solution being quicker to implement, it also has the advantage of having greater machine rigidity, thanks to a design which maximises the diameter, to ensure accuracy and repeatability of machining, using a wraparound clamping system. In addition, it is quick and simple to change tools and using a commercially available ISO carbide plate reduces the cost of consumables.

The Polysoude solution

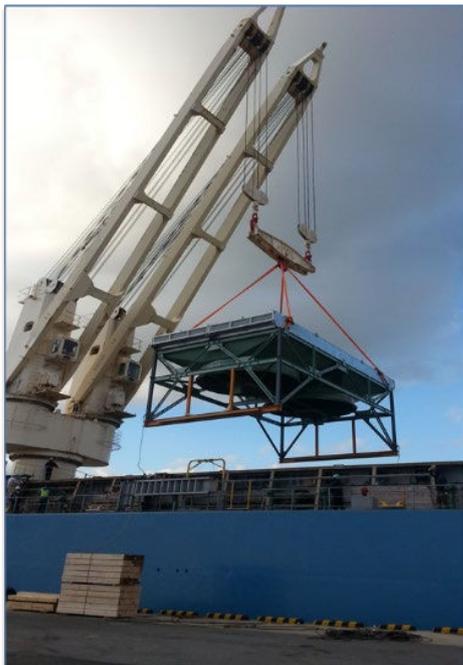
Polysoude has long been a supplier to Hamon d'Hondt. Based on more than fifty years of experience, the choice of welding equipment naturally leaned towards the new TS 8/75 tube/plate TIG welding head. Indeed, its modularity, the extent

of its range of tools and its robustness met all the characteristics for fulfilling this project. A so-called "double plate" welding head has been developed to do the welding, in spite of the distance. The welding head, linked to a P6 family welding machine, has the advantage of being fully automated with all welding ratios recorded which allows weld quality and reproducibility to be monitored, since the parameters are being recorded. Also, since the controls and clamping are on the handles, productivity is assured.

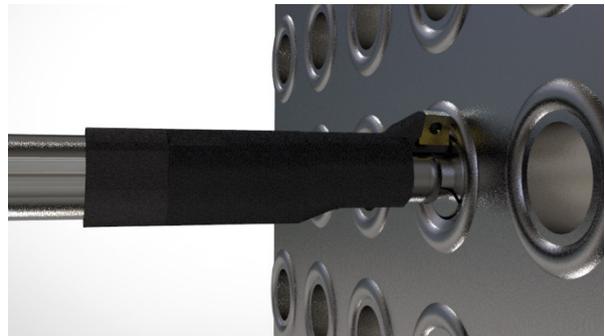
A word from the client...

Mr. Bergère: "We went to COFIM for its custom machining expertise, the responsiveness of its design office and the quality of its assistance during development projects. For POLYSOUDE, a partner of ours for a long time, we value their welding expertise and the reliability of their equipment."

Images



Installation by Hamon d'Hondt after the components were prefabricated in the factory (Photo credits, Hamon d'Hondt)



*TU2 ALR bevelling machine developed specifically to meet the project's requirements
(Photo credits, COFIM)*



*TS 8/75 tube/plate welding head equipped with a special "Air cooler" double-plate lance
(Photo credit Polysoude).*

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