Applications for Plasma Cutting Technology

Industry: Shipbuilding
Equipment: HySpeed™ HT4400®

Scottish shipbuilder increases metal cutting speed by 70% and consumable life by 15%

Yarrows Shipbuilders upgraded older Hypertherm nitrogen systems to two HT4400 oxygen plasma systems on their existing tables and dramatically increased productivity, cut speed and consumable life.

- Produces virtually no dross and delivers superior cut face weldability.
- LongLife oxygen technology significantly extends consumable life.
- Liquid cooled quick-disconnect torch increases productivity.
- Delivers unmatched cut speeds on carbon steel. 2298 mm/m on 20 mm; 1806 mm/m on 25 mm.

The company and products

Yarrows Shipbuilders has been in business for over 100 years manufacturing ships of all kinds. A part of the BAE Company, Yarrows is located on the banks of the River Clyde in Glasgow, Scotland. Their reputation for constructing top-of-the-line military and commercial vessels is unquestioned.

The problem

Yarrows' nine-year-old Hypertherm HT400 plasma systems using nitrogen cutting consumables were badly in need of an upgrade in order to respond to more stringent production requirements and cut quality demands in their industry. The company became aware that nitrogen cutting was resulting in nitriding of the plasma cut edge, making it hard and brittle. Porosity (cracking) on the cut face from the nitriding was undesirable, especially where welding was involved. Follow-up costs for clean up activities were becoming problematic. Additionally, repetitive downtime and maintenance costs were starting to take their toll on the aging plasma system.

The solution

Acting on recommendations made by their cutting table manufacturer, Yarrows was able to easily retrofit their two existing systems with Hypertherm HT4400 oxygen-plasma cutting system upgrades. The procedure took just a few days to complete so downtime was kept to a minimum. Before and after Capex evaluations concluded a dramatic increase in production benefits.

Benefits

A cooperative partnership between the OEM cutting table manufacturer, Yarrows/BAE systems and Hypertherm allowed the realization of production increases, and reduced maintenance and consumable costs.

"The quality of the kerf width of the cut has decreased with less dross on the underside," said Machine Operator James Haffie. "Plus squareness of the edge has improved to less than a two-degree bevel."

- HT4400 retrofit delivered a 15% increase in consumable life and a remarkable 70% increase in cut speed.
- By retrofitting to Hypertherm HT4400 oxygen plasma cutting systems, Yarrows was able to realize impressive results on steel ranging in thickness from 3 mm to 20 mm.
- Retrofitting ended up being the best way to respond to more demanding industry requirements.

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