Applications for Plasma Cutting Technology

Industry: Shipyard, Manufacturing
Equipment: HySpeed® Plasma HSD130

Plasma retrofit increases productivity by 300% at shipyard

- Operating costs have decreased by 30%.
- This purchase was a wise investment.

- For those not ready to upgrade their entire cutting system, consider a plasma retrofit to replace oxyfuel.

The company and products

Established in the 1970's, the JiangSu SuGang Shipyard was a subsidiary factory of the Nanjing Jianghai Group. In 2005, the company broke off and became its own enterprise. With over 1,000 employees, this small to medium-sized shipyard manufactures barges and ancillary equipment. Their flat-bottom boats and related apparatus are used to transport heavy goods, or cargo by way of rivers and canals. JiangSu SuGang's customers are located in Hong Kong and in the surrounding regions. More than 70% of their mild steel cutting is in the thickness range of 10 to 14 mm.

The problem

In the beginning of 2008, JiangSu SuGang purchased 500 acres of land to expand their plant. They wanted to grow internally and were looking to build 12,000 to 18,000 ton cargo ships. JiangSu SuGang had been relying on oxyfuel, but it could not meet their production requirements. They needed to increase productivity and improve their cut quality. They could not keep up with customer orders and they could not take on new business. They were feeling fierce pressure from competitive shipyards, which were using plasma technology.

The solution

Plasma cutting technology was first adopted by the large shipyards in China, and JiangSu SuGang was aware that they needed to upgrade to plasma technology in order to be competitive. JiangSu SuGang did not purchase new cutting machines, but rather chose to retrofit two of their oxyfuel cutting systems. They selected the HySpeed Plasma HSD130 after consulting with their table manufacturer. The HSD130 offers better cut quality with a virtually dross-free cutting capacity on mild steel, and it is more productive and more cost effective than oxyfuel.

The adoption cost of the HSD130 is very economical. This product takes up less space and uses less power, making it quite suitable for small and medium sized shipyards. With the help of their table manufacturer, JiangSu SuGang was able to easily upgrade from oxyfuel to plasma. The HSD130 is also very simple to operate, and an operator can become proficient with basic training.

The benefits

Mr. Zhou, the Director of the JiangSu SuGang Shipyard reported that "productivity has increased 300%," and that "operating costs have decreased by 30%." He added that there was a dramatic improvement in cut quality compared to their oxyfuel cuts, and the need for secondary operations is almost obsolete. Parts can now be used as soon as they are cut, because their cut surface is smooth and dross-free.

Machine operators are always very productive now, according to Mr. Zhou. They are busy loading and unloading parts, or transferring the cut plates to the assembly area. Oxyfuel by comparison, was very inefficient. Plasma cutting eliminates the time needed to preheat metals, as well as the cool-down period that was required for oxyfuel. Machine operators can handle cut parts immediately after they are cut with plasma.

This purchase was a wise investment, according to JiangSu SuGang. In order for the company to win bids for jobs, owning plasma technology is a must. In this industry, it has become common practice for customers to consider a company's cutting technology before agreeing to work with them. These customers will come on-site to make inspections. JiangSu SuGang is very proud of their plasma cutting capabilities.

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