

COPPER CASTING REPAIRS

Using Plating Improve Performance

Using our extensive experience rebuilding and plating copper mold plates and advanced machining technologies, SMS group can expertly rebuild and repair any type of copper casting used in steel production. One example of castings we have successfully repaired is contact pads-shoes, electrode holders, used in ladle metallurgical furnaces (LMFs) and electric arc furnaces (EAFs).

Cost-effective

With copper prices steadily and significantly increasing, worn copper castings that were once readily scrapped are now excellent candidates for repair. Today replating and repairing a worn casting can be an extremely cost-effective alternative to purchasing a new one.

Better-than-welding, better-than-new

Welding overlay repairs have drawbacks. Welding can distort or adversely stress castings and can negatively impact the conductivity of the original copper casting. As a result, castings repaired with welding typically have a service life roughly half of a new casting or a casting repaired with plating.

Compared to copper welding, copper plating can be added to copper parts, up to 5 mm thickness per surface, without thermally distorting



▲ Repairing copper castings using copper plating is far superior to repairs made with copper welding

or stressing them. Copper plating also has much higher conductivity, much lower porosity and is 50% harder than welded copper. In fact, because our copper plating is specially alloyed to improve physical properties, it has higher electrical conductivity and density than the original copper casting.

As a result, copper castings repaired with copper plating perform as-good-as or better-than the original casting. They also last as long or longer than a new casting.



▲ Castings rebuilt using copper plating last as long as the original casting

State-of-the-art precision machining

Because we have both three- and five-axis precision high-speed machining technology, we can accurately and quickly machine repaired copper castings to their original specifications and hold extremely tight tolerances.

To ensure tolerances are accurate, we use custom gauges to check radiused contact surfaces while the casting is being repaired and after machining and grinding.

In addition, we are a fully certified ISO 9001:2008 and ISO 14001:2004 facility that adheres to strict quality and environmental standards throughout the entire repair process.

Comprehensive repair services

All castings are water tested and leaks are repaired as part of their refurbishment. After final machining, we can also silver plate contact surfaces on electrode holders that specify silver plating. We offer a full line of wear and/or heat resistant electroplated and thermal spray coatings which are applied daily in our facility to a variety of copper alloy components.



▲ Machinist precisely indicates the pad surfaces on an electrode holder before final machining

Responsive service

Because we have extensive plating and machining equipment in our facility, we can often reduce the lead time to repair castings, provide faster delivery times and respond quickly to a customer's needs.

Excellent value

To find out more about how SMS group can cost-effectively repair your copper castings so they perform as-good-as and last longer than a new casting, call +1-814-677-9400.



▲ Precision three- and five-axis machining can hold tight tolerances

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