

Dual Plating Workstation for Reduced Process Time

Powell Electrical Systems Inc., Delta/Unibus Division has reduced the process time taken to selectively plate each side of its copper bus bars by 90 percent, saving approximately \$100,000 in labor costs, thanks to a unique semi-automated workstation developed by SIFCO Applied Surface Concepts (ASC), the world's leading supplier of selective plating technology and solutions.

THE CHALLENGE

Copper bus bars play an important role in conducting electricity through distribution networks within the power generation industry and, therefore, need to be manufactured to an exacting standard that permits carrying very high currents across mating bus connections with minimal contact resistance. The industry practice to decrease electrical contact resistance at the mating bus connections is to electroplate them with a suitable material, such as silver or tin, before they are installed in the system.

A typical bus bar has four distinct faces that require silver plating. Prior to installing the semi-automated workstation, this was done manually, one face at a time, requiring an operator to move a hand-held plating tool (anode) back and forth across the surface being plated until the desired silver thickness was achieved. Thickness was often inconsistent because of the manual operation which required the operator to error on the high side tolerance. To complete a bus bar, this operation had to be carried out four times.

CUSTOMER

Powell Electrical Systems Inc.

LOCATION

Cleveland, Ohio

CHALLENGE

Reducing the process time to plate each side of copper bus bars

SOLUTION

Development of a dual plating workstation

RESULTS

Reduction in process time by 90%, saving approximately \$100,000 in labor costs

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THE SOLUTION

Bus bars are a core component in Powell Delta/Unibus' portfolio; therefore the company is constantly looking for ways to improve its manufacturing process. SIFCO ASC and Powell already had an established relationship with Powell using SIFCO Process® equipment and plating solutions. Initial discussions with SIFCO ASC on process improvements identified the potential savings that could be achieved by adopting a semi-automated workstation. Further detailed discussions to better understand Powell's production requirements resulted in the development of the Dual Plating Workstation, which was designed and built by SIFCO ASC.

This semi-automated workstation is the first of its kind for this type of application, which enabled Powell to selectively silver plate both sides of the copper bus bars simultaneously and achieve the desired plating thickness uniformly, consistently and efficiently.

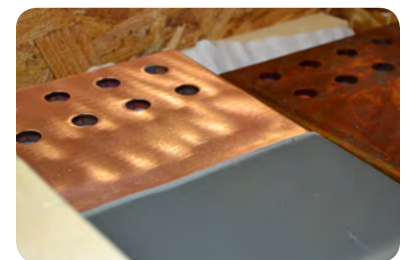
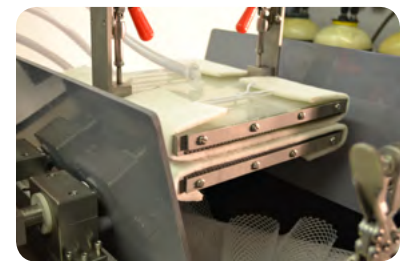
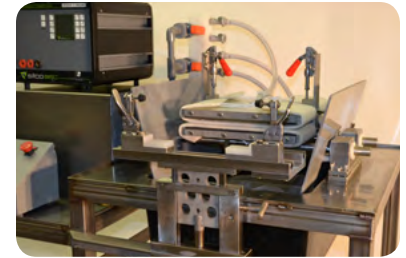
The new semi-automated workstation is 90 percent faster at plating a bus bar than the original manual application, reducing the process time from 21 minutes to just 2 minutes. These calculations translate into approximately \$100,000 worth of labor savings annually when Powell Delta/Unibus is operating at full capacity. The efficiency gains and savings achieved have prompted Powell to purchase a second machine.

THE RESULTS

Jessica Heuel, Quality Assurance Engineer at Powell explains: "The whole copper bar processing line has multiple potential bottlenecks as do all manufacturing processes. Being able to significantly reduce the plating operation time has helped remove electroplating as a potential bottleneck in our process, which allows the workers to assemble the bus duct much faster."

Jessica adds: "We are extremely pleased with the results of this project as it has vastly improved our business. The experts at SIFCO ASC are very good at understanding our processes and what we are trying to achieve rather than just being concerned with developing their own business by selling us product. Not only have they devised a solution that saves us time and money, but in fact it has improved the quality of our plating process as well."

Lee Shelton, Managing Director of SIFCO ASC concludes: "This was a special project for SIFCO ASC that we are extremely proud of. We have worked with a number of companies to develop custom workstations, but these two are the first of their kind. We always endeavour to partner with our customers and create solutions that will be beneficial in the long-term."



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