# Press Release

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## A Coup in Copper

### TRUMPF securely welds copper sheet metal using disk lasers

There seems to be no limits on the disk laser's capabilities. What experts had previously held to be an extremely difficult task, TRUMPF was able to pull off recently in a one-time experimental setup. Laser specialists were able to weld copper sheet metal five millimeters deep with a combination of disk lasers of varying laser power. No one had ever been able to do this before. As a highly reflecting material, copper is extremely difficult to weld. In most cases, undesirable side effects occur, including blowholes in the weld seams.

The specialists at TRUMPF connected together three disk lasers with 4 kW, 6 kW and 8 kW laser output using a special fiber coupler in the application lab. Over 16.5 kW were brought onto the workpiece. The resulting welding speed of 1.8 m/min stabilized the extremely dynamic melt pool common to copper. The sheets, each measuring 3 mm in thickness, were welded together 5 mm deep as an overlap join with excellent seam quality. For this experiment to be both secure and successful, the disk lasers had to be finely synchronized, an accomplishment ensured by the TRUMPF Laser Network (TLN).

Whether this welding application is ready for mass production depends greatly on the welding speed and the chosen focus geometry. More powerful lasers, such as those offered by TRUMPF beginning December 2006, permit even greater welding speeds and an expanded process window with consistent seam quality.