

DEEP, NARROW WELDS AND HIGH TOLERANCE WITH LASER WELDING

"TIG welding was simply insufficient – it produced wide welds over several passes with large deformations."

Brogren Industries has a very modern machine park and skilled staff. The guiding principle for Brogren Industries is the provision of high quality machined parts to customers within the industry. Over the years the company has supplied components with machined and TIG welded parts. Today, Brogren is a successful supplier within the gas turbine and aviation industries.

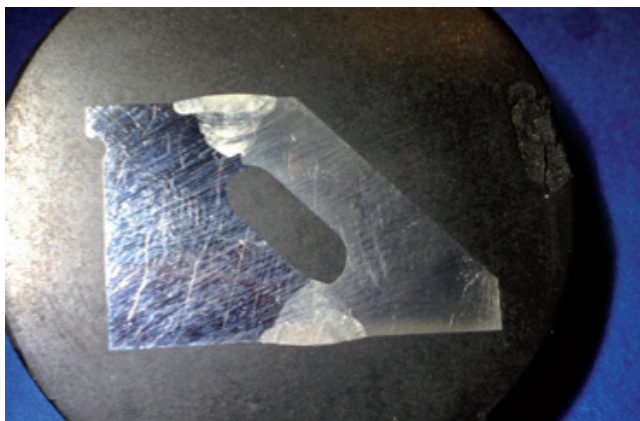
What were Brogren Industries' requirements and what challenges did they face?

During testing for one of Brogren's customers, Siemens, deep, narrow welds were required with high tolerance demands on penetration and positioning. Brogren noticed that TIG welding was insufficient, as it produced welds over several passes. This resulted in great heat exposure and deformations. Neither could the TIG station meet the increased demands of automated production. Brogren noticed that the same demands were faced by another potential customer, GKN Aerospace, for larger components.

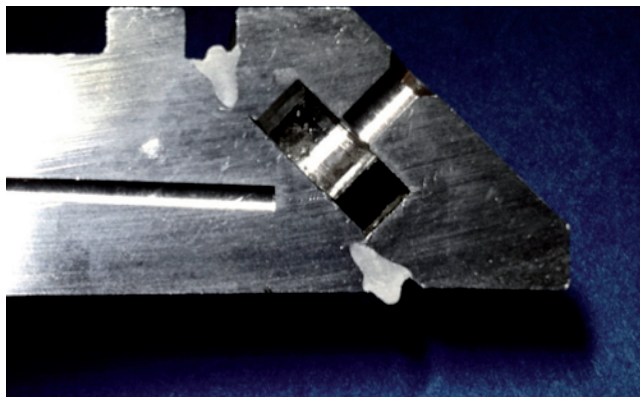
What solution did Permanova suggest?

Laser welding tests showed that the higher power density gave a greater welding speed than TIG welding. The welds became narrower and deeper, allowing one pass. Heat exposure was reduced (image 2). In addition, corresponding tests with several advanced materials from GKN Aerospace showed the same positive result. Brogren Industries therefore invested in a flexible laser station from Permanova, with sufficient laser power, laser welding tools and other equipment to meet the demands of the customers.

1. TIG welding was insufficient, as it produced wide welds over several passes.



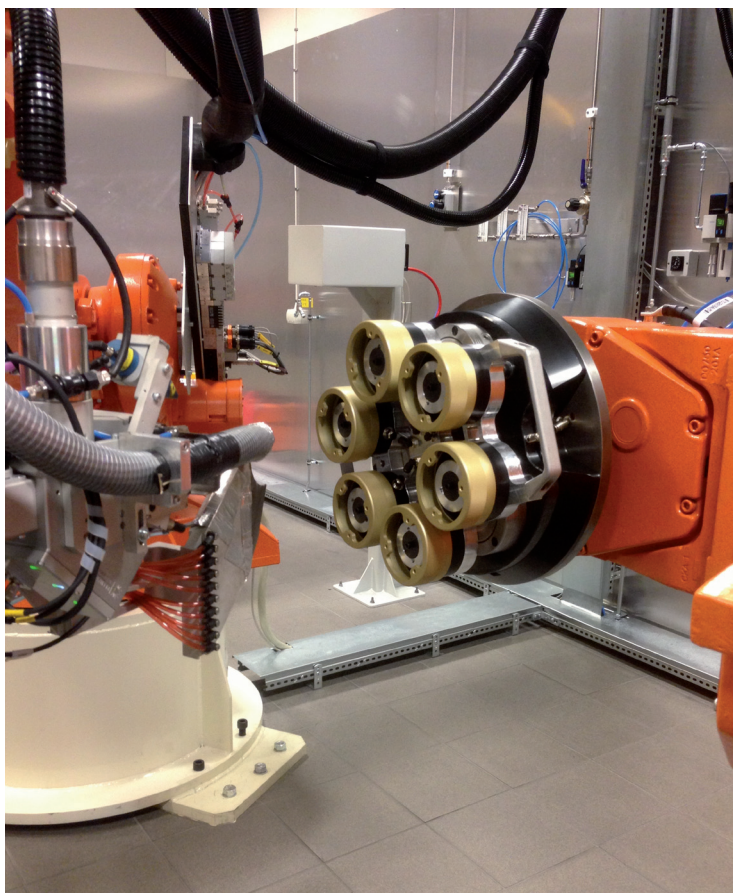
2. Narrow and deep welds are a result of minimal heat exposure.



Lots of improvements for Brogren Industries

- Sufficient laser power, laser welding tools and other equipment that meets the needs of the customers.
- Unique skills create great flexibility for different tasks in the future.
- The laser welding's higher power density gives deeper welds with minimal heat exposure, which means small deformations and high levels of dimensional accuracy in the end customer's product (image on front).

3. A flexible laser station from Permanova.



No process or production is too great or too small for laser.

Permanova has supplied turn-key laser robot systems for the sheet metal industry for over 25 years. Each system is optimally designed to make the customer's production more efficient and profitable. Our goal is to always find long-term solutions that enable you to develop your business according to new demands. To assist us with this, we have more laser experts than most of our colleagues in the industry. As a customer you get access to accumulated experience and deep knowledge of the technology.

With Permanova as a complete supplier within laser solutions you have everything in one place. From the drawing board to installation and service. It does not get easier than that.

Are you curious to find out how our laser solutions can raise your production to new heights? Contact Permanova! We will happily share our knowledge and experience.

Permanova Lasersystem AB

Krokslättis Fabriker 30, SE-431 37 Mölndal, Tel: +46 31 706 19 80, Fax: +46 31 86 46 12
E-mail: info@permanova.se, www.permanova.se

