Trillmich · Welz

Stud welding

Principles and application

Translation of the German 2nd, revised edition

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Preface to the 1st German edition

In the 1940s, stud welding began to make its way into industrial production. Today, millions of studs are welded onto metal surfaces every day. In some cases this is done manually, using gun-type, semi-automatic appliances, but increasingly with fully automatic welding systems, which also include robots.

Some of the advantages offered by this technology are:

– a cross-sectional weld with access to the workpiece from only one side,
– a fast welding process and consequently high cycle rate,
– a high quality standard and good reproducibility of the weld,
– a wide range of different applications,
– a wide range of appliances with varying levels of mechanisation and industrially produced welding elements.

In these high-performance processes, however, many influencing variables must be observed. Therefore stud welding requires knowledge and experience. The purpose of this reference book is to offer assistance in this area. To this end, the information given covers every aspect from historic development and basic principles to equipment technology, manufacturing processes for various applications, quality management and the relevant regulations. We would ask readers to understand that some aspects are mentioned several times, in order to help readers interested only in certain aspects to find their way to related subjects more easily.

Meinerzhagen and Krailling, August 1997 R. Trillmich and W. Welz

Preface to the 2nd German edition

The reference book “Stud welding” has been well received among experts ever since its first publication and has thus fulfilled a long-standing demand for a comprehensive description of stud welding technology. Extensive amendments to welding technology regulations and further development of the equipment have now made a revision necessary. My co-author, Dr. Willy Welz, passed away in 2010, so this revision had to be accomplished without his professional support. In addition to individual experts, I must thank Committee for Stud Welding of the DVS German Welding Society for their active and comprehensive support. All contributors are listed following the table of contents.

At the same time I would like to take this opportunity to acknowledge the significant contribution of Dr. Willy Welz to the scientific research of stud welding technology. Without his numerous studies and publications, this reference book could not have been created in its present form.

Meinerzhagen, December 2014 R. Trillmich

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