Modern welding technology

By Howard B Cary

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For courses in Basic Welding and Welding Technology. This well-respected, introductory welding text contains coverage of the latest codes, materials, and processes necessary to become proficient in an ever more complex industry. The technology of welding is growing and the book's focus on arc welding processes and the use of steel in construction reflect those changes-while continuing to provide a comprehensive coverage of basic principles and theory.

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Modern welding technology By Howard B Cary Bibliography

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Editorial Review

From the Back Cover

Here is a new edition of the classic text/reference in the area of introductory welding. This unique combination of theory and practice will provide readers with a strong foundation for success in both the field and in further study of welding, metallurgy, manufacturing design, and more.

KEY FEATURES OF THI EDITION:

- A new section on underwater cutting.
- Chgapter 1, "Surveying the Welding Industry," has been updated and rewritten.
- New and revised American Welding Society definitions have been added.
- Water jet cutting and automatic shape cutting have been expanded.
- Robotic welding and computer control systems have been updated to reflect the latest technology.
- New coverage of packaging filler materials.
- Computer Aided Design and its use in finite element analysis has been added at an elementary level.
- New reference section reflect the latest industry specifications.
- New and replacement illustrations provide a more modern look.

Welding continues to be the preferred method of permanently joining metal parts. As welding becomes more computer-driven, the technology becomes more complex. Worldwide, welding continues to grow, and that growth is dependent upon the growth of the steel and other metal industries. In the United States, a major change has been replacing the old-faithful stick welding, used for so many years, with wire welding.

The need to improve weld quality and reduce welding costs continues unabatedly This is the highest priority because of improved materials and fabricating methods. Semi-automatic welding has largely replaced manual welding, and automatic and robotic welding are being widely accepted in the industry. Adaptive control is rapidly becoming more widely used. More powerful computer controls and more rugged sensors are becoming popular. All of this has helped take the human welder farther away from the arc and fumes, and helped clean up the welder's environment.

Welding power sources have experienced a revolution. The faithful motor generator welding machine is almost extinct. The buzz box transformer welding machine is extinct. These have been replaced by the new inverter power source, which offers many advantages. The inverter is smaller, lighter in weight, and very controllable; with new features it is becoming accepted for most applications.

Some welding processes have become more popular and others more refined. For example, the laser is more widely used, especially for cutting, and a new process, stir friction welding, is starting to be used to join aluminum for automotive and space applications.

Throughout the world many new alloys are being developed. Metals compete with plastics, composites, ceramics, and any material that will serve the need. The end result is the most economical material for a given application. Many new steels and alloys are being welded today, including higher strength thermomechanically processed steels. Steels with lower carbon and lower impurity elements are available

with high strengths based on the particular heat treatment. New steels for high-temperature applications have been developed. New grades of stainless steel that combat corrosion are appearing. New aluminums containing lithium and other elements are being utilized in the aircraft industry. Nonmetallic materials are advancing. Plastics have been greatly improved, and there are now composite beams available to build bridges. Ultimately, the most suitable material for the lowest price will be used for every application. The welding industry will determine the welding method.

Welding education and training are changing. Today there is less emphasis on skill training for stick welding, but more emphasis on technology training. We must be able to select the proper application of welding to increase productivity. A more thorough understanding is needed. That is the purpose of this book.

A major breakthrough has been accomplished by the joint American Welding Society (AWS) and the Welding Research Council program for providing the optimum way to make a quality weld. Standard welding procedures have been issued that show the preferred way to make a particular weld. This should greatly reduce welding costs since it saves the expense of duplicating qualifying procedures and allows the portability of welding credentials. It is a great step forward.

The American Welding Society continues to make welding-related occupations more professional. By standardizing the qualification and certification of personnel, public confidence in welding will increase. AWS has become the welding authority in the United States and is providing ways to educate welding inspectors, teachers, technicians, and engineers. This is done through increased training, testing, and certification of knowledge, based on proficiency testing.

The original concept of this book has been maintained, with emphasis on the arc welding processes and the use of steel for industrial and construction uses. The book still follows faithfully the standards, codes, and specifications provided by the AWS. It allows the reader to keep up-to-date as welding technical information and technology improvements advance. Truly, the industry is moving rapidly, and the welding is improved and more productive.

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Users Review

From reader reviews:

Stuart Ross:

The book Modern welding technology can give more knowledge and also the precise product information about everything you want. Why then must we leave a very important thing like a book Modern welding technology? Several of you have a different opinion about publication. But one aim this book can give many info for us. It is absolutely correct. Right now, try to closer with your book. Knowledge or data that you take for that, you can give for each other; you are able to share all of these. Book Modern welding technology has simple shape but you know: it has great and large function for you. You can look the enormous world by available and read a book. So it is very wonderful.

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