

Butt and Flash-Butt Welding

Key Words

- Butt Welding
- Flash butt welding
- Current
- Frequency
- kVA
- Pressure

Introduction

This article is all about the resistance welding method for Butt and Flash Butt Welding.

Overview of Article

This article is beneficial to MTI as it explains the two methods of these two resistance welding techniques. The technology is not that common in industry currently but is still widely used in many manufacturing industries.

Evaluation

The focus of this article is on how these two resistance welding methods work and the differences between them. These are two different methods of welding but are almost produced in the same way. The main differences are:

Advantages of Butt-welding:

- Fast process
- Ease of parameters control (only current, time and force).
- High quality, absence of typical fusion defects.
- Metallurgical properties comparable to those of hot worked material.
- Simple, sturdy and reliable equipment.
- Tolerance for minor alloy deviations.
- Large selection of materials, including difficult to weld ones.

Limitations of Butt-welding:

- Equipment generally suitable to one type of applications only.
- Peak current drawn from power line.

Advantages of Flash-Butt Welding:

- Economical in operation and in the use of metal.
- Suitable for mass production.
- Unskilled workforce needed.
- Strong welds obtained.

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- Good fatigue properties available.
- No special symmetry requirements (different from for Friction welding).

Limitations of Flash-Butt Welding:

- Removal of flash required (same as for Friction welding).
- Process may affect or remove locally any strain hardening (cold work) properties.
- Heat treatment after Flash-welding may be needed to develop full properties.
- Costly maintenance of equipment due to flashing.
- Fire hazards present.
- Electric power and upsetting force in available equipment limit the weldable size.
- Heat unbalance from different materials may cause upsetting problems.
- Shunt effect for closed rings rolled and flash welded may need attention.
- High accuracy alignment is required.

Conclusion

The article gives the reader a full summary of these two types of resistance welding.

This is useful to MTI because the article discusses two resistance welding technologies that are still widely used throughout a range of industries.