**Cover Letter**

*Authors' presentation.*

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*Description of the novelty and importance of the findings detailed in the article.*

Compared to traditional welding methods, laser welding produces narrower weld beads, allowing for better prevention of corrosion and thermal distortion.

Although the process already has a high degree of industrial knowledge, some random defects, such as porosities and inconsistencies, are verified. This article presents a systematic study to determine the influence of process parameters on welding defects.

*Declaration*

*Conflict of interests*

This article has no conflicts of interest and no research funds and all experiments were paid for with the authors involved. The experiments were carried out in public universities in Brazil, so it was not necessary to pay for the machines' service hours.

*Informed consent*

ALL authors give consent for the publication of this article, without conflicts of interest.

*Ethical approval*

Normative Ordinance No. 49/2015/GR- UFSC, Santa Catarina, Brazil.

*Contribution*

Everyone involved contributed in a very significant way, from researching the theoretical framework, purchasing material, running the tests and analyzing the results.