Research

Dr. Aiman invents laser brazing connection innovation

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Pekan, 12 November 2020 - A researcher from the Faculty of Mechanical and Automotive Engineering Technology (FTKMA), Universiti Malaysia Pahang (UMP), Dr. Aiman Mohd Halil, 32 has carried out a research project to improve the quality of brazing joints and reduce the cost of fabrication by implementing material surface texturing technology using laser before the brazing process.

This Johor-born who received his doctorate degree at Osaka University, Japan, started conducting this study since 2017.

“This study is still in the process of further development and improvement.

“The original idea of this study started when the faculty bought a laser machine under the management of Professor Dr. Mahadzir Ishak.

“With the availability of the laser machine in the faculty, I see great potential to combine laser technology with the brazing study I am conducting,” he said.

He said the basic mechanism for this technology is to implement the texturing process using laser on the surface of a material to be connected by brazing technique.

“The optimum surface texture will result in a stronger and better quality material connection.

“With improved connection strength, the materials used for the connection process can be reduced and optimised.

“Therefore, the overall fabrication cost can be reduced,” he explained.

Dr. Aiman added that the implementation of this technology can also solve problems in the manufacturing and fabrication industries.

“It can save and reduce the cost of materials and at the same time, will improve the quality of the manufactured products.

“Currently, continuous research will be conducted to further enhance the effectiveness of this technology to the relevant industries.

“The main funding for this project comes from grants from the Ministry of Education Malaysia, RDU192608 (RACER/1/2019/TK03/UMP/3) and UMP, RDU1903118,” he said.

He also said that the project also received the support and assistance from Professor Tadashi Ariga, Tokai University, Japan and the materials supply from Kotaro Matsu, Tokyo Braze Co. Ltd., Japan.

“The implementation cost for this technology depends on the level of implementation of the existing process.

“The implementation can also be done in stages to further reduce the cost of this technology.

“In addition, some products and technologies are still in development and planning, especially related to brazing technology and laser material processing.

“Applications for funding for this project have been made through UMP grants, namely Product Development Grant (PDU) and Flagship (Made in UMP) Grant,” he said.

This project entitled Enhancement of Brazing Joint Strength by Laser Surface Texturing also won a gold medal and first place for the Best Invention in Manufacturing Award in the Creation, Innovation, Technology & Research Exposition (CITREx) 2020 organised by UMP.

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