Medical Graphics and Robotics develops rapid manufacturing method of arm braces

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Based in the Brussels region, Medical Graphics and Robotics (MGR) specialises in the manufacture of medical equipment and accessories. The company now aimed to develop a new method to manufacture medical arm braces with a very short lead time. For this project, MGR partnered with Swibrace, a Switzerland-based company. MGR also contacted Sirris to conduct technical feasibility studies.

Two phases

The project was split into two phases. In a first stage, the proof of principle of a new brace manufacture method was tested, using plastic moulds. Following the successful completion of phase 1, the project partners conducted an in-depth study of methods to shorten the production time. The moulds used to make the braces were produced based on very conservative parameters, therefore requiring several hours to complete the process. Sirris studied the various mould materials extensively and determined the optimum machining conditions. The quality of the end product, the arm braces, was evaluated to compare the surface quality of the various moulds. The result was a reduction in total processing time from 12 hours to 90 minutes.

3D printing of moulds

Sirris studied new methods to manufacture the moulds using 3D printing technology. New printing strategies were adopted to shorten the total printing time for the moulds. Ultimately, the product printing time was reduced to less than 30 minutes. The results proved very useful and a few follow-up projects are being planned for further research into other mould options and strategies. A new proposal for a project under the Eurostars programme is being drawn up to industrialise this novel methodology. Sirris will also assist in this new project, taking on the role of technology partner.

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