

# BIOENGINEERING AND MEDICAL-SURGICAL SCIENCES

## PNRR Ammin/Corcym - Development of new production processes used for the production and control of heart valves

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| <b>Funded By</b>                        | CORCYM S.r.l. [P.iva/CF:11515960968]<br>Politecnico di TORINO [P.iva/CF:00518460019]   |
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| <b>Contact</b>                          |  |
| <b>Context of the research activity</b> | <p>Development of new implantable cardiovascular devices specifically designed for the minimally invasive implant technique.</p> <p>Progetto finanziato nell'ambito del PNRR - PNRR M4C2, Investimento 1.5 - Avviso n. 3277 del 30/12/2021 - ECS00000036 Nord Ovest Digitale E Sostenibile (NODES) - CUP E13B22000020001</p>   |
| <b>Objectives</b>                       | <p>As part of the development of new implantable cardiovascular devices specifically designed for the minimally invasive implant technique, we want to test and implement new production processes aimed at:</p> <ul style="list-style-type: none"> <li>• Use new materials for medical use, intended for long-term implantation, such as PEEK and Nitinol;</li> <li>• Minimize the use of chemical solutions, to reduce the amount of ultrapure water used to prepare and remove them, and reduce the amount of substances to be disposed of: "dry" polishing systems without the use of acids, storage systems and processing with dry pericardium ;</li> <li>• Increase device safety, using control systems based on artificial intelligence to minimize errors deriving from the human effect: dimensional control systems based on laser technology and visual/functional control systems based on AOI imaging diagnostic technology (Automatic Optical Inspection)</li> <li>• Increase the reproducibility of the device, through the use of pericardial laser cutting/ablation systems and through the use of automatic or semi-automatic stitching systems;</li> <li>• Definition of thermal stabilization processes for Nitinol components (thermoforming)</li> </ul> <p>The fields of study include, depending on the activity, both the involvement of third-party companies and the development entirely within Corcym.</p> |
| <b>Skills and competencies</b>          |  |

**for the  
development of  
the activity**

Laurea Magistrale in Ingegneria Biomedica