

HSD Mechatronics launches the Electrospindle 4.0 project with a dedicated event.

The interconnected electrospindle of HSD Mechatronics, the first Italian medium-sized company to become a Lighthouse Plant of the Smart Factory Cluster, is the first of a new generation of innovative Zero Defects products.

A Deegree Course in Engineering for industrial eco-sustainability for the development of new skills has been announced as part of the project.

The company is part of the Biesse Group, based in Gradara (Pesaro and Urbino), and has a turnover of Euro 80 million. It is regarded as a leader in mechatronics and automation. It is the world's second largest manufacturer of electrospindles: advanced devices for machine tools intended for machining wood, metal, composite materials, glass and stone.

Pesaro, 16 June 2021 - Following the official announcement by the Minister of Economic Development Stefano Patuanelli of its appointment as Lighthouse Plant of the Smart Factory Cluster for the super-innovative Zero Defects Manufacturing project, HSD Mechatronics - presents the **Elettrospindle 4.0** project. The interconnected electrospindle represents a challenge in the realisation of **a new generation of innovative products**, and a **prototype zero-defect production line**. It is based on collecting and using data from products and production processes to detect defects at any level and thus provide optimal use and project models.

Through a coordinated action on the territory, HSD Mechatronics will involve two academic realities, the Polytechnic University of Marche and Sapienza University of Rome, and an SME, EN4 of Perugia, to concretely test the Light House Plant project even in its planning phase. The objective behind the involvement of these realities is to launch an innovative territorial industrial ecosystem in favor of SMEs and of training organizations to promote the creation of advanced digital skills in all the areas of interest: a virtuous circle that is not meant to be limited to innovative products or factories but that should have an impact on the entire supply chain, also promoting the skills and professionalism of those who will work with these products. And, in this regard, a new three-year Degree Course in Engineering for Industrial Eco-sustainability has been introduced. The Course will be launched by the Polytechnic University of Marche in 2022 in collaboration with HSD and other local companies, proving the strong bond that links the company to the territory and the academic world. The Degree Course will be based in Pesaro/Fano with the objective of training an industrial engineer capable of designing and manufacturing eco-sustainable and energy-efficient products and production processes, which are strategic drivers for the design of goods and services of the coming years.

Fabrizio Pierini, HSD Division General Manager, said: *"For HSD, the goal of this very valuable project is to create a digitised, interconnected, smart, resilient supply chain focused on quality and time-to-market. This is why the Lighthouse Plant aims to become the first Zero Defects Lighthouse Plant, a centralised control room able to detect defects at any level of construction and operation and provide optimal models. So it is about openness and*

sharing of know-how, information and data in a win-win logic in which the winners are customers, suppliers, the company and the local system. In so doing we aim to make our small contribution to the entire country system".

Luca Manuelli, President of Cluster Fabbrica Italiana added, *"With HSD's new Lighthouse Plant, the Smart Factory Cluster (CFI) reaffirms its mission to accompany the evolution of Italian manufacturing industries towards the next technological frontiers that are essential for our competitiveness. As part of this the mission of demonstrator is entrusted to other smaller top-level Italian companies, after the large companies with which the Cluster launched the first generation Lighthouse Factories. Moreover, this project is closely connected to the themes of resilience, digitalisation and industrial sustainability, which are the cornerstones of the CFI's vision of Producing a Resilient and Sustainable Country in the scenario addressed by the PNRR. We can see this in the focus on applying new digital technologies to move towards a "Zero Defects" model that implies less waste and reusability of a component or asset in a second life in a fully sustainable logic. Also, in this initiative, the Cluster will provide its support to HSD to encourage the development of a collaborative ecosystem in the logic of the Supply Chain and Open Innovation".*

The event was held digitally and featured high-level speakers who explored the following topics: "Zero Defects" for a Sustainable and Resilient Country; the End-to-End supply chain and the "Zero Defects" development of SMEs; Artificial intelligence and machine learning for zero defects.

The project, which will impact on three HSD product families, is divided into 11 implementation objectives for the study of innovative products and production processes integrated with the supply chain, interventions on product sustainability, Artificial Intelligence and Machine learning.

Through a coordinated local action, HSD Mechatronics will involve **two academic institutions**, the Polytechnic University of Marche and La Sapienza University of Rome, and **an SME**, EN4 of Perugia, to test the Light House Plant in a practical way even in the design phase. The aim of involving these institutions is to launch an innovative territorial industrial ecosystem for SMEs and educational bodies to promote the creation of advanced digital skills in all areas of interest: a virtuous circle that does not stop at the product or at the innovative factory, but that reflects on the entire supply chain, also acting on the skills of the people who will work with these products.

Press information

HSD S.p.A.

Hsd Mechatronics (part of Biesse Group) is a leader in designing, manufacturing, and selling electrospindles and technologically advanced components for processing metal, alloys, composite materials and wood for manufacturers in the automotive, aerospace, consumer electronics, robotics, and furniture & building sector. From an 8,000 square metre manufacturing facility designed in keeping with the principles of just-in-time production, the company develops 4.0 ready technology that enables customers to take hold of the benefits and opportunities offered by the fourth industrial revolution. It operates through the Headquarters in Italy and four proprietary branches located in the primary markets aiming to provide an immediate and highly qualified service.

BIESSE S.p.A.

Biesse Group is a multinational leader in the technology for processing wood, glass, stone, plastic and metal. It designs, manufactures and distributes machines, integrated systems and software for manufacturers of furniture, door/window frames and components for the construction, shipbuilding and aerospace industries. The company invests 4% of its annual revenue in research and development and has registered over 200 patents. It operates through 12 industrial sites, 39 branches, 300 agents and selected dealers, exporting 85% of its production. Its customers include some of the most prestigious names in Italian and international design. Founded in Pesaro in 1969 by Giancarlo Selci, it has been listed in the STAR segment of the Italian Stock Exchange since June 2001. It currently has 4000 employees in cities throughout the world.
www.biessegroup.com

EN4

EN4 was founded in 2006 as an academic spin-off of the University of Perugia. The experience acquired in the research field immediately allowed us to take a rigorous and scientific approach to the problems related to the test.
We are a young company, with an average age of less than 40 years and a staff of 12 people. We develop test benches for automotive, manufacturing, mechanical and electromechanical industries, both for R&D and end-of-line applications. By following the entire product development process, from hardware design to small scale prototyping, from software development to producing the final solution, EN4 can customise its products to meet the customer's needs best.

Polytechnic University of Marche

The Polytechnic University of Marche-UNIVPM is one of the leading universities in Central Italy for teaching, research and technology transfer. Its 12 Departments cover topics ranging from Industrial Engineering to Environmental Sciences, through to Medicine, Agriculture and Economic-Social disciplines. UNIVPM has eight Departments of Excellence according to the latest assessments of the Ministry of University. Among the most important research areas for the industrial sector are Lean manufacturing technologies, additive manufacturing, eco-sustainability of products and processes, renewable energies, composite materials, virtual and augmented reality and much more. The laboratories of the UNIVPM Departments are equipped with innovative systems for all the areas mentioned. The Department of Industrial Engineering and Mathematical Sciences (DIISM) will be responsible for coordination in the present project.

Sapienza University of Rome

Sapienza University of Rome is among the oldest in the world, founded in 1303 by Pope Boniface VIII. Currently, with over one hundred and ten thousand students, it is the largest university in Europe. La Sapienza has eleven faculties plus the school of Aerospace Engineering, over 60 departments, twenty-one museums and fifty libraries. international universities. Recently, the QS World University Ranking 2022 (published on June 8, 2021), places Sapienza among the top 200 universities worldwide. In the same ranking by subject areas, Sapienza is among the top 100 world universities for Computer Science and Mechanical Engineering.

The Antonio Ruberti Department of Automatic and Management Computer Engineering, whose birth was promoted by Antonio Ruberti, eminent scientist, Rector of Sapienza and then of the University and Scientific Research and European Commissioner for research, education, training and della youth participates in the project for the topics of artificial intelligence, Industry 4.0, Big data management, and software engineering.