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5-axis machines deliver precise 3D contour of blow moulds

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Source: Stark

What is the secret of the success of Portuguese mould makers?

Alexander Stark

The Portuguese mould making industry has been growing and has consolidated its market position as No. 8 in the world over the past years. One of the secrets to the success of the industry is its willingness to cooperate, a visit to this year’s Moulds Event revealed.

Info

The Portuguese Engineering & Tooling Industry Cluster is spearheaded by the Pool-Net Association since 2008. It represents the industry both in Portugal and internationally.

www.toolingPortugal.com

Portugal is one of the world’s leading manufacturers of moulds, particularly in the area of injection moulds for plastics, where it is positioned as No. 8 worldwide and 3rd in Europe. A staggering 90 percent of the total production is exported and all major European car manufacturers rely on moulds made in Portugal. What makes the country’s mould making industry so successful? Apart from the innovative spirit of the many SMEs it’s their willingness to not only face competition but also to cooperate.

Exchanging common experiences and finding a strategy for maintaining the mould making sector in Europe, were on top of the list at the Moulds Event, organised in late November 2021 by Pool-Net, a Portuguese cluster organization with around 100 member companies, together with Cefamol, Portugal’s National Association of the Mouldmaking

Industry and Centimfe, a non-profit Public Utility institution. During the Moulds Event, the Open Days also took place between 23 and 25 November. Within the scope of the CIP_2022 Project, which aims to promote the common brand ‘Engineering & Tooling from Portugal’ internationally, visits were organized to 16 companies of the Cluster, in Oliveira de Azeméis and Marinha Grande, where international and local journalists — including ETMM — were present.

In the global mould making industry, Portuguese manufacturers remain a force to be reckoned with. High-tech machining equipment, customer-oriented development departments and an experienced workforce are a hallmark of the country’s industry. In view of the competition from China, Europe would be well advised to adopt the Portuguese example of strategic cooperation.

The country's mould making industry plays a central role in Europe and in the international market, integrating large value chains to support global clients (OEMs and 1st Tier Suppliers) from more than 80 countries in the world. The Portuguese Engineering & Tooling Cluster streamlines the efforts of the industry to be ahead of the competition. The industry can thus draw from an extensive experience.

Concentrated in Marinha Grande

The mould making industry in Portugal began in the 18th century, when Marinha Grande and Oliveira de Azeméis, two towns less than 150 km apart, grew into important glass-making centers. Mould making for glass evolved into mould making for plastics in the 1940s. This development resulted in a horizontal cluster, involving cooperation and networking between companies, research, institutions and training facilities. The flow of workers between the firms, spin-offs and experienced workers establishing their own companies helped spread qualifications, skills and knowledge throughout the sector. Today, the companies are at the cutting edge of the technology level and at the forefront of the global mould and tool making industry. The mould-building portfolio of Portuguese firms ranges from simple, single cavity moulds to highly complex tools with several cavities. In the field, of highly complex, multi-cavity moulds for precision components and advanced tool, the industry claims to be leading in the world. To maintain their quality standards, the companies rely on the know-how of organizations such as Cefamol and Centimfe, which provide technical support and training as well as laboratories and other facilities.

Portugal supplies tools for producers of automotive and household goods, telecommunications and office equipment, electronic appliances, cosmetics, pharmaceuticals and packaging. Since the 1990s, the automotive industry has increasingly showed a preference for Portuguese engineering and today accounts for about 70 percent of total sales. The main markets are Germany, the USA, Spain, the UK and Scandinavia.

The investment in modern machine parks and the application of high-end technologies is another



Large tools — such as for car bumpers — are a speciality of Portuguese mould makers.

Source: Pool-Net

feature of the industry. In the 1980s, Portuguese firms transformed themselves from labour-intensive to capital-intensive enterprises, focusing their efforts on high investments. For instance, the Portuguese industry is among the most advanced in the world in the use of additive manufacturing technology, a priority for the sector in terms of investment, research and training. This is reflected in the country's National Rapid Prototyping Network, which uses information technology to link companies, research institutes, universities and technological centers across Portugal. Because additive manufacturing technologies enable physical models to be produced within hours or days, rather than weeks, time-to-market is accelerated and costly retooling after the mould-building stage avoided. Metal additive manufacturing is used to produce moulds from which short runs of the final product can be injection moulded. This enables the rapid testing of mould design, mould flow and the injection process so that corrections can be made before the production mould is built.

The small and medium companies are one of the cluster's strengths, as it involves high customer dedication, reliability and productive flexibility. To continue to grow and adapt to a competitive global market, the private sector and universities are investing an estimated 50 million Euro on R&D projects. Modernisation through Industry 4.0 technology and sustainable practices are a crucial element of the sector's growth plans. To save their customers time and money, Portuguese companies offer an integrated package from design all the way through to assembly and trial injection runs. Most leading Portuguese firms run their own injection machines so that moulds can be fully tested and modified when necessary, before shipping.

The strategy to offer not just moulds but complete concepts seem to pay off. With the transformation of the automotive industry, the companies are facing new challenges, but high-quality tools from Portugal will without a doubt be needed for electric cars.

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Source: Poolnet

Portuguese companies have gained international recognition for their skills in realising their customers' requirements, building a reputation as a versatile and technologically advanced partner.