



Customer Spotlight Aerospace

Investing in Total Solutions UmbraGroup

With the implementation of ESPRIT CAD/CAM software the UmbraGroup was able to advance the entire production process of manufacturing high quality ball screws, electromechanical actuators, electro-spindles and milling heads.

Industry 4.0 is here and companies today research the most advanced technologies to manufacture their products, however certain sectors, such as aeronautical, use these technologies as just a starting point for achieving manufacturing excellence.

Aircraft manufacturers, and their technical partners must be ready to accept every challenge in today's world to achieve their goals of producing the highest quality products from simple to complex in the most efficient way possible.

Since 1972 Umbra Cuscinetti S.p.A. has been a valued partner to the aeronautical industry, and has grown over time to become a world leader in the design and manufacture of ball screws for the Aerospace industry. Umbra also manufactures electric

spindles, milling heads and electro-mechanical actuators for both aeronautical and industrial applications. Umbra's growth has transformed their parent company located in Foligno, Italy to the multinational, UmbraGroup, with four offices in Italy, Germany and the United States, employing over a thousand employees worldwide.

Most of Umbra's employees are located at the Perugia factory in Italy, dealing with the

design and manufacturing of ball screws, ranging from 10mm up to 10 meters in length, mainly intended for applications in the aviation field. This was the first target market for Umbra, and they became the first manufacturer in the world (in the field of aeronautical screws) to make this particular part.



"We export, with pride, more than 90 percent of what we produce here in Foligno, Italy to every airline in the world. Every airplane with over 100 seats has at least one component inside it that has been made in our factory.

"ESPRIT CAM software provided us with everything we needed to run our advanced machine tools..."

-- Gianluca Mercuri, Turning & Milling Specialist at Umbra Cuscinetti, Italy

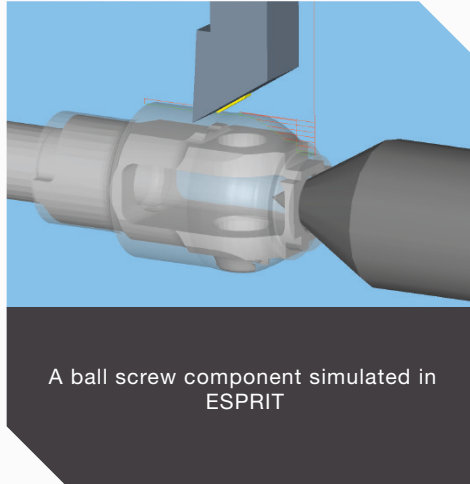
This is also thanks to the will and passion of our founder, Valter Baldaccini, who made this important growth possible," says Angelo Radicioni, Production Manager at Umbra Cuscinetti.



Gianluca Mercuri, Milling & Turning Specialist and Angelo Radicioni, Production Director, Umbra Cuscinetti

In today's production departments, digital drawings are usually provided but the list of tools and CNC programs for manufacturing the simplest components are still manually developed, with more complex parts being machined using a CAD/CAM software system. "The goal we set for ourselves was to implement a CAM solution

for even the easiest parts, usually used for more complex operations, to provide us with the total cycle time to determine the overall efficiency of our processes." - explained Mauro Trasciatti, Production Supervisor. Umbra decided to implement ESPRIT CAD/CAM software by DP Technology, for their innovative improvements in CNC programming speed and increased productivity on the shop floor.



A ball screw component simulated in ESPRIT

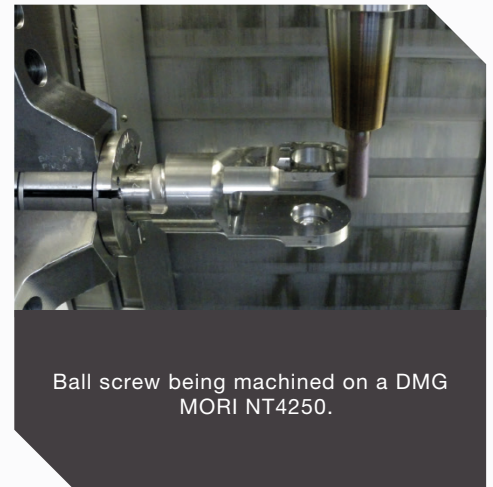
High-level performance with ESPRIT CAM

To meet the multiple demands of customers and those from Umbra's own internal design team, the company increasingly pushed for more advanced machine tools to increase cycle time and to be more productive.

"We needed a machine tool solution that would allow flexibility and at the same time speed in standard operations. ESPRIT CAM software provided us with everything we needed to run our advanced machine tools, and gave us the

ability to save customized milling and turning operations, both for the processes we use most, and for our non-standard processes." says, Gianluca Mercuri, Turning & Milling Specialist at Umbra Cuscinetti.

Today the field of electromechanical actuators is growing fast for Umbra's parent company in Foligno, Italy and they continue to advance both their internal and external turning processes, and multi-axis milling. "One of the most complex operations that we accomplished with ESPRIT CAM was wrap pocketing utilizing a simultaneous 4th axis", Gianluca Mercuri added. With full integration of ESPRIT CAM software, the Umbra Group could optimize their CNC machining centers, and benefit greatly from certified post processors. This allowed Umbra to exploit the full functionality of their CNC machine tools, increase their productivity and continue to make the high-quality parts their customers demanded, all with the help of ESPRIT.



Ball screw being machined on a DMG MORI NT4250.

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