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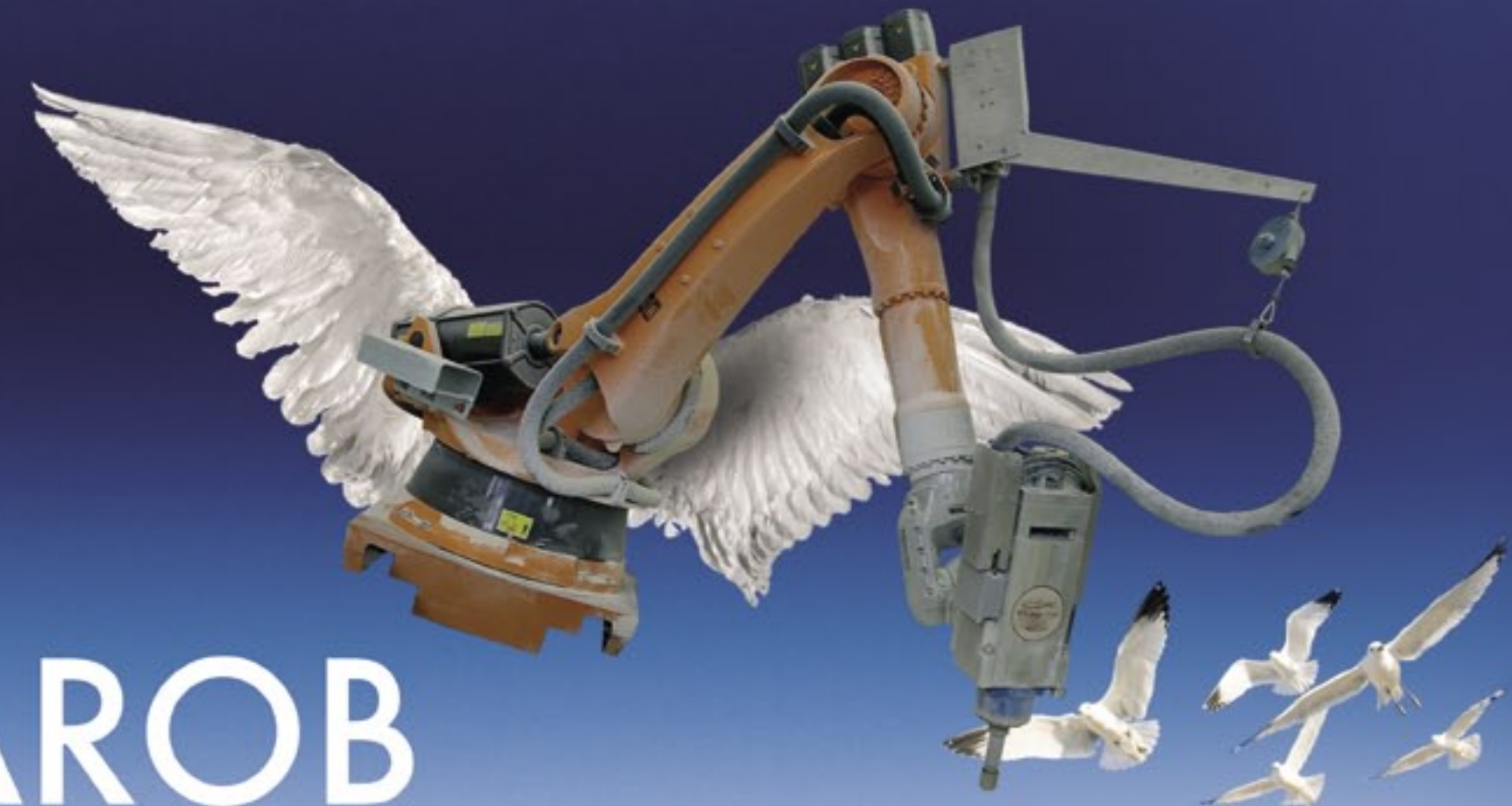


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ICAROB

ICARob from 3D design to the moulding in a fly

ICARob is a powerful robotic system, dedicated to one-piece plugs milling for aircraft building process.

It is built upon a six axis industrial robot completed by a track motion interpolated with the remaining axes.

The use of the track motion improves dramatically the robot workarea, reaching up to 13 (length) X 2.5 (depth) X 3 (height) meters.

All under control

With the ICARob system all the manufacturing processes are under strict control of the engineering staff, from CAD modelling, structural and fluidodynamics simulation, through a CAM phase, up to the plug milling and the related finiture.

Multi-tool system

ICARob is a multi-tools milling system. The high speed electro-spindle has got an Automatic Tool Changer, and the system is supplied with a 9 positions toolbox.

ICARob can be successfully used for many different tasks, from roughing to finiture milling operations.

Precision and speed

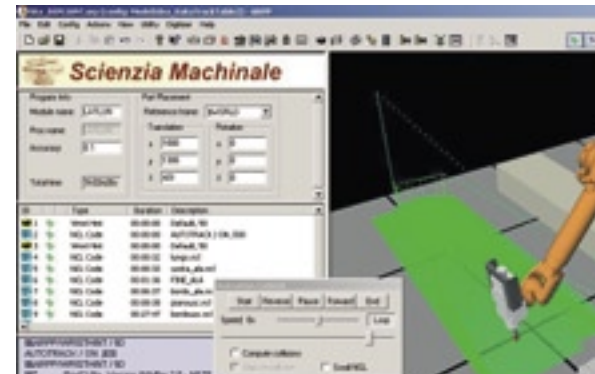
With ICARob you can realize precisely sized one-piece plugs in the shortest working time.

The finest details in conjunction with the largest workarea.

Example of a wing manufacturing

Engineering phase

Once the engineering staff has produced the 3D CAD model of the aircraft, each part is passed to the subsequent CAM phase for the manufacturing, where, thanks to our software ARPP®, it is possible to generate the robot toolpath and see a realistic 3D simulation of the milling phase.



ARPP®: toolpath simulation

Milling phase

Thanks to the extremely large workarea, it is possible to work directly on an whole wing.

In the first step a polystyrene block is cut by the robot, in order to produce a raw block (up to 13 mt long) closer in size to the final model profile. The polystyrene is then cut to create the first profile, 10 mm negatively offsetted in height.



ICARob: polystyrene milling

Finally, a uniform 20 mm polyurethan layer is sprayed on the former polystyrene profile. This step gives to the plug a strong resistance, maintaining at the same time a low weight. At the end, the robot system realizes the final finiture, milling directly the polyurethan surface.



ICARob: final polyurethan layer milling



photos courtesy of
Iniziative Industriali Italiane s.p.a.
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