

Innovative Italians

A foundry installer at the forefront of integrating robotics into production lines has been working with ABB to provide innovative customer solutions.

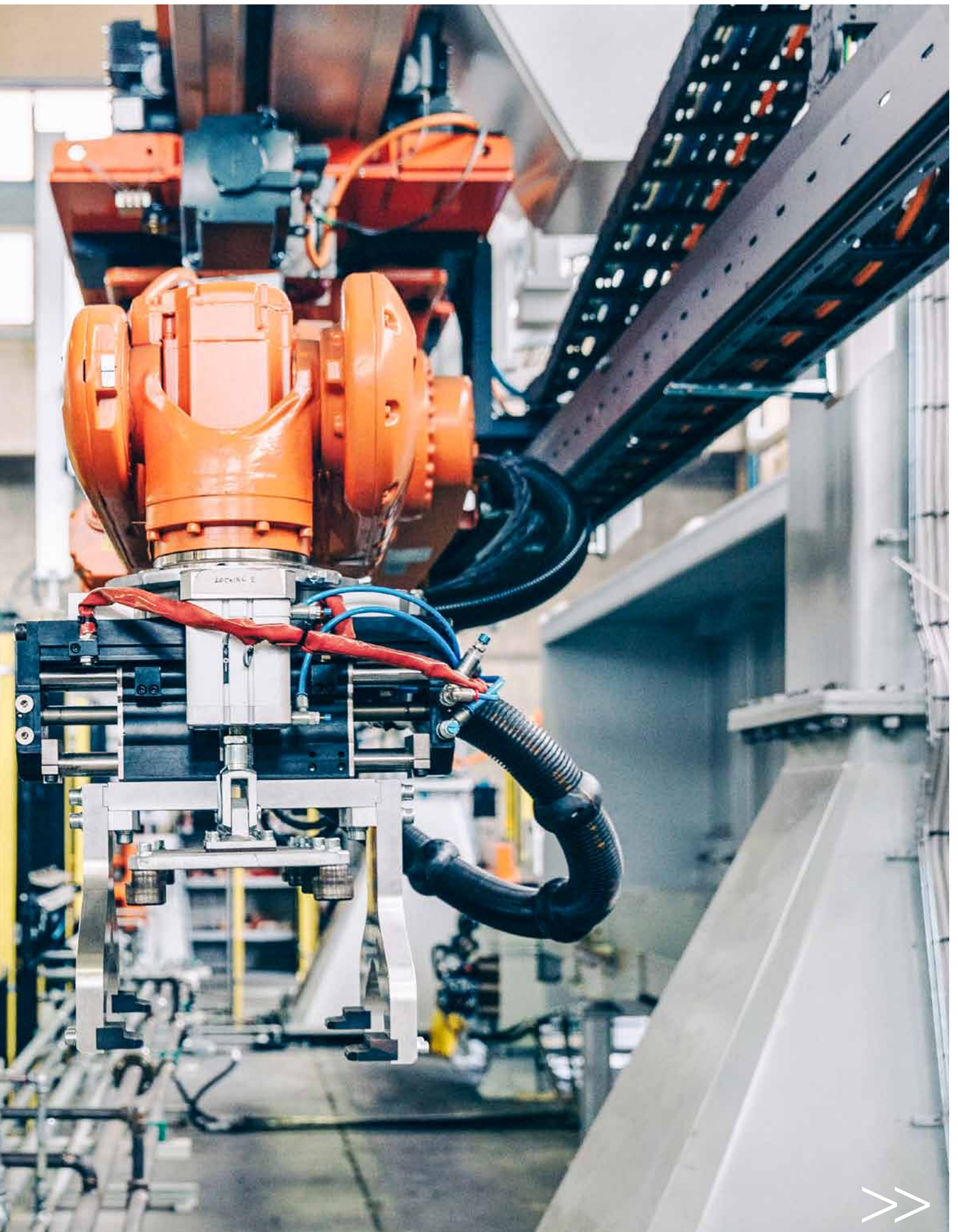
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Artimpianti is an Italian company that specializes in installing foundries. Today it works mainly in the supply of turn-key production lines for aluminum foundries across the world that make cylinder heads and other components. In Italy, it also supplies the railway and tire industries. 92 percent of the company's turnover is now in export markets.

Key to the company's success is the technological know-how of integrating robotics into production lines. The company has strong project and production skills (with advanced 3-D simulation tools) in addition to advanced software expertise. The plants, pre-assembled and tested in the works, are re-assembled by the company's personnel on the

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Alberto Botta – CEO at Artimpianti

Artimpianti

Artimpianti was founded in 1984 by industrial plant and large paper mill installers Alberto Botta and Walter Genre. The technical competence and positive attitude of the new company was recognized early on and Artimpianti became known for its professional industrial plant installations in both the automotive and paper industries. Over time, the business focused on foundries and the introduction of modern automation concepts adapted from the paper industry. The company worked alongside some of Italy's largest industrial entities during their process of internationalization and positioned itself as one of the few organizations able to install turnkey industrial plants in both North and South America. Artimpianti de Mexico de CV was created in 1998 in order to support these commitments. In 2012, again in Mexico, the Artcubing Division was set up specializing in the CNC pre-machining of cylinder heads. In 2013 Artimpianti India Private Limited was opened giving the company a presence in the Asian market.

client's site and delivered to the client's staff complete with training and post-sales service. Depending upon the individual case, the company draws upon its experience to propose innovative solutions to strict briefs from the commissioning company, guaranteeing affinity, responsiveness and efficiency.

The first articulated robots, including one from ABB, were installed by Artimpianti in 1991. The initial aim of integrating robots into plants was to eliminate dangerous activities for the workforce and facilitate maintenance, rather than reduce working times or improve quality.

ABB, very active in the foundry industry and one of the first to propose the use of robots in this uncompromising environment, has collaborated for 10 years with Artimpianti which has expressed appreciation in the reliability of ABB robots, the global footprint of ABB and the excellent ABB post-sales support. Artimpianti technicians also used, with satisfactory results, the RobotStudio simulation tool that helps reduce the start-up time needed for a plant and gives clients the chance to see the proposed solution in real-time right up until the final phase of negotiations.

Today, the automotive industry demands production flexibility from foundries rather than high volume. Pressure tends to concentrate at the three bench die-casting lines with capacities of between 33 and 45 pieces per hour where quick and easy production changes can be made.

For a Russian foundry that was producing castings for a major European car manufacturer, Artimpianti designed and installed two highly innovative and automated three-bench lines to replace the traditional Cartesian axes or articulated robots floor-mounted on a trackmotion.

In collaboration with ABB and another key supplier, a system was developed whereby a unique special beam supports two cantilever arms positioned behind the benches to manipulate the cores and the liquid metal. From the same beam an IRB 6620 robot is suspended and manages the unloading procedure by removing the casting from the mold and moving it to the pre-finishing area where it is cooled. Sand is removed from the outer surfaces, feeders are cut and the casting is placed on a spe-



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cial multi-level cooling conveyor where it reaches the correct temperature and then passes for final finishing.

The plant layout was designed to improve operator mobility and safety in addition to giving visibility to the work-station where manual activities are undertaken and can pose a risk to personal safety. Consequently, an operator can now be close to a mold for analysis, carry out service or change it without stopping the robot in the other two work zones. The ability to change the mold and the tools without stopping the line has significantly improved the overall equipment effectiveness and as a result, increased productivity.



When considering automation one has to bear in mind a complex application: the plant has 14 axes and the IRC5 Robot Controller manages six axes of the robot itself in addition to all the Cartesian axes dedicated to the molding and die-casting processes. Artimpianti's collaboration with ABB has improved plant ergonomics, safety and productivity, satisfying the demand from markets fully aware of the advances in innovation technology.

Scan the QR code (right) to see the ABB Robotics RobotStudio simulation tool.

