



Extracting success from ABB's expertise

The use of an ABB robot by an Italian die-casting company to automate its mold extraction process has strengthened the company's competitiveness.

Text: ABB Robotics **Photo:** Maurizio Camagna

Dynacast Italy is part of Dynacast International, a global producer of precision-engineered die-cast metal components made from zinc, aluminum, magnesium and metal injection molding (MIM) that are used in a variety of industrial sectors. The group's headquarters are in Charlotte, North Carolina, USA, and it operates in 23 manufacturing facilities in 16 countries. Dynacast is renowned for its die-casting technology expertise, mold design and manufacture and production of precision components for a broad range of industrial applications.

The group's production in Italy started in 1986 with the opening of a site in Lainate, Milan. In 1999 the company moved to a new site at Rho where the



+ Summary of benefits

- Dynacast personnel fully autonomous.
- Numerous phases of die-casting process aided with robot.
- Robot's speed means operations are completed within working-cycle of the machine.
- Personnel numbers reduced as a result of automation.
- Quality and production continuity guaranteed.

product range expanded rapidly. Today, Dynacast Italy is a leader in the production of small, precision-engineered components in Zama and Beric (Zinc Alloys). Clients submit component designs and Dynacast technicians use 3-D modeling to analyze and design the molds using die-filling simulation techniques in conjunction with the clients' design staff, ensuring the very best production solutions.

Die-stamping of small, precision-engineered components with weights of up to 150 grams is usually done with Dynacast's proprietary multi-slide technology. The system uses a die with perpendicular slides to produce complex and highly accurate castings. Since 2014 the Italian plant has also used traditional die-casting technologies to produce heavier weight components.

The company also supplies a full range of added-value services: finishing, surface treatments, equipment servicing and small component mold assembly kits. Dynacast Italy is ISO 9001:2000 and ISO TS 16949 certified. The product line serves components used in electronics, electrical engineering, automotive (for safety systems such as seat belts), fiber-optic connectors, glasses, mechanical engineering, bicycles, hardware and





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luxury goods. Dynacast Italy continues to grow thanks to its ability to focus on customer demands in addition to supplying export markets.

The desire to seize new growth opportunities recently persuaded the management to focus upon traditional technology. In line with solutions already adopted by the group, a FRECH hot-chamber die-casting machine was chosen equipped with an ABB model IRB 1410 robot for automatic mold extraction.

ABB supplied the robotic cell "turn-key." Upon receipt of the specifications, technicians interfaced with the manufacturers to configure a traditional-type cell with additional improvements. The initial set-up of the robot was done by ABB specialists who then trained Dynacast Italy personnel. Now the customer's staff are fully autonomous and able to reprogram ejections for any type of new product.

The die-casting process includes many phases such as lubrication of the mold to injection of the alloy, with suc-

cessive cooling of the metal inside the mold up until the ejection of the casting. All these various operations are done sequentially with the help of the robot. The first operation is a quality control check, which if positive gives the machine the OK to continue the process. The robot then moves the feed head away and separates the molded component. Thanks to the robot's speed, all operations are completed within the working-cycle of the machine itself thereby allowing pro-

duction wholly in line with the rhythm of the die-casting process.

Personnel numbers involved in manning the facility can be reduced as a result of automation. In fact, the solution assures both quality and production continuity simply through allowing more operations within the working cycle. Key to the project's success has been the proximity, expertise and experience of ABB personnel. The new unit has been put to work quickly on new contracts. The solution has strengthened Dynacast Italy's competitiveness and enabled it to propose innovative solutions to both Italian and export customers.

Dynacast

Dynacast Italy, located near Milan, is a leader in zinc die-casting. The company is part of Dynacast International, a name synonymous with precision metal components. The Italian facility contains both multi-slide and conventional zinc die-casting machines and precision tool building with in-house capabilities. It also conducts a wide range of secondary operations including tapping, reaming and drilling, available in-house and through certified partners. The company offers design, prototyping and modeling services and a range of surface finishings are available.