At MP Filtri in Italy, robots working in the foundry was just the beginning. Machine tooling is now automated, and the company has plans for using robots in other areas as well.

It’s hard to find a factory employee willing to operate a hot press for any length of time. The heat, stress and noise of the job take their toll, giving rise to quality-control issues as well as danger to the worker himself. Robots are therefore an increasingly attractive alternative in foundries, especially when the volume of work is large.

MP Filtri of Pessano con Boragno (Milan), Italy, one of the world’s top manufacturers of hydraulic oil filters, came to this conclusion in the 1990s. At the beginning of the decade the company decided to expand aggressively by seeking international business, and it soon found itself competing against giant corporations from the United States – its main competition – and Germany, among others. Its in-house foundry was and remains an important element in MP Filtri’s business strategy, says Giovanni Pasotto, managing director and son of Bruno Pasotto, MP Filtri’s founder and still-active president.

Giovanni Pasotto explains that the company’s competitive advantages are many. The company maintains a high quality of service, emphasizing attention to the customer and speed of delivery. It also focuses on specific market sectors so MP Filtri can cater to their needs. These sectors include moving vehicles such as cranes, excavators, tractors, earth movers (this is MP Filtri’s largest market segment); industrial installations for steel and iron works; injection machines for plastics and aluminum; and a small but image-rich niche market in offshore platforms. “We compete extremely well in terms of range of product,” Pasotto says.

One other important advantage is that the company has its own foundry for aluminum filters, which enables MP Filtri to control the entire production process. “We can move more quickly than our competitors, while [at the same time] ensuring high quality,” says Pasotto.

The strategy behind these competitive advantages was working in the early 1990s and orders were coming in, but the company struggled to find qualified workers to handle the demands of the job. Foundry work requires highly motivated, skilled personnel and MP Filtri could not find enough of them.
So the company decided to turn to robots. While just about all foundries have robots for injection machinery ("because you wouldn’t invest in such equipment without them," explains Pasotto), the company wanted to be more forward-thinking in its production design. In 1995 an ABB robot, IRB 4400, arrived at the foundry, followed by another IRB 4400 and an IRB 2400 a year later. The choice of ABB was based not on price but on its reputation for superior customer assistance, service and client satisfaction.

The foundry robots remove newly moulded filters from the hot presses, lubricate them and deposit them on slides where they can cool before collection for successive tooling. “Our workers were happy to see the robots arrive because now they are relieved of a hot, hard, noisy, repetitious task,” says Massimo Frignati, the manager for the MP Filtri foundry. He points out that robots can produce 60 filters an hour, weighing from 50 grams to three kilograms, as opposed to manual production of six filters an hour.

In addition to increased productivity, the three robots can be managed by one employee, whereas in the past each hot press required a dedicated worker. “We have less waste, more consistency, fewer errors, better quality control and more uniform production,” says Frignati. For example, the percentage of rejects dropped from 10 percent to 2 percent. He adds that since their arrival, all three machines have been working without a problem. Given the successful integration of robotics into MP Filtri’s foundry, it is not surprising that robots would find their way into machine tooling as well. Cesare Gatti, head of the machine tooling shop, explains, “We realized we needed to invest in robotics when we bought new machine tooling equipment and realized that our personnel were too slow to take advantage of the capabilities of the machinery. Since we already had abb in the foundry, and those working there were happy, we decided to stay with them.”

An IRB 2400 and IRB 6600 arrived in 2002 and were joined by an IRB 4400 in 2005. Whereas the foundry robots have improved quality in a high-stress situation, the ones in machine tooling have improved productivity and precision. The IRB 2400 and IRB 6600 are used to pick up filters after they have been washed (the weight of the filters determines which robot will handle them), hold them up to allow water to drip off, then place them in precise rows in a basket. When a layer of the basket is full, the robot “sees” that and picks up cardboard dividers and lays them over the filters to create the next layer. The IRB 4400 manipulates aluminum filters as they are machine tooled in a series of programmed steps: It picks up each filter, places it on a platform to ensure the correct positioning, picks it up again, inserts it into the machine tooling equipment, removes it, inserts it into another machine that cleans the filter with a burst of air, removes the filter again and places it on a pallet. Gatti says that there has been “an enormous difference with the robots. We gained a lot in productivity, because we have no more downtime.”

Both Gatti and Frignati would like to introduce robots into other processes in their areas, and Giovanni Pasotto is also willing to entertain such investments, because the payback is so immediate. According to Pasotto, by 2008 the company will have new automation processes and will be using robots for painting, machine tooling and aluminum processing. “We will automate machine tooling because we are committed to improving quality, to be more competitive on the world market,” he says. “Plus, robots don’t give you any problems. They are productive and efficient, and they free up our employees to do other things.”

MP Filtri currently uses six ABB robots: two IRB 2400s, three IRB 4400s and one IRB 6600. Three are used in the company’s foundry; three are in machine tooling. Their advantages include:

− Greater productivity. The production line can accomplish in two hours what used to take eight man hours.
− Better, more consistent quality.
− Rapid payback. Managing director Giovanni Pasotto estimates that payback for the first robots came in about two years and could have been even faster “but the first six months were a learning experience for us.”

MP Filtri at a glance
MP Filtri of Pessano con Boragno (Milan), Italy, is a classic Italian success story. The company was founded by Bruno Pasotto in 1964 because Pasotto wanted to go into business for himself and saw the market for hydraulic filters for oil as a promising opportunity. MP Filtri quickly became Italy’s market leader and is today one of the top 10 in the world in this specialized area, producing 1 million filters annually in aluminum, cast iron and steel in a wide range of sizes. The company’s 150 employees generate 25 million euros in sales per year and have offices in eight countries: Canada, China, France, Germany, Italy, the United Kingdom and the United States.

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