

# Müller Weingarten Case study: Foundry/Die casting



Automation improves engine block production. When auto manufacturer Changan Suzuki in Chongqing, China, needed die-casting cells for production of its engine blocks, it turned to Germany company Müller Weingarten for a smart solution that includes ABB robots.

Müller Weingarten, one of the world's leading suppliers of metal-forming equipment for the automotive industry, has enjoyed a close working relationship with ABB for more than 10 years. The two companies have cooperated on several high-pressure die-casting projects, such as producing die-casting cells for DaimlerChrysler, as well as a number of press

automation projects. Müller Weingarten recently won an order for three completely automated die-casting cells for auto manufacturer Changan Suzuki, which is situated in Chongqing, in mid-eastern China.

The Changan Suzuki contract is for two Opticast 2500 die-casting machines, which are used in engineblock production, as well as for one Opticast 1750 machine and for gear boxes and clutch housings. The machines will come from Müller Weingarten's plant in Erfurt, Germany, which is the company's central production site for large-part machining, welding and in-house assembly, in addition to its role as a service base.

Cost-effective solution Delivery is due to take place at the end of 2006, and production is expected to start at the Changan Suzuki plant in April 2007. Commissioning will include two weeks of training for four employees at the ABB training center in Shanghai.

# Müller Weingarten

Three ABB IRB 6600 robots in specially protected Foundry-Plus versions will be employed for the die-casting machines. The robots' work is straightforward: First, they extract the parts -- engine blocks and transmissions, which are then passed through a component checker. The next step is for the robot to guide the component past a saw to remove surplus metal. "The robot moves the part past the saw, which we have supplied, and it is cut into shape," says Robert Klotzbücher, sales and project manager for August Mössner, which produces band saws for steel and other metals. "It is a fast, exact, cost-effective solution that doesn't add to the cycle time. Previously this work was carried out manually."

## Faster cycle times

The final step of the automated process involves the robots placing the components in a cooling shower bath, developed by ABB. The entire cycle time takes just 110 to 120 seconds. This pace will allow Changan Suzuki to produce 100,000 engine blocks per year with each 2,500-metric-ton machine. The use of Wollin Automatisierungstechnik spray equipment to lubricate the dies helps achieve the desired cycle times. "We have supplied special spray nozzles for the Changan Suzuki project," says Günter Engelhorn, sales manager for Wollin. "Using these adapted spray heads can save as much as 50 percent cycle time."

## Long-term cooperation

Using the new generation of robots also allows a high degree of flexibility, increased productivity and a high level of reproducibility. Furthermore, fewer man-hours are required. "Every robot spares a worker," says Jürgen Lamparter, the director of the die-casting business unit at Müller Weingarten.

Müller Weingarten chose to work with ABB for a number of reasons, according to Lamparter. It welcomes the spare-part service support that ABB offers in China it appreciates the experience Changan Suzuki has had working with ABB robots on site, and it values the long-term cooperation it has built with the company. "We chose ABB because it is a well-known, reliable partner, and we have previously worked well together on motor block casting projects," says Lamparter.



Jürgen Lamparter, the director of the die-casting business unit at Müller Weingarten.

## FACTS

Chinese automaker Changan Suzuki has ordered three completely automated die-casting cells from Müller Weingarten: two Opticast 2500s and one Opticast 1750 with three ABB IRB 6600 robots in foundry-plus versions will be used for the die-casting cells. Benefits include:

- Total cycle times of 110 to 120 seconds
- High productivity, with 100,000 engine blocks produced annually on each 2,500-metric-ton machine
- Increased reproducibility
- High flexibility

## ABB Robotics

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