

Engine blocks cast at Nematik in Poland are made with a 25-percent faster cycle time with robots.

# Faster casting

**Ultra-modern technology helps Nematik meet increasing demands for production of engine blocks and other aluminum parts in Poland.**

> The tiny IRB 2400 is busy passing liners to the IRB 6650s, which towers over the new Ford Sigma station in the high-pressure die casting foundry at Nematik Poland in Bielsko-Biala, in south-west Poland. This is one of four new stations installed over the last three years and using ABB's latest-generation robots for die casting car engine parts from aluminum.

"By February 2009 we will have one more station working for the same client," says Jacek Kwiatkowski, Automatics Department Manager, "as the estimated production volume in 2010 should be 600,000 engine blocks."

With another big project on his hands – ten different casts for Hyundai car manufacturer – Kwiatkowski is busy supervising the existing stations and coordinating upcoming ones. He is the person responsible for new project development and works closely with Nematik's engineers and the station's

manufacturer on the layout, the technical solutions and the final installation.

"Such a station usually consists of die casting machine and robot as a peripheral installation with different applications, depending on the needs," Kwiatkowski explains. "The dies for high-pressure die casting, which are extremely complicated devices, are mainly constructed at the foundry's tool shop following the client's instructions. It takes a few months from signing a contract to having the station up and running."

The foundry's history goes back to the 19th century. Between 1970 and 1991 it cast parts for the Fiat 126 and Fiat Cinquecento. In 1992 it became a part of Teksid Italy and went through extensive modernization. Two years ago the plant became one of the 16 units owned by the Nematik Group worldwide. It's spread out over 122,976 square meters and consists of a high pressure die casting foundry, gravity foundry and tool shop. The main production stays the same – car engine aluminum parts. The three biggest clients in 2008 are Fiat – 31 percent, Ford – 27 percent and Toyota – 11 percent.

By Margo Cygielska  
Photos Manuel de la Cruz



“The estimated production volume in 2010 should be 600,000 engine blocks.”

Jacek Kwiatkowski, Automatics Department Manager

#### >FACTS

##### Better with robots

Benefits for Nematik Poland of casting stations automation with the ABB's IRB 6650S, IRB 6600, IRB 2400 and IRB 6640 include:

- Reduction of production cycle by 20-25 percent
- Increased casting station efficiency by 20-25 percent
- Safer working environment and less physical stress
- Higher automation, easier maintenance and better work flow

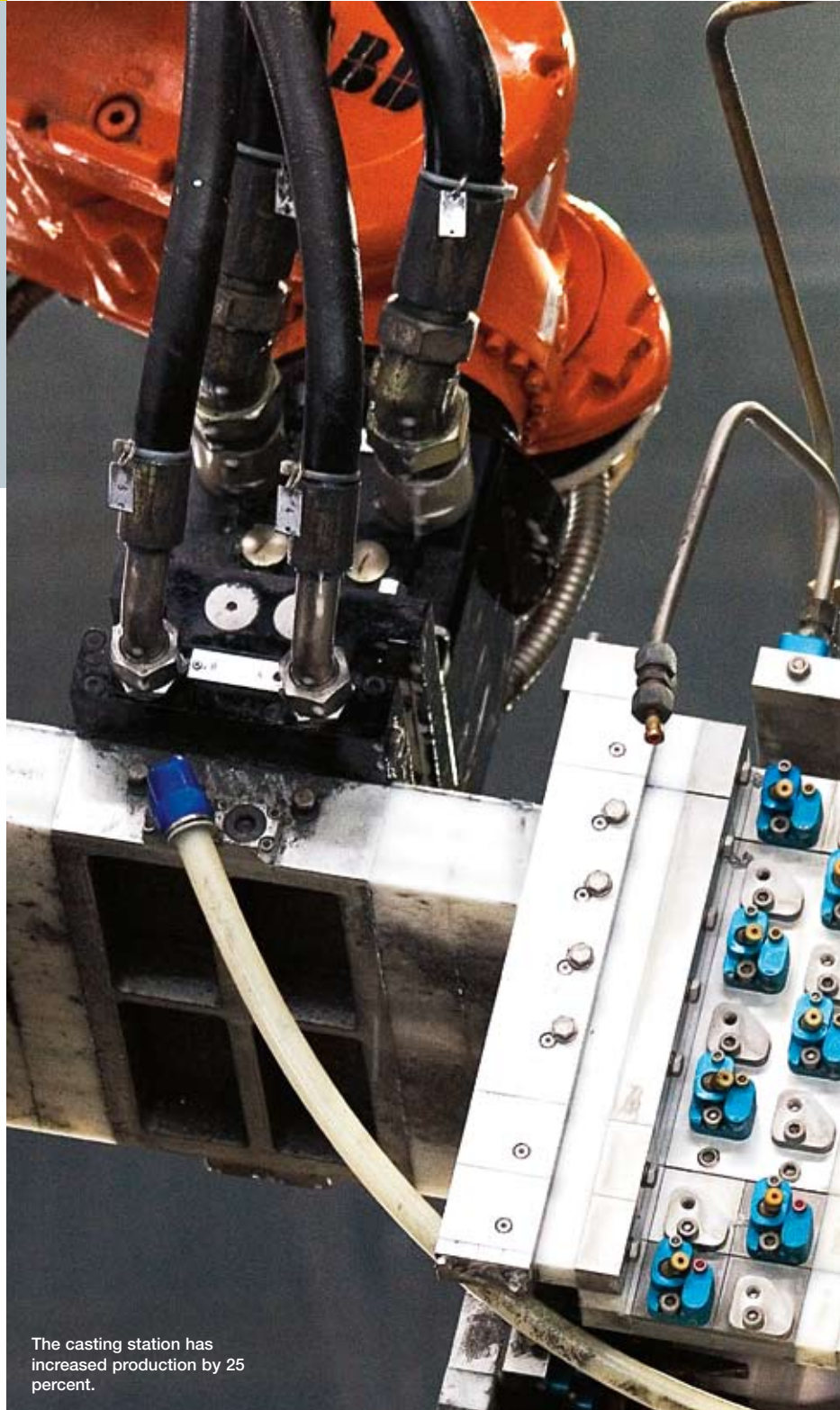
“The production volume has been growing slowly since 2002, but it has risen sharply over the last two years thanks to big contracts with Ford and Hyundai. The production value for Toyota is also expected to go up,” says Kwiatkowski. “We are going through big organizational changes as well as [making] large technical investments in new machines and automation. The Nematik Group has a corporate contract with ABB, so we are buying their robots for the new stations as well for the old ones that need replacements.”

Kwiatkowski explains that dealing directly with ABB Poland's sales department is very helpful and thanks to the corporate contract the two companies have, the price is very competitive. “We have had a few of the older models like the IRB 6400 on the casting stations since 1999 and we are very happy with its performance,” he adds.

The Nematik Poland foundry operates a total of 50 robots.

“With such a fast production growth we will be purchasing more robots,” says Kwiatkowski. “One of them will be an IRB 6640 for the Hyundai program. Its application will be pulling out the casts from the press. Automation of the stations is one of our team's top priorities. There are no production lines in the foundry so we still need employees working the stations, but with the robots it's a much safer workplace and 20 to 25 percent more efficient. Every robot reduces the production cycle by 20 to 25 percent.”

He also explains that the ABB interface is user >



The casting station has increased production by 25 percent.



friendly and the steering panel is small, compact and easier for programming as well as unproblematic for maintenance.

“In addition to the ABB robots in the foundry, we also use an ABB RobotStudio offline program for computer simulations of production stations. ABB Poland organized a workshop for six Nemak employees this year based on specific problems and solutions that came from our close business relationship.”

As the foundry suffered serious underemployment under the previous management, the ongoing automation of the stations is not reducing staffing levels. “To the contrary,” Kwiatkowski says, “we need to hire more engineers and technicians to be able to meet our clients’ expectations.”

Currently Nemak Poland has 809 employees, who work on three shifts turning out a production valued at 121 million euros in 2008, which is expected to rise to 169 million euros in 2011.

Kwiatkowski points to the IRB 6650s with a spraying head application.

“This is one of the most advanced stations in the world,” he says. “We were able to assemble it together with the Italtipresse team, which manufactures casting presses, in nine weeks.”

He is proud of this ultra-modern technology on the grounds of a foundry that goes way back in time. With new contracts and more engine parts to be cast for the car manufacturers spreading across Central Europe, Nemak Poland’s future looks bright – and quite orange. ☉

#### At a Glance: Nemak Poland

- Founded: 19th century - beginning of industrial activity, various owners, since spring 2007 part of the Nemak Group
- Location: Bielsko - Biala, Poland
- Number of employees: 809 total, 510 in the high pressure foundry and gravity foundry
- Production details: Aluminum casts for car manufacturers - engine blocks, transmissions, cylinder heads. Biggest clients in 2008 are Ford, Fiat and Toyota
- Total sales in 2008 – EUR 121 million; forecast for 2009 – EUR 140 million

