Case Story – Schmidt Light Metal Group (SLM).

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Over the past two years, part of the die casting facilities of the Schmidt Light Metal Group’s foundry in Oliveira de Azeméis Portugal were thoroughly overhauled by the retrofit specialists of Bühler AG and Brescia Presse srl. The result: completely reconditioned die casting systems restored to the state of the art of production engineering.

The Schmidt Light Metal Group (SLM) specializes in the manufacture of die cast aluminum components for the automotive industry. The aluminum die casting foundry located in Oliveira de Azeméis, which was set up in 1989, originally produced blanks for the European car-making industry. Today, it is a competent partner in the product development and manufacture of complex die cast aluminum components and thus an important pillar of the SLM Group. Its customers include the world’s best-known car manufacturers. In Oliveira de Azeméis near Porto in the northwestern part of the country, the SLM Group employs over 245 persons. Fifteen die casting machines with locking forces up to 1400 tons produce top-quality castings. Every year, the foundry processes some 4500 metric tons of aluminum into more than five million parts. The development department of the SLM Group provides services ranging from product and process development to die design, consulting, and project management in the prototyping and pilot production phases. The SLM Group also operates a state-of-the-art facility for making die casting and trimming dies in addition to a department fully automated for machining and assembling light-alloy components.

Retrofit program for increasing uptime
Years of multi-shift production have left their marks on the die casting systems of SLM. “In addition, we increasingly suffered from the tight space conditions in our manufacturing halls,” explains Antonio Aguiar, who in his capacity as the technical director is in charge of the manufacturing systems and production processes at SLM. “We therefore decided to relocate part of our die casting installations to a new hall in order to gain more space for further automating our die casting cells. This was the suitable occasion for subjecting our die casting machines to an extensive reconditioning program. To us, an overhaul by experienced specialists appeared to be the best approach in the long term to maintain a high machine uptime and to extend the life expectancy of our equipment.”

The SLM Group entrusted Bühler Druckguss AG with the reconditioning of the machines. “We have been a Buhler customers right from the start;” says Antonio Aguiar, explaining the Group’s choice. “It was clear to us that we would recondition our production systems with Buhler because we know about their expertise, reliability, and quality.”

Shorter cycle times thanks to division of labor
Detailed stocktaking on site by a Bühler reconditioning specialist provided an overview of the condition of the entire range of machines and other equipment. The test report formed the basis for planning the required overhaul activities and produced two objectives: On the one hand, high-quality reconditioning was to restore the long-term

Partnership with Brescia Presse
Bühler Druckguss AG and Brescia Presse srl have been collaborating closely in the field of die casting machine and system retrofits since December 2005. Brescia Presse, a company headquartered in Brescia (Italy), is known far beyond the country’s borders for the high quality of its die casting machine overhauls. Cooperation between the two companies unites vast experience in the reconditioning business with competencies and know-how in the design and construction of die casting systems. The interaction between practical experience in the reconditioning business and the availability of product expertise open up entirely new prospects in the overhauling of die casting installations.
operating reliability of the manufacturing installations. On the other hand, a sophisticated schedule was to ensure the continuous availability of part of the production systems. “To put it in simple terms, everything had to be done quickly and with top quality,” says Federico Prados, service manager and project coordinator of Buhler. “The condition of the machines defined the procedure. The jobs were split up. For this purpose, entire machines or only the die closing units were shipped to the facility of Brescia Presse, our reconditioning partner in Brescia, Italy. There, it was possible to carry out those jobs which place very stringent demands on manufacturing and assembly precision, for example the remachining of bores or the milling of sliding and clamping surfaces. Other simpler and less extensive work on the shot units and on the drive assemblies of the machines were performed by the local Buhler service people directly in the factory in Oliveira de Azeméis. Moreover, staggering of the various jobs ensured that SLM would at all times have the required production capacities available.”

Transparency breeds trust
The reconditioning work carried out in the factory of Brescia Presse included the complete overhauling of all core components. The machine units were taken apart, and all the components were subjected to a detailed inspection to determine their condition and whether they could be reused. If necessary, appropriate repairs were made. Wear parts and components beyond repair were replaced. Special attention was paid to the compatibility of the components in order to ensure the long-term exchangeability of spare parts. Safety aspects were also taken into account during the overhauls.

“We were offered the opportunity to assess one completely dismantled machine in the factory of Brescia Presse. This strengthened our confidence in the procedure and the excellent workmanship of Buhler and Brescia Presse. We greatly appreciated this transparency and openness,” says Antonio Aguiar.

As good as new
Of the total of 15 die casting machines of the SLM Group, five systems with locking forces ranging from 600 to 900 tons were reconditioned. The entire program lasted two years. The retrofit program was completed in the spring of 2009. Some of the reconditioned die casting machines were moved to a new production hall. This created the space needed for the further automation of production activities.

The retrofit jobs were completed as required. “The result of our joint efforts are die casting installations that reflect the state of the art of production engineering and that will continue to provide reliable service for many years to come. Our retrofit warranty guarantees this,” says Federico Prados, who as the representative of Buhler Madrid was in charge of the overhauls and of restarting production at the customer’s site. The customer’s satisfaction is the reward for the joint commitment of Brescia Presse and Bühler Druckguss AG. “The result of the reconditioning job done confirms the soundness of our decision, and other units will be retrofitted in the future” says Antonio Aguiar.