Robots for the really large loads. One of the largest robots worldwide, ABB’s IRB 7600, can lift up to 500 kilograms. Shuttle machine manufacturer Lässer AG at Rheintal is using it to work on large steel carriers for the machine foundation. Together with its little brother, the IRB 2400, it optimizes the entire production process thanks to a customized concept.

Complex process
ABB’s IRB 7600 lifts weights up to 500 kilograms. With this capacity, its short cycle times, and the software optimized tracks, it is greatly suitable to handle large loads such as in the automobile industry, at foundries and forges, and in the consumer goods industry. Daimler Chrysler has already used the orange ABB giant in Germany to automate the rotary casting machine to cast cylinder heads for V motors. In Spain, 25 IRB 7600 robots are working at a Mercedes Benz plant: On the production line for the family van “Vito”, the ABB robots handle the car side parts where windows are cut out, assemble the three bottom parts, and fit the side parts. This is a relatively complex process because the van is produced in different designs.

First application in Switzerland
The largest ABB robots are also used in Switzerland. For example, at Lässer AG in Diepoldsau, which is the most renowned manufacturer of high-speed shuttle machines worldwide About 140 to 160 of these machines are produced annually in St. Galler Rheintal and shipped especially to Asia, the Middle East, and to Europe. In its gigantic machines with up to eleven computer controlled axles, Lässer stitches with up to 2000 needles at a rate of 500 stitches per minute simultaneously. This enables the company to yield the highest possible embroidering accuracy for the fabrics, whether it is for skin couture and designer fashions, lingerie, or traditional clothing.

In the production hall, the IRB 7600 robot works on steel carriers for the foundation of the high-speed shuttle machines that weigh up to 55 tons with a length of up to 30 meters. The robot brings the 2.5 meter long steel carriers weighing 200 kg to the positioning station, cuts the holes at the correct positions with a plasma burner, and treats the cut edge with a wire brush so that the applicable sheets can be tacked onto them.
The robot will store its position and follows a specified path to a programmed “home position”. From there, the robot moves with the burner into an automatic burner neck exchange system and changes burners. The new burner is now controlled with the bulls eye, which is ABB’s own automatic TCP measuring system (TCP = Toll Center Point) and re-measured, if necessary. After the inspection is completed, the robot independently moves back into its position prior to the process stop and continues its work from where it left off. If the IRB 2400 welding robot works together with its gigantic brother, the IRB 7600, all night, the magazine will be equipped with the different dimensions of sheets prior to completion of the work. The robot system is started and continues to work without human help. Twelve finished and processed carriers are then available at the start of work in the morning. This increases the production capacity and profitability for the customer.

Result oriented changing of the cutting neck

The special characteristic of the application of both robots at Lässer AG is that the customer can continue to produce even during the night “unstaffed”, which means with a ghost shift. To warrant this, a solution had to be found for a specific problem: Most process interruptions occur during the welding process while igniting. The program of the IRB 2400 welding robot was developed so that it can recognize such interruptions and independently correct them. This occurs as follows: If the third attempt to start fails, the process is stopped.

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