



# Sinto

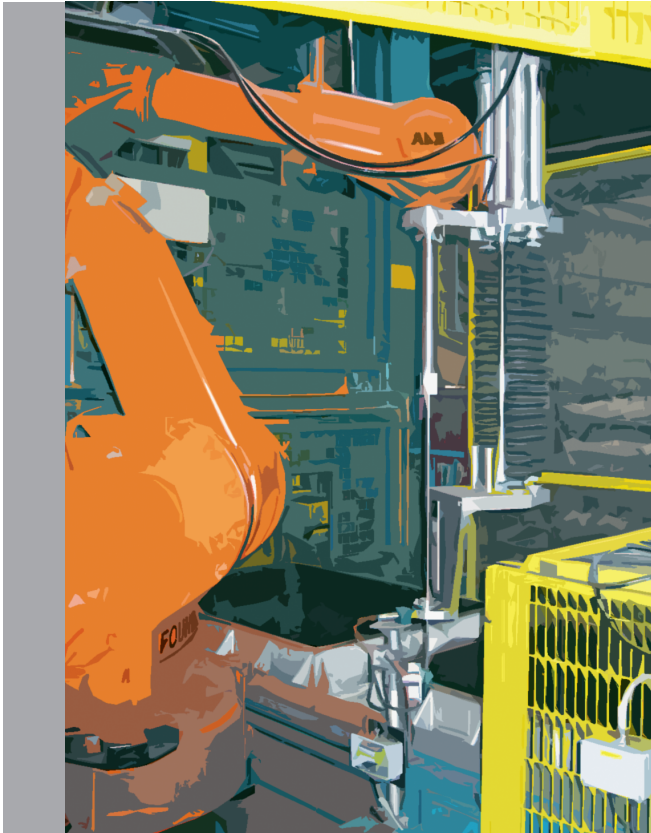
## Case study: Foundry

### Applications

- Casting

### Products

- High-compression molds



“...an innovative solution to the problem of venting.”

## No more molded vents

**A new system gets rid of the need for building a vent into the mold. Instead, vents are cut from above using a robot.**

➤ Working with web molds is a special application that requires special solutions. For example, wet molds require better ventilation than dry molds because it is necessary to drain off more casting gases due to the higher water content in the moist molding material. So air drains are cut into the compacted molding material by a molder using a blunt venting rod.

Heinrich Wagner Sinto Maschinenfabrik GmbH (HWS), based in Bad Laasphe in central Germany, has come up with an innovative solution to the problem of venting. The company, which is part of the worldwide Sintokogio Group, is a market-leading manufacturer of molding systems, molding machines and associated sys-

tem technology for producing high-compression molds for foundries.

The solution developed by HWS in conjunction with ABB uses a cutting head integrated in the robot, making it possible to insert vents into the mold on the model side in order to discharge the air located in the mold cavity during casting. Located next to the core insertion segment, the robot cuts the vents into the mold from above. As a result, vents no longer need to be molded, and a break in the model contour caused by cutting from the back of the mold is avoided.

The package includes an IRB 4400 robot along with a cutting head for short cycle times. Also included is not



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“A very diverse range of retrofitting concepts can be achieved thanks to the wide product range...”

only technical safety integration of the robot into the molding system and an interface adaptation and data exchange, but installation, commissioning and training.

The robot automatically transfers the molding system data and integrates the coordinates into the robot program. This makes it possible to start all points on the mold surface and execute them precisely. The work cycle of the robot is approximately 2.5 seconds per hole.

### Diverse concepts possible

The multi-axis robot is particularly suited for retrofitting in existing molding systems. Various application options are also available for venting: in the molding box separator at 90° to the upper molding box, from the model

side in the core insertion segment or from the back of the mold after the rear separator of the upper molding box. A very diverse range of retrofitting concepts can be achieved thanks to the wide product range of ABB industrial robots available with payloads from 5 kg to 650 kg as well as floor, wall or overhead mounting of the manipulator.

The cutting device can be used to cut vent holes with a pin diameter of up to 10 mm in a cycle time of around 2.5 seconds. With larger hole diameters, the cycle time increases due to the slower cutting movement. Alternatively, it may be necessary to resort to a drill fitting or other solutions which can also be implemented using robots. ☺

### >FACTS

#### Benefits

There are many advantages with the flexible robot solution for venting:

- Increased productivity and availability due to the use of robots in series production
- Reduced system complexity due to savings on application-specific cutting devices
- Time saved due to simple programming via a graphical user interface
- Optimized manufacturing process by avoiding manual setting errors
- Increased system efficiency with positional changes through online processing – no interruption to production
- Money saved on investment as one robot can be used both for the insertion of vents and the milling of pouring gates