

Sensors reduce rejects in production

Compressed air meter, flow sensor and IO-Link
ensure fault-free automotive components



Our customer:

**One of the world's leading suppliers
to the automotive industry**

38 production plants in 15 countries worldwide, more than 15,000 employees: The company, based in Mexico, is one of the leading automotive suppliers and also serves customers in Germany and Europe. The manufacturer has specialised in the development and production of innovative lightweight aluminium solutions for the power train and the body. In addition to body components, the company also manufactures gearboxes, gearbox housings and oil pans.

No faults must occur in production; after all, a faulty component will compromise the quality of the vehicle later on, which has to be avoided at all costs.



The challenge:

The aluminium components are manufactured in a high-pressure die casting process. The aluminium is melted before being pressed into the die casting mould, then it is hardened in the mould using a cooling system. When it has cooled down completely, the component is further processed – without further quality inspection.



insufficient vacuum may cause air pockets. Both sources of error must be eliminated as far as possible to ensure that the manufacturing process is as smooth and error-free as possible.

The solution – why ifm?

The key to avoiding rejects lies in the automation and monitoring of the plants. Therefore, a sensor solution was developed together with ifm that monitors all relevant process values. The SD compressed air meter from ifm monitors the correct application of the release coating between mould and product. The aim is to reduce errors in the die casting process.

In the next step, the SM flow sensor installed in the cooling system monitors the correct curing of the aluminium component in the mould. The data from the pressure, temperature and flow measurements are sent via IO-Link to the plant controller, where errors can be responded to. The advantage for the company is simplicity: With just one solution, the data can be transferred directly from the field level to the controller using an IO-Link master, which enables constant monitoring of the compressed air and cooling circuits. This way, the cleaning and coating of the die casting moulds can be monitored, as well as the curing process.

To achieve the lowest possible reject rate, the company must ensure certain process values. Because if defective components are processed to completion without further quality checks, very high costs are incurred in production and a lot of material is wasted on rejects. Defects usually occur due to residues in the die casting moulds or because the vacuum in the mould is insufficient. Residues are caused by incorrect cleaning or application of the release coating;



Together with ifm, the customer was thus able to significantly reduce the error rate in its production and, as a result, greatly decrease the costs caused by rejects. At the same time, the plants become more sustainable: By using the data from the compressed air meter, compressed air and thus energy can be saved. With the SD compressed air meter and the SM flow sensor, the automotive supplier is further optimising its production and thus positioning itself for the future.

Results:

- Optimised quality assurance during production
- Reduced reject rate saves costs
- Increased product quality
- Connection to the controller via IO-Link



Reliable cooling circuit



Several measured values in one device



Cost reduction due to reduced rejects



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