

Best practice

Minebea Intec technology optimises checking for missing components



Playmobil invited Minebea Intec to propose a solution for a highly accurate checkweigher that could detect missing components in an environment that had factors such as draft, temperature drifts and electrostatic charges.

Key facts

Disruptive influences during the weighing of small toy parts were compensated for in the past at geobra Brandstätter Stiftung & Co. KG via over filling. A checkweigher that was subsequently specially developed was able to ensure the precise weighing of the smallest injection-moulded parts irrespective of drafts, temperature fluctuation and static charge.

Application

Small bags of small plastic parts are electrostatically neutralised in the checkweigher and then weighed. A conveyor system is used to sort the products into good and bad.

Products

- 15 checkweighers WK+ with ionisation unit

Benefits for the customer

Using the checkweighers WK+ developed specially for their requirements, it was possible to reduce raw material consumption and therefore increase the efficiency of production.

- High-precision check weighing
- Minimising rejects
- Increase in product quality
- Simple, uniform operating processes

Customer

geobra Brandstätter Stiftung & Co. KG is the manufacturer of Playmobil and is a byword for premium quality toys made in Europe. Since 1974, over 3 billion Playmobil figures have been produced. The roughly 40 play themes are sold in approximately 100 countries around the world. The Brandstätter Group has more than 4600 employees worldwide.

playmobil®

Project goal and implementation

The Playmobil manufacturer geobra Brandstätter Stiftung & Co. KG produces the majority of its toys in Diethenhofen, Germany. This also includes very small parts such as flowers or accessories. Every day approximately 3 million parts are produced, packed in small PVC bags and then check weighed. From this check point, the "good" bags are taken to final production, and the "reject" bags are recycled.

The manufacture of Playmobil toys using injection moulding equipment results in heat being generated as a consequence of production. Temperatures vary in the production department depending on the time of day and season. Ventilation is used to reduce the temperatures, but this in turn causes drafts. At the same time, the weighing of plastic parts has a third influence that disrupts the weighing result, namely electrostatic charge. This influence was particularly strong in the area of small part production, and in the past was solved using over filling. A new high-precision weighing solution was needed to change this and offer a solution that considers all disruptive factors.

"With the checkweighers from Minebea Intec, we have gained a reliable, extremely precise solution that is not sensitive to disruptive influences. The scales are easy to operate, increase our product quality and significantly reduce raw material use."

Rudi Grebner,
Head of Production at geobra Brandstätter Stiftung & Co. KG

Minebea Intec was first approached in July 2017. The temperature drifts were the easiest problem for the engineers, because the load cells of Minebea Intec checkweighers have integrated temperature compensation, which automatically readjusts the weighing. To protect against the drafts on site and to allow for flexible use in the smallest area, a special cover was designed that effectively shields the weighing process. In addition, an ioniser was integrated into the checkweigher, which neutralises the electrostatic charge of the plastic parts shortly before their check weighing.

The prototype was presented in March. Just two months later, the checkweigher was ready for series production and the 15 checkweighers required were produced. Since then it has been possible to significantly reduce the number of defective packages and ensure a very high processing accuracy. Incomplete plastic parts are also effectively detected and rejected. The increased precision in the check weighing results in an increase in product quality, reduced giveaway and a significant reduction in the raw materials used.



Thanks to specially developed covers, the weighing process is not affected by drafts



For maximum precision in the check weighing, the packed plastic parts are freed from electrostatic charge in advance



Are you interested in finding out more? We will be more than happy to draw up a quote for you! All you have to do is send us an email to: sales.ac@minebea-intec.com

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