

# ISHIDA WEIGHING ACCURACY ENHANCES BEOHEMIJA POWDER POWER

Case Study  
**Beohemija**

## Facts and figures

- » Beohemija based in Serbia has become the leader in powder detergents with a 45% Serbian market share and a growing export business.
- » Accuracy has increased to 1g per 3kg bag and the weight variation has been narrowed to only 1.2 - 1.5g. The speed has also increased from 15 to 22 wpm.
- » 15 minutes per day is sufficient to clean the Cutgate weigher.
- » Beohemija has concluded that payback on investment can be achieved within one year.

The benefits of Ishida Europe's new Cutgate Weigher for granulated food and non-food products have enabled Serbian manufacturer Beohemija to optimise its powder detergent operation with an estimated payback on investment of within one year, due to significant giveaway savings, increased production speed and minimal downtime. Founded in 1991, Beohemija manufactures liquid and powder washing detergents and liquid household cleaners for the Serbian and wider Balkan market.

## Challenge

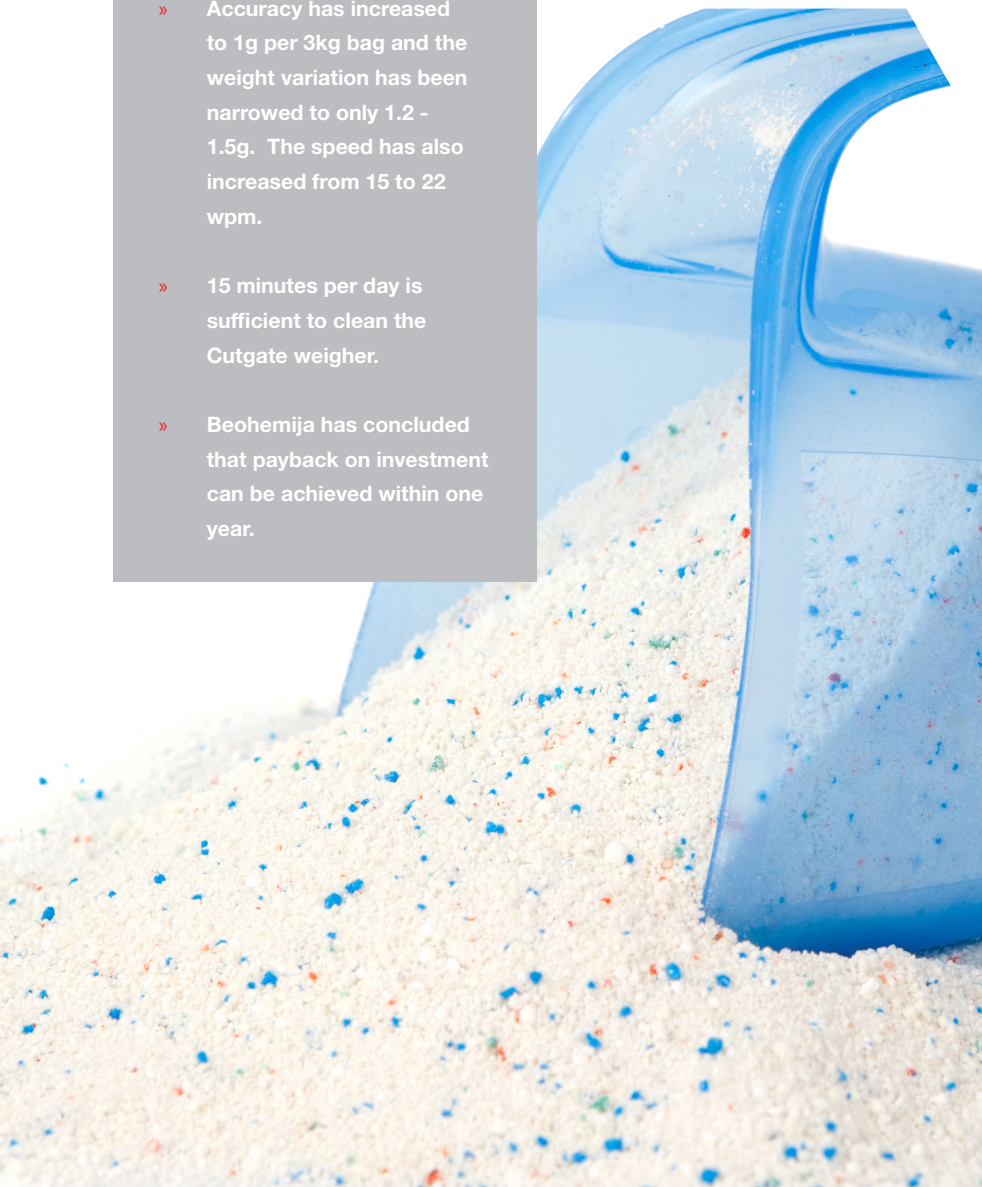
Following its acquisition of a complete powder detergent factory, and the brands DUEL and TALAS (in 1996), the company has become the regional leader in powdered detergents with a 45% Serbian market share and a growing export business into the EU.

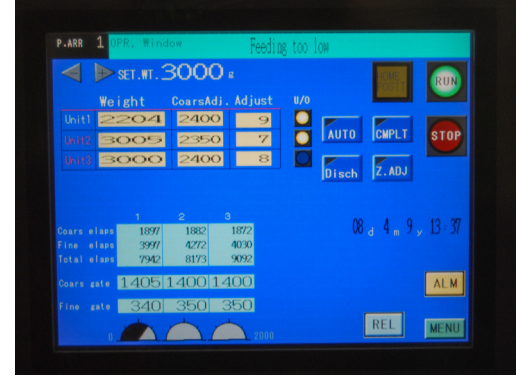
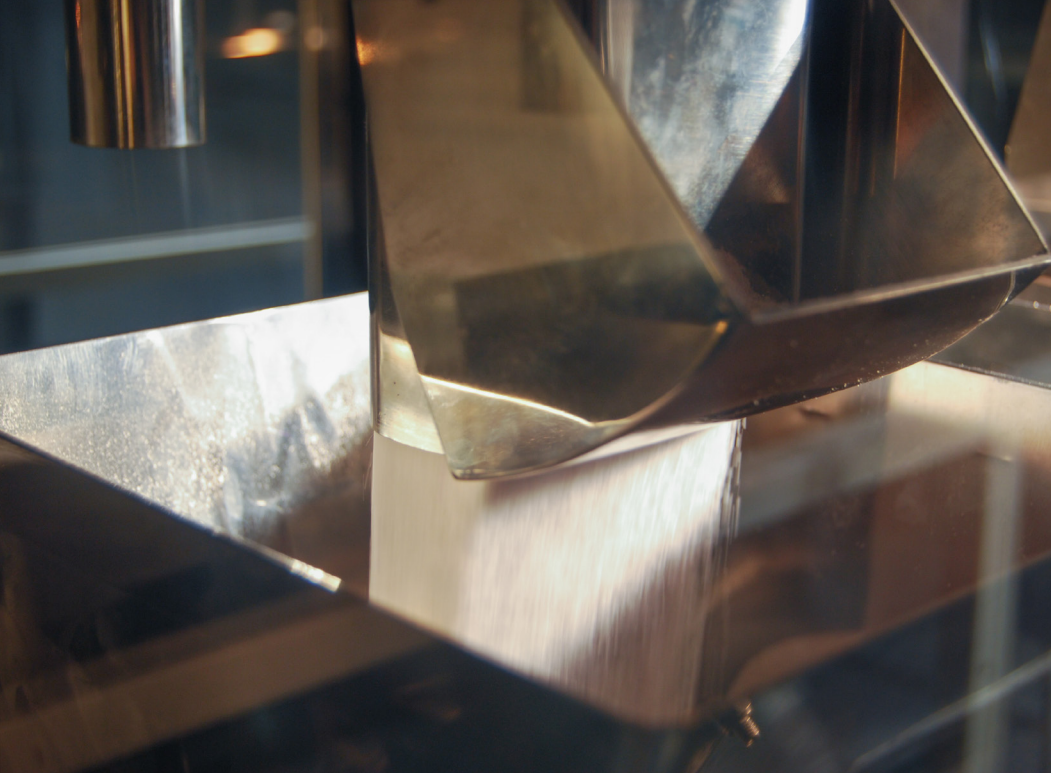
Beohemija's five powder packaging lines operate seven days a week, producing 220 tonnes of product a day. The majority is packed into 3kg polyethylene bags using a belt dosing system and bagmakers that, typically, operate at 15 weighments / bags per minute.

Despite an apparent high accuracy of around 2.5g per 3kg bag and a weight variation (standard deviation) of about 2.5 - 5g, Beohemija felt that the accumulated product giveaway could still be improved to be more acceptable for such a modern, efficient plant. At the same time, the company was concerned that its belt dosing system required regular cleaning and belt replacement, a significant cause of downtime that restricted the company's ability to meet steadily increasing production demand.

## Solution

At the Interpack 2008 exhibition in Düsseldorf, Beohemija was introduced to Ishida's new Cutgate Weigher, specifically developed for the controlled weighing and gentle handling of free-flowing granular products. Typically three times more accurate than conventional filling or dosing systems, it is also designed to preserve particle size and structure for optimum product quality (for example, to retain the active ingredients in detergent powders) and a significant reduction in dust emissions.





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The Cutgate was really the perfect solution for us. We were able to reduce both our giveaway by about 1.5g per bag and the weight variation to only 0.3g, which we initially could not believe was possible. Since its installation the Cutgate has worked perfectly.

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Product is constantly dropped via an infeed chute into the Cutgate hopper, which is programmed to discharge about 85% of the target weight (the 'coarse weight') into the weigh hopper directly underneath. The Cutgate hopper then closes just enough to allow a drizzle of product through to 'top up' the weigh hopper (the 'fine weight'), until the target weight has been reached and the correct amount of product can be discharged into the packaging machine.

The Cutgate Weigher's ability to minimise product giveaway is based on Ishida's technological prowess. Accurate load cells determine the coarse and fine weight required for each discharge, and this is relayed via a high-speed feedback control system to a stepper-motor, which drives the precise opening and closing profile of the Cutgate mechanism.

Offering quick product changeovers, the Cutgate Weigher is also easy to operate, clean and maintain. For further user convenience, weighing components are enclosed in an easily detachable cover to prevent dust dispersion. A sealed enclosure for gas flushing is available.

After a reference site visit and data collected from trials, Beohemija invested in a 3-head Cutgate model and a new vertical bagmaker. Following installation, Ishida trained nine operators across three shift-patterns to enable the customer to operate and maintain the Cutgate constantly. Beohemija has undertaken extensive analysis of the accuracy and performance of the Cutgate and concluded that payback on investment can be achieved within one year.

Accuracy has increased to a staggering 1g per 3kg bag (0.03%) and the weight variation has been narrowed to between only 1.2 - 1.5g. The speed of dosing has also increased from 15 to 22 wpm, and a further

increase to 25 wpm has only been prevented by the speed limitations of the bagmaker.

Downtime due to maintenance has been reduced significantly: the old weighing system took about 45 minutes per day to clean, whereas Beohemija says that 15 minutes per day is sufficient to clean the Cutgate weigher. In addition, the Cut-gate requires no more space than the old belt dosing system.

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"The Cutgate was really the perfect solution for us," confirms Dragan Rakic, production manager and deputy director of Beohemija. "We were able to reduce both our giveaway by about 1.5g per bag and the weight variation to only 0.3g, which we initially could not believe was possible.

"Since its installation the Cutgate has worked perfectly. We haven't required any spare parts and all of our trained operators are confident they can keep the machine running day in day out." General Manager Slavenko Sekulic adds: "The data we have collected on the Cut-gate has convinced us that we have invested in the right weighing solution for our powder business. We are considering the possibility of replacing our other belt dosing systems with Ishida Cutgate weighers over the next few years."

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