

## AstraZeneca Application success story

### Mettler-Toledo Hi-Speed engineers help AstraZeneca ensure accuracy in a tight spot.

Clinical drug trials provide a precisely-calibrated daily dose to participants: too little, and the trial data is useless; too much, and the patient is in danger.

The Investigational Products group, part of Pharmaceutical and Analytical R&D function located at the AstraZeneca plant in Newark, DE, has a bottle-filling line that is utilized for the packaging of clinical trials. Prior to installing the Mettler-Toledo Hi-Speed checkweighers, bottle count verification was performed by 100 percent visual inspection and by manually checkweighing in-process samples. This process required a high amount of resources and at times affected the efficiency of the bottle-filling operation.

In order to obtain the required accuracy, the IPS group needed to weigh the bottles they were filling twice and very precisely. The first weigh would be of the empty bottle; this would establish the tare weight of each bottle prior to filling. The bottles would be weighed a second time after filling to establish the gross weight of the bottle. The two checkweighers communicated with each other so each bottle's tare weight would be deducted from the gross weight, thus eliminating any bottle weight variability in the final weight. This allows precise measurement of the materials packaged inside the bottle. The filling line is capable of speeds of 45 to 50 bottles per minutes and the margin of error was less than a quarter of a gram per bottle.

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### Hi-Speed x-series checkweigher

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## AstraZeneca ensures critical application accuracy *continues*

To make it even more challenging, space was an issue. One scale had to be located on a right angle turn and the second one had to be mounted in a small area prior to capping. Senior Delivery Technologist David Flynn turned to Mettler-Toledo Hi-Speed Checkweighing.

"Accuracy is critical in this application," Flynn said. "We need to maintain good compliance with the clinical trial, so instead of having 50 or 100 tablets per bottle (as on a normal pharmaceutical filling line), we had just three or four – a patient's one-day dose. The patient opens the bottle and swallows everything inside. One more tablet or one less tablet makes a big difference in this application." Patient safety and compliance are a major concern with these fills.

The square plastic bottles themselves added another variable to the problem. Variability in the weight of these bottles, not normally a significant factor in a production line, became an issue because of the precision required on this line. Two checkweighers – one for tare and one for gross – would need to be synchronized precisely and communicate with each other to ensure that a particular bottle's tare matched with its gross.

Just to make things more interesting, this precision weighing had to take place in a corner of the filling line. Here the checkweigher would have to change the direction of the bottles by 270 degrees, rather than the usual 360, and work in a tight space. The Mettler-Toledo Starweigh checkweighers were customized to make less than a full turn, fit into the two-foot-square opening in the line, and set over the existing conveyor belt so that no holes needed to be cut in the line.

"We looked around and found that Hi-Speed was the only company that could do this," Flynn said. "They adapted their checkweigher to our particular application and it took considerable engineering to make it work. They also provided a machine that didn't require change parts when we changed bottle size. There is no need to change parts between production runs of different size bottles, this equates to less downtime, improved efficiencies and less frustration for the operator."

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