

Mass flow rate of plastic granulate - High-precision online measurement



Application

The company DuBay Polymer is a joint-venture of two very large multinational enterprises in the chemical industry. It produces the plastic granulate Polybutylenterephthalat (PBT) in one of the world's biggest and most modern production facilities in Hamm-Uetrop, Germany.

To improve the production control, the mass flow rate should be measured directly behind the granulation. The goal was to achieve the best possible accuracy, regardless which of the various products is just being produced. The available installation height was limited to approximately 100 cm.

Facts

Product:	Plastic granulate, various Polybutylenterephthalates (PBT)
Location:	Underneath a vibrating sieve, vertical pipeline, free fall, DN200 (8"), mounted on a receiver tank
Mass flow rate:	2,5 - 6 t/h
Solids velocity:	1,7 m/s

Solution

The ideal solution for this task is the patented flow meter DYNAchute. The functional principle is similar to that of a belt scale: The weight and the solids velocity is measured simultaneously over a weighing-chute, the mass flow rate is calculated with these two absolute values. Compared to other measurement principles, changes of product properties (e.g. density, particle size, friction, colour,...) have no impact on the measurement results of the device. An extensive product calibration in the process (like with impact scales, microwaves or capacitive systems) especially with varying products is not required. Also regular re-calibrations are not necessary.

The operational cost is very low and maintenance normally not necessary, because the flow meter has no moving parts, the product smoothly slides over the weighing-chute and the sensor system is well protected.

During product tests in the DYNA Instruments test plant, excellent results have been achieved already. After commissioning the instrument at the site, the expectations of the client have even been exceeded with an accuracy of 0,97% of the actual value and 0,65% of the end value.

Benefits

- More precise production control, less overproduction
- Accuracy 0,97% of actual value 0,67% of end value
- High reproducibility (0,4 %)
- No product calibration required
- Maintenance-free
- Wear-free
- Robust technology



DuBay Polymer, Germany



Installed DYNAchute RE250



Flow meter DYNAchute