

Case Study No 5

CONTINUOUS MIXING OF CONFECTIONARY INGREDIENTS

Subject	Continuous feeding-mixing system.
Client	Systems commissioned for high volume, quality food manufacturers.
Description	Feeding and mixing of confectionary ingredients, chocolate and beverage powders for continuous production processes.
Product characteristics	Diverse range of ingredients with differing flow properties such as sugar, pectin, citric acid, cocoa, vanilla, tea and sodium bicarbonate. Particle size range from breakfast cereal flakes to fine powders.
Requirement	Volume based production, accurate metering, high degree of homogeneity, low headroom, easy to clean, and low capital investment.
Gericke Technology	Each ingredient is transported to gravimetric “loss-in-weight” feeders controlled by a single Gericke UC 500 microprocessor. This calculates the recipe and controls the throughput of all feeders. These units meter the product directly into the GCM continuous mixer from where the mixed product is delivered to the onward process.
Special requirements	Continuous mixing is often used for small final packages and sachets due to high degree of ingredient dispersion. Systems are fully automated with easy clean features.



Gericke have developed this key process equipment in the form of gravimetric feeders and continuous mixers from their own research and development programmes. The system is particularly successful in processing fragile components without damage and the inclusion of liquids to a high proportion. Continuous mixing has many advantages:

- High degree of homogeneity
- No product separation
- Automated handling techniques (no containers or bags)
- Small space requirements
- Low power consumption
- Minimal source for impurities

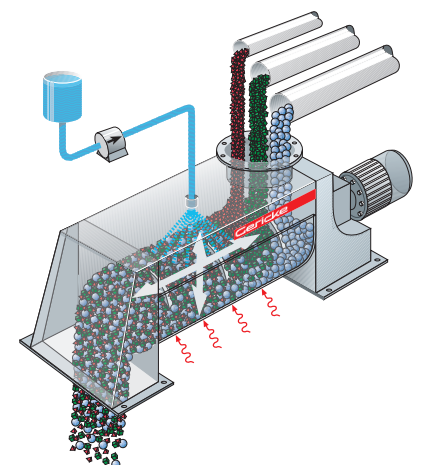
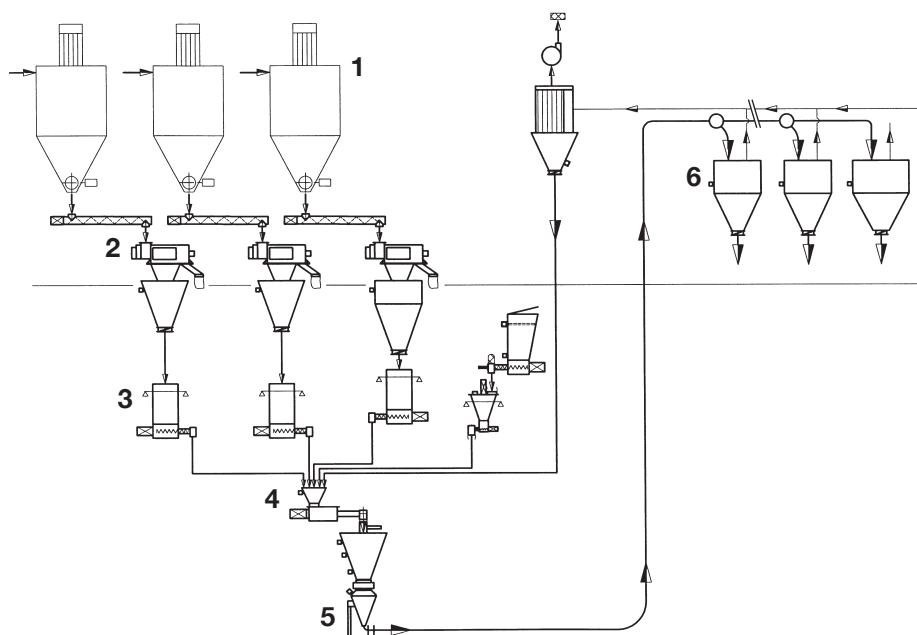
The equipment is mobile and easily cleaned within a controlled environment such as a wash station, which can be remote from the production area. Liquid injection can be used for agglomeration processes.

Control of the plant is from a single PLC based panel incorporating operator interfaces and graphic visualisation. The feeder controller forms an integrated part of the overall system PLC.



DIW – continuous feeding system.

- Gericke provide a complete turnkey service for system implementation including all controls, installation and commissioning.
- Gericke are able to offer test facilities for mixing, agglomeration, coating and thermal heat transfer processes. In all cases comprehensive test reports are made available.



Schematic of continuous mixing process

Legend

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|--------------------------|--|
| 1 Receiving hopper | 4 Continuous mixer |
| 2 Centrifugal sifter | 5 Dense phase pneumatic conveying system |
| 3 Loss-in-weight feeders | 6 System assembly |