Autonomous ingredient dissolver

Unit for preparing pre-batches for use in final syrup

Application

The autonomous ingredient dissolver is a discontinuous powder handling system to add more than two dry ingredients in high volumes in a semi-automated way with an integrated weighing system. Recipe dosing is fully automated, while powder storage is fed by manual operation of a big-bag crane.

A typical application is:

- Preparing pre-batches for syrups or beverages

Highlights

- Flexible addition of ingredients by a semi-automated and highly accurate system
- No manual dosing of large ingredient amounts
- Manual ingredient feeding and feeding by crane possible

Working principle

The autonomous ingredient dissolver is equipped with a batch mixing vessel that includes a recirculation line driven by a centrifugal pump. An optionally pre-heated water supply provides the batch base and enables hydraulic conveying. At least two injectors are located in series inside the recirculation line. These can be activated or disabled as desired once they are run through with water. Each injector is fed by a dosing hopper on weighing cells. In turn, the dosing hopper is fed by a screw conveyor which extracts raw materials from a dumping hopper charged via big-bags or manual sack feeding.

Based on the batch recipe, each injector provides the exact amount of powder requested for the specific ingredient. Each ingredient is aspirated into the recirculation line using the injector's vacuum and transported to the mixing tank.

Each injector doses its ingredient amount in an iterative process. All ingredients are dissolved in the batch vessel and are available for transfer once the mixing process is complete.

Main components

- Batch dissolving vessel including recirculation line
- Feeding platform
- Ingredient feeding hoppers
- Dosing screw conveyor
- Ingredient dosing hoppers including weighing cells
- Swivel or hall crane

Technical data

All parts in product contact are made of AISI 316L. The frame is made of AISI 304L.

- Big bag funnel: 2 000 litres
- Weight hopper: 500 litres
- Dosing accuracy: 0.2 %

Electrical power	400 V, 50 Hz
	Other supply voltage or frequency available
Feeding water	Main treated water supply 300 kPa (3 bar)
Compressed air	Control panel 600 kPa (6 bar)

Control panel

The machine is communicating with an external PLC as a standard. Optionally the PLC can be fitted in a local cabinet on the machine skid.

Example layout

Measurements depending on batch size and amount of ingredients. Available on request.

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