

# LOSS IN WEIGHT FEEDER DPP 1000



## DEFINITION AND PRINCIPLE

The Loss-in-Weigh Feeder extracts the product from a hopper and according to the fixed flow rate « set point » adjusts the discharged weight by varying the feeder speed to keep the loss in weight flow constant.

The weight of the material in the hopper is measured by three highly accurate strain gauge load cells associated to a digital signal processing unit (UTN).

The decrease in the total weight of the « weight loss » per unit of time is compared to the « set point value » (continuous feeder).

The Loss in Weight feeder can also be used as a batch-type feeder. The feeder can be made of carbon steel or stainless steel.

## CONSTRUCTION AND CHARACTERISTICS

The loss-in-weight feeder consists of four main parts :

- A storage hopper adapted to the material characteristics and required flow-rate.
- An extraction and feeding device (screw or vibrating tray)
- Three highly accurate strain gauge load cells and a digital signal processing unit
- An electrical and control command cubicle

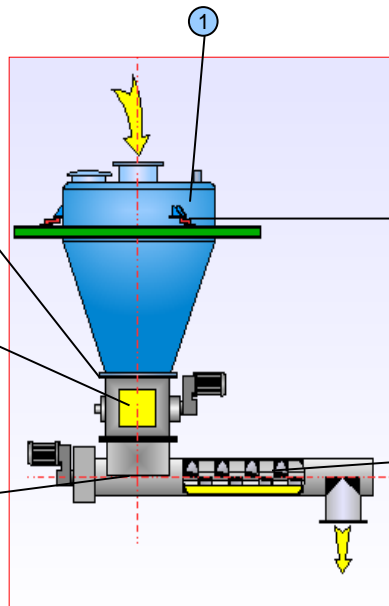
Storage hopper whose capacity and characteristics are adapted to the handled material, required flow-rate, operating range and accuracy

Sealing at the shaft passage by packing gland with braided ceramic sleeving on the command side and bossing with lip seal joint on the end plate side. ⑨

Two flexible sleeves (inlet & outlet) for machine isolation. ⑧

The homogenisation mixer ensures a continuous flow of material into the discharger and maintains a constant bulk density ⑦

Drive unit including the AC gear-motor ⑥  
Protection IP 55 or IP 65  
Electrical supply : 380/400/460/660V  
50Hz / 60Hz



② Digital signal processing unit (UTN) if the analogue load cells are used.

③ Highly accurate weighing system included three strain gauge load cells and one digital signal processing unit (UTN).

④ Pressurization of the packing gland cases with compressed air or with nitrogen in ATEX atmosphere.

⑤ Material extractor-feeder which can be a single or twin screw, vibrating tray or belt conveyor.

⑥ Direct coupling with easy dismounting to allow frequent cleaning of screw.

## ADVANTAGES

- Simple structure and easily adaptable to all types of material.
- Modular conception for quick and easy disassembling and cleaning
- Completely enclosed dust free machine
- High weighing and feeding accuracy: up to +/- 0,2 %.



## APPLICATIONS

The Loss-in Weight feeder is used for continuous and batch weighing of granules, powders, flakes, fibres and also liquids

- **Food industry :** Cereals, biscuits, confectionery, chocolate, pasta, pet food
- **Chemical industry :** Detergents, fertilizers
- **Cement industry and Building materials :** Pet coke, pulverised coal, secondary fuel, gypsum, plaster, trass, fly ash, dust, starch additive (MnO<sub>2</sub>, CaCO<sub>3</sub>...)
- **Petrochemical industry:** Polyethylene, polypropylene
- **Nuclear:** Glass sinters, powders



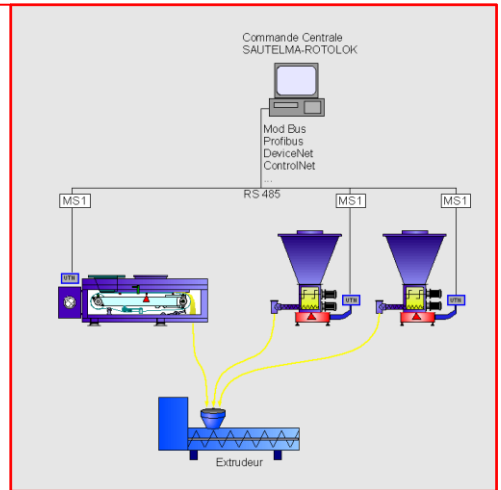
## SPECIAL APPLICATIONS

- When the feeding flow rate is steady and cannot therefore exceed 10 times the dosing flow rate (as necessary) or when customers want to avoid the 'volumetric' stage (filling), Sautelma proposes a loss in weight feeding system with twin weighed hopper.

- For a continuous product flow (without storage), Sautelma recommend systems with two parallel weighed hoppers. The product transit from hopper to hopper is made by a flap gravity diverter controlled by a pneumatic actuator. A safety valve installed between the feeding point and the diverter guarantees regular cycles.

- In cases where customers want to avoid the 'volumetric' stage for safety and/or extracting instability purposes, Sautelma advises feeding systems with two superimposed hoppers where the lower hopper is hung from the upper hopper via 3 weighing sensors and where the whole system is supported on 3 other sensors fixed on the supporting frame. The product transit between hoppers is controlled by a pneumatically controlled valve.

## NETWORK COMMUNICATION



- **Special applications : ATEX, Calorifugeage...**

## THE CONTROL COMMAND EQUIPMENT

The Loss-in-weigh feeder is controlled by Sautelma's universal microprocessor controlled measuring system called MINISMART. The Minismart receives the « set point » value compares the lost weight per unit of time to the set point and adjusts the speed of the screw <discharges to maintain constant the gravimetric flow. It also manages the faults. The Minismart can operate by itself or be integrated in hierarchically structured assemblies.

The Network Communication can be insured through :

- Traditional wiring connections with 4.20mA, analog and PFC digital signals
- RS 485 or RS 232 serial connections and protocol such as J-BUS/MODBUS
- In network field bus communications such as PROFIBUS, DEVICENET, CONTROLNET as well as ETHERNET.

The weighing signal is locally processed by Sautelmas Digital signal processing unit

(UTN). The UTN is a specialised signal processing electronics device which contains among others inputs/outputs the DSP and an analog/digital converter.

The electrical part contains : frequency inverter, transformer, motor protection, relays and terminal connection block. It is usually settled in a standard electrical cubicle located near the feeder or in the electrical room.

