

Loss-in-weight scale
Varion G

For continuous
dosing & weighing
of granular products



Make a difference in weighing and dosing

Varion G – Loss-in-weight scale for granular products

Control and define process streams

Weighing and dosing applications are extremely important in all food and feed processing lines. Scales and dosers are technically taking over these functions and are installed during process steps which are critical for process and quality. The Varion G perfectly copes with these requirements and provides operation modes for weighing and dosing.

Dosing – Defines product streams for downstream processes by running them under the most effective conditions as well as blending requirements, thereby achieving the desired product composition.

Weighing – Provides transparency on the most relevant process streams, ensuring maximum yield on raw materials and controlling incoming and outgoing product flows.



Sustainability

Proven energy cost reduction of up to 92% thanks to the designed-for-purpose **DriveX** module with an integrated **power management system**.



Quality

Uniquely high and repeatable accuracy down to $\pm 0.2\%$ thanks to a perfect combination of **process logic**, a super-efficient **differential pressure compensation** and high-precision load cells.



Availability

Maximized up-time thanks to the powerful and extremely easy to operate **bUnify control system**, with a modern and intuitive user interface.



Safety and ease of use

Easy and safe to operate and maintain thanks to its uniquely ergonomic, robust and hygienic design.



Digitalization

Unlimited connectivity with Bühler Insights and any plant control system ensures full transparency and utilization of the **Scales Monitoring System**.



Key elements

Designed for purpose

- 1** Inlet housing with incorporated segment gate, actuated by DriveX module
- 2** Flexible connection to decouple weighing hopper
- 3** Bulk density measurement module (optionally)
- 4** Weighing hopper
- 5** Moisture measurement module (optionally)
- 6** High-precision load cells
- 7** Outlet section with incorporated dosing segment gate, actuated by DriveX module
- 8** bUnify machine controller with web panel
- 9** Installation structure



Commodities:



Maize



Oat flakes



Barley



Wheat



Pulses



Brown rice



Rye



Seeds



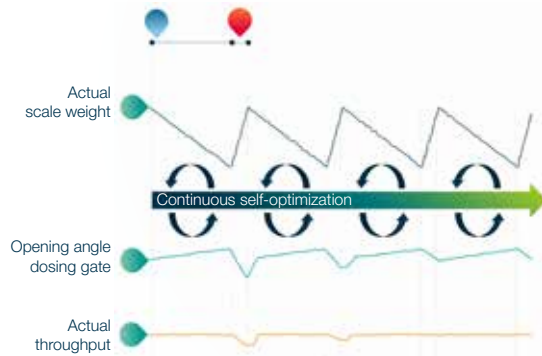
Other granular products

Varion G at a glance

Turning leadership in innovation into benefits for operation and maintenance

Continuous self-optimization

Example: Use case continuous dosing



Compensation for environmental influences



Best accuracy of down to $\pm 0.2\%^*$

- Self-learning process algorithm continuously optimizes the weighing process
- Smart differential pressure measurement system actively compensates and monitors internal pressure differences
- Separately connected high-precision load cells allow individual analysis of the measuring signals

DriveX saves energy of up to 92%

- Designed-to-purpose servo drive and gearbox ensure not only significantly reduced energy requirements but also increases machines life-time of the drive system
- Power management system buffer restores energy and ensures safety of the machines in case of power cuts

*Mentioned accuracy to be understood as best-case scenario and depending on operation point, product properties, environmental influences, line integration, maintenance quality, etc.



Maximized up-time thanks to bUnify control system

- Intuitive and modern user interface enables fast and high-quality interaction when required
- Full transparency on process and machine parameters thanks to trending charts and event management
- Support-wizards ensure the most effective root cause analysis and user guidance e.g., calibrations
- Highly flexible integration into the processing line thanks to various interface options



Unmatched safety thanks to outstanding design

- Operational – no product build-ups in the process zone thanks to the avoidance of complex and inaccessible areas
- Maintenance – sufficient openings for cleaning and maintenance to comfortably reach all relevant parts and sections
- Equipment – product zone free of screws and bolts protects downstream equipment
- Food – minimal accumulations of product and dust thanks to first-class hygienic design



Scales Monitoring System provides solid ground for various improvements

- Improved performance and process stability thanks to full transparency on critical machine and process parameters
- Long-term monitoring of the incoming product flow leads to maximized and uniform overall processing line efficiency
- Smart Bühler Insights dashboards ensure transparency across all organizational levels

Use case: Continuous dosing

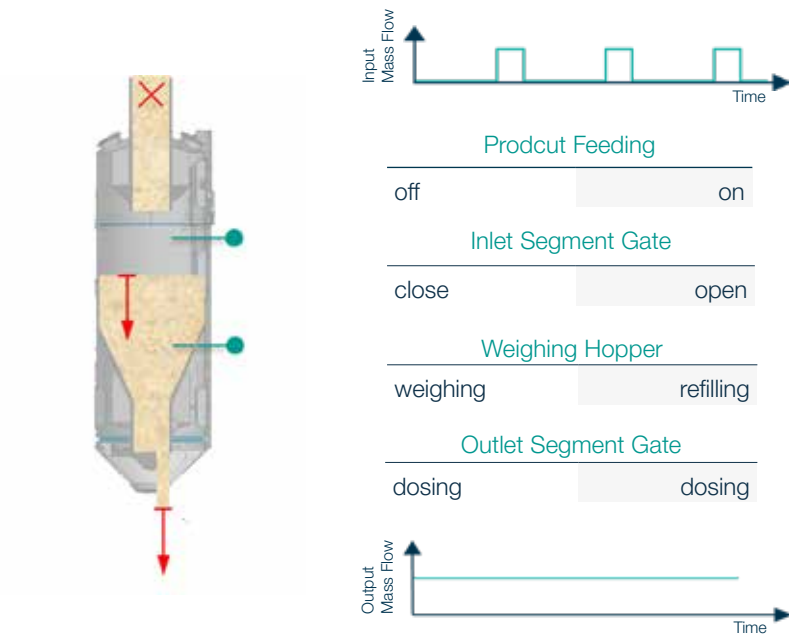
Ensure maximal quality and efficiency

In the operation mode FlowControl, the Varion G continuously doses the product with the desired process flow rate to the downstream process steps. The throughput can be freely selected, optionally in combination with the total weight of a production lot.

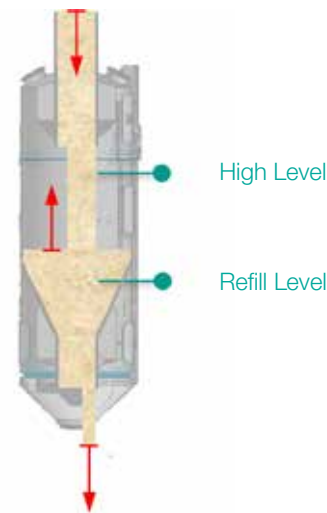
Insights into the Varion G process

Continuous dosing is provided by two sub-process steps: weighing and refilling. The product level in the weighing hopper is always between high and refill level.

Sub-process step weighing



Sub-process step refilling



Exemplary use cases:

- Dosing product to a continuously operated core machine such as roller mill, hammer mill, etc, ensuring highest performance in the core process
- Dosing product to a continuously operated raw material blending system ensuring the desired compositions of raw materials



Efficiency

Most accurate and consistent feeding of core processes



Quality

Transparency in the factory and repeatability in the process

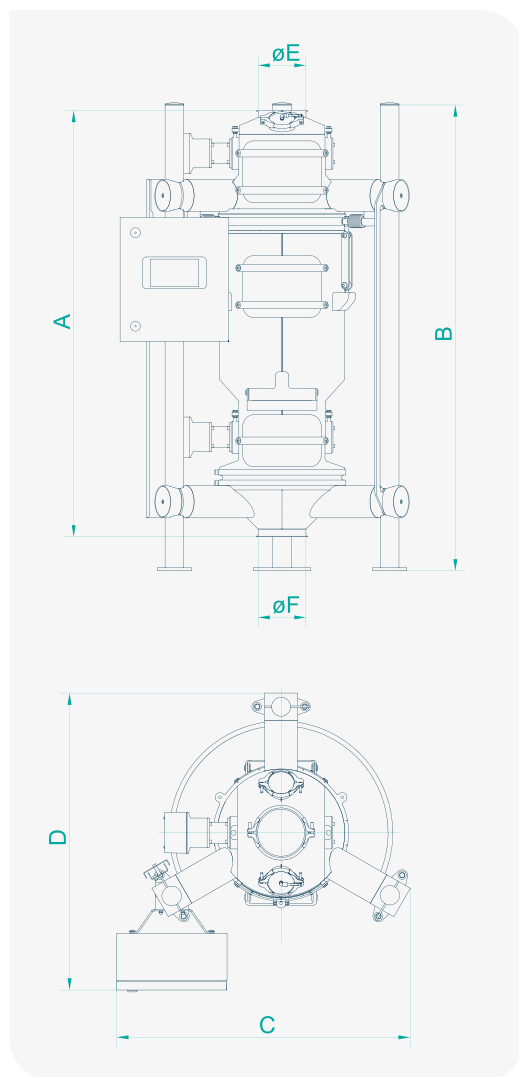


Self optimization

Availability of relevant data as basis for smart process interlocks

Technical specifications and capacities

Use case: Continuous dosing



Dimensions

Model	A [mm]	B [mm]	C [mm]	D [mm]	øE [mm]	øF [mm]
30	1153	1305	930	949	ø150	ø150
60	1373	1505	930	949	ø150	ø150
140	1665	1805	1104	1099	ø300	ø250
200	1891	2005	1104	1099	ø300	ø250

Dimension may vary for different machine configurations

Volume flow & capacities

Model	Volume flow [m³/h]	Wheat Rye 0.75 t/m³ [t/h]	Maize Barley 0.6 t/m³ [t/h]	Oat 0.5 t/m³ [t/h]
30	up to 16	up to 12	up to 9	up to 7.5
60	up to 32	up to 24	up to 18	up to 15
140	up to 80	up to 60	up to 45	up to 40
200	up to 107	up to 80	up to 56	up to 48

Alternatives to dose granular products:



Batch scale
Akrivis



Flow balancer
Rois

Use case: Continuous weighing

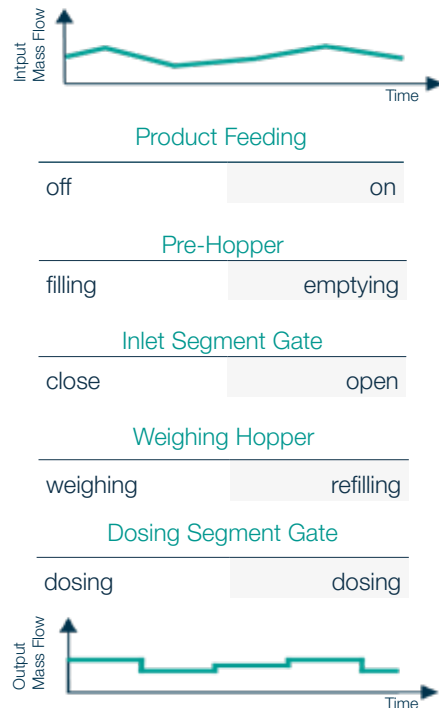
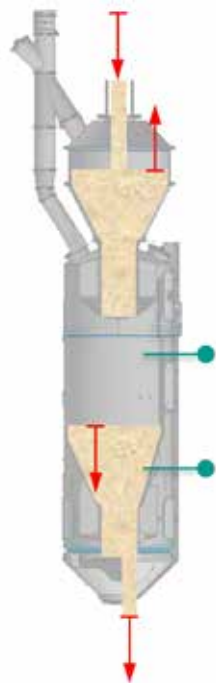
Ensure maximal quality and efficiency

In the operation mode FlowMeter, the Varion G measures the mass flow of a process stream with a given throughput. Key performance parameters such as high weight accuracy with maximal consistencies in the weight measurement process are given throughout the operation. The actual mass flow rate is calculated and provided at any time.

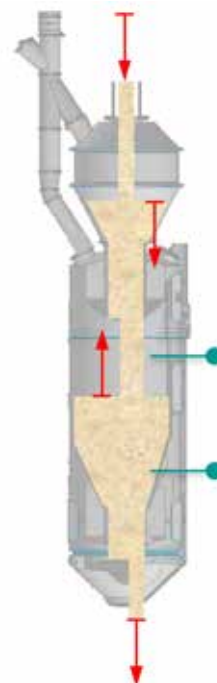
Insights into the Varion G process

The continuous weighing is provided by two sub-process steps: weighing and refilling. During refilling the weighing hopper is filled until the target level. The weighing is done based on time.

Sub-process step weighing



Sub-process step refilling



Target Level

Refill Level

Exemplary use cases:

- Measuring a given product flow at various positions throughout the processing line providing transparency and process control
- Providing product properties like bulk density, moisture content, and temperature in addition to the weight to an upstream process such as drying systems, flaker, etc.



Transparency

Transparent measure of the mass flows on all relevant positions in the factory

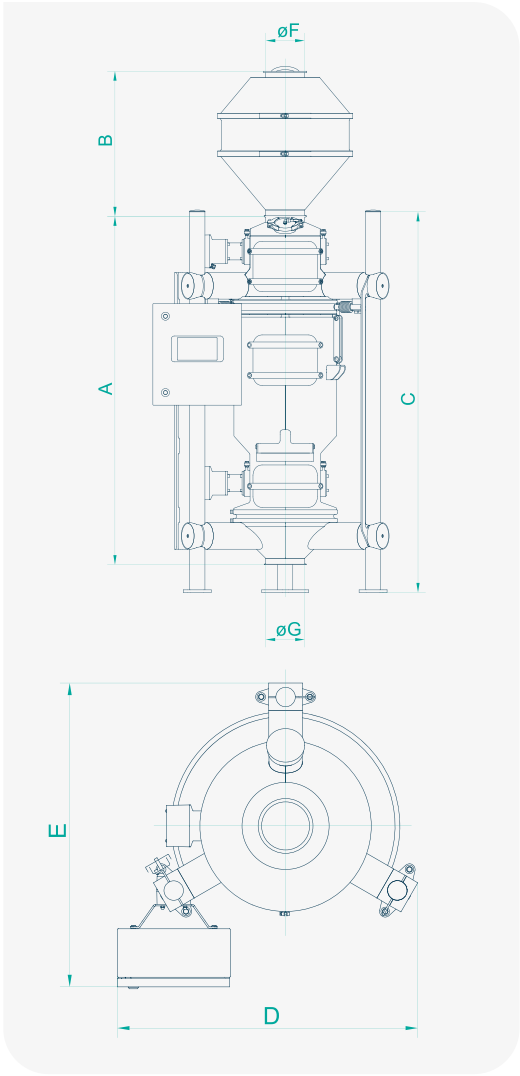


Yield management

Accurate measure of the incoming and outgoing product streams

Technical specifications and capacities

Use case: Continuous weighing



Dimensions

Model	A [mm]	B [mm]	C [mm]	D [mm]	øE [mm]	øF [mm]
30	1573	930	949	ø150	ø150	ø150
60	1943	930	949	ø150	ø150	ø150
140	2394	1104	1099	ø300	ø250	ø250
200	2720	1104	1099	ø300	ø250	ø250

Dimension may vary for different machine configurations

Volume flow & capacities

Model	Volume flow [m³/h]	Wheat Rye 0.75 t/m³ [t/h]	Maize Barley 0.6 t/m³ [t/h]	Oat 0.5 t/m³ [t/h]
30	up to 8	up to 6	up to 5	up to 3.5
60	up to 17	up to 13	up to 10	up to 8
140	up to 53	up to 40	up to 32	up to 26
200	up to 67	up to 50	up to 40	up to 33

Alternatives to weigh granular products:



Batch scale
Akrivis

The background of the entire page is a close-up photograph of numerous almond slices scattered across a fine, circular wire mesh. The almond slices are light brown and have a smooth, slightly glossy texture. The wire mesh is made of thin, grey metal wires that form a consistent circular pattern throughout the image.

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