

GEA SmartFil M1

Versatile powder packing system



GEA SmartFil M1 – Versatile Powder Packing System

Small, low volume plants often require a flexible packaging solution to meet the needs of the global food industry. The GEA SmartFil M1 has been designed from the ground up to meet this challenge.

Modularization

Global demand for food powders is growing and the market requires flexible solutions to meet the changing needs of manufacturers.

Many products that are manufactured in powder or granular form require specific solutions for safe and reliable primary packaging. GEA recognizes this need and has developed a modular packing solution to deliver the flexibility required by the manufacturing plant over time.

Starting out

Emerging markets, low volume producers and pilot plants all require a compact and flexible low rate packing operation to meet their needs. With diverse product portfolios, primary producers require the ability to tailor their packing solution accordingly. This is where the all new GEA SmartFil M1 delivers!



Complete GEA SmartFil M1 with auger, continuous sealer and downline

Product applications

The dairy and food industries demand high standards of quality, reliability and hygiene, so everything we do is done with these requirements in mind.

The ability to configure the GEA SmartFil M1 to meet the specific needs of an industry or product application was paramount in the development of this new packaging system.

Many of the key features built into the design are ideally suited to the main products that they will pack. Handling powdered or free-flowing products is very different to handling granular or pelletized products and the solution must therefore be matched to its application.

Below are just a few of the main applications that the GEA SmartFil M1 can be configured to handle:

- Food ingredients
- Coffee and freeze-dried products
- Dairy ingredients
- Pet food





Auger feeder

Food ingredients

Powdered food ingredients that require a carefully controlled auger metering system will benefit from this option on the GEA SmartFil M1. The vertical auger design with integrated shut-off is well proven technology that is adapted from other filling systems in the GEA range.

With an optional integrated deaeration probe, this filling system will enable food ingredients manufacturers to safely and reliably fill powdered products into bags, boxes or drums.

With a continuous heat-sealing configuration, the SmartFil M1 can consistently produce finished products into 25kg open-mouth bags with either glued closure or sewn closure if required. Alternatively, the impulse sealing option is ideally matched with plastic bags that are commonly used with boxes or cartons.



Vibratory feeder

Coffee & freeze-dried products

Coffee and freeze-dried products tend to be fragile or friable and therefore demand a gentler approach to filling.

For these applications a vibratory feeding solution can be employed to finely meter the product for high accuracy filling. This type of feeding solution eliminates rotating or close contact parts from the product stream, thereby reducing the risk of product breakdown.

To ensure the integrity of the finished product, these types of products are typically filled into flexible plastic bags inserted into cardboard boxes. For this application, a dust free bag clamping system was chosen.

Once filled, the neck of the plastic box liner can be easily inserted into an impulse type sealer for hermetic sealing. The integrated height adjustable conveyor enables simple and quick adjustment to suit the selected box/drum size, allowing the operator to work at an ergonomic height. A pivoting conveyor can be added to compensate for height adjustment when the GEA SmartFil M1 is connected to an optional integrated downline.



GEA SmartFil M1 with auger and continuous sealer

Dairy ingredients

Small scale dairy plants requiring a hygienic powder filling solution in a compact form can select the GEA SmartFil M1 with auger feed, deaeration (option) and continuous heatsealer with integrated fold-over for a cost effective, high quality solution for their powder packing operation.

When integrated with a downline bag handling system, this cost-effective semiautomatic solution provides high quality, accurate filling and closing of open-mouth, multi-wall bags. For aluminium foil bags, the sealing system can be changed to an impulse type sealer as required.



Vibratory feed system with sealing and sewing integrated

Pet food

The GEA SmartFil M1 can be configured to pack granular products, such as dried pet food, into laminated paper/polypropylene sacks that require a sewn closure.

The vibratory feeder provides a gentle metering option, which can be coupled with the sealer/sewing system for effective closure.

The right solution

Planning for future requirements can be difficult. A modular system like the GEA SmartFil M1 can make difficult decisions easy.

With more than 100 possible variants, the GEA SmartFil M1 can be configured to suit almost any application. Left-hand or right-hand, powder or granule, bag or box - solutions are able to be configured to meet the requirements of existing plant operations.

Having so many options available can be confusing! The filling and packaging experts at GEA can configure the correct solution for the application and advise on future proofing in case of unforeseen requirements into the future. Being a modular system, making changes or upgrading to add features such as deaeration or powder sampling at a later time is easily done.

The integrated operator control panel can be easily re-configured to enable the new functions as required.



Safe solutions for safe products

Global food producers instinctively know that the safety of their products has a direct impact on consumer confidence and ultimately on the value of their brands.

With an increasing awareness of good manufacturing practices, consumers need to be sure that the foods they consume have been treated with the highest standards of food safety. Manufacturers are constantly looking for new and innovative solutions to protect their employees and the products they handle.

Process overview

The Each year, the global food industry handles millions of tonnes of powdered product in bags, boxes and drums. At any stage in the process, there is present a risk of contamination and so it is expected that the handling of product and packaging is done in a reliable and safe manner.

The GEA SmartFil M1 is designed to meet all of the latest safety and hygiene standards thereby providing peace of mind to the plant owner and operator.

Footswitch operation and soft-close mechanisms ensure safe operation whilst high grade surface finishes to the product contact surfaces reduce the risk for potential contamination.

Being a semi-automatic operation, it is important that the filling system is easily accessible for cleaning. This was part of the design concept. Low height, accessible components make maintenance and cleaning operations easier, thereby minimising potential downtime and lost production.

Different options that can be swapped (auger, vibratory feeder, deaeration probe, continuous sealer, sealer/sewing, impulse sealing)



Vibratory feeder, bag, seal & sewn



Vibratory feeder, box & impulse seal



Auger, box & impulse seal



Auger, bag, seal & sewn

Integrated solution

Hover over the blue dots to reveal the optional features

1. Integration with powder feed system
2. Powder sampler option
3. Vibratory feeder option
4. Deaeration probe option
5. Inflatable head option
6. Impulse sealing and sewing options
7. Optional downline equipment



Technical specifications



		Auger / Bag / Foldover	Vibe / Bag / Foldover	Auger / Bag / Sewn	Vibe / Bag / Sewn	Auger / Box / Impulse	Vibe / Box / Impulse
Packing type	Kraft Bag with PE liner (step top)	•	•				
	Kraft Bag with PE Liner (flush top)			•	•		
	Box with Liner					•	•
Handling	Right to left	•	•	•	•	•	•
	Left to right	•	•			•	•
Metering device	Vertical auger	•		•		•	
	Vibratory feeder		•		•		•
Sealer	Foldover sealer	•	•				
	Sewing sealer			•	•		
	Impulse sealer					•	•
Upgrades	Deaeration probe	L1	L1	L1	L1	L1	L1
	Spool sampler	L1	L1	L1	L1	L1	L1

* GEA SmartFil M1 - versatile packing solution

Key features:

- Configurable for a variety of different powder applications.
- Key items, such as metering system, filling head, sealing and closing, machine handing, etc. are selectable to order.
- Configurable for handling multiple packaging formats which are common in Food and Dairy production.
- Selectable sealing and closing system for various types of receptacles.
- Automatic filling to a pre-set weight.
- Sealed filling head for dust free filling.
- Integrated base compaction and dust collection hood.
- Ergonomic machine operating height.
- Stainless steel construction.
- Optional on head deaeration probe to help remove interstitial air.
- Optional spool powder sampler for quality assurance inspection.

Key benefits:

- Versatile machine design.
- Simple adjustment between packaging sizes.
- Simple and safe operation.
- Accurate filling minimises product give-away and increases yield.
- Improved product safety and hygiene.
- Improved operator health and safety.

Key specifications:

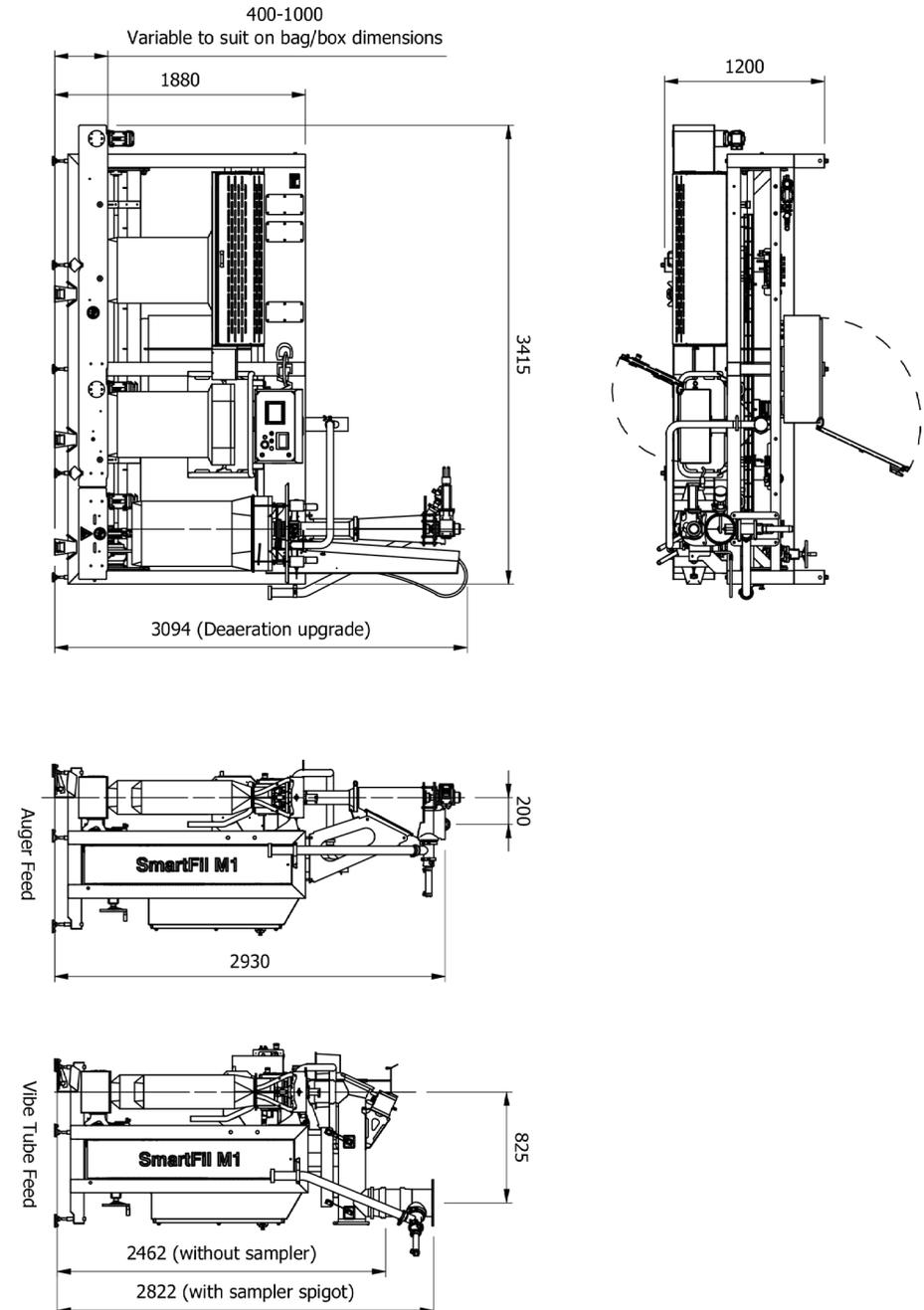
- Material type: Dry, free-flowing Dairy and Food powders or granulated materials.
- Nominal filling capacity: 120 bags/hr (3.0 tonnes/hr @25kg product and operator dependant).
- Filling accuracy: 30g @ 1SD (product dependant)

Equipment standards:

- Hygiene
- Designed in accordance with: USDA- 3A;
- EHEDG where applicable and practical; - EN 1672-2 Food Processing Machinery; - ISO 14159 Safety of Machinery; are used as the basis of our design.
- Machine safety: ISO 12100:2010 and standards derived from this.
- Hazardous Environment Compliance Method: ATEX; IEC; NFPA.

Machine construction:

- Constructed from stainless steel, or approved food grade materials.
- Material for all other parts, selected to suit optimal performance.
- All product contact parts are finished with a Ra $\leq 0.8 \mu\text{m}$ surface finish or better.



Packing specifications

The SmartFil M1 is designed to handle a variety of different packaging types, selected at the time of order.

Bags - Multi-Wall / Plastic, Pillow, Step-Top / Flush-Top



Open-mouth bags:

Bag Size (Pillow Style)

- Width: 350mm - 600mm *
- Bag Length: 450mm – 1050mm
- Block-bottom: 120mm – 180mm

Bag Size (Gusset Style)

- Width: 350mm - 450mm
- Gusset size: up to 100mm
- Bag Length: 450mm – 1050mm
- Web-bottom: 120mm – 180mm

Boxes / Cartons - Regular slotted Carton (RSC)



Bag-in-Box:

Rectangular Slotted Carton (RSC) style, single or double wall.

Box Size (External closed box dimensions)

- Width: 300mm - 400mm
- Length: 300mm - 500mm
- Height: 300mm - 600mm

Drum Container - Composite Fibre



Bag-in-Drum

- Composite fibre drum

Drum Size (External dimensions)

- Diameter: 300mm - 400mm
- Height: 300mm - 800mm

Box/Drum Liner Size:

- Polyethylene: 50 - 150 µm
- Width: 600mm - 950mm
- Length: 600mm – 1050mm

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