

# Bulk filling solutions

Bulk bag system (BBS-D & BBS-S),  
GEA HYGiBulk, GEA HYGiLoad and  
SmartFil BB-F.



# Meeting the challenge

Bulk powder filling – known as FIBC filling, is challenged with many variables. Packaging type, available space, packing rate and operational requirements all impact the final design and configuration of the machine and the resulting return on investment.

Powdered food manufacturers wanting to pack their high value powders in a safe and hygienic way, require the optimum solution to suit their unique plant operation. This can mean a bespoke solution is the only way to meet their exacting needs.

GEA has always focused on delivering well researched solutions for bulk filling of high value products - where the safety of the powder and the operator is paramount.

We are proud to extend our range of FIBC fillers further with the launch of our new HygiBulk which offer a range of specifications to meet most bulk filling requirements. These new filling solutions are positioned within an already highly specified range of FIBC fillers starting with our manual SmartFil BBF through to the automated BBS series.



GEA HYGiBulk C3



GEA BBS-D

**Our approach**

Selecting the right FIBC filling solution is not simply based on the packing rate. There are many functional and operational requirements that must also be met.

Before considering which FIBC filling solution is right for you, we first consult on the packaging type and the powders you want to fill, the required output capacity and space available.

Next, we work with you to refine a solution that is tailored to your operational needs. This can involve detailed consultation on space, hygiene requirements, operator limitations and plant efficiency goals.

**Ensuring food safety**

To ensure the safety of the powder being filled, all our FIBC filling solutions feature an inflatable filling head that inflates to “seal” the bag during filling to provide a fully encapsulated filling operation. Over-pressure venting to atmosphere or pressure balancing means that the bag will not be over-inflated during filling. With hermetic sealing as a closing option, you can be confident that the filled bag is airtight during storage for increased product shelf life.



GEA HYGiBulk C2

# Tailoring your solution

Filling FIBC's comes with its own set of challenges that must be addressed to ensure efficient and continuous plant operation. Our extensive range of filling systems and options means that we can tailor the solution to fit the exact requirements of our customers.

**Key points to consider include:**

- Access and handling of empty bags into the room
- Handling of filled bags out of the high care area
- Operator convenience
- Plant hygiene requirements
- Cleaning requirements
- Safe access
- Filling rate and accuracy
- Packaging format
- Future needs

Our knowledge of the global powder filler market means that we can advise on the right packaging type and method of handling the filled bags to deliver a robust, future-proof solution.

Milk powder plant filling and packing area



# Our range

As our customers needs differ based on their own operational requirements, our solutions have evolved too.

From full manual operation through to a high level of automation, the GEA range of FIBC fillers can accommodate most requirements. With all FIBC filling requiring some manual intervention, we have focused on making those steps as convenient as possible.

## Bulk Bag System (BBS-D & BBS-S)

Our flagship models – BBS-D and BBS-S, have been developed to provide all of the advantages associated with hygienic FIBC filling. By handling and moving the bag via the loop straps, this removes the need for floor mounted conveyors or pallets in the clean room, making this a clean solution for high care areas.

### Features include:

- Single or Double operating stations for higher output
- Bag is suspended during filling to remove dead pockets
- Bag Range 1 - 2.2 m
- Inflatable bag clamping for improved dust control
- Weighing during filling for consistent accuracy
- Bag compaction during and after filling
- Bag transfer and place on pallet outside the high care area
- Optional heat sealer for hermetic closure
- Automatic hook release for ease of operation
- For operation with or without M.A.P. (modified atmosphere packing)



### GEA BBS-D

The BBS-D employs two shuttle units to handle and transfer bags outside of the high care zone.



### GEA BBS-S

The BBS-S is configured with a single shuttle for lower throughput and offers a smaller footprint.

### GEA HYGiBulk C - Series

GEA HYGiBulk C1-3 represents a step change in our evolution of FIBC filling. This new range of fillers delivers all the key features of our BBS models including:

- Hygienic design
- Top weighing
- Auto-release hooks
- Inflatable clamp filling head
- Base compaction (all models)
- Cone top only (C2 and C3 models))
- Ergonomic design
- Hermetic sealing option (C2 and C3 models)

No two customers are the same – as their needs differ, they look to suppliers for bespoke solutions. To meet this need, GEA has taken a new approach to FIBC filling by producing a modular design that allows you to configure a solution to meet your exacting requirements.

### Key considerations for customers:

- Plant output capacity
- Handling of empty bags into the room
- Handling of filled bags out of the room
- Pallets inside the high care area
- Need for different bag size(s) and filling weights
- Closing method (heat seal or tie-off)
- Warehouse utilization
- Labor vs automation



#### GEA HYGiBulk C1

HYGiBulk C1 - basic configuration for manual operations.



#### GEA HYGiBulk C2

HYGiBulk C2 adds driven roller conveyors for handling pallets inside the high care filling area.



#### GEA HYGiBulk C3

HYGiBulk C3 adds belt conveyors for hygienic operation. Shown here with separate impulse heat sealing station.

**GEA HYGiBulk C3 Custom****GEA HYGiBulk C3 Custom**

GEA has developed a bespoke solution for customers who want to handle FIBC's and rigid tote bins.

This requires a completely different method to handle these different containers and has resulted in a sliding shuttle solution.

Instead of using roller or belt type conveyors to handle the containers, a shuttle system is employed to move containers from the high care area to the palletizing (low care zone).

For bag palletising, a pallet is inserted (or optionally, moved by conveyor and pallet dispenser) into place at the outfeed. The shuttle returns to the filling station inside the high care area, the full bag is transferred onto the waiting pallet.

For tote handling, the forklift driver will manually remove the filled tote and transfer it to storage.

The system can be further enhanced with the addition of an automated palletizing or tote handling system if required.

**Benefits include:**

- Separation of high care and low/medium care zones
- Automated operation for improved safety and operational efficiency
- Flexible solution for customers to meet market demand
- Full stainless steel construction for durability

**GEA HYGiBulk C3 with HYGiLoad**

The HYGiLoad option adds a fully automated solution for handling FIBC's by moving the bag off the belt conveyor and onto a pallet ready for warehousing.

**GEA HYGiLoad**

The GEA HYGiLoad has been developed for additional functionality to the HYGiBulk C3.

HYGiLoad is a solution for automated bag handling, designed to take the filled bag and transfer it onto a waiting pallet outside of the high-care area..

With the addition of a pallet destacking and a roller conveyor system, the GEA HYGiBulk C3 with HYGiLoad enables a complete solution for hygienic filling and handling of FIBC's.

**Benefits include:**

- Hygienic handling of finished FIBC's
- Automated solution for safety and efficient operation
- Full separation of high care and low care zones
- Airlock ensures minimal pressure drop between high care and low care zone preventing dust ingress



**Filled bulk bags ready for distribution**  
(Subject to bag construction)



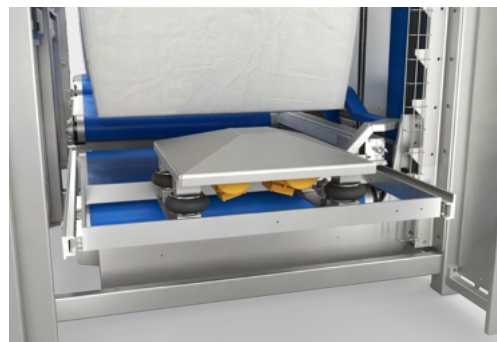
#### **Top Weighing**

When filling FIBC's it is essential to ensure the bag is filled fully and without creases. By hanging the bag during filling, the HYGiBulk system ensures a properly stretched and stable finished bag that can be reliably handled on a pallet.



#### **Auto-release hooks**

As FIBC's are large and often challenging to handle, GEA has developed automatic releasing hooks that can be "swung" into place to allow an operator to load bags from a single side. When filled, a lift platform raises to take the weight of the bag and the release hooks automatically open to allow movement of the finished bag.



#### **Base compaction**

As a further aid to ensuring a stable finished bag, the powder is automatically compacted during filling. An integrated vibration platform is raised to contact the bottom of the bag and vibrates during filling to stabilize the powder to form a consolidated base for reliable handling.



#### **Hermetic sealing**

For products that are oxygen sensitive or which are to be packed in an inert atmosphere, an optional impulse sealing system can be added internally or externally to the filler.

**GEA HYGiBulk H - Series**

Customers wishing to have the most un-cluttered FIBC filling operation can now select the HYGiBulk H series. Deceptive in its simplicity, the HYGiBulk H1 has been developed to enable the entire filling system to be suspended from an existing ceiling or support frame.

A moveable head and retracting lift cylinders provide flexibility to pack into varying length bags. This enables the operator to load and unload the bag.

The metering system can be taken from an existing product feed via rotary metering valve, screw conveyor or vibratory feeder if required.

The bag is fully suspended during filling and top-weighing ensures an accurate final pack weight. The operator can control the process from an integrated operator terminal and when complete, a pallet may be introduced to accept the filled bag.

The “clean” design means that the entire system can be wet washed if required, making this an ideal solution for food production where high hygiene and CIP is a must!

**GEA HYGiBulk H1**

Cleaning is the main focus with this minimal solution. The HYGiBulk H1 is Ideal for wet washing applications.

**GEA SmartFil BBF**

For plants needing a simple low cost solution for filling of big bags - typically out of spec powders or occasional use, the GEA SmartFil BBF is the ideal solution.

An integrated filling and weighing system enables the operator to manually load and fill FIBC's.

The SmartFil BBF can be paired with a gravity feed, rotary valve or screw conveyor for dosing the powder into the bag.

**Benefits include:**

- Simple manual, flexible operation requires minimal training
- Low maintenance solution
- Low cost solution
- Dust free filling

**GEA Smartfil BBF**

Manual filling system for infrequent packing operations where pallets are permitted in the packing room.

# Product Range



	BBS-D	BBS-S	HYGiBulk C3	HYGiBulk C2	HYGiBulk C1	HYGiBulk H1	SmartFil BBF	HYGiLoad
<b>Bulk Packaging</b>	FIBC	FIBC	FIBC/Tote (option)	FIBC	FIBC	FIBC	FIBC	FIBC
<b>Nom. Fill Rate Bags/hr @ 1000kg</b>	8 (D1) 12 (D2)	9	9 - 11*	9 - 11*	7	7	3	12
<b>Bag Height Range</b>	1200 - 2200mm	1200 - 2200mm	1000 - 1600mm, or 1400mm - 2000mm; adjustable within 600mm range	1000 - 1600mm, or 1400mm - 2000mm; adjustable within 600mm range	1000 - 1600mm, or 1400mm - 2000mm; adjustable within 600mm range	1000 - 1500mm; adjustable within 200mm range	1000 - 2000mm	1200 - 2200mm
<b>Base Compaction</b>	Yes	Yes	Yes	Yes	Yes	No	No	•
<b>Container Handling</b>	Gantry shuttle system	Gantry shuttle system	Belt conveyor	Roller conveyor	Manual (pallet)	Manual (pallet)	Manual (pallet)	Belt conveyor
<b>Pallet in Filler</b>	No	No	No	Yes	Yes	Yes	Yes	•
<b>Weighing Method</b>	Top weighing	Top weighing	Top weighing	Top weighing	Top weighing	Top weighing	Bottom weighing	•
<b>Metering Device</b>	Screw conveyor	Screw Conveyor	Screw Conveyor	Screw Conveyor	Screw Conveyor	Fast active BFV	Fast active BFV	•
<b>Filling head attachment method</b>	Inflatable bag clamp	Inflatable bag clamp	Inflatable bag clamp	Inflatable bag clamp	Inflatable bag clamp	Inflatable bag clamp	Inflatable bag clamp	•
<b>Sealing System</b>	Option	No	Option	Option	No	No	No	•
<b>Provision for High-care / Med-care segregation</b>	Yes	Yes	Yes	No	No	No	No	•
<b>Pallet loading/unloading system</b>	Option	Option	Option	No	No	No	No	Yes

NOTE: Fill rate is dependent on powder type, bag size, infeed rate, and operational factors.

\*Rate varies depending on sealing configuration.

**GEA Avapac**  
24 Evolution Drive  
Horotiu 3288, New Zealand

Tel +64 7 849 3414

[gea.com/hygibulk](http://gea.com/hygibulk)