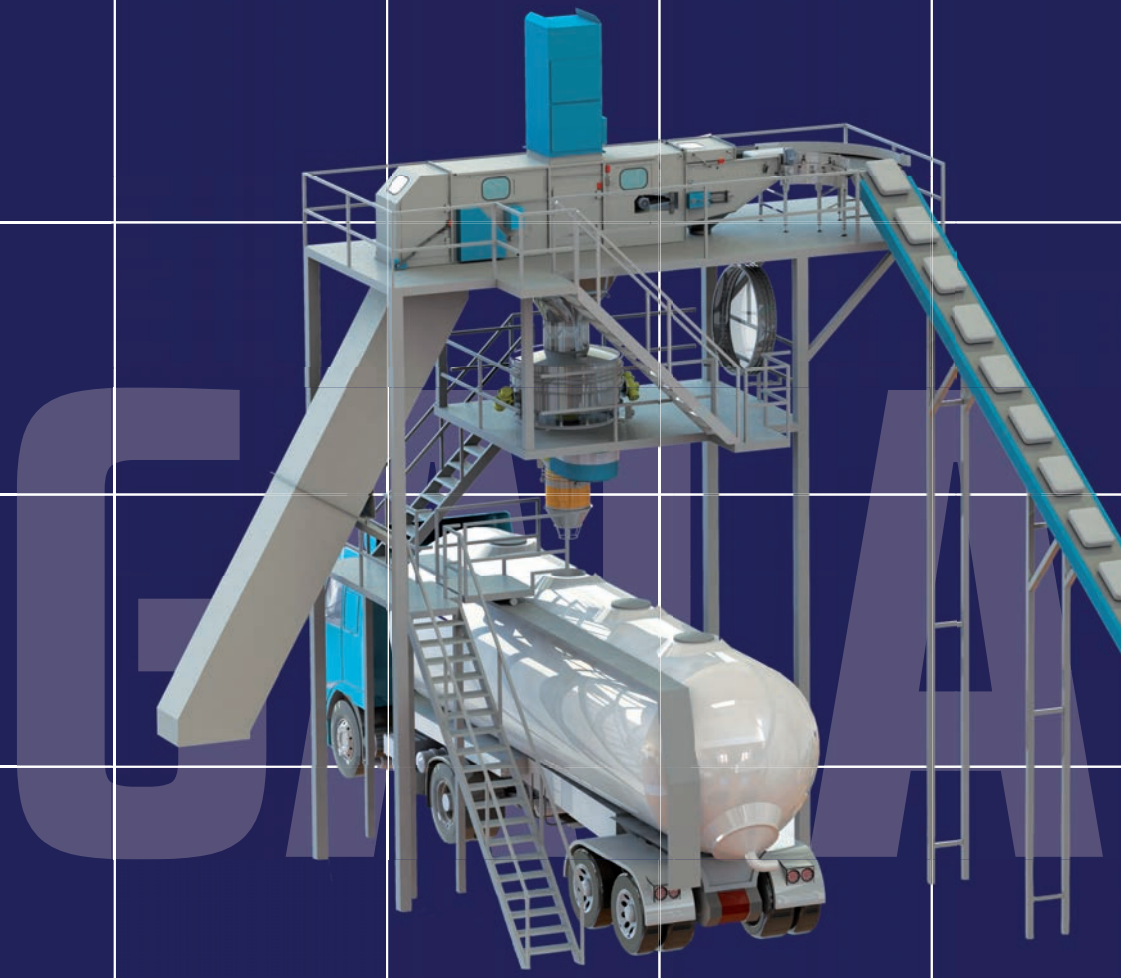
tbma

# GALAHAD

## BAG SLITTING AND EMPTYING MACHINE

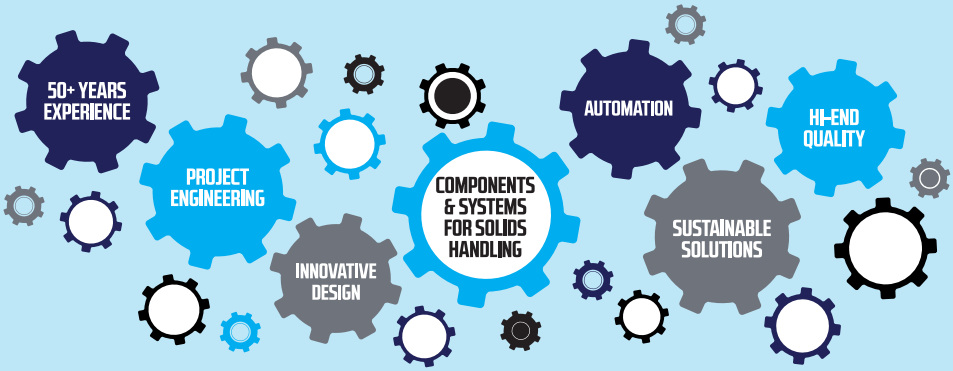


# WHO WE ARE

TBMA are specialists in the design and supply of components and systems for bulk solids handling. Our extensive range of high-quality processing equipment is suitable for handling powders and granules with proven reliability in practice in a variety of processing industries.

The highly qualified and experienced TBMA staff are well able to translate your requirements into the right execution and application of our components and systems. We also offer the design and execution of complete projects, thus providing you with an efficient, reliable and sustainable solution for your process.

## Solutions beyond bulk handling



# PROVEN SOLUTION

Powdered and granular raw materials are still packaged in bags on a large scale, while the market often demands something else. However, manually emptying and processing bags is heavy, dirty and time-consuming work. Product loss and product contamination are also problems that are difficult to eliminate.

The Galahad is the optimal solution for easy repackaging of powders and granules from bags to big-bags or Octabins and transfer of bagged goods to bulk trucks or bulk storage. This automatic, labour-saving bag slitting and emptying machine is suitable for use in the food, animal feed, chemicals and minerals industries. Especially for the Value Added Logistics (VAL) sector, the Galahad is a valuable, indispensable asset.

Being used for more than four decades, the Galahad is a proven solution for slitting and emptying various types of bags from 25 to 80 kg. TBMA offers a number of executions for handling almost all single and multi-layered bags: paper, plastic, woven polyethylene or hessian, small or large and light or heavy in weight. Products handled include PVC powder and granules, sugar, flour, starch, coffee and cocoa beans, titanium dioxide, cement, etc.

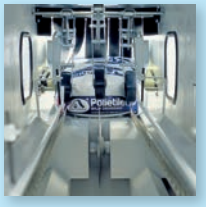
# IN BRIEF

- → Automatic, labour-saving solutions
- → Minimal product contamination
- → Minimum product loss
- → Suitable for all bags, including hessian and woven polyethylene
- → Safe and dust-free
- → Various levels of bag feed automation: basic, semi-automatic or fully-automatic

**THE GALAHAD** ensures continuous safe, dust-free and hygienic emptying of bags with a residual value between 0,01% and 0,05%. The bags are opened with one clean cut with no contact between the outside of the bag and the product, ensuring there is no product contamination. The system can directly fill a bulk truck or big-bags or be connected to a pneumatic or mechanical conveying system. Due to the smart construction and the high speed, a capacity can be achieved up to 1500 bags or 40 tons per hour, depending on the type of product, the bag size and the level of automation.

## APPLICATIONS



# BASIC

The basic execution of the Galahad machine is based on manual placing of the bags on the conveyor belt that feeds the bags to the machine, allowing a capacity of 600-700 bags per hour. Although being a cost-saving solution, the labour-intensive, manual feeding requires multiple personnel and limits the size and weight of the bags that can be processed.

All executions can be expanded to a complete bag processing installation with various ancillary equipment, support structure and walkways. For dust-free processing, the Galahad can also be equipped with a dust filter unit with extraction fan or be connected to an externally placed filter or central dust extraction system.

The output of product can be handled by gravity (loading chute), mechanical conveying or pneumatic conveying.

**SPECIFICATIONS**

- Bag thickness: max. 250 mm
- Pocket width setting range: 390-520 mm | 360-620 mm (optional)
- Rotating knife: hard chromed | Tungsten cutting surface (optional)
- Material: steel coated with stainless steel product contact parts | fully stainless steel (optional)
- Transport chain tensioning device: automatic and self-correcting | hardened chain knife tips (optional)
- Cleaning, inspection and maintenance: extra access doors and hinged roofs (optional)
- Safety switches: on all access doors

# SEMI-AUTOMATIC

The semi-automatic execution is a medium solution to a less physically demanding working environment for the operator. When the system is in operation, the operator places a pallet full of bags on a lift-tilting table next to the conveyor belt. The table is then tilted, allowing the operator to slide the bag on the belt, using only minimum force. After a layer of bags has been pushed off, the operator can move the table up with a foot pedal.

This execution with its robust, proven technology allows a capacity of 1200-1500 bags per hour, depending on the size and material of the bags. It is still a labour-intensive solution, since a second operator is needed to put the pallets with bags on the lift-tilting table. The high capacity, however, makes this system very suitable when large quantities of bags need to be processed. The system is also very suitable for poorly stacked pallets or half pallets.

All options for the basic execution are also available for the semi-automatic execution.

*Semi-automatic Galahad machine with lift-tilting table*

# FULL-AUTOMATIC

Cost savings and regulations in the field of working conditions are increasingly leading to robotisation of heavy work. The Galahad can easily be expanded with a single-head or multi-head robot for full-automatic feeding. In most cases, this also applies to pre-existing Galahads.

By using image sensors, the correct coordinates of the location of the bag(s) are determined. These coordinates are used to control the robot arm. As a result, less well-stacked or shifted pallets can also be processed without problems. A special vacuum technology ensures that the bags are sucked on firmly, so that there is little failure.

The vacuum technology is not suitable for jute and woven polypropylene bags (up to 70 kg). For these types of bags, a needle gripper is used. Consequently, the maximum capacities are different.

All options for the basic execution are also available for the full-automatic execution.

*Full-automatic Galahad machine with multi-head robot and additional lift-tilting table.*

# ROBOTISATION

When using a robot, either single-head or multi-head, the complete system can be operated by a single person. This labour-saving solution for emptying bags ensures a very favourable ROI.

The operator places the pallet with bags in the designated spot, so the robot can pick up the bags. To fully use the robot's potential and thus creating continuous bag supply, two or more pallet spaces must be available within reach of the robot. This way the operator can change the empty pallet for a full one, while the robot continues with the next pallet.

For safety reasons, the robot is shielded from the rest of the working space.

### FULL-AUTOMATIC | SINGLE-HEAD

The single-head robot takes a single 25 kg bag at a time and places it on the conveyor belt. The maximum capacity is 530 bags or 12,5 tons per hour.


### FULL-AUTOMATIC | MULTI-HEAD

The multi-head robot can pick up a complete layer of 5 bags in one go and places the bags one a time on the conveyor belt. This allows for a maximum capacity of 1000 bags or 25 tons per hour.

*Scan QR codes for videos*

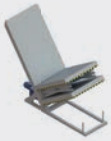
# ANCILLARY EQUIPMENT

The Galahad machine can be supplied with a wide range of ancillary equipment divided into equipment for input (I) of the bags, the machine (M) or output (O) of product. Platforms, supports and catwalks are designed to customer specification, to convert the Galahad into a complete bag handling installation.

We gladly offer our expertise to advise you regarding the right choice of basic and ancillary equipment for your specific application. Also, we can perform dedicated bag and product tests in our test facility.

I **BELT CONVEYOR**
Any desired type of belt conveyor can be fitted to the Galahad for automatic bag feed.

I **LIFT-TILTING TABLE**
For easy intake of bags from pallets at a suitable working height.



I **ROBOT**

Single-head

Multi-head

I = input of bags | M = Galahad machine | O = output of product

I **BAG CRUSHER**
The adjustable spring package above the roof-shaped table ensures that the contents of the bag are broken and loosened.

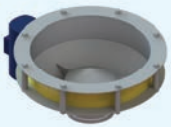
M **ROTATING BRUSH CLEANING UNIT**
Fitted at the bag inlet of the Galahad to brush off dirt or dust of the bag's outside to prevent contamination of product.

M **DUST FILTER UNIT**
Mechanical or reverse jet dust filter in several executions, placed on top or next to the machine. An integrated dust filter is placed on top of the machine, directly above the cutting and vibration area.

M **OPERATOR CONTROL PANEL**
Fitted with motor contactors, thermal overloads and fuse groups. Control facilities include door-mounted mimic diagram and cascade start/stop. PLC control option available.

O **LUMP BREAKER**
For breaking down lumps and agglomerates in the product after discharge.

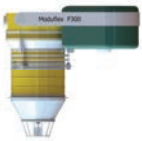
O **VIBRATING BOTTOM / VIBRATING SCREEN**
Product activation / removal of contaminants and lumps from product after discharge.



I = input of bags | M = Galahad machine | O = output of product

O **MAGNET**
For removal of metal parts from product after discharge.

O **LOADING CHUTE**
For dust-free and safe loading of bulk trucks and containers.



O **SCREW CONVEYOR**
For mechanical conveying of product after discharge.

O **ROTARY BLOW THROUGH VALVE + BLOWER**
Fitted directly under the product hopper in order to facilitate pneumatic conveying of product.

O **BAG COMPACTOR**
Fitted at the discharge outlet of the machine in order to compact and discharge the empty bags.

O **AUTOMATIC BAG BALING PRESS**
Fitted at the discharge outlet to compact the bags into a bale, automatically tied with annealed wire.

I = input of bags | M = Galahad machine | O = output of product

COMPONENTS

SYSTEMS

PROJECTS

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