



HAVER & BOECKER

Innovations in Paper Sack Packing Technology

Smarter Packaging Seminar
Bangkok, Thailand
October 11-12, 2023





AGENDA

1. The Eye of the Tiger
2. New Innovations for Sack Handling
 1. RADIMAT® Snake
 2. AMICUS® Depalletizer
 3. ROTO-FEED®
 4. ROTO-LOCK®
 5. QUAT²RO®
 6. Sealing Technology
3. Market Trends / Sack Specification



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The Eye of the Tiger



HAVER&BOECKER in Southeast Asia

- Moved to Singapore in August 2023
- Director of Southeast Asian Affairs
- Responsible for 11 countries
- Strengthening the HAVER&BOECKER footprint in Southeast Asia
- Contact for customers, suppliers and partners in the region





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Packaging Triangle



Whatever we do we have to have the packaging triangle in mind!



Radimat Innovation





Radimat Snake

Heavily ambient conditions in packing plants

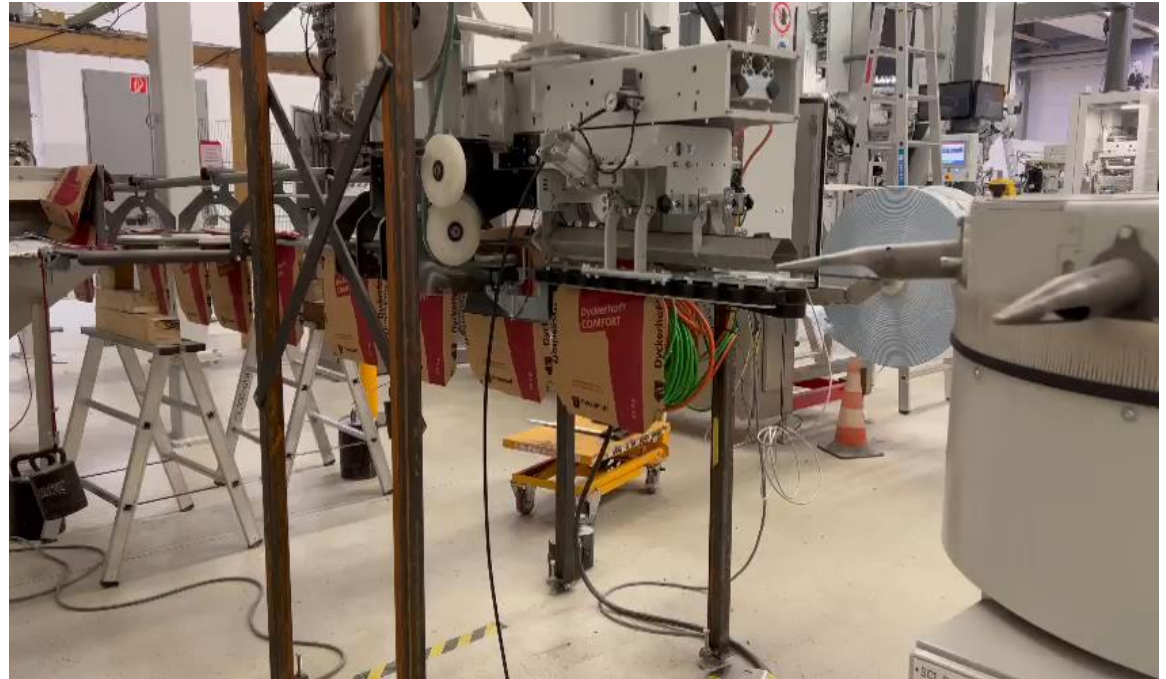
The customer's staff is often not able to keep the technology of a Radimat alive in the sometimes dirty environment of the packer.



Radimat Snake

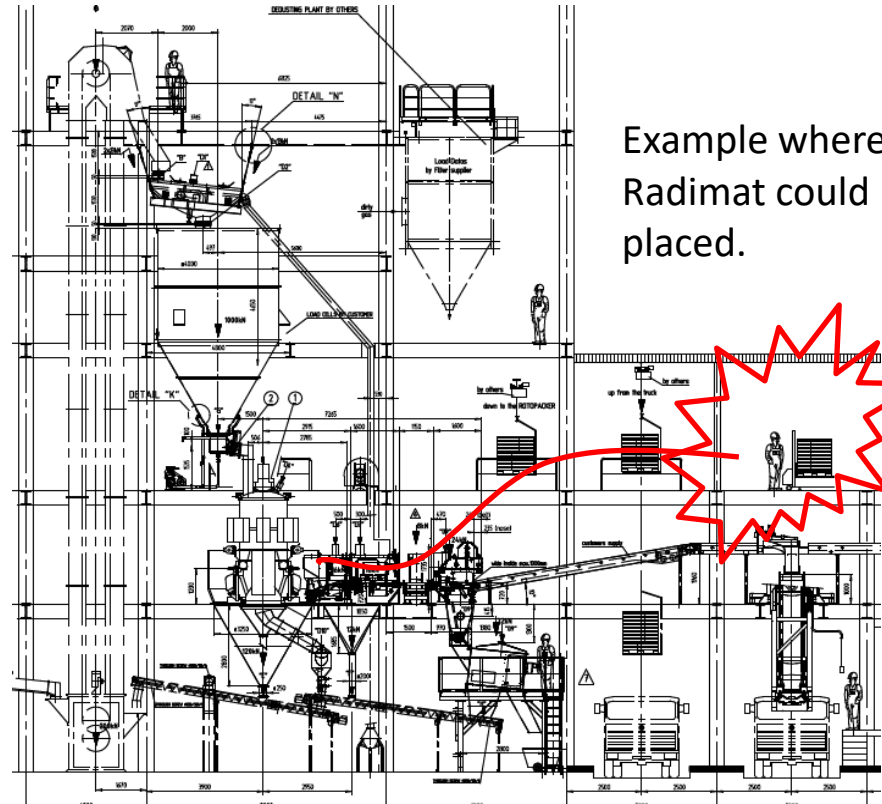
We can transport the bag over a distance, no matter how long.

The bag will be transported into the bag shooting head and will be shot onto the filling spout.



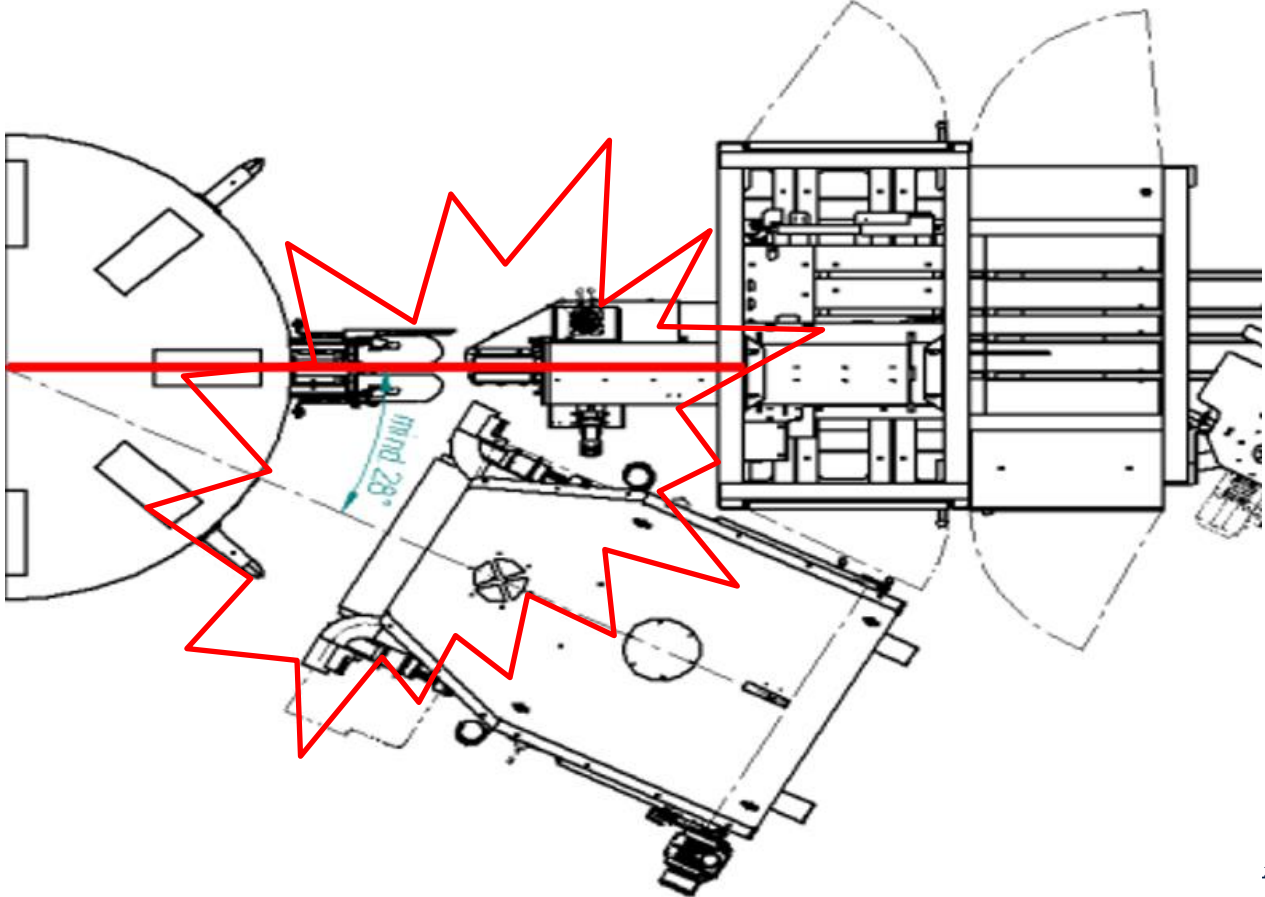
What possibilities does the Radimat Snake offer?

The Snake's flexibility enables the Radimat to be placed in the bag store, regardless of the "on-site conditions".



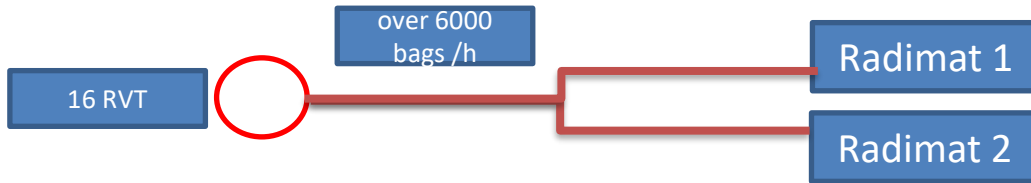
Example where a Radimat could be placed.

What possibilities does the Radimat Snake offer?



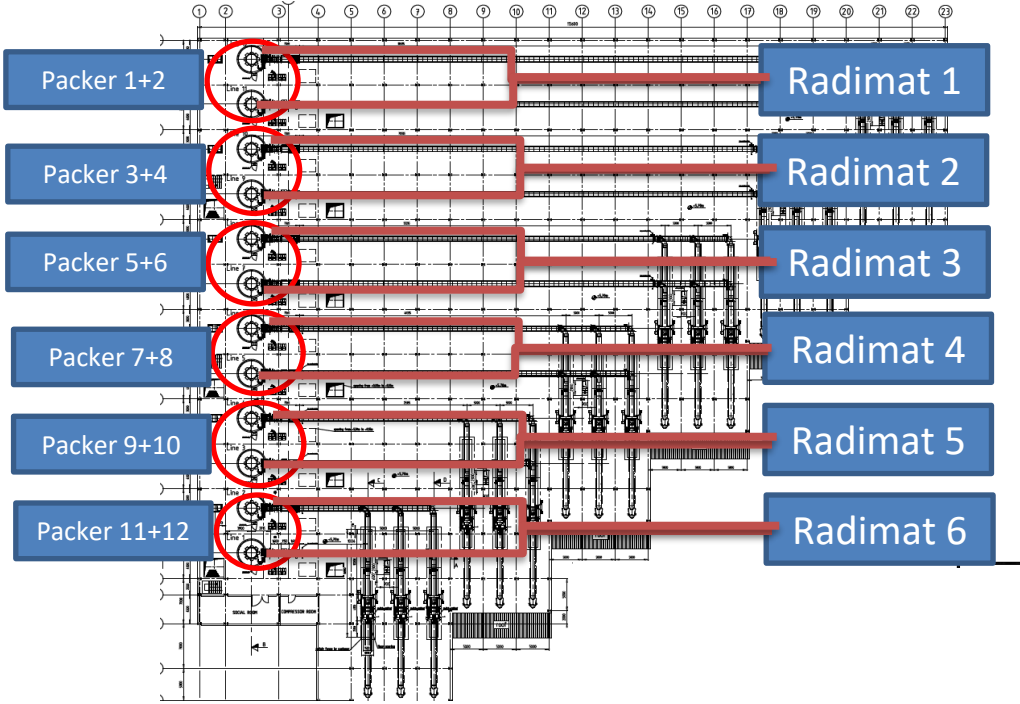
What possibilities does the **Radimat Snake** offer?

The possibility of a high-performance system



Each of the two Radimat can shoot 3000 bags/hour without risk.
The combination to shoot in one snake line guarantees an application performance of over 6000 bags/hour.

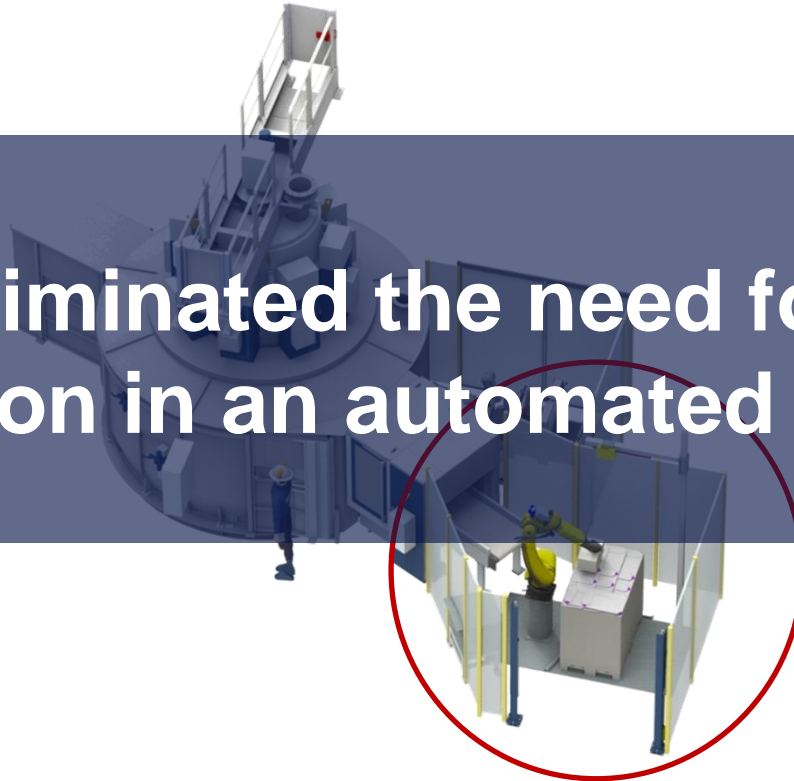
What possibilities does the Radimat Snake offer?



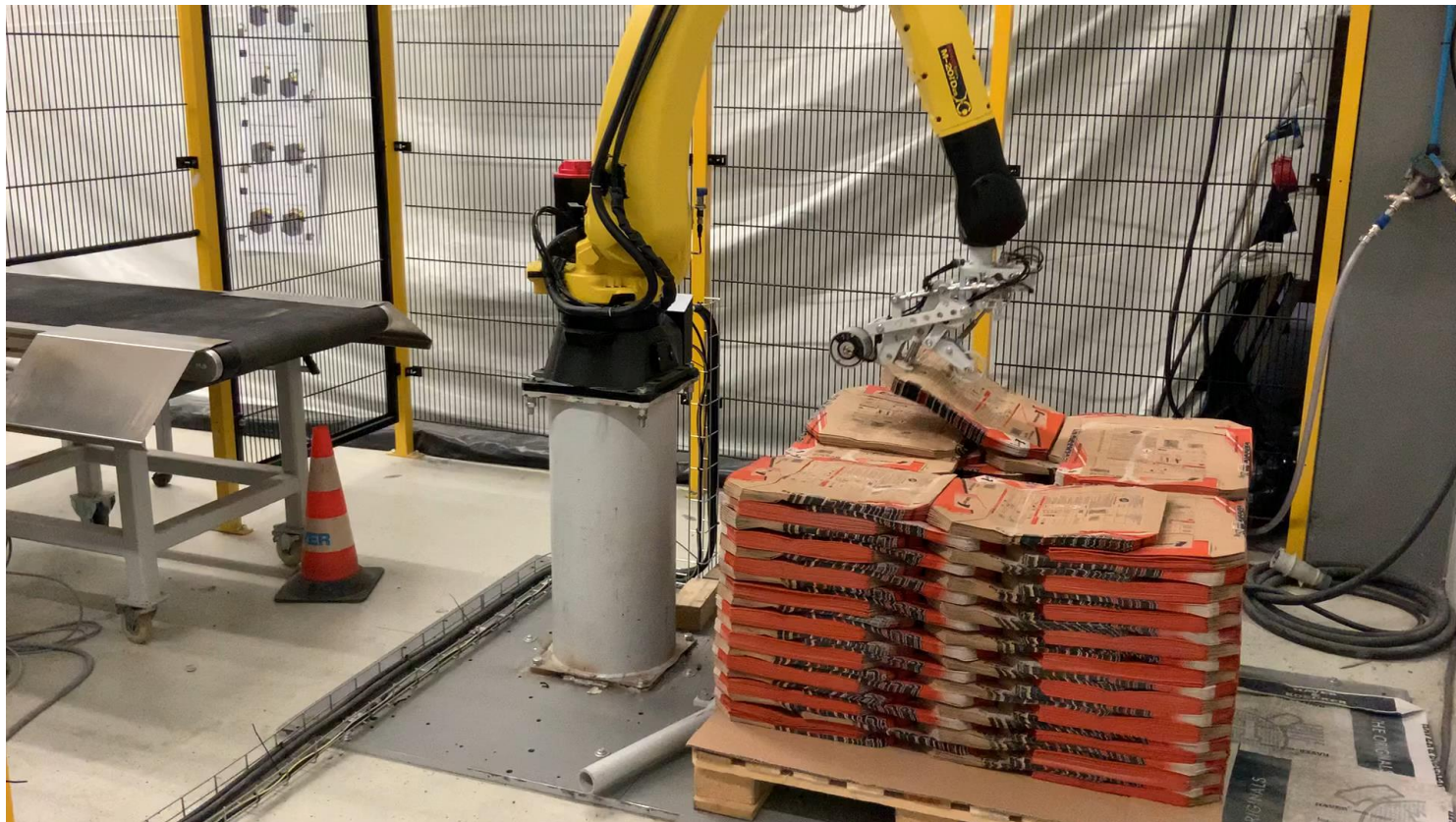


What is the innovation of the new **Amicus®**?

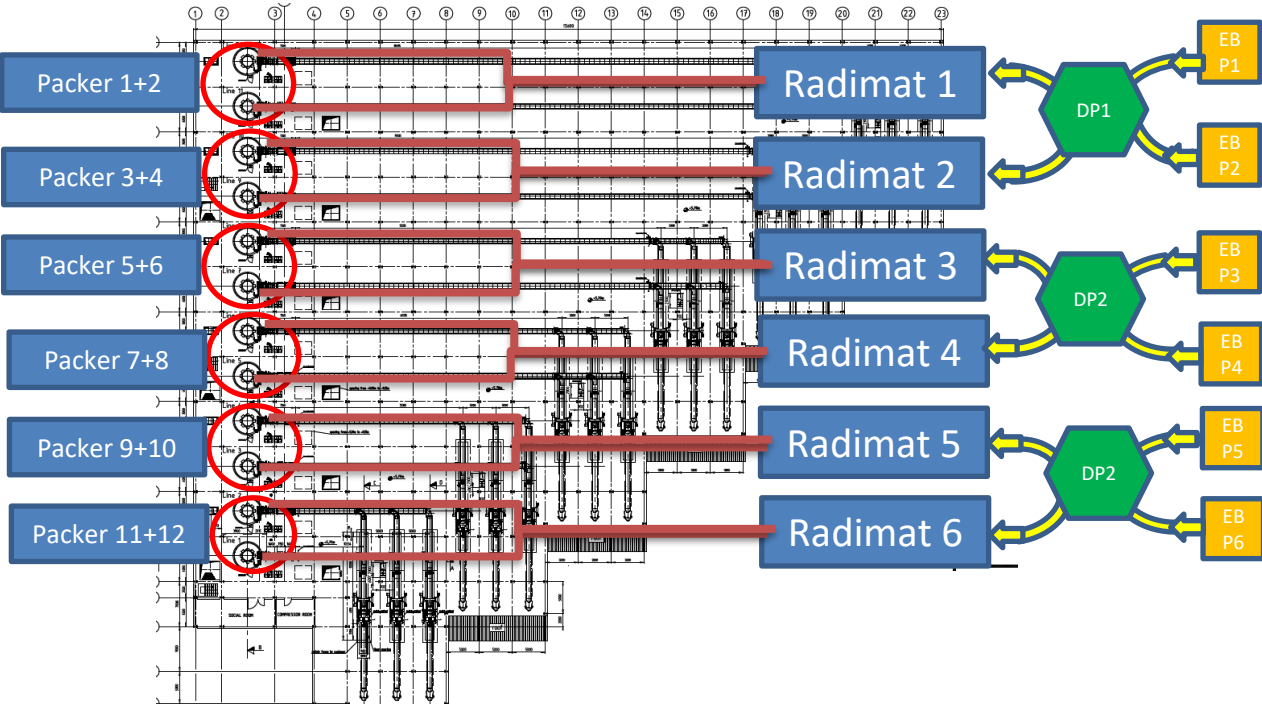
We have eliminated the need for human intervention in an automated system.



Innovation



What possibilities does the **AMICUS®** offer?





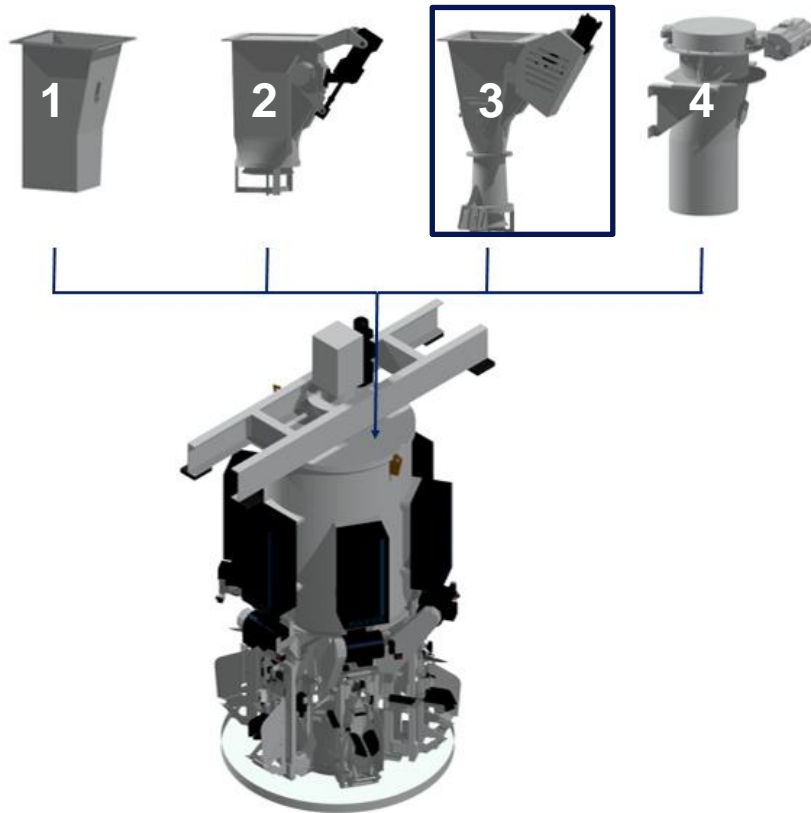
ROTO-FEED® Where do we come from?



- High dust generation during filling the packer bin
- Unnecessary air entrainment into the product
- Dust emission from the bag
- Longer time for filling due to internal pressure in the bag



What is the **ROTO-FEED**®?



Feeding devices for ROTO-PACKER®

- 1) Inlet chute
- 2) Conical valve
- 3) **ROTO-FEED**®
- 4) Butterfly valve



WITHOUT ROTO-FEED



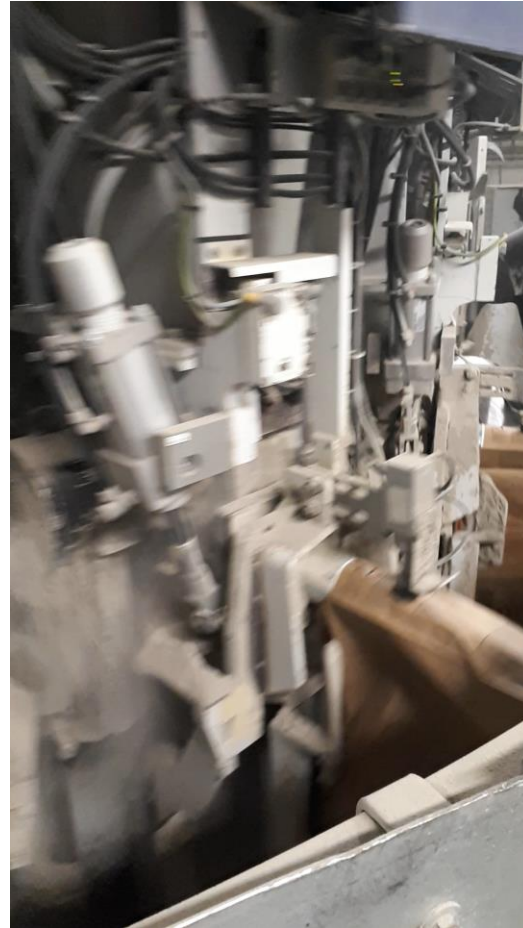
WITH ROTO-FEED





Innovation ROTO-LOCK®

Typical situation on side



ROTO-LOCK® – for your clean dosing!





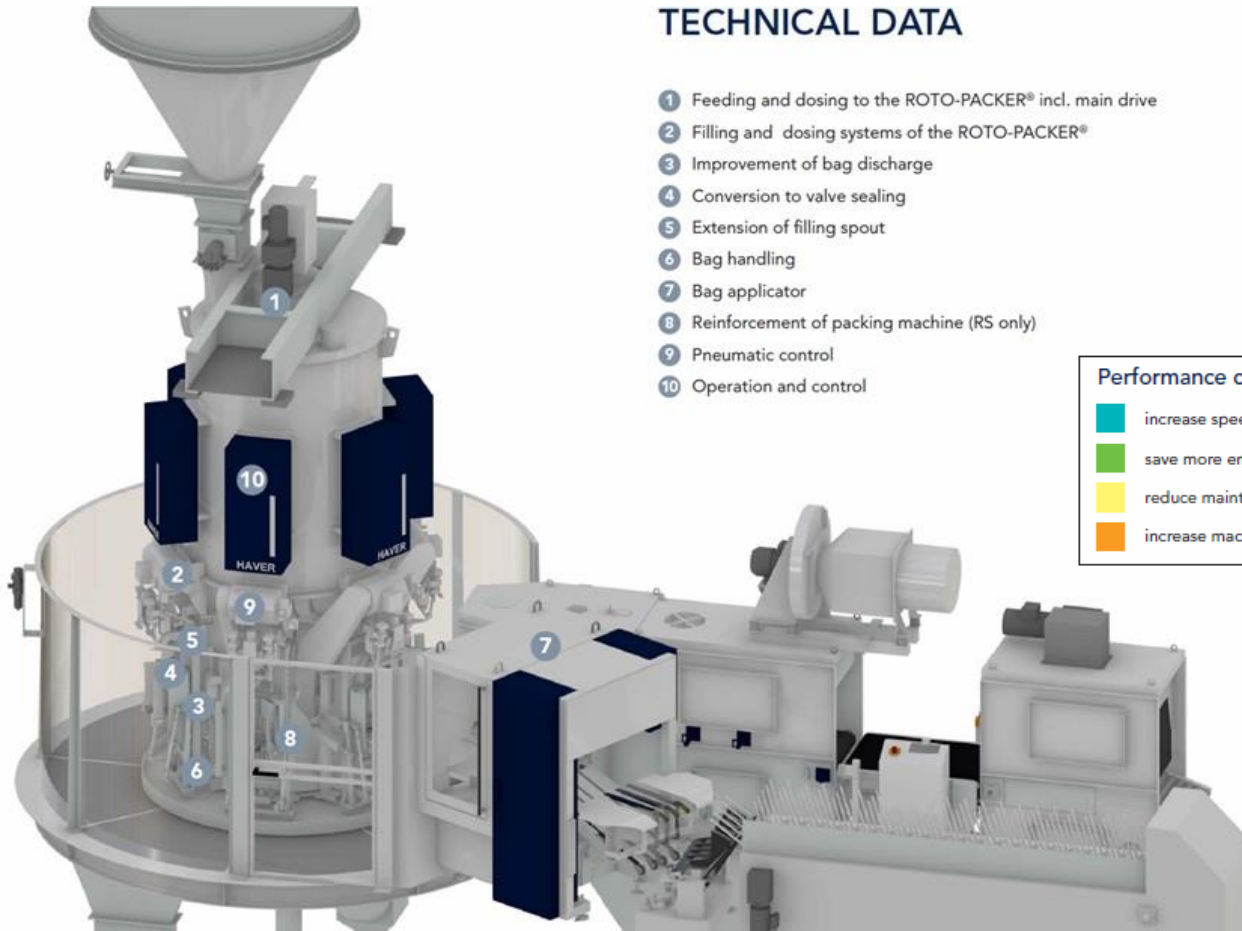
Upgrade Opportunities

TECHNICAL DATA

- 1 Feeding and dosing to the ROTO-PACKER® incl. main drive
- 2 Filling and dosing systems of the ROTO-PACKER®
- 3 Improvement of bag discharge
- 4 Conversion to valve sealing
- 5 Extension of filling spout
- 6 Bag handling
- 7 Bag applicator
- 8 Reinforcement of packing machine (RS only)
- 9 Pneumatic control
- 10 Operation and control

Performance categories:

- increase speed / output
- save more energy
- reduce maintenance costs
- increase machine availability





QUAT²RO[®] SYSTEM INTELLIGENCE

QUAT²RO[®] Monitoring

Make your systems transparent. With QUAT²RO[®] Monitoring you have your production in view at any time and from anywhere.

QUAT²RO[®] Remote Service

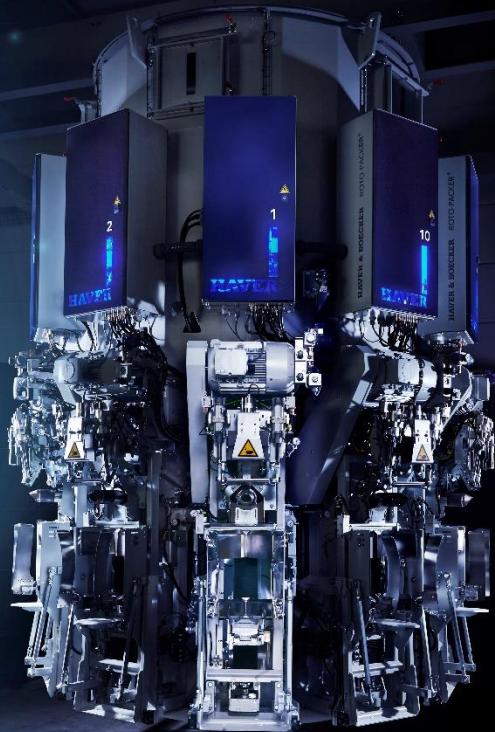
Make your systems communicative. With QUAT²RO[®] Remote Service you enable your machines to talk to our experts at any time.

QUAT²RO[®] Analytics

Make your machine intelligent. With QUAT²RO[®] Analytics you maximize the success of your system through active data interpretation.

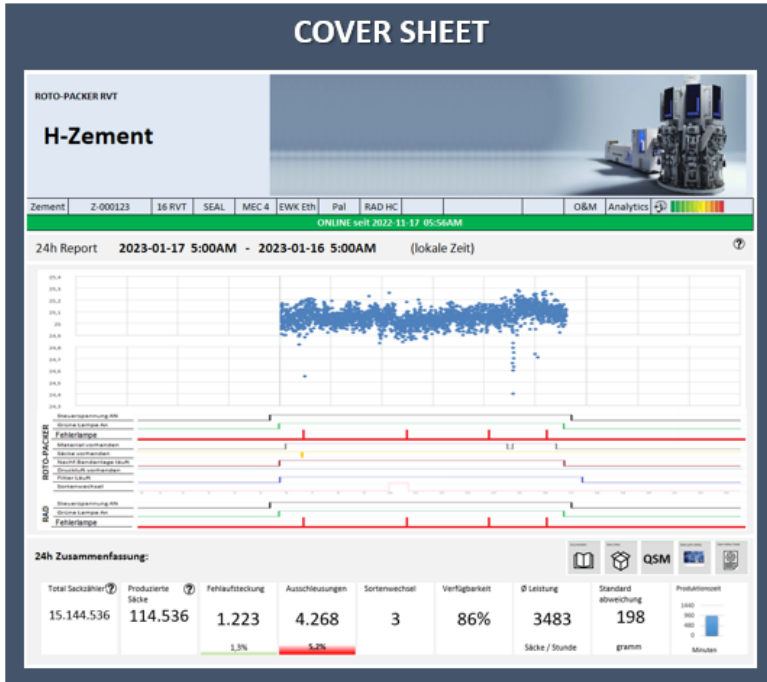


Functionality



Functionality

Below we see a **daily report** (24h report) which is divided into a cover sheet containing basic information about the day. Further, the report also contains individual pages that consist of the details of the individually produced sorts. For each sort there will be a separate evaluation:

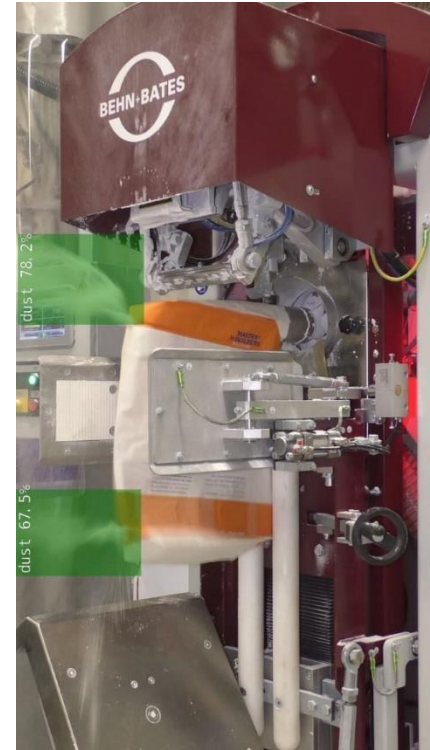


Artificial Intelligence in packaging machines

Camera perspective:



Bag burst detection



Artificial Intelligence in packaging machines

Inside the AI / Camera perspective:



How **Artificial Intelligence** can improve the performance?

Improving output up to 3% by searching out not well opened bags



Clean operations with Valve Sealing technology



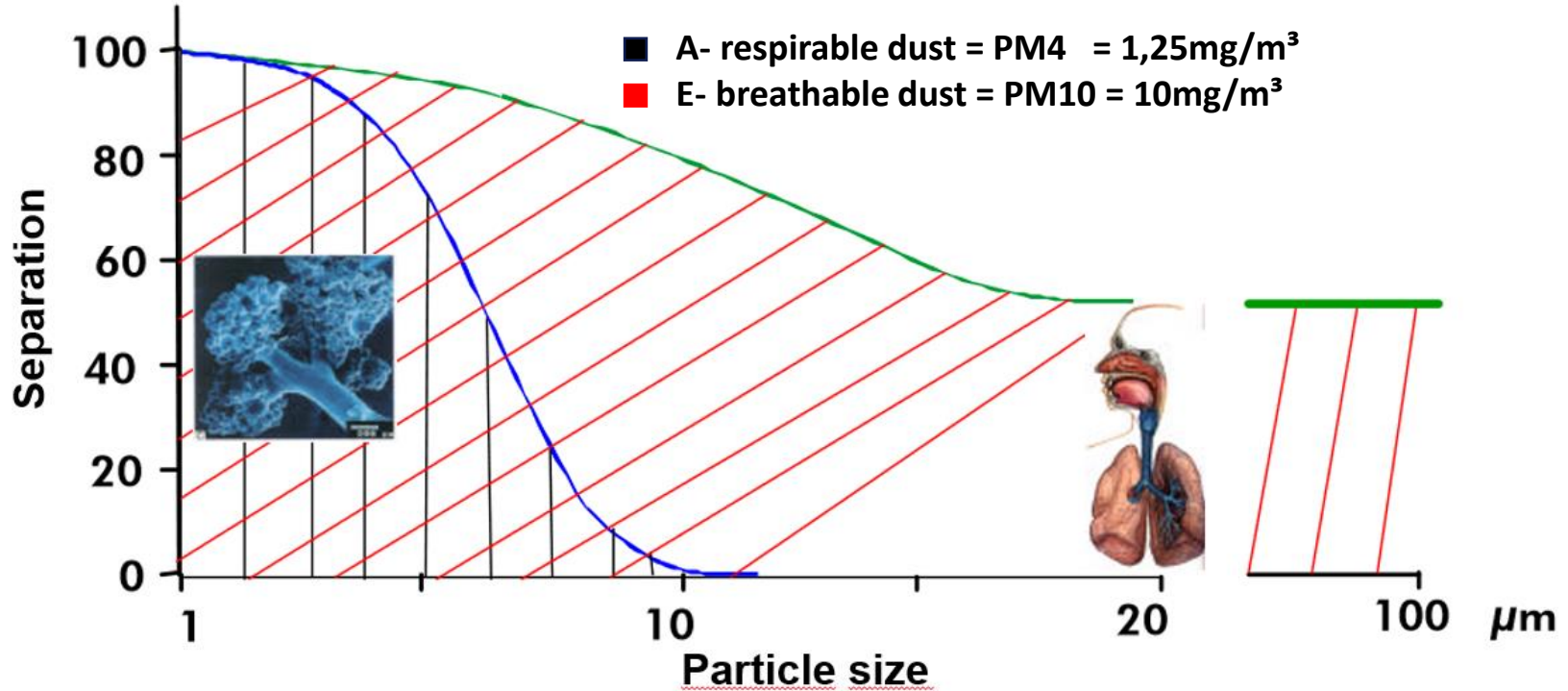
- Perfectly clean filling and closed bags
- High weight accuracy
- High bag filling degree / compact bags
- Protection of product
- Safer transportation of stable pallets



Clean operations with Valve Sealing technology

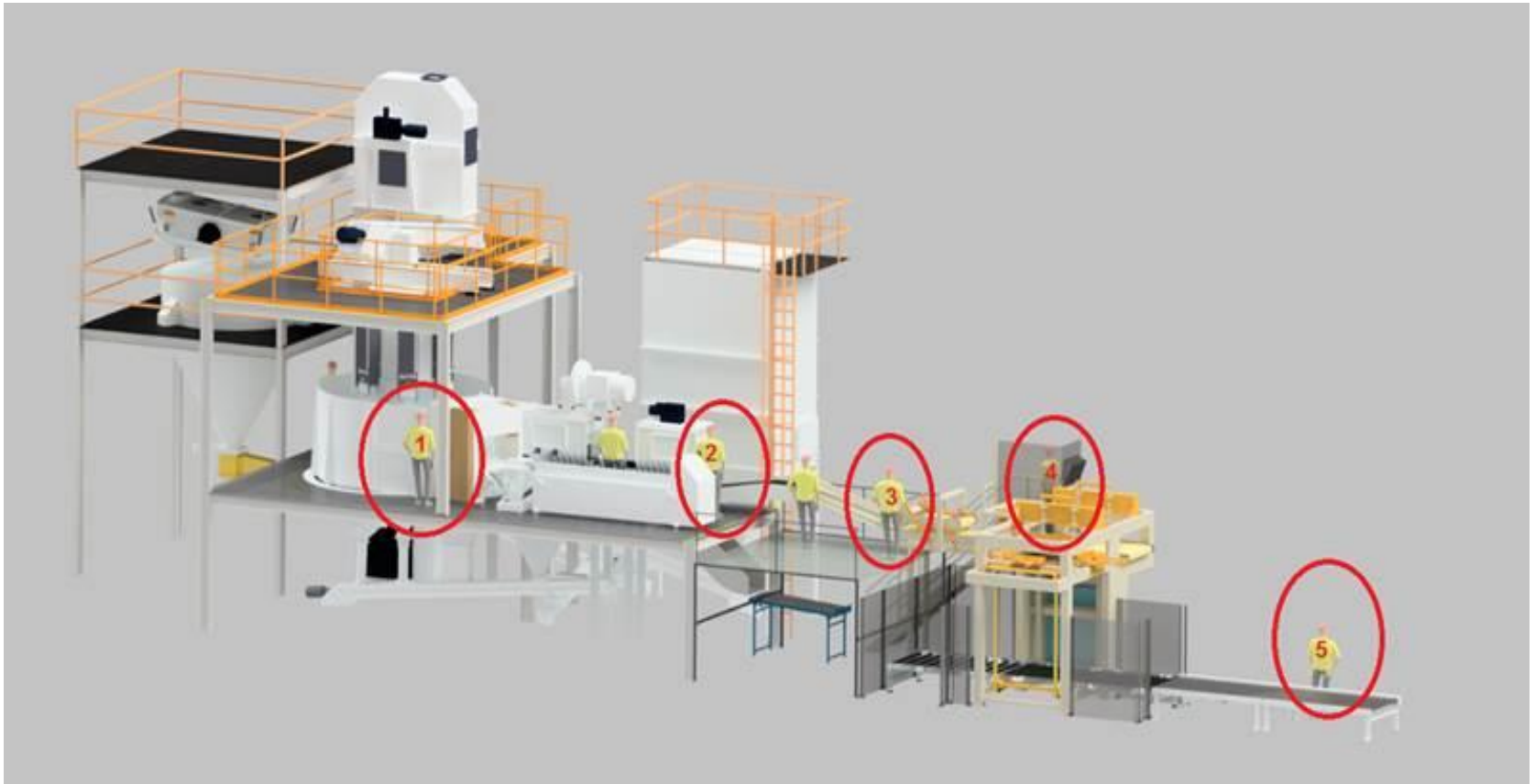
Dust limits:

- A- respirable dust = PM4 = 1,25mg/m³
- E- breathable dust = PM10 = 10mg/m³

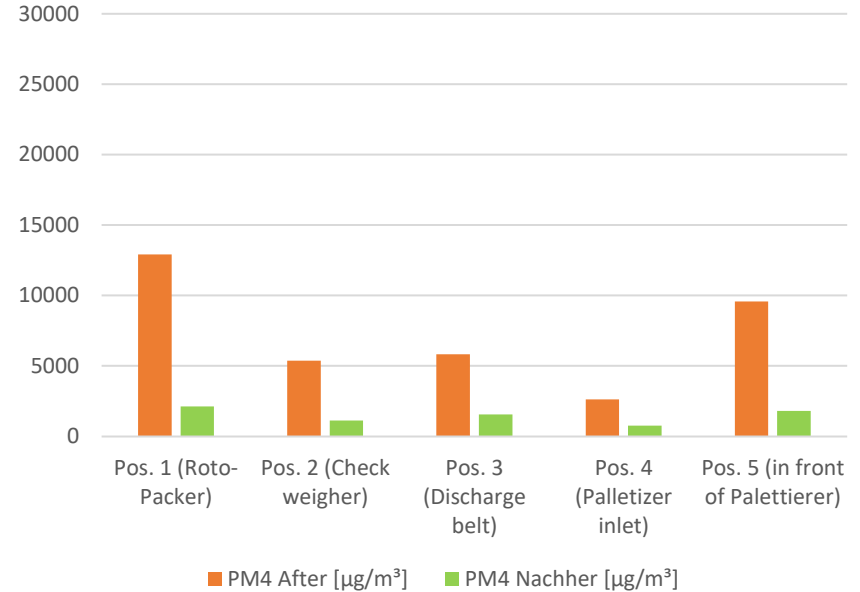
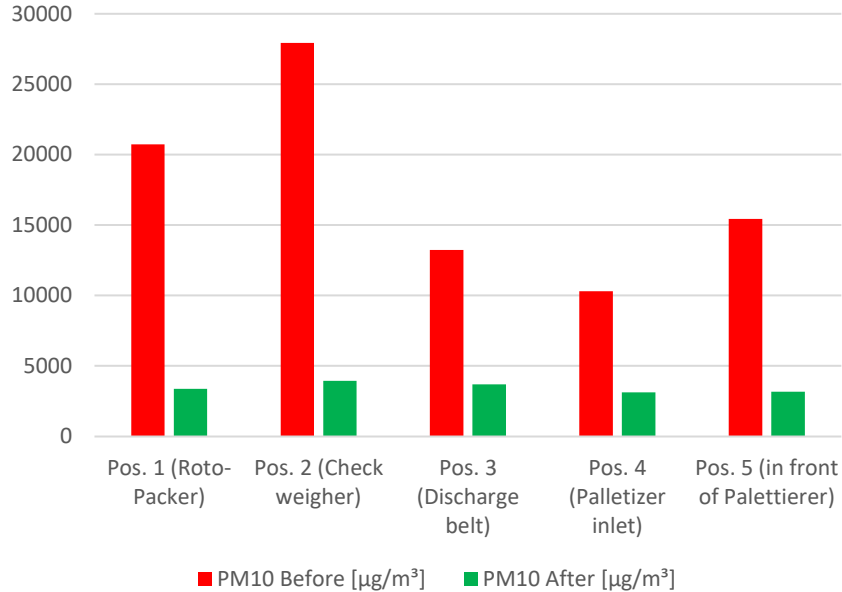




Clean operations with Valve Sealing technology



Clean operations with Valve Sealing technology



Dust emissions measured in Spain, 16 spout Rotopacker

Benefits Using Seal Technology



- Profit increase due to cleaner filling and reduced product loss
- Higher production yield due to less machine downtime
- Savings due to less cleaning, reduced operation costs and less spare parts costs
- Reduction in maintenance, stocking and training costs
- Savings due to a cheaper infrastructure



Clean operations with Valve Sealing technology





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Market Trends: Cement Industry in South America

Weight reduction from 50kg to 25kg



Global Trends in Paper Sacks for Cement

- Cement as commodity is still bagged mainly in paper sacks.
- WPP valve sacks are growing strongly in Asia and Africa, partly WPP valve sacks are growing in southeast Europe.
- Area related market pressure drive the decision forward to plastic solutions (Benelux, GB, Scandinavia). Newcomers look for USP's and choose plastic.
- Small interest for cleaner sacks with sealed valves.



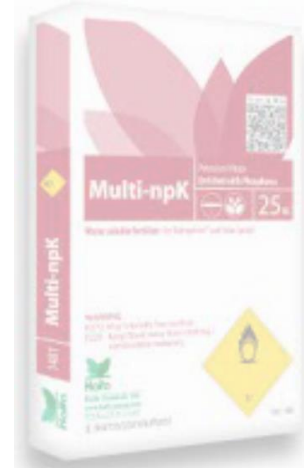
Global Trends in Paper Sacks for Building Materials

- The market share will be lower than 40%.
- Low cost building materials will mainly remain in paper sacks, all cost driven.
- High valuable products will move more to plastic FFS.
- Shelf live, cleanliness, display effect and handling convenience influence the choice of packaging.
- Newcomers and smaller brands have USP's by using plastic FFS or Seal Technology.



Global Trends in Paper Sacks for Chemicals, Fertilizer

- Petro chemicals and all granulated fertilizer will still move from paper to plastic FFS. The trend is ongoing since many years.
- Special powdery chemicals will stay with paper sacks due to the need of a permeable packaging.
- The grows of plastic packaging (FFS) for powdery products is slower than in other segments.
- All agricultural sectors remain in paper and WPP sacks.



Global Trends in Paper Sacks for Food

- A 70% of market share is quite realistic for powdery products.*
- Many food products need paper for moisture exchange.
- Non powdery food is mostly filled in WPP bags.
- European food packaging regulation increase the regulations for high hygienic solution. Here plastic is more in focus for fillers.
- Trend to move towards paper valve bags in the flour market

*Plastic for frozen food and consumer products influencing the numbers





HAVER & BOECKER - SACK SPECIFICATION

Empty bag specification for
machines suitable bonded
cross bottom valve paper

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Valve design

The left and the cover sheet must be glued close to get to avoid leaking over during the packing process. The cover sheet is positioned up to the triangular or up to the valve edge. The cover sheet must not be forwards and should not recess more than 3 mm to the valve edge (advanced cover sheet (see Fig. 1)).

operative to ensure that the cover sheets are glued to the valve/flange base. Overlapping, asymmetrical glue leads to unwanted adhesion to the bag and the printing is not symmetrical.

The channel must not have any adhesions or flaps that hinder proper opening. The valve length must be 20 to the filling pipe, in the area of the vacuum edge (see Fig. 2), there must be no major unevenness or wrinkles occurring during the gung process. This suit not be permeable to air to prevent the vacuum from sucking loose air. Likewise, there must be no residue on the cut edges of the valve, which would hinder proper opening of the valve.

Stabilization and optimized strength of the bag, a single side-charged sheet (Fig. 3) is recommended.

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Symmetry of a bag valve

Fig. 4 - (see Fig. 2 but without cover sheets)

Fig. 5 - Symmetry of a bag valve

These should be fixed with the valve bottom of the cover sheet to prevent the valve hose being pulled when the filling bag is changed. A larger and more flexible valve channel improves closing property of the valve.

It is to be closed after filling by means of an automatic valve closing device must be with an external valve. The subventy projecting valve length (see Fig. 6) should be 20 depending on the valve bottom width. The valve projection should have a constant in over the entire length.

Valve bottom width	Valve channel LH	Valve channel length
75 - 90 mm	35 - 45 mm	110 mm ± 10 mm
90 - 105 mm	40 - 50 mm	120 mm ± 10 mm
100 - 145 mm	40 - 50 mm	140 mm ± 10 mm
150 - 180 mm	50 - 70 mm	140 mm ± 10 mm

Se valve may only protrude beyond edge in consultation with H&B.

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Bag valve design that has proven itself in practice.

Fig. 4 - (see Fig. 2 but without cover sheets)

Fig. 5 - Symmetry of a bag valve

Fig. 6 - (see Fig. 2 but without cover sheets)

Fig. 7 - Bag valve assembly

Fig. 8 - Longitudinal seam

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Bag valve assembly

Fig. 7 - Bag valve assembly

Fig. 8 - Longitudinal seam

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Feasibility of a valve position according to standard ISO 6330-1

Fig. 9 - Feasibility of a valve position according to standard ISO 6330-1

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Q&A





Thank you!

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