

FLUX

The magazine for bulk ingredients technology

CONTINUOUS VS. BATCH

Good vibrations

Refilling with the
hopper discharge unit

8 h with ...

service hotline

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> editorial



Dear business partners, dear colleagues,

these are very different times for all of us. The coronavirus pandemic has brought challenges for Brabender Technologie as well. Despite these challenges we are looking to the future with optimism, because our company is set on many strong pillars.

Expertise: If you are trying to decide whether to choose continuous or batch feeding for your application, we offer comprehensive advice. The main topic on page 4 explores the advantages of the individual systems.

Power of Innovation: Research never stands still. We have been working intensively on new innovations and developments. This also includes a research project for direct processing of carbon fiber scrap in the recycling process. This report can be found on pages 18 and 19.

Service: You can rely on Brabender Technologie, during challenging times. In our new series "8h with ...", we accompany different employees on a typical workday. We start with the colleagues from the service hotline on pages 20 and 21.

Enjoy reading and stay safe!

Kind regards
Bruno Dautzenberg and Günter Kuhlmann



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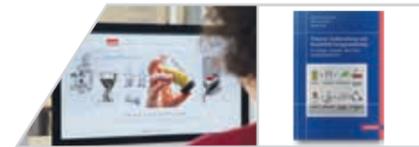
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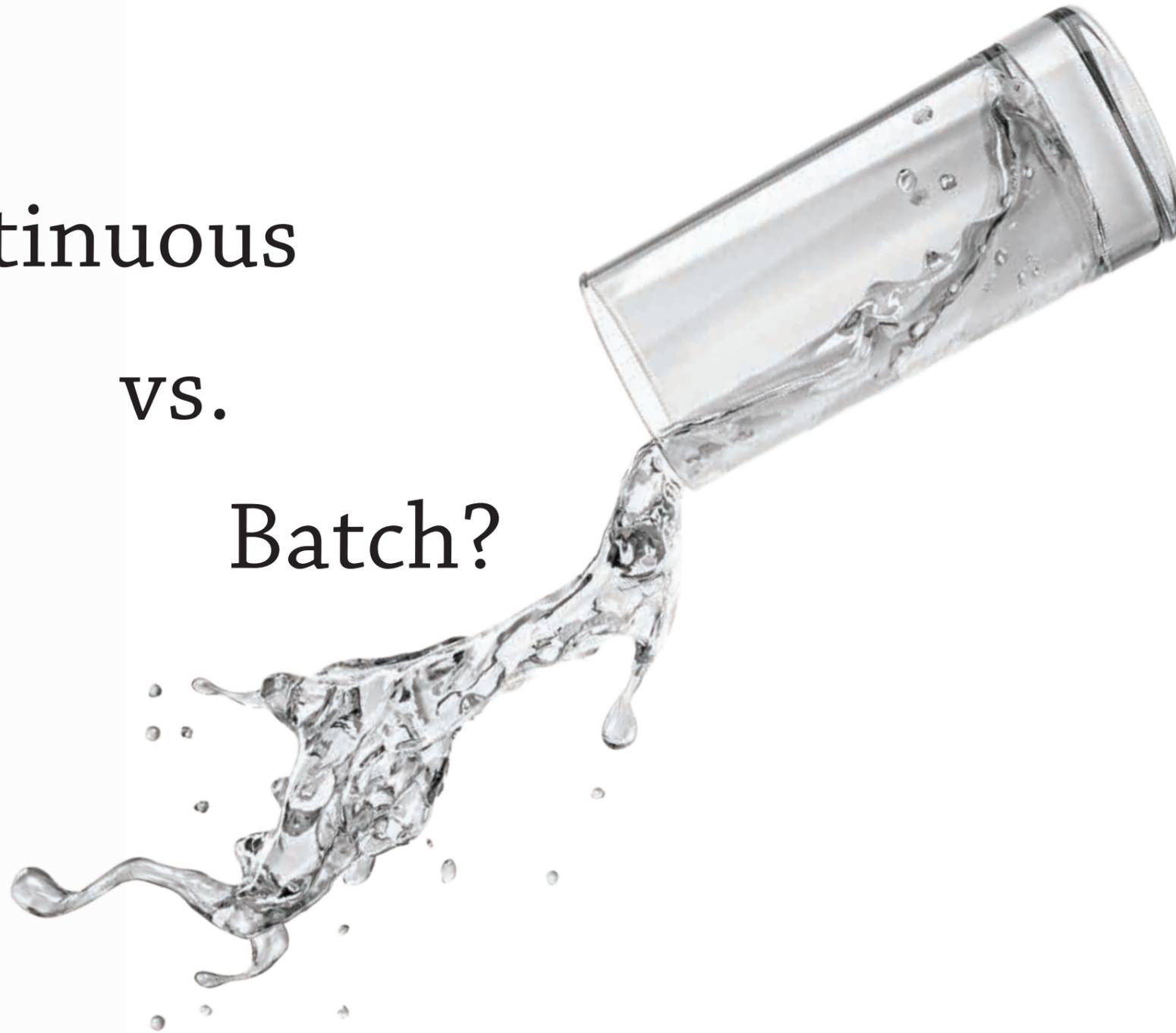




Continuous

vs.

Batch?



> **A precise feeding and weighing system specifically designed for your application is essential to an efficient and reliable production process. Brabender Technologie's profound knowledge of production processes and feeding of solid and liquid ingredients, helps customers select an ideal system.**

Batch and continuous processes are both reliable methods for industrial feeding technology. Selecting the correct system always depends on the individual situation and the specific production targets. It is therefore advisable to conduct a thorough and unbiased analysis before investing in a new production system. The decision is typically based on several criteria including: The ingredients being fed and their properties, the recipe, the processing times and the target production volume. End product quality requirements, the production process conditions and the need for forexplosion protection, and health and safety constraints are also important factors. >



Two feeding systems, three approaches

Continuous processes are generally more suitable for high throughputs or mass production with few recipe changes. The longer the production process runs, the higher the economic efficiency. It is possible to reduce downtimes even with frequent recipe changes – as long as enough weigh-feeders are available for the different ingredients. In this case, any weigh-feeders which are not required are excluded from the recipe and the production process can continue.

Batch systems are generally suitable for processing limited production volumes with multiple recipes. In addition, a distinction is made between additive and subtractive weighing. For gain-in-weight (GIW) weighing, all components are sequentially fed into a weighing hopper and the weights are totalized. For loss-in-weight feeding (LIW), each ingredient can be fed into the process in parallel, directly from a separate feeder.

Special case: batch with continuous feeding

As always, exceptions prove the rule. In addition to the three different processes for feeding and weighing described above, there is a fourth method sometimes applied. Bernhard Hüppmeier, Business Development at Brabender Technologie, explains: “In this case, a batch is continuously fed into a process with precise control over a relatively long period. The focus here – as for a continuous process – is on short-time accuracy, but also on the final batch value. The criteria for the continuous process then apply, as the switch-off

point for the final batch value is not as relevant compared to the batch size and can usually be neglected.”

Continuous feeding in detail

Gravimetric loss-in-weight feeders are used for continuous processes. High-resolution digital load cells have a high feeding accuracy and when used with our micro feeders extremely low rates, can be fed at without premix. All ingredients can be fed in parallel with this process. While premixes are possible, they require additional transportation – with a risk of ingredient segregation.

Due to the typical short-time accuracy requirement and the refilling phase, control is more complex and is constantly required for continuous processes. This is needed to avoid system failures and ensure a high level of process reliability. Bernhard Hüppmeier explains further: “Filling must be precisely controlled as the removed weight is not checked during a refill.” Venting is another important factor: Each weigh-feeder is vented separately to avoid mixing ingredients. For higher throughputs, the weigh-feeders remain relatively small. Weigh-feeders which are not in use, can simply be deselected in the control, which results in short downtimes. The easy ingredient change means that cleaning is also a simple process.

High outputs are faster and easier to achieve with the continuous process because the devices are smaller than for larger batches. Since the materials are fed directly within the processing machine, e.g. a mixer, extruder or kneader, and fewer personnel are usually required, this feeding method can provide a high level of process

reliability. Precise coordination is required only during the start-up and shut-down phase to avoid product losses.

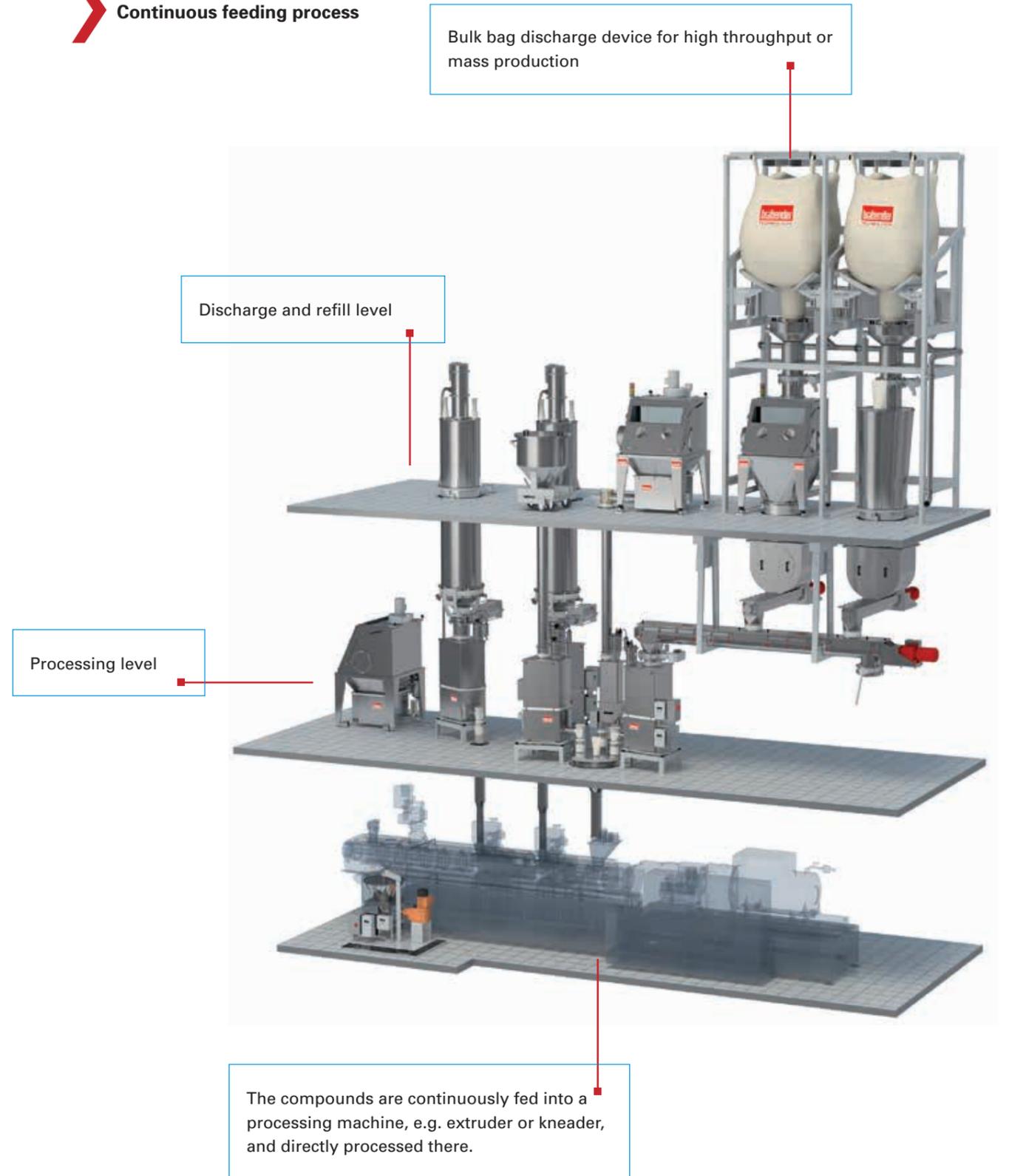
“Continuous systems require a significant planning effort. In addition to the required precise installation layout taking into account material flows, we also have to consider environmental and system conditions such as temperature, humidity, explosion protection and working conditions,” reveals Bernhard Hüppmeier. The relatively small footprint requirements, on the other hand, are an advantage here, especially the low height. Commissioning is simple for qualified and well-trained personnel, as the weighing unit and the feeding device are one unit.

Batch process with volumetric feeding

This process is based on individual, sequential metering feeders and is characterized by a slow, time-consuming sequence with premixes. Volumetric feeders meter the material into a gain-in-weight hopper scale. Since the hopper scale is usually configured for the largest batch, it is not possible to achieve a high level of accuracy for very small batches.

The control process is easier for discontinuous feeding because start weight and end weight can be achieved accurately. “Only the drop path from the volumetric feeder to the hopper scale can cause inaccuracies during filling,” explains Bernhard Hüppmeier. An ingredient change is as complex and time-consuming as cleaning, resulting in extended downtimes. >

Continuous feeding process



The many manual tasks reduce process reliability, more personnel time is required and the many processing steps cause product losses. It is therefore absolutely essential to have the correct calibration. The material is first metered in the hopper scale and then transported to the batch mixer. The equipment for this process is taller and requires considerably more space. The planning and commissioning workload is relatively high because the scale and the feeding device use different device technologies. Despite these limitations, the batch process with volumetric feeding is ideal for small production volumes, even though product is lost through residue in the device.

An example of the gain-in-weight batch process is in the manufacturing of powdered laundry detergent. A transport container with hopper scale moves across a roller conveyor – manually or computer-controlled – and collects the required material volumes from the volumetric feeders installed above. At the end, the con-

tainer is removed and placed onto a mixing system which mixes the fed products and discharges them (see figure for additive weighing).

Batch process with gravimetric feeding

Like the second process, the third method also uses the batch process. In this case, however, this is supplemented by loss in weight scales for gravimetric feeding. This process allows all ingredients to be fed in parallel, saving time compared to additive systems. Thanks to the high-resolution digital load cell, batch processing with gravimetric feeding is a highly accurate process. It can also be used for ultra low amounts without premixes if micro feeders are used. Premixes are possible, but there is a risk of ingredient segregation when transferred.

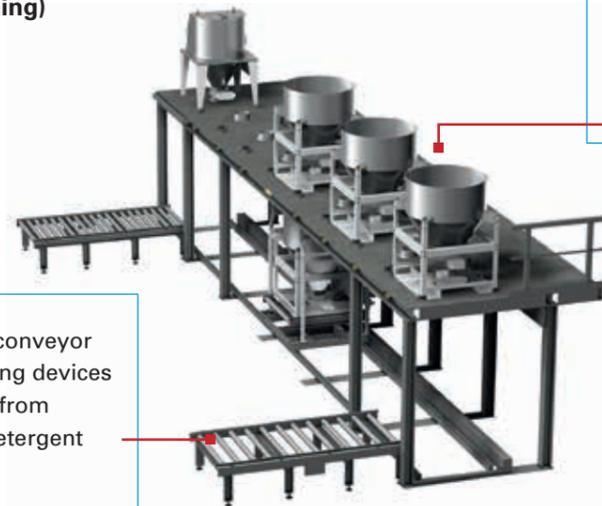
Control is easier because the start weight and end weight can be achieved accurately. When it comes to filling: The product leaving the scale has always been weighed and is only fed after filling is completed. The only

exception: multiple filling during a batch. As in the continuous process, separate venting is required on each scale, but this produces no ingredient mixing. Bernhard Hüppmeier: “Similar to the continuous process, the workload for cleaning and ingredient changes is manageable: It only increases for large batch sizes, as the scales are much larger.”

Despite the manual work required by the batch process, gravimetric batch feeding provides a high level of process reliability without product losses, as the materials are fed directly to the batch mixer. Similar to continuous feeding, a relatively small footprint is required. The exception being large batch sizes, where the scales become very large and consequently require more space. Similar to continuous feeding: Commissioning is easy, as the scale and the feeding device form an integrated unit.

The batch process with loss-in-weight weighing is used for generating a premix for masterbatch production. Here, three loss-in-weight feeders

Batch process (additive weighing)

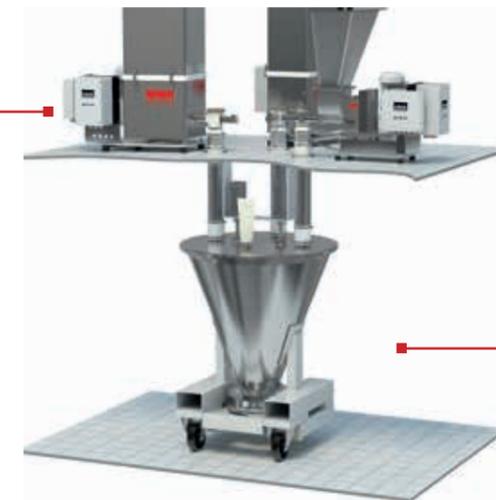


Several components are successively weighed into a hopper scale before being mixed and drained by a mixing system.

Example with roller conveyor and volumetric feeding devices installed above, e.g. from powdered laundry detergent production.

Batch process (subtractive weighing)

All components are fed in parallel – one weigh-feeder per component.



Example with three loss-in-weight feeders, e.g. for the premix during masterbatch production.

simultaneously feed three different additive products into a container in batches (LIV), generating a premix effect. The masterbatch is then moved to the batch mixer and added to the main product there (see figure).

Trend to continuous systems

Although there are good reasons for batch-based feeding being used in many industries, the trend in feeding is increasingly moving towards the continuous process, for example for applications in the pharmaceutical industry, in tire manufacturing or for powder coating. The continuous concept is already being successfully used for feeding adhesives in hotmelt processes. A variety of other processes where continuous feeding can be applied to replace batching are in development.

Bernhard Hüppmeier summarizes: “Overall, there are more and more applications where the change from batch to continuous process is planned or has already been im-

plemented. The mass production of batteries, for example, is changing over to the continuous process. In the food industry, this applies to breakfast cereal mixing systems and cereal bar systems as well as baked goods, dough products and vegan meat replacement mixtures.” The significant planning work involved must not be underestimated, but even for smaller volumes, this should be balanced against the ease of automation, higher product quality and smaller equipment footprint. ■

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Please contact us if you have any questions on choosing the best process for your specific application.

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The Duisburg test lab: an abundance of possibilities

With four feeding stations and the ability to trial a variety of different applications, almost any feeding task can be implemented at the Duisburg test lab. The primary focus is process reliability.

For Jochen Keesen, Head of the test lab at the company headquarters in Duisburg, every day is different. Since customer trial requests may differ due to new process or material changes, Jochen adjusts his testing to suit the new customer conditions. Keesen explains: "If processes change, for

example with new production lines, our task is to usually configure the feeders at the test lab to ensure feeding accuracy. When ingredient changes on existing lines, it may be necessary to have the new material inspected at the test lab first, so the feeders can be adapted if necessary."

More room for process reliability
The new test lab was opened in the fall of 2017. It is at the heart of the new company headquarters, which also houses the administration and the manufacturing of Brabender Technologie. Showing the entire portfolio from feeders to refill sta-

tions is no longer a problem. Jochen Keesen recalls: "That used to not be possible. We had to conduct tests in different rooms and often had to move or relocate equipment. Now we have five times as much space." The adjacent meeting rooms allow a direct view of the test lab and of the test setups.

"Typically, our customers primarily focus on reliability for their individual feeding applications when testing," he continues. "As an added service, we can simulate the feeding and refilling processes thereby minimizing process-related risks." There are four feeding stations where tests – from refilling to measuring feeding accuracy – can be carried out. The test lab is also equipped with a two-ton crane, which can be used to easily transport all common containers such as bulk bags, silos, barrels and sacks to the filling level. Two additional test labs dedicated to laboratory, food and pharma applications are also available.

Real conditions for all applications

The eyes of the expert engineer light up: "This opens up a whole range of new possibilities for us. It becomes much easier to set up a test as closely as possible to the customer's process. That means we can conduct realistic tests to find suitable feeding processes even for difficult bulk ingredients which is the focus of the test setup." This is extremely important for the manufacturing industry with its high-quality standards and precision feeding requirements.

"Our customers come from a range of different industries. A large number come from the field of plastics compounding whose products are used in the automotive manufacturing industry. We also have customers from the food industry whose applications require feeders for sensitive cereals, such as raisins for muesli mixtures," reports Jochen Keesen. "Basically, we can run a test for virtually any application."

Modular test setups

When entering the test lab in the workshop, one thing is obvious: Due to the modular structure of

our design layout, tests can be set up flexibly using a variety of different feeding equipment, container sizes and components – adapting to the customer's requirements. "For high feed rates in the range of several tons, we scale up. That is we conduct the test on a smaller setup and then multiply the results with the correct ratio," explains expert Keesen. "We can also simulate long-term operation in a continuous process."

Continuous processes are very popular with customers at the Duisburg test lab, as they are particularly interesting for high-accuracy applications. Customers also request small and large batch applications. On average, the test lab team – Jochen Keesen and two other employees – can conduct two tests per week. The test request is initially coordinated by the sales department up until the beginning of the testing period. The total process takes about four weeks. Depending on the scope and the current workload, it is sometimes possible to squeeze in urgent requests.

„At our test lab, all test results are completely open and transparent. The focus is on finding the right feeder for the flow characteristics of the ingredient depending on the desired feed rate.“

Jochen Keesen, Head of Duisburg test lab

All tests with open results

Each test begins with an ingredient analysis, required to establish specific characteristics of the ingredient. When the sample is available, a solids analysis is conducted to determine grain size, flow characteristics, bulk density and angle of repose. The feeders are then preselected based on this data, and considering the required feed rate, a decision is made on whether a feeding test at the test lab is required. If this is the case, the suitable parameter settings such as refilling limits and container geometry are

determined in the first preliminary tests. Then the feeding accuracy and consistency are recorded in a series of measuring runs and can be further optimized with adjustments of key parameters.

“At our test lab, all test results are completely open and transparent,” explains Jochen Keesen. “The focus is on finding the right feeder for the flow characteristics of the ingredient depending on the desired feed rate.” The process also includes testing of different venting systems. A direct comparison can be made between various arrangements and components.

Digital and compliant

The measurement series are run on a control platform and are digitally recorded through the feeder using special exclusive Feeder Control software. This allows the engineers to check at any time how well these comply with the requirements. All tests are stored in a joint database, including those from the two other test labs in Canada and China, allowing employees worldwide to benefit from each other’s work.

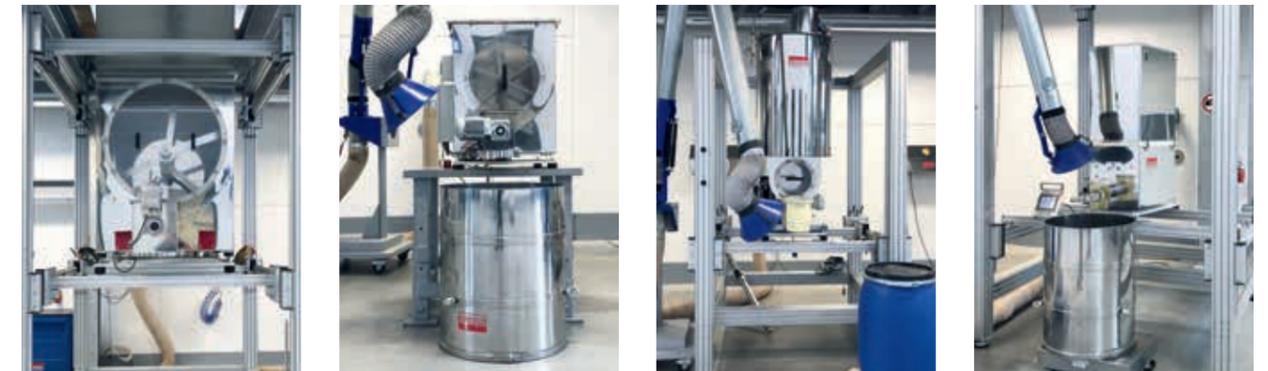
For feeding accuracy, Brabender Technologie complies with worksheet NA 40 “Dosing Accuracy of Continuous Scales” from Namur, which is an Association of users of automation technology in process industries. This instruction, similar to a DIN regulation, provides terms and definitions, identifies the permissible measuring errors and specifies measuring conditions to create a comparable basis for the different suppliers of feeding equipment.

Factory acceptance test

At the customer’s request, a factory acceptance test (FAT) can be carried out at the test lab prior to delivery and installation. This includes a function test as well as a total quality test, which ensures that the defined feeding accuracy values are achieved. “This procedure provides the production plant owner with nearly 100 percent reliability,” explains Jochen Keesen.

Potential for more

Sometimes the team is presented with challenges it cannot immediately resolve. However, in



Realistic tests with feed rates from ultra low amounts to bulk bags can be carried out on four modular feeding lines.

close coordination with the design engineering department, a solution can always be found, for example with adjustments or modifications to the basic unit. Jochen Keesen and his employees are continuously working on new products and further developments. They regularly discuss their experiences with the design engineering department and the service engineers, who in turn share these with the customers on site. The increase in test requests for feeding carbon fibers, for example, led to the development of the FiberXpert in 2017. A seemingly impossible task for existing feeders was finally resolved after many trials and the new FiberXpert feeder was created. This machine has now been launched successfully in different sizes.

Finally, Jochen Keesen reveals the following: “In the future, we want to make the preselection feeder process even more precise and we are currently working on a corresponding project, to offer better characterization of powder properties and more.” Therefore, the Duisburg test lab will remain eventful. ■



The Feeder Control software developed in-house displays changes in speed and product flow.



PARAMETERS FOR MATERIALS ANALYSIS

- Bulk density
- Density
- Planned feed volume
- Properties:
 - Tacky
 - Abrasive
 - Bridging
- Process details:
 - Volumetric/gravimetric
 - Number of components
 - Desired control

VIDEO

Duisburg test lab
We take you on a virtual visit.



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Series: discharging and refilling: BAV | BagDumper | SiloTray | BagMaster

Good vibrations with the hopper discharge unit

In our new series, we examine typical problems of discharging and refilling and explain the corresponding technical solutions. We start with the hopper discharge unit.



Refilling sounds like an easy task, but the flow behavior of a bulk material varies with its particular composition. This becomes evident during filling, and is apparent during the discharging and refilling processes. Flour, starch, titanium dioxide or chalk are classic examples of extremely poor-flowing bulk materials which cannot be discharged evenly due to their compacting flow characteristics. Their high bridging tension causes them to compact in the discharge area, which slowly clogs up with the product. This can lead to failures or even damage to the unit.

Relieving the outlet, preventing product backup

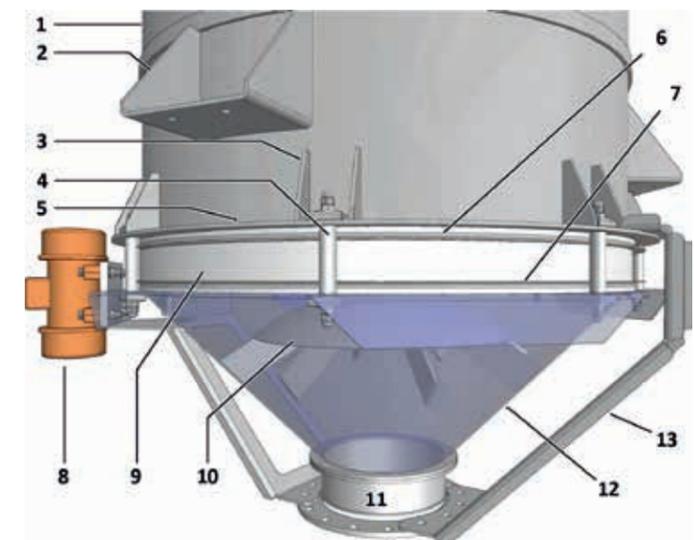
The hopper discharge unit is installed underneath a hopper or silo. With its' vibrating discharge bottom, it ensures even and continuous product discharge from the silo or hopper. The crucial element for this is the annular gap – the gap between the relief plate and the ring-shaped outer wall. Acting as a “double bottom”, the relief

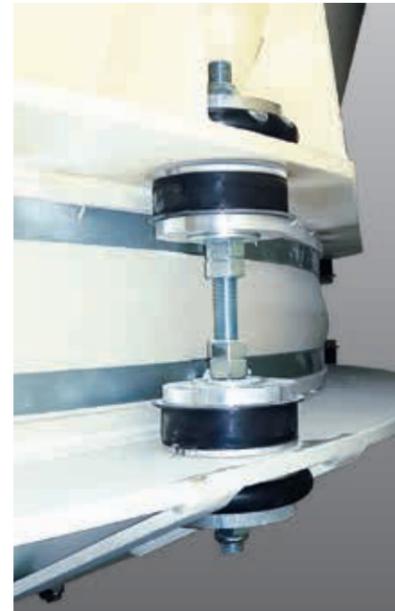
“THE BRABENDER”: RELIABLE AND VERSATILE



A hopper discharge unit supports non-compacting discharge of all bulk materials from silos or hoppers – except liquids. The first hopper discharge units, referred to as “the Brabender” among customers, was presented more than 50 years ago. Brabender Technologie has been continuously developing it further – resulting in the current 04 version, which is highly versatile and can be used in almost all areas of industry. The hopper discharge unit is also available in a Hygienic Design version made from stainless steel or as an explosion-proof ATEX version. It is temperature-resistant up to +150 degree Celsius, pressure-resistant, shockproof and even insensitive to underpressure, thanks to special safety elements.

- 1 Hopper
- 2 Hopper bracket
- 3 Junction plate
- 4 Suspension
- 5 Flat ring
- 6 Upper clamping ring
- 7 Lower clamping ring
- 8 Sleeve
- 9 Sleeve
- 10 Baffle support
- 11 Discharge (sleeve)
- 12 Discharge bottom
- 13 Struts:
used if non-centric loads are mounted on the discharge (fixed point: flat ring!)





The BAV can be customized to accommodate different bulk material flow characteristics during discharging or refilling from bins or silos. In detail: the BAV Series 02 mounting dating from 1989.

plate absorbs the material pressure of the product mass in the hopper to prevent the material pressure from weighing on the outlet of the discharge bottom and prevents product backup.

Norbert Marek, Head of the Spare Parts department at Brabender Technologie, explains: "If the annular gap is too large, the improvement effect for the flow characteristics provided by the relief plate is canceled out. The capacity is therefore always calculated based on the size of the annular gap. The ratio between ring gap and outlet diameter is the decisive factor here." If required, the annular gap can be precisely adapted to the individual requirements of the application with different options.

Additional option: venting nozzles
There is an option to equip the side wall of the discharge bottom with

compressed air nozzles. The blasts of compressed air ejected from the flat nozzles form a lateral air cushion between the adhering product and the hopper wall, reducing friction and activating (without fluidizing) the compacted product in the discharge area. Norbert Marek points out a possible disadvantage in this context, though: "With downstream feeding, the screw feeder can no longer ensure precise control of the product which now has a greatly changed flow behavior. Sufficient ventilation should also be ensured at all times to avoid affecting the feeding process."

Good vibrations
Depending on the size of the hopper discharge unit, the vibrations are generated with one or two vibration motors. "The smaller units up to model 1504 often have a higher speed and frequency, which causes the bottom to vibrate. The large

units are equipped with two motors, to prevent the product being discharged unevenly. The two motors are installed in opposite positions and are self-synchronizing," explains Norbert Marek. The vibration motor transfers the vibrations generated by unbalance weights to the discharge bottom, to which it is permanently connected. The unbalance weights consist of two half discs, whose relative position to one another determines the level of the unbalance. The unbalance is adapted to the application and discharge conditions in each case.

If the unbalance on the vibration motor is set too high, there is a risk of the product backing up or compacting in the discharge bottom, or the device can be damaged. "The vibration energy should therefore only be as strong as necessary and as low as possible," recommends

the expert. If the unbalance is set differently on each of the two motors, undefined spinning motions can destroy the device. Norbert Marek emphasizes: "The two vibration motors consequently always have to be run with the same unbalance setting."

Less is more
"What makes our service special is that we can deliver everything from a single source," summarizes Ralf Eikermann, Head of Customer Care. "Our unique selling proposition is that we can manufacture the hopper discharge units individually tailored to the conditions of the specific application if necessary. Customers who are unsure about the flow characteristics of their product should consult us first. We can analyze a sample beforehand to ensure that the hopper discharge unit will be precisely matched to the application."

Less is more – this applies to the hopper discharge unit. If customers ensure economical energy input and clever use of the annular gap, "the Brabender" will reward them with a long service life. ■



Food regulations-compliant finish: Loss-in-weight feeder with BAV 904 for use in the food sector

VIDEO

Refill properly:
We explain how you can solve typical refilling problems.



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Direct processing of carbon fiber scrap

Together with the German Plastics Center (SKZ) in Würzburg and scientists from Paderborn University, Brabender Technologie is researching how carbon fiber scrap can be efficiently processed in plastics recycling.

The greatest potentials for protecting and saving resources often arise during the use phase of manufactured products. By recycling the raw materials used, the industry can gain a feasible competitive advantage. Brabender Technologie has long since been actively participating in research projects with direct practical applications in this domain for many years.

the significance of this research project was recognized and approved by the German Federal Ministry for Economic Affairs and Energy (BMWi) through the German Federation of Industrial Research Associations (AiF) as part of the program for supporting Industrial Collective Research (IGF). The two-year project will run until the end of June.

woolly, fleecy structures. Consequently the material can no longer flow. The FiberXpert also offers the option of processing in an extruder."

Content of the project

The project is divided into different work "packages", to address orders on different aspects of the topic. This includes identifying suitable carbon-fi-

Why carbon fiber scrap?

The company is currently cooperating with the German Plastics Center (SKZ) in Würzburg, Paderborn University and a network of 21 companies on a project for processing carbon-fiber reinforced plastics in recycling applications. These come primarily from production waste in the automotive industry, or are generated from carbon-fiber reinforced finished plastics parts or scrap through pyrolysis.

The benefits of carbon fiber scrap are obvious: The recycle has a low weight, good mechanical properties, low shrinkage and a high resistance to heat deformation. "There are more and more legal requirements, like the EU Waste Framework Directive and the End-of-Life Vehicle Directive, requiring new ways of recycling," continues Hüppmeier. "That is why

Reliable feeding of carbon fiber scrap

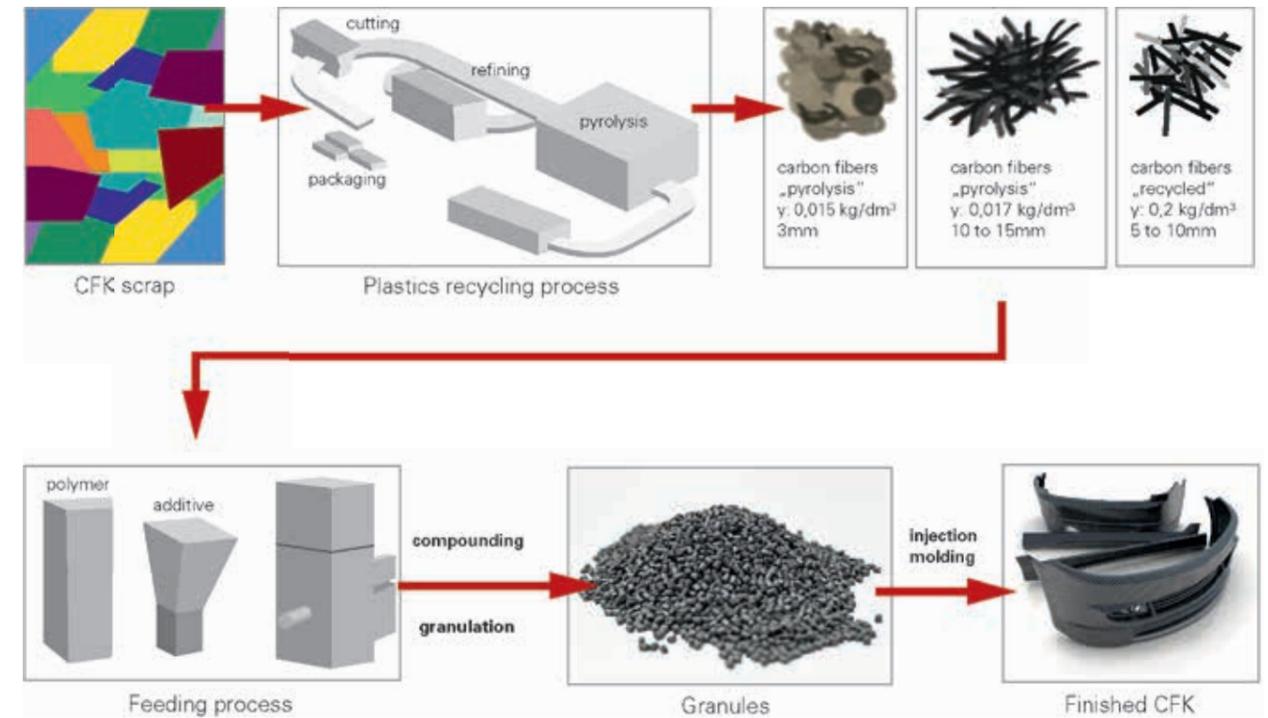
With its' commitment, Brabender Technologie provides a significant contribution to the research project: In addition to participating in the project support committee, a FiberXpert fiber feeder has been provided for all tests free of charge. Bernhard Hüppmeier: "This project would not be possible without reliable feeding, since the longer the scrap fibers become, the more they tend to form

ber reinforced plastic compared to new materials, which polymers and materials are generally suitable and the availability of the scrap materials. The scientists are also examining different extruder models, taking into account the system periphery as well as health and safety considerations.

"The objective is to find out what exactly happens to the fiber during feeding. Are agglomerates formed? Is dust generated? What is the im-

„The motivation for direct processing of this type of recycling materials was to omit the intermediate steps for recycling or disposal. That saves costs, energy and time and puts less strain on the environment.“

Bernhard Hüppmeier,
Head of Business Development at Brabender Technologie



Recycling process of carbon fiber scrap with direct processing

part of the feeding process on the bulk density, the flow rate characteristics and the structural change?" details Bernhard Hüppmeier. The project also examines the metering and infeed behavior through the side stuffing feeder and the behavior during extrusion and granulation. The project will generate forecast models for a resulting fiber length distribution, which are developed and validated for processing with the corresponding key parameters.

Benefit and perspective

Bernhard Hüppmeier summarizes: "We greatly benefit from the cooperation with the SKZ and Paderborn University. The project committee meetings alone are very important, as many participants from research and industry come together and we can engage in discussions and exchanges with them. We always

receive valuable theoretical and practical suggestions at these meetings for the next research phases. The findings from the feeding tests in the current project have already been incorporated into the FiberXpert. We will continue to participate in various research projects in the future." ■

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8 h with... service hotline

In our new series "8h with ...", we accompany employees from different departments on a typical workday. We start by accompanying Dominique Python and Peter Dümpelmann from the service hotline team.

8:00 AM: The day starts with a review. Who has contacted the service hotline and how can we help them? "We contact each customer personally to clarify their query," explains Dominique Python, who works for the service hotline team with two other colleagues. "The daily tasks resulting from this vary and can be exciting. Each day is different and brings new challenges."

Internal interface

The service hotline team generally handles all tasks connected to technical support. This means that once a feeder ships from the factory, the service hotline personnel are the first point of contact for any assistance. "Our area of responsibility includes error analysis and handling

complaints. It also includes coordinating commissioning, maintenance, ISO tests and spare parts deliveries," lists Dominique Python. "This requires us to interface with many departments, including the parts department. In the interest of transparency, each inquiry is officially documented in the in-house system."

Service calls: on site assistance

10:28 AM: A customer calls to report processing issues. Together with the customer, Dominique Python starts looking for the cause of the problem. Hotline work requires technical knowledge as well as a lot of flexibility, patience and sometimes a little detective work. Half an hour later they determine: "Unfortunately we were unable to

solve the problem over the phone, however, we are quickly getting ready to send a service technician to fix the system at the customer's site. I start planning this right away and send a quote to the customer for this service," reports Dominique Python.

Service calls are scheduled for customers around the globe – no matter where they are. "Customers can rely on us to send a service technician who can help," emphasizes the hotline employee. Brabender Technologie has an international network of engineers and technicians dedicated specifically for this, with seven in Germany alone. "If, for example, a customer in Taiwan requires on-site assistance, we usually contact the local service agency so they can coordinate the trip directly with the customer as they speak a common language," continues Dominique Python.

required control components are available, giving the hotline employee direct access to the customer's control using Team Viewer. "Remote diagnostics allow us to provide customers with fast and easy online support," explains Peter Dümpelmann, who works closely with Dominique Python. "We can dial in directly, gain an understanding of the problem and intervene as required." Alternatively, a connection can be established over the company's network. (We recommend watching the video "Remote diagnostics and set up: How it works", see info box.)

Commissioning

Upon request, the service hotline employees can also coordinate commissioning all over the world, including OEM partners who deliver Brabender Technologie equipment abroad. They have to contact the local service agency in the respective

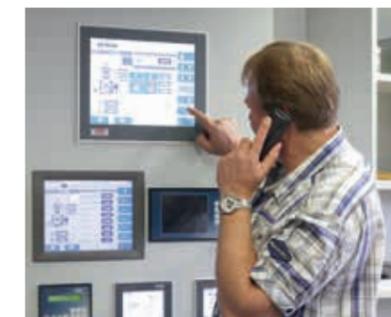
country, agree to a date with the customer and prepare the required documents in the appropriate language for the commissioning work. Occasionally, the German service engineers are sent abroad if the agencies do not have available resources or the capabilities to deal with large installations.

Support 24/7, free of charge

4:00 PM: When the workday officially ends, the on-call service starts. Employees take turns covering after-hours periods. Customers can reach an employee directly throughout a period of 16 hours – without any additional charges. "Since we have colleagues all over the world, there is always someone, somewhere, who can help," explains Peter Dümpelmann. "We don't put anyone on hold. Customers appreciate the uncomplicated and private nature of our support." ■

Quick help: remote diagnostics

2:30 PM: An emergency call comes in: the system is down. The customer agrees to remote diagnostics. The



VIDEO

"Remote diagnostics and set up: How it works"

We followed the employees with our camera during remote diagnostics.



@ CONTACT

Service Hotline Germany

Phone: +49 203 9984-299
hotline@brabender-technologie.com

An overview of all other service hotlines can be found at:
www.brabender-technologie.com/en/contact/



Improving bulk material processes

Our agent for Brabender Technologie in Belgium and the Netherlands, Solids Process Solutions (SPS) is a competent and dedicated partner for technology and service inquiries.

Solids Process Solutions is much more than just an agent. "We have a fantastic and long-standing relationship with Brabender Technologie," says Rob van Buitenen, Managing Director of SPS, who has known the company for more than 25 years. "It all began in 1994. Back then, I worked for a company that sold process equipment for bulk materials. The feeders were from Brabender Technologie which is how I initiated contact with Duisburg."

After nine years of being responsible for sales activities in Belgium and the Netherlands as an employee of Brabender Technologie, Rob van Buitenen had the opportunity to start his own agency in 2013. That was how Solids Process Solutions began. Today, SPS represents Brabender Technologie as a main supplier and is also a manufacturer of extruder components, pelletizers and inline pellet inspection.

How does SPS operate?

"Customers typically ask about our recommended equipment or spare parts. We work with the customer to understand their requirements and production process in order to provide the ideal solution. In addition to the best price-performance ratio and reliable technology, I focus on the potential ecological footprint of a device or system," Rob van Buitenen explains the sustainabil-

ity approach of his work. Over the years, the Dutchman has built a reliable network with his longstanding expertise.

Service with an exclusive partner

If a customer contacts SPS with a technical concern, the first step is to obtain relevant data such as the equipment's model and serial number that the concern pertains to. This is followed by an initial analysis, which can often lead to immediate solutions. SPS works in close cooperation with the Brabender Technologie Hotline and local Brabender Technologie certified service engineers. Together they offer technical support for any type of concern.

Performance scan and improvement analysis

SPS offers its customers a performance scan for their feeding system free of charge and without any obligations. "In addition to the parameter settings in the feed control, we scan the mechanical and process conditions that impact the feeding system. We work with the customer to check how the performance of the installation can be improved," Rob van Buitenen says describing the performance scan process.

Typically Netherlands, typically Belgium

Customers in Belgium and the Netherlands are primarily from the food and plastics industries. Other customers are involved in chemical or animal feed production relating to agriculture or aquaculture. There is also a sizable group of customers who use Brabender equipment for recycling processes. "Our customers produce highly specialized products, and in some cases the recipe must



SPS Solids Process Solutions

SPS has over 25 years of experience in the field of bulk materials processing.

be changed several times a day. Brabender Technologie systems are perfect for these requirements as they are designed for quick changeovers, are easy cleaning and can be supplied in a Hygienic Design version if required," explains Rob van Buitenen.

Special relationship

Through the many years of daily communication, extensive collaboration and close proximity to Duisburg, the working relationship between Rob van Buitenen and Brabender Technologie has grown into something special. Tradeshows in Germany help Rob maintain healthy

relationships with employees and customers and also give him an opportunity to visit the Duisburg headquarters regularly. "I feel very connected to this company and it is great to be a part of the Brabender Technologie family," emphasizes Rob van Buitenen. ■

Rob van Buitenen



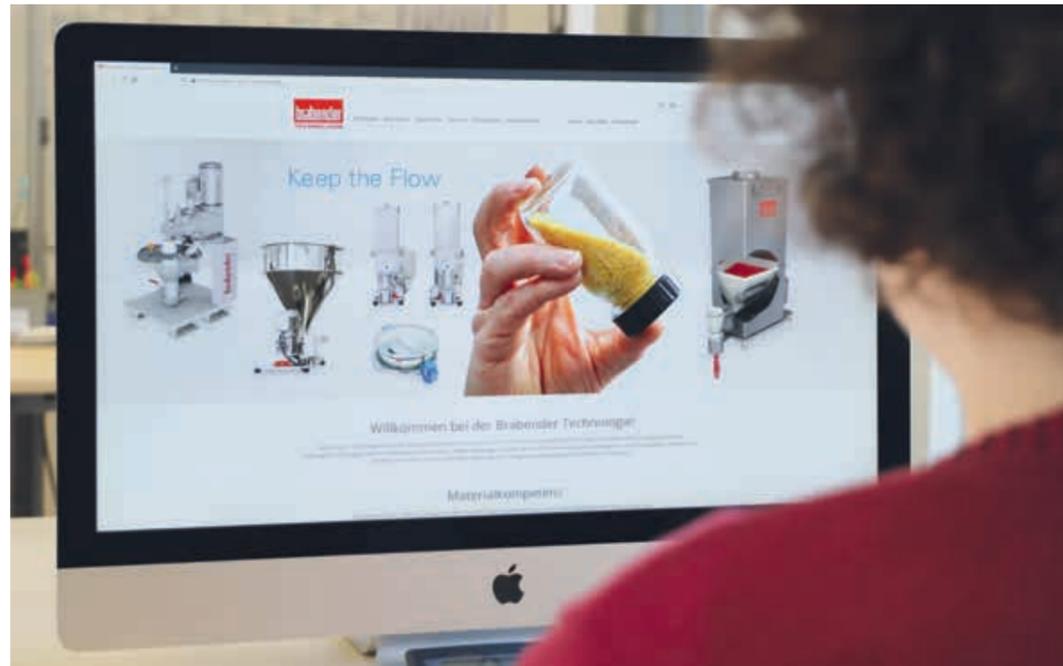
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More than just an image: website relaunch



Brabender Technologie's new website has a fresh design and includes content tailored to specific target groups. The primary focus of the relaunch was to provide more benefits for existing and potential customers.

The product section, which presents and explains the entire product line, is a great example. All available feeders now include corresponding discharge aids and control systems as well as associated accessories. Navigating through the extensive product line is easier using a filter that restricts the selection of feeders depending on the material and feed rate. The section also features interactive works standards which outline specific details for each product (see News, page 26).

We are diverse and individual

The "Industries" section goes a step further: With a single click on an individual application,

interested users can see which feeding equipment suits their specific production process for "Food", "Plastics", "Chemicals" and "Pharma".

The new company website features a very user-friendly structure and is optimized for browsing on mobile devices. Each section of the website provides a direct link to a BTI contact, and the "Contact" section lists all worldwide agencies and sites. ■

Why not have a look at it yourself?
www.brabender-technologie.com

Extensive knowledge: plastics processing

Bernhard Hüppmeier, Head of Business Development at Brabender Technologie, contributed his feeding expertise in a comprehensive book regarding plastics manufacturing which includes the essential steps of processing and compounding. He is the author of a chapter on feeding technology.

Plastic production is comprised of three essential processing steps: synthesis or reaction, processing or compounding of raw materials and finally molding into semi-finished or finished products. The 880-page book entitled "Polymer-Aufbereitung und Kunststoff-Compoundierung" (Polymer Processing and Plastics Compounding), published by Hanser-Verlag, thoroughly covers all aspects of the compounding or processing stages in the plastics manufacturing process. In addition to plastics processing, the integration and influence of additives on quality control is examined. The authors,

who are subject matter experts, impart their knowledge from the fields of research, polymer production and equipment manufacturing with great precision, using the fundamentals of process technology and specific, real world application experience from the plastics industry.

Brabender Technologie contributes a chapter on "Feeding technology"

The "Feeding technology" chapter written by Bernhard Hüppmeier explains the fundamentals of continuous feeding and weighing and both refill and aeration processes. The Head of Business Development also provides insights on innovative concepts for easy disassembly and cleaning processes.

Finally, Bernhard Hüppmeier discusses Industry 4.0 requirements and their impact on control solutions and the proper integration of weigh-feeders into installations using the latest industry data.

Bottom line: sound, comprehensive and indispensable

"Polymer-Aufbereitung und Kunststoff-Compoundierung" is an indispensable source of information on the fundamentals, equipment and application technology used in the manufacturing of plastics – for not only specialists from the polymer and plastics industry, but for anyone interested in learning more about the manufacturing of plastics. ■



i YOU CAN ORDER YOUR ENGLISH COPY HERE (AVAILABLE FROM FEBRUARY 2021):

Klemens Kohlgrüber, Michael Bierdel, Harald Rust (publisher)
Polymer-Aufbereitung und Kunststoff-Compoundierung
880 pages, 2019 Carl Hanser Verlag, Munich

ISBN: 978-3-446-45832-1

News



Servo motors added to product line

Brabender Technologie is working on expanding its product range by gradually adding servo drives. The servo motor is currently available as an option for many feeders. Compared to standard frequency-controlled motors, servo motors are advantageous for a variety of different applications due to their wide speed and torque range. The servo motor can eliminate

the need for a second pair of screw and tube, thereby reducing change-over downtime. At low speeds they can also start at full torque without speed fluctuations.

Technical column

Health comes first

What is the best way to protect employees against harmful substances during production? Frequent questions show that many of our customers have the same concerns.

Ideally, if harmful substances cannot be emitted, then the employee will not be affected. It is important that a feeding device meets this requirement while also allowing quick and easy cleaning without tools.

JetFilter with HEPA class H

Our new JetFilter HEPA cartridge can help protect your employees against harmful dust. The new cartridge consists of several nested filter elements and reliably filters out harmful substances when the feeder is automatically refilled. This makes it suitable for HEPA filter class H, which is also used in cleanrooms. HEPA stands for "high-efficiency particulate air" and identifies suspended solids filters based on their standardized separation level.

Air Purged Seals

We have recently launched a new shaft sealing program that allows

improved dust sealing. This innovative radial shaft seal can be used for both screw and agitator shafts. This unique seal has an inner chamber which is pressurized with compressed air preventing any harmful dust from escaping to the outside environment. In case of a seal leak, the dust remains in the chamber.

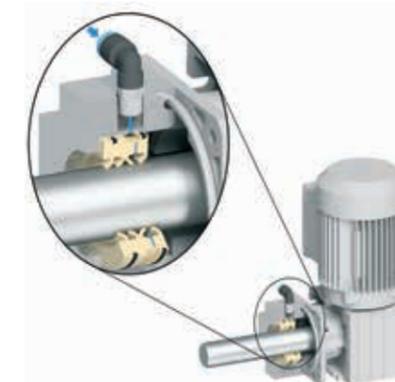
Flexible sleeves made from liquid silicone rubber

In cases where harmful substances are fed, inlet and outlet connections must be securely sealed to prevent toxic dust from escaping. Our highly durable, tear-resistant silicone flexible sleeves can provide this security. They are offered in many standard sizes and with its new design and high flexibility, it is also suitable for ultra low feed rates below 50 g/h.

Our development team works diligently on improvements and new products to help protect employees against harmful substances. With this in mind: Please stay healthy! ■



Dr. Günter Kuhlmann, CEO of Brabender Technologie



New interactive works standards

With the relaunch of our website, Brabender Technologie added interactive elements and revised all work standards. For example, general information now contains image links to improved descriptions of assemblies and weighing systems. Detailed dimensional drawings can be viewed for different models and hopper sizes. All other categories such as screw size and capacity, options and accessories, model num-

bers and control modules are linked to additional illustrative materials.

A download link for the new interactive works standards can be found next to each product.

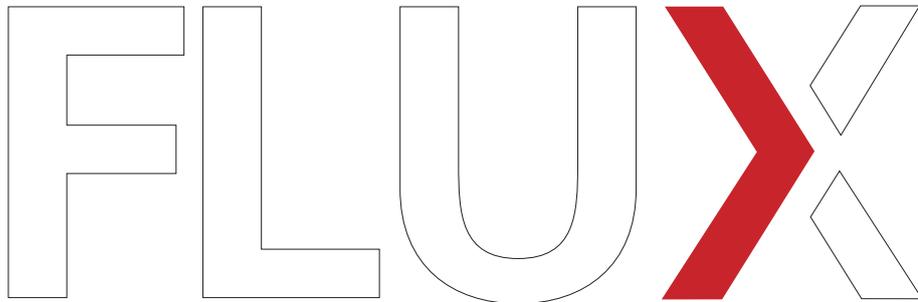
www.brabender-technologie.com/en/products/

Trade Fairs

Our participation in the scheduled trade fairs has changed as events in 2020 have been canceled and postponed due to the coronavirus pandemic. Use this link to see where and when we will be exhibiting this year:

www.brabender-technologie.com/en/news/





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Keep the Flow