

Magazine for Customers and Friends of Brabender Technologie GmbH & Co. KG

FLUX

/04 Liquids – a Precarious State

Many factors must be taken into account when considering liquid dosage.

/10 PU: A High-Standard Material

Production requires certain expertise.

/14 Fibers and Biopolymers: Made with Milk

QMILK processes casein into fine materials.



A STATE OF FLUX

> editorial



HORST VOHWINKEL

General Manager
Brabender Technologie
GmbH & Co. KG

BRUNO DAUTZENBERG

General Manager
Brabender Technologie
GmbH & Co. KG

Dear business partners, dear colleagues,

in the first issue of FLUX we focused on internal matters and reported a great deal about what's going on inside our company. We are now shifting our perspective – you can find out more about Brabender equipment in actual use. Having been involved in setting up the experimental laboratory at QMILK, for example, we have witnessed how an idea has been turned into a manufacturing operation.

Be amazed at all the products that Anke Domaske and her team manufacture from non-potable milk – from clothing fibers via plastics to cosmetics and dog bones. QMILK is not the only company to feature a Brabender Technologie liquids feeder in its production facilities. Liquids are feed-sensitive but we understand how they need to be handled.

In our feature article we explain why there are no off-the-shelf solutions for liquids. Following that, we provide you with an example – Brabender Technologie's feeding solutions are an integral part of polyurethane production lines. Last but not least we should like to present to you a reliable and seasoned collaborative partner of ours. The UL TTL, based in Krefeld-Uerdingen, tests and certifies plastics of all kinds. Take the plunge into the fascinating world of material testing. We wish you an exciting read!

Kind regards
Horst Vohwinkel and Bruno Dautzenberg

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Phone: +49 203 9984-0
email@brabender-technologie.com

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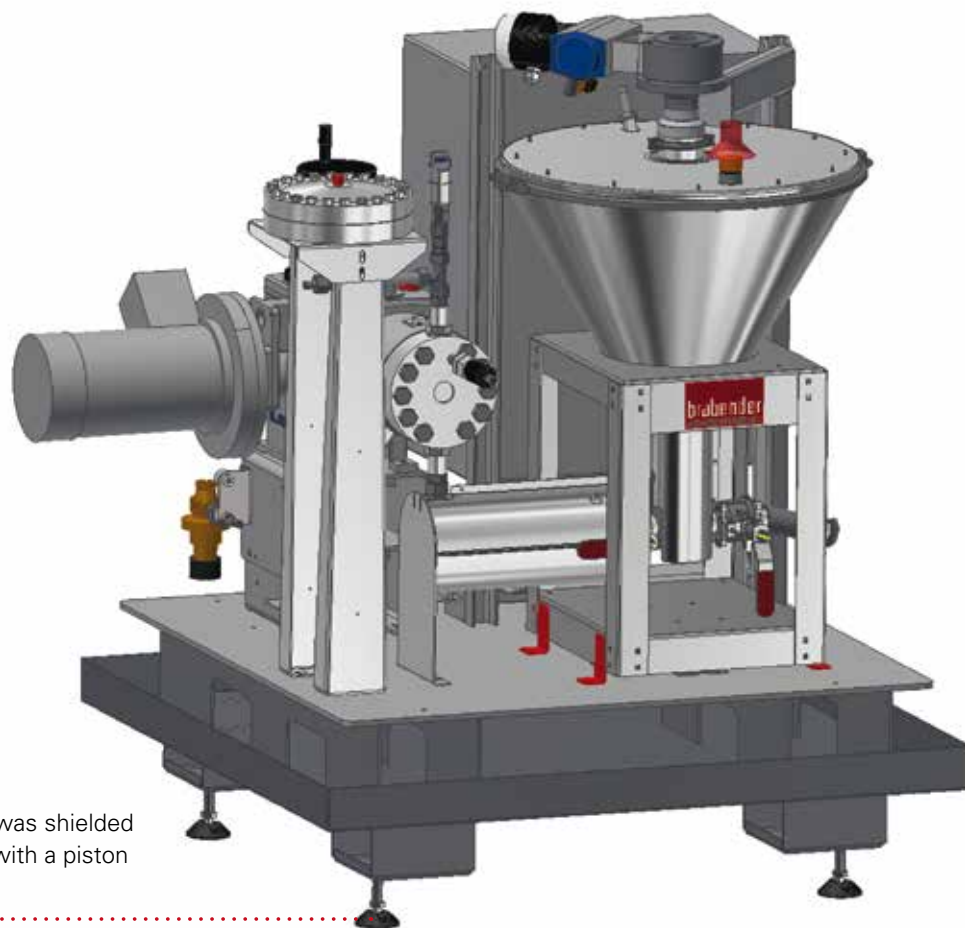
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Liquids – **A PRECARIOUS STATE**

> What is a liquid anyhow? What appears entirely clear (or even sometimes opaque) in everyday life, is a problem of definition in physics. Liquid is the state between solid and gaseous. The viscosity of a liquid varies dependent on pressure and temperature. Both these parameters also determine phase transformation to solid and gaseous. The sensitivity of liquid products makes handling them especially precarious. Brabender Technologie specializes in feeding sensitive substances and creates custom solutions. >





In this example a digital load cell was shielded by compensators and combined with a piston diaphragm pump.

The temperature not only determines the general physical condition of a substance, but also its viscosity. At 20 degrees Celsius, water has a viscosity of one millipascal-second (mPa•s). Grape juice has a viscosity of two to five, olive oil 100, honey 10,000 and tar 100,000. These figures change in different pressure conditions. "For this reason we do not have a wide range of standard feeders for liquids, but rather a basic feeder design, which we can customize to match each order. Each of our liquid systems is unique," Thomas Neuhaus explains. He and his colleague Adrian Baron have been conceptually designing liquid feeder systems for Brabender Technologie for more than ten years.

"The feed unit, the weighing system and the pump, usually a piston diaphragm or gear pump, constitute the heart and lungs of a feeder system. That also depends on the viscosity of the substance," Adrian Baron uses an anatomy analogy to illustrate his point. Measurement and control technology form the neural pathways. "The peripheral equipment surrounding

these core elements are then dependent on substance, quantity and buyer preferences," Thomas Neuhaus adds. The basic set-up includes the filling valve, which prevents drips. Flexible compensators are located in front of and behind the weighing unit with receptacle and gravimetric load cell. The pump is attached to the lower compensator.

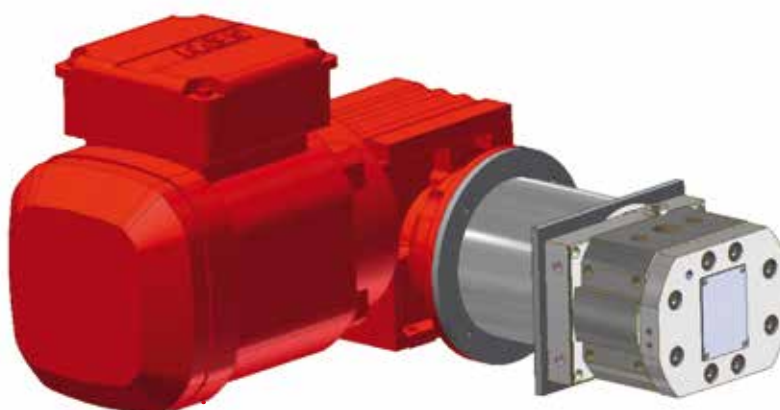
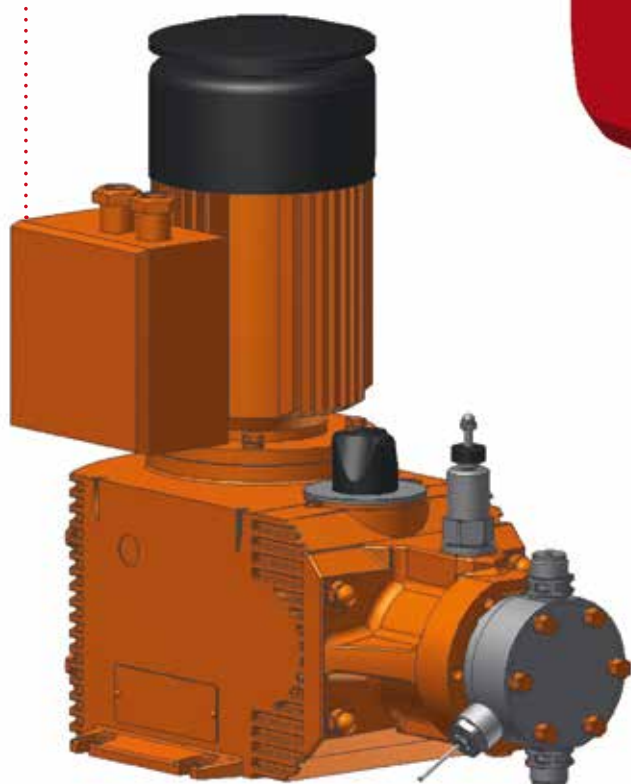
The Coriolis system represents a special feeding case, which Brabender Technologie only incorporates upon request. This involves a flowmeter that operates to a very high level of accuracy and can be integrated directly into liquid flows and piping. It is mainly used where very large quantities of more than 1,000 liters/hour are involved and where it makes sense to use the considerably more expensive Coriolis system rather than scales. In system design terms this version features substantial differences to other solutions, since it does not include an independent weighing system. The meter is positioned directly behind the pump and determines the speed of its motor.

A question of the right pump

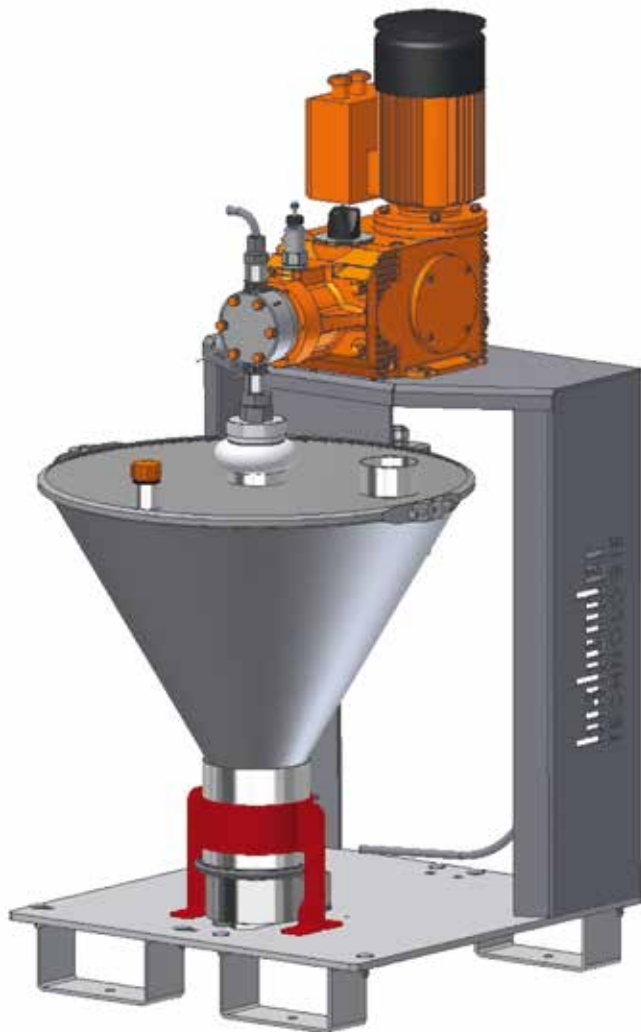
Piston diaphragm pumps, which function in a similar way to heart muscles, are normally used for low-viscosity substances. A piston generates a vacuum, which raises a diaphragm, allowing liquid to flow in through an inlet valve. The counter-motion produces a contraction and the liquid flows out of the outlet valve. Compared to simple piston pumps, the benefit provided by these pumps is that the liquid to be conveyed does not come into contact at any stage with the drive mechanism and therefore with lubricants or residues. This is extremely important when handling foods and for hygienic processes as well as for a wide range of chemical applications.

One disadvantage of piston diaphragm pumps is their amplitude. The switch between in-flow and outflow as a result of piston stroke travel causes a pulsating flow of liquid. "We use pulsation dampers in processes that are sensitive to such flows," liquids specialist Neuhaus explains. "This involves a reservoir with a diaphragm that separates a volume of gas from the pumped liquid. A portion of the liquid is pressed during the pump stroke into the pulsation damper and discharged again during the suction phase." The pulsation damper therefore always operates in push-pull mode vis-à-vis the pump. "If the process has to be constant or steady, we use several pump heads or, if feasible, switch pump type." >

Piston diaphragm pumps are suitable for conveying low-viscosity substances like water.



Gear pumps are generally used for viscous substances.



The exception to the rule: Brabender Technologie has a standard device in its portfolio for simple applications not involving frequent product changeovers.

This is when gear pumps are used. They are a type of non-pulsation continuous operation pump and are used in processes involving medium to high viscosity. They can also cope with high pressure and high temperatures, are accurate where low flow rates are involved and compact at high flow rates. Brabender Technologie works closely together with the pump manufacturers to provide the optimum pump for each application. Pump types like progressive cavity pumps, control plunger pumps or peristaltic pumps are used far less frequently.

Hot or cold – liquid or solid

Temperature is a key factor in the processing/handling of liquids; after all it determines physical condition and viscosity. Many oils, for example, become significantly more fluid the hot-

ter they get. At certain temperatures chemicals perhaps tend to degenerate or even explode. "Because the correct temperature is so vital, we offer two options for heating up our system." Adrian Baron illustrates these. "We can give the entire structure a double-walled configuration, meaning that the system can be heated using water or thermal oil. This version is a good option if, for example, waste heat is generated by another application or if explosive substances are processed or handled." The alternative is electric heating provided by heating sleeves. "The benefit of this method is that each component has its own heating and therefore features its own control loop. That enables, for example, the piping leading from the pump to be heated to a greater extent than the feeder unit." That can add up to 10 to

15 control loops. The heating system ultimately used depends on a range of factors, such as existing peripheral equipment or the user's power supply.

Every order kicks off with a datasheet, which specifies the properties of the liquid and production set-up requirements. It determines the structure or design of the plant and the materials that can be used. Stainless steel and PTFE (Teflon®) are very durable, but individual seals and other synthetic components have to be selected to match the product being handled. "Sometimes customers do not want PTFE to be used, so then we have to be very creative. Such special requests of course have an impact on delivery lead times," Thomas Neuhaus remarks. As a rule the total lead time for a liquid feeder unit from ordering

through commissioning is between 16 and 20 weeks. Brabender Technologie manufactures over 100 of these units a year – and nearly all of them are one of a kind.

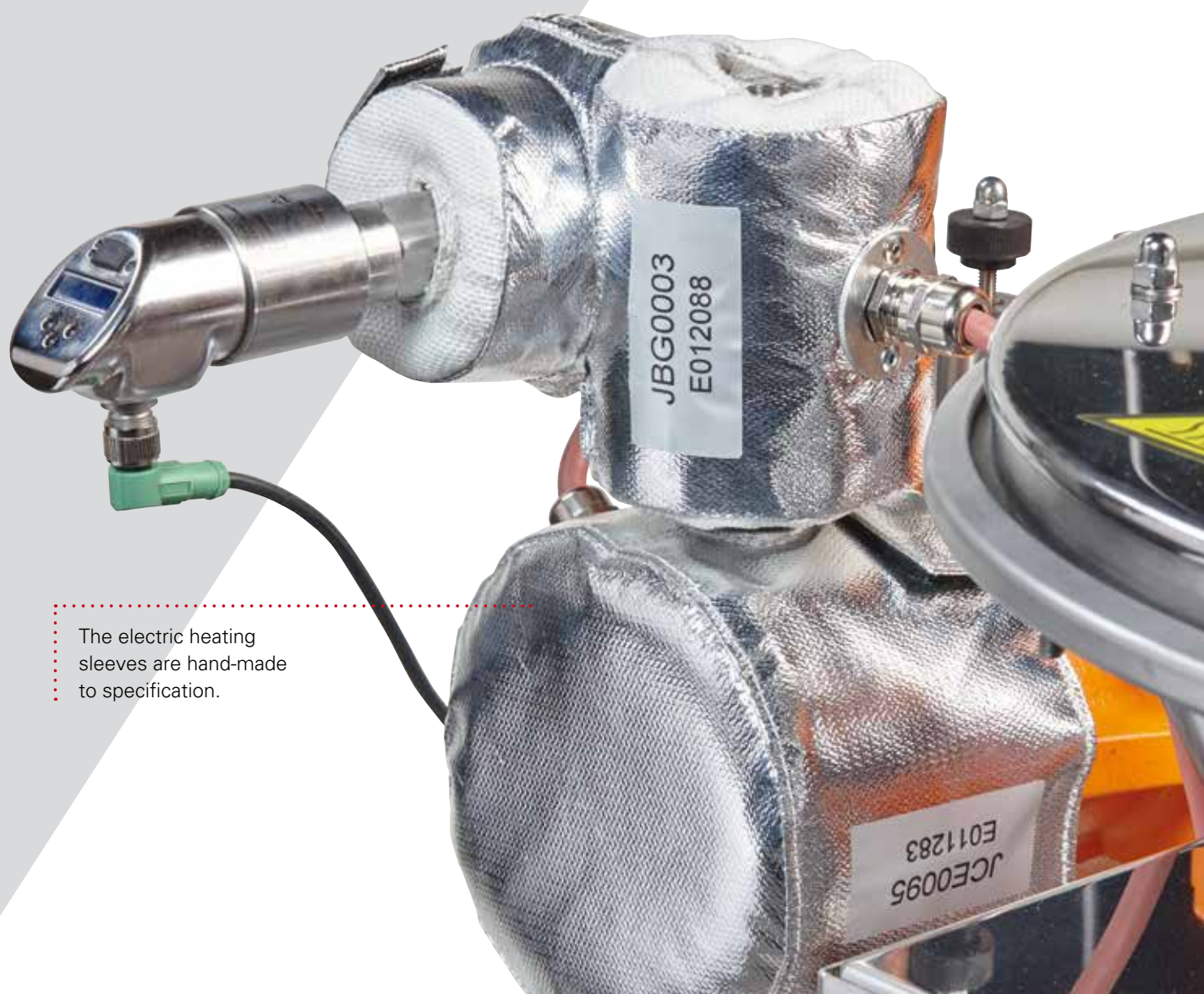
Variations include, for example, mobile feeders for laboratories – this is a special detail to protect sensitive load cells, to shield grounding plates from interference caused by ambient vibrations. There are manual filling versions for low to micro quantity performance requirements starting at around 50 grams/hour. Solutions featuring clamp connections for faster dismantling of piping components make cleaning more convenient. “We make receptacles of between

50 and 800 decimeters in volume, for example if liquids are delivered in barrels and feeder processes are best not interrupted by having to change barrels,” Thomas Neuhaus adds. Furthermore Brabender Technologie also manufactures ATEX-compliant versions for use in conjunction with flammable substances or in explosion-prone environments.

Standard remains the exception

The new standard version S-Type is the exception. “This means we offer a simple, compact, inexpensive feeder for liquids, which, although it cannot do everything, is adequate for a wide range of applications,” is how Horst Vohwinkel, General Manager of

Brabender Technologie, explains the company’s model strategy. “This standard device features a more compact design with fewer components. For example the pump is located above the receptacle and sucks up the liquid, meaning a simpler inlet detail. Furthermore this design saves an enormous amount of space.” Since a changeover from one liquid to another is considerably more complex with this set-up, this device is particularly suitable for long-term production facilities that do not require any flexibility and many extras. “Here we are deliberately offering just a few options. We have a proven system for custom solutions, so this device is only suitable for simple, standard applications.” ■



The electric heating sleeves are hand-made to specification.

PU:

A high-standard material

You sleep on a cold foam mattress, after breakfast you walk on synthetic shoe soles to your car where you sit on a flexible polyether foam seat. Plastics from the polyurethane (PU) family of products are our constant companions throughout the day. Manufacturing them requires specific know-how.

Soles made of PU are lighter, have better low-temperature flexibility and insulate better than those made of PVC.





Household sponges are made of soft PU foam.



Cold foam mattresses made of PU are point-elastic, durable as well as warm and cozy.



Polyurethanes are versatile, practically omnipresent plastics. They feature – usually in the form of cold or warm foam – in mattresses, shoe soles, seals, hoses, floors, insulation materials, coatings, adhesives, sealants, skis, vehicle seats, athletics tracks, vehicle dashboards and many other products. The source materials used to make them are liquids – diols and polyisocyanates.

One particular characteristic is vital for the production of PU: “When a polyurethane facility is started up, the formulation must be exactly right straightaway,” Thomas Neuhaus, liquids expert at Brabender Technologie, explains. “The ongoing process cannot be stopped or adjusted, the extruder would then have to be emptied and the batch would be rejected.”

Proprietary control technology

This delicate property necessitates a sophisticated control system. Brabender Technologie uses its own M-CON multi-component system together with the Congrav® control module, >



which can be connected to an overall process control system (host/PLC). Visible consequences of this are the relatively large control cabinets that are part of every Brabender-designed PU feeder system. "In contrast, what you cannot see are most cables, which we conceal in the hollow sections. Many have plug connections in key places to make replacing them as easy as possible."

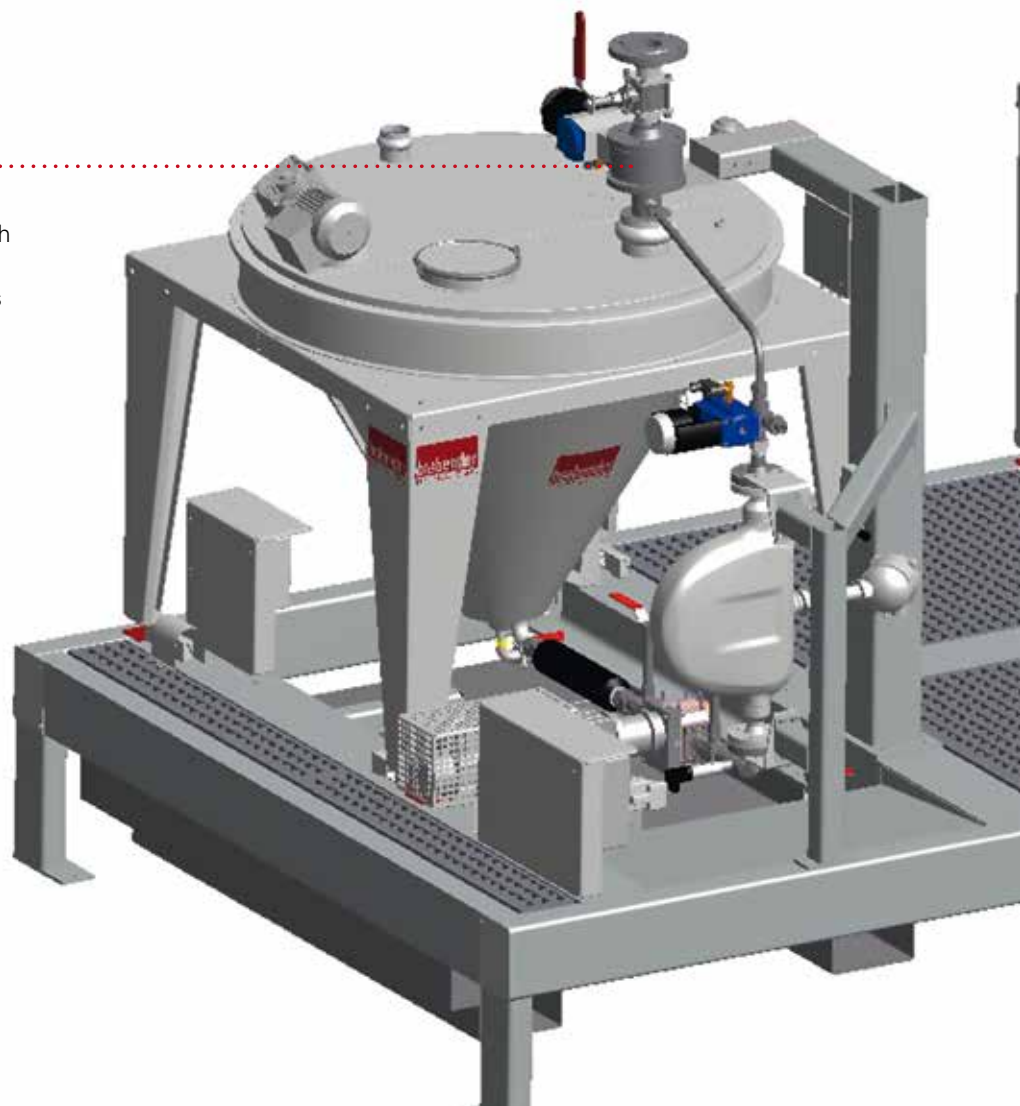
Because the cabling involved in the many control loops is complex, it is assembled by Brabender Technologie in the factory. Neuhaus: "A PU feeder station is practically delivered like a plug-and-play device. After being connected to the extruder, it is immediately ready to use."

Sensitive to temperature fluctuations

Since the chemicals have to be processed within a narrow temperature range of +/- 5 degrees Celsius, the entire feeder system basically has to be electrically heated. For this purpose all modules and flexible tubes are wrapped in tailor-made heating sleeves, which are closed using Velcro fasteners (see picture on page 9). Each is fitted with an individual pluggable control loop, in order to make replacement as easy and convenient as possible and to facilitate precision control.

An additional agitator in the hopper ensures the residues are constantly mixed with new liquid, so that the temperature remains as constant as possible. If the liquid is not being conveyed, it

In this special case a Coriolis meter, an additional agitator with motor and an extra circulation pump were used. The cabling is routed through the frame.

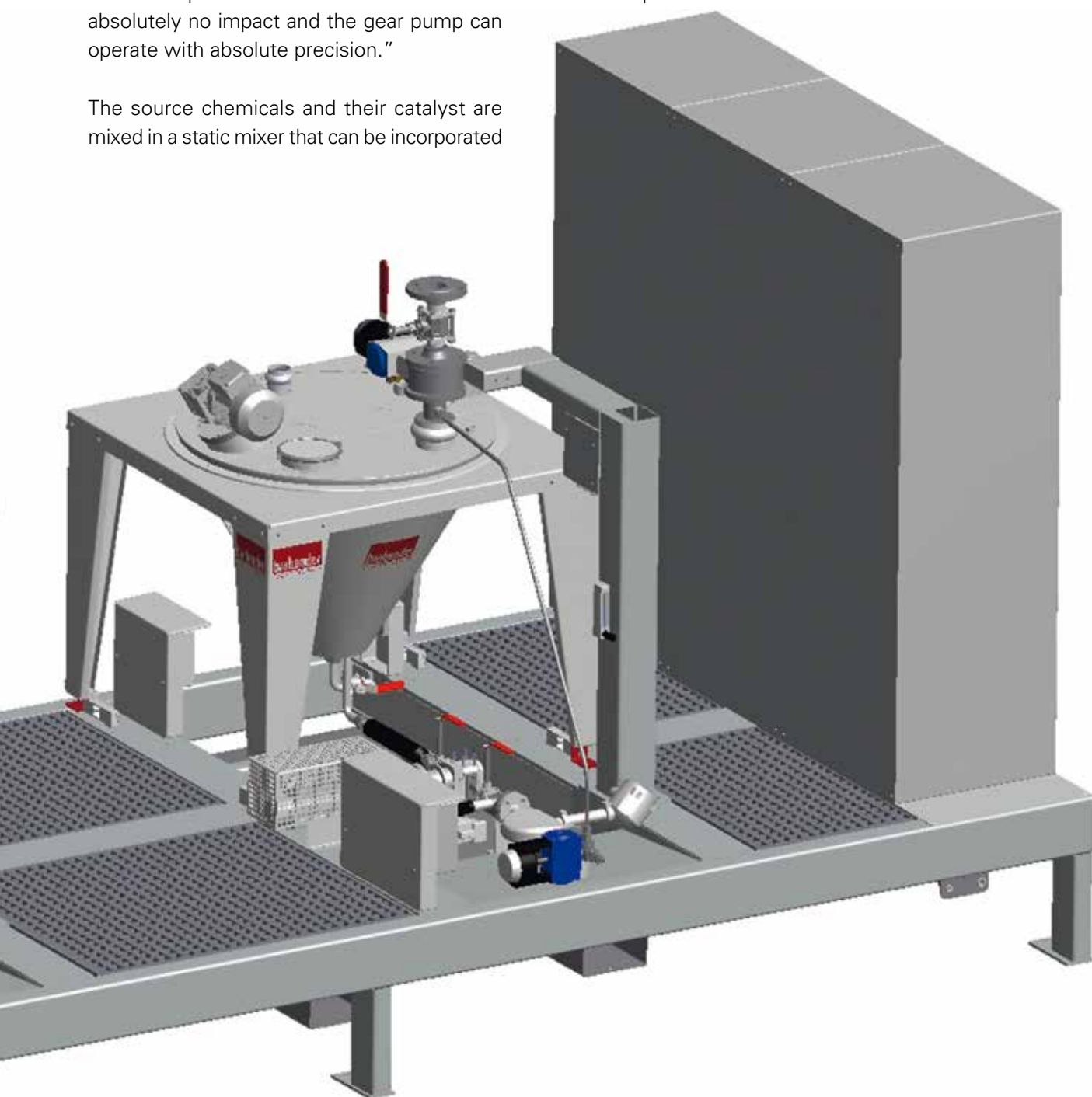


flows through a bypass in the loop back into the hopper. "These source materials must always remain in motion, otherwise they sediment and clog the system," Adrian Baron explains.

The liquid feeding expert highlights another specialty of PU plants: "We basically use powerful servo motors for these systems. They are actually oversized for what they are intended to do, but therefore operate at an absolute constant speed. Pressure fluctuations have absolutely no impact and the gear pump can operate with absolute precision."


The source chemicals and their catalyst are mixed in a static mixer that can be incorporated

in a heat exchanger. Here the chemicals flow through double-walled heat pipes until they have reached the ideal processing temperature and are ready for mixing and extrusion. "Brabender Technologie is able to plan not only the feeding system itself but also the peripheral equipment with all the necessary connections etc. as well as automation, if customers request us to do so," Thomas Neuhaus relates. This provides customers with a worry-free turnkey package for their PU production facilities. ■



Fibers and Biopolymers: **MADE WITH MILK**

When Anke Domaske thinks about “what’s best about milk”, that extra portion of calcium does not spring to mind. She thinks fabric fibers, dog bones, biopolymers and cosmetics, all manufactured by her own company. These products all have one thing in common – the raw material used is cow’s milk.



Five years ago the young entrepreneur Anke Domaske established QMILK and won the City of Hanover’s StartUp Award for her idea of manufacturing fibers from non-potable milk. A lot has happened since then – she has progressed from conducting experiments in her kitchen at home to running her own company, which manufactures a whole series of fascinating products.

QMILK segregates casein from milk. The products are all 100 percent manufactured from natural raw materials. “That was also the major problem at the beginning,” Anke Domaske recounts. The microbiologist wanted to avoid using chemicals in order to obtain as natural a fiber as possible. “It all started when my stepfather developed cancer and experienced an allergic reaction to most fabrics. He simply was not able to buy clothes anymore because the chemical impact of the fabrics on his health was too severe. Thereupon I went in search of alternative fibers and came across fabrics made of casein.”

Old idea, new formulation

Manufacturing them according to the original formulation was anything but natural. The fibers were treated with formaldehyde, for example – an absurdity in the microbiologist’s view. After failing to secure any university backing for her



Biopolymers can be stained
any color you like.

project, Anke Domaske immediately purchased the initial equipment for experiments from the supermarket and conducted her first experiments in her kitchen at home. “Our project then gathered momentum when we won the Incentive Award of the City of Hanover. This enabled us to establish QMILK and we scouted around for suitable partners at Powtech in 2011.”

This is where initial contact with Brabender Technologie was made. Today Frank Budde describes QMILK as his most intensive project – and the most exciting. “We have been privileged to mentor and support QMILK right from the start and were involved from the company’s initial experiments through to equipping its production facilities.” Brabender Technologie

loaned a MiniTwin feeder and later a DDSR20 twin screw feeder for experiments conducted at ‘Faserinstitut Bremen’. It soon became apparent how complex fiber production is. Today Anke Domaske speaks with the benefit of experience. “Manufacturing granulate material would have been an easier way of starting. But at the beginning I knew far too little about process engineering and how complex yarn production is.”

These days she is aware of how important it is for formulation and feeder to harmonize with one another, because natural products in particular are not always easy to handle. “Without the support of reliable partners like Brabender Technologie, it would not have been possible to design and develop the manufacturing process, because >

Microbeads are micro-particles for the cosmetics industry.





Biopolymers can be freely modified.

back then we lacked investors. We were reliant on the expertise provided by other companies." Today she regards feeding as the key to quality: "I believe this issue is frequently underestimated."

A fiber offering unlimited opportunities

However quality is a major priority for the company. QMILK fiber has a great deal of potential, as it combines excellent physical properties with inexpensive production. It is naturally antibacterial, cooling, compostable, pleasantly silky and very hard-wearing. Furthermore production involves low energy consumption (processing temperature = 80 degrees Celsius), is fast (five minutes) and uses only two liters of water per kilogram of fiber.

There is practically a glut of the basic raw material, milk. QMILK only uses "milk waste", i.e. milk, which for various reasons cannot be marketed for human consumption. Two million

tonnes of this waste are accumulated in Germany every year. "If quantified in terms of Tetra Paks, that represents the distance from Earth to the Moon," Anke Domaske reckons. QMILK has developed a collection system with the objective of processing around 6000 tonnes in 2016. Raw material scarcity is therefore not an issue.

The manufacturing process begins with vinegar being added to the milk. This causes the casein to flocculate and produces whey. The curd flakes are dried and ground into casein powder. Water and other natural ingredients are added to the casein producing a dough. After this has been thoroughly kneaded, the mixture is extruded and the fibers are wound on spools. "Our product is edible, compostable and 100 percent natural. There is practically no waste in our production process because we shred, liquefy and feed residues and waste back into the production process," the

biologist emphasizes. A range of different Brabender Technologie equipment is used in the production process, including two pre-feeders with bag dump hoppers, a FlexWall® 40, a twin screw feeder and a liquid feeder with feed tank, both fitted with agitators and electric heating, in order to ensure a uniform processing temperature of 80 degrees Celsius.

Biopolymers are QMILK's second main product line alongside fibers. They combine the properties of thermoplastics and thermosetting polymers and have a wide range of applications. Two production lines are now in operation at the company's Hanover plant. In 2016 QMILK is focusing primarily on fibers for felts and nonwovens, since QMILK fibers for industrial textiles exhibit interesting characteristics – they are flame retardant and resistant to chemicals. Tea bags, carpets, wallpapers, paper and loudspeaker membranes are just a few



Can be used for any kind of processing.

examples. Biopolymers can be used to make antibacterial toys for children, medical technology end products, automotive components and much more besides – they have a wide range of possible applications. Experiments involving a blown film line have also been successful; here too Anke Domaske sees markets of the future with plenty of potential. Further processing and finishing can give all these inherently versatile QMILK products a wide range of different properties and they therefore have all-purpose applications.

Anke Domaske is her own brand ambassador

Fibers for clothing fabrics, the original idea, are still the company's most important product for now. Her fashion label, "Mademoiselle Chi Chi" (MCC), which Anke Domaske launched when she was 19 and which she has successfully developed in parallel to her degree course, now only uses fabrics with QMILK fiber content. She continues to design her collections herself and can therefore gauge the value of her fibers from practical experience. "Milk fibers are indeed my favorite fabric, because they feel so silky and are so pleasant to wear." QMILK – what else? ■



QMILK founder Anke Domaske



MATERIAL TESTS:

When what's on the inside counts

How much heat can a computer housing cope with?
When does a plastic disc scratch? And how great
a tensile force can a door handle withstand?
UL International TTC GmbH based in Chempark
Krefeld-Uerdingen provides answers to
these questions.



The Charpy impact test in accordance with the IZOD standard provides information about the deformability of a plastic

Vehicle manufacturers and electronics subcontractors among others have to be aware of and make allowances for various material properties and external factors during development processes involving all kinds of plastic components. After all, these components are designed to fulfill their purpose for as long and as reliably as possible even under heavy-duty conditions. Following successful testing the products are then given the appropriate certification, which validates that they are safe and reliable and are fit to be marketed.

Underwriters Laboratories (UL), at a headcount of 10,000, is a market leader and one of the world's largest independent product testing, product certification and verification institutions. It also plays a key role in drafting safety standards. The company was founded in 1894 in the USA. Today UL operates more than 152 laboratories and certification facilities worldwide,

has published around 1,400 current safety standards and UL test marks have appeared on more than 23 billion new products globally.

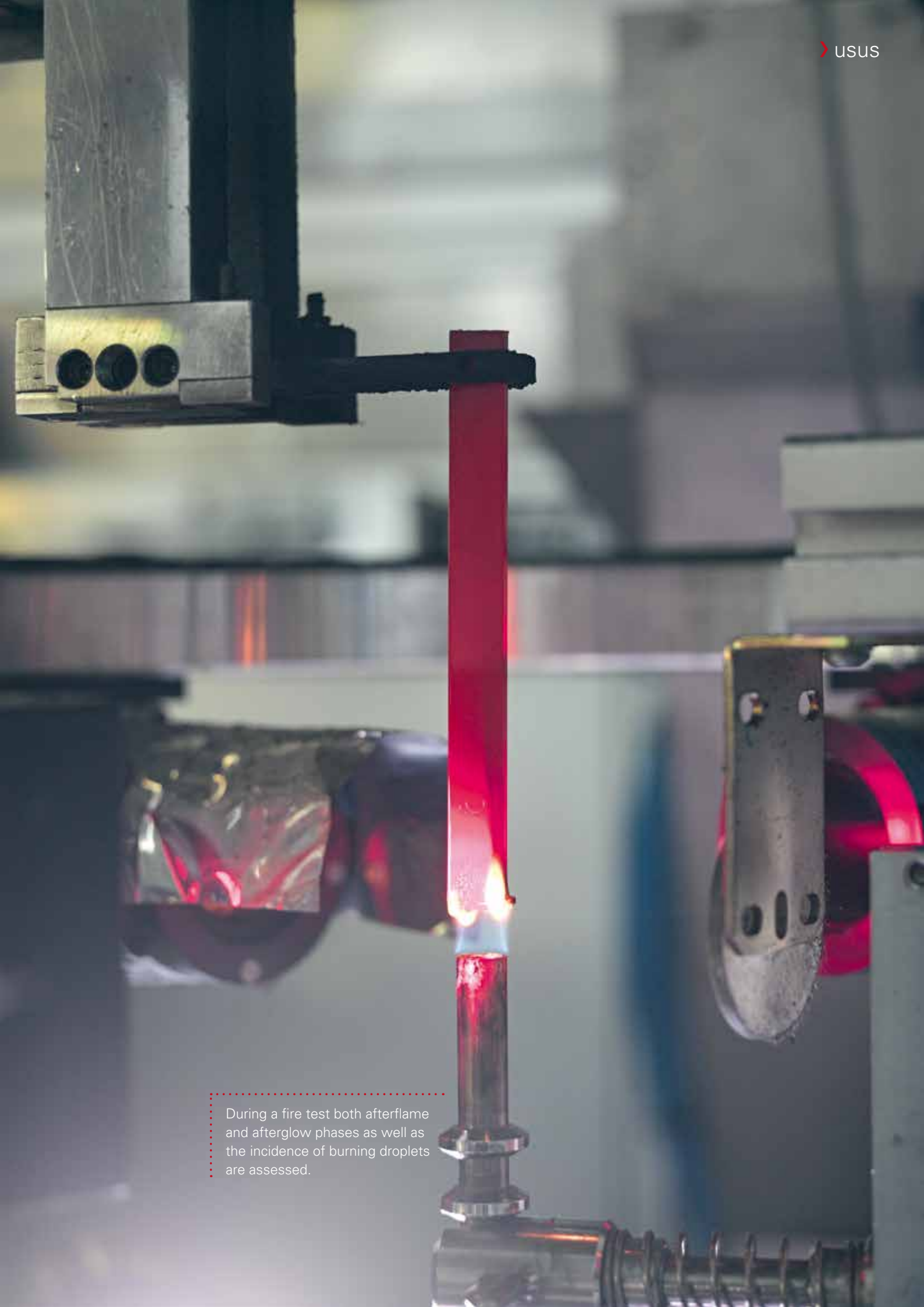
In Germany the Thermoplastics Testing Center (TTC) based in Krefeld-Uerdingen has been a part of the UL Group since 2009. As an ISO 17025-accredited material testing laboratory the TTC offers on the one hand a range of different test technologies and tests that comply with various national (DIN) and international (UL, IEC, ASTM, etc.) standards. On the other hand it provides an "all-in-one" support service extending from testing through certification – all from a single source. Upstream activities include compounding at its in-house extrusion center and test specimen production in its proprietary injection molding facility.

5,000 square meters of laboratory space

"Our clients appreciate the full-service approach we take," says Dr. Thomas Wagner, Head of Operations for Europe

and Latin America in UL's Performance Materials division. "The TTC conducts material tests on behalf of a very wide range of different clients in 5,000 square meters of space – ranging from impact tests via tensile tests through scratch or fire tests, to name just a few examples. The effects of artificial weathering, abrasion or cleaning can also be simulated." All these tests are designed to answer one fundamental question: have we selected the optimum plastic formulation for a specific application? Unless clients provide their own compounds or test specimens, the TTC initially handles the task of compounding. "Our clients usually send us around 50 to 100 kilograms of the required polymers and additives or bulking agents, which are then compounded into granulate material using one of our four twin-screw extruders," Dr. Thomas Wagner explains.

Two years ago the TTC decided to purchase another state-of-the-art system to complement its existing extruders. In June 2014 the test center therefore >

A detailed photograph of a fire test apparatus. A vertical red cylindrical specimen is held in place by a metal fixture. A flame is visible at the bottom of the specimen, with a bright blue and white base. The background is blurred, showing other parts of the laboratory equipment.

During a fire test both afterflame and afterglow phases as well as the incidence of burning droplets are assessed.

approached the Nuremberg-based extruder specialist, Leistritz, a long-standing partner of Brabender Technologie. It soon became clear that loss-in-weight feeders made in Duisburg in combination with Leistritz screw extruders were the only solution for this project.

New high-performance plant

Close cooperation between the TTC, Leistritz and Brabender Technologie delivered a twin-screw extrusion facility including four upstream loss-in-weight feeders plus a downstream underwater granulation machine manufactured by Econ. In support of this partnership Brabender Technologie provided its full range of feeders from single-screw to

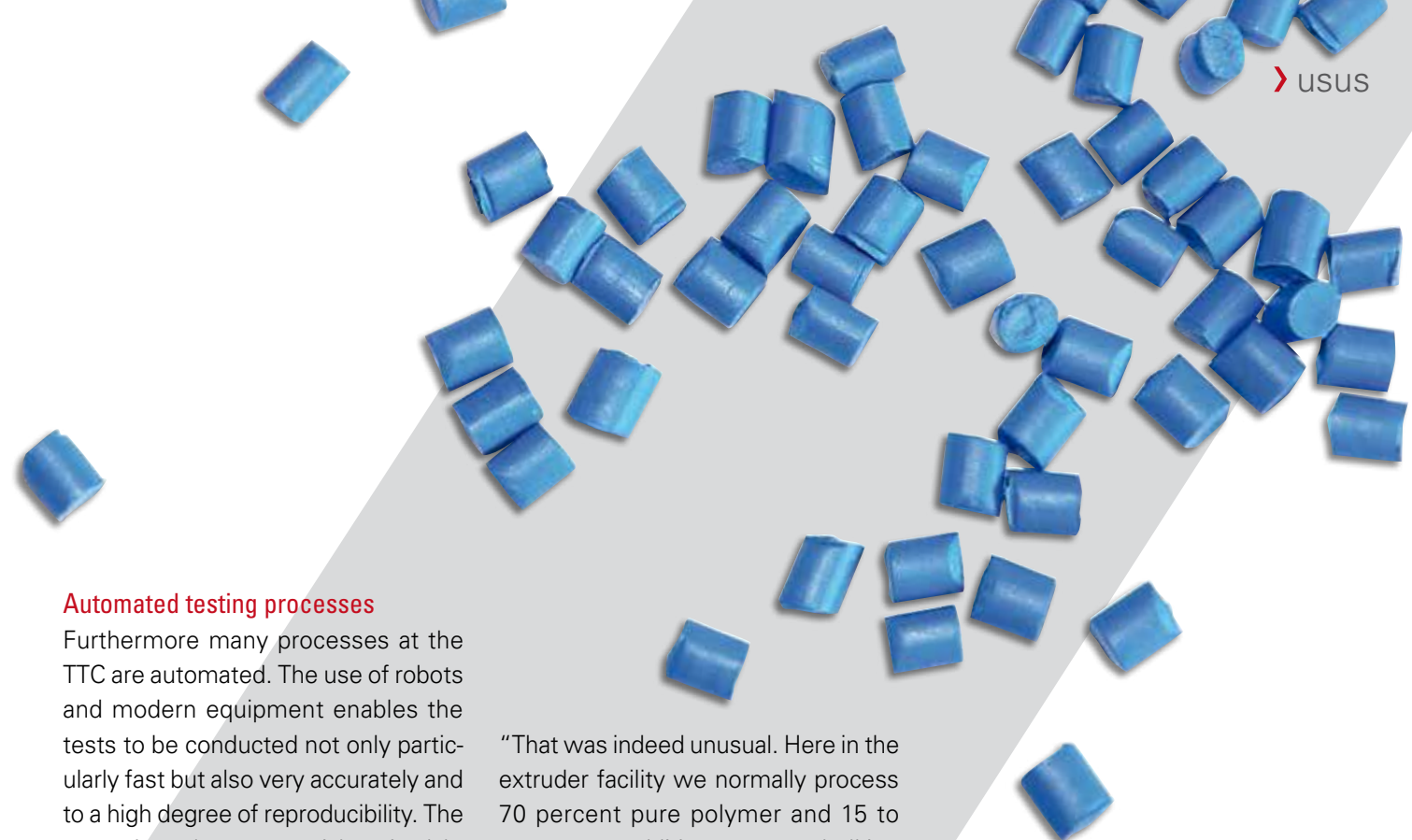
twin-screw feeders with paddle-massaged flexible hoppers or stirring agitators, meaning that the right feeders for practically any bulk ingredient you care to think of were available. The new high-performance plant was commissioned in June 2015. "This new plant was urgently required too, because our order books are pretty full. Manufacturing industry is in a good place and the plastics market is booming," says Dr. Thorsten Niklas, CEO and Head of Europe and Latin America in UL's Performance Materials division.

Commissions range from simply ascertaining the flammability of a test specimen to conducting so-called campaigns,

series of tests to determine several key numbers. The classic UL TTC client is a plastics manufacturer that wants, for example, to try out a new flame retardant. "We receive the material by post, conduct a test campaign within a few days and provide the client with prompt feedback," is how Dr. Thomas Wagner explains the procedure. "For this purpose we also use proprietary patented LMS software. This allows us to speed up the entire process chain from commission entry via commission status tracking and management of all job steps through receipt of the test results." Furthermore the application enables formulations to be received and test results sent.

Brabender feeders feature among the equipment used for compounding.





Automated testing processes

Furthermore many processes at the TTC are automated. The use of robots and modern equipment enables the tests to be conducted not only particularly fast but also very accurately and to a high degree of reproducibility. The approximately 100 material testing laboratory employees work flexible hours extending from 6 am to 10 pm, meaning they can conduct several series of tests simultaneously. TTC clients not only benefit from fast processes but also from the fact that the TTC is part of the UL Group. That's because test samples only have to be primed and tested once. After that they can be used directly for UL certification purposes. In this case companies are also provided with a discount. "There is no other laboratory worldwide that offers compounding, extrusion and testing procedures from a single source, which are validated during the UL certification process without the need for random sampling or retesting," is how Dr. Thorsten Niklas encapsulates what the TTC is all about.

Its diverse range of services therefore means that the TTC offers more than just a pure testing laboratory service and is open to specific ideas. Once it received a request from a vegetable oil producer to produce a biopolymer from ground plant remains and test it. On another occasion a client wanted a plastic with 65 percent chalk content produced, which is used as a bulking agent for compounding purposes.

"That was indeed unusual. Here in the extruder facility we normally process 70 percent pure polymer and 15 to 30 percent additives or even bulking agents," says Dr. Thomas Wagner. In this case the client even conducted preliminary experiments in Brabender Technologie's Technical Center to test the feed capability of their material.

What the TTC rates about the partnership with Brabender Technologie above all else is the fact that the working relationship is defined in terms of a premium technology on the one hand. On the other hand it involves an active sharing of information and interactive problem-solving. "Working with Brabender Technologie and Leistritz does not involve just 'manufacturing and delivery' but a partnership that benefits everyone. Experts from all the companies involved provide each other with reciprocal support," says Dr. Thorsten Niklas. "But it's not just us that are satisfied with the facility, our clients are pretty keen too," Dr. Thomas Wagner adds. ■

INFO

THE TTC IN FIGURES

CEO:	Dr. Thorsten Niklas
Founding year TTC:	1949
Acquisition by UL:	2009
Headcount:	100
Testing procedures:	> 1000
Test specimen formats:	approx. 200
Laboratory section:	7 different ones
Compounding:	12 tonnes/year

[www.ulTTC.com](http://www.ul TTC.com)

Feeding Experts for **NORTH AMERICA**

Mississauga in southern Ontario on the shores of Lake Ontario is where the headquarters of the North American branch of Brabender Technologie is located – right in the heart of Toronto’s commercial and industrial hub.

“A Mari Usque Ad Mare” is the Canadian national motto, and Brabender Technologie Inc.’s responsibility extends “from sea to sea”. The North American operation of the German parent company, Brabender Technologie GmbH (Duisburg), is responsible for Mexico, United States and Canada. 35 multi-disciplinary employees work here in the Sales, Service, Engineering, Test Lab, Administration and of course Feeder Assembly, departments.

It all began in 1984 as a sales agency. “We were quickly moving to a licence agreement, while specializing in making feeder equipment tailored to the North American markets”, relates Guy Catton, President of the North American branch. In 1997 the sales agency became Brabender Technologie Inc. and has been growing ever since.

Unique position

“We find ourselves in a unique position of taking proven global designs and customizing them to meet our local customers’ needs”, Catton points out the advantages of a global structure. “For example, we integrate regional standard into the global designs with our engineering teams. We also find

that our full complement of disciplines along with our size facilitates quick, effective and often unique feed solutions.”

When asked about the relationship with the German team, the Canadians are full of praise. They consider themselves very fortunate to have established strong relationships with their worldwide Brabender Technologie colleagues. One reason is the long history of working together, Catton explains: “These close relationships have been forged over many years, in some cases since 1984 – allowing for a quick and efficient sharing of ideas throughout the whole business, for example manufacturing, logistics, sales and engineering. Our product and customer base is at times global and making the distances and information flow efficiently is a specific priority across all Brabender Technologie locations.” ■





I LIKE WORKING AT BRABENDER TECHNOLOGIE INC. BECAUSE ...

... each day I am presented with new challenges and situations, which really helps me to stay focused and interested. I feel I am appreciated and allowed to act on my own initiative.

Daniela Wasiljew, Mechanical Design Engineer

... Brabender Technologie encourages me to discover my true potential, to excel in my position and provides excellent support throughout that journey.

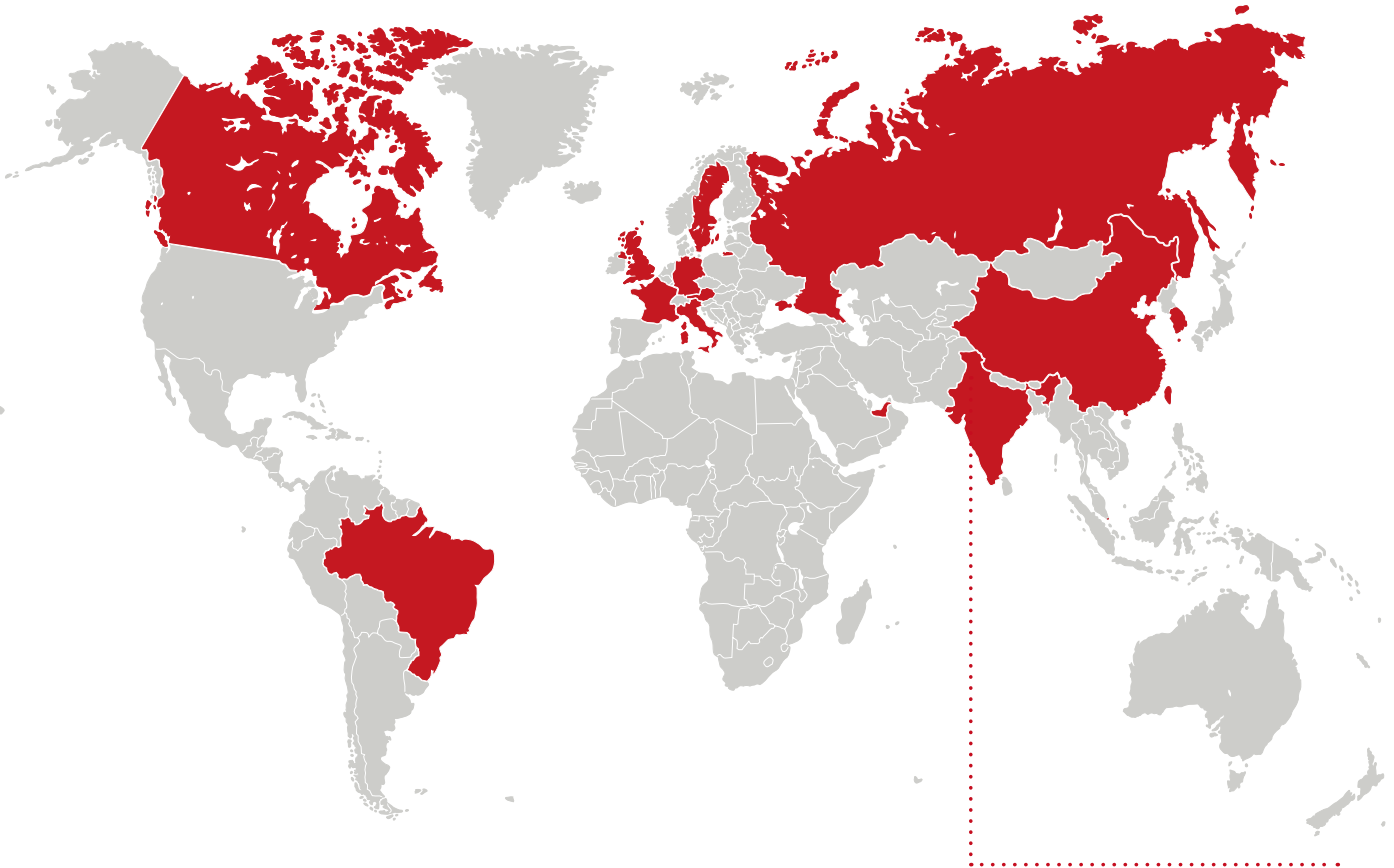
Liz Mancinelli, Sales Coordinator

... I am honored to work with an amazing group of people. Here nobody hesitates to go that extra mile.

Dimitra Xanthakos, Purchasing Agent

... Brabender Technologie appreciates and values my efforts in many different ways. Brabender Technologie is a very fair employer and treats all its employees with dignity, respect and camaraderie.

Tony Ruggiero, Business Manager



At home around the world:
countries with Service locations

IT'S indispensible

Who commissions a Brabender feeder? Who maintains or services loss-in-weight or weigh-belt feeders? Who answers a customer's questions on the phone if something no longer functions properly? That's right – the Service team.

"Without an expert and reliable service team there to back it up, new equipment cannot be sold," is Ralf Eikermann's response to the question of how important service is to Brabender Technologie. The overall head of the Customer Care department began his career as a service technician and knows their daily routines from personal experience. The Service department consists of eight employees, who are constantly visiting customers, plus three other colleagues, who man the technical hotline. "Around half of our assignments involve commissioning

equipment," Michael Richtmann, head of the Service unit, explains. "Repairs and maintenance account for the other half." Only maintenance can be planned long-term, meaning that the staff in his team has to be very flexible.

"We have a central Service infrastructure here in Duisburg, which handles the bulk of global customer contact and billing," is how Ralf Eikermann explains the way the department is structured. Added to that are other Service staff based at the agencies and branches.

"Canada has four of its own Service technicians, who look after the North American market and Mexico. In China the Service team in fact numbers five. We cover this huge country from three locations in the major industrial centers." Peking, Shanghai and Guangzhou are the bases from where we look after our Chinese customers (see box). In the Middle East Brabender Technologie runs an office in Dubai, where Service employees are based, and elsewhere in Asia, in India and Russia too.

Extensive know-how is key

Since a Service technician is on his own when visiting a customer on-site, Brabender Technologie attaches a great deal of importance to proper training. The human resources usually involved here are electrical or mechatronics engineers, who initially spend six months in Duisburg familiarizing themselves with Brabender's extensive product range and accompanying colleagues on assignments. Once they have gained a sound knowledge base, these new colleagues visit customers on their own." Major corporations employ weighing technology engineers, who want to deal with contacts that have the appropriate know-how," Michael Richtmann relates.

In order to describe the perfect Service technician, Eikermann makes use of the familiar "jack of all trades" image – the job requires superb knowledge of electronics, mechanics, IT, control technology and process engineering. "The latter is particularly difficult. People gain an understanding of processes through experience." Last but not least, soft skills, such as how people conduct themselves when in contact with customers, good knowledge of English, willingness to travel and flexibility, also count. Assignments abroad sometimes last for one to three weeks. "But that is not the general rule; our employees are usually at home on weekends."

Empathy is also required of colleagues manning the hotline. They are the first point of contact if something is missing or does not work as the Service team is responsible once the equipment has been delivered. Managing loaned equipment is also often handled by phone, as this is considerably cheaper than on-site management.

Important: regular communication

Brabender Technologie has an international team at its disposal, which meets up every three years for an intensive week of training. Employees from the Service agencies in Taiwan, Korea, Singapore, Brazil, France, Spain, Belgium, Italy, the UK, Sweden and Austria also travel to these events. In between times regular regional meetings are held, but the company believes this direct form of communication with all Service personnel is invaluable. "At these meetings we showcase our latest equipment and provide staff with documentation and analysis software," Richtmann explains. "Although our external service personnel are always in regular contact with the hotline, it is important to bring everybody up to speed regularly."

There is of course plenty of cross-departmental communication, and it's particularly intensive within the Customer Care division. This includes the Spare Parts Service, which is also responsible for sales and loans of used equipment as well as for the replacement (retrofit) of control and drive



Service technician at work

systems in older equipment. Modification of older equipment is in turn the responsibility of the Service team. Furthermore the repairs department, a training officer and the test lab are part of the Customer Care division. We shall be profiling other departments in future issues of FLUX. ■

INFO

MAJOR DEGREE OF CUSTOMER FOCUS IN CHINA

Brabender Technologie has firmly established its Service function in China at three locations, in order to cater for the size of the country and the market. Shanghai is the most important industrial center in the People's Republic of China and one of the world's largest cities. Here there is a Service location staffed by a team of two. As the capital, Peking is China's political center and it is also a key economic and

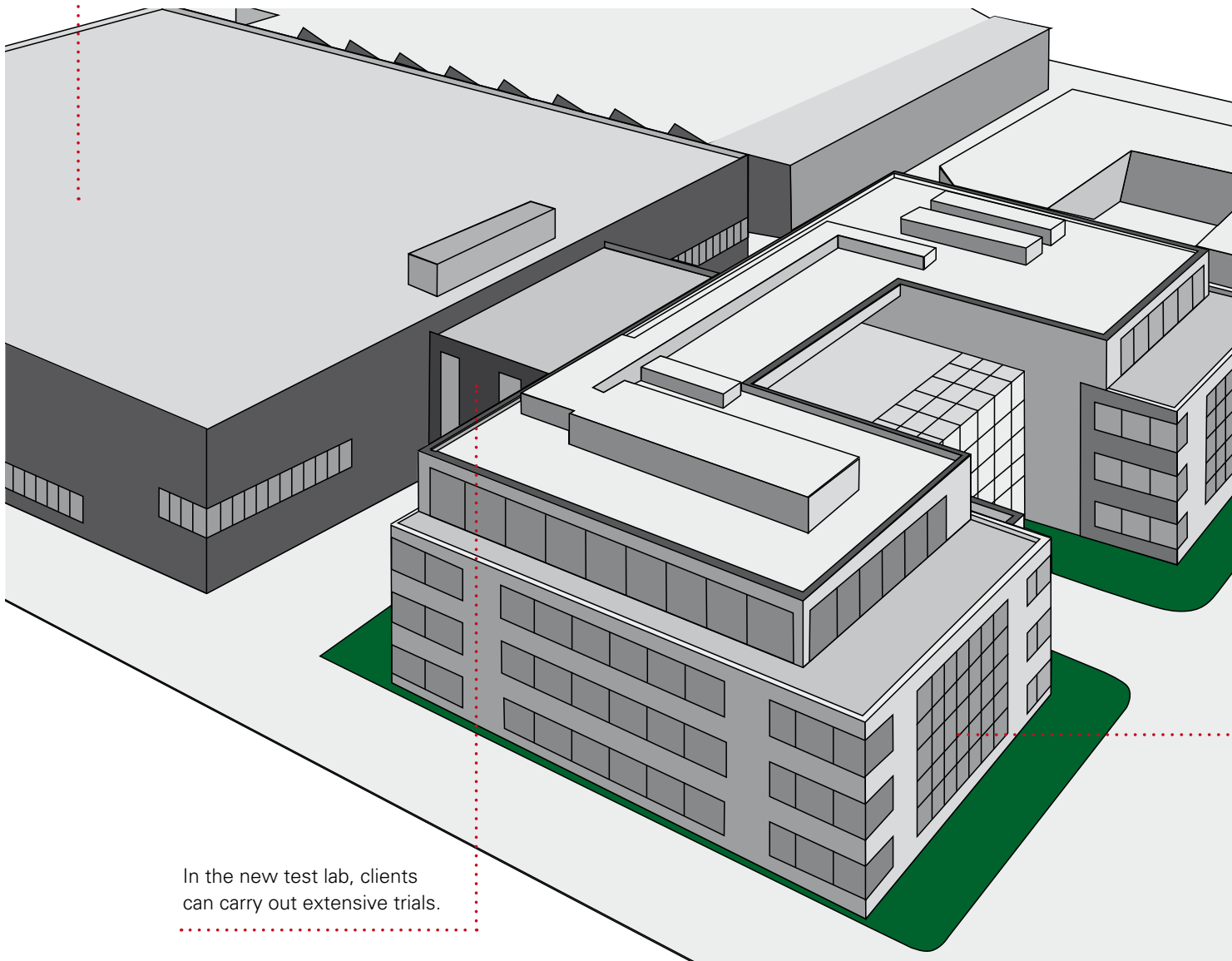
business region. Three Brabender specialists based here look after the north of the country. Guangzhou is the largest city in the Pearl River Delta, and within striking distance of the megacities, Hong Kong, Shenzhen and Zhuhai. This is where one of China's largest industrial centers is located, with a large number of Brabender customers, who have their "own" Service personnel on site.

New Home

“K47”

A number of years ago and with wise foresight, Holzauer Holding, the parent company of Brabender Technology, bought a piece of land which bordered three Brabender businesses. At Kulturstraße 47 – the source of the projects’ nickname “K47” – a new building has been developed, which, come April 2017, will house the entire company, including the administration, production, and technical centre.

All production will take place in this hall.



In the new test lab, clients can carry out extensive trials.

Executive Director Bruno Dautzenberg (first from left) and Horst Vohwinkel (third from left) at the ground breaking with owner-family Holzauer, Holzauer Holding, the Mayor of Duisburg Sören Link, and representatives from the construction company Goldbeck



As such, the course for further growth is set for manufacturers of devices and systems for dosing, weighing and dispensing bulk solids. Managing director Horst Vohwinkel explains the motives for the move. "In doing so, we are unlocking new possibilities which would have been out of the question in the cramped spacial conditions of the old site. We are especially excited about the new technology centre, in which our customers can carry out entire dosing and dispensing experiments in a modern environment, allowing them to find the optimal configuration for their devices." Thanks to the amount of space available, highly practical experiments of significantly increased complexity will also be able to be carried out in the technical centre in future. ■

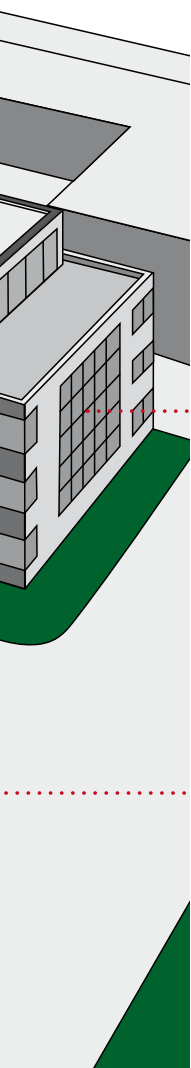
THREE OLD COINS FOR THE FUTURE

On May 13, 2016, the ground breaking of the new construction took place in the presence of Holzauer Holding and family, the mayor of Duisburg, Sören Link, as well as the entire workforce. With magnificent sunshine, Dr Helmut Holzauer presented the company with three gold coins that came from the Imperial Era and had belonged to his uncle – founder Carl Wilhelm Brabender – many, many years before. One of the coins was put in the corner stone, as a symbol of the past. As a connection to the future, instead of the customary newspaper, the staff contributed by writing letters which were also incorporated into the building: "We hope that you will shape the future of this company and that these 'letters to the future' leave a lasting impression."



The second and third levels contain two Brabender GmbH & Co. KG laboratories.

Administration, construction, and other units will have more space in the new offices.





FLUX



INTERNATIONAL

Brabender Technologie GmbH & Co. KG
Kulturstraße 55–73
47055 Duisburg, Germany

Phone +49 203 9984-0
Fax +49 203 9984-155
email@brabender-technologie.com
www.brabender-technologie.com