



# diagram

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the Bühler Magazine

## OPEN INNOVATION

Collaborative answers to complex challenges

**EMIRATES MACARONI** Capacity boost

**ROLL SERVICE** New measurement system





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Dear reader,

Some issues ago we featured innovation as a defining part of Bühler's corporate strategy and culture (see Diagram 163 "Innovation"). The drive to improve and to support our customers in improving their business is deeply ingrained in everything we do – and has been for more than 150 years. We highlighted several innovations that testify to this spirit: machines with improved usability and energy efficiency; optimized processes that yield superior products; new technologies for higher food safety.

While the scope of these innovations is truly fascinating, the key lies in why we innovate and which methods we use. The question why can be answered without hesitation: For a better world. How do we innovate? Our method is to find unbiased, relevant solutions to the pressing challenges of our time by integrating the internal and external partners necessary to achieve this goal. This is why we dedicated this issue to the topic "Open Innovation".

Read CTO Ian Roberts' thoughts on open innovation ("Innovating in Partnerships" p. 13–15) where he explains how our company involves employees to source the most relevant knowledge, calls upon suppliers to jointly improve technologies, integrates customers in product innovation and collaborates with universities and institutions at the forefront of advanced research. Individuals who have participated in collaborative innovation with Bühler tell of their experiences in the article "Opening the Innovation Process" (p. 6–12), among them one of the winners of the Bühler Innovation Challenge and one of the winners of the Bühler Supplier Award.

I hope you will enjoy your reading!

Calvin Grieder, CEO





## CRACKING THE ASIAN NOODLES MARKET

Bühler has acquired an 80 percent share in Yaoxian Machinery Guangzhou, which is well-positioned with processing solutions for Asian Noodles manufacturing systems. Yaoxian is active in both, the instant as well as the non-instant noodles areas and has a broad product and technology portfolio: apart from systems for the popular deep-fried instant noodles and for stick noodles, it also provides systems for non-deep-fried instant noodles and

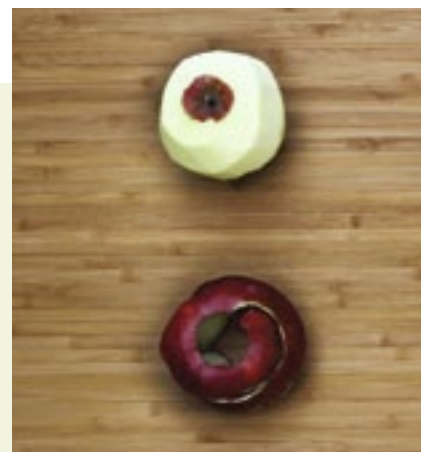
for noodles made from rice flour. The company is profitable, employs a staff of approximately 50 and generates revenues of around three million Swiss francs. The main production output today is exported and sold to customers in the Southeast Asia, but the market is growing globally. The joint-venture will promote these solutions in a first stage primarily in China, Southeast Asia and the Indian Subcontinent and expand into other regions continuously.



## SUPPORTING TOMORROW'S INNOVATION

Bühler is the latest among 100 start-ups and numerous blue chip companies – such as Nestlé, Logitech and Cisco – who has taken a place on “Innovation Square”, at the prestigious Swiss Institute of Technology in Lausanne. Bühler CEO Calvin Grieder signed the contract with the institute’s president Patrick Aebischer in July, paving the way for a Bühler team to begin work on campus in January 2014.

The team will identify opportunities for collaboration – in fields such as nutrition, automation and simulation – and work in partnership with students, professors and the institute’s many global academic and industrial partners. Bühler sees such cooperation as a significant step in further unlocking its potential for innovation.



## SPONSORING WASTE REDUCTION

Bühler backed an international competition for ideas to reduce global food loss and food waste. Called “Our Common Food” and launched on World Environment Day, the contest was an initiative of the Swiss National FAO Committee – a non-parliamentary panel, appointed by the Swiss government to advise on world hunger issues. The competition invited Swiss students to submit

ideas on household food waste reduction, while students from developing countries could send suggestions for cutting post-harvest food losses. Prizes were awarded on October 15, 2013. A main sponsor of the competition, Bühler not only had a place on the panel for judging entries; it was also a keynote speaker at the FAO World Food Day in Zurich.

## SAUDI ARABIAN HAT-TRICK FOR GRAIN LOGISTICS

Against stiff international competition, Bühler’s Grain Logistics business unit has been awarded the contract to all engineering, mechanical and electrical installations, as well as the control systems for a new large strategic grain silo being constructed in Al-Ahsa, Saudi Arabia. Commissioned by the Saudi government’s Grain Silos and



Flour Mills Organization (GSFMO), the new silo – which will hold 60,000 metric tons of grain in two independent storage blocks – is the third consecutive Saudi project to be awarded to Bühler Grain Logistics. The business unit also won earlier GSFMO contracts for installations at two larger 140,000-ton facilities in Jeddah and Dammam.



# **OPENING THE INNOVATION PROCESS**





**If one had to write down Bühler's recipe for innovation, it would probably read like this: Take multiple viewpoints into consideration. Involve the people who will apply the machine in its development. Empower the individuals who are passionate about making a contribution – and ensure support from top-level management. And last but not least: Innovate for a better world.**

**The following cases mix these ingredients to varying degrees but testify to the strong impact of this open innovation recipe.**

**By Barbara Simpson**



## COMPACT MAIZE MILLING IDEA

**“Isigayo” is one of the two winners of the Bühler 2010 Innovation Challenge. The compact mill is set to change the rural milling business in Africa. For the team that created the mill, much has changed already, explains Yves Stuber.**



Yves Stuber, Head of Fulfillment and Engineering in Johannesburg, is now marketing the product he helped to develop, a container-sized maize mill perfectly adapted to the African market.

“As sales and fulfillment managers based in Johannesburg we had seen the need for a smaller capacity maize mill for a while. When we received the call for the Bühler Innovation Challenge, its claim “Innovation for a Better World” really resonated with us. This was exactly what we wanted to do: To change the milling conditions for rural businesses in Africa, to assist farmers in less developed areas in preserving their produce and thus reduce post-harvest waste. The Challenge gave us the incentive and the support we needed to design the compact maize mill that would fulfill these aims. It also changed the way we worked at Bühler.”

“Our team consisted of a sales manager, a fulfillment manager, a specialist for the South African market and a technician. Once we took the first hurdles of the Challenge, we received business training and coaching in finance, as well as support in market research and production – all the way leading up to market introduction. It has been an exceptional learning experience for all of us. It was essential to know that we had the full support from the highest management level. My team members, who have now moved on to sales positions in Togo and Mexico, are still eagerly following Isigayo’s success.”

“With the first Isigayo mills on their way to the customers as we speak, we are excited to see the impact of our idea on the market. A technician and a senior miller will be on site for the week it takes to install and commission the mill. In that time they will train our new customer and also spread milling and food safety know-how in less developed areas. Basically we want to ensure that first-time millers have the best possible start with their business. We’re sure that they will change the face of the African maize milling industry.”

### IN A NUTSHELL

With a throughput of 2 tons per hour and a weatherproof container shell, the Isigayo compact maize mill is tailored to the needs of farmers and rural entrepreneurs in Africa. Milling a higher-quality maize meal locally without middlemen, producers will be able to market their own product and achieve a better price.

## A MATTER OF TRUST

**Since introducing the Supplier Innovation Awards, Bühler has seen convincing ideas handed in by suppliers year by year. For Patrik Zeder of Schneider Electric the Awards have created a new degree of trust in the business relationship with Bühler.**



Patrik Zeder has been Schneider Electric's Key Account Manager for Bühler since 2010.

"The Supplier Days in 2011 on top of the Säntis Mountain marked a change in our relationship with Bühler. CTO Ian Roberts introduced the Supplier Innovation Awards, asking suppliers for their ideas to shape new technologies for better market impact. I was immediately won over and excited about the possibilities of this collaboration. Not everyone at Schneider Electric shared my enthusiasm – and five years ago such an open innovation approach would have been unthinkable. Back then technological know-how was our greatest asset, which we protected fiercely. But Schneider Electric's business model has since evolved from manufacturer to solution provider and with that we changed our perception of the customer relation from purely commercial to one of trust."

"Any innovation department struggles to align their research in new technologies with the market. Our challenge was to access this kind of market intelligence to achieve acceptance from the customer. The collaboration we experience with Bühler is in that sense complementary. We now learn from the market leader where they see the market moving to. And we in turn have an assortment of innovative technologies to be aligned with this market development."

"We handed in a couple of ideas for the Supplier Innovation Awards that made it to the final round. Now we have two projects in the pipeline with Bühler: one in India to respond to local demands, and another that has already moved to the prototype stage. I'm extremely proud that the collaboration between Schneider Electric and Bühler has progressed this far. A culminating point was the signing of an Innovation Partnership by the CTOs of both companies in Paris in May 2013."

### IN A NUTSHELL

Schneider Electric is a long-standing supplier for automation and electrical distribution. Out of the 27 suppliers who participated in the Supplier Innovation Award 2012, Schneider Electric emerged as one of the five winners, moving on to signing an Innovation Partnership with Bühler in 2013.

## COUNTLESS IMPROVEMENTS

**When Bühler decided to create a new pellet mill they reached out to four key customers in Europe, among them compound feed producer Agravis in Germany, to ask them for their collaboration. As Managing Director Heiko Almann recalls, this resulted in a win-win situation.**



Heiko Almann is the Managing Director of Agravis and one of the co-innovators of the Kubex™ T pellet mill.

“The development of the Kubex™ T was a very open project. I was really impressed that we as customers were able to contribute substantially. Sometimes a supplier will come by for a coffee and ask for our suggestions or experiences. But this was a totally different level of structured, target-oriented involvement in the development of a new mill. Bühler wanted to know how they could make the machine better for us in every respect. They invited a technical manager and someone from business operations from four compound feed producers from Sweden, France, Italy and Germany to join in discussions, group work and refining steps. Later the prototype was installed at our plant in Münster and potential buyers from all over the world came to see the first Kubex™ T in action.”

“It was an enriching experience to collaborate with professionals from the same industry who are not competitors. We could speak freely, identify some common ground and contribute from our own individual experience. You know, over time one becomes blind to the shortcomings in the company’s processes. The Kubex project gave us all the opportunity to question how we do things and think about how we could do them better.”

“It was a win-win situation for us. We now have a mill that was designed by practitioners, not by engineers. The wide-opening sliding doors for easy maintenance or optimized one-hand operation – these are just some of the countless small improvements inspired by practical experience that make the Kubex™ T a superior pellet mill. Next time Bühler calls to integrate our input for improved usability, we’d be only too happy to oblige.”

### IN A NUTSHELL

One of the leading companies in compound feed in Germany, Agravis Raiffeisen AG has a long business relationship with Bühler marked by mutual trust. In 2011, Agravis was one of the four compound feed producers to collaborate in designing the Kubex™ T pellet mill.



## TEAMING UP FOR AFRICA

**Founded by General Mills in 2008, Partners in Food Solutions (PFS) is a pioneering not-for-profit that connects professionals at multinational food companies with small and growing businesses in Africa. COO and CFO Steve Lattu talks about what it means to have Bühler on board.**



Steve Lattu is thrilled about the chance to apply his experience from a 31-year career at Cargill as COO and CFO of Partners in Food Solutions.

“PFS operates on a demand-pull model, which is important to understand. We don’t push our technology on the businesses we assist; we make sure we deliver what they really need. An example might be an emerging food processor in Africa trying to qualify for a World Food Program contract but fails to meet their quality standards. From this need we identify a project, which requires a range of experts – in this case in quality control, process development and compliance – sourced from our pool of volunteers. Peers from different companies with the same background and expertise might be working together on a project. In addition, we offer sector-wide training to provide collective help on certain areas, like aflatoxin control, manufacturing best practices or even basic business and financial training.”

“General Mills and Cargill suggested that their supplier Bühler would be the ideal addition to the team of PFS corporate partners. Since Bühler just joined in early 2013, we’re still in the ramp-up phase of onboarding, but five volunteers are already involved on a project with a rice miller, and Bühler will no doubt contribute greatly to the upcoming work in Ethiopia involving wheat milling. Bühler’s focus on the customer and making sure they have the solutions needed to be successful is very much aligned with how we approach the businesses we assist.

We’re very excited about having Bühler resources available and making a difference for Africa.”

“What makes our collaborative effort so rewarding is that the businesses we’re working with are really appreciative of our effort and value our know-how. They want to make improvements and become more sustainable. They want to provide better food, employment, and economic growth to their communities, and we get to help them attain that.”

### IN A NUTSHELL

Partners in Food Solutions is a nonprofit organization that links the technical and business expertise of volunteers from General Mills, Cargill, Royal DSM and Bühler to emerging food processors and millers in the developing world, supported on location by USAID and TechnoServe. In the past five years, the four corporate partners have collaborated on more than 192 individual projects with 400 food companies in Kenya, Zambia, Tanzania, Malawi and Ethiopia.

## UP TO SPEED ON FOOD SAFETY

**When Bühler approached Campden BRI with the proposal to join forces on the development of higher food safety processes it made sense on many levels. Many of the Campden BRI member companies are also Bühler customers, so it meant supporting the development of higher food safety processes that will in turn benefit their other member companies. Hygiene specialist Dr. John Holah explains about the scope of the Bühler Food Safety Academy.**



Dr. John Holah is an applied microbiologist, responsible for hygiene at Campden BRI and one of three trainers at the Bühler Food Safety Academy.

“Food safety has become a pressing issue in the dry food industry in the last five years because of critical incidents with Salmonella and Cronobacter. With a lot of Bühler’s equipment going into the dry foods industry – chocolate, rice, cereals, nuts processing – the company took the decision to enhance the food safety knowledge of their engineers. Of course Bühler also had to meet the customers’ need for sufficient advice in terms of the safety of their products. In this respect, Bühler has been proactive, striving to engender a food safety culture at a number of levels within the company.”

“To achieve this, we set up a course for 100 Bühler employees from all areas and levels – corporate, equipment design, food laboratories, and service engineers – who were in positions to subsequently influence food safety in the company and act as multipliers to their colleagues. The course is three and a half days long and concentrates on food safety hazards – which are primarily microbiological but also chemical and foreign body – on the first day; on the second and third days it considers the globally recognized food safety system HACCP (hazard analysis and critical control points) and deals with HACCP prerequisites – set-up, cleaning and maintenance of buildings and equipment, as well as personal hygiene – on its third day. The next morning, participants

sit a HACCP exam, which is accredited by the Royal Institute of Public Health. Thus, by successfully completing the Bühler Food Safety Academy, participants gain an internationally recognized qualification in HACCP. Subsequently there is also a six-week assignment to practice some of the things they’ve learnt on the course and how that might influence the business. It’s quite an intensive course, which resulted in applicable knowledge in hygiene in food processing.”

### IN A NUTSHELL

Bühler has been a member of Campden BRI, the world’s largest independent membership-based food research association, since 1977. Bühler and Campden BRI cooperated to design the Bühler Food Safety Academy, a 3-day training to instill a food safety culture at Bühler. The partnership with Campden BRI extends further including a co-supervised PhD program and external working groups in EHEDG.



Ian Roberts is one of the drivers of Bühler's collaborative innovation strategy that includes competitions, partnerships and know-how exchange.

## INNOVATING IN PARTNERSHIPS

**Bühler's approach of innovating collaboratively aims to create solutions for a better world. CTO Ian Roberts explains why he is convinced that opening Bühler's innovation process benefits employees, partners and customers alike.**

By Ian Roberts



“With 152 years of experience in engineering customer success we have a long history of working closely with customers, suppliers and academic partners.”

Ian Roberts, CTO

Our networked world offers huge opportunities to bring together minds and capabilities from disparate and distant communities. Gone are the days that single companies or institutes could hold the monopoly on knowledge to bring solutions to market at the pace demanded today. In fact, the challenges we face are multi-faceted, require diverse skills, involve different public and private sectors, and span geographies and cultures – it is barely imaginable to tackle them by utilizing internal company knowledge alone.

Successful partnerships are built on trust and a long-term perspective. With 152 years of experience in engineering customer success we have a long history of working closely with customers, suppliers and academic partners. We are committed to setting the industry standards in safe and healthy food as well as resource efficiency. We realize that we will be faster and more effective in fulfilling this mission if we collaborate with partners along the value chain and source ideas and knowledge externally.

At Bühler we believe that collaboration is the way forward and we are practicing four principle forms of

open innovation with partners: by leveraging the combined knowledge of our employees; by collaborating with our suppliers to create more relevant solutions that will benefit our customers; by building partnerships with customers to innovate together; and by partnering with academia, institutes, start-ups and innovative individuals.

### Relevant and tailored to the market

The first internal Bühler Innovation Challenge in 2010 empowered employees to propose ideas that they believed the company should implement in the future. Today, the winning ideas are already on the market: Pargem®, an industrial process for partial germination of pulses, cereals and other grains to improve their nutritive value, and the compact maize mill Isigayo, tailored to the needs of rural entrepreneurs in Africa. The fourth installment will take place in 2014, bound to generate even more impactful ideas from our innovative employees.

In 2011, suppliers were asked to join Bühler's innovation effort in the Supplier Innovation Challenge focusing on energy optimization, waste reduction and



Deep insight: Bühler conducts research together with partners, but also in its own analytical laboratories, including studies commissioned by customers.

efficiency improvements. We received strong proposals from many suppliers and selected 8 proposals for exploration in greater depth. In 2012, we expanded the event to involve suppliers from across the world and once more received a broad range of proposals. We observe that with each year the proposals become more relevant and audacious, indicating that our partnerships are getting stronger.

In addition, we collaborate with customers by combining our technology and engineering strength with their product and market understanding to design highly targeted, relevant innovations. One of our long-standing customers, General Mills, asked us in 2013 to join the not-for-profit Partners in Food Solutions to improve the quality of life in Africa by sharing our knowledge of food processing – a further example of collaborating to create a better world.

Our innovation network of course also comprises various academic institutions allowing us to work with some of the finest minds. We have a long-standing relationship with ETH Zurich in engineering, materials science, food process engineering and technology, and

have entered into a closer collaboration with EPFL. We work with many universities and organizations around the world such as CFTRI in Mysore, India; CIGI in Canada; Kansas State University, USA; as well as industry groups such as EHEDG and Campden BRI.

Since Henry Chesbrough coined the phrase open innovation in 2003, many companies have put open innovation at the forefront of their activities, many papers have been written and some notable successes achieved. In fact during a recent publication with Sabine Brunswicker, Chesbrough noted – having approached all listed companies with a turnover above US\$ 250 million – that 78 per cent of respondents are practicing forms of open innovation.

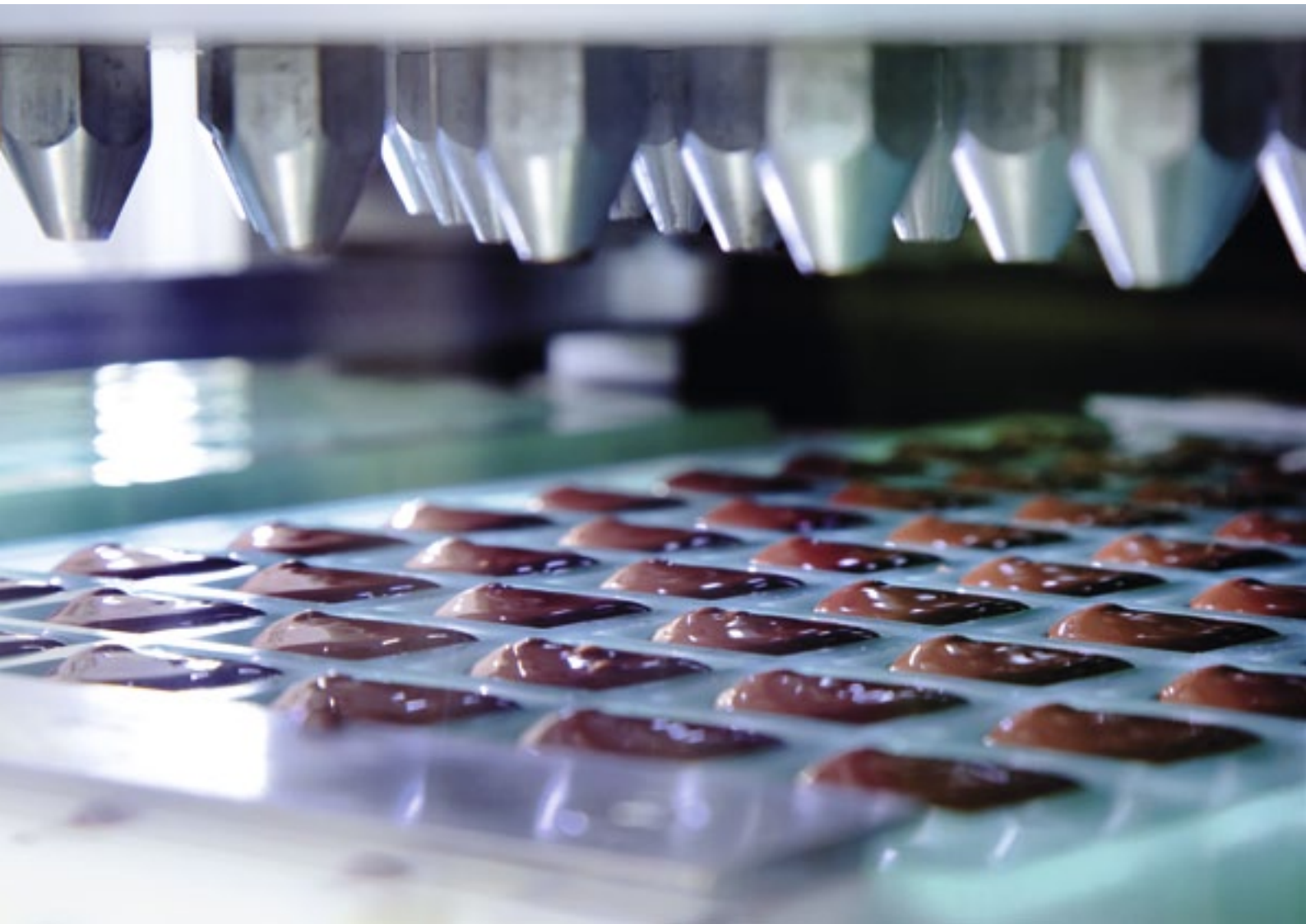


## STAYING IN THE LEAD

**Founded in 1899 by Taichiro Morinaga, Morinaga & Company introduced Western-style candies and confections to Japan in the early 20<sup>th</sup> century. A hundred years on, Morinaga still leads the industry with a new flagship factory in Takasaki, Gunma Prefecture, where Buhler's ChocoStar™ Compact production line turns out superb quality chocolates for Japan's discerning chocolate lovers.**

By Charles T. Whipple   Photos: Hans Sautter





Flexible production and high-precision moulding are the trademarks of Morinaga's new Takasaki plant.

Production facilities line both sides of Nakasendo Highway in the southern outskirts of Takasaki. The most modern and architecturally interesting is the new flagship facility of Takasaki Morinaga Co., Ltd., which produces the highest possible quality of confections and candies at fully competitive costs.

Indeed, Takasaki Morinaga operates from a different angle than the five other Morinaga production sites, which mass-produce a specific product. Takasaki Morinaga, according to the company's president, Hiroshi Ikeda, aims to create exactly what the market wants at the right time and in the precise quantities needed. "Our goal for this new plant," Ikeda says, "is to achieve an optimum

production system that has the flexibility to meet the ever-diversifying needs of the markets we serve."

### A study in flexibility

Takasaki Morinaga makes confections, biscuits, candies, and chocolate. The biscuit lines in plant No. 1 have been operating for more than a year; the chocolate lines in the No. 2 plant – featuring a Bühler ChocoStar™ Compact moulding line – have just started up in 2013. "Our compact chocolate line was scheduled to start operating today – and it did. This is a great performance by Bühler," says Ikeda. Plans for the future include plants No. 3 and No. 4, which will make Takasaki the largest of all Morinaga production facilities.





The new state-of-the-art chocolate production facility in Takasaki boasts a Bühler ChocoStar™ Compact moulding system with a throughput of up to 5,500 kg per day.

“Our goal is to achieve an optimum production system that has the flexibility to meet the ever-diversifying needs of the market.”

Hiroshi Ikeda, President of Takasaki Morinaga Co.

“Takasaki is completely new,” he adds. “We recruited our people operating this new plant from a different standpoint. We looked for ambitious people, even if they were inexperienced. We took this route because we need to look at production and production lines from a fresh point of view. Everything needs to be new and completely in line with market trends.”

Takasaki Morinaga is the first major production facility designed and built to produce what the market requires, when required. “Production flexibility is a key reason for setting up Takasaki Morinaga. For example, instead of setting production schedules for workers, each worker’s schedule is set according to demand for the product. If necessary, a product might be produced day in and day out for a full month. And with Takasaki Morinaga’s in-

dependent organization, we have the flexibility to achieve that kind of market-oriented production. Eventually we should be operating fully for 350 days per year,” Ikeda says.

### New directions in chocolate and candy

100 years after Morinaga’s introduction of milk caramel, in June 2013 chocolate production started at Takasaki Morinaga’s No. 2 plant. The chocolate goes through a tempering machine into the PowerShot™ Compact depositor and is then further processed on the ChocoStar™ Compact moulding line, producing some 1,200 solid or center filled chocolate articles per minute. Depending on the product, the ChocoStar™ Compact system can process as much as 5,500 kg chocolate per day.

In 1918, Morinaga became the first company in Japan to sell chocolate made completely in Japan, thereby pioneering production of chocolate affordable enough for average consumers. Morinaga's very first chocolate machines were from Bühler. In a meeting with Bühler CEO Calvin Grieder, Morinaga Senior Managing Director Osamu Noda affirmed: "We've been in business with Bühler for many years, and they've helped us maintain our high-quality products."

With Bühler's ChocoStar™ Compact moulding line at Takasaki Morinaga operating on schedule since June 2013, the Morinaga-Bühler connection, which was founded in the 1920s, remains productive and trustworthy as ever – and it helps Morinaga to stay at the top of the market, too.

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### TAKASAKI MORINAGA CO., LTD.

- is a wholly owned manufacturing subsidiary of Morinaga Co., Ltd.
- was established in April 2011.
- has a total floor space of 14,000 square meters in No. 1 plant, and 28,285 square meters in No. 2 plant.
- produces biscuits in No. 1 plant, and chocolate and candy products in No. 2 plant.



Above: The cooperation between Bühler and Morinaga has come a long way: Osamu Noda, Senior Managing Director of Morinaga, talks with Bühler CEO Calvin Grieder.

Below: Hiroshi Ikeda, President of Takasaki Morinaga Co. is pleased with the reliable set-up and the excellent output of the new chocolate line.



A family business dedicated to locally produced vermicelli: Emirates Macaroni Factory in Dubai.

## BIGGER – AND BETTER

**In 1979, Emirates Macaroni Factory in Dubai was the first pasta plant in the United Arab Emirates to produce “vermicelli”. Today, the company commands 40 percent of the local dried pasta market. Thanks to a major expansion using two new Bühler pasta lines, Emirates Macaroni is ready to grow both domestically and across the region.**

By Ward Pincus   Photos: Mladjan Sladakovic





One of the most popular foods in the Arabian Gulf region is a sweet and salty dish comprised of fine vermicelli spaghetti sautéed with spices and topped with an omelet. In the United Arab Emirates, it is called “Balaleet”.

Back in the mid-1970s – despite the popularity of Balaleet and other local foods prepared with vermicelli – there was no local manufacturer of this type of pasta. “My father loved vermicelli,” says Ahmad Saeed Belyouha, Chairman of Emirates Macaroni Company. “But the only vermicelli in the market came from Holland and took almost a year to get here. It was his ambition to have his own facility to produce vermicelli in Dubai.”

From this dream, Emirates Macaroni Factory was born. Its first manufacturing lines were operational by 1979, and today, the second-generation, family-owned business commands 40 percent of the UAE pasta market. Even though this represents a large share, the demand

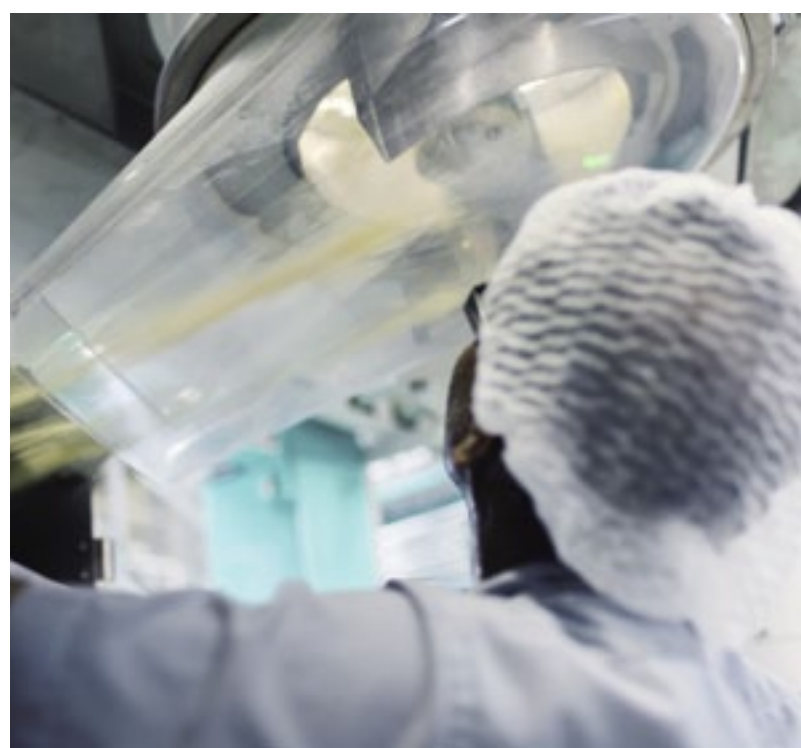
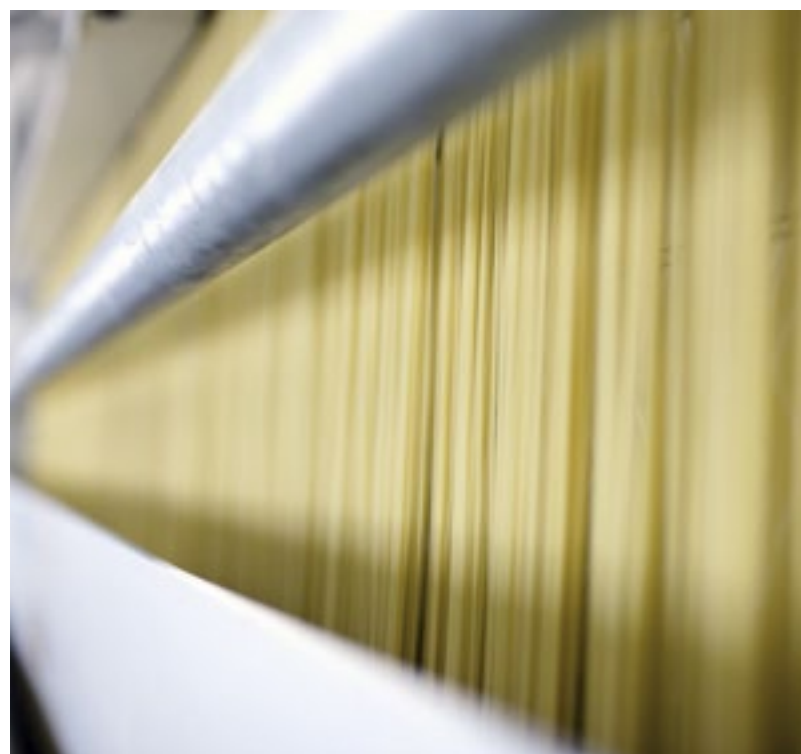
for his company’s pasta was still not satisfied. However, Emirates Macaroni was already running at full capacity and simply couldn’t produce more, Belyouha says.

So the company decided to expand, and in May 2013 it commissioned two new Bühler lines: a 3,000 kg/hour short goods line and a 3,500 kg/hour long goods line. Because Emirates Macaroni currently purchases its semolina on the market, it preferred Bühler’s newly designed Priomatik™ Press, which provides the flexibility to purchase all types of semolina, even coarse granules that are perfectly hydrated in the Priomatik. The Bühler lines nearly quadrupled the company’s capacity.

### Upgrade to the next level

With this expansion, Emirates Macaroni didn’t aspire simply to get bigger, Belyouha says. It wanted to get better, too. “We had to upgrade to the next level – to have better machines, to have more confidence in our product and production, to tie up with a good company.”





For Emirates Macaroni, this pointed towards Bühler for two reasons. First, Bühler's equipment delivers high precision and control over the entire production process, thus ensuring both quality pasta and efficient operations. "There is no hidden wastage. The process is very precise, so we exactly produce what we expect to produce," explains Production Manager Mohammad Khalid.

Second, the market has a high regard for Bühler's equipment and the pasta it produces. "When you talk about Bühler, you are talking about an 'A' class supplier. When a customer comes in and they see we have tied up with a good supplier they are confident that we have the best quality products and that we are, in general, a good company," Belyouha says.

### Ahead of the holiday

Emirates Macaroni was adamant that the lines should be operational before Ramadan, the holy month of fasting in Islam that began this year in mid-July. The month is characterized by daytime fasting and large meals in the evening with family and friends.

"Pasta is one of the main dishes during Ramadan," Belyouha says. "So for us, since we were running at 100 percent capacity, it was really important to catch this season with the new lines. With the support of Bühler, we succeeded."

The short goods pasta line produces 3,000 kg/h and the long goods pasta line 3,500 kg/h. A Priomatik™ press ensures that also the coarsest types of semolina can be used.



With the investment in the new Bühler lines CEO Ahmad Belyouha quadrupled the installed capacity.

"When a customer sees that we have tied up with a good supplier they are confident that we have the best quality products."

Ahmad Saeed Belyouha,  
Chairman of Emirates Macaroni Company

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## EMIRATES MACARONI FACTORY

- launched its pasta production in 1979.
- commands 40 % of the UAE pasta market.
- sells approximately 25 varieties of long and short goods pasta under four brands, as well as a three-product line of Asian-style noodles.

Previous capacity: 2,200 kg/hour.

Newly added Bühler capacity: 6,500 kg/hour.

Total capacity: 8,700 kg/hour.

Four lines: 700 kg/hour vermicelli nest/lasagna; 1,500 kg/hour short goods; 3,000 kg/hour short goods; 3,500 kg/hour long goods.





# THE COLOR-MAKERS

**The color pastes and lacquers of ISL-Chemie can be found in cars, wallpapers, or sports shoes – you name it. The company, based near Cologne in Germany, is expanding continuously. It experienced a fresh boost when it received its new Bühler Trias™ 800 three-roll grinding systems, which ISL was the first company worldwide to install.**

By Notker Blechner Photos: Raffael Waldner

When production manager Thorsten Lesemann has to explain to children or people unfamiliar with the industry what his company actually does, he takes a cup of cacao. “We disperse color pigments and make pastes out of them,” he says. “This works in much the same way as when you prepare cocoa by stirring it and varying the spoon pressure.” The color pigments added to a liquid are ground by the rolls of roll mills – and transformed into a homogeneous color paste.

This mid-size company based in Kürten, which first specialized in making specialty lacquers, has been bringing color to the industry for over 45 years. More than 1750 formulas and products are included in the ISL range. Color pastes are especially used for coloring plastics such as polyurethane, plasticized PVC, and epoxy as well as lacquers. These color products can be found in numerous everyday consumer goods: in shoe soles, steering wheels of cars, flooring, or tartan tracks. “Even beer barrels are colored using our color pastes,” says production manager Lesemann.

Bright color pigments are ground into color pastes by roll mills.

## Crisis overcome

Demand is growing. In 2011, sales revenue generated by color pastes and lacquers increased by four percent to almost 27 million euros. The number of employees rose to 120. ISL only once had to lay off personnel for business reasons: in the crisis year of 2009. But now “our number of employees has been restored to the pre-crisis level,” says Lesemann proudly. For since the crisis, the company – which produces its goods in Germany only – has been placed on a broader base. Its product range and analytical lab have been expanded. This has allowed the packaging industry to be gained as a new customer group, among others.

By investing heavily, ISL has successfully prepared itself for the future. In 2011, it was the first company in the world to install a Bühler three-roll mill of type Trias™ 800. The second machine followed only a short time later. The new machines have proven their worth. “The pace of production has picked up appreciably,” says Lesemann happily on the tour through the factory. He says that the automatic PLC control systems of the machines has considerably reduced the machine running times and thus also the delivery times of the lacquer products manufactured. Product changes now also take less time.



The Trias™ is reliable and easy to operate.

## New technology generates new business

Employees' workloads have also been reduced. Employees no longer have to set the machines several times by hand. "Our people have been relieved for other duties – for example preparing new production lots or transporting color pastes," explains Lesemann. Indeed, employees' responses to the Trias™ 800 are positive. "The new machine has an advanced design and is even easier to operate than before thanks to its touch screen," says Eugen Konschu, who has worked with ISL for several years and feels as if he were the member of a large family. In addition, the new three-roll mill is much quieter and uses less energy than the older machines. The Trias™ 800 is equipped with a closed cooling circuit with internal heat exchanger.

ISL-Chemie has cooperated with Bühler for a very long time now – "since we purchased the first roll mills," says Lesemann. He has come to appreciate the collaboration with the Swiss in the 15 years during which he has been

with ISL. "Bühler is very reliable and open," he finds. Once a year, Bühler travels to the company site to maintain the machines. Thanks to Bühler's branch office in Viernheim near Mannheim, services can be provided within an even shorter time. Among others, a specialist for the three-roll technology will be stationed there who can travel to Kürten within a few hours in the event of trouble.

## For more information:

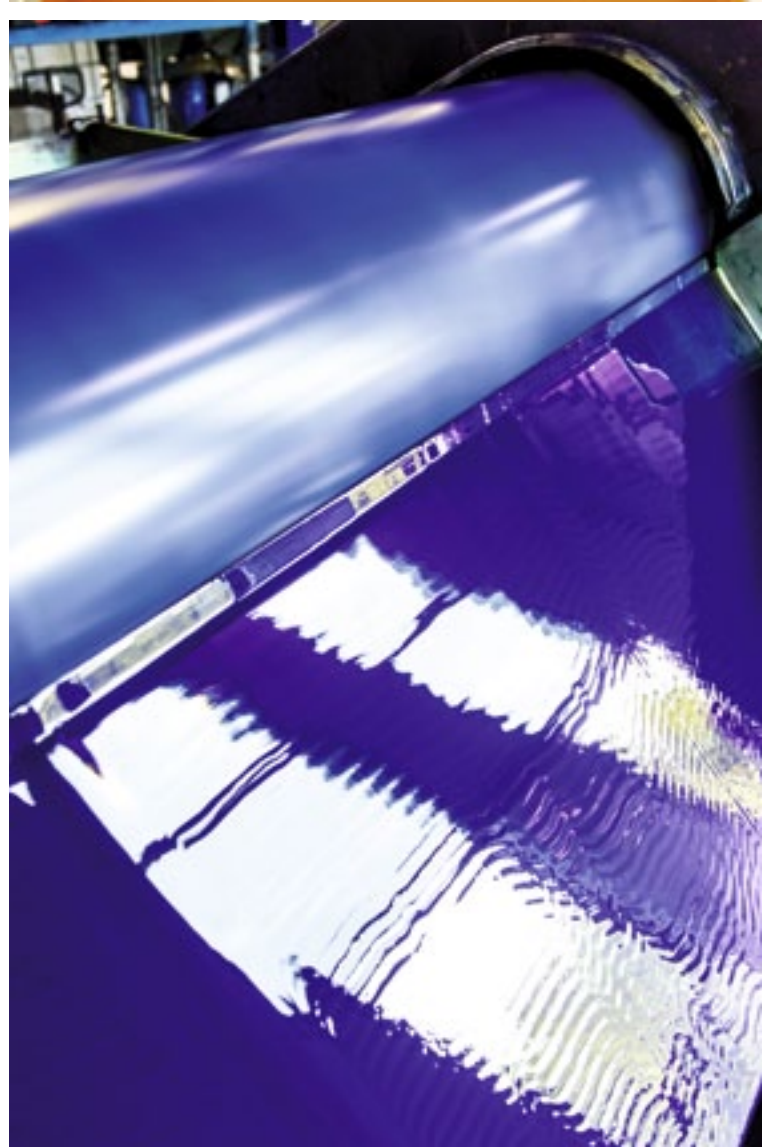
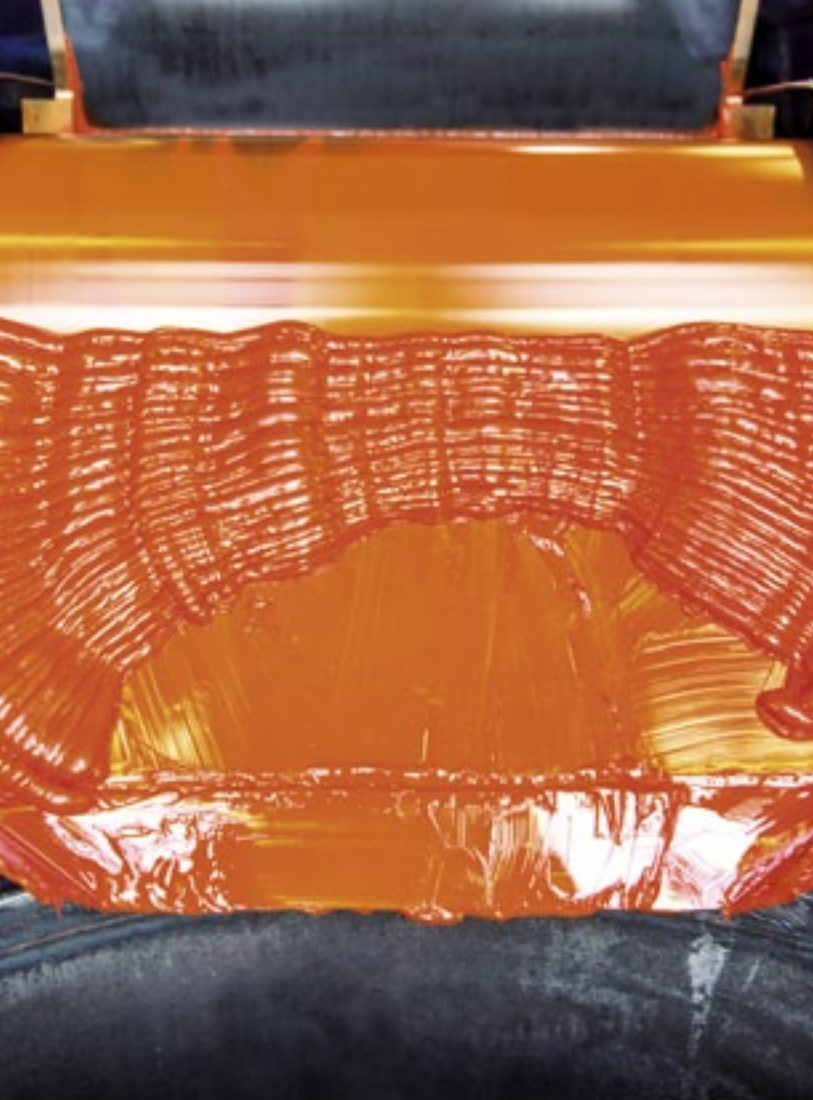
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ISL brings color to the industry. Its color pastes and specialty lacquers are now manufactured using the three-roll technology of Bühler.

## ISL-CHEMIE GMBH & CO. KG

- 1968** Josef Rath and Walter Höhler set up ISL with a focus on industrial specialty lacquers.
- 1970s** Color pastes for plastics are added to the product portfolio, especially polyurethane.
- 1990s** Internationalization of the group.
- 1994** Relocation from Cologne to Kürten to increase production capacities.
- 1998** Sale to Rhein Chemie, a Bayer subsidiary.
- 2005** Sales to the Swiss Berlac Group.
- 2006** Opening of a branch office in Shanghai (China).
- 2007** Market leadership in the field of color pastes for vinyl wallpaper.
- 2011** Investment in the new three-roll technology of Bühler and expansion of the lacquer segment.









Located in Gurb, Catalonia, the new milling center is also an architectural highlight.

# CASA TARRADELLAS: FROM WHEAT TO PIZZA

**Casa Tarradellas is Spain's leading pizza producer. The growth of the company, which was founded in 1976, is due to two factors: on the one hand, it uses the best ingredients for the products it makes, and on the other hand it takes the utmost care throughout the production process. Another success factor is its untiring quest for innovation and continuous improvement. In this effort, Casa Tarradellas is closely supported by Bühler, the organization with which it has developed the flour mills for making its pizzas.**

## Company history

From its predecessors, Casa Tarradellas has inherited a high regard for artisanal traditions as well as continuous stretching of limits. Quite naturally, the company therefore strives in its day-to-day operations to improve its existing products and to develop innovative new products.

In order to achieve this, it focuses on all the details of the development and production processes of each product to ensure their top quality at all times. This is documented by the internationally acknowledged IFS/BRC, EMAS and ISO 14001 certificates it has received.

Its relentless striving for product quality has transformed the original mini-company into one of Spain's largest food producers. Today, the company's brand is one of the ten most popular among the country's consumers.

At present, Casa Tarradellas Espetec produces a salami-like hard sausage, cooked ham, pies, doughs, and the largest variety of pizzas available in the marketplace.

## Innovation generates growth

A company aiming at growth must reinvent itself continuously. As a result, Casa Tarradellas has time and again developed and rolled out innovative products which continue to set the trends in the Spanish food market to this day. These include preserved pies, thinly sliced cooked ham, or rashers of breakfast bacon.

But the most important step that the company has ever made was the launch of its first refrigerated pizza in the Spanish market in 1997. Miquelina Saborit, the company's spokeswoman, says: "The existing assortment of pizzas focused on frozen pizzas and pizza delivery services. We therefore decided to conquer the market by developing a segment that had not existed before in Spain: the pizza for the refrigerator. Ever since, we have invested in all the steps for developing and producing our pizzas. We have continuously refined them to win our customers' esteem, which ultimately makes us the market leader. Our customers rate our performance on the basis of each and every pizza we make, and we build our reputation with each and every bite that consumers chew."



With its innovative products, Casa Tarradellas is a trend-setter on the Spanish food market.



### The new mill

Because product development is so important to Casa Tarradellas, its name is synonymous with continuous product improvement, which starts by taking the utmost care in selecting the ingredients that go into its products.

The company therefore decided in 2010 to take the same approach in making its flours as it did years ago in developing its meat products from its own farms. It therefore set up a center for developing the flours used for making its pizzas. As part of this effort, it executed its plan to install a purpose-designed flour research center.

Joan Clotet, flour production manager, explains: “Our production facilities are located in a region that is rich in grain of excellent quality. As a result, our project of building our own mill for producing the flour we use blended seamlessly with our processes and products.”

A total of 15 million euros were invested in the new center, which covers a surface area of 1,500 square meters spread across five building floors. It achieves an annual output of 40,000 metric tons and boasts the newest Bühler process technology.

Joan Clotet explains the advantages of the mill: “Sure, we processed high-quality grain before. But the new flour mill offers us a number of advantages: We can try out new blends and adjust them to each pizza recipe. We have better control over the flour ripening process. And we have also appreciably improved the logistics of direct flour deliveries to our production sites. Now this plant enables us to achieve the ultimate aim of Casa Tarradellas – to make the best possible end product, the pizza – in the best possible way.”

Clotet is thrilled by the Sortex optical grain sorter, which he says guarantees the top quality and purity of the products made and which cannot be achieved by any other systems. “Thanks to the plant’s advanced technology and rugged machinery, which hardly needs any maintenance, Bühler has managed to apply the proverbial precision and quality of a Swiss clockwork to its large equipment,” explains Clotet, confirming that “Bühler has supplied us with a tailor-made suit.” The new flour mill operated by

Casa Tarradellas is also an investment in the future. This is because the company plans to install new modules which, if necessary, could even double output.

What is more, the center enables Casa Tarradellas to continue to pursue a goal that it has had from its very beginnings: to conduct research into the different wheat varieties that are most suitable for making its individual products. Clotet explains: “We pay the utmost attention to each and every recipe of ours. We therefore want to find the wheat blends that are most suitable for making the dough of every individual pizza of ours so as to develop the best possible taste.”

The decision to build this new center is therefore yet another example of the aim of Casa Tarradellas to process each ingredient itself right from the start and to further develop its market leadership in the pizza segment.

### New investments in the future

The determination to constantly improve its processes has triggered two additional investments of Casa Tarradellas in the past years: a new warehouse and a system for recovering and recycling PET.

This plant covering 3,700 square meters is autonomous and boasts the latest technology for recovering the plastic residues produced during packaging, which can be used for making new packaging. This has allowed Casa Tarradellas to make yet another major step toward sustainability, for it is now the first company to make refrigerated products while recovering and recycling its own packaging materials.

### For more information:

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The new flour mill allows Casa Tarradellas to try out new blends and adjust them to each pizza recipe.

## CASA TARRADELLAS

- 1976 Establishment
- 1997 Entry into the pizza market by launching its first frozen pizza
- Best ingredients for best products:
  - Meat supplied by the company's own farms
  - Two hog feed development centers
  - One development center for the flour that goes into the pizzas
- Sales in 2012: EUR 729 million
- Eleven production units, certified according to IFS-BRC, EMAS and ISO 14001
- Average number of employees: 1,500



Mill rolls wear out over time; this degradation can be measured and linked to yield and energy performance.

## OPTIMAL TIMING FOR COMPETITIVE EDGE: ROLLDetect™ MONITORS CORRUGATION PROFILE

**A new approach to measuring wear in corrugated rolls allows maintenance and replacement to be scheduled for maximum efficiency.**





Every corrugated roll is inevitably subject to wear as the surface is gradually ground down by the milling action. But when is the right time to overhaul or replace it? If a new or recorruated roll is installed too soon, the operator will not have gotten the full use of the equipment, wasting money on too many roll changes or new equipment, including plant downtimes, while the old piece is still perfectly usable. Replace or service the milling roll too late, and the effects may be even more serious – increased energy consumption of up to +50 percent, and worst of all, degraded product quality through contamination and faulty particle size. Timing is therefore crucial.

Beginning in 2014, Bühler will offer customers the two-level rollDetect service that establishes the ideal point

for roll change. The Technical Report establishes the objective wear with high precision and predicts the remaining lifetime of the milling rolls for a given value of acceptable wear. The additional Economic Report offers an analysis of how degradation affects the overall efficiency of the break passages. This report lays out ways to save energy and maximize the product extraction rate, allowing operators to optimize maintenance costs versus productivity.

### Rule of the thumb

Currently, millers use a “rule of the thumb” to assess how far their corrugated roll is worn down; quite literally, in most cases, by running their thumbnail over the corrugation. Bühler has developed an innovative tactile



A Technical Report predicts the remaining lifetime of rolls, while the Economic Report analyses the effect of degradation on efficiency.

system with integrated proprietary software that runs a needle over the roll corrugation to measure the exact degree of profile degradation, which is then compared with the original profile of a new milling roll. This is the first measuring system tailored to the specific requirements of roller mills.

If the rollDetect shows that the corrugations have been overly worn out, it is time to overhaul the roll (corrugated rolls can be refurbished six to ten times) or to replace it. Again, timing is essential. The ideal time to replace or service the corrugated rolls is when invested service costs are equal to the sum of energy and yield losses. If changes are made too early or too late, i.e., when the values for either service costs or losses are higher, money is lost. A rollDetect service will establish that time window with high accuracy.

Bühler is currently testing the rollDetect service with selected millers and has presented the system at several events, to great interest among customers. Once the results of this test period are in, the service will be offered to all customers in the first quarter of 2014.

### THREE QUESTIONS FOR CHRISTIAN HEINIGER, PRODUCT MANAGER ROLLDETECT™

What prompted Bühler to develop the rollDetect service?

We realized that there was no customized procedure for measuring wear on rolls – the most important wear part in a mill. Consequently, our customers had only approximate values for scheduling service or replacement. We saw this as a way to make our customers more competitive and to help them operate more cost-efficiently.

How is rollDetect different from regular service for corrugated rolls?

This new technique allows millers to time their scheduled services with high precision, which results in bet-

ter quality of flour and less operating costs as energy-efficiency is optimized. A blunt corrugated roll requires more energy and produces less top-grade flour.

How have customers responded to the new service in the trial phase?

The interest is huge. From a purely economic point of view, the benefits for our partners are obvious. And there is great interest in the innovative aspect of rollDetect, which underscores Bühler's image as a pioneer that is closely involved with the day-to-day operative requirements of the industry.

# RELIABLE HYGIENIC CONVEYING SYSTEMS

**Screw conveyors are primarily used for feeding and discharging bulk materials in the grain processing industry. Over the past years, these tried-and-tested systems have experienced a true innovation boost.**

No food producer can escape the compelling megatrends today: New insights into food safety and rigorous sanitation standards in food production have over the past few years fundamentally changed the requirements that production equipment is expected to satisfy. Food safety today has come to be one of the main criteria in selecting the right conveying systems. Producers' demands concerning the sanitation of their machinery is high – and rightly so.

In 2012, Bühler included a new generation of screw conveyors in its portfolio. On the one hand, they are built of stainless steel and alternative food-grade materials. On the other hand, the machine design has been modified from scratch to give due consideration to food safety aspects.

## Innovation with a love of detail

One core requirement of the European Machinery Directive (2006/42/EC) says that substances hazardous to health such as lubricants are not allowed to come into contact with foods. In response, the new Bühler machines have been designed with additional sealing elements and partitions to separate the bearings from the product area. In addition, a checkpoint has been incorporated on the drive which discharges any lubricant escaping from the bearing or gearing directly to the outside before it reaches the seal area.

In designing the conveyors, care was taken to ensure that they can be completely emptied, since product residues favor the growth of germs. Another core item is, of course, the cleanliness of the system itself. One drawback of the old screw conveyor design was that its drive was connect-

ed with the machine through a coupling incorporated in a housing. This meant that the system was not enclosed, allowing germs and pests to enter. In the new-generation machines, this problem has been completely eliminated by the direct-coupled gearmotors used.



The new screw conveyors include sealing elements that keep lubricants out of the product area. Checkpoints allow direct identification of any defects to the bearing or gearing.

## For more information:

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# ONLINE PROCESS FINE-TUNING BY NIR TECHNOLOGY

**Food safety, traceability, or productivity enhancement are major challenges in today's grain processing industry. Sensor systems and intelligent real-time process fine-tuning in the form offered by the new NIR Multi Online Analyzer MYRG provide optimal support in meeting them.**

For a number of years now, online near-infrared (NIR) measuring equipment has been used for continuous monitoring of raw materials, intermediates, and end products. But broad application of these devices has so far been hampered by demanding integration in production systems, an occasional lack of data reliability, and high capital cost if several measurement points were required. The new Bühler NIR Multi Online Analyzer MYRG meets precisely these challenges – thanks to its combined incorporation of proven product and process expertise and its innovative solutions to intelligent data evaluation.

## Reliable throughout

Users are offered a tried-and-tested system of matched components from a single source – from incorporation in the production system and product presentation to application-specific data evaluation. The interlinking of as many as six independent, compact, and rugged measurement probes with a centralized spectrometer in the control room increases reliability and enables continuous determination of product parameters such as moisture, protein, and ash. Closed control loops allow these product parameters to be selected in the best possible manner and to be maintained within tight tolerances. Integrated control functions help minimize production safety margins and enable fast and automatic responses to process fluctuations. Overall, this results in a consistently high product quality with simultaneous cost optimization in quality assurance. This has already been amply proven in various customer installations.



The Multi Online Analyzer MYRG is equipped with near-infrared (NIR) technology that facilitates constant reliable measurement of product parameters such as moisture and protein.

## Robust evaluations, flexible control action

The heart of the MYRG system – beside its Bühler-specific calibration database for grain, flour, semolina, and byproducts – is its intelligent data interpretation capabilities. Among other things, these are supported by comparisons between actual and target values. They guarantee accurate and consistently dependable measurement results. MYRG can be operated as a stand-alone unit or be optimally integrated in Bühler's WinCos® process control system, with linking to third-party systems being possible through standard interfaces.



The Ecoline Pro is top-of-the-class of Bühler's standard die casting machines by adding flexible shot positioning.

## FOCUSING ON THE ESSENTIALS

**The Ecoline Pro die casting machine answers to the requirements of a wide range of standard die castings where less flexibility, higher standardizing and faster return on investment is required.**

Bühler is well-known and appreciated for its top equipped die casting machines and their flexibility. But sometimes their capabilities might just be too advanced for less complex die casting parts. This is for instance the case where less flexibility in terms of machine options, shot height positioning as well as in terms of real time shot control are required. The Ecoline series of die casting machines is Bühler's answer for this segment of die casting parts. With locking forces from 3,400 to 8,400 kN there is no compromise in terms of reliability and performance, nor in Bühler quality. Ecoline Pro, the latest addition to Ecoline, now provides the flexibility in terms of shot positioning that customers already know from the Evolution series.

Dynamic and powerful, the Ecoline Pro caters to the requirements of standard die casting. However, with its high casting capacity, even complex dies can be filled perfectly. Stripping away not required features without compromising on quality, technological standards or performance guarantees excellent value for money – and a quick return on investment. Reduced energy consumption during the pre-filling stage adds another bonus: lower operating costs. But the outstanding feature is the Ecoline Pro's flexibility.

### Flexible and to the point

The possibility to work with different dies especially plays in the hands of third party casters, who produce their die casting parts with the dies manufacturers supply them with. Each of these dies will have different dimensions and probably different shot positions. With its easily adjustable shot position together with its manual or automatic tie bar removal systems the Ecoline Pro greatly facilitates production change-over in a very short time.

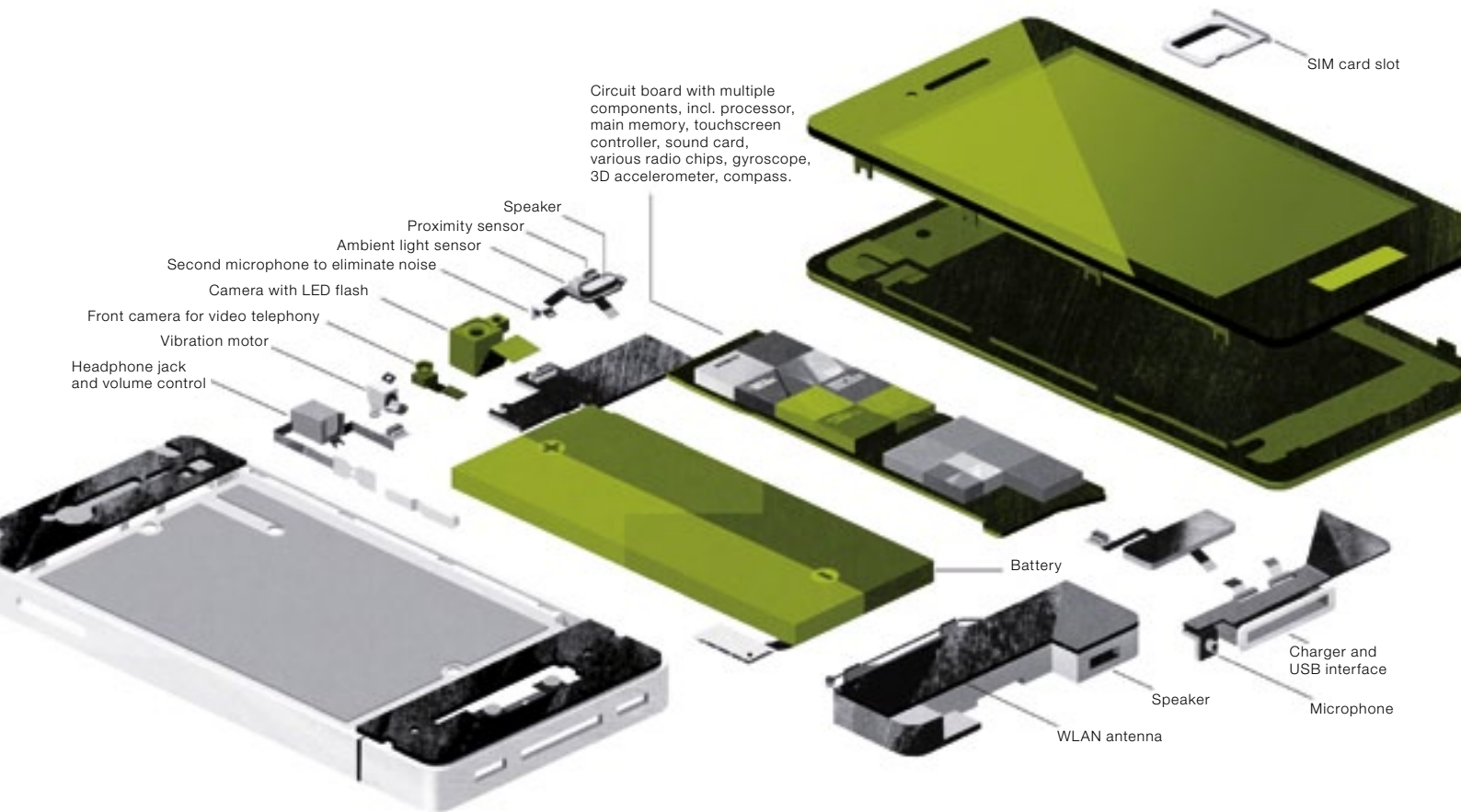
These features opened up a new market segment for Bühler's die casting business unit. Recent first-time customers have been very satisfied with the reliability and the quality of the Ecoline Pro machine as well as with the high level of production quality. A further source of satisfaction, however, is Bühler's excellent customer service and valuable know-how exchange.

### For more information:

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## SMARTPHONES: BÜHLER INSIDE

**Bühler's Division Advanced Materials contributes essential high-tech solutions to the making of smartphones: A fascinating journey into the heart of everyone's favorite gadget.**

The smartphone has revolutionized the way we communicate, our frequency of interaction and our social habits. It is ubiquitous in our lives, serving as alarm clock, camera, agenda, diary and phone all-in-one. One might even say the smartphone is our new best friend. While everyone is aware that it features sophisticated information technology, hardly anyone would associate Bühler – renowned as supplier for the food processing industry – with smartphone components. However, the company has a hand in many technologies used to create a smartphone: from the grinding and dispersing processes to vacuum depositing and also die casting.

### What's in a phone?

It all starts with the shell: Bühler's vacuum depositing technology is used to coat the shell evenly with layers of transparent materials, yielding a variety of colors by

the same principle that produces the colors in soap bubbles, and for adding a glass-like top layer for extra robustness. Some noble aluminum or magnesium casings are made with Bühler die casting machines. Next up is the user interface, the touch screen, which uses invisible conductive lines deposited on plastic film again by vacuum deposition. Putting two such touch panel films on top of each other in a criss-cross pattern allows the phone to locate where our fingers touch the screen.

Further Bühler technologies can be found inside the smartphone when it comes to its components, beginning with the technical paints used for the printed circuit board. Also, the production of its roughly 200 capacitors requires special conductive and dielectric pastes. These high-tech pastes are produced with Bühler bead and three roll mills. The camera in the smartphone can



see colors since it looks through red, green, and blue filters produced by vacuum deposition, again similar to the soap bubble principle. Bühler is working in nano-technology to increase the capacity of the batteries with wet grinding and dispersing and vacuum deposition technologies. And last but not least, Bühler's vacuum deposition technology is used to create the ultra-precise ultraviolet optics for making increasingly powerful microchips.

### Disruptive innovation

The display technology has long been the domain of the Grinding & Dispersing Technologies business unit. The glass pastes that carried the phosphors to yield the colors in plasma display panels were produced by Bühler three-roll mills. Bühler only pursued that application for a few years, since liquid crystal display (LCD) technology won over the plasma technology. Fortunately, Bühler remained strongly engaged in the business, since high-tech bead mills grind the nano-pigment dispersion for the red, green and blue color filters used in LCDs,

which are also applied today in the new white organic light-emitting diode (OLED) displays. In the future, however, the emergent RGB OLED displays will do without color filters altogether in favor of red, green and blue light sources that are produced directly by applying vacuum deposition technologies only.

While providing solutions for suppliers to the smart-phone industry does not constitute the largest part of the Advanced Material Division's business, it is a good example for the innovation pressure affecting many of its Business Units. Working a high-tech market segment where disruptive innovation fundamentally changes the technology in use every two to three years demands a great deal of flexibility and the capacity to react to alternative technology developments. Being able to offer the right capabilities for these developments is vital to stay in business. A case in point is Bühler's forward-thinking addition of vacuum depositing technology to its portfolio with the acquisition of Leybold Optics GmbH.

## Advanced Materials – diverse but complementary

With its three Business Units from different technological backgrounds – Grinding and Dispersing Technologies, Leybold Optics, and Die Casting – Advanced Materials seems at first glance to be a rather disparate Division. The Business Units, however, have customers in common and act complementary. If a disruptive technological development takes the business away from one unit, Bühler has another Business Unit with the relevant technological know-how to deliver the solutions the customer needs. This is the vision on which the Advanced Materials Division will focus its development efforts.



A batch of well-formed, unspoiled almonds  
conventionally required days of hand sorting.

## BÜHLER CRACKS ALMONDS DOUBLE TROUBLE WITH EASE

**Bühler pioneers an innovative technology solution to resolve the problem of “doubles” in almonds – thereby strengthening Bühler’s prominent position as the primary technology partner of choice in nut processing.**



An innovation in almond sorting, Bühler's SORTEX optical sorters can now detect doubles.

The perennial challenge of automatically sorting almonds to the highest specification possible means many nut processors resort to labour intensive hand sorting to remove the doubles – when two kernels are found in one shell – from their natural almond product. But with labour costs rising and throughputs increasing, the adoption of Bühler's SORTEX almond sorting solution can have a significant impact on a processor's efficiency and profitability. This pioneering technology with pinpoint accuracy can deliver to required grade specifications, while also removing multiple defects and foreign materials.

"We are the only company that can provide an efficient technology solution for removing doubles from almonds, to the required standard," explained Rio Rafael, Bühler's sales manager for almonds in the USA. "Using hand sorting, it can sometimes take companies days to reduce doubles, to meet the required grade specifications, but with SORTEX technology, this time is reduced dramatically."

### Exceptional accuracy

To achieve this technologically advanced solution for almond sorting, Bühler has drawn on its wide range of experience in inspection system technologies, such as broad spectrum lighting, high-resolution bichromatic cameras, InGaAs and PROfile technology. This combination of technologies ensures the highest level of detection and removal of challenging defects and foreign material, including doubles.

As well as removing doubles, SORTEX optical sorting technology can handle multiple defects. These can in-

clude chipped, scratched, split, broken, discoloured, decayed or mouldy nuts, nuts damaged by insects, or nuts that are too dissimilar from each other. Furthermore, SORTEX optical sorters can remove foreign materials, including fragments of shell, hulls, stones, plastics and glass, and can even separate different almond varieties and if required grade by size too.

"SORTEX technology offers exceptional accuracy and has been stringently tested by almond processors globally. In some instances, doubles may represent as much as 30 percent of the incoming raw material," said Willy Razo, Bühler Applications, USA Almonds and Walnuts. "Running at a capacity of 5,433 kg (12,000 lbs) per hour, SORTEX optical sorters can output almonds that are well within grade, after just one to three passes." Bühler is committed to further innovation to help its customers improve productivity and lower their processing costs through innovative optical sorting applications for nut processing.

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Safeguarding standard, ensuring quality: The Bühler Quality Management group has a crucial role in maintaining the reputation of the brand.

## HIGH STANDARDS FOR TOP QUALITY

**Quality management means enforcing high standards and optimizing processes. At Bühler, this work involves both long-term improvement in all areas and short-term troubleshooting for specific challenges.**

“Customers are not really very aware of us – if a machine runs flawlessly, that means we did our job well.” Marco Hartmann and his Quality Management team are in charge of maintaining high standards and ensuring consistency of products. For high-end manufacturers like Bühler in particular, quality management is crucial for upholding the reputation of the brand.

Their work primarily takes place within the company as the team carries out audits of processes, offers advice to colleagues in all areas of production and assembly, and provides training for continuous improvement of products and cycles according to the precepts of lean and efficient management. The members of the Quality Management team are familiar with most areas of the company’s activities and work closely with Bühler’s facilities around the world.

The Quality Management group also maintains and develops tools for gauging compliance with quality standards. Such tools range from simple measurement devices, which are regularly calibrated by Hartmann’s team, to sophisticated IT solutions for quality assurance that are developed and installed in-house.

On a typical day, some team members will be overseeing assembly processes or developing a solution for a particularly challenging surface coating job, while others are meeting customers to find a quick fix for a problem. “Our work is very practically-oriented,” says Hartmann. “We’re troubleshooters for internal and external customers, but our job is also to make sure problems only occur once.”

## CURRENT CHOCOLATE COURSES

**The three-day, redesigned Chocolate course is being held in the test facility of Bühler in Uzwil (Switzerland). Beside classroom lectures, it also includes hands-on exercises and demonstrations.**



The course provides an overview of the entire chocolate production process and highlights the properties of different raw ingredients and their influence on chocolate mass production. The wider technological context of the individual process stages and the designs and operating

principles of Bühler production systems are explained. Moreover, the course attendees deal in depth with production processes and technological issues. The course is rounded off by demonstrations in the Bühler test facility with hands-on exercises and a tour of the local factory.

The following link will take you to the detailed course agenda: [www.buhlergroup.com/chocolate-training](http://www.buhlergroup.com/chocolate-training)

Target group: production staff, product developers, and technologists from the chocolate manufacturing industry

Language: **English**

You will find our complete range of courses from all business units at [www.buhlergroup.com/ausbildung-kurse](http://www.buhlergroup.com/ausbildung-kurse)

### SELECTED TRADE SHOWS FROM JANUARY THROUGH JUNE 2014

#### Dates

January 14–19, 2014  
February 4–7, 2014  
March 8–10, 2014  
April 8–10, 2014  
April 8–10, 2014  
May 8–14, 2014  
June 11–16, 2014

#### Trade shows

Euroguss  
Cereals Mixed Feed 2014  
Paint India  
VICTAM/GRAPAS Asia  
American Coatings Show  
Interpack  
Metef

#### Venues

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