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South Amman Mills: Highway to success
Druckguss Systeme AG: System for structural parts
Energy: Cost-cutting potential
Dear Readers

This year, Buhler celebrated its 150th birthday in various regions together with its customers and employees. As a motto for this anniversary year, we have chosen “Innovations for a better world”. On the basis of numerous initiatives, we plan to demonstrate our dynamism and fresh vigor. One of the ways of achieving a better world to live in is the sparing utilization of non-renewable resources. In this connection, the issues of energy and carbon emissions play a core role. Our researchers and developers are continuously seeking new solutions that will support you as our customers to proactively conserve energy and reduce carbon levels. We are therefore happy to present you new and practical ways from the Chocolate & Cocoa business unit in this issue of the Diagram which are designed to reduce energy consumption. We are convinced that this will enable you to gain yet another edge in your business and to meet the challenges of a better environment together.

I wish you much pleasure reading this issue!

Calvin Grieder, CEO

Saving energy

A complex structural component – manufactured on the new Buhler system of DGS Druckguss Systeme AG.
On the highway to success

The new 320t/24h flour mill of South Amman Mills is Jordan’s most advanced facility of its kind. The smooth handling of the project and the start-up of the plant ahead of schedule are, among other things, the result of using a novel production principle for the first time.

For the first time ever, the Buhler specialists applied a new principle in implementing the flour mill project of South Amman Mills, in which all the processes are handled on the basis of a totally synchronized plan. “Our internal experiences with production control and monitoring based on this standardized process have been excellent,” explains Hans Tschudin, head of the international installation department of the Grain Processing Division. “Now we have applied this principle for the first time also in the implementation phase of a customer project – that is, during installation and start-up of a plant. And the result is absolutely overwhelming: In close cooperation with the customer, we completed the mill project of South Amman Mills four weeks ahead of schedule. This enabled our customer to start production four weeks earlier, which translates into genuine added value for them.”

Synchronized processes

The new principle – which is called “Autobahn” or “Highway” at Buhler – supports the chief installation supervisor and produces transparency throughout the installation phase. Hans Tschudin: “The procedure is simple. Weekly meetings are held with the customer at their local site. On the basis of the continuously updated lists and charts, the headway that the project is making is discussed. Problems can be identified and any required corrective action can be discussed and immediately taken. This procedure gives the customer full transparency and makes them a true partner of ours.”

The basis for the weekly stocktaking meetings is provided by standardized lists and charts related to materials, supplies, personnel, and other items, in addition to organization charts and schedules. “The crucial point is to ensure that the lists and charts are always meticulously updated,” says Hans Tschudin. What is most impressive for customers is arguably to see the so-called “progress chart”. It shows as a result of all the individual lists and charts the progress that the project is actually making in comparison to the expected progress. The result of the individual meetings is carefully documented. This allows detailed debriefing once a customer project has been completed. Hans Tschudin: “This enables us to identify any existing potential for improvement.”

New flour mill constructed in Amman

As a pilot project for applying the new “Customer Highway” approach, the Buhler Grain Milling Business Unit chose the construction of the new Gulf Industrial Development flour mill in the Jordanian capital of Amman. “We selected this project because the expansion of the South Amman Mills facility is a mid-size grain mill based on very high engineering standards for an Arabic country. Moreover, the customer was responsible for supplying the building and the infrastructure and for providing the local installation crews. Installation of the plant with local personnel was carried out in a highly professional manner under the supervision of our chief installation supervisor Nik von Rotz. This constellation along with our customer’s dedicated commitment supplied the ideal basis for proceeding according to the new principle.”

Fully automatic flour mill

“The contract for the new 320 t/24h mill for hard and semi-hard wheat was signed on August 31, 2007,” explains Reto Ulli, who was in charge as team manager in the Grain Milling Business Unit for the South Amman Mills project. “Thanks to the excellent preparatory work done by the customer and continuous project checking, we exceeded our target. The new mill was started up in mid-June 2009 – four weeks ahead of schedule.”

The new, fully automatic, WinCos-controlled facility of South Amman Mills consists of four sections. In the cleaning section with a capacity of 15 metric tons per hour, the wheat is predampened, weighed, and cleaned to highly sanitary standards by a separator, destoner, indented cylinder, and scourer. Before intermediate binning, the moisture of the wheat is measured and the wheat is subjected to a second dampening stage to obtain the moisture content of 16.5% required for optimal grinding.

The grain is ground in the next process stage on the roller floor by fifteen roller mills (thirteen four-roller mills and two eight-roller mills). The stock then passes through two sifters and four purifiers. The result of the fully automatic grinding process is flours of very high quality.
Autobahn

At Buhler, the German term “Autobahn” – which means “Highway” – refers to the continuous monitoring of a project and the ongoing adjustment to changes or unforeseen challenges. At regular meetings, the current status of a project is discussed on the basis of drawings and diagrams. If any deviations from the target state are identified, corrective action is immediately discussed and taken. The “Autobahn” principle has proven its worth in the everyday production life of the Buhler business units. Initially only practiced in-house, individual business units have now started applying this simple yet effective principle as “Customer Highway” also at local customer sites during the implementation phase of a project.

Bins for storing finished products

Before the finished flours are held in intermediate storage in the six finished product bins with a total capacity of 600 metric tons, they are resifted for safety. The product is bagged for delivery to customers in the fourth plant section, which is equipped with four state-of-the-art bagging lines for filling 50-kilogram bags. Before bagging, the flours can if required be homogenized, which guarantees a consistently high quality of the flours supplied. A bulk load-out system for loading the flours into tankers was subsequently added to the outloading section.

The operators of the new plant were trained on site by the Buhler specialists. Chief installation supervisor Nik von Rotz: “Training of the operator teams was the crowning climax of this very nice project. By proceeding on the basis of the Highway principle, everyone involved was at all times informed about the status of the project. The close collaboration with the customer was a prerequisite for successfully completing such a large-scale project within such a short time without accidents and without encountering any major problems, sometimes under harsh climatic conditions.”

New market segment entered

As is common in some Arabic countries, the wheat market is government-regulated also in Jordan. To date, the wheat used to be supplied by the government to processors at a fixed price, with the government then again acquiring the finished flour at a fixed price. But for some time now, Jordanian mills have been allowed to purchase the wheat on the free market for up to 35 percent of their production and to also sell their flours there again.

South Amman Mills plays an important role in the Jordanian flour market. Moreover, it exports part of its output to Iraq. This new and currently most advanced flour mill in Jordan now enables South Amman Mills to act as a player in the upper segment of the new free market by providing high-quality products and also catering to special customer requirements.

(byos)
The pressure on the automotive industry to reduce carbon emissions of vehicles is continuously increasing the need for highly integrated lightweight components. In this connection, structural parts are playing an ever-important part. With its new Buhler-supplied “Structural” system, supplemented with its special proprietary process expertise, the Swiss company DGS Druckguss Systeme AG possesses cutting-edge die casting technology for manufacturing structural components.

DGS Druckguss Systeme AG is a mid-size die casting company which specializes in the processing of aluminum, magnesium, and zinc. In its three factories in Switzerland, the Czech Republic, and China, some 500 employees process almost 10,000 metric tons of metal a year into high-grade die cast components.

Technology leader in the field of structural components
The company with headquarters in the corner of eastern Switzerland bordering on Austria and Germany considers its role as being a system supplier. It specializes in the development and manufacture of complex, lightweight, near-net-shape components and modules. For some time now, so-called structural components have also been included in its supply portfolio. “Within just a few years, we have evolved into the technology leader in the production of such structural parts,” explains Axel Schmidt, technical manager at DGS, adding that “renowned German customers from the automotive industry confirm this fact by their intensive collaboration in developing products and processes together with us.”

Demanding components
The structural components that DGS currently manufactures are all applied by the automotive industry. These parts are expected to satisfy extremely rigorous mechanical requirements – and this with very thin wall sections. They are used, for instance, in passenger cells of cars, where they are assembled as nodes or structural elements with other components in order to form a distortion-resistant and high-strength frame. For this purpose, such parts must be weldable and have a high plastic deformation capacity – that is, be highly ductile – in order to ensure that they will not rupture when overloaded.

Satisfying such rigorous requirements is a demanding undertaking in the field of die casting. In addition to important aspects such as optimal selection of the aluminum alloy to be cast, correct subsequent heat treatment, machining and surface finishing of the cast components, and some others, the casting process and the underlying casting technology are crucial. In the structural process, components are typically cast under a high vacuum, which minimizes the creation of pores and air entrapments in the cast parts. This is necessary in order to enable the components to be welded and to enhance their material characteristics by heat treatment.

Structural die casting system as a basis
The new die casting technology applied by DGS is based on the Buhler Carat machine technology in conjunction with a high-vacuum system that DGS has purpose-developed to meet the specific requirements. Other core elements include innovative die concepts and alloy formulations that have been optimized by DGS. Axel Schmidt: “In order to maintain the strong market position in the long run that we have gained over the past few years, we decided to invest in cutting-edge, high-performance die casting technology. We chose a new die casting cell manufactured by Buhler, which is equipped with a 2800 kN die casting machine of type Carat.” We opted for Buhler because of the already proven qualities of its new two-platen technology. “We deliberately chose the Carat because its innovative two-platen technology convinced us,” explains Axel Schmidt. “The Carat is excellently suited to the manufacture of structural parts. The high rigidity of its die closing unit increases the seal of the closed die and thus reduces the creation of flash. This helps maintain the evacuation process constant and generally supports process
With the Carat series, Buhler is offering a machine generation that is ideally matched to structural applications.

- The exceptionally high rigidity of the Buhler two-platen die closing system supports process stability. Introducing the die closing force directly through the tie bars enables die parallelism errors to be offset. This increases the seal of the closed die, reducing the formation of flash and increasing the dimensional accuracy of the components, which is ideal for vacuum applications.
- The Buhler real-time control system supports constant process control by ensuring reproducible die cavity filling processes.
- The flexible design of the shot profile reduces die stressing during casting, increasing the life cycle of the die.
- The Buhler Dat@net control system offers extensive possibilities for process visualization and monitoring. This allows process stability to be documented in a comprehensible manner, which is required for structural components.

Manufactured on the new system – a complex, thin-section structural cast component made of aluminum.

With its high reproducibility, the real-time-controlled Carat shot unit ensures a consistently high quality of the components cast – from one shot to the next. The wide variety of possible settings of the shot curve make it easier to produce such demanding components. “The Carat 280 that we have selected completes our range of machines in the upper segment,” says Schmidt. “Moreover, the employees of DGS have been working for years with Buhler die casting systems and are thoroughly familiar with this technology.”

Buhler as a general contractor

The order that DGS Druckguss Systeme AG placed included the supply of a complete “Structural” die casting cell. The Buhler peripheral equipment integrated in the control system of the die casting cell for parts extraction, die spraying, and component labeling constitute the core of the installation. A ladling furnace, trimming press, cooling bath, and exhaust hood complete the range of supply. “We signed the contract for the complete casting cell with Buhler acting as a general contractor,” explains Axel Schmidt. “Also this decision turned out to be very sound, for we found out in the course of the project how important it is to have such projects implemented by a single source.”

Druckguss Systeme AG now possesses the specific know-how of the entire process chain within its own company. The company considers this as important proof of its capabilities and a prerequisite for generating the best possible customer value. Sub-processes such as heat treatment, subsequent machining, and surface finishing have been developed and implemented by DGS itself.

With top precision

The schedule for installation and start-up of the new die casting cell was very tight. But careful project management enabled the specialists of Buhler to install and commission the new system on schedule. The new die casting installation has been up and running with top precision since it was commissioned in the spring of 2009. Axel Schmidt: “We are very happy with our newest Buhler system and are on track successfully putting our goals to practice. And we are proud to manufacture parts for our customers with our new installation, the most advanced and currently the largest system of its kind in Switzerland.”

“The Carat is excellently suited for producing structural components.”

Axel Schmidt, Technical Manager
Druckguss Systeme AG
St.Gallen / Switzerland
**3D animation: Right in the middle of the action**

The Grain Handling business unit rolled out its new 3D animation system in the Grain Technology Center in Uzwil just in time for the 150-year anniversary of Buhler. Cutting-edge technology enables entire ship unloaders, individual systems, or even piece parts to be operated, explored, and experienced on a virtual and three-dimensional basis.

**In the port of Hamburg**

The port of Hamburg is displayed in an amazingly real-life manner on a large screen using computer animation. Looking through your 3D glasses, you become part of the environment. Acting as the operator, you sit in the cab of a PORTALINK ship unloader – seemingly 35 meters above the ground. The image on the screen follows the motion of your head while you are operating the ship unloader. Two powerful computers translate your commands into motions and images. Thus, you gain a first-hand experience of everything that is happening around you. You are so to speak sitting yourself in the control cab and acting any way you like.

But animation is more than a mere outside view. The computer animation system also allows you to look inside the system and the system components. You can zoom details to make them come closer, or you can open them individually to inspect them. It is even possible to fly around the installation.

**Authentic sensation**

The new 3D animation system gives interested visitors a highly authentic “feel” of the installation. Bogoljub Kostic, who is in charge of 3D animation, explains it in an illustrative way: “We can walk our customers through a system that does not yet exist apart from the data in a PC in a way that reflects reality very closely. This gives customers the sensation of being right in the middle of the action. They gain a first-hand experience of the size and depth of a system and experience its mode of operation. We are unable to create this effect on a small computer display screen even if we use the very best CAD software.*

The 3D animation system is mainly applied as a decision-making tool during sales negotiations. Prospective customers looking through their 3D glasses can view “their” installation from all sides and in great detail. They thereby gain a better and more realistic impression than would ever be possible merely on the basis of blueprints or images. The experiences of the first few months of service are highly encouraging. Bogoljub Kostic:

> “Visitors are impressed by the effects, the real-life touch, and the faithfulness to details. They also enthuse about the possibility of conveniently operating their own system even before it has been ordered, let alone constructed. Looking through their 3D glasses, they get a highly authentic impression of what their future installation will be capable of doing. 3D animation thus helps us convince customers of the quality and performance of our products.”

**Realistic images**

“Our software enables us to create images of systems which are indistinguishable from a genuine photograph,” says Bogoljub Kostic, mentioning another possible application. Thus, for advertising purposes, new products can be placed in a virtual “genuine” environment. The system also greatly helps Buhler employees. Bogoljub Kostic: “It is something very special even for seasoned engineers to suddenly experience an installation in its true size that they have designed on a PC computer. This also helps them check new ideas for their feasibility.”

The 3D animation system of Buhler is being continuously expanded. Thus, in addition to ship unloaders, also all other Grain Handling products are to be gradually animated in 3D to offer a real-life experience. It is also possible to expand this application to other Buhler business units.

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*“3D animation allows the operator to “sit” inside the control cab of a PORTALINK ship unloader in the port of Hamburg.”

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Energy management as an opportunity

Optimizing energy consumption and cutting carbon emissions are great challenges for our customers. The Chocolate & Cocoa business unit has developed a special program with an integral approach in order to deal with this issue.

The Buhler Chocolate & Cocoa business unit offers its customers a seamless line of products and services ranging from the raw cocoa beans to the finished molded chocolate articles. As part of this offer, support is also provided to customers in matters related to process technology and efficiency. It comprises an analysis of the current situation in existing plants, the definition of relevant and appropriate measures for improving efficiency, the implementation of the actions proposed, and finally a check to determine whether the measures taken actually enable the suggested objectives to be achieved.

Pinch method

“Efforts for enhancing environmental consciousness and cost-awareness in connection with production activities necessarily start with an analysis of the process,” says Thomas Bischof, Product Marketing Manager in the Buhler Chocolate & Cocoa business unit. “This energy audit provides the starting point for improving efficiency. It helps identify all product and energy streams of a production plant. For this purpose, Buhler applies the so-called Pinch method.” The Pinch method therefore not only helps optimize the production plant in terms of energy consumption, but also commercially. In other words, the plant is fine-tuned in energy terms so that the commercial requirements of the processor are satisfied. The most important aspect of the entire energy analysis is detailed knowledge of the process. This means that the measures proposed for improving energy efficiency will be verified by Buhler process experts for their technological feasibility.

Transparency as a starting point

Thomas Bischof: “The outcome of an energy audit provides a clear picture of all energy and product streams that are relevant for making the products of a given customer. The resulting Sankey diagram shows the production process with regard to the energy flows and thus provides the perfect starting point for defining measures for improving energy efficiency.” Buhler process experts then work out a catalog of measures with proposals showing how to improve the energy efficiency of a customer’s plant. Of course, these measures give consideration to specified commercial criteria. Moreover, as the process experts concern themselves in depth with the energy audit, Buhler can also guarantee that all the measures suggested can be put to practice without compromising the product quality or production reliability in any manner whatever.

Cocoa shells – energy source instead of waste.

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New approaches to cocoa processing

Efficient debacterization and roasting processes are decisive when it comes to conserving energy and cutting costs. But older plants utilize only a fraction of all the energy they consume. The debacterization and roasting systems of Buhler Barth are based on a much more sophisticated design. They convince through their quality, performance, and overall productivity.

Thus, the newly developed STP™ (Short Time Peak Pressure) process reduces the retention time inside the reactor and thereby also significantly diminishes specific steam consumption. Furthermore, a process configuration where the debacterization stage is situated downstream of the roasting process allows additional steam to be conserved. Overall energy savings up to 50 % are possible in the debacterization stage. Special heat recovery systems for the TORNADO drum roaster and the RoaStar™ fresh air roaster of Buhler Barth enable further savings of 15 to 30 % to be achieved in the area of primary energy consumption.

Cocoa shell combustion

Cocoa shells are obtained during cocoa processing as an inevitable byproduct. Buhler has developed a tailor-made combustion system to generate energy from cocoa shells. What used to be considered as waste has thus become an energy source today which even allows the design of thermally autarchic roasting and debacterization processes. Generating energy from cocoa shells offers myriad benefits. First, it allows enormous savings. Second, modern cocoa processors can significantly reduce their carbon emissions. Third, cocoa processors are no longer subjected to fluctuations in the energy markets, since no fossil fuels are needed and future production costs can be calculated more accurately.

Thermally autarchic processing systems can be built especially in combination with the RoaStar™ and Debac™, which are steam-based roasting and debacterization systems. This means that the entire thermal energy required for roasting and debacterizing the cocoa beans is generated by burning the cocoa shells.

Ecology and economy

Economically and ecologically speaking, a cocoa shell combustion system must satisfy two main criteria. On the one hand, trouble-free operation must be ensured, with reasonable maintenance requirements for the cocoa processor. On the other hand, from the ecological view-
point, the emissions created during combustion must be within the limits applicable to conventional biomass combustion systems. In biomass combustion, particular attention must be paid to the residual ash content and the ash melting point of the biomass in question. A combustion chamber grate design which has been purpose-designed for the cocoa shell application ensures complete incineration. This prevents caking on the grate and guarantees a constant combustion temperature. At the same time, it enables CO₂, NOx, and dust emission values to be achieved which are within the limits of the Clean Air Act. In the presence of more rigorous regional regulations, the exhaust air can be additionally treated using common dust collection filters and cleaning components. An automatic cleaning feature inside the steam boiler helps avoid power loss as a result of steam pipe contamination.

**Molding of chocolate masses**
Buhler develops improvements also in connection with the production and molding of chocolate masses. High-efficiency motors for chocolate refiners and the new SeedMaster™ technology present further opportunities for saving energy.

By using high-efficiency motors of class IE2 or IE3, an efficiency increase of two to eight percent can be achieved even at a partial load of 60%. Motor changes are easy. An additional potential for savings lies in an appropriate drive concept for the chocolate refiner. There are always several factors which influence the efficiency of a refiner. Buhler develops solutions which are tailored to the specific requirements.

The SeedMaster™ is a new chocolate tempering process that Buhler has launched to allow customers to slash their energy consumption levels by as much as 75%. On the one hand, the SeedMaster™ technology requires about 40% less primary energy for the actual tempering process. On the other hand, SeedMaster™-tempered chocolate from the overflow can be fed directly to the depositor again without requiring decrystallization and retempering.

**High customer value**
An efficient automation process is the prerequisite for saving energy and cutting costs. The WinCoS.r2 control system monitors energy streams and consumption in real time. Energy costs can be properly allocated to products. The result is active energy management.

Additional features such as fine-tuning of energy consumption by automatic starting and stopping of the process lines or defining user-specific energy limits in combination with cost control are also feasible and contribute significantly to optimizing energy management. (tb/bos)
Buhler has added the PRIOrwin™ twin-screw extruder to its extruder family and can now offer customers a compact alternative to the universal POLYtwin™.

PRIOrwin™ – high customer value thanks to high flexibility

The new PRIOrwin™ twin-screw extruder has been designed to satisfy a wide variety of customer needs. The lean design of the PRIOrwin™ focuses systematically on the basic requirements of applications and deliberately does without any extras which do not have a direct impact on the end product quality. The PRIOrwin™ has been designed with a wide range of different processes in mind, for example for making breakfast cereals, food ingredients, pet food, and aquafeeds.

Cost-efficient extruder

“"The goal of our development effort was to offer customers an extruder which would fulfill their needs in their respective segments while still being a much simpler solution than the comparable universal POLYtwin™,” explains Frieder Klein, the development engineer in charge. In developing the PRIOrwin™, he and his team relied on tried and true Buhler extrusion technology. The new extruder model applies existing elements from the POLYtwin™ extruder series in combination with newly developed components. In designing the new machine, proven processes were analyzed, from which the requirements were then derived.

In concrete terms, this means that Buhler with its PRIOrwin™ is offering an extruder whose maximum process pressure is limited to 150 bar. Beside the pressure, Buhler has also reduced the maximum specific torque and the maximum possible specific energy input in the new extruder. Moreover, the basic version of the PRIOrwin™ is offered without any barrel temperature control feature. However, temperature control of the barrels is available as an option and can be supplied in the form of a separate unit allowing heating or cooling of the barrel. In conjunction with other process stages from the Buhler portfolio, this enables excellent end products to be made, for example in the breakfast cereals, food ingredients, and pet food segments.

Single-stage preconditioner

The dual-stage preconditioner has been replaced in the PRIOrwin™ by a simpler single-stage unit for heating and homogenizing the material. In addition, the developers reduced the distance between the preconditioner and the extruder and simplified the configuration, allowing the expensive heating of the transition to be eliminated. Unlike the top-of-the-line POLYtwin™ model, the PRIOrwin™ does not have any stuffing mechanism, either.

Fast product changes

In order to reduce uneconomic downtimes, Buhler customers are now also offered the choice between a fully automatic screw ejection device and a simplified system. In the latter, they can extract the screw pair from the machine by means of a manual hydraulic pump. Furthermore, Buhler again offers its customers a proven relay-based control system meeting state-of-the-art standards. In this design version, the operator controls the addition of water and steam into the extruder on the basis of local control loops.

On the other hand, the proven cutter that can be moved to the side of the POLYtwin™ extruder is also available with the PRIOrwin™. This unique cutter design allows the operator to adjust the cutter knives even during ongoing operation in order to obtain a consistently high end product quality. This prevents undesirable deformations of the extruded products as a result of poorly set knives. Moreover, the entire cutter head can be exchanged even during operation, thus preventing production interruptions.

Integrated in the overall process

The new PRIOrwin™ has already undergone extensive testing with a wide range of products such as cornflakes, texturized proteins, fortified rice, breadcrumbs, foods for cats and dogs, and various specialty products. The results were more than satisfactory, with perfect products being obtained. The PRIOrwin™ has already been excellently received by customers.

The PRIOrwin™ extruder is available with screw diameters of 62 and 93 millimeters. Depending on the product, it is possible to process up to 1000 kilograms of raw material per hour with the smaller and 4000 kilograms with the larger variant.

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changes. Thanks to its new modules and its leaner design, the PRIOtwin™ is particularly easy to operate. It combines tried and true processes with simplified modules, which in turn reduce the capital investment cost while still ensuring the accustomed Buhler quality. In developing the PRIOtwin™, care was also taken to ensure that the extrusion process can be optimally integrated in the upstream and downstream process stages. This allows integral solutions to be offered with a high customer value.

By rolling out this new model, Buhler has once more demonstrated its capabilities as a global technology partner for companies producing cereals, food ingredients, or pet food on an industrial scale. With its extensive expertise in extrusion technology and its passion for developing individualized solutions, Buhler is always in a position to generate added value and success for any idea that customers may come up with. Buhler offers an integral range of products and services for all process stages – from correct raw material treatment to cooking and shaping by extrusion and drying of the extruded products. And this is true for all market segments – from cereals to modified flours and starches, texturized proteins or vitaminized rice. In short: for extrusion solutions near by without limits.

Grain Technology Center

The Grain Processing division has opened the world’s largest and most modern Grain Technology Center (GTC) in Uzwil. An extensive line of cutting-edge equipment is installed on a surface area of about 2,000 square meters. It enables processes to be carried out on an industrial scale and the related parameters to be analyzed. A special focus is on “Deep Processing”, that is, innovative processes for upgrading grain and ground products. The GTC is divided into an area accessible to customers and one open for in-house research purposes only. In the customer section, the new center offers excellent possibilities for conducting professional customer tests.

New head of Pasta & Extruded Products

Beat Müller, the longtime head of the Buhler Pasta & Extruded Products business unit, retired at the end of February. His successor is Marcel Natterer. Natterer has been with Buhler since early 2009. He joined the Buhler Food Processing division following many years of international activity at Hilti as Head of Product Management and Marketing.

Buhler production systems from the tsarist era

The 150-year Buhler anniversary celebrated together with customers and employees stirs up memories and opens archives. Thus, an employee of the Chocolate & Cocoa business unit recently came back from a business trip to Ukraine with images of an old flour mill in the east of the country. A customer had drawn his attention to the old mill, which he said Buhler had built during the tsarist era. He said the mill was still up and running – a sure sign of the quality of Buhler plants.

Buhler at the CastExpo

Every two years, the American die casting industry presents its products and services at the CastExpo. This year, 4,500 visitors and over 300 exhibitors from all over the world discussed the newest industry technologies and trends in Orlando, Florida, from March 19 through 22. Buhler also took part. Buhler presented itself to the interested specialist public as the industry’s innovation and technology leader. The trade show promoted an intense exchange of information on developments and innovations in the die casting industry and brought together competitors, vendors, and customers.
The 150-year anniversary celebrations held in Uzwil on February 12, 2010 were attended by some 200 customers from all parts of the world as well as personalities from business and politics. Cultural presentations from all continents provided a fitting global setting.
The Batign family has been operating its Minoterie Batigne flour mill in the south of France for over 350 years. During this period, the mill underwent numerous rebuilds and expansions. Two years ago, the company’s newest milling facility went into operation – a fully automatic 240t/24h plant supplied by Buhler.

The Batign family has two passions – rugby and flour. When it comes to the French national sport of rugby, their hearts beat for “Réalmont XIII”, the local rugby club. Their second passion is the Minoterie Batigne flour mill located near Réalmont, a small town in the Arrondissement Albi, part of the Département Tarn in the Midi-Pyrénées region of southern France. The Minoterie Batigne has been owned by the Batigne family since 1650. With brothers Christian and Jean-Marc Batigne, the tenth generation of the family is now at the helm of the business, upholding the tradition of the Batigne miller family. Nonetheless, father and mother Batigne still reserve the right to see that everything is running smoothly in day-to-day operations.

Regionally anchored
The Minoterie Batigne is a mid-size facility among the total of 450 flour mills still in operation in France. It is solidly anchored in the region, predominantly processing grain from the southern regions of Midi-Pyrénées, Limagne, and Centre. The grain is stored in large grain elevators holding 6,500 metric tons. This stock is sufficient to cover the requirement of about two months.

The Minoterie Batigne facility supplies standard flours mainly to local artisanal and industrial bakeries. Of its roughly 500 customers, some 60 percent are artisanal bakeries and 40 percent bread factories. They cover the needs of about one third of the daily bread requirement in the Département Tarn. The range of products supplied comprises ten traditional flour types for artisanal bread-making and – in order to satisfy rising demand – about 30 ready flour mixes.

Father’s dream
“My father used to process 50 metric tons of grain a day. Today, we grind 240 tons a day,” explains Christian Batigne. “By achieving these 240 tons, my brother and I have made our father’s dream come true.” Christian Batigne, who graduated from the Ecole Supérieure de Meunerie – a French milling school – has headed the mill since 1983. Today, also his brother Jean-Marc is part of the management team. He too learned the miller’s trade from scratch.

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The Batigne family has two passions – rugby and flour. When it comes to the French national sport of rugby, their hearts beat for “Réalmont XIII”, the local rugby club. Their second passion is the Minoterie Batigne flour mill located near Réalmont, a small town in the Arrondissement Albi, part of the Département Tarn in the Midi-Pyrénées region of southern France. The Minoterie Batigne has been owned by the Batigne family since 1650. With brothers Christian and Jean-Marc Batigne, the tenth generation of the family is now at the helm of the business, upholding the tradition of the Batigne miller family. Nonetheless, father and mother Batigne still reserve the right to see that everything is running smoothly in day-to-day operations.

Regionally anchored
The Minoterie Batigne is a mid-size facility among the total of 450 flour mills still in operation in France. It is solidly anchored in the region, predominantly processing grain from the southern regions of Midi-Pyrénées, Limagne, and Centre. The grain is stored in large grain elevators holding 6,500 metric tons. This stock is sufficient to cover the requirement of about two months.

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The new flour mill of Minoterie Batigne.
Receivers with airlocks of the pneumatic conveying system.

The boost in the processing capacity from 50 to 240 tons daily is the result of a long process. “It took us six years to put our plans for a modern mill to practice,” says Christian Batigne in retrospect. “It was a long road. But we had to follow it. We did not have any other option. Ultimately, the question was to invest or to shut down the mill. We opted for pushing ahead.” First we convinced the banks of our idea. Then we had to wait for one year until we obtained the construction permit from the authorities. Installation of the mill took another six months. Finally, we invested six months in starting up our new facility.” The Batigne brothers’ efforts have paid off. Today, they operate France’s most advanced flour mill.

Reasons for choosing Buhler

The Batigne brothers developed the process flow chart of what they call “France’s most beautiful and modern flour mill” themselves. The technologists and engineers of Buhler then put their ideas to practice. “We chose Buhler because its cutting-edge process technology and the quality of its systems convinced us,” explains Christian Batigne why they selected Buhler as a supplier. “What is more, we felt that Buhler was the suitable partner enabling us to achieve our goals – improved yield, top quality, maximum sanitation level, and process reliability.” Almost two years after the new mill was finally commissioned, Christian Batigne takes stock: “We were not disappointed. We are highly satisfied with our new mill.”

Antares four-roller mills

The plant is controlled by a WinCoS.r2 automation system and therefore operates fully automatically. The first cleaning section processes 20 metric tons of grain an hour. Before the grain is stored in the tempering bins, its moisture is automatically measured. It is dampened to the required moisture content in a Turboliser dampener. For technological reasons, the Batigne family chose two dampering systems, which allow optimal conditioning of the grain prior to grinding. The second cleaning stage with an hourly capacity of 12 tons is equipped with a “Peeling” system. This thorough surface treatment of the wheat is an important part of grain cleaning, since it reduces bacterial contamination as well as the mycotoxin content of each individual grain.

The wheat is ground on the roller floor by ten newest-generation Antares four-roller mills. The stock is then sifted in two eight-compartment Sirius MPAK plansifters equipped with Novapur technology and split into individual particle size fractions before it is fed to the subsequent roll passes. Before the flours are transferred to the flour storage and handling section, they undergo a quality check by NIR DA Online Technology (Near Infrared Diode Array Online Technology – permanent checking system integrated in the product stream). In the flour silo, the different basic flours are blended and mixed by a Speedmix high-speed mixer into high-grade ready mixes including different additives and ingredients.

Before intermediate storage of the finished flours in the finished products bins, the flours are checked another time in control sifters. For delivery to customers, the products are bagged on state-of-the-art bagging systems for 50-kilo gram bags.

Sanitation

The new Batigne flour mill boasts an extremely high sanitation level. All the processing equipment and piping is made of stainless steel. In addition, a slight positive pressure is maintained throughout the mill to keep out contaminants. Christian Batigne: “Our business is highly technical, and regulations are rigorous. In order to prevent contamination, we have constructed a building in which a positive pressure is permanently maintained, ruling out any contamination from the outside. Moreover, our plant is equipped with a special ventilation system developed in collaboration with Buhler.” Product safety is ultimately also ensured by continuous laboratory checks.

Baguette

Bread is one of France’s most important staple foods. In 2008, each French inhabitant consumed an average of 153 grams of bread a day. This is also a respectable quantity in comparison to other European countries, though not very much historically speaking. In 1900, daily per-capita bread consumption in France was still as high as 900 grams. Seventy-five percent of all bread produced in France comes in the form of the longish baguettes. In addition to this favorite loaf of the French, we also find about 80 or so additional regional bread specialties. The almost 33,900 bakeries in France produce some three million metric tons of bread annually. Of this total, 61 percent are accounted for by artisanal businesses and 37 percent by bread factories. The balance is imported. Bakeries procure their flours from the country’s 450 flour mills that still exist. They process about 32 million metric tons of grain a year. Of this, 51 percent – just more than half – are exported.

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The Batigne family (from left to right): Christian, father Max, mother Jeannine, and Jean-Marc.

Source: Conféderation Nationale de la Boulangerie-Pâtisserie / Association Nationale de la Meunerie Française.
Partnership between two market leaders

Diamond Foods and Buhler Aeroglide have one thing in common: They are both acknowledged market leaders in their respective areas. The two companies have been cooperating for years. With its new dual plenum roaster, Buhler Aeroglide is helping eliminate production bottlenecks.

Diamond Foods is a leading U.S. producer of popcorn and nuts. It markets its products mainly under the Diamond, Emerald, and Pop Secret brands. Its customers are the large U.S. retail chains. Thus, about 80 percent of all supermarkets in the United States carry Diamond products. In 2009, Diamond Foods generated sales revenue of about 570 million U.S. dollars. The Diamond Foods company, which was set up in San Francisco in 1912, is today headquartered in Stockton, California, and employs some 1700 people at several production sites. Diamond Foods has been listed on the stock exchange since 2005.

Expanding production
The Diamond Foods Corporation and its affiliated companies are longtime customers of the Buhler Aeroglide Business Unit, which is in charge of drying and roasting technology within the Buhler Group. Buhler Aeroglide supplied its first roaster to Diamond Foods back in 1976. Others followed over the years.
As consumer demand for snack nuts of the Emerald brand rose continuously, it was decided to install a new line in the Diamond Foods factory in Fishers, Indiana. For this, Diamond Foods once again selected a Buhler system in view of the good experiences with the Aeroglide roasters. Buhler Aeroglide installed a newest-generation dual plenum roaster in September 2009.

Top customer satisfaction
The new roaster is used at Diamond Foods for making dry-roasted peanuts, slightly salted and dry-roasted peanuts, natural almonds, and coconut almonds. Bill Hungate, Director of Plant Engineering and Maintenance, confirms that the new roaster has been up and running at full capacity and to the customer’s complete satisfaction since it was started up.
The new Aeroglide roaster is included in a unique application at Diamond Foods. It is the first system layout of the U.S. market leader to feed the finished product directly to a hopper line for packaging. This results in gentler treatment of the roasted product, prevents unnecessary breakage, and at the same time reduces the labor requirement during packaging of the nuts.
The system works so smoothly that Diamond Foods ordered another, identical roaster from Buhler Aeroglide in the spring of 2010.

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Youngest business unit
Buhler Aeroglide is the youngest business unit of the Buhler Group. The U.S. Aeroglide Corporation headquartered in Raleigh, North Carolina, was acquired by Buhler in 2008. Buhler Aeroglide is the market leader in the supply of industrial-scale solutions for drying foods and feeds as well as for other thermal processes. Buhler Aeroglide’s product portfolio comprises various drying systems such as conveyor dryers and coolers, impingement drying ovens, rotary dryers, suction drum dryers, plus dry roasting systems and fluid-bed systems. As a market leader, Buhler Aeroglide specializes in the development, design, and construction of customized solutions for thermal processes. (sr/bos)
Solid particles in the micrometer and nanometer range play a crucial role in the development of new energy storage media. The bead mills, roller mills, and continuous and discontinuous mixing systems designed and built by Buhler are excellently suited for mixing, homogenizing, dispersing, and fine-grinding the related anode and cathode materials.

Wet grinding for future energy storage

Swapping from fossil fuels to renewable energy sources is only a matter of time in view of the rise in global primary energy consumption and the targets defined for reducing carbon emissions. But in order to allow electrical energy to be available wherever and whenever it is needed, it must be possible to store it efficiently. In this, the storage battery plays a key role both in mobile and in stationary applications. The collective term “battery” refers to accumulators in electric vehicles as well as systems for storing surplus energy from renewable resources.

Lithium-ion accumulators

Researchers and the industry are placing great hopes especially in so-called lithium-ion storage batteries or accumulators. These devices offer decisive advantages over lead, nickel-cadmium, or nickel-metal hydride accumulators. In addition to high energy and power densities, lithium-ion accumulators also offer favorable characteristics in terms of self-discharge and memory effect. At present, industry and researchers are working feverishly on improving the safety, efficiency, and economy of lithium-ion storage batteries. The key to this resides especially in the further development of the material systems applied. They also include the electrode masses, and these can be produced with the aid of Buhler wet grinding and dispersion processes.

Energy and power density

The two most important parameters for assessing the performance features of a storage battery are the power and energy densities. The energy density determines how much energy can be electrochemically stored and what characterizes the range of an electric vehicle. On the other hand, the power density defines how fast a lithium-ion accumulator is capable of absorbing energy and discharging it again. The capacity and the electric potential of lithium-ion accumulators are primarily determined by the material properties of the electrodes. For the positive electrode, lithium-cobalt, lithium-nickel, and lithium-manganese oxide and mixed forms of these are used. In newer-generation lithium-ion accumulators, alternative materials such as lithium-iron phosphate with improved properties are also applied. Today, the negative electrode is mainly manufactured from carbon-based materials such as graphite. In order to increase the efficiency of the cell, metal oxides, semiconductors, and composites are also being increasingly integrated in the anode material.

Wet-dispersed solids

Both the cathode and the anode are made on the basis of suspensions which are produced by wet size reduction and dispersion processes. The related solid particles in the micrometer and nanometer ranges impart a large specific surface area to the electrodes. This in turn accelerates charge transfer at the interface with the electrolyte. It also shortens the diffusion paths of the free charge carriers in the electrode material and thereby increases the power density of the lithium-ion storage battery.

Wet grinding processes are applied not only for reducing and dispersing the solids, but also for chemical conversion of the precursors of the electrode masses. In the future, the active electrode materials will increasingly be made of composite particles in order to, say, compensate for changes in volume during charging and discharging and to improve the stability of the electrodes.

Wet size-reduction technology

Products for the electronics industry such as nanodispersions for LCD display screens or metal pastes for different uses have been successfully manufactured for decades on Buhler equipment. Like no other industry, the electronics industry is marked by a breathtaking pace of change in terms of technologies and markets. Solutions for making products satisfying top quality requirements are in high demand. The Buhler range offered in this area has been adapted over the past few years specifically for meeting these requirements and includes bead mills, roller mills, and continuous and discontinuous mixing systems. The high level of automation of the plant and equipment used

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Lithium-ion storage battery manufactured by the Eamex Corporation.

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It is expected that the market for rechargeable batteries (secondary batteries) will surge within the next ten years by a factor of 2.5 to over 50 billion U.S. dollars. Lithium-ion accumulators will account for over 60 percent of this total. The main drivers behind this growth of 20% over the past years. The company is China’s undisputed market leader in the field of flour improvement solutions for specialty flours. Buhler has acquired 100% of Bangsheng Bio-Technology Co. Ltd. This Chinese market leader in the field of flour improvement solutions for specialty flours opens up additional opportunities for Buhler in an extremely promising market segment. The rebuilding and modernisation project boasts a new surface treatment solution for testing flour, bread, and noodles. The new managing director, Roy Gao, who has been active for Buhler in China up to now, has been successful in strengthening Buhler’s position in China. Customers from Europe, Japan, the U.S., and Africa plus VIPs from business, politics, and science followed the Buhler’s invitation to Braunschweig to celebrate the 150-year anniversary of the Group together. The Tiger Group with five milling locations in South Africa has signed a contract with Buhler for a new 750-ton flour mill at its site in Hennenman in the center of South Africa’s breadbasket. The new large-scale facility will be equipped with the latest Buhler products Antares, Polaris, and Sirius. In addition, the new Tiger mill will be provided with the WinCoS.r2 automation system – including WinCare. The contract also includes peripheral equipment such as corrugation (fluting) machines and roll frosting devices plus several months of intensive operator training.
Trusting in InGaAs

Buhler Sorix’ groundbreaking use of InGaAs camera technology in its market-leading optical sorting solutions has brought about an enormous leap in the detection of foreign material in vegetable mixes. Experts agree: sorting efficiencies have reached levels that current conventional sorting methods simply cannot match.

The order from Italy

Following an extensive three-month trial, the latest proof of the quality of InGaAs technology came from Alfonsine, east of Bologna, home to Italian frozen fruit and vegetable processor Fruttagel. The company was so impressed by the new technology that it recently invested in a SORTEX KBR optical sorting machine. Walter Gatti, Fruttagel production manager, says: “We immediately realized that the KBR lived up to Buhler Sortex’ promises. Its performance on complex vegetable mixes by far exceeded our expectations. While quality levels of the end product remained very high, amazingly, the reject rate of accept product was lower than 0.2%, which provides a remarkably high yield. And with the possibility of a rapid change-over from one product to another, there is virtually no downtime, either. We are very impressed.”

Fruttagel processes some 25 mixed vegetable products for various supermarket chains. As well as selling foodstuffs under its own name, its premium products are sold to leading brands such as Buitoni.

InGaAs demonstration

“Fruttagel came to us at the end of 2008,” remembers David Adams, Buhler Sortex market development manager. “They were the first customer to see a demonstration of our enhanced InGaAs camera technology prior to its launch.”

Originally developed for space and military applications, InGaAs camera technology is highly effective today in optical sorting. This is because vegetable matter wavelengths absorb energy, while common packaging materials such as plastic, wood, and cardboard reflect it. During processing, foreign materials are removed with breathtaking accuracy, while Profile shape recognition technology gets rid of undesirable matter such as stalks, stems, and pods.

Difficult mixes

Adams continues: “During these initial trials, we used the KBR to sort Fruttagel minestrone, which contains rehydrated borlotti beans. These are notoriously difficult to color-sort, which is why the customer was sorting by hand. The KBR successfully separated foreign matter without rejecting the borlotti beans. Fruttagel were so impressed that they agreed with Sorix to a three-month trial period to test all of their products – more than 50 frozen complex mixes as well as simple vegetable mixes.”

“Naturally, we are delighted that Fruttagel is the latest customer to recognize the unrivaled capabilities the KBR offers,” says Adams happily. “Not only is the KBR accurate and safe, it is quick, too. In fact, the KBR sorter has a maximum processing capacity of almost ten metric tons per hour. InGaAs camera technology is helping us to take things to a new level altogether,” he concludes.

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New dimension in the production of formulated feed

The Amrein Futtermühle AG feed mill has greatly updated its production processes together with the Buhler Feed & Biomass business unit and improved them by adding a thermal meal treatment system.

Amrein Futtermühle AG is a mid-size, independent, family-owned feed production company headquartered in Sempach in Switzerland. Using state-of-the-art feed manufacturing technology, Amrein produces the Aktiv-Futter and Aktiv-Polyvitamine brands of high-quality formulated feed and additives for animal nutrition.

The philosophy of company owner Josef Amrein is highly quality-based and focuses on the needs of customers. “We center all our efforts on the quality of our products and our customers’ needs,” he explains. “Our brand products Aktiv-Futter and Aktiv-Polyvitamine are quality products that have been developed and are produced on the basis of the latest scientific knowledge.”

New production process

As part of the modernization of the production systems, the Feed & Biomass business unit of Bühler AG installed a new thermal meal treatment process for swine feed at Amrein. This process, unique throughout the world, improves the quality characteristics of the swine feed in terms of palatability, sanitation, water solubility, and dust generation. The new process enables Amrein Futtermühle AG to manufacture top-quality animal feed products. Moreover, the upstream combined grinding system consisting of a dual roller mill, screen, and hammer mill allows a uniform texture of the formulated feed to be obtained.

For animal breeders, hygienized feed improves animal performance, reduces digestive disorders, and diminishes dust generation in pigsties – quite generally enhancing the animals’ health. What is more, the active feed manufactured by Josef Amrein has an improved taste and – according to feedback received from customers – results in outstanding feed acceptance. But Josef Amrein receives praise not only from customers. The new production process won the silver medal at the “Suisse Tier 2007” exhibition, the highest possible award presented for a product improvement.

In addition to the new thermal meal treatment process, Amrein has additionally invested in increasing the sanitation standard of its production systems. The new production building equipped with an additional 24 loadout bins is completely enclosed and provided with automatic rollup doors. Drivers, employees, and customers enter the production building through a lock. The production and storage areas have been divided into A + B sanitation zones.

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Working principle
The new process consists of two main subprocesses: hygienizing plus drying and cooling in a pneumatic conveyor. Hygienizing is carried out by the HYMIX and HYTHERM modules. In the HYMIX, the compound feed particles can be heated to a temperature of 80–90 °C by the addition of steam. The heated formulated feed is then retained in one or optionally two HYTHERM modules. The allows retention times between 60 and maximum 240 seconds to be achieved as a function of the throughput rate. In addition, the HYTHERM system is characterized by its very narrow dwell time distribution, thus getting very close to the “First in – First out” principle, which ensures reliable hygienization. The hygienized feed is then dried and cooled in a triple-stage thermopneumatic conveyor (Triple Air Control System, TAC). For drying, hot air is used in the first stage. In the second and third stages, the product is cooled by ambient air.

Benefits of the process
The optimized concept of HYMIX and HYTHERM ensures low product residues and easy cleaning. Thanks to the high air velocities applied, the TAC system is self-cleaning, which prevents product deposits. Cooling by a thermopneumatic conveyor greatly reduces the risk of cross-contamination and recontamination in comparison to conventional meal coolers. Thanks to its flexible design, the new thermal meal treatment system has a small installation footprint. This enables the space available in existing feed production plants to be utilized in the best possible way. Operation of the new plant of Amrein Futtermühle AG is fully automated and is controlled exclusively from the control room. This cuts labor costs and allows just-in-time production. Last, not least, the new process increases the uptime of the processing lines thanks to reduced downtimes when formulations are changed in comparison with hygienizing systems consisting of pellet mills and conventional meal coolers. The new thermal meal treatment system can be easily tailored to specific customer needs. This is made possible by the following options: Microfiltration of the air for top sanitation standards, addition of solid and liquid micro-ingredients, post-mixing application for unsurpassed product homogeneity, and monitoring of the steam quality and/or of the moisture content.

Top-quality feeds
The pig feed produced by the new process is characterized by its extremely low count of microorganisms such as bacteria, molds, and yeast fungi. Pathogenic bacteria such as salmonella are virtually destroyed, which significantly reduces the incidence and severity of diarrhea disorders in the animals. Beside improving the animals’ health, this also enhances feed digestibility, which in turn has a positive impact on the weight increase of the animals. The Maillard reaction occurring during the thermal treatment process creates a bundle of roast flavors, which improve the palatability of the feed. Thermally treated swine feed may thus have a positive influence on the animals’ appetite. Moreover, thermal meal treatment improves the water solubility of the feed. Product lumps in the feed slurry are effectively prevented, as well as deposits of high-density particles in the feed trough. Lastly, the heat and steam treatment causes fines to agglomerate on coarser particles, which reduces dust generation and improves flowability. Choke-ups during discharge from storage bins and silos are greatly reduced compared to untreated feed meal.

Amrein
Amrein Futtermühle AG has existed since 1979 in its present form as a stock company. But the origins of the family-owned company date back to the year 1913, when the grandfather of today’s owner Josef Amrein took over a village bakery. In 1953, the father of the Amreins entered the feed trading business. In 1965, Josef Amrein-Wolfisberg died, and his two children Josef and Martha took charge of the business. In 1973 Josef Amrein-Winker became the sole managing director. He focused the family-owned company on the formulated feed sector. In 1988, a new, cutting-edge formulated feed production plant went into service. In 2006 and 2007, the systems were expanded to state-of-the-art levels. The family-owned business and its committed employees make every effort to honor the company’s claim – Visible Quality.

For more information, visit: www.aktiv-futter.ch
Nothing works without rolls

Whether smooth or corrugated – rolls are at the heart of most of the production plants that Buhler builds.

Twelve years after the Buhler iron foundry was established, the young company manufactured its first cast iron rolls for roller mills in its workshops in 1872. In 1876, the first roller mill manufactured entirely by Buhler was shipped from the factory. This was the age when roller mills were replacing the century-old stone mill technology. As a consequence, rolls evolved into the core components in the corporate history of Buhler. It is no coincidence that Buhler’s current logo suggests a roll.

Modern process
Rolls have remained at the center of most Buhler equipment to this day. Whether they are applied in grain milling, in chocolate production, or in printing inks and paints manufacture – rolls are used everywhere. The critical factors in the manufacture of modern rolls include wear, the possible throughput capacity, and the grinding characteristics.

In its almost 140-year history of making rolls, Buhler has continuously refined the related processes. Today’s high-tech two-component chilled-iron compound rolls are produced by the centrifugal casting process. In this process, a hard-metal alloy is fed into a die that spins at high speed. Then gray iron is added. The exact temperature and the accurate volume of metal cast as well as the high centrifugal force determine the quality of the rolls in terms of the homogeneity and high compaction of the roll structure.

Grinding or corrugating
The roll blanks are rough-machined to size and thoroughly checked. For example, the entire surface is checked for possible entrapments. Then the rolls are ground. Smooth rolls are ground to one hundredth of a millimeter, cambered according to precalculations, and then frosted. Rolls intended for crushing material are corrugated (fluted) and cambered to a circular-arc geometry. Before final quality inspection, the rolls are dynamically balanced in order to ensure smooth running and thus preventing vibrations.

Services
The casting and machining parameters of each individual roll are logged in order to ensure retraceability. This also enables the same parameters to be selected when the roll is serviced next time, guaranteeing a consistently high quality of the product processed.

In order to support customers, Buhler has set up a global roll service organization. As many as 17 service stations are already available to customers around the world today for providing related services. These comprise especially the reconditioning of rolls and as options roll changes, the replacement of worn rolls by spare rolls, and even the entire logistics from packing to shipping from and back to the customer’s site.

The range of services also includes maintenance management. Here, a Buhler service employee regularly looks after the condition of the rolls and takes the necessary action.

The Buhler Customer Service organization perceives its role as being a partner of customers. Buhler therefore not only offers technical assistance, but also supports customers by offering them an extensive range of training opportunities – for maximizing running times and ensuring 100-percent operating reliability. (bos)

For more information on roll services, please contact Nicole Armbruster Marketing & Communications Grain Processing Customer Service at Buhler in Uzwil T +41 71 955 19 14 F +41 71 955 33 05 nicole.armbruster@buhlergroup.com

Roll services provided by Buhler.
New head of Buhler Aeroglide

Jonathan Abbis took charge of the Aeroglide business unit effective February 1, 2010. Abbis is a British-U.S. dual citizen and was born in 1962. He graduated in mechanical engineering from Stanford University and attended the Executive Development Program of the International Institute for Management Development (IMD) in Lausanne, Switzerland. After his studies, Jonathan Abbis acted as project manager at Excelion Industries in California. In 1989, he switched to Bobst S.A., Lausanne, Switzerland, where he held different international positions. He was in charge of building the service business in the U.S. for several years, after which he established the Asia business. Jonathan Abbis has lived at different locations in Asia for a total of eight years. In 2002, he returned as Vice President Market Organization to Switzerland to head the global sales organization of Bobst. Since 2006, he was head of SPO Flexo at Bobst, the largest business unit. Jonathan Abbis is married with two children.

Distinction for Customer Center

A great honor for Carlos Martinez Architekten AG and for Buhler: This Swiss architectural company has been distinguished in the context of the contractworld.award for the “innovative space concept” of the new Buhler Customer Center in Uzwil, which officially opened in 2008. As one of a total of 151 rated projects from 34 countries, the “laboratory lounge” idea Customer Center in Uzwil, which officially opened in 2008. As one of a total of 151 rated projects from 34 countries, the “laboratory lounge” idea 

Buhler acquires Sanmak S.A., Brazil

Buhler recently acquired the Brazilian company Sanmak S.A. Sanmak was set up in 1980. It develops and produces sorting machines and is Brazil’s market leader. Its headquarters cover 3000 square meters of factory premises in Blumenau, a 90-minute drive southward from Buhler Joinville. The business with its 100 employees generates sales revenue of about 10 million Swiss francs. The company will be renamed Buhler Sanmak and be integrated in the Sortex & Rice business unit. The local management will remain unchanged, and the factory will continue to offer its current range of equipment and its existing line of services. In the future, new technologies and sorting solutions will be rolled out in order to satisfy the needs of the wide variety of applications and possibilities existing in Brazil and the rest of South America.

Collaboration with Japan Steel Works intensified

In April 2010, Japan Steel Works (JSW), Tokyo and the Buhler Die Casting business unit signed an agreement for expanding their existing collaboration. While the joint venture headquartered in Japan will sell Buhler die casting systems in Japan, the new contract authorizes Buhler Die Casting to sell thixomolding machines in Japan and in South America. The喂养 joins the Buhler Die Casting business unit. The local management will remain unchanged, and the factory will continue to offer its current range of equipment with its 100 employees generates sales revenue of about 10 million Swiss francs. The company will be renamed Buhler Sanmak and be integrated in the Sortex & Rice business unit. The local management will remain unchanged, and the factory will continue to offer its current range of equipment and its existing line of services. In the future, new technologies and sorting solutions will be rolled out in order to satisfy the needs of the wide variety of applications and possibilities existing in Brazil and the rest of South America.

Installation for autogenous welding in the apprentice’s workshop.

Diagram No. 20

The 20th issue of the Buhler customer magazine Diagram appeared in the spring of 1958 and focuses on training. The main article presents the new Swiss Milling School, a trade school which according to a “longtime wish of the Buhler company management” was made possible “by the generous assumption of all financial obligations by our company.” Beside the classrooms and laboratories “furnished with the most up-to-date equipment,” the “training facility for young people” also boasts an automatic laboratory mill. In addition, a semi-automated commercial mill in St. Gallen serves as a school mill. “Here, it is possible to work on modern equipment, to measure power and air requirements, and – not least – also to bungle a grinding process,” writes the unknown author.

In a second larger article, the Buhler apprentice’s workshop established “as far back as 40 years ago” is presented. In it, 80 to 85 apprentices are educated each year in 11 different vocations. Qualified specialists train the future tradesmen in the basic skills during 5 to 12 months. Then the young people work during the rest of their apprenticeships in the various company departments on the basis of a certain plan and supervised by a master.

In addition to the two texts on training, the Diagram No. 20 also contains descriptions of three new Buhler mills in France (Lainé) and in Japan (Fuji Seifun and Nisshin Seifun) plus a marketing text on the advantages of the Fluidlift pneumatic conveying system.

Cover of the Diagram issue No. 20 – Roller floor of the experimental mill of the Swiss Milling School in St. Gallen.

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