Focus: Trade shows
Buhler International: China
Joint Venture: JSW & Buhler Machinery Ltd.
Demonstrating capabilities

Dear Readers

Innovation has always been the hallmark of Buhler, and this in times both good and bad. The only way we can ensure our customers’ and our own success is by continuously offering new services. Capital investments made today require a fast payback. Our engineers and technicians have therefore forged ahead with developing new products and are burning to present them to you. At the IPACK-IMA in Milan, the key trade show for pasta producers, we will display the Buhler chain of competence “From Grain to Pasta”. For our Grinding & Dispersion business unit, the European Coatings Show in Nuremberg and the ACHEMA in Frankfurt will provide the platform for introducing a number of innovations to the printing inks and paints industries. Their aim is to enable you to appear in the marketplace with new products and to win!

Also the Diagram is making a step forward. With its new design, we intend to make it easier to read for you and to keep you thrilled with its exciting contents.

I wish you much pleasure reading it!

Calvin Grieder, CEO
Along the entire food chain

Modern-day consumers are unable to verify the safety and purity of the foods they eat themselves. They are forced to rely on compliance with international and national regulations along the entire food chain. Dipl.-Ing. Jutta Hänni-Weigelt, the lead auditor of Société Générale de Surveillance SA in Switzerland, explains the system of international regulations and inspections.

The term “food safety” has moved to the center of the public’s attention over the past few years. But you will not find any actual definition of the term “food safety” either in the Swiss nor in the European context. However, what does exist are descriptions. Thus, the clause defining the purpose of the Swiss Food Law (art. 1 LMG) gives the top priority to the “prevention of actual and potential hazards to the health of consumers by foods.” In addition, a requirement is mentioned for ensuring the hygienic handling of foods. This aspect is listed as a separate item because – explains the Food Law – it is a basic requirement for producing perfectly safe foods.

Codex Alimentarius
In contrast to the lack of a definition in the Swiss Food Law, the Codex Alimentarius Commission defines food safety as “the assurance that foods will not harm consumers when eaten in accordance with their intended purpose” (CAC, 1999). The Codex Alimentarius Commission was established in 1963 by the UNO organizations FAO (food and agriculture) and WHO (health) with the purpose of defining international food standards and guidelines.

The CAC definition covers in particular the microbiological, chemical, and physical risks. In this, it is modeled after the so-called HACCP concept. The "Hazard Analysis and Critical Control Point" concept was developed in 1959 on behalf of the American space agency NASA. From the regulations defined for producing foods for space travel emerged a preventive system designed to ensure the safety of foods and the health of consumers.

The HACCP concept demands that – all hazards to the safety of foods existing in the area of responsibility of a company must be analyzed, – the critical points for monitoring foods must be determined, – intervention limits must be defined for the critical control points, – processes must be introduced for continuous monitoring of food safety, – corrective action must be defined in case of deviations, – verifications must be carried out to determine whether the system is suitable for assuring food safety, and – all actions taken must be documented.

Salmonella and Campylobacter
According to the current interpretation, the term “food safety” primarily refers to so-called “foodborne diseases.” This term summarizes factors affecting human health which originate in the food itself. These hazards may be acute – for example risks posed by microbial contamination, allergens, or foreign bodies – or may be chronic health hazards such as those induced by chemical contamination.

In the area of food-induced diseases of a microbial origin, we have been finding a continuous rise in gastrointestinal disorders since the seventies. Salmonella spp. and Campylobacter spp. hover at a consistently high level of incidence. The only thing that has changed is the significance of the individual pathogens. Up to 1993, the incidence of Salmonella-induced sicknesses was more frequent; since then, there are more positive laboratory findings for Campylobacter. Today, hazards are also posed by allergens, GVs or toxins which are either incorrectly declared or not at all. They enter foods either through the raw materials, ingredients, primary packaging materials, or the plant and equipment in direct contact with the product.

Implementation at a national level hardly possible today
As a consequence of the increasing globalization of the food industry, complete checking of foods by national executive bodies is hardly possible anymore. Therefore, directives, guidelines, and general principles have been defined for the EU countries which are designed to help master the entire food chain. Food safety today must be produced along the whole supply chain – “from stable to table.” Legislation therefore applies not only to food processors, but also to feed manufacturers, packaging producers, plant and equipment suppliers, and the executive authorities.

The General Food Law of the EU includes different specific decrees, the "hygiene package," microbiological criteria, guidelines for designating allergens, directives concerning GVs, and regulations governing packaging. Switzerland has essentially adopted the food law of the EU. The EFSA (European Food Safety Authority), which is domiciled in Pisa (Italy), is a European body for monitoring food safety. In case of food scandals on an international scale, it issues

SGS
The Société Générale de Surveillance SA (SGS) is the world’s largest inspection and certification company. Set up in the French city of Rouen in 1878, the international headquarters of SGS are located in Geneva, Switzerland, today. In its 1000-odd local offices and laboratories in 143 countries on five continents, the Société Générale de Surveillance employs some 53,000 persons. The SGS has already issued over 75,000 certificates. Inspections cover all types of capital and consumer goods. They range from simple quantity verifications and quality checks to in-depth analyses. The work of the SGS rests on three main pillars: unpartiality, independence, and integrity. (bos)

Find more information at: www.sgs.com

Jutta Hänni – the 55-year-old graduate engineer in food technology and nutritional products is the leading food auditor at SGS/Switzerland.
warnings to the individual member countries, provides crisis management systems, and deals with emergencies.

**Food industry with its own standards**

Also the global players in the food sector – including both retailers and food producers – have developed their own standards for improving food safety (Global Standard Food, BRC and BRC-IOP, International Food Standard IFS and IFS Logistic, ISO 22000, etc.). They expect suppliers and subcontractors to adhere to them. Implementation and fulfillment of the regulations they contain are deemed a “ticket to dance” in the European food market.

These standards under private law are typically monitored by approved and accredited certification agencies and their qualified auditors. The results of these company and product certifications, which are usually performed annually, are made accessible to interested customers on Internet platforms. The successes of these extensive efforts are especially related to the fact that more significance is attached to food safety in the current, extended sense of the term and that tracing allows non-conforming products to be removed from the market more quickly.

**Problems and difficulties**

The plastics processing industry is firmly established today when it comes to food packaging. But often, these manufacturers have little or no knowledge of the composition of the raw materials that they process and/or the risks posed when the packaging materials interact with the foods packed inside. The situation is similar for the plant suppliers. They, too, must ensure that the surfaces of their plant and equipment in contact with the product are not only hygienically pure, but also that they will not release any toxic substances to the foods (for example mineral-based lubricants). As a result, targets have been defined for the limits or the maximum values of potential migration of such substances to the food when it comes into contact with the equipment. But in order to ensure this, plant suppliers and packaging material manufacturers must know what type of food will be produced or packaged. Another important factor is the process technology that will be applied.

**Buhler makes an important contribution**

Buhler is an important partner of the global food industry. Across the world, countless Buhler plants and machines are in operation in companies both large and small in the grain and rice processing industries; the feed manufacturing business; and the beer, chocolate, coffee, and pasta industry. Buhler’s various business units are aware of the fact that they must and can make an important contribution to the continuous improvement of food safety. Buhler developers and engineers are permanently in quest of additional methods to prevent food contamination by plant and equipment. For example, in developing the three stars Sirius, Antares, and Polaris (plansifter, roller mill, and purifier), one of their main focuses was to ensure uncompromising sanitation. The result: designs which do not have any nooks and crannies at all. In order to prevent contamination by migration, all their components in contact with the product are made of stainless materials. The three Buhler stars thus satisfy the most rigorous international food standards. Last, not least, a control module developed by Buhler and incorporated in its WinCoS.r2 process control system ensures complete product traceability. The module measures all the process and material data, analyzes integrated process lines, and graphically visualizes the product flow from the raw material to the finished product and vice versa.

**A constructive dialog is essential**

These manufacturers must therefore adjust the specifications for their customers and keep their declarations of conformity up to date so as to match the latest legislation. Moreover, the migration values in the finished product must be analyzed and specified in specialized laboratories. A dialog between the plant manufacturers and the packaging material producers and their respective customers is therefore essential. A constructive dialog between all the parties involved is indispensable especially with complex packaging materials. The main difficulty here is that the parties do not always agree who is responsible for analyzing the migration values. But it appears to be legitimate to assume that the responsibility for global migration lies squarely on the shoulders of the plant suppliers and packaging material manufacturers. On the other hand, accountability in specific applications such as instant foods lies with the respective producers. In the future, these values will become part of the validation process in new developments or packaging adjustments or in plant acceptance procedures.
From grain to pasta

“At Passion from Grain to Pasta!” This is the motto chosen by the three Buhler business units Pasta & Extruded Products, Grain Milling, and Sortex, which will take part together in the international IPACK-IMA trade show in Milan to be held from March 24 – 28, 2009. On a booth area of over 400 square meters, Buhler will demonstrate its capabilities in the manufacture of complete plants for pasta production.

Joint appearance
When it comes to pasta-making, the three Buhler business units Pasta & Extruded Products, Grain Milling, and Sortex form a chain of competence. At this year’s PACK-IMA, the three business units will jointly present this chain of competence at a large shared booth. For Stephan Eifler, Product Marketing Manager Pasta, the joint appearance is an ideal combination:

Technologists meet producers
The goal of the IPACK-IMA is to bring together demand and supply in the field of process and packaging technology. Every three years, providers of cutting-edge food production technologies meet in Milan with the players in the international food production industry. They exchange opinions and ideas, establish contacts, and of course also close business deals. During five days, the IPACK-IMA thus forms a global industry community within a highly concentrated space.

The IPACK-IMA was established in 1961 and has grown continuously ever since. Today, the IPACK-IMA is a trade show which presents comprehensive product management solutions, from processing to packaging and final placement in sales outlets. The visitor structure of the IPACK-IMA reflects the industry. Among the roughly 50,000 visitors, you will find representatives from large multinationals as well as from small and mid-size business. Especially the latter are excellently represented and frequently attend the IPACK-IMA with the firm intention of purchasing new process technologies.

We can show the representatives from the international pasta industry at their most important trade show that we at Buhler possess the technology and the vast experience required to offer complete process solutions from grain to pasta from a single source. Moreover, visitors to our booth will see how added value can be generated all along the process chain. Grain as a raw material is upgraded step by step up to the point of the finished pasta.

What is more, Buhler has the technology to generate additional added value from the byproducts obtained in the milling process. Examples include breakfast cereals, which can be made from wheat milling by-products, or rice pasta, which can be produced from broken rice grains.

SORTEX Z+
The Buhler chain of competence starts with the SORTEX Z+ color sorter produced by the London-based company Buhler Sortex Ltd. The SORTEX Z+ is a high-resolution optical sorter offering unparalleled efficiency in sorting rice, grain, coffee, beans, pulses, spices, dehydrated fruit and vegetables, and nuts. The SORTEX Z+ is also applied outside the food industries, for example in the plastics recycling industry. There it recovers recyclable plastics from plastic waste such as old windows or bottles. With its high-resolution 2048-pixel cameras, infrared sensors, and minimized signal-to-noise ratio in detection and removal, the SORTEX Z+ color sorter efficiently removes all types of product defects and foreign matter on the basis of color, even the most minute. The SORTEX Z+ checks an almost inconceivable number of 170,000 grains within a single second.

Antares and Polaris
The cleaned grain is directed to the grinding system. With its recently launched Antares roller mill, Buhler has set new standards in the grain milling industry. What especially distinguishes the Antares is its uncompromising sanitation, its high operating reliability, its ruggedness, and its centralized data gathering feature. For food producers, the new roller mill offers a clear improvement of economy through its reduced cleaning and maintenance requirements and its low operating costs.

Another aspect of the “New Art of Milling” that Buhler will present at the IPACK-IMA is its new head section with die

“Passion from Grain to Pasta!” is under the patronage of the Italian government, over 1500 companies from all corners of the world will present their products and services. Some 50,000 visitors are expected.

Get more information on the IPACK-IMA from:
Stephan Eifler
Product Marketing Manager Pasta
Pasta & Extruded Products Business Unit
Buhler in Uzwil
T +41 71 955 33 12
F +41 71 955 38 12
stephan.eifler@buhlergroup.com
Polaris purifier. After the launch of the Antares roller mill, it represents the second step in the chain from grain to pasta. The Polaris is visually modeled after the Antares and distinguished by its unrivaled sanitation and its top process reliability and product safety (see pp. 12).

3000 kilograms per hour by one pasta line
The ground wheat is then directed to the pasta extrusion press. At the IPACK-IMA, Buhler will present a new dimension of the Polymatik® pasta press. With its capacity of 3000 kilograms per hour for one line, this is the highest-capacity pasta press that Buhler manufactures, which combines top sanitation and high efficiency. The “first in, first out” principle systematically applied in the Polymatik® ensures perfectly hygienic production conditions, an unequaled dough homogeneity, and a consistently high product quality. The high homogeneity of the pasta dough gives the end product outstanding cooking characteristics and an outstanding color brilliance. The high level of sanitation and the excellent ease of cleaning are ensured by the self-cleaning processes and the design without nooks and crannies.

High flexibility
The flexibility of the Polymatik® allows not only durum, hard, and soft wheat semolina and flour to be processed into top-notch pasta, but also other raw materials such as rice and corn (maize). Moreover, Buhler has developed and patented a process also allowing broken rice grains obtained from rice milling to be transformed into rice pasta. This enables customers to generate higher value added with rice broken, which up to now were typically processed into animal feed.

In the extruder, for example, by-products from the grain milling process are turned into breakfast cereals, food additives, or animal feeds. At the IPACK-IMA, the SME extruder module will be on display as an example. SME stands for Specific Mechanical Energy. This module fully automatically controls the cooking degree of the extruded products and thus ensures a consistently high product quality. The specialists at Buhler have developed the extrusion process to the point that an (almost) infinite number of applications are possible for the extrusion of grain-based, starch-containing raw materials (see pp. 28).

Customer service und automation
As a culmination of the chain of competence, the three Buhler business units will inform visitors to their shared booth at the IPACK-IMA about their offerings in the fields of automation and customer service.

The Pastelec/WinCoS.r2 process automation system allows complete recording of the key production figures. This guarantees a consistent and permanently reproducible product quality. Furthermore, Buhler offers global online support and professional remote maintenance services. The Buhler customer service organization is present across the world with its own affiliates in 39 countries. Buhler offers a worldwide spare parts service. Its successful Plant Doctor program ensures that the value of production plants will be maintained throughout their life cycles. For example, attractive retrofit products allow a high production system uptime to be achieved. Training programs held either at Buhler’s own affiliated companies or locally at customers’ sites complete this range of services.

This is what awaits visitors to the Buhler Booth B13/C16 in Hall 3 of the IPACK-IMA.
Sirius the plansifter and Antares the roller mill have now been followed by Polaris:
The Buhler Grain Milling business unit will present its new Polaris purifier at the upcoming IPACK-IMA trade show in Milan. It offers higher throughput capacity, improved sanitation, and maximum product safety.

Updated from scratch
In the processing of wheat and corn (maize), the purifier is a key piece of equipment. It purifies and grades semolina and middlings in durum, soft wheat, and corn mills. It took some three years to develop the new Polaris (MQRG) purifier. During this period, Urs Zwahlen and his team updated the predecessor model MQRF from scratch, of which about 5000 machines are in service worldwide. “In-depth basic studies and extended flow tests enabled us to sharply increase the throughput capacity, to further improve the product safety and process reliability, and to optimize sanitation,” explains the experienced machine developer. “We also gave our new purifier a design that reduces maintenance and increases its ease of operation.” Visually, the ergonomic design is modeled after that of the new Antares roller mill.

Intensive aerodynamics research
One of the most outstanding features of the new Polaris purifier is its increased throughput capacity. With its sieve width extended by 60 to 520 millimeters – with its former sieve length of 4 times 500 millimeters being retained – the Polaris boasts a greatly increased useful screen area. But thanks to its sophisticated design, the Polaris does not take up more space than its predecessor. The new purifier is also available as a compact, space-saving double-deck machine.

In addition to the increased screen area, also the air flow inside the new machine was optimized. Urs Zwahlen: “We spent a lot of time researching the air flows and material streams. In particular the air flow simulations on the PC revealed new approaches. Our calculations then showed us that the new flow conditions in conjunction with the screen width of 520 millimeters provide an optimal space-to-throughput yield. Moreover, the reliable material feed and the pre-stratification of the material in the inlet maximize the separating efficiency.”

20 percent higher throughput
The result of this development effort is respectable: The new Polaris purifier achieves a 20 percent higher throughput. “However, we not only boosted the absolute throughput capacity, but also increased the specific throughput per square centimeter of screen area,” explains Roman Inauen, the product manager in charge.

The throughput range of the Polaris is carefully matched to the upstream and downstream processes. “Our new purifier embodies the optimum of screen area and throughput capacity, paired with maximum separating efficiency,” says Roman Inauen, summarizing the advantages of the Polaris.

International food standards
The new Polaris purifier also sets new standards in terms of sanitation and product safety. Sanitation has been improved by a number of measures. Thus, all components in contact with the product are made of stainless materials. And with its completely enclosed design, the Polaris is unique in the marketplace. The new Buhler purifier satisfies the most rigorous international food standards such as BRC, FDA, or IFS. Last, not least, the swing-up air ducts allow easy and efficient cleaning. In addition, the streamlined aspiration system ensures perfectly sanitary conditions. Another valuable feature of the new purifier is its impact-resistant and age-resistant inspection windows. The standardized quality of all its components ensures maximum uptime and reliability of the Polaris.
Higher economy

Beside its increased throughput capacity and improved sanitation, the new Buhler Polaris purifier also possesses a number of attributes which make it extremely easy to operate and highly economical. Control and monitoring of the Polaris have been designed with the user in mind so as to be as easy as possible. In addition to the ergonomic and functional design, this is also ensured by the user-friendly air control system and the integrated LED lighting, which combines energy-saving, optimal screen illumination with a long service life.

The maintenance requirement is reduced by the maintenance-free, energy-saving drive and the low-maintenance design, which help minimize the downtimes of the machine.

First Polaris in service at Pannonmill

Euromills is Europe’s largest grain milling group. LLI Euromills GmbH Holding with headquarters in Vienna operates a total of 29 mills in Germany, Austria, Hungary, Poland, the Czech Republic, Romania, and Bulgaria. These modern Euromills facilities process some 3.1 million metric tons of grain annually and generate sales of almost 1000 million euros.

The various country organizations of Euromills are long-standing Buhler customers. “Many of our mills are equipped from A to Z with Buhler machinery and technologies,” explains Peter Pscheidl, who as the technical director of Euromills is responsible for ensuring the top condition of the production plants. “We have been working closely with Buhler for years. In order to keep our mills up-to-date, we are also interested in applying the latest developments from the Buhler company in our organization.”

It is therefore not surprising that the first Polaris purifier has been put into service in a Euromills mill. The first Polaris was installed in the Pannonmill mill of Csorna in Hungary. The mill of Csorna was chosen because Antares roller mills and Sirius plansifters, the two other “Buhler stars,” had already been selected for the new grinding line, which was supplied in 2008. This “boldness” has paid off for Euromills. “The Polaris is running smoothly and fulfills all our expectations,” says Peter Pscheidl.

Extensive flow simulations helped the developers increase the throughput capacity of the new Polaris purifier.
Three trend-setting innovations

European Coatings Show and Achema:
At the two main trade shows of the European paints and printing inks industries, Buhler will present three trendsetting innovations. With its new Trias® three-roll mill, its continuous ink vehicle production process using an extruder, and its ContiMixer for continuous predispersion, Buhler will attract the attention of the visitors to the exhibition.

What the IPACK-IMA is for the European pasta industry is what the European Coatings Show (ECS) in Nuremberg and the Achema in Frankfurt am Main are for the paints and printing inks industries: the most important fairs for the respective industries! It is therefore not surprising that the two trade shows are the marketing highlights of the year 2009 for the Buhler Grinding & Dispersion business unit. At the ECS, the Buhler booth with Number 211 will be located in Hall 6, at the Achema in Field E29-E32, also in Hall 6.

Joint invitation
“The European Coatings Show at the end of March and the Achema in mid-May are our top priorities,” explains Mark Traber, product manager of the Buhler Grinding & Dispersion business unit who is in charge of Buhler’s appearance at both events. “The ECS is held every two years, the Achema every three years. The two exhibitions take place in the same year only every six years. We will take advantage of the special constellation this year to launch a concerted campaign by inviting our customers to both events.” This will be done despite the differences in focus between the European Coatings Show and the Achema. Mark Traber: “The focus of the ECS is rather on the printing inks and paints industries, and the Achema is primarily addressed to paint manufacturers and the chemical industry. This difference is reflected in our two exhibition booths.” At the ECS in Nuremberg, Buhler will demonstrate its capabilities as a solution provider for printing inks production from raw materials handling to the finished inks. In Frankfurt, Buhler will present itself to the Achema public as a technology partner for all mixing, dispersion, and wet grinding applications.

New Trias® three-roll mill generation
The common denominator at both exhibition appearances will be the three innovations which Buhler will present to the paints and printing inks industries: the new Trias® three-roll mill, the continuous ink vehicle production process using an extruder, and the ContiMixer for continuous predispersion.

“Our existing broad range of three-roll mills is a bit advanced in years,” concedes Mark Traber. “With the Trias®, we are now presenting a completely redesigned three roll mill generation giving extensive consideration to our customers’ rising needs.” This entire Trias® family comprises four machines with roll lengths of 300, 600, 800, and 1,300 millimeters. The new three-roll mills have been designed as a consistent modular system. The proven VIVA® roll technology that they use allows higher roll speeds and thus top throughputs, improving productivity while optimizing the product quality. The rolls are now pressed by mechanical and no longer hydraulic means. The Trias® is equipped with an enclosed cooling system, which drastically reduces water consumption. Last, not least, the new control system design enhances ease of operation and ensures reliable reproduction of the dispersion process. The graphic operator terminal allows the roll speed, the roll temperature, and the roll pressure to be continuously varied and to be logged for data backup.

Continuous ink vehicle production by extruder
The second innovation that Buhler will focus on at the European Coatings Show is the continuous ink vehicle production process. Buhler has been a global leader in extrusion technology for over 20 years. On the basis of this accumulated experience, the Technology Group has now developed a process for manufacturing vehicles for the printing inks industry. “To date, ink vehicles have been produced by a time-consuming batch process,” explains Mark Traber. “Long processing times and complicated handling characterized the batch process. Excessive material losses and difficult production processes are the result. Working closely with customers – first on the basis of theoretical models and later on in engineering laboratory tests – we designed a process which completely redefines ink vehicle production: continuous production technology using a twin-screw reactor.”

Get more information on the ECS and Achema from:
Mark Traber
Product Manager
Grinding & Dispersion Business Unit
at Buhler in Uzwil
T +41 71 955 23 62
F +41 71 955 31 49
mark.traber@buhlergroup.com

ContiMixer for continuous predispersion of pigment concentrates.
Consistent quality
The application of extrusion technology revolutionizes the ink vehicle production process used up to now. In the continuous process, a consistent quality is obtained in just a few minutes of operation. The accurate material feed and the control technology applied ensure smooth production with a flexible throughput. The essentially automated process with centralized control and monitoring functions allows low-attendance operation.

The new vehicle manufacturing concept uses several holding tanks and bins for liquids and solids, feed and metering units, and a twin-screw reactor as its core element. This extruder, in which resins, oils and additives are processed into the ink vehicle, is made up of a drive and a process unit. The reaction chamber houses two co-rotating shafts which – depending on the specific process desired – can be equipped with different screw elements. The volume of the process chamber and the speed of the shafts determine the production throughput and the shear forces of the system. The new Buhler design allows the system to be tailored to customers’ specific needs.

Numerous benefits
In all, the new continuous vehicle production process offers a number of benefits. The operating principle allows cost-efficient, automated, and flexible just-in-time manufacture. It guarantees a consistent product quality because the continuous process all but eliminates quality fluctuations. In addition, no major scrap batches are produced, and the material processed during production starts is recycled. The new Buhler solution allows very high throughput rates to be achieved – up to 5 metric tons per hour. Overall, the new process astonishes by its optimized energy consumption as a function of the throughput. The modern process control system with its tracing feature completes the new vehicle manufacturing process. This new product rounds off Buhler’s existing offerings to printing ink producers. Mark Traber: “From today, Buhler is in a position to supply not only the mixing and dispersion stages for making printing inks, but also the associated equipment for producing the vehicles. We are thus presenting ourselves to the printing inks industry as a total solution provider.”

Two trade shows – two focuses
The European Coatings Show (ECS) will be held at the exhibition center of Nuremberg from March 31 through April 2, 2009. This trade fair, which is organized every two years, is the main exhibition for the international paints and printing inks industries. This year, on a surface area of 50,000 square meters, some 750 exhibitors from 42 countries will present their latest developments for the production of paints, inks, sealing compounds, chemical materials for the building construction industry, and adhesives to the roughly 22,000 expected visitors from almost 100 countries. Concurrently with the trade show, the European Coatings Congress will also be held in Nuremberg.

The contents of the Achema are of a more general nature than those of the ECS. This main international trade show for the chemical engineering and process industries will take place for the 29th time this year. The venue is Frankfurt am Main, and the dates are May 11 to 15, 2009. The organizers have announced 4,000 exhibitors from 50 countries on a total exhibition area of 140,000 square meters. Some 180,000 visitors are expected from over 100 countries. An important part of the Achema is the exhibition congress, where no less than 900 different papers will be presented. (bos)

Gaining time with the ContiMixer
Another innovation that will be rolled out by Buhler is the ContiMixer for obtaining a continuous wetting and predispersion process. The ContiMixer is applied in printing ink production for predispersing pigment concentrates of medium to high viscosity in the electronics industry for dispersing high-grade glass or metal pastes. Wetting and dispersion in the new ContiMixer takes place in an enclosed and continuous operation. Solids are fed to the process by a gravimetric feeder or differential feed scale, and liquids are metered by a mass flowmeter at a constant rate across short times. The mixing process uses a twin screw. The ContiMixer allows efficient and direct wetting. The mixing time is slashed from hours to minutes.

Other exhibits on show at the Achema
At the Achema booth, Buhler will display somewhat different exhibits than at the European Coatings Show. In addition to the new Trias® three-roll mill, Buhler as a technology partner for all mixing, dispersion, and wet grinding applications will also show the MicroMedia® and Centex® bead mill series. The MicroMedia® bead mill is available in different sizes – ranging from the MML laboratory mill to the MicroMedia® P4 with a drive power of 90 kilowatts.

The new full-chamber Perl Mill Centex® offers wet grinding technology that has been optimized in terms of process engineering and energy. This is achieved by a combination of a large number of freshly developed and carefully matched functional elements. They include a slim process chamber, high-performance grinding disks with specially large diameters, optimized grinding disk center distances, and a particularly large screen area. (bos)
Synthesis of tradition and high tech

Buhler is building a new semolina mill for Molino San Paolo di Paolo Gallo & C. S.p.A. in Sicily. It is Italy’s first grain mill to be equipped with the new Antares roller mill. Thanks to its special layout, the new Molino San Paolo facility will be in a position to make all the products demanded in the local and national markets.

The Gallo family is an old-established Sicilian flour milling family. It has been active in the milling business for four generations. Its name is synonymous with highly professional standards and an outstanding product quality. Today, the company is jointly managed by all the members of the family. As one of the progenitors of the Molino San Paolo, Paolo Gallo plays the role of a “supervisor” in all important company decisions.

Pleasure “all’Italiana”
The Molino San Paolo mill in Palazzolo Acreide, a small town in the Sicilian province of Siracusa, was set up in 1955. The mill specializes in the production of semolina for pasta production and finely reduced semolina for making bread. Both products are made exclusively from durum wheat. The fine semolina is mainly used for baking the special Sicilian type of bread. It has a typical yellow color and a characteristic taste and fragrance. The loaf is also traditionally baked in wood-fired ovens to extend its shelf life.

In addition to the Molino San Paolo facility, the Gallo family also operates a second mill in the small town of Cassibile near Siracusa, which is named Molitoria San Paolo. It went into service in 1983 and has been continuosuly modernized ever since. The flour mill in Cassibile has a capacity of 100 metric tons per 24 hours and processes soft wheat into flour for making bread, pizza, and bakery products.

Semolina for pasta production
The Molino San Paolo mill in Palazzolo Acreide processes durum wheat from neighboring fields and other Sicilian provinces. For products particularly high in protein, the company also grinds durum wheat imported from abroad. During the era of the Roman Empire, Sicily was the breadbasket of the whole of Europe. Even today, Sicily plays a very important part in Italian agriculture. After the region of Apulia, this southernmost region of Italy is the country’s second most important durum wheat producer.

The following fact illustrates Sicily’s enormous pasta consumption: The island of Sicily is one of Italy’s most populous regions, and pasta is the main staple food. With its annual pro-capita consumption of 39 kilograms, Sicily has the highest pasta consumption in the world. The Molino San Paolo mill therefore logically serves mainly the local market, without however neglecting the national market or other sales possibilities.

New durum mill
Since the start-up of its first plant in 1955, the Molino San Paolo mill has experienced above-average growth. Following various improvements of the production facilities and additions to the production capacity, the Gallo family decided to build an entirely new durum mill. The site selected is located between Noto and Palazzolo Acreide. Noto has a population of about 25,000 and is – just like Palazzolo Acreide – one of the eight towns of the Val di Noto, which with its late Baroque churches and palaces the Unesco declared a World Heritage Site in 2002. The determination to preserve this unique cultural heritage prompted the regional authorities to relocate industries from the cities.

17 Antares roller mills
The building of the Molino San Paolo mill was completed as far back as in 2005. The contract with Buhler for the supply of a state-of-the-art durum mill was signed in February 2008.

The first section of the plant supplied by Buhler consists of the raw material receiving section plus the precleaning and cleaning systems. The latter also includes a high-precision, high-efficiency color sorter of type SORTEX 23+. The second section – the heart of the facility – boasts 16 brand-new Antares roller mills and an Antares eight-roller mill. It also

Get more information on the Molino San Paolo project from:
Maurizio Termenini
Area Manager
Grain Milling Business Unit
at Buhler in Milan
T +39 02 70311 262
F +39 02 70311 444
maurizio.termenini@buhlergroup.com
Molino San Paolo project features the grading system with Novastar plansifters and Puromat purifiers.

Loyal Buhler customer
The Gallo family has relied on Buhler for over 30 years. “Our collaboration with Buhler and our permanent commitment are the factors behind our success in the marketplace,” explains Dottore Mario Paolo Gallo. “We expect our engineering partner to supply us with the best process technology available and to offer us top dependability. Moreover, by investing in the newest-generation equipment and technologies in implementing our new mill, we were also able to make a step that gives us a quantifiable competitive advantage.”

Designing and constructing the new Molino San Paolo mill was also something very special for Maurizio Termenini, area manager of the Buhler Grain Milling business unit in Italy. “After all, the success of Molino San Paolo ultimately depends on the company’s ability to continue to make top-quality products with high efficiency and under top sanitation conditions for today’s tougher markets.”

The result of this collaboration is one of the most advanced grain milling operations in Italy. Installation of the entire plant started in June last year. At present, the final work is being carried out. In the spring of 2009, the new San Paolo mill will then go into service.

San Paolo
The patron saint San Paolo is omnipresent in the history of the Molino San Paolo grain mill. On the one hand, he is the city saint of Palazzolo Acreide, the home town of the Gallo family. That is the origin of the name of the two flour milling companies. And lastly, each male member of the Gallo family has as a second name “Paolo” to bear witness to their attachment to the patron saint San Paolo.
Clearly identified and documented

WinCoS.Product.Retracing: This module integrated in the WinCoS.r2 process automation system ensures complete product retracing, records production weights, analyzes process lines, and graphically visualizes the product flow from the raw material to the finished product and vice versa.

The national and international food quality and sanitation requirements of consumers, traders, and not least individual authorities are increasing daily. Today, the product tracing is a must in all areas of the food industry. Only a process-compliant and complete production tracing system can protect plant operators from financial loss.

Complete documentation and identification

Fine-tuning of processes requires complete transparency of the production process and of the individual process operations as well as of the process and quality values of current and past production units. The longer a production chain and the complexer its operation, the higher the requirements for smooth job and production handling. In order to allow fast responses to irregularities, all the process steps along the entire value-adding chain must be clearly documented and completely identified.

The basic requirement for achieving this is optimal data preparation and processing. Vertical integration of a plant’s equipment in the process automation system ensures complete and transparent data recording. Traceability as an integral component of the production system minimizes the data interfaces and thus reduces sources of errors.

Detection and pinpointing of ambiguities, targeted responses

The WinCoS.Product.Retracing module ensures complete recording of the production process. This WinCoS.r2 module provides a clear and immediate general overview – at a click of the mouse. It completely records all the production steps and each process operation during the ongoing process and saves the data to a centralized database. Its numerous details with filter and search options allow even extensive process chains to be visualized in a user-friendly way.

The WinCoS.Product.Retracing module works from the end product back to the raw material received from the supplier and back again. This means that starting at a given end product, it is immediately possible to identify the raw materials and their suppliers. On the other hand, the WinCoS.Product.Retracing module shows which raw materials have been incorporated in which end products. This allows a detailed analysis at the click of the mouse, clearly reveals any existing irregularities, and thus enables immediate targeted intervention. Not least, this also fosters customers’ confidence.

Knowing what is going on, making decisions, assuring quality

The additional integration of identification systems such as RFID (Radio Frequency Identification) or barcode optimally supplements the product tracing chain. For example, it is possible to manage additional data such as quality values or the origin of the raw materials of finished products. Transparent data maintenance enables interlinking of the producer’s data with those of the supplier or even of the customer.

The WinCoS.Product.Retracing module provides a clear and unambiguous visualization of each individual step in the process – at a click of the mouse. The reliable module satisfies the applicable international food safety regulations in terms of traceability. It helps companies avoid financial losses and commercial damage and contributes to maintaining business relationships based on trust.

Successor product

WinCoS.r2 is the successor to the WinCoS process automation system, which has been successfully applied around the world several hundred
times since 2000. The scalable and modular WinCoS.r2 automation system maximizes the plant uptime and increases the product safety and production reliability. Its smart special functions support production planning, and key performance indicators (KPIs) are available at all times and in all places.

WinCoS.r2 keeps the operating personnel up to date and ensures that the plant will always be running efficiently and at high production level. (mh)

All the information comes together in the command center of the mill.

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**Europe as an example**

The EU directive 178/2002 has been in force since February 21, 2002. It prescribes the implementation of product traceability for all food processing companies in the EU member countries and became effective on January 1, 2005. The traceability obligation applies to farmers, importers, haulage contractors, and food processors plus food wholesalers and retailers. For all actors involved in the production and value-adding chain, the EU directive 178/2002 entails certain requirements. From sowing to harvest, every processing stage must be documented. (mh)

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**Buhler continues its growth in 2008**

Following the good result in 2007, Buhler has yet again grown in the past year. Despite the difficult market situation that set in toward the end of the year, the Group increased its order bookings by about 3 percent to CHF 1,891 million (previous year: CHF 1,838 million). Sales revenue reached the level of CHF 1,893 million compared with CHF 1,773 million a year ago. The core business units catering to the staple food processing industries developed as expected throughout the year. However, individual units received a lower volume of orders in the fourth quarter. Demand declined sharply especially for Die Casting solutions due to the slump in the automotive industry. But overall, it was possible to offset this shortfall by growth in the other divisions. Buhler’s diversified portfolio in the food and nonfood industries and its broad geographical spread therefore once again proved to be a great strategic advantage in the past year.

In geographical terms, Buhler achieved the sharpest growth in the regions of Africa, East Europe, and the Middle East. Order bookings were also very encouraging in China, India, and Korea. On the other hand, the Group had to accept setbacks in South America and South-East Asia due to project postponements. In North America, business remained essentially at the level of a year ago. (ca)

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**President Minister Gloria Macapagal-Arroyo opens new RFM pasta factory in Manila**

October 15, 2008 was a happy day for the RFM Foods Corporation: One of the highlights of the 50th anniversary activities of the Philippine food and beverage group RFM Foods Corporation was the official opening of its new Fiesta pasta factory in the Philippine capital of Manila. At the push of a button, Prime Minister Gloria Macapagal-Arroyo (light-blue dress) officially opened the largest and most up-to-date pasta plant in all of South Asia. She is being observed by Jose Maria A Concepcion III (to her right), the President and CEO of RFM Foods Corporation. The new long-goods pasta C-line supplied by Buhler has a capacity of 3000 kilograms per hour. It was constructed within the record time of ten months. This installation doubles the pasta output of the RFM Foods Corporation. The RFM Foods Corporation – RFM stands for Republic Flour Mills – was founded in 1958 as a flour milling operation. (bos)
Generating added value by extrusion

The extrusion of grain-based, starch-containing raw materials is a process allowing all but boundless applications. Christopher Rubin, extrusion specialist in the Buhler Pasta & Extruded Products business unit, explains the possible value generation and benefits associated with the application of extruders.

Extrusion serves the food industry as an upgrading process on the one hand for carbohydrate-based and on the other hand for protein-based raw materials. With carbohydrate-based raw materials, starch occupies by far the most important place. Other polysaccharides such as cellulose and glycogen are especially used in the production of confectionary and in encapsulating processes.

Extrusion technology for making additional products
Grain-based foods are staples throughout the world. In the grain year of 2007/2008, 2.1 billion metric tons of grain were harvested around the globe. The production plants of the food industry process millions of tons of grain every day. The most important intermediate product in this connection is flour. In addition to baking flour, grain processing also produces dark flour and bran, especially when wheat is processed.

Extrusion technology is one of the numerous possibilities of further processing flour as well as the byproducts obtained in grain grinding. It offers especially flour mills the possibility of increasing the value added that they generate. The most important products made by the extrusion process include breakfast cereals, breakfast flakes, baby foods, extruded breading (crumbs), croutons, and modified flours and starches. These are used, for example, as binders in soups and sauces or in the baking industry.

Modified and “clean label” as well
Modified flours are also called swelling flours. They are applied as binders, fillers, or freshness extenders in bakery products.

Swelling flours are characterized by their modified water absorption capacity and their solubility characteristics. It is possible by suitable selection of the extrusion parameters to adjust the viscosity of flour-and-water suspensions to the needs of customers or the requirements of a particular application. When the correct amount of thermal and mechanical energy is introduced into the extruder, end products will be obtained which are soluble in either cold or hot water and which possess a certain bandwidth of viscosities. The extrusion process is especially suitable for modifying flours because it completely eliminates the need for using chemicals. Therefore, modified flour can be excellently applied as an ingredient in products to which the “clean label policy” applies (no use of ingredients with E-numbers). When extruded swelling flours are used, it is enough to declare wheat flour on the ingredients list.

Alternative to traditional processes
Another field of application for extruders is the production of breading (bread crumbs). Extrusion technology allows brettings to be made on the basis of a wide variety of raw materials. Whereas the traditional production method requires the use of high-protein flours such as wheat or rye flours for developing the gluten framework, all starch-containing materials can basically be applied in the extrusion process. This also enables the processing of lower-grade wheat flours or flours made from corn (maize), rice, or potatoes. Raw material quality fluctuations are easier to smoothen out in the extrusion process. In extrusion, dough leavening is achieved on the one hand through the expansion of the dough at the die, but on the other hand can also be controlled through chemical or physical raising agents.

Reduction of the energy costs
In addition, the extrusion process also allows different types of breading flours to be made (American bread crumbs, Japanese bread crumbs,
Extrusion
In the extrusion process, a material is forced through a defined aperture. In order to ensure that this opening (die hole) is not choked, the material must be either completely or at least partially liquefied by subjecting it to the action of pressure and temperature. But in practice, the extruder fulfills many more functions: conveying, melting, mixing (dispersion and homogenization), and proportioning. In addition, the material undergoes chemical and physical modifications during extrusion, for example starch gelatinization or protein texturizing. At the end of the extrusion process, the product is cut to size and thus shaped by a cutting device. The raw material and the extrusion parameters determine the product characteristics such as texture, bulk density, color, taste, water solubility, and others of the extruded products.

Byproducts as a raw material
Extrusion offers additional advantages. It can also process raw materials such as very dark flours (low-grade flours) and wheat bran. Both are typically made available at low cost to the feed manufacturing industry. With the aid of the extruder, these byproducts can be transformed into high-grade foods. They are extruded into breakfast cereals or are applied in a modified form as ingredients for other foods. Bran flakes are highly popular today. And extruded wheat bran may fetch a price that is double that of native wheat bran. The opportunities for wheat bran as a high-grade food are vast. The high dietary fiber content of wheat bran gives the product a “healthy image.”

Utilization of lower-price raw materials
The basis of all the products mentioned up to now which can be made by the extrusion process is grain flour. This is one characteristic that extrusion shares with the conventional baking processes. The basic difference resides in the dough texture. The dough framework of conventional baked products is based on proteins (gluten or pentosans). On the other hand, the texture of extruded products is based on starch. The raw material used for extrusion must have a starch content of at least 5 to 10 percent to ensure that the end product will have a stable texture. But the protein content can be low, that is, below 10 percent. Flours with such a low protein content are normally unsuitable for baking purposes. As the flour price is determined, among other things, by the protein content, low-protein flours are less expensive than high-protein ones. The extruder therefore also allows low-price flours to be processed.
Only the best is good enough

Nestlé Nespresso SA is investing some 200 million Swiss francs in a new production and distribution center for Nespresso coffee capsules in Avenches in Switzerland. Buhler is designing and constructing the so-called green coffee part of the plant, from the reception of the green coffee beans and cleaning to bulk storage and weighing.

First, a grand-cru coffee of top quality in numerous blends and tastes; second, portioned in a convenient capsule; and third, an innovative and stylish coffee machine to match plus an individualized service around the world and around the clock. The Nespresso trilogy has made Nestlé the global market leader in the field of portioned coffee. “Basically, it is our relentless striving for quality that has brought us this success,” explains Martin Bugmann, the director of the new Nespresso factory in Avenches. “Our commitment to quality covers every phase of the long journey from the green coffee to the prodigiously fragrant coffee that we have in our cup.”

New building in Aventicum

The success of the Nespresso system is unstoppable. Sales over the past eight years increased by an average of 35 percent annually. The production plant in Orbe was no longer capable of keeping up with this growth. Therefore, in 2006, it was decided to construct a new, state-of-the-art production and distribution center in Avenches. The small town of Avenches is located at the southern end of the Lake of Murten in the western part of Switzerland. During the Roman era, Aventicum as it was called at that time was the most significant Roman settlement with a garrison in what we know as Switzerland today. The legionnaires stationed there secured the transit route from the Lake of Geneva to Germany. The presence of the Romans also had impact on the new building erected for the Nespresso plant. While excavating the building pit, the workers chanced upon remains of several Roman graves and an ancient grain mill. Securing these antiquities by archeologists delayed the start of construction by several months.

Coffee storage building with 64,000 cubic meters

The new Nespresso building in the industrial park is impressive in many respects. To stabilize the subsoil, 460 concrete piles were driven as deep as 30 meters into the soft ground. The coffee storage building stands 38 meters tall and has a volume of 64,000 cubic meters. Its shell consumed 25,000 cubic meters of concrete and 2500 tons of steel. The size of the production area is about 2700 square meters.

Construction of the new production and distribution center of Nestlé Nespresso SA started in the summer of 2007. Installation of the production equipment began in January 2008. The first production lines have been in operation since the summer of 2008. Others will follow by the time the plant has been completed. Once the Nespresso factory has been finished in Avenches, it will turn out several million Nespresso capsules – a day. In its numerous bulk storage bins, Nestlé Nespresso SA will have a holding capacity of several thousand tons available.

Buhler in charge of green coffee handling

The Buhler Chocolate & Coffee business unit was entrusted in the spring of 2007 with designing and constructing the entire so-called green coffee part of the new Nespresso factory. The contract is worth some 20 million Swiss francs. “Handling this order with its scope and also with the customer’s extremely high quality demands was a true challenge for us,” says Guido Högger, the Buhler sales manager for Chocolate and Coffee installations. “Exactly as in the production of its coffee capsules, Nespresso also adhered to uncompromising quality standards in building the new factory. Only the best is good enough.” The green coffee part of the new Nespresso factory consists of the intake section for receiving the green coffee beans and equipped with a precleaning system, a system for storing the raw beans by different categories, and a weighing section. The scope of supply also includes the entire software for the complex control of the green coffee part of the factory.

Stop-over in sampling bins

Intake, precleaning, storage, weighing: What sounds straightforward enough is a fairly complex matter. The green coffee beans are supplied in bags to Avenches. In an initial operation, the bags are automatically opened and emptied. This is followed by precleaning, during which screens, magnetic separators, and destoners remove the coarsest impurities. The receiving section is capable of handling 20 metric tons of coffee an hour. The roughly cleaned green coffee is then transferred to huge sampling bins. After the final construction stage has been completed, the new Nespresso factory will boast a total of 72 such intermediate holding bins. Special samplers draw samples of each coffee lot received, which are painstakingly examined in the in-house laboratory. The quality of the green coffee beans must comply 100 percent with the rigorous standards defined by Nespresso.
Impressive – the countless storage bins of the new Nespresso factory in Avenches.

First construction stage completed
The new production and distribution center of Nestlé Nespresso SA went into operation in the summer of 2008. This marks the completion of the first construction stage. Of the green coffee part of the plant, the receiving and cleaning sections have been finished. About half of the various bins are already installed. In the final production section, six encapsulating systems are already in service.

The entire production plant will be completed step by step. The whole factory will be up and running by the year 2010 at the latest. Then, the millions of Nespresso aficionados around the globe will enjoy a grand-cru coffee that was processed on ancient Roman foundations. After all, the other Nespresso factory in Orbe also stands on the grounds of a former Roman settlement.

Buhler batching scales ensure highly accurate blends.

Nespresso – a success story
“We have an uncompromising quality awareness and are prepared to think unconventionally and to try out new approaches. This has contributed much to making Nestlé Nespresso the global pioneer and market leader in portioned coffee, the European market leader in espresso machines, and one of the fastest-growing companies of the Nestlé Group.” These are the words of Richard Girardot, CEO of Nestlé Nespresso SA, summarizing the reasons for his company’s success. Development of the Nespresso system – the combination of a cutting-edge espresso machine and ground coffee portioned and then packaged in capsules – started as far back as 1970. But actual commercial utilization of the system did not start before Nestlé Nespresso SA was founded in the year 1986 as a fully-owned affiliate of the Nestlé Group. In as little as ten years later, Nespresso already operated several hundred sales outlets worldwide. In 2003, Nespresso launched the “Nespresso AAA Sustainable Quality™ Coffee Program,” which promotes sustainable production of top-grade coffee. Today, Nestlé-Nespresso has a global payroll exceeding 2500. It supplies its products to several thousand points of sale and operates about 120 of its own Nespresso boutiques. These also include the flagship boutique on the Avenue des Champs-Elysées in Paris, which opened in 2007 and with its floor space of 1500 square meters is the largest of its kind.

(bos)
Over the past years, the Buhler China country organization has undergone profound changes under the direction of Dieter Vögtli. Today, four Buhler factories in the Middle Kingdom manufacture products for the rapidly growing Chinese markets as well as for Buhler projects worldwide. Its local sales and service organization is oriented toward the requirements of this vast country.

The Buhler Technology Group has been active in the Chinese market since the twenties of the last century. Up to the late seventies, all the local projects were handled out of the Buhler headquarters in Switzerland. Around the year 1980, the Chinese created highly attractive incentives for the import of high-end technology for food production. As a consequence, Buhler opened its first branch office in Beijing in 1983. Two service centers in Tianjin and Shanghai followed in 1987.

Own manufacturing activities

In 1993, Buhler started building its own manufacturing operations in China. The first step was the creation of a joint venture company in Wuxi. This was followed by a second one in Shenzhen, which was transformed in 2002 into a WOFE (Wholly-Owned Foreign Enterprise). In the same year, Buhler started establishing a sales and service organization with headquarters in Wuxi. Wuxi is located 60 minutes by express train from Shanghai in the province of Jiangsu in eastern China and has a population of about five million. In 2004, a first regional branch office was set up in Changchun, a seven-million city in northeastern China. Starting in 1995, the technology transfer from Europe to China increased rapidly. This activity started with die casting machine assembly in Wuxi and was followed by the assembly of Sortex sorters in Shenzhen. Up to 2006, Buhler selectively acquired Chinese companies, set up another joint venture, and opened additional service bases. The last step to date was the merging of different production and administration sites in the new China Buhler headquarters in Wuxi, which were officially opened in March 2009.

Profound change in work style

“Over the past years, Buhler China has thoroughly changed its organization and its work style,” explains Dieter Vögtli, who has headed Buhler China since 2004. “For years, Buhler acted as a Swiss company in China. If we had not changed our mentality in the past years, we would have vanished from the Chinese market by now. But we realized in time that we must win the battle locally here inside the country. Since then, we have changed a lot. Today, Buhler China is relatively autonomous. Our goal is to create an organization which does everything that China needs in China itself.”

Fully in line with this philosophy, Wuxi opened its own research and development center last year. Its focus is on the so-called “medium market.” Dieter Vögtli: “We intend to offer more products and services tailored to the medium market. With this plant and equipment, we will challenge especially our Chinese competitors. In China, you find a narrow top-end market and an immense medium market with an enormous volume. In order to be successful in this market, we must think and act in the same way as this segment does: in terms of ‘simpler’ and ‘good enough’. With the acquisition of Baolong Co. Ltd., we have bought our admission ticket to this market.”

Numerous sites

The opening of the new China headquarters in Wuxi for the time being marks the completion of the rebuilding of Buhler China. Buhler China is still an affiliated Buhler company that is wholly owned by Bühler AG. Other sites beside the headquarters in Wuxi include Shanghai, Beijing, and Changzhou. Buhler China operates its own manufacturing facilities in Wuxi, Xian, Shenzhen, and Changzhou.
Always on the road

Dieter Vögtli has been living in China for twelve years. The 51-year-old Swiss national is married and the father of four boys aged 10 to 16. The family lives in Shanghai. But Dieter Vögtli is rarely at home. “Since taking charge of Buhler China in 2004, I have been permanently on the road.” With degrees as a Master of Science in Mechanical Engineering (Swiss Federal Institute of Technology, ETH) and a Master of Business Administration (Insead, France), he often commutes between the four sites of Buhler China. Before Dieter Vögtli joined Buhler, he worked for eight years as a Technical Director for the pharmaceuticals company Roche China Ltd. in Shanghai. Before that, he was with Hoffmann-La Roche at its headquarters in Basel for four years, and three years with the Transportation division of ABB in Baden (Switzerland). What he likes particularly about China and its people are their optimism, their commitment to performance, and their wish to build the future.

The largest factory is located in Wuxi. That is where most of the equipment is produced, with an emphasis on grain processing machinery. But also die casting systems are manufactured in Wuxi. Shenzen builds machines incorporating a high proportion of electronic and pneumatic components, for example color sorters, weighing equipment, and packing machines. The factory in Xian makes plansifters and components of wood. Last, not least, Buhler China operates a large factory for feed production equipment in Changzhou. It is also the home of the center of competence for conveyors and other ancillary equipment.

Group management in Wuxi is in charge of business development and coordinates the activities of the factories and sales sites for all Buhler business units.

Sales and service in the regions

Up to the end of 2007, the Chinese market was served by the business units and the sales staff assigned to them out of the centralized location in Wuxi. Customer service, too, was controlled out of Wuxi. As the first Buhler division, Grain Processing has now set up a regional sales and service concept. It bundles local sales and service activities at the sites in Wuxi (eastern region), Beijing (northern region), Shenzen (southern region), and Xian (western region). This allows better and faster identification and satisfaction of customers’ needs in the various parts of China. At the same time, a network of service bases is being set up. Up to now, three have gone into operation: in Wuxi, Shenzen, and Xian. Another three are poised to follow. These service bases primarily focus on the reconditioning of rolls. This solution brings Buhler closer to its customers, which is highly significant in view of the vast distances in China.

The expansion of the organization of Buhler China has cost several million U.S. dollars. Dieter Vögtli: “But we paid for these investments ourselves.” Today, Buhler China accounts for about 10 percent of total Buhler Group sales.

Over 1400 employees

The creation and expansion of Buhler China has also had an impact on the number of persons employed in the country. Today, Buhler employs over 1400 people in China: 900 in manufacturing, 200 in sales and service, 130 in engineering and in research & development. The other 170 persons work in administration and logistics. Of these 1400 employees, 12 are foreigners. Only about 20 percent of the workforce speak English. But despite this, or perhaps precisely because of it, the work atmosphere at Buhler China is excellent. Dieter Vögtli: “Our employees are very loyal and competent, and they are held in high esteem by our customers. The work atmosphere is like in a large Buhler family: Everyone pulls in the same direction in order to win a project or to close a deal.” Buhler is one of the few companies in China whose key staff have been with the company for over ten years. The staff turnover rate is appreciably lower than in other foreign-owned companies.

Opportunities and risks

The reorganization of Buhler China has now been all but completed. But is this largest Buhler country organization also prepared to ride out the turbulences associated with the global economic crisis? Dieter Vögtli replies with guarded optimism: “Government regulations and increased consumer awareness are giving rise to a trend toward higher food safety and product retracing. This is forcing industry to raise the standards of its plants to state-of-the-art levels. And this is precisely the segment in which Buhler holds a very strong position. I believe that the current economic development is associated with both challenges and opportunities.”

But the head of Buhler China also knows that everything is immense in China: the country, the market potential, the competition, as well as the opportunities and risks. “We must therefore continuously review and adjust our strategy. It is like riding a wild bull,” says Vögtli. “If you want to stay on top, you have to readjust every time the bull jumps.”

Dieter Vögtli has headed Buhler China since 2004.
One country – three projects

First a ship loader in Moss, then a ship unloader in Fredrikstad, and finally a combined loader and unloader in Florø:
The Buhler Grain Handling business unit has implemented three projects in Norway within three years.

When we say Norway, what first comes to mind are a rugged Atlantic seaboard with a length of about 25,000 kilometers dotted by numerous large and small port cities and towns. The country’s food industry is concentrated around these ports. And this industry is increasingly relying on Buhler ship loading and unloading systems for handling materials; Over the past three years, the Buhler Grain Handling business unit has installed three entirely different facilities for handling raw materials for food production for three independent Scandinavian customers. The hub in charge of these three projects is the Scandinavian Buhler affiliated company in Malmö.

First project in Moss
Moss has a population of around 30,000 and is thus Norway’s thirteenth-largest city. It is located in the province of Østfold in the southeastern part of Norway at the entrance to the Oslofjord. In the port of Moss, the Swedish Lantmännen Group operates a production complex with various plants and grain terminals. Lantmännen is the Scandinavian market leader in the field of industrial grain processing. The group produces flour, breakfast cereals, bread, and pasta in different countries. Every year, the Lantmännen Group processes 400,000 metric tons of grain. The production facilities in Moss also include numerous grain terminals. Their main function is to serve as intermediate stores for holding different grain varieties. From the port of Moss, Lantmännen supplies numerous of its own production plants in Norway, Sweden, and Denmark with raw materials. For this fine distribution of raw materials, Lantmännen utilizes ships with sizes up to 6000 DWT. Lantmännen entrusted Buhler with the supply of a ship loader of type Portaload with a capacity of 300 metric tons per hour for unloading vessels with a size up to 40,000 DWT, the company defined a special requirement: “As a result of the long transportation time and the maritime conditions, the soybeans form a compact mass that is hard to unload,” explains Alexander Cajar, the Buhler area manager in charge. But the problem was quickly and lastingly solved: “We attached special unloading screws to both sides of the marine leg that shovels the soybeans out of the ship’s holds. They loosen the compacted soybeans mechanically so that they can be conveyed.” The new Buhler Portaload is therefore equipped with a low-noise dust suppression loading spout. The Portaload installed in the port of Lantmännen went into service on schedule in 2006.

Second project in Fredrikstad
A year later, Buhler implemented its second of the total of three Norwegian projects, this time in Fredrikstad. This fifth-largest city in Norway (population 91,000) is located a mere 35 kilometers from Moss, also in the province of Østfold on the estuary of the Glomma. The customer is Denofa AS. Established in 1912, Denofa AS today produces oils, proteins, and lecithin from soybeans in its modern factory in Fredrikstad, where it employs 55 persons. Denofa AS is Scandinavia’s sole soybean processor. Its customers include food producers and feed manufacturers in the Nordic countries. Every year, Denofa AS processes some 400,000 metric tons of soybeans. The raw materials come from integrated production (IP) farms and are guaranteed not to be genetically modified. The soybeans are grown in Brazil and Canada. From there, they are transported by large bulk carriers to Fredrikstad. During transportation, the load undergoes heavy mechanical motions and is thereby compacted. Therefore, when Denofa AS ordered an unloader of type Portalino 300/30 RK in 2006 with a capacity of 300 metric tons per hour for unloading vessels with a size up to 40,000 DWT, the company defined a special requirement: “As a result of the long transportation time and the maritime conditions, the soybeans form a compact mass that is hard to unload,” explains Alexander Cajar, the Buhler area manager in charge. But the problem was quickly and lastingly solved: “We attached special unloading screws to both sides of the marine leg that shovels the soybeans out of the ship’s holds. They loosen the compacted soybeans mechanically so that they can be conveyed.” The new unloader of Denofa AS in Fredrikstad has been in operation since the summer of 2007 and is working to the customer’s entire satisfaction.

Third project in Florø
Combined loader and unloader
The affiliated company in Florø is one of three fish feed factories operated by the EWOS Group.
in Norway. The factory includes large warehouses for storing the raw materials. From here, the other EWOS production plants are supplied with raw materials. In addition, numerous fish farms are supplied directly with finished fish feed by smaller vessels. For EWOS, this means that it needs both a loader and an unloader for ships of different sizes. The combi-facility supplied by Buhler perfectly satisfies this requirement. The Portalino Combi 300/30 RK has an unloading capacity of 300 metric tons per hour for ships up to 30,000 DWT and a loading capacity of 200 metric tons per hour for ships up to 5000 DWT. For unloading, the same marine leg is applied for wheat and fish meal, which is slightly sticky. The ships are gently loaded with fish feed pellets through a special dust suppression head.

The new facility operated by EWOS AS is currently being constructed under wintertime conditions. It will go into service in early spring this year. “Our people do not have any trouble working in the cold and when snow falls,” says Alexander Cajar. “Since we started with our three projects, we have become true Scandinavia specialists!”

Cerealis awards contract for updating its flour mill in Lisbon

Cerealis is Portugal’s largest grain milling company and its sole pasta producer. Its pasta factory and a semolina mill are installed at its headquarters. After Buhler had already signed a contract for the supply of a new semolina mill a year ago, Cerealis decided to award also the order for updating its flour production systems in the Lisbon mill to Buhler. The project for incorporating a mill with a capacity of 720 tons per 24 hours in the existing mill building convinced the customer. The decisive factors favoring Buhler as a supplier were especially the proposed innovative solutions for reducing the energy consumption and the resulting added value that this allows. In the new plant of Cerealis in Lisbon, advanced grain milling technology based on “The New Art of Milling” will be applied, boasting the three new Buhler stars – Antares roller mill, Sirius plansifter, and Polaris purifier. Both the facility in Lisbon and the plant in Porto will be equipped with the cutting-edge Buhler WinCoS.r2 automation system.

Large order received from Glencore

The Hungarian Pannon Vegetable Oil Manufacturing Kft, an affiliated company of the Swiss-based Glencore Group, has ordered a new oilseed preparation plant from the Buhler Feed & Biomass business unit. The order is part of an oil milling project that will be implemented some 100 kilometers south of Budapest in Foktö, on the banks of the River Danube. The oilseed preparation plant with a capacity of up to 1750 metric tons a day is highly complex, since it will process sunflower seeds, rape seeds, soybeans, and corn (maize) germs. In 2006, Glencore (GLOBal ENergy COMmodity REsources) generated sales of about 120 billion Swiss francs. Up to a few years ago, the group’s core competence was in the field of raw commodities trading. Since the nineties, Glencore has been engaged in coal and oil production, and since recently also in the agrofuel business.

Complete grain terminal for the port of Santander

The Buhler Grain Handling business unit has been awarded a contract for the supply of a complete grain terminal for the Spanish port of Santander. The project comprises two mechanical ship unloaders of type Portalink 600/70RK equipped with special material loosening screws for handling soybean meal. These installations allow up to 70,000 metric tons to be unloaded. The bulk grain storage capacity of the terminal is 43,000 tons. The flat store for holding soybean meal has been designed for a capacity of 60,000 tons. In the installation, over 900 meters of high-grade chain conveyors and about 850 meters of belt conveyors will move the materials. Beside numerous additional components for cleaning and weighing the material, the terminal is also equipped with five road and two rail vehicle loading points. The facility is controlled by a Buhler WinCoS.r2 automation system of the newest generation.
Joint venture

Japan Steel Works (JSW) possesses the necessary knowledge of the Japanese market for die casting systems. Buchler contributes its technological expertise and decades of experience: The Japanese joint venture JSW & Buchler Machinery Ltd., which was launched last summer, has got off to a successful start.

Open to new ideas
You might consider it fate that also Japan Steel Works was thinking about markets and technologies. Leo Iten: “The top management of JSW entrusted Kazuo Kitamura, the head of the Magnesium division of JSW, with finding a partner with high capabilities in die casting technology for building a complementary business field.” The Magnesium division of JSW produces manufacturing systems for making magnesium components for the electronics industry. In this, JSW utilizes the thixomolding process, which is related to the die-casting process.

When Kazuo Kitamura visited a trade show in China in 2006 and contacted the people from Buchler, he found that they were open to new ideas. A jointly conducted study showed that JSW and Buchler match perfectly like two pieces of a jigsaw puzzle. “JSW holds an excellent market position as a machine builder,” says Leo Iten. “And in the eyes of JSW, we at Buchler have the matching technology and the process expertise to enter the country’s die-casting market and thus to gain access to its automotive industry.”

In a first step, the two parties signed a memorandum of understanding, which included an agency contract as a transition to the joint venture. The market’s response to the publication of this preliminary contract was very encouraging. Leo Iten: “The large players in the foundry business congratulated us, and the competition was shocked.” No major difficulties were encountered in detailing the joint venture contract. Each of the partners was to hold a fifty percent stake in the new joint company named JSW & Buchler Machinery Ltd. “Such a solution is only possible if the relationship between the two partners is marked by undivided trust,” says Leo Iten. “The same attitude is reflected in the fact that the contracts have been designed with the long term in mind and that no probationary period has been agreed upon. We are confident that we are a perfect fit. It is so to speak a love match.”

Step by step toward the joint venture
In the course of negotiations, it became increasingly apparent that a collaboration between Buchler and JSW was considered as a “lucky chance” by both parties. “We agreed to proceed step by step,” explains Leo Iten in retrospect, who conducted the negotiations for the Buchler Die Casting division. “We gradually got closer. We soon found that a joint venture was the best option for a common future.”

Merging of two cultures
The joint venture contract was signed in the summer of 2008. According to the contract, the purpose of the jointly owned company is the “manufacture and sale and maintenance of cold-chamber die-casting machines.” The joint venture provides for the creation of a sales, administration, and service organization in Tokyo. This organization sells plant and equipment of both JSW and Buchler. The agreement also stipulates that JSW shall allow the production of cold-chamber die-casting systems in Hiroshima which are based on the new Buchler two-platen technology and which have locking forces ranging from 840 to 4400 kN.

Both projects have already been put into practice. The new company JSW & Buchler Machinery Ltd. employs a small team of four. It is headed by Kazuo Kitamura. At the Buchler Die Casting division in Uzwil, Ulrich Wiedmer looks after the interests of the young joint venture. He also acts as the interface between the engineers of the two parent companies. “We must never forget that two cultures have merged here, with differences in mentality and values,” explains Wiedmer, who has worked for several years with Buchler in Yokohama and speaks Japanese. “We must also adjust our drawings and blueprints to the Japanese standards.”
Joint venture

Kazuo Kitamura (with yellow hard hat), CEO of JSW & Buhler Machinery Ltd., explains his guests the Buhler technology.

Technology Center in Hiroshima
As an important step toward the penetration of the Japanese market, JSW & Buhler Machinery Ltd. opened a Technology Center in Hiroshima in November 2008. It is equipped with three die casting machines: an Evolution 84D with a locking force of 840 kN, a Carat 130 with 1300 kN, and a Carat 130 XL. The XL has a platen size specifically tailored to the needs of the Japanese market.

This new technical center of competence at JSW’s factory in Hiroshima serves as a test and training center. Leo Iten: “The machines installed in the Technology Center enable us to demonstrate our technological capabilities to our customers. Once a customer has purchased a production system, we can offer all the necessary employee training here in the Technology Center in Hiroshima.” In addition, these systems allow customers to conduct trial runs and tests. “Customers take along their own dies to test our manufacturing systems,” continues Iten. “This enables them to make direct comparisons with the products that they have manufactured on their own existing systems.” The interest in the Technology Center of JSW & Buhler Machinery Ltd. in Hiroshima is very encouraging. Ulrich Wiedmer: “Many of the major die casting companies attended the official opening ceremony. And the first test series have already been booked.”

Appearance at the first trade show
What was also very encouraging was the result of the first appearance of the new joint venture between Japan Steel Works and Buhler at the Japan Diecasting Congress & Exhibition held in Yokohama in early November. “Our first joint appearance attracted very much attention,” says Leo Iten, describing the experience. “The interest of the Japanese specialist public in our new Japanese company is a far cry from that of our appearances in Europe over the past years.” During the three-day trade show, the JSW & Buhler Machinery Ltd. team registered no less than 420 booth visitors from over 100 companies along with their names and addresses, including all the large industry players. “With our presence at the exhibition in Yokohama, our team was able to introduce itself to the industry and, in an initial step, to establish important contacts,” says Ulrich Wiedmer enthusiastically about this success.

Optimistic despite the crisis
The people in charge at JSW and Buhler are aware of the fact that the global economic crisis is a true touchstone for the young joint venture. The short-term outlook is not very bright. Die casting system sales plunged 50 percent in Japan in the second half of 2008. And the downward trend continues. But despite this situation – or precisely because of it – JSW & Buhler Machinery Ltd. is guardedy optimistic. Leo Iten: “The current market situation may also turn out to be an advantage for us. As the technological market leaders, we have a good basic position. After all, our customers will have to invest in new production technologies in the fierce struggle for the reduced order volumes still available in the very tough die casting market. When the goal is not only to replace obsolete machinery, but also to invest in production systems offering cutting-edge technology and thus to gain a genuine production advantage, our products enjoy a position second to none.”
Rejuvenating the plansifter

The service handling of emergencies is just one of the numerous functions of the Customer Service organizations at Buhler. The most important activity of the Customer Service staff in the Buhler divisions is to provide special offers. They include the development of specific retrofit programs.

**Plansifter upgrades**

One of these retrofit programs is the upgrading of plansifters of types MPAG, MPAJ, MPAH, and MPAK by equipping them with the new NovaPur sieve stack. “Some 3300 of these sifter types are in service across the world,” explains Christian Hilber, the product manager in the Customer Service organization of the Grain Processing division who is in charge of the plansifter retrofit program. “These tried and true machines can continue to operate for years to come.” This makes it all the more worthwhile to replace their old sieve stacks by new ones of type NovaPur, which are made of polyurethane and stainless steel.

**Plastic and stainless steel**

With their combination of plastic frames (polyurethane) and stainless steel frame inserts, the NovaPur fulfills the most stringent sanitation requirements. But the new NovaPur sieve frames offer numerous other benefits. They will not be affected by changes in the temperature and air humidity and will therefore not change mechanically. Their polyurethane surfaces are highly abrasion-resistant and of a nature that will essentially prevent any adhesion. Their geometry without corners or edges all but eliminates product adhesion, slashing their cleaning requirement.

**Short retrofit time**

The retrofit offered for plansifters has been available since August 2008. “Flour millers’ responses have been very positive,” says Christian Hilber. Streamlined in-house processes allow the sieve stacks to be supplied to customers within a short time. The actual retrofit time is very short. Christian Hilber: “A six-compartment sifter can be retrofitted within a single day.” Retrosfits are carried out by Buhler Customer Service staff or by customers themselves, if requested with support of tools supplied.

“Numerous benefits”

With their capacity of over 500 metric tons a day, the Hildebrand mills in Mannheim are among the largest and most up-to-date durum mills in Europe. They are part of Kampffmeyer Mühlen GmbH, which in turn belongs to VK Mühlen AG. In the two Hildebrand mills I and II in Mannheim, a total of 66 compartments of type MPAG have been in service since 1989 and 1993, respectively. In an initial phase, 51 of them are now being equipped with the new NovaPur sieve stacks. According to Anton Senn, the production manager of the Hildebrand mills, this will allow the best possible level of sanitation to be achieved. “By retrofitting our sifters, we expect to gain numerous advantages. All screw fasteners and aluminium frame inserts have been done away with. There is no wood which can come into contact with the product, and the material will not become distorted when exposed to the action of moisture. Overall, the handling of the new sieve stacks is much easier, and they can be better cleaned within a shorter time.”

Another major benefit for Senn is that the new sieve frames offer a higher specific sifting area per compartment. “We expect to gain clear production advantages. And if our expectations are fulfilled, we will also retrofit the other 15 compartments.”
Product Management and Marketing in the Engineered Products division

Marcello Fabbroni took charge on January 1, 2009 of the new function of head of Product Management and Marketing in the EP division management. Marcello Fabbroni is 34 years old and lives with his wife and two children in Wil near the Buhler headquarters. After completing his training as a civil engineering draftsman, Marcello Fabbroni attended night school beside his regular job and graduated as a Construction Engineer HTL. Following his studies, he joined the construction company Zschokke AG, where he acted as project manager of complex infrastructure projects. A short time later, Marcello Fabbroni laid the basis for his future career by continuing his education to become a Business Engineer FH with an emphasis on marketing. From Zschokke AG, he switched to O&L Consultants AG, where he acted as a quality management consultant for clients in the fields of building construction, industry, and services. From 1998 onward, Marcello Fabbroni held a post at the fastening specialist company Hilti, where he followed a marketing career with three stations: During the first four years, he was product manager in charge of an important product line. For about another four years, he headed the marketing activities of Hilti South Korea. Finally, before joining Buhler, Marcello Fabbroni was responsible for the global development and execution of the marketing and sales strategy of Hilti in equipment rental.

New head of Product Management in the Die Casting division

New head of Product Management of the Buhler Die Casting division: Effective October 2008, Marcello Fabbroni succeeded Marc Fuchs as head of the Product Management function. Marc Fuchs has moved to the Buhler customer Wagner AG in Urnäsch, Switzerland, where he will act as head of the Product Management function. Alongside his regular job, Marcello Fabbroni successfully completed a post-graduate study course as a business engineer in 2004.

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Diagram No. 17

The to and fro continues in the diagram issue No. 17. Whereas the Diagram No. 16 was clearly dated, it is not possible to say more about the publication date of the 17th issue of the “Buhler Milling News” than that it appeared in the summer of 1956. On the other hand, the cover for the first time includes a field for circulation notes. With twelve pages, the Diagram No. 17 is rather slim. But its contents are all the more interesting. In a key article, the unknown author enumerates the advantages of the different flour mill layouts: These range from single-floor mills which are particularly suited to regions exposed to seismic risks to the classical five-floor mills for “high capacities on a small surface area.” It is said that single-floor and two-floor mills offer the “ideal solution in terms of ease of monitoring and quick transparency.” As an especially economical layout,” the three-floor mill is mentioned. However, it is noted that the variant with the roller mills installed on the third floor turns things “upside down.” This design version, it is said, allows “even large-scale mills to be installed on three building levels so that high efficiency and easy access” is achieved. As an example of a modern two-floor mill, the new durum and soft-wheat mill of Moulins Rod SA in Orbe (Switzerland) is described. Operation of the plant is based on two separate sections with capacities of 35 metric tons of durum and 45 tons of soft wheat per 24 hours, respectively. The Rotostar small plansifter is introduced as a new product. Diagram reports that this universal small plansifter “with its great possibilities” satisfies an urgent need of the flour, animal feed, and corn (maize) milling industries. This is so because it fills the gap between the large plansifters and the laboratory sifters designed to cover the lower capacity range.

Cover of Diagram No. 17 – the color green is predominant.

Plansifters in the mill of Moulins Rod SA in Orbe.