HAPPY BIRTHDAY, BUEHLER.
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WITH OUR CUSTOMERS — ALL OVER THE WORLD. 20–53

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BUHLER IN THE FUTURE. 76–81
Since its founding in 1860, Buhler has been a reliable partner for the food and the advanced materials industry, satisfying high expectations and delivering innovative solutions to serve customers’ needs.
Dear Business Partners,
Ladies and Gentlemen,

Buhler is 150 years old – a time for reflection and for celebration, but not a time to sit back and bask in the success of our achievements to date. We have the success of our customers, our good working relationship with our business partners, and the outstanding commitment of our employees all over the world to thank for the fact that we can celebrate our 150th anniversary.

Our anniversary also provides another opportunity for us to look forward to what is to come. We are convinced that to focus on the past only makes sense if this is geared towards the future – and that visions and ideas for the future are formed from our own experiences.

It is this attitude that has seen the small family company Buhler develop into a worldwide corporation: We not only orient ourselves towards the future, and to the changing needs of the market, but recognize these early enough to be able to anticipate them. Not only knowing what customers need, but what they dream of, too – an attitude that has enabled and will always enable Buhler to maintain a high degree of innovative power without neglecting the stability of its core business as a result.

150 years of Buhler: After a brief look into the past and the present, we hope to be able to show you how we will continue “always wanting to make the world a little bit better” in future.

Urs Bühler
Chairman of the Board of Directors
Global Challenges in 2010.

The global population is approaching 7 billion and is rising steadily. The predicted population for 2050 is 9.23 billion. 90% of the world’s population lives in newly industrializing or developing countries, more than half now live in towns, and with increasing worldwide prosperity come changing nutritional habits. More and more grain is required to satisfy a growing demand for meat and dairy products. Furthermore, this is against a backdrop of increasingly limited agricultural ground. Urbanization, climate change and the conversion of arable land are constantly eroding the 16,383,000 km² available today; per capita production is stagnating – in some developing countries it is even in decline.

The same trends are also present when it comes to energy, as increasing energy consumption, particularly in newly industrializing countries, becomes a problem in the face of shrinking fossil fuel reserves and the dilemma of alternative energy sources.

This means that more than ever, there is a need for companies who can respond to growing demands through innovative technologies: More than ever, we need companies like Buhler.
The world population continues to grow. By 2050 it will have increased from its current number of just under 7 billion to over 9 billion people. This growth in population will be concentrated for the most part in developing countries.
Global Challenges in 2010.

At present, the global population is experiencing a 1.4% growth rate of about 80 million annually. This increase is due to the fact that there are 140 million births per year, offset by only 60 million deaths. Every year, approximately 2.5 times more people are born than die.

The number of 90 year-old people is expected to be nearly 8 times higher in 2050 as it is today, and the number of 100 year-olds is projected to be 16 times higher.

This is where the world population lives.

**ASIA** 60.5%

**AFRICA** 14.7%

**EUROPE** 10.8%

**NORTH AMERICA** 7.8%

**SOUTH AMERICA/ OCEANIA** 6.2%

Average age of the world population.

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>24</td>
</tr>
<tr>
<td>2010</td>
<td>29</td>
</tr>
<tr>
<td>2025</td>
<td>38</td>
</tr>
</tbody>
</table>

Rural flight, percentage of world population that lives in urban areas.

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural Flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>43.0%</td>
</tr>
<tr>
<td>2000</td>
<td>46.6%</td>
</tr>
<tr>
<td>2010</td>
<td>50.6%</td>
</tr>
</tbody>
</table>

This is how the world population has grown.

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 B.C.</td>
<td>4 m</td>
</tr>
<tr>
<td>2000 B.C.</td>
<td>50 m</td>
</tr>
<tr>
<td>During Christ’s lifetime</td>
<td>170 m</td>
</tr>
<tr>
<td>1000 A.D.</td>
<td>310 m</td>
</tr>
<tr>
<td>2000 A.D.</td>
<td>6.07 bn</td>
</tr>
<tr>
<td>Forecast for 2050</td>
<td>9 bn</td>
</tr>
</tbody>
</table>
INCREASE IN FOOD DEMAND.

GLOBAL NOURISHMENT.

WHEAT 54%
RICE 34%
CORN 12%

MANNER IN WHICH CEREALS ARE USED.

THE MOST IMPORTANT CALORIE SUPPLIERS.

WHEAT 26%
Rice
23% Wheat
4% Millet
9% Sugar
9% Plant-based oils
7% Corn
4% Potatoes
18% Other plants

WHO SUPPLIES THE WORLD WITH WHAT.

WHEAT
China 109,298.30
India 75,800.40

RICE
China 187,397.46
India 144,570.00

COFFEE
Brazil 33,212.70
Vietnam 31,912.00

POST-HARVEST LOSSES.

−30%

Globally, 20 to 30% of all sowed grains end up as waste. Poor storage conditions, pest infestations or transport problems are the most common causes of this.

First and second place of the top 20 global producers in 2007. Production amounts are expressed in thousands of metric tons.
Usable arable land per person. While the global population grows, the availability of arable land is shrinking.
SO THAT THE FUTURE HAS A FUTURE.

SPIRIT OF DISCOVERY. QUALITY LEADERSHIP. FOCUS ON SOLUTIONS. GLOBALITY.
Our thoughts and actions are led by four core maxims, which we relive each day and apply to every aspect of daily life within the company.
SPIRIT OF DISCOVERY: OUR DESIRE TO KNOW MORE.

The intelligence and enthusiasm to resolve complex challenges perfectly and make new discoveries along the way make us stand out from the crowd. Knowledge, engineering experience, commitment and perseverance, as well as the competencies that go hand in hand with these qualities, characterize the spirit of discovery that has made Buhler an outstanding and innovative technology group, and that guarantees us a clear competitive edge in the long term.
So that the future has a future.
QUALITY LEADERSHIP: WE CAN GET EVEN BETTER.

If it’s made by Buhler it has to be the best. This never-ending demand is based on quality leadership that already exists or that we must achieve in future. In whichever areas we are involved, we fulfill this ambition through quantifiable, transparent quality goals, and open dialogue with our customers and partners. This enables us to deliver the performance we promise and thereby enhance our customers’ trust in us.
So that the future has a future.
So that the future has a future.
We understand that a customer’s profitability also has an effect on our business performance. Our efforts are therefore focused on increasing our customers’ levels of success. And because we always apply networked approaches to complex processes, we can work in a solution-oriented way to make improvements for our customers throughout the value chain. This gives us a clear performance advantage over straightforward machine manufacturers.
So that the future has a future.
GLOBALITY: WHEREVER OUR CUSTOMERS ARE, SO ARE WE.

We are a global corporation with Swiss origins. Size, a worldwide presence and a multicultural team with a strong local presence make us a global player and give the company an advantage in terms of availability on the world market.
WITH OUR CUSTOMERS – ALL OVER THE WORLD.

Buhler would like to thank all our customers worldwide. It is you who put our machines, systems and services to successful use in your respective markets in the food and processed food, chemical engineering and die casting industries, as the following pictures show. These are just a few select examples, but they represent all our customers – and the close working partnerships we enjoy with all of them.
ULTIMATE RICE
Chainat, Thailand / Rice production

SADIA
Lucas de Rio Verde, Brazil / Animal feed production
LANTMÄNNEN CEREALIA
Vejle, Denmark / Flour mill
SORTEX Z+. 
**SORTEX Z+** – With superlative precision, this optical sorting machine checks the purity of the material within fractions of a second. On the basis of color, shape or other optical properties, all defective particles or foreign objects are identified and separated into a special rejects container. The range applications for the SORTEX Z+ is wide: it can be used with success for rice, grain, beans and pulses, coffee and tea, nuts, dehydrated vegetables, seeds and spices as well as for recycled plastic.

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**CAMERA RESOLUTION.**

2,048 px

With the assistance of cameras and high-resolution infrared sensors, the SORTEX Z+ efficiently removes even the smallest product defects.

**PRODUCTS SORTED.**

315

Different types of raw products can be processed.

**CAMERA POWER.**

**InGaAs Technology**

Enhanced InGaAs sensors identify foreign material in the invisible wavelengths.

**ONLINE-SUPPORT.**

**Z+ Anyware**

The condition and settings of the SORTEX Z+ can be checked via the global telecom system or via the Internet, and potential problems can be detected without interruption.

**SORTING CAPACITY, WORLDWIDE.**

20,000 METRIC TONS OF RICE PER HOUR

This amounts to the hard-to-imagine number of 540 million kernels per hour which are checked and sorted.
GRANDE MOINHO ARATU
Salvador, Brazil / Flour mill, biscuit and pasta production
GRANDE MOINHO ARATU
Salvador, Brazil / Flour mill, biscuit and pasta production
GRANDE MOINHO ARATU
Salvador, Brazil / Flour mill, biscuit and pasta production

KOLSON
Karachi, Pakistan / Pasta and snack production
**POLYtwin™** – This multifunctional twin-screw extruder guarantees high torque, high screw rpm and pressure, thus meeting the high processing requirements. A laterally adjustable cutting device, as well as a patented device to eject the screws, increase flexibility and enable rapid product changes. Thanks to its modular design, the POLYtwin™ extruder can be applied for a variety of uses, such as the production of breakfast cereals, food ingredients, pet food or aqua feed for fish farms.

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**TECHNOLOGICAL INNOVATION.**

**NutriRice™**

Rice flour is formed by means of extrusion into rice kernels, which can be enriched with vitamins and minerals.

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**ENERGY SAVINGS.**

50%

The extrusion process utilizes 30–50% less energy than a conventional production process.

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**MEMORY CAPACITY.**

30,000 RECIPES

The machine’s built-in intelligence stores up to 30,000 recipes. With a press of a button on the touchscreen they can be retrieved within seconds.

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**MAX. PRESSURE / MAX. TEMPERATURE.**

300 bar / 300°C

The process and drive elements of the machines are designed to withstand the maximum process pressures and temperatures. Both pressure and temperature settings can be continuously varied.
ZOTTER
Riegersburg, Austria / Chocolate production

BISCUITS LECLERC
St. Augustin, Canada / Chocolate production

TOP FOOD
Taichung Hsien, Taiwan / Flour mill
TOP FOOD
Taichung Hsien, Taiwan / Flour mill
ANTARES.
Antares – Thanks to its uniform feed and spreading of the product onto the grinding rolls, this roller mill creates the conditions for perfect grinding results. Added to this are a high roll adjustment precision and grinding stability, as the pressure between the grinding rolls can be finely adjusted and kept constant over long periods of time. The inside is made entirely of stainless steel, which guarantees highest product safety and hygiene standards. Antares is applied in wheat, durum, corn and rye milling but can also be used in specialty milling of buckwheat, barley, spelt, millet/sorghum.

25% = 11,000,000 MT/year

Wheat equivalent to one quarter of the EU’s annual production is already being processed by Antares roller mills.

By the time it is milled into flour, the wheat grain has been run through the roller mill up to eight times.

WinCoS.r2

This automation solution monitors and controls the operation of several roller floors, thereby assuring a high level of production in terms of efficiency, uptime, flexibility and cost-effectiveness.

CAPACITY UTILIZATION OF THE ANTARES ROLLER MILL, IN DAYS.

8

The compact roll pack combined with the novel machine frame design assure a high level of operating reliability – non-stop, 24 hours a day.
With our customers – all over the world.

**TOP FOOD**
Taichung Hsien, Taiwan / Flour mill

**BOGASARI FLOURMILLS**
Jakarta and Surabaya, Indonesia / Pasta production
LANTMÄNNEN
Norrköping, Sweden / Ethanol production and production of animal food out of DDGS

KÜPPER & SCHMIDT
Santiago de Riba-Ul, Portugal / Manufacturing of die casting parts

URBANO
Jaraguá do Sul, Brazil / Production of ricepasta
urbano
Jaraguá do Sul, Brazil / Production of ricepasta
KOGLA
Jalgaon (Maharashtra State), India / Processing of pulses

TCG HERRMANN PRÄZISIONSDRUCKGUSS
Bretten, Germany / Manufacturing of die casting parts

SWISSMILL
Zürich, Switzerland / Flour mill
CARAT.
Carat – The modular two-platen die casting machine with special shot units tailored to the specific application is the optimal solution for the production of large and complex parts which must satisfy the most challenging demands. Variable filling speeds, free design of shot curves and the Buhler real-time controls allow for a precisely controllable casting process that is easy on the die, which has a positive impact on the machine’s efficiency and cost-effectiveness.

CARAT LOCKING FORCE IN Kilonewtons (kN).

10,500 > 44,000

The Carat series of machines comes in 13 different sizes. Its shorter overall length reduces the space requirements. Thus an older machine can be replaced by a more powerful one within the same installation space.

SELECTION OF SHOT UNITS.

3

The 3 different shot units lean, compact and extended enable optimal solutions for flexibility of processes and applications.

BUHLER INNOVATION.

Two-platen technology

The high rigidity of the two-platen technology ensures good die closing and reduces flash.

CONTROL OF A COMPLETE CASTING CELL.

The dat@net control system with all the advantages of a real-time controlled machine offers a total solution comprising all the necessary control and instrumentation technology as well as the visualization and logic systems.
There are plenty of good reasons for Buhler’s success: Personal commitment, clever entrepreneurial decision-making, a high level of sensitivity to the changing needs of the market, and a core business that has become a byword for quality and consistency, founded on the distinct power to innovate. Tackling the challenges of the period and of the market have always played a role in shaping the direction of the company. This is simply something that Buhler has always done, and when it comes to generating benefits and added value for our customers, we have always been a step ahead.
1860
February 10, 1860: Adolf Bühler establishes his cast iron foundry with two employees. First year total foundry output: 23 tons of iron castings.

1870
1871 Production of embroidery machine parts. A mechanical workshop is established as part of the foundry.
1872 Production of first cast iron rollers for roller mills in flour mills. These roller mills replace the centuries-old technology of millstones and pave the way for industrial-size flour mills.
1875 A company-funded employee health insurance is established.
1876 The first completed roller mill with a roll length of 300 mm (triple roller) leaves the premises.

1880
1880 Representative agreement established for the United Kingdom and its colonies. From the 1880s on, Buhler designs and constructs an increasingly comprehensive offering of milling machines: semolina purifiers, plansifters, mixing machines, grain-cleaning and -drying machines, etc.
1887 Major breakthrough: construction of a four-roller mill with 1,000 mm width. Achieving such a width had previously been declared impossible by milling industry experts. With this, Buhler proves that with sensible, simple engineering and exact construction of all parts it can indeed be done.
1890
Construction of elevators for unloading ships and grain silos.

1891 Agency contract obtained for Russia.
First subsidiary company is founded in Paris, France.

1893 February 6, 1893: Electrical lighting illuminates the premises for the first time.

1894 August 23, 1894: The 10,000th roller mill leaves the factory.
The machine is delivered to Weinheim in Baden, Germany.

1896 Sales office opened in Barcelone, Spain: in 1897 a subsidiary company is established (since 1917 in Madrid, Spain) with later agency in Lisbon, Portugal.
First roller mills with widths up to 1,500 mm.

1899 Manufacture of corrugated rolls and drying ovens for brickworks and the cement industry.

1900
The Weyermann plansifter is introduced at the Paris World’s Fair. This new type of plansifter is the first not to hang from the ceiling, but instead is mounted to the floor. The Buhler Company is awarded a gold medal at the World’s Fair.
Establishment of a subsidiary company in Milan, two years later a second Italian subsidiary opens in Naples.
The pasta machines division is founded. Buhler expands its scope of business to include the processing of milled products.
739 employees.
Connection to the Kubel Electric Power Plant. Thus Buhler becomes the first company in Eastern Switzerland to serve its power needs solely by electricity. Previously it had relied on a water engine (30 hp), a compound steam engine (200 hp), a high-pressure turbine (20 hp) and a stand-by steam engine (50 hp) for its power.

1903 Construction facilities for pasta machines are established. The first pasta machine to be produced is a mixing and kneading machine featuring a horizontally or vertically placed hydraulic piston pasta press and an attached drying chamber.

1904 Completion of the first DD roller mill, which is produced for nearly 40 years running and spreads the Buhler Uzwil name throughout the world.

1907 First newspaper-printing machine, commissioned by Duplex Printing Press & Co. The manufacture of printing presses is discontinued in the early 1960s.

1908 Assimilation of pneumatic conveyer systems into the manufacturing process. Pneumatics revolutionize the industrial conveyance of loose goods and 36 years later will also go on to revolutionize the milling industry.
1910

June 2, 1910: E. Buchreiter and a second seamstress are the first two women to work in the company. They sew primarily plansifter hoses, filter hoses and strainer linings.

1912

Manufacture of brewery equipment, specifically corn grist mills and mash filters. Buhler also installs the first pneumatic conveyance equipment.

1913

Distribution of Buhler milling machines:
- Europe: 30,040
- Africa: 1,188
- Asia: 1,002
- Australia: 318
- North and South America: 852

1918

January 14, 1918: Opening of the first factory canteen in Switzerland.

Construction of first chocolate refiners. As an outcropping of this, roller mills for the soap and paint industries are also developed. Buhler establishes first multidisciplinary apprentice shop. Authorized representation established in Brussels, for Belgium and Belgian colonies.

1920

1,400 employees.

1920

Founding of a subsidiary company in Dresden, Germany.

1922

The first Buhler flaking roller mill. Reason given for its development is to accommodate the changing nutritional habits of human populations. Mills for rice, oats and vegetable processing, also for dietary products, soups and baby food follow in short order.

The scope expands to include the processing of additional staple foods such as granulated sugar, coffee, tapioca, etc.

First systems for grinding and recycling of garbage are developed.

1924

New York, USA, office opens.

1925

Adolf Bühler Jr. discovers the chain conveyer at a colonial exhibition in London and obtains a distribution contract from its inventor, A. Redler.

1926

Production of die cast manufactured goods in Uzwil. Initially for inhouse use, such as handwheels or handles for rolling presses, the construction of metal die casting machines for light-metal alloys follows soon thereafter.

Establishment of subsidiaries in Bucharest, Romania, and Warsaw, Poland, to serve the important Eastern European market (these subsidiaries had to be dissolved during World War II).

1927

Diverse Mills division is established for the planning and construction of oilseed, animal feed and husking mills, as well as to deal with specialty grinding and transport issues.

Industrial tracks with a direct rail connection to the Swiss Federal Railways line, Wil–Saint Gall.

1928

Sales office opened in Buenos Aires, Argentina.

1929

Establishment of a subsidiary in Alexandria, Egypt.
1930  First metal die casting machine by Buhler is delivered to the A. Brizon company in Courbevoie, France, on January 7, 1930.

1932  Buhler manufactures a first ever cold-chamber metal die casting machine, which allows for the cast alloys to be melted in a separate oven.

1934  A semiautomatic extruder replaces the hydraulic press in pasta machines. This innovation makes it possible for the first time to continuously prepare and press the dough, and steers the entire process of pasta production onto an industrial path.

1935  Adolf Bühler Jr. invents an inexpensive nutritional foodstuff which can be used as a rice replacement, which he names Buris. This could be viewed as a first attempt at functional food.

1936  The advertising department shoots its first film footage of die casting machines. An inhouse film division is officially founded 20 years later, in 1956.

1939  2,000 employees.

1940  Introduction of pneumatics in mill manufacturing. Transport of grain and grist via an air stream revolutionizes mill designs worldwide. Grain or flour no longer needs to be arduously transported in sacks or lifted in bucket elevators into the upper floors, where they were then emptied. From 1949 on, Buhler discontinues construction of mills using grain elevators.

1944  Buhler metal die casting machines achieve a significant advantage by switching over from a water-based to an oil-based hydraulic system.

1948  Buhler’s subsidiary company, Haushaltmaschinen AG in Zurich, is shut down, which had been responsible for the sales and distribution of vacuum cleaners and floor-polishing machines manufactured in Uzwil. The waste disposal section is formed, renamed in 1974 as the Environmental Technology division. First garbage- and waste-grinding facilities developed by Buhler in Henau.

1950  First centrifugal cast rollers, cast with rotating chill mold. This process replaces the then customary static casting process with clay cores.

1952  Construction of the new research lab facilities in Uzwil including a 40-meter high experimental tower, later renamed to Technische Zentralabteilung.

1953  Buhler establishes corporate presences in São Paulo, Brazil, and Toronto, Canada.

1955  The Abendtechnikum St. Gallen is founded (now known as the HTL Engineering School) at the initiative of René Bühler, in collaboration with the companies Wild in Heerbrugg and Saurer in Arbon, Switzerland.

1956  Buhler’s subsidiary company, Haushaltmaschinen AG in Zurich, is shut down, which had been responsible for the sales and distribution of vacuum cleaners and floor-polishing machines manufactured in Uzwil. The waste disposal section is formed, renamed in 1974 as the Environmental Technology division. First garbage- and waste-grinding facilities developed by Buhler in Henau.

1957  A subsidiary company is founded in Minneapolis, USA. A vocational milling school with four different divisions is founded in Saint Gall, Switzerland.

1958  The Plastic Injection Molding Machines division is founded, for the manufacture of thermoplastic shell molds.

1959  The Chemical Process Engineering department is established, with special focus on developments in the chemical industry.
1960

1960 May 1, 1960: The 5-day workweek is introduced, after a majority of both office and factory employees had been in favor of it. Manufacturing company opened in Mexico.

1965 December 1, 1965: Electronic data processing is implemented for the first time at the central Uzwil headquarters: the first computer used is an IBM 360/40 system, initially used for handling employee payroll, then expanded to catalogue fabrication groupings, establishing basic manpower loading and demands of Buhler’s various divisions as well as budgeting.

1967 Buhler equips the Rotterdam-Botlek port, at that time the most modern port facility in the world, with all of its mechanical conveying machinery. The total length of the installed Buhler chain conveyor system measures a total of approx. 3 kilometers.

1970

1970 Globally 5,470 employees, of which 3,630 are in Switzerland, including 380 apprentices.

1971 An employee of the Planning Office for Diverse Mills becomes the first female engineer to earn her degree from Technikum Winterthur technical school.

1972 Acquisition of MIAG, Mühlenbau und Industrie GmbH, Braunschweig, Germany, including 11 of its subsidiaries. MIAG was created in 1925 by the merger of the five largest German mill manufacturers and was one of the Buhler Company’s biggest competitors.

1973 A subsidiary company is founded in Johannesburg, South Africa.

1974 A subsidiary company is founded in Tokyo, Japan.

1975 First computer-operated machines. For the first time ever, programmable electronic controls (a PC system) are implemented at Buhler. They will go on to replace the old relay controls.

1977 Buhler Iran is founded in Teheran.

1979 Founding of the Schule für Futtermitteltechnik (school for animal feed techniques) in St. Margrethen, Switzerland.

1980

1980 New Airtronic roller mill with horizontal rolls and pneumatic control. Introduction of flexible working hours with different set shifts, one of the first companies in Switzerland to do so.

1981 Inauguration of the Trincomalee mill, Sri Lanka, at the time the biggest mill in the world. Processing capacity: 2,500 tons/day.

1984 Founding of the first Buhler offices in China.

1985 Construction of the school mill as an educational center for Buhler’s customers’ employees. Delivery of the first twin-screw extruders to the Provimi company in Cossonay, Switzerland, for the production of dog food.

1986 Acquisition of Richard Frisse GmbH in Bad Salzuflen, Germany, one of the leading manufacturers of conches for chocolate production.

1989 Introduction of the SC line, the new generation of die casting machines. For the first time ever, this new development allows for the pouring of extremely thin-walled work pieces. The new, contemporary logo and corporate name Bühler AG is introduced worldwide.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>Opening of Buhler Moscow. The Soviet Union had been a significant market for Buhler since the 1960s, and until 1991 generated sales far exceeding one billion Swiss francs, about half of which were generated by deliveries from Buhler MIAG in Braunschweig, Germany.</td>
</tr>
<tr>
<td>1992</td>
<td>Delivery of the 100th twin-screw extruder to the Zerzog company in Munich, Germany, for the production of bio-degradable packaging material made from recycled paper. Acquisition of the rights for the construction of facilities for Kompogas, an environmentally friendly waste management process.</td>
</tr>
<tr>
<td>1993</td>
<td>Buhler (India) Private Ltd. is founded in Bangalore, India. Introduction of company-wide concepts for machine and processing plant designs.</td>
</tr>
<tr>
<td>1994</td>
<td>Acquisition of Sortex Ltd. in London, UK, the world’s leading manufacturers of optical sorting equipment. Introduction of the dough-kneading press Polymatic, which conquers the market instantaneously. The Polymatic kneads the dough in 20 seconds rather than in 20 minutes, as used to be the norm.</td>
</tr>
<tr>
<td>1995</td>
<td>Construction of a school mill in Casablanca, Morocco. Previously, Buhler has already erected school mills in China, Egypt, Algeria and India.</td>
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<tr>
<td>1996</td>
<td>Entry into the biomass processing sector (wood and straw).</td>
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<tr>
<td>1999</td>
<td>The Newtronic line, the new generation of four- and eight-roller mills, is launched as the new flagship of the enterprise.</td>
</tr>
<tr>
<td>2000</td>
<td>Over 6,000 inventions have been patented by Buhler since its inception. Acquisition of Bindler &amp; Co. in Bergneustadt, Germany, manufacturer for the chocolate and cocoa industries. Buhler spearheads new developments in the functional foods sector.</td>
</tr>
<tr>
<td>2004</td>
<td>Establishment of Bührer PARTEC GmbH in Saarbrücken, which is active in the upgrading and processing of nanoparticles into performance additives. Start of production of plansifters for the Asian market in Xian, China. Joint venture with Chinese feed production plant builder, Changzhou, China. Buhler acquires the IdraPrince company in Holland, USA, the leading manufacturer of die casting machines in the USA. Expansion of the location in Bangalore, India, and doubling of its manufacturing capacity.</td>
</tr>
<tr>
<td>2005</td>
<td>With the Carat model, Buhler introduces two-platen technology into die casting. Acquisition of the Barth AG company in Freiberg, Germany, one of the world’s leading manufacturers of roasting technology.</td>
</tr>
<tr>
<td>2008</td>
<td>7,700 employees. Acquisition of the Aeroglide company in Raleigh, USA, the market leaders for drying machines and other thermal processes in the nutritional, animal feed and industrial sectors. February 12: official 150-year anniversary celebration in Uzwil, Switzerland.</td>
</tr>
</tbody>
</table>
Over the last 150 years Buhler has established a reputation for itself as a reliable business partner. This was not any different in the business year of 2009. A brief overview of successes and highlights of the last year follows.
Buhler continues as a family enterprise.

Urs Bühler, the sole proprietor of the Buhler Technology Group, has resolved the issue of succession with his three daughters and agreed upon a model for the future ownership of the company. Thus the prerequisites were created for the company’s continued existence as a family enterprise.

Non-stop product innovations.

In 2009 Buhler once again introduced quite a number of new products. Their common denominator: to help our customers in successfully setting their products apart on the marketplace, and to help them create added value.

The low-maintenance Polaris semolina cleaner allows for a 20% higher product output, while at the same time meeting the highest international sanitary standards in the food processing industry. The Feed & Biomass division makes its progress evident by turning out a new flaking mill for the flaking of crushed soybeans and soft seeds (sunflower, canola, corn). The new SORTEX E sorting machine uses aerospace technology to detect and eliminate foreign objects with unprecedented accuracy in the packaging of frozen fruit and vegetables. The mobile twin-screw extruder, RENTALtwin, combines the elements of measuring, preconditioning and control systems all in one. It serves clients – including on a rental basis – with on-demand production needs, product development and for so-called concept trials with non-transportable raw materials. The compact solutions for PET recycling, which is based on Buhler’s SSP (Solid State Polycondensation) technology, distinguish themselves through their cost-effectiveness and through the unsurpassed quality of the end product.

Expansion of services in Asia.

The rollers used in grain milling regularly have to undergo surface grinding, which entails significant transportation costs. For this reason, Buhler invested in both India and China in the establishment of regional service stations for rollers to be able to serve our customers locally.

An opportunity for grinding and dispersion applications.

Electric and hybrid vehicles of the future will be equipped more frequently with lithium-ion-based batteries. In addition to having a high energy and performance density, these batteries have inherently low self-discharge characteristics and no memory effect. Our Grinding & Dispersion division has been able to secure a significant number of orders for machinery used in the production of lithium-ion battery masses.

Bringing together what belongs together.

The company structure, which was optimized over the last business year, now consists of two food- and one non-food divisions. The market-oriented restructuring serves to strengthen the company’s activities in food processing and at the same time allows for the existing potentials in the non-food branches to be pursued in a more targeted manner. Whereas there were no structural changes in the Grain Processing division, the Engineered Products division was renamed to Food Processing, with the concurrent decoupling of three related businesses, which now – in conjunction with the die-casting section – form the new Advanced Materials division.
The new “Ecoline” die casting series seamlessly complements the existing “Carat” and “Evolution” product portfolio with its simplified functional and performance characteristics. This new line distinguishes itself through its pronounced robustness and proven reliability as well as its high casting performance under optimal energy consumption, and all this with clamping forces of 340, 530, 660, and 840 tons. Initial success was had in India, a market not previously served by this product line.

Promoting safety in foods.

The Buhler Barth developed CCP (Controlled Condensation Pasteurization) process does not alter color, taste or consistency of the raw product and is therefore suitable for the pasteurization of raw nuts and almonds. This unique process thus affords a reliable defense against salmonella in nut-based products. This method has been certified by the Almond Board of California (ABC) and can now be used by almond processing facilities.

Die casting conquers new markets.

An expanded presence in China.

March saw the opening of a new manufacturing facility in Wuxi, China, a town located not far from Shanghai. Its 99,000 m² floor plan makes Wuxi our 2nd largest global production site. The Wuxi platform is geared towards the needs of their regional customers on the basis of its development, production and customer service. The same year also saw the opening of a Buhler center for chocolates in China. Its offerings include a comprehensive array of courses designed to advance know-how and competence in the field of chocolate manufacturing.

Striving for more efficient use of resources.

As part of a company-wide competition, a number of internal teams developed innovative ideas to assist customers in utilizing their resources more efficiently. The results include measures for more efficient energy usage, advanced solutions in process automation, energy-efficient process engineering as well as services which will yield benefits in future customer projects.

First successes with fortified rice.

NutriRice™ in China, a joint venture between Buhler and DSM, was able to achieve initial success with the sale of fortified rice, which is enriched with vitamins and minerals. In the meantime, customers in India and South Africa are also showing interest in the product, which is why initial projects have been started in those regions as well.
Buhler is the global specialist and technology partner for systems and services for the conversion of renewable raw materials into food products, and synthetic materials into high-quality functional products and recyclables. The company’s core technologies are in the areas of mechanical, thermal and biological process engineering. Buhler is organized in three divisions and 12 business units and for 150 years the company has been a professional partner in consultancy, technology, development, project management, training and support; and thanks to an international service organization, Buhler can be on hand at any time, anywhere in the world and throughout the whole life-cycle of a machine.
THE BASIS OF SUCCESS: 7,480 EMPLOYEES.

NORTH AMERICA / 7%
515 employees

- Raleigh, USA
- Minneapolis, USA
- Holland, USA
- Other locations

CENTRAL / SOUTH AMERICA / 3%
234 employees

- Joinville, Brazil
- Buenos Aires, Argentina
- Metepec, Mexico

AFRICA / 3%
220 employees

- Johannesburg, South Africa
- Other locations

In the region – for the region. Today Buhler manufactures machines and facilities in 15 production plants in 9 different countries: in the US, in Brazil, Germany, Switzerland, Spain, South Africa, Iran, China and India. As partners in technology with their customers and with 40 of its own facilities as well as a presence in 140 countries, Buhler can be found wherever their customers are. 1,500 sales and service employees cultivate personalized contact with their customers and understand their culture and language.

Approximately 7,500 Buhler employees are a driving force which for years has helped Buhler secure market leadership in a number of different industries. Interesting job assignments and the company’s global orientation make Buhler an attractive employer. Its geographical penetrability, a continuous exchange within its international production-, sales- and service network and the systematic development of its employees all contribute to the worldwide growth of its shared knowledge base.
SWITZERLAND / 36%
2,700 employees

EUROPE / 22%
1,644 employees

MIDDLE EAST / 2%
138 employees

ASIA / 27%
2,029 employees

2,700 Uzwil, Switzerland

682 Braunschweig, Germany
234 London, England
185 Madrid, Spain
131 Bergneustadt, Germany
412 Other locations

130 Teheran, Iran
8 Other locations

816 Wuxi, China
428 Changzhou, China
390 Bangalore, India
138 Xian, China
118 Shenzhen, China
139 Other locations
<table>
<thead>
<tr>
<th>Product</th>
<th>Market Share</th>
<th>Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHEAT</td>
<td>66%</td>
<td>330 m metric tons/yr</td>
</tr>
<tr>
<td>CHOCOLATE</td>
<td>65%</td>
<td>4.8 m metric tons/yr</td>
</tr>
<tr>
<td>PET</td>
<td>60%</td>
<td>8.9 m metric tons/yr</td>
</tr>
<tr>
<td>PASTA</td>
<td>50%</td>
<td>5.5 m metric tons/yr</td>
</tr>
<tr>
<td>SOY / GRAIN HANDLING</td>
<td>25%</td>
<td>425 m metric tons/yr</td>
</tr>
<tr>
<td>BIOMASS</td>
<td>20%</td>
<td>330 m metric tons/yr</td>
</tr>
<tr>
<td>DIE CASTING</td>
<td>20%</td>
<td>4.8 m metric tons/yr</td>
</tr>
<tr>
<td>RICE</td>
<td>15%</td>
<td>1,138 m metric tons/yr</td>
</tr>
<tr>
<td>ANIMAL FEED</td>
<td>15%</td>
<td>8.9 m metric tons/yr</td>
</tr>
</tbody>
</table>
FROM RAW MATERIALS TO HIGHER VALUE END PRODUCTS.

Buhler’s core technologies are in the areas of mechanical, thermal and biological processing techniques and encompass, among others, conveyance, cleaning, sorting, grinding, mixing and kneading for the processing of grains and other raw materials. Buhler process engineering also comes into play in the manufacturing and finishing of technical materials and in the die casting industry. The machines and facilities developed by Buhler can be found in use by its customers throughout the world, including but not limited to the food industry, chemical industry and the automobile industry.
PROCESS TECHNOLOGIES FOOD.

RENEWABLE RESOURCES

Grain

Paddy rice

Coffee beans

Cocoa beans

Oilseeds

PROCESS TECHNOLOGIES

Cleaning, grading, storage, handling  Grinding  Sifting  Mixing

Mixing  Mixing  Mixing  Mixing

Hulling

Steeping

Cleaning, grading, storage, handling

Hulling  Whitening, polishing

Cleaning, grading  Roasting  Grinding

Cleaning, grading  Crushing  Grinding

Cleaning, grading  Crushing
PROCESS TECHNOLOGIES

RENEWABLE RESOURCES / SYNTHETIC MATERIALS

- Biomass
  - Cleaning, grading
  - Grinding
- Pigments, oxides
  - Dispersion
  - Wet grinding
- Crude oil, monomers
  - Crystallization
- Aluminum, magnesium
  - Ladling
  - Die casting

PROCESSES
- Ladling
- Shaping, temperature control, spraying
- Extraction
- Crude oil, monomers
- Plastics (PET, PA, PC, SAP)
  - Wet grinding
  - Die casting
**FUNCTIONAL PRODUCTS/RECYCLABLES**

- **Conditioning** → **Pelleting** → **Formulating** → **Drying** → **Solid-state condensation** → **Shaping, temperature control, spraying** → **Extraction** → **Cooling**

- **Household pellets, industry pellets**
- **Printing inks, paints, ceramics, additives, cosmetics, materials for electronic components**
- **Plastics (PET, PA, PC, SAP)**
- **Die cast components for automotive, household appliances, and consumer electronics**

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**Buhler at a glance.** 75
Customers will also be able to rely on Buhler in the future. The large number of company activities with an orientation towards the future, such as the “Innovations for a better world” innovations competition, show that Buhler can be counted on to continue to invest in its ongoing development.
INNOVATIONS FOR A BETTER WORLD.

Innovations and business ideas for the development of new products and services which have the potential of improving the world while also being profitable – the assignment for the internal innovation plan contest was a real challenge. The twelve best ideas were selected out of 200 entries worldwide. In a final contest, four of these made the final cut.
Buhler is a global leader in the development and construction of facilities for grain processing, food production and the processing of specialized materials. As a market leader in different industries, Buhler considers itself obligated to continue to spur innovations while also taking responsibility for the sustainable development of food, raw materials, energy and the environment. Buhler’s pursuit of continuous improvements of its products and services has two basic goals: on one hand, it seeks to secure the economic future of the company; and on the other, Buhler wants to make a substantial contribution to the creation of a more sustainable world.

Feasibility as a guiding principle “Innovations which have the potential to create a global service or product!” This was the idea at the heart of the company-wide competition that Buhler announced at its 150th anniversary. The call for submissions ran for about half a year and was open to all 7,500 Buhler employees worldwide. The challenge consisted of creating business ideas in self-formed teams and then turning them in to a central panel of judges. The competition rules required that the ideas generated by the teams not only show a high degree of innovation but also significant market potential. Idealistic but not feasible projects were thereby disqualified.

Twelve projects in the first selection From the many project ideas submitted from all over the world to the panel of judges, twelve were selected. The 56 members of these twelve teams then met in Switzerland in mid-October for a 2-day training seminar with innovation experts and professors from world-renowned business schools. The goal of this seminar was to impart the necessary skills and tools to them, so that they could successfully convert their ideas into a business concept. Each team was supported by an experienced coach.

Until the end of November, the teams developed their business concepts. Markets were analyzed, customer needs were evaluated and potential competitors were identified. These analyses and concepts were then brought together in a concise, to-the-point summary. Near the beginning of December, the twelve teams were each given ten minutes to present their project to the panel of judges and convince them of its value. From these, the panel of judges selected four finalists. These four teams were then given the assignment to develop a comprehensive business plan by mid-January, which they presented to the final panel of judges on January 29th.

Training in Harvard The top two teams were awarded an opportunity to complete one week of intensive training at the Harvard Business School in Boston. The winning team was also awarded the “Innovations for a better world 2009” cup.

The end of the competition only marks the beginning of an entrepreneurial journey for the finalists. They will have the opportunity to present their projects to a Buhler investment committee, which will decide, on the basis of economic criteria, which of the business plans will be invested in. The goal is to develop 2–3 new start-ups. And in order to provide them with optimal support, Buhler will provide them with a platform. Fully in the sense of the contest idea, to create a successful future for Buhler by means of new innovations.
Project “SMART ENERGY”

Idea
A solution for the independent, in-house production of electrical energy, heating/cooling and process heat. The “Smart Energy” solution lowers energy costs by 50% and reduces CO₂ emissions by 66%. The solution is ready for market and calls for the implementation of already proven technologies, which are however not yet available on the marketplace in this combination.

Team
Jürgen Joachim, Willi Aurich, Christoph Meier, Thomas Fiebig, Maja Jösler; Stephan Walther (Coach).

Project “GOLD DIGGER – MANGO FAT FROM MANGO WASTE”

Idea
Mango is a widely consumed tropical fruit. The mango seed has previously been disposed of as a waste product. The “Mango fat from mango waste” project is comprised of a business idea to process mango seeds into fat, which can then be used as the basis for different products. The goal of this project is the reduction of environmental pollution and the creation of new jobs. The necessary technology for this project is already widely available through Buhler.

Team
Alok Sabharwal, Prashant Gokhale, B C Sunil, GVL Chari, Vinod Kumar; KC Reddy (Coach).
Project “PARGEM”

Idea
Sprouted legumes (such as peas, lentils, beans and soybeans) constitute an important food source. Sprouting is the natural way to increase the nutritional value of these legumes. Individually sprouting them is, however, cumbersome and a hygienically sensitive process. The “ParGem” solution allows for the small-scale, secure and hygienic production of ready-to-use sprouted legumes for daily consumption.

Team
Beatrice Conde-Petit, Eliana Zamprogna, Stefania Bellaio, Urs Keller, Michael Jacobs; Marcel Natterer (Coach).

Project “ISIGAYO COMPACT MAIZE MILL”

Idea
The goal of the Team Isigayo project is to improve the nutrition of poorly or undernourished populations in parts of Africa south of the Sahara through the provision of enriched corn. To this end the team recommends the development of a small, compact, transportable and low-priced corn mill, which can be sold to non-governmental organizations, communes, farmers or small businesses. The basic technology is available. Its production should occur in Africa.

Team
Olivier Marion, Andreas Risch, Paul Young, Yves Stuber; Anton Holenstein (Coach).
Tomorrow’s World is Not Just a Challenge. It is an Obligation.

The world is not just a market place – it is also our home. Topics such as climate change and nutrition show that we can only solve the problems of the future if we factor in the development of our habitat to the same extent as economic demands. It is therefore more of an obligation than a challenge for us to strive to make the sustainability of our future actions something we take for granted. Buhler is already doing everything possible to ensure that what benefits the customer also benefits future generations.

You can only rely on a company today whose performance and innovation you will also be able to rely on in future. Buhler is that kind of company – and has been for 150 years. We want to make our contribution to the solution behind the solution to our global problems, and help make the world just that little bit better, day by day.

Calvin Grieder
Chief Executive Officer