

The background of the page features a dark blue-tinted abstract graphic. It depicts a large, light-colored spiral staircase that curves upwards and to the right. In the background, there are blurred, metallic structures that resemble industrial processing equipment, such as a large cylindrical tank and a conveyor belt system. The overall aesthetic is modern and industrial.

THE
FUTURE
IS NOW!

THE BÜHLER GROUP

Billions of people come into contact with Bühler technologies to cover their basic needs for food and mobility every day. Two billion people each day enjoy foods produced with Bühler equipment, and 1 billion people travel in vehicles manufactured with parts produced with our machinery. We develop innovations for a better world with a focus on sustainability, health, safety, and energy efficiency.

GRAINS & FOOD

We significantly contribute to safely feeding the world as a front-runner in the global production and processing of wheat, corn, oats, rye, rice, pasta, cereal, and pulses. Our Grains & Food solutions and digital technologies help producers make healthy and safe finished products for human and animal nutrition.

CONSUMER FOODS

We offer the full gamut of technologies and solutions to bring life's little pleasures to people around the world. From equipment for roasting cocoa beans, to machines for preparing dough, to ovens for baking wafers, and to enrobing machines for that final delicious chocolatey touch, Consumer Foods is the single source from raw material to tasty sweets and savory treats.



More information
about the 2019
annual results

ADVANCED MATERIALS

We provide solutions for die-casting, wet-grinding, and thin-film technologies for high-volume application areas, including the automotive industry, precision optics, paints, electronics, packaging, inks, and ophthalmics. Our Advanced Materials technologies help manufacturers produce higher-efficiency vehicles, make buildings more economical, advance telecommunications, and improve the eyesight of wearers of prescription lenses.

THE FUTURE IS NOW!

CONTENTS

Statement by the Chairman and the CEO	2
Highlights of 2019	4
Interview with CTO Ian Roberts	6
GROUP REPORT	10
THE FUTURE IS NOW	26
PARTNERSHIPS WITH CUSTOMERS	34
Wudeli Flour Group, China	36
Saint-Gobain SageGlass, United States	42
M. Dias Branco Group, Brazil	48
SUSTAINABILITY REPORT	54
GOVERNANCE	58
FINANCIAL REPORT	76



Stefan Scheiber, CEO, and Calvin Grieder, Chairman.

THE FUTURE IS NOW!

Dear customers, colleagues, and business partners,

Any strategy is only as good as the operational implementation it precedes. In this sense, 2019 was a confirmation of our fundamental orientation in several respects.

First, this applies to the acquisition of the Austrian Haas Group at the beginning of 2018. Our goal was to form a third strategic pillar together with the leading company for wafers, biscuits, and cookies. The Consumer Foods segment, which was formed in 2019 from Haas and the corresponding Bühler business areas, is in a position to cover our customers' integrated processes and value chains and thus to develop and offer comprehensive solutions. This strategic step was rewarded by our customers. We have won market share on the basis of this new solution competence. We were able to complete the integration of Haas earlier than planned, and we fulfilled the business plan underlying the acquisition.

Bühler Group's business performance was stable in a volatile market environment. While the turnover of the food and feed business continued to grow, Advanced Materials had to cope with a decline, mainly caused by the current weakness of the global automotive industry and ongoing international trade conflicts.

Second, our multi-pillar strategy has proven its worth under difficult conditions. Overall, Bühler's order intake reached CHF 3.1 billion (-4.6%), turnover was CHF 3.3 billion (-0.5%), and EBIT increased to CHF 248 million (+7.5%), with an EBIT margin of 7.6% (previous year: 7.1%).

Third, our focus on innovation and sustainability was met with impressive approval at the opening of our CUBIC innovation campus and during the Bühler Networking Days 2019 in August. More than 800 executives from customers, industry partners, scientific institutions, start-ups, and NGOs from all over the world came to Uzwil for several days to work with us on developing sustainable solutions for the future. The challenges are enormous, and so is the potential of new technologies. As an industry, we have a responsibility to respond to these pressing threats with new solutions and concepts. Therefore, we have applied the credo "The future is now" to our 2019 Annual Report. Our key factors for success – now and in the future – are people, innovation, and collaboration.

We wish to express our sincere gratitude to our customers, partners, our workforce and their families, and our owners. Our success and our ability to feel good about all that we have achieved is due to your commitment and trust. We look forward to working closely with you for years to come.

Yours faithfully,



Calvin Grieder
Chairman of the Board



Stefan Scheiber
Chief Executive Officer

HIGHLIGHTS OF 2019



Watch the video of the 2019 highlights

MOVING INTO THE CUBIC

The new CUBIC innovation campus in Uzwil, Switzerland fills with life as **the first employees take up their work** in this hub for collaborative innovation.



BÜHLER JOINS WBCSD



Bühler is welcomed into the **World Business Council for Sustainable Development (WBCSD)** by its nearly 200 members.

A PLATFORM FOR CHANGE

Bühler's Generation B initiative hosts the first **One Young World Caucus**, in Uzwil, Switzerland as 200 changemakers from all over the world gather in the CUBIC.



THE INNOVATIONS CONTINUE



Bühler showcases its **new single-screw extruder** for the pet food and aqua feed industry at VICTAM in Cologne, Germany.

January

February

March

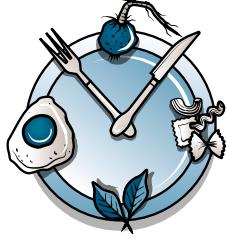
April

May

June

TAKING INITIATIVE

Bühler co-founds the **Future Food Initiative** launched by ETH Zurich and EPFL, together with industrial partners **Givaudan and Nestlé**.



LAUNCHING LAATU



Bühler launches Laatu, a **sustainable microbial reduction solution** for industrial dry-food processing at the Microsoft booth at Hannover Messe.

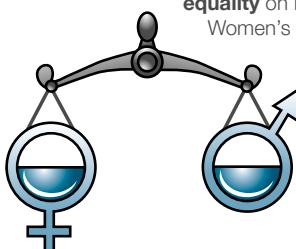
A TRUE MILESTONE

Bühler completes its **10,000th Dolomit roller mill** and delivers it to the world's largest flour producer, **Wudeli Flour Group in China**.

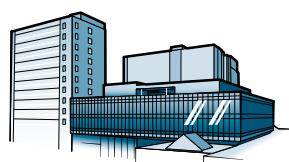


FOSTERING GENDER EQUALITY

CEO Stefan Scheiber renews Bühler's **commitment to gender equality** on International Women's Day.



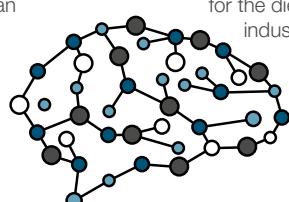
A HUB FOR COLLABORATION



The Bühler family, together with management, officially **opens the CUBIC innovation campus**, including eight modernized application centers.

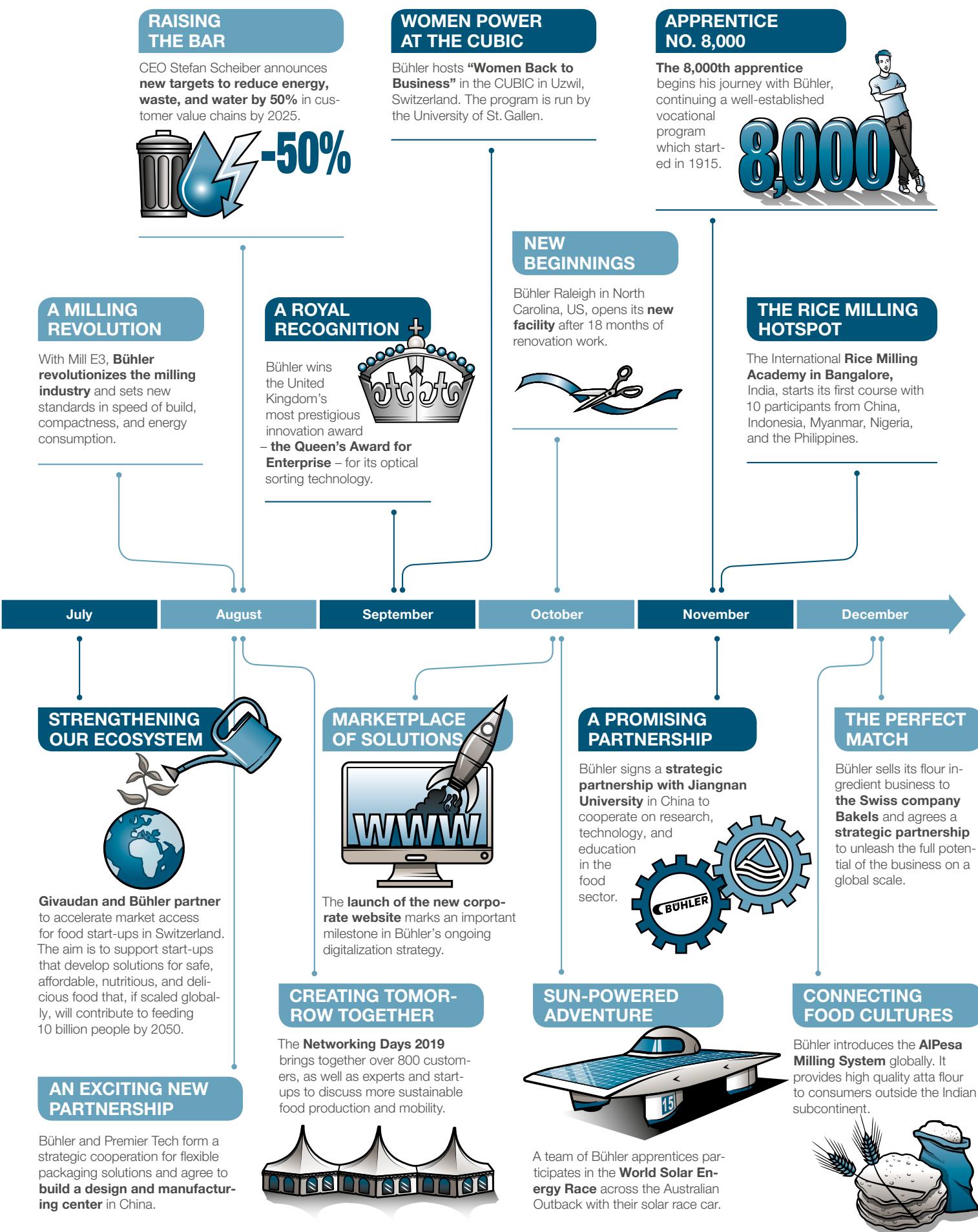
INSECTS TO FEED THE WORLD

The **world's first industrial-sized commercial processing plant for insects**, built by Bühler, opens in the Netherlands. Insects are an ideal protein source for animal feed.



A VISION FOR DIE CASTING

Bühler introduces its **vision of the Digital Cell**, a solution that aims to deliver 0% scrap, 40% less cycle time, and 24/7 uptime for the die-casting industry.





More about
our sustainability
strategy

“OUR MISSION HAS JUST BEGUN”

Bühler Chief Technology Officer, Ian Roberts, explains industry's role in creating a sustainable future and underlines the importance of collaboration and digitalization in reaching our new sustainability targets.

Interview: Michèle Bodmer, Head of Publications and Multimedia

Ian, what motivates you to work at Bühler?

Bühler is a family company, and the family holds us to two guiding principles: we must be technology leaders in our industries, and we must run the company like a family, taking decisions on behalf of future generations. Combining these principles, it is possible to create a powerful culture of innovation, sustainability, and entrepreneurship. Our strong market positions in the food system and in automotive enable us to scale solutions globally and multiply the impact they bring.

What is your focus for the coming years?

In short, it is to create new business opportunities that drive financial sustainability, while enabling us to play a key role in tackling global issues. The Intergovernmental Panel on Climate Change (IPCC) report of November 2018 outlined our challenge very clearly – if we are to have a chance of restricting climate change to less than 1.5°C in 2030 versus pre-industrial times, we must act now. We announced our targets at the Networking Days 2019, to reduce energy, waste, and water consumption in our customers' value chains by 50% by 2025 and we are focusing our R&D activities, our ecosystem activities, and our energy on achieving these targets.

How have advances in technology changed Bühler's approach to sustainability and innovation?

Digital technology has changed industry, and it has also touched every facet of life. Twenty years ago, it was unimaginable that we could connect data across complete value

chains from, for example, farm to consumer. Today, we can do that. Our partnership with Microsoft has been a great example of working together to create a platform to provide the data transparency necessary to optimize value chains as a system. This provides another means with which to contribute to our targets of reducing energy, waste, and water consumption by 50%.

We also see diet evolving rapidly. News of epidemics, such as swine fever and the growing awareness of the CO₂ footprint of meat, fuel dietary changes towards sustainable proteins while consumers have access to more information and to more opinion leaders. This strongly influences their purchasing decisions. Meanwhile, the role of electric, hybrid, and ever-more intelligent vehicles is changing infrastructure and technology requirements, leading to increased need for new materials and greater connectivity.

More than technology, how we innovate is changing. Start-ups, developing new products with high speed and agility, are disrupting value chains with new business models. More and more, innovation occurs among an ecosystem of partners, be they academics, suppliers, customers, start-ups, NGOs, or institutions, thus the capability to partner and create win-win relationships is increasingly important.

How do we create business opportunities for our customers out of mitigating climate change?

Industry can become part of the solution for today's challenges. More than that, it makes good business sense. The challenge many of our customers face today is that

they will be held accountable by consumers, the public, and their investors on how they run their operations. Running production facilities with lower energy, lower emissions, less waste, less water, and higher yield lowers operational costs and is more sustainable. It is also an important factor in attracting talent – the lifeblood of any company. Most young people today want to work for a company that is delivering on a great purpose and has a genuine and significant positive impact.

Looking back at 2019, what are some of the solutions we have brought to market that are going to create an impact on our sustainability targets and those of our customers?

There are numerous examples that have come to market in 2019. The Mill E3 demonstrates how we can create a step change in a traditional industry. Another example is in our CUBIC innovation campus. The use of Saint-Gobain Sage-Glass, with its electrochromic coating, enables us to reduce energy consumption of the building by up to 35%. SageGlass is coated with Bühler Leybold Optics technologies.

Our Digital Cell for die casting, which enables us to reduce unplanned downtime through preventive maintenance, reduces the production of scrap. Or look at Laatu, our food safety solution for dry goods. It's a wonderful example of collaborative innovation between several technology partners to create a solution that makes foods safe without the use of heat. This non-thermal solution reduces energy consumption by up to 80% compared to solutions using steam and it eliminates water or chemical use. It inactivates harmful microorganisms such as E. coli, salmonella, and spores in milliseconds. We just treat the surface of the dry goods, which means we don't damage the nutritional profile of the product and we deliver a safe product at a high throughput.

In 2019, our colleagues in Bühler Digital Technologies in London won the Queen's Award for Enterprise for a unique camera technology they designed for sorting machines. This breakthrough innovation will make a major contribution to ensuring healthier and safer nutrition around the world.

In terms of digitalization, how far have we come and what do we still need to change?

We have gone very quickly from being digital novices to being among the leading players in our industry. But this did not happen overnight. We started this journey at least 15 years ago, by working on the quality of our data and standardizing the systems deployed across the company. We have automation, control systems, data storage, and customer service in place, and we have the data scientists to create value using advanced mathematical techniques.

With our digital platform Bühler Insights, we now have the capability to connect 85% of the technologies we have in the market. We can capture data and optimize processes in a way that brings huge value to our customers, not just in terms of visibility and transparency, but in terms of the actions they can take to optimize their processes. For example, we can now improve the yield of flour mills by several percentage points, after generations of optimization, this is significant. Every month we quantify additional benefits for our customers. We've come a long way in terms of digitalization, but the journey will not only continue, it will accelerate.

What are you doing to drive innovation globally?

We are replicating the strong ecosystem approach that we have in Switzerland in other regions of the world. In the United States, for example, we have built partnerships with start-up accelerators and academia, centered around our new innovation center in Minneapolis, Minnesota, and our upgraded facilities in Raleigh, North Carolina. In China, we have a strong R&D presence and have established partnerships with start-ups, accelerators, and academia. China is one of the most digitalized nations on earth, with a rapidly moving innovation space. Around London, we access a strong ecosystem of start-ups, accelerators, partners, and some of the leading academic institutes. We are also excited about the burgeoning innovation ecosystem in Singapore.

Where is our innovation journey ultimately leading?

I think it's very clear. According to the IPCC report, a rise in global temperatures of 2°C instead of 1.5°C above pre-industrial times will result in catastrophic, irreversible consequences for our planet. That means by 2025 we must have solutions available across our ecosystem that will enable us to reduce energy, waste, and water consumption by 50%. That is the last moment that it will be possible to scale these globally before 2030.

Some of these will be disruptive and some will be a case of optimizing the installed base. We shouldn't forget how important that is. The biggest, fastest impact we can have is to take the globally installed base of technologies and processes and make them more efficient. That will have a profound impact on CO₂ and greenhouse gas emissions.

We increased our targets to reduce waste and energy in our customers' value chains from 30% to 50% and we've added water. Have we already achieved the first goals?

We were making progress on our mission to achieve the 30%; we were beginning to get the first results and the first impact. But now we feel 30% was not enough. We can see that the need to act is critical. Will the legacy of our generation be that we acted or that we did nothing? At Bühler, we will be able to say that we are working to be part of the solution. We have a phenomenal opportunity with our customer base, our innovation ecosystems, and our partners to bring profound and wide-scale impact that will directly mitigate climate change. There is no silver bullet, however. We have to reduce emissions, but that's not all. We will also need carbon sequestration programs, global education programs, and changes in diet, to name but a few. And if we are going to feed nearly 10 billion people in 2050, we also have to do it with less land.

Considering that 71% of the world's fresh water is used in agriculture, but one-third of the world's food is lost or wasted, this equates to 24% of the world's fresh water used to create waste or loss. That is just untenable. We have to play our role, but it requires a systems approach, where there are multiple solutions and everybody can play a part.

How are we going to track progress toward achieving these 50% goals?

We have taken 2016 as our baseline. With rigorous CO₂ evaluation tools we will quantify the impact of our technologies, solutions, and products. We will ensure that the CO₂ impact of



Ian Roberts has been working at Bühler since 2011. He was named European CTO of the Year in 2016.

“The biggest, fastest impact we can have is to take the global installed base of technologies and processes and make them more efficient.”

IAN ROBERTS
Chief Technology Officer

our technologies and activities is understood. We believe that this will support our customers to take informed decisions and focus our innovation activities.

We have kicked off a program to support our employees to calculate their own CO₂ footprint, and we will propose ways to reduce wherever possible and, if not, to draw down carbon emissions using validated programs. We have ambitious plans to have this in place during 2020. We have access to extraordinary technologies and networks – now we have to go to full value-chain thinking. If I could drive one culture change across industry, it would be to make collaboration a core competence. Only then can we really talk about industry being not just part of the solution, but a key driver in the solution.

Which collaborations are good examples of how we should work in the future?

One is the Future Food Initiative, launched by ETH Zurich and EPFL in cooperation with three industry partners, including Bühler, that are investing to build a critical mass of knowl-

edge and capability that will be beneficial on a global level. Another is MassChallenge, which is a number of companies that sometimes have a competitive overlap in their business working together to support and boost the start-up ecosystem without taking equity. Then there is Unitech, which teaches engineers how they can use their skills for the future.

At Networking Days 2019, you asked: “Are we doing enough as an industry? Are we doing enough as a business? Are we doing enough as individuals?” What has changed since then?

As an industry, we have tremendous impact. We are committed to finding partners and supporting our customers to bring about this 50% reduction in their value chains. We will convene, inspire, learn, share best practices, and act. We encourage a mindset of collaboration to drive change. As a business, our focus is on achieving the 50% reduction targets by 2025. If R&D investment requests do not support us in achieving these goals, then money will not be forthcoming for projects.

And as individuals, we are supporting our employees to understand their carbon footprint to learn how they can reduce it with lifestyle choices or with validated drawdown programs. I am also delighted that we are moving ahead with our partnership between MassChallenge, the World Business Council for Sustainable Development, and One Young World in order to identify the 10 most promising solutions or technologies to mitigate climate change every year. With our collaborations and partnerships, we can then determine real solutions that could make a difference, support them with access to financing, expertise, and more importantly, to the global companies that will enable them to scale their solutions. I think if we pull that off, I can look my children in the eyes and say: “Yes, we did act.”

INNOVATIONS FOR A BETTER WORLD

2019 marked a milestone in the history of Bühler. With the opening of the CUBIC innovation campus, the Bühler Networking Days in Uzwil, and the new partnerships formed, the company has expanded its innovation ecosystem, while the operative business proved its robustness under difficult conditions.

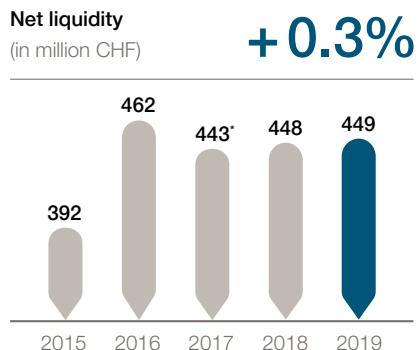
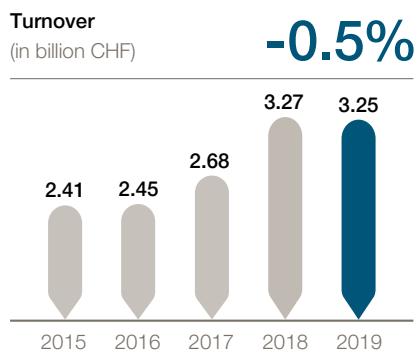
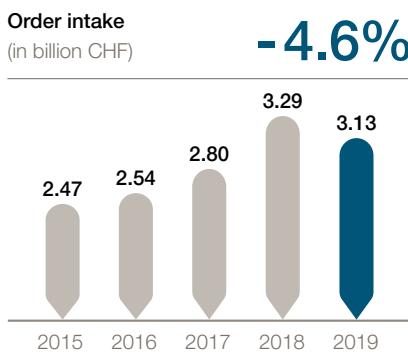
The development of sustainable technologies and process solutions in close collaboration with customers, industry partners, scientific institutions, and start-ups was taken to a new level in the 2019 business year. As a driving force behind this innovation ecosystem, Bühler resolved to elevate its sustainability targets – striving to reduce energy, water consumption, and waste by up to 50% in the value chains of its customers by 2025. Recognizing the increased urgency presented by global climate and environmental challenges, Bühler is committed to transforming them into profitable, quickly growing businesses. Bühler's position and market differentiation have been further expanded and strengthened with these initiatives.

Operationally, Bühler's strategic positioning as a provider of industrial solutions with three segments proved its worth in 2019: In an increasingly challenging and volatile environment, the good performance of Grains & Food (GF) and Consumer Foods (CF) was largely able to balance out the declines in Advanced Materials (AM). On the Group level, the

incoming orders and turnover remained stable, while profitability was further increased. A noteworthy highlight is the successful and ahead-of-schedule integration of the Austrian Haas Group following its acquisition in 2018, and the formation of the new Consumer Foods business in January 2019. In 2020, Bühler plans for a stable and positive business development.

Increased profitability with stable volumes

The course of the business development in the segments varied widely. While order intake for GF continued to grow at CHF 1.8 billion (+5.2%), for CF it declined slightly to CHF 775 million (-1.7%), and AM had to absorb a decline of 32.2% in order intake to CHF 488 million, largely due to the automotive industry. Overall, order intake for the Group amounted to CHF 3.1 billion (-4.6%). The same picture emerges with regard to turnover. On the Group level, Bühler's turnover was CHF 3.3 billion (-0.5%). With turnover of CHF 1.8 bil-



lion (+0.9%), GF demonstrated robustness. Getting high levels of orders into turnover in a timely manner remains a key focus. CF turnover was CHF 774 million (+2.5%). At CHF 649 million, the turnover of AM dropped by 8.0%. The order backlog on the reporting date was CHF 1.8 billion (previous year: CHF 1.9 billion).

Along with this divergent course of business, there was also a shift in regional development. While Asia and Europe drove growth in the past year, in 2019 North America and Middle East & Africa took over this role. For the first time in years, Bühler recorded a standstill in China due to market saturation and tariff conflicts. Regardless, its geographic bandwidth remains balanced. With regard to turnover, Europe makes up 30%, Asia 31%, North America 16%, Middle East & Africa 14%, South America 6%, and South Asia 3%.

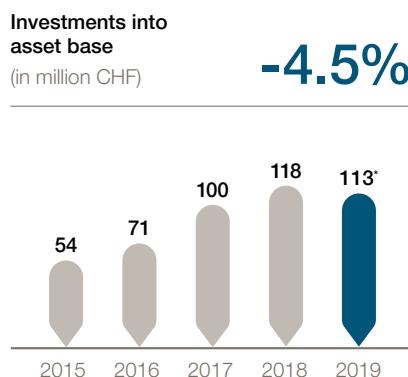
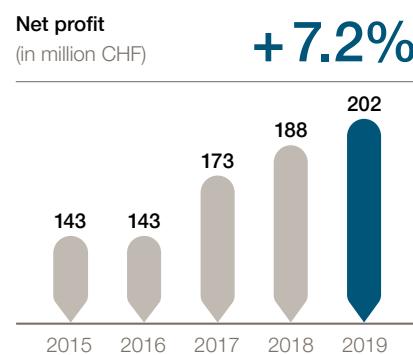
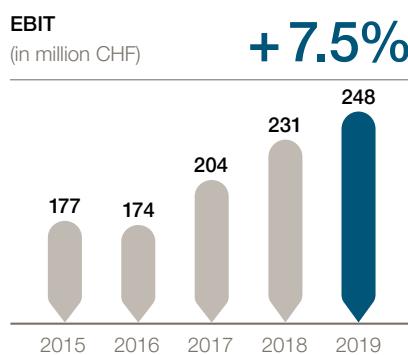
Structurally, Bühler was able to further improve the breadth of its portfolio in 2019. Customer Service (CS) turnover grew by 2.9% to CHF 694 million, and the Single Machine Business (SMB) turnover decreased by 4.0% to CHF 285 million. Together CS and SMB generated total turnover of CHF 979 million, representing a 30% share of total Group turnover (previous year: 30%). The e-commerce platform myBühler made a substantial contribution to the CS business. In 2019, the number of active customers increased from 4,000 to 5,500, the orders through the system

from 8,400 to 13,000, and the revenue from CHF 25 million to CHF 41.5 million. Strategic investments in our infrastructure and research and development (R&D) remained at a high level. The expenses for R&D were increased to CHF 149 million, that is an increase relative to Group turnover of 4.6% (previous year: 4.4%). This is in line with Bühler's strategy to be an innovation leader in its industries.

Financially sound

By consistently managing resources and costs, Bühler succeeded in increasing profitability while maintaining the same volume. EBIT rose by 7.5% in absolute terms to CHF 248 million, corresponding to an EBIT margin of 7.6% (previous year: 7.1%). The leap in profitability in CF, with an improvement in EBIT of over 50%, is particularly noteworthy. With a tax rate of 19.5% (previous year: 20.1%) and a financial result of CHF 2.4 million (previous year: CHF 4.6 million), net profit grew by 7.2% to CHF 202 million (previous year: CHF 188 million).

From a healthy basis, Bühler's financial position remains solid and strong. Investments in infrastructure were reduced to CHF 113 million (-4.5%). Operating cash flow declined by 18% to CHF 166 million. Net liquidity remained high at CHF 449 million (+0.3%). The equity ratio grew slightly to 42.8% (previous year: 42.2%).



* Excluding changes in accounting standards and others.



More about the
2019 business year

Grains & Food

Order intake

CHF **1.8 billion** **+5.2%**

Turnover

CHF **1.8 billion** **+0.9%**

OPERATIONAL ACTIVITIES

Grains & Food

Grains & Food (GF) continued on its successful course in 2019, with growth in all four business units and notable profit from numerous large projects. Order intake grew by 5.2% to CHF 1.8 billion, and turnover increased by 0.9% to CHF 1.8 billion. With the introduction of numerous innovations, GF further expanded its position of technological leadership. To develop highly efficient packaging solutions, GF initiated a strategic partnership with the Canadian company PremierTech.

In 2019, Milling Solutions was able to win large global projects, including Ardent Mills (US), Barilla (Italy), Fahem (Yemen) and City Group (Bangladesh) – and thereby further expand its already strong market position. The first order for the new, revolutionary generation of mills – the Mill E3 – made by British customer Whitworth Brothers Ltd., was a milestone. With a more compact, modular design, new components and full digitalization, the Mill E3 saves about 10% in energy and significantly reduces construction costs and installation time. The start of production for the first Mill E3 is planned for mid-2020. The digital services launched at the Networking Days 2019, held in August in Uzwil, Switzerland, met with a positive response, especially the Yield Management Service (YMS) and its associated interactive dashboard. For one German customer of YMS, yield was increased by up to 2% with the help of this digital solution.

Value Nutrition also saw strong growth in most application areas, particularly in pet food, cereals, and pasta. Its solutions for manufacturing plant-based meat alternatives gained significance. With the market introduction of a single-screw extruder, Value Nutrition was able to supplement its product portfolio and is now in a position to offer the entire range of processing technologies.

Based on its leading innovations, Digital Technologies recorded high growth for optical sorting machines, especially for nuts, frozen fruits, and vegetables, as well as for plastic recycling. The business unit was honored with the Queen's Award for Enterprise for the seventh time since its first win in 1968. The United Kingdom's most prestigious innovation

award was received in recognition of the development of a unique camera technology used in sorting machines capable of recognizing the subtlest color and shading contrasts in materials and foods, thereby significantly increasing detection rates for foreign materials or contaminated foods. Digital Technologies also introduced Laatu, a new technology for microbial reduction in dry foods that does not introduce heat, water, chemicals, or radioactive sources, to make foods safe. It also reduces waste, energy, and other natural resources.

Grain Quality saw positive growth in all areas in 2019, including malting, brewing, rice, and storage. Many large malting projects went to Bühler, confirming its global market leadership. With new process solutions to increase yield, it was possible to reinvigorate the brewery business. In the rice business, Bühler saw strong growth primarily in Southeast Asia and secured a foothold in China with important key contracts. The business unit recorded its first orders for silos and conveyor belts related to China's Belt and Road Initiative, a mega-project for infrastructure. Grain Quality also benefited greatly from joint projects with other business units.



More about
Grains & Food

Consumer Foods

The Consumer Foods (CF) segment was established at the beginning of 2019 from the acquired Haas Group and the associated business areas at Bühler and was operational in 2019 as the third strategic pillar. In a positive environment, the strengths of the new market presence were demonstrated in just the first year of its existence. The CF segment decreased in order intake by 1.7% to CHF 775 million, and turnover increased by 2.5% to CHF 774 million. The segment was able to significantly improve profitability.

In 2019, the Haas business units were rebranded and integrated with the corresponding Bühler businesses into the Bühler Consumer Foods business segment. The goal was to offer complete process solutions under the Bühler brand for the manufacturing of items such as wafers, cookies, and

Consumer Foods

Order intake

CHF **775 million** **-1.7%**

Turnover

CHF **774 million** **+2.5%**

Advanced Materials

Order intake

CHF **488 million** **-32.2%**

Turnover

CHF **649 million** **-8.0%**

bars. The integration was concluded ahead of schedule. The consumer foods market and its customers responded extremely positively to the merger. The Egyptian customer NSPO ordered four complete wafer and cookie lines in January, not least thanks to Bühler's ability to provide fully-integrated solutions. The close collaboration between the GF and CF business segments led to more orders from this customer. Over the course of the year, NSPO ordered a mill, a pasta line, and a chocolate line, and the extension of one wafer and one biscuit line each with a chocolate coating line.

Similar success was achieved with the Italian customer Ferrero, which put an integrated wafer bar line into operation in October. Bühler's complete competence in the areas of wafer, creme, chocolate, bar, and coating technology were fully deployed for this customer. The 2019 business year was also characterized by the introduction of numerous innovations most of which, were aimed at increasing sustainability through energy efficiency, reducing waste, and raising productivity. The new SWAKT-ECO oven saves up to 25% of energy in waffle manufacturing and reduces emissions by up to 90%. A newly developed process for producing edible to-go coffee cups made from waffle dough was developed to reduce the use of single-use plastic.



More about
Consumer
Foods

Advanced Materials

After five years of uninterrupted growth, Advanced Materials (AM) had to accept a decline in order intake and in turnover due to the global slowdown and saturation in its key markets – automotive and precision optics. Order intake fell by 32.2% to CHF 488 million, and turnover dropped by 8.0% to CHF 649 million. Due to the order backlog in the previous year and timely, consistent cost management, the segment remained satisfactorily profitable. AM used the generally tense market situation to assert its position as the market and technology leader by introducing several forward-thinking innovations.

Die Casting was heavily affected by the weakness in the global automotive industry, most notably from the decline in China. About 80% of the business for the unit stems from this industry. It was therefore decided to maintain market and technology leadership with innovations and improve the range of services.

Die Casting introduced its new modular machine platform Fusion in Düsseldorf, Germany, at the GIFA trade show, making a resounding argument with 1,400 tons of clamping force. At the center is the digital die-casting cell, consisting of the machine itself, supplemented with the integrated cell control system Smart CMS and additional digital services such as downtime analysis and maintenance forecasting. In Brescia, Italy, the business area opened a new service center for retrofitting machines. In addition, Die Casting succeeded in anchoring itself in new, non-automotive end markets, for example with orders in regard to 5G mobile communications.

Leybold Optics was also affected by the decline. In precision optics for mobile devices, there was a delay in investment due to the effects of international trade conflicts. In the area of coating systems for architectural glass, a slowdown occurred due to saturation after several strong years. In the case of coating systems for front and rear lights, the slowdown in the automotive sector was noticeable. The ophthalmics business with coating systems for lenses held its ground. Innovation highlights included the introduction of the Helios 1200 precision optical filter for coating 12-inch semiconductor wafers, and Leybold Optics' market entry into ion beam sputtering technology for applications in high-power lasers and optical telecommunications.

In Grinding & Dispersing, sales of single machines remained solid in 2019. For paint production systems, the United States punitive tariffs on key chemicals from China led to a significant slowdown.

Good progress was made in building up the business of systems for electric battery manufacturers. Bühler has installed over 20 production lines with a mixing capacity of half a gigafactory (16 GWh).



More about
Advanced
Materials

FOCUS ON SUSTAINABILITY

It is obvious that global challenges regarding climate change and mobility are accelerating and becoming increasingly urgent. Climate change, the protein gap, loss of biodiversity, and population growth – all will have a greater impact if we don't act now as individuals, businesses, and industries to drive change. In 2018, the United Nations Intergovernmental Panel on Climate Change (IPCC) reported the consequences of 1.5°C global warming above pre-industrial levels compared with a 2°C increase. If we do not stay within the 1.5°C threshold, the risks of floods, extreme heat, food scarcity, and poverty for hundreds of millions of people will increase.

For this reason, Bühler has raised its own sustainability targets in 2019. Bühler aims to reduce energy and water consumption, as well as waste in customers' value chains by 50% by 2025. It is Bühler's goal and corporate purpose to transform these urgent challenges into quickly growing and profitable businesses in alignment with its purpose of "Innovations for a better world".

No single company can address global challenges on its own. On the contrary: Only through close cooperation can the necessary solutions be developed and scaled in a timely manner. For this reason, Bühler broke ground on a new epicenter for its collaborative innovation ecosystem in Uzwil, Switzerland, in September 2017. After 20 months of construction, and an investment of more than CHF 50 million over three years, the CUBIC and the associated application centers were opened in early 2019 – and with it, a new chapter in Bühler's corporate history started.

Bühler is strengthening its model of collaborative innovation and education with the CUBIC, a total of 25 application centers for joint development with customers and start-ups around the world, more than 7,800 continuing education courses, about 600 apprentices at 25 locations, and dozens of partnerships with universities, industrial partners, start-up accelerators, and NGOs.

Opening the CUBIC innovation campus

The CUBIC is integrated into the Uzwil location so that it forms a bridge between development, engineering, and design teams, eight modernized application centers, and production. As a result, customers, start-ups, industry and research partners can develop solutions more quickly and efficiently to reach market readiness. The CUBIC specifically promotes new methods of learning for training and continuing

education. Here, working apprentices and researchers, and both young and experienced employees work together in project teams across business units, and with a strong focus on digital solutions. The campus embodies the innovative spirit and inclusive culture of the company.

The three-story CUBIC facility is itself an example of sustainability and innovation. The building consumes 35% less energy than a building of similar size. Its smart, electrochromic glass façade was manufactured on glass-coating machines from Bühler Leybold Optics. The innovation campus is certified with a Gold label from LEED (Leadership in Energy and Environment Design).

Creating tomorrow together

Bühler once again invited industry leaders, partners, customers, scientists, and start-ups to convene in Uzwil and join its Networking Days 2019 event. The motto was: "Creating tomorrow together". The first Networking Days in 2016 focused on food, while at the 2019 event, food and mobility of the future were in the spotlight.

At the heart of the presentations, discussions, and exhibits was the question of how to provide the projected population of 10 billion people in 2050 with sustainable nourishment and mobility. The 800 attendees discussed the need for increased collaboration across sectors and industries to drive the transformation needed to address the climate crisis.

The attendees not only heard from Bühler leaders, but also the views of knowledgeable authorities from broad fields of expertise, including Dr. Gro Harlem Brundtland, former Prime Minister of Norway and advocate for sustainability; and Stefan Palzer, Chief Technology Officer of Nestlé; Patrick Dupin, CEO of Saint-Gobain Northern Europe; and Francois Pienaar, who led the South African national rugby team to a world championship title in 1995 as team captain. Sunny Verghese, the co-founder and CEO of Olam International as well as President of the advisory board to the World Business Council for Sustainable Development (WBCSD) spoke of the need for companies to work together to leave a better world to future generations, and John Harthorne, founder of the start-up accelerator MassChallenge, expressed the need to pave the way for innovators.

The Networking Days 2019 participants represented companies that manufacture food for 4 billion people every day and contribute to the mobility of about 1 billion people. The



Bühler employees form "TOP"; our new corporate values that stand for Trust, Ownership, and Passion.

group as a whole was in agreement that continuing the status quo is not an option for dealing with today's global challenges, and that broadscale collaboration is vital to making the food and mobility industries more sustainable.

With positive energy into the future

Another milestone in 2019 was the refinement of our corporate values to TOP: Trust, Ownership, and Passion. The global challenges and risks that we face today have become more acute, and the world is changing quickly. Taking the TOP values as the guideline, Bühler's ambition is to transform the global challenges it faces into sound business opportunities. Values play a crucial role for a company's success and they set the foundation for the company culture. With the TOP values as a framework for behavior, Bühler aims to profitably grow its businesses, and at the same time, contribute to a sustainable world, which gives future generations the same chances to live and develop as today's societies.

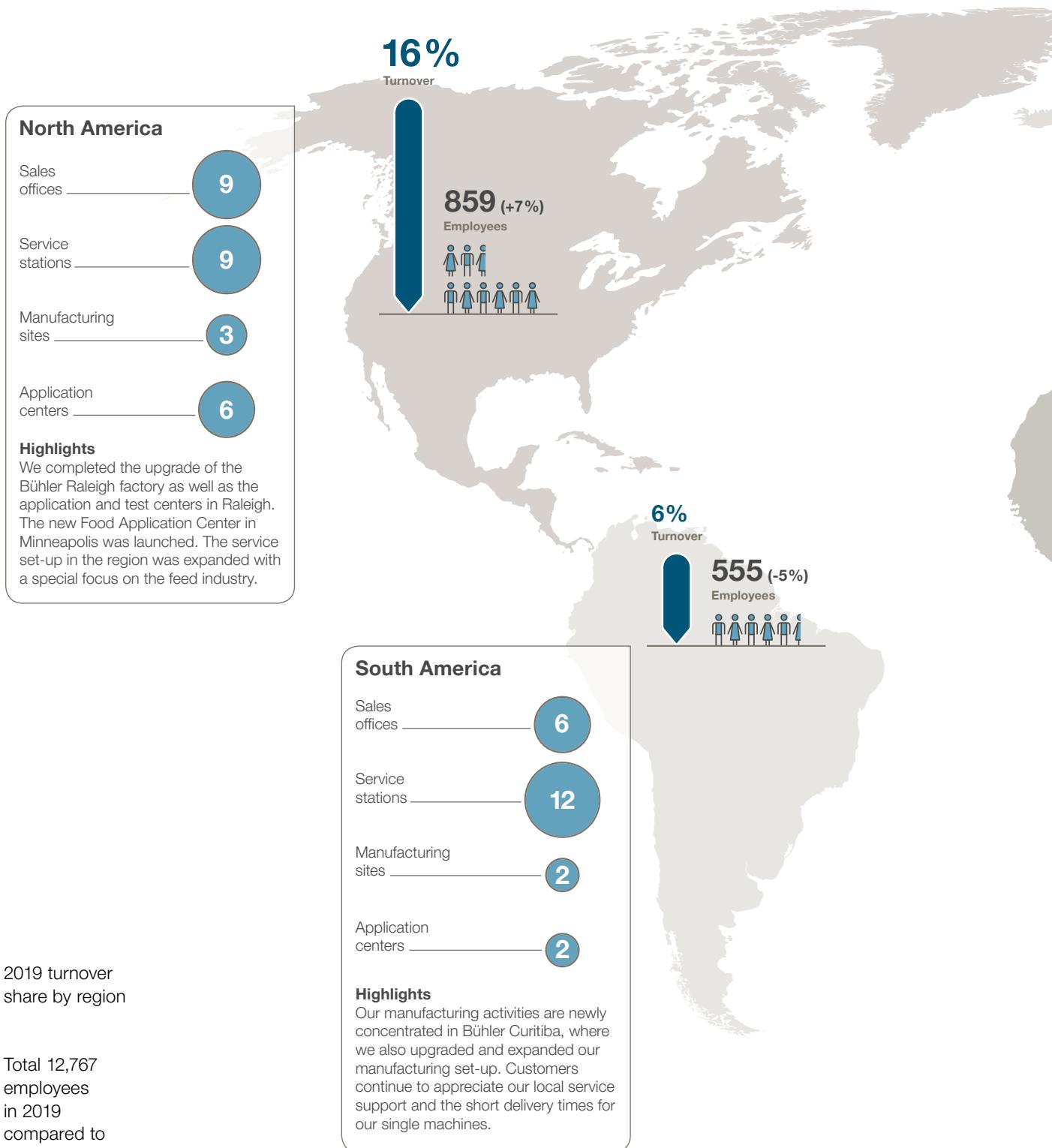
Outlook

Looking at the current fiscal year, the framework of the global economy looks bleaker. The trade conflict between the US and China, Brexit, and political unrest in Venezuela and Chile, are leaving their mark on global growth prospects. Starting in the second half of 2018, Bühler noted greater reluctance for large projects. The upheavals created uncertainty in the industries, such as on the issue of electromobility.

On the other hand, many new business opportunities were created as a result of China's Belt and Road Initiative – an ambitious global development program for infrastructure – and there were positive developments in many African countries. Both resulted in the necessity for developing sustainable solutions for nutrition and mobility. With its global positioning, a strong foothold in Asia, and a growing innovation ecosystem, Bühler is well positioned to benefit from these opportunities. In 2020, Bühler plans for a stable and positive business development.

IN THE REGION, FOR THE REGION

Bühler has systematically localized its resources and offers manufacturing sites, service stations, sales offices, R&D facilities, and application and training centers across 140 countries.

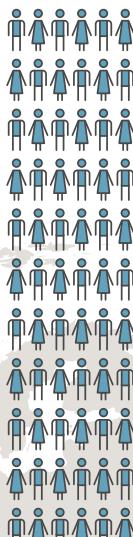


30%

Turnover

6,617 (-4%)

Employees



Europe

Sales offices

26

Service stations

23

Manufacturing sites

17

Application centers

8

Highlights

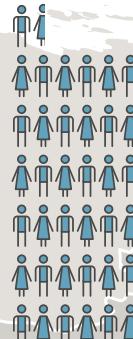
With the opening of the CUBIC and the brand new application centers in Uzwil, Switzerland, we offer state-of-the-art facilities and unique capabilities to support our global customers with any of their challenges. With our new wafer and biscuit business we have also further expanded our European set-up and know-how.

31%

Turnover

3,685 (-3%)

Employees



Asia

Sales offices

23

Service stations

25

Manufacturing sites

8

Application centers

7

Highlights

Our impressive set-up in China and Asia has further been strengthened with a new manufacturing facility for vacuum coating solutions in Beijing. Across the region we have further expanded our local service set-up and test and application know-how to serve our customers' special requests with local expertise.

14%

Turnover

446 (-7%)

Employees



Middle East & Africa

Sales offices

14

Service stations

15

Manufacturing sites

1

Application centers

1

Highlights

Our recognized and leading milling school in Kenya was further expanded with rice and feed milling expertise, and we added a new cocoa expertise center in Abidjan, Ivory Coast (to be opened in 2020). We continue to invest in the development of its local set-up in the region as well as in the training of local experts.

3%

Turnover

605 (-1%)

Employees



South Asia

Sales offices

7

Service stations

14

Manufacturing sites

1

Application centers

1

Highlights

With our new zonal concept in India, our organization has become much closer to our customers and can now offer tailor-made services and expertise close to the location of our customers. The zonal offices are supported by our know-how and application test base in Bangalore.

Total number of Bühler sites across the world in 2019:

85 sales offices

98 service stations

32 manufacturing sites

25 application centers

OUR EMPLOYEES

With numerous training opportunities for its employees and its customers, and a highly-established vocational training program, education is in Bühler's DNA.

Our employees are our key to success. They are our most important resource and our future profitability depends on what we do now to adapt to a fast-changing employment landscape. An increasingly digitalized business world means staff have to be adaptable and able to think creatively and strategically as technology drives both commercial opportunities and threats. It means getting the right people in the right roles to achieve maximum competitiveness.

According to a recent McKinsey report, women are a vast untapped resource, to the point where advancing women's equality would lead to a massive USD 12 trillion being added to global Gross Domestic Product by 2025. For the second year running, Bühler has pledged, along with a hundred other Swiss-based companies, to support gender equality by improving its gender balance by 1%

year on year. We are all capable of unconscious prejudices, so in 2019 Bühler launched its Beyond Bias workshops to increase understanding of the different aspects and consequences of unconscious bias and to foster an inclusive environment. To date, over 300 top managers have attended the workshop. An unconscious bias awareness "Train the Facilitator" program is currently being rolled out to support workshops across the regions. The first training for facilitators took place in 2019 in Uzwil, Switzerland. Every region can tailor the training sessions to address local cultural circumstances.

Retaining and regaining talent is also part of the story. At the start of 2019, Bühler partnered with Women Back to Business, a continuous education program at the University of St. Gallen, Switzerland, to help support women back into the workplace after short or longer breaks. In September, Bühler hosted a Project Management module in Uzwil, where 33 participants from 21 nationalities participated.

Bridging generations

All employees, regardless of age, nationality, gender, or circumstance, should feel their voices are heard. To support all employees, the Bühler Diversity & Inclusion initiative has been developing tools and events to ensure everyone is recognized and has the same opportunities for personal and professional development. In August 2019, over a dozen Generations Day events were held around the world in recognition of the need for greater collaboration between employees of all ages. Knowledge sharing across ages is especially important given the speed at which workplaces are currently evolving.

One challenge all employers face is that different generations often have very different expectations of their employers. For example, personal development is ranked far higher than progression among younger employees. The next generation is looking for more cooperative, transparent, and value-orientated management styles. Bühler recognizes the need to adapt to ensure it can meet these changing needs.

In October, Bühler sent 13 delegates to the One Young World Summit held in London as part of its collaborative approach to help tackle environmental challenges. Delegates took part in four days of speeches, panels, networking events, and workshops to discuss issues around climate change, human rights, governance, and business ethics. Talented young representatives from organizations based in 190 countries got the chance to listen and discuss contemporary concerns with world leaders and influencers. Delegates are encouraged to return to their workplaces as agents of change, emboldened with new ideas.



Jessica Jones, Management Trainee, and Irene Mark-Eisenring, Head of Corporate Personnel Development, discuss Bühler's Diversity & Inclusion strategy.



Bühler's Management Trainees who started the program in 2019. From top left to bottom right: Christoph Evertz, Xuechun Yang, Prasanna Premendra, Jessica Jones, Maphrida Forichi, and Jan Luca Ernst.

Virtual learning and attracting talent

Every individual deals with different types of demands both in their professional and personal lives. It means learning programs have to be flexible, enabling employees to use whatever medium best suits their specific circumstances. Bühler has continued to develop B-Learning, a state-of-the-art learning platform that delivers a broad spectrum of learning opportunities through videos, e-learning, classroom training, webinars, or mobile apps. It provides the chance to expand and deepen knowledge anytime and anywhere. Moreover, thanks to its global accessibility it is helping to do away with geographical barriers to learning.

In 2019, Bühler launched its Next Generation Learning program to address how innovations shape the way employees are trained. In the fast-changing economy, new knowledge and skills are needed at a rate that changes quickly. The initiative was launched to strengthen a lifelong-learning and development culture at Bühler. The goal is to establish a recognizable "learning brand" whereby all employees are empowered and encouraged to continue learning and developing. Future training concepts have to be short and relevant, more engaging, personalized, and mobile for modern learners.

Bühler is working with learning professionals to create training formats that underscore those pillars and that foster a strong and unified learning organization. It offers high-end training programs not only to employees, but to customers as well. In its 25 application centers around the world, experts run practical tests with customers to help them develop and improve products.

Bühler has also established training centers across the globe, such as its milling schools in Switzerland and Kenya, chocolate and cocoa training centers in Ivory Coast, Indo-

nesia, and Switzerland, and a rice milling academy in India. New advances in technology are requiring staff to adapt to increasingly complex markets. With this in mind, Bühler continues to develop its Service Excellence & Sales Leadership for Profitable Growth program, launched in 2017, to support front-line sales teams to become agents of change. The three-day program, designed and delivered by a leading global business school, provides service and sales leaders with the necessary skills to help customers navigate market complexities. Bühler also launched a new Value Selling E-Learning program to help staff further develop their sales skills. To date, over 1,000 employees have completed the curriculum.

Bühler improved its Employee Performance Management System for greater transparency, to discuss what is going well on the job and what requires improvement or a rethink, and to formally check in with employees to determine where they need support. The Employee Performance Management System is used for establishing targets for the next year, and for development and training plans.

Vocational training going strong

Bühler reached a watershed moment in 2019 as the 8,000th trainee began his vocational apprenticeship in Switzerland, along with 70 new apprentices who started in 2019. The new apprentices began their journey just six weeks after 83 students received their diplomas for completing three-and-four-year courses in a total of eight different professional fields. More than 70% will continue their careers with Bühler. The program provides training to over 600 trainees worldwide each year. Sites offering vocational training include Switzerland, Germany, Austria, India, Brazil, the US, and South Africa. Currently, there are 269 apprentices in Switzerland,



Jacob Chacko, Technical Project Manager Engineering Backbone, and Sabrina Niederer, Project Manager Strategic Development, are part of the team that is digitalizing project execution at Bühler.

214 across Europe, 14 in the Middle East and Africa, 20 in North America, 10 in South America, and 91 in South Asia. Under the Swiss model, apprentices receive a mix of practical and academic training. Candidates are paid during their apprenticeships, and Bühler also provides the training, classes, tools, books, computers, and uniforms. The courses are designed to develop the skills that future employees will need to be able to adapt to often fast-changing work environments. Bühler invests around CHF 30,000 per apprentice per year for training and education. The Swiss vocational training model is seen as a global benchmark and is being adopted by other countries. The global apprenticeship model is evolving successfully, ensuring our talent pipeline at the entry level. The participants will be supported with skills training throughout their careers with Bühler.

Succession planning and talent development

Bühler has a number of different initiatives designed to nurture the best talents from within the company into tomorrow's leaders. One such pipeline, in its third year, is the Excelerator program, an initiative that tailors career development to the specific needs of an individual. With such a wide geographical spread, Bühler has access to some of the best talents the world has to offer. The aim of the Excelerator program is to ensure that these talents are first recognized and then enabled to mature and develop into leadership roles. The initiative involves employees being nominated for a two-day assessment program from which 20 candidates are selected. An individual development and coaching plan is then drawn up for each successful candidate to build on their strengths and develop their leadership abilities.

The Bühler International Management Trainee Program offers another pipeline into senior management and leadership. Designed to attract the best talents leaving universities and business schools, the three-year program takes seven trainees a year and fast-tracks them through the Bühler corporate experience. They have the opportunity to work with top management at the Executive Board member or regional head level, where they learn leadership skills. Candidates take responsibility for a

major Bühler project and experience all the entrepreneurial challenges that go with a new business venture, such as a start-up. Management Trainees also have the chance to work abroad for one year as part of the program.

Key global positions are defined by the Executive Board and the global Human Resources team. The most important among these are reviewed and discussed by the Executive Board and Annual Talent Board. For each key position, an immediate replacement is nominated, along with mid- to long-term succession candidates. Two to three candidates are defined and developmental plans are established.

Strengthening culture

In 2019, Bühler adapted its corporate values to ensure the right corporate culture is in place to meet current and future challenges. The foundation of our values remains, but we have made them more concise: "Trust, Ownership, and Passion" (TOP). These are the guiding principles for everyone in the company. "Trust" relates to the integrity, partnership skills, and credibility required for Bühler to form collaborative networks with customers, start-ups, academia, and NGOs to address global challenges. "Ownership" is about taking responsibility for making decisions in the interest of customers, and "Passion" drives people at Bühler to live their intentions, to learn each day, to support others, and to drive success.

Bühler continues to build the strength of its employer brand to attract the best talent with the focus in 2019 on raising social media presence. The strategy has resulted in early successes, with more traffic directed to the Bühler website and a higher response rate to company job advertisements. Bühler is delighted to have received the prestigious Swiss Leading Employer Award in 2019, ranking it among the top 1% of nominated Swiss employers. The judging process involved a thorough evaluation of employee assessments, studies, and public surveys, resulting in Bühler achieving first place within the mechanical and plant engineering sector.



More about our wide range of careers for all levels



Harald Neelsen, Senior Automation Engineer, and Gospa Tesic, Assistant to Head of Project Execution Milling Solutions, in the CUBIC.



Over 500 customers participated in trainings in Bühler's Bakery Innovation Center in Uzwil, Switzerland, in 2019.



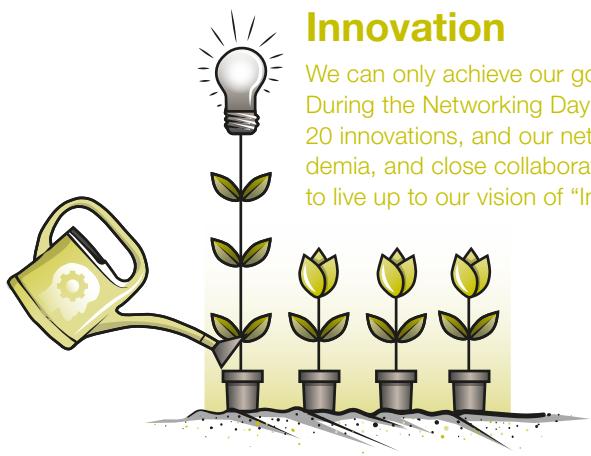
Alex Ammann, Lecturer Feed Technology, explains a feed machine to customers.

BÜHLER'S CORE TOPICS

During the Networking Days 2019, Bühler raised its sustainability targets with the aim to reduce energy, water, and waste in our customers' value chains by 50% by 2025. To achieve these targets, we identified five core topics and four enablers. We will only be able to reach our ambitious goals by applying a holistic approach across value chains and by harnessing the power of all the enablers.

Innovation

We can only achieve our goals by driving innovation. During the Networking Days 2019, we launched 20 innovations, and our network with start-ups, academia, and close collaboration with customers allows us to live up to our vision of "Innovations for a better world."



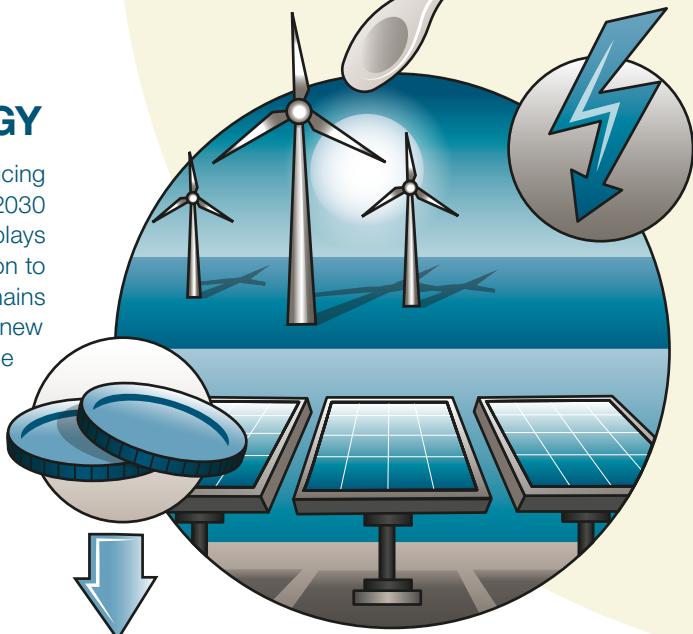
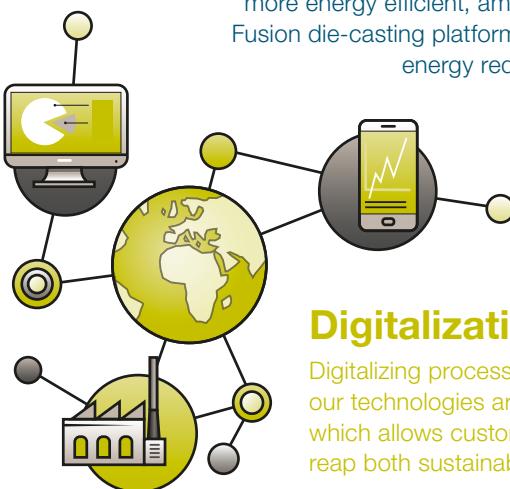
FOOD

According to the United Nations, we will have to be able to feed 10 billion people by 2050. To make it even more challenging, we will have significantly less land to do so. That's why in 2019 we invested 4.5% of our R&D budget into food trends such as alternative proteins. We also intensified our collaborative approach by joining the Future Food Initiative launched by ETH Zurich and EPFL.



ENERGY

To reach the goal of the Paris Agreement of reducing greenhouse gas emissions by at least 40% by 2030 compared to 1990, energy consumption in industry plays a key role. In 2019, we invested CHF 149 million to find new ways of making our customers' value chains more energy efficient, among other initiatives. Our new Fusion die-casting platform, for example, can reduce energy requirements by up to 40%.

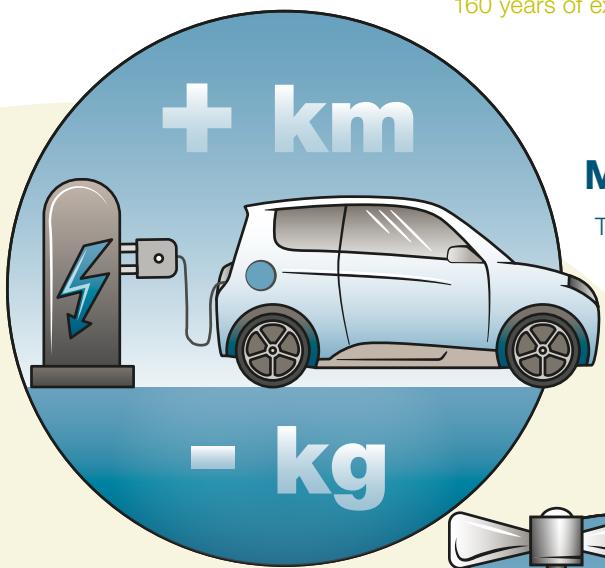
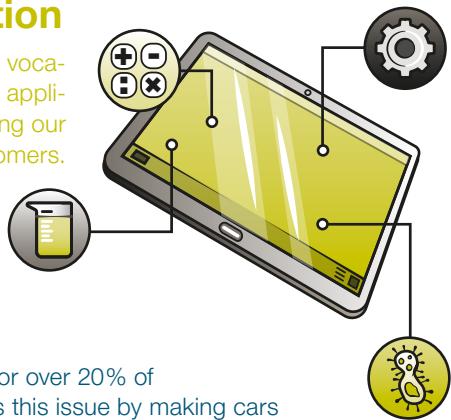


Digitalization

Digitalizing processes is key to achieving our sustainability goals. 85% of our technologies are able to connect to our digital platform Bühler Insights, which allows customers to improve the performance of their machines and reap both sustainability and financial benefits.

Education

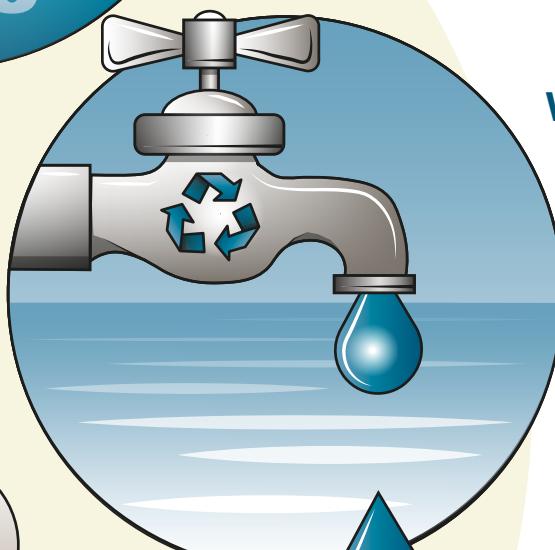
Education and knowledge transfer are in Bühler's DNA. From vocational education and digital training to hands-on learning in our application centers, we continue to harness the power of sharing our 160 years of experience with employees and customers.



More about our key topics and enablers

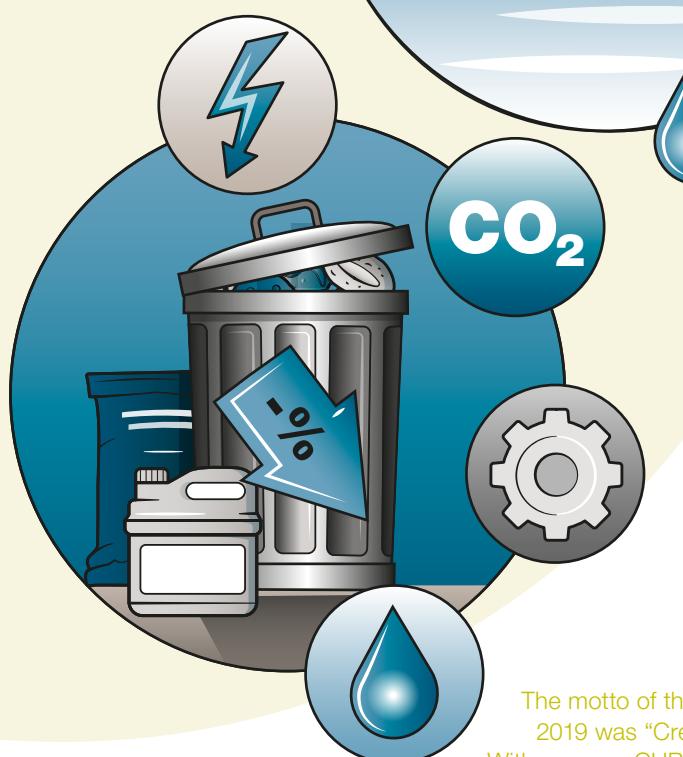
MOBILITY

The transportation sector accounts for over 20% of global CO₂ emissions. We address this issue by making cars lighter with our die-casting systems, and electric vehicles more energy efficient with our solution for electrode slurry. In addition, we are driving collaboration between industry and academia by bringing stakeholders together, for example in our new Die Casting Technology Center in Uzwil, Switzerland.



WATER

Agriculture uses 71% of the global fresh water supplies. To feed up to 10 billion people sustainably by 2050 and achieve our goals of reducing water usage by 50% by 2025, we must drastically improve efficiency. We see great potential in applying steam instead of water in food processing, as seen in our Prime Masa process for manufacturing Nixtamal corn flour, which reduces water usage by a staggering 90%.

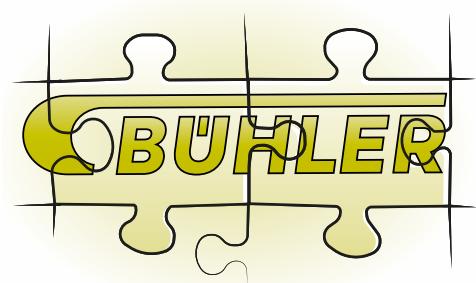


WASTE

30% of food is lost or wasted from field to fork. Meanwhile, an estimated 840 million people are suffering from hunger. We continue to improve our solutions to prevent losses in food processing: from intake to cleaning, sorting, storing, processing, and bagging. Our LumoVision, for example, identifies and removes cancer-causing, aflatoxin-infected grains and reduces yield loss to below 5%.

Collaboration

The motto of the Bühler Networking Days 2019 was "Creating tomorrow together". With our new CUBIC innovation campus, the global network of application centers, and our Networking Days concept, we want to establish an innovation ecosystem which enables the rapid transformation needed to reach our goals.



BÜHLER AND THE SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs) are the United Nation's universal call to action to end poverty, protect the planet, improve health and education, spur economic growth, and reduce inequalities. Bühler respects and supports all of the 17 SDGs. It has defined seven core SDGs where it drives positive impact and five where it makes relevant contributions.

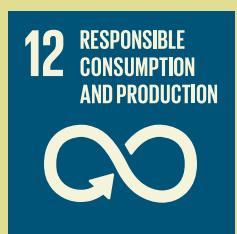


Bühler technology is driving innovation and development in the electric car, solar panel, and advanced materials sectors, while the new Mill E3 uses up to 10% less energy. Bühler has also ensured that its own CO₂ emissions have been substantially reduced.



Bühler supports a broadscale approach to collaboration to create sustainable business. For over a decade, Bühler

has developed close partnerships with customers, suppliers, leading academic institutes, start-ups, and non-governmental organizations to share knowledge, drive innovation, and meet its sustainability targets.



Bühler's digital technologies are helping to reduce levels of energy consumption, water use, and food loss in the production and supply chains of its customers. Bühler's own sites are being ISO 14001 certified and the company requires its suppliers to comply with its global environmental standards.



Bühler is helping to provide thousands of worthwhile work opportunities around the world. It offers education opportunities and employee development programs, while its own Code of Conduct ensures that every one of its nearly 12,800 employees across 140 countries enjoys equal rights.



In 2019, Bühler increased expenses for R&D projects to CHF 149 million to encourage sustainable innovation. Bühler continuously invests in its global production network and the modernization of its sites. Its 2019-opened CUBIC innovation campus is a symbol of its dedication to fostering a collaborative environment that encourages innovation. The CUBIC has been certified with a gold rating from LEED (Leadership in Energy and Environmental Design).

2 ZERO HUNGER



Bühler develops food production systems to maximize productivity and safety, while reducing energy, food loss, and water. Various Bühler technologies aim at establishing sustainable protein sources to ensure sufficient and healthy food for a growing population.

Food safety innovations such as LumoVision drastically reduce food contamination to mitigate the number of deaths and illnesses caused by eating unsafe food. In partnering with the Food Fortification Initiative, Bühler supports actions against malnutrition, focusing on the most vulnerable, including children, pregnant women, and elderly people.

7 AFFORDABLE AND CLEAN ENERGY



Bühler invests up to 5% of its revenue each year into R&D. Digital solutions enable Bühler to significantly improve energy efficiency in customer plants, and

to reduce unplanned downtime. Today, 85% of Bühler solutions can be connected to the Bühler Insights online platform and benefit from the enhanced data analytics that improve machine efficiency. Bühler is a leader in lithium-ion battery technology, which is used in the growing electric car market. It also develops low-emission facilities for customers such as the new Mill E3.

8 DECENT WORK AND ECONOMIC GROWTH



Motivated employees and dedicated management staff are key to Bühler's long-term growth and business performance. In 140 countries, Bühler offers well-compensated employment opportunities and safe, rewarding work in an inclusive environment. In 2019, 600 apprentices were enrolled worldwide in 25 countries. Nearly 70% of apprentices remain with the company after completing their training. In 2019, Bühler welcomed its 8,000th apprentice since 1915.



More about our sustainability strategy

3 GOOD HEALTH AND WELL-BEING



Bühler's range of advanced e-mobility technologies is helping to cut levels of harmful CO₂ emissions, while its food solutions continue to ensure high levels of nutrition and food safety, and the eradication of dangerous contaminants.

5 GENDER EQUALITY



Diversity and inclusion are central to Bühler's philosophy. Its growing network of training and employment opportunities is helping to boost equality in the developing world. The company is committed to increasing the percentage of its female employees year-on-year.

6 CLEAN WATER AND SANITATION



Agriculture accounts for more than two-thirds of all freshwater use. Bühler aims to ease this burden on diminishing freshwater resources by enabling its customers to cut the use of water in their production processes by up to 50%.



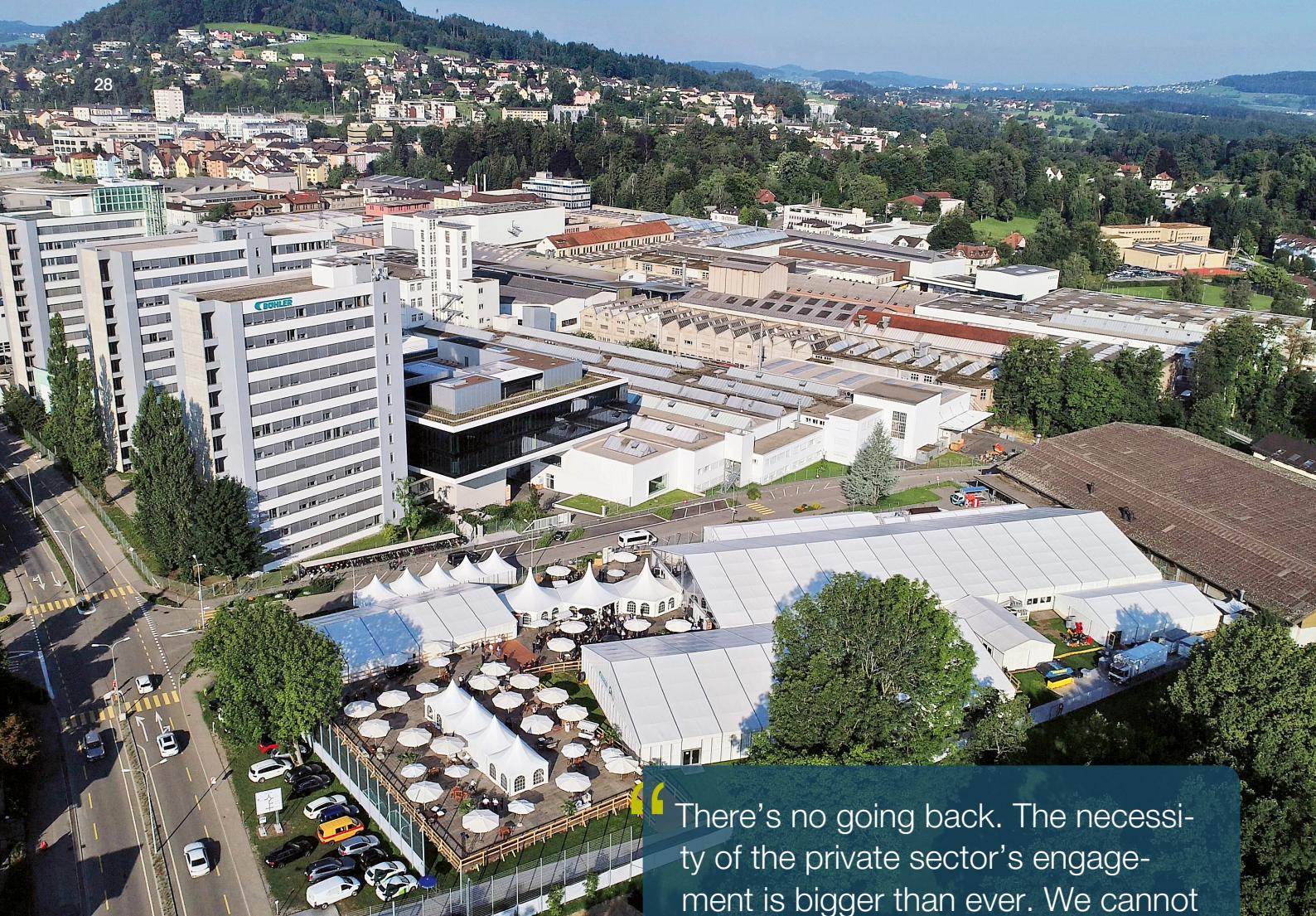
In August, 800 guests from industry and research accepted Bühler's invitation to Networking Days 2019 and convened in Uzwil, Switzerland. The primary goal of the three-day event was to offer a platform for inspiration and exchange, to create a common understanding of the urgency of using our planet's resources more sustainably, and, following the motto of "creating tomorrow together", to bring about industry commitment for rapid action.

“ As industry leaders, we have a particular responsibility because we are in a position to transform the many challenges into good, sustainable business possibilities. Let's all be part of the solution. ”

STEFAN SCHEIBER
CEO Bühler Group



THE
FUTURE
IS NOW!



Above: Uzwil was transformed during the Networking Days 2019 to host 800 guests. They met with start-ups in the CUBIC, visited the new application centers, and enjoyed the speeches and food in the tented area.

“ There’s no going back. The necessity of the private sector’s engagement is bigger than ever. We cannot solve all of the challenges without the resources, expertise, technology, and intelligence of business! ”

DR. GRO HARLEM BRUNDTLAND

Former Norwegian Prime Minister and former General Director of the World Health Organization



Speech

PATRICK DUPIN

CEO of Saint-Gobain Northern Europe

If you’ve seen the CUBIC, you’ve seen his company’s work: Saint-Gobain SageGlass uses Bühler Leybold Optics technology to coat glass, which can create energy savings of up to 35% in buildings that use it. Patrick Dupin, CEO of Saint-Gobain Northern Europe, has worked for the company for 20 years, advancing innovations and contributing to making it a global leader for sustainable environment. To learn more about the benefits of smart glass, listen to his speech and also the interview with him and Alan McLenaghan, CEO of Saint-Gobain SageGlass.



Interview



KATE ROBERTSON

Co-founder of One Young World

Kate Robertson, co-founder of One Young World (OYW) made it clear in her keynote speech that “if industries don’t work together, especially in combating the effects of climate change, people will not survive.” The mission of OYW is to bring young people together to create a better world. Since 2016, Bühler has been sending an international delegation of young leaders and talents to the OYW summit every year.



Speech



Interview

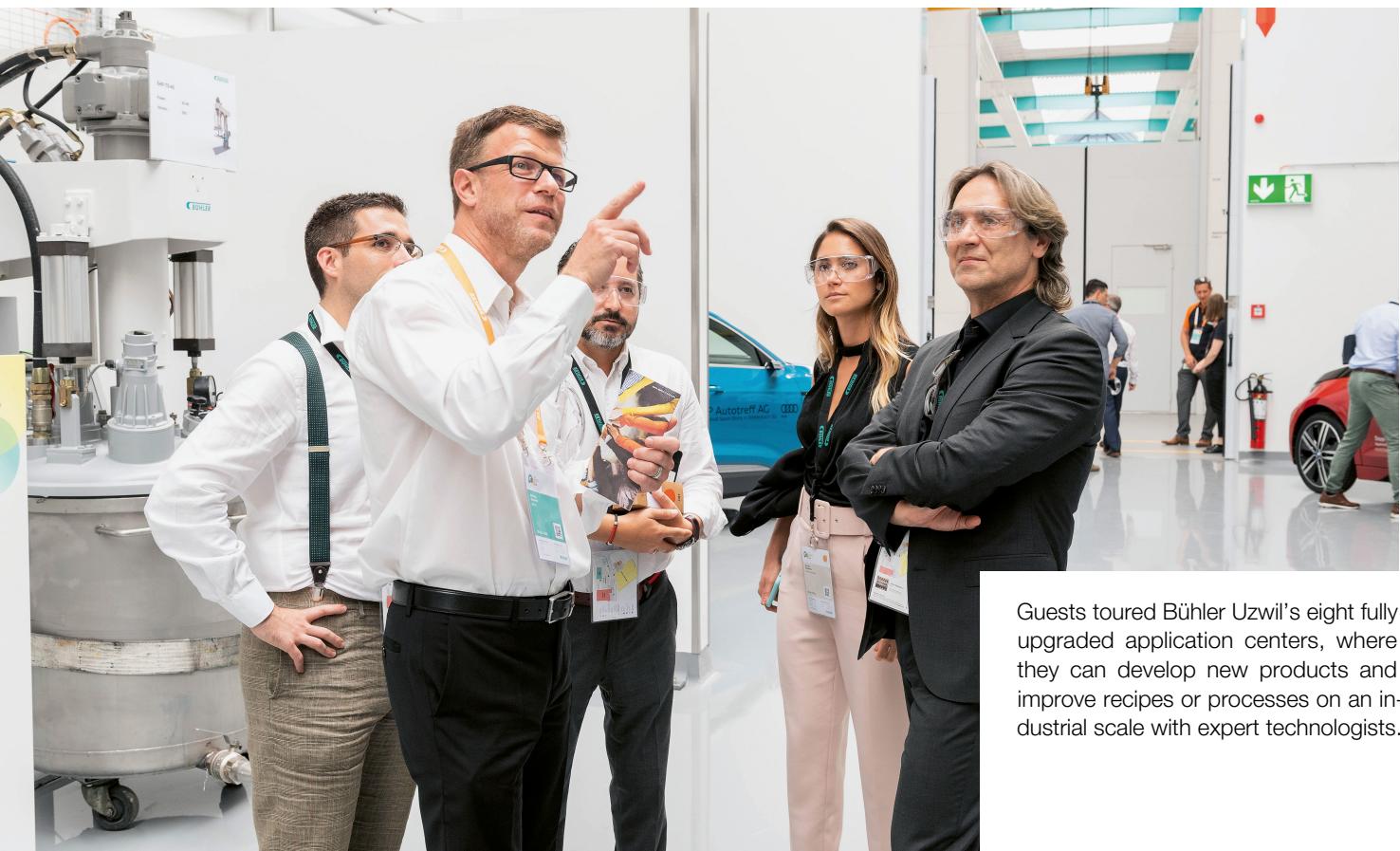
STEFAN PALZER

Chief Technology Officer of Nestlé

Nestlé CTO Stefan Palzer shared his insights on how food companies can embrace the opportunities of emerging consumer trends. New and exciting foods such as meat analogue products emerge when producers listen to consumers. They expect the industry to produce food more sustainably. To do this, he says, requires a lot of activism from different players, and collaboration. Discover more about future food trends in his speech.



Speech



Guests toured Bühler Uzwil’s eight fully upgraded application centers, where they can develop new products and improve recipes or processes on an industrial scale with expert technologists.



Speech



Interview

DR. MICHAEL WU

Chief AI Strategist for PROS

As the Chief AI Strategist for PROS, Dr. Michael Wu is recognized as one of the world's leading authorities on artificial intelligence, machine learning, and data science. He believes industries have the potential to create a more sustainable world and gain tangible business value from this evolving technology. To learn more about leveraging AI-enabled solutions, listen to his speech and the in-depth interview.

PROF. DR. TOM CROWTHER

Professor at the ETH Zurich and Founder of the Crowther Lab

One of the biggest threats to biodiversity is global warming. Tom Crowther, Professor of Global Ecosystem Ecology at the ETH Zurich and Founder of the Crowther Lab, explains the potential that reforesting the world has on reducing carbon. In his speech and his interview he explains how everyone can make a difference.



Speech



Interview

More than 20 new technologies were unveiled during the Networking Days 2019, including Mill E3, a space and energy saving industrial mill.



Customer statement

With our current state of technology, these goals are completely possible. I also think that Bühler can achieve these goals with our support.

YELENA PISKUN

Head of Oat and Cereals, Lantmännen, Sweden



Speech



Interview

FRANCOIS PIENAAR

Former South African rugby union player

Francois Pienaar is the captain who led the South African rugby team to win the 1995 World Cup – a momentous occasion for the team and especially the country. Nelson Mandela presented the cup to Pienaar in a moment that united the nation. As the final speaker of the Networking Days 2019, he inspired everyone to grow, unite, and think beyond themselves. Relive his speech and listen to the interview with this leader to learn more about the power of collaboration.

Customer statement

“ There are so many industries represented at the event and so many different companies with different perspectives. It is very inspiring to hear all the ideas and to learn more about the solutions that we can jointly develop. ”

WILLIAM BONIFANT

Vice President Engineering at The Hershey Company, United States



ISABEL WIJSEN

Founder of Bye Bye Plastic Bags

Isabel Wijzen and her sister Melati founded Bye Bye Plastic Bags in Bali, Indonesia, when they were 10 and 12 years old. Six years later, their organization has become a global movement to say goodbye to plastic bags. Today you can find Bye Bye Plastic Bags in about 50 locations around the world, run by young people. Wijzen proves the impact that can be made when people work together to drive change. In her speech and in the video interview, you can learn more about her journey and what you can do to be part of the solution.



Speech



Interview



Customer statement

“We will strengthen our engagement in research and development and increase our collaboration with Bühler in order to find solutions for the future.

CARLOS VASTO

President of GF Casting Solutions, Switzerland



Bühler showcased dozens of digital, AI-driven innovations that enable customers to improve efficiency, save resources, and harness the full potential of digitalization.



Customer statement

“ We can never do enough for sustainability. There is always more. I have so many good ideas to take home with me, thanks to the Bühler Networking Days. ”

ALAN MCLENAGHAN

CEO of Saint-Gobain SageGlass, United States



The power of digitalization and data was a big topic during the event. Bühler experts explained how data can be captured to optimize processes in a way that brings huge value to customers.



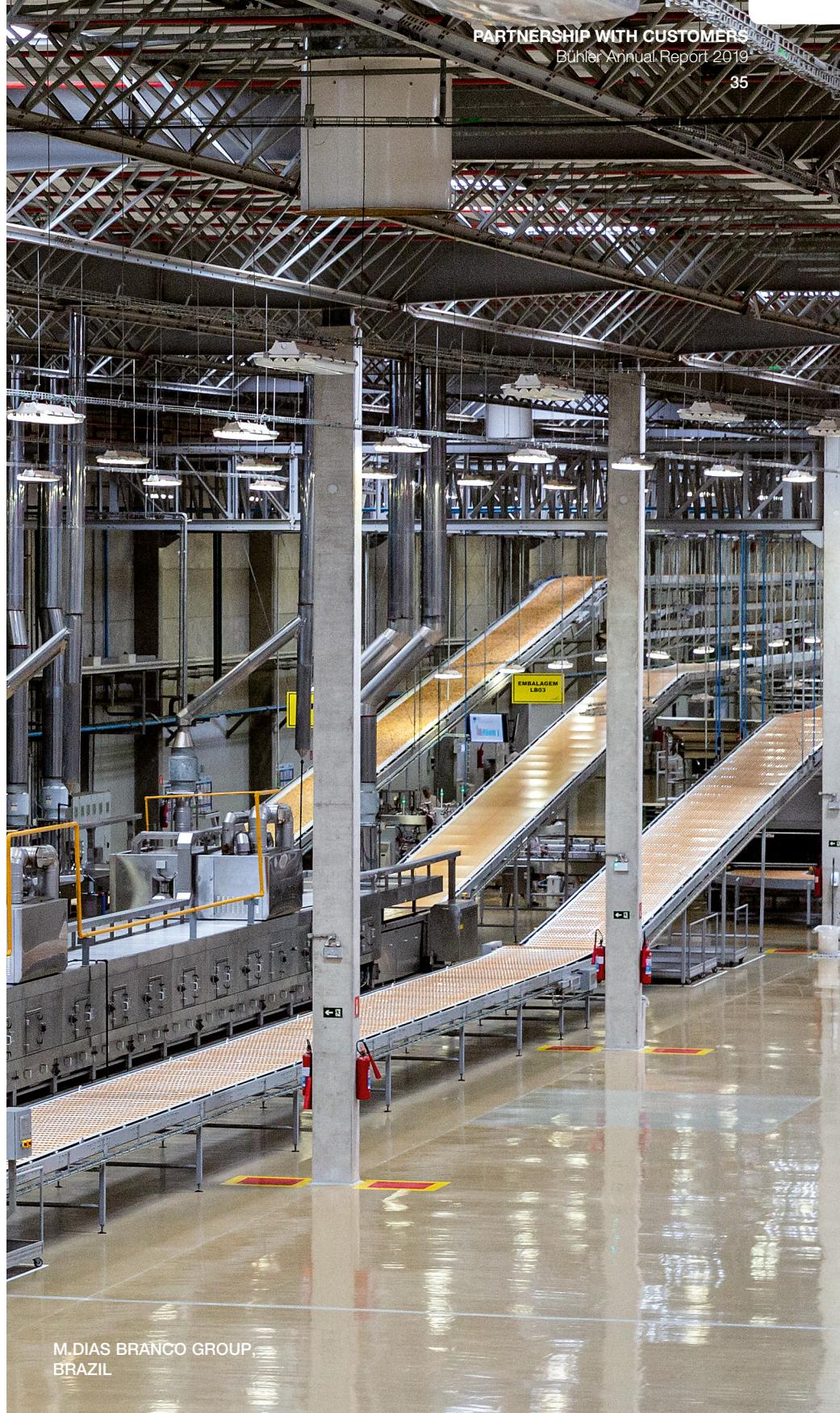
Relive the collaborative spirit of the Networking Days 2019 in the video



WUDELI FLOUR GROUP,
CHINA



SAINT-GOBAIN SAGEGLASS,
UNITED STATES



PARTNERSHIP WITH CUSTOMERS

We “engineer customer success”. In three examples, we share how we honor this promise to help our customers change the world for the better.

INNOVATE TO GROW

Wudeli Flour Group, China

Flour-based foods are a staple diet for hundreds of millions of Chinese people. The world's biggest flour enterprise, the Wudeli Flour Group, has joined forces with Bühler to continuously optimize flour-milling, improve automation levels, and build digital factories for the benefit of customers, farmers, employees, the state, and business.

The Hebei flour mill in Daming County, near the eastern city of Handan, is situated in one of the world's biggest wheat-producing regions. The plant is among the most advanced flour mills operated by the world's largest flour manufacturer, the Wudeli Flour Group. Rows of enclosed Bühler machines operate in a dust-free environment overseen by just three operatives in any single shift. Each day 5,100 tons of flour leave the plant for Hebei, Beijing, and the Northeast region's restaurants and steamed bun shops producing the flour-based delicacies that make up China's most-eaten staple foods.

By any standards, the growth of Wudeli Flour Group from a family mill to a global manufacturer in just 30 years is impressive. Zhiguo Dan was just 17 when he opened his first mill with his sister, brother, and father in 1989. Today, he is president of a company that operates 19 plants with a daily wheat processing capacity of 45,000 tons. Under existing expansion plans, daily output is set to rise to 80,000 tons a day in the coming years, sufficient to supply one-third of China's flour needs.







Zhiguo Dan is the President of the Wudeli Flour Group which owns 19 mills with a daily wheat processing capacity of 45,000 tons. This makes the Wudeli Flour Group one of the world's largest milling companies.

Zhiguo Dan acknowledges that this sort of growth was only possible under China's recent policy of economic reform. But he believes it is also a result of some core values being established early on: "2019 marks the 30th anniversary of the founding of Wudeli. Over the past three decades, we have been focusing on one thing: making the best flour."

Benefit for all

Zhiguo Dan's father believed that to achieve sound and steady growth a company must "benefit all" by satisfying the needs of customers, farmers, employees, the country, and the enterprise. Customers must be supplied quality flour and efficient service at a reasonable price. Farmers have to be able to sell their wheat at a profit and be paid in cash upon delivery, while employees should enjoy high and stable wages, generous benefits, training, promotion opportunities, and a pleasant work environment. The business needs to be allowed to make profits by applying strict management criteria and allowing economies of scale to facilitate large-scale, low-cost operations. Finally, the country should be allowed to benefit the people by collecting reasonable taxes.

"When the five sides combine into a community of shared interests where customers are willing to buy, farmers are ready to sell, employees are full of passion, and the country shows support, a virtuous circle will be formed," Zhiguo Dan explains. "When Wudeli becomes better, all sides will reap more profit, and this is our beautiful vision and ultimate goal."

Wudeli Flour Group has built its factories in the main regions for wheat production and by coordinating with local governments. With this, the company has been able to establish a sound demand-supply relationship with local farmers. Gener-

"We believe Bühler will always be there for us on our way to remain the world's largest flour manufacturer and will be our close ally forever."

ZHIGUO DAN

President of the Wudeli Flour Group

ally, the company buys wheat through independent purchase and auction based on the principle of setting a price on quality. "I just want to sell my wheat to Wudeli, regardless of the distance of transport," explains one wheat farmer. "That's because Wudeli is well-known for its integrity. They offer a favorable price and pay me in cash." By winning the trust of farmers, Wudeli has secured a continuous supply of wheat.

Another guiding principle has been to drive expansion through innovative development. At the heart of this is the principle of quality control. Wudeli applies a simple rule in all its plants: "Unqualified wheat shall be banned from entry, and substandard flour shall never leave the factory."

To guarantee that the highest quality wheat is used for production, Wudeli has developed its own system to provide automatic sample surveys. This data is then used to set a price for the raw material, eliminating any chance of human error. An automated receipt and weighing system is

in place to provide highly efficient and accurate warehousing. In the unprocessed wheat testing laboratory, Wudeli uses Bühler solutions to accurately test for moisture within a minute from starting analysis, by using LED lamp technology to detect imperfect wheat. According to the relevant state provisions tolerance for insects, mildew, sprouts, and other impurities in the wheat should not exceed 6%. Wudeli has set a much higher standard and rejects all wheat that contains more than 1% foreign matter.

After the inspection, unprocessed wheat is categorized and enters the cleaning section where it goes through 15 processing steps, including using vibrating screens for selection and surface cleaning using wheat scourers. Later, the wheat enters the grinding section which consists of 17 steps with each step following strict operation specifications and technical standards.

Readiness for change

Each finished product leaving the factory undergoes more than 20 quality control measures including moisture, ash content, gluten, processing precision, sand content, and magnetic metal content. "The testing equipment is worth hundreds of millions of yuan. The purpose of making such a huge investment is to ensure the safety and stable quality of the flour," explains Zhiguo Dan. "Overall, we rely on systems and equipment to eliminate the influence of any human factor to meet all standards satisfactorily."

Wudeli has reached a first pass yield higher than 99% and an ex-factory pass rate of 100%. "Innovation is the source for the thriving of an enterprise," points out Zhimin Dan, Chairman of Wudeli Flour Group and the elder brother of Zhiguo Dan. However, innovation should not just be limited to the manufacturing side of the business but also be applied to research and development, management, and to business philosophy.

When it comes to innovation, talent is a primary resource. In addition to eight senior flour engineers and 130 professional flour technicians, Wudeli also employs well-known food experts as regular technical consultants for the company. It also works in collaboration with several higher education institutions including the Henan University of Technology.

Over the years, Zhiguo Dan has asked his technical team to conduct independent research and development to upgrade capacity and increase profits. One example is the installation of bran brushing machines that has increased the flour extraction rate by over 1%. The introduction of bran drying technology has helped to tackle issues such as short storage life and the transportation of wheat bran in summer. Since applying the new solutions, profits generated by bran products have increased. With the help of automatic warehousing and loading, the storage and handling of finished products is no longer necessary.

Wudeli has found that the flour produced using European techniques is more suitable for making western foods. Eastern flour-based foods are mainly prepared by boiling and



The Wudeli Flour Group produces the specialty flour needed for many delicacies, such as steamed buns and noodles. Flour is one of the most important food staples in China.



steaming, so western techniques tend to result in dumplings or noodles sticking, affecting appearance and taste. By drawing on wheat milling practices from Korea and Japan and taking into account Chinese eating habits, Wudeli has developed an innovative processing method to provide its customers with flour products that are both appealing and tasty.

With the rapid growth of the Chinese economy has come the need for food manufacturers to shift their focus from satisfying people's hunger to satisfying their taste buds. Wudeli has begun to produce a variety of specialty flour used to make dumplings, steamed stuffed buns, fried bread sticks, stretched noodles, and sliced noodles, among many others. The company is also speeding up its efforts to research and develop products that can better meet people's nutritional needs. An example is the use of whole wheat bread flour containing the wheat germ and aleurone layers that are rich in micro-elements.

Wudeli has transformed itself from a family business into a modern corporation. The process has meant a radical change in management by developing a horizontal organizational structure in which there are no deputy posts. By doing this, each subsidiary or department has greatly cut down management costs and improved efficiency. Under the leader-

“Innovation is the source for the thriving of an enterprise.”

ZHIMIN DAN

Chairman of the Wudeli Flour Group

ship of Zhiguo Dan and other family members, the Wudeli Flour Group has over many years formed its own corporate culture. Employees are encouraged to be creative, pragmatic, united, and entrepreneurial. Everyone is expected to adhere to the corporate values of integrity and diligence. The company's attitude to wealth creation and profit is guided by an old Chinese adage: "A nobleman properly acquires wealth; diligence is a money-spinner, and thrift fills the cornucopia."

Partnering with Bühler

In 1996, Wudeli took a major step when it installed Bühler flour production technology. Today over 80% of the Wudeli Flour Group's products are produced on thousands of Bühler machines including 2,740 flour mills, 1,307 purifiers, 647 screen-



Employees of the Wudeli Flour Group are encouraged to be creative and entrepreneurial.

ing machines, 232 de-stoning machines, 130 TAS cleaning machines, and 1,189 flow balancers, among other equipment.

“As a global leading supplier of milling equipment, Bühler has not only provided strong support for us in terms of equipment but also helped us to foster a global vision,” explains Zhiguo Dan. “In 2008, Bühler arranged a tour to Japanese and Korean enterprises for us, which has contributed a lot to promoting the overall quality of our products.”

Inside one of Wudeli’s new flour mills stands a roller mill of special significance. On it is engraved: “No. 10,000, June 8, 2019”. It is the 10,000th Dolomit roller mill manufactured by Bühler. “This machine is witness to the long-term cooperation between Wudeli and Bühler and a symbol of the glory jointly forged by both companies,” says Zhiguo Dan.

It is important for both the Chinese flour industry and Wudeli to keep growing in an automated, digital, and smart way. Today, the daily capacity of Wudeli’s newest flour mills is at least 4,000 tons. Increased automation means that while Wudeli’s business keeps expanding its reliance on human resources is decreasing. In August 2019, Wudeli and Bühler signed a cooperation agreement to build a digital factory capable of achieving total automation by integrating all of its information systems into the whole process management. In

line with the “German Industry 4.0” and “Made in China 2025” initiatives, Wudeli aims to be a trailblazer in the transformation and upgrade of the Chinese flour industry.

Becoming a trendsetter

“Wudeli and Bühler have deepened their relationship from simple business partners to strategic business allies in an all-round way, with their collaboration areas ranging from equipment to digital factory and from additives to research and development, promising a broader prospect for cooperation,” says Zhiguo Dan. “In the beginning, we were wondering who would be there for us when we set out to forge the largest flour enterprise and who would remain our strategic partner in the next 10 years, 20 years, even 50 years, or 100 years. Now, we believe Bühler will always be there for us on our way to remain the world’s largest flour manufacturer and will be our close ally forever.”

Looking to the future, Zhiguo Dan adds: “With great achievements comes great responsibility. In a spirit of pursuing perfection, Wudeli will strive to provide consumers with safe flour. Wudeli is determined as well as confident to become a trendsetter for all flour manufacturers and will usher in a new era of rapid development for the whole industry.”

LET THERE BE LIGHT!

Saint-Gobain SageGlass,
United States

The intelligent glass manufactured by Saint-Gobain SageGlass combines well-being, climate protection, and extreme efficiency. Bühler is not only the technology partner for the manufacture of these smart windows, but also a customer – the façade of its new CUBIC innovation campus in Uzwil, Switzerland, is fitted with a dynamic outer shell.

SageGlass is transparent, but controls glare; it is coated, but it's possible to adjust its tint; and it lets in sunlight on cool days, but blocks it on hot ones. It may cost a little more, but its extreme efficiency and ability to dramatically reduce energy makes up for it. It's unique. To make the distinction clear, CEO Alan McLenaghan says: "SageGlass is not just another type of glass. If people think of it that way they are not being imaginative enough. It's all about the dynamic benefits it brings to the people who are occupying the space."





More about
Saint-Gobain
SageGlass

Nanometer-thin coatings breathe intelligence into the amorphous, transparent glass body: equipped with sensors and software, the glazing adjusts its tint depending on the solar radiation and light, allowing an unrestricted view to the outdoors at all times and under any conditions. It automatically controls daylight, glare, and energy consumption entering the building – and it allows manual adjustment if the occupant wants to override the building management system.

With the advantage of SageGlass, curtains, roller shades, and blinds have become the glare protection of the Stone Age. "Using this as a basis, architects have the opportunity to use glass in ways and applications they previously could never have imagined," explains McLenaghan. SageGlass allows architects and designers to create buildings that

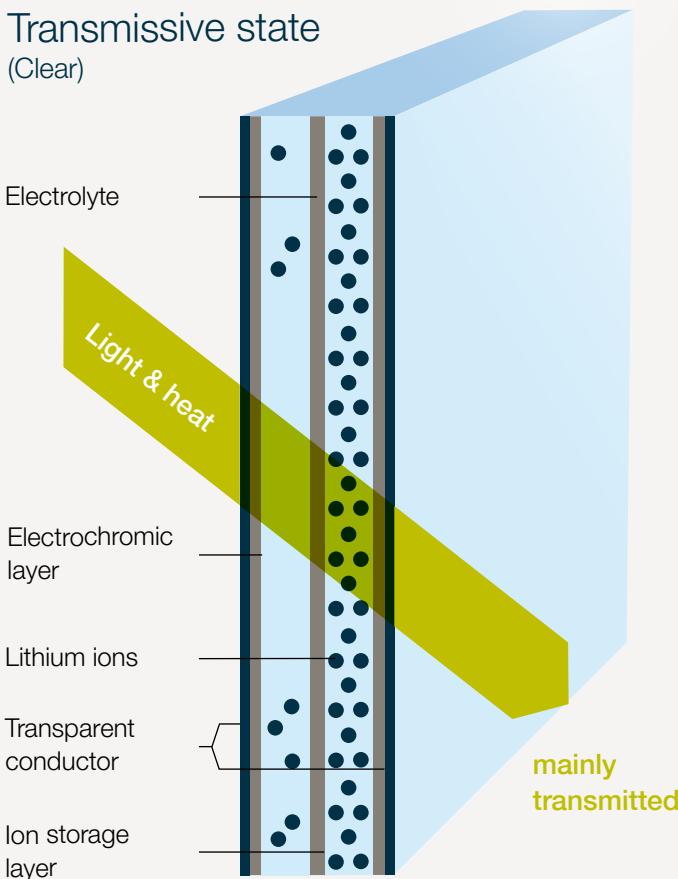
"Our products are not a panacea for all problems, but they certainly enhance productivity, well-being, cognitive capability, and efficiency."

ALAN MCLENAGHAN
CEO, Saint-Gobain SageGlass

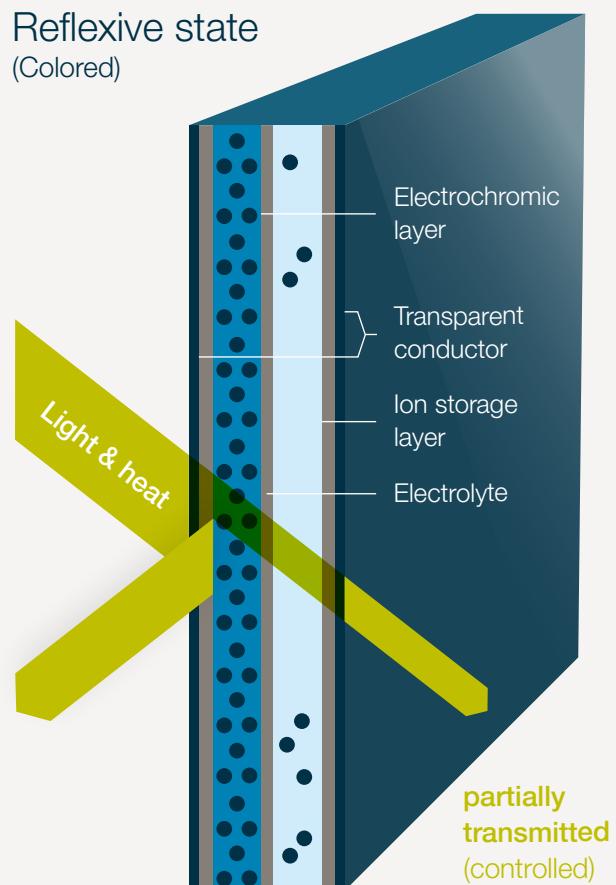
HOW ELECTRO-CHROMIC GLASS WORKS

Electrochromic glass works similarly to a battery: in the transparent/translucent state, lithium-ions are embedded in the storage layer. If voltage is applied, the lithium-ions are transported through the electrolyte to the electrochromic layer, and the glass darkens: heat and light are then reflected. The electrodes for application of the voltage are transparent in order to allow light to pass through. By applying counter voltage, the lithium-ions are transported back, and the electrochromic glass becomes transparent again.

Transmissive state (Clear)



Reflexive state (Colored)





Alan McLenaghan, CEO of Saint-Gobain SageGlass.

optimize the use of natural daylight while providing unobstructed views to nature and the world outside. For thousands of years, our forefathers lived mainly in the great outdoors. Still wild creatures from a genetic point of view, modern urbanites also need sunlight for their health and well-being. For office buildings, there is ample evidence that sufficient daylight brings improved satisfaction in the workplace, reduces stress and absenteeism, improves the quality of sleep and perceived well-being, and increases productivity. In hospitals, it has been observed that patients in rooms with a view and optimized daylight required less pain-relieving medication and their recovery was accelerated. For schools, it has also been proven that daylight and views to the outside promote concentration and attention in students, resulting in increased retention and improved test scores.

Enhanced productivity and well-being

Even our environment benefits from the intelligent SageGlass. Up to 35% less energy is required to heat and cool buildings regulated by SageGlass. This also has a CO₂ benefit of up to 10%. Operationally, SageGlass replaces the need for blinds or other solar shading devices, resulting in annual cost and environmental savings by eliminating maintenance and replacement of traditional materials. As a result, the value of the real estate and the rental income increases. Despite

the higher initial investment of up to 1% of total construction costs, SageGlass calculates a return on investment of less than 10 years, based on energy savings alone. If other factors are considered, such as the glare protection that is no longer required, and the enhanced performance and well-being of the occupants, the return is realized even more quickly. "Our products are not a panacea for all problems, but they certainly enhance productivity, well-being, cognitive capability, and efficiency," says McLenaghan.

SageGlass was an obvious choice for Bühler in building its CUBIC innovation campus. "In the CUBIC, we want to connect people and let ideas flow freely in order to make those ideas become real solutions more quickly," says Bühler CTO Ian Roberts. Equipped with SageGlass, the CUBIC is open, transparent, and filled with light – in and of itself a source of inspiration for the employees, project teams, and start-ups inhabiting its space.

The basic principles of electrochromic coating have been known since the early 1960s. It consists of molecules or atoms that can change their optical properties with a flow of electricity. In the case of dynamic glass, this involves lithium ions and electrons. Applying voltage of only 5 volts creates a low current, moving lithium atoms from one layer to another, creating a darkening effect. The actual art here, originating from this chemical and physical principle, is to manufacture



Bühler's CUBIC, with its SageGlass façade, is suffused with light. Sufficient daylight in the workplace improves satisfaction, reduces stress and increases productivity.



large high-quality products on an industrial scale to look exactly the same, function flawlessly for 30 years or more, and to work together like a fully synchronized water ballet. With more than 500 patents, granted over the past 20 years, Saint-Gobain SageGlass has taken this art to new heights – and Bühler has been a significant technology partner in this.

A close partnership

In 1989, John Van Dine founded the company in Valley Cottage, New York. Technology and processes were developed to market readiness, and the first product was launched – the starting point for rapid growth. The average rate of growth has been more than 50% a year; SageGlass is now installed in buildings in 30 countries. After a period of close partnership with Saint-Gobain, the global market leader for construction materials took over the company in 2012, complementing its own electrochromic technology with that of SageGlass. Since then, SageGlass has been a wholly-owned subsidiary of Saint-Gobain. In 2010, a close partnership was formed between SageGlass and Bühler. “SageGlass and Bühler had a symbiotic relationship from the beginning,” says McLenaghan. The company’s expansion required a new factory which SageGlass built in Minnesota – and with it, new coaters. “The first coaters used in our expansion were Bühler coaters,” says McLenaghan. “We selected Bühler because of their technical advancement, the innovation that they bring, the similar culture of the companies and Bühler’s willingness to work with us on design changes we needed in the coater.”

The stringent requirements were not to be met with a standard system. In order to achieve the desired characteristics, a vertical arrangement of the machines was needed instead of the usual horizontal layout. An additional criterion was easier access to the key components of the machine to make maintenance and cleaning easier. The specially developed

“We selected Bühler because of their technical advancement, the innovation that they bring, and their willingness to work with us on design changes.”

ALAN MCLENAUGHAN
CEO, Saint-Gobain SageGlass

behemoth of a machine, with dimensions of 75 x 15 meters, met the enormous demands with the highest reliability, and coats more than 1,500 square meters of glass per day with the precision of just a few atomic layers – typically up to six coats were applied for this. Temperature curves, vacuum, material deposits on the glass: all of this was controlled perfectly by the GLC 1850 V Large Area Coater from Bühler Leybold Optics. Although the factory and coater are still relatively new, it is already foreseeable that they will reach their limits. “We are already considering a new production location which would undoubtedly be somewhere outside the US,” says Alan McLenaghan.

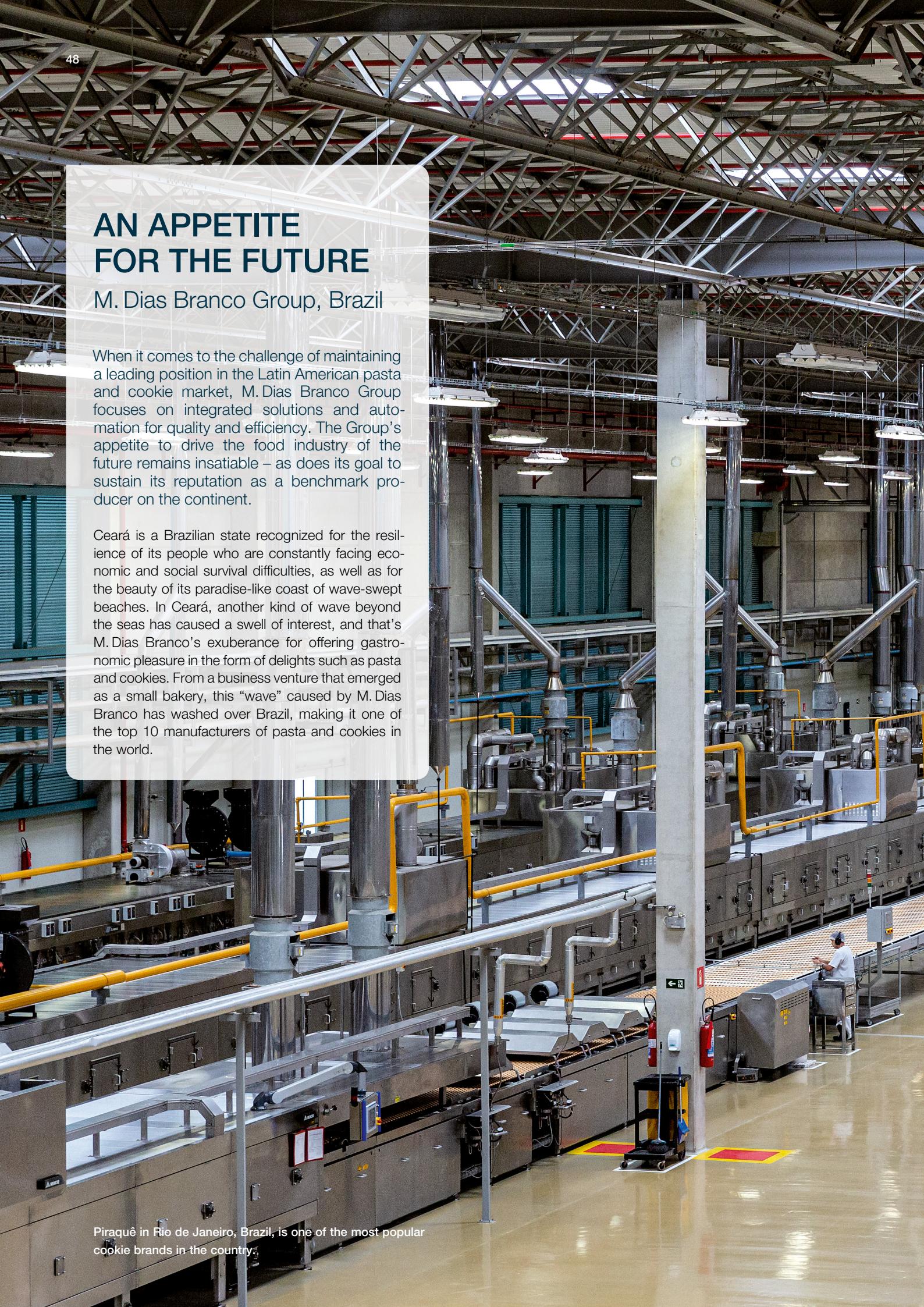
AN APPETITE FOR THE FUTURE

M. Dias Branco Group, Brazil

When it comes to the challenge of maintaining a leading position in the Latin American pasta and cookie market, M. Dias Branco Group focuses on integrated solutions and automation for quality and efficiency. The Group's appetite to drive the food industry of the future remains insatiable – as does its goal to sustain its reputation as a benchmark producer on the continent.

Ceará is a Brazilian state recognized for the resilience of its people who are constantly facing economic and social survival difficulties, as well as for the beauty of its paradise-like coast of wave-swept beaches. In Ceará, another kind of wave beyond the seas has caused a swell of interest, and that's M. Dias Branco's exuberance for offering gastronomic pleasure in the form of delights such as pasta and cookies. From a business venture that emerged as a small bakery, this "wave" caused by M. Dias Branco has washed over Brazil, making it one of the top 10 manufacturers of pasta and cookies in the world.

Piraquê in Rio de Janeiro, Brazil, is one of the most popular cookie brands in the country.





More about
the M. Dias
Branco Group



Roladinho Goiabinha cookies are a leading product for M. Dias Branco. Here they are cooled on a conveyor.

M. Dias Branco Indústria e Comércio de Alimentos S.A., headquartered in Fortaleza – the capital of Ceará – is a food company that manufactures, markets, and distributes pasta, cookies, wafers, cakes, snacks, toast, wheat flour, margarines, and vegetable fats. Publicly traded since 2006, the company has been growing organically and through major acquisitions, helping to position Brazil as the world's third largest pasta producer, according to the World Pasta Organization (WPO).

The Group currently has 15 industrial units in the northeast, southeast, and south regions. Among these are seven mills that meet the wheat flour demand for its own production facilities, as well as supplying the wholesale and retail markets. Currently, as one of the largest flour producers in Brazil, 60% of the production is used in the Group's own factories, and the remaining 40% of the flour is distributed to bakeries, other industries and also used for cake mix and household flour production. With over 14,000 employees, the company's 2018 net revenue was BRL 6 billion (approx. CHF 1.5 billion).

Lasting partnership

A venture of this magnitude is only built with partnerships that add value to the business. This is exactly the case of the co-operation between Bühler and M. Dias Branco Group, which has existed over 40 years. Beat Weilenmann, Milling Solutions Sales Director at Bühler, says that the installation of the automatic flour receiving and handling system for the Fortaleza factory in 1978 was the first project delivered to M. Dias Branco. He recalls with satisfaction: "In 1992, we put into operation the first flour mill at Port of Mucuripe, in Fortaleza. At that time, it was South America's most modern wheat pro-

"Bühler and Haas are the reference in technology, innovation, and, above all, in quality."

SIDNEY LEITE

Technical Director of Industrial Operations,
M. Dias Branco Group

cessing plant. In the course of these more than four decades, numerous deployments were carried out in partnership, in addition to the constant updating of the operating industries, always aiming at improving operational efficiency and increasing food safety."

Another example of this synergy can be found in the Piraquê biscuit plant, acquired in 2018 by the M. Dias Branco Group. With a factory installed in the state of Rio de Janeiro, Piraquê is one of the most beloved brands of the southeastern consumer market (the biggest consumer market in Brazil), and the state's main biscuit manufacturer. The acquisition of the plant with 100% Bühler and Haas technology was an important step for the company to maintain and expand its national leadership, since M. Dias Branco Group is the largest biscuit producer in Brazil, according to market data from Nielsen Consultants. "Our goal with the acquisition of Piraquê is to refine the production with an increasing focus on quality, innovation, and healthiness, given these seem to be the major trends for the future. In addition, it allows us to offer premium products of a higher added value and price, accelerating our

growth in the southeast and south regions, and thus helping us to develop national brands," says Francisco Ivens de Sá Dias Branco Júnior, Group President and Industrial Vice President of the pasta, cookies, cakes, snacks, and margarines division. And with Bühler's 2018 acquisition of the Austrian Haas Group – a centennial company and world reference in specialized wafer and biscuit equipment – another great opportunity to expand the historical partnership with M. Dias Branco emerged.

Jorge Botero, Director Consumer Foods of Bühler South America, explains the relevance of integrating production lines and the ability to offer complete, end-to-end solutions: "The Bühler Group's portfolio covered raw material handling, flour milling, ingredient handling, and the mixing of raw materials. With the acquisition of Haas, the biscuit manufacturing chain is now fully integrated. Bühler technology now offers the whole process, including dosing, baking, forming, turning, spreading, cutting, and cooling. The end product can later be enrobed with chocolate or other confectionery ingredients. That means our portfolio is 100% complete and we can cover the entire biscuit manufacturing chain with maximum synergies and optimized resources."

Botero believes this will give Bühler, and most importantly, its customers, a lot of room for growth in the coming years. The 100% portfolio also means that customers can operate

their plants at optimal efficiency. "Our equipment, especially for the biscuit segments, can offer a reduction of up to 30% in energy consumption and, for some applications, a reduction in carbon dioxide and nitrogen oxide emissions of up to 200% compared to standard technologies," Botero explains.

M. Dias Branco Group's Technical Director of Industrial Operations, Sidney Leite, sees great promise in the fusion of Bühler and Haas into what is now Bühler's Consumer Foods segment. "Bühler and Haas have always been two highly respected companies in the world market. They are the reference in technology, innovation, and, above all, in quality. We believe this business merger is beneficial because it forms a pool of solutions that complement each other, facilitating project implementation and reducing the complexity of systems integration," Leite explains. "We look forward to even higher food safety, operational performance, and greater support for our demands. For example, in terms of sustainability, our goal is to avoid the generation of waste, reduce energy and water consumption, and seek alternative energy sources."

Among the major challenges of the milling sector are the constant search for higher energy efficiency and increased grain extraction, making operations increasingly more sustainable. Francisco Claudio Saraiva Leão Dias Branco, Industrial Vice President responsible for the Group's mill division,



Francisco Claudio Saraiva Leão Dias Branco, Industrial Vice President Mill Division for M. Dias Branco Group.



Francisco Ivens De Sá Dias Branco Júnior, Group President of M. Dias Branco Group.



summarizes the historical partnership: "We need to gain in volume and efficiency to adjust to the prices that are increasingly more dictated by the market. To this end, we have always counted on Bühler in order to grow based by increasing efficiency and quality."

In collaboration with its customers, Bühler has bold goals. "We are committed to making the maximum contribution to achieving our global goals of reducing energy, water, and waste in our customers' value chains by 50% by 2025. To this end, we are continually running studies at each of the M. Dias Branco Group's plants to deploy innovations and integrated solutions," Weilenmann explains.

Among mills operating with Bühler equipment, the unit in Rolândia in the state of Paraná, dedicated to wheat production, was the group's first in the south of the country. It was established to supply the pasta and biscuit factories located in the neighboring state of São Paulo. This mill is considered the most energy efficient in the group, with 66 kW per metric ton, and a benchmark for one of the highest overall operational efficiency rates, above 99%. Beyond the focus on operational excellence, what perpetuates the performance of the M. Dias Branco Group in an emblematic way, is its socially responsible

"We need to gain in volume and efficiency to adjust to the prices that are increasingly dictated by the market. We have always counted on Bühler."

CLAUDIO SARAIVA LEÃO DIAS BRANCO

Industrial Vice President Mill Division,
M. Dias Branco Group

management approach. From the owners' perspective, the company's main contribution is in the training and development of its employees, and also of communities. The strengthening of the country's labor force is a great lever for prosperity. A good example is the recent inauguration in Fortaleza of the Ivens Dias Branco School of Social Gastronomy, delivered as a gift to the community to be managed by the State



M. Dias Branco's goal is to refine production, with an increasing focus on quality, innovation, and health.

Government. With a capacity for over 5,000 students a year, the school features some of the country's most advanced infrastructure, comprised of a bakery kitchen, a confectionery kitchen, a kitchen for culinary fundamentals, library, computer lab, classrooms, events terrace, and a restaurant. The training center offers basic and vocational courses in cooking, baking and confectionery, as well as mentoring for product development and projects in creative laboratories.

Ensuring excellence with education

When asked about the main challenge for the future, the management of M. Dias Branco responds in unison: people! That is why the group maintains a corporate university and an industrial technical school. The company's long-term goal is to ensure excellence in knowledge management to provide solid support for the business and maintain its leadership into the future. Bühler is also a partner on this educational front for technical-industrial training, providing training in various production technologies with over 40 years of joint development. A recent example is the course attended by M. Dias Branco teams in late 2019, focused on technical expertise to perfect crackers and wafers.

The impressive trajectory of the M. Dias Branco Group can be summed up in a lesson on how to be creative, precise, and practical in running a business without ever losing sight of being courageous. The founder was the grandfather of the current senior leaders. The son of humble Portuguese farmers, Manuel Dias Branco immigrated to Brazil at the beginning of the last century with the dream of starting his own business. He became a legendary merchant in Ceará, entering the bakery market with the opening of the Imperial Bakery in the small town of Cedro and later the iconic Fortaleza Bakery, in the capital, in 1936.

It is clear that the family carries in its DNA an entrepreneurial drive that has flourished for three generations. Starting with the pioneering grandfather, Manuel; followed by the industrial expansionist father, Ivens, who raised the company to the level it has today; and currently with his two sons Ivens Júnior and Claudio, who are displaying the same business acumen.

Underpinning M. Dias Branco Group's recipe for success is a philosophy shared by Bühler: the belief that solid growth requires a clear vision of a sustainable future and a strong commitment to people and education.

OUR KEY PERFORMANCE INDICATORS FOR SUSTAINABILITY

Reporting according to the guidelines of the Global Reporting Initiative (GRI).

To report accurately on sustainability, it is necessary to set measurable performance indicators and to define a transparent evaluation method to measure and compare yearly progress. Bühler's reporting is in accordance with the guidelines of the Global Reporting Initiative (GRI), which is the leading international standard. In particular, Bühler uses selected GRI standards, or parts of its content, to report specific information. Bühler continually strives to improve its sustainability reporting. At present, Bühler reports on 35 key performance indicators (KPIs). The 17 major Bühler sites, covering more than 87% of all productive in-house hours from manufacturing, report on five specific environmental KPIs. Sites of the former Haas Group, which became part of the Bühler Group on January 1, 2018, are not yet included in the reporting of these five KPIs. The other 30 KPIs reported in 2019 apply across the entire company, including the former Haas Group, unless explicitly stated otherwise. Bühler has aligned its sustainability KPIs with its Bühler 2020 strategy. The year 2015 forms the baseline for the performance evaluation by 2020.

Bühler has invested considerable time in improving data quality so that it feels more confident in the robustness of the data it reports. Notable achievements of 2019:

- Across the 17 major Bühler sites, decreases were recorded in total energy consumption of 5%, in total water usage of 14%, in total waste of 11%, and in total CO₂ emissions of 8% in comparison to 2018. This is not visible in the KPIs chosen for reporting during the period 2015 to 2020. Bühler is undertaking an in-depth review of the KPIs to report for the 2020-2025 period.
- In 2019, several company-wide initiatives for occupational safety were initiated, including TAKE FIVE, an awareness campaign for occupational safety, the WORKPLACE-RISK-MATRIX, and improved standard-incident reporting were rolled out. The number of work-related injuries per 100 permanent full-time employees decreased from 2.3 in 2018 to 1.4 in 2019.
- Online training against corruption and bribery was rolled out to all personnel with a Bühler email address in 2018. The percentage of completion increased from 62% in 2018 to 90% in 2019.
- An e-learning module for food safety training, available to all employees, resulted in a significant increase in the number of employees who have received training in food safety since 2013, from 2,284 in 2018 to 3,256 in 2019.
- The percentage of top suppliers who have signed the Bühler Supplier Code of Conduct or have an equivalent code increased from 40% in 2018 to 50% in 2019.

- The percentage of employees who went through the Employee Performance Management process each year remained over 90%.
- Reflecting the company strategy of collaborative innovation, the percentage of R&D projects run in collaboration with partners remained over 50%, increasing from 51% in 2018 to 57% in 2019.
- The number of projects supported by Bühler employees in Partners in Food Solutions (PFS) continued to increase, having more than doubled from 22 in 2018 to 50 in 2019. Partners in Food Solutions, an independent nonprofit organization, is working to strengthen food security, improve nutrition, and increase economic development across Africa by promoting the competitiveness of the food processing sector.
- Bühler was awarded a silver medal following the EcoVadis CSR Rating. The EcoVadis assessment evaluates how well a company has integrated the principles of Corporate Social Responsibility into its business and management systems.
- CDP is a not-for-profit organization that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. In 2019, Bühler participated for the first time in the annual CDP assessment.
- The plan to expand the scope of the current SEDEX/SMETA 4 certification to an additional five Bühler sites by 2021 was approved. This builds on the 2017 certification of Bühler Uzwil, after the successful SEDEX/SMETA 4 audit of the four main pillars (labor standards, health and safety standards, environmental standards, and business ethics).
- Bühler passed the assessment of the Drive Sustainability program, an automotive partnership facilitated by CSR Europe between BMW Group, Daimler AG, Ford, Honda, Jaguar Land Rover, Groupe Renault, Scania CV AB, Toyota Motor Europe, Volkswagen Group, Volvo Cars, and Volvo Group.
- Bühler joined the World Business Council for Sustainable Development (WBCSD) as a member in March 2019. WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver high-impact business solutions to the most challenging sustainability issues.
- In August, the Bühler Networking Days 2019 brought together 800 industry leaders to discuss the challenges facing a food industry and an automotive industry that seeks to find new business solutions and partnerships to feed and move 10 billion people within the limits of the planet by 2050 (see pages 26–33).

ECONOMIC SUSTAINABILITY

Key performance indicator (KPI)	Reference to GRI standards	Target 2020	Base year					Status
			2015	2016	2017	2018	2019	
Number of Bühler sites audited on corruption prevention	Related to 205-1	10	8	9	11	4	8	●
Number of Bühler sites audited on fraud prevention	Related to 205-1	10	8	9	11	4	8	●
Percentage of employees with a Bühler email address who have attended the online training against corruption and bribery ¹	Related to 205-2	100%	97%	92%	87%	62% ²	90%	●
Number of whistleblowing cases	Additional	Best practice in definition with peers	11	5	2	10	6	●
Number of all compliance cases	Additional	Best practice in definition with peers	64	47	11	45	37	●

¹ Scope: w/o former Haas Group. ² Reason for decrease in 2018: The target group increased to include all employees with a Bühler email address. Previous years only covered employees with sales, purchasing, and management functions.

ENVIRONMENTAL SUSTAINABILITY

Key performance indicator (KPI)	Reference to GRI standards	Target 2020	Base year					Status
			2015	2016	2017	2018	2019	
Energy consumption at the 17 major Bühler sites relative to productive in-house hours from manufacturing (GJ/1,000 hrs) ¹	302-3	30% reduction to base year	91.5	77.1	79.9	95.4	98.1 ²	●
Water withdrawal at the 17 major Bühler sites relative to productive in-house hours from manufacturing (m ³ /1,000 hrs) ¹	Related to 303-1	30% reduction to base year	84.1	89.5	55.5	73.5	68.2	●
CO ₂ equivalents at the 17 major Bühler sites relative to productive in-house hours from manufacturing (t/1,000 hrs) ¹	305-4	30% reduction to base year	12.8	10.8	10.1	11.8	11.7	●
Amount of waste (including material collected for recycling) at the 17 major Bühler sites relative to productive in-house hours from manufacturing (kg/1,000 hrs) ¹	Related to 306-2	30% reduction to base year	3,715	3,178	2,266	3,038	2,926	●
Amount of hazardous waste at the 17 major Bühler sites relative to productive in-house hours from manufacturing (kg/1,000 hrs) ¹	Related to 306-2	30% reduction to base year	246	151	153	454	305 ⁴	●
Percentage of top suppliers who have signed the Bühler Supplier Code of Conduct or have an equivalent code	Related to 308-1	100%	NA	NA	30%	40%	50%	●
Percentage of R&D projects with a focus on improving energy efficiency per ton of end product or finished piece	Additional	70%	24%	29%	37%	35%	33%	●
Percentage of R&D projects with a focus on improving product yield	Additional	50%	22%	29%	40%	42%	40%	●

¹ Scope: w/o former Haas Group. ² Absolute energy consumption decreased but not more than the decrease in productive in-house hours in manufacturing. ³ CO₂ emissions decreased compared to energy consumption due to introduction of self-generated electricity from renewable resources in Changzhou, China. ⁴ Although reduced, the construction and layout reorganization at the major site of Bühler Uzwil, Switzerland, continues.

Achieved vs. stated target ●
Likely to be achieved in 2020 ●
Major gap vs. stated target ●

This material references as declared Disclosures 205-1 and 205-2 from GRI 205: ANTI-CORRUPTION 2016; Disclosure 302-3 from GRI 302: ENERGY 2016; Disclosure 303-1 from GRI 303: WATER 2016; Disclosure 305-4 from GRI 305: EMISSIONS 2016; Disclosure 306-2 from GRI 306: EFFLUENTS AND WASTE 2016; Disclosure 308-1 from GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT 2016; Disclosure 401-1 from GRI 401: EMPLOYMENT 2016; Disclosure

403-2 from GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2016; Disclosures 404-1, 404-2, and 404-3 from GRI 404: TRAINING AND EDUCATION 2016; Disclosure 405-1 from GRI 405: DIVERSITY AND EQUAL OPPORTUNITY 2016; Disclosure 416-1 from GRI 416: CUSTOMER HEALTH AND SAFETY 2016; Disclosure 419-1 from GRI 419: SOCIOECONOMIC COMPLIANCE 2016.

SOCIAL SUSTAINABILITY

Key performance indicator (KPI)	Reference to GRI standards	Target 2020	Base year 2015	2016				2017		2018		2019		Status
				2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	
Percentage of terminations within the first 12 months of employment ¹	Related to 401-1	<5.0%	9.0%	3.0%	8.0%	5.8%	5.0%	3.0%	4.0%	3.5%	3.0%	2.0%	2.3%	●
Percentage of terminations during the probation period ¹	Related to 401-1	<1.0%	1.0%	2.0%	4.0%	3.5%	3.0%	2.0%	3.0%	2.5%	2.0%	1.5%	1.5%	●
Percentage of employee turnover	Related to 401-1	<8.0%	8.0%	7.5%	8.3%	9.1%	8.5%	7.5%	8.3%	9.1%	8.5%	7.0%	7.5%	●
Number of work-related injuries per 100 permanent employed full-time employees ²	Related to 403-2	0	2.9	2.9	2.3	2.3	1.4	2.9	2.3	2.3	1.4	2.0	1.5	●
Sickness-related absenteeism (days per employee and year) ¹	Related to 403-2	0	2.0	3.8	2.4	5.8 ⁵	5.4 ⁵	2.0	2.4	5.8 ⁵	5.4 ⁵	1.5	1.5	●
Percentage of training costs over total personnel costs ³	Related to 404-1	1.0%	1.2%	1.9%	0.9%	1.5%	1.0%	1.2%	1.0%	1.5%	1.0%	1.0%	1.0%	●
Number of training days per full-time employee per year ³	Related to 404-1	2.0	2.0	2.3	1.9	2.0	2.1	2.0	1.9	2.0	2.1	2.0	2.0	●
Number of employees who have received training in food safety since 2013	Related to 404-2	3,000	498	1,572	1,884	2,284	3,256	1,572	1,884	2,284	3,256	1,572	1,884	●
Percentage of employees who go through the Employee Performance Management process each year ³	404-3	80%	80%	86%	89%	93%	91%	80%	89%	93%	91%	80%	89%	●
Percentage of employees who are high potentials ³	Related to 404-3	5.0%	2.8%	3.1%	3.2%	3.0%	5.2% ⁵	2.8%	3.1%	3.2%	3.0%	2.8%	3.0%	●
Percentage of apprentices who are hired subsequent to their apprenticeship ⁴	Related to 405-1	80%	77%	71%	73%	73%	71% ⁶	80%	77%	73%	71% ⁶	71%	73%	●
Percentage of female employees ⁷	Related to 405-1	20%	15%	16%	15%	16%	17%	20%	15%	16%	17%	15%	16%	●
Percentage of R&D projects in food businesses with a focus on improving food safety	Related to 416-1	50%	28%	29%	34%	42%	34%	50%	28%	34%	34%	28%	34%	●
Percentage of R&D projects in food businesses with a focus on improving nutrition	Related to 416-1	20%	8%	10%	23%	13%	11%	20%	8%	10%	11%	8%	10%	●
Percentage of R&D projects with a primary focus on improving operational safety	Related to 416-1	50%	48%	43%	22%	24%	26%	50%	48%	43%	26%	48%	50%	●
Number of relevant fines for compliance issues (>CHF 200,000)	Related to 419-1	0	0	0	0	0	0	0	0	0	0	0	0	●
The key positions for the senior functions at management level 1, 2, and 3 have been defined, and potential successors have been determined	Additional	100%	100%	80%	88%	90%	90%	100%	88%	90%	90%	80%	88%	●
Percentage of employees participating in the Bühler Innovation Challenge (run every two years)	Additional	60%	NA	32%	NA	45%	NA	60%	NA	45%	NA	32%	NA	NA
Percentage of implemented business ideas from the Bühler Innovation Challenge (run every two years)	Additional	5.0%	NA	2.0%	NA	1.5%	NA	5.0%	NA	1.5%	NA	2.0%	NA	NA
Percentage of R&D projects run in collaboration with partners (suppliers, customers, universities)	Additional	50%	44%	47%	53%	51%	57%	50%	44%	47%	51%	44%	53%	●
Number of applications received per open position	Additional	30	16 ¹	23 ¹	22 ¹	25 ¹	43	30	16 ¹	23 ¹	25 ¹	22 ¹	25 ¹	●
Number of projects supported by Bühler employees in volunteer programs such as Partners in Food Solutions	Additional	10	NA	NA	12	22	50	10	NA	NA	50	12	22	●

¹ Scope: Bühler AG and Bühler Management AG in Switzerland only. ² Scope: sites with manufacturing only; w/o former Haas Group.

Achieved vs. stated target ●

³ Scope: w/o former Haas Group. ⁴ Scope: Bühler AG in Switzerland only. ⁵ Reason for increase: improved data quality and stricter reporting.

Likely to be achieved in 2020 ●

⁶ Target to be adjusted to 60%. ⁷ Comprehensive Diversity & Inclusion program was kicked off in 2018.

Major gap vs. stated target ●

One Young World



One Young World has a clear mission: to identify, promote, and connect young leaders to facilitate a more sustainable, fair, and livable world. Since its foundation in 2009 by Kate Robertson and David Jones, the charity has grown from an idea to a powerful move-

ment. In 2018 alone, 3.4 million people have been positively impacted by One Young World Ambassadors through projects that address the 17 Sustainable Development Goals of the United Nations, such as no poverty, quality education, or climate action. The London-based organization awarded 352 scholarships worth GBP 1.3 million last year. Driven by co-founder Kate Robertson's assessment that "a serious lack of leadership quality is at the heart of every global threat", the young leaders take matters into their own hands. In addition to their projects across the globe, they organize 14 regional caucuses annually where they share knowledge and experiences and plan future initiatives. In May 2019, Bühler's Generation B team, led by Vivienne Koch, organized the first One Young World Switzerland Caucus at the CUBIC innovation campus, which brought together more than 200 participants from around the world. Koch was amazed by the spirit of the event: "Meeting so many dedicated change-makers who are working towards the common goal of making the world a better place is unforgettable."

The OYW annual summit draws an even bigger crowd and has gained worldwide attention, not least due to the attendance of world leaders and influencers such as Professor Muhammed Yunus, Nobel Peace Prize Laureate, and Richard Branson, Founder of Virgin Group, among others. In 2019, over 2,000 participants from more than 190 countries met in London, including delegates from over 190 partner companies. During the summit, Ian Roberts, CTO of Bühler Group, announced that the World Business Council for Sustainable Development and MassChallenge Switzerland had joined forces to support the 10 most impactful solutions for climate change mitigation every year until 2025, and multiply them globally by 2030. The leaders of the two organizations met during the Bühler Networking Days 2019.

MassChallenge



(Massachusetts, Rhode Island, and Texas) MassChallenge strengthens the global innovation ecosystem by accelerating high-potential start-ups. Bühler has been a partner of the world's

largest cross-industry start-up accelerator since 2014 and joined MassChallenge Switzerland as a founding partner in 2016. Bühler CTO Ian Roberts, who is President of the Board of Directors of MassChallenge Switzerland, highlights the importance of this collaboration: "We need the disruptive, out-of-the-box thinking power of start-ups now more than ever to address the issues we're facing. MassChallenge provides start-ups with an accelerator program and – most importantly – a network of corporations and partners which enables them to scale up their business and create impact on a global level."

Since its foundation at the very depth of the recession in 2010, MassChallenge has accelerated 1,975 start-ups that have raised more than USD 4.3 billion in funding, generated more than USD 2.5 billion and created more than 125,000 jobs. As staggering as these numbers are, John Harthorne predicts a lot more pie to be made since both the start-ups and MassChallenge are driven by purpose rather than greed: "Instead of supporting a system that focuses on short-term profit and the exploitation of labor and raw materials, we want to help start-ups create a new system that fosters a collaborative environment in which we're all solving massive problems."

Partners in Food Solutions

Partners in Food solutions (PFS) is a nonprofit organization which aims to strengthen food security, improve nutrition and also increase overall economic development across Africa. Corporate partners from the food industry such as General Mills, DSM, and Hershey encourage their employees to volunteer and support food entrepreneurs in 10 African countries with their expertise. Bühler joined the initiative in 2013. Since then, 87 employees have supported 94 PFS projects. In total, Bühler employees volunteered 3,447 hours and passed on their know-how to 67 companies in Africa. By sharing their expertise, the volunteers were able to assist local entrepreneurs in growing their business, support a supplier base of more than 31,000 farmers, and unlock over USD 50,000 of investment capital. One of these volunteers is Jesse Theis, Quotation Specialist at Bühler Minneapolis. He's supporting a maize bran drying project by a Tanzanian company called Sozi Integrity, together with students at the University of St. Thomas in Minnesota, US, and the University of Dar es Salaam in Tanzania. "Sozi Integrity mills maize into flour, and also sundries and sells the separated bran to animal feed processors. During the rainy season – September to May – the environment is not conducive to sun drying, and therefore Sozi loses about USD 833 worth of maize bran daily. In collaboration with PFS volunteers and the students, the team worked on designing a scalable dryer that would ensure the dried bran revenue stream year-round, and reduce food loss," Theis says. After the design and testing phase, he expects the dryer to be replicated for many companies such as Sozi across Tanzania.



Connecting Expertise with Opportunity

GROUP STRUCTURE

Bühler follows international standards of corporate governance. Its corporate governance activities are based on the principles of the Swiss Code of Best Practice – a useful instrument for clearly defining internal powers and responsibilities and optimally designing the interaction between the Board of Directors, the Executive Board, and the Internal Audit Group.

As a non-listed, family-owned, but economically significant company, Bühler has decided to pay special attention to the design of its corporate governance. As a consequence, Bühler's corporate governance goes far beyond the statutory requirements of Swiss corporate law and incorporates, to a great extent, the recommendations contained in the "Swiss Code of Best Practice for Corporate Governance" issued by economiesuisse.

Bühler's Articles of Incorporation set the material parameters of the corporate governance system. The Articles of Incorporation are complemented by Bühler's Organizational Regulations, which further specify the responsibilities, competencies, and regulations of the governing bodies of the company. Unless prescribed by law or the Articles of Incorporation, the management is delegated by the Board of Directors, with the power to subdelegate to the Chief Executive Officer, the Executive Board, and its members. Separate charters specify the organization of the Nomination and Compensation Com-

mittee and the Audit Committee. The Board of Directors has also issued a regulation governing the cooperation between the Board of Directors, the CEO/Executive Board, and the Urs Bühler Innovation Fund.

Bühler remains a family-owned company

In 2014, Urs Bühler transferred his shares in Bühler to his three daughters, Karin, Dr. Maya, and Jeannine Bühler, each of whom owns a third of the company. For the three sisters, continuity is the top priority, as they want to build on the strengths and values of Bühler. They continue to maintain optimal general conditions for the company to operate in: a stable shareholder structure, a long-term orientation, steady company management that is not subject to the constraints of quarterly reporting – but nevertheless a management style pursuing business success. The three owners are represented on the Board of Directors and act in one unified voice in relation to company issues and decisions.

BOARD OF DIRECTORS

Chairman	Nomination and Compensation Committee		Audit Committee
Calvin Grieder	Dr. Konrad Hummler (Chairman)	Frank N.J. Braeken	Ruth Metzler-Arnold (Chairwoman)
Linda Yang		Dr. Maya Bühler	Jeannine Bühler
Rainer E. Schulz	Karin Bühler		Clemens E. Blum

EXECUTIVE BOARD

CEO Stefan Scheiber			
CFO Dr. Mark Macus	Grains & Food Johannes Wick	Consumer Foods Germar Wacker	Advanced Materials Samuel Schär
CTO Dr. Ian Roberts	Manufacturing, Logistics & Supply Chain Dr. Holger Feldhege	Sales & Services Dieter Voegtli	Human Resources Dipak Mane

BUSINESSES

Grains & Food	Consumer Foods	Advanced Materials
Grain Quality & Supply	Bakery	Die Casting
Milling Solutions	Wafer	Leybold Optics
Value Nutrition	Biscuit	Grinding & Dispersing
Digital Technologies	Chocolate & Coffee	
	Confectionery	
	Haas Metal	

REGIONS

North America	Europe	Asia
South America	Middle East & Africa	South Asia

URS BÜHLER INNOVATION FUND

Founder Urs Bühler	Chairman Dr. Ian Roberts		
Hal Gurley	Dr. Matthias Kaiserswerth	Prof. Dr. Edward S. Steinfeld	Prof. Dr.-Ing. Werner Bauer

BOARD OF DIRECTORS AND EXECUTIVE BOARD





BOARD OF DIRECTORS

10 Calvin Grieder

Chairman

Calvin Grieder has held various executive positions at Swiss and German companies active in the areas of control technology, automation, and system engineering. In these roles, he was primarily responsible for successfully establishing and expanding international business. In 2001, Calvin Grieder moved from Swisscom to Bühler Group, where he acted as CEO for 15 years. In February 2014, he was elected Chairman of the Board of Directors of Bühler Group and appointed to the Board of Directors of Givaudan, becoming Chairman of the Board in 2017. In 2019 he was elected to the Board of Société Générale de Surveillance (SGS). Other roles of his include Chairman of the Board of Directors of AWK Group, member of the Advisory Board of the ETH, Department of Mechanical and Process Engineering, as well as Member of the Board of Trustees of Avenir Suisse. Calvin Grieder has a Master of Science from ETH Zurich and has completed the Advanced Management Program (AMP) at Harvard University. He is a citizen of Switzerland and was born 1955 in the USA.

09 Karin Bühler

Member of the Board

After obtaining her university entry qualifications, Karin Bühler acquired a degree in Marketing. Following a number of activities in the fields of marketing, communications, and equestrian sports, she became General Manager of Horse Vision AG as owner in 2008. She has been with Uze AG since 2011, first as Manager Marketing, then as member of the General Management in charge of Human Resources & Marketing, and since 2014 as General Manager. Karin Bühler was re-elected to the Board of Directors in 2017. Karin Bühler was born in 1978 and is Swiss.

01 Dr. Konrad Hummler

Member of the Board

Dr. Konrad Hummler graduated in Law from the University of Zurich and in Economic Science from the US University of Rochester. In the eighties, he acted as the personal assistant to the Chairman of the Board of Directors of what is now UBS, Dr. Robert Holzach. From 1991 to 2012, he was Managing Partner with unlimited liability of Weggelin & Co. Private Bankers (St. Gallen). In addition to his bank activities, he was a member of the Board of various companies, including Neue Zürcher Zeitung (NZZ), Swiss National Bank (SNB), or the German Stock Exchange. Dr. Konrad Hummler heads the M1 AG, a private think tank dealing with strategic issues of current interest, and is Chairman of the Board of Private Client Bank in Zurich. Dr. Konrad Hummler was appointed as a Member of the Board of Bühler in 2010 and as a Chairman of the Nomination and Compensation Committee in 2016. He is strongly committed to cultural and social projects. Dr. Konrad Hummler was born in 1953 and is Swiss.

02 Ruth Metzler-Arnold

Member of the Board

Ruth Metzler studied Law at the University of Freiburg i. Ue. and is a Federally Certified Auditor. From 1990 to 1999, she was active for Pricewaterhouse Coopers in St. Gallen. In addition, she was a member of the Cantonal Government of Appenzell IR (Director of Finance) during three years. From 1999 to 2003, she was member of the Swiss Government and headed the Federal Department of Justice and Police. Ruth Metzler then held leading positions at Novartis and was a member of the Board and of the audit committee of SIX Group. Ruth Metzler is chairwoman of the Board of Switzerland Global Enterprise, FehrAdvice & Partners AG and the foundation of the Pontifical Swiss Guard. She is deputy chairwoman of AXA Switzerland and a Board member of Reyl & Cie SA, Swiss Medical Network SA and Infracore SA. Ruth Metzler is a member of the council of the University of St.Gallen (HSG) and a member of the Board of Trustees of Avenir Suisse. She was elected as a Member of the Board of Bühler in December 2011 and as Chairwoman of the Audit Committee in February 2014. Ruth Metzler-Arnold was born in 1964 and is Swiss.

08 Clemens Blum

Member of the Board

Clemens Blum has a degree in Electronic Engineering from Furtwangen University (Germany) and Business Management from Pforzheim University (Germany). After holding various positions in sales in different companies, he joined the Swiss Industrial Group (SIG) as Sales Director of SIG Positec Automation in 1992 and was promoted to General Manager in 1997. In 2000, Schneider Electric acquired the SIG Positec activities from SIG, and Clemens Blum then took on various executive positions within the Schneider Electric Group. From July 2010 until December 2016, he acted as Executive Vice President of the Industry Business, located in Foxborough (Massachusetts / US) for two years. Until his retirement, Clemens Blum was responsible for specific merger and acquisition strategies and key executive customers in the industrial automation market. He currently supports international private equity companies. In April 2018, he was appointed by one of those companies to the Advisory Board of Laird Connectivity, a manufacturer of professional Wi-Fi, antenna and IoT platform technologies. Clemens Blum was elected a Member of the Board of Bühler in December 2015. Clemens Blum was born in 1955 and is German.

01 02

10

09

08

03 Frank N.J. Braeken

Member of the Board

Frank N. J. Braeken graduated with a degree in Law and holds an MBA degree in Finance from the University of Leuven (Belgium). He is an alumnus of the Wharton Executive Program, Penn University (Philadelphia, US). In his professional career, he has specialized in finances and general management. From 1996 to 2013, he held various management functions in different countries for Unilever, including a position as Group Vice President of Unilever China (Shanghai), Executive Vice President of Unilever Namca (Dubai), and Executive Vice President of Unilever Africa (Dubai / Durban). After leaving Unilever, Frank N. J. Braeken acted as investment advisor and investor for large-scale agro and food enterprises on the African continent. In 2016, he was elected Chairman of the Board of Feronia Inc, a Toronto-listed palm oil producer in Africa. Frank N. J. Braeken is also a non-executive Board member of Marie Stopes International and AGRA, both non-profit organizations, as well as of Blue Skies Holdings and Zambeef. He was elected to the Board of Directors of Bühler in 2014. Frank Braeken was born in 1960 and is Belgian.

04 Dr. Maya Bühler

Member of the Board

Dr. Maya Bühler studied Veterinary Science at the University of Zurich. After completing her studies, she held various positions in the horse surgery department of the animal hospital in Zurich and became a Veterinary Specialist for Horses (FVH) in 2012. At the beginning of 2013, she became the owner and Managing Director of the company Pferdeklinik Thurland in Uzwil. Dr. Maya Bühler was re-elected to the Board of Directors of Bühler in 2017. Dr. Maya Bühler was born in 1981 and is Swiss.

05 Jeannine Bühler

Member of the Board

After successfully completing her federal vocational matrikelation certificate and passerelle (supplementary exam certificate) in St. Gallen, Jeannine Bühler was awarded a Bachelor of Arts degree from the University of Zurich. She later received a Master of Arts in Social Sciences majoring in journalism, communication sciences, and political science. Following completion of her studies, she joined the development organization Helvetas Swiss Intercooperation. Since February 2018, Jeannine Bühler has acted as Asset Manager for Swiss Prime Site Immobilien AG. Jeannine Bühler was elected to the Board of Directors of Bühler in 2016. Jeannine Bühler was born in 1986 and is Swiss.

07 Rainer Schulz

Member of the Board

After obtaining his degree in Production Engineering, Rainer Schulz first held various materials management and production supply chain positions in the electronics and mechanical engineering industries. Since 1995, Rainer Schulz has acted as head of production and later on as general head of purchasing in charge of global procurement at the jet engine manufacturer BMW Rolls-Royce AeroEngines. In 2001, Rainer Schulz moved on to the global REHAU Group. As Chief Operating Officer, he was first in charge within the context of the company management of the engineering, production, and materials management functions. In 2010, Rainer Schulz was appointed Chief Executive Officer of the REHAU Group, holding this position up to mid-2018. Rainer Schulz was appointed to the Bühler Board of Directors in 2019. He is a member of the Board of Directors of Eisenmann SE (DE) and RUAG Holding AG, where he is also Chairman of the Nomination & Compensation Committee. Rainer Schulz is a Swiss national who was born in Germany in 1965.

06 Linda Yang

Member of the Board

Linda Yang holds Bachelor's degrees in both Mathematics and Business / Finance from Nan Kai University (Tianjin, China). She graduated from the Executive MBA program at the China Europe International Business School (CEIBS) in 2009. Following various assignments in China in the fields of consumer insight, consulting, and marketing, at companies such as Procter & Gamble (China) Ltd., she acted from 2001 to 2004 for Nestlé (China) Ltd. as Head of Consumer Insight. Since then, she has been the General Manager of BSI (Tianjin) Foods Co. Ltd., a subsidiary of Senvencia Fromage & Dairy (previously known as Bongrain SA) in China. Thanks to her experience and training, Linda Yang has a proven understanding of the Chinese market. She has been a Member of the Bühler Board of Directors since 2014. Linda Yang was born in 1971 and is Chinese.

EXECUTIVE BOARD

01 Dr. Mark Macus

Chief Financial Officer

Dr. Mark Macus graduated with a PhD in Business Administration from the University of St.Gallen with an exchange at the Wharton School of the University of Pennsylvania. Later he earned his certification as a Swiss Certified Public Accountant. Prior to his employment as Head of Corporate Controlling at Bühler in 2013, Dr. Mark Macus held management positions at KPMG and the Holcim Group. In 2018, he joined the Vitra Group as Group CFO, before returning to Bühler and assuming the role of Group CFO as of September 1, 2019. He is a member of the Board of Corvaglia Group and Vice Chairman of the Board of Spital Bülach AG. Dr. Mark Macus was born in 1972 and is Swiss.

02 Samuel Schär

CEO Advanced Materials

After obtaining a diploma as a Physics Engineer from the Swiss Federal Institute of Technology in Lausanne (EPFL) and accumulating three years of experience with the consultancy McKinsey, Samuel Schär joined Bühler in 2002. He took charge of the Nanotechnology business unit in 2005. From 2009 to 2012, he bore overall responsibility for the Grinding & Dispensing business area. Samuel Schär has headed the Advanced Materials business since 2013 and was appointed CEO of Advanced Materials as of September 2014. Samuel Schär was born in 1975 and is Swiss.

05 Stefan Scheiber

Chief Executive Officer

Stefan Scheiber graduated in Business Administration from the University of Applied Science in St.Gallen and later continued his education at the Institute IMD Lausanne and the Harvard Business School. From 1988, he worked for 15 years in various international management positions worldwide, including East and South Africa, Eastern Europe, and Germany. In 1999, he took charge of the Brewing/Malting and Rice business units and thereafter assumed overall responsibility for Bühler in Germany. From mid-2005, Stefan Scheiber headed the Sales & Services division as a Member of the Executive Board. In 2009, he was assigned Division Manager of the Engineered Products Division which he reorganized into the Food Processing and the Advanced Material divisions. He led the Food Processing division as of 2009. In 2014, Stefan Scheiber integrated the Food Processing and the Grain Processing divisions, creating the Grains & Food business, which he led until 2016. Stefan Scheiber was appointed CEO of the Bühler Group on July 1, 2016. He is a member of the Board of Swissmem and of the Board of Directors of the Kistler Group. Stefan Scheiber was born in 1965 and is Swiss.

06 Dipak Mane

Chief Human Resources Officer

After completing his studies in Chemical Engineering at the Indian Institute of Technology, Dipak Mane worked in India for several years as an engineer in various positions. He joined Bühler India in 1992 as one of the first local employees. Step by step, he built up Bühler India, starting in 2000 as Managing Director and continuing from 2010 onward as Head of Region South Asia. In July 2015, he took on the role of Chief Human Resources Officer for the Group. Dipak Mane was born in 1960 and is Indian.

03 Dr. Ian Roberts

Chief Technology Officer

Dr. Ian Roberts graduated in Chemical Engineering and obtained a PhD in Process Engineering from the University of Wales (Great Britain). From 1997 to 2009, he held various management positions at Nestlé, focusing on innovation and business development. He has been Chief Technology Officer at Bühler since 2011. He has been particularly active in driving the cultural change program towards collaborative innovation, the sustainability mission, the digital transformation, and the entry into new business sectors. He is Chairman of the Evaluation Board of the Wyss Institute Zürich, managing the CHF 120 million investment portfolio into regenerative medicine and robotics, President of MassChallenge Switzerland, running five start-up accelerator programs across Europe, member of the supervisory boards of PROTIX, an industrial-scale insect processing company and Squirro, an AI company serving multiple industry sectors. Dr. Ian Roberts was awarded European CTO of the Year 2016. Dr. Ian Roberts was born in 1970 and is British.

04 Dieter Voegtli

President Sales & Services

Dieter Voegtli is a Mechanical Engineer (Swiss Federal Institute of Technology in Zurich, ETH) and holds an MBA from INSEAD. He started his career in global power plant commissioning and as a Software Development Manager for ABB. Following that, he worked for eight years as Technical Director of Roche China Ltd. Dieter Voegtli has been President of Bühler Group China and Asia Pacific since 2009, after serving as President of Bühler China since 2004. He was named President of the Sales & Services organization as of January 1, 2018. Dieter Voegtli was born in 1958 and is Swiss.

09 Germar Wacker

CEO Consumer Foods

After receiving a degree in Business from the University of Regensburg, Germany, and a master's degree in Business Administration from Murray State University, US, Germar Wacker began his professional career in the automotive industry at Daimler Chrysler AG. In 2000, he moved on to the Canadian rail vehicle manufacturer Bombardier Transportation, where he held executive positions in the areas of restructuring, operations, project management, and service. From 2010, he was responsible for several divisions of the group, sustainably expanding its international market position. Among other things, he was also Chairman of the Supervisory Board of Bombardier Transportation Austria. From September 2017, Germar Wacker was CEO of the Haas Group, which became part of the Bühler Group in January 2018. He has led the Consumer Foods business at Bühler since January 2019. Germar Wacker was born in 1970 and is German.

08 Dr. Holger Feldhege

COO Manufacturing, Logistics & Supply Chain

Dr. Holger Feldhege studied Business Administration and holds a PhD in Production Management. He has extensive experience in the sales and service business as well as production, engineering, and logistics. He worked in various management positions at Mannesmann and ThyssenKrupp Elevator, spending more than seven years in Asia. Upon his return to Germany in 2010, Dr. Holger Feldhege took on the position of CEO Manufacturing for the business unit Central, Eastern, and Northern Europe and later Senior Vice President Manufacturing Elevator for the worldwide group. In 2014, Dr. Holger Feldhege joined Bühler as Head of Manufacturing & Logistics. In 2017, he was named Chief Operations Officer responsible for Manufacturing, Logistics & Supply Chain. Dr. Holger Feldhege was born in 1968 and is German.

07 Johannes Wick

CEO Grains & Food

Johannes Wick joined Bühler in 2014 and took over the management of Grain Milling, the largest business area. He has led the Bühler Grains & Food business since April 1, 2016. Before joining Bühler, he worked for more than 20 years in different management positions in the energy and infrastructure sector at ABB, ABB Alstom Power, Iberdrola, and Alstom. Johannes Wick earned a Master's degree in Engineering at the ETH in Zurich with an exchange at the Technical University in Madrid. He expanded his knowledge with an MBA from IESE in Barcelona with an exchange at Sloan Management School of Business at the Massachusetts Institute of Technology (MIT) in Boston. Johannes Wick was born in 1969 and is Swiss.

ADVISORY BOARD

Urs Bühler Innovation Fund



Urs Bühler
Founder



Hal Gurley
Automation intelligence expert and
Founding Member of UBIF



Dr. Matthias Kaiserswerth
Managing Director,
Hasler Stiftung

Urs Bühler graduated as a mechanical engineer from the Swiss Federal Institute of Technology in Zurich (ETH). After holding a number of positions in Switzerland and abroad, he was appointed to the Corporate Management of Bühler AG in 1975, in charge of sales and development. From 1980 to 1984, he was President of Bühler GmbH, Braunschweig (Germany). In 1986, Urs Bühler was appointed CEO of Bühler in Uzwil, Switzerland. He handed over the executive management duties of the company to Calvin Grieder at the beginning of 2001. Urs Bühler was a Member of the Board since 1981, from 1991 as its Vice Chairman and from 1994 to 2014 as its Chairman. He was a member of the Board of several Swiss companies. Urs Bühler was born in 1943 and is Swiss.

Hal Gurley holds Bachelor's and Master's degrees in Electrical Engineering from the Georgia Institute of Technology (US), and an Executive MBA from the Institute IMD (Switzerland). Before moving to Switzerland in 1995, Gurley was President and Founder of Automation Intelligence Inc., a US-based advanced systems integration and software development firm specializing in real-time communications and control systems for industrial, robotic, and military applications. Prior to joining Cisco in 2000, Gurley was CTO at SIG Packaging Technology and later Director Internet/IP at Swisscom. During his 17-year career at Cisco, Gurley held executive leadership positions within Cisco's professional services, management consulting, and sales organizations. From 2013 until his retirement in 2017, Hal Gurley had global responsibility for Cisco's Cloud/Network Management and Automation software sales and go-to-market execution. He served as sole Managing Director and legal representative of Cisco Systems (Switzerland) GmbH. Currently working as an independent IoT strategy consultant, Hal Gurley was born in 1955. He is Swiss and American.

Dr. Matthias Kaiserswerth studied Computer Science at the Friedrich-Alexander University in Erlangen-Nuremberg (Germany) and at McGill University in Montreal (Canada). He obtained his PhD in Engineering from Erlangen University. From 1988 to 2015, Dr. Matthias Kaiserswerth worked for IBM. He has spent almost his entire career as a researcher in the areas of high-performing communication and security in Switzerland and the US apart from mid-2002 to the end of 2005, when he was responsible for global IBM business relations with a large international industrial customer. For more than 11 years Dr. Matthias Kaiserswerth was Director of the IBM Research Laboratory in Rüschlikon (Switzerland) until he became Managing Director of the non-profit Hasler Stiftung in Berne, in May 2015. This foundation supports education, research, and innovation in information and communication technologies. Dr. Matthias Kaiserswerth was born in 1956. He is Swiss and German.

URS BÜHLER INNOVATION FUND

The Urs Bühler Innovation Fund (UBIF) was established in 2014 to support the company's innovation efforts. Bühler invests between 4% to 5% of its turnover in research and development every year – developing breakthrough technologies and services to strengthen Bühler's market position as well as exploiting new opportunities to stay ahead of the innovation curve. The Advisory Board, managing the UBIF, focuses on accelerating the innovation process within the company as well as on its advancements in the field of the Internet of Things (IoT).



Prof. Dr. Edward S. Steinfeld
Professor of Political Science;
Director, Thomas J. Watson,
Jr. Institute for International Public
Affairs, Brown University

Prof. Dr. Edward S. Steinfeld studied Government and Political Science at Harvard University (US) and holds a PhD in Political Science. From 1996 to 2013, he was a Professor of Political Economy and Management at the Massachusetts Institute of Technology (US). He also served as a visiting scholar at the Tsinghua University School of Public Policy and Management in Beijing from 2012 to 2013. From 2005 to 2013, he was Director of the China Energy Program at the MIT Industrial Performance Center. In 2013, Prof. Dr. Edward S. Steinfeld moved to Brown University (US), where he currently directs the Watson Institute for International and Public Affairs as well as the Brown China Initiative and is a Professor of the Department of Political Science. Besides his university engagement, Prof. Dr. Edward S. Steinfeld is a member of various boards of directors, and academic and advisory boards in the US, Asia, and Europe. In 2012, he was appointed as a member of the China Advisory Board of Bühler Group. Prof. Dr. Edward S. Steinfeld was born in 1966 and is American.



Dr. Ian Roberts
Chief Technology Officer

Dr. Ian Roberts graduated in Chemical Engineering and obtained a PhD in Process Engineering from the University of Wales (Great Britain). From 1997 to 2009, he held various management positions at Nestlé, focusing on innovation and business development. He has been Chief Technology Officer at Bühler since 2011. He has been particularly active in driving the cultural change program towards collaborative innovation, the sustainability mission, the digital transformation, and the entry into new business sectors. He is Chairman of the Evaluation Board of the Wyss Institute Zürich, managing the CHF 120 million investment portfolio into regenerative medicine and robotics, President of MassChallenge Switzerland, running five start-up accelerator programs across Europe, member of the supervisory boards of PROTIX, an industrial-scale insect processing company and Squirro, an AI company serving multiple industry sectors. Dr. Ian Roberts was awarded European CTO of the Year 2016. Dr. Ian Roberts was born in 1970 and is British.



Prof. Dr.-Ing. Werner Bauer
Food Science, biotechnology, and
R&D expert

Prof. Dr.-Ing. Werner Bauer started his career as a university professor in chemical engineering at the Technical University in Hamburg, Germany. After serving as the Director of the Fraunhofer Institute for Food Technology & Packaging and as Professor in Food Bioprocessing Technology at the Technical University of Munich from 1985 to 1990, he joined Nestlé as Head of Nestlé Research worldwide in 1990. After commercially heading Nestlé South and East Africa, he joined general management as Executive Vice President in 2002, responsible for Technical, Production, Environment, and R&D. In 2007 he became Chief Technology Officer and Head of Innovation, Technology, Research and Development, a post from which he retired in September 2013. Prof. Dr.-Ing. Werner Bauer holds mandates in companies that are quoted on an official stock exchange and in companies that are non-quoted. He received a diploma and a PhD in Chemical Engineering from the University Erlangen-Nürnberg in Germany. Prof. Dr.-Ing. Werner Bauer was born in 1950 and is German and Swiss.

COLLABORATION

principles

Permitted external activities of the Board of Directors and the Executive Board

Bühler's Articles of Incorporation provide for a certain restriction of the permitted external activities of the Members of the Board of Directors. Members of the Board of Directors may not hold more than four additional mandates in listed companies, eight additional mandates against remuneration in unlisted companies, and eight unpaid additional mandates. Not included in these limitations are mandates in companies affiliated with Bühler, corporate mandates of Bühler, and mandates in associations, foundations, employee welfare foundations, charitable organizations, and other comparable structures. However, no Board Member shall hold more than 20 such additional mandates. Mandates refers to mandates in the supreme governing body of a legal entity registered in the commercial register in Switzerland or elsewhere.

Members of the Executive Board are limited to two mandates at public companies or other legal entities against remuneration and four unpaid mandates.

Elections and term of office of the Board of Directors

Bühler's Articles of Incorporation provide for the annual election by the General Assembly of all Board Members, its Chairman, and the Members of its Nomination and Compensation Committee. Term of office shall be one year, starting with the General Assembly at which each individual member is elected and ending with the following General Assembly. The Members of the Audit Committee are annually elected by the Board of Directors. Board Members will generally not be re-elected once they pass their 70th birthday or have been on the Board for 12 years.

Election date and attendance

For the year of first election to the Board of Directors, please refer to the individual curriculum vitae of each Board Member on pages 62–63. At the General Assembly, the Board of Directors gives account to the shareholders on the attendance of Board and Committee meetings by each individual Board Member.

Audit Committee

The Audit Committee shall monitor the integrity of the financial statements of the Company, including its Annual Report. It promotes effective communication between the management, internal and external audits.

The Audit Committee regularly reviews the functionality and effectiveness of the internal control system. It supports the Board of Directors in corporate governance issues.

Nomination and Compensation Committee

The Nomination and Compensation Committee determines and agrees with the Board of Directors on the policy for the compensation of the Members of the Board of Directors and of the Executive Board. It approves the design of, and determines targets for any performance-related compensation schemes operated by the Company and approves the total annual payments made under such schemes. Within the parameters of the agreed policy the Nomination and Compensation Committee determines the total individual compensation package for each Member of the Board of Directors as well as of the Executive Board and prepares the remuneration report.

Work method of the Board of Directors and its committees

Board meetings are held as often as matters require or upon the request of a Board Member, but at least four times per year. The agenda of the meeting shall be announced when it is convened, and pertinent information, if needed, shall be sent 10 days before the meeting to each Board Member. On unannounced items the Board can only decide if all Members of the Board are in attendance. Decisions may also be taken by circulation, provided that none of the Board Members request a formal meeting. Meetings of the Board Committees are convened separately from the Board meetings and scheduled as often as business requires. The Board of Directors receives verbal updates after each meeting of its Committees by their Chairperson.

Areas of responsibilities

The Board of Directors is responsible for the ultimate direction, strategic supervision, and control of the management of the Company, and for other matters which are, by law, under its responsibility.

Such inalienable duties include, essentially, (i) the ultimate management of the Company, (ii) the determination of its organization, (iii) the structuring of its accounting system and of the financial controlling, (iv) financial planning, (v) the appointment, removal, and ultimate supervision of persons entrusted with the management and representation of the Company, (vi) the preparation of the business report as well as the General Assembly and the implementation of its resolutions.

Executive Board

The Executive Board is responsible for all areas of operational management of the Company that are not reserved to the Board of Directors. The Executive Board is chaired by the Chief Executive Officer.

Urs Bühler Innovation Fund (UBIF)

The Advisory Board of the Urs Bühler Innovation Fund supports and advises the Board of Directors in innovation strategy matters as well as in defining and executing an innovation strategy that provides future-oriented answers to market trends and the needs of current and future customers.

External auditors

The external auditors are appointed at the General Assembly and present the outcome of the audit to the Audit Committee.

COMPLIANCE

Effective corporate governance

Effective corporate governance is a precondition for Bühler to ensure a long-term and sustainable increase of its corporate value. Bühler bases this both on the Swiss Code of Best Practice for Corporate Governance and the OECD Principles of Corporate Governance. Corporate governance at Bühler is organized with the interests of its stakeholders in mind, including customers, employees, suppliers, and public communities. It also comprises compliance with environmental and social standards as well as an uncompromising commitment to financial integrity. As an international Swiss company, strict observation of local laws on a global scale and systematic and continuous monitoring of compliance in all markets are indispensable for Bühler. This is the only way to prevent operating risks and an impairment of reputation that might be caused by violation of compliance rules.

An active Code of Conduct

The Code of Conduct is part of the so-called Bühler Essentials. It serves all employees as a beacon, showing them how to live the Group's core corporate principles (Trust, Ownership and Passion) in their day-to-day jobs. It states what is expected of employees and business partners, defines the standards governing compliance with laws and regulations, and includes the fundamentals of communications, employee rights, health and safety, and financial integrity.

Bühler regularly reviews its own principles of corporate governance to ensure that they are up to date. Its Code of Conduct has been reviewed and now also includes binding standards for its business partners. The Code of Conduct is being continuously adjusted to ongoing changes in the environment. Furthermore, Bühler's Supplier Code of Conduct has been updated according to the environmental requirements and further rolled out to its business partners.

Clear rules against corruption and bribery

The so-called ABC (Anti Bribery & Corruption) rules against bribery and corruption unmistakably state that no violations will be tolerated. They concern, in particular, collaboration with agents. Furthermore, it is mandatory for all employees with access to the learning platform to undergo the new state-of-the-art online training program (Web Based Training, WBT)

and to pass a final test. Participation in the training takes place upon entry into the company and the training must be repeated every three to five years.

Compliance organizational structure proves its effectiveness

Bühler further decentralized the organizational structure of its compliance function. In six Bühler regions a regional compliance officer acts as the first contact, except for compliance cases involving special risks, which are handled directly by the Compliance Board. This decentralization has greatly streamlined and accelerated the related processes. This is also because linguistic barriers have been eliminated, and the regional compliance officers are familiar with local regulations and conditions.

Compliance reporting

Clear accountability and defined actions ensure that compliance-related incidents are systematically reported to the central Compliance Board. This transparency is a precondition for ensuring that the company can gain the necessary insight from such incidents and take the required measures in response. Bühler is happy to report that awareness of the benefits of a transparent compliance reporting system have become increasingly acknowledged.

Trade compliance

Free trade agreements can offer advantages in cross-border traffic. In order to use these, high demands are placed on the organization and documentation of the supply chain. In addition, strict guidelines are set for the export industry in the fields of export control, sanctions, and customs. Accordingly, these tasks are steadily expanding and increasingly supported by technical systems.

Group Internal Audit

The Internal Audit Department reports functionally to the Board of Directors, represented by the Audit Committee and administratively to the Chief Financial Officer. Meetings between internal and external auditors take place on a regular basis. The audit plan is aligned with the strategy and key business risks. A yearly risk assessment is prepared by Group

Internal Audit. It is the basis for the yearly audit plan, which is approved by the Audit Committee. The results of the audits are discussed with the management of the audited unit, and major topics are presented to the Executive Board and the Audit Committee and thereafter reported to the Board of Directors. In 2019, eight worldwide audits were carried out.

Group Internal Audit is responsible for reviewing Group-wide compliance with the Code of Conduct. Violations are reported to the Audit Committee and the Executive Board.

Risk management

The Group is exposed to a variety of risks. The Company's risk management system includes all measures in a systematic and transparent approach towards risk. It aims to identify risks, evaluate them adequately, handle or avoid them using suitable measures and monitor them. Risks are defined here as possible future developments or events which may lead to negative deviations from the planned operating result. As part of the regular risk reporting, the risk owners report the risks they have identified, including the respective likelihoods of occurrence, the potential financial impact, as well as the risk mitigation measures for corporate risk management.

Quality system

With the recertification of the ISO 9001:2015 Group Quality System, Bühler continues to meet the highest internationally recognized quality standards. This was the result of the multi-site assessment sampling at 8 out of 25 certified Bühler sites. The ISO 9001:2015 certificate will be renewed until November 2020.

REMUNERATION

report

Recruit, develop, and align

Bühler practices excellence in human resources to motivate and develop its employees and in order to achieve the Bühler mission. The Company wants to establish itself as the best in class for employee development, across the entire career span of its people. The Remuneration Policies are designed with this purpose in mind.

periodically reviewing the Remuneration Policy. It prepares all the relevant decisions of the BoD in the area of remuneration, for the Members of the BoD, Members of the Executive Board (EB), and submits its proposals (remuneration type and annual remuneration) to the BoD. In addition, it submits proposals to the BoD defining the annual goals for success- and performance-related remuneration, and then defines the circle of potential recipients of this success- and performance-related remuneration.

Remuneration governance

Overview

The Members of the Nomination and Compensation Committee (NCC) are elected by the General Assembly. The Board of Directors (BoD) appoints the Chairman from among the elected members. The NCC supports the BoD in the remuneration issues defined here, with responsibilities being retained by the BoD. The NCC is in charge of defining and

Nomination and Compensation Committee

For the year under review, the Members of the NCC were Dr. Konrad Hummler (Chairman), Frank N. J. Braeken, Karin Bühler, and Dr. Maya Bühler. Permanent invitees were Calvin Grieder, Chairman of the Board of Directors; Stefan Scheiber, CEO; Dipak Mane, Chief HR Officer; and Christof Oswald, Head of HR. Four meetings were held. The NCC Chairman reported to the BoD after each meeting, and the minutes were kept and distributed in a timely manner.

Authority chart

Subject	Recommendation	Final approval
Definition of Remuneration System and Policy for remuneration paid to the Board of Directors and the Executive Board	NCC	Board of Directors
Development of variable remuneration schemes plus approval of all annually paid performance-related remuneration at Bühler Group	NCC	Board of Directors
Definition of individual remuneration, including bonus, variable portion, shares-related remuneration, etc., to the Executive Board and the Board of Directors	NCC	Board of Directors General Assembly

Remuneration principles

Bühler is committed to performance- and market-related remuneration. Success as a result of sound individual performance plus the success of the organization will impact the remuneration.

All employees, including the Executive Board, shall undergo a formalized annual performance appraisal process (Employee Performance Management, EPM). The Individual Performance Goals are defined and agreed upon jointly with each employee at the start of the fiscal year. The financial success of the organization, which is measured on the basis of EBIT, also impacts performance-related remuneration.

Principles of Remuneration Policy

Fairness, consistency, and transparency	The remuneration schemes shall be simple, clearly structured, and transparent. They give consideration to the responsibilities and powers of the individual functions, thereby ensuring fair remuneration at all levels.
Performance-related remuneration	Variable remuneration is directly tied to the success of Bühler (EBIT) and to individual performance (EPM).
Long-term success sharing	Part of the remuneration of the Executive Board shall be paid in the form of blocked phantom options in order to ensure long-term sharing in the success of Bühler.
Orientation toward the labor market	In order to attract and retain talent, qualified and dedicated management staff and employees, remuneration shall be oriented toward the market environment and be regularly subjected to benchmarking.
Bühler values: TOP	The Remuneration Policy is oriented toward the Bühler values of TOP (Trust, Ownership, and Passion). These values are incorporated into the above-mentioned principles and determine the "Bühler way of doing business" in all respects.

REMUNERATION

elements

Overall remuneration model for employees and the Executive Board

Instrument	Purpose	Influencing factors	
Fixed annual basic salary	Monthly cash remuneration	Regular, predictable remuneration for the specific function	Sphere of work, complexity, and responsibility of the function, competencies, and experience of the function owner, benchmarks
Performance-related variable portion	Annual cash remuneration	Remuneration for performance	Success of the organization (EBIT) and individual performance (EPM) on an annual basis
Deferred compensation plan	Deferred compensation plan with a vesting period of three to ten years	Sharing in long-term success	Hierarchical position of the function within the organization
Other employee benefits	Pension and insurance schemes; other fringe benefits	Protection against risks and coverage of expenses	Local legislation and market practice

Remuneration of the Board of Directors

The Members of the Board of Directors shall receive a fixed cash payment and be remunerated as Committee Members (if applicable).

Office	
Basic remuneration	Membership in the Board of Directors
Additional remuneration	Chairmanship of the Board of Directors Vice Chairmanship of the Board of Directors
	Chairmanship of the Audit Committee Activity in the Audit Committee
	Chairmanship of the Nomination and Compensation Committee Activity in the Nomination and Compensation Committee
	Other Committee Chairmanship/Memberships Other activities
Expenses	Only expenses incurred are reimbursed

Remuneration of the Executive Board

The Members of the Executive Board shall receive a basic salary, a variable cash remuneration portion, employer contributions to pension funds and social security institutions, and long-term remuneration in the form of a deferred compensation plan with a vesting period of three to ten years. In addition, the lump-sum remuneration regulations apply.

Financial report

FINANCIAL REPORT BÜHLER GROUP	78
Consolidated income statement	79
Consolidated statement of other comprehensive income	80
Consolidated balance sheet	81
Consolidated statement of changes in equity	82
Consolidated statement of cash flows	84
Notes to the financial statements	85
Report of the Group auditor Bühler Group	132
FINANCIAL STATEMENTS BÜHLER HOLDING AG	137
Income statement Bühler Holding AG	138
Balance sheet Bühler Holding AG	139
Notes to the financial statements Bühler Holding AG	140
Report of the statutory auditor Bühler Holding AG	142

Financial Report

Bühler Group

Consolidated income statement

	Notes	2019 CHF m	2018 CHF m
Revenue	3.1	3,254.4	3,270.7
Other operating income	3.2	49.7	57.0
Total operating income		3,304.1	3,327.7
Cost of materials		-1,485.1	-1,512.1
Changes in inventories of finished goods and work in progress		2.8	23.6
Employee benefit expenses	3.3	-998.5	-1,006.3
Other operating expenses	3.4	-488.4	-539.0
Net result from associates	4.4	1.9	0.5
Operating result before interest, taxes, depreciation and amortization (EBITDA)		336.8	294.4
Depreciation and amortization	4.1/4.2/4.3	-88.8	-63.7
Operating result before interest and taxes (EBIT)		248.0	230.7
Interest income and expenses	3.5	-3.7	-1.4
Other financial income	3.5	6.1	6.0
Financial result		2.4	4.6
Profit before taxes		250.4	235.3
Income taxes	3.6	-48.8	-47.4
Net profit		201.6	187.9
Attributable to:			
– Owners of the parent		197.3	183.5
– Non-controlling interests		4.3	4.4

Consolidated statement of other comprehensive income

	Notes	2019 CHF m	2018 CHF m
Net profit		201.6	187.9
Other comprehensive income			
Translation differences of foreign operations		-38.5	-47.6
- Realized through income statement		1.0	0.0
Net gain (loss) on hedge of net investment		-12.2	-11.5
- Tax effect		1.2	1.0
Cash flow hedges			
- Changes recycled in the income statement		1.5	10.9
- Changes recognized in OCI		2.4	-25.6
- Tax effect		-0.3	2.3
Other comprehensive income to be reclassified to profit or loss in subsequent periods		-44.9	-70.5
Remeasurements of defined benefit plans	4.12.3	-14.4	-8.2
- Tax effect		-1.7	1.3
Financial assets at fair value through OCI		4.5	-0.6
- Tax effect		-0.6	0.1
Other comprehensive income not to be reclassified to profit or loss in subsequent periods		-12.2	-7.4
Total other comprehensive income		-57.1	-77.9
Total comprehensive income		144.5	110.0
Attributable to:			
- Owners of the parent		141.2	107.1
- Non-controlling interests		3.3	2.9

Consolidated balance sheet

Assets	Notes	Dec. 31, 2019 CHF m	Dec. 31, 2018 CHF m
Property, plant and equipment	4.1	713.7	564.7
Right-of-use assets	4.2	62.7	0.0
Intangible assets and goodwill	4.3	690.9	715.7
Investments in associates	4.4	27.4	27.6
Non-current financial and other assets	4.5	185.2	170.0
Deferred tax assets	3.6.4	59.2	55.5
Non-current assets		1,739.1	1,533.5
Inventories	4.6	536.3	531.4
Contract assets relating to production orders in progress	3.1	455.3	381.3
Trade accounts receivable	4.7	688.6	702.3
Other receivables	4.7	128.0	176.8
Current income tax assets		6.1	3.5
Marketable securities	2.3.2	82.2	65.5
Cash and cash equivalents	4.8	396.5	417.4
Current assets		2,293.0	2,278.2
Total assets		4,032.1	3,811.7
Equity and liabilities			
Share capital	4.13	15.0	15.0
Capital reserves		185.1	185.1
Other reserves / retained earnings		1,495.0	1,377.4
Equity attributable to the owners of the parent		1,695.1	1,577.5
Non-controlling interests		31.6	31.0
Total equity		1,726.7	1,608.5
Non-current financial liabilities	2.2	632.6	526.7
Non-current lease liabilities	4.2	45.6	0.2
Deferred tax liabilities	3.6.4	117.5	129.9
Defined benefit obligations	4.12.4	103.3	111.9
Non-current provisions	4.10	38.9	36.7
Non-current liabilities		937.9	805.4
Current financial liabilities	2.2	32.3	34.9
Current lease liabilities	4.2	16.6	0.0
Trade accounts payable	4.9	389.4	354.8
Contract liabilities relating to production orders in progress	3.1	473.5	576.3
Current provisions	4.10	85.5	87.3
Other current liabilities	4.11	315.7	307.2
Current income tax liabilities		54.5	37.3
Current liabilities		1,367.5	1,397.8
Total liabilities		2,305.4	2,203.2
Total equity and liabilities		4,032.1	3,811.7

Consolidated statement of changes in equity

	Notes	Share capital CHF m	Capital reserve CHF m	Retained earnings CHF m
January 1, 2018		15.0	185.1	1,453.6
Dividends paid	6.4			–21.0
Changes in non-controlling interests	1.5			–2.2
Net profit				183.5
Other comprehensive income				–6.9
December 31, 2018		15.0	185.1	1,607.0
January 1, 2019		15.0	185.1	1,607.0
Dividends paid	6.4			–23.0
Changes in non-controlling interests	1.5			–0.6
Net profit				197.3
Other comprehensive income				–16.1
December 31, 2019		15.0	185.1	1,764.6

Hedge reserve CHF m	Financial assets at fair value through OCI CHF m	Foreign currency translation reserves CHF m	Total other reserves and retained earnings CHF m	Equity attributable to the owners of the parent CHF m	Non-controlling interests CHF m	Total equity CHF m
10.9	0.0	-170.0	1,294.5	1,494.6	28.5	1,523.1
			-21.0	-21.0	-1.9	-22.9
		-1.0	-3.2	-3.2	1.5	-1.7
			183.5	183.5	4.4	187.9
-12.4	-0.5	-56.6	-76.4	-76.4	-1.5	-77.9
-1.5	-0.5	-227.6	1,377.4	1,577.5	31.0	1,608.5
-1.5	-0.5	-227.6	1,377.4	1,577.5	31.0	1,608.5
			-23.0	-23.0	-2.7	-25.7
			-0.6	-0.6	0.0	-0.6
			197.3	197.3	4.3	201.6
3.6	3.9	-47.5	-56.1	-56.1	-1.0	-57.1
2.1	3.4	-275.1	1,495.0	1,695.1	31.6	1,726.7

Consolidated statement of cash flows

	Notes	2019 CHF m	2018 CHF m
Profit before taxes		250.4	235.3
Financial result	3.5	-2.4	-4.6
Operating result before interest and taxes (EBIT)		248.0	230.7
Depreciation and amortization	4.1/4.2/4.3	88.8	63.7
Other items not affecting cash flow		-6.4	-4.4
Changes in provisions		2.3	32.3
Changes in trade accounts receivable		1.0	-63.4
Changes in inventories		-16.8	-49.4
Changes in trade accounts payable		42.0	55.5
Changes in contract assets/liabilities relating to production orders in progress		-180.4	1.7
Changes in other net operating assets		28.5	-20.8
Gains/losses on disposal of fixed assets		3.3	-12.4
Interest received		5.0	4.9
Interest paid		-4.4	-4.3
Income taxes paid		-45.1	-32.3
Cash flow from operating activities		165.8	201.8
Purchase of property, plant and equipment		-105.3	-113.1
Disposal of property, plant and equipment		10.2	29.5
Purchase of intangible assets		-7.5	-5.0
Cash flow from acquisition of Group companies, net of cash acquired		0.0	-446.7
Cash flow from disposals of Group companies, net of cash disposed		14.0	20.6
Purchase of marketable securities		-46.0	-30.8
Disposal of marketable securities		32.0	23.3
Purchase of non-current financial assets		-18.7	-42.5
Disposal of non-current financial assets		4.7	16.9
Cash flow from investing activities		-116.6	-547.8
Repayment of financial liabilities	2.2	-11.0	-34.0
Cash outflow for leases	4.2	-26.4	0.0
Dividends paid of Bühler Holding AG	6.4	-23.0	-21.0
Dividends paid to non-controlling interests		-2.7	-1.9
Acquisitions and other transactions with non-controlling interests		-0.4	0.0
Cash flow from financing activities		-63.5	-56.9
Translation differences		-6.6	-12.2
Changes in cash and cash equivalents		-20.9	-415.1
Cash and cash equivalents at the beginning of period		417.4	832.5
Cash and cash equivalents at the end of period		396.5	417.4

Notes to the financial statements

1. Group information

1.1 General information

The consolidated financial statements of the Bühler Group and its subsidiaries (collectively, the Group) for the year ended December 31, 2019, were authorized for issue in accordance with a resolution of the Board of Directors on February 11, 2020. Bühler Holding AG (the Company or the parent) is a company incorporated and domiciled in Switzerland whose shares are privately held. The registered office is located in Uzwil, Switzerland.

The Group is a globally active solutions provider for the industrial manufacturing of food and advanced materials. The worldwide solutions portfolio contains engineering, application development, manufacturing, services, and training.

These financial statements are the consolidated financial statements of Bühler Holding AG and its subsidiaries. The list of significant Group companies can be found on pages 89 to 91.

1.2 Use of estimates

The preparation of the consolidated financial statements in accordance with IFRS requires management to make estimates and assumptions that affect the reported amounts of revenue, expenses, assets, and liabilities and the related disclosures at the date of the financial statements. These estimates are based on management's best knowledge of current events and possible future measures. However, actual results could differ from those estimates.

If in the future such estimates and assumptions, which are based on management's best knowledge at the date of the financial statements, deviate from the actual circumstances, the original estimates and assumptions will be modified as appropriate in the year in which the circumstances change.

The consolidated financial statements of the Bühler Group have been prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB) and comply with Swiss law. The consolidated financial statements are based on the single-entity financial statements of the Group companies, which are prepared in accordance with consistent accounting principles. The consolidated financial statements are prepared under the historical cost convention. Any exceptions to this general rule are outlined in the respective note. The overall accounting principles applied to the Annual Report as a whole are described below. The accounting policies related to specific line items are described in the notes to which they relate.

Due to rounding, the numbers do not necessarily correspond exactly with the totals.

The estimates and assumptions that may have a higher degree of uncertainty to cause a material adjustment to the carrying amounts of assets and liabilities within the next financial periods relate primarily to goodwill and intangible assets with an indefinite useful life (Note 4.3) and, to a lesser extent, revenue (Note 3.1) and defined benefit obligations (Note 4.12).

Estimates related to specific line items are described in the notes to which they relate.

1.3 Foreign currency translation

The individual financial statements of the Group companies are measured using the currency of the primary economic environment in which the entity operates ("the functional currency") and are translated into Swiss francs for consolidation purposes. Year-end exchange rates are used for the balance sheet and the average exchange rate for the income statement, statement of other comprehensive income, and statement of cash flows.

Differences resulting from the application of these different exchange rates for the balance sheet and the income statement and from equity transactions are recognized directly in the consolidated statement of other comprehensive income.

Goodwill arising on the acquisition of a foreign entity is expressed in the functional currency of the foreign operation and is translated at the closing rate.

Foreign currency transactions translated into the functional currency are accounted for at the exchange rates prevailing at the date of the transactions; gains and losses resulting

from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies are recognized in the income statement, except when they are deferred outside the income statement as qualifying cash flow hedges.

Foreign exchange differences arising on monetary items that form part of a company's net investment in a foreign operation are reclassified to equity (currency translation adjustment) in the consolidated financial statements and are only fully recycled to the income statement when the Group loses control of a subsidiary or loses significant influence in an associate.

For foreign currency translation, the Bühler Group used the following exchange rates:

	Average exchange rates		Closing rates 31.12.	
	2019 CHF	2018 CHF	2019 CHF	2018 CHF
BRL	0.2523	0.2692	0.2400	0.2550
CAD	0.7490	0.7553	0.7440	0.7250
CNY	0.1439	0.1481	0.1392	0.1435
CZK	0.0433	0.0450	0.0428	0.0437
DKK	0.1490	0.1550	0.1460	0.1510
EUR	1.1126	1.1551	1.0890	1.1280
GBP	1.2689	1.3058	1.2750	1.2470
INR	0.0141	0.0143	0.0136	0.0141
JPY	0.0091	0.0089	0.0089	0.0089
MXN	0.0516	0.0509	0.0517	0.0500
SGD	0.7286	0.7253	0.7206	0.7210
THB	0.0320	0.0303	0.0323	0.0303
USD	0.9939	0.9786	0.9730	0.9860
ZAR	0.0689	0.0743	0.0695	0.0683

1.4 Principles of consolidation

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. The cost of an acquisition is measured at the fair value of the consideration transferred at the date of exchange. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition costs incurred are expensed in the income statement. Identifiable assets acquired and liabilities assumed in a business combination are measured initially at fair value at the date of acquisition, irrespective of the extent of any non-controlling interest assumed. When the Bühler Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances, and pertinent conditions as at the acquisition date.

If the business combination is achieved in stages, the acquisition date fair value of the Group's previously held equity interest in the acquiree is remeasured to fair value at the date control is obtained. Any gain or loss arising from such remeasurement is recognized in the income statement.

Any contingent consideration to be transferred by the Group is recognized at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration are recognized in the income statement.

Subsidiaries are consolidated from the date on which control is transferred to the Group and are no longer consolidated from the date that control ceases.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.

All intercompany transactions and balances between Group companies are eliminated in full.

Investments in associated companies are accounted for using the equity method of accounting. These are companies over which the Group generally holds between 20% and 50% of the voting rights and has significant influence but does not exercise control. Goodwill arising on the acquisition is included in the carrying amount of the investment in associated companies. The Group does not recognize further losses when the carrying amount of the investment together with any long-term interest in an associated company reaches zero, unless the Group has in addition either incurred or guaranteed additional obligations in respect to the associated company.

Investments below 20% are recognized at fair value and classified as financial assets at fair value through profit or loss. Changes in fair value are recognized in the income statement.

Any non-current assets held for sale and discontinued operations are presented separately on the face of the balance sheet. This includes all those assets associated with the discontinuation of entire lines of business or geographical areas of operation, which are to be realized through a sale transaction rather than through continued use. Reclassifications are only made if management is committed to the sale and has started seeking buyers. In addition, the asset or disposal group must be available for sale in its current condition and its sale must be highly probable within one year. Non-current assets or disposal groups classified as held for sale are no longer depreciated. If necessary, they are written down for impairment.

The income and expenses of discontinued operations are separated from ordinary income and expenses in the income statement for both the reporting period and the prior year down to the "profit after tax" level. The resulting gain or loss (after taxes) is presented separately in the income statement.

1.5 Additions and disposals of Group companies

Additions

2019

There was no significant addition in 2019.

2018

Acquisition of the Haas Group, Vienna, Austria. On January 9, 2018, the Group acquired 100% of the shares of Haas, Vienna. Haas is the world market leader of wafer, biscuits, and confectionery production systems. Haas is an extension of the Group's consumer food business and product portfolio, which enables the Group to generate additional customer value and strengthens the Group's position in various markets.

From the date of acquisition, the Haas Group contributed CHF 372.8 million of revenue. The amounts would be materially the same had the acquisition taken place at the beginning of the year.

Acquisition of Sputtering Components Inc., Owatonna, US. On September 30, 2018, the Group acquired 100% of the shares of Sputtering Components Inc., Owatonna. The entity is a manufacturer of precision vacuum components. This acquisition strengthens the Group's global sales and service network and its product portfolio.

From the date of acquisition, the entity contributed CHF 3.9 million of revenue. If the combination had taken place at the beginning of the year, revenue would have been CHF 17.2 million.

Disposals

2019

There was no significant disposal in 2019.

2018

Refer to Note 4.4 for transactions with associates.

1.6 Significant Group companies

Name of company	Country	Share capital in millions of local currency	Participation rate	Holding / financing company	Held by
Switzerland					
Bühler Holding AG, Uzwil	CH	CHF 15.00		○	
Bühler AG, Uzwil	CH	CHF 30.00	100.0%		Bühler Holding AG, Uzwil
Bühler-Immo Betriebs AG, Uzwil	CH	CHF 0.10	100.0%		Bühler Holding AG, Uzwil
Bühler Management AG, Uzwil	CH	CHF 0.10	100.0%		Bühler Holding AG, Uzwil
UBIF AG, Uzwil	CH	CHF 4.00	100.0%		Bühler Holding AG, Uzwil
Bühler Insect Technology Solutions AG, Uzwil	CH	CHF 1.46	80.0%		Bühler Holding AG, Uzwil
Benlink AG, Zurich	CH	CHF 0.10	100.0%		Bühler Holding AG, Uzwil
Bühler + Scherler AG, St. Gallen	CH	CHF 0.80	60.0%		Bühler Holding AG, Uzwil
Europe					
FHW Franz Haas Waffelmaschinen GmbH, Leobendorf	AT	EUR 0.04	100.0%		Bühler Food Equipment GmbH, Leobendorf
Bühler Food Equipment GmbH, Leobendorf	AT	EUR 4.40	100.0%	○	Bühler AG, Uzwil
Metall- und Kunststoffwaren Erzeugungs-ges.m.b.H, Heidenreichstein	AT	EUR 2.91	100.0%		Bühler Food Equipment GmbH, Leobendorf
Bühler CZ s.r.o., Zamberk	CZ	CZK 265.20	100.0%		Bühler Holding AG, Uzwil
Bühler Deutschland GmbH, Beilngries	DE	EUR 0.03	100.0%		Bühler AG, Uzwil
Bühler GmbH, Beilngries	DE	EUR 16.00	100.0%		Bühler Deutschland GmbH, Beilngries
Bühler Deutschland Holding GmbH, Braunschweig	DE	EUR 0.03	100.0%	○	Bühler AG, Uzwil
Bühler Barth GmbH, Leingarten	DE	EUR 1.14	100.0%		Bühler Deutschland Holding GmbH, Braunschweig
Bühler GmbH, Reichshof	DE	EUR 0.28	100.0%		Bühler Deutschland Holding GmbH, Braunschweig
Bühler GmbH, Braunschweig	DE	EUR 12.63	100.0%		Bühler Deutschland Holding GmbH, Braunschweig
Leybold Optics Verwaltungs GmbH, Alzenau	DE	EUR 0.44	100.0%	○	Bühler Deutschland Holding GmbH, Braunschweig
Bühler Alzenau GmbH, Alzenau	DE	EUR 0.05	100.0%		Leybold Optics Verwaltungs GmbH, Alzenau
Bühler GmbH, Leingarten	DE	EUR 2.43	100.0%		Bühler Deutschland Holding GmbH, Braunschweig
Haas-Meincke A/S, Ballerup	DK	DKK 5.00	100.0%		Bühler Food Equipment GmbH, Leobendorf
Buhler S.A., Madrid	ES	EUR 0.06	100.0%		Bühler Holding AG, Uzwil
Bühler SAS, Haguenau	FR	EUR 0.20	100.0%		Bühler Holding AG, Uzwil
Buhler UK Holdings Ltd., London	GB	GBP 3.60	100.0%	○	Bühler Holding AG, Uzwil
Buhler UK Ltd., London	GB	GBP 1.25	100.0%		Buhler UK Holdings Ltd., London
Control Design & Development Ltd., Peterborough	GB	GBP 0.01	100.0%		Buhler UK Holdings Ltd., London
Buhler S.p.A., Milano	IT	EUR 2.67	100.0%		Bühler Holding AG, Uzwil
Haas-Mondomix B.V., Almere	NL	EUR 0.50	100.0%		Bühler Food Equipment GmbH, Leobendorf
OOO Haas, Moscow	RU	RUB 3.21	100.0%		FHW Franz Haas Waffelmaschinen GmbH, Leobendorf

Name of company	Country	Share capital in millions of local currency	Participation rate	Holding / financing company	Held by
North America					
Buhler US Holding Inc., Minneapolis	US	USD 0.05	100.0%	○	Bühler Holding AG, Uzwil
Buhler Aeroglide Corporation, Cary	US	USD 0.01	100.0%		Buhler US Holding Inc., Minneapolis
Buhler Inc., Minneapolis	US	USD 3.20	100.0%		Buhler US Holding Inc., Minneapolis
BuhlerPrince Inc., Holland	US	USD 0.38	100.0%		Buhler US Holding Inc., Minneapolis
Buhler Sputtering Components Inc., Owatonna	US	USD 0.02	100.0%		Buhler US Holding Inc., Minneapolis
Franz Haas Machinery of America Inc., Richmond	US	USD 0.01	100.0%		Bühler Food Equipment GmbH, Leobendorf
Latin America					
Buhler S.A., Buenos Aires	AR	ARS 1.10	100.0%		Bühler Holding AG, Uzwil
Buhler S.A., Curitiba	BR	BRL 20.69	100.0%		Bühler Holding AG, Uzwil
Buhler Sanmak Industria de Maquinas Ltda., Blumenau	BR	BRL 10.00	100.0%		Bühler Holding AG, Uzwil
Haas do Brasil Industria de Maquinas Ltda., Curitiba	BR	BRL 3.04	100.0%		Bühler Food Equipment GmbH, Leobendorf
Buhler S.A. de C.V., Toluca	MX	MXN 50.00	100.0%		Bühler Holding AG, Uzwil
Haas Colombia S.A.S., Envigado	CO	COP 129.23	100.0%		FHW Franz Haas Waffelmaschinen GmbH, Leobendorf
Middle East and Africa					
Buhler Limited, Nairobi	KE	KES 900.00	100.0%		Bühler Holding AG, Uzwil
Buhler (Pty) Ltd., Johannesburg	ZA	ZAR 141.37	90.0%		Bühler Holding AG, Uzwil

Name of company	Country	Share capital in millions of local currency	Participation rate	Holding / financing company	Held by
Asia					
Buhler (Changzhou) Machinery Co. Ltd., Liyang City	CN	CNY 320.00	100.0%		Buhler (China) Holding Co. Ltd., Wuxi
Buhler (China) Holding Co. Ltd., Wuxi	CN	USD 123.60	100.0%	○	Bühler Holding AG, Uzwil
Buhler (China) Machinery Manufacturing Co. Ltd., Wuxi	CN	CNY 150.00	100.0%		Buhler (China) Holding Co. Ltd., Wuxi
Buhler (Wuxi) Commercial Co. Ltd., Wuxi	CN	USD 5.50	100.0%		Buhler (China) Holding Co. Ltd., Wuxi
Buhler Aquatic Equipment (Changzhou) Co. Ltd., Liyang City	CN	CNY 10.00	100.0%		Buhler (China) Holding Co. Ltd., Wuxi
Buhler (Changzhou) Insect Technologies Co. Ltd., Changzhou	CN	CNY 10.00	100.0%		Bühler Insect Technology Solutions AG, Uzwil
Buhler Equipment (Xian) Co. Ltd., Xi'an	CN	CNY 28.00	100.0%		Bühler Holding AG, Uzwil
Buhler Mechanical Equipment (Shenzhen) Co. Ltd., Shenzhen	CN	USD 4.00	100.0%		Bühler Holding AG, Uzwil
Wuxi Buhler Machinery Manufacturing Co. Ltd., Wuxi	CN	USD 23.00	51.0%		Bühler Holding AG, Uzwil
Buhler Leybold Optics Equipment (Beijing) Co. Ltd., Beijing	CN	CNY 10.10	100.0%		Bühler Alzenau GmbH, Alzenau
Franz Haas Food Machinery (Shanghai) Co. Ltd., Shanghai	CN	USD 1.50	100.0%		Bühler Food Equipment GmbH, Leobendorf
Buhler (India) Private Ltd., Bangalore	IN	INR 100.00	100.0%		Bühler Holding AG, Uzwil
Buhler K.K., Yokohama	JP	JPY 250.00	100.0%		Bühler Holding AG, Uzwil
Buhler Ltd., Seoul	KR	KRW 250.00	100.0%		Bühler Holding AG, Uzwil
Buhler Asia Private Limited, Singapore	SG	USD 14.38	100.0%	○	Bühler Holding AG, Uzwil
Buhler Asia Vietnam Limited, Long An	VN	VND 149,815.50	100.0%		Buhler Asia Private Limited, Singapore
Buhler (Thailand) Limited, Bangkok	TH	THB 110.00	100.0%		Buhler Asia Private Limited, Singapore
PT Buhler Indonesia, Jakarta	ID	IDR 68,500.00	100.0%		Buhler Asia Private Limited, Singapore

No significant change to prior year.

2. Financial risk management

The Group is exposed to financial market risks (foreign exchange risk, interest rate risk, and price risk), credit risks, and liquidity risks as a result of its global activities. Financial risk management focuses on the management of foreign exchange risk, credit risk, and liquidity risk. The Group's risk management aims to minimize the potential adverse impact of developments on the financial markets on the Group's financial conditions and secure its financial stability.

The corporate treasury executes the risk management function in accordance with the directives issued by the Board of Directors. Financial risks are identified, evaluated, and mitigated in close cooperation with the Group's business units and subsidiaries.

Foreign exchange risk. Due to the nature of a global business, the Group is exposed to future business transactions or assets and liabilities recognized on the balance sheet denominated in another currency than the functional currency (transaction risk). The objective is to minimize transaction risks arising from sales contracts and purchase commitments in non-functional currencies. In order to hedge such transaction risks, subsidiaries use foreign currency contracts with the corporate treasury as counterparty, if permitted by local legislation. The corporate treasury manages these positions by entering into foreign currency spot, forward, swap, and derivative contracts with financial institutions.

The Group's main business is project-based with an execution over a longer period of time. Small projects and customer service transactions are continuously monitored and hedged based on the expected sales volume. Hedge accounting is applied.

Foreign exchange risks also arise from net investments in foreign Group companies (translation risk). Net investments in foreign Group companies are long term in nature. Their fair value changes with exchange rates. However, in the long run the spread in the inflation rate should match the corresponding exchange-rate movements, so that changes in the fair value of foreign net investments will offset the exchange-rate related changes in value. For this reason, the Group currently does not hedge its net investments in foreign Group companies.

The table below shows the changes in the key currency pairs on profit after taxes and equity, based on the assumption that all other variables remained constant. The volatility value used in the calculation is that of one-year historical volatility as per December 31.

2019	Currency pair	EUR/CHF	USD/CHF	CNY/CHF	GBP/CHF
Volatility		4.7%	6.0%	8.4%	7.8%
Effect on profit after taxes (rate increase) CHF m		1.3	0.7	6.9	0.2
Effect on profit after taxes (rate decrease) CHF m		-1.3	-0.7	-6.9	-0.2
Effect on equity (rate increase) CHF m		8.4	-2.6	3.9	-1.5
Effect on equity (rate decrease) CHF m		-8.4	2.6	-3.9	1.5

2018	Currency pair	EUR/CHF	USD/CHF	CNY/CHF	GBP/CHF
Volatility		6.3%	7.6%	7.1%	11.1%
Effect on profit after taxes (rate increase) CHF m		1.6	0.3	3.9	1.4
Effect on profit after taxes (rate decrease) CHF m		-1.6	-0.3	-3.9	-1.4
Effect on equity (rate increase) CHF m		11.3	0.5	3.6	0.3
Effect on equity (rate decrease) CHF m		-11.3	-0.5	-3.6	-0.3

Interest rate risk. The Group held, with the exception of cash and time deposits, no material interest-bearing assets during the reporting and the prior-year period. Both income and cash flow from operations are therefore unaffected by the market interest rates. The liabilities contain mainly two corporate bonds with a fixed interest rate, which are measured at amortized costs. Hence, the Group is not exposed to a fair value risk.

Price risk. Holding marketable securities exposes the Group to a risk of price fluctuation that can result in proportional changes in the carrying amount. The Group's balance of marketable securities was not material at the end of the reporting and the prior-year period.

Credit risk. Credit risks arise in connection with investments of liquid funds, derivative financial instruments, and receivables from customers. The Group does not expect to incur any material loss as a result of its counterparties being unable to meet their contractual obligations, nor does it have any cluster risks with respect to individual sectors or countries.

Financial institutions: The default risk on investments, derivative financial instruments, money market funds, deposits, and cash is minimized by selecting different counterparties with at least an investment-grade rating. The risks are monitored and kept within periodically reviewed and approved limits.

Receivables from customers: In order to minimize potential losses on customers' receivables, an Operational Risk Management (ORM) guideline has been implemented. The evaluation of our customers' financial reliability and/or the terms of payment and hedging on our deliveries are key concerns in this respect. In addition, it can be stated that none of our customers has outstanding payments accounting for more than 5% of total sales revenue. The nominal value of the trade accounts receivable less valuation allowances is considered an approximation of the receivables' fair value. The book value stated represents the maximum credit risk. Information on the analysis of outstanding receivables and allowance for bad debts is disclosed in Note 4.7.

Liquidity risk. Liquidity risk refers to the risk of the Group being unable to fulfill its obligations when due or at a reasonable price. The Group's liquidity risk management includes holding adequate reserves of cash and time deposits to ensure financial stability and to use free cash flows as a source of financing. If required, the Group could use bilateral credit facilities with banks. Group management monitors the Group's net liquidity position by means of ongoing forecasts based on expected cash flows.

Maturity analysis

2019	Book value Dec. 31, 2019 CHF m	Cash outflow		
		Total CHF m	< 1 year CHF m	1–5 years CHF m
Trade accounts payable to third parties	385.9	385.9	385.9	
Liabilities to associates and related parties	232.0	232.0	41.2	73.9
Other liabilities (incl. derivative financial instruments through profit or loss)	84.4	84.4	84.2	0.2
Corporate bonds	420.7	430.6	1.6	186.1
Derivative financial instruments held for hedging	6.1	6.1	5.7	0.4
Total	1,129.1	1,139.0	518.6	260.6
				359.8

2018	Book value Dec. 31, 2018 CHF m	Cash outflow		
		Total CHF m	< 1 year CHF m	1–5 years CHF m
Trade accounts payable to third parties	350.9	350.9	350.9	
Liabilities to associates and related parties	128.3	128.3	7.0	82.3
Other liabilities (incl. derivative financial instruments through profit or loss)	104.1	104.1	103.8	0.3
Corporate bonds	420.8	432.2	1.6	186.3
Derivative financial instruments held for hedging	10.4	10.4	10.1	0.3
Total	1,014.5	1,025.9	473.4	269.2
				283.3

Capital management. The Group's objectives in relation to capital management are to safeguard the Group's financial stability, its financial independence, and its ability to continue as a going concern in order to generate returns for share-

holders and benefits for all other stakeholders. In addition, capital management aims to maintain an optimal capital structure. As at December 31, 2019, the equity ratio amounts to 42.8% (prior year: 42.2%).

2.1 Financial assets

Financial assets are initially recognized at fair value plus transaction costs that are directly attributable to the acquisition of the asset, except for financial assets held at fair value through profit or loss where the transaction costs are expensed immediately to the income statement.

The subsequent valuation depends on the Group's business model for managing the respective asset and the cash flow characteristics of the assets:

- Cash, time deposits, receivables, non-current interest-bearing receivables, and other financial assets are valued at amortized costs.
- Debt instruments are valued at fair value through profit or loss due to the irrevocable election of the fair value option.
- Equity instruments acquired with the intention of generating a profit or compensatory effect from short-term price fluctuations are considered operational investments and are valued at fair value through profit or loss.
- Equity instruments acquired for long-term strategic reasons are considered strategic investments and are valued at fair value through other comprehensive income with no future recycling to the income statement. As of December

31, 2019, all non-current private equity investments were considered strategic investments and their fair value amounted to CHF 22.1 million.

Credit risks relating to debt instruments valued at amortized cost are considered to be low. The Group therefore determines the impairment allowance as the credit losses expected in the next 12 months. Lifetime expected credit losses would be recognized when the credit risk is no longer regarded as low risk.

For trade receivables and construction assets, allowances are calculated in the amount of the expected credit losses over the term. The Group analyses the credit losses incurred in the past and also estimates anticipated credit losses based on the economic conditions.

As at December 31, 2019, capital commitments of CHF 11.5 million (prior year: 14.9 million) had not yet been drawn.

Information on derivative financial instruments is disclosed in Note 2.3.

2019	Cash and cash equivalents CHF m	Marketable securities CHF m	Non-current financial assets CHF m	Receivables CHF m	Total book value CHF m	Total market value CHF m
Financial assets at amortized costs	396.5		113.7	736.8	1,247.0	1,247.0
Financial assets at fair value through profit or loss		73.9	27.5		101.4	101.4
Financial assets held for hedging		8.3	0.5		8.8	8.8
Financial assets at fair value through OCI			22.1		22.1	22.1
Total financial assets	396.5	82.2	163.8	736.8	1,379.3	1,379.3

2018	Cash and cash equivalents CHF m	Marketable securities CHF m	Non-current financial assets CHF m	Receivables CHF m	Total book value CHF m	Total market value CHF m
Financial assets at amortized costs	417.4		121.9	782.9	1,322.2	1,322.2
Financial assets at fair value through profit or loss		56.1	15.1		71.2	71.2
Financial assets held for hedging		9.4	0.2		9.6	9.6
Financial assets at fair value through OCI			16.4		16.4	16.4
Total financial assets	417.4	65.5	153.6	782.9	1,419.4	1,419.4

2.2 Financial liabilities

Financial liabilities are initially recognized at fair value, net of transaction cost incurred. Subsequently, financial liabilities are measured at amortized cost using the effective interest method with any difference between net proceeds and the principal value due on redemption being recognized in the

income statement over the term of the borrowings. Financial liabilities are de-recognized when the contractual obligations are discharged, cancelled, or expired.

2019	Current financial liabilities CHF m	Non-current financial liabilities CHF m	Payables CHF m	Total book value CHF m	Total market value CHF m
Financial liabilities at amortized costs	16.3	632.2	449.2	1,097.7	1,102.6
Financial liabilities at fair value through profit or loss	10.3			10.3	10.3
Financial liabilities held for hedging	5.7	0.4		6.1	6.1
Total financial liabilities	32.3	632.6	449.2	1,114.1	1,119.0

2018	Current financial liabilities CHF m	Non-current financial liabilities CHF m	Payables CHF m	Total book value CHF m	Total market value CHF m
Financial liabilities at amortized costs	18.6	526.4	436.1	981.1	971.1
Financial liabilities at fair value through profit or loss	6.2			6.2	6.2
Financial liabilities held for hedging	10.1	0.3		10.4	10.4
Total financial liabilities	34.9	526.7	436.1	997.7	987.7

Corporate bonds

Company	Term	Currency	Nominal value CHF m	Effective interest rate	2019 CHF m	2018 CHF m
Bond, Switzerland 0.1%	Bühler Holding AG	12/2017 – 12/2022	CHF	180.0	0.11%	179.9
Bond, Switzerland 0.6%	Bühler Holding AG	12/2017 – 12/2026	CHF	240.0	0.55%	240.8
Total corporate bonds					420.7	420.8

The corporate bonds are listed on the SIX Swiss Exchange.

Reconciliation of liabilities arising from financing activities

	2018 CHF m	Cash flows CHF m	Non-cash changes			2019 CHF m
			Others CHF m	FX move- ment CHF m	Reclassifi- cation CHF m	
Current financial liabilities	34.9	0.0	-2.5	0.0	-0.1	32.3
Non-current financial liabilities	526.7	-11.0	116.8	0.0	0.1	632.6
Total liabilities from financing activities	561.6	-11.0	114.3	0.0	0.0	664.9

	2017 CHF m	Cash flows CHF m	Non-cash changes			2018 CHF m
			Acqui- sition CHF m	FX move- ment CHF m	Reclassifi- cation CHF m	
Current financial liabilities	33.4	-14.9	9.1	-0.1	7.4	34.9
Non-current financial liabilities	530.6	-19.1	14.9	-0.1	0.4	526.7
Total liabilities from financing activities	564.0	-34.0	24.0	-0.2	7.8	561.6

2.3 Marketable securities and derivative financial instruments

Derivative financial instruments and hedge accounting.

Derivative financial instruments with banks are mainly concluded to hedge foreign exchange risks. They are initially recognized at fair value and are subsequently measured at fair value (replacement cost). The method applied for recognizing the resulting profits or losses depends on whether a derivative was designated for hedging, and if so, on the type of position being hedged. Certain derivatives may be used to hedge foreign exchange risks in connection with a transaction that is highly likely to take place in future, or to hedge a fixed commitment (hedging of cash flows). When the hedge is implemented, the Group documents the relationship between the hedging instrument and the risk being hedged, as well as setting out risk management objectives and strategies. Furthermore, the Group records its assessment of the effectiveness of the hedging instrument with respect to the hedged cash flows, both when the hedging transaction is concluded and on an ongoing basis.

The fair value of a hedging derivative is classified as a non-current asset or liability when the remaining maturity of the hedged item is more than 12 months; it is classified as a current asset or liability when the remaining maturity of the hedged item is less than 12 months. Trading derivatives are classified as a current asset or liability.

The hedging of cash flows is undertaken for certain anticipated Group-internal transactions as well as for the foreign exchange risk of firm commitments. For hedges with designated hedging relationships that meet the qualifying criteria, the effective portion of the change in fair value of derivatives used for the hedging of cash flows is recognized in other comprehensive income. The ineffective portion of the hedging instrument is immediately recognized in the income statement.

Amounts accumulated in other comprehensive income are recycled in the income statement in the periods when the hedged item affects profit or loss. When a forecasted transaction is no longer expected to occur, the cumulative gain or loss that was recorded in other comprehensive income is immediately transferred to the income statement.

Derivatives not designated as hedge accounting instruments are accounted for at fair value through profit or loss. Changes in the fair value of these derivative instruments are recognized immediately in the income statement.

Futures and options were entered into with banks mainly to hedge foreign exchange risks. The following positions were open as of December 31, 2019:

2.3.1 Derivative financial instruments	Contract or underlying principal amount		Positive fair values		Negative fair values	
	2019 CHF m	2018 CHF m	2019 CHF m	2018 CHF m	2019 CHF m	2018 CHF m
Currency-related instruments						
Forward foreign exchange rate contracts	2,300.1	2,052.0	17.7	14.2	12.3	16.6
– held for trading	1,213.4	856.0	8.9	4.6	6.2	6.2
– cash flow hedges (effective part)	1,086.7	1,196.0	8.8	9.6	6.1	10.4
Over-the-counter currency options	68.1	0.0	0.9	0.0	0.6	0.0
Total of currency-related instruments	2,368.2	2,052.0	18.6	14.2	12.9	16.6
Options	68.1	0.0	0.9	0.0	0.6	0.0
Futures	2,300.1	2,052.0	17.7	14.2	12.3	16.6
Sum of derivative financial instruments	2,368.2	2,052.0	18.6	14.2	12.9	16.6
Thereof included in securities and in current financial liabilities	2,290.9	2,013.2	18.1	14.0	12.5	16.3
Thereof included in other non-current financial assets and financial liabilities	77.3	38.8	0.5	0.2	0.4	0.3

	USD CHF m	EUR CHF m	Other currencies CHF m	Total 2019 CHF m	Total 2018 CHF m
Currency-related instruments					
Forward foreign exchange rate contracts	613.0	1,405.8	281.3	2,300.1	2,052.0
– held for trading	383.7	709.9	119.8	1,213.4	856.0
– cash flow hedges	229.3	695.9	161.5	1,086.7	1,196.0
Over-the-counter currency options	68.1	0.0	0.0	68.1	0.0
Total of currency-related instruments	681.1	1,405.8	281.3	2,368.2	2,052.0
Options	68.1	0.0	0.0	68.1	0.0
Futures	613.0	1,405.8	281.3	2,300.1	2,052.0
Sum of derivative financial instruments	681.1	1,405.8	281.3	2,368.2	2,052.0

Positive replacement values are included in marketable securities or non-current financial assets and negative replacement values are included in current and non-current financial liabilities.

	2019 CHF m	2018 CHF m
2.3.2 Marketable securities		
Equity securities	4.2	5.3
Derivative financial instruments	18.1	14.0
Other securities	59.9	46.2
Total marketable securities	82.2	65.5

2.4 Estimation of fair values

The fair values of financial instruments that are actively traded on markets are based on the relevant trading exchange prices (offer prices) on the balance sheet reference date. Instruments of this nature are classified as Level 1. The fair values of financial instruments that are not actively traded on markets (e.g. derivative OTC instruments) are determined using valuation models. If all the parameters required for the

valuation are based on observable market data, the instrument in question is classified as Level 2. If one or more parameters are based on unobservable market data, the instrument is classified as Level 3. In the period under review as well as in the prior year no transfer occurred within the levels.

2019	CHF m	Level 1	Level 2	Level 3	Total
Financial assets at fair value through profit or loss	64.1	9.8	27.5		101.4
Derivative financial assets held for hedging		8.8			8.8
Financial assets at fair value through OCI			22.1		22.1
Total financial assets	64.1	18.6	49.6		132.3
Financial liabilities at fair value through profit or loss		6.8	3.5		10.3
Financial liabilities held for hedging		6.1			6.1
Total financial liabilities	0.0	12.9	3.5		16.4

2018	CHF m	Level 1	Level 2	Level 3	Total
Financial assets at fair value through profit or loss	51.5	4.6	15.1		71.2
Derivative financial assets held for hedging		9.6			9.6
Financial assets at fair value through OCI			16.4		16.4
Total financial assets	51.5	14.2	31.5		97.2
Financial liabilities at fair value through profit or loss		6.2			6.2
Financial liabilities held for hedging		10.4			10.4
Total financial liabilities	0.0	16.6	0.0		16.6

3. Detailed information on consolidated income statement

3.1 Revenue

Revenue is measured based on the consideration specified in the contract with a customer and excludes amounts collected on behalf of third parties. Depending on the specific contractual circumstances, the Group recognizes revenue over time or when it transfers control over a product or service to a customer, at a point in time.

The input method is used to measure progress for each performance obligation satisfied over time. Revenue recognition over time requires the use of estimates and forecasts concerning future costs that affects the stage of completion. Thus, there is a higher degree of uncertainty that actual costs in the next financial periods may differ from these estimates. The forecasts are reviewed on a regular basis and adjusted if necessary.

These adjustments affect costs, the stage of completion, and both realized and anticipated profits. Any changes in estimates are recognized in the period in which they occur. Losses can occur when the expected contract costs exceed the expected revenue. Losses are recognized as an expense immediately when identified.

Revenue recognized at a point in time also requires the use of estimates regarding the exact time when control transfers to a customer. Thus, there is an uncertainty that the point in time when control actually transfers deviates from these estimates.

The following is a description of the principal activities of the Group, segregated by business type:

Business type	Nature, timing of satisfaction of performance obligations, and significant payment terms
Project/Plant	Projects with a higher degree of complexity or customization usually have no alternative use. The general contract terms do not include a right of return and require a down payment upon contract signing with a letter of credit covering the remaining amount. This constitutes a right to payment. Revenue for these projects is recognized over time. Revenue for all other projects is recognized at a point in time.
Single Machines	The Group recognizes revenue when the customer takes possession of the goods. This is usually when the goods arrive at the customer site. The general contract terms do not include a right of return and require a down payment upon contract signing with a letter of credit covering the remaining amount in some cases.
Customer Service	The Group recognizes revenue for spare parts when the customer takes possession of the goods. This is usually when the goods are shipped. The general contract terms do not include a right of return. Revenue for service contracts is recognized over time.

In the following table, revenue is disaggregated by primary geographical market, major products / service lines, and timing of revenue recognition. The table also includes a reconciliation of the disaggregated revenue with the Group's

three businesses, which are its reportable segments (see Note 5). With the change in reportable segments, the prior year table has been adjusted accordingly.

Disaggregation of revenue 2019	Grains & Food CHF m	Advanced Materials CHF m	Consumer Foods CHF m	Corporate Functions CHF m	Group CHF m
North America	217.0	152.4	146.5	0.9	516.8
South America	121.5	9.8	47.0	0.6	178.9
Europe	417.8	260.1	283.0	25.4	986.3
Middle East and Africa	320.1	10.2	135.2	-0.8	464.7
South Asia	81.1	21.9	10.3	-0.6	112.7
Asia	636.9	194.2	151.6	12.3	995.0
Total revenue by geography	1,794.4	648.6	773.6	37.8	3,254.4
Revenue recognized at a point in time	632.5	580.4	491.1	37.8	1,741.8
Revenue recognized over time	1,161.9	68.2	282.5	0.0	1,512.6
Total revenue by timing of revenue recognition	1,794.4	648.6	773.6	37.8	3,254.4
Revenue Project/Plant	1,161.9	469.6	614.1	29.6	2,275.2
Revenue Single Machines	263.7	14.7	5.0	1.9	285.3
Revenue Customer Service	368.8	164.3	154.5	6.3	693.9
Total revenue by product	1,794.4	648.6	773.6	37.8	3,254.4

Disaggregation of revenue 2018	Grains & Food CHF m	Advanced Materials CHF m	Consumer Foods CHF m	Corporate Functions CHF m	Group CHF m
North America	202.3	150.6	102.0	0.1	455.0
South America	136.1	8.9	37.4	-0.1	182.3
Europe	393.0	238.9	342.9	26.1	1,000.9
Middle East and Africa	370.6	26.9	53.8	-0.5	450.8
South Asia*	74.0	27.1	13.9	0.8	115.8
Asia*	603.2	252.9	204.9	4.9	1,065.9
Total revenue by geography	1,779.2	705.3	754.9	31.3	3,270.7
Revenue recognized at a point in time	642.7	621.2	468.8	31.3	1,764.0
Revenue recognized over time	1,136.5	84.1	286.1	0.0	1,506.7
Total revenue by timing of revenue recognition	1,779.2	705.3	754.9	31.3	3,270.7
Revenue Project/Plant	1,136.5	537.5	601.2	24.1	2,299.3
Revenue Single Machines	284.5	4.3	8.0	0.5	297.3
Revenue Customer Service	358.2	163.5	145.7	6.7	674.1
Total revenue by product	1,779.2	705.3	754.9	31.3	3,270.7

*Change in country allocation.

The following table provides the information about receivables, contract assets, and contract liabilities from contracts with customers.

	2019 CHF m	2018 CHF m
Contract balances		
Trade accounts receivable	688.6	702.3
Production orders in progress	725.2	680.6
Advance payments from customers	-269.9	-299.3
Contract assets relating to production orders in progress	455.3	381.3
Production orders in progress	11.3	75.7
Advance payments from customers	-484.8	-652.0
Contract liabilities relating to production orders in progress	-473.5	-576.3
Accumulated costs and recognized profits	2,326.1	2,051.5

The contract assets primarily relate to the Group's rights to consideration for work completed but not invoiced at the reporting date. The contract assets are transferred to receivables when the rights become unconditional. The contract liabilities primarily relate to the advanced consideration received from customers, for which revenue is recognized on completion or if the advanced consideration received exceeds the work completed. The complete

prior-year contract liability balance of CHF 576.3 million was recognized in the income statement in the current year (prior year: CHF 536.6 million).

The following table includes revenue expected to be recognized in the future related to performance obligations that are unsatisfied (or partially unsatisfied) at the reporting date.

Performance obligation	2020 CHF m	2021 CHF m	2022 CHF m
Project/Plant	1,205.6	282.1	29.0
Single Machines	97.9	0.0	0.0
Customer Service	149.7	0.0	0.0

Management does not expect commission fees paid to intermediaries to be recoverable. The Group therefore recognizes the incremental costs of obtaining contracts as an expense when incurred.

3.2 Other operating income

	2019 CHF m	2018 CHF m
Earnings from coordination of consortium business	6.9	2.0
Interest income from trade finance	0.7	0.8
Rental income	0.8	1.6
Gains from sale of fixed assets	2.7	14.0
Gains from sale of part of businesses	8.5	0.8
Other operating income related parties	0.6	0.8
Dividend income	0.5	0.4
Gains from sale of scrap materials	3.2	3.1
Supplier discounts	2.2	1.7
Government grants	4.2	5.8
Others	19.4	26.0
Total	49.7	57.0

Others comprises a number of individually immaterial items.

3.3 Employee benefit expenses

	2019 CHF m	2018 CHF m
Wages and salaries	791.5	767.8
Social security and employee benefit expenses	135.9	146.0
Other personnel expenses	71.1	92.5
Total	998.5	1,006.3

3.4 Other operating expenses

	2019 CHF m	2018 CHF m
Administration expenses	127.5	119.1
Rental and leasing expenses	19.9	41.8
Energy, maintenance and repairs	34.7	39.9
Travel expenses	90.6	95.8
Outbound freight costs	80.1	89.7
Consultancy fees	24.7	26.2
Marketing costs	15.4	22.1
Agency fees	24.8	27.9
Warranty costs, loss orders	5.9	12.3
Other operating expenses related parties (Note 6.2, Related parties)	13.0	22.2
Losses on sales of fixed assets	6.0	3.2
Fixed assets < 10 kCHF	3.4	3.4
Contributions and memberships	4.2	3.6
Losses on accounts receivables	11.4	2.6
Others	26.8	29.2
Total	488.4	539.0

3.5 Financial result

	2019 CHF m	2018 CHF m
Interest income	4.6	4.6
Interest income from related parties	1.0	0.7
Interest expenses	-6.9	-5.2
Interest expenses from related parties	-2.4	-1.5
Total interest income and expenses	-3.7	-1.4
 Total other financial income	 6.1	 6.0
 Total financial result	 2.4	 4.6

The interest expenses of CHF –6.9 million (previous year: CHF –5.2 million) include the interest payments to bond holders and interest components from leasing and pension fund obligations in accordance with IFRS 16 and IAS 19. Other financial income mainly includes gains from asset allocation.

3.6 Taxes

Income taxes comprise the tax expense in respect of all recognized profits for the reporting period. They include current and deferred income taxes. Current income taxes are calculated on taxable profit. Provisions for deferred taxes are calculated according to the liability method. Deferred taxes are recognized for temporary differences between the carrying amounts of assets and liabilities in the balance sheet and their tax base, taking into account actual or substantively enacted tax rates. Changes in deferred tax balances are recognized in the income statement, except when they relate to items recognized outside the income statement, in which case the deferred tax is treated accordingly.

Current income tax relating to items recognized directly in equity is recognized in equity.

Deferred tax assets are only recognized for temporary differences and unused tax loss carry-forwards to the extent that it is probable that future taxable profit will be available, against which temporary differences or unused tax losses can be utilized. This assessment is based on estimates, which could differ from actual results and require a valuation allowance.

The IASB issued IFRIC 23, which became effective on January 1, 2019. There was no significant impact from this clarification.

3.6.1 Income taxes

	2019 CHF m	2018 CHF m
Income taxes relating to the reporting period	–65.9	–49.7
Income taxes relating to prior periods	0.0	–6.0
Deferred taxes due to temporary differences	0.1	6.6
Deferred taxes due to recognition of tax loss carry-forwards	2.6	1.7
Deferred taxes due to changes in tax rates	14.4	0.0
Total	–48.8	–47.4
Deferred taxes recognized in other comprehensive income	–1.4	4.7

3.6.2 Reconciliation of income taxes

	2019 CHF m	2018 CHF m
Profit before taxes	250.4	235.3
Components of tax expenses:		
Income taxes at anticipated tax rate	–57.6	–49.6
Income and expenses not subject to tax	2.9	–2.3
Income taxes relating to prior periods	0.0	–6.0
Deferred taxes due to changes in tax rates	14.4	0.0
Effect of tax loss carry-forwards	1.7	2.9
Effect of losses without recognition of deferred tax assets	–1.8	–1.6
Other impacts	–8.4	9.2
Income taxes disclosed (current and deferred)	–48.8	–47.4
Total income taxes in % of profit before taxes	19.5%	20.1%

The anticipated tax rate was 23.0% (prior year: 21.1%) and consisted of the weighted average of the applicable local tax rates for income taxes. The effective tax rate decreased slightly to 19.5% in 2019 from 20.1% in 2018. Contributory

factors for the resulted tax rate included sustainable tax management and a special effect in Switzerland. The revaluation of deferred tax assets and liabilities had an impact on the income statement and on other comprehensive income.

3.6.3 Tax loss carry-forwards	2019 CHF m	2018 CHF m
Expiry		
Unlimited	104.0	88.4
In more than five years	22.8	27.4
In two to five years	13.6	27.2
Within one year	2.0	4.7
Total	142.4	147.7
Tax loss carry-forwards accounted for in deferred taxes	131.5	124.3
Tax loss carry-forwards not accounted for in deferred taxes	10.9	23.4
Tax effect on tax loss carry-forwards unaccounted for	2.7	5.8

The change in tax loss carry-forwards results from the use of tax losses, in particular in China, Denmark, and Brazil, as

well as from the impact of additional tax loss carry-forwards in particular in Germany, Switzerland, and South Africa.

3.6.4 Breakdown of deferred taxes per line item	2019 CHF m	2018 CHF m		
	Assets	Liabilities	Assets	Liabilities
Property, plant and equipment	6.0	32.8	6.3	22.1
Post-employment benefits	15.5	5.9	15.5	6.8
Provisions	8.6	11.2	6.2	6.7
Other items (mainly inventory, construction contracts and other current liabilities)	76.0	149.8	99.4	199.3
Tax loss carry-forwards	35.3	0.0	33.1	0.0
Total deferred taxes gross	141.4	199.7	160.5	234.9
Offset	-82.2	-82.2	-105.0	-105.0
Total deferred taxes net	59.2	117.5	55.5	129.9

Deferred tax assets and liabilities are offset if there is a legally enforceable right to set them off and if the calculations of income taxes relate to the same taxation authority.

3.7 Research and development costs

Research costs are recognized in the income statement in the period in which they are incurred. Development costs are capitalized only if, and to the extent that, the IFRS criteria are met and it is probable that the present value of the expected returns will exceed the development costs. Capitalized development costs are amortized on a systematic basis over

the period in which the returns are expected to flow to the Group.

Research and development costs directly charged to the income statement in the reporting period amounted to CHF 149.2 million (prior year: CHF 144.7 million).

4. Detailed information on consolidated balance sheet

4.1 Property, plant and equipment

Property, plant, and equipment is valued at acquisition or construction cost less depreciation and write-downs for impairment. Items of property, plant, and equipment are depreciated on a straight-line basis over their estimated useful life, except for land, which is not depreciated. Estimated useful lives of major classes of depreciable assets are as follows:

→ Building shell:	40–80 years
→ Installations/extensions:	20–25 years
→ Machinery and technical equipment:	10 years
→ Other tangible fixed assets:	3–10 years

The estimated useful life of the assets is regularly reviewed and, if necessary, the future depreciation charge is accelerated.

Costs are only included in the asset's carrying amount when it is probable that economic benefits associated with the item will flow to the Group in future periods and the cost of the item can be measured reliably.

Borrowing costs. Borrowing costs that are directly attributable to the acquisition, construction, or production of a qualified asset are capitalized as part of the cost of that asset.

Impairment of assets. At each reporting date, the Group assesses whether there is any indication that an asset may be impaired. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss, if any. Where it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the smallest cash-generating unit to which the asset belongs. The recoverable amount is the higher of an asset's or cash-generating unit's fair value less costs to sell and its value in use. If the recoverable amount of an asset or cash-generating unit is estimated to be less than its carrying amount, the carrying amount of the asset or cash-generating unit is reduced to its recoverable amount. Impairment losses are recognized immediately in the income statement.

Where an impairment loss is subsequently reversed, the carrying amount of the asset or cash-generating unit is increased to the revised estimate of its recoverable amount. However, this increased amount cannot exceed the carrying amount that would have been determined had no impairment loss been recognized for that asset or cash-generating unit in prior periods. A reversal of an impairment loss is recognized immediately in the income statement.

	Land and buildings CHF m	Machinery and technical equipment CHF m	Other tangible assets CHF m	Assets under construction CHF m	Total CHF m
Acquisition cost					
January 1, 2018	393.8	300.0	151.8	27.2	872.8
Additions	6.5	12.9	18.1	75.6	113.1
Disposals	-13.5	-13.5	-7.1	-2.8	-36.9
Changes in the scope of consolidation	49.5	11.6	2.8	0.2	64.1
Reclassifications	8.7	10.5	2.1	-21.3	0.0
Translation differences	-15.1	-9.7	-4.6	-0.9	-30.3
December 31, 2018	429.9	311.8	163.1	78.0	982.8
Additions	145.7	15.9	15.6	54.2	231.4
Disposals	-7.0	-12.8	-16.9	-7.1	-43.8
Changes in the scope of consolidation	-8.9	-0.7	-0.3	0.0	-9.9
Reclassifications	56.4	24.0	7.2	-87.6	0.0
Translation differences	-10.6	-8.1	-3.1	-0.9	-22.7
December 31, 2019	605.5	330.1	165.6	36.6	1,137.8
Depreciation					
January 1, 2018	-105.2	-179.1	-116.2	-0.5	-401.0
Additions	-14.2	-24.0	-11.3	-0.2	-49.7
Disposals	3.2	10.7	5.9	0.0	19.8
Changes in the scope of consolidation	0.0	0.0	0.0	0.0	0.0
Reclassifications	0.0	-0.3	0.3	0.0	0.0
Translation differences	3.5	6.0	3.3	0.0	12.8
December 31, 2018	-112.7	-186.7	-118.0	-0.7	-418.1
Additions	-17.1	-22.9	-12.7	-0.1	-52.8
Disposals	4.2	10.6	15.5	0.0	30.3
Changes in the scope of consolidation	5.2	0.3	0.2	0.0	5.7
Reclassifications	0.0	-0.1	0.1	0.0	0.0
Translation differences	3.3	5.3	2.2	0.0	10.8
December 31, 2019	-117.1	-193.5	-112.7	-0.8	-424.1
Net book values					
January 1, 2019	317.2	125.1	45.1	77.3	564.7
December 31, 2019	488.4	136.6	52.9	35.8	713.7

Net loss on disposal of tangible fixed assets amounted to CHF -3.3 million (prior year: net gain CHF +12.4 million). Commitments relating to property, plant, and equipment, which are not shown in the balance sheet, amounted to

CHF 10.5 million (prior year: CHF 13.7 million) and are mainly related to machinery in Switzerland and the US, and office renovation in China.

4.2 Leases

Effect of changes in accounting policies. The Group started to apply IFRS 16 as of January 1, 2019, using the modified retrospective approach. Therefore, the comparative information has not been restated and continues to be reported under IAS 17 and IFRIC 4. The details of accounting policies under IAS 17 and IFRIC 4 are disclosed separately if they are different from those under IFRS 16.

In applying IFRS 16 for the first time, the Group has used the following practical expedients permitted by the standard:

- the exclusion of initial direct costs for the measurement of the right-of-use asset at the date of initial application, and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease.
- applying a single discount rate to a portfolio of leases with reasonably similar characteristics.

→ relying on previous assessments on whether leases are onerous as an alternative to performing an impairment review – there were no onerous contracts as at January 1, 2019.

The group has also elected not to apply IFRS 16 to contracts that were not identified as containing a lease under IAS 17 and IFRIC 4 Determining Whether an Arrangement Contains a Lease.

On adoption of IFRS 16, the Group recognized lease liabilities in relation to leases which had previously been classified as 'operating leases' under the principles of IAS 17 Leases. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate as of January 1, 2019. The weighted average lessee's incremental borrowing rate applied to the lease liabilities on January 1, 2019 was 1.89%.

	CHF m
Operating lease commitments disclosed as at December 31, 2018	81.8
Discounted using the group's incremental weighted average borrowing rate as of January 1, 2019	76.8
+ Finance lease liabilities recognized as at December 31, 2018	0.2
+ / - Adjustments as a result of a different treatment of extension and termination options	3.0
Lease liability recognized as at January 1, 2019	80.0

The impact of the first-time application of IFRS 16 on the consolidated balance sheet as of January 1, 2019 is the new

line item "right-of-use assets", recognized at the amount equal to the lease liability which is presented separately.

	Presented 31.12.18 CHF m	Impact IFRS 16 CHF m	IFRS 16 adopted 1.1.19 CHF m
Assets			
Right-of-use assets	0.0	79.8	79.8
Finance lease assets recognized as at December 31, 2018	0.2	0.0	0.2
Equity and liabilities			
Non-current lease liabilities	0.2	55.3	55.5
Current lease liabilities	0.0	24.5	24.5

General accounting policies. At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains a lease, if the contract conveys the right to use an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group assesses whether it:

- obtains substantially all of the economic benefits from the use of the asset; and
- directs the use of the asset.

The Group leases various real estate buildings, vehicles, machinery, and other assets. Rental contracts typically run for a period of two to six years. Some leases include an option to renew, extend, and terminate the lease. In determining the lease term, management considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated). The assessment is reviewed if a significant event or a significant change in circumstances occurs which affects this assessment and that is within the control of the lessee.

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use assets are capitalized at the date of the commencement of the lease term at the present value of the minimum future lease payment or, if lower, at the amount equal to the fair value of the leased asset as determined at the inception of the lease. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. The associated liabilities are recognized as either current or non-current lease liabilities, depending on their due dates. Lease liabilities include the net present value of the following lease payments:

- fixed payments, less any lease incentives receivable
- variable lease payments that are based on an index or a rate
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option.

The present value calculation uses the countries and maturity range incremental borrowing rate. This rate is calculated based on the risk-free rate of the country plus a risk premium.

Each lease payment is allocated between the liability and finance cost. The finance cost is charged to the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

In accordance with IFRS 16.5 the Group makes use of the recognition exemption for short-term leases and leases for which the underlying asset is of low value. Payments associated with short-term leases and leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss in accordance with IFRS 16.6. Short-term leases are leases with a lease term of 12 months or less.

Leases where substantially all the risks and rewards of ownership are not transferred to the Group are classified as operating leases. Payments under operating leases are charged to the income statement on a straight-line basis over the period of the lease.

	Real estate leasing CHF m	Vehicle leasing CHF m	Other assets CHF m	Total CHF m
Acquisition cost				
January 1, 2019	70.8	6.7	2.5	80.0
Additions	7.8	4.2	0.4	12.4
Disposals	-9.2	-0.8	-0.1	-10.1
Changes in the scope of consolidation	-0.3	-0.1	0.0	-0.4
Translation differences	-1.4	-0.2	-0.1	-1.7
December 31, 2019	67.7	9.8	2.7	80.2
Depreciation				
January 1, 2019	0.0	0.0	0.0	0.0
Additions	-21.3	-3.7	-0.8	-25.8
Disposals	7.1	0.5	0.1	7.7
Changes in the scope of consolidation	0.2	0.0	0.0	0.2
Impairment	0.0	0.0	0.0	0.0
Translation differences	0.3	0.1	0.0	0.4
December 31, 2019	-13.7	-3.1	-0.7	-17.5
Net book values				
January 1, 2019	70.8	6.7	2.5	80.0
December 31, 2019	54.0	6.7	2.0	62.7

Lease liabilities

Maturity analysis	Real estate leasing CHF m	Vehicle leasing CHF m	Other assets CHF m	2019 CHF m
Less than one year	12.8	3.1	0.7	16.6
One to five years	31.1	3.6	1.3	36.0
More than five years	9.6	0.0	0.0	9.6
December 31, 2019	53.5	6.7	2.0	62.2

Amounts recognized in profit and loss	2019 CHF m
Depreciation expense on right-of-use assets	25.9
Interest expenses (included in finance costs)	1.2
Rental and leasing expenses including related parties	
Expense relating to short-term leases	6.5
Expense relating to low-value leases	0.5
Expense relating to service expenses	6.9
Expense relating to insurance	6.7
Expense relating to other	1.5
Total recognized in profit and loss	49.2
Amounts recognized in the statement of cash flows	2019 CHF m
Cash outflow for leases	26.4

4.3 Intangible assets and goodwill

Goodwill represents the excess of the aggregate of the consideration transferred and the amount recognized for the non-controlling interest over the fair value of the net identifiable assets acquired and liabilities assumed. Goodwill on acquisitions of subsidiaries is included in intangible assets. Goodwill on acquisitions of associates is included in investments in associates.

Goodwill and intangible assets with indefinite useful life are tested annually for impairment or whenever there are impairment indicators, and is carried at cost less accumulated impairment losses.

If the consideration transferred is less than the fair value of the net assets of the subsidiary acquired, the difference is recognized directly in the income statement.

On disposal of a subsidiary, associate, or joint venture, the related goodwill is included in the determination of profit or loss on disposal.

Goodwill on acquisitions of subsidiaries and interests in joint ventures is allocated to cash-generating units for the purpose of impairment testing. Impairment losses relating to goodwill cannot be reversed in future periods.

Acquired patents, licenses, and similar rights are initially recorded at cost and amortized on a straight-line basis over their estimated useful life or a period not exceeding 15 years. Acquired trademarks with a Group-wide purpose, well established umbrella trademarks, can have an indefinite useful life. All other trademarks are amortized as described above. Intangible assets acquired through business combinations are carried in the balance sheet at the fair value allocated in the acquisition accounting and amortized over their estimated useful life.

Other intangible assets mainly comprise customer relationships, technologies, patents, and software.

	Goodwill CHF m	Trademarks CHF m	Other intangible assets CHF m	Total CHF m
Acquisition cost				
January 1, 2018	271.6	0.0	166.6	438.2
Additions	0.0	0.0	5.0	5.0
Disposals	-1.2	0.0	-41.6	-42.8
Changes in the scope of consolidation	347.3	113.2	15.2	475.7
Translation differences	-15.0	-2.6	-4.3	-21.9
December 31, 2018	602.7	110.6	140.9	854.2
Additions	0.0	0.0	7.5	7.5
Disposals	0.0	0.0	-4.0	-4.0
Changes in the scope of consolidation	-0.2	0.0	0.0	-0.2
Translation differences	-18.6	-3.7	-3.7	-26.0
December 31, 2019	583.9	106.9	140.7	831.5
Amortization				
January 1, 2018	-29.1	0.0	-142.5	-171.6
Additions	0.0	0.0	-14.0	-14.0
Disposals	1.2	0.0	41.6	42.8
Changes in the scope of consolidation	0.0	0.0	0.0	0.0
Translation differences	0.6	0.0	3.7	4.3
December 31, 2018	-27.3	0.0	-111.2	-138.5
Additions	0.0	0.0	-10.2	-10.2
Disposals	0.0	0.0	4.0	4.0
Changes in the scope of consolidation	0.0	0.0	0.0	0.0
Translation differences	0.7	0.0	3.4	4.1
December 31, 2019	-26.6	0.0	-114.0	-140.6
Net book values				
January 1, 2019	575.4	110.6	29.7	715.7
December 31, 2019	557.3	106.9	26.7	690.9

Impairment test

Goodwill and other intangible assets with an indefinite useful life are allocated to the identifiable cash-generating units of the Group, which were defined based on a business perspective.

The recoverable amounts have been determined based on a value-in-use calculation per cash-generating unit. This calculation uses cash flow projections based on financial budgets approved by management covering a five-year period.

Key assumptions used in value-in-use calculations. The calculations of values in use are most sensitive to the following assumptions:

- Discount rate
- Growth rate
- Revenue growth
- EBIT margin growth

Discount rate – The discount rates that are used to calculate the discounted present value of the future cash flows are derived from a capital asset pricing model using market data such as the yield on a 10-year government bond of the respective country or specific country risk premiums. The review of our peer group and other parameters resulted in overall higher discount rates in the reporting period.

Growth rate – The assumptions used in the calculation reflect the long-term expected growth rate of the operational business and are based on the growth strategy of the Group.

Revenue growth – The assumptions used in the calculation reflect the expected order backlog at year-end as well as the expected market development based on the strategic priorities set by the Group.

EBIT margin growth – The EBIT margin growth used in the calculation reflects the margin goal as defined in the Group's vision and is based on the margin improvement projects initiated.

Result of the impairment test. The impairment tests performed on a annual basis support the value of the carrying amount. No impairment arose on December 31, 2019.

Sensitivity to changes in assumptions. For all cash-generating units, a possible increase in the discount rate of 1 percentage point or a drop in free cash flow of 5 percentage points would not result in an impairment.

Goodwill and trademarks 2019	Base data used (goodwill / trademarks)					
	Goodwill CHF m	Trademarks CHF m	Discount rate	Long-term growth rate	Revenue growth	EBIT margin growth
Milling Solutions	11.4	0.0	7.7%	2.2%	4.2%	0.3%
Grain Quality & Supply	37.3	0.0	8.2%	4.0%	5.7%	0.6%
Digital Technologies	6.6	0.0	9.4%	2.6%	3.4%	0.4%
Feed	3.1	0.0	8.1%	2.2%	1.5%	1.3%
Pasta & Noodles	2.3	0.0	6.4%	1.0%	8.9%	1.9%
Nutrition	5.7	0.0	7.9%	2.1%	3.6%	0.5%
Aeroglide	60.4	0.0	7.7%	2.0%	6.0%	1.7%
Die Casting	1.7	0.0	8.6%	1.2%	0.8%	0.4%
Grinding & Dispersing	0.7	0.0	9.2%	1.4%	4.7%	0.7%
Leybold Optics	96.4	3.4	9.1% / 9.5%	1.8% / 2.0%	3.9% / 3.9%	0.6% / -
Consumer Foods*	46.3	11.5	6.5% / 7.0%	1.4% / 3.0%	4.6% / 5.0%	0.5% / -
Haas*	285.4	92.0	7.0% / 7.0%	1.9% / 1.8%	5.8% / 6.0%	0.9% / -
Total at December 31, 2019	557.3	106.9				

Goodwill and trademarks 2018	Base data used					
	Goodwill CHF m	Trademarks CHF m	Discount rate	Long-term growth rate	Revenue growth	EBIT margin growth
Milling Solutions	11.8	0.0	8.6%	2.4%	5.3%	0.3%
Grain Quality & Supply	38.6	0.0	9.1%	3.2%	9.8%	0.1%
Digital Technologies	6.9	0.0	8.6%	2.7%	8.8%	0.8%
Feed	3.3	0.0	8.1%	1.9%	7.6%	1.8%
Pasta & Noodles	2.3	0.0	6.1%	1.3%	5.9%	1.2%
Nutrition	5.8	0.0	7.7%	2.0%	5.7%	1.2%
Aeroglide	61.2	0.0	7.6%	2.6%	8.5%	1.1%
Consumer Foods*	343.6	107.1	6.9%	1.9%	6.3%	0.9%
Die Casting	1.7	0.0	8.3%	1.4%	6.2%	0.6%
Grinding & Dispersing	0.7	0.0	8.9%	1.5%	9.8%	1.5%
Leybold Optics	99.5	3.5	8.6%	2.1%	5.8%	0.4%
Total at December 31, 2018	575.4	110.6				

*Refer to Note 5.

4.4 Investments in associates

Net book values	Share in equity CHF m	Goodwill CHF m	2019 CHF m	2018 CHF m
January 1	19.1	8.5	27.6	27.5
Additions	0.0	0.0	0.0	1.0
Share of net profit	1.9	0.0	1.9	0.5
Dividends received	-1.1	0.0	-1.1	-0.5
Translation differences	-0.7	-0.3	-1.0	-0.9
December 31	19.2	8.2	27.4	27.6

Translation differences are recognized in other comprehensive income. The Group purchased goods in the amount of CHF 7.1 million (prior year: CHF 9.3 million) and sold goods in the amounts of CHF 1.8 million (prior year: CHF 1.6 million)

to associated companies. Cumulative values of the associated companies are disclosed as only one of the associated companies is material to the Group.

Cumulative values of the associated companies	2019 CHF m	2018 CHF m
Share of revenue	25.4	25.3
Share of net profit	1.9	0.5
Balance sheet values:		
Non-current assets	19.5	16.6
Current assets	25.1	25.0
Non-current liabilities	2.0	0.3
Current liabilities	5.7	3.7
Shareholders' equity	36.8	37.6

The associated companies comprise two companies located in Southern Europe and one in East Asia. The Group has a shareholding of 26%, 49%, and 44%, respectively. The figures are based on available preview closing data as of December 31, 2019.

On March 22, 2018, the Group sold 80% of Polymetrix Holding AG at book value.

4.5 Non-current financial and other assets

December 31, 2019	Due 1–5 years CHF m	> 5 years CHF m	Total CHF m
Securities	0.0	38.4	38.4
Other non-current financial assets	113.6	11.9	125.5
Overfunding of post-employment benefit plans	0.0	21.3	21.3
Total	113.6	71.6	185.2

December 31, 2018	Due 1–5 years CHF m	> 5 years CHF m	Total CHF m
Securities	0.0	25.2	25.2
Other non-current financial assets	117.3	11.1	128.4
Overfunding of post-employment benefit plans	0.0	16.4	16.4
Total	117.3	52.7	170.0

4.6 Inventories

Inventories are carried at the lower of cost or net realizable value. The cost of finished goods, semi-finished goods, and work in progress includes raw materials, direct labor, and other directly attributable costs and overheads based on the normal capacity of production facilities, excluding borrowing costs. Cost is determined using the standard cost method. Standard costs are regularly reviewed and, if necessary, revised in light of current conditions. Net realizable value is the estimated selling price less cost to completion and selling expenses. Obsolete inventories and goods with a low rate of inventory turnover are written down.

In the prior year, value adjustments deducted from inventories amounted to CHF –53.5 million. No material reversals of value adjustments of the prior year were recognized in the reporting year.

Advance payments to suppliers are also included in inventories.

	Gross value CHF m	Value adjustments CHF m	2019 CHF m	2018 CHF m
Raw materials and supplies	250.1	–31.2	218.9	216.8
Unfinished goods	66.5	–12.4	54.1	59.6
Finished goods and merchandise	82.6	–5.5	77.1	75.0
Work in progress	127.0	–1.0	126.0	125.3
Advance payments to suppliers	60.2	0.0	60.2	54.7
Total	586.4	–50.1	536.3	531.4

4.7 Trade accounts and other receivables

Trade accounts and other receivables are carried at the original invoice amount less allowances made for doubtful accounts, trade discounts, volume rebates, and similar items. Financing of customer orders using the Group's own funds as part of its treasury strategy is included in this item.

Trade accounts receivable include supplier credits of CHF 66.4 million (prior year: CHF 68.6 million), which are financed in accordance with the treasury strategy.

	2019 CHF m	2018 CHF m
– from third parties	712.1	716.3
– from associates	0.1	0.2
Allowance for bad debts	-23.6	-14.2
Total trade accounts receivable	688.6	702.3
Value added tax credits	46.8	58.8
Other receivables		
– from third parties	48.5	80.7
Prepayments and accrued income	33.0	37.4
Allowance for bad debts	-0.3	-0.1
Total other receivables	128.0	176.8

Receivables outstanding analysis

2019	Total book value Dec. 31, 2019 CHF m	Overdue					
		Not due CHF m	< 3 months CHF m	4-6 months CHF m	7-9 months CHF m	10-12 months CHF m	> 12 months CHF m
Accounts receivable trade and other	840.4	649.0	83.1	26.6	21.2	9.1	51.4
Allowance for bad debts	-23.9	0.0	-0.8	-0.1	-0.1	-0.1	-22.8
Associated companies and other related parties	0.1	0.1					
Total accounts receivable, net	816.6	649.1	82.3	26.5	21.1	9.0	28.6

2018	Total book value Dec. 31, 2018 CHF m	Overdue					
		Not due CHF m	< 3 months CHF m	4-6 months CHF m	7-9 months CHF m	10-12 months CHF m	> 12 months CHF m
Accounts receivable trade and other	893.2	677.0	102.4	37.1	24.3	15.9	36.5
Allowance for bad debts	-14.3	0.0	-1.5	-0.1	-0.3	-0.2	-12.2
Associated companies and other related parties	0.2	0.2					
Total accounts receivable, net	879.1	677.2	100.9	37.0	24.0	15.7	24.3

Allowance for bad debts

	2019 CHF m	2018 CHF m
January 1		-14.3
Additions		-13.5
Consumption		1.0
Release		2.3
Changes in scope of consolidation		0.2
Translation differences		0.4
December 31	-23.9	-14.3

4.8 Cash and cash equivalents

In the consolidated cash flow statement, cash and cash equivalents includes cash in hand, deposits held at call with banks, other current highly liquid investments with original maturities of three months or less, and bank overdrafts. In the consolidated balance sheet, bank overdrafts are shown within current financial liabilities.

Cash and cash equivalents include bank accounts and time deposits with an original maturity of a maximum of three months.

4.9 Trade accounts payable

	2019 CHF m	2018 CHF m
– to third parties	385.9	350.9
– to associates	1.7	1.3
– to related parties	1.8	2.6
Total	389.4	354.8

4.10 Provisions and contingent liabilities

Provisions are recognized when the Group has a legal or constructive obligation arising from past events, an outflow of resources embodying economic benefits to settle the obligation is probable, and a reliable estimate can be made of this amount. Actual expenses may differ from the accrued amounts.

A contingent liability is disclosed when there is a possible obligation that arises from a past event and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A contingent liability is also disclosed when there is a present obligation that arises from past events but is not recognized, because an outflow of resources embodying economic benefits to settle the obligation is not probable, or the respective amount of the obligation cannot be measured with sufficient reliability.

When the Group expects some or all of a provision to be reimbursed, for example, under an insurance contract, the reimbursement is recognized as a separate asset, but only when the reimbursement is virtually certain. The expense relating to a provision is presented in the income statement net of any reimbursement.

If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, when appropriate, the risks specific to the liability. When

discounting is used, the increase in the provision due to the passage of time is recognized as a finance expense.

Warranty provisions are created with a view to meet potential guarantee obligations arising from the sale of machinery and technical equipment. The calculation is based on historic values as well as recognized claims.

Provisions for personnel expenses mainly include long-term employee benefits, such as long-service benefits, partial retirement, jubilee benefits, and deferred compensation plans.

Among other things, the other provisions include provisions for pending legal cases, other project risks, as well as for restructuring.

Approximately 33% (prior year: 37%) of the cash outflows of the non-current provisions are expected to materialize within the next three years.

The Group recognizes a collective valuation allowance based on its past experience of warranty costs on projects with similar conditions. Other known risks and risks related to projects with special conditions are estimated on a case-by-case basis and measured individually. The actual warranty costs incurred may differ from the costs provided for.

	Provisions for warranties CHF m	Provisions for personnel expenses CHF m	Other provisions CHF m	2019 CHF m	2018 CHF m
January 1	47.6	60.4	16.0	124.0	82.6
Additions	15.0	18.5	10.4	43.9	75.3
Utilization	-9.7	-8.5	-10.5	-28.7	-54.9
Release	-11.5	-0.3	-1.0	-12.8	-8.5
Changes in the scope of consolidation	0.0	0.0	-0.1	-0.1	32.2
Translation differences	-0.9	-0.6	-0.4	-1.9	-2.6
December 31	40.5	69.5	14.4	124.4	124.0
Thereof current	33.6	38.1	13.8	85.5	87.3
Thereof non-current	6.9	31.4	0.6	38.9	36.7

Contingent liabilities

	2019 CHF m	2018 CHF m
Sureties, guarantees and other obligations	22.3	14.3
Total	22.3	14.3

4.11 Other current liabilities

	2019 CHF m	2018 CHF m
Value added tax owed	15.0	16.8
Other liabilities		
– to third parties	59.1	80.8
– to related parties	0.7	0.6
Personnel-related accruals	102.6	98.7
Other accruals	138.3	110.3
Total	315.7	307.2

4.12 Defined benefit obligations

The Group's main defined benefit pension plans are in Switzerland, Austria, and Germany. The defined benefit plans in Switzerland are funded through legally separate trustee-administered funds. The cash funding of these plans, which may from time to time involve special payments, is designed to ensure that present and future contributions should be sufficient to meet future liabilities. The defined benefit plans in Germany and Austria are partially unfunded.

Pension plans in Switzerland. The Group's Swiss pension plans contain a cash balance benefit formula, accounted for as a defined benefit plan. Employer and employee contributions are defined in the pension fund rules in terms of an age-related sliding scale of percentages of salary. Under Swiss law the pension fund guarantees the vested benefit amount as confirmed annually to members. Interest may be added to member balances at the discretion of the Board of Trustees. At retirement date members have the right to take their retirement benefit as a lump sum, an annuity, or part as a lump sum with the balance converted to a fixed annuity at the rates defined in the fund rules. The Board of Trustees may change the annuity at their discretion subject to the plan's funded status, including sufficient free funds as determined according to Swiss statutory valuation rules.

Swiss pension law requires the Board of Trustees to take measures to resolve a statutory underfunding. The possible measures affect both employers and employees (risk sharing).

Pension plans in Austria. The Group's Austrian pension plans are based on individual pension commitments starting upon leaving the company or reaching a certain age. The employer promises to pay out lifelong pensions as contractually agreed that are adjusted annually based on changes in the consumer price index. The Group is furthermore required by Austrian law to pay a lump sum amount to its employees upon retirement or for other important reasons (e.g. invalidity). The lump sum amount increases with the length of service. All pension promises are funded via book reserve accruals.

Pension plans in Germany. The Group's German pension plans have defined benefit rights based on their length of service and/or final pensionable pay. The employer gives a direct promise to the employee to pay him a certain amount once he retires. At retirement date the value of the employee's benefits is paid as an annuity. The Group is required by German law to increase pensions all three years according to price inflation, as measured by the Consumer Price Index or according to comparable pay grades. Direct pension promises are usually funded via book reserve accruals. In 2008, the Group set up a trust fund to fund their pension liabilities for Bühler GmbH, Braunschweig. No material business combinations/curtailments/settlements occurred during the reported financial period.

Status of the Group's defined benefit plans. The status of the Group's defined benefit plans using actuarial assumptions determined in accordance with IAS 19 is summarized below.

Employee benefits – defined benefit plans. These plans are generally funded through payments to legally independent pension or insurance funds.

The aggregate of the present value of the defined benefit obligation and the fair value of plan assets for each plan is recorded in the balance sheet as net defined benefit liability or net defined benefit asset under non-current financial and other assets. The defined benefit obligation is determined annually by independent actuaries using the projected unit credit method. If the fair value of the plan assets exceeds the present value of the defined benefit obligation, only a net pension asset is recorded, taking account of the asset ceiling.

Pension costs consist of three elements: service costs, net interest, and remeasurements of employee benefits.

Service costs are part of personnel expenses and consist of current service costs, past service costs (including gains/losses from plan amendments or curtailments) and gains/losses from plan settlements.

Net interest is recorded as part of financial expenses and is determined by applying the discount rate to the net defined liability or net defined asset that exists at the beginning of the year.

The gains and losses resulting from the actuarial valuation are immediately recorded in other comprehensive income as

remeasurements of employee benefits. The return on plan assets (excluding interest based on the discount rate) and any change in the effect of an asset ceiling are also recorded in this item. Remeasurements of employee benefits are not recycled through the income statement at any later point in time.

Pension assets and pension liabilities in different defined benefit plans are not offset unless the Group has a legally enforceable right to use the surplus in one plan to settle obligations in the other plan.

Employee benefits – defined contribution plans. In addition to the defined benefit plans described above, some Group companies sponsor defined contribution plans based on local practices and regulations. The Group's contributions to defined contribution plans are charged to the income statement to which the contributions relate.

Employee benefits – other long-term employment benefits. Other long-term employment benefits include jubilee, early retirement, or other long-term service benefits, as well as deferred compensation, if not due to be settled within 12 months after the year-end.

The obligations for other long-term employment benefits are disclosed as provisions for personnel expenses. The measurement of these obligations differs from defined benefit plans in that all actuarial gains and losses are recognized immediately in the income statement.

4.12.1 Actuarial assumptions

	2019	2018
Discount rate (weighted)	0.3%	1.0%
Future salary increases	1.0%	1.0%
Future pension increases	0.2%	0.2%

The discount rates are determined by referencing market yields at the end of the reporting period on AA- and AAA-rated corporate bonds. In recent years, longevity has increased in all major countries in which the Group sponsors pension plans. The Group sets mortality assumptions after considering the most recent statistics available and uses generational mortality tables to estimate probable future mortality improvements.

Risk sharing. As in the prior year, the defined benefit obligation was valued using a risk-sharing approach. This approach reflects the shared burden among employer and employees to keep the pension fund balanced in case this is necessary. The assumptions remained unchanged compared to the prior year.

Sensitivities of significant actuarial assumptions. The discount rate and the future increase in salaries were identified as significant actuarial assumptions. The following impacts on the defined benefit obligation are to be expected:

- 0.25% increase/decrease in the discount rate would lead to a decrease of 3.4% (prior year: 3.2%) / an increase of 3.6% (prior year: 3.4%) in the defined benefit obligation.
- 0.25% increase/decrease in the expected increase in salaries would lead to a decrease of 0.2% (prior year: 0.2%) / increase of 0.2% (prior year: 0.2%) in the defined benefit obligation.

The sensitivity analysis is based on realistically possible changes as of the end of the reporting year.

The average duration of the defined benefit plan obligation at the end of the reporting period is 14.0 years (prior year: 13.1 years).

The cost of defined benefit pension plans and other long-term employee benefits is determined using actuarial valuations. Actuarial valuations involve making assumptions about discount rates, future salary increases, mortality rates, and future pension increases. Due to the long-term nature of these plans, such estimates are subject to significant uncertainty.

Due to a plan amendment in Switzerland, past service costs amount to CHF 13.9 million.

	2019 CHF m	2018 CHF m
4.12.2 Reconciliation of defined benefit obligation and fair value of plan assets		
Defined benefit obligation at January 1	1,388.8	1,394.1
Interest costs	14.0	11.1
Current service costs (employer)	24.5	25.5
Contributions by plan participants	18.5	18.1
Past service costs	-13.9	-0.1
Benefits (paid) / deposited	-70.3	-64.1
Business combinations	0.0	32.3
Curtailment and settlements	-1.8	0.0
Other effects	0.9	2.0
Remeasurements on obligations	128.4	-24.8
Currency translation adjustments	-3.6	-5.3
Defined benefit obligation at December 31	1,485.5	1,388.8
Reconciliation of the fair value of plan assets		
Fair value of plan assets at January 1	1,293.3	1,349.3
Interest	12.5	9.9
Contributions by the employer	28.9	12.6
Contributions by plan participants	18.5	18.1
Benefits (paid) / deposited	-63.0	-61.7
Return on plan assets (excluding interest)	114.0	-31.8
Currency translation adjustments	-0.7	-3.1
Fair value of plan assets at December 31	1,403.5	1,293.3
Actual return on plan assets	126.5	-21.9

	2019 CHF m	2018 CHF m
4.12.3 Remeasurements of defined benefit plans		
Return on plan assets excluding interest income	-114.0	31.8
Current-year actuarial loss (gain) on benefit obligation:		
– change in demographic assumptions	-0.3	-6.4
– change in financial assumptions	115.3	-40.2
– experience adjustments	13.4	23.0
Remeasurements recognized in other comprehensive income	14.4	8.2
Cumulative amount recognized in other comprehensive income	207.2	192.8
4.12.4 Reconciliation of the amount recognized in the balance sheet at year-end		
Present value of funded defined benefit obligation	1,485.5	1,388.8
Fair value of plan assets	1,403.5	1,293.3
Deficit/(surplus)	82.0	95.5
Liability (asset) recognized in the balance sheet	82.0	95.5
Thereof recognized as separate asset	-21.3	-16.4
Thereof recognized as separate liability	103.3	111.9
4.12.5 Pension expenses recognized in the income statement		
Current service costs (employer)	24.5	25.5
Net interest employee benefit	1.5	1.2
Past service costs	-13.9	-0.1
Effect of curtailment and settlements	-1.8	0.0
Other effects	0.9	0.7
Expenses recognized in the income statement	11.2	27.3
Thereof service costs and administration costs	9.7	26.1
Thereof net interest on the net defined benefit liability (asset)	1.5	1.2
4.12.6 Best estimate of contributions		2020 CHF m
Contributions by the employer		29.4

4.12.7 Plan assets at fair value consist of	2019 CHF m	2018 CHF m
Equity instruments third parties	441.5	417.4
Debt instruments third parties	446.5	435.3
Real estate	413.9	373.0
Cash and cash equivalents	47.7	22.6
Others	53.9	45.0
Total plan assets at fair value	1,403.5	1,293.3
Thereof quoted	951.0	911.5
Thereof unquoted	452.5	381.8

4.12.8 Information about significant plans	2019 Switzerland	2019 Austria	2019 Germany	2018 Switzerland	2018 Austria	2018 Germany
Discount rate	0.3%	0.9%	0.9%	0.9%	2.0%	2.1%
Future salary increases	1.0%	2.5%	1.5%	1.0%	2.5%	1.5%
Costs of defined benefit plans	9.1	-0.5	1.8	24.0	1.5	1.3
Remeasurements employee benefits	-3.6	5.2	11.1	12.1	-0.4	-0.1

4.12.9 Defined contribution plan	2019 CHF m	2018 CHF m
Expenses for defined contribution plan	7.9	8.2

4.13 Share capital

As of December 31, 2019, share capital amounted to CHF 15.0 million (prior year: CHF 15.0 million) and consisted of 105,000 (prior year: 105,000) registered shares with nominal value of CHF 100 each and 112,500 (prior year: 112,500) with nominal value of CHF 40 each.

5. Segment reporting

Segment information. Following the acquisition of the Haas Group as per January 1, 2018 and its successful integration in 2018, Bühler made significant structural adjustments to its internal organization to address the global food market. These structural changes became effective on January 1, 2019 and had the following effect:

The Haas Group and Bühler's previously existing Consumer Foods business unit were separated from the Grains & Food business area and brought together to form the new segment Consumer Foods business area. All machinery, applications and solutions for biscuits, wafers, baked goods, chocolate, and coffee are hence consolidated into this newly created business area. Consumer Foods is a segment of its own in accordance with IFRS 8. In accordance with IFRS 8.29 the segment information for the comparative period has been restated for Grains & Food and Consumer Foods. Hence, the Group consists of three reportable segments which are identified on the basis of internal business updates that are regularly reviewed by the Chief Executive Officer (CEO). The CEO, being the Chief Operating Decision Maker, regularly

reviews the allocation of resources to the three reportable segments. The Group is managed under its businesses Grains & Food, Advanced Materials, and Consumer Foods.

Grains & Food: Engineering and sale of industrial process technologies and solutions for the food and feed industry, such as the processing of grains, rice, coffee, and other raw materials for intermediate and finished products.

Advanced Materials: Engineering and sale of solutions for die-casting, grinding and dispersion, and surface-coating technologies in high-volume application areas such as automotive, optics, inks, and batteries.

Consumer Foods: Engineering and sale of solutions for cocoa processing, chocolate mass production, moulding, and wafer equipment, with its portfolio ranging from weighing and mixing of raw materials to cooking and aerating of masses through extrusion, depositing, and forming up to baking and enrobing.

5.1 Segment reporting

Segment reporting 2019	Grains & Food CHF m	Advanced Materials CHF m	Consumer Foods CHF m	Corporate Functions CHF m	Group CHF m
Segment revenue	1,802.0	648.9	775.3	37.8	3,264.0
Less intersegment revenue	-7.6	-0.3	-1.7	0.0	-9.6
Total segment revenue third parties	1,794.4	648.6	773.6	37.8	3,254.4
EBIT	150.1	42.1	71.6	-15.8	248.0
in % of revenue	8.4%	6.5%	9.3%	-41.8%	7.6%
Non-current assets	436.1	221.8	600.0	236.8	1,494.7

Segment reporting 2018	Grains & Food CHF m	Advanced Materials CHF m	Consumer Foods CHF m	Corporate Functions CHF m	Group CHF m
Segment revenue	1,777.9	706.2	757.5	31.3	3,272.9
Less intersegment revenue	1.3	-0.9	-2.6	0.0	-2.2
Total segment revenue third parties	1,779.2	705.3	754.9	31.3	3,270.7
EBIT	116.3	66.4	43.5	4.5	230.7
in % of revenue	6.5%	9.4%	5.8%	14.4%	7.1%
Non-current assets	421.6	202.0	597.1	87.3	1,308.0

Internal and external reporting are both based on the same valuation and accounting principles, and there is therefore no need to provide a reconciliation.

The business results are carried over to the Group's consolidated figures by including the results of units with no market operations as well as consolidation effects.

5.2 Geographical information

Segment revenue	2019 CHF m	2018 CHF m
North America	516.8	455.0
South America	178.9	182.3
Europe	986.3	1,000.9
Middle East and Africa	464.7	450.8
South Asia*	112.7	115.8
Asia*	995.0	1,065.9
Total	3,254.4	3,270.7
- thereof Switzerland	82.5	69.9
- thereof US	342.1	319.5
- thereof China	542.2	551.9

*Change in country allocation

Segment non-current assets	2019 CHF m	2018 CHF m
North America	143.5	135.0
South America	9.7	8.1
Europe	1,143.5	962.6
Middle East and Africa	16.5	14.3
South Asia	9.9	11.3
Asia	171.6	176.7
Total	1,494.7	1,308.0
- thereof Switzerland	346.7	177.8
- thereof US	139.5	131.2
- thereof China	157.1	166.4

The information about geographical areas is determined based on the Group's operations. The Group operates in six geographical areas: North America, South America, Europe,

Middle East and Africa, South Asia, and Asia. Revenues are shown based on the physical location of the equipment.

6. Other disclosures

6.1 Assets pledged or assigned to secure own liabilities

In connection with the long-term loan from related parties of CHF 28.0 million and open legal cases, assets of CHF 45.0 million and CHF 1.1 million, respectively (prior year: CHF 45.0 mil-

lion and CHF 1.1 million) serve as collateral for own liabilities where the right of disposal is limited.

6.2 Related parties

Related-party transactions. The group purchased property in the amount of CHF 126.1 million from an entity owned by shareholders. The property is operationally used by the group and presented in the balance sheet as property, plant and equipment.

Total loans from the shareholders of CHF 211.5 million (prior year: CHF 105.5 million) are disclosed under non-current financial liabilities and of CHF 16.3 million (prior year: CHF 18.5 million) under current financial liabilities. A loan toward the shareholders in the amount of CHF 91.2 million (prior year: CHF 95.8 million) is disclosed under other non-current financial assets.

Expenses for rental, energy, and maintenance to related parties amounted to CHF 13.0 million (prior year: 22.2 million) and are included in other operating expenses. Other related-party positions are disclosed separately in the notes.

Liabilities to pension plans amounted to CHF 0.2 million as per 2019 (prior year: CHF 0.1 million). This amount is included in other current liabilities.

Key management compensation. Key management (defined as Group Management and Board of Directors) received a total current compensation of CHF 9.3 million (prior year: CHF 8.9 million). In addition, pension and social security contributions of CHF 1.5 million (prior year: CHF 1.1 million) are recorded as expenses. The provisions for other long-term benefits amount to CHF 35.7 million (prior year: CHF 27.0 million).

The Bühler Group operates deferred compensation plans for members of the management. The deferred compensation plans comprise a vesting period of three years and an execution period of 10 years from the grant date. The amounts are charged to the income statement over the relevant vesting periods and are adjusted to reflect actual and expected levels of vesting. The value of the deferred compensation is determined annually based on the Group's net profit for the three preceding years and equity at year-end.

6.3 Government grants

Government grants are offset with the items of expense which they finance. Government grants related to assets are deducted from the assets in deriving the carrying amount of

the asset. In 2019 the Group received government grants of CHF 4.2 million (prior year: CHF 5.8 million).

6.4 Proposal of the Board of Directors

At the General Meeting, the Board of Directors proposes a dividend of CHF 25.0 million (prior year: CHF 23.0 million) or CHF 166.6 (prior year: CHF 153.3) per registered share with a nominal value of CHF 100 and CHF 66.7 (prior year:

CHF 61.3) per registered share with a nominal value of CHF 40. The dividend payment to the shareholders of Bühler Holding AG amounted to CHF 23.0 million in the financial year 2019 (prior year: CHF 21.0 million).

6.5 Release for publication of the consolidated financial statements

The consolidated financial statements were released for publication by the Board of Directors of Bühler Holding AG on February 11, 2020.

6.6 Subsequent events

No material events have occurred after the balance sheet date.

Report of the statutory auditor

to the General Meeting of Bühler Holding AG
Uzwil

Report on the audit of the consolidated financial statements

Opinion

We have audited the consolidated financial statements of Bühler Holding AG and its subsidiaries (the Group), which comprise the consolidated income statement and consolidated statement of comprehensive income for the year ended 31 December 2019, the consolidated balance sheet as at 31 December 2019 and consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements (pages 79 to 131) give a true and fair view of the consolidated financial position of the Group as at 31 December 2019 and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with the International Financial Reporting Standards (IFRS) and comply with Swiss law.

Basis for opinion

We conducted our audit in accordance with Swiss law, International Standards on Auditing (ISAs) and Swiss Auditing Standards. Our responsibilities under those provisions and standards are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements" section of our report.

We are independent of the Group in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession, as well as the IESBA Code of Ethics for Professional Accountants, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our audit approach

Overview

Overall Group materiality: CHF 12'500'000

We concluded full scope and specified accounts audit work at 21 reporting units in 11 countries. Our audit scope addressed over 72% of the Group's revenue.

As key audit matters the following areas of focus have been identified:

Accounting of production orders (Project/Plant)

Impairment testing of goodwill and intangible assets with indefinite useful life



PricewaterhouseCoopers AG, Birchstrasse 160, Postfach, CH-8050 Zürich, Switzerland
Telefon: +41 58 792 44 00, Telefax: +41 58 792 44 10, www.pwc.ch

PricewaterhouseCoopers AG is a member of the global PricewaterhouseCoopers network of firms, each of which is a separate and independent legal entity.

Materiality

The scope of our audit was influenced by our application of materiality. Our audit opinion aims to provide reasonable assurance that the consolidated financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the consolidated financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall Group materiality for the consolidated financial statements as a whole as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements, both individually and in aggregate, on the consolidated financial statements as a whole.

Overall Group materiality	CHF 12'500'000
How we determined it	5% of profit before taxes
Rationale for the materiality benchmark applied	We chose profit before tax as the benchmark because, in our view, it is the benchmark against which the performance of the Group is most commonly measured, and it is a generally accepted benchmark.

We agreed with the Audit Committee that we would report to them misstatements above CHF 625'000 identified during our audit as well as any misstatements below that amount which, in our view, warranted reporting for qualitative reasons.

Audit scope

We tailored the scope of our audit in order to perform sufficient work to enable us to provide an opinion on the consolidated financial statements as a whole, taking into account the structure of the Group, the accounting processes and controls, and the industry in which the Group operates.

The audit strategy for the audit of the consolidated financial statements was determined taking into account the work performed by the component auditors. As Group auditor, we performed the audit of the consolidation, disclosures and presentation of the consolidated financial statements and of the impairment testing of goodwill and intangible assets with indefinite useful life. Where audits were performed by component auditors, we ensured that, as Group auditor, we were adequately involved in the audit in order to assess whether sufficient appropriate audit evidence was obtained from the work of the component auditors to provide a basis for our opinion. Our involvement comprised communicating the risks identified at Group level, specifying the audit procedures relating to the accounting of production orders (Project/Plant), specifying the materiality thresholds to be applied, making a visit to a subsidiaries and component auditor abroad, conducting telephone calls with the component auditors during the interim audit and the year-end audit and reviewing the reporting.

Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Accounting of production orders (Project/Plant)

Key audit matter	How our audit addressed the key audit matter
<p>The Bühler Group has production orders, where the performance obligations are satisfied either over time or at a point in time in accordance with IFRS 15 'Revenue from contracts with customers'. In the year under review, revenue from production orders in the amount of CHF 1,512.6 million were recorded over time using the input method to measure the satisfaction of the performance obligation.</p> <p>Management measures the progress as of the balance sheet date based on relative costs incurred to the total costs expected to fulfil the performance obligation. An incorrect estimate of the expected costs could have a significant impact on the recorded revenue and the net profit of the Group.</p> <p>Please refer to pages 85 (Use of estimates) and pages 101 - 103 (Revenue) in the notes to the consolidated financial statements.</p>	<p>Our audit of the production orders where the performance obligations are satisfied over time mainly comprised of the following procedures:</p> <ul style="list-style-type: none"> • We assessed the design and the existence of the key controls regarding the production orders and tested the effectiveness of selected controls. • We assessed whether the internal guidelines regarding the approval of the costs and margins had been adhered to. • We selected a number of production orders based on the contract volumes, the contribution margin and changes in the margin compared with prior year and the planning phase, and focussed our testing on the following, in particular: <ul style="list-style-type: none"> – We assessed the contracts in respect of the classification of revenue recognition. – We assessed whether the contractual terms and the approved planned costs had been recorded appropriately in the project accounting system. – We discussed with the project controllers and project managers the progress of the projects based on the latest project accounts, the costs still to be incurred until their completion and changes in the margin. • We obtained written information from the legal representatives of the Group. We inspected this written information with regard to indications of potential quality deficiencies or penalties for non-performance and assessed whether these matters were recorded appropriately in the consolidated financial statements. • For the production orders completed during the year under review, we compared various final parameters with the estimates made in the planning phase or those as of the previous balance sheet date in order to assess, with hindsight, the accuracy of the estimates made by Management. <p>Our audit approach allowed us to make an adequate assessment of the accounting applied to the production orders (Project/Plant).</p>

Impairment testing of goodwill and intangible assets with indefinite useful life

Key audit matter **How our audit addressed the key audit matter**

The impairment testing of goodwill and intangible assets with indefinite useful life was deemed a key audit matter for the following two reasons:

Goodwill and intangible assets with indefinite useful life are significant items on the consolidated balance sheet (CHF 664.2 million); they are not amortised but tested for impairment at least annually. In calculating the value-in-use for these tests, the Board of Directors and Management have significant scope for judgement in defining the cash-generating units (CGUs), in allocating the goodwill and net operating assets to the CGUs and in determining the underlying assumptions (discount rate, royalty rates, growth rates, revenue growth and EBIT margin growth).

Management adopted an established process in order to forecast the cash flows. The Board of Directors monitored adherence to this process.

Please refer to page 85 (Use of estimates) and pages 114 - 117 (Intangible assets and goodwill) in the notes to the consolidated financial statements.

In our audit of the impairment testing of goodwill and intangible assets with indefinite useful life, we performed audit procedures including the following:

- We assessed the design and the existence of the key controls regarding the impairment testing of goodwill and intangible assets with indefinite useful life. Furthermore, we checked whether the Board of Directors reviewed the impairment tests.
- We assessed how the CGUs were defined, taking into account the accounting standards and our knowledge of the organisation of the Group.
- We assessed the appropriateness of the procedure for allocating goodwill and net operating assets to the CGUs.
- We compared the revenue and the EBIT of the year under review with the budget approved by the Board of Directors in order to identify, in retrospect, any forecasts that were too optimistic and to assess the accuracy of the estimates that were made.
- We performed plausibility checks on the key assumptions Management used for the impairment tests as well as on the changes in net working capital resulting from the application of these assumptions. To this end, we involved our internal valuation experts, who compared the assumptions with data from analogous companies and market data. Furthermore, we assessed the technical and arithmetical correctness of the valuation model.
- In addition, we assessed the sensitivity analyses carried out by Management. Besides, we performed our own sensitivity analyses using different discount rates, revenues and gross profit margins. These analyses enabled us to assess any potential impairment of the goodwill and intangible assets with indefinite useful life.
- We assessed the appropriateness of the disclosures in the notes to the financial statements in accordance with IAS 36 'Impairment of Assets'.

We consider the valuation process and the assumptions applied by Management to be an appropriate and adequate basis for the impairment testing of the goodwill and intangible assets with indefinite useful life.

Other information in the annual report

The Board of Directors is responsible for the other information in the annual report. The other information comprises all information included in the annual report, but does not include the consolidated financial statements, the stand-alone financial statements of Bühler Holding AG and our auditor's reports thereon.

Our opinion on the consolidated financial statements does not cover the other information in the annual report and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information in the annual report and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the Board of Directors for the consolidated financial statements

The Board of Directors is responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with IFRS and the provisions of Swiss law, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law, ISAs and Swiss Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

A further description of our responsibilities for the audit of the consolidated financial statements is located at the website of EXPERTSuisse: <http://expertsuisse.ch/en/audit-report-for-public-companies>. This description forms part of our auditor's report.

Report on other legal and regulatory requirements

In accordance with article 728a paragraph 1 item 3 CO and Swiss Auditing Standard 890, we confirm that an internal control system exists which has been designed for the preparation of consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved. PricewaterhouseCoopers AG



René Rausenberger
Audit expert
Auditor in charge



Philipp Gnädinger
Audit expert

Zürich, 11 February 2020

Financial Statements Bühler Holding AG

Income statement Bühler Holding AG

	Notes	2019 CHF m	2018 CHF m
Investment income	11	111.3	51.0
Financial income	12	31.6	19.4
Other operating income	14	9.2	7.2
Total operating income		152.1	77.6
Investment expenses	15	-6.8	-14.9
Financial expenses	16	-4.2	-2.3
Exchange losses on foreign currency valuation	13	-12.1	-16.7
Other operating expenses	17	-8.6	-5.7
Operating expenses		-31.7	-39.6
Profit before taxes		120.4	38.0
Taxes		-2.2	-0.2
Net profit		118.2	37.8

Balance sheet Bühler Holding AG

Assets	Notes	2019 CHF m	2018 CHF m
Cash and cash equivalents		24.1	16.0
Other accounts receivable third parties		0.2	0.4
Other accounts receivable Group	5	150.5	136.2
Current loans third parties		0.1	0.2
Current loans Group	5	17.3	12.2
Accrued income and prepaid expense		0.1	0.1
Current assets		192.3	165.1
Non-current securities		7.9	4.6
Other financial assets third parties		18.2	18.2
Other financial assets related parties	8	91.2	88.8
Other financial assets Group	6	715.7	675.3
Investments	18	872.6	783.1
Non-current assets		1,705.6	1,570.0
Total assets		1,897.9	1,735.1
Equity and liabilities			
Financial liabilities Group	7	0.0	6.3
Accounts payables third parties		0.7	0.0
Accounts payables related parties		0.6	0.6
Accounts payables Group	7	70.4	113.1
Current provisions	10	21.5	22.8
Deferred income and accrued expense		3.8	1.1
Current liabilities		97.0	143.9
Financial liabilities third parties	9	420.0	420.0
Financial liabilities related parties	8	183.5	66.5
Non-current provisions	10	0.0	2.5
Non-current liabilities		603.5	489.0
Total liabilities		700.5	632.9
Share capital		15.0	15.0
Legal reserves		7.5	7.5
Other free reserves		275.6	275.6
Available earnings brought forward from prior year		781.1	766.3
Net profit		118.2	37.8
Shareholders' equity		1,197.4	1,102.2
Total shareholders' equity and liabilities		1,897.9	1,735.1

Notes to the financial statements

Bühler Holding AG

1 General information

The financial statements of Bühler Holding AG, domiciled in Uzwil SG, were prepared in accordance with the regulations of Swiss financial reporting law.

Bühler Group prepares consolidated financial statements on a Group level according to International Financial Reporting Standards (IFRS). Therefore, Bühler Holding AG does not publish additional notes, a cash flow statement, and management reporting according to article 961d of the Swiss Code of Obligations.

2 Valuation principles

The financial statement accounting policies meet the requirements of Swiss financial reporting law. The main financial statement line items are accounted for as described below.

The balance sheet positions in foreign currency have been valued at the following closing rates:

	2019 CHF	2018 CHF
CNY	0.1392	0.1435
EUR	1.0890	1.1280
GBP	1.2750	1.2470
USD	0.9730	0.9860

Loans to Group subsidiaries are recorded at their nominal value. If necessary, value adjustments are made for potential impairment losses.

3 Number of full-time equivalents

The number of full-time equivalents is on average less than 10 employees (prior year: less than 10 employees).

4 Definition of related parties and Group companies

Related parties are companies that are directly or indirectly owned by the Bühler family. Also included are members of the Bühler family as well as the Board of Directors and companies owned by Members of the Board of Directors of the Bühler Group.

Group companies are companies in which the Bühler Group holds direct or indirect investments and are included in the consolidated Group financial statements.

5 Other accounts receivable and current loans Group

Accounts receivable and current loans Group mainly include current loans to Group companies for working capital financing purposes.

6 Other financial assets Group

Financial assets mainly include loans to Group companies, which are granted at market conditions and are non-current (more than one year).

7 Liabilities Group

Liabilities Group consist primarily of current liabilities related to cash pooling (mainly Bühler AG, Uzwil) as part of the Group's cash management.

8 Other financial assets/liabilities related parties

These loans are owed from and to the shareholders as well as from other related parties (associates).

9 Financial liabilities third parties

This position contains corporate bonds issued to third parties.

Nominal amount in CHF m	Valor	Interest rate	Period of validity	Expiration nominal value
180	38,960,607	0.10%	12/21/2017 – 12/21/2022	12/21/2022
240	38,960,608	0.60%	12/21/2017 – 12/21/2026	12/21/2026

10 Provisions

This item mainly includes provisions for currency risks relating to loans to Group companies and accounts receivable from Group companies.

11 Investment income

This position mainly contains dividend income from subsidiaries and other participations.

12 Financial income

Financial income mainly includes interest income on loans to Group companies.

13 Exchange gains/losses on foreign currency valuation

Exchange gains/losses on foreign currency valuation contains currency gains and losses.

14 Other operating income

Other operating income contains mainly licence fee income.

15 Investment expenses

Investment expenses include impairments on Group investments.

16 Financial expenses

Financial expenses primarily include interest on foreign expenses paid to Group companies and interest payments for corporate bonds issued to third parties.

17 Other operating expenses

Other operating expenses predominantly include service fee expenses and non-refundable withholding taxes.

19 Contingent liabilities

	2019 CHF m	2018 CHF m
Sureties, guarantees and other obligations in favor of Group companies	579.5	584.6
Sureties, guarantees and other obligations in favor of third parties	102.0	126.2

Bühler Holding AG issued a letter of comfort for Bühler Barth GmbH, Germany, on August 17, 2017. With this letter of comfort, Bühler Holding AG commits itself to financially support Bühler Barth GmbH in order that Bühler Barth GmbH is able

to meet its current and future obligations at all times. The issued letter of comfort is valid as long as Bühler Barth GmbH belongs to the Bühler Group, at the latest until December 31, 2020.

20 Proposal of the Board of Directors for the appropriation of available earnings

	2019 CHF m	2018 CHF m
Balance brought forward from prior year	781.1	766.3
Net profit of the year	118.2	37.8
Available earnings at the disposal of the General Meeting	899.3	804.1
The Board of Directors proposes to the General Meeting:		
- The distribution of a dividend	25.0	23.0
- Allocation to other reserves	0.0	0.0
- Carry forward to new accounting period	874.3	781.1

The statutory obligation of appropriation to reserves is waived as the legal reserve amounts to 50% of the paid-in share capital.

21 Significant events after the balance sheet date

No material events have occurred after the balance sheet date.

Report of the statutory auditor

to the General Meeting of Bühler Holding AG
Uzwil

Report on the audit of the financial statements

Opinion

We have audited the financial statements of Bühler Holding AG, which comprise the income statement for the year ended 31 December 2019, the balance sheet as at 31 December 2019 and notes for the year then ended, including a summary of significant accounting policies.

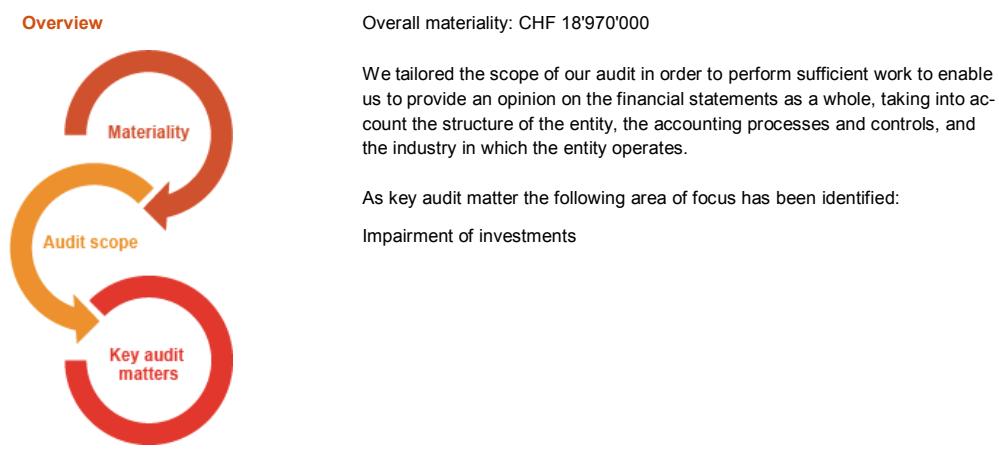
In our opinion, the accompanying financial statements (pages 138 to 141) as at 31 December 2019 comply with Swiss law and the company's articles of incorporation.

Basis for opinion

We conducted our audit in accordance with Swiss law and Swiss Auditing Standards. Our responsibilities under those provisions and standards are further described in the "Auditor's responsibilities for the audit of the financial statements" section of our report.

We are independent of the entity in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our audit approach



Materiality

The scope of our audit was influenced by our application of materiality. Our audit opinion aims to provide reasonable assurance that the financial statements are free from material misstatement. Misstatements may arise due to fraud or

PricewaterhouseCoopers AG, Birchstrasse 160, Postfach, CH-8050 Zürich, Switzerland
Telefon: +41 58 792 44 00, Telefax: +41 58 792 44 10, www.pwc.ch

PricewaterhouseCoopers AG is a member of the global PricewaterhouseCoopers network of firms, each of which is a separate and independent legal entity.

error. They are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall materiality for the financial statements as a whole as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements, both individually and in aggregate, on the financial statements as a whole.

Overall materiality	CHF 18'970'000
How we determined it	1 % of total assets
Rationale for the materiality benchmark applied	We chose total assets as the benchmark because, in our view, it is a relevant benchmark against which holding companies can be assessed, and it is a generally accepted benchmark with regard to materiality considerations in holding companies.

We agreed with the Audit Committee that we would report to them misstatements above CHF 940'000 identified during our audit as well as any misstatements below that amount which, in our view, warranted reporting for qualitative reasons.

Audit scope

We designed our audit by determining materiality and assessing the risks of material misstatement in the financial statements. In particular, we considered where subjective judgements were made; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

Report on key audit matters based on the circular 1/2015 of the Federal Audit Oversight Authority

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Valuation Investments

Key audit matter	How our audit addressed the key audit matter
Investments in subsidiaries represent a significant balance sheet line item (CHF 872.6 million). The Board of Directors uses business valuations in order to test these investments for impairment. The company valuations are prepared using the "practitioner's method". In cases where indications of impairment exist, the book values of the investments were compared with the impairment test prepared to assess the goodwill at the Group level. In calculating these company valuations, there is significant scope for judgement in determining the underlying assumptions, particularly with regard to the future business results and the discount rate to apply to the forecast cash flows. Management adopts a specified impairment testing process to identify the potential need for the impairment of investments. Please refer to pages 141 (Investments) in the notes to the financial statements.	In our audit of the investments in subsidiaries, we performed audit procedures including the following: <ul style="list-style-type: none"> • We assessed the design and the existence of the key controls regarding the valuation of the investments. • We compared the book value of the investments in the year under review with the results from using the practitioner's method of valuation. If there were indications of impairment, the book values of the investments were compared with the impairment test applied to assess the goodwill at the Group level. • We performed plausibility checks on the key assumptions applied by Management used for the impairment tests. To this end, we involved our internal valuation experts, who compared the assumptions with data from analogous companies and market data. Further, we assessed the technical and arithmetical correctness of the valuation model.

Publisher

Bühler AG, CH-9240 Uzwil

Concept and editorial

Bühler AG
Corporate Communications, Uzwil

Design

artismedia GmbH, Stuttgart

Copywriters

Bühler AG
Corporate Communications, Uzwil

Proofreading and translation

Text Control AG, Zurich
Telelingua Schweiz GmbH, Zurich
Texthafen, Zurich

Infographics

Remo Pohl, Stuttgart

Photographs

Judith Affolter, Berlin
Ehrin Macksey, Ho Chi Minh City
Ralph Richter, Düsseldorf

Printer

Galledia Print AG, Flawil



February 13, 2020



Climate neutral
Print product

ClimatePartner.com/53173-2001-1008

Additional paper certification information

Cover: Splendorlux Mirror, FSC certified, elemental chlorine free guaranteed, acid free, heavy metal absence CE 94/62; Pages 1–76: Heaven softmatt 42, FSC certified; Pages 77–144: Supersilk DCP, FSC certified, EU Ecolabel certified.

Bühler AG

CH-9240 Uzwil, Switzerland
T +41 71 955 11 11
www.buhlergroup.com

