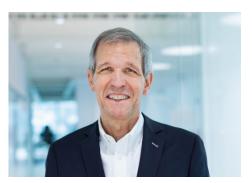
# 01 **BUSINESS REVIEW**

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You can find the full Business Review section of the Annual Report 2023 and more information on our website.

# RELIABLE IN A DYNAMIC WORLD







Stefan Scheiber
Chief Executive Officer

Dear customers, partners, and colleagues,

Bühler proved to be a reliable partner for our customers, partners, employees, and major stakeholders around the world in a business year that turned out to be very volatile and dynamic. Key to this reliability is our broad portfolio of processing solutions and services – the result of consistent innovation efforts in good times and bad – combined with our global network and presence. These established success factors proved yet again to be stabilizing forces in markets which were subject to major changes.

In the shift towards e-mobility, Bühler's megacasting solutions, and the range of solutions for the crucial process steps in lithium-ion battery-cell production, play important roles. Our electrode slurry solutions support the photovoltaic and capacitors industries. Our solutions for the semiconductor market and for precision optical applications, particularly in optical sensing and smart glasses, contribute significantly to the photonics sector.

Moreover, with our high-capacity grain processing solutions, food parks expertise, and grain logistic applications, we have been able to contribute to improved food security. Innovations in food processing that integrate plant-based protein enable our custom-

ers to create new consumer products that are affordable, nutritious, tasty, and have a lower environmental footprint. And our innovative products and services in consumer foods sectors such as chocolate, coffee, cookies, wafers, and many more enabled us to take part in growing markets globally.

Together with our wide range of services, this broad portfolio bolstered our business in 2023. We increased turnover and profitability and maintained a strong financial position, and managed to improve our equity ratio to more than 51%. We also demonstrated that our purpose – innovations for a better world – is connected to our performance.

Proximity to customers is vital. Our global network of manufacturing sites, service stations, and engineering hubs enable us to react fast to market trends and consumer needs. In 2023, we continued to strengthen our global footprint by investing in new Application & Training Centers.

Reflecting the development of the world economy in 2023, the share of order intake was balanced across our regions, with the Americas at 30%, Asia at 28%, Europe at 25%, and Middle East Africa &

India at 17%. Bühler's business is well represented in the key markets.

In 2023, we refined our sustainability strategy internally and externally, and continued to implement it. Our biggest impact comes from supporting our customers. We are committed to having solutions ready to multiply by 2025 that reduce energy, waste, and water by 50% in the value chains of our customers. Our services, which improve the installed base of our customers, play a key role in achieving these goals. Internally, we have developed a pathway to achieve a 60% reduction of greenhouse gas emissions in our own operations by 2030. As of the end of 2023, we have already achieved a reduction in Scopes 1 and 2 of nearly 20% compared to our 2019 baseline.

We can only achieve our goals with skilled and engaged people. This is why we place great value on the training and education of our employees, and also make these offerings available to our customers. By investing in schools around the world and in facilities such as the Bühler Energy Center, we ensure that everyone is fit for the future.

We would like to thank you, our customers, partners, and employees – and last but not least our owners, the Bühler family – for the confidence and trust you have placed in Bühler and the loyalty you have shown. The close collaboration with all of you has never been more appreciated than during these turbulent times.

Yours sincerely,

Calvin Grieder
Chairman of the Board

Stefan Scheiber Chief Executive Officer



Year in review with CEO Stefan Scheiber and Chairman Calvin Grieder.

## HIGHLIGHTS OF THE YEAR



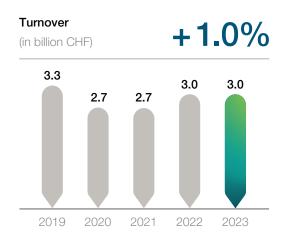
Results at a glance

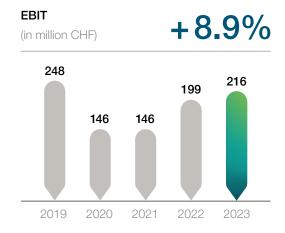
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## **RESULTS AT A GLANCE**





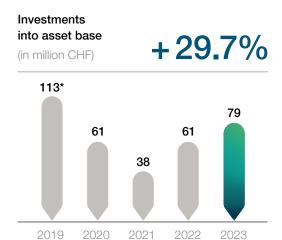


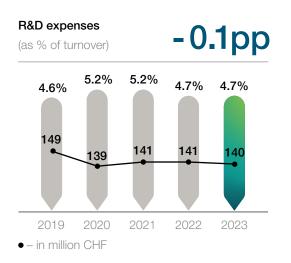


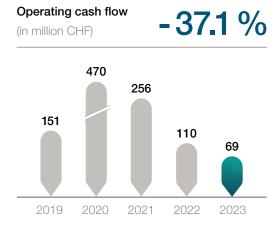
Results at a glance

Bühler Annual Report 2023

## **RESULTS AT A GLANCE**









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<sup>\*</sup> Excluding changes in accounting standards and others.

### RELIABLE IN A DYNAMIC WORLD

In 2023, Bühler successfully navigated a complex global landscape marked by rapid change, economic fluctuations, geopolitical tensions, and manifold opportunities resulting from the transition in our key markets. The most significant factors contributing to our achievements were the company's underlying adaptivity to changing market conditions as well as our global set-up, on which our innovative solutions were able to unfurl. Again, we proved that we are a reliable partner for our customers, suppliers, employees, shareholders, and the financial markets. Looking ahead, we anticipate a demanding business environment, but remain committed to our strategic goal of profitable growth, our sustainability targets, our customers, our employees, and their further development.

#### Solid performance covering high oscillation

At Group level and in Swiss Francs, Bühler performed well with a slightly increased turnover of CHF 3.0 billion (+1.0%). Order intake was CHF 3.2 billion (-3.8%) and the order book remained high at CHF 2.0 billion. EBIT rose by 8.9% to CHF 216 million with a corresponding EBIT margin of 7.2% (prior year: 6.7%). Net profit increased by 16.3% to CHF 179 million (prior year: CHF 154 million), corresponding with a margin of 5.9% (prior year: 5.2%).

The impact of foreign exchange rates was significant. In local currencies, orders improved by 2% to CHF 3.3 billion, turnover by 7% to CHF 3.2 billion, and EBIT by 17% to CHF 233 million.

The overall pattern of turnover growth clearly shows a new level of oscillation of markets and regions. It has become increasingly difficult to describe market developments, so business developments



Year in review with CEO Stefan Scheiber and CFO Mark Macus.

Group report 2023 Bühler Annual Report 2023

## **GROUP REPORT 2023**

must be assessed at a more granular level. Taking this perspective, turnover growth stemmed from all businesses and regions. Highlights were the continued turnover growth of Die Casting by 23.4% and Leybold Optics by 22.1%, in our Advanced Materials business. In our Grains & Food business we also saw strong growth in Chocolate & Coffee (12.1%), Consumer Foods (24.7%) and Grain Quality & Supply (3.8%). In contrast, our Grinding & Dispersing business area, part of the Advanced Materials business, fell by 14.3%, and Value Nutrition, a business area of the Grains & Food business, fell by 19.4%.

Grains & Food turnover developed stably and decreased by 3.1% to CHF 2,204 million, while Advanced Materials turnover grew by 15.9% to CHF 778 million. In 2023, Bühler integrated its Consumer Foods business into the Grains & Food segment. Building one harmonized food and feed organization will allow for more direct interfaces to customers and increase the efficiency of our company.

Given the overall market conditions, the development of our order intake was quite robust. The decline in the development of orders was partially due to a normalization, after extra high demand, for example for Leybold Optics and for Value Nutrition. Regional challenges such as in Europe and especially in China impacted most of our businesses. However, our business in North America grew significantly by 26%. Our Milling Solutions business had an order intake growth of 13.5% and Grain Quality & Supply excelled with a 20.5% increase in order intake, both benefiting from increased food security demand.

Overall and measured in CHF, the Grains & Food order intake was down slightly (-0.7%) to CHF 2,357 million, and Advanced Materials orders normalized after three years of continued high growth at a still high level of CHF 774 million. Corrected for the foreign exchange effect, our orders on Group level would have been CHF 180 million higher.

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#### Continued financial stability

In 2023, Bühler's financial position continued to be strong, with the equity ratio improving to 51.1% (prior year: 49.8%). Operating cash flow decreased by 37.1% to CHF 69 million. Net working capital increased by 37.4% to CHF 658 million driven by changed customer payment preference. Impacted by this development, net liquidity decreased by 17.5% to CHF 254 million.

#### Balanced global business footprint

While the economic environment differed strongly across key markets, Bühler's balanced geographical footprint allowed the company to benefit from market expansions and thus offset lower business volumes in other markets. Our local organizations were vital for the successes in the various markets, and through this they again contributed to the company's stability and reliability in a multipolar world. The most notable developments were strong turnover growth in the Americas and significantly lower turnover volumes in China.

Group report 2023

Bühler Annual Report 2023

North America showed exceptional growth in order intake (+26%) and turnover (+24%), followed by strong development in Middle East Africa & India with an increase of 1% in order intake and 6% in turnover. India progressed excellently with growth in order intake (+13%) and turnover (+14%). The performance of Europe was mixed with a drop in order intake of 13% and a decrease in turnover (-5%).

Overall, Bühler's regional share of turnover was as follows: the Americas 29%; Europe 28%; Asia 27%; and Middle East Africa & India 16%.

Bühler adopted a new regional structure on January 1, 2023, to increase focus and gain momentum in markets in Asia. The regions South East Asia and Greater China Region were established.

After decades of continuing expansion, Bühler's Greater China Region for the first time declined both in order intake (-26%) and turnover (-22%) substantially. After 3 years of Covid-19 lockdown, the Chinese economy experienced challenges in 2023. Although domestic consumption improved, consumer confidence was not fully restored, and investments were very subdued. Additionally, exports suffered due to weakening global demand.

Nevertheless, China overtook Japan to become the top car exporter globally thanks to the strong momentum of new energy vehicles (NEVs) and power batteries. Impacted by the macroeconomic and industrial environment, after long periods of strong growth, Bühler Greater China Region experienced a reduction in operating revenue. While the Advanced Materials business in

China continued to grow, benefiting from the boom in NEVs, the Grains & Food business faced substantial challenges. In early 2023, Bühler Greater China Region launched a project to drive cost and organization efficiency. Bühler remains committed to China, our customers, employees, and partners and will continue to invest in innovation to increase competitiveness for the future.

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#### Services for our customers

Services gained importance in 2023, as they are the fastest lever to improve the performance and productivity of the existing installed processing assets of our customers. Services are key enablers to making our customers installed assets more efficient and more sustainable.

With increasing levels of regulation and market pull from their own customers, improving sustainability, traceability, and quality has become increasingly important for our customers.

Bühler's Customer Service business (including components) showed turnover growth of 1.2% and amounted to CHF 966 million, adding substantially to the Group's 2023 result. This represented a 32% share of the total Group turnover.

Apart from measurable improvements in the sustainability of our customers' assets, the Bühler service portfolio delivers key benefits such as cost reductions, yield improvements, improved personnel and machine safety, better uptime, capacity usage, food and feed safety, and lifetime extension. In 2023, modernization projects continued to play a vital role for our customers.

Strong growth was also noticeable in maintenance services – especially long-term services agreements – meeting the needs of customers looking for a reliable partner to manage everyday maintenance and operations challenges. Remote support services grew to more than 1,000 agreements. The number of core machines under a Total Care agreement (Bühler's inspection and maintenance services program) grew by more than 5,000, or 30%, to 22,000. In addition, 200 customer production facilities – an increase of over 50% – are benefiting from connected digital services which enable customers to better monitor, predict, and control production, supported by Bühler's process experts.

#### **Expanding our Application & Training Center set-up**

Bühler has Application & Training Centers in 25 locations around the world – some of which cover multiple industrial applications – offering dedicated training for our customers and providing them with a collaborative platform to test new product ideas and experiment with product innovations. Over the last few years, Bühler's global network of application centers has expanded, bringing together new business partners, academy, start-ups, and suppliers, with the goal of offering a state-of-the-art set-up for customers to drive innovation.

In October 2023, along with the Institute of Food Technology (Ital), the FoodTech Hub Latam, Cargill, and Givaudan, Bühler opened the Tropical Food Innovation Lab in Brazil. This innovation ecosystem develops sustainable food and beverages while promoting biodiversity in Brazil.

In November 2023, Bühler opened four Application & Training Centers in Uzwil – Flavor Creation Center, Food Creation Center, Protein Application Center, and Energy Recovery Center. They complement the existing centers, such as the Extrusion Application Center. The new centers connect the entire value chain and enable a circular economy approach to food production.

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Combined, the Application & Training Centers in Uzwil produce about 550 tons of biomass annually. To make optimum use of the waste and by-products generated by the centers, Bühler and its strategic partner, Vyncke, built the Energy Recovery Center, which serves as a heating facility for Bühler's headquarters. The Energy Recovery Center also works as a demonstration and testing platform for customers who want to reduce CO<sub>2</sub>e footprint, waste production, and energy costs by using side streams.

A new Grain Processing Innovation Center (GPIC) in Kano, Nigeria, is also under construction and should open its doors in the second quarter of 2024. The center will be focused on the development of products, recipes, and processes using local grains, such as sorghum, millets, maize, soybeans, fonio, and pulses with the overall objective to improve the local value-add in the food system of the country.

Milling Solutions, together with the other business areas, also started construction on a new Grain Innovation Center (GIC) in Uzwil, where Bühler and its customers and partners will develop, test, and scale sustainable and efficient solutions for grain and feed processing to improve food and feed solutions. The GIC is scheduled to start operations by the end of 2024.

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#### A leader for innovative solutions

Sustainability is embedded in all functions, responsibilities, and activities of our company. There are three key elements that contribute to the transition of our industries: new processing technologies, services, as well as new skills especially for digitalization, automatization, data management and the like. To keep the pace of innovation high, expenses for research and development (R&D) remained stable at CHF 140 million (4.7% of turnover). In 2023, 50 new products were successfully launched.

In 2023, Bühler made progress towards the company's sustainability targets (Scopes 1 and 2) and the targets for its customers (Scope 3). Pathways were refined and aligned with the organization to reach the company's 2025 and 2030 goals. Bühler is committed to having solutions ready to multiply by 2025 that will reduce energy, waste, and water by 50% in its customers' value chains (50/50/50 goal). The 50/50/50 goals will create the biggest impact.

The food, feed, and materials processed on Bühler technologies help to feed an estimated 2 billion people and provide mobility for 1 billion people every day. We therefore seek to support our customers to reach their sustainability targets and minimize their greenhouse gas emissions. In 2023, for example, we unveiled our Carat megacasting solution for the die casting and automotive industry. Aluminum castings can dramatically reduce CO2e emissions in manufacturing and minimize waste. Bühler's internal studies show that megacasting offers the potential to reduce CO<sub>2</sub>e emissions by 70% compared to benchmark emissions today.

Furthermore, Bühler has developed a pathway to achieve 60% reduction of greenhouse gas emissions in its own operations by 2030 (Greenhouse Gas Protocol Scopes 1 & 2, 2019 baseline),

as well as addressing energy, waste, water, and the associated emissions. In 2023, the prioritization of our global strategy toward achieving this goal has been clearly redefined - first we prioritize reduction of energy consumption, second, we look at alternative, "greener" methods of producing energy, and only in the third step do we look at the way electricity is procured and the use of green electricity certificates.

In 2023, Bühler approved investments of over CHF 510,000 with an estimated annual savings of 1,600 MWh, equivalent to 1% of the previous year's energy consumption. This contributed to overall energy savings at all manufacturing sites amounting to 8% compared to the previous year.

In Uzwil, our energy recovery system provides heating for the headquarters using biomass generated from our Application & Training Centers on site. Together with other measures already implemented at the site – such as switching to wood pellets – it is estimated that the Energy Recovery Center will reduce CO2e emissions for heating energy by over 60% (reference year 2015). As of the end of 2023, we have already achieved a reduction in Scopes 1 and 2 of nearly 20% compared to our 2019 baseline.

Additionally, "lighthouse" Bühler sites were defined in 2023. At these locations, projects to reduce consumption in energy-intensive areas will be implemented. For example, in Wuxi, China, a heatrecovery system was installed. In Johannesburg, South Africa. 650 solar panels were installed to generate around 40% of the energy consumed at the site. In Beilngries, Germany, plans are in place to change the formation of oven doors to reduce heat loss during the painting process.

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**2023: KEY FACTS** 

**Key Facts** 

## 1 billion people

travel in vehicles manufactured using parts produced with our technology.

12,485 employees

25 locations

with Application & Training Centers around the world

105 service **stations** 

sales offices

140



2 billion people



each day enjoy foods produced by our equipment of turnover

spent on research and development annually

million

machines installed worldwide

new products

nearly **4** 

reduction of CO<sub>o</sub>e

since 2019 in Scope 1 and Scope 2

of family-run business

manufacturing sites

customers



Grains & Food Bühler Annual Report 2023

#### **GRAINS & FOOD:**

#### SOLID PERFORMANCE

In 2023, Grains & Food performed solidly. In a challenging business environment turnover fell by 3.1% to CHF 2,204 million, while order intake was down 0.7% to CHF 2,357 million. In local currencies, turnover increased by 2.2% and order intake grew by 4.8%. The ongoing war in Ukraine and the demanding economic situation in China worked as a damper in most of our businesses. Turnover growth was very much stimulated by the Chocolate & Coffee and Consumer Foods business areas; the global demand to improve food security was a key driver for Milling Solutions and Grain Quality & Supply. With the opening of new Application & Training Centers in Brazil and Switzerland, and the start of construction on a facility in Nigeria, Bühler reached a new level of capabilities to support our customers along complete value chains from recipe development and raw material to process and final product development and industrial scaling.

In 2023, Bühler integrated its Consumer Foods segment into the Grains & Food segment. Building one harmonized food and feed segment will allow for more direct interfaces to customers and increase the efficiency of processes.

At year end, it was decided to streamline the Grains & Food structure further with the integration of the business area Digital Technologies into Milling Solutions and Grain Quality & Supply. Our Grains & Food segment is now comprised of the business areas Grain Quality & Supply, Milling Solutions, Value Nutrition, Chocolate & Coffee, and Consumer Foods.

#### **Grain Quality & Supply**

The Grain Quality & Supply business area enjoyed remarkable business development, both in orders and in turnover. In contrast to other businesses, China not only remained an important market

Grains & Food

Order intake

-0.7%

CHF 2,357 million

Turnover

-3.1%

CHF 2.204 million

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but showed strong growth due to governmental efforts to improve food security for the country. This triggered the build-up of new infrastructure for grain handling and logistics, in particular along the main rivers of China. Bühler benefitted with several larger orders for ship unloaders and is now using its momentum to enter the market for grain storage facilities.

On a similar level, food security demand also led to multiple reguests and orders in the Middle East and Africa. Grain Quality & Supply has built up a promising market position in this area. Its Malting & Brewing business unit won all major projects for larger malting installations, demonstrating clear market leadership. The globally low number of such projects - resulting from market consolidation - was compensated for by the new RimoMalt concept, which works as an entry plant for smaller malt processors or as a test facility for big players. Brought to market in 2022, RimoMalt

gained resonance in 2023 with several orders, setting a new industry standard in the starter category and for malt production for novel food.

The Rice Solutions business unit started to rebound from a low level with its applications, notably in India and Europe. The market launch of the new modular rice milling concept, UniLine, enjoyed great market interest and a growing pipeline of orders. UniLine is a breakthrough innovation that offers fast and reliable end-to-end paddy-to-rice processing with up to 35% lower project execution time, 40% footprint reduction, and up to 15% energy savings.

#### Milling Solutions

Milling Solutions, the largest business area of Bühler, benefitted from a global catch-up demand for large milling projects for grain processing, including numerous greenfield installations. During the pandemic, most millers fully focused on high output ensuring that the food supply chain did not stop. This caused a two-year restraint in building new capacities, which is now ending, and millers are again investing in them. The drive for increased sustainability and the need to ensure food security has also bolstered the market.

Projects were awarded to Bühler from all over the world – United States, Saudi Arabia, Venezuela, Europe, Africa, and Southeast Asia, among others. In Hungary, Bühler commissioned a barley protein processing project for Pannonia Bio, which operates the largest biorefinery plant in Europe. Bühler provided grain storage and a barley mill – the world's first high-capacity plant for barley protein concentrate – a premium ingredient for aqua feed and pet food.

To expand its share in the entry level market specifically in Africa, Milling Solutions launched the Evo Mill concept. Evo Mill takes a modular, overall solution approach, starting at a capacity of 300 metric tons/day and integrates selected partners for the building and silos, and the processing is handled by Bühler. Evo Mill is a concept that allows future expansion and can be extended to 600 metric tons/day. Another important milestone is the Arrakis roller mill – the successor of the world's most sold roller mill, Airtronic MDDK. Over the years, Bühler has installed over 25,000 MDDK units. The Arrakis is the result of five years of R&D and is built on the learning from the success of the MDDK.

Looking at other parts of the Milling Solutions portfolio, oats and maize processing also experienced positive development. In 2023, Bühler commissioned a high-tech oat mill on the Kazakhstan steppe for Bakha Söhne LLP where they process homegrown oats. The request for pulse processing has continued to be high but potential customers were hesitating to undertake these big investments. After a few years of rapid growth, the market is also currently undergoing a first consolidation. Taking a mid- to long-term perspective, we are convinced of the need for, and the potential of pulses solutions.

In November 2023, Bühler opened the Protein Application Center in Uzwil – a collaborative space where customers can develop and validate their ideas in the field of protein processing. Equipped with the latest wet isolation techniques for the separation of protein, starches and fibers, the Application Center is operated in collaboration with our partner company endeco.

Bühler invested in innovation even during the market slowdown, developing superior process and automation technology, including the SmartMill, a digital service to optimize yield, increase product quality, improve traceability, reduce energy consumption, and increase overall plant efficiency. The SmartMill program supports customers' operations during the whole lifecycle of their investment. In 2023, 30 new milling lines were connected. A total of 80 milling lines worldwide are currently benefitting from Bühler's smart solutions and the waiting list is growing.

#### **Digital Technologies**

After a somewhat positive course of business in 2022, the Digital Technologies business area experienced a slight decline in orders and turnover. The strong competition from Chinese vendors in the optical sorting market resulted in the continuation of the commoditization of this sophisticated technology and in a price battle in this industry.

To secure market position and future success, Digital Technologies not only initiated a consolidation of its portfolio and the ramp up of production capabilities in India and Brazil, but also introduced Merlin Ai, the new brain of Bühler's Sortex optical sorting machines, which has been rolled out across various food and non-food segments including wheat, rye, pulses, coffee, seeds, peanuts, grains, oats, and plastics.

Digital Technologies also launched new optical sorting machines. The N BioVision is designed for the nut market and the SPARK Pro and SPARK Pro+. The SPARK series marks a breakthrough

for Bühler into the contested low entry and cost sensitive market. As part of its transition, Optical Sorting will become a business unit within the Grain Quality & Supply business area in January 2024.

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The Digital Sense business unit completed its new weighing and dosing portfolio. Meeting strictest requirements in terms of hygiene and precision, this portfolio sets a hard to copy new standard for the milling industry. In the area of packaging, the joint venture of Bühler and PremierTech successfully launched fully automated solutions, which are already sold into rice, malting, milling and feed applications. Due to the close link to milling, the Digital Sense business unit will be integrated into the Milling Solutions business area effective January 1, 2024.

#### **Value Nutrition**

Value Nutrition experienced declines in volume due to difficult market conditions. In its feed business, China as the largest market, is facing overcapacities and very low pork prices. This has put prices under pressure and reduced the investments in new processing lines substantially.

Other feed markets such as the Philippines and other countries in South East Asia and the Middle East Africa & India region continued to develop well. With new digital services such as PelletingPro Bühler has strengthened its position in this strained market. Optimizing processes, PelletingPro increases yield by up to 1% and throughput by up to 20% and decreases energy consumption by up to 20%.

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Due to the continually low demand for pasta and cereal solutions around the world, pasta, noodles, and cereals showed mixed performance. The pet food market developed well, as the demand for high-quality products continued to increase. In all areas, the demand for upgrading existing installations has increased and the retrofit business has developed into a strong business pillar for Value Nutrition.

The plant-based protein market was very complicated in 2023: market capacities were filling up, and the market consolidation continued. Bühler took this as an opportunity to invest in a unique application lab infrastructure to serve our customers even better as a full solution partner. In Uzwil, Switzerland, we opened a Protein Application Center covering all relevant processes for the extraction of proteins, fibers, and starches. How Bühler can build up fully integrated solutions can be observed at our Hungarian customer Helvét-Farm, for whom we have engineered and installed a plant covering the full value-chain from "bean to burger", meaning from the raw material processing right through to the final product. At the same time, in partnership with Cargill, Givaudan, the Institute of Food Technology (Ital), and the FoodTech HUB Latam, Bühler opened the Tropical Food Innovation Lab, for the development of sustainable food and beverages targeting the large Brazilian market

#### Chocolate & Coffee

Based on a strong order backlog from 2022, the Chocolate & Coffee business area performed very well in terms of turnover as well as with stable order intake volumes in 2023. The Chocolate & Coffee

business area has two business units, Chocolate and Flavor Creation. The good development overall was due to an upswing in the Chocolate business unit which accounted for the bulk of new business in 2023.

The Chocolate business unit particularly benefitted from the high demand for confectionary in the United States. Success for the business unit was also driven by roll-refurbishment services, as well as significant projects won, such as Flexway in Dubai, a Middle East distributor of sweets and candies, confectionary and snacks, and the chocolate producer Neugebauer in Brazil. Innovative solutions such as autonomous refining, the predictive roll service, and the Bühler Insights platform positively impacted the business.

The Flavor Creation business unit, which combines the three market segments, Coffee, Nuts, and Cocoa, also experienced positive development. The Coffee segment benefitted from innovative solutions to win projects like Jasmin Coffee in Oman and Saudi Coffee in Saudi Arabia. In August 2023, Bühler partnered with the UK-based company IKAWA, the market and technology leader for sample roasters, to focus on the innovation gap between micro- to medium-scale coffee roasting. This partnership not only facilitates access to new markets and projects, but also provides insights into the evolving needs of the industry. In the last quarter of 2023, the Coffee segment already experienced increased interest in roasting solutions stemming from this partnership.

While the Cocoa segment was impacted by rising cocoa prices, which reached an all-time high of USD 3,800 per metric ton, it benefitted from modernization projects. The Middle East, Africa and

Grains & Food 19

South America also invested in modernization projects to increase performance and output and lower energy consumption. In the Côte d'Ivoire, the world's leading cocoa producing country, Transcao invested in upgrading their existing processing facility in San Pédro. In line with Bühler's strategy of protecting the environment with energy-efficient machinery, the new RoaStar for cocoa was launched. It consumes up to 50% less energy, features a smart heat-recirculation system, as well as enhanced heat distribution.

In November 2023, the Flavor Creation Center was opened in Uzwil, Switzerland. The center, which has been processing coffee since 2013 and cocoa and nuts since 2022, was upgraded and renovated to assist customers in recipe development, performance optimization, and offer premium training courses. The opening of the Flavor Creation Center coincided with increased customer interest in exploring new product development options, such as vegan and reduced-sugar chocolates and alternative raw materials to imitate cocoa flavors.

#### **Consumer Foods**

The Consumer Foods business segment was integrated into the Grains & Food business segment in January 2023, becoming a newly combined business area. The Consumer Foods business area, which provides processing solutions for biscuits, wafers, and confectionary products performed very well with strong turnover growth and a solid development on orders. The demand came

from all business units: Wafer, Biscuit, and Confectionery. The regions Middle East Africa & India and Europe contributed most to new orders.

Even in fast-changing consumer markets, Bühler supported its customers with state-of-the-art solutions. In 2023, many customers requested retrofits on wafer lines to reduce energy use. Innovative solutions to improve sustainability played an important role for the business, for instance electrically heated and induction-ready ovens to allow to switch to green energy and to lower the  $\rm CO_2e$  footprint. The SWAKT-Eco wafer oven consumes, although still gas fired, 20% to 25% less energy and hence  $\rm CO_2e$  generation. The latest electrically heated ovens consume around 10% less energy and on top of that, the remaining 90% can be fully  $\rm CO_2e$  neutral, depending on the way the electrical energy has been generated.

A highlight for Consumer Foods in 2023 was the opening of the Food Creation Center, which is embedded in the Application & Training Center network in Uzwil. In this unique network, all Consumer Foods industry solutions are available and can be combined to develop the confectionary products of the future.

#### **CREATING IMPACT**



## **Cristal Alimentos**Shining on the plates of millions of Brazilians

Over the last 60 years, Cristal Alimentos, a family-owned business in Brazil, has won the hearts of Brazilian consumers with a key component of the country's basic food basket: rice. Now, the company, which also processes beans, sugar, and flour, has reached new heights and made its debut in the pasta market with a state-of-the-art plant in Goiás with a capacity of 10 tonnes per hour.



## **La Moderna**Reaching new heights in Mexico

Grupo La Moderna is more than a food processing and production company. Over the last 100 years, the family-owned and -run enterprise has become synonymous with safe, nutritious, and affordable staple foods such as pasta, cookies, and snacks across Mexico, the United States, and Central America. Thanks to continuous upgrades of their existing equipment and recent investments in the latest cleaning and milling technology, La Moderna is perfectly positioned to cater to an ever-growing market with increasingly stringent quality requirements.



#### Bakha Söhne LLP

#### Fields of dreams in the vastness of Kazakhstan

Kazakhstan enjoys good growing conditions for oats and a strong domestic market. Yet the country has historically relied on its neighbors for oat processing. That is until the Aripov family decided to extend their business from farming and, with Bühler's help, opened the country's first hightech oat mill. Now they are looking to serve neighboring markets too.

Grains & Food

Bühler Annual Report 2023

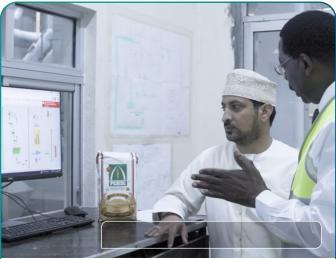
#### **CREATING IMPACT**



#### Lotte

## A new lease on life for Japanese chocolate factory

When Japanese chocolate manufacturer Lotte decided to bring their production line up to date, rather than investing in new equipment, they opted for a major retrofit. This decision not only brought significant financial savings, it also led to reductions in their energy usage and in the environmental impact of their operations – major benefits in today's business climate.



#### **Pembe Flour Mills**

#### Food security needs strong relationships

Pembe Flour Mills is one of Kenya's largest flour producers and plays a key role in ensuring food security for a growing population. Having relied on Bühler technologies to process maize, sorghum, wheat, and animal feed since the 1980s, Pembe decided to build a brand-new maize mill on its Nairobi site in 2019. Pembe produces 450 tons of maize per day – providing a safe, nutritious, and affordable staple to millions of people in Kenya.

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#### **ADVANCED MATERIALS:**

#### RECORD GROWTH

**Advanced Materials** 

In 2023, the Advanced Materials business continued its success. Whereas turnover grew strongly by 15.9% to CHF 778 million, order intake fell by 11.2% to CHF 774 million, indicating that business volumes were normalizing. In local currencies, turnover increased by 22.9%, while order intake reduced by 5.3%. With these results, the Advanced Materials business confirmed that it is in an upswing mode, driven by the transitions in its industries, particularly in automotive. This has enabled it to reach a record high turnover.

The boosts that the Die Casting business area and Leybold Optics business area experienced in the previous year have settled into stabilized growth in 2023, with both business areas continuing to benefit from the optimal market positioning of their innovative product portfolios. Growth in the Die Casting business area was driven by its large megacasting solutions. The Leybold Optics business area gained significantly from glass coaters for architectural applications and for car glass, from capacitors for e-mobility, grid applications, and the ongoing strong market trends in photonics and semiconductors. Rising energy prices had an impact on customers' business cases, with the need to improve energy efficiency driving demand for Bühler's sustainable solutions across the board. In the Grinding & Dispersing business area, the number of large battery projects based on Bühler's continuous mixing process decreased. The second major source of revenue in battery production, grinding of active materials, is showing increasing opportunities. Grinding & Dispersing is well positioned to gain from these with its solutions.

#### Die Casting

The Die Casting business area has experienced significant growth, predominantly fueled by the large Carat solutions with over 4,400

#### **Advanced Materials**

Order intake

Turnover

-11.2%

+15.9%

CHE 774 million

CHE 778 million

metric tons of locking force, reflecting surging demand in North America and Asia. The consistent demand for the Carat 610 and Carat 920 across Asia and the Western world underscores the burgeoning requirement for structural components for car bodies, including battery cases for electric vehicles, as well as for advanced megacasting applications. A significant milestone was reached when the first Carat 920 and Carat 840 cells were dispatched to customers. Another achievement was the casting of a rear underbody on a Bühler Carat. A major megacasting event held by the Die Casting business area attracted over 400 participants from across the industry, including representatives from 16 Original Equipment Manufacturers (OEMs), demonstrating Bühler's technology and thought leadership in this area. Bühler is distinguished in being the only entity in the world capable of assembling 6,000 metric tons die-casting solutions in each of the three key regions for car manufacturers - Europe, the US, and Asia.

Challenges remain, however. The conventional die-casting market in Europe is currently subdued. This can be attributed largely to diminished demand from OEMs. Nevertheless, this has been offset by strong interest in second-hand machines and an uptick in remanufacturing projects. The reshoring movement in the US offers a promising horizon, as well as strong potential in Mexico, even though car sales

figures have not yet rebounded to pre-pandemic levels. E-mobility components persist as a central pillar in the die-casting industry, with a growing call for integrated parts necessitating machines with a locking force surpassing 2,000 metric tons.

The SmartCMS, a leading-edge cell control system tailored for complex, fully integrated megacasting cells, reinforces the company's technological edge. Customer services remained resilient, spurred mainly by robust remanufacturing initiatives, control system enhancements, and the ongoing transition from ICE to BEV drive-trains requiring cells to produce new components including structural components.

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#### **Grinding & Dispersing**

The Grinding & Dispersing business area reports a challenging year both in turnover and orders. The battery cell business experienced a peak in its first wave of growth in China, culminating in a temporary slowdown in investments. In sharp contrast, in both the European Union (EU) and the United States announcements were made for expansive capacity build-up, both from local cell entities and established Asian battery producers. Renowned cell manufacturers from China have made significant inroads into the EU and North

America, striving to cater to the local automotive industry's growing needs. Bühler stands poised to benefit from its longstanding customer relationships and unmatched experience with expansive production facilities for projects abroad.

A promising development is the rise of the Dry Battery Electrode (DBE) approach in the western hemisphere, which has been identified as the linchpin for the next-generation production of lithium-ion battery (LIB) electrodes. The innovative DBE method results in a staggering 30% reduction in energy expenditure and a 15% reduction in factory footprint for battery cell manufacturing. The Bühler continuous mixing solution, rooted in twin-screw extruder technology, is a promising technology for efficient processing of dry coating. Bühler's collaboration with leading research institutes, raw material producers, equipment suppliers, and cell manufacturers, underscores its commitment to pushing technological boundaries. Electrode slurry saw growing demand in Asia driven by the photovoltaic and capacitors industries.

The surge in demand for silicon, recognized as the next-generation anode active material, has the potential to elevate the energy density of LIBs by an impressive 40%, translating to an enhanced driving range for electric vehicles. Bühler's MicroMedia Invicta technology has emerged as the frontrunner for ensuring peak efficiency in silicon production.

In the inks and coatings arena, the flagship bead mill technology, MicroMedia Invicta, has received repeated orders from leading global customers. 2023 also heralded the launch of the bead mill technology Cenomic Optima 6, boasting a 25 to 50% uptick in productivity and efficiency. Overall, the inks and coatings arena saw

**Advanced Materials** Bühler Annual Report 2023

global market consolidation. Nevertheless, in the Middle East Africa & India region, there were good growth opportunities for packaging inks and automotive coatings.

Finally, to cater to the digital age's demands, Bühler has introduced the Smart Dashboard, a state-of-the-art digital solution designed for seamless process data monitoring. Looking ahead, innovative applications necessitating cutting-edge grinding and dispersion solutions are gaining traction, for example, materials for fuel cells, or biomaterial-based leading the charge.

#### **Leybold Optics**

Leybold Optics continued its growth story with increased turnover and normalized order intake. In the optics business, Leybold Optics continued to build on its excellent reputation and achieved significant success in 2023. The flagship product HELIOS 1200 proved itself on the semiconductor market and excelled in precision optical applications due to a surge in orders, particularly in optical sensing and smart glasses. A long-term agreement was secured with a premier key account paving the way for the delivery of ECS evaporation coaters over the next four years. Notably, these machines are at the forefront of green technology, boasting a 30% reduction in electrical consumption during operation.

The demand for DUV (deep ultraviolet) and EUV (extreme ultraviolet) lithography has continued to grow, signaling the industry's persistent demand for advanced coating solutions. There has also been a significant increase in requests for the technology for large machines for astronomical and space mirror applications with di-

ameters of up to four meters. These requests spanned various technologies from evaporation, such as SYRUSpro and ARES, to ion beam sputtering (IBS), and ion beam figuring (IBF). Besides existing technologies, 2023 also saw the successful market introduction of the Ion Beam Trimming technology (IBT), a game-changer in radio frequency (RF)-connectivity filter applications.

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In the field of energy-related applications, Leybold Optics continued its successful course in 2023. The FLC 1600, a thin film coating system for flexible multi-layer applications with the latest sputtering technology, was installed at a customer site and is proof of Leybold Optics' commitment to delivering innovation and productivity. The evolution of the CAPone for capacitor applications, with its remarkable energy-efficient features, has been seamlessly integrated into a customer's production line. The CAPone is one of the most energy efficient roll-to-roll coating systems in the industry.

A standout milestone was the development and integration of the PlasMASTER closed-loop modules for glass coating equipment, including Leybold Optics' own in-situ and ex-situ measurement systems. It was launched in the brand-new Leipzig facility during an open house event focusing predominantly on glass coating innovations.

Branching out, the first steps in the photovoltaic sector were met with success as partners and suppliers to three leading companies in China that focus on new solar power generation technologies expressed interest in these new products. Simultaneously, the automotive glass sector drove robust demand for glass coaters, underscoring Leybold Optics' leading market position in the glass coating sector.

#### **CREATING IMPACT**



## **Georg Fischer Casting Solutions**

Collaborating to empower sustainable mobility

Georg Fischer Casting Solutions empowers sustainable mobility. With more than 4,000 people in 13 sites around the world, Georg Fischer serves a wide range of industries, from automotive to aerospace and energy products. Georg Fischer is at the forefront when it comes to new innovations to lower CO<sub>2</sub>e emissions, reduce waste, and increase overall sustainability of parts throughout their lifecycle. To boost its market leadership position, they count on Bühler's Die Casting business as a collaboration partner in developing state-of-the art die-casting technologies.



## Fraunhofer FFB Ramping up energy transformation

The research organization Fraunhofer plays a leading role in the development of industrial battery production facilities in Europe. At its research and development site in Münster, Germany, Fraunhofer is building a test facility spanning over 6,000 square meters – and the ink is already dry on the construction plans for a gigafactory a few meters away. These are key benchmarks that European manufacturers of batteries for electric cars and stationary storage systems for renewable energies urgently need to keep up the pace in terms of capacities and expertise.



#### Megacasting unveiled

Unveiling Bühler's colossus of die casting

Bühler presented its megacasting solution, the Carat 840, to customers and partners for the first time in Europe at the "Megacasting unveiled" event in Linz, Austria. Visitors to the megacasting unveiled event had the chance to experience the Carat 840 in person. With a height of 7.6 meters and a floor area of around 160 square meters, the Carat 840 can inject over 200 kilograms of liquid aluminum into a die within milliseconds. Megacastings reduce complexity in production by enabling between 70 to 100 parts to be replaced by a single die-cast part.

## **OUTLOOK:**

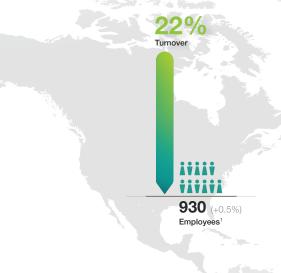
## GOOD STARTING POSITION FOR 2024

The economic climate in 2024 is still likely to be characterized by continued volatility and we expect difficult market conditions, with ongoing high interest rates and costs dampening the markets generally. Nevertheless, Bühler is well positioned to navigate through dynamic times and to benefit from new opportunities that arise, especially in view of the new innovative portfolio of products and services we are offering. A carryover of CHF 2.0 billion orders serves as a stable starting position for the business in 2024. We are very aware that efficient processes and improved productivity will be key to keeping performance high. Our innovations, with sustainability as a driver, as well as our passionate Bühler employees, will help us to generate solid results in 2024.

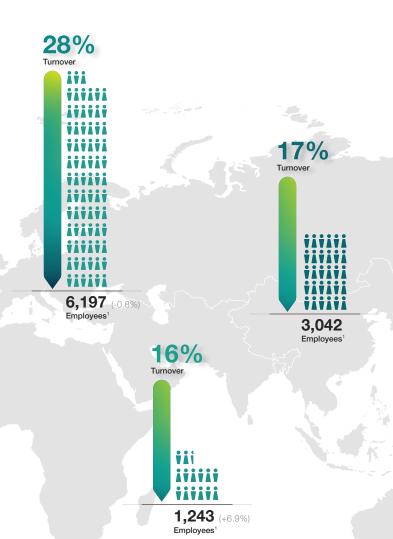
Regional performance Bühler Annual Report 2023 27

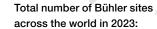
## **REGIONAL PERFORMANCE**

Bühler has systematically localized its resources and offers manufacturing sites, service stations, sales offices, R&D facilities, and Application & Training Centers across 140 countries.









10%

TATATA

Employees1

504



91 sales offices



105 service stations



25 Application & Training Centers<sup>2</sup>

= Total 12,485 employees<sup>1</sup> in 2023 compared to 12,737 in 2022

<sup>&</sup>lt;sup>1</sup> FTE (= full-time equivalent)

<sup>&</sup>lt;sup>2</sup> Bühler has Application & Training Centers in 25 locations around the world, some of which cover multiple industrial applications.

<sup>&</sup>lt;sup>3</sup> Bühler adopted a new regional structure on January 1, 2023, to increase focus on markets in Asia. The Greater China region and the South East Asia region were established.

## **OUR STRATEGY**

#### Our purpose: Innovations for a better world

As a Swiss family enterprise with a history of 163 years, we are driven by a strong sense of purpose, and our strategy is based on deeply held values. Our purpose is to create innovations for a better world. The charter of our owner family defines our long-term objectives and acts as our normative lighthouse. And our values of trust, ownership, and passion are the behavioral principles for all Bühler employees worldwide.

Based on this, we have set goals for the coming years to strengthen our positions in our markets globally as a technology leader, while balancing the needs of humanity, nature, and economy in all our decision-making processes. We see profitable growth as a prerequisite for creating positive impact for a better world. This conviction guides our investments in the future development of our company, into innovative products and services, as well as in the development, education, and training of our people. In this context, the safety of employees has ultimate priority.

In choosing Bühler, our customers benefit in their own business performance through innovation and productivity, through positive environmental impact, from opportunities to offer their employees training at our schools and application centers, and from better performance and efficiency of Bühler solutions. Last but not least, they benefit from the global setup of Bühler, in all major markets and continents of the planet.

Attaining our goals is only possible with a skilled, educated, and passionate workforce. Therefore, we invest in our people and in so doing, contribute to improving their skills, and their future perspectives. At Bühler, we care for each other, and safety is a top priority.

We never compromise on health and safety for our own employees, or the employees of our customers and our partners. We comply with all applicable rules and regulations, and human rights, wherever we do business, and our business activities are closely linked to the United Nations' Sustainable Development Goals (SDGs).

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To create and accelerate impact requires intense collaboration among market players. In addition to our industry partners and customers, other players such as universities and research partners, financial partners, start-ups, and governments as well as non-government organizations also play key roles. Therefore, we have built a strong collaboration ecosystem, which we are continuously expanding, with a special focus on innovation aspects and education. In this way, we bring together purpose, people, and performance to accelerate impact for a better world.

#### The key elements of our strategy are:

- We drive customer success: We strive to create the best technologies to make our customers more successful and more productive in their very dynamic market environments.
- We create impact for a better world: The demand for sustainable solutions is changing our markets in the food, feed, and mobility industries. As a leading technology provider with a clear aim to contribute to addressing the sustainability requirements of our stakeholders, we see ourselves as a driving force for the transition ahead, with innovative technologies and services.

- We contribute to solutions towards food security and affordable and healthy food: We do this with our processing solutions, including digital services combined with local services as well as our training, education, and application centers. Our decentralized service, supply chain, and production organizations are key success factors in this context.
- We innovate in specific markets for processing and application of advanced materials: These businesses target applications in the automotive sector, various technical coating fields, as well as the inks and battery sectors.
- We offer the best training, education, and development programs for people: Since its founding, people have been at the center of all activities at Bühler from education and training to career development, health consulting, modern occupational health and safety training, modern work solutions, and career perspectives.
- We remain independent and invest in our future: The freedom, the value set, and the speed in decision-making of a family-owned company enable us to set a long-term strategy for the sustainable development of our company, and for trustful and long-term relationships with our stakeholders.

#### Our sustainability goals

More than ever, the world demands effective solutions to reduce CO<sub>2</sub>e emissions, address the loss of biodiversity and the distribution of wealth. Every credible scientific study published in the reporting year, such as the Sixth Assessment Report of the Intergovernmen-

tal Panel on Climate Change (IPCC), concluded that the condition of our planet and societies are even more challenging than we previously believed. The IPCC report also underscored that human actions still have the potential to determine the future course of the climate, primarily by reducing emissions substantially going forward.

For many years, we have focused our research and development efforts on improving both the commercial and sustainability performance of our solutions, products, and services. The key objectives of our sustainability goals are:

- We committed to developing a pathway to achieve a 60% reduction of greenhouse gas emissions in our own operations by 2030.<sup>1</sup>
- We committed to having solutions ready to multiply by 2025 that reduce energy, waste, and water by 50% in the value chains of our customers.
- We proactively collaborate with suppliers to reduce climate impacts throughout the value chain.

As a relevant player in our industries and as a responsible family-owned company, we reinvest most of our profits in innovations for this purpose, and in scaling them as fast as possible. In this sense, sustainability is embedded in all functions, responsibilities, and activities of our company.

#### Solutions

At the core of Bühler's business model is the transformation of raw materials to intermediate and finished consumer products: from grains to flour, malt, baked goods, and bread; from beans to coffee, 29

Bühler Annual Report 2023 Our strategy

chocolate mass, pralines, and bars; from proteins to meat or dairy substitutes; from aluminum to structural car parts; from substrates to coated glass; from pigments to printing inks. The offering to our customers consists of complete value-chain solutions with lines, plants and complete industrial parks, services, and components. Core technologies within our solutions include drying, cleaning, grading, optical sorting, grinding, dispersing, extrusion, roasting, mixing, dosing, thin-film vacuum coating, casting, and many more.

With our technologies, we aim to contribute to effective improvements in the value chains of our industries. Major opportunities, among many others, lie in enabling a sustainable protein supply by reducing the CO2e footprint in livestock and the related feed solutions, for instance with feed based on upcycling of side streams. Interesting opportunities for the mobility industries lie in ultra-large structural aluminum parts, improved battery components as well as optical systems to allow for autonomous and safe transportation.

An important core competence of Bühler is its highly specified process know-how. This is the essence of Bühler: understanding, shaping, and controlling material-transformation processes. This enables us to support our customers on all levels, starting from the evaluation of new finished products and recipe developments, to trials, and on to scaling to industrial levels, and full operational production support in industrial production plants.

By continuing to spend up to 5% of our turnover on research and development (R&D) annually, we develop innovative technologies, machines, and services, which differentiate in the market through high performance, productivity, reliability, and improved sustainability Key Performance Indicators (KPIs).

#### Services

Fast, professional, and reliable services for our customers represent a major differentiator for Bühler. Services improve the performance and productivity of our customers' existing installed assets by optimizing yield, minimizing energy consumption, reducing waste and water, and by maximizing the valorization of side streams and the overall productivity of their operations. Through all of this, services have become key enablers to making our customers' plants more efficient and sustainable at the same time.

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Bühler has developed a comprehensive services portfolio from process optimization and maintenance to hardware and spare parts, as well as knowledge transfer and upgrading packages. Key elements of our services are digital platforms such as myBühler and Bühler Insights, and the applications running on them, for example, to calculate, monitor, and report on CO<sub>2</sub>e-impact along complete value chains. Our monitoring services ensure the optimal operation of process technologies to save energy and water and to reduce waste at any point in time. Retrofit services to renovate our customers' production assets allow us to realize step changes in sustainability and productivity. The current share of the services and components business is 32% of the total Bühler turnover.

#### People

All progress depends on people and their skills, behavior, passion, resilience, and collaboration. On the individual level, it is about awareness and the right skills to take necessary decisions and actions. This applies to all levels: from a leader who might decide to deploy a carbon-neutral company strategy, to an operator who

Learn more about our values on our website.

Find the section about our strategy also on our website.

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is keen on saving  $CO_2e$  and improving downtimes by running a production line as efficiently as possible. On a company level, it is important that sustainability is not seen as an add-on but is fully embedded in all facets of the enterprise. On an industry level, it is all about collaboration and building ecosystems, as no individual or company alone has the intellectual or financial power to create the impact needed to ensure a high standard of living within the boundaries of our planet. All of this and much more is only achieved with the right people, at the right time, and in the right functions.

#### Our values

The normative guidelines, as set out in the charter of our owner family, commit us to upholding the long-standing Bühler family tradition of respect, integrity, fairness, appreciation of employees, customer proximity, a strong spirit of innovation, future orientation, and honest and open communication.

We act with social, cultural, and ecological responsibility towards employees, business partners, and customers, and exercise ethical corporate governance, respecting local roots, while taking a global perspective.

Employees have a very important place in the company. The family and the management are aware that they represent our greatest potential. To give orientation to our employees and lay the foundation for a corporate culture that supports our endeavors, we established our our values of trust, ownership, and passion (TOP).

These are behavioral principles for all Bühler employees. Trust relates to integrity, partnership skills, and the credibility required for Bühler to form collaborative networks with customers, start-ups, academia, and non-governmental organizations (NGOs) to address global challenges.

Ownership is about taking responsibility for decisions taken in the interest of our customers, and passion drives people at Bühler to live their intentions, to learn each day, to support others, and to drive success.

#### Education and training

Our strategy and targeted programs for people are deeply rooted at Bühler. Our key factors are the <u>support</u>, <u>training</u>, <u>and development of people</u>, starting from our lighthouse program – apprenticeship education – to further-development programs for experienced people and experts. In parallel to this, we continue to invest in schools and Application & Training Centers for our customers' employees. We run schools for milling, grain, rice, and cocoa processing all over the world and also offer dedicated courses for experts in our various training centers.

Bühler was one of the first companies to systematically start vocational training, back in 1915. Since then, we have continued to develop and expand our programs. Bühler provides apprenticeships for over 500 apprentices globally and has trained 8,333 apprentices in Switzerland since the foundation of the program.

Our strategy 32

#### **Customer proximity**

Our customers are key to our success, and we strive to be a trusted and reliable partner. Our objective is to optimize business outcomes for customers, with innovative technologies, processes, services, trainings, and innovation partnerships. Our extensive global setup continues to prove its value to our customers. With our 105 service stations, 30 manufacturing sites, 91 sales offices, and Application & Training Centers in 25 locations around the globe, we are close to our customers and support them locally, quickly, and professionally. This customer proximity enables Bühler to support its customers and deliver on promises, even when situations become critical.

#### Ecosystem of collaboration and innovation

We believe that collaboration between industry players, academia, start-ups, and NGOs is essential to develop the solutions required to meet the needs of a growing global population sustainably. We have therefore established an ecosystem of collaboration and innovation. We connect our ecosystem partners with the process and technology know-how and experience of Bühler employees, and with other participants in our network. The key to unlocking the value of the ecosystem is the openness and capability of our employees. To give this ecosystem a regular focal point, we have established the Bühler Networking Days, which we host every three years in Uzwil, Switzerland.

#### Sustainable family ownership

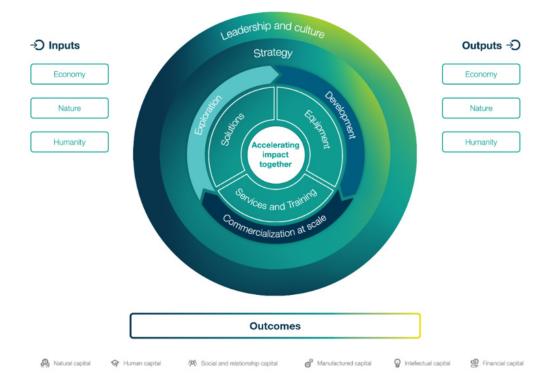
Bühler is an independent, family-owned enterprise in the fifth generation. Our strategy is founded in this set-up and the premise of its continuation.

Our strategy

Bühler Annual Report 2023

### **VALUE CREATION MODEL**

The Value Creation Model illustrates how Bühler creates value for customers, employees, bondholders, business partners, and owners by unlocking sustainable business opportunities in the global food, feed, and automotive industries. It shows how we seek to balance humanity, nature, and economy in every decision and how this translates into outcomes for wider society and the environment.



Discover the full Value Creation Model on our website.

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## **2023: PEOPLE FACTS**

Master in Bühler Management graduates

**Key Facts** 



**Bühler apprentices** 

qualified for IndustrySkills 2023 241

**Diversity Equity &** Inclusion trainings given



employees volunteered for Partners in Food Solutions

students

sponsored for Master in Mechatronics studies

students completed African Milling School courses

53%

employees participated

in the 2023 Innovation

230

**25** 



miller apprentices graduated from the African Milling School apprentices

globally



customer food safety events held



employees received food safety training

employees involved in Generation B

Challenge

18%

of apprentices choose employment with Bühler

were trained

apprentices trained in Switzerland since 1915

#### 35

### **OUR PEOPLE**

The safety, health, and well-being of Bühler employees is our top priority. Aligned with our corporate values of Trust, Ownership, and Passion (TOP), we all take responsibility for ensuring each other's safety. Rules and procedures are essential to any safe workplace, but it is only by developing and nurturing the right mindset within every employee that we can achieve true impact. It means not just seeing our employees as a resource but considering the mental and physical well-being of each individual within the Bühler family.

This requires a range of approaches. Providing lifelong learning to employees allows people to adapt and develop the skills needed to keep pace with a quickly evolving and challenging work environment. Emphasizing inclusivity in the workplace allows employees to feel valued and appreciated. Upholding our TOP values provides the basis for how we work and collaborate. Every employee demands a degree of workplace flexibility. With 12,485 employees fulfilling thousands of different tasks, we have adopted a role-specific approach to meeting this need rather than attempting to impose a one-size-fits-all approach. It is within the responsibility of our people leaders who know their teams best.

Our on-boarding programs ensure that each new employee cohort is introduced to our corporate culture within the first few months of joining us, on a local as well as on a global level.

Our recruitment processes aim to recognize early those who will flourish best at Bühler while we also develop programs that focus on the changing needs of our existing employees as they mature through the various phases of their careers.



**TOP Values** 

#### TOP culture of inclusive diversity

Building a culture of inclusion, with the <u>TOP values</u> as a compass, continues to be core to Bühler's people and talent management strategy.

The first step to inclusion, is awareness about one's own blind spots. Therefore, we continued our core training 'Beyond Bias'. In 2023, over 200 colleagues participated in workshops to understand their individual biases and how they influence their judgement.

In building a culture of inclusive diversity to drive performance and innovation, an overarching theme in 2023 was the concept of leaders as allies. It is only when team members feel they can bring their full selves to the workplace that they can truly deliver and perform. This can only happen in work environments where an alliance exists between team leaders and team members to encourage the principles of inclusivity and psychological safety. The 2023 People

Leadership Series therefore focused on leaders as allies. Over 500 people leaders from across the Bühler world participated in this learning journey, which was run in cooperation with Edit Development.

In 2023, Bühler rolled out TOP Interview Training, a standardized way of conducting interviews and carrying out recruitment to ensure that potential candidates align with Bühler's values. Bühler also recognizes that the faster new employees can familiarize themselves with the organization, the quicker they can become effective. To help with onboarding, quarterly virtual global onboarding sessions were launched to support new recruits. They meet an Executive Board member, learn about the company, and have the chance to network with each other.

As part of its TOP culture of inclusive diversity, in 2023 Bühler established a new movement called Generation Experience, or Generation E. It is employee led and targeted at colleagues who are transitioning into the later phases of their career and so may be looking for a new work/life balance, want to work part time, or feel they could mentor younger generations. The program also offers a health perspective for those who are part of the baby boomer generation. Generation E is part of a range of programs aimed at the more experienced employee.

Harnessing the power of our people to drive innovation is key to our Diversity, Equity & Inclusion (DE&I) commitment. A key lever to put this into action is the global Innovation Challenge that was held again in 2023. The theme in 2023 was "harvest the fruits", focusing on how we can better utilize the technologies we already have and improve market absorption. All employees globally were invited to present their ideas, which were then voted for by all colleagues globally. The top 10 teams chosen out of a total of 425 ideas were



Innovation Challenge 2023

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invited to Uzwil, where they were provided feedback and support to perfect their pitches before presenting to the Executive Board. The winning team's idea around automated carbon tracking was chosen for its maturity, feasibility, and strategic fit.

In 2023, Bühler formalized its commitment to building and strengthening an inclusive culture of diversity and equity by publishing a formal DE&I statement.

Learn more about the Diversity, Equity, and Inclusion Annual Report on our website.

#### Culture of lifelong learning

In 2023, we focused on developing the agility of our employees to help each individual develop the skills that enable them to remain efficient and employable throughout their careers. In addition to developing technical skills, we want colleagues to have the soft skills to face the changing and sometimes unpredictable demands of the workplace with confidence. To help develop resilience Bühler has introduced an employee agility concept, which takes the individual through a five-step program starting with self-reflection, moving to a period of peer-to-peer exchange, and concluding with the setting of personal development objectives.

Bühler continues to develop the B-Learning platform, which delivers a broad range of learning opportunities through videos, e-learnings, classroom trainings, webinars, and mobile apps. We also continue to develop our Employee Performance Management (EPM) system to ensure employees receive the right career support and help when establishing targets and developing training plans.

#### Training offering for our customers

We extend our culture of lifelong learning to our customers, as well with our <u>Application & Training Centers</u> and specialist schools around the world.

Bühler has Application & Training Centers in 25 locations, some of which cover multiple industrial applications located around the globe where we offer dedicated trainings for our customers and provide them with a platform to test new product ideas and experiment with product innovations. Bühler's Application & Training Centers also provide the opportunity to share knowledge and learn from specialists while providing access to the latest generation of Bühler technologies and so support customers in providing learning to their employees.



Food safety 60 second spotlight with Edyta Margas.

We continue to offer lifelong learning to our customers through our different specialist schools around the globe, including the Milling Academy in Uzwil, Switzerland, the African Milling School in Nairobi, Kenya, the Cocoa Competence Center CFIA, Abidjan, Côte d'Ivoire, and the International Rice Milling Academy in Bengaluru, India. For example, at our African Milling school in Nairobi, Kenya, 25 Apprentice Millers graduated in 2023 and over 230 students have completed courses. Since its opening in 2015, over 1,300 students have trained at the African Milling School. Students come from over 25 countries including Nigeria, Egypt, Algeria, Azerbajian, Pakistan, Oman, Sudan, Burundi, Rwanda, Ghana, Cameroun, Guinea, Senegal, Lebanon, and Jordan. Courses are offered in En-

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glish and French, and include Wheat Milling, Feed Milling, Maize Milling, Baking Technology and Flour Lab, Electrical and Mechanical Maintenance, Optical Sorting. Over 80 Bühler employees also participated in courses at the African Milling School in 2023.

In 2023, Bühler joined forces with Aiducation International, Syngenta, and Swiss Study Foundation to launch a Kenyan summer school initiative exploring how to sustainably develop Africa's contribution to the global food ecosystem. Over ten days 36 students engaged in insightful sessions, thought-provoking discussions, and exciting field trips, including visits to Bühler customers to learn about the diversity and richness of the food system and its opportunities. Each student completed the course by presenting their innovative solution to an expert jury.

## Food safety and sustainability training for customers and employees

Food safety training plays a vital role in our business, for our customers and employees. In 2023, 692 employees received food safety training, of whom 37 attended intensive workshops (more than 1 day). Since we began the food safety training in 2010, in total 6,903 colleagues have been trained, of whom 1,319 have attended intensive workshops. For our customers, we have held 12 customer events in 2023 with food safety on the agenda, in Switzerland, China, India, US, Canada, and Mexico, as well as global online webinars.

In 2023, we provided sustainability training for 770 people including external trainings for customers and technical schools, as well as internal training programs for Bühler sales, R&D, and management. We ran 39 webinars, conferences, and workshops on the topic. The external trainings, which reached approximately 403 people, included conferences, events, courses, and tailored 1:1 knowledge transfer workshop with Bühler environmental impact



Jasmin and Alina take us on a tour through their place of apprenticeship, Bühler Appenzell.

services. In all trainings (external and internal), Bühler embedded sustainability knowledge as a key element to promote awareness on the topic and support enabling our people, customers, and ecosystems to implement effective strategies and solutions to reach impact reduction targets.

#### Vocational training: skilling up the next generation

In 2023, Bühler trained 544 apprentices globally, 293 of whom were trained in Switzerland. Apprenticeship programs are run in 23 locations across Europe, North and South America, Middle East and Africa, and South Asia. These apprenticeships are based on the Swiss dual-vocational model, a global benchmark that has been adapted by other countries, where students receive a mix of practical and academic training. These three-and-four-year courses cover nine different vocational fields with courses continually evolv-

ing to meet the changing skill sets required by companies. Of those completing their apprenticeships in August 2023, 82% of them chose employment with Bühler. A new cohort of 85 apprentices, of whom 20% were women, joined the new intake 2023. Since the foundation of the program in 1915, 8,333 apprentices have trained at Bühler in Switzerland.

Thirteen of the 52 apprentices who qualified for IndustrySkills 2023, held in Bern and Uzwil, came from the Bühler talent pool, six of whom won awards. In the discipline Industry 4.0, Maurin Schickli won gold. The second gold medal was awarded to Florentin Kaufmann, who took first place as an automation technician. Both have the chance to represent Bühler at the WorldSkills 2024 in Lyon and earn medals by winning the SwissSkills Championships. IndustrySkills 2023 was partially hosted in the new Bühler Energy Center. We are proud to announce that Bühler apprentice Noel Rhyner qualified for the national Schweizer Jugend forscht competition, which is a first for Bühler.

As part of the vocational learning program, Bühler is also focusing on upskilling the trainers who deliver the learning programs at our training centers around the globe. The program aims to help trainers better blend online and face-to-face training, plan effective learning paths, make online training more interactive, and provide coaching skills for learning facilitators.

To help our apprentices familiarize themselves with Bühler's culture and learn virtually about the Bühler campus in Uzwil, the TOP Trail app was launched. Plans are in place to role this out globally.

#### Caring about the person not just the employee

The June 2023 opening of the <u>Bühler Energy Center</u> at our head-quarters in Uzwil, Switzerland, is a manifestation of our holistic approach to the health and wellbeing of our employees. The Bühler Energy Center has three pillars of focus.



Watch the video of the opening of the Bühler Energy Center.

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The first is Health & Lifestyle, with a focus on health management, where employees of all ages are able to enhance their individual health skills and stay fit. Information is also given on nutrition, exercise, recreation, and stress management while health consultations on travel and fitness, along with lifestyle checkups are available.

The second pillar is Lifelong Learning, with a focus on vocational and adult education, offering state-of-the-art training opportunities for automation technicians, plant and apparatus engineers, polymechanics, design engineers, commercial apprentices, computer scientists and more. It is setting a new milestone for lifelong learning providing colleagues with the tools for long-term and sustainable success. New didactic methods developed with the University of Applied Sciences in St. Gallen take into account individual learning needs and interests.

Finally, there is the Prototyping & Production pillar with a focus on new manufacturing technologies. This is where prototypes and functional models as well as series parts for our products are produced enabling professional cooperation between the research and development departments of the business units.

These three pillars form the basis for well-being, performance, and resilience while having a significant impact on creativity and innovative strength. They are also important for maintaining business continuity, especially under difficult or changing conditions.

#### High performance leadership

Creating a caring culture across the company also requires skilled and empathetic leadership. Throughout 2023 Bühler has continued to strengthen its leadership capability by running targeted programs suitable for employees at different points of experience and seniority.

Over recent years Bühler has developed its TOP leadership program, which took the hundred most senior leaders and provided them with the tools to drive culture transformation through high performance teams. These principles continue to be rolled out throughout the organization to ensure that all our team leaders have the skills to create a culture of inclusion, psychological safety, and trust while providing the sort of effective feedback that helps drive performance. In 2023 we have run over 100 workshops for leaders and their teams, in total for over 1,000 participants to help embed this methodology throughout the organization so that our teams can perform at their best to help Bühler deliver on our purpose of innovations for a better world.

In the course of 2023 Bühler has expanded its local flagship Basics in Bühler Management (BBM) program beyond Switzerland to a European regional level to enable a far wider networking community from a diverse group of managers from across Europe. These pan-European networks will become the bedrock for the future exchange of ideas and support.







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60 second spotlight videos: Female Leaders.

In 2023, we ran our global Masters in Bühler Management (MBM), where we take around 30 mid-level leaders from across the globe with high potential on a year-long journey to further develop their abilities to lead and manage teams and strengthen their business acumen and innovation capabilities. Participants are challenged to balance short-term operational thinking with a longer-term strategic view. The program is run in cooperation with HULT/EF Corporate Education and run in a hybrid format with two face-to-face training weeks and all other relevant content taught in online sessions. During the closing week, participants have the opportunity to visit the École Polytechnique Fédérale de Lausanne (EPFL) and exchange with and learn from startups from the MassChallenge network. To enhance their understanding of business innovation these

future leaders also work on their own business projects, each one being sponsored by the Executive Board, and present their findings to Bühler business leaders.

In 2023 we were pleased to see colleagues from China participate again in person in development programs. They participated both in the Advanced Leadership Program (ALP), our global leadership development program for experienced leaders, as well as in the Excelerator Developmental Assessment Centers, where we recognize high potential talents, develop their specific needs, and then develop them to greatest effect from within the company.

#### Sales and service engineer academies

Bühler's Sales Academy and Service Academy focus on upskilling the global salesforce and field engineers with dedicated onboarding and training programs. This ensures that frontline staff are highly adaptable and able to react quickly to dynamic market changes. Up to the end August, the Service Academy in collaboration with other academies delivered 34 courses through the B-Learning platform with a total of 7,995 hours and 346 attendees. It also achieved 91% completion on LOTO (Lock-Out Tag-Out) safety training in Field Service and Workshops. Together the Service Academy and the Sales Academy developed a global Sales Skills Matrix template and ran a pilot with two regions. Together they also developed a soft-skills training on communication basics for field service engineers.

Bühler is also dedicating resources and time to developing sales and field service engineer skills. In 2023, Bühler launched its "Financial and Commercial for Sales – Level 1" pilot in Europe and



Watch the video of the visit by Bühler North America President & CEO Andy Sharpe and other members of the PFS Board to Zambia.

India with more than 40 sales colleagues trained to date and a full rollout expected in 2024. An "Effective Communication for Sales" pilot module was launched with 12 participants, with full roll out expected throughout 2024. Over the past 2.5 years, 405 sales colleagues have received training through the existing "Transitional Sales Workshop".

#### Educational partnerships

Partnership is fundamental to Bühler's working practices, a principle that extends to helping develop the next generation of business talent. We continue to support Partners in Food Solutions (PFS), an independent nonprofit organization, to help strengthen food security, nutrition, and economic development in Africa by providing

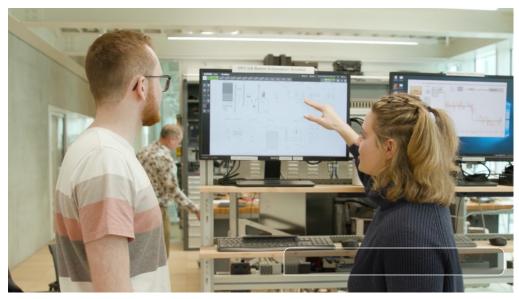
Our people

volunteer consultation to African entrepreneurs in the food sector. Over the year 68 Bühler employees engaged in 71 different activities contributing more than 870 hours while working with 60 customers across ten countries. PFS estimates that by sharing Bühler expertise it has helped a supplier base of more than 171,000 farmers and helped produce nearly 6.2 billion nutritious meal servings.

In partnership with ETH Zurich in Switzerland and Ashesi University in Ghana, Bühler offers a Masters in Mechatronic Engineering to develop young talents in Africa and bridge the gap between academia and the professional world.

Every year interviews are held for industry partners to evaluate and sponsor students for the program. Once enrolled, the students begin their academic course in the university and visit the Bühler offices twice every year to undergo training. In 2023, Bühler sponsored three students to the Masters in Mechatronics studies. Currently we have nine students under our sponsorship.

Bühler also works in partnership with UNITECH International, a leadership development program for talented STEM students comprised of eight distinguished technical universities and 14 multinational companies. Throughout their UNITECH year, students undergo a coaching and training program to build the required skills to interact optimally in the corporate world. Bühler has participated in a variety of UNITECH events, including the Mid-term Week, Fireside Chat, General Assembly, and Career Interviews while providing two



Watch the video to find out how Bühler Generation B celebrated International Day of Women and Girls in Science.

coaches to support students through their program development and assignments. Bühler has also hosted nine interns in a Germany and Switzerland.

Working in collaboration with Leeds University in the UK and ZHAW School of Management and Law in Switzerland, in 2023 Bühler hosted two groups of students - 30 MSc Human Resources Management and Management students in April, and 20 MSc International Business students in June. The visits included a presentation on Bühler and HR topics, an insight into Generation B and sustainability at Bühler, and tours of the Application & Training Centers and the CUBIC Innovation Campus to help them gain insight into Bühler's business.

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## **OUR COLLABORATIVE ECOSYSTEM**

Bühler has consciously driven an ecosystem-based approach to innovation for more than 15 years with the goal of forming businesses that contribute to solving some of the burning issues of our times. Through collaboration we can do this faster. Today, our growing global network of academic partners, start-ups, NGOs, customers, and suppliers contribute to delivering pioneering technology and business solutions that help to meet the needs of a growing global population sustainably. Here are some examples of our many partnerships.

Find more information about our collaborative ecosystem on our website.

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