

Introduction

Defining Materiality

How Belimo Creates Value

Our Value Creation Model serves as a guideline for how we think about the topics that are the most relevant for us and our stakeholders.

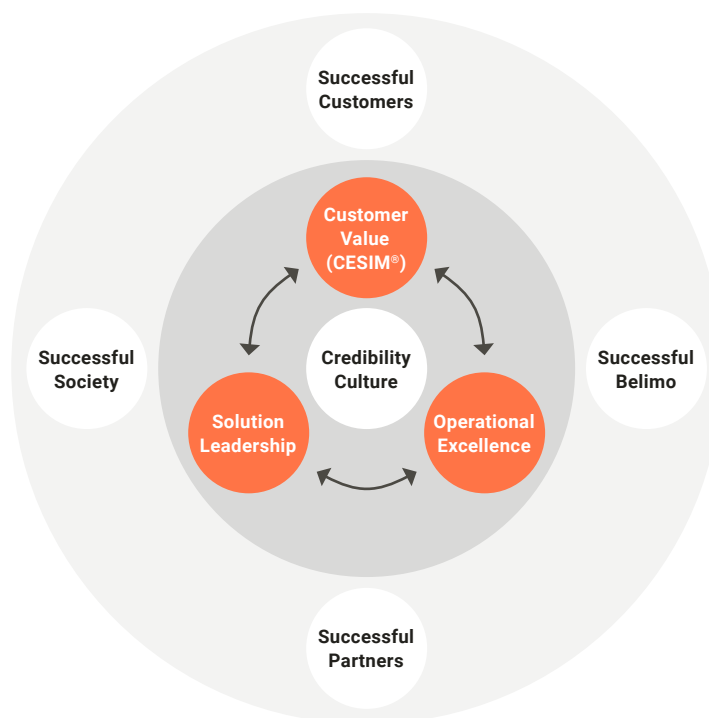
Commitment, credibility and reliability characterize our behavior. Therefore, Belimo sees its Credibility Culture at the heart of its value creation model that enables us to deliver more value to our customers than they expect and more than others can offer.

Our focus is on our customers' success. The three pillars that lead them to success are: Operational Excellence, Solution Leadership and Customer Value. Consistent implementation of these pillars not only enables success for our customers, but also success for Belimo, success for our partners as well as success for society.

Success Through Operational Excellence

Operational Excellence ensures that the products we deliver are top-quality, extremely reliable, and have short lead times. Quality, deadlines and costs are our priorities. We are constantly enhancing our processes

Belimo Value Creation Model



by regularly examining how we work. We learn from our mistakes by reviewing the causes in detail and taking systematic steps to improve.

We focus on improving our skills in the areas that allow us to deliver more customer value. We source other areas of expertise from reliable suppliers, and aim to work in close partnership with them. The criteria that apply to suppliers are similar to those that apply to us. We invest in our employees to enhance our skill levels.

Success Through Solution Leadership

Research and market-relevant innovation as well as rapid and customized execution are key for us.

Belimo delivers more than just products. We support our customers with innovative, efficient and energy-optimizing solutions and bring success to both our customers and ourselves. We are close to our customers throughout the world; we speak their language and we understand them.

We continuously invest in innovation in order to develop superior solutions.

Success Through Customer Value (CESIM®)

We differentiate ourselves from our competitors through the high level of customer benefits from our products and services. Added value for our customers is the measure of our success. The method for innovating building technology with our actuators, valves, and sensors is CESIM®. It ensures that our “small” Belimo devices have a big impact on **C**omfort, **E**nergy, **S**afety, **I**nstallation, and **M**aintenance.


With its customer-oriented method CESIM®, Belimo focuses on greater comfort and ensures both optimum indoor air quality and higher energy efficiency. In addition, the method guarantees safety for people and animals as well as protection of property, while guaranteeing easy installation and commissioning of its products with low maintenance requirements. In 2019, numerous employees worldwide were trained in CESIM®.

Assessing Materiality (GRI 102-46)


Determining the topics that are most relevant for Company's role in supporting sustainable development, responding to stakeholder interests, and ensuring long-

CESIM®: The Benefits of Belimo Solutions (Click on the Icon to Watch the Corresponding Video)




Comfort: Belimo devices offer a precision controlled, comfortable room environment that is essential for the well-being and productivity of people. 




Energy Efficiency: Smart control of heating, cooling and ventilation loads has a major impact on the energy efficiency of buildings. 




Safety: Belimo safety actuators save lives and help minimize damage to buildings and tangible assets. 



Installation: Ease of installation and fast commissioning save time. 



Maintenance: Low maintenance and quality customer service directly impact building operations. 

term success in the marketplace is an essential step in forming the foundation for corporate strategic management and sustainability reporting.

To achieve this, Belimo has determined relevant topics by means of a materiality assessment according to three dimensions: strategic relevance for the business, impact on sustainable development, and relevance for key stakeholder groups of Belimo. By identifying these topics and implementing the following steps to address these material topics, Belimo aims to strengthen its stakeholder relationships, monitor high-level opportunities, safeguard against risks, and maintain its successful mid- and long-term growth performance.

An overview of the topics identified in the process, which started with an industry and peer evaluation and was developed in dialogue with group management across the Company, is provided in the resulting materiality map (see graph below).

The materiality map provides an overview of topics determined to be most material or relevant for the impact on sustainable development (horizontal axis) and interests of stakeholders (vertical axis).

The focus of this report lies on the dark gray “Interact,” “Impact” and “Focus”-topics. Topics most relevant for business are considered in particular in the further development of the Company’s strategic priorities.

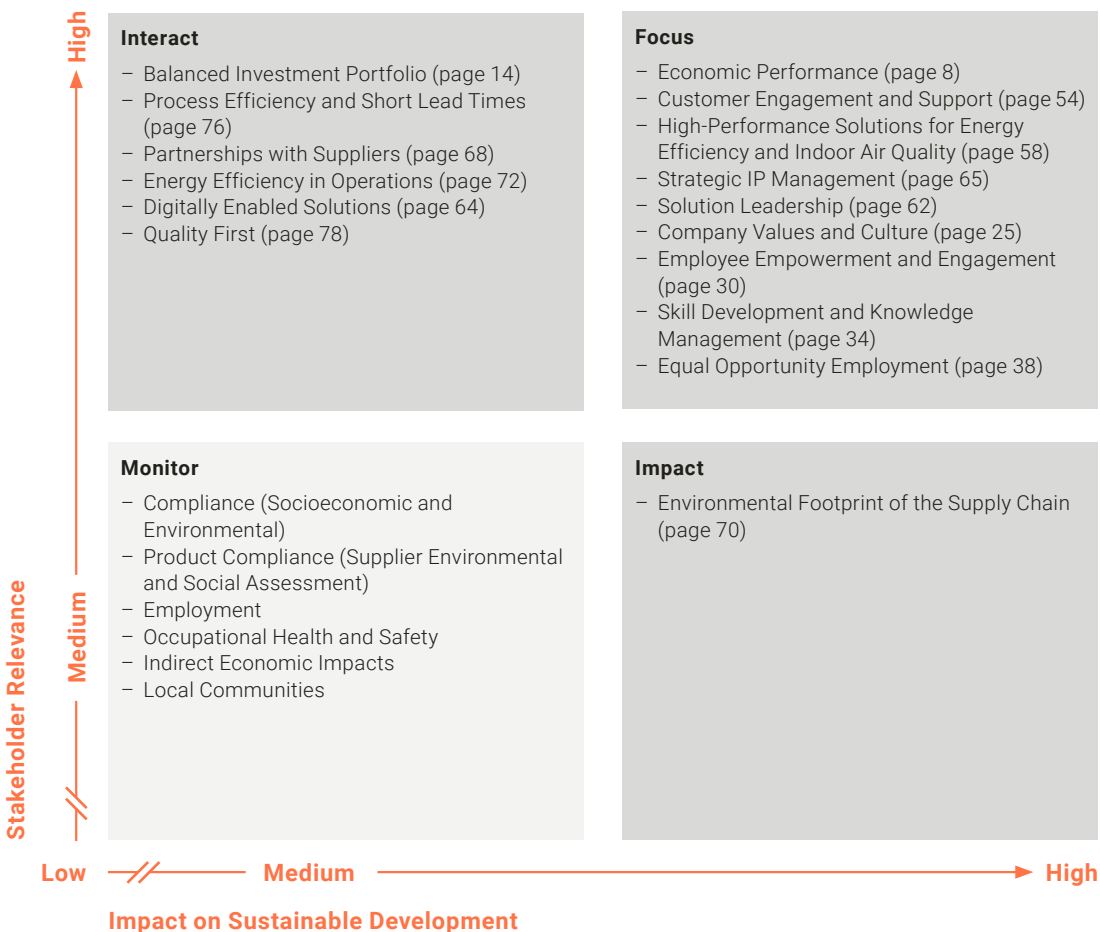
Our Answer to Megatrends

Structural growth drivers in the core markets of Belimo consist of the four following long-term megatrends:

Urbanization: Promoting Well-Being and Indoor Air Quality

As the population globally shifts from rural areas to urban areas, more and more people are leading mod-

Belimo Materiality Map (GRI 102-47)



ern, urban lifestyles and spending 90 percent of their day indoors. State-of-the-art building automation and reliable HVAC components (heating, ventilation and air conditioning) are indispensable to satisfy increasing demands on room climates.

Energy Efficiency: Increased Energy Efficiency

As buildings currently consume 40 percent of the world’s energy, smart control of HVAC systems has a major impact on global energy efficiency. In most regions of the world, regulations increasingly support rising energy efficiency standards for HVAC equipment and encourage energy-efficiency-driven building renovations. Belimo products are making a difference.

Safety in Buildings: Higher to the Sky/Deeper into the Ground

Urbanization means more buildings in less space with unusual designs, mixed use and increasing complexity. This poses new challenges in protecting lives and assets, making technical fire protection through motorized fire and smoke control dampers more important than ever.

Digitization: Welcoming the Age of Transparency

Digitization of the building automation industry offers new powerful toolsets to analyze and optimize HVAC systems. Be it in the form of data analytics, monitoring, predictive maintenance or digital support of the commissioning phase, the applications for smart performance devices are seemingly endless.

External Initiatives and Association Memberships



Belimo has been a member of the UN Global Compact since 2013 and is committed to environmental protection, responsible working practices, human rights and protection against corruption. The United Nations Global Compact is the largest international initiative for responsible company management. As a trusted partner around the world, Belimo and its employees are committed to the HVAC industry and are actively involved in associations that sponsor research and formulate codes and standards. This involvement keeps us close to our customer needs and directs our investment in innovative, efficient, and energy-optimizing solutions. An extensive list of affiliated organizations can be found on our website:

www.belimo.com/en_US/about/belimo/affiliated-organizations

UN Sustainable Development Goals Index

Belimo directly contributes to the Sustainable Development Goals (SDG). By incorporating the UN Global Compact principles into strategies, policies, and procedures, Belimo not only upholds its basic responsibilities to people and the planet, but also sets the stage for the long-term success of our industry.



Good Health and Well-Being:

Belimo provides indoor air quality for the comfort of its occupants and enables critical applications (page 57).



Affordable and Clean Energy:

With smart HVAC controls, Belimo makes a contribution to double the global rate of improvement in energy efficiency (page 61).



Decent Work and Economic Growth:

With its sustained economic growth, Belimo continuously creates new, excellent workplaces (page 12).



Industry, Innovation and Infrastructure:

Belimo field devices drive energy efficiency of buildings and contribute to their resilience (page 62).



Sustainable Cities and Communities:

Belimo helps make cities more sustainable and safer (page 64).



Responsible Consumption and Production:

Belimo upholds sustainable procurement practices and environmental management standards (page 75).



Climate Action:

Through their application, Belimo products save energy and reduce CO₂ emissions (page 61).

Key Figures

	2019	2018 restated ¹⁾	Change
in CHF million			
Net sales	692.7	642.4	7.8%
Operating income before interest, taxes, depreciation, amortization (EBITDA) in percent of net sales	154.2 22.3%	135.0 21.0%	14.2%
Operating income before interest and taxes (EBIT) in percent of net sales	123.9 17.9%	109.8 17.1%	12.8%
Net income in percent of net sales	121.1 17.5%	86.2 13.4%	40.5%
Cash effective investments in property, plant and equipment and intangible assets	40.7	20.5	98.4%
Cash flow from operating activities in percent of net sales	125.4 18.1%	113.9 17.7%	10.1%
Free cash flow in percent of net sales	83.9 12.1%	94.3 14.7%	-11.0%
in percent			
Return on equity (ROE)	25.6	20.3	
Return on invested capital (ROIC)	27.8	27.8	
in CHF			
Earnings per share	197.00	140.22	40.5%
Dividend per share	150.00	100.00	50.0%
Number of employees (FTEs) as at December 31			
	1 789	1 640	9.0%
Actuators shipped, in million items	7.2	6.7	6.2%
Total CO ₂ impact of Belimo devices (in tons of CO ₂ e)	- 7 558 620	-	-

¹⁾ Restatement of non-current employee benefits. For additional information see note 1.3 of the financial report 2019.

Value added and its distribution

Significant GRI disclosures for the creation and distribution of value in accordance with GRI Standards can be found in the financial report.

Direct economic value added

- Sales and operating profit: see Consolidated Financial Statement Belimo Group, Consolidated Income Statement
- Personnel expenses: see Notes to the Consolidated Financial Statements Belimo Group, Note 4 Personnel Expenses
- Income Taxes: see Notes to the Consolidated Financial Statements Belimo Group, Note 7 Income Taxes
- Payments to the providers of capital: see Consolidated Financial Statement Belimo Group, Consolidated Statements of Cash Flows

Economic value retained

Investments in and divestments of tangible and intangible assets: see Consolidated Financial Statement Belimo Group, Consolidated Statements of Cash Flows

Management Approach

Balancing Investments In Our Product Portfolio

To ensure long-term success, it is essential for Belimo to maintain a balanced investment portfolio. This involves keeping the right balance between investments in existing and new business areas. In its existing business, Belimo focuses on maintaining the broadest, most innovative product range, while in the new business, Belimo aims to create growth opportunities through unique and innovative solution offerings. Investments in product innovation, training and marketing must be balanced as well. This guarantees a pull for innovative offerings and that the Belimo sales force and its partners are well-trained and motivated to penetrate the market. Balanced investments also serve as a risk mitigation strategy: Credibility in new business areas accelerates the introduction of new offerings and shields off competition from existing offerings.

How We Manage Our Portfolio

Balancing investments between existing and new business is mainly the responsibility of the Markets & Innovation Committee (M&I), a formal team of senior Belimo executives from all three regions. The M&I carefully assesses and prioritizes the projects that are to be released for development. Balancing investments between innovation, marketing and training is part of the annual strategy process of the Executive Committee that is reviewed by the Board of Directors. The assignment of an executive business owner and a strategy coach to each of the four initiatives, an implementation strategy, as well as a progress review on a quarterly basis ensure that opera-

tions and existing business activities are given sufficient consideration from management.

Regular Strategic Controlling

To ensure balanced allocation between investments into the different areas of the company, it is necessary to track the following operative figures: planning (five years), budgeting (yearly) and controlling of innovation costs per strategic growth initiative ("strategy is where the money goes"). Other crucial factors include: planning, budgeting and controlling cost for innovation, marketing and training. The growth initiatives and the above key figures are discussed and adjusted in the annual strategy process by the Executive Committee and are confirmed by the Board of Directors. Once confirmed they become part of the "Belimo Strategy Map." Respective KPIs of each initiative are tracked and discussed on a quarterly basis by the Executive Committee and key management of the respective initiative.

Employee Portrait: Mei Cheung

Providing Structure



Ever since joining Belimo 23 years ago, Mei Cheung has been in charge of laying the foundations of continuous growth in the Asia Pacific market region.

It was while Mei Cheung was working for a manufacturing company in the mid-nineties when she met her future boss Rolf Schweizer. He asked her whether she wanted to join Belimo. "I had two options at that time – either working in an auditing position or joining Belimo. I had to think this through thoroughly, and I opted for Belimo."

Why? "Because I was interested in building up the company – and Rolf made me a good offer," Cheung laughs. Twenty-three years have now passed since Cheung joined the company in Hong Kong.

Pioneering Times

It was at times back then; and the scale was very different compared to today: Belimo Hong Kong employed two persons and had only

eight Million Hong Kong Dollars in yearly sales. Cheung started working in a small office. While looking for a warehouse she and her co-worker started managing the importing and exporting of actuators. "Sales were not something that I wanted to do nor could do with my educational background in accounting, so firstly we hired a salesperson." Once beginning her new role, which also included responsibilities for China as well as South East Asia, Cheung quickly saw the direction of growth and the next step.

New Boss, New Growth

As Matthias Haas succeeded Rolf Schweizer in 2000, Belimo moved to a new building in the Shatin area. "Since rental space is costly in Hong Kong, finding a decent-sized

place where the company could rent for a long time was crucial," Cheung says.

The next tasks on her strategy map were to set up a company in China, India as well as other branches under Belimo Hong Kong, such as Japan in 2008. During that time, sales growth proved to be steady. However, a bustling economy also brought challenges with it: employee turnover in China was high, and people left the company after a short time. "Double-digit growth in China made it easy for people to change jobs," Cheung remembers.

To stabilize staff turnover, the management team of Belimo Hong Kong introduced incentives, such as rewarding staff with five-year anniversary gifts and extra benefits. The sales figures were sometimes not in line with the national growth rate, and the premises created a challenge. Cheung recalls: "Our office facilities were not like the ones we have today, which made it even harder to keep good people". With no back office and a constant lack of qualified people to support her, the business was even more challenging. Another difficulty was offering Chinese customers good payment terms, therefore, causing complications when doing transactions.

Established Brand

Things improved when they changed their setup in Belimo China from a representative office to a limited company. Cheung and her team hired salespersons in Shanghai, where the representative office was first located, then moved it into a commercial building until finally arriving at the current location in an industrial building with almost 5 000 square meters. All this helped to lower turnover while at the same time, the brand be-

came established in China and sales went up.

In the background, Cheung continuously provided the necessary budget to contribute to this steady growth. To do so, she recalls having many discussions with the CFO/CEO. "They gave us a benchmark on how much we could spend. However, I must say, I've been very pleased to get continuous support from our headquarters in terms of budget – as long as sales were keeping up."

Investments paid off

Succeeding Gary Economides' start at Belimo in 2012 there has been continuous sales growth. Finally, the hard years of foundation work paid off. "We couldn't see the results at the time when we invested in the countries – hiring the people, getting familiar with the markets, understanding them, etc.," Cheung says, "so, it was a great relief when it finally paid off."

Although the property market is exceptionally costly, Hong Kong still offers many advantages for a headquarters of the Asia Pacific region, such as a free trade port, no duties, fast import and export service as well as logistic arrangements. The subsidiary in Kuala Lumpur (Malaysia) opened in 2018 meanwhile improved customer service and logistics to Malaysia, Singapore, Indonesia and Thailand.

What furthermore speaks for Hong Kong, Mei Cheung says half-jokingly, is that Swiss visitors do not need a visa, and vice versa, which makes it easy to travel. As her main contribution to the Strategic Growth Initiative "Grow Asia-Pacific", Cheung sees three points: providing the structure to Belimo, understanding of the market as well as ensuring a set-up according to the local growth strategy.

Short-Portrait

Position at Belimo Hong Kong.

As Head of Financial Services Asia Pacific, Mei Cheung is responsible for accounting, operations and logistics between Hinwil and Asia Pacific regions.

Daily Routine.

Mei keeps the department heads posted of any budget overruns, reviews sales figures and contribution margins. Moreover, she manages compliance tasks, such as distributor agreements. Further, Mei coordinates many other tasks across Asia Pacific to improve team cohesiveness.

Being the oldest member of staff by age of service, Mei is always happy to give advice to younger peers.

Daily commute.

25 – 40 minutes one way.

What makes working at BELIMO special?

Its trust culture.

Hobbies

Walking her dog as well as cycling with husband and son.

Family

Married, a 14-year-old daughter and a 10-year-old son.

Credibility Culture

Company Values and Culture

Creating and Living a Unique Culture

An excellent company culture is essential for loyal customers and a sustainable competitive advantage.

Customer loyalty generally starts with an organization's well-defined purpose and a substantial investment. For Belimo, the purpose of the Company is CESIM® (see page 5), while creating impact through the development, production and marketing of actuators, valves, and sensors for HVAC systems. Utterly important for maintaining a competitive advantage in its field is the Company's internal service quality, which unites seamless processes with training and a "quality first" attitude (see page 78). Belimo believes that this forms the foundation, on which employee loyalty can thrive. If processes did not function properly, disagreements would be inevitable and in turn hamper the development of a loyal work force. A healthy cultural environment, in contrast, allows better results in recruiting to be achieved – a crucial advantage especially in emerging markets and raises employee tenure. An overall longer professional experience and in consequence greater efficiency leads to overall better employee performance. The better the professional experience of its employees, the better the external service quality a company is able to offer. This includes excellent outside/inside sales and technical support, fast and reliable logistics and efficient handling of quality issues. The resulting outstanding customer service leads to greater customer satisfaction, positioning the brand in front of its competitors. The goal of Belimo, however, is not only to have satisfied customers. Its goal is to offer superior customer value by exceeding their expectations. By doing so on a regular basis, true customer loyalty is created. And as loyal customers are willing to pay a premium for their flawless experience, this leads to higher revenues from demand (customers) as well as efficiency through operational excellence from supply (costs), consequently resulting in above-average profitability.

Key Platform: New Employee Trainings

The principles for interacting with internal and external stakeholders are set forth in our vision, mission statement, values/code of conduct as well as our purpose (CESIM®, see page 5). They are, in this order and according to the Belimo management model, crucial to follow and practice. In case of misconduct, a strict policy for corrective actions has been implemented. Moreover, Belimo believes that an excellent company culture mitigates risks, since possible misconduct or risks will be more quickly identified. These values also mean that employees contact the appropriate person in the event of perceived violations of applicable laws or ethical standards. Leadership trainings (see interview on page 27), continuous communication of our vision, mission and values are key measures to convey company values and culture. New employees learn about the values and quality standards during their introduction to the Company (new employee training). Because 86 percent of product manufacturing costs at Belimo are incurred in a network of suppliers and partners, the cultural aspects do not end at the organization's borders. It is within the interest of Belimo to also promote an outstanding company culture with its suppliers (see page 68).

Putting Values Into Practice

We evaluate the success of our company values and culture through employee surveys and feedback from new employees. The results of the survey process are evaluated by a team and an improvement plan – where required – is defined that is monitored by Human Resources (HR). Each employee's long-term ability to internalize and put those values into practice is assessed within the scope of the annual employee performance appraisal interview. Moreover, average employee tenure is measured and benchmarked against the industry standards. The high average length of nine years at its Hinwil headquarters underlines the extent of employee loyalty and identification with the Company values.

Information on Employees as at December 31, 2019

		Danbury (Connecticut, USA)	Hinwil (Switzerland)	All Other Belimo Subsidiaries	Belimo Group	In % of Belimo Group
Total employees						
Headcount		428	849	589	1 866	
Full time equivalents (FTEs)		425	786	578	1 789	
Employees by employment contract (in FTEs)						
Permanent/indefinite	Female	180	282	162	624	35
	Male	245	461	412	1 118	62
Temporary/fixed	Female	0	26	3	29	2
	Male	0	17	1	18	1
Employees by employment type (in FTEs)						
Full-time	Female	178	196	145	519	29
	Male	243	411	407	1 061	59
Part-time	Female	1	112	20	133	8
	Male	3	67	6	76	4
Employees covered by collective bargaining agreements (GRI 102-41)						
As percentage of the total workforce		0 ¹⁾	0 ¹⁾	20 ²⁾	6	

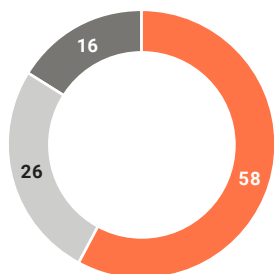
¹⁾ In Switzerland and the USA the employees are not covered by a collective bargaining agreement.

²⁾ Average of all other Belimo Subsidiaries in percent on a headcount-basis.

Employees by Region

FTEs, as at December 31, 2019

in %

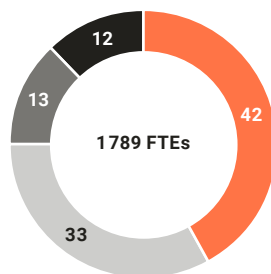


- Europe: 58%
- Americas: 26%
- Asia Pacific: 16%

Employees by Function

FTEs, as at December 31, 2019

in %

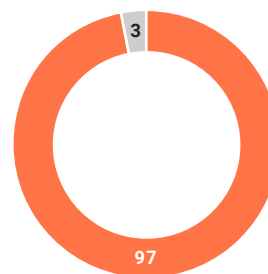


- Assembly, logistics: 42%
- Sale, marketing and distribution: 33%
- Research, development: 13%
- Administration, management: 12%

Employees by Employment Contract

FTEs, as at December 31, 2019

in %



- Permanent: 97%
- Temporary: 3%

Interview: Leadership Excellence



“Clean-Tech and True Humanity”

Rudolf Potocnik facilitates leadership-training courses at Belimo. He talks about the program “Together to the Top with Leadership Excellence” and shares his insights into the corporate culture at Belimo.

You have been giving seminars on the subject of change management for almost ten years. What brought you to Belimo?

About eight years ago, Belimo asked if I would conduct in-house seminars on change management. Following a pilot event with the extended group executive committee, change management was included in the Belimo training program for all managers and has been held two to three times a year ever since.

How did the new program “Together to the Top with Leadership Excellence” take shape?

Three years ago, HR started planning an international leadership seminar combining the topic of transformational leadership with training units to strengthen the corporate culture of Belimo together with the Company values and Code of Conduct.

The program should be rolled out internationally and geared to all management levels. This is why the Group Executive Committee has also contributed to the development of the program and has integrated two important topics. Namely “The 7 Habits of Highly Effective People” by S. Covey and the concept of “The Five Dysfunctions of a Team” by L. B. Lencioni.

Another important aspect was to use this series of seminars as a platform for the group executives to engage in a half-day management conversation with the participants. At each training event, the CEO and one member of the Group Executive Committee present and discuss the Belimo growth strategy as well as function and organization of the formal network organization at Belimo.



Dr. Rudolf Potocnik (second from right) is an organizational psychologist and managing partner at Potocnik-Neulinger-Partners, based in Salzburg (Austria). He is an expert in leadership excellence, transformational leadership and change management. As a consultant and coach, he accompanies executives and management teams in change processes.

What role do leadership theories play in relation to leadership practice?

The seminars – or rather the workshops – follow the training principles of experiential learning. The methodical approach to each topic is the participants' previous personal experiences. Thus, the leadership practice at Belimo is the permanent anchor for the participants' learning.

Do inputs about leadership psychology and research findings serve as theoretical platforms?

Altogether, this has to be in line with the rather flat hierarchy at Belimo as well as with the functional and non-functional – and often multiple – leadership roles of the participants. E.g., lateral leadership in the formal network organization or in project management.

Modern, participative management concepts such as Transformational Leadership, Servant Leadership, Leadership 4.0, etc., are discussed. In regard to corporate culture, a global company also needs to consider what the preferred long-term best fit of leadership approaches is for the demands of the future organizational strategy, including national and cultural contexts.

What are other main aspects for Belimo?

Belimo is a highly successful, growing company in a dynamic, global environment. It is important for the entire workforce to grow personally and professionally at the speed of growth of the Company. Managers must remain learners; even if they are already advanced on their own growth and development curve. Only with this mind and skill set, they will be perceived as authentic role models, lead their employees into a successful future for everyone, and develop the Company together in such a way that Belimo remains Belimo in terms of its high aspirations and values. To achieve this, Transformational Leadership provides the overall guidelines.

How is the implementation in everyday leadership routines prepared and supported?

This is a very important goal. To reach this goal, the seminar is highly interactive and focuses strongly on the day-to-day practice of the participants. Right from the beginning, everyone is oriented towards its individual learning goals and leadership practice, which keeps the motivation and commitment for implementation high.

In peer-to-peer coaching partnerships, participants support one another in formulating their implementation goals and their individual back home program. These coaching partnerships are continued for three months after the seminar. Colleagues commit to support one other in the process of shaping new leadership habits back in their area of responsibility. Regularly held "After Action Reviews" facilitate the implementation process, help to stay on track, and to make course corrections if necessary.

After all these trainings, you must certainly have a picture how Belimo ticks.

Belimo has and is a unique culture. Based on its history, Belimo lives by values that are similar to those of a grown up start-up company. What comes in mind when I think of Belimo is an exceptionally high level of customer orientation, direct and fast communication and open interactions in a rather flat hierarchy. In sum, a pronounced culture of unforced humbleness together with a high sense of collegiality and partnership – just to mention a few cultural qualities.

In other words, stakeholders experience Belimo as an innovative,

highly reliable high-tech company with an authentic people touch. Especially in Hinwil, its culture seems to be grounded in strong local roots and comes across in a friendly encounter of Swissness of engaged and competent professionals.

Other companies may envy Belimo for its culture with their efforts to stay or to become “agile”...

True, Belimo serves as a benchmark for a company easy to deal with and fun to work for! Employees who have been with the company for long sometime worry that these values and culture might get lost due to the bigger size and accelerated growth of the company. Unfortunately, culture does not directly show up as an asset in the balance sheet.

And do managers help to support this culture?

Yes, absolutely! And this holds true for the younger managers as well who have not been with the company for so long. They all share the “Belimo-Spirit”. This became particularly evident in the personal commitments, shown during the discussion of Belimo culture and values. Experienced and less experienced leaders openly show and stand up for their individual contribution to enhance and reinforce the values and Code of Conduct of Belimo. Belimo people are proud of their culture and values. But they are also becoming aware that, as Belimo managers, they bear great responsibility for maintaining and enhancing the successful Belimo-way.

This goes beyond the individual area of responsibility and extends to the broader area of personal influence as far as to include business partners along the whole customer journey.

However, this heightened cultural sensitivity can lead to frustration and disappointment if someone experiences that not everyone is equally concerned. But to speak up and to be influential is part of the commitments given by the participant from all over the world to the Company.

The shadow of this culture could be an increased need for harmony, with the possible tendency of conflict avoidance when dealing with controversial issues. Understanding these dynamics, including dysfunctions in teams, help to overcome these tendencies, which of course is an important part of the leadership role.

How far up does this extend in the hierarchy?

As any other company, Belimo has a variety of different leadership personalities with varying histories and lengths of service. This contributes to a lively and open conversation amongst passionate managers, and certainly stands out as a strength in a company that is both innovative and growth-oriented, and a powerful player in a global competitive environment.

Dealing constructively with this diversity in style and opinion can be challenging at times. Upper level leaders are role models of how to go about this sort of issues, without getting involved in power struggles and stay true to the Belimo way.

Where do you perceive divergences from other corporate cultures?

What stands out in other companies – especially with less attention on cultural qualities – especially in ones of bigger size – is a strong reliance on regulations and formalities vs. trust in values and people.

This leads to a more control-oriented management style where people are regarded simply as means to an end. You might call these cultures over-managed and under-led with a loss of nimbleness and customer orientation in the long run.

Eventually, cultural dysfunctions can become severe management issues and finally slowing processes and deteriorating business results.

But the Belimo culture forms part of its success, which is why it should remain so at the core ...

Precisely! It explains why Belimo enjoys such a high level of customer loyalty. And as an employer, Belimo is known for its highly regarded employer brand value leading to its enviable high retention rate.

In sum, this is why the intense discussion of team and corporate culture plays a prominent role in this seminar: For strengthening the highly successful and admired Belimo way. By leaders heading for the top for Belimo and themselves in the future of the Company.



“Short decision-making lines, empowerment as far down the line as possible, closeness

to the customer and a high degree of identification of our employees with the company are the basis for creativity and innovation and, consequently, the reason why Belimo is always one step ahead with its market development.”

Heinz Hütte, Co-Founder of Belimo and former Chairman of the Board of Directors (Annual Report 1996)

Employee Empowerment and Engagement

Empowering Our Employees

Employee engagement is critical for the success of Belimo. Employees are empowered through a high level of autonomy and responsibility in the decision-making process for their specific organizational tasks.

In times of growth, Belimo is challenged to retain its successful company culture and empower its employees. Belimo believes that satisfied employees directly lead to highly engaged customers. An empowered and engaged workforce is therefore essential to succeed in the market by maintaining a high level of customer support and innovation leadership. Belimo regards the continuous engagement of its employees not only as a competitive advantage but also as beneficial to all other stakeholders.

Training and Role Models

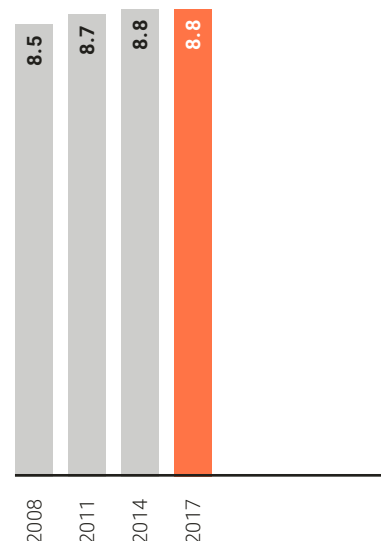
For Belimo, employee empowerment and engagement begin with transparent communication and a culture of trust. Creating a trusting work environment where employees can thrive and unlock their full potential is a main aspiration of Belimo. Direct and open communication about mistakes is therefore essential. To ensure that employees remain empowered and engaged, Belimo regularly holds management trainings on its corporate mission and values. It is the key responsibility of managers across all levels to act as role models within the company and represent the values of Belimo accordingly. Belimo also regularly supports social and team building events.

Excellent Employee Engagement

In order to assess employee engagement, Belimo conducts a group-wide employee survey every three years. The 2017 employee survey met with a response rate of 92 percent and an engagement score of 8.8 (see chart below). On a scale from 1 (lowest rating) to 10 (highest rating), this value describes the extent to which the topics of identification, motivation and commitment are present among employees. Within the context of the survey, Belimo employees are asked questions anonymously on central workplace subjects such as job content, structures and procedures, collaboration, the Executive Committee, dealing with changes, management by superiors, employee promotion and remuneration. Detailed results are analyzed by the individual teams around the world and used to implement corre-

Employee Engagement

Scale from 1 (lowest rating) to 10 (highest rating)



sponding measures. In order to continuously improve engagement, Belimo aims to implement the feedback gained from the employee surveys. Belimo also monitors employee turnover to assess its success in Human Resources Management. Among other topics, managers are trained to foster participation as well as a trial-and-error culture and align their decision-making process with the mission and values of Belimo.

Health and Safety at the Workplace

Ergonomic workstations, relief exercises, workplace exchanges organized by teams to prevent monotony in work routines and regular training courses ensure a pleasant and organized work environment. This enables employees to deliver extraordinary performance.

Continuous investments are made in occupational safety and ergonomics, which are reviewed on-site with the involvement of external consultants. The program to promote occupational health includes targeted relaxation and strengthening exercises, training in workplace ergonomics as well as other topic-specific activities and lectures.

The first-aid teams in Hinwil and Danbury are regularly trained on how to handle various medical emergencies. The safety concept is regularly reviewed with evacuation exercises without notice.

The restaurants BELGUSTO in Hinwil and Belimo Bistro in Danbury offer employees the opportunity to eat healthy and at affordable prices while meeting colleagues from other departments, supporting cross-collaboration.

Story: Credibility Culture

Top – with
no need for a
“Ms. Top”



The team optimization process or Top process emphasizes the ambition of Belimo to empower employees so that they can contribute to the Company's success. The Top process offers representatives of all levels of the hierarchy a platform for submitting, evaluating and implementing suggestions for improvement.

In 2011, Belimo adopted the lean approach, in which all group leaders in production underwent lean management training. This soon gave rise to the question: How should the group leaders pass on their knowledge to the production employees?

"One approach was to pass on the success factors of 'one piece flow' to them via gaming and joint exercises," recalls Peter Kälin, Production Manager. For example, cardboard workstations were created to simulate processes. "That was actually the starting signal for Top," Kälin says. The name of the program actually stems from our slogan "Together to the Top". In the meantime, Top has developed into a continual improvement process at Belimo, which regulates how problems that have been identified are dealt with in production. Personnel issues between employees are explicitly removed from the process – instead, the emphasis is on preventing all different types of waste, machine time, ensuring safety and maintaining order and cleanliness.

Basic Democratic Process

To describe the actual status of the problem and the solution approach, problem finders fill out the "Top cards," which hang on a "Top wall" in each team island, and place them in the "New Suggestions" compartment. Two to three times per month, as part of a "Top meeting," the team then discusses the cards and clears up any ambiguities on site.

In addition to empty Top cards and an "Inbox," on the Top wall there are also fields for cards that are currently being processed, cards with topics that have already been implemented, as well as the rules of the game and a process visualization. "When introducing Top the most important thing was not preventing simple suggestions," Kälin says. "Otherwise we would have run the risk that people would stop making suggestions very quickly."

In a basic democratic decision, without any interference from supervisors, it is finally decided whether the suggestion will be implemented or not. If yes, the team members jointly define the procedure for solving the problem and decide on a person who will be responsible for implementing the suggestion, as well as an implementation deadline. Kälin: "For 'simple' suggestions, so-called small orders, the responsible person should be located as deep in the hierarchy as possible." For more profound suggestions, a work order to maintenance is triggered via Top card. If the suggestion goes even further, if necessary suppliers must also be involved – and a so-called "Ae" process is initiated. All of these considerations are noted on the card. Kälin: "It is important that, even if the decision is negative, the reason for the rejection is noted on the card."

Over 500 Suggestions

The advances of the individual measures are each monitored at every Top meeting – which means that the cards "in process" are gone through jointly. The goal is to complete improvements that have been discussed within two weeks. Four weeks after implementation the result is assessed, with a "re-check" of the solution's effectiveness. Finally, once per quarter, the three best suggestions from all lines are presented by the department managers in front of all groups and division managers in a "Top 3 meeting." "For the sake of joint learning, in this context failures and reasons for rejection are also presented," Kälin says.

In 2019, this method resulted in 516 suggestions being implemented from 290 employees. Kälin: "There is no Ms. Top – the process is lived by everyone."

An employee passes along a "Top card". Each card carries the actual status of the problem and the solution approach. Several times per month, the team then discusses the cards as part of a "Top meeting."



Skill Development and Knowledge Management

Fostering Skills in the Organization

Since knowledgeable employees are critical to ensure operational excellence and solution leadership, Belimo supports its employees in developing their specialist knowledge.

Acquiring the necessary knowledge ensures that employees are fully proficient in their tasks, responsibilities and corporate culture. In short: Belimo sees properly trained employees as essential to providing value to customers. Moreover, effectively managing skills development and knowledge also supports employer branding: It assists talent attraction and employee retention through facilitating their continued engagement. Likewise, it also helps employees maintain or increase their employability by preparing them for future changes in technology and expertise.

Learning Management

The deliberate management of skill development ensures employees receive the necessary training to succeed in their roles. To embrace all training functions for customers and employees, Belimo has established a global training organization with teams in Asia Pacific, Americas and Europe and has implemented a Learning Management System in the US and Asia Pacific, which provides E-learning content to employees and allows tracking of trainings and certifications. There are also plans to enhance E-learning and blended learning offers in the future. Belimo works at all levels with a performance and behavioral appraisal system. This includes regular status reports on the achievement of individual goals, employee performance appraisals and appropriate measures. Individual development planning is completed and discussed at regular employee reviews. This is based on the Belimo competence model and supports

individual development planning. Appraisal reviews including the assessment of core competencies, a competency matrix for assemblers, career paths and career development plans serve as a basis for deciding which employees should receive training.

Comprehensive induction programs ensure that new employees are efficiently inducted into their field of work and the corporate culture. An internal training program enables knowledge and skills to be continuously adapted to the tasks at hand. Employees' personal development is also supported. Time spent abroad at one of the Company's other locations is considered an opportunity for professional and personal development and brings added value to the Company. Managers around the world regularly complete training courses on leadership issues. For example, all managers complete a three-day leadership course aimed at discussing Belimo values and strategies and enhancing leadership skills (see page 27). Belimo offers career path planning for both managers and professional specialists. Belimo also supports individual further education financially.

Keeping Track of Training Days

Belimo tracks expenses for internal and external courses, days of training per employee, and monitors the average degree of fulfilment of the core competencies. Also, it commonly collects feedback forms after trainings and addresses the topic skills development and knowledge management in the periodical employee survey. The Learning Management System further enables Belimo to document employee trainings. Systematic succession planning as well as identification and training of skills needed in the future (new technologies, new products, new services) is crucial and to will be tackled in the years ahead. Keeping the required skillset of the workforce up to date remains an ongoing challenge.

Training and Education Overview

	Danbury (Connecticut, USA)	Hinwil (Switzerland)	All Other Belimo Subsidiaries	Belimo Group
Average hours of training per employee 2019				
Total number of training hours divided by total number of employees	22 hours/year	26 hours/year	23 hours/year	24 hours/year

Programs for improving employee skills and transition assistance programs

Type and scope of programs implemented and assistance provided to increase employee skills.	<p>Methodical Experience</p> <p>Methodical experience includes general knowledge that is important across disciplines. It comprises the ability to apply specific learning and working methods necessary for the acquisition and development of expertise. Belimo offers a wide range of courses for developing such abilities, e.g. presentation skills, project management, leading and moderating of workshops, introduction to HVAC and building technology etc.</p>			
	<p>Social Competency</p> <p>Social competencies are key to our current working environment, as social skills form the basis to working together smoothly. They include among others fostering a certain level of empathy, teamwork and communication readiness. Courses offered to our employees include, for example, effective communication, negotiation and conflict management, intercultural competences as well as language courses.</p>			
	<p>Leadership Skills</p> <p>Belimo understands leadership skills as the abilities of individuals to help oversee processes, guide initiatives and projects and steer their employees towards the achievement of goals and customer expectations. Besides a Global Leadership Course, which takes place on regular base, additional offerings include, e.g. the essence of leadership, succeeding as a supervisor, change management, health promotion, "The 7 Habits of Highly Effective People", etc.</p>			
Transition assistance programs provided to facilitate continued employability and manage the end of careers, resulting from retirement or termination of employment.	Not applicable; USA do not offer transition assistance programs for retirement or termination of employment in the US.	Courses are offered as preparation for retirement. Also, Belimo occasionally offers outplacement services in case the employer terminates the working relationship.		

Employees receiving regular performance and career development reviews 2019

As a percentage of the total workforce	100%	100%	100%	100%
As a percentage of the workforce with management functions	100%	100%	100%	100%
As a percentage of the workforce without management functions	100%	100%	100%	100%

Supporting the Talent of Tomorrow

Together with local schools, Belimo helps students in Hinwil (Switzerland) to choose a profession and provides insight into everyday working life. This offer attracts great interest in the region and has therefore been further expanded. Meanwhile, the STEM initiative in Danbury (Connecticut, USA) aims to stimulate children's curiosity and interest in Science, Technology, Engineering and Mathematics. In workshops, representatives of local Belimo management use practical examples to show the children how these disciplines are applied in product development and ultimately how energy-efficient HVAC systems make a contribution to the environment.

To promote new talent, Belimo provides apprenticeships to 21 trainees in six different professional areas at its Hinwil site. Belimo also offers places for selected apprentices looking to combine their basic vocational training with a career in top-level sport. This requires a flexible education program that fits working hours around their physical training and competitions. For this, Belimo is recognized by Swiss Olympic as a competitive-, sports-friendly apprenticeship company. As part of the promotion of new talent, all apprentices are given a project order each year that they are to plan and carry out by themselves with a specified budget. All apprentices are involved in this program. The result of this project work is presented at the annual parents' evening. The project order and the organization of the parents' evening are both entirely the responsibility of the apprentices. The apprentices complete their training with a final examination, and in 2019 some even obtained awards. Belimo offers them employment opportunities even after they have completed their training. This is often used to bridge the time until they commence further study or military service. In order to ensure optimal training and supervision, vocational instructors are regularly coached.

Belimo conducts yearly visiting days for children of employees at its sites around the world. The daughters and sons accompany their parents for a whole day, gaining some insight into their work.

Equal Opportunity Employment

Offering Equal Opportunities

The success of Belimo is only possible thanks to the shared commitment of its employees. Our workforce encompasses a vast range of different cultures and nationalities.

In order to be a reliable partner that always bases its actions on the highest level of integrity, Belimo sees cultural diversity, equal treatment of all genders as well as the prevention of any kind of discrimination as crucial. Belimo is convinced that the workforce should reflect the diversity of the population, as diverse perspectives strengthen the Company's knowledge base. This, in turn, offers a competitive advantage. Belimo is convinced that all stakeholders benefit from equal opportunity employment, especially suppliers (compliance requirements), customers (best solutions) as well as existing employees, for whom equal opportunity employment is a main pillar in a culture of trust. It also optimally positions Belimo in the area of employer branding.

Guided by Our Code of Conduct

Belimo is committed to a work environment in which all individuals are treated with respect and dignity, free from all forms of discrimination, harassment, and retaliation. The Belimo Mission Statement has been supplemented by a Code of Conduct, which applies to all employees in their business practices with both external and internal partners. Currently, employees report cases of perceived violations of applicable law or ethical standards to their supervisors. To further foster a culture of trust and credibility, employees are encouraged to report such cases through a globally accessible incident/breach notification channel that has been implemented by the end of 2019.

Belimo attaches great importance to ensuring that women and men receive equal pay for work of equal value. Special attention is also paid to gender equality in salary adjustments.

Moreover, the Company is particularly proud of its integration of people with physical or mental disabilities. Ability Beyond in the US, Sonnhalde in the Zurich Oberland region (Switzerland), Foundation Brändi in Willisau (Switzerland) as well as the Swiss residential and employment center for people with restricted mobility (IWAZ) in Switzerland are examples for schemes Belimo is involved in to find gainful employment for individuals with disabilities. Our many years of cooperation with these organizations are an established part of corporate culture at Belimo, providing work for roughly 120 people. The production division in Hinwil has been running an additional pilot project with IWAZ employees since January 2017, involving assembling, testing and packaging actuators on an assembly line. Learn more about the collaboration with Ability Beyond on page 40.

Equal Opportunity Employer

In order to improve its performance as an equal opportunity employer, Belimo tracks the following KPIs: percentage of genders employed, age structure, diversity of nationalities/languages, results of the employee survey, the proportion of women in a management position, as well as gender pay gap. The latter has been reviewed using the LOGIB tool (a self-test to evaluate the gender pay gap). For Switzerland, no gender pay gap was identified. In the US, Belimo is required to file annual EEO-1 statistic, which provides a breakdown of the data by gender, ethnicity and predefined job categories to the U.S. Equal Employment Opportunity Commission. The part-time working models offered are equally valued by employees and the Company itself. In Hinwil, 23 percent of the employees have chosen this model.

Diversity of Governance Bodies and Employees as at December 31, 2019 (Headcount Figures)

	Danbury (Connecticut, USA)	Hinwil (Switzerland)	All Other Belimo Subsidiaries	Belimo Group	In % of Belimo Group
Employees without Management Functions					
Female	169	329	114	612	48
Male	202	232	216	650	52
<30 years	55	96	55	206	16
30 – 50 years	169	334	198	701	56
>50 years	147	131	77	355	28
Employees with Management Functions					
Female	12	25	59	96	16
Male	44	258	199	501	84
<30 years	0	3	8	11	2
30 – 50 years	27	189	191	407	68
>50 years	29	91	59	179	30
Executive Management¹⁾					
Female	0	0	0	0	0
Male	1	5	1	7	100
<30 years	0	0	0	0	0
30 – 50 years	0	1	1	2	29
>50 years	1	4	0	5	71
Board of Directors²⁾					
Female	0	1	0	1	20
Male	0	4	0	4	80
<30 years	0	0	0	0	0
30 – 50 years	0	2	0	2	40
>50 years	0	3	0	3	60
Disability-Employment-Schemes					
	Danbury	Hinwil	Off Site	Group	
Number of individuals with disabilities working for Belimo in the context of disability-employment-schemes ³⁾	33	6	80	119 ⁴⁾	

¹⁾ The percentage of women on level Executive Management at Belimo deviates by –7 percentage points from the manufacturing industry average in Switzerland of 7 percent.

²⁾ The percentage of women on level Board of Directors deviates by +6 percentage points from the industry average in Switzerland of 14 percent. (Source: Schillingreport 2019 www.schillingreport.ch/content/uploads/sites/2/2019/06/sr_2019_EN_final_web.pdf)

³⁾ Individuals are employed by the respective organizations, not by Belimo directly.

⁴⁾ All Sonnalde associates (45 individuals), all associates of Brändi Foundation (25 individuals) and a part of IWAZ associates (10 individuals) are performing work on the premises of the respective institutions.

Discrimination 2019

	Danbury (Connecticut, USA)	Hinwil (Switzerland)	All Other Belimo Subsidiaries	Belimo Group
Number of discrimination incidents and corrective actions taken				
Discrimination incidents (e.g. on grounds of race, color, sex, religion, political opinion, national extraction, or social origin as defined by the International Labour Organization) and corrective actions taken ¹⁾	0	0	0	0

¹⁾ A policy prohibiting workplace harassment and discrimination is implemented. A globally accessible incident / breach notification channel has been implemented by the end of 2019.

“A win-win collaboration”



Belimo and Ability Beyond have been working together for 20 years. While Belimo values the partnership as a key provider in its supply chain, Ability Beyond associates are gaining greater independence through training and job placement. And, more importantly: feel part of a team.

Initially in 1999, Belimo began working with Ability Beyond. Back then, material was shipped to the facility of the non-profit organization and processed there. “But over time, and as the Belimo facility grew, we made a home for them inside our building”, says Dan Hobbs, Vice President of Production Belimo Americas.

In 2005, when Belimo expanded its previous building in Danbury, the Company included a work area for Ability Beyond crews. “This allowed us to move into a more inclusive community based work site”, remembers Ability Beyond-associate Bridget Kopet. With easier access to more of the materials on site, the number of job types Ability Beyond was able to perform increased.

“This gave our crew a chance to learn new skills: We were able to increase the turnaround times for job orders, becoming more efficient for the production needs of Belimo”, says Ability Beyond staff Diane Strom.

Counting and Kitting

In 2014, with the new building Belimo again included Ability Beyond as a trusted partner in the planning and development of a new work area. And Ability Beyond was again able to increase the number of individuals who could work at the Company. Their main tasks comprise the counting and kitting of the bag and label kits, which are shipped with almost every valve actuator combination. In their three

shifts, each being 3 hours long beginning at 9:30 am and finishing at 8:00 pm, assembling 0.9 million pieces in 2019 alone.

"This has been a win-win collaboration for both companies", says Belimo-VP Hobbs. He sees the Ability Beyond team as key providers in the Belimo supply chain: "They play a huge role in fulfilling our kitting operations, putting together nearly a million units annually," says Hobbs. "Having them on site gives us a maximum degree of flexibility for priorities, and they do a great job integrating the associates into the Belimo team." It's a win-win – Belimo gains a great supplier, and the Ability Beyond associates gain valuable work life experience.

Also, Diane Strom praises the flexibility of the program: "The relationship we have with Belimo enables us to develop flexible schedules that allow us to meet each individual's needs and interests. The various types of jobs we complete for Belimo allows the staff to match the skill level of each person to the jobs, while meeting the expectations of Belimo. We can also then help them build their skills as they work on more complex jobs."

Satisfaction and Pride

Over the last 20 years, all the Ability Beyond staff who worked at Belimo have been positively impacted by working in such a welcoming setting where they feel they are a valued member of the Belimo work force. Bridget Kopet: "This has given them a great work and social experience resulting in great satisfaction and personal pride. Many of them are flourishing thanks to the arrangement and have been able to truly strengthen their life skills."

When asked about what Belimo means to them, Ability Beyond staff

Craig Lynch said: "It is a very inclusive relationship with Belimo. They include the individuals and interact with the Ability Beyond crews throughout the day every day. They have a large variety of job opportunities that allow individuals with different skill levels to work and be productive and proud of their work."

And Ability Beyond associate Bridget Kopet commented: "Working side by side with people with

disabilities brings about the awareness that everyone is capable of working and being a productive members of the community. It also proves that we all share the same hopes and dream of wanting a fulfilling job in life."

For the foreseeable future, Belimo does not see the arrangement changing, says Hobbs: "It works very well for both sides, why would we do anything different?"

Currently, 33 clients and 11 staff are involved in the Ability Beyond program with Belimo, with all of them living nearby – some with family and some at group homes. Remuneration of the

individuals involved in the program is managed by Ability Beyond, as they are employees of the non-profit organization. Belimo pays a piece part price for each kit assembled.



Customer Value

Customer Engagement and Support

Engaging with Our Customers

Superior customer support is essential for any company seeking to achieve and sustain a leading position in the HVAC industry – an industry that is complex and characterized by an ever-expanding array of new technologies.

With its mission to be the global leader in actuator, valve and sensor solutions, Belimo has customer support engrained in its corporate culture. Customer Engagement and Support helps strengthen the competitive advantage of the Company and further enhance market differentiation by improving the ease of doing business. The high-class customer support of Belimo is also a way of demonstrating that this is “the way we feel people should be treated.” As Belimo regularly introduces new technologies, the Company offers to assist clients to overcome their fear of the unknown and help to quicken market acceptance of new solutions.

Crucial Consistency

Departments at Belimo that work directly with customers, such as sales, customer service, technical support, field support, product management, credit and collections are responsible for managing Customer Engagement and Support. The three region Heads (Members of the Executive Committee) with direct regional access to customers are ultimately responsible for customer satisfaction. By maintaining a highly qualified sales force of more than 200 sales engineers, Belimo ensures every customer receives expert advice.

The consistency of customer engagement activities is crucial for the brand. Belimo, therefore, relies on well-documented internal policies and procedures to ensure employees are aware of their responsibilities

as well as upstream and downstream value creation processes. A Customer Relationship Management (CRM) tool that has been in place since 2017 supports employees in managing this topic. In addition, a global customer journey was defined in 2019. It serves as a frame of reference for the global web, e-commerce and social media presence of Belimo.

Customer Issue Tracking System

Belimo reviews its management of Customer Engagement and Support by conducting surveys and tracking material returns. In 2018, Belimo was rated the “Best technical support company of the year” by Control-Trends, a US-based controls industry association. In order to further advance such topics, Belimo has implemented a customer issue tracking system in 2019, allowing the Company to assess its effectiveness in resolving customer issues.

In case of a product complaint, Belimo applies a structured process to quickly resolve the issue. After closing the product complaint, a systematic phone survey is conducted: A Belimo quality manager calls each customer to gather feedback, to measure our performance and to ensure that the case has been completely resolved. This process was fully implemented in 2019. 100 percent of customers have been fairly/very satisfied with the frequency of the communication as well as with the attitude of Belimo managers in the course of the process. 97 percent are satisfied with overall complaint handling, which Belimo sees as a strong indicator of the effectiveness of its approach.

“Savings
That We Can
Really See”



The Belimo Energy Valve™ represents an easy to install, cost-effective option for resolving low delta T issues in district cooling systems. The successful implementation at the state-owned Citizen's Plaza in Nashville (Tennessee, USA) perfectly illustrates the benefits of this solution.

District cooling is the centralized production and distribution of cooling energy. Chilled water is delivered from an energy plant through underground pipelines to commercial, industrial and residential buildings to provide air conditioning using on-site heat exchangers. The water is then returned to the central energy plant. This approach eliminates the need for each building to have its own chillers – with the aim of lowering carbon footprints and increasing energy efficiency – but relies on each building within the network to use the chilled water effectively.

Why Is Low Delta T An Issue?

For air-conditioning systems, the chilled water supplied to a building must be used efficiently to cool the air circulated in the building, without returning too much of the “cooling energy” back to the district cooling plant. Utility companies supplying district cooling therefore set a target for the increase in water temperature returning to the plant – known as the delta T – based on the design of the building and air-conditioning equipment. Inefficient use of chilled water results in low delta T values – in



A partnership based on open dialogue and trust: **Kevin Leathers**, District Sales Manager at Belimo, **David Riffle**, Belimo Regional Application Consultant and **Chad Lovell**, Operations and Safety Specialist at Jones Lang LaSalle (from left) teamed up to optimize the performance of the Belimo Energy Valves™ installed at Citizen's Plaza.

which the water returning to the plant is cooler than intended. This leads to thermal inefficiency surcharges, higher energy consumption, and can also affect building comfort. This condition is known as "low delta T syndrome," and is especially problematic for older buildings, which are likely to have less efficient systems due to the original equipment design or degradation in performance.

About Citizen's Plaza

Citizen's Plaza is a state-owned and occupied 15-story building in downtown Nashville (Tennessee, USA). Constructed in 1984, this 25 600 square meters (276 000 square feet) facility can house from 800 to 1 200 government staff when fully occupied. Citizen's Plaza is supplied chilled water and steam by Metro Nashville District Energy System – a central plant on the Cumberland River serving 42 buildings across the district – and has historically struggled with thermal inefficiency surcharges due to over-pumping

chilled water leading to low delta T values. Chad Lovell, Operations and Safety Specialist at Jones Lang LaSalle (JLL), is responsible for operations at Citizen's Plaza, and explains the issue: "Basically, they were pushing water too fast through the building to achieve good thermal transfer. The contract with Metro Nashville District Energy System required the building to achieve a delta T of 8.1 °C (14.5 °F), but it was only managing 2.3 to 4.5 °C (4 to 8 °F). This resulted in thermal inefficiency surcharges of around USD 12 000 to 13 000 per month. When JLL assumed responsibility for the building in 2014, we knew we needed a strategy to increase the delta T and occupant comfort so we rolled up our sleeves to find a solution."

Enter Belimo

One of the biggest challenges for organizations wishing to resolve low delta T issues is knowing where to start. Belimo understands this, and invests heavily in customer

education and engagement to provide cost-effective, efficient and practical solutions for each individual project. "I went to a Belimo seminar where they presented the Company's various products and solutions, and the Belimo Energy Valve™ really caught my eye," Chad continues. "After the seminar I approached the Belimo team, explained my situation, and we scheduled a meeting the very next week."

Kevin Leathers, District Sales Manager at Belimo, describes the Company's approach to the project: "On our first visit to Citizens Plaza, we really just verified what we already knew. It was a standard office building with air handlers on each floor, and identical set-ups on floors 3 to 14. As is typical for a building of this age, it had oversized air handlers, over-sized globe valves and oversized coils, which made it a perfect candidate for the Belimo Energy Valve™ solution. We also had all the original drawings of the air-conditioning system, giving us complete confidence that

we could lower their chilled water usage, optimize heat transfer between the coils and air handlers, and as a result improve delta T performance.”

An Effective Pilot

The Belimo team discussed their findings with Chad Lovell and JLL, and together decided that the next step would involve a pilot project with Belimo Energy Valves™ on one lower, one middle and one upper floor. Following installation, the Belimo team used their experience to determine flow rate profiles for each valve that would help reduce chilled water consumption without compromising building comfort. After three months, the team returned to further optimize performance, utilizing the data taken directly from the valves and the Belimo Energy Valve™ data analysis tool. David Riffle, Belimo Regional Application Consultant, notes: “Based on the data, we saw dramatic reductions in flow and delta T went up – the overall delta T for the building increased by 1.2 °C (2 °F) from just three valves! Looking at the data from a single Belimo Energy Valve™, we could see that the Belimo Delta T Manager™ logic restricted flow to prevent a low delta T issue around 27 percent of the time. Without the Belimo Energy Valve™, this would have resulted in 1.7 million liters (446 000 gallons) of water being supplied over 13 months, whereas the actual volume supplied was only 0.6 million liters (160 000 gallons) – saving over 1.1 million liters (280 000 gallons) of chilled water. We were then able to calculate savings for the entire building based on changing the valves in all of the air handlers.”


Chad continues, “The proof of concept was a major success – it exceeded my expectations. Just from installing three valves, we saw

immediately that our delta T was more manageable and, in 2015, we equipped the entire building.”

Shared Success

A partnership based on open dialogue and trust was key to the success of the Citizen’s Plaza project, using a limited scale pilot study to demonstrate the value and efficacy of the Belimo Energy Valve™ solution. By working together with Chad and the JLL team, Belimo was able to use its knowledge and expertise to deliver unprecedented savings and reduce the building’s environmental impact. Steve Rybka, a Mechanical Contractor Consultant at Belimo, commented, “This project was about taking a calculated risk to solve a customer’s problem, regardless of the cause. Based on the initial meeting and survey, we were confident that we had the technology and expertise to mitigate the low delta T issues, and we worked closely with Chad and his team to make it happen.”

“Overall it was a very successful project,” Chad concludes. “We have been able to reduce chilled water pumping at Citizen’s Plaza by 49 percent thanks to the valves. We have since gone on to use the Belimo Energy Valve™ in a number of other projects with similar success. Our chilled water consumption has dropped so much that our district energy provider asked to send out an engineer, because there seemed to be a problem. It was a joy to tell them that “there is no problem, the building is just performing like you have never seen before. It was very exciting and felt great to have confirmation that the Belimo Energy Valves™ offer savings that we can really see.”

 View the video that tells the whole story.



UN Sustainable Development Goals Approach

Good, comfortable room climates are essential,

as it impacts people’s productivity and the way they feel. Belimo contributes to SDG 3 “Good Health and Well-Being” by ensuring optimum indoor air quality, the highest level of room comfort and well-being in rooms. Its intelligent HVAC components control the major factors affecting room climate: temperature, humidity, air flow, and indoor air quality (the concentration of CO₂ and Volatile Organic Compounds – VOCs). Tightly controlling these factors also enables critical processes such as in surgery rooms in hospitals, data centers, etc.

High-Performance Solutions for Energy Efficiency and Indoor Air Quality

Quantifying Our Impact

Belimo associates sustainability not only with the goal of minimizing CO₂ effects of its own business processes, but also with increasing the positive effects of utilizing Belimo products in the field.

The products manufactured by Belimo facilitate application solutions for creating measurable sustainability benefits to save energy in buildings' HVAC systems. With the aim of achieving excellent comfort in buildings and in rooms, these systems consume energy. The HVAC control system, in which Belimo field devices are integrated, is designed to accurately control comfort parameters (temperature, humidity, CO₂ level) but also to operate the HVAC processes in the most energy efficient manner possible. Belimo sets the standard when it comes to energy efficient control components, for example with its low power consumption actuators, tight-closing ball-valves with no leakage or Belimo Energy Valves™ for optimizing thermal energy-flows in buildings.

Modelling Along Six Steps

In order to quantify positive energy leverage, Belimo has established a model that assesses the impact of its field devices over their lifecycle in a typical HVAC system. A common air-handling and ventilation system was chosen as a proxy for energy-impact modelling, including one air-handling unit (AHU) and 25 air-outlets with variable air volume control (VAV). Typical global thermal loads for heating and cooling and electrical energy for ventilation were assumed. The model then calculated the contribution to energy savings of two types of typical Belimo field devices that are sold in high volumes for such applications. For air-side applications, the VAV-control actuator

LMV-D3-MP was chosen. For water-side applications, the valve R2025-16-S2 in combination with the valve-actuator LR24A-SR was chosen, a combination that is often used in air-handling units.

The energy-impact model is structured along six lifecycle steps of a field device: 1. resources, 2. manufacturing, 3. distribution, 4. operation, 5. energy saving, and 6. recycling.

1. Resources

The model first takes account of "gray" energy-content included in materials used to build a typical field device. These encompass steel, copper, aluminum, plastics, electronics and cardboard. While each type of raw material exhibits a different energy impact according to their weight per unit, they also differ in value due to their underlying energy intensity.

3.6 kg CO₂e per air-side actuator / 6.0 kg CO₂e per water valve and actuator (in one life-cycle): To keep utilized resources at the lowest level possible, environmental responsibility at Belimo begins with product design. Local sourcing, automated manufacturing, weight and material reduction, etc. help to continuously lower this factor.

2. Manufacturing

Also taken into account in our model is the energy needed to manufacture the field devices and to assemble and test them. In order to approximate this impact, typical values for manufacturing metals, plastics and electronics components used in the field devices are considered. The weights of the air-side actuators and control valves are used to determine the manufacturing energy necessary for each unit.

1.1 kg CO₂e per air-side actuator / 2.5 kg CO₂e per water valve and actuator (in one life-cycle): Ongoing optimization of current products leads to considerable material and energy savings during the manufacturing process. The product development process takes into account the entire useful life and customers' compli-

Management Approach

Energy Efficiency Delivered

Optimizing the energy use of buildings offers huge energy savings potential, as buildings are responsible for some 40 percent of worldwide energy consumption and climate-damaging CO₂ emissions. HVAC systems account for 40 percent of all energy used in buildings – research showing that 30 percent thereof is lost due to insufficiently controlled systems. Smart control of HVAC systems has a major impact on the energy efficiency of buildings. With its products, Belimo actively contributes to sustainable development. Exerting leadership in this area also promises to be a competitive advantage for Belimo.

Training Is Key

The main approach of Belimo to maintain leadership is by training customers as well as building owners/operators. Trainings are also conducted internally, as employees need to understand the superior energy efficiency that Belimo products provide (see also “Skill Development and Knowledge Management”, page 34). The “E” in the customer-oriented method CESIM® (see page 5) indicates that high-energy efficiency is an imperative in the development process. Strategically conforming new products to CESIM® is a critical factor in the selection process of development projects being pursued. The Markets & Innovation Committee (M&I) is responsible for the selection of such projects. This body made up of members of the three sales regions elaborate the M&I roadmap in regular meetings together with product management, the Group Divisions Innovation and Strategy.

Tracking Margins and Sales

The completion of development milestones according to CESIM® are tracked as part of the M&I process. Key performance indicators for subsequent success in the market are the contribution margin (CM) analysis as well as the number of quality-cases (external and internal) in comparison with the total number of sold products. A new data source, which is being introduced, is live data from IoT devices regarding energy use and energy savings during operation.

CO₂ Impact of a Belimo Field Device

Weighted average impact of an air-side and water-side actuator in kg of CO₂e



With 5.2 million new air-side actuators and 2.0 million valves and actuators shipped in 2019, Belimo helps prevent 7.6 million tons of CO₂e over the entire lifecycle of its products.

ance requirements, which include optimization of used materials in the manufacturing process according to recognized guidelines and standards.

3. Distribution

The model also takes into account the average amount of transportation energy needed to deliver a Belimo field device from the factory to the customer. Assumptions are made on the transportation paths commonly used, being mainly rail, road and sea-freight, in exceptional cases also air-freight.

0.1 kg CO₂e per air-side actuator / 0.2 kg CO₂e per water valve and actuator (in one life-cycle): Optimal shipping coordination results in low carbon emissions, as only a minority of field devices is shipped by air freight, thanks to the ever-expanding network of Belimo customizing centers across the globe.

4. Operation

Subsequently, the energy of a Belimo field device used during operation is calculated, taking into account the energy used in standby mode and when actuating.

47 kg CO₂e per air-side actuator / 26.9 kg CO₂e per water valve and actuator (in one life-cycle): In our model, a conservative service life of 15 years is assumed, while the actual lifetime is often 20 years and longer, made possible by the high quality and reliability of components used in Belimo actuators.

Designed for minimum power consumption during operation, our model shows that actuators exhibit their peak CO₂ output during this phase. However, the long service life of the actuators and valves helps drive this factor down to a minimum. Also, thanks to our best-in-class motor technology, our actuators consume up

to 80 percent less energy compared to others. The air-side actuator in our model uses just 0.4 watt in standby mode, much less than competitor products.

5. Energy Saving

To calculate energy savings realized with a Belimo control device in an HVAC system, the European standard EN 15232-2017 “Energy performance of buildings – Impact of Building Automation, Control and Building Management” (BACS) is used. This standard from CEN (Comité Européen de Normalisation, European Committee for Standardization) provides accepted average savings values when using BACS and controls devices of different efficiency classes, ranging from A to D. Each efficiency class demonstrates a different efficiency and energy savings factor when operated, ranging from 55 percent (type A) to no energy savings (D types).

Whereas type A is a demand-controlled, high-energy performance BACS featuring communicative controls, B operates with an advanced automated control, C is a standard BACS with central control, and D represents a non-energy-efficient BACS with no automated control. For our model, we assume that Belimo control devices are used to 30 percent in class A BACS (55 percent savings), to 60 percent in class B BACS (41 percent savings) and to 10 percent in class C BACS (29 percent savings), totaling savings of 44 percent.

Even though our chosen typical HVAC system operates in a similar manner across the world, there are large variations across the regions due to differences in climate zones and/or power generation. Annual energy savings are therefore calculated based on the consumption of a typical HVAC system that operates with a global average heating and cooling load profile using an average combination of electricity.

-1 103.2 kg CO₂e per air-side actuator as well as water valve and actuator combination (in one life-cycle): This major saving is possible thanks to the smart control of heating, cooling, and ventilation loads provided by Belimo field devices. Another favorable factor is the long service life of the Belimo actuators and valves.


6. Recycling

Belimo strives to minimize waste generated at the end of life of its products, although this more often than not coincides with the end of life of a building and is therefore difficult to manage and track. Still, assumptions on the impact of disposing and recycling a used Belimo field device are made for this phase.

-0.3 kg CO₂e per air-side actuator / -0.6 kg CO₂e per water valve and actuator (in one life-cycle): Energy can actually be recovered by properly recycling the units, i.e. when burnt in a waste-burning electricity plant or when recycling the metal of the valves.

Result of the CO₂ Impact Calculation

The energy-saving impact (step 5) of a Belimo valve and actuator is 21 (air-side) to 32 (water-side) times higher than the impact from all input factors, with a weighted average of 24. This results in a net CO₂ prevention impact of 1 068.3 kg CO₂e per valve and actuator over a 15 year lifecycle. For air-side actuators, this value is 1 051.7 kg CO₂e per device. With 5.2 million new air-side actuators and 2.0 million valves and actuators shipped in 2019, these devices will help prevent 7.6 million tons of CO₂e over their coming lifecycle. This corresponds to the negative emission of a middle-class car touring 600 000 times around the world. These small Belimo devices will therefore have a truly big impact on energy-consumption and our environment.

 The documentation as well as a review of the model by the Lucerne University of Applied Sciences and Arts is available online.



UN Sustainable Development Goals Approach

In order to double the global rate of improvement in energy efficiency stipulated by SDG target 7.3, the role of buildings and their HVAC systems are critical. Research shows that 30 percent of all energy used in buildings are lost due to insufficiently controlled systems. By making HVAC-controls smart, Belimo makes an active contribution to SDG 7 “Ensure access to affordable, reliable, sustainable and modern energy for all.”



UN Sustainable Development Goals Approach

Buildings are responsible for some 40 percent of worldwide energy consumption and climate change causing CO₂ emissions. Through their application, Belimo products save energy in HVAC systems in buildings, thereby creating measurable sustainability benefits and significantly contributing to SDG 13 “Climate Action.”

Solution Leadership

Solution Leadership

Leading with Best Solutions

To maintain its solution leadership, Belimo develops new, innovative devices focused on improving the five customer values (CESIM®), thereby adding more customer value than previous models or products of competitors.

In order to live up to its mission statement “We support our customers with innovative, efficient and energy-optimizing solutions,” Belimo is constantly working on delivering highly engineered solutions with added value, such as: greater comfort, higher energy efficiency, uncompromised safety, ease of integration, minimal installation costs and low maintenance need. As part of its company-wide CESIM® (see page 5) method approach for developing products and solution concepts in the field of building technology, the various customer segments and partners are involved in the development process at an early stage. This allows Belimo, together with its stakeholders, to find and verify innovative approaches and ideas.

Ensuring Best Solutions are Applied Best

Farsighted investment into research and development to maintain innovation leadership is one of the main success factors of solution leadership. Besides this, Belimo also ensures products are optimally designed through extensive testing, investments in big data analysis, competitor analysis, customer visits, error and supply chain analysis as well as training of employees and customers, i.e., in in-house experience centers, thereby ensuring that best solutions are applied best.

The Group division Innovation is responsible for and ultimately drives the development of better solutions, while the regional Group divisions operate the training facil-

ities. All engineering adheres to the Quality First statement of Belimo, which emphasizes that quality comes before deadlines and costs. This philosophy is directly linked to processes implemented within the Group division Innovation to achieve sustainable solutions. All major Belimo sites with innovation capabilities are certified according to ISO 9001 and ISO 14001 (Danbury, Hinwil and Shanghai). Balancing customer needs and the standardization of the product range, however, constitutes a constant trade-off for the Company. The modularization of the product range is an ongoing effort that allows for more flexibility to expand it while reducing complexity at the same time.

Focus on Research & Development

The main KPI for gauging the success of solution leadership is the investment in Research & Development (R&D) in percent of net sales. This percentage has been constantly maintained at 7 percent and above over the last five years. Belimo also tracks the success of managing its better solution design by comparing R&D investments in different segments to changes in turnover or market share of the corresponding segments. Other measures are the overall strategic development of the product range as well as the number of quality cases and costs for finding lasting solutions. In addition to plans to open a third section to the experience center in Hinwil where a chiller plant will be displayed, Belimo also runs several smaller experience centers in Danbury, Shanghai and Hong Kong, which will be upgraded step by step. Another experience center is planned to be opened in India.



UN Sustainable Development Goals Approach

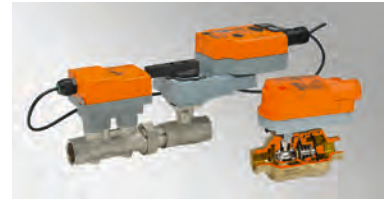
With respect to SDG 9 “Industry, Innovation and Infrastructure,” Belimo sets standards in the field of HVAC actuator, control valve and sensor technology. While the majority of field devices of Belimo drive energy efficiency of buildings, its fire and smoke actuators contribute to their resilience.

A Selection of Innovations in Comfort, Energy Efficiency, Safety Solutions, Installation and Maintenance (CESIM®)

Comfort



Sensors of Belimo ensure comfort levels and contribute to people's well-being and productivity.



Pressure Independent valves ensure that hydronic systems are perfectly balanced at all times, leading to better comfort.

Energy



Belimo Energy Valves™ provide transparent energy monitoring while maintaining high Delta T.



Damper actuators of Belimo consume up to 80 percent less energy than others do, thanks to patented brushless DC motor technology.

Safety



Spring return or electronic fail-safe actuators provide reliable operation in case of a critical event.



Quick running actuators ensure controlled conditions of production spaces, laboratories and other sensitive areas.

Installation



Retrofit Solutions allow for quickly and conveniently upfitting valves, actuators, and sensors – without any interruptions.



The Belimo Assistant App provides fast and easy programming, commissioning and troubleshooting – even without power.

Maintenance



Belimo field devices offer low maintenance operation and longevity. Various communication protocols and interfaces provide superior application data access.



A 5-year warranty backing all Belimo field devices provides peace of mind; knowing that you have chosen the very best.

Digitally Enabled Solutions

Innovating Digital Solutions

By launching an ever increasing number of “digital products,” Belimo helps its customers digitize their business processes. The data gathered not only increases the efficiency of the installations but also helps Belimo continuously improve its products.

Belimo sees digitization as a highly relevant trend for the HVAC industry as it enables a closer relationship between all stakeholders in the value chain. Digitization helps Belimo assume a customer journey perspective – be it in its development, production or customizing approach. For customers, digitally enabled solutions promise product enrichment thanks to value-added product features. Belimo products now meet the increasing demand expressed by customers to digitize their business processes (i.e. in planning, installation, commissioning, monitoring, optimization, and maintenance).

Digitization Leads to New Questions

Belimo aims to be fit for the future by embracing digitalization. The main driver of digitally enabled solutions is the Group division Innovation, which has mandated a dedicated group of specialists with the task of drafting and testing the underlying business case. Digitization, however, also leads Belimo internally to ask new questions. The internal digitization of Belimo is a continuous company-wide process, with the organization as well as development processes continuously evolving.

Harvesting Value

As an example, Belimo ZoneEase™ well represents this new family of “digital products”. A simple commissioning process, increased connectivity and data transparency together with Cloud connection improve the user experience. Furthermore, such products provide data that can be analyzed to learn more about the application and consequently improve the product or its software in future versions. It is our aim to know selected applications better than our customers so we can innovate beyond the product and enhance the overall efficiency of HVAC systems.



UN Sustainable Development Goals Approach

By 2050, two-thirds of all humanity – 6.5 billion people – will live in cities. The megatrend of urbanization strongly drives the number of people living and working inside and with it, the necessity of smartly controlled HVAC systems – ergo Belimo applications. With respect to SDG 11 “Sustainable Cities and Communities,” Belimo helps make cities more sustainable and safer by providing products such as the Belimo Energy Valve™ or a wide range of safety actuators for motorized fire dampers and smoke control dampers.

Strategic IP Management

Managing Patents Successfully

Through strategic intellectual property (IP) management, Belimo protects its commercial interests and handles the growing number of patents and trademarks.

The first and main reason for Belimo to pursue a strategic IP management is to ensure the Freedom to Operate (FTO) – that Belimo and its customers are free to manufacture and operate Belimo products or non-patented know-how, without being restricted by other patent rights. Protecting technological advantage and subsequent innovation leadership is a second reason. A third focus is pruning: the continuous out-sorting of patents with low business value. Modularization is currently the main driver of patent concentration: If the core module is patent-protected, all deriving products are protected as well. Last but not least, FTO in the IoT range is an important IP area as well.

Highly Labor-Intensive Tasks

In the search of new patents, the strategic IP management team continuously monitors ongoing development projects, mapping out and pre-analyzing their status. In addition, new product or technology patents of third parties in the HVAC industry are regularly monitored to ensure FTO and to be knowledgeable of the market. Ultimately responsible for IP topics is the Head of Research, while external experts support certain tasks. This approach allows developers to primarily focus on their role, especially since these tasks are highly labor-intensive. IP management also entails the definition of rules and duties between development partners prior to the start of a project. These are usually well documented in frame development agreements and non-disclosure agreements (NDAs). If required, Belimo evaluates licensing of advance technology for its products to partners.

Patent Database

The effectivity of IP management is reviewed in regular meetings with the Group division Innovation and the IP management team. This also ensures an unimpeded flow of information between the two groups. For tracking and sharing all relevant information, IP management also maintains a patent database. KPIs Belimo uses to gauge the success of its strategic IP management are: the number of fields Belimo files patents in, the percentage of products that are patent-protected, as well as the number and fields of license, development and frame development agreements. Currently, Belimo files approximately ten new patents each year. Overall, Belimo owns around 90 patent families and around 260 pending or granted patents. To continuously monitor whether the IP strategy is on track, the strengthening of IP-related activities is currently being discussed.

IP Management in the Age of Digitization

Strategic IP management is especially relevant in the age of digitization – a field Belimo focuses its research on and has filed several patents. However, digitization is also a field in which Belimo is increasingly competing with IT companies that are filing a vast number of patents. Since it takes around five years until a patent is granted, the latest patents filed by Belimo are still pending.

Story: Reliably Controlling DC-Motors

The Patent Star of Belimo



A patented algorithm for motor control is one of the most valuable Belimo developments of the past few years. In four of five Belimo-actuators, it ensures uniform behavior with outstanding reliability.

For 45 years, the core element of every Belimo actuator has been its motor. However, motor technology has undergone great changes over the years. In the 1970s, all Belimo actuators were still made with brushed motors: These could be controlled with an extremely simple logic system. However, as Belimo actuators became more and more successful, the number of applications increased, and with them the requirements for durability and control options. In the 1990s, Belimo was the first to introduce brushless DC motors and in that way improving the quality and meeting the requirements of new applications. They were controlled with so-called Hall sensors. These sensor elements, which are staggered 120°, report back the respective motor position.

No Hall Sensors Anymore

To further improve the reliability, uniformity and quality of their actuators, Belimo introduced in 2004 a single chip motor control unit integrating the usual HVAC actuator interface signals and not using anymore hall sensors for the commutation of the three phase brushless motor. These allowed for a simpler design, because different positioning devices and lines, connector plugs, etc. for the sensor technology could be completely omitted. The calculation of the precise time, the so-called commutation time, to control the next two of three motor phases was done by the precise observation of the de-energized third phase. However, the crucial point

with this solution is its reliability in application. Depending on load, temperature and supply voltage, the measurement gives a somewhat different position determination.

“Therefore, a robust algorithm that is immune to all external operating conditions and influences is absolutely critical. The microcontroller solutions available for the sensorless operation of brushless motors were nowhere close to being able to do this,” says Silvio Grogg, Director of the Electronics Research Department at Belimo. “Because the robust algorithm that was needed was not available for purchase anywhere, we had to develop it ourselves – with a focus on the greatest reliability for precisely our requirements.”

As a result, at the beginning of the 2000s, the Belimo team started to develop an algorithm that took all possible influencing factors into account. Over a period of about one year a program was created that improved more and more in iterative tests and had to be verified – until at about 100 000 starts only two or three errors occurred. “But for these too we needed to find out when and why they happened.”

Logical Continuation

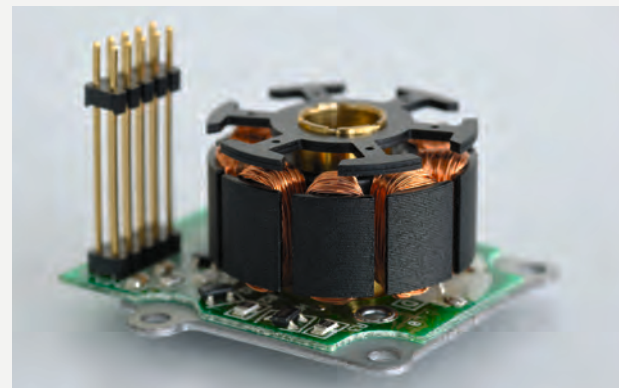
After a lot of meticulous work, the solution was born – an algorithm for all control types of the Belimo actuators. It was stable and was expected to avoid quality cases. The algorithm was then implemented in hardware in chip form as an ASIC (application-specific integrated circuit). It was cost and space-optimized and well-protected against copying, and since then has been installed in most Belimo actuators. “The great challenge for us was to cover the great variety of operating conditions,” Grogg recalls. “For that reason, and thanks to the integration in an ASIC, our optimized and sophisticated al-

gorithm has not yet been copied on the market.”

This patented technology gives Belimo a great competitive advantage. However, with technological development the company has been investing in a new generation of application-specific, integrated circuits for some time. A new version of the algorithm will then be integrated into them. This is because time has not stood still in the 15 years since the patent star of Belimo began to control motors reliably. “We have to refine the technology before someone else does,” says Grogg. Thanks to enormous advances in semiconductor miniaturization, the new solution should integrate considerably more functionality and capabilities for motor control, and therefore be able to cover the entire product range. Grogg: “It is the logical continuation of the very successful and, as anticipated, extremely reliable chip solution from 2004 with perfectly unified behavior for all Belimo actuators.”

Thanks to continuous research in innovative actuator technologies, Belimo will also be able to create unparalleled customer value in the future.

A key patent: In four of five Belimo-actuators, the patented algorithm for motor control ensures uniform behavior.



Operational Excellence

Partnerships with Suppliers

Creating Win-Win Relationships

Aligned with its founders' principle of outsourcing the production of goods and services to others with greater expertise or economies of scale, Belimo sees its suppliers as key partners and a critical element for the success of its asset-light model.

As 86 percent of product manufacturing costs at Belimo are incurred in a network of almost 400 suppliers and partners, a good partnership with its suppliers is essential for the Company to deliver with high speed, quality and flexibility to its clients. This network is also absolutely critical to maintaining comparatively high net sales per employee of CHF 405 000 in 2019. The total procurement volume of Belimo amounted to CHF 272 million in 2019. Depending on their turnover, the Company differentiates between A, B and C-type suppliers – next to strategic component specialists and special

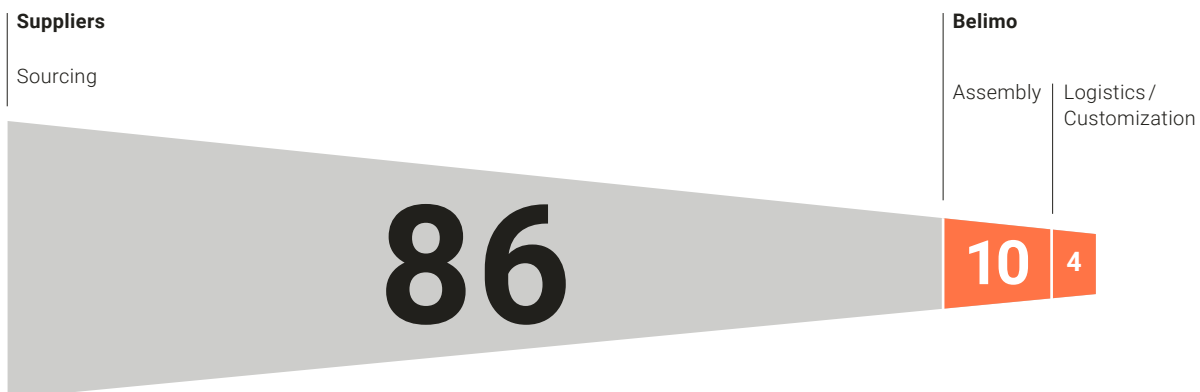
part suppliers. A guiding principle in terms of supplier partnership is to involve suppliers and partners when the exact part specifications for Belimo products or services are being developed. Optimizing downstream impacts also includes finding preferable solutions that fulfill the needs of the end users as well as meeting and exceeding mandates in a cost-effective manner. The ultimate ambition of the sourcing strategy of Belimo is to engage suppliers that match its company culture. The Company therefore only collaborates with established suppliers from mature markets.

Strong Supplier Relationships

Belimo suppliers significantly contribute to quality, innovative capacity and sustainability and are involved in the environmental and quality policy of Belimo. When it comes to environmental and social standards, Belimo makes the same demands on its suppliers as it does on its own internal service providers. These requirements are set out in the Code of Conduct for suppliers and reflect internal guidelines. Tier 1 suppliers are expected to pass these requirements down along their supply chain. Among other things, these requirements

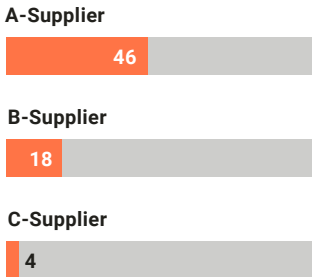
Focus on Final Assembly, Testing and Customizing

in % of production costs



ISO 14001 Certified Suppliers

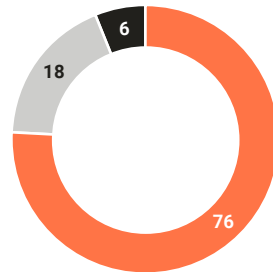
in %



■ ISO 14001 certified

Procurement by Region

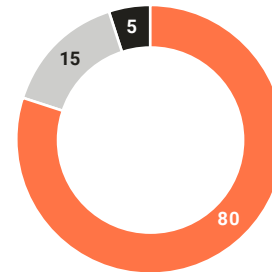
in %



■ Europe: 76%
 ■ Asia Pacific: 18%
 ■ Americas: 6%

Procurement Volume by Supplier Type

in %



■ A-Suppliers: 80%
 ■ B-Suppliers: 15%
 ■ C-Suppliers: 5%

are based on the principles of the UN Global Compact. Belimo is convinced of its moral obligation to thoroughly evaluate its supplier's adherence to occupational safety standards and additional aspects and that this can only be monitored through a certain level of personal presence on site – i.e. through supplier audits (child labor, protective gear, etc.). Therefore, suppliers must be willing to grant full transparency to enable Belimo to fairly estimate possible risks, be it of financial nature, the ability (know-how) and availability (capacities) to work on projects, and/or possible image-risks to the Belimo brand.

The Head of Global Sourcing, who reports to the Head of Group Division Production oversees supply chain management and is together with his team responsible for the procurement of semi-finished goods and raw materials. Belimo follows a single source strategy to establish relationships that are characterized by trust, honesty and operational excellence – ergo competitive costs. The main instruments to achieve this are supplier audits conducted by Belimo employees, open engagement, network building activities as well as a wide array of other instruments. Belimo views these instruments as part of its continuous improvement process. IT tools such as the SRM tool "Jaggaer" (Supplier Relationship Management, where measures or action plans resulting from each audit are stored), form the basis of successful supplier management.

For Belimo, being an active partner in the skill development of its suppliers' workforce regarding manufactur-

ing processes is crucial for the long-term enhancement partnerships. This ensures competitiveness and quality. Other tools such as "Risk Methods" for risk management and "Celonis" for process mining assist in effectively evaluating potential and existing suppliers.

Seeking a Cultural Fit

Next to ensuring a cultural fit with its supplier, which per se cannot be measured in quantitative terms, Belimo evaluates the effectiveness of its approach on the basis of the suppliers audited each year, the years of co-operation as well as their turnover. Of its supplier base, about 10 percent are audited every year. These audits are mainly conducted at A, B or special part suppliers. Besides being ISO 9001/quality management certified, Belimo requires its tier 1 suppliers establish a certified environmental management system that complies with ISO or has at least implemented the following elements from the standard: environmental goals, program, legal compliance, waste management. Belimo maintains a relationship for longer than 15 years with roughly one third of its suppliers. Belimo sees this as a strong indicator of success in managing partnerships with its suppliers. Regarding supplier turnover, five new ones are added each year – while non-compliant ones are gradually faded out.

In order to maintain a healthy and competitive supplier base, the Company strives to ensure that each supplier maintains net sales to Belimo below a 30 percent cap.

Environmental Footprint of the Supply Chain

Mitigating Our Footprint

Marketing its products with energy efficiency obliges Belimo to maintain a high level of awareness about the environmental impact of its supply chain.

Minimizing the environmental footprint is not simply an end in itself: Keeping an eye on the environmental footprint of the supply chain also bears a direct financial benefit. Being attentive helps mitigate risks from bad supplier practices such as local pollution etc. that might negatively affect the environment and therefore contradict the ethical standards of Belimo. Furthermore, it minimizes costs from procurement disruptions due to noncompliance with environmental regulations. At the same time, resource efficiency (materials, natural resources, energy, etc.) and waste reduction directly reduce costs.

Regular On-Site Audits

The Head of Global Sourcing is responsible for managing this topic at Belimo. Key instruments for ensuring that suppliers adhere to requirements include the implementation of the renewed Code of Conduct (incl. supplier declarations). Both new and existing suppliers undergo regular on-site audits. Belimo demands its suppliers to make a clear commitment to principles of sustainability and social responsibility. Contract management is yet another instrument to hold third parties accountable.

Approaches to optimize the environmental footprint of the supply chain involve minimizing waste and shipping. Optimal coordination of shipping (see "Process Efficiency and Short Lead Times", page 76) as well as local sourcing help to further reduce the environmental footprint of logistics.

In order to reduce packaging waste and maximize reuse as well as recycling of materials and packaging, suppliers must comply with strict packaging instructions. These stipulate, for example, the use of reusable FSC-labelled cardboard boxes/recyclable pallets. Cardboard packaging from suppliers based in the European Union is produced in accordance with the recycling symbols (RESY) guidelines and in the USA according to equivalent principles. This means that all transport packaging consists of ecologically harmless materials and can be recycled. Through the consistent use of reusable cardboard packaging between Belimo locations and suppliers, packaging material is saved and recycled at the end of its useful life.

Healthy Profits are Key

Suppliers are initially checked through supplier audits as to whether they observe environmental laws. The Code of Conduct has been signed by more than 80 percent of the A-suppliers and prohibits gross violations of environmental laws. The top 20 suppliers of Belimo incur more than 60 percent of the procurement volume. Once a collaboration has been established, suppliers undergo regular visits and audits, in which Belimo especially looks for healthy profits from the supplier as they ensure the capability to innovate and invest in state-of-the-art environmental-friendly technology. This can for example include switching from pneumatic injection molding machines – whose compressors are highly energy intensive – to electrical ones. Furthermore, many suppliers are themselves certified according ISO 14001, in addition to the mandatory ISO 9001. Moving to a 4PL logistics provider (Fourth Party Logistics, see "Process Efficiency and Short Lead Times", page 76) will in the future offer enhanced analytics of the environmental footprint of the supply chain.

Structured Product Design Process

The “Quality First” initiative of Belimo has been an essential pillar for managing sustainable product development, the continuous improvement process and the complaint handling process for many years. All product developments at Belimo follow a structured design process (certified according ISO 9001:2015 and ISO 14001:2015), for which the “Voice of the Customer” serves as a vital source of input. This input is generated through onsite interviews (different customers within different regions) that are conducted in line with CESIM® (see page 5).

Within CESIM®, the percentage of significant products and services with health and safety impacts is assessed prior to sale. In the previous year, 100 percent of products were assessed.

Hazardous Substances

The quality organization is responsible for supplier compliance with guidelines and regulations that regulate the use of critical materials, such as Restriction of Hazardous Substances Directive (RoHS), REACH, Conflict Minerals, Prop 65, etc. The constantly increasing requirements are continuously analyzed and the findings flow into the processes and products. Compliance is implemented based on a list of banned substances and suppliers are obliged to comply with these requirements. The careful selection of materials used is aimed at minimizing their environmental impact. Auxiliary materials such as solvents, resins, paints or lead and chromium are not used at all, or only in very small quantities.

During the design process, Belimo also relies on industry-wide accepted tools, such as FMEA (Failure Mode and Effect Analysis) and in-depth risk analysis. Environmental directives (WEEE, RoHS, REACH) are also taken into account. Moreover, all Belimo products undergo a thorough First Article Inspection and Series Testing prior to sale. The successful inspection and series testing have ensured that during the reporting period, no incidents of non-compliance with regulations and/or voluntary codes have been reported.

All legal and compliance topics concerning customer health and safety are listed in the Belimo requirement specifications. With this framework, Belimo ensures that all requirements regarding health and safety are fulfilled.

During the reporting period, no incidents of non-compliance with regulations and/or voluntary codes have been reported.

Assessment of Health and Safety Impacts of Products and Services

Percentage of significant products and services, for which health and safety impacts were assessed prior to sale	100%
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Incidents of Non-Compliance concerning the Health and Safety Impacts of Products and Services

Number of incidents	0
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Energy Efficiency in Operations

Ensuring Efficient Operations

The Belimo brand stands for energy efficient devices for HVAC systems. So do the operations of Belimo. We therefore make every effort to limit the impact of our own operations.

As a leader in developing energy-efficient solutions for the HVAC industry, the stakeholders (i.e., customers, public, investors, job applicants) of Belimo expect the Company to run its own operations energy efficiently. Energy efficiency is, however, not only about reputation, it also leads to cost reduction in the form of reduced power consumption and longer lifetime of

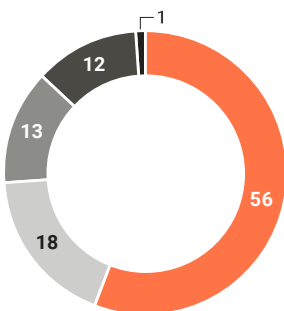
equipment. In addition, optimizing lighting conditions and air quality for employees improves – next to saving power – working comfort and therefore leads to a greater employee satisfaction. The same is true for heat emissions from installations.

Modularity Improves Efficiency

At Belimo, production comprises procurement, production planning and assembly. All production processes are analyzed according to the principles of lean management and improved on an ongoing basis. Efficient material supply, waste-free assembly based on reliable processes, quality-assured steps in value creation and standardized testing procedures form the basis for the quality and on-time delivery of Belimo products.

Energy Consumption by Source 2019 (Danbury and Hinwil)

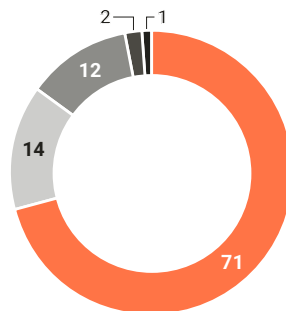
in %



- Electricity, non-renewable: 56%
- Electricity, renewable: 18%
- District heating: 13%
- Natural gas: 12%
- Diesel: 1%
- Heating oil: 0%

CO₂e Emissions by Source 2019 (Danbury and Hinwil)

in %



- Electricity, non-renewable: 71%
- Natural gas: 14%
- District heating: 12%
- Diesel: 2%
- Electricity, renewable: 1%
- Heating oil: 0%

Energy Consumption Within the Organization 2019

Scope: Danbury and Hinwil; encompassing approx. 90 percent of total energy consumption within Belimo.

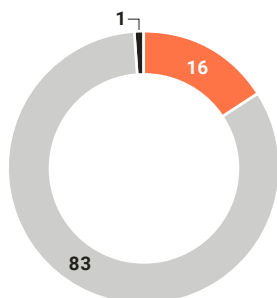
	Unit	Danbury (Connecticut, USA)	Hinwil (Switzerland)	Total
Electricity				
Total electricity consumption (purchased)	MWh	4 388	3 084	7 472
Total cost of electricity consumption	CHF	655 888	373 759	1 029 647
If available, name of purchased electricity product		40% renewable content		
Total electricity consumption (own production)	MWh	0	61	61
On-site fuel consumption				
Heating oil	liter	0	0	0
Natural gas	MWh	1 244	0	1 244
Total cost of heating oil	CHF	0	0	0
Total cost of natural gas	CHF	45 699	0	45 699
Direct heating				
Total district heating consumption	MWh	0	1 281	1 281
Total cost of district heating	CHF	0	104 771	104 771
Fuel consumption of backup generators				
Diesel fuel	liter	13 361	0	13 361
Total cost of diesel fuel	CHF	10 220	0	10 220
Floor area				
Total floor area of all buildings on site	m ²	18 263	35 360	53 623

Energy Consumption and CO₂e Emissions by Source 2019 (Danbury and Hinwil)

	Danbury (Connecticut, USA)		Hinwil (Switzerland)		Total	
	MWh	tCO ₂ e	MWh	tCO ₂ e	MWh	tCO ₂ e
Energy						
Electricity non-renewable	2 633	698	3 084	560	5 717	1 257
Electricity renewable	1 755	19	61	3	1 816	22
Heating oil	0	0	0	0	0	0
Natural gas	1 244	251	0	0	1 244	251
District Heating	0	0	1 281	216	1 281	216
Diesel	134	36	0	0	134	36
Total	5 765	1 004	4 426	779	10 191	1 783

CO₂e Emissions From Energy 2019 (Danbury and Hinwil)

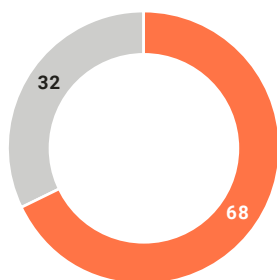
In %



- Scope 1 (direct emissions from owned or controlled sources): 16%
- Scope 2 (indirect emissions from the generating of purchased energy): 83%
- Scope 3 (other indirect emissions occurring in the value chain upstream [suppliers] or downstream [customers]): 1%

Waste 2019 (Danbury and Hinwil)

In %



- For recycling: 68%
- For incineration: 32%
- Remaining waste: 0%
- Hazardous waste (electronics, separated materials): 0%

Classification of Operational Boundaries Where Greenhouse Gas Emissions Occurred in 2019 (Danbury and Hinwil)

in tCO ₂ e	Consumption
Total	1 783
Scope 1 (direct emissions from owned or controlled sources)	287
Scope 2 (indirect emissions from the generating of purchased energy)	1 474
Scope 3 ¹⁾ (other indirect emissions occurring in the value chain upstream [suppliers] or downstream [customers])	22

¹⁾ Scope 3 emissions are merely a fraction of the total Scope 3 emissions and derive from the capital goods (e.g. hydropower infrastructure, photovoltaic panels, etc.) used to generate renewable energy (excluding business travel by air).

Energy Intensity 2019 (Danbury and Hinwil)

As outlined on pages 58 to 61, Belimo products reduce energy consumption and CO₂ emissions by a factor of 24 in relation to their resource input. While our model covers the whole resource consumption including supply chain, the figures below only show measured resources.

	Unit	Consumption
Net sales	kWh per 1 000 CHF Net Sales	14.71
Net sales	kgCO ₂ e per 1 000 CHF Net Sales	2.57
Per capita	kWh per employee	5 954.27
Per capita	kgCO ₂ e per employee	1 041.75
No. of actuators sold	kWh actuator sold	1.42
No. of actuators sold	kgCO ₂ e per actuator sold	0.25

Net sales, total employees, total no. of actuators sold represent group-wide figures, while the underlying energy consumption and greenhouse gas emissions comprise only data from the two locations Hinwil and Danbury in 2019.

Recycling and Disposal 2019 (Danbury and Hinwil)

	Unit	Danbury	Hinwil	Total
For recycling	metric tons	378	378	756
For incineration	metric tons	66	284	350
Remaining waste	metric tons	0	0	0
Hazardous waste (electronics, separated materials)	metric tons	0	3	1
Waste water	m ³	140	6 100	6 240

Under the lead of the Head of Group Division Production, Belimo strives for continuous improvement of energy consumption and waste within operations. The modular design of Belimo products offers energy efficiency advantages as it minimizes variances of parts and therefore waste as well as the number of suppliers and transports. Moreover, automated assembly of modular products leads to higher (energy and material) efficiency and further reduces waste. The Belimo sites in Hinwil (Switzerland), Danbury (Connecticut, USA), Sparks (Nevada, USA) as well as Shanghai (China) apply the international environmental management standard ISO 14001 and quality management standard ISO 9001.

The energy consumption of the two main manufacturing sites Danbury and Hinwil is well within the assumptions of our CO₂ impact model (see section "High-Performance Solutions for Energy Efficiency and Indoor Air Quality", pages 58 to 61). There, a weighted average of 1.45 kilogram of CO₂e input to manufacture one actuator was calculated, summing up to a total of 10 380 tCO₂e to manufacture the 7.2 million shipped pieces. This amount includes the manufacturing impact of Belimo suppliers as well as the in-house manufacturing of Belimo. The ratio between the calculated total impact of 10 380 tCO₂e and the measured Belimo internal impact of 1 783 tCO₂e (comprising Danbury and Hinwil sites; excluding business travel by air) therefore corresponds well with the actual production cost ratios. 86 percent of production costs are incurred at suppliers compared to 14 percent in-house production costs (see section "Partnership with Suppliers", page 68).

Capitalizing on Solar Power

Also in 2019, Belimo achieved progress in the area of energy consumption at its premises. In the reporting period, new and highly efficient chillers were installed in the Longus building in Hinwil (Switzerland). Furthermore, the entire building was retrofitted with Belimo Energy Valves™ to improve comfort and increase energy efficiency.

Also the solar plant in Hinwil was expanded in the reporting period, increasing solar power production in 2019 from 31 MWh/year to around 61 MWh/year. 100 percent of the electricity produced is consumed in-house. Furthermore, Belimo has decided to install a photovoltaic system in Danbury (Connecticut, USA), with a peak output of 900 kW. After commissioning of the system in 2020, Belimo will be able to save about

1.2 GWh or 345 tCO₂e per year¹⁾, or the equivalent of 172 flights from Zurich to New York and back²⁾.

Besides the increase in installed solar panels, further improvements have been achieved through the use of TPPL batteries for forklifts with expected yearly savings of 153 000 kWh and the insulation of the loading ramp in Hinwil with expected yearly savings of 15 000 kWh.

Business Travel

Business travel by air accounted for 2 243.6 tCO₂e³⁾ of emissions in the reporting period.

SQS-Audits

Analysis, evaluation and improvement of the use and cost of energy in operations (carried down to energy source and site) is conducted consistently. The above-mentioned Belimo sites also undergo regular audits by the Swiss Association for Quality and Management Systems (SQS) and the China Quality Certification Center (CQC) in China. Moreover, employees are regularly questioned via surveys on their working comfort.



UN Sustainable Development Goals Approach

Belimo contributes to SDG 12 "Responsible Consumption and Production" by upholding sustainable procurement practices and

localized sourcing, minimizing waste and optimizing logistics through modularization of its product ranges and applying environmental management standards at its main production sites.

¹⁾ Source: www.oecd.org (OECD countries: 432 g CO₂e/kWh electricity mix minus 87 g CO₂e/kWh for solar power)

²⁾ Source: www.myclimate.ch (ZRH-JFK-ZRH ECO flight: approximately 2 tCO₂e)

³⁾ Scope: Trips of employees from Hinwil (Switzerland) and Danbury (Connecticut, USA). The relevant emission factors and emissions have been calculated using the myclimate Flight Emission Calculator.

Process Efficiency and Short Lead Times

Staying Ahead in Logistics

Frequent last-minute changes in planning, construction, and installation are a serious challenge in the HVAC sector. This is why short lead times are a key advantage that Belimo can offer to its customers.

Ensuring short lead times and focusing on on-time performance are essential competitive advantages for Belimo, as customers are provided with additional flexibility for their business activities.

Moreover, delivering on-time and directly to customers and construction sites reduces handling and partially eliminates the need to stock products, which in turn frees up capital and time for our customers. In addition, short lead times reduce risks such as the exposure to order changes and updates by waiting customers. They also reduce on-site loss as well as material returns back to their stock.

Further, short lead times increase the flexibility of Belimo to react to changed demand. They result in lower carbon emissions and costs as urgent deliveries are generally executed by air.

Process efficiency in logistics reduces internal lead times between order intake and shipping, production and customization. Lean processes reduce the cost base and assist in the efficient use of resources, energy, materials, and labor.

Change in Logistics Provider

The most important contributors within Belimo that guarantee process efficiency and short lead times are procurement, the planning department, customiza-

tion, and production as well as logistics. Continuous process improvements such as the optimization of customs duty processes, a sophisticated product life-cycle management, supply chain improvements as well as managed logistics (4PL) are crucial processes for fast lead times. To improve the latter, Belimo changed from a 3PL (Third Party Logistics) to a 4PL provider in 2019, since the latter also offers tailor-made supply chain management and fully automated digital data interexchange. These measures reduced end-to-end lead times by one to three weeks. Weekly consolidated shipments from suppliers are another measure for keeping lead times short and saving energy.

The transfer of knowledge and technology between production locations ensures safe, efficient and resource-saving production processes. In all markets, the final assembly of the valve-actuator combinations takes place on-site. Ecological aspects are given high priority in the regular review and adjustment of logistics processes. The consolidation of deliveries from suppliers, internal transfers within the Company and direct deliveries to customers reduce transport lead times. Standardized reusable packages are increasingly being used for deliveries between Belimo sites, allowing for automatic storage or further processing without any need for repackaging. Reusable packaging is also used to transport goods between Belimo and its suppliers at an average of five to seven times.

If possible, waste is reused, recycled or professionally separated or disposed of at internal collection points. This allows for more than half of the waste to be recycled. In Hinwil, the non-recyclable remainder is sent to the neighboring waste incineration plant. Disposal transportation is consolidated.

From "First Saves" to "Last Saves"

Belimo tracks several KPIs to measure its on-time performance, such as on-time performance through the "first saves" and "last saves." "First saves" shows the

percentage of order lines that are delivered in line with customers' service expectations, whereas "last saves" shows the percentage of order lines communicated and confirmed to customers. The indicators "first save" and "last save" are exceeding their set target range for 2019. Further indicators are stock turnover rate, non-availabilities, lead times between destinations, lead times between Belimo and customers and the number of customer complaints relative to all deliveries. The measured indicators show that the logistic processes were in line of the target-range in 2019.

The "first saves" KPI for the Danbury, Hinwil, Shanghai and Sparks production sites, covering roughly 90 percent of order volumes at Belimo, amount approximately to a satisfying 94 percent average for 2019. "Last saves" for these plants are at 98 percent, which is also well in line with set targets.

Quality First

Exceeding All Expectations

Following our Quality First Standards, Belimo encourages all of its employees to assume their share of responsibility to ensure quality in everything we do.

In order to achieve our goals in terms of quality, mid-2018 the Executive Committee developed among others the following Quality First Standards:

- We understand our customers and focus on making them more successful.
- We help our customers to achieve comfort, energy efficiency, safety in buildings, ease of installation and maintenance.
- The order of our priorities is quality first, timeliness second and cost third.
- Operational excellence in all of our business processes ensures our products and services are top quality. Quality is everyone's responsibility.
- We learn from our mistakes and see them as an opportunity to drive excellence.
- We only do ourselves what others cannot do better. This will give us more time for our main tasks.

How Do We Manage Quality?

These top-level Quality First Standards are cascaded to each and every employee through individual workshop within all divisions. By doing so, employees become part of the development. And by raising awareness among our employees, we emphasize our commitment to live up to the quality standards we have defined for ourselves.

To contribute to the overall quality mindset in the organization, Belimo employees are empowered and encouraged to make continuous improvements to opera-

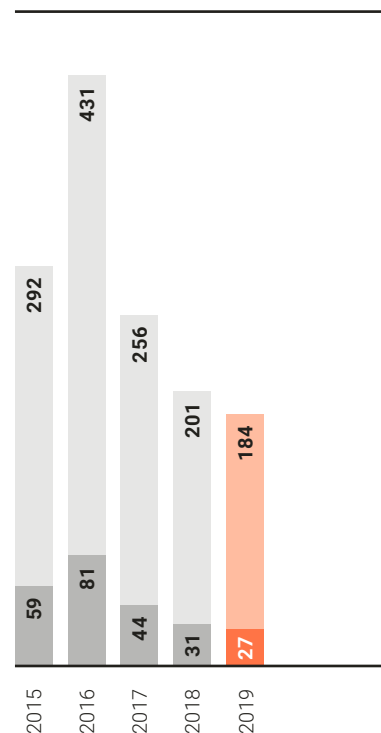
tional performance at every step of the value chain (see example Top Process, page 32).

In addition, all employees are encouraged to open an internal quality, environmental or safety-case if they believe something is not conform. These inputs are then analyzed and corresponding action is taken.

How Do We Measure Quality?

Belimo measures the level of customer satisfaction after closing a quality case (see chapter "Customer Engagement and Support", page 54). In addition, the number of customer, supplier and internal complaints are regularly reviewed to verify the success of our approach.

Supplier Complaints



Although net sales vastly grew and the complexity of our products is increasing, the total number of customer complaints decreased from an average of above 200 in the last few years to 171 complaints in 2019. Compared to net sales growth, the relative number of customer complaints is steadily decreasing, which we see as the success of our quality strategy.

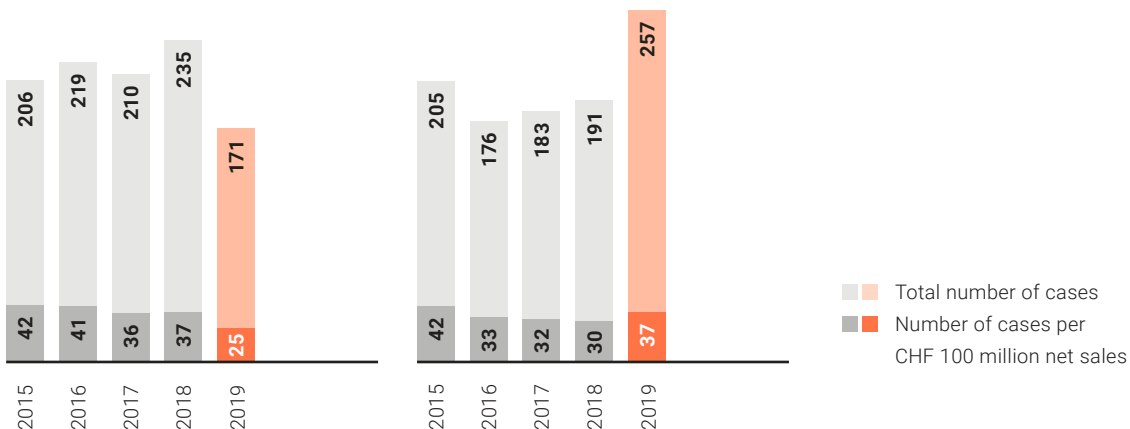
Also the number of supplier complaints (of logistical and technical nature) have been decreasing over the last few years. In 2016, we initiated logging of all logistical supplier complaints, regardless of severity. This initiative helped us understand the potential for improve-

ments, but also resulted in a peak of logistical supplier complaints. The following years effectively show a downward trend in the number of supplier complaints, which we view as proof of having implemented the right measures.

As a learning organization it is important for us to detect internal complaints systematically. With further strengthening our Quality First approach there is also a slight increase of internal complaints visible. We view this positively, as it demonstrates that we are still uncovering potential for improvements – although our current program and database has been running for six years.

Customer Complaints

Internal Complaints



About this Report

This report has been prepared in accordance with the GRI Standards: Core option. The current report refers to the year 2019 and is the first report that Belimo Holding AG has published along the standards of the Global Reporting Initiative (GRI 102-49; 102-50). Hence, no re-statement of information has been made (GRI 102-48; GRI 102-51). The reporting period is from January 1, 2019 through December 31, 2019 (GRI 102-50). Belimo Holding AG has not sought external assurance of the GRI information provided, but has used the standards for internal auditing wherever practical (GRI 102-56). The content of this report focuses on the topics determined to be relevant or material to Belimo, its stakeholders and its impacts on sustainable development.

For a description of the materiality assessment see page 6 and for the alignment between Belimo material topics and GRI topic-specific standards see table “Mapping Our Topics with GRI” below. The discussion of these topics in this report has been developed so that it meets the information requirements of the key stakeholder groups of Belimo (see table “Overview of Key Stakeholders”, page 81). On the executive-level, these topics are managed by the CFO and the CEO. They are supported by a Sustainability Steering Committee consisting of the CFO and CEO, the Head of Global Quality as well as the Head Strategy & Brand Management (GRI 102-20).

Mapping Our Topics with GRI

Page	Belimo Material Topics	GRI Topic
	Performance	
8	Economic Performance	201 Economic Performance
14	Balanced Investment Portfolio	–
	Credibility Culture	
25	Company Values and Cultures	102-16 Values, principles, standards and norms of behavior
30	Employee Empowerment and Engagement	–
34	Skill Development and Knowledge Management	404 Training and Education
38	Equal Opportunity Employment	405 Diversity and equal opportunity 406 Non-discrimination
	Customer Value	
54	Customer Engagement and Support	–
58	High-Performance Solutions for Energy Efficiency and Indoor Air Quality	305-3 Other indirect (Scope 3, downstream) GHG emissions
	Solution Leadership	
62	Solution Leadership	–
64	Digitally Enabled Solutions	–
65	Strategic IP Management	–
	Operational Excellence	
68	Partnerships with Suppliers	102-9 Supply chain
70	Environmental Footprint of the Supply Chain	305-1 Direct (Scope 1) GHG emissions 305-2 Energy indirect (Scope 2) GHG emissions 416 Customer health and safety
72	Energy Efficiency in Operations	302 Energy
76	Process Efficiency and Short Lead Times	–
78	Quality First	–

Stakeholder Engagement (GRI 102-40; 102-42)

The stakeholders listed in the table below have been identified by the Executive Committee as important stakeholders as they fulfil the following two criteria: The stakeholder group exerts a strong influence on the economic, environmental or social performance of Belimo and the stakeholder group is strongly affected by the economic, environmental or social performance of the Company. Sustainability at Belimo is geared towards several stakeholder groups and aims to create added

value for all these groups. Meeting the interests of a stakeholder group, such as customers, must not be at the expense of other stakeholders, such as employees or local interest groups. Customers appreciate the reliable and innovative application solutions and high product quality. Further strengths include consulting and service expertise throughout all customer relationship phases and partnership interactions with suppliers and consultants.

Stakeholder Type	Engagement Approach (GRI 102-43)	Key Topics of Interest to the Stakeholder Group (GRI 102-44)
Shareholders and Analysts	Investor day once a year, conference for media and financial analysts once a year, Annual General Meeting once a year, a summary annual report, an annual report and a semiannual report. Regular bilateral meetings take place with the management and analysts and investors.	Information about financial figures such as shareholder return, management structure, economic development in key markets, strategy, transparency of the remuneration system, new products and economic outlook.
Customers	Technical support, customer trainings, customer hotline, mailings, interviews, and most importantly: personal consultations through Belimo sales managers. All customer interactions are managed through a Customer Relationship Management tool. Also, presence at leading trade shows of the HVAC industry to present new applications and foster customer relations.	For real estate investors/architects: assurance in the Company's high quality product offering and efficient delivery. For planners and project managers: certainty about our solutions. For buyers: seamless integration into their system. For installers: solution simplicity.
Employees	New employee trainings, leadership trainings, worldwide surveys every three years, annual and semiannual performance reviews, trainings.	Workplace safety, remuneration, Company strategy, education and further training, occupational health and safety.
Suppliers	Initial contact within the scope of the assessment procedure and implementation of the Code of Conduct for Suppliers, close collaboration in joint development projects, 40 to 50 supplier audits per year.	Order volume, risk assessment, price negotiations, overall strategy of Belimo.
Municipalities and Authorities	Regular exchange on topics such as taxes, working permits and developments of production sites.	Consultation on expansion plans, tax strategy, etc.



GRI Content Index

For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures GRI 102-40 to 102-49 align with appropriate sections in the body of the report.

Disclosure	Description	Reference
GRI 101: 2016	Foundation	
GRI 102: 2016	General Disclosures	
	Organizational profile	
102-1	Name of the Organization	Belimo Holding AG; Corporate Governance, p. 42
102-2	Activities, brands, products, and services	Solution Leadership, p. 63
102-3	Location of headquarters	Corporate Governance, p. 42
102-4	Location of operations	Solution Leadership, p. 62
102-5	Ownership and legal form	Corporate Governance, p. 42 – 43
102-6	Markets served	Economic Performance, p. 8 – 12; 95 – 97
102-7	Scale of the organization	Economic Performance, p. 13
102-8	Information on employees and other workers	Company Values and Culture, p. 26
102-9	Supply chain	Operational Excellence, p. 68 – 71
102-10	Significant changes to the organization and its supply chain	Financial Report, p. 94
102-11	Precautionary Principle or approach	Environmental Footprint of the Supply Chain, p. 70 – 71
102-12	External initiatives	Introduction, p. 7 and www.belimo.us/en_US/about/belimo/affiliated-organizations
102-13	Membership of associations	Introduction, p. 7
	Strategy	
102-14	Statement from senior decision-maker	Letter to the Shareholders, p. 2 – 3
	Ethics and integrity	
102-16	Values, principles, standards, and norms of behavior	Company Values and Culture, p. 25
	Governance	
102-18	Governance structure	Corporate Governance, p. 42 – 45
102-20	Executive-level responsibility for economic, environmental, and social topics	Appendix, p. 80
	Stakeholder engagement	
102-40	List of stakeholder group	Appendix, p. 81
102-41	Collective bargaining agreements	Company Values and Culture, p. 26
102-42	Identifying and selecting stakeholders	Appendix, p. 81
102-43	Approach to stakeholder engagement	Appendix, p. 81
102-44	Key topics and concerns raised	Appendix, p. 81
	Reporting practice	
102-45	Entities included in the consolidated financial statements	Financial Report, p. 122
102-46	Defining report content and topic Boundaries	Introduction, p. 5
102-47	List of material topics	Introduction, p. 6
102-48	Restatements of information	Appendix, p. 80
102-49	Changes in reporting	Appendix, p. 80
102-50	Reporting period	Appendix, p. 80
102-51	Date of most recent report	Appendix, p. 80
102-52	Reporting cycle	Corporate Governance, p. 52

102-53	Contact point for questions regarding the report	Corporate Governance, p. 53
102-54	Claims of reporting in accordance with the GRI Standards	Appendix, p. 80
102-55	GRI content index	Appendix, p. 82
102-56	External assurance	Appendix, p. 80

Topic-Specific Disclosures

GRI Code	Topic	Page	Reason(s) for Omission(s)
GRI 200	Economic topics		
GRI 201: 2016	Economic Performance		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Economic Performance, p. 9	
201-1	Direct economic value generated and distributed	Financial Report, p. 86	
	Customer Engagement and Support		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Customer Engagement and Support, p. 54	
	Partnership with Suppliers		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Partnership with Suppliers, p. 68 – 69	
	Process Efficiency and Short Lead Times		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Process Efficiency and Short Lead Times, p. 76–77	
	Balanced Investment Portfolio		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Balanced Investment Portfolio, p. 15	
	Strategic IP Management		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Strategic IP Management, p. 65	
	Solution Leadership		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Solution Leadership, p. 62	
	Quality First		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Quality First, p. 78 – 79	
GRI 300	Environmental topics		
GRI 302: 2016	Energy		
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Energy Efficiency in Operations, p. 72–75	
302-1	Energy consumption within the organization	Energy Efficiency in Operations, p. 73	
302-3	Energy intensity	Energy Efficiency in Operations, p. 74	

GRI 305: 2016	Emissions	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Energy Efficiency in Operations, p. 74
305-3	Other indirect (Scope 3) GHG emissions	Energy Efficiency in Operations, p. 74
	Digitally Enabled Solutions	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Digitally Enabled Solutions, p. 64
	High-Performance Solutions for Energy Efficiency and Indoor Air Quality	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	High-Performance Solutions for Energy Efficiency and Indoor Air Quality, p. 59
	Environmental Footprint of the Supply Chain	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Environmental Footprint of the Supply Chain, p. 70–71
GRI 400	Social topics	
GRI 404: 2016	Training and Education	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Skill Development and Knowledge Management, p. 34
404-1	Average hours of training per year and employee	Skill Development and Knowledge Management, p. 35
404-2	Programs for upgrading employees skills and transition assistance programs	Skill Development and Knowledge Management, p. 35
404-3	Percentage of employees receiving regular performance and career development reviews	Skill Development and Knowledge Management, p. 35
405: 2016	Diversity and Equal Opportunity	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Equal Opportunity Employment, p. 38
405-1	Diversity of governance bodies and employees	Equal Opportunity Employment, p. 39
406: 2016	Non-discrimination	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Equal Opportunity Employment, p. 38
406-1	Incidents of discrimination and corrective actions taken	Equal Opportunity Employment, p. 39
416: 2016	Customer Health and Safety	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Environmental Footprint of the Supply Chain, p. 71
416-1	Assessments of the health and safety impacts of product and service categories	Environmental Footprint of the Supply Chain, p. 71
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Environmental Footprint of the Supply Chain, p. 71
	Company Values and Culture	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Company Values and Culture, p. 25
	Employee Empowerment and Engagement	
GRI 103: 2016 103-1/103-2/103-3	Management Approach	Employee Empowerment and Engagement, p. 30–31