EDITION 2019/2020 Taking VAILLANT GROUP

Calle

Looking ahead

SEEDS 2030

Heat pumps

With natural refrigerant

Green gas

Energy sources with a future

More vibrant than you think

Visiting SOS Children's Villages

of a better climate.

Inside each home and the world around it.

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€2.6

BILLION

Recording steady growth

The Vaillant Group grew profitably in financial year 2019 despite a challenging economic environment. Revenue was over €2.6 billion, an increase of about 5 per cent compared with the already very good previous year.

The main factor behind the strong performance was the successful implementation of the growth strategy in the segment of efficient gas-fired heating appliances and heat pumps. In the important future market of China, the Vaillant Group recorded a double-digit increase in revenue.

Heat pumps in high demand

In 2019, the Vaillant Group once again recorded a significant increase in demand in the heat pump business. The implementation of the growth strategy, an expanded product portfolio and optimised sales structures resulted in a sales increase of about 36 per cent. The strongest increases were in France, Spain, Poland, Germany and Denmark.

To meet the growing demand of the markets, the Vaillant Group is further expanding its production capacities for heat pumps. For 2020, production will initially be increased to about 90,000 heat pump units. At the Nantes, Remscheid and Skalica sites, existing production lines have been made more flexible and new production lines commissioned.

New Managing Director Technology



The Supervisory Board of Vaillant GmbH has appointed Ralph Jakobs as Managing Director of the company with effect from 1 November 2019. Ralph Jakobs is responsible for the Technology division as the successor to Dr.-Ing. Norbert Schiedeck. Dr.-Ing. Norbert Schiedeck had been in charge of the Technology division alongside his position as CEO.

WORTH KNOWING - COMPANY



ISH 2019: Vaillant as never before

Forty live events and 140 product innovations at the exhibition stand. This is how Vaillant presented itself at the international sanitation and heating fair ISH, which took place in Frankfurt, Germany, in March 2019. Among other attractions, the trade visitors were able to see the full Vaillant heat pump range, the best ecoTEC of all time and a multitude of digital services for skilled technicians. About 60,000 guests visited the Vaillant stand during the week of the fair.

Saunier Duval and Vaillant at Interclima

From 5 to 8 November 2019, Interclima took place in Paris. Two brands of the Vaillant Group, Saunier Duval and Vaillant, were present at the most important French trade fair for the HVAC industry. While the focus at Saunier Duval was on condensing boiler technology for apartment buildings, hot-water heat pumps and IoT solutions, visitors to the Vaillant stand were able to find out more about the extended heat pump portfolio and other products.

WORTH KNOWING - DIGITALISATION

Bringing digital heating technology to life

At the Microsoft stand at Hannover Messe 2019, the public were able to experience Vaillant-made digital heating technology and new developments in the "Internet of Things". The digital networking of products with virtual systems was one of the core themes of the latest leading international industrial fair.

The digitally networked system presented by Vaillant is capable of understanding the behaviour of people living in a household and optimally adapting the provision of room heating and hot water to this behaviour. This improves efficiency, reduces costs and, at the same time, increases comfort. The system also simplifies installation and maintenance for the installer.





Vaillant heat pumps in the media

In the series *The Global Energy Challenge*, the broadcaster CNN International reports on innovations that reconcile global climate protection and growing energy demand. Among those featured: the Vaillant Group and the new aroTHERM plus heat pump. Thanks to the natural

refrigerant R290 and the possible use of the heat pump in existing buildings, a large market is opening up for this heat pump model series. The science magazine programme *Xenius* on the German-French channel ARTE also visited the Vaillant Group in Remscheid at the beginning of 2020 to learn about the advantages of heat pumps. The focus here was on the new aroTHERM plus as well because of its contribution to climate protection and its versatility, including in older buildings in which heat pumps have so far only rarely been installed.





Pump it up!

... was the motto of the Vaillant Group Heat Pump Days 2019. The conference focused on the system integration of heat pumps, winning new customers and the natural refrigerant R290. In terms of service, the subjects of installation support and training of installers were in focus.

Other topics of the lectures and workshops included concepts in the field of "heating as a service" and smart home functionalities. The aim is to achieve the same strong market position with heat pumps as with efficient gas heating appliances.

aroTHERM receives award for innovation and design

The aroTHERM plus heat pump received the Innovation Award at the French industry fair Interclima. Vaillant France thus prevailed against 46 manufacturers and competing products.

The Vaillant aroTHERM plus was, amongst other criteria, recognised for the fact that it uses the natural refrigerant R290. In addition, the Vaillant aroTHERM is very quiet and achieves high flow temperatures. This makes it ideal for replacing existing heating appliances.

In France, the aroTHERM plus also received the Trophée Maison & Travaux 2019 in the Innovation category. Once again, the jury emphasised the advantages of the natural refrigerant used. In Germany, the heat pump received the iF Design Award. Here, the focus was on the technical concept and design of the aroTHERM split model. Due to its compact design and efficient, low-noise operation, the heat pump meets important customer requirements.













Time to move in

In October 2019, the time had finally come. About 560 employees were able to move into their workplaces in the newly built Research and Development Centre of the Vaillant Group. The complex of three buildings accommodates all the specialist departments involved in product creation and thus enables interdepartmental cooperation under one roof. With an investment of about €54 million at the Remscheid headquarters, the Vaillant Group has built one of the most modern research and development centres in the German state of North Rhine-Westphalia. Attention was also paid to a comprehensive energy concept. All the exhaust heat from the test rigs will be used in future to heat the buildings. This reduces both energy consumption and CO₂ emissions.

Closer to customers in China

In September, Vaillant China opened a further sales branch in Suzhou. Suzhou is a city of about ten million people in the east of the country. The region is experiencing strong economic development.

Thanks to its local presence, Vaillant China is now even closer to its customers and can offer a broad product range and extensive services. To this end, Vaillant China is also cooperating with local supplier Suzhou Gas Development Co, Ltd. Also in September, the first Protherm showroom and training centre

was inaugurated in Xiaogan, in Hubei province. The aim is to establish training and education programmes in the heating technology industry in China.

The training courses impart knowledge about system components, aftersales service and troubleshooting, among other things. The programme also includes installation training under real conditions in day-to-day business.





WORTH KNOWING - SITES

Working on the digital future

Everyone involved in the strategic project Digital Process World (DPW) is now working in a specially set-up project headquarters. The DPW team of the Vaillant Group is setting a decisive course for the digital future of the company. The aim of the project is the digital transformation of operational company processes and the IT land-scape in order to be able to react quickly to future customer requirements and implement new business models quickly across national markets. Around 150 experts from various departments and national sales companies as well as IT specialists work at the new project headquarters.



WORTH KNOWING - IN BRIEF



#vaillantwearitpink

The Vaillant Group wore pink. At least for one day. In keeping with the motto "Wear it Pink", Vaillant UK launched an initiative in favour of breast cancer patients in October 2019. The entire team was invited to appear at work in pink clothing and share photos of themselves on the Internet using the hashtag #vaillantwearitpink. In addition, the employees supported the organisation Breast Cancer Now with the proceeds from bake sales and raffle tickets as well as with personal donations.

Taken out of service

A contribution to environmental protection can also be made with little things in everyday life. That is why the Vaillant Group has decided to retire paper cups. Why use disposable cups and thus cause unnecessary waste when you can enjoy your drink just as much in a reusable cup or glass?



HEAT PUMPS FOR MODERNISATION

The internationally agreed climate protection targets mean that the energy supply of buildings must be switched to renewable energies as quickly as possible. The new Vaillant aroTHERM plus air/water heat pump with its natural refrigerant offers a climate-friendly and energy-efficient solution in this regard. It is the first heat pump that is also particularly suitable for replacing heating systems in existing buildings. This opens up a new market for the technology.



n the European Union, around 40 per cent of energy consumption is accounted for by existing buildings – around 85 per cent of which is for heating and hot water. Only about 15 per cent of the energy in households is consumed in the form of electricity. Three quarters of buildings are considered not sufficiently energy efficient, and the rate of refurbishment of existing buildings is low at around 0.4 to 1.2 per cent per year. It is necessary, therefore, to drive forward the energy transition in this area. The modernisation of buildings – especially investment in efficient and climate-friendly heating technology – is the greatest lever for saving energy quickly and permanently.

The heat pump business has been one of the most important growth segments of the Vaillant Group for many years. It is a stated aim to take a leading role in the European heat pump market in addition to international market leadership with efficient gas appliances. The new aroTHERM plus air/water heat pump represents a special technical development step in this respect. And it does so in two ways: both because of its environmental friendliness and its versatility.

In the new aroTHERM plus model series, the natural refrigerant R290 is used for the first time. Thanks to this, the heat pump achieves high flow temperatures of up to 75 °C. This paves the way for using the aroTHERM plus in modernisation projects without a loss of efficiency. Up to now, this has only been possible with difficulty. The low flow temperatures of heat pumps are not sufficient for the typical radiators in older buildings. Under these circumstances, the systems no longer work economically. For this reason, heat pumps are currently found almost exclusively in new buildings in combination with underfloor and surface heating systems. In new buildings, heat pumps have already become the most popular and preferred heating technology, often in combination with solar or ventilation systems.

However, the possibility of using them in existing buildings will open up additional and far greater market potential for heat pumps in future. After all, of 117 million European single and multi-family homes, around 92 per cent are more than 20 years old and equipped with heating technology that is no longer up to date.









Converting existing buildings into low-energy buildings through modernisation measures harbours immense potential for CO_2 savings. However, its flexible application in new and existing buildings is not the only advantage of the aroTHERM plus. Thanks to an active cooling function, the heat pump can be used in all regions, regardless of climate zones. And with just 28 decibels – measured at a distance of three metres – the new aroTHERM plus is so quiet that it can be installed even in densely built-up environments such as suburban terraced housing estates. This means flexibility in several respects.

Special feature: natural refrigerant

An impetus for the development of the aroTHERM plus and the changeover to a new refrigerant was the so-called F-gas Regulation of the EU. This Regulation limits the use of fluorinated greenhouse gases. This affects refrigerants that are used in large quantities in air conditioning and refrigeration systems. However, the Regulation also affects heat pumps. The EU Regulation will gradually reduce the quantities of refrigerants placed on the market every three years from 2015 to 2030. With a total reduction of around 80 per cent. Due to restrictions on the quantities available, the price of these refrigerants will rise. In addition, the European Commission has allocated quotas for refrigerant quantities per calendar year to market participants since 2015. Market regulation is thus an incentive to use more climate-friendly alternatives and to develop appropriate products for them.

The greenhouse effect of a refrigerant is quantified by its so-called GWP (global warming potential). The refrigerants commonly used in heat pumps have GWPs that range from 675 to 2,100.

By comparison, the natural refrigerant R290 has a global warming potential of only three, which, expressed in ${\rm CO_2}$ values, corresponds to the difference between a 15-kilometre car ride and a 13-hour flight from London to Kuala Lumpur.

Long-term investments

Although the previous GWP values of heat pumps have generally been relatively low, the Vaillant

Group has gone one step further in environmental and climate protection than was immediately necessary. Refrigerants with comparatively low GWP values, for example a GWP of 600, remain a possible alternative and interim solution. Some manufacturers are counting on this. In view of long-term environmental requirements and not least because of the advantageous thermodynamic properties and the unlimited availability of R290, the Vaillant Group decided in favour of a long-term development investment and the switch to the natural refrigerant.

The new heat pump, however, also posed a major challenge during its development. When viewed from the outside, everything has the appearance of a conventional heat pump. But inside, most of the components had to be technically converted, qualified and approved. This required material- and personnel-intensive procedures and approvals, such as heating tests, electromagnetic compatibility tests and more.

It took 22 months, from April 2018 to February 2020, to develop the aroTHERM plus to full commercial maturity. About 120 people at different European locations were involved. In Slovakia, the production for parts of the indoor unit was set up, in France the production for the outdoor unit started operations. Central development took place in Remscheid, cooling circuit development in Spain. Preparations are also now under way for production in Germany, at the Remscheid site. Initial proof that the work effort was worthwhile was provided by the Interclima trade fair in Paris in November 2019, where the aroTHERM plus received an Innovation Award. A clear sign that, with the development of the aroTHERM plus, the Vaillant Group is excellently prepared for rising demand in the dynamic heat pump market of the future.









Heat pumps are eco-friendly

Heat pumps draw their energy from the ambient air, the groundwater or the soil. This natural and non-fossil energy is available in unlimited quantities. Heat pumps therefore score points compared to other systems due to lower emissions. In combination with climate-neutral electricity from renewable energies, they are even completely emission-free. Newer appliances are also sustainably produced and, for the most part, recyclable.



Heat pumps can do more than "just" heating

A commonly held assumption is that heat pump systems use environmental heat only for heating the rooms of the house and the water that is needed in the household. But in fact, heat pumps can also extract heat from living spaces via the water circuit in order to cool the rooms at times of high outside temperatures. The cooling is done via the floor or – if more cooling is required – via separate cooling convectors. Some heat pump systems even come equipped with integrated ventilation.



EUROPEAN HEAT PUMP SURVEY

What is important to European homeowners in terms of living comfort? What do they think about renewable energies and heat pumps? The Vaillant Group wanted to know more precisely and commissioned a Europe-wide survey. To do this, 3,500 house builders and renovators from twelve countries were surveyed. They were between 25 and 75 years old and planned to install a new heating system in the next three years.



Which criteria are most important for a new heating system?

A new heating system should, above all, be efficient. The operating costs should be low. And the system should last a long time. For almost 50 per cent of those surveyed, these are the most important criteria for their investment. Aspects such as the lowest possible purchase costs or a specific brand preference are mentioned much less frequently.





of respondents consider efficiency, operating costs and longevity to be very important.



of respondents want to install a new heating system in order to use renewable energies.

What factors influence living comfort?

The room temperature is more important than anything else. This was the opinion of the survey participants. A total of 18 possible answers were available, of which the respondents were allowed to choose five. These included, for example, the location of the property, air quality and the style of furnishings.



For many of the respondents, the room temperature is decisive for living comfort. This applies most to Dutch people, least of all to Spaniards.





Room temperature

What defines a modern home?

The participants most frequently answered this question with "renewable energies". In addition, energy efficiency, by means of good insulation and the avoidance of energy waste, is part of a modern home. Overall, the respondents chose from 22 different possible answers. As with all the questions, multiple answers were allowed.

34%

Smart

44% No waste of energy 45%

46%

26%

Underfloor heating

16% Lighting

Modern kitchen

home

Good insulation Renewable energies



As Vaillant Group Managing Director, Ralph Jakobs took over responsibility for the Technology division on 1 November 2019. We caught up with him for an interview.

If you were to describe yourself as a person, what qualities would you attribute to yourself?

People who have known me for a very long time and who know me well describe me as a person who acts prudently and is direct at the same time. It is like sailing. I learned this in my youth and it has shaped me. On the one hand, prudence, having an overview of the boat and making the right decision depending on the weather, the wind and the waves. On the other hand, directness, because the actions have to be just right when things get serious in certain situations.

What should not be missing on your desk under any circumstances?

The desk should be simple and tidy. When I sit there, I work with focus. But a tasty drink should not be missing. It helps to keep a clear head.

What has shaped your career, Mr Jakobs?

My career was shaped from the very start, with my first periods abroad in Spain and Mexico. In addition to professional aspects, I learned a lot about people and cultures. During this time, I was gifted an additional language – Spanish. In the further course of my

career, I learned to work in industrial manufacturing. This is where values are visibly created and the contact is direct and honest. My longer stays abroad were also formative. Six years in the USA and then the last three years in China. Especially in China, I was fascinated by the pace of change and enthusiasm for technology. I had never experienced so many tangible changes in such a short time before.

That was the professional side. What is important to you as a private person? Family, friends and a healthy social network of relationships which consists of

both. Apart from that, sport is one of my passions – table tennis as a competitive sport since my childhood and, from my youth, sailing. There have been many formative experiences here.

Would you say that there is a connection between sport and professional life?

Absolutely, yes! There are many professional situations in which sporting experience is valuable. An athlete has to train continuously and learn to find their place within the team. It is necessary to work persistently towards success. An athlete must be able to deal with failure. If you don't win the first time, you have to compete a second, a third time. It is important not to give up, even if the gap is high. Often, it helps to change tactics in order to win in the end. I know from sailing that you have to adapt to rapidly shifting conditions when the weather changes suddenly. These were very important experiences for me, from which I still profit today.

Is there any time left for sport today?

Yes. Running shoes always fit in my luggage. I like to bring the bicycle along when I go on holiday. And when it gets warmer, I usually bring my swimming gear to swim outside.

You were in the car industry for a long time. What motivated you to change to the heating technology industry to join the Vaillant Group?

In China, I had a technologically driven, digital environment characterised by a very high pace of change and a very motivated team that was ready to implement change. I really enjoyed working in this environment. After a few years, I felt the desire to tackle something completely new. The heating technology sector is a key industry for the energy transition. Heat and hot water are basic needs. The Vaillant Group has a very powerful lever in terms of contributing to climate protection, and I would like to use it in my new role.

What drives you in your daily work?

I like working with people – and in teams, so we're back to sports. I like change. And as a mechanical engineer, I am naturally fascinated by engineering and new technologies. At the Vaillant Group, the focus is on heat pumps, and thus environmentally friendly technologies. In future, hydrogen will play an increasing role as an energy source. And the sensible digital networking of devices to offer our customers more convenience and develop new services is an increasingly important topic.

What is important to you in your cooperation with colleagues and your team?

First of all, a fact-oriented but at the same time prudent, respectful and direct form of communication. In addition, everyone in the team must know their positions and tasks. It is also important that team interests take precedence over individual interests. If something has a negative economic impact on the company, then that is not acceptable. The next priorities are to focus on root causes rather than on symptoms, to first look at the facts instead of expressing opinions, and to think in terms of solutions rather than problems.

As Managing Director, you have to make decisions on a daily basis. What criteria guide these decisions?

Over the years, I have found a personal decision formula for myself. 80 per cent of all decisions can be made solidly on the basis of numbers, data and facts. This leaves 20 per cent, for which common sense helps. In only a very few cases do you fail to arrive at a rational result. Then, it is important to make an early decision based on experience, so that the work can begin.

What are the biggest tasks facing the Vaillant Group in the coming years?





The implementation of our five strategic priorities. "No. 1 Position in Gas!" means we must defend and expand our strong position in the gas heating business. "Win Electric!" means we must also rapidly expand the heat pump technology field and add further products. This entails assuming a leading market position here too. "Push Digital!" requires us to focus even more strongly on digital and networked applications that offer added value to both end customers and our installer partners. With "Accelerate China!", we want to use our good reputation in China to continue to grow in that market. All this will succeed if every employee brings personal ideas and commitment to their daily work with the firm intention of "We Make it Happen".

What is your focus when you think of leadership and employee development?

The Vaillant Group would not be so successful if it did not have so many experienced employees. I have met many people who have been with the company for over 20, 30, even 40 years. I have also got to know many younger, motivated employees who bring with them knowledge of new, often digital technologies. We have to build bridges here. I have always enjoyed finding young talent and working with them. That is a long-term mission. We have to start today so that in three, five and ten years' time, we will continue to have highly qualified and highly motivated employees who are still passionate about working for our company.

Mr Jakobs, thank you very much for the interview.

SUSTAINABILITY TARGETS



The Vaillant Group is pursuing ambitious sustainability goals with its SEEDS programme. It clearly defines which self-imposed goals are to be achieved until 2020.

After about ten years, it is now time to take stock.

And it is time to answer the question of what comes next.

hen the Vaillant Group launched its SEEDS sustainability programme in 2011, it was ahead of its time. That's because the Vaillant Group was one of the first companies in the international heating, ventilation and air-conditioning technology industry to firmly anchor a Group-wide sustainability management programme within its corporate structure. From the beginning, all activities in the field of sustainability were concentrated on four defined focus fields: Environment, Employees, Development & Products and Society. There has to be a direct link to the company's core business. And all activities are managed on the basis of specific key performance indicators. Since the launch of SEEDS, these have been collected on a quarterly basis. All this with the inten-

tion of achieving several ambitious goals in the four focus areas by 2020 and reporting publicly on any progress made.

What has come of it?

A lot of light, very little shade – that's how you could sum it up in a nutshell. Since the core business of the Vaillant Group is the development, production and sale of energy-efficient heating, ventilation and air-conditioning technology, it is obvious that environmental protection, in particular, was of paramount importance. CO₂ emissions, energy consumption, water consumption, waste generation: in these four areas, the company's own environmental footprint needed to be improved. "All in all, we have not only succeeded in achieving all our goals in the focus field of *Environment* ahead of schedule, but have even exceeded some of these goals," summarises



We have invested a lot of work, we have gained a lot of knowledge and we know which screws we want to turn."

Claudia Altenrath, Head of Sustainability Management. CO_2 emissions in relation to production minutes have fallen by around 30 per cent to date, instead of "only" the targeted 25 per cent. While the initial plan was to halve water consumption throughout the company, it has now been reduced by almost 60 per cent. "Where we could foresee that our measures would be successful, we tightened up the targets in 2016. But we were also able to achieve all of the new reduction targets," continues Claudia Altenrath by way of explanation. Only in the case of waste volumes was the originally announced reduction only just achieved, with the latest figure being just over 20 per cent.

A key objective in the Development & Products focus field is to steadily increase the share of efficient and renewable technologies in product sales. This category includes condensing boilers and all products that are operated with renewable energies, such as heat pumps, solar thermal and photovoltaic systems. "The share has increased by around 15 per cent compared with the base year 2010," says Claudia Altenrath. "While this is perfectly satisfactory, there is still further potential that we would like to tap into." The same applies to the focus field *Employees* and the focus field Society. The accident rate per 200,000 working hours has already been more than halved since 2011, but the aim is to make workplaces as safe as possible. As part of the partnership with "SOS Children's Villages worldwide", 76 projects were implemented. In total, far more than the two projects or more per year originally planned. Numerous children's villages have thus been equipped with new heating technology. This should also be possible in the future. The continuation of the joint strategic partnership in the coming years has been firmly agreed.

Looking ahead - SEEDS 2030

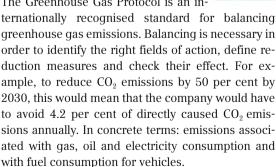
Planning for the future has long since begun at the Vaillant Group. The challenges in the face of advancing climate change have not diminished. The sustainability programme must take this fact into account. The new sustainability strategy is SEEDS 2030, and the corporate vision is at its centre. Taking care of a better climate. Inside each home and the

world around it. The main goal: the Vaillant Group is heading towards climate neutrality.

An essential step towards climate neutrality is a significant reduction of CO_2 emissions in the direct sphere of influence. To this end, the company is guided by the so-called Science-Based Targets initiative. The initiative – a cooperation between the UN Global Compact, the World Resources Institute, the Carbon Disclosure Project and the World Wide Fund for Nature – advocates that companies set themselves ambitious, but, above all, scientifically based targets for the reduction of their greenhouse gas emissions. With the goal of gradually reducing emissions further every year, the Vaillant Group supports the aim of limiting global warming to 1.5 °C. Emissions that initially cannot be avoided could be offset by certificates in a first step. One advantage: this ap-

proach could also be implemented quickly in the short term. With the successive reduction of CO_2 emissions in the coming years, the offset share would then decrease.

The development of new sustainability targets has been under way for more than a year. In intensive work, the Sustainability Management team has determined the CO_2 footprint of the entire company in accordance with the requirements of the Greenhouse Gas Protocol in order to obtain a valid data set. The Greenhouse Gas Protocol is an in-



Numbers - clear, comparable and valid

Nine years of SEEDS have led to some experience.



The challenges in the face of advancing climate change have not diminished. The sustainability programme must take this fact into account."

Green electricity is a major lever for CO₂ savings. With green electricity – especially for the manufacturing plants – up to 18,000 tonnes can be saved annually. Since 2017, the plants and subsidiaries in Germany have been solely using green electricity and, since 2018, so have the factories in Nantes in France and Belper in the UK. The Belgian sales company also switched to 100 per cent green electricity in 2018. Other locations will follow. However, electricity suppliers do not offer green electricity in all countries. If no green electricity can be purchased locally, as is the case for instance in China, an alternative solution must be found, such as green electricity certificates.

A second major lever is the vehicle fleet. By 2030, its CO_2 emissions are to be reduced significantly. At the same time, the Vaillant Group is experiencing growth that should intensify in the next few years. That would also mean that not only production consumes more energy, but also that the CO_2 footprint would increase in many other areas, such as in service. It is expected that there will be more trips and more vehicles in the future.

In order to achieve the savings target, it is necessary to avoid trips by car and to increase efficiency in service operations. Digitalisation offers new opportunities to this end. Remote analysis and maintenance can reduce the need to be physically present on-site at the customer's premises. Access to appliance data can provide information about the required spare parts and avoid multiple customer visits (see p. 28). In addition, more fuel-efficient vehicles and alternative drive systems, such as electric motors, as well as an EU regulation specifying the average CO_2 emissions of manufacturers' fleets, help.

"Wherever we have a direct influence, we can reduce greenhouse gas emissions with effort but by our own means," believes Claudia Altenrath, Head of Sustainability Management. "This will remain our focus in the future."

But the CO₂ footprint of a company is not only determined by the emissions directly caused by its

own business operations. Emissions generated in the upstream or downstream value chain must also be taken into consideration. These are caused, for example, by transport, services and the manufacture of supplier products at partners' facilities. Another example: employees generate greenhouse gases on their daily commute to work.

The largest share of emissions not caused by the company itself is generated by the operation of heating appliances in the households of their owners. The actual level of emissions depends on the energy source, the energy standard of the building and the heating habits of the occupants. New technologies offer environmentally friendly alternatives. The replacement of old appliances with modern condensing technology, for example, as well as the more frequent use of heat pumps in existing buildings (see p. 10). The use of green electricity and, potentially, of "green gas", i.e. gas whose production is climate-neutral (see p. 30). However, a major lever remains the usage behaviour of the end customer.

"We have invested a lot of work, we have gained a lot of knowledge and we know which screws we want to turn," says Altenrath. This applies not only to the prominent focus field *Environment*, but also to all other focus fields of sustainability activities. The goals for SEEDS 2030 are further differentiated in the areas of *Employees* and *Society*. The partnership with the children's aid organisation "SOS Children's Villages worldwide" will be continued in the coming years. The Vaillant Group is also currently working to ensure human rights and labour standards along the supply chain even more effectively, i.e. including beyond its direct sphere of influence (see p. 50).

"We have a lot planned in all focus fields, we will set our targets higher and, where it makes sense, we will also break new ground," emphasises Altenrath. "SEEDS 2030 is a further development that makes use of the know-how and experience gained in sustainability management over the last decade."



ADDED VALUE

FOR **CUSTOMERS**AND **PARTNERS**

The possibilities created by digital services help installers to be even more efficient in their day-to-day work. At the same time, their customers can enjoy greater convenience.

verything at a glance, everything in one application, in one digital product: that's the idea behind serviceASSIST. The new digital product enables new services. Via smartphone or Web browser, it is possible to conduct remote failure diagnoses, monitoring and control of heating appliances. Since September 2019, serviceASSIST has been available in the Netherlands. The UK followed shortly afterwards, and it's also been launched in France, where the service is available under two brands. The Saunier Duval version is called service-Pro. Both applications send, receive and process the data of connected devices via the Vaillant Cloud. Currently, the service is only available for gas boilers, as this is the Vaillant Group's largest product segment.

Professional installer partner Steven Cahalane appreciates serviceASSIST: "I have everything in view, especially customer data," says Cahalane, who was one of the first users of serviceASSIST with his company Gas Smart Heating Ltd in Brighton, about 90 kilometres south of London. As an installer, he can use the app to check the technical status of his customers' devices and immediately see if the device has reported a failure message or if there are any maintenance notifications. "Only if the system owner wants this, of course, and has authorised the installer to receive this information," explains José Ureña López, the main person responsible for the new service from the IoT programme of Vaillant Group. The data traffic flows are protected via the encrypted cloud of the Vaillant Group, and only the authorised installer company has access to the data.

This has several advantages for the latter. The installer can identify the device, its age and its history, such as repairs and maintenance. "The more I know, the better I can work," points out Steven Cahalane. serviceASSIST returns the error messages, maintenance notifications and status information as a code – with decoding performed automatically. This means that a time-consuming search for device type and the corresponding tech-



nical documentation is no longer necessary. "We have integrated several data sources," explains Ureña López. "Our aim was to collect, link and make use of all the knowledge about the products that exists in the company."

serviceASSIST is available at no charge as a so-called freemium version and as a premium version for a fee. The installers can take advantage of a trial period for several months with full functionality. After this extensive trial period, they can decide which range of functions is useful for their business. The premium functions include, for example, automatic notifications by email if an error occurs in an end customer's device. "One installer told us that, thanks to an error message from serviceASSIST, he went to the customer and was able to solve the problem there before the customer even noticed anything," reports Andrew Ireland, Digital Technologies and Controls Manager at Vaillant UK. Predictive maintenance has thus become a reality.

If a spare part is required, serviceASSIST will also indicate this in many cases. The



work at the customer's site will be faster and more targeted as a result. A pilot study prior to the market launch, involving 160 end customers in Spain from March to September 2019, confirmed this: 80 per cent of all error messages could be resolved in less than 24 hours. Multiple trips because the necessary spare part was missing on the first visit were no longer necessary. Andrew Ireland: "Our trade partners are already reporting positive effects for their business. serviceASSIST allows installers to stay one step ahead and plan their orders more efficiently."

For the product marketing of the new service, the Vaillant sales company in

the UK deliberately uses social media channels. The company has a large Vaillant Twitter community. Just a few hours after the news about serviceASSIST was announced by tweet, new activations of the app began to accumulate. "It's a digital product that we also advertise via digital media," explains Ureña López.

He and his team from the IoT division of the Vaillant Group are not yet finished with serviceASSIST. They are continuously developing the product further. Trade partners like Steven Cahalane also contribute their ideas. After all, they are the ones who really do know how service-ASSIST could best help them in their dayto-day business.





Science and industry are looking for new technologies for an emission-free future. Hydrogen is increasingly attracting attention. Whether in traffic, in industry or in buildings. Hydrogen is seen as a carrier of hope. The Vaillant Group has recognised this potential.

ydrogen. Number one on the periodic table. The most abundant chemical element in nature. Energy-rich. Non-toxic. Hydrogen is considered an energy source with a future.

At the next Summer Olympics in Tokyo, hydrogen will make sure that the Olympic flame will burn. Hydrogen-powered public transit buses will transport visitors to the sports venues and through the city. When the games are over, the Olympic village on the Harumi peninsula will be the first district in Japan to be completely powered by hydrogen. A climate-neutral city quarter will then be created. Not far from Tokyo, at the foot of Mount Fuji, the Japanese automotive company Toyota is simultaneously building a second model city - also hydrogen-based and climate-neutral. The so-called "Woven City" is a real-life laboratory for innovative technologies and artificial intelligence. Japan is relying on hydrogen as the energy source and hope for a climate-neutral future.

But the advantages of hydrogen have also been discovered in Europe: for transport, for industry and for living. In Sweden, the Netherlands, the United

Kingdom and also in Germany. Since September 2018, the world's first hydrogen trains have been running along the German North Sea coast on the route between Cuxhaven and Bremen. In Luleå, Sweden, a pilot plant for hydrogen-based steel production is currently under construction. Traditionally, steel production generates large amounts of carbon dioxide. The new process uses hydrogen, which comes from green electricity generated from renewable sources. Instead of CO2, only water vapour escapes. Hydrogen-based steel production alone could reduce Sweden's CO₂ footprint by 10 per cent.

A technology that has its advantages in transport and in industrial applications can also contribute to environmental protection in the energy supply of buildings. Michael Paul knows this too. He works at the Vaillant Group as a project manager in the R&D department. His team in Remscheid is currently developing a gas heater that is operated 100 per cent with hydrogen instead of natural gas.

"Technically, a hydrogen gas appliance is absolutely feasible. Hydrogen is also a gas," says Michael Paul. "The principle



of a gas boiler remains the same." However, hydrogen has different physical properties to conventional natural gas. For example, gas heaters operated with hydrogen require a different fan and a different burner that remains stable even at the higher flame speed. In addition, more condensate is produced and the heat exchangers must be adapted. The developers' roadmap is clear. The aim is first to create a prototype and then to develop an appliance that can go into field testing.

A lot is possible with hydrogen. But hydrogen cannot yet fully develop its full theoretical potential: there is still a lack of a hydrogen-compatible infrastructure, such as networks, pipelines and storage facilities, filling and withdrawal stations, and, above all, of sufficient hydrogen itself. Although hydrogen is actually found everywhere, it occurs in bound form. Extracting it from the compounds and making it available as molecular hydrogen is a complex process.

This is because the conventional production of hydrogen also causes CO_2 to be generated. For industrial use, for example, hydrogen is produced from methane by means of steam reforming. Hydrogen is made at temperatures of up

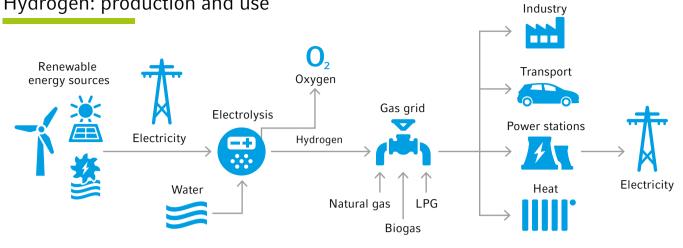
to approximately 900 °C and pressures of up to 30 bars. The resulting CO₂ is released into the environment; it is neither stored nor used for other purposes. This is different with so-called "blue" hydrogen. This is considered to be climateneutral because the CO₂ produced is either used or permanently stored. However, storage - also known by the technical term "carbon capture and storage" - is controversial. Scientists at the Karlsruhe Institute of Technology (KIT) in Germany are researching a pyrolysis process with methane, which produces solid carbon in addition to hydrogen, the idea being that this carbon will serve as a raw material for industrial applications.

Last but not least, there is also so-called "green" hydrogen. This type of hydrogen is generated CO₂-free with the help of renewable electricity obtained from solar, water or wind energy. The power-to-hydrogen process uses the green electricity to break down water into oxygen and hydrogen by means of electrolysis. The hydrogen is then fed into existing gas grids or used directly on-site as an energy resource. The advantage: power-to-hydrogen makes it possible to store excess wind or solar energy in the gas distribution system. Hydrogen thus





Hydrogen: production and use



also solves the storage problem of renewable energies.

In the form of admixtures, hydrogen already makes conventional natural gas "greener" today. However, gas grids are currently only allowed to accept a certain proportion of hydrogen. This proportion is not the same everywhere. In Austria, legal regulations allow up to 4 per cent and in Germany up to 10 per cent. In order to be able to transport more or even pure hydrogen in the existing gas grid, the infrastructure must be upgraded - or completely rebuilt.

The United Kingdom, for example, is already pursuing ambitious plans in this area and is investing in appropriate grid infrastructure. The British H21 project aims to supply around four million households and 40,000 companies in the north of England with clean energy from hydrogen by 2034. The starting point is Leeds, England's fourth largest metropolitan area. Other projects focus on hydrogen admixtures, industrial applications or domestic applications, especially for heating and building supply.

The Vaillant Group has technically prepared itself for the possibility of a higher hydrogen admixture in the gas grid and is involved in current pilot projects for H₂ enrichment, for example in the "20% H₂ HyDeploy" project at Keele University in the United Kingdom. Or in the case of a 10 per cent H₂ feed into the gas grid in Mainz, Germany, which reaches about 1,000 households, a significant number of them equipped with Vaillant appliances.

All Vaillant gas heaters of the latest generation can adapt to a higher hydrogen content in the gas mixture because they are gas-adaptive. This also applies to changing gas qualities with different methane contents and the use of liquid gases. The ecoTEC exclusive, the first condensing boiler of the new, gasadaptive generation from Vaillant, came onto the market in August 2019. A new combustion control unit called IoniDetect ensures that the appliances automatically adapt to the gas quality and that combustion is always clean, safe and efficient. The Vaillant gas heaters that are already installed in the market can also easily process up to 10 per cent hydrogen admixture. Tests have shown that today's appliances can even work with a 20 per cent admixture, with a mixture of 30 per cent also technically feasible. "Anything beyond this is no longer in a reasonable relationship to the ecological and economic benefits," says Michael Paul. For this reason, the focus in the future will be on appliances that are designed specifically for 100 per cent hydrogen. Technologically, the Vaillant Group is ready – H₂ ready.

Natural gas can be "green" ...

... as biogas or as synthetic natural gas (SNG). Biogas is produced by the fermentation of biomass. The advantage of biogas is that it can be produced and made available all year round, regardless of weather conditions. After technical treatment, which dries the biogas and removes impurities such as sulphur, it is chemically identical to natural gas in the form of biomethane and can be transported without problems in the conventional natural gas grid.

Synthetic natural gas is produced by methanation. This process uses CO₂ and hydrogen to produce methane. The CO2 required for this comes, for example, from industrial processes, sewage treatment plants or waste recycling. Research is also currently under way into processes that extract CO₂ from the air. Hydrogen, for example, is supplied by power-to-hydrogen plants. These use (green) electricity to split water into oxygen and hydrogen by means of electrolysis.







lmost everyone has heard of the organisation SOS Children's Villages – a charity that cares for needy children and orphans from poorer countries and crisis regions, but also for children from disadvantaged backgrounds across Europe. For many people, this is the typical image of the organisation's work; they think of substitute families and life in a village community.

There are well over 100 such "typical" SOS Children's Villages in some 40 countries – and they are supported by more than 2,700 additional SOS facilities such as nurseries, schools and social centres that meet the needs of people on the ground. Life at SOS is much more vibrant than you might think.

A visit to two SOS Children's Villages in Germany illustrates the many different ways in which the charity's facilities contribute to social cohesion. In Bremen, there are not only housing groups for children and young people, but also numerous services aimed at families in the city. Hof Bockum focuses on social and workplace integration for people with disabilities.

Diversity in Bremen

"Our Children's Village is like a city in its own right," explains Sylvia Schikker from SOS Children's Village Bremen, which celebrated its 20th anniversary last year. The Children's Village in Bremen is not based at a single location, but instead offers 18 different programmes for children, young people and families across 13 sites. The city of

Bremen struggles with above-average levels of child and family poverty. Together with its partner organisations, the SOS Children's Village therefore makes a valuable contribution within the community. The organisation includes children's housing groups, shared housing for young people, dropin and flexible services, a day group, school partnerships, day-care centres, support services and a vibrant neighbourhood and family centre in the Neustadt area of the city.

The minute you walk in, it becomes apparent that the SOS Children's Village centre is full of life. "We are always happy to have visitors, even if they are just



dropping by for a coffee," says Sylvia Schikker. People get together in the welcoming atmosphere of the SOS café on the ground floor, whether for breakfast, lunch or just a quick coffee. You can see young mums, a young man with a small child is waiting in the play area for his appointment with a support worker, a woman is donating some of her daughter's old clothes to "Klamöttchen" (the second-hand store on the first floor). One older couple are here for the social lunch. "We take a holistic approach and want to help the people and families of the city to live positively - and we provide them with advice and support," explains Sylvia Schikker.

"A varied programme"

"For me, the best thing is that people of all generations and from many different cultures and social structures come to us. We are there for families when problems arise, but also support them before that in order to prevent problems in the first place," says SOS employee Monika Lysik, who has been working as a coordinator in the neighbourhood and family centre for the past eight years. You can tell that she is very fond of many of the regulars. "We take a real interest in people and want to get to know them. Many of them only realise that they need help when they talk to us," she explains. "That's the benefit of an early-stage approach like ours."

The services of the neighbourhood and family centre are gratefully received: a midwife surgery, an advice service for young parents-to-be, toddlers' groups, parent/child groups, language courses, the second-hand store, arts and crafts / music afternoons for children. In partnership with SV Werder Bremen, there is even free football training for 10- to 14-year-olds on the neighbouring pitch. All of this requires excellent organisation. Some 250 people, over 100 of whom are volunteers, work at SOS Children's Village Bremen. "Doing good is easy if there are many to help" - and the words of SOS founder Hermann Gmeiner certainly live on in Bremen.

One of the volunteers is Inga Hübner. Together with four other volunteers, she helps out at the language café, which is "for old and new residents of the city". People from China, Brazil, Japan, Africa and Europe meet up six times a week to speak German together. Sometimes, the participants communicate with the help of translation programs on their phones, and the group often plays word memory to improve their vocabulary and matches words with the corresponding pictures. Inga Hübner regards these meetings as hugely enriching: "I love finding out so much about people and helping them understand our culture. Everyone brings in something from their home country," says the volunteer.













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We support children, young people and families at 13 sites across Bremen."

Sylvia Schikker, SOS Children's Village Bremen







Community spirit at Hof Bockum

Another untypical SOS Children's Village is located some 130 kilometres east of Bremen, near Lüneburg: Hof Bockum on Lüneburg Heath. It was made possible in the early 1980s thanks to the legacy of a Hamburg entrepreneur, who still supports the organisation through his foundation. The old manor farm – complete with farmhouse, several residential houses, a historic mill, a hunting lodge, stables, barns and 60 hectares of land – was converted into an SOS farm centre. However, you won't find very many children here.

A good 100 young adults with disabilities live and work here. "We provide support with social and workplace integration, offer a stable home and a job in a safe environment," explains Manfred Persy, Head of Hof Bockum. Back in the early days, he helped establish the village community and, together with his wife and children, lived at the site for more than ten years, with he and his wife as SOS parents. SOS parents live in the housing groups with the residents; one partner handles educational support within the housing, whereas the other partner works in the workshops. Group leisure activities are also part and parcel of daily life in the community.

At the workshops of the Bioland-certified SOS farm centre, residents work in the areas of gardening, agriculture, landscape management, home economics, cheesemaking and the service sector, as well as at the joinery/carpentry workshop in neighbouring Amelinghausen. Hof Bockum provides about 100 people with on-site employment, and there is also the possibility of work at local businesses. Twice a week, seasonal vegetables from the garden along with home-made cheese and other dairy products - are sold in a small farm shop. On one occasion, Hof Bockum even won a prize for the "best milk in the region".

But this is more of a positive side effect, as the focus is on the residents' workplace integration. The main job at the agricultural workshop is to keep and look after the dairy cattle, with 40 animals in total. There is a knack to looking after them: "They are good-natured but huge. You need to lose your inhibitions and gain their trust. It's good training for many people," remarks Angelo Taliercio, Agricultural Team Coordinator. He has been a farmer at Hof Bockum for 18 years, including a stint as an SOS parent. The team looks after the livestock, grows and handles the feed and makes sure that the animals have enough straw and hay, including for



winter. The residents are actively involved in the process of turning meadow grass into feed for the cows and in the transformation of milk into cheese.

Everyone can develop and grow

The workshop employees learn to work independently, regardless of the area in which they are employed. They receive affirmation and develop step by step. "For some of them, farm work is perfect, whereas others are more at home taking computers apart or packaging mailings in the service workshops. Again, some other residents are more suited to carpentry or to home econom-

ics, such as in our canteen," says Manfred Persy. "Everyone is good at something and they need to be aware of this," points out Christoph Thomann-Fuchs, Head of Employment. As a farmer by trade, he has been around since the start and even opened up to new areas, such as cheesemaking. "Nobody is pigeonholed and everyone is given the chance to grow," he says, referring to the Hof Bockum community. "And it's our job to support this process." The careers guidance phase can last one to two years, and the residents can still change direction at a later stage.

The fact that the residents pursue useful occupations in green sectors that add value to society makes the project all the better. Hof Bockum is firmly established in the region, with its products and services valued and in demand. It sells its products, accepts contracts as a service provider, supplies local retailers with food produce, provides private customers with firewood, looks after companies' grounds and occasionally rents out spaces as event venues.

Having devoted more than 35 years to Hof Bockum, Manfred Persy will soon be going into retirement. For him, the most important aspect is that the residents develop their independence. "It fills me with pride," he says. Sometimes, residents leave the farm and then go on to lead fully independent lives. Others, though, stay until old age. At the SOS farm centre, everyone is valued and experiences a strong community as well as a sustainable model for living and working together. This is good for the people at Hof Bockum, the region and, ultimately, for our social climate.









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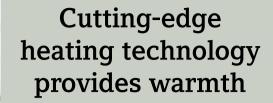
We provide support with social and workplace integration."

Manfred Persy, Head of Hof Bockum











The Vaillant Group and "SOS Children's Villages worldwide" have been enjoying a close partnership for six years. The company aids the charity's work by providing energy-efficient heating technology and therefore helps the children and young people at SOS Children's Villages to experience a warm home – in every sense of the word. The idea is that the social commitment of the Vaillant Group should be directly linked to the company's core expertise. SOS Children's Villages in 20 countries have already benefited from this partnership, including the SOS Children's Villages in Bremen and at Hof Bockum.

SOLAR DECATHLON EUROPE 2019



The fourth Solar Decathlon Europe was held in Szentendre, near the Hungarian capital of Budapest, in 2019. The competition focused on the renovation of buildings using cutting-edge technologies and recycled materials.



he best way to bring about change is to support agents of change. This ethos, espoused by American scientist Richard King, was the launchpad for the Solar Decathlon, which is now a global movement. In order to inspire university students to live sustainable lives and foster their

energy expertise, King launched the first-ever Solar Decathlon in Washington, DC, in 2002. Having reached 26 countries across five continents, it has grown into a much-admired multicultural and interdisciplinary competition that gives rise to innovative ideas and new technologies for the homes of the future. As a specialist in environmentally friendly and energy-efficient heating technology, the Vaillant Group supported a team at last year's Solar Decathlon Europe (SDE) in Hungary – with great success. The SOMEshine Team picked up prizes in both the "Architecture" and "Energy Efficiency" categories for its project.

Combining sustainability and residential comfort

The competitors in the Solar Decathlon are interdisciplinary university teams. Their challenge is to design (and then build) living space that is not only attractively designed and relatively cost-effective, but that is also resource-saving and powered by renewable energies. The judging criteria include architecture, innovation, feasibility and energy efficiency, as well as aspects such as neighbourhood integration, residential comfort and functionality. Along with nine other teams, the SOMEshine Team

came together to compete in SDE19; it comprises almost 80 dedicated students, lecturers and professors at three universities: Pécs, Miskolc (both in Hungary) and Blida (Algeria).

This time, the competition was held in Hungary and, for the first time, focused chiefly on existing building stock, thus shining the spotlight on a highly topical social problem in Hungary (an EU member state): older, cube-shaped houses (known as Kádár) need to be updated both structurally and in terms of energy efficiency. Most of these properties were built under the communist regime in the 1960s and 1970s; built to a uniform design, they are still found across the country and invariably exhibit poor energy efficiency. "The challenge set at SDE19 has real practical relevance," explains Dr Tamás Kondor, Head of the Architecture and Structural Design sub-team within the SOMEshine Team. "We concentrated on cube houses, which account for 20 per cent of the existing Hungarian building stock. For us, it was important to signpost new possibilities for energy renovation that do justice to the challenges of the 21st century."

Turning Hungarian homes into cosy nests

The SOMEshine Team developed its "energy-plus house" within a year. The focus on existing buildings presented the team with a unique set of challenges, including the use of locally recycled materials, the demanding integration of photovoltaic installations, solutions to combat building overheating in summer, natural and bioclimatic planning and





The Solar

Decathlon aims to show people around the world how they can live responsibly without sacrificing comfort.







SOLAR DECATHLON EUROPE

In 2019, the Solar Decathlon was held in Europe for the fourth time – and for the first time in Hungary. The event was hosted by Spain in 2010 and 2012 and by France in 2014, with a total of 73 houses built. More than 2,000 students from various disciplines – and 45 universities in 26 countries – have taken part so far. The event in Hungary was the first Solar Decathlon to focus on the resource-saving renovation of existing building stock.



the use of high-quality composite materials. With its "Hungarian Nest+" project, the SOMEshine Team managed to successfully meld local Hungarian architecture with an environmentally conscious ethos and high-tech solutions in its energy design. "Cooperation was the key factor in this regard. The project required the support of students and teaching staff from a variety of disciplines and with a broad range of specialist expertise," notes team leader Tamás Kondor. "Reciprocal knowledge sharing didn't just take place within our interdisciplinary team, but also with competing universities." And the outcome was a success. Key components of the house include an intelligent ventilation system, mobile living spaces with combinable elements to reflect different families' needs, adaptable furniture made from recyclable materials, and an autonomous domestic robot. Alongside the architecture, the energy efficiency of the SOMEshine home was also awarded a prize by the jury. Here, air circulation and light penetration - which respond to the seasons - play a role, with the use of solar energy and a high-efficiency Vaillant heat pump coming to the fore. The building technology made it possible to reduce the house's CO₂ emissions to zero.

Collaborative development

The request received by Vaillant Hungary from the University of Pécs, asking the company to assist the SOMEshine Team with its expertise and state-of-the-art heating technology, was met with an immediate positive response. "For us, it was an honour to contribute to making this green and sustainable vision reality," says István Budavári, a heat pump specialist at Vaillant Hungary. The fact that the event was not just a competition – but also a platform for showcasing feasible solutions for climate-friendly living standards – was a source of great motivation for the entire team and all those involved in the project.

Three Vaillant employees from the Sales department provided early-stage proactive and intensive support during the planning phase for the heating systems, with the experts working hand in hand. "We clarified key points in advance, indicated possibilities and designed solutions," remarks Zoltán Vasáros from the Sales department of the Hungarian national sales company. The result was a solar-assisted heat pump system that met the high energy efficiency requirements – complemented by a ventilation system.

Following a long planning phase, the next stage of the competition was to build the houses within just



two weeks. The site of the ÉMI Szentendre industrial estate, which served as the venue of the competition, was transformed into a buzzing hive of activity for a 14-day period, with ten houses built in record time. "The huge time pressure during installation and set-up was the most significant challenge: having to deliver quality in such a short space of time was something totally out of the ordinary. We were on-site from beginning to end, working from six in the morning to eleven in the evening. This was an outstanding logistical feat on the part of everyone involved," recalls Levente Pocsay, who also works in the Sales department of Vaillant Hungary. Not all teams finished on time, but fortunately everything ran smoothly at the SOMEshine Team house.

Houses to remain in place

First of all, the houses had to pass an inspection following the construction phase – and were then judged by a jury comprising experts from around the world. After the official competition, the model houses were made accessible to the general public on account of the considerable interest. The Vaillant team once again supported the SOMEshine Team during this period by answering visitors' technical questions on-site. It is particularly pleasing that the model village is still in place – and attracts visits from international quests, schoolchildren and students. Vaillant also uses the model house as a training and educational centre. The next Solar Decathlon will be held in Wuppertal, Germany, in 2021; for the first time, the theme will be urbanisation and the focus will be on integrated and participatory neighbourhood and building development.





The Vaillant Group signed up to the United Nations Global Compact in 2011, thereby accepting specific commitments in terms of human rights, labour standards, environmental protection and anticorruption measures.

In order to ensure compliance with human rights and labour standards wherever work is done – whether directly or indirectly – on Vaillant Group products, the company has carried out a comprehensive risk assessment and drafted a policy statement. Vanessa Baumes is responsible for this topic within the Sustainability Management department of the Vaillant Group. She met with Laura Curtze, Head of Human Rights and Labour at Global Compact Network Germany, to discuss the subject.

Vanessa Baumes: Ms Curtze, what do you expect from companies when it comes to human rights and labour standards?

Laura Curtze: Our expectations are based on the UN Global Compact and the UN Guiding Principles on Business and Human Rights. Companies need to be aware of the consequences of their actions and must be able to show what measures they are taking to prevent violations of human rights and labour standards or to rectify the situation in cases where harm has already been caused.

Baumes: Taking corporate responsibility is at the heart of our sustainability programme SEEDS, which also covers the topic of human rights.

Curtze: In conversations with companies, the initial reaction is often "Human rights? What about them? Everything is hunky-dory here." In my

opinion, it is vital to convey the message internally; employees need to understand that it's about taking a holistic approach to all company activities.

Baumes: Our experience is that people are ready and willing to cooperate and give their support.

Curtze: Do you already have a policy statement that specifically addresses observance of human rights?

Baumes: Yes, we do have a policy statement. What's more, we have also conducted an interdepartmental analysis to generate transparency in respect of potential risks. This not only examines possible high-risk countries, but also specific human rights.

Curtze: I also noticed that you have a Code of Conduct that includes the issue of human rights.

Baumes: We have an internal Code of Conduct and are in the process of drawing up a Code of Conduct specifically for our suppliers. A survey of our suppliers has indicated that very few of them are subject to structured audits in the areas of human rights and labour standards.

Curtze: It's interesting that you started by asking your suppliers. Will you actually be conducting audits once the Code of Conduct is in place?

Baumes: Yes, we will. As I say, we are currently working on the Code of Conduct for our suppliers. We have, howev-

er, been conducting audits on working conditions for several years, with these audits encompassing aspects such as child labour, forced labour, trade union freedom, and discrimination. We have provided our auditors with specialist training so that they can assess social risks in addition to their quality audit work.

Curtze: Auditor training is important. Quality auditors have a specific professional background, but quality audits are not the same as social audits. For starters, the methodology is different. With a social audit, you don't ask "Do you have any forced labourers here?" Instead, you study documents, inspect production sites and interview employees – and then draw your conclusions. How do you proceed when you identify a violation? Do you bar the supplier concerned straight away?

Baumes: Fortunately, we have never been faced with such a case. There are, however, clear limits to what is acceptable.

Curtze: Are you focusing on tier-one suppliers?

Baumes: It does make sense to start here. As we purchase so many finished components, it is hard to go beyond the first tier.

Curtze: In a best-case scenario, companies have an overview of the entire supply chain, even though this is easier said than done. It needs to be achieved gradually by contractually obligating suppliers to disclose their upstream suppliers. It might be useful to focus on one component in a pilot project or to concentrate on specific raw materials and determine where they originate. The purchasing process offers crucial leverage – and this should be used.

Baumes: That's why we included observance of human rights and labour standards in our purchasing terms several years ago. With the Code of Conduct, we are going one step further.

The UN Global Compact and Global Compact Network Germany





The Vaillant Group also considers the life cycle of products from an ecological perspective. From production to use and subsequent recycling. This is increasingly becoming a major market requirement in the European building sector.

he potential in the construction sector to reduce greenhouse gas emissions and resource consumption is great. "Green buildings" are becoming increasingly popular. Their planning is based on the guiding principle of ecological sustainability. But when is a building really sustainable? One answer to this question is provided by green building standards, which define requirements for building materials, as well as building and heating technology, and evaluate them by means of certification. There may be different standards for this from country to country, but they show a clear trend. There is increasing demand for life cycle assessments of buildings, not just the optimisation of energy efficiency.

The certifications include all components of the building, thus naturally also the entire energy supply including the heating technology. For certification to be granted, the relevant requirements must be met – and it must be possible to provide evidence of this. This is done with so-called environmental product information, which is also known as an EPD (Environmental Product Declaration). The EPD communicates the results of a product life cycle assessment in a standardised and thus transparent manner. In the construction sector, EPDs are already widespread and published for building materials and part of the building supply technology.

The product life cycle assessment of the heating appliance takes into account the entire life cycle – from the extraction of raw materials and the manufacture and transport of the appliance through to its use and eventual disposal. It also shows the energy required for production and the resulting emissions, deconstruction and recyclability. In short: all environmental impacts.

At this point, it pays off that the Vaillant Group has already taken an ecological view of the whole life cycle of its products for many years. The so-called 6 Green Rules, introduced company-wide in 2017, ensure that essential sustainability aspects are taken into account – in product development and therefore from an early phase. At the same time, this process provides the necessary data set for the subsequent product life cycle assessment and its documentation.



To this end, sound data collection and quality are essential. The Vaillant Group prepares the data for product environmental accounting. Technical testing institutes and certification bodies, such as TÜV in Germany or Bureau Veritas in France, then prepare the product life cycle assessment from it and summarise the relevant results in an EPD. In the French market, binding environmental product information for heating appliances has already been required in some cases since 2016. These documents are known there as PEPs (Product Environmental Profiles).

The example of France is representative of a trend. The French sales company is not the only one convinced of this: the Vaillant Group assumes that environmental product information will play a central role for marketability in future. If, for example, the planned new environmental protection regulations take effect in France. But in other countries too, such as Germany or the Netherlands, the requirements for new buildings will be further tightened, with the aim of optimising the energy consumption and CO_2 footprint of buildings over their entire life cycle.

As complex as it may be to draw up a holistic product life cycle assessment for heating appliances, it provides unquestionable clarity about how sustainable a product really is. It makes sustainability measurable and comparable for customers. And it is a real competitive advantage in view of the increasingly ambitious climate and environmental protection goals that are foreseeable.



