

EARTH MISSION

SUSTAINABILITY REPORT 2017



© Fronius International GmbH

Version 01/2018

Facility Safety

Prepared by: Katrin Helmberger
and Markus Zauner

Thematic focus:

Based on GRI, G4



/ This product is from sustainably managed forests and controlled sources.



/ Printed according to criteria documents of the austrian Eco-Label "printed products", UWW-Nr. 784

/ The masculine form has been used in the text for legibility reasons, but of course the information refers to people of both sexes.

/ Fronius reserves all rights, in particular rights of reproduction, distribution and translation. No part of this document may be reproduced, in any form whatsoever, or stored, processed, duplicated or disseminated with the aid of electronic systems, without the written consent of Fronius. You are hereby reminded that the information published in this document, despite the greatest care being exercised in its preparation, is subject to change and that neither the author nor Fronius can accept any legal liability.



Dear readers,

I am pleased to present the third Fronius sustainability report. This report ties into the previous year's edition, yet with a major change in its graphical presentation. Following a huge amount of positive feedback regarding the authenticity of the content, we considered it important to rethink and redesign the visual aspect.

For us at Fronius, sustainability is not merely an empty phrase. Indeed, there is a long tradition of sustainability at Fronius. The founder of our company, my grandfather Günter Fronius, laid the key foundation for sustainable concepts and actions within our company by developing a process that enabled depleted car batteries to be recharged and therefore reused.

Sustainability is reflected in all of our deeds and actions, whether in the development of products that have long service lives and are repairable, or in mobility between our sites and beyond. We always seek to question whether there is perhaps a way of reconsidering or redesigning things. All employees are encouraged to question processes in this manner and have the opportunity to put forward ideas and to be involved in their realisation.

Meaningful work towards being part of the solution for a green energy revolution motivates each of us. Our community and the Fronius spirit make the company what it is. Fronius does not just live for the present, but also has a past and is conscious of the future. With our spirit, our know-how and our passion, we create sustainable, innovative solutions offering great added value for our customers.

I would like to conclude my introduction with the words of Ban Ki-Moon: "We are the first generation that can end poverty, the last that can end climate change."

I hope you enjoy reading this report.

Elisabeth Engelbrechtsmüller-Strauß





CONTENTS

5 / Company

8 / History & Development

10 / Core Values

12 / Site Development

16 / Sustainability

20 / Business Areas

34 / Research & Development

38 / Supply Chain Management

40 / Employees & Community

54 / Corporate Social Responsibility

56 / Energy & the Environment

PASSION FOR NEW TECHNOLOGIES, INTENSIVE RESEARCH AND REVOLUTIONARY SOLUTIONS: THIS IS WHAT THE FRONIUS BRAND HAS STOOD FOR SINCE 1945.



*/ Interview with the
company founder
Günter Fronius:
www.fronius.com/about-fronius/history*

**LEADING THE WAY FOR
MORE THAN 70 YEARS**

/ When Günter Fronius developed the first battery charging system in 1945, he laid the foundations for what Fronius as a company represents: the constant search for pioneering solutions to the technical challenges of the times. Ever since these early days we at Fronius have been exploring new technologies for converting and controlling electrical energy for welding technology, photovoltaics and battery charging technology.



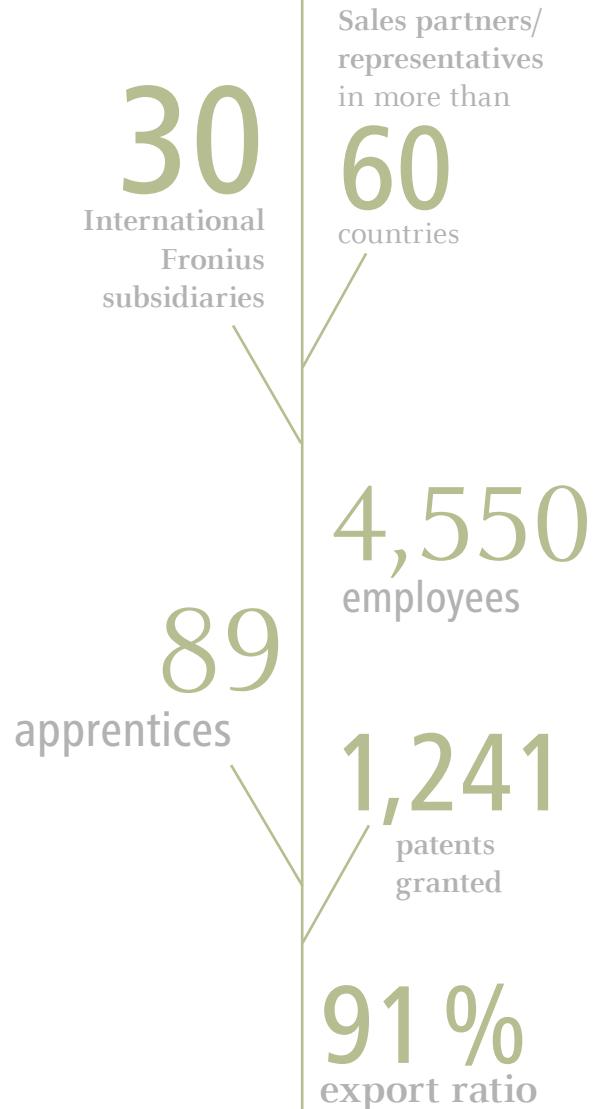
OUR BRAND STRATEGY: WE TAKE DIFFERENT PATHS, TRY DIFFICULT THINGS AND MAKE THINGS POSSIBLE THAT APPEAR IMPOSSIBLE FOR OTHERS.

This is not the only reason that Fronius is a global innovation and technology leader. With a clear vision, tireless ingenuity and a deep awareness of quality, again and again we push back the limits of what is feasible and start trends that change the market.

In the Business Unit Perfect Welding, our attention is directed towards generating the perfect arc for constantly high weld quality. Our Business Units Solar Energy and Perfect Charging focus on reliable and nationwide energy provision – 24 hours a day.

Innovative products with the Fronius brand win over customers through advanced technology and the very best quality, thereby creating trust and satisfaction over generations. These products impress due to their sustainability, raise productivity, increase energy yield and reduce operating costs. They therefore deliver a significant advantage for our customers and create the prerequisites for growth and successful development.

COMPANY FIGURES AS AT 31.12.2017





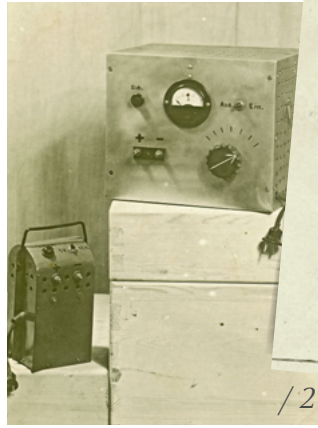
THE MANAGEMENT BOARD HAS DEFINED ITS MISSION IN CLEAR TERMS: TO CONTINUE WORKING TO ENTHUSE EVERY FRONIUS COLLEAGUE IN WORKING CLOSELY WITH OUR CUSTOMERS AND FOSTERING A SPIRIT OF INNOVATION IN PERFECT WELDING, SOLAR ENERGY AND PERFECT CHARGING, AND TO ENSURE ECONOMIC INDEPENDENCE.

In organisational terms, Fronius is divided into the following company-wide areas of responsibility, which are allocated between the four members of the Fronius Management Board.

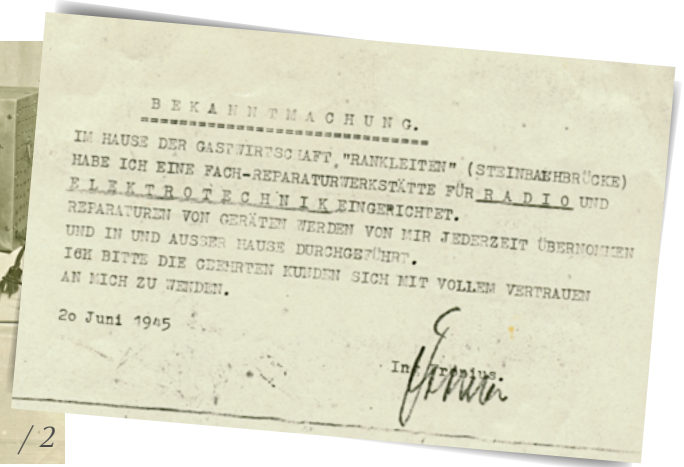




/ 1



/ 2



FRONIUS: A HISTORY OF SUCCESS MADE IN AUSTRIA

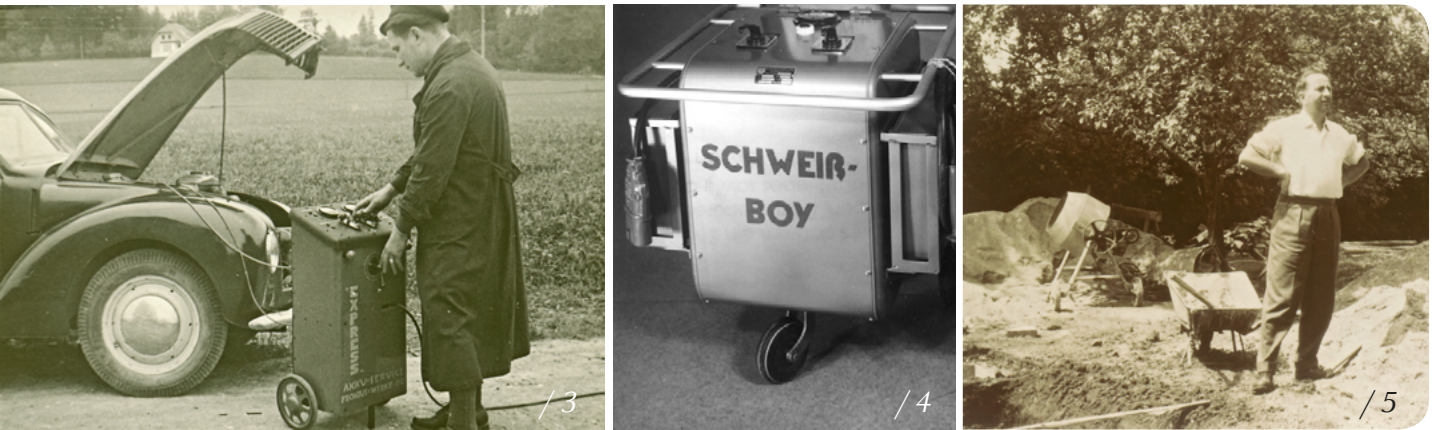
FIRST STEPS

The history of Fronius starts in 1945. At that time, being able to charge a car battery was not something that could be taken for granted. Günter Fronius wanted to change that: he started by repairing electrical devices and constructed his first charger with 50-Hertz technology. An old military barracks in Rankleiten, near Pettenbach, served as the first headquarters of the “Specialist repair workshop for radio and electrical equipment”. The Fronius family also lived on the premises. In this way, with a small workshop tacked onto the family’s living quarters and his first employee, Andreas Schinker, Günter Fronius laid the foundations for a global enterprise.

GROWTH YEARS

In 1950, Günter Fronius expanded his product range to include welding transformers. Based on these technologies, Fronius grew into an impressive, medium-sized company over the following decades. Günter Fronius then handed on the company to his children Brigitte Strauß and Klaus Fronius in the early 1980s. They initiated a programme of growth and internationalisation that led to the establishment of subsidiaries throughout the world. In 1992, the decision was taken to focus on the “technology of the future”, solar energy. This means that Fronius now has firm foundations in three separate divisions: Perfect Welding, Solar Energy and Perfect Charging.





1 / An old military barracks served as the first headquarters of the "Specialist repair workshop for radio and electrical equipment"
 2, 4 / The first Fronius products 3 / Mr Schinker with the express battery service 5 / Günter Fronius at work extending the company premises

SHAPING THE FUTURE

The geographical and technological programme of expansion introduced by Brigitte Strauß and Klaus Fronius continues to the present day. Today, Fronius is represented with subsidiaries in 28 countries and with sales partners and representatives in over 60 countries, and is recognised as an innovation and technology leader. Since 2011, Fronius has been managed by the granddaughter of the company founder, Elisabeth Engelbrechtsmüller-Strauß. However, the company's objective has remains the same as ever:

**CREATING A SUSTAINABLE
 FUTURE THROUGH
 INNOVATION, QUALITY AND
 OUTSTANDING SERVICE.**



Images from top:
 Founders Friedl and
 Günter Fronius, Elisabeth
 Engelbrechtsmüller-Strauß,
 Brigitte Strauß & Klaus Fronius

„FRONIUS WAY 4.X“

The company scrutinises its core values and reformulates them at regular intervals. A firm basis from which all employees can work was developed in 2017, in the form of the “Fronius Way 4.X”. The Fronius Way 4.X was developed in close collaboration with an editorial team made up of 40 employees and the Management Board.

OUR PURPOSE

With our spirit, our enthusiasm for new developments and our know-how in the area of energy conversion, we create sustainable, innovative solutions. These offer our customers added value, and assure safety, independence, sustainability and the latest technology. Together with our dedication and willingness to adapt, this ensures our financial success and makes an important contribution towards quality of life and the sustainable use of the world’s resources.

/ One example of how Fronius displays its values on a daily basis: the high-quality coffee cup with the graphics for Fronius Way 4.X.



FRONIUS TAKES NEW PATHS.

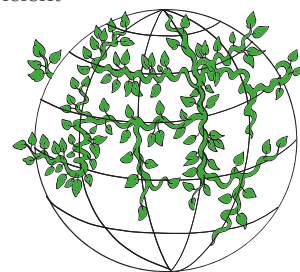
The basis for this is the Japanese ikigai principle – in summary, the reason for being – i.e. the feeling that describes what is worth getting up in the morning for. Fronius employees should first and foremost experience a congenial working environment within a corporate culture based on community, as it is only possible to stay ahead if we all pull together. Employees are given scope for ongoing personal development, which enables creative and innovative ideas to come forward, and Fronius is open to these. The company sees change as an opportunity, and this is also demonstrated by its actions: the Fronius way and its values should help each individual to scrutinise his or her work on an ongoing basis and to adapt it if necessary.

One aspect is particularly important here: acting responsibly and ensuring the sustainable use of the world's resources. Employees draw their motivation from this, as meaningful work is a major motivating factor. Fronius does not just live for the present, but also has a past and is conscious of the future.

WITHIN THE COMPANY, SUSTAINABILITY IS NOT JUST A TALKING POINT, IT'S REALITY.

Sustainability played a key role right at the start of the company's history: after the war, company founder Günter Fronius believed the short service life of car batteries was not acceptable. For this reason, he revolutionised battery charging technology and made the available energy more efficient and sustainable as a result.

Fronius Way 4.X has been presented and implemented by master trainers from the editorial team in all 30 subsidiaries worldwide. Due to actively incorporating all managerial staff and targeted support in the implementation, within a very short time it was possible to anchor the values in a sustainable way throughout the company as a whole. This is evidence of the awareness of quality that is present at Fronius – an aspect that does not stop with the product lines or apply only to cost effectiveness, but that also comes into effect in our dealings with one another.



„X“

The first step has therefore been taken, the Fronius values are tangible throughout the whole company, worldwide. However, the Fronius Way 4.X is not a brief snapshot, but rather a process. The X signifies constant change. So, it is a matter of continually gathering feedback, verifying and once again effecting change.





SUSTAINABLE SITE DEVELOPMENT

As early as the design phase for new premises, the use of alternative sources of energy, heating and cooling systems is a key consideration alongside architectural features. The conscious, and therefore sustainable, use of resources is a major part of site development.

SATTLIEDT

The company's Production and Logistics Centre is located in Sattledt. Since 2007, all battery charging systems, welding systems and solar inverters have been produced here on a site covering more than 100,000 m².

On the roof of the building you can find one of the largest roof-top photovoltaic systems in Austria, with a module area of 3,600 m². What is more, the heating needs are covered by a biomass cogeneration plant and two geothermal plants, meaning that heat generation is CO₂ neutral.



ELECTROMOBILITY

Fronius provides a well-developed electric charging infrastructure at all of its Austrian sites. Every kilowatt of electrical energy is either generated by a Fronius photovoltaic system or comes from 100 % renewable energy. Moreover, we make this energy available to our employees and customers with electric vehicles free of charge.

/ As a pioneer in the mobility revolution, Fronius was honoured by the Federal Ministry as a project partner in the "klimaaktiv mobil" scheme which promotes sustainable travel. The company's fleet of vehicles now includes more than 15





Pettenbach / The building's heating and cooling requirements are covered by a combination of geothermal energy and solar power.



Thalheim / The building's energy supply is provided from renewable energy sources.



1 / Wels / The historic brick buildings were modernised to make them energy efficient, allowing them to be retained.

PETTENBACH

Fronius is based in Pettenbach, where the company was founded. Covering an area of 6,000 m², the Pettenbach site houses the Competence Centre for Fronius welding torches and Finance & Controlling.

The building facade is clad with semi-transparent photovoltaic modules that stand out from the building and are ventilated at the rear. These reduce direct exposure to solar radiation and therefore lessen the cooling demand. Some of the energy generated at the site is used to test the inverters we produce in the building's own systems.

THALHEIM BEI WELS

Thalheim is the Company's Research & Development Centre. Its special features include photovoltaic electricity and heat generation, geothermal fields and the systematic re-use of waste heat from the test laboratories.

STEINHAUS

The site incorporates the Repair Centre International and the Business Unit Perfect Welding's production facility for automation. During the modifications to the building and its infrastructure, a great deal of emphasis was placed on creating a pleasant working atmosphere for the staff.

WELS

The Wels site, which was opened in 1990, extends over 17,000 m² and is the starting point for the international activities of all three Fronius Business Units.

The active energy design, photovoltaic system and modern environmental technologies ensure that as much energy as possible is yielded to meet the site's own requirements.



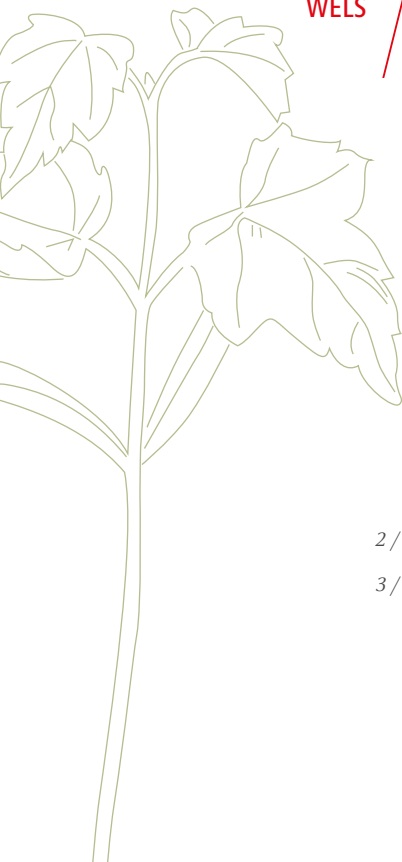
/ 1



/ 2

2/ *Part of the façade has been turned into a Green Vertical Garden.*

3/ *The building's heating and cooling requirements are covered by a combination of geothermal energy and solar power.*



UNDERSTANDING

FRONIUS BELIEVES STRONGLY IN A SUSTAINABLE APPROACH TO THE USE OF ENERGY AND RESOURCES. ENVIRONMENTAL AWARENESS IS ONE OF OUR MAIN COMPANY VALUES.

/ Sustainable development at Fronius means giving the same consideration to environmental and social factors as to economic factors. Building a sustainable economy thus means that our priority must be to leave our children and grandchildren an intact ecological, social and economic structure.

In order to systematically monitor environmental aspects at the company and steadily improve our performance, an environmental management system according to ISO 14001 has been introduced and certified. The overriding objective is to promote environmental protection and to prevent environmental pollution.



KLAUS KRAMLER
BUSINESS UNIT SOLAR ENERGY SALES & MARKETING

“With our vision of 24 hours of sun, we are pursuing the goal of an energy supply based on 100 % renewable sources. This calls for new technologies, new business models, etc., and developing these is our ambition. In order to be able to do this, we need a stable financial basis. Sustainability at Fronius therefore also means economic sustainability. It is only thanks to sound financial management and high profitability that Fronius is able to make those investments on an ongoing basis, so as to be able to provide the solutions required for the energy revolution.”

THE BINDING ENVIRONMENTAL POLICY SUMMARISES THE UNDERSTANDING OF SUSTAINABILITY AT FRONIUS AND GIVES US A CLEAR DIRECTION TO ACHIEVE OUR ENVIRONMENTAL OBJECTIVES:

MEANINGFUL AND SUSTAINABLE

/ Our products and services are meaningful and sustainable. We improve performance for users and end consumers through better welding processes, while our work in the field of sustainable energy helps to protect the planet's resources. Through our efforts, we deliver a higher quality of life and ensure that our children can be proud of the decisions that we have made.

IN BALANCE

/ It is our goal to bring ecology and economy into balance and to promote environmental protection across all our areas of activity.

IMPROVING & VERIFYING

/ Relevant legislation and regulations are observed. We also enforce an internal regulatory framework and endeavour to constantly improve - and monitor the effectiveness of - our environmental protection measures.

REDUCING & PREVENTING

/ As far as is economically possible, we also strive towards the long-term improvement of our environmental performance through continuously reducing and preventing environmental pollution.

LEADING BY EXAMPLE

/ Our managers lead by example and ensure the transfer of knowledge among our staff.

PREPARED

/ Organisational precautions for environmental emergencies are in place.

REFINEMENT

/ We are constantly refining the environmental and energy management system and use synergies with our existing management systems. Within the framework of the environmental management system, environmentally friendly behaviour is encouraged among employees, the environmental objectives we set for ourselves are achieved, emissions such as solid waste and waste water are reduced, and customer and regulatory requirements are fulfilled.



TO FULFIL AND FURTHER DEVELOP THE HIGH STANDARDS WE SET FOR OURSELVES, DIFFERENT MANAGEMENT SYSTEMS ARE FOLLOWED:

ISO 9001

Since 1993, Fronius has been certified in accordance with the ISO 9001 quality standard. Quality is at the heart of everything that every department of the company does. Quality awareness – as a value from the Fronius Way – is instilled in all Fronius employees, safeguarding the quality of products and processes alike. For us, quality is configuring products and processes in line with demand, as well as satisfying the requirements of our customers and interface partners.

ISO 14001

Fronius strives not just to comply with environmental standards, but to exceed them. Wherever possible, we do more than the legislation requires – this applies particularly to our plants, processes and sites. To support this environmental understanding, our production sites employ a certified environmental management system according to ISO 14001.

OHSAS 18001

For its occupational health and safety management system, Fronius received OHSAS 18001 certification in May 2014 following an external audit. Great importance is accorded to the areas of safe working and health & safety, and the employees take these aspects very seriously. A safe working environment, healthy staff and continuously introducing new measures for improvement are critical to the ongoing development of the company and a subsequent increase in quality.

Both the environmental and energy policy and the occupational health and safety policy are based on our corporate principles and have been drawn up in close cooperation with the Management Board. These policies are reviewed at regular intervals to ensure that they are up to date, and they refined if necessary.

RISK MANAGEMENT

Potential risk factors are taken very seriously at Fronius. We focus particularly on the protection of infrastructure facilities and IT security. In 2016, we established our own staff unit for dealing with risks that arise. The working focuses of this staff unit include the operability of the infrastructure and reducing downtime. Moreover, raising employees' awareness of issues such as cybercrime is a key aspect – proactive training sessions on how to deal correctly with cyberattacks are offered.

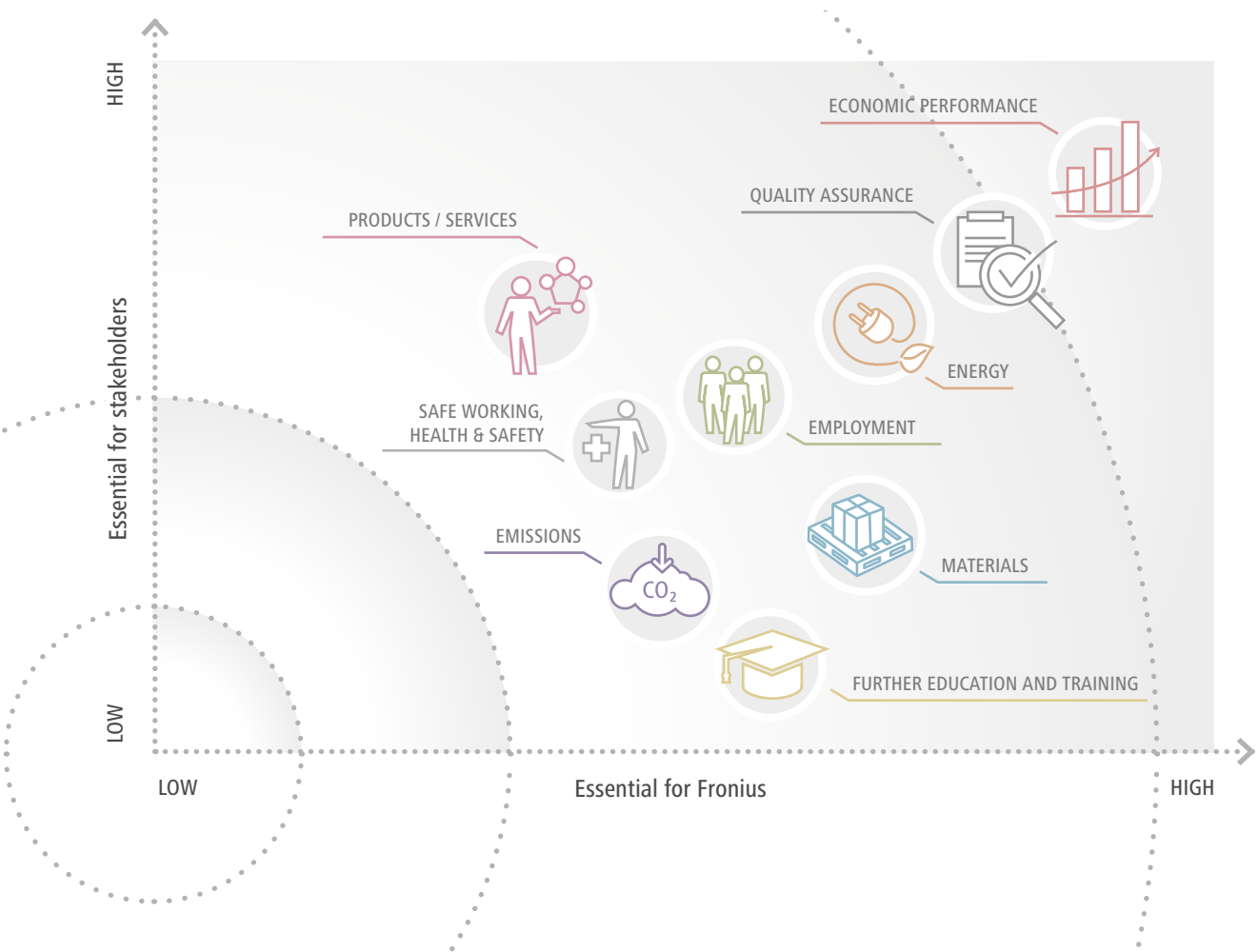


REPORT CONTENT AND KEY ASPECTS

/ In order to determine the topics relevant to Fronius, the core team for the sustainability report attended a workshop to identify and assess the most important areas based on the list of aspects in version G4 of the Global Reporting Initiative. These topics are shown in the materiality matrix and discussed in detail in the remainder of the report.

The way that Fronius people work together, and that we work with our customers and partners, is characterised by mutual trust and esteem. When working together we set great store by honest communication, achieving a jointly agreed consensus, tolerance, and a healthy feedback culture.

The core team working on the sustainability report identified the relevant target groups. The result was shown in an “Interest and influence matrix” and the stakeholders were grouped. Our most important target groups are the employees, the Management Board, customers and suppliers, development and sales partners and authorities. A variety of events and venues allow Fronius to establish regular dialogue with stakeholders.





WHETHER IT IS CUSTOM CHARGING SYSTEMS, REVOLUTIONARY WELDING PROCESSES
OR COMPLETE SOLUTIONS FOR SOLAR ENERGY – ONE GOAL
REMAINS THROUGHOUT:

**USING OUR ENERGY TO CHANGE
THINGS FOR THE BETTER.**



HARALD SCHERLEITNER
GLOBAL DIRECTOR SALES & MARKETING
BUSINESS UNIT PERFECT WELDING

“Sustainability and welding does not have to be a contradiction. For this reason, we place great importance on quality at Fronius Perfect Welding. Our products are characterised by long service life and by efficient and resource-conserving usage. Where required, spare parts can be supplied decades into the future and, with an intelligent welding system from Fronius, the user is equipped with a device for a range of requirements. Even at the development stage, we think about the future and how we can contribute towards a sustainable world.”



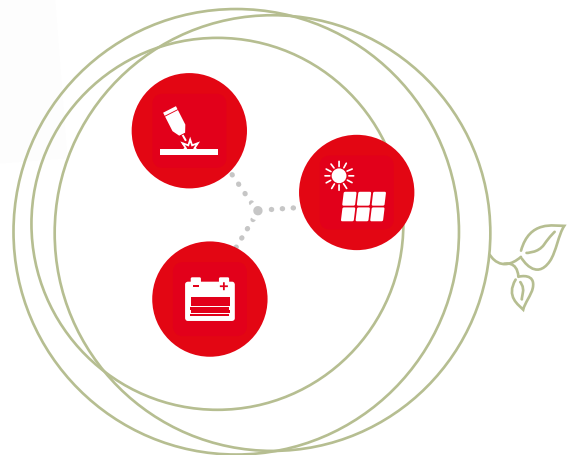
ANDREAS PRIELINGER
GLOBAL DIRECTOR RESEARCH & DEVELOPMENT
BUSINESS UNIT PERFECT CHARGING

“Sustainability starts with each individual. The foundation for sustainable products is laid at the design stage. Only in this way is it possible to make optimum use of products, to repair them and rent them out, and ultimately to recycle them.”



MARTIN HACKL
GLOBAL DIRECTOR SALES & MARKETING
BUSINESS UNIT SOLAR ENERGY

“It is vital that we achieve our goal of ‘24 hours of sun’ – but how we do this is also important. For me, considering sustainability in the supply chain for the energy revolution means doing the right thing in the right way.”



PERFECT WELDING

FRONIUS HAS BEEN WORKING ON INNOVATIVE SYSTEM SOLUTIONS FOR ARC AND RESISTANCE SPOT WELDING SINCE 1950.

/ The concept of sustainability has always been accorded great importance in the development and production of Fronius welding power sources – our guiding principle is therefore: act sustainably and work efficiently with the world's resources. We have made it our task to manage, control and save energy in a targeted manner across the various welding processes.



WHAT REALLY MATTERS

However, sustainability goes beyond energy consumption: for Fronius Perfect Welding, considering the welding system as a whole is therefore essential. As early as the development stage, care is taken to ensure as long a service life as possible for the power sources. The use of extremely robust materials guarantees high quality and a long service life. It is with good reason then that Fronius welding systems represent process stability and optimum performance.

SUSTAINABLE SOLUTIONS

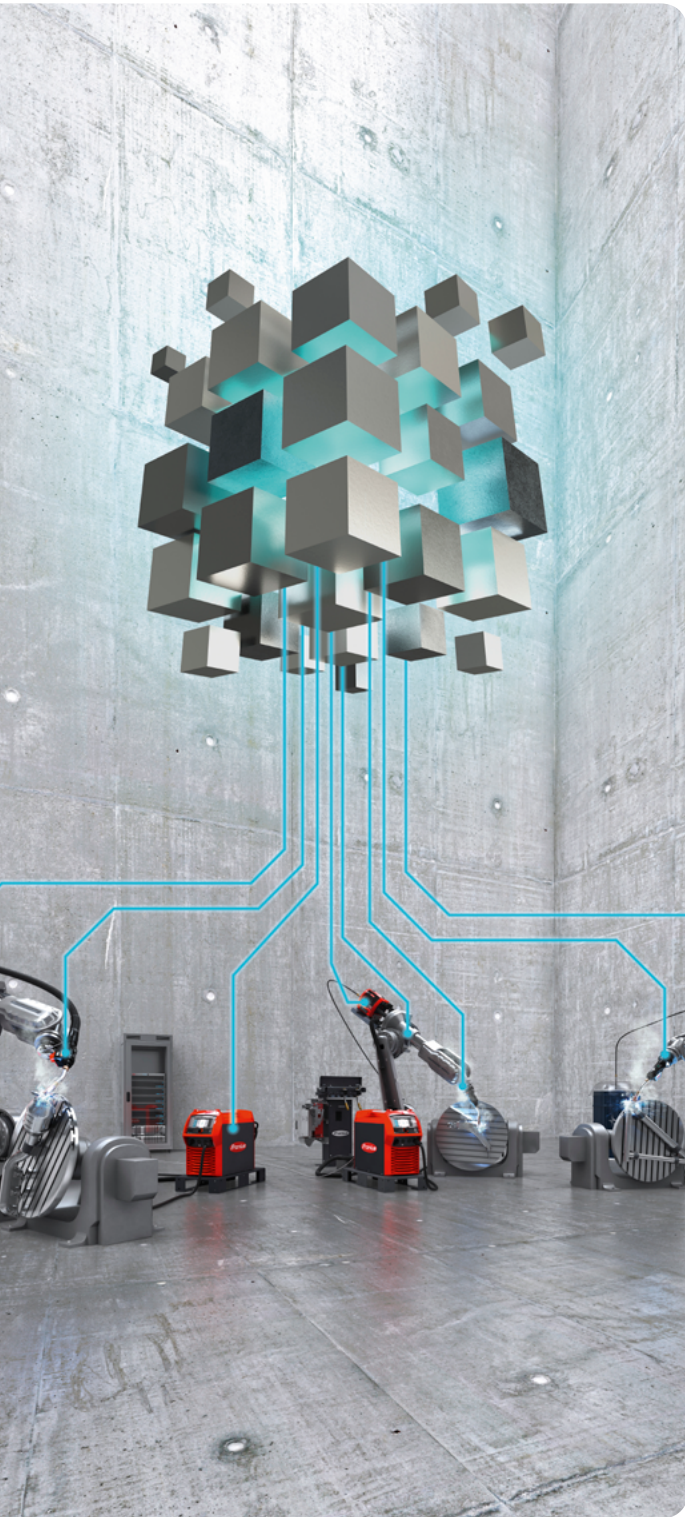
The high-quality products and solutions that are adapted precisely to customer requirements not only impress with their quality, but also with their efficiency and cost effectiveness. A higher welding speed combined with a low rework rate and malfunction conserves resources and reduces costs at the same time.

Fronius Virtual Welding enables risk-free training for welding beginners and thereby helps to save on consumable materials such as metal, wire or shielding gas. The WeldCube, our solution for the documentation, reporting and monitoring of welding data, also supports process optimisation efforts thanks to consumption and reject analyses. The intelligent TPS/i welding system allows for process upgrades at any time. This makes the devices extremely flexible and equipped for different user requirements, meaning that replacement is not necessary.



/ The Virtual Welding simulator saves consumable

Today, Fronius is the innovation leader for arc and resistance spot welding, and the global market leader for robot welding power sources. We develop individual solutions to support our customers in the automotive industry, in pipeline construction, shipbuilding and steel construction, but also for workshops and tradespeople.



/ The WeldCube supports process optimisation efforts thanks to consumption and reject analyses.

TRANSSTEEL 2200

- / Easy to maintain as individual components, such as the dust filter or fan, can be replaced
- / Compatibility with updates makes it possible to send future welding processes and function packages to the device
- / PFC (Power Factor Corrector) optimises the power consumption from the grid, so that only as much power as required is drawn from the grid
- / The FSC (Fronius System Connector) makes it possible to use existing welding torch models for the TransSteel 2200



TIG WELDING TORCH THP / TTB

- / The existing spare parts programme is compatible with the new generation of TIG welding torches
- / The modular design of the welding torch means that individual components, such as the control unit or the torch body, can be replaced
- / By swapping individual modules, the welding torch can be used for a range of applications

FRONIUS COOLING LIQUID

- / Welding torch cooling liquid with improved frost and corrosion protection
- / Increases the service life of the system and the individual components
- / Biodegradable and eco-friendly
- / Non-flammable and non-irritant
- / Longer shelf life
- / No labelling requirement

SOLAR ENERGY

WE HAVE NO DOUBT THAT SOLAR ENERGY WILL BE AN INDISPENSABLE PILLAR OF THE ENERGY SUPPLY OF THE FUTURE, WHICH IS WHY HAVE ALREADY SPENT NEARLY THREE DECADES HARNESSING ITS POTENTIAL. OUR VISION OF 24 HOURS OF SUN IS THE DRIVE THAT SPURS US ON.



IT ALL BEGAN WITH

Inverters to convert direct current from PV modules into usable alternating current. Today our core competency has expanded from power conversion to include the intelligent management of energy flows within a building. This is essential for realising 24 hours of sun, as 100 % renewable energy means the electrification of mobility and heat generation, an adequate supply of renewable energy and optimum efficiency in energy usage. None of this would be possible without intelligent systems.

A building equipped with Fronius energy flow management solutions has both the intelligence and the technology, allowing maximum energy efficiency through to complete energy independence. Energy from photovoltaics and other sources is always routed to where it is needed. The main energy consumers, including any electric vehicle, are networked and supplied with power on an intelligent basis. Surplus energy is either stored in a battery, used to heat the building or to generate hot water.



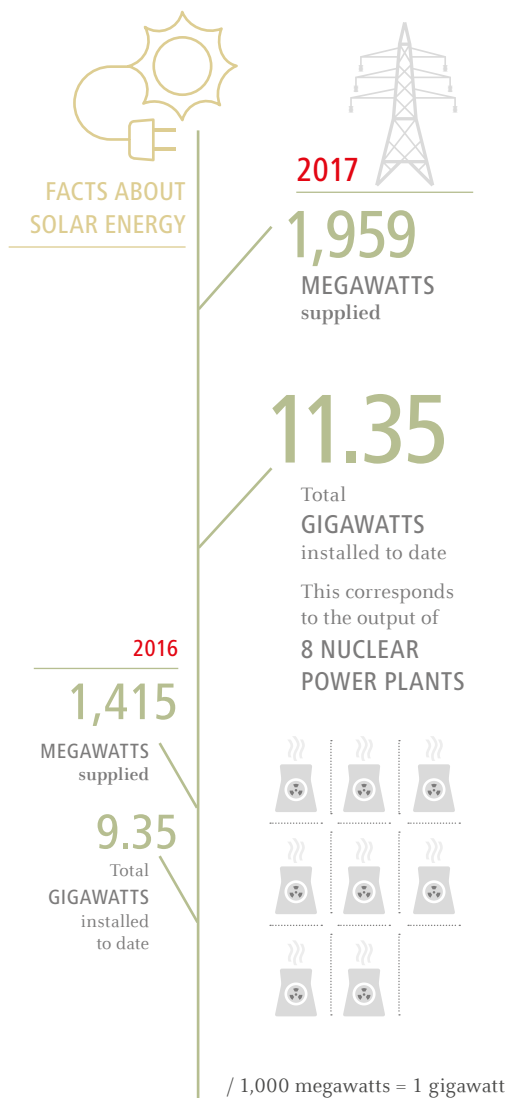
FRONIUS OHMPILOT

The Fronius Ohmpilot uses surplus solar power to heat water or for other ohmic loads, increasing the customer's self-consumption rate significantly.

- / Optimum use of photovoltaic energy generated in your own home
- / Reduction of CO₂
- / Service life of heating system can be extended
- / Heating systems can be completed turned off during the summer

24 HOURS OF SUN MEANS

Covering 100 % of our global energy requirements from renewable sources. A target that is ambitious, but achievable. The technology for this already exists. Solar energy will be an essential part of this mix, as the sun's power is available every day and is free. In order to harness this huge potential, we are developing intelligent solutions to generate and exploit solar energy for domestic, commercial and industrial applications as well as for large-scale solar power stations.



WE BELIEVE THAT EVERY INDIVIDUAL IS CAPABLE OF CHANGING THE WORLD.

This is particularly true when it comes to combating climate change. This is because, from major industrial concerns to independent businesses and households, there is always somebody who has the power to decide for or against renewable energy. Averting a climate crisis means switching the entire world's energy supply to 100 % renewable sources.

THE AIM IS 24 HOURS OF SUN – A WORLD OF 100 % RENEWABLE ENERGY. WORKING TOGETHER WITH OUR PARTNERS AND CUSTOMERS TO ACHIEVE THIS OBJECTIVE IS THE MOTIVATION THAT DRIVES US FORWARD AFTER ALL, WE ALL HAVE THE SAME DESIRE: TO LEAVE OUR CHILDREN A WORLD WORTH LIVING IN.

PERFECT CHARGING

FRONIUS HAS BEEN WORKING WITH BATTERY CHARGING TECHNOLOGY SINCE 1945 AND DEVELOPS BATTERY CHARGING SYSTEMS FOR STARTER AND TRACTION BATTERIES.

/ Customers from the intralogistics sector to the automotive industry have been impressed with the performance, efficiency, cost effectiveness and sustainability of the custom systems and solutions. We help our customers to significantly reduce their costs.

/ Fronius Perfect Charging is a cost-optimisation partner for the charging of traction and starter batteries. From equipment for operating electric forklift trucks in the intralogistics sector to reliable power supplies for motor vehicle starter batteries in showrooms and workshops: among countless users around the world, Fronius technology is a byword for the maximum availability of their vehicles and for a longer battery service life.

Famous automotive and forklift truck manufacturers together with users across every sector have for decades put their faith in Fronius to optimise their battery charging processes.

By working closely with our customers and drawing on more than seven decades of R&D experience, we provide complete solutions tailored to their individual needs. We place particular importance on sustainability for all our process steps. For example, the Selectiva battery charging systems are especially compact and minimal use of materials is a feature

of their design. Due to the use of particularly robust components and high production quality, the devices are characterised by a long service life. The battery charging systems can also be upgraded with the latest software release using the USB interface, allowing them to be used for years to come. What is more, the Selectiva battery charging systems are also compatible with alternative drive technologies such as lithium-ion. Not only do we champion sustainability in our own operations, we also encourage our customers to do the same. The innovative Ri charging process of our battery charging systems guarantees users a gentle, energy-saving charging process for their batteries, which consequently do not need to be replaced as often. An increasing number of customers rely on the intelligent combination of solar energy and battery charging technology – they have a photovoltaic system with Fronius inverters installed on the roofs of their production halls or warehouses and use some of the energy this generates to supply their forklift fleet.



/ Using smart tools to reduce energy costs and CO₂ emissions during battery charging



/ Selectiva battery charging systems for traction batteries

SELECTIVA BATTERY CHARGING SYSTEMS FOR LEAD-ACID BATTERIES

- / Compact design with minimal use of materials
- / The Fronius Ri charging process ensures maximum energy efficiency when charging traction batteries and maximises their service life
- / High total efficiency of 84 %
- / Appropriate software-based support with the I-SPoT

CALCULATOR AND I-SPOT VIEWER

- / I-SPoT Calculator: calculation of investment and operating costs saved
- / I-SPoT Viewer: reporting tool for data analysis and evaluation, and operating cost optimisation

NEW BUSINESS SURFACE TECHNOLOGY

NEW BUSINESS IS AN ORGANISATIONAL UNIT THAT CREATES SPACE FOR THE REALISATION OF NEW AND DIFFERENT BUSINESS IDEAS AT FRONIUS.

The Surface Technology team works on the treatment of material surfaces using atmospheric-pressure plasma and is the first team to be established within New Business.

TECHNICAL SPECIAL FEATURE

Atmospheric-pressure plasma (APP) is a special case in plasma technology. It is worked with normal pressure and at very low process temperatures. By using liquid media, unique effects can be obtained. Instead of inefficient large-scale applications, the surface treatment can be used in a precise manner.

While current systems predominantly rely on gases such as air and nitrogen to generate atmospheric-pressure plasma, the Cold-Active-Plasma technology developed by Fronius is based on a new principle that makes it possible to transform even liquids into the plasma state. This opens up additional options for surface treatment and expands the range of possible applications.

IMPACT & APPLICATIONS:

PLASMA CLEANING

Atmospheric-pressure plasma removes organic contamination from metal or plastic surfaces in a much more environmentally-friendly way than chemicals. The APP process is not only mechanical in action, but also chemical – the particles of dirt react with the plasma, become gaseous and are removed by the plasma flow.

Possible applications:

- / Fine and ultra-fine cleaning
- / Fine and ultra-fine cleaning prior to surfacing and joining processes
- / Removal of thin layers

ACTIVATION AND FUNCTIONALISATION

During activation or functionalisation, the surface chemistry of the base material is changed so that the material becomes more reactive. This means that the surface energy of materials increases and better wettability or increased adhesion is therefore achieved. In this way, the base material can be connected more successfully with surface coatings, paint or adhesives.

Possible applications are found in the activation and functionalisation of a very wide range of materials prior to subsequent processes such as:

- / Gluing & sealing
- / Painting and printing
- / Surfacing

SUSTAINABILITY

The Fronius atmospheric-pressure plasma technology helps to improve existing and new industrial applications and to treat surfaces with optimum efficiency, flexibility and greater environmental sustainability.

The use of environmentally-friendly plasma technology makes it possible to replace conventional pre-treatment methods such as grinding (grinding dust pollution) or primers (chemical risk), and can therefore lead to an improvement in working conditions. The associated removal of solvents or other chemicals from the process makes the plasma technology both cost effective and interesting in environmental terms.

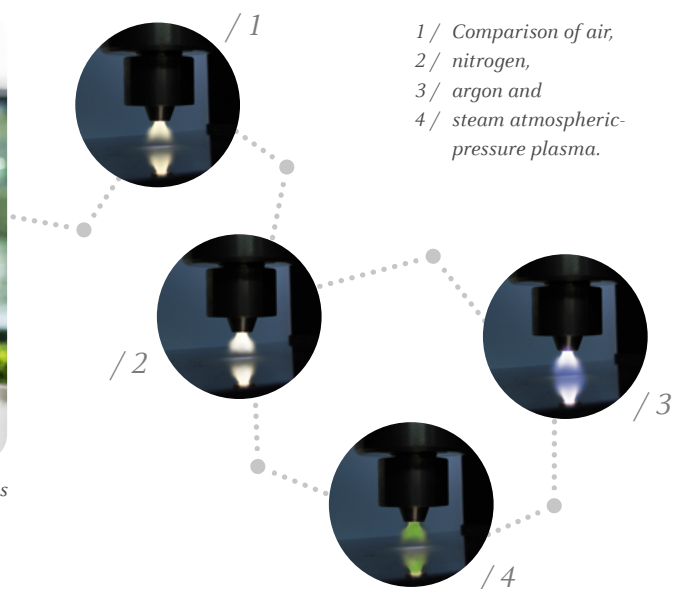
Surface treatment with atmospheric-pressure plasma is characterised by a high level of environmental sustainability. Due to the high density of reactive particles in the plasma, the quantity of process media used is comparatively low. The energy consumption is also reduced as a result of the low temperatures in the cold-active-plasma process. No by-products or waste products that are harmful to the environment or to health are pro-

duced, and there are therefore no disposal costs. Through the use of a liquid as the starting medium for plasma generation, the concentration of nitrogen oxides and ozone that is usual with air or nitrogen can also be significantly reduced or avoided.

It should be noted, from an economic and environmental point of view, that the system has a small footprint and is fully in-line-capable, which greatly reduces the logistics costs for the customer. The requirements in terms of safe working practices are minimal. It is no longer necessary to buy a system, and accordingly more sustainable solutions for peak shaving or small series can be offered. Rental systems can be used multiple times for various applications over the product life cycle and beyond.



/ Ronald Holzleitner and Thomas Stehrer from the New Business Unit Surface Technology during an interview with a specialist journal – because innovative ideas need a platform.



SUBSIDIARIES

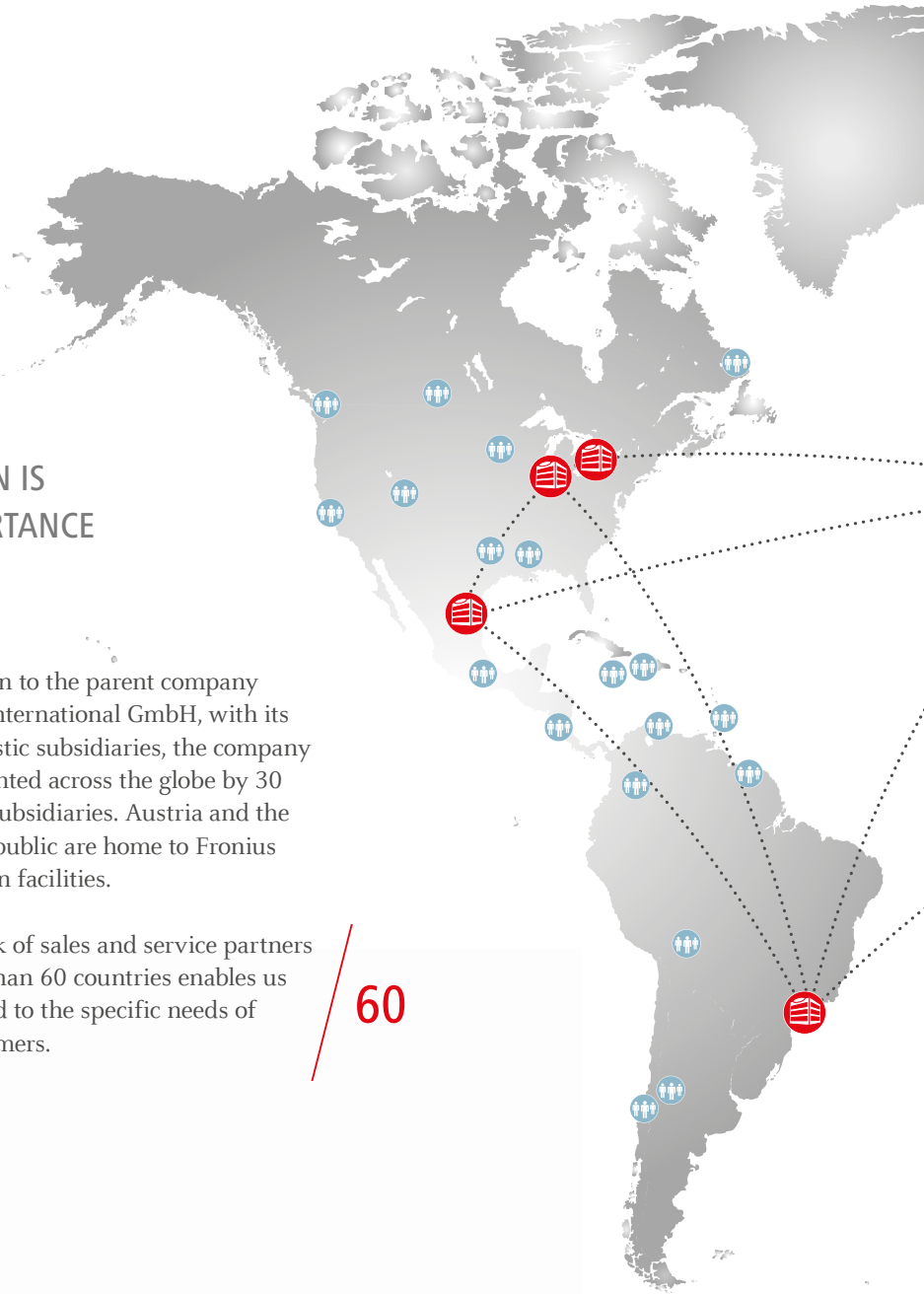
INTERNATIONALISATION IS
OF PARAMOUNT IMPORTANCE
AT FRONIUS.

30

In addition to the parent company Fronius International GmbH, with its ten domestic subsidiaries, the company is represented across the globe by 30 national subsidiaries. Austria and the Czech Republic are home to Fronius production facilities.

A network of sales and service partners in more than 60 countries enables us to respond to the specific needs of our customers.

60





IN DIALOGUE WITH OUR STAKEHOLDERS

WE IDENTIFY WITH OUR CUSTOMERS,
WHICH ALLOWS US TO OFFER
CUSTOMISED SOLUTIONS.

There are regular opportunities for dialogue at various events we host.

SUPPLIER DAY

The motto of the 9th Supplier Day was “Intelligent machine – when machines speak to each other”. On 30 May 2017, representatives of 40 European suppliers in the mechanical engineering and software sectors gathered at the Fronius site in Sattledt for an exciting and informative supplier day. The programme included Fronius company information, expert presentations and workshops on a range of topics relating to the field of intelligent machines.



PERFECT WELDING

- / Automotive
- / Robotics
- / Automation



SOLAR ENERGY

- / Private systems
- / Small & medium-sized commercial systems



PERFECT CHARGING

- / Intralogistics
- / Workshops

Österreichisches
Umweltzeichen
Green Events



THE FRONIUS SUPPLIER DAY AND THE
AUTOMOTIVE CONFERENCE ARE CONDUCTED
AS CERTIFIED GREEN EVENTS!

As a Green Event organiser, we advocate for an environment worth living in and come up with innovative ideas for conferences that do not compromise on quality. By organising Green Events, Fronius takes its social responsibility seriously and contributes to environmental and climate protection.

AUTOMOTIVE CONFERENCE

JOINING SMART TECHNOLOGIES – A CONFERENCE AT THE CUTTING EDGE

On 10th and 11th May 2017, the Fronius production and logistics complex in Sattledt once again played host to the “5th International Automotive Conference”. The aim of the conference was to highlight and discuss current issues such as digitalisation, Industry 4.0 and the Smart Factory. The vision of a production environment in which manufacturing facilities and logistics systems largely organise themselves without human intervention, and of systems that communicate with one another independently using the “Internet of Things” provoked many questions.



/ Podium discussion



/ Over 5,700 visitors toured our sites in 2017.

PUBLICATION IN SPECIALIST MEDIA

Along with numerous publications in specialist media, a host of technical articles can also be accessed online.



GUIDED TOURS

Over 5,700 visitors took part in guided tours of our sites in 2017. We are particularly proud of our apprentice guides, who led over 60 of these tours.

PARTICIPATION IN TRADE FAIRS AND CONFERENCES

Each year we exhibit our new products and services to our customers and development partners at national and international trade fairs and events.

SCHWEISSEN & SCHNEIDEN 2017

From 25th to 29 September 2017, the leading international welding trade fair SCHWEISSEN & SCHNEIDEN took place in Düsseldorf. Around 50,000 visitors from more than 120 countries made their way to this world-leading trade fair to discover the latest innovations in joining, cutting and surfacing technology. Using the motto “What’s your challenge? Let’s get connected.”, Fronius Perfect Welding once again positioned itself as an innovation leader, with a digitised stand measuring 1,000 m².



/ SCHWEISSEN & SCHNEIDEN 2017
The stand design is being reused and the WeldCube structure is now in Fronius’ headquarters in Wels.

RESEARCH & DEVELOPMENT

WITHIN „RESEARCH & DEVELOPMENT“, WE DESIGN THE PRODUCTS OF TOMORROW AND PROVIDE SUPPORT FOR THE SYSTEMS WE DEVELOP THROUGH TO MASS PRODUCTION AND MARKET LAUNCH.

/ We refine existing products and adapt them as special solutions for individual customers or customer groups. We also develop completely new technologies in collaboration with renowned research facilities. The product development process at Fronius is split into defined phases and milestones to ensure the high quality of the process result. The output of the product development process is the required documentation for the production of a new product or system.

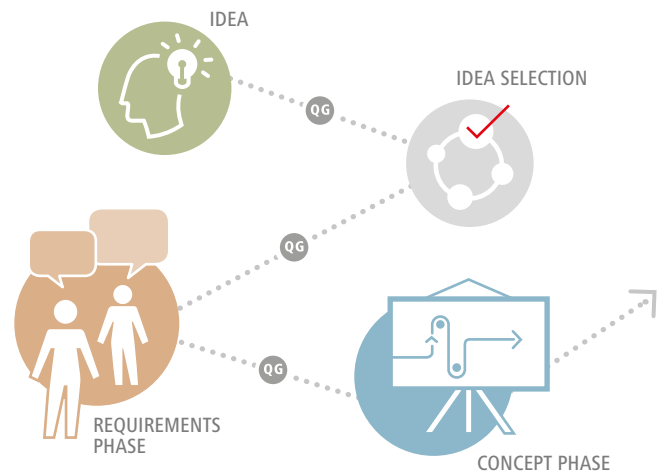
IDEA SELECTION

The idea selection phase is for evaluating and prioritising new product ideas and forms the basis for initiating product development projects. In order to exploit our creative potential and our total sum of knowledge, every employee has the opportunity to bring their own ideas to the table and make their contribution to safeguarding our innovation leadership.

REQUIREMENTS PHASE

During the requirements phase, the requirements of the product/system to be developed are determined from the customer's perspective. The R&D department's role in this phase is to generate ideas for technically superior solutions to prominent unfulfilled customer needs.

The balance between rules and leeway is considered particularly important during product development and requires a high level of individual responsibility from all those involved.



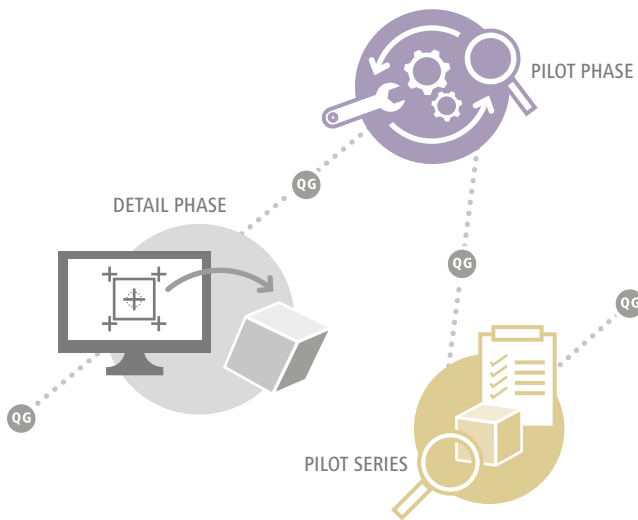
/ The graphic shows the individual elements of the product development process. The transition from one phase to the next is defined by what are known as quality gates (QG). These ensure that specific requirements are fulfilled at defined times.

CONCEPT PHASE

The concept phase starts with the creation of the R&D project order and the assembling of the project team. At this stage, the defined requirements are turned into technical concepts. By the end of the concept phase, the technical and economic feasibility is ensured.

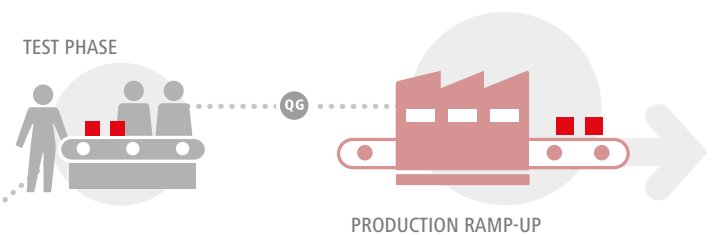
DETAIL PHASE

During this phase, the detailed technical execution of the entire system is developed and implemented based on the implementation concepts agreed on during the concept phase. The output from this phase includes an approved pre-production series sample, which is one of the basic requirements for the production of the pre-production series in the subsequent project phase.



TEST PHASE

The purpose of the test phase is to ensure the productivity and process reliability in series production. The production department is supported with any remaining queries and employees are trained. In the production department, this phase is the point at which the production warehouse is filled by upstream production units and suppliers, employees are trained and the final organisational preparations are made.



PRODUCTION RAMP-UP

During production ramp-up, the responsibility is handed over to Production, Service and Series Support, and the R&D project comes to an end.

PILOTPHASE

The pilot phase is designed to ensure the technical maturity of the product in relation to the requirements by producing the pre-production series based on the pre-production series sample. Internal tests and field tests are then performed on the prototype devices. Technical reworking of the product is carried out based on the results of these tests and, if necessary, the tests are repeated. The development of the product is now complete.

PILOT SERIES

The pilot series serves to bring about the series production of the product and the manufacturing/test equipment as well as to synchronise the product and equipment with one another. Based on experiences from the pilot series, a decision is made as to whether all the requirements have been met for the test phase to begin.



GERALD AIGNER
RESEARCH & DEVELOPMENT

“When developing our products and services, we make decisions on a daily basis that determine the long-term ecological footprint of Fronius to a significant extent. In full knowledge of this great responsibility, we use our influence to shape a world fit for the future and worth living in.”

SUSTAINABILITY THROUGH LONG SERVICE LIFE

THE ACID TEST! FRONIUS DEVICES ARE THOROUGHLY TESTED DURING STRINGENT TESTS.

/ Even while still under development, they are subjected to a range of tests and inspections. The Compliance Engineering (CE) department ensures that products from all Fronius Business Units meet the demands of the market, comply with the relevant standards and have a long service life, even when used in harsh environments.

FROM COMPONENT TO PROTOTYPE

The CE department supports the entire development process of a device – from the component through to the prototype. As soon as the first prototype of a new device is ready, the Compliance Engineering department starts testing it out. In addition to electrical safety tests, mechanical tests – such as tensile and drop tests – are also performed.

UNIQUE FRONIUS TESTS

Compliance Engineering goes a step further with its unique Fronius tests. As well as the industry-standard tests, the products also undergo a range of additional tests. Despite harsh environmental conditions, our customers should continue to be satisfied with our devices over the long term.

Welding not only takes place in the garage, but also in the freezing cold of Alaska or in the salty air of an offshore platform. Our inverters work just as well in hot and humid jungle climates as they do in the desert.



FRONIUS REPAIR CENTER INTERNATIONAL

Steinhaus is home to the Repair Center International (RCI). In the unlikely event that a welding system malfunctions, Fronius offers fast and dedicated assistance. Our repair service specialises in professional and high-quality repairs using original Fronius spare parts. At more than 4,000 m² the repair centre provides all the facilities needed for the efficient repair of products from the three Business Units.



THE FRONIUS ENDURANCE TESTS

Once all the tests have been passed, our devices are given the CE mark – the EU passport for products. Following on from this, the products also undergo testing by external testing institutions to ensure they meet varying global certification requirements.

- / TCO
- / CE certification for all products
- / TÜV
- / UL – USA (fire safety)
- / CSA (Canada + USA)
- / CCC (China)



LOW TEMPERATURE PERFORMANCE

/ Test: Extreme fluctuations in temperature and humidity

/ Objective: Robustness of device in harsh environments

DROP WITHSTAND

/ Test: Dropped from a defined height onto a solid surface

/ Objective: Housing integrity, resistance to breakage and electrical safety

DURABILITY TEST

/ Test: Fluctuations in temperature from -20° to +100 °C

/ Objective: Device stressability, particularly for outdoor installations

DUST TEST

/ Test: A fan blows fine talcum powder over the device

/ Objective: Housing integrity in dirty environments

UV RESISTANCE TEST

/ Test: Long-term exposure to strong, simulated sunlight

/ Objective: Service life of device in unprotected environments

DEGREE OF PROTECTION

/ Test: Sprayed with water

/ Objective: Housing protection (IP) for operational and user safety

IMPACT TEST

/ Test: Impacts with a force of 10 Nm in defined positions

/ Objective: Resistance of housing to impacts, especially when being used on building sites

EMC TEST

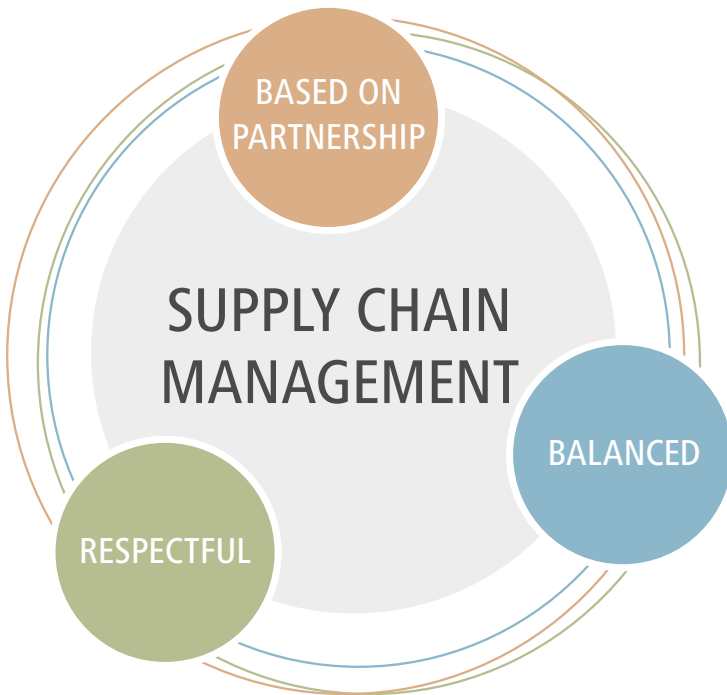
/ Test: Investigation of the effects of radiation and emissions in the frequency range 30 Mhz to 1 Ghz

/ Objective: Compatibility with other electric systems, no mutual interference

SALT SPRAY TEST

/ Test: Exposed for several days to an extremely salty spray mist

/ Objective: Corrosion resistance, particularly in coastal regions



/ Within the Fronius Group, sustainability is a key consideration along the entire value-added chain. To this effect, the design of our supply chain is based on social, environmental and economic pillars.

RESILIENT PARTNERSHIPS

In our collaboration with suppliers, we believe it is important to work with enterprises that have a sound financial basis. Efforts are made to strengthen relationships with selected and preferred suppliers.

BALANCED VALUE CHAINS

Within the framework of our Make or Buy activities, we strive for a good balance between in-house production and sourcing from outside. The question of sustainability is an essential decision-making aid in the form of diverse instruments.

RESPECTFUL RELATIONSHIPS

We set an example and take time for our customers, suppliers and interface partners. Respect and appreciation are the hallmarks of the way we deal with people. We feel it is important to develop relationships based on a spirit of partnership and trust.



HERBERT MÜHLBÖCK
SUPPLY CHAIN MANAGEMENT

“In its efforts to achieve sustainable working practices, Fronius takes into account the economic, environmental and social aspects. Integrating these three aspects of sustainability into a sustainable business model, both internally and with our external partners, is one of the strategic directions of the Fronius supply chain.

Sustainability should therefore not be considered as a marketing tool, but instead as an integrated component of all the company’s business areas, which in turn makes sustainable action and procurement over the entire value-added chain a fundamental factor in the supply chain. This integration lays the foundations for the lasting success of a business model.

SECURE PROVISION

With a network of more than 1,359 active suppliers, Fronius has built a global supply chain and thus purchases from 26 nations around the world. The Fronius supply chain is formed globally of drivers of local purchasing activities. Currently, 75 % of all materials are purchased from the EU, and they are all brought into the supply chain.

SUSTAINABLE SUPPLY CHAINS

The supply chain supports the company in its efforts to conserve raw material resources and actively involves suppliers in this process. With regard to the long service life and reusability of our products, we guarantee a secure supply of spare and wearing parts.

INNOVATIVE PROCESSES

We recognise trends in the supply chain early on. By designing innovative processes, we act as trendsetters for comparable enterprises and thereby promote the sustainable focus of our process architecture.

ESTABLISHED STANDARDS

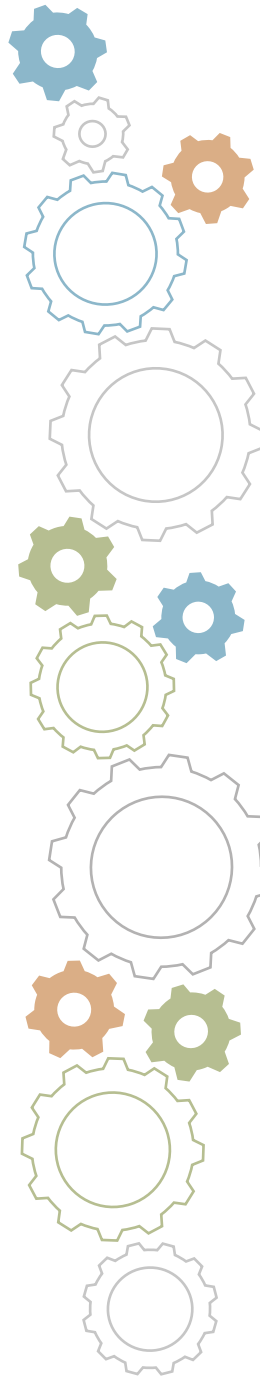
Standards that are applicable worldwide and regulations in force for individual markets are actively taken into account and form a significant foundation for our responsible dealings with people and the environment. These also come together to create the overall sustainable focus of our supply chain.

GLOBAL MARKETS

We extend our knowledge of the global market by researching the procurement market at an early stage. In doing so, we take responsibility regarding our procurement geography and visualise our market orientation.

INTEGRATED SUPPLIER MANAGEMENT

Supplier management serves to stabilise a qualitative collaboration at a global level. In developing our new and existing partnerships with suppliers, we focus on all three dimensions of sustainability and thereby achieve an integrative view of the supplier situation





EMPLOYEES AND COMMUNITY

WE WANT TO MAKE ENERGY WORK HARDER AND
THAT INCLUDES THE ENERGY OF OUR EMPLOYEES

We therefore establish prerequisites that promote opportunities for the individual and for all our teams. As a thriving family business, we think in terms of generations. In this way, Fronius will be able to continue shifting the limits in the future.

With their knowledge, skills, attitudes and motivation, it is our employees who constitute the potential and the driving force behind our ongoing growth.

We attach great importance to continually developing this personal and professional potential, and to deploying it in an interdisciplinary, international way. Managers encourage and support this development. They are role models for the value we place on people, of willingness to work and of focus on goals.



MATTHIAS UHL
FINANCE
& HUMAN RESOURCES

“Sustainability means supporting our employees with their continuous development on an individual basis. Well-trained employees in all departments contribute to the development of the organisation, sustainably tackle the challenges they face in different situations in life and at work, and are therefore at the heart of our company. This enables us to make our cooperation a lasting economic and ecological success that fosters social togetherness.”



INPUTS FOR APPRENTICE TRAINING

ACTIVE KNOWLEDGE TRANSFER. LEARNING MORE EVERY DAY, DISCOVERING NEW THINGS, GROWING IN PRACTICE FOR PRACTICAL APPLICATIONS – THIS IS SUSTAINABILITY IN PRACTICE IN APPRENTICE TRAINING AT FRONIUS INTERNATIONAL.

/ In 2017, more than 200 employees in just under 100 organisational units at all of the Fronius sites in Upper Austria actively passed on their knowledge to 100 apprentices in 12 apprenticeships. Diversity, enthusiasm and technical know-how allow Fronius to develop the specialists of the future to a high level.



/ Fascination for technology – at the Children's Day of Industry 2017.

NEW PATHS.

It is about following new paths and extending the traditional apprenticeship with innovative models for specialist training. In this field, Fronius International supports various initiatives aimed at conserving and developing or refining training provision as a project partner. Examples of these include the KTLA (combination of secondary technical school & apprenticeship) or CAP (mechatronics programme for those in the upper cycle of higher general education).

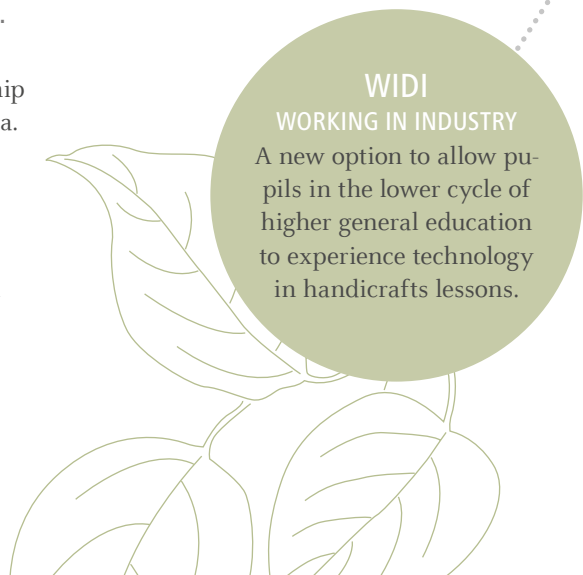


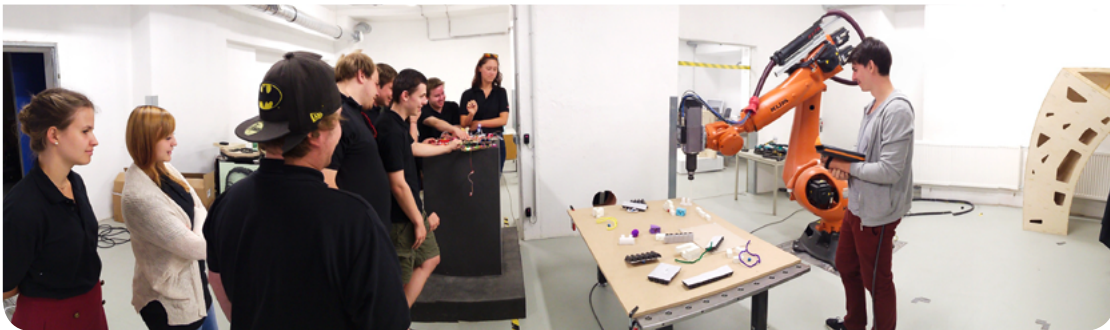
*/ WIDI
Photos: Josef Derflinger*

Awakening enthusiasm for technology in childhood and early adolescence is a long-term mission to safeguard Upper Austria as a technology location.

In 2017, the Fronius International apprenticeship training programme was also active in this area. Whether it is the Children's Day of Industry (Federation of Industry in Upper Austria), TEC2move (Regional Innovation Centre RIC) or WIDI – Working in Industry (Federation of Industry in Upper Austria and Upper Austrian Educational Board): Fronius is involved and brings its enthusiasm for great technology.

WIDI
WORKING IN INDUSTRY
A new option to allow pupils in the lower cycle of higher general education to experience technology in handicrafts lessons.





Images from top: / 30 new Fronius apprentices at the 2017 team outdoor training. / Fronius apprentices in the robotics laboratory at the AEC in Linz.

APPRENTICESHIP	M	W
Electronics technician	31	14
Mechatronic engineer	12	5
Metallurgical technician	13	3
Office administrator		12
Electrical engineer	2	1

APPRENTICESHIP	M	W
Design engineer	2	
Commercial logistics trainee		2
IT technician	2	
Media expert	1	

89

Total apprentices

12

Apprenticeships in nine apprenticeship groups

WORKFORCE DEVELOPMENT



THE KNOWLEDGE AND SKILLS OF OUR EMPLOYEES ARE THE FOUNDATION FOR OUR GROWTH.

Fronius attaches great importance to continuously developing its employees' skills both on a personal and a professional level. Both managers and the employees themselves take responsibility for continuous training and development, using a variety of learning methods. Personal development goes hand in hand with these learning processes, drives learning forwards and helps employees implement what they have learnt into their everyday work. There is a large and varied range of options for human resource development. This extends from in-house and external specialist training sessions to management and personality development seminars, and incentive workshops with external input through to custom Fronius programmes and participation in a company-wide learning journey.

FACE-TO-FACE AND ONLINE TRAINING:

As the occasion and need arises, every employee or employee group (team, project group, etc.) is given the opportunity to attend internal and online training sessions with external and internal trainers, to develop both professionally and personally.



The management training programme continued to support staff with appropriate training and advanced training in 2017. By way of example, one key training opportunity from

the 2017 training programme was "Diversity as a factor in success". In addition, keynote speeches were offered for the first time.

KEYNOTE SPEECH: THE POWER OF MEGA TRENDS

On 1 March 2017, Matthias Horx, who conducts research into trends and the future, visited Fronius and spoke on the topic "The power of megatrends". In his speech, he discussed major questions such as: Can we predict the future? What can or could happen? What percentage of the future is certain? What can best be predicted? Is everything predetermined or just chance? Was everything actually better in the past? – Just under 300 Fronius employees took up the invitation.

TRAINING: DIVERSITY AS SUCCESS FACTOR

Fronius has been offering the popular training opportunity "Diversity as a factor in success" in-house since 2015. In 2017, this course was regarded as a key training opportunity and had a clear objective. Participants were able to strengthen their own skills in the area of diversity and then integrate these into their day-to-day work. In 2017, more than 320 hours were spent on training for this topic.

IN ADDITION, THE FOLLOWING TOOLS SUPPORT STAFF DEVELOPMENT:

- / Potential & skills analyses (e.g. DISG model)
- / Fronius skills model
- / Trainee programmes

MANAGEMENT MODEL

/ The Fronius management model consists of three main management elements: thinking ahead, making connections and making progress. These elements form the consistent management approach at Fronius. By applying this model, the managers guide employees along the Fronius path and are aware of their responsibility for the company as a whole.

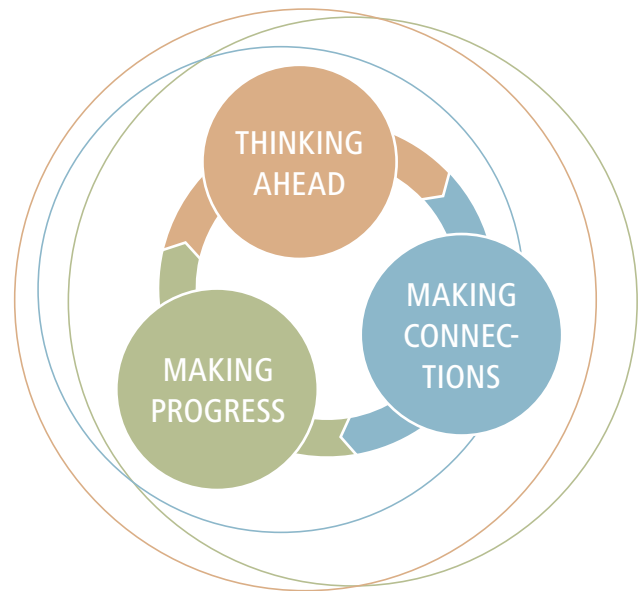
In management workshops, participants worked on and “translated” the 2017 management model together, in order to support transfer of this model to the relevant area and the individual day-to-day management tasks.

MANAGEMENT TRAINING

The management programme supports the Fronius managers in the performance of their duties and challenges them to reflect on themselves and integrate everything they learn into their work on a daily basis.

As part of the management programme, Fronius organises two management training courses that each consist of several modules and are tailored to the different needs of managers. Management basics are imparted in both courses, but also important key points for the Fronius management culture, such as self-management, positive leadership or management in times of change.

In addition to the external training sessions in the management programme, training sessions



within HR are also on offer. These impart valuable knowledge concerning working hours, employment contracts, etc. and thereby support new managers with legal and organisational issues.

For all existing managers, and of course new ones, the Fronius training programme also offers a very wide range of key management topics so as to enable ongoing development in line with personal interests and requirements. For example, in 2017, it was possible to book training sessions entitled “Resolving conflicts successfully” and “Change management”.

OTHER MEASURES TO DEVELOP THE MANAGEMENT CULTURE

/ Key points set for 2017: Conflict resolution skills: basic courses and regular case handling in peer groups

/ Potential and competence analyses

/ Individual & group coaching

/ Workshops on current themes within the organisation

SERVICES & EVENTS

FRONIUS HOLDS ALL KINDS OF ACTIVITIES AND EVENTS TO PROMOTE SOCIAL NETWORKING, HEALTH, WELL-BEING AND – NOT LEAST – JOB SATISFACTION.

- / Fresh fruit: fruit baskets are filled for employees every week at all of our sites in Upper Austria.
- / Fronius day for every new employee: Since 2003, the Fronius days have been organised at regular intervals and play a key role in employee integration. The aim is to allow new employees to experience the company's values and culture on a special day. In addition to general information about the company, the focus is predominantly on getting to know the new employees and on direct discussion with members of the Management Board.
- / Health promotion, e.g. financial support for sports and health courses, blood donation campaign in house, etc.
- / Gift cards as Christmas presents
- / Marriage and child bonuses
- / Retirement parties and staff awards
- / Company pension scheme: through the company pension scheme, all employees have the opportunity to save up to €300.00 per year tax free as an old-age pension, by the company paying a portion of their salary directly into the pension.
- / Option to take educational leave
- / In-house restaurants with the "Healthy cooking" seal of quality + financial support for menus
- / Financially-supported departmental outings
- / Fronius summer party
- / Company volleyball court & five-a-side football pitch
- / Running events, e.g.: Wels Business Run
- / Fronius Global Sound: Fronius Global Sound often enriches various Fronius events with its musical contributions. The band was founded for the opening of the Sattledt site in 2007, and since then its appearances have added that special something to the end-of-year celebrations, employee award ceremonies, retirement parties and the St. Martin's festival in Fronius KinderLand.
- / Fronius KinderLand (toddler's group & crèche)
- / End-of-apprenticeship party
- / Mentor programme: Mentorship means that a new employee is looked after by a mentor (= a Fronius employee) for a three-month period, so as to integrate the new hire into the Fronius company in the most effective way possible.
- / Site tours for family members





171

Fronius runners
& Nordic walkers

WELS BUSINESS RUN 2017

With 171 runners and Nordic walkers, Fronius was the company with the second largest number of representatives at the Wels Business Run.

The men's team, Fronius Running Freaks, took second place in the team competition. Other teams and individual runners, for example seven of our colleagues from Fronius Czech Republic, enjoyed success in the run.



LONG NIGHT OF THE EMPLOYERS

In November 2017, Fronius participate in the first Long Night of the Employers in Upper Austria, and gave around 40 interested school pupils and students an exclusive insight into the world behind the scenes of Fronius' development site in Thalheim. As well as a guided tour through the research premises, topics such as "Challenge innovation" or "Working world of the future" were discussed with selected Fronius employees in small workshops, allowing the visitors to gain an impression of the issues that Fronius deals with.



SUMMER PARTY

In blazing sunshine, the family summer party was held in Sattledt at the end of July. Radiant faces could also be seen in and around the party marquee.

Around 1,600 active and retired employees came with their kith and kin to enjoy this varied, enjoyable day together. With a total of 2,608 guests, the concept included diverse and high-quality catering options, fun and action zones and child-led-out areas, as well as music to suit the occasion. The day was very well received.

ENVIRONMENTAL EXPERTS AT FRONIUS KINDERLAND

At Fronius, even the youngest learn why sustainable development is important. The children in the in-house crèche investigated the topic of solar energy in a playful manner.

With the help of experiments, the children were able to test how the sun’s rays become electricity. Under the motto “Sun becomes food”, each child was able to plant some cress in their own clay container.

The young environmental experts enjoyed a varied morning and joined in with a great deal of enthusiasm and curiosity.



DIALOGUE AND EXCHANGE

REAL AND VIRTUAL COMMUNICATION PLATFORMS HELP PEOPLE TO GET TO KNOW THEIR WORKING ENVIRONMENT, PARTICIPATE IN ADVANCES AND SHARE THEIR KNOWLEDGE WITH OTHERS.

ANNUAL STAFF APPRAISALS

The Fronius staff appraisal process takes place annually and is not only an important management tool, but also intended to promote open communication between employees and their line managers.

Working together on minor and major refinements.

The focus here lies on reflecting on our own work and taking the time to work together on minor and major refinements.



ENERGY/talk

At ENERGY/talks employees have the opportunity to gain first-hand insight into an important topic at the company. The Management Board provides them with information and a workshop is held to gather new ideas and discuss and develop suggestions from employees.

DEVELOPER MEETING

The employees of Fronius R&D meet annually to update each other about ongoing development projects. All attendees are invited to find out more about current projects, technologies and future trends and to discuss these with their colleagues. Questions, new ideas, suggestions for improvement – everyone has the opportunity to provide input here. External partners and fascinating keynote speakers also provide impetus.



ENERGY/points

ENERGY/points are modern information and communication islands permitting colleagues and customers to exchange knowledge. As a result, these islands are popular venues for departmental meetings or meetings held with customers. In addition to coffee and drinks vending machines, most of the ENERGY/points are equipped with a PC which permits access to ENERGY/connect.



FRONIUS WIKI

“Sharing knowledge – the digital library”– With the corporate

WIKI, there is already a constantly-growing digital knowledge platform that is well used. In line with the motto “Knowledge is the only resource that increases when it is shared”, all employees will be able to make use of the new provision. The digital library is a central storage location that is available to all employees of Fronius International within ENERGY/connect. Documents that could be of interest beyond the department should be stored here. Everyone is invited to upload documents and to make use of others’ knowledge.

ENERGY/connect

The ENERGY/connect (intranet) is used to provide employees with the latest information from the company and with news from the Business Units. In addition, ENERGY/connect contains useful tips and information about the infrastructure and organisation, and various forums for networking (e.g. market place or car sharing).

The idea of “Smart car sharing” came into being as part of the Idea Challenge. Now that it is in practice, the number of unnecessary journeys has been cut and resources are used more efficiently. In the specially-established online portal, it is now journeys that are reserved rather than cars. In this way, car sharing groups for travel between the Fronius sites are created.



REPRESENTATION OF INTERESTS

At every Fronius International GmbH site there is a works council for manual workers and a works council for administrative/managerial staff. All sites are involved in the annual safety at work committee meetings.

COMMITTEES AT FRONIUS	Participants
Safety at Work Committee Production sites	14
Safety at Work Committee Development site	13
Safety at Work Committee Sales site	10
Central Safety at Work Committee (cross-site)	10
Safety at Work and Health & Safety Group (cross-site and interdepartmental)	13

EMPLOYEE PARTICIPATION

/ Fronius is a family enterprise where people work enthusiastically and put their hearts into the job; where they swap ideas and exchange views; where they network, and continually develop their personal skills. There are a variety of opportunities at Fronius to make the most of what every individual has to offer and to ensure everyone gets involved.

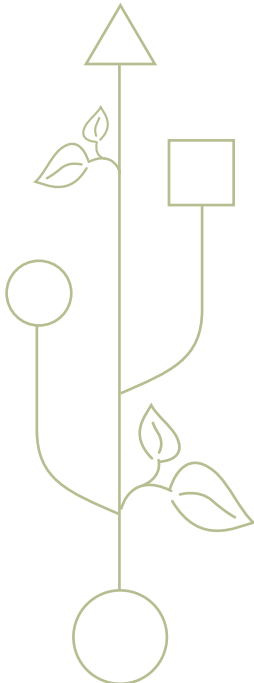
The CIP (Continuous Improvement Process) represents a very successful way of regularly, consistently and sustainably improving our processes and products.

To observe and assess one's own work procedures critically and not to be satisfied with what has been achieved – that in a nutshell is what CIP is all about.

The Continuous Improvement Process is a useful tool for collecting suggestions in an organised manner, improving processes and having a structured approach to solving identified problems. These are communicated, tackled and implemented together as a team, however big or small – from the design of the workplace, product improvements and work procedures to annoying minor details. The knowledge and experience of employees are important to shared success. At Fronius, further development means constantly scrutinising existing processes and workflows and playing an active part in driving forward new developments.

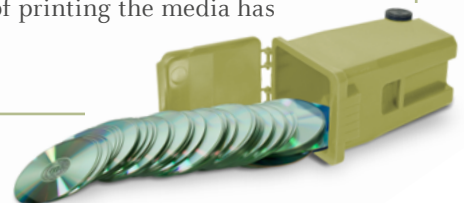
Since its introduction in 2004, a great many developments have already been achieved and implemented. In 2017, almost 40 active teams worked on the continuous further development of our processes and products.

In order to highlight the success of the CIP work, the CIP Oscar is awarded to the most successful team each year. By way of a bonus, this award includes a preferred event for the entire team.



DOWNLOADING INSTEAD OF CDS

For some Fronius products, additional software installation on site is required. These software tools used to be provided on a CD or DVD. As part of CIP, the idea was put forward of replacing these storage media with a download option. In collaboration with the R&D department, an online solution was created and this has already been implemented. Download information, including a QR code, is now provided with the products. No CDs or DVDs are now used, and the process of printing the media has been eliminated.





FRONIUS TOOK PART IN ITS FIRST “HACKATHON”

/ From 6 to 8th November 2017, the “Industry 4.0 Hackathon” took place in the Tabakfabrik Linz event venue.

A hackathon (a neologism from “hack” and “marathon”) is a collaborative software and hardware development event.

In such events, developers work on a set task under time pressure. The aim is to produce concrete results in the form of meaningful prototypes in just 48 hours plus preparation time. The best teams are selected by a jury and awarded a prize.

Fronius participated in a specific task from the technology search field “assistance systems”. Six internationally-selected start-ups and one in-house Fronius team of developers set themselves the challenge of developing a meaningful prototype. The quality of the results by far exceeded expectations!



Fronius CTO Thomas Herndler:
“I am very pleased with the professional solutions and the huge number of ideas that have come into being in just 48 hours. The uncanny speed with which our pains were identified and turned into solutions that create added value impressed me. I am particularly happy with the great performance of our own team, which worked together with Techsoft employees to develop a very exciting prototype.”

SUSTAINABLE COMMITMENT WORLDWIDE

At Fronius, social responsibility also plays a major role at a global level. For example, many of our subsidiaries are committed to collecting donations, doing voluntary work for the community or implementing sustainable measures for a “greener” future.

HOPE

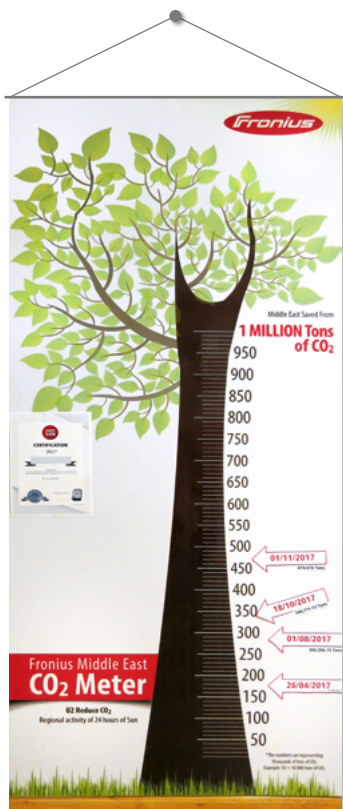
In 2015, Fronius USA set up the HOPE programme (Helping Others Providing Energy). This programme supports a range of projects with both active assistance and donations. Since 2015, 500 backpacks for children in need have been packed, a play area for children with special needs has been created, coats have been collected for homeless people and the “Toys for Tots” programme has been supported, to name but a few examples. Overall, more than 630 hours of voluntary work were undertaken by Fronius USA employees in 2017.

#U2REDUCECO₂

In March 2017, our subsidiary Fronius Middle East launched a regional campaign. The aim is to use Fronius energy solutions to save 1 million tonnes of CO₂. The emissions saved are determined by the number of inverters sold and shown on a CO₂ tree. What is more, when installing a Fronius inverter, the customer receives a certificate showing their individual contribution to reducing CO₂ emissions. #U2reduceCO₂: this hashtag is used to publish tips and tricks on social media, so as to raise awareness and further reduce emissions. We are keeping our fingers crossed that the campaign will succeed in saving 1 million tonnes of CO₂ by the end of 2018!

MAKE A CHILD SMILE

This was the motto chosen for a charity event arranged by the employees of our Thai subsidiary in aid of the Boonchoo Home organisation. The day was a joint affair and made both the children and the Fronius employees very happy. The money collected will be used to support the facility, which provides a home for children with special needs.



/ 1

- 1 / CO₂ tree
- 2 - 4 / Fronius HOPE (Helping Others Providing Energy) programme
- 5 / Charity event “Make a child smile”



/ 2



/ 3



/ 4



/ 5

ENERGY & THE ENVIRONMENT

WE ARE COMMITTED TO OUR SOCIETY AND THE ENVIRONMENT.
THE TECHNOLOGIES WE ARE DEVELOPING PLAY THEIR PART IN
TAKING CARE OF THE WORLD'S RESOURCES.



**24HRS
SUN**

We believe in a future in which we will meet 100% of our global energy requirements using renewable energy sources. The world of 24 hours of sun.

We call this energy future 24 hours of sun. In this future, renewable energy will be intelligently and economically generated, stored, distributed and consumed with unprecedented efficiency. In this energy world, renewables are the most independent, effective and cheapest energy sources. This will make energy available in a sufficient quantity to everyone, anywhere and at any time. Solar energy plays a leading role in the mix of renewables that supply us with energy around the clock. 24 hours of sun will bring us:

SUSTAINABILITY

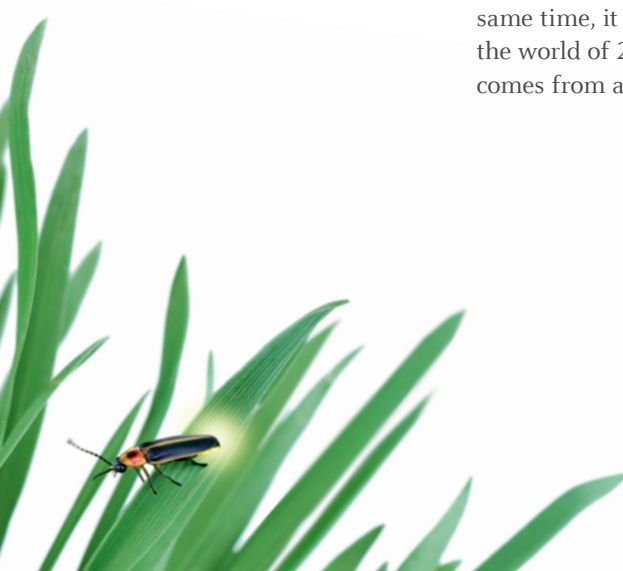
24 hours of sun is the answer for an economically and environmentally sustainable energy supply – for us and for subsequent generations.

HEALTHY GROWTH

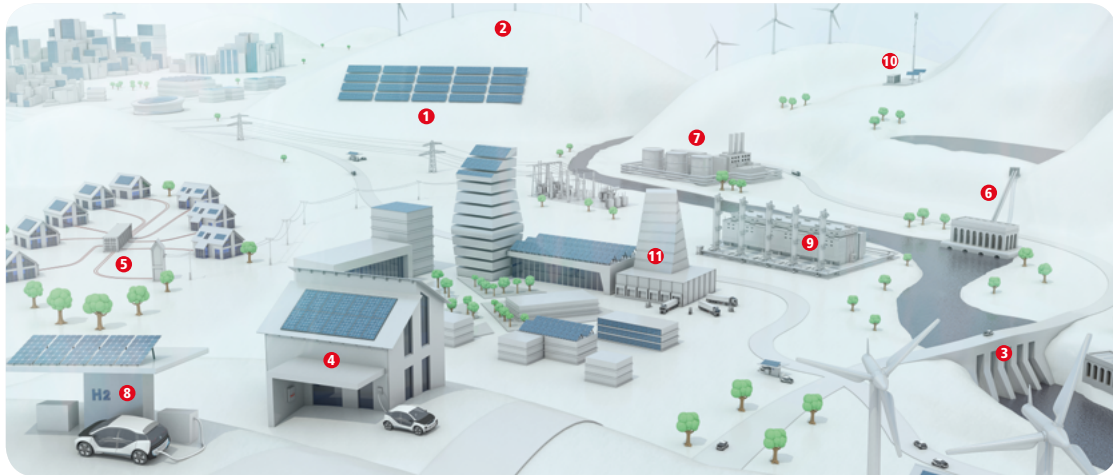
The transformation of our energy supply and grid infrastructure will provide strong impetus for growth and with it many jobs worldwide. We will all profit from the technological innovations that will turn renewables into the cheapest form of energy production in the world.

INDEPENDENCE

24 hours of sun will liberate us from fossil fuels and energy imports. At the same time, it frees us from the vulnerability of a central energy system. In the world of 24 hours of sun, we will be able to choose where our energy comes from and, above all, we will all have access to clean energy.



The future lies not in our stars, but in our sun.
Because we are developing the solar technology of the future.

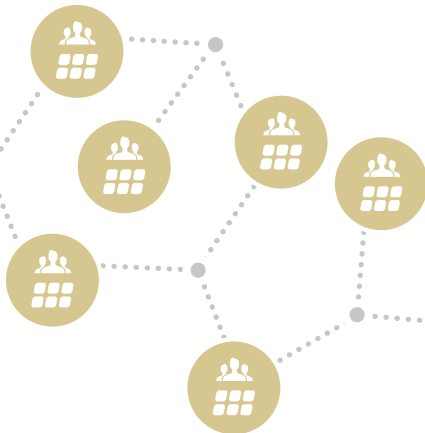


- | | | | |
|------------------------------|--------------------------------------|--|---|
| 1 Photovoltaic Power Plant | 4 Energy Self-sufficient Family Home | 7 Central Electrolysis/Methanation Station | 10 Energy Self-sufficient Telecom Station |
| 2 Wind Farm | 5 Communal Storage | 8 Hydrogen Filling Station | 11 Green Intralogistics |
| 3 Hydro Electric Power Plant | 6 Pumped Storage Hydro Power | 9 Gas-fired Power Station | |

FRONIUS MYSTROM

/ Born from the call to participate in the Idea Challenge in 2014, implemented in the subsequent “future workshop”: the community power product “Fronius myStrom” is available to all Fronius staff in Austria, with immediate effect. This is a strong, positive sign of our collective way towards 24 hours of sun.

/ Together with an innovative green power supplier, Fronius is addressing all staff in Austria regardless of whether they have a photovoltaic system or not. PV surpluses from staff with PV systems are fed in full into the collective “power pot” and can be used by all participating staff. The remaining power requirement is met by means of 100 % green power from Austria.



Fronius myStrom is thus a true community power project, developed and implemented by Fronius staff for Fronius staff.

USE OF RESOURCES

AS A MANUFACTURING COMPANY, WE ARE AWARE OF THE EFFECTS OF OUR BUSINESS ACTIVITIES ON THE ENVIRONMENT. OPTIMAL USE OF OUR RESOURCES IS DEEPLY ROOTED IN OUR PRINCIPLES AND IS RESPECTED IN ALL OUR DEPARTMENTS.

/ As well as the considered use of raw materials for our products, we attach great importance to the sustainable and energy-efficient management of our buildings and their infrastructure. Conventional light sources are being replaced by LED lights on an ongoing basis.



“The holistic and sustainable development and maintenance of buildings over their total life cycle is one of the key tasks of Facility Management. By implementing innovative, need-based solutions when designing room interiors, it’s possible to create the ideal working environment for our employees in a resource- and energy-efficient manner and to enhance the feel-good factor, while also saving money by optimising the use of space.”



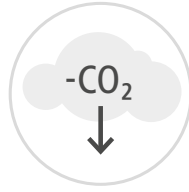
MARKUS ZAUNER
FACILITY MANAGEMENT



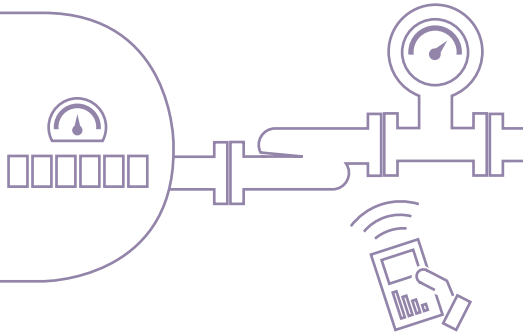
HANNES
GRAMMERSTÄTTER
MANUFACTURING AREA

“We constantly develop resource-conserving manufacturing processes through optimisation and standardisation. Using intelligent production control, we avoid unnecessary expenditure on storage, rotating stocks and the movement of material. By manufacturing high-quality products, we also ultimately ensure the sustainability of the subsequent product life cycle!”

RESOURCE OPTIMISATION

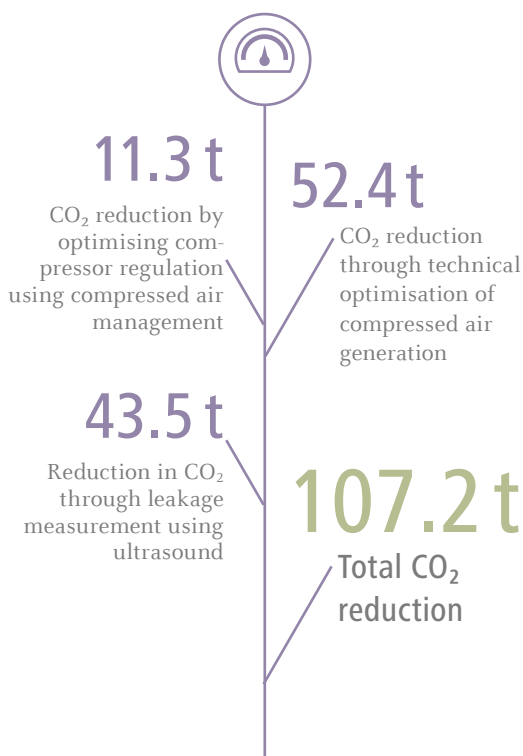


TWO SELECTED PROJECTS



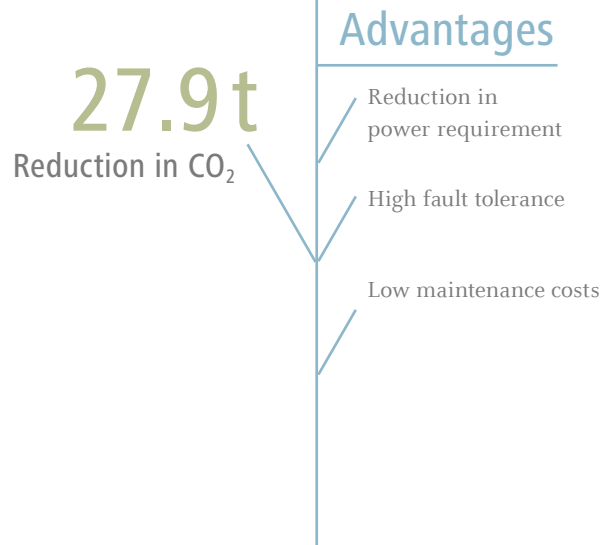
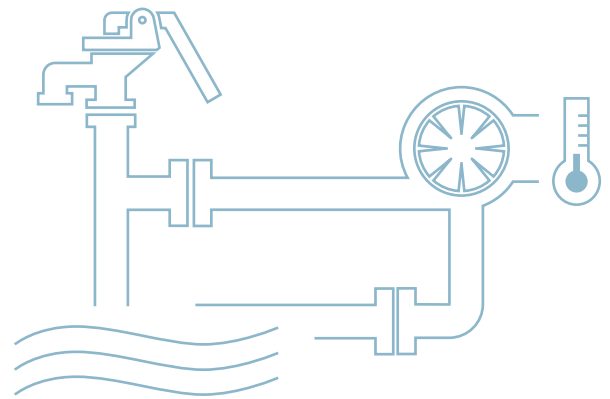
COMPRESSED AIR OPTIMISATION

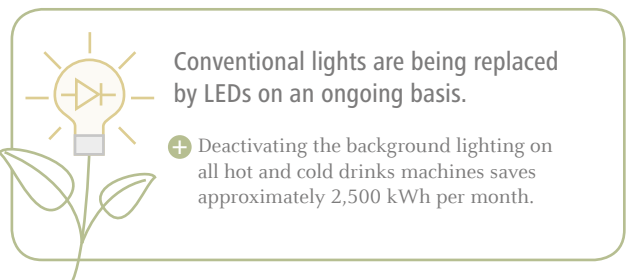
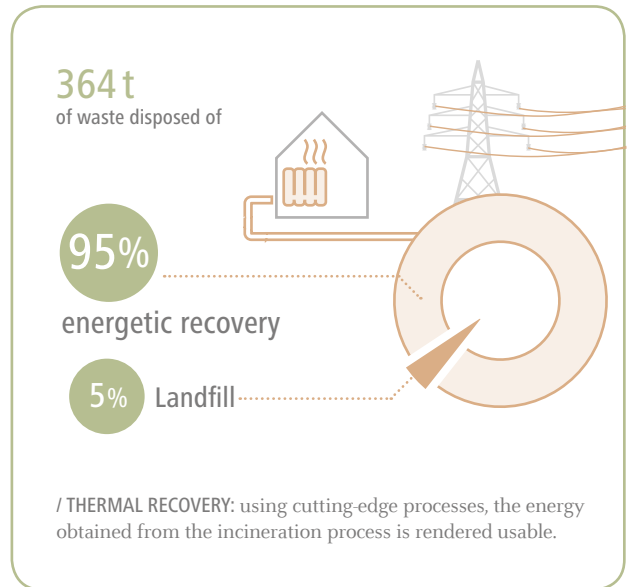
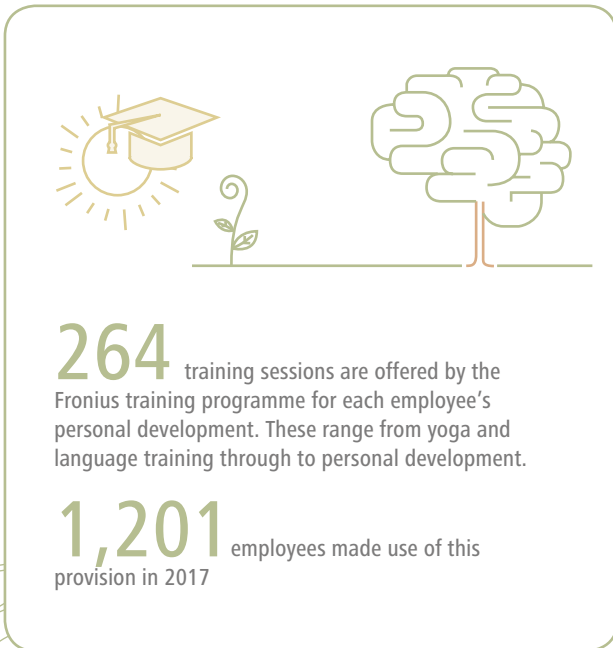
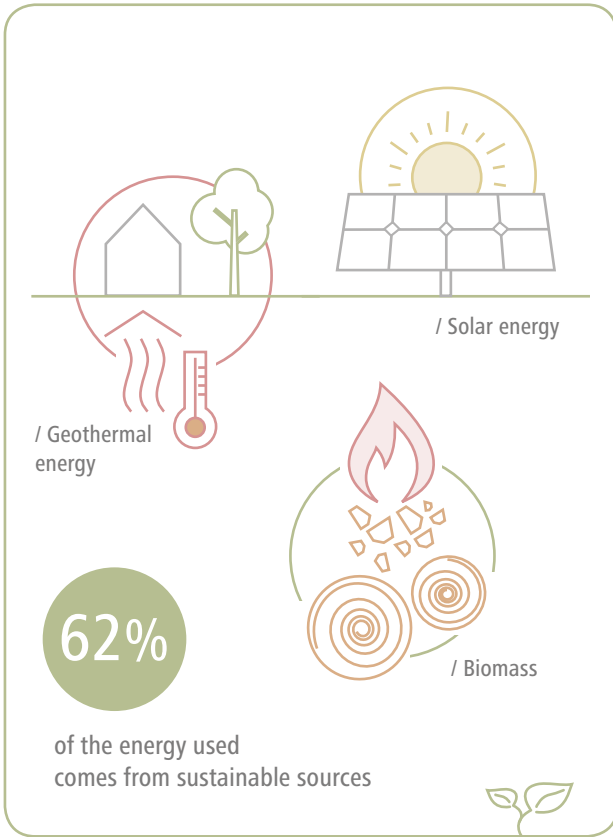
Preparing compressed air is a very energy-intensive process. To utilise the deployed resources as effectively as possible, the process for the preparation of compressed air was considered as an integral whole. Considerable potential could be established within the scope of this project at the two production sites in Sattledt and Pettenbach. By implementing technical and organisational measures, not only has the electricity requirement been lowered, energy losses have also been significantly cut.



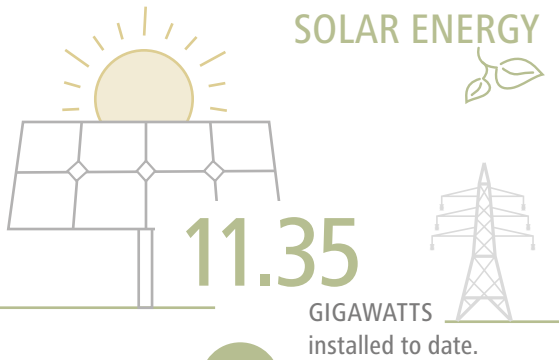
COOLING USING GROUNDWATER

Operation of the necessary IT infrastructure is ensured by the Fronius data centre. As expected, a high amount of energy is needed to run the centre. Energy is also needed for dissipating the heat generated. The available groundwater flow is now being used as a heat exchanger due to the implementation of an ambitious project. The water taken cools the rooms and is then fed into the groundwater flow with a maximum temperature differential of 5 °C.

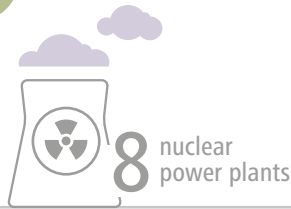




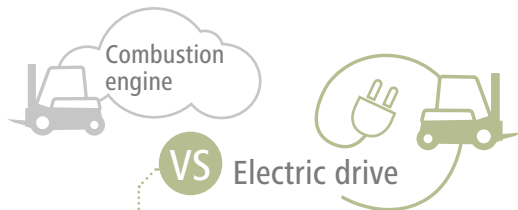
BUSINESS UNIT
SOLAR ENERGY



This corresponds to the output of eight nuclear power plants.



BUSINESS UNIT
PERFECT CHARGING



-
-
-

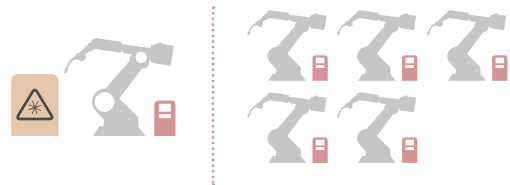
/ Unlike solutions with combustion engines, forklift trucks powered by electricity can be used flexibly inside and outside, are extremely low maintenance and significantly reduce noise pollution.

BUSINESS UNIT
PERFECT WELDING

/ With modern, high-performing system solutions, the use of energy and production resources is reduced and it is even possible to save whole manufacturing cells.

LaserHybrid welding VS MIG/MAG welding

/ Number of system solutions



/ Gas & wire consumption



/ Energy consumption



/ REQUIREMENT: Production of 3,000 axle components per day; 200 days per year; two 8-hour shifts per day; weld seam length 12 m; comparison of two possible solutions with a useful life of seven years.

The innovative Ri charging process used by the Selectiva chargers increases the service life of a battery by approximately one year.



ENERGY MANAGEMENT



/ Energy management applies to all Fronius International GmbH sites, but most importantly to the production sites in Sattledt and Pettenbach, the Research & Development Centre in Thalheim and the sales hub in Wels. Within the framework of energy management, regular internal audits are carried out to identify and assess energy aspects and energy consumption. In accordance with the obligation of the Austrian Energy Efficiency Act (EEffG), an energy report is drawn up periodically. The report contains energy data such as consumption, key figures, diagrams and savings, the individual energy consumption areas and energy-efficiency improvement measures determined from the audits.

/ The table below shows energy consumption data from the last three years and the corresponding amount of greenhouse gasses emitted, expressed by the sum parameter of CO₂ equivalents.

ENERGY CONSUMPTION AND GREENHOUSE GAS EMISSIONS (GHG EMISSIONS)

ENERGY CONSUMPTION	MWh			EMISSIONS in tonnes of CO _{2e}		
	2017	2016	2015	2017	2016	2015
Direct energy consumption total (Scope 1)	17,599	16,308	17,128	1,737	1,401	1,941
	Proportion as a %:			Proportion as a %:		
Natural gas	19	18	22	42	45	43
Fuel oil	2	2	3	6	8	8
Diesel	9	13	15	29	36	41
Petrol	7	4	2	22	11	7
Liquefied petroleum gas	<1	<1	<1	<1	<1	<1
Biomass (wood chips)	29	31	28	<1	<1	<1
Geothermal energy	27	28	26	<1	<1	<1
Photovoltaics	6	5	4	<1	<1	<1

ENERGY CONSUMPTION	MWh			EMISSIONS in tonnes of CO _{2e}		
	2017	2016	2015	2017	2016	2015
Direct energy consumption electricity total (Scope 2)	20,345	19,098	19,126	366	344	344
Sold energy - electricity total	630	617	485	11	11	9

KEY FIGURES

		2017	2016	2015
Energy intensity (energy consumption/production volume)	MWh/t	3.48	3.73	3.65
Intensity of GHG emissions (CO ₂ e/production volume)	t/t	0.20	0.19	0.23

The manufacturing of our products is energy intensive due to the processes required, such as brazing and milling, which makes the efficient use of energy particularly important. A high-density metering infrastructure and future-oriented, long-term planning of ecological investments enables us to consume energy in an optimal manner, to reduce our water requirements and to continuously reduce the use of fossil fuels.

MATERIALS USED / MATERIAL CONSUMPTION

		2017	2016	2015
Overall material/raw material use	to	18,275	16,718	13,799
		Proportion as a %:		
Semi-finished products		70	74	62
Raw materials		18	15	19
Packaging		8	7	14
Auxiliary materials and supplies		4	4	4

ENVIRONMENTAL MANAGEMENT

/ A wealth of environmental data is gathered and evaluated as part of the environmental management system in accordance with ISO 14001. In addition to energy consumption data, water consumption and waste volumes are also monitored at Fronius International GmbH sites.

/ The table below shows water consumption separated out by withdrawal source.

WATER CONSUMPTION BY SOURCE

		2017	2016	2015
Water consumption total	m ³	30,795	25,168	37,153
		Proportion as a %:		
From the municipal water supply		94	97	74
Surface water/rain water		1	1	24
Groundwater		5	2	2





Fifty different types of waste are collected at the Fronius sites and then re-used or disposed of. Internal information campaigns are used to inform employees at Fronius about topics such as avoiding, reducing and separating waste and to encourage them to get involved in reducing the quantity of waste produced.

TOTAL WEIGHT OF WASTE BY TYPE AND DISPOSAL METHOD

VOLUME OF WASTE		2017	2016	2015
Total reutilised waste	t	2,484	2,019	2,121
Proportion as a %:				
Recycling		87	88	86
Reclamation		12	9	14
Composting		<1	3	<1
Total waste disposed of	to	364	328	414
Proportion as a %:				
Incineration		95	94	84
Landfill		5	6	16

/ The information on disposal methods was provided by the waste disposal service providers.

We are always trying to increase our reutilisation quota in collaboration with our disposal partners to keep the environmental impact to a minimum.

IMPORTED, TRANSPORTED AND EXPORTED HAZARDOUS WASTE

	TOTAL WEIGHT	2017	2016	2015
Total transported hazardous waste	t	278	223	242
Total imported hazardous waste	t	0	0	0
Total exported hazardous waste	t	0	0	0
Total treated hazardous waste	t	0	0	0
Percentage of cross-border transported hazardous waste	t	0	0	0

As a manufacturer and marketer of products, Fronius is subject to numerous legal requirements and obligations. In order to ensure our packaging is collected and reused in an environmentally friendly manner, we are members of a collection and recycling system. An Austrian company is commissioned to recover and recycle the packaging for the products we sell in Austria. We also use a comprehensive

recycling service for the electrical and electronic equipment and batteries we sell. Fronius has transferred all the legal obligations to an established disposal partner, who is responsible for the professional collection and recycling of waste devices and batteries across Austria.

TRANSPORT IMPACTS



/ As an international company, we produce a substantial amount of emissions through business travel and the transport of goods. In order to reduce greenhouse gas emissions as a result of business trips, video conferences represent an eco-friendly alternative. In addition, some of the vehicles in our fleet have been replaced by electric and natural gas models. Diesel vehicles are no longer an option when it comes to purchasing new company cars. Furthermore, we use trains for business travel whenever possible.

ENVIRONMENTAL TRANSPORT IMPACTS

BUSINESS TRAVEL	km			EMISSIONS to CO _{2e}			
	2017	2016	2015	2017	2016	2015	
Total distance	14,346,893	11,953,580	15,430,175	4,937	4,351	5,382	
Air	Proportion as a %:	68	74	71	82	85	85
Cars	Proportion as a %:	31	25	28	18	15	15
Train	Proportion as a %:	1	1	<1	<1	<1	<1

LOGISTIK	t			EMISSIONS in tonnes CO ₂			
	2017	2016	2015	2017	2016	2015	
Total weight of transported products/materials	23,159	18,008	17,111	10,897	7,776	9,426	
HGV	Proportion as a %:	80	80	77	8	8	5
Air freight	Proportion as a %:	7	5	11	84	84	89
Sea freight	Proportion as a %:	13	15	12	8	8	6

The upstream and downstream transport of materials and goods is outsourced to external transport companies. Within Europe, Fronius does not use air freight and we favour environmentally friendly sea transport for intercontinental shipments. Transport to the ports takes place by rail.



/ Stag beetle

Nearly everyone has heard of it, yet hardly anyone has ever seen Europe's largest beetle in the wild. Now modern forestry is making it hard for this forest dweller to survive.

Did you notice our flying and scuttling companions in the sustainability report? Many of the insects shown here are subject to stringent species conservation, as they play a significant role in the preservation of biodiversity.

THE PRINCIPLE IS THEREFORE AS FOLLOWS: PROTECT THE SMALLEST, SO THAT THE WHOLE CAN GROW.

We have also made this our mission at Fronius and send a clear signal regarding environmental protection with the green spaces at our sites.



/ Demoiselle

Demoiselles are true aerial artists. They can accelerate to up to 50 km/h, perform loop-the-loops, stand still in the air and even fly backwards. Demoiselles are tied to semi-natural bodies of water, as they spend most of their lives under water as larvae.

/ Scorpion fly
Insect of the Year 2018 |*

"Image is everything" – although the name sounds dangerous, this member of the Mecoptera family is just under 2 cm long and completely harmless. Its name is due to the striking abdomen of the male.



/ Large copper butterfly

Although it is bright orange in colour, it is a member of the blue butterfly family. What is more, it is at risk due to the disappearance of its habitat, wet meadows and bogs.



/ Zygaenidae moths

More than 1,000 types of Zygaenidae can be found worldwide. Although they number among the moths, they are almost exclusively active during the day. There is a good reason for their striking warning colours – due to their hydrocyanic acid content they are inedible for many predators.



/ Rose chafer

As a larvae (grub), it is often confused with the cockchafer and destroyed. As a beetle larvae, it prefers compost and converts this into valuable soil. Its relative, the scarab, was regarded as a good-luck charm in ancient Egypt.



/ Cardinal beetle

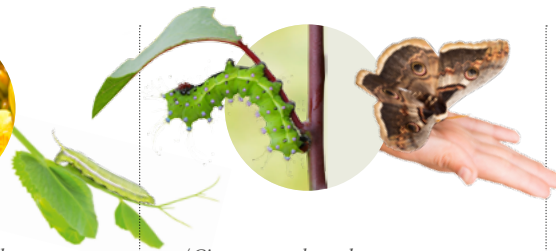
This small yet striking beetle is found at the edges of forests and clearings – a beneficial organism in the forest, as its menu includes bark beetle larvae.

* | Every year, the members of "Insect of the Year Advisory Board" jointly select an insect for Germany, Austria and Switzerland.



/ Hummingbird hawk moth

This hawk moth lives to travel and can cover thousands of kilometres on its journeys – possibly even between our sites around the globe.



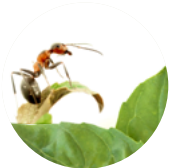
/ Giant peacock moth

With a wingspan of up to 16 cm, this moth is the largest European member of the Lepidoptera family. Its population is in sharp decline. It can occasionally be seen swarming around light sources, where its size is reminiscent of bats.



/ Fire fly or glow worm

The Latin name for this insect is *Luciferin*, made up of “lux” (light) and “ferre” (carry/bring) – the bringer of light. The glowing, known as bioluminescence, is generated by a complicated chemical process. This process converts chemical energy into cold light with almost no losses. The purpose of this light show is to look for a partner.



/ Ant

Success through cooperation: ants are one of the “big players” among insects. Whether in super colonies or in a small nest – they live together in multi-generational groups. Their organisation is unique when it comes to obtaining food and caring for the brood. Ants are one of the most successful organisms on earth.



/ Peacock butterfly

From Europe to Asia and in Japan, the peacock butterfly is one of the most adaptive and most widespread of the Lepidoptera. It can even be found at a height of 2,500 m. In its caterpillar form, it is often found on clumps of stinging nettles.



/ Fire bug

Frequently incorrectly referred to as a fire fly. Being extremely sociable insects, these bugs often appear in large numbers, but they are harmless for people and plants. If annoyed or threatened, the tiny fly defends itself with a strong “scent”. One curious detail concerning reproduction: a “fire bug wedding” can last for up to 30 hours.



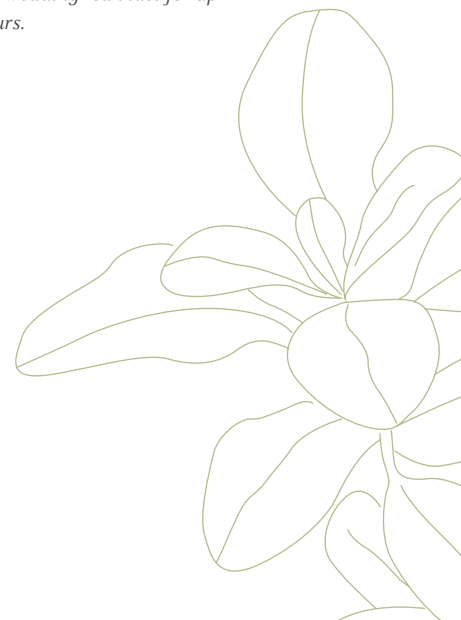
/ Ladybird

There are an incredible 4,000 types of ladybird throughout the world. For us in Austria, these include the seven-spotted (1) and the yellow 22-spotted ladybird (2) – the latter is popular among gardeners due to its love of mildew. The 14-spotted ladybird (3) impresses with 100 extremely varied patterns.



/ *Rosalia longicorn*

This insect decorates countless stamps as “Europe’s most beautiful beetle”. The beetle, which measures up to 38 mm in size, takes around three years to develop. However, its nursery, dead wood, is increasingly disappearing in the midst of modern forest management.





Fronius International GmbH
Froniusplatz 1
4600 Wels
Austria
Telephone +43 7242 241-0
Fax +43 7242 241-3013
contact@fronius.com
www.fronius.com