

WHERE
ENERGY
MAKES AN
IMPACT



In our three Business Units of Perfect Charging, Perfect Welding and Solar Energy, we are driven by one thing above all else: creating more effective solutions.

MAKING ENERGY WORK HARDER

ELECTRICITY IS **THE FUEL OF THE FUTURE** – AND RESEARCHING AND CONTROLLING IT HAS BEEN **OUR MISSION** FOR OVER 70 YEARS.

Although the application areas of our three Business Units might seem quite different at first glance, they all have one thing in common:

THE HIGHLY EFFICIENT AND INTELLIGENT CONVERSION AND CONTROL OF ENERGY.

When developing new technologies, products and solutions, everything revolves around the needs of our users.

Our promise is clear: to provide our customers and partners with innovative technologies which help them to succeed economically and ecologically over the long term.

WHETHER IT'S TAILOR-MADE BATTERY CHARGING SYSTEMS, REVOLUTIONARY WELDING PROCESSES OR COMPLETE SOLUTIONS FOR SOLAR ENERGY, ONE GOAL REMAINS CONSTANT THROUGHOUT: USING OUR ENERGY TO CHANGE THINGS FOR THE BETTER.

/ Fronius Pettenbach: the place where Fronius was founded. Today, covering an area of 6,000 m², it is the centre of excellence for Fronius welding torches as well as finance & internal auditing.

HOW

WE COME UP WITH IDEAS TO CHANGE THINGS FOR THE BETTER

More than 500 employees work at our research and development centre in Thalheim, Austria, where they develop products and solutions that enable our customers to control and utilize energy more efficiently in the near future.

PERSISTENCE

In addition to a highly-qualified team and state-of-the-art research equipment, one thing above all is needed to keep succeeding: persistence. We have plenty of this because, as a family-owned company, we operate flexibly and independently. It takes years of intensive work to ensure a product, such as the TPS/i, one of the most intelligent welding systems on the market, is ready for series production. With the highest possible quality, safety and efficiency, this system offers our customers greater profitability from their welding processes.

INQUIRING MIND

We are particularly proud of our research culture. Company founder Günter Fronius' approach is still applied today in the everyday working ethos of the company: look carefully, identify problems and work on the solution with a clear goal in mind. We give our employees plenty of room for their ideas to flourish. Open communication with colleagues from different departments provides additional perspectives and approaches to research work. Hence a chat during a break can lead to a brainstorming session and ultimately the creation of a completely new product.

TESTED

Quality assurance is one of the cornerstones of the company. A product only enters series production at Fronius once we have subjected the prototypes to testing that goes way beyond the standard requirements and have eliminated all teething problems. There's good reason why our products are known for delivering optimum performance and excellent durability even under the harshest conditions.

International success is driven by global availability.

MORE EFFECTIVE DURING ACTUAL OPERATION

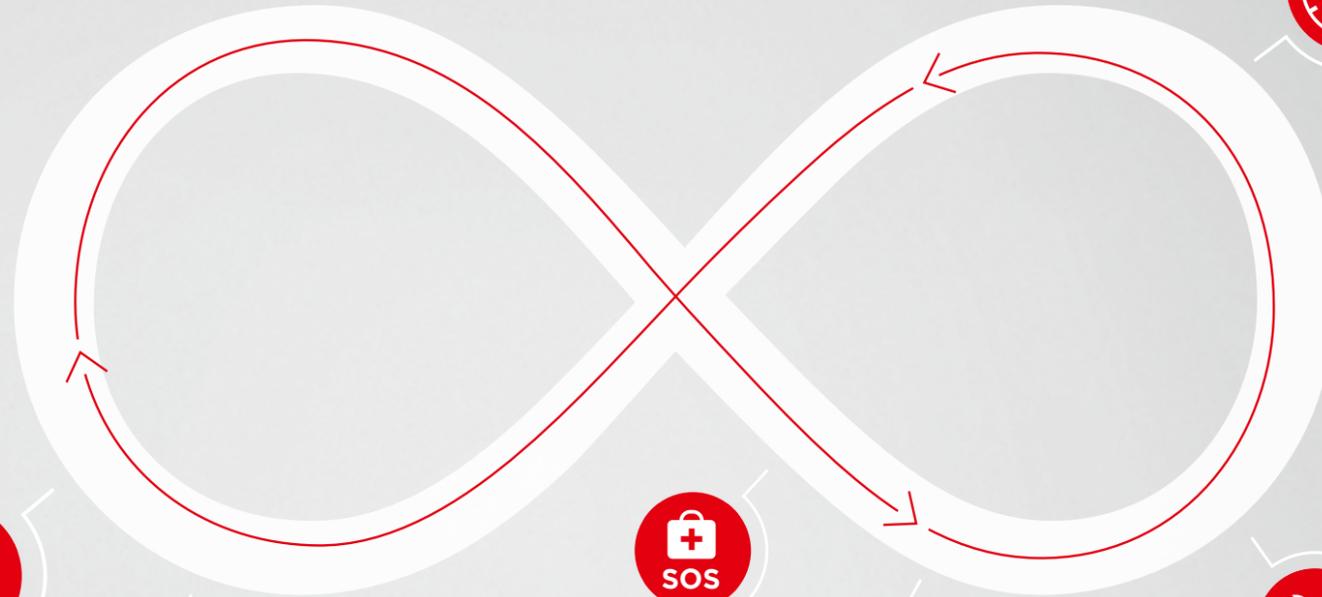
**THE ACTUAL STRENGTH
OF A SOLUTION
ONLY BECOMES APPARENT
DURING ACTUAL OPERATION.**

Whether it is a welding robot that works around the clock, battery charging systems in deep-freeze halls, or photovoltaic systems which must withstand extreme environmental influences. Whatever the area of application, one thing is true: a solution is only ever as good as the service and support that comes with it.



HERE AT FRONIUS,
**SERVICE
BEGINS WITH
PRODUCT DESIGN.**

Having developed the Fronius SnapINverter range of modern inverters, installation and maintenance work can be carried out easily with minimal effort. This is good news for technicians on site and results in more profit for the customer – since maintenance is much quicker, much less solar yield is lost.



HIGHLY QUALIFIED TECHNICIANS
LOOK AFTER OUR CUSTOMERS
**OVER THE ENTIRE LIFESPAN
OF THE PRODUCT.**

We support you with our professional telephone and online support. Spare parts for the majority of our products are also supplied for decades. The exact nature of our service depends on the product and application in question. We often have certified partners operating in the customer's region. In the case of very sensitive topics, such as welding systems in series production, one of our own experts will travel to the customer and solve the issue on site if need be.





/7

/1

Our story begins in 1945 in the Upper Austrian municipality of Pettenbach in a small wooden garage. This was where company founder Günther Fronius lived and worked, after it was given to him in exchange for some repair work.



/ Fronius-Company Logo 1945 - today

1 / Günther und Friedl Fronius 2 / An old army hut in Pettenbach was the first company headquarters for this "specialist repair workshop for radios and electrical engineering". 3 / First Fronius products 4 / Günther Fronius on the construction site of his company 5 / The founder with the first company car



/2



/3



/4



/5

OUR ROOTS

WHERE WE COME FROM

What was originally intended to be just a stop-off on Günther Fronius' journey through life instead developed into a noteworthy business within just a few years.

Charging car batteries just after the war was not something that could be taken for granted. Many batteries were disposed of or damaged due to improper charging. As a trained electrical engineer, Günther Fronius developed a solution which enabled the small company to revolutionise battery charging systems. The product named "Battery Boy" allowed users to regulate the current for the first time and thereby make more efficient use of the available energy. And so, the first of our Business Units – "Perfect Charging" – was born.

Just a few years later, completely new fields of application became apparent for the new technology. Having observed a standard welding transformer of the day, Günther Fronius noticed the poor energy efficiency and, most of all, the noise that the device produced. He decided to remedy this and take up this challenge too by developing a controllable welding rectifier from a powerful charger. This was better at converting energy and was significantly quieter, thus paving the way for our Business Unit "Perfect Welding", which would go on to bring the company international recognition in the decades to come.

In the following decades the company continued to grow. In 1980, Günther Fronius handed the business over to his children Klaus Fronius and Brigitte Strauß. Thanks to its ceaseless developments, the company continued to delve into new sectors and industries. The conversion of electricity, which had always been a core competency, could now be applied to a new and promising industry: photovoltaics. This idea quickly began to take shape and by 1992 the third Business Unit "Solar Energy" had already been formed. The company was one of just a few pioneers to venture into a completely new field, which increasingly becomes more important with every passing day.



/ Pictures (from above):

Brigitte Strauß & Klaus Fronius

Elisabeth Engelbrechtsmüller-Strauß

TODAY

Today, with Elisabeth Engelbrechtsmüller-Strauß at the helm, Fronius is a third-generation family-run enterprise. From a garage in Pettenbach came 28 international Fronius subsidiaries, which all have a common goal: to make energy more efficient.

WHERE WE ARE TODAY

We established our first international subsidiaries in 1990. We found out that this was a good choice, because the closer we are to our customers, the more we can create individual and efficient solutions for them. So we expanded our network all over the world.



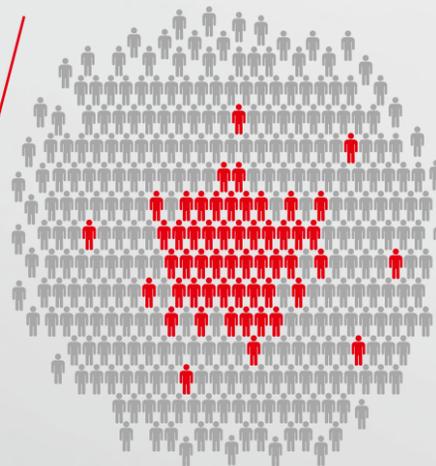
28 international subsidiaries



100% assembly in Austria



More than 60 sales partners all over the world



4550 employees, 550 of them in R&D



89 % export rate

PERFECT WELDING



AT THE FOREFRONT OF TECHNOLOGICAL INNOVATION RIGHT FROM THE EARLY DAYS OF COMMERCIAL ARC WELDING TECHNOLOGY. As far back as 1950 was when the first welding transformer with a continuously adjustable welding current was launched onto the market. A few years later, this was followed with a welding rectifier with semiconductor technology, which made direct-current welding noticeably more comfortable.

No 1

In 1981, the first primary-switched inverter power source – the Transarc 500 – was introduced worldwide and, in the 90's, the first completely digitally controlled power source – the TPS – was established on the market.

MILESTONES

Pioneering developments in the field of Laser-Hybrid welding and in spot welding technology, as well as further developments in mobile welding through to a battery-operated power source, are some of the other many milestones in our history.

INNOVATIVE & GLOBAL

As system providers, Fronius Welding Automation also turns customer-specific automated complete welding solutions into reality in a number of areas, from container construction right up to complex cladding tasks in the offshore sector. Alongside all this, we offer our customers the services they need to succeed. From individual technological consultations to product demonstrations and the best-possible service during commissioning and maintenance of the welding system, our portfolio contains countless needs-oriented services.

All of this is supported by our decades of experience in welding technology paired with comprehensive process know-how and boundless enthusiasm for the arc. With mission of mastering the arc, Fronius is recognised throughout the world as the welding industry's trendsetter.

CMT WELDING IN NEW DIMENSIONS

**Cold Metal
Transfer**

With the CMT process developed by Fronius, new fields of application have been opened up for MIG/MAG welding, such as welding thin-gauge sheets or joining steel and aluminium.

TPS/i

**Modular.
Intelligent.
Intuitive.**

With the TPS/i power source, Fronius Perfect Welding now also offers a modular MIG/MAG welding platform that can easily be tailored to individual needs using intelligent software solutions. Extremely intuitive to operate, the TPS/i is suitable for both robot-assisted and manual welding.



With products such as the WeldCube, WeldConnect and Virtual Welding, Fronius has truly entered the digital age. Our software solutions can therefore support our customers in the most varied of industries.



WE BELIEVE THAT EVERYONE CAN PLAY A PART IN CHANGING THE WORLD, ESPECIALLY WHEN IT COMES TO THE FIGHT AGAINST CLIMATE CHANGE. 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.

We have no doubt that solar energy will be an indispensable pillar of this energy supply of the future, which is why we have already spent nearly

THREE DECADES

harnessing its potential. Our vision of 24 hours of sun is the drive that spurs us on.

24 hours of sun means covering 100% of our global energy requirements from renewable sources: a target that is ambitious, but achievable. After all, the technology already exists. Solar energy will be an essential part of this mix, as the sun's power is available every day and for free. 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.

SOLAR ENERGY



IT ALL BEGAN with inverters to convert direct current from solar 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. We believe realising our vision of 24 hours of sun is essential. These views are based on our belief that 100% renewable energy means the electrification of mobility and heat generation, a sufficient energy supply from renewable sources and maximum efficiency in energy usage. None of this would be possible without intelligent systems.

Energy from PV and other sources is always sent to wherever it is needed. All the main loads, including the 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.

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.

THE GOAL is 24 hours of sun – a world of 100% renewable energy. Working together with our partners and customers, achieving 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.





FRONIUS PERFECT CHARGING IS OUR OLDEST BUSINESS UNIT AND YOUR COST-OPTIMISATION PARTNER FOR THE CHARGING OF TRACTION BATTERIES AND STARTER BATTERIES.

BY WORKING CLOSELY WITH OUR CUSTOMERS AND DRAWING ON MORE THAN SEVEN DECADES OF R&D EXPERIENCE, WE PROVIDE COMPLETE SOLUTIONS THAT ARE TAILORED TO OUR CUSTOMERS' INDIVIDUAL NEEDS.

Our innovative range of products and services coupled with our expert technical support, allows us to deliver impressive levels of performance,

efficiency, cost effectiveness and sustainability. Be it solutions for electrically powered forklift trucks in intralogistics operations, or a reliable power supply for vehicle starter batteries in showrooms and workshops Fronius technology is a byword for the maximum reliability of its vehicles and longevity of the battery lifespan; a characteristic well appreciated amongst its vast number of customers around the world.

PERFECT CHARGING

INTRA-LOGISTICS

Together with our customers, we develop custom solutions and systems that are guaranteed to cut costs for users of electrically-powered forklift trucks. As the specialist in battery charging installations, our impressive range of services includes analysis, consultation and planning, implementation and operator training of battery charging rooms and stations. With our Ri-Charging process, we even offer the finest technology available anywhere in the world for the charging of lead batteries. Fronius can also be found driving forward innovation in the development of alternative drive technologies, such as lithium-ion batteries.

WORK-SHOP

A product range featuring powerful, 100% electronically safe and completely reliable battery charging systems, a bespoke consultation service, plus decades of experience in the automotive industry make us a trusted partner for countless vehicle manufacturers. Together we create solutions that prevent unwelcome discharge and long-term damage to batteries both in the workshop and the showroom. Vehicle manufacturers and dealers benefit from a longer service life and maximum reliability from their starter batteries, which significantly cuts their costs.

**FOR A
SUSTAINABLE
SOCIETY**

We choose to invest today in the workforce of tomorrow. At Fronius, we place great emphasis on education and training. We have taken on around 100 apprentices, most of whom stay with the company after completing their training. Good working conditions and high-quality teaching are essential here.

**SUSTAINABLE
PRODUCTS**

All our devices are thoroughly tested before they are approved for series production – and our testing goes above and beyond the prescribed standards. This is the only way to be certain that our products have an optimum service life, giving our customers the assurance that they have made a solid, long-term investment.

**SUSTAINABILITY
MAKING
THE SMALL
THINGS COUNT**

At Fronius we also take notice of the little things that also play a role in the bigger picture. Take for instance, by switching all the lighting at the Sattledt production site to LED, we save 117 MWh of electricity a year. And with the seemingly insignificant decision to switch off the lighting on all the vending machines, an additional 1200 kWh has been saved.

CHANGING THINGS

FOR THE BETTER:
INCLUDING FOR GENERATIONS TO COME

Fronius is a family-owned company and has been run by the owners for three generations. Sustainable development is more important to us than short-term gains. We believe in preserving a world worth living in, including for our children's children and beyond.

Which is why we take a different approach to efficiency at Fronius: what we do must change things for the better over the long term and on a wide scale.

This belief is the source of our enthusiasm and persistence, which drives us to work doggedly on new ideas that will create better solutions. It's the reason why we strive to build devices with the best possible product service life.

/ Fronius Wels site: part of the facade has been turned into a Green Vertical Garden.



/ 1

- 1/ *Pettenbach site: the building's facade is clad with semi-transparent photovoltaic modules with rear ventilation, which are positioned in front of the main building shell. These modules reduce the amount of direct sunlight reaching the building, thereby minimising the cooling load. By generating our own energy on site, we are able to test the inverters we produce in the building's own systems.*
- 2/ *The Company's Research & Development Centre Thalheim: its special features include photovoltaic electricity and heat generation, geothermal fields and the systematic re-use of waste heat from the test laboratories.*
- 3/ *Wels site: extended over 17,000 m², is it 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..*

SUSTAINABLE BUILDINGS

Fronius sites don't just stand out architecturally but in fact also on a sustainability aspect.



/ 2



/ 3



/ 4

SUSTAINABLE MOBILITY

Mobility plays a big role in an international company. No matter whether we are transporting goods or sending experts on a business trip, we keep sustainability in mind. Whenever possible, our logistics teams have goods transported by ship or train, and the latter is our first choice for business trips too. We are increasingly turning to electric cars in our vehicle fleet, with charging stations (4) at all our locations.



The production and logistics site of Fronius located in Sattledt. Since 2007, all battery charging systems, welding systems and solar inverters have been produced here on site, an area of over 100,000 square meters. One of the largest roof-mounted photovoltaic systems in Austria, with a module area of 3,600 m², can be found on the Sattledt building. The site's heating needs are covered by a biomass-fired combined heat and power plant and two geothermal systems, making it totally CO2 neutral.

COMPANY CULTURE

We believe that our success is based on many small details. Here are some examples:

ISLANDS OF INCREDIBLE IDEAS

Many of the great ideas that we have come up with over the last 70 years came to life in a casual chat during a break. We believe that discussing work topics with experts who have different perspectives and experiences is highly valuable, so much so that we have created

ENERGY/Points

when passing through the Fronius buildings, here and there you will see employees deep in discussion gathered around small islands with standing-height tables.

EVERY PART COUNTS

For electrical devices to deliver maximum efficiency over decades, each part must be perfectly coordinated. Therefore component management plays a key role at Fronius. The experts in these teams are continually checking all the parts required for our products on the market. But what if we cannot find a part on the market with the required performance data? Easy:

WE BUILD IT OURSELVES.

A complex yet necessary process for making energy work harder.



VISIBLE HOSPITALITY

Our doors are open to anyone, whether they are a customer, school pupil, student or simply an interested person, from far and wide.

We welcome more than

6000 VISITORS

per year on our company tours. New and existing customers enjoy taking a peek over our shoulders as we work. We believe that having an 'open house' policy helps to build a successful partnership.

CURIOUS?

If you want to learn more about us, and even just take a peek over the shoulders of our employees as they work, then why not drop by? Just send a quick email to abenteuer-innovation@fronius.com and we can arrange your visit to Fronius. We look forward to seeing you!

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