

PROUD
TO BE
AST



ACCIAI
SPECIALI
TERNI



ACCIAI
SPECIALI
TERNI

**“YOU CAN RECYCLE IT,
MELT IT DOWN, FOLD IT,
ROLL IT AND SEND IT
OUT WORLDWIDE. IT
CAN BECOME A BRIDGE OR
AN EVERYDAY TOOL,
AN ELEMENT OF
ARCHITECTURE OR
SOMETHING
YOU DRIVE. BUT
WITHOUT PASSION IT
WOULD JUST BE A COLD
PLATE OF STEEL.”**





FORGED BY TIME

When it was founded in 1884, Società degli Alti Forni, Fonderie ed Acciaierie di Terni (“Terni’s Blast Furnaces, Foundries and Steelworks Company”) was the largest industrial complex in Italy.

It was a deeply rational plant, built in a strategic location with abundant water resources and readily available skilled labor, as other similar businesses were already active in the area.

The core of the structure were a large steel mill, a rolling department, a great forge, and a 108-ton mallet. Soon the large factory became one of the country’s most important industrial realities: it manufactured the Italian fleet’s armored units, as well as the bathysphere used by Auguste Piccard in his deep-sea explorations, and the spherical container for the Garigliano nuclear power station.

Since its earliest years of activity, the company aimed for excellence and fostered the diffusion of its production methods. Thus, starting in the 1960s, a program for

the development of new plants and products was implemented to achieve a position of leadership in the field of high-quality steel, allowing the company to become one of the world’s top manufacturers of stainless steel sheets.

In 1988, the Terni Acciai Speciali turned its plants over to ILVA.

In 1994, the company was privatized. The German company Krupp, along with the Falck, Agarini and Riva Groups, took over in 2001; after the merger with Thyssen, it acquired all company shares. In 2009, all steel production was brought under the Stainless Global Business Area.

In 2011, thyssenkrupp Stainless Global was spun out of thyssenkrupp to create Inoxum.

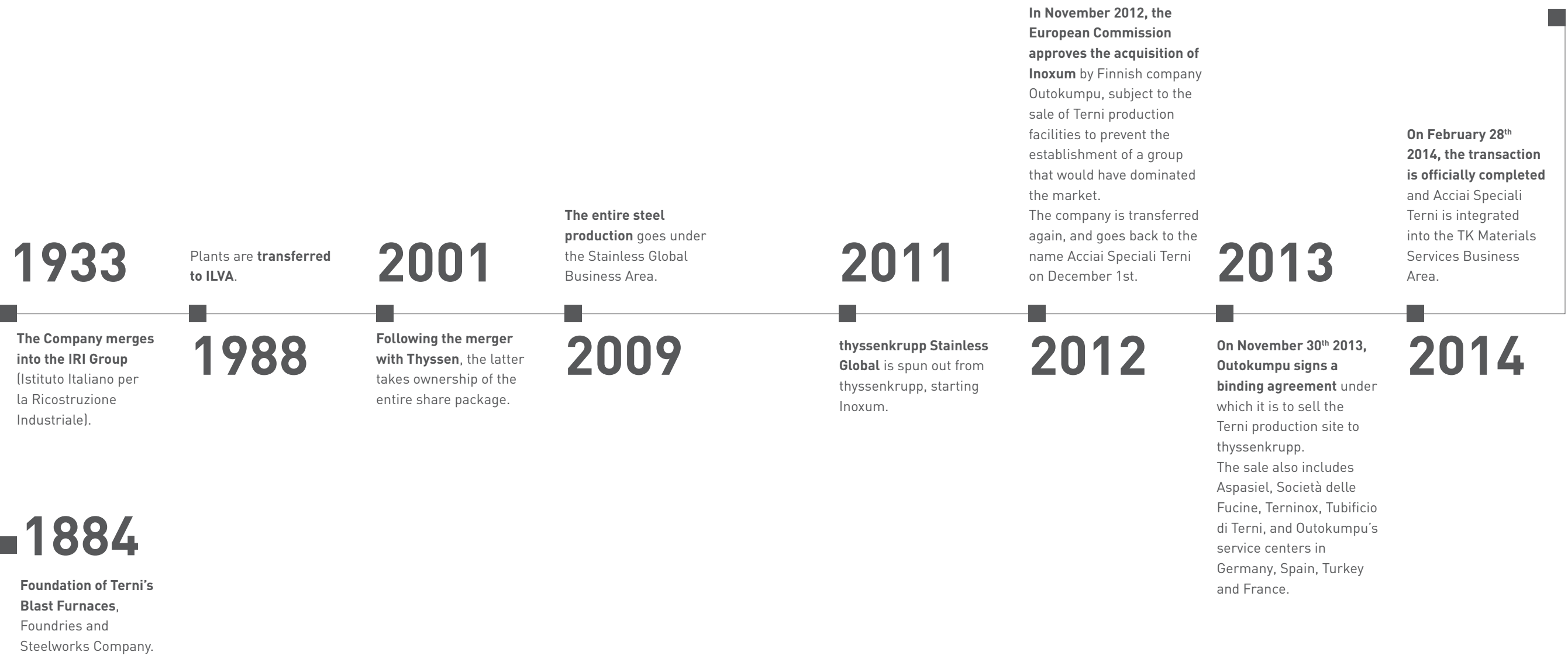
In November 2012, the European Commission approved the acquisition of Inoxum by Finnish company Outokumpu, subject to the sale of the Terni plants in

order to avoid creating a group with a dominant position on the market. Thus the company was transferred again, and went back to the name Acciai Speciali Terni.

In 2013, Outokumpu signed a binding agreement for the sale of the Terni productive facilities to thyssenkrupp. The sale also included Aspasiel, Società delle Fucine, Terninox and Tubificio di Terni, and Outokumpu’s service centers in Germany, Spain, Turkey and France.

On February 28th 2014, the transaction was officially completed and Acciai Speciali Terni was integrated into the TK Material Services Business Area.

MORE THAN 130 YEARS IN THE HISTORY OF STEEL



A COMPANY AS STRONG AS STEEL

Time has taught us to be as tenacious and flexible as the steel we manufacture; fortified by a great history, today we are building a solid future.

Vast experience and brave entrepreneurial choices have made AST a synonym of excellence around the world.

Acciai Speciali Terni is partly integrated with thyssenkrupp, one of the most important steel manufacturers in Europe, with a presence in 80 countries, revenues for over 40 billion euros per year, and 155,000 employees the world over.

Today no market is too far away for our knowledge, passion and spirit of innovation.

The thyssenkrupp Materials Services Business Area offers a widespread sales network, distributing Acciai Speciali Terni's products all over the world.

44
COUNTRIES

Every day, our steel travels around the globe with growing sales figures everywhere, above all in North America.

We are the 4th largest steel producer in Europe: 16% of our clients are European companies, 72% are Italian.

EUROPEAN
LEADER

13TH
IN THE
WORLD

We are amongst the largest stainless steel producers in the world.

Founded in Terni in 1884, we started as the largest industrial complex in Italy and soon became one the most important industrial realities in the country and in Europe.

130
YEARS

630
MILLION
EUROS

Over the last 10 years, we made investments for 630 million euros – equivalent to 10% of Umbria's GDP or 0.15% of Italy's (revenue/GDP, based on a ten year's historical average).

VALUES AS RAW MATERIAL

Our most important raw materials are the values that shape our everyday work and inspire us to always look further ahead.

High quality is not enough for us: we aim for excellence. We do not limit ourselves to tailor-made solutions, but instead seek to meet and surpass clients' needs, even before they ask. For us, on-time delivery is not the end of the project: we stay at customers' side way beyond the deadline. We are not satisfied with using popular solutions: we keep up with innovation so we can develop applications right off researchers' drawing boards.

This is how we have become a global player, a beacon on the global scene, one of the top 4 brands in Europe and the leading stainless steel company in Italy. We work with great ability to innovate, strong reliability and customer focus, aware that the products coming out of our factories are transformed into everyday objects all over the world... and proud to know that if stainless steel has become the "gold" of our times, it is also thanks to Acciai Speciali Terni.

**OUR GREATEST
COMPANY
ASSETS:
OUR PEOPLE.**



GLOBAL PLAYER

**FROM SPACE TO
OPERATING THEATRES,
STEEL IS EVERYWHERE
AND WE ARE EXPANDING
TO WHEREVER
IT TAKES US.**

“Our steel travels far,
taking the mark of my
skills around the world.”

CUSTOMER ORIENTED

**FORSEEING CUSTOMERS
NEEDS IS PART
OF OUR COMPANY'S
CHARACTER.**

"My work is to shape steel
and to provide our customers
with tailored solutions."

INNOVATIVE

**RESEARCH FOR
BETTER STEEL
SOLUTIONS NEVER
STOPS.**

"I have discovered that with
the right formula, even the future
can be forged."



RELIABLE

**STEEL IS THE MOST
RELIABLE OF
MATERIALS – AND OUR
SERVICE SIMPLY HAD
TO CONFORM TO THAT.**

“Our passion for details
is part of our steel’s strength.”

PASSIONATE

STEEL INSPIRES
ART AND DESIGN,
AS WELL AS OUR
DAILY WORK.

"Our mission takes shape,
day after day."



**OUR PRIORITIES:
SAFETY, HEALTH
AND THE
ENVIRONMENT.**



THE PURITY OF STEEL DRIVES AN ENTIRE REGION

Steel is pure, sustainable, and 100% recyclable. Just think about all the productive processes for milk, wine, water, meat, fruits and vegetables depending on the hygiene guaranteed by stainless steel. This noble and ecological material has allowed the Italian industry to express its value to the fullest, and today is ready to support companies in their newfound awareness for environmental protection.



ENVIRONMENTAL AWARENESS

Since the beginning, our industrial site has sought to interfere as little as possible with the territory around it, selfregulating well in advance of laws and national regulations, and following even more stringent criteria.

Our constant commitment has always focused on transparency: data gathered by monitoring furnaces' and converters' atmospheric emissions are communicated daily to control bodies (ARPA), and broadcast on screens located in Terni's library, supermarkets and public offices.

We have also developed a computer and smartphone app for anyone to access such data, convinced that information is the first step towards real environmental sustainability.

It is not just steel that must be sustainable.

The concrete actions we have implemented have led to excellent results in terms of efficient use of natural resources.

In February 2014, a new plant was activated in Terni which re-uses refractory materials by reintroducing them in the productive cycle to substitute part of the lime. This avoids approximately 15-20,000 tons of waste in the landfills every year, helps reduce the consumption of lime, and curtails the exploitation of non-renewable resources.

The environment is central to all our activities: it is the air we breathe, and the home we live and work in every day. We choose to see our responsibility in protecting it as more than a long list of rules and protocols, and consider it part of our identity, deeply rooted in the context where we operate.

SAFETY

We protect our workers' health and safety. Acciai Speciali Terni is particularly focused on the prevention of injuries and on the improvement of conditions in the work environment. On April 9th 2014, the third "Protocol for the Planning of Measures for Work Safety" was signed at Terni's Prefettura, paying great heed to the reinforcement of safety measures in activities carried out in Acciai Speciali Terni's divisions, by means of strict controls in both selection processes (technical, professional, administrative requirements) and executive phases.

The company's efforts are clearly reflected in the constant decrease in the number of injuries over the last few years.

HEALTH

Admiral Benedetto Brin's goal was always to create a steel plant that could also keep the wellbeing of people and of the surrounding environment in the highest regard.

Almost 150 years later, our commitment has only grown, turning into reality through a network that now includes universities and health centers of excellent standards. Prevention campaigns are just the "face" of a much deeper and structured effort, based on constant monitoring of medical parameters and on in-house initiatives to increase safety in an always healthier work environment.

Since 1968, employees can count on Supplementary Health Services: a welfare system with some 1,500 members, which extends to families and cares for over 3,000 people, offering dental treatments, instrumental diagnoses, specialist visits and physiotherapy services – all of which contribute to reducing the burden placed on the public health system.

TRAINING

Training is an integral part of our production process: we train instructors, monitor how courses progress, and assess their effectiveness.

Training leads to improved performances in all areas, and lifelong learning is the lever that allows teamwork to develop, sharing diverse skills and experiences.

Our programs are open to all our employees: workers, office staff, executives, and managers. Our Training Center is certified by the Italian Institute of Quality Guarantee; having been accredited as a training agency in the Region of Umbria since 2011, it has been able to extend its services also beyond the company, including personnel from contractors who work with us. Because we believe work culture is always an excellent investment.

SHARING

Quality of work and quality of life go together, even outside the office.

Today our Circolo Lavoratori Terni ("Terni Workers Club") is much more than a recreational space. It is a reflection of how we can live together, beyond corporate roles and working hours. It is another way to share the same passions and character.

Ongoing investments since 1927 have created and fostered the growth of a remarkable sports center, including an Olympic-size swimming pool, various gyms, soccer fields, tennis, volley-ball and basketball courts, all set in a green oasis inside the city of Terni. Today a total of approximately 1,200 athletes can practice 11 different sports at Polisportiva CLT – and keep their mind in shape as much as their body, thanks to the library and music school.

Our club is also a great asset for Terni: one of the most popular and best-equipped facilities in the city, it has over 7,000 members.

QUALITY MANAGEMENT SYSTEM

Acciai Speciali Terni has managed its manufacturing process in accordance with a Quality System since the 1970s, when it achieved the Quality System Certificate from ASME (American Society of Mechanical Engineers).

Efforts in this direction were further consolidated in 1990. Acciai Speciali Terni is certified in accordance with ISO 9001:2008 with Certificate 9009 issued by IGQ, the Italian Insitute for Quality Guarantee, that is a part of CISQ, Italian Certification of Companie's Quality System, member of The International Certification Network IQNet. The certification covers all activities and products of Acciai Speciali Terni facilities.

The company also acquired Certificate No. 09/2001/MUC, issued by T.V Süddeutschland, which attests to the conformity of Quality Systems with European Directive 97/23/EC on pressure equipment (PED).

On top of the credentials relative to its Quality System, Acciai Speciali Terni has achieved the following product approvals:

- for the production and marketing of products for the construction of pressure vessels, in compliance with AD- 2000 Merkblatt, W0, W2 and W10 from T.V Süddeutschland
- for the production and marketing of construction products in accordance with European Regulation 305/2011/EU (CPR) and European Norms 10088-4/5, the CE marking for stainless steel and carbon products by IGQ
- in accordance with norm DIN 51130 for the nonskid characteristics of diamond steel plate flooring, from T.V Rheinland
- for the validation of environmental assertion in accordance with UNI EN ISO 14021 on the minimum content of post-consumer scrap (IGQ) for austenitic, ferritic and carbon steels
- approval as stainless steel producer for naval use from Lloyd's Register.



WHAT IS OUR STEEL MADE OF?

The real driving force in our company are the people who, with their expertise and desire to improve each day, add value to everything we produce. For this very reason, we devote considerable investments to the people and the environment in which they live and work, to protect their health and safety, and to enhance their professional experience. We share the same culture and the same idea of work, by affinity and by choice. We are like our steel, forged by fire and brought to life by our people's experience and passion.

EXPERTISE

We have the solid experience of over 2,300 people, growing generation after generation. We build up our know-how day by day, in every aspect of our business: from furnaces to logistics, from sales to research on materials.

TRAINING

An incessant activity: we have provided 180,000 hours of training in 5 years. Over 2,000 people engaged, with 1,800 participants a year.

SAFETY

We regulate safety according to the strictest certifications and controls in the selection phase (technical, professional, administrative) and in the executive phases of work. For us, safety is also transparency, thanks to timely information on injury prevention and to constant monitoring of control procedures.

HEALTH

Our steel plant is also a hub for the health of our employees and their families, with Supplementary Health Services and a continued commitment to prevention. Because quality at work is above all quality of life, inside and outside the workplace.

ENVIRONMENT

In the last 5 years, we invested over 25 million euros in environmental projects, and 30 million euros a year for environmental management. Care for the environment is a concrete investment that touches upon everything we do today, and everything we are planning for the future: from product to process innovation, from education to certifications. Our impact on the territory has turned into a sort of protection, in a relationship that instead of altering in fact enhances what exists around plants.

QUALITY

Our total quality system is regulated by the strictest certifications and put to the test all over the world in a plethora of market sectors: from laminates to packaging, from delivery times to our efficient after-sales assistance service.



ONE COMPANY, ONE INTEGRATED PRODUCTIVE PROCESS

Integration is key for us: the word describes our productive process, concentrated in a single facility, but also the relationship with our clients, where we strive to integrate with their needs.

We build with each client a relationship based on full cooperation in every phase of production, from design to packaging, and from delivery to post-sales assistance. We analyze requirements together and select the best type of steel for them – or put the Materials Research Centre to work if it doesn't exist yet.

Everything is designed to provide tailored and integrated solutions, always tying in perfectly with the industrial needs of our clients, anywhere in the world. Our integrated process allows us to concentrate all the phases of production in one single site, and guarantees high quality standards and excellent service. The steel

we manufacture matches the strictest production criteria and regulations, precisely because it is made via a constantly controlled process, from raw materials to finished product.

Our advanced facilities extend over 1,500,000 square meters, forming a productive hub that encompasses research, production, logistics, and customer care. Acciai Speciali Terni is one of the most important integrated production sites in the world. And it is thanks to this that it exports sheets and tubing, as well as know-how and expertise, all over the world. Acciai Speciali Terni is structured into productive divisions which cover the entire range of market requirements, and can count on a dedicated research center, an avant-garde logistics service, and a sales department able to delight customers in all five continents.

FORGINGS

This unit extends over an area of 120,000 square meters, and produces a vast range of forgings from high-quality steels, leveraging a hundred-years-old metallurgic tradition with the most modern techniques. The unit meets the needs of the economy's primary sectors, in which the reliability of a machine or of the components of a plant – guaranteed by the rigid application of production procedures and by strict quality controls – is essential for both safety and service continuity.

LAMINATES

This unit is at the heart of our facility, and produces austenitic, ferritic and martensitic steel to meet the requirements of any application. Stainless steel of the highest quality with diverse chemical compositions and characteristics thus transforms into hot and cold rolled laminates. All with a wide range of finishes, thicknesses, widths and lengths, custom packed in according to clients' specifications.

TUBES

Our 45,000-square-meter unit puts us on the forefront in the production of stainless steel, electro-welded tubes. Indeed, we are considered the specialists in automotive and furnishings all around the world. On top of a wide range of products, we offer particularly rigorous quality control management, and a network of 30 warehouses all over Europe, guaranteeing prompt delivery to our clients.



QUALITY AND RELIABILITY, FROM PACKAGING TO AFTER-SALES ASSISTANCE

We had to match the high quality of our products with highly specialized service. We strive to guarantee our clients the best possible technical assistance and support, because we consider their needs a constant commitment. Our steel never travels alone: it carries with it our eye for detail, our punctuality, and the expertise we need to assist you in every phase of the process. We offer a global assistance service, accompanying clients from the selection of grade and finishing to dedicated technical support even after the finished product has been delivered. From design to delivery we always offer a tailor-made service, always at your side. Our network is at your disposal to provide insights on different products and to carry out application tests. Our worldwide presence allows us to satisfy requests within a competitive timeframe, thanks to an innovative IT system and to a logistics system that simplifies and speeds up the management of every process, including delivery of the finished product.

SALES

We have the strength of an international sales organization, in synergy with the thyssenkrupp Materials Group's network which has account managers in various areas of our market. Our sales network is close to clients, wherever they may be: not only in Italy and Germany, but also in Eastern and Western Europe, North and South America, Asia, Australia and Africa. All made possible by working out of over 500 offices in 44 countries.

PACKAGING

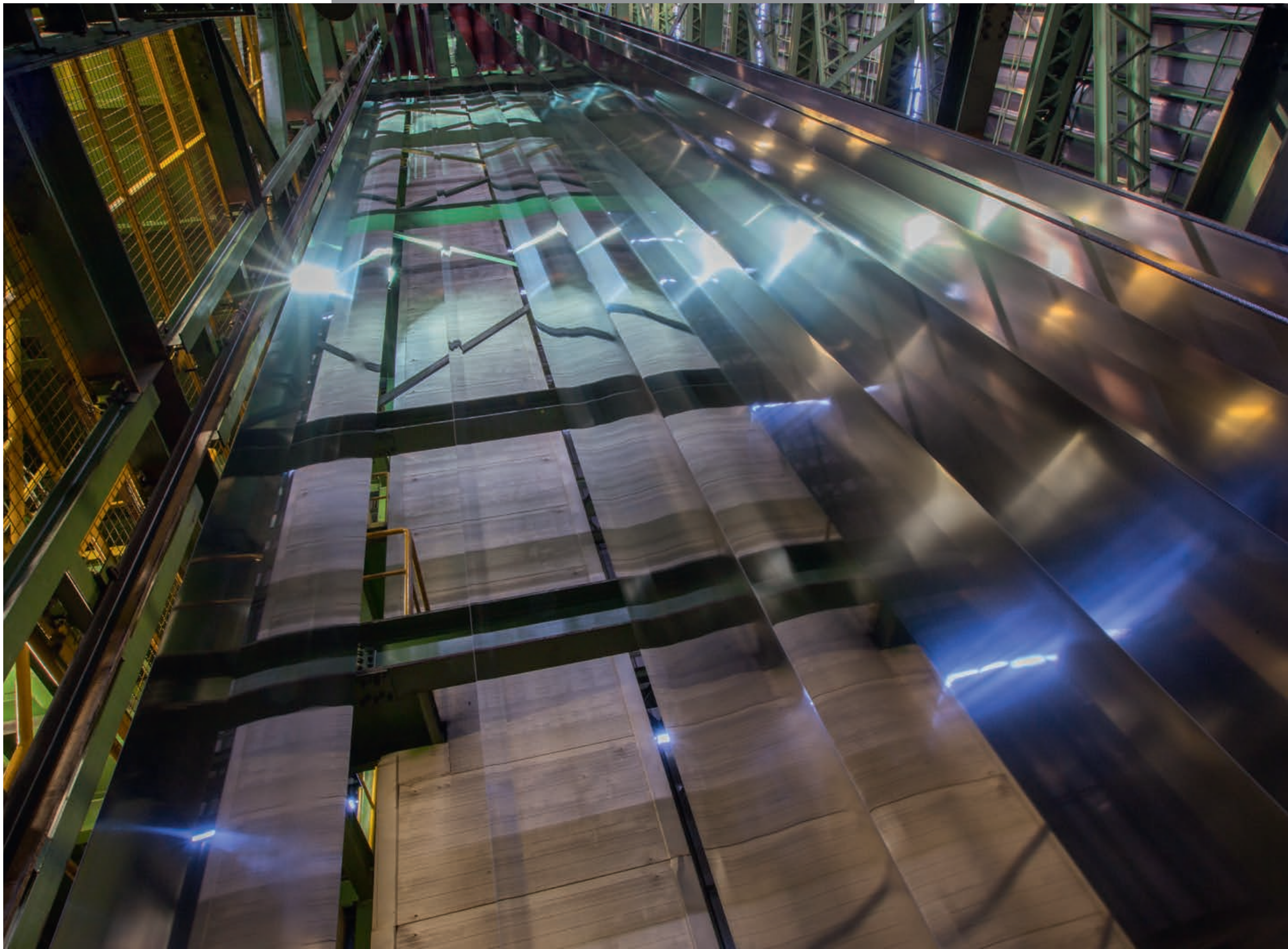
Our products are customized and packed with tailor-made solutions. Products can be provided in rolls, packed horizontally or vertically, bundled into square packages or strips. Other types of packaging can be designed to meet any specific need.

LOGISTICS

Our global presence allows us to meet any request at truly outstanding speed. Stainless steel flat products benefit from an innovative IT system, which simplifies and accelerates the management of every process. Tubes, for example, are delivered up to 8 times a day, and deliveries are monitored through an online platform where clients can verify every phase from order to delivery – which is particularly useful in managing production flows.

ASSISTANCE

We work to ensure the highest quality in technical assistance and support services, and believe in staying at clients' side from before the order to beyond delivery. Our customer care network and our expertise are always at your disposal, offering in-depth information on the different types of products, and helping you choose the right grade and finishing for the application you have in mind.



CONSTANT INNOVATION AND AVANT-GARDE TECHNOLOGY

The world of steel never sleeps, and every day new potentials and applications are discovered for this precious material. All state-of-the-art technologies in the aerospace, bio-engineering, or nano-technology sectors use steel – the only material that can develop infinitely thin and incredibly resistant elements: the smartphones in our pockets and the tablets in our hands would not be possible without steel. For this reason, AST makes consistent, strong investments in research: 10 million euros in the past few years were spent on developing new products and finishings for specific market sectors, to create the most suitable grade of steel for emerging and innovative applications. In collaboration with the Materials Development Centre, a major research center in Italy, we can ensure globally-renowned, excellent qualitative standards. Our IT department is able to optimize schedules and customer need management, unfailingly providing first-class service.

For us, innovation is all encompassing: it includes productive processes, packaging, logistics, and customer care, to create avant-garde products and services.

Innovation is a lever for competitiveness, and for us research and development work for all productive areas, at the service of all our projects and all our clients. The Materials Research Center's laboratories constantly suggest solutions that improve productive processes, improving furnaces' performance and final finishings. The Center develops control systems for the quality chain, gives life to engineering applications for new products, tests new applications, and creates new formulas for special steel in support of emerging applications, designing new systems to simplify production and enhance certain characteristic of steel. Complete synergy between production and innovation is the key to continue to grow together with new clients.

Our Materials Research Center has created new types of steel such as FERRITICO 439M and 441LI, two innovative formulas for the automotive sector, which guarantee better weldability with a considerable improvement in the efficiency of productive processes for exhaust systems. Another example of innovation is FERRITICO STR 12, a carbon steel that is more resistant, pure, and stainless than ever. It took centuries of evolution before we could achieve a steel ready to support and sustain industrial development, and to open up the future to new applications, inspire entire generations, and become part of our daily life. Steel never stops progressing, and our journey continues towards new frontiers.

A RANGE OF PRODUCTS IN CONTINUAL GROWTH

Our plants produce 40% of the steel in Italy and 15% of the steel in Europe.

Manufacturing some 100 types of stainless steel, we have something for every technological area from transportation to home appliances, from construction to industrial machinery, from research to design. We could say our steel takes part in every moment of our daily life.

And every day, our range grows with new products and new finishes. In the field of **stainless steel flat products**, we produce austenitic, ferritic and martensitic stainless steels to meet the needs and requirements of clients in every segment of the market. Each grade of stainless steel presents marked differences in terms of chemical composition, mechanical properties and corrosion resistance, cold formability and weldability. Our factories manufacture semifinished products, Hot Laminates and Cold Laminates in various thicknesses, widths and lengths, according to clients' specifications. Our Finishing Centre allows us to offer a vast range

of surface finishes to improve the aesthetics and technical capabilities of our products.

The production unit dedicated to **tubes** can count on two TIG welding lines, three laser welding lines, and four HF welding lines, plus one slitting and cutting line. At the forefront in the production of tubes in stainless and electro-welded steel, the unit offers a wide range of products to fulfill the needs of a market in ongoing evolution: from architecture to infrastructures, from industrial to automotive design. We are particularly proud of our work for the automotive market: we make some essential parts for the most famous carmakers in the world.

Our range guarantees over 1,200 thickness, diameter, and length combinations for clients to choose from. And there's more: our ambitious "Six Sigma" quality management program aims at completely eliminating flaws and waste. Our offer includes square- and rectangular-section tubes, with brushed or satin finish, for every type of structural or decorative application.

The **forgings** production unit completes our offer with a series of products derived from carbon steels, high and medium alloyed steels, and stainless steels. The product range, including ingots up to over 500 tons, is geared towards the primary sectors of the economy such as the energy production, mechanical, chemical, petrochemical, offshore and aerospace fields, where absolute reliability is required to ensure both safety at work and management savings. These are all high-quality steels, stemming from a century of metallurgic experience and manufactured according to the most modern techniques.

PURE STEEL, PURE PASSION

If humanity's evolution is marked by metals, we can say we now live in the Age of Steel – a material as precious as gold for its infinite applications and recyclability: from kitchens to offshore platforms, from coffee making to space engineering, from surgery to air-pressure applications, and from designer tables to large plants for the production of energy, there is no market sector or daily activity that does not involve steel.



Industrial kitchen design

Design

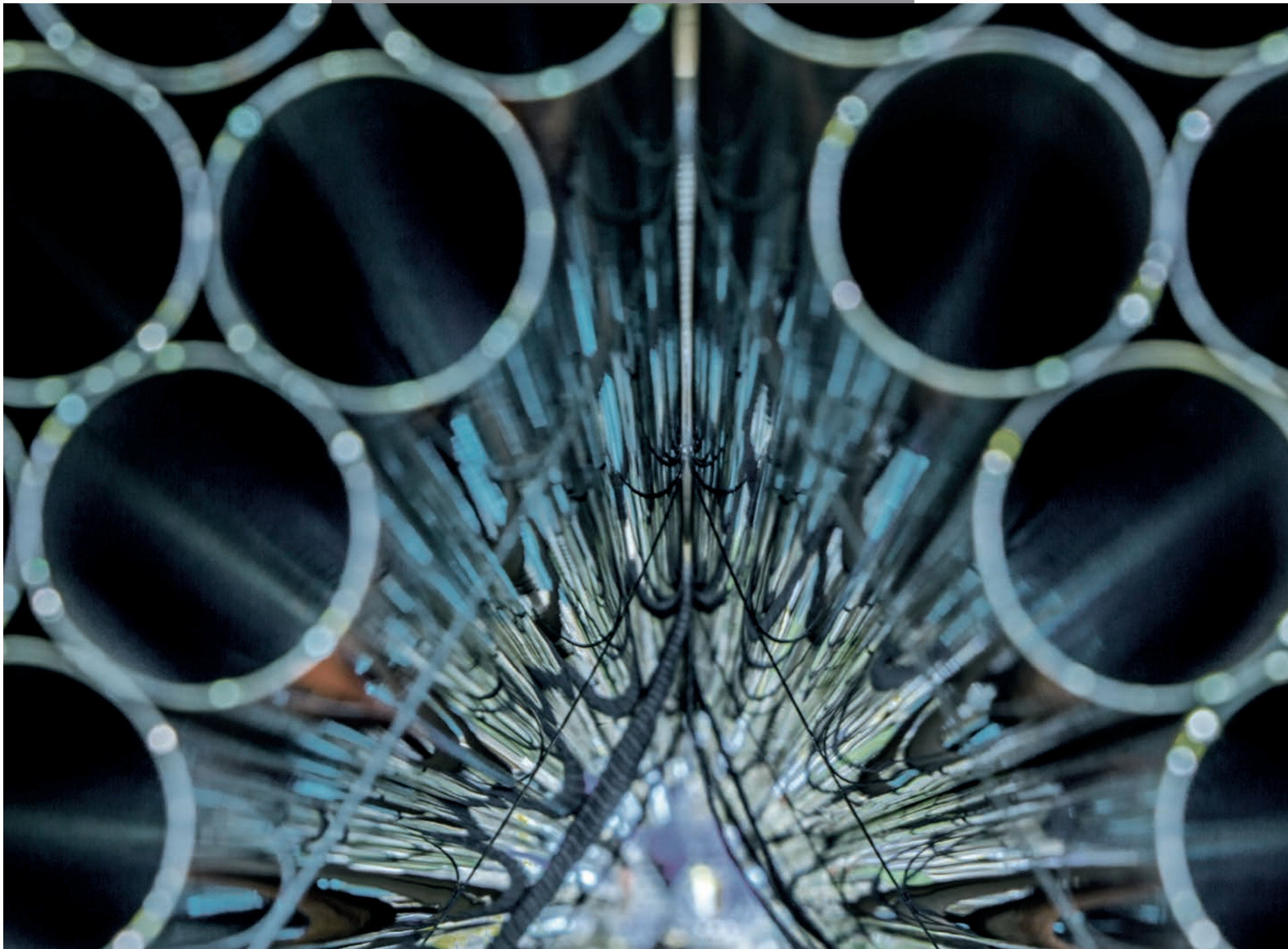
Automotive

Architecture

Industrial structures

Appliances

Medical equipment



A STAINLESS GLOSSARY

ANNEALING

High-temperature treatment that gives metal certain desired characteristics.

DIAMOND PLATE

Steel plates with relief patterns, usually used to create nonskid floorings.

GRINDING

“Barking” of the slabs to eliminate superficial details, carried out at high velocity with large grindstones.

LADLE

Large bucket with refractory layers, used for the transportation of liquid metal.

POLISHING

Finishing process carried out to achieve a particularly smooth and shiny surface.

SKINPASS

Extremely light lamination to improve gloss and flatness, and – for ferritic steels – to remove the tendency to form slip bands (Luder lines).

AUSTENITIC

Steel with a cubic structure with centered faces, non magnetic, non hardening, generally easy to weld.

FERRITIC

Steel with a body-centered cubic structure, magnetic, which cannot be hardened, and can be welded reliably only if stabilized with Ti and/or Nb and/or Zr.

HARDNESS

Resistance to penetration. It can be measured in various ways: the Rockwell method is the most commonly used for stainless steel flat products.

MARTENSITIC

Steel with a prevalent structure derived from the transformation of meta-stable austenite, which improves mechanical features and adds resistance to wear and viscous sliding.

RESISTIVITY

Specific electrical characteristic of steel for magnetic use.

SLAB

Steelworks’ semi-product, best described as a large, relatively thick cuboid.

BLACK

A simply hot-rolled coil.

FLATNESS

Deviation of laminate from the horizontal plain under its own weight.

HARDENED STEEL

Laminate with highly mechanical properties, obtained with controlled cold lamination.

PASSIVATION

Optimal resistance to corrosion obtained with the formation of an extremely thin protective layer.

SATIN

Surface finishing generally achieved using abrasive cloths.

SLASHING

Deviation from perfect straightness of the edge of a steel plate.

BRUSHED

Superficial finishing acquired with the use of abrasive brushes with controlled granulometry.

FORGINGS

Generally large products, obtained by hot deformation (forging) of large metal ingots.

HOT TRAIN

Machinery used to roll coils from slabs heated to high temperatures.

PICKILING

Chemical treatment for the removal of superficial oxides (e.g. derived from annealing).

SCOTCHBRITE®

Surface finish achieved by using patented brushes of the same name.

STAINLESS STEEL

A steel alloy containing chrome (around 11% minimum content) and sometimes other elements, highly resistant to corrosion and typically shiny.

**1,500,000 SQUARE
METERS DEDICATED
TO AN INTEGRATED
MANUFACTURING
CYCLE.**



**“CHARACTER
IS FORGED JUST LIKE
STEEL: WITH PRACTISE,
PASSION, AND
GREAT SKILL.
THESE ARE
THE VERY QUALITIES
THAT HAVE MADE
US AND OUR STEEL
GLOBAL LEADERS.”**

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