HOT EXTRUDED SPECIAL STEEL PROFILES

A GLOBAL LEADER AT YOUR SERVICE

CALVI NETWORK
SPECIAL STEEL
PROFILES

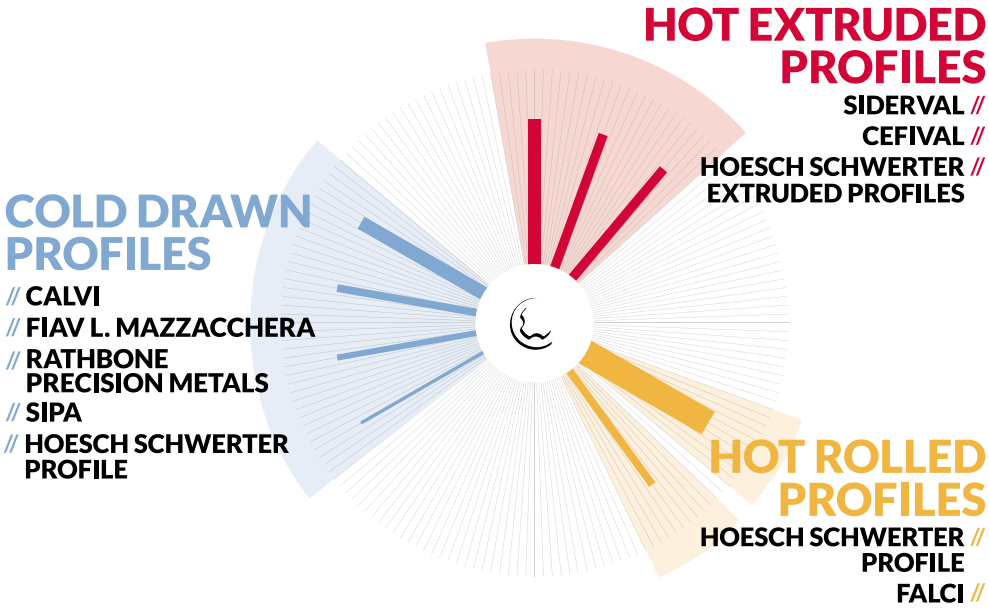
+ENGINEERED SOLUTIONS

FROM EUROPE


+QUALITY
+SPECIALIZATION
+EFFICIENCY

CALVI NETWORK

With a proud history at the technological and scientific forefront of the steel and metalworking industry, today the Calvi Network companies look forward with confidence towards a future focused on unlocking the opportunities offered by new materials and new applications and on working together in synergy to respond to global industry challenges.



BU EXTRUSION

The three companies of the Calvi Network hot extrusion business unit are all highly specialized in the use of hot extrusion forming technology to produce special steel profiles or tubes. The business unit produces a wide range of steel and alloy products (including stainless steel, carbon steel, superalloys and titanium steel) and is able to supply both standard profiles and custom solutions of all types and shapes, for a wide range of applications and across all industrial sectors (e.g. energy, aerospace, marine, railways, automotive, automation, logistics). Also flash butt welded rings as well as steel tubes can be available.

THREE COMPANIES. ONE BUSINESS UNIT. A SINGLE SHARED TRADITION OF TECHNOLOGICAL EXCELLENCE.

CEFIVAl, fr first invented the industrial process of extrusion of steel through glass lubrication. It was Jacques Séjournet who, in 1941, after years of research and experimentation, finally patented the technology, in which glass powder is used as a lubricant for steel extrusion. Subsequently, after the end of the second world war, the process – which was first employed at the company's Persan plant in France's Val d'Oise department - was licensed for production all over the world. Over time, the specialization of Cefival has increasingly developed and is now a leading producer of special solutions mainly for the aerospace industry, the power generation markets.

HOESCH SCHWERTER EXTRUDED PROFILES, de is a name that is inextricably linked with the steel industry. Although the company was founded in 2016, the Hoesch brand is heir to a steelmaking tradition that goes as far back as 1745. The capacity of Hoesch Schwerter Extruded Profiles to consistently achieve the highest levels not only provides a measure of the reliability of each individual component but is also testimony to the efficiency and reliability of the people and the communities involved in designing, realizing and testing those components. Rooted in tradition but firmly forward-looking, Hoesch Schwerter Extruded Profiles is at once one of the oldest but also one of the most modern of German businesses.

SIDERVAL, it founded in 1972, in the Valtellina region of northern Italy, is not only a very efficient and reliable industrial site but it is as well the mother company of both Cefival and Hoesch Schwerter Extruded Profiles. A highly responsive and efficient internal organizational structure, allied to a model focused on ensuring the company remains constantly competitive, enables Siderval to guarantee the highest standards of quality and to satisfy the most stringent requirements of highly innovative sectors, including aerospace, nuclear and heavy infrastructure.

Our Business Unit founding principles and core values are made of **research**, **innovation** and **continuous improvement**. Adopting a leading-edge, forward-looking approach, we aim to explore the potential improvements offered by new processes and materials to satisfy the needs of a world undergoing rapid change. In order to achieve this, every step of the production process (design, engineering, production and certification) is conducted in synergy with the Business Unit's R&D department – the companies' biggest asset and core strength – which acts as a hub at the centre of a knowledge network that seeks to foster technological alliances and partnerships.

+SPECIALIZATION

+EFFICIENCY

+QUALITY

CALVI NETWORK
SPECIAL STEEL
EXTRUDED PROFILES

SIDERVAL – CEFIVAL
HOESCH SCHWERTER
EXTRUDED PROFILES

HOT EXTRUSION TECHNOLOGY

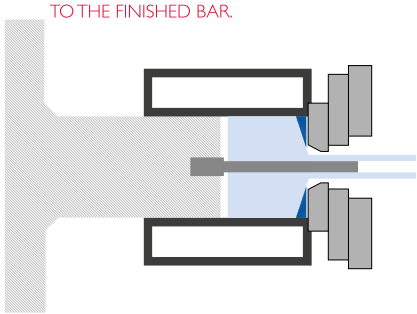
THE FORMING TECHNOLOGY KNOWN AS HOT EXTRUSION CAN BE USED TO PRODUCE PROFILED BARS AND TUBES WITH COMPLEX GEOMETRIES.

EXTRUSION

Hot extrusion is a production process employed for the forming of special profiles with a constant longitudinal cross-section. The hot extrusion process can be employed to manufacture solid or hollow profiled bars with complex geometries and a fixed cross-section, in one single step.

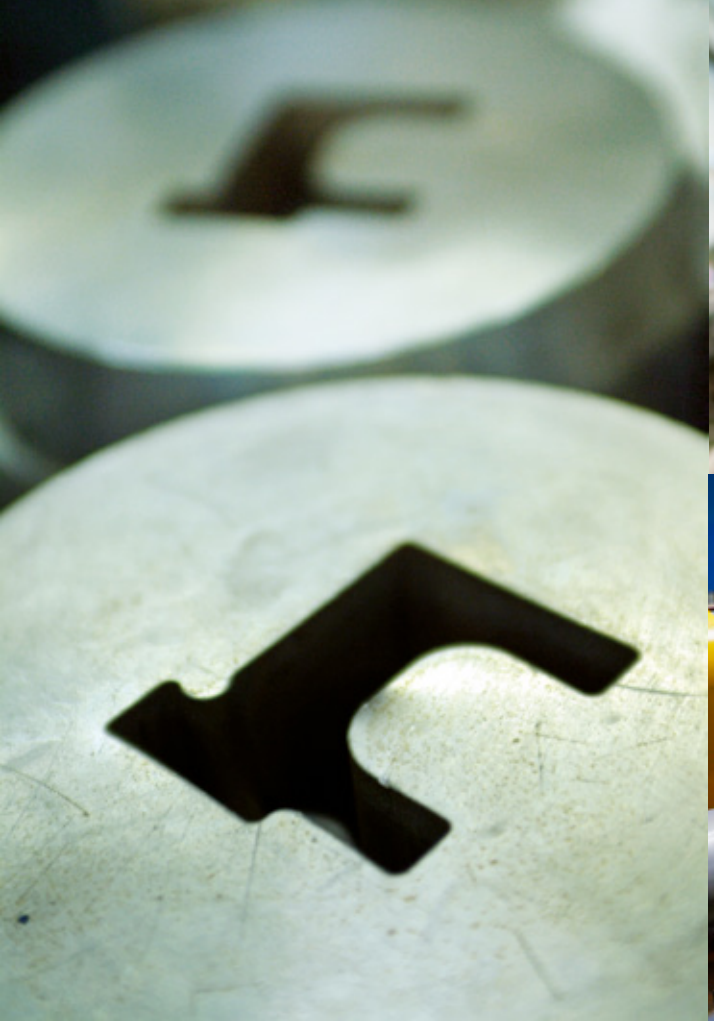
Our Hot Extrusion Business Unit has got 3 horizontal hydraulic presses, which enable the production of **customized steel profiles inside a circumscribed circle up to 255 mm, a weight up to 110 kg/m and a length up to 16.8 meter**. Special profiles are produced in all forms, qualities and surface finishes, as required for the intended application.

DURING HOT EXTRUSION, A PRE-HEATED BILLET IS PLACED IN A CHAMBER AND PUSHED THROUGH A SPECIAL DIE OPENING THAT GIVES THE DESIRED CROSS SECTION TO THE FINISHED BAR.



FINISHING

The three companies forming the Hot Extrusion Business Unit are equipped with advanced cold or hot stretching and straightening machines that ensure the dimensional accuracy required by the customer in terms of flatness, straightness and twist is achieved. Extruded bars can be supplied shot blasted or passivated. Profiles can be further machined on a milling center and cut-to-length. Specific bending and flash-butt welding installations are available for rings or bended shapes. All the aforementioned operations are carried out on in-house custom-made equipment.



BENEFITS

Huge raw material savings can be achieved due to the near-net cross-section of the profile, especially in the aerospace, where the buy to fly ratio needs to be reduced. Behind this flexibility makes it possible to produce also small volumes by minimized tooling costs.

PRODUCT BENEFITS

- Best shape properties and fitting accuracy through adherence to tightest tolerances.
- Different material thicknesses within one profile cross-section, thus allowing specific reinforcement of highly stressed segments of structural components.
- Seamless structure of solid and hollow sections, which have to withstand the demand of temperature, pressure, and aggressive media.
- The multitude of possible cross-sections often allows the functions of adjacent components to be fulfilled with a single special profile.

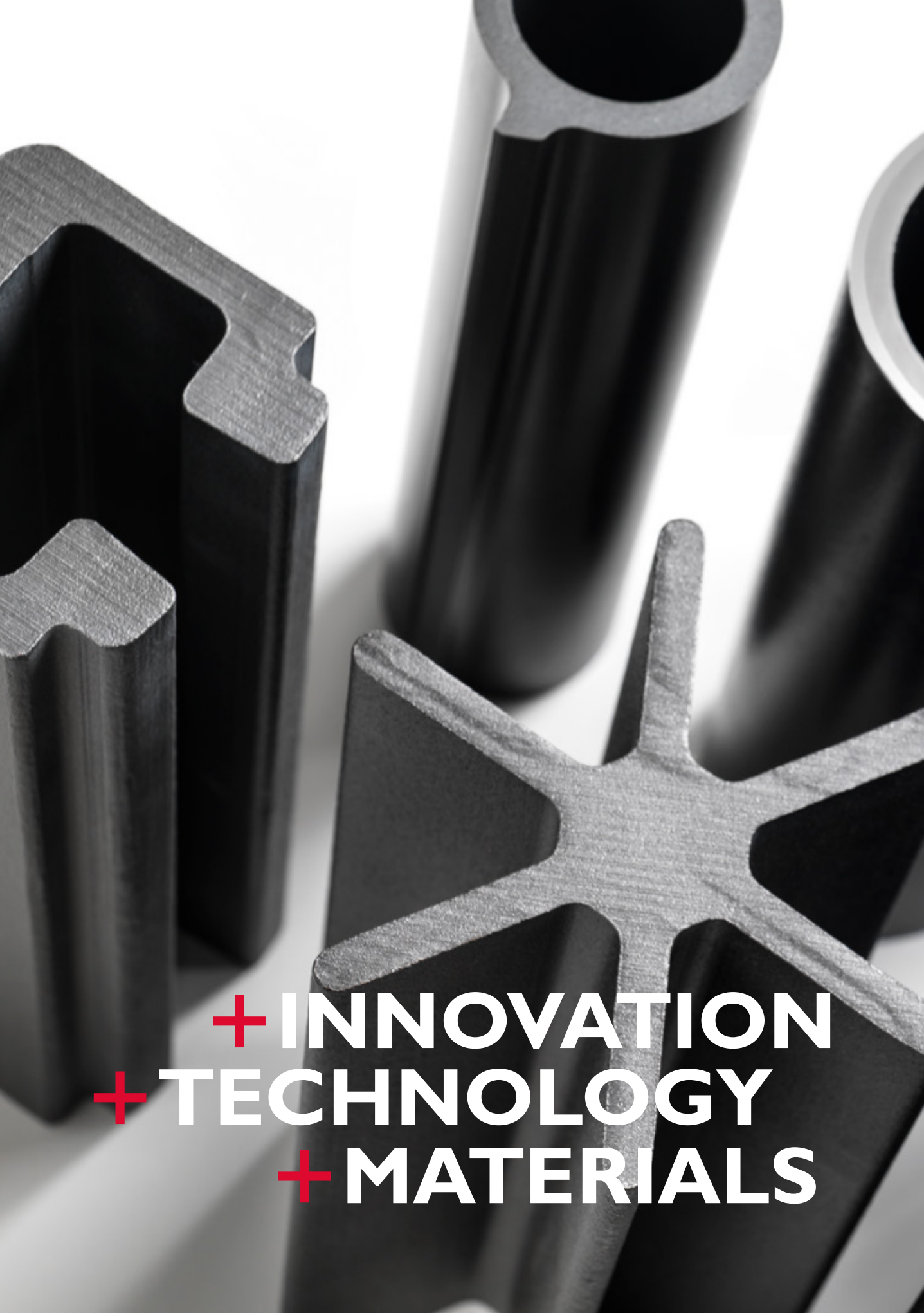
MANUFACTURING PROCESS BENEFITS

- Hot extrusion can be used to make complex profile shapes even with metals which are difficult to form.
- Costly processes such as welding, straightening, grinding, milling or turning can be eliminated.
- Machining can be minimized, and weight saved by choosing an optimum cross-section, and bottlenecks in machining capacity can thus be avoided.
- Expansion of the product range in combination with complementary technologies like laser welding.

MATERIALS

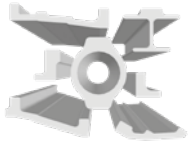
Hot extruded profiles can be made from a wide variety of steel grades, according to the required metallurgical properties (strength, resistance to heat or corrosion).

Many different metals, with various degrees of extrudability, are currently extruded in our plants, including carbon steel, stainless steel, nickel and titanium alloys.


+INNOVATION
+TECHNOLOGY
+MATERIALS

+ CUSTOMIZATION
+ BENEFITS

APPLICATION FIELDS



» AEROSTRUCTURE
Structural parts.

» AERO ENGINES
Flash butt welded rings for aircraft engines.

» AGRICULTURE
Special profiles for various machinery parts.

» FORKLIFT TRUCKS
Special profiles for masts and attachments.

» CIVIL CONSTRUCTION
Special profiles for expansion joints and sheet piling.

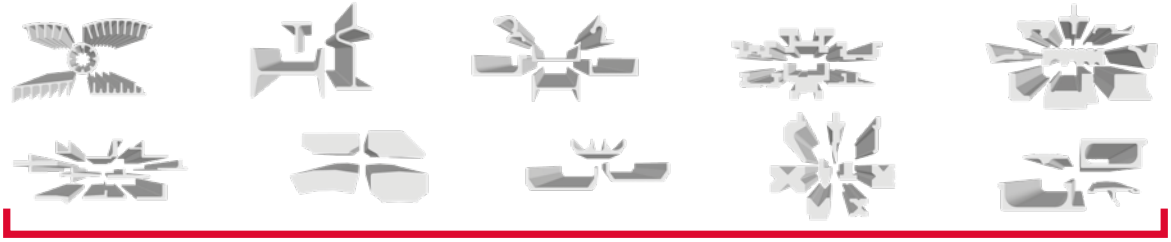
» ARCHITECTURE
Special profiles for glass walls and bearing structures.

» DEFENSE
Special profiles for land, air and sea vehicles.

» RAILWAY
Special profiles for train and tram wagons and rail elements.

» MECHANICAL ENGINEERING
Special profiles for components used by the mechanical and plant engineering.

» POWER GENERATION
Special profiles for turbines and shaped tubes for heat exchangers (fin, mega, double omega) in power plants (nuclear, gas /coal fired, hydro), steel plants and refineries. Special profiles for nuclear waste confinement.



» FURTHER APPLICATION FIELDS:
Automotive industry, food idustry, heat exchanger, industrial conveyors, medical industry, naval industry, sheet bendy equipment, drilling equipment, pre-shapes for cold drawing.





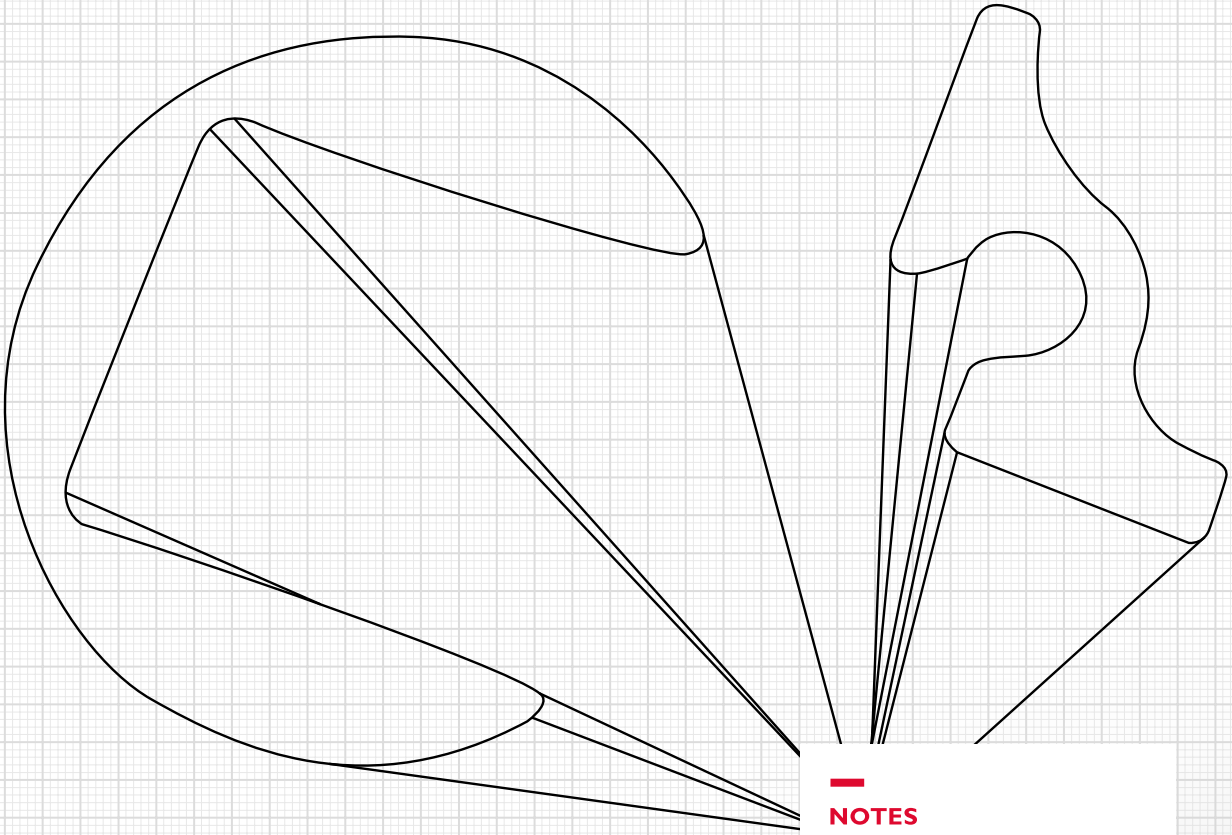




EXTRUDING STEEL IS POSSIBLE

WE CAN PRODUCE
YOUR PROFILE, YOUR TUBE, YOUR RING

AVAILABLE IN A VASTE RANGE OF SHAPES AND MATERIALS.



NOTES

If you wish to leave a drawing to us, use the millimetre paper at the end of this brochure.

+ISO 9001

+EN 9100

+ISO 14001

+ISO 50001

+ISO 45001

+NADCAP

PRODUCT CERTIFICATION

The Companies of the Hot Extrusion Business Unit maintain a management system to ensure quality and environmental protection according to the highest standards. Quality management is certified by an independent accredited institute in accordance with EN 9100. Environmental protection is an integral component of the business strategy of the Business Unit, which is geared towards long-term growth. All the production processes are regularly assessed for their environmental impact and are adjusted appropriately as part of a process of continuous improvement. The environmental protection system has been updated to meet the requirements of international standard ISO 14001 and is applied uniformly in all product areas.

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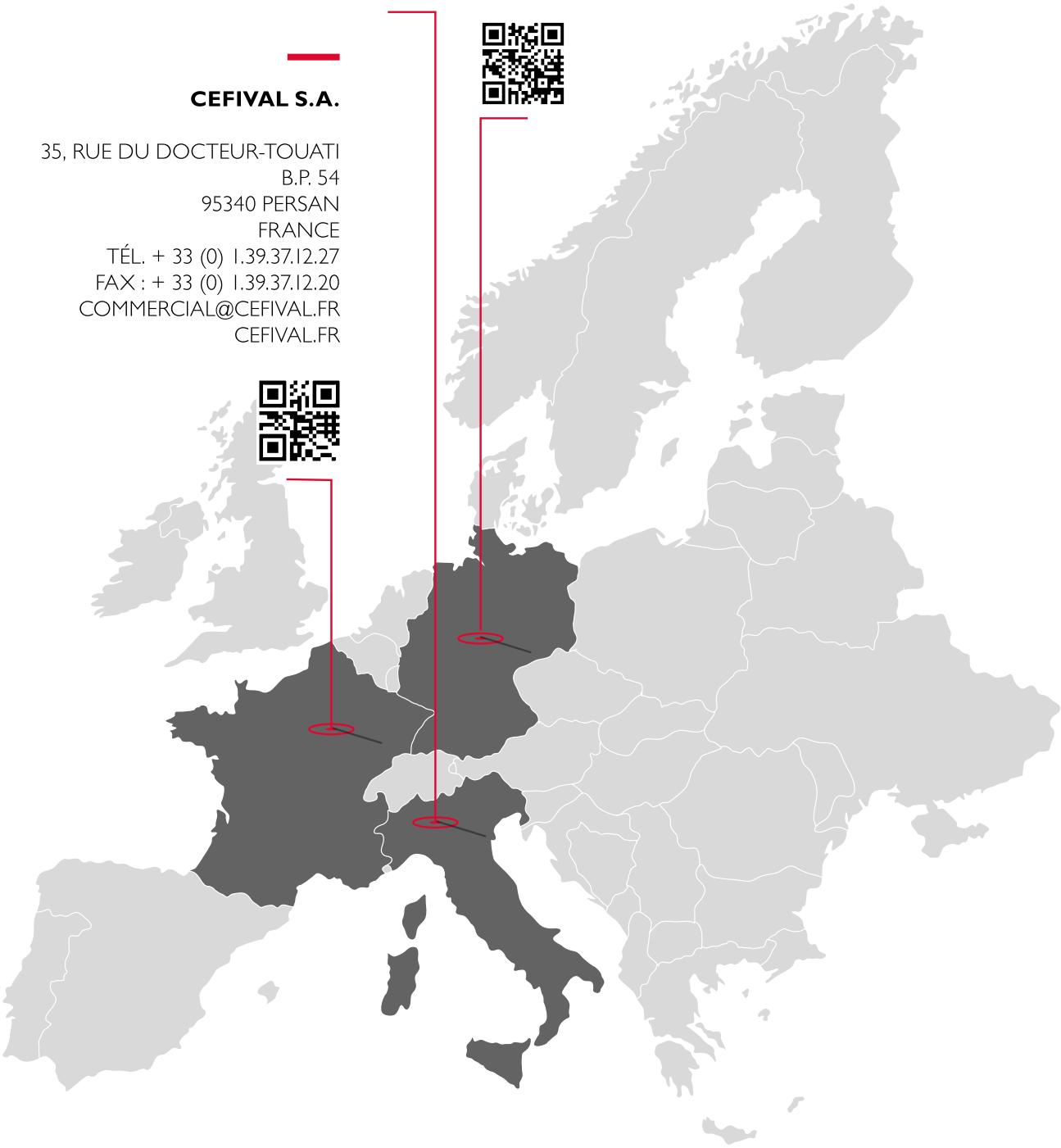

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