

SPECIAL

STEEL PROFILES

HOT EXTRUDED



SIDerval 
SPECIAL PROFILES IN STEEL

SIDerval

A HISTORY OF QUALITY.



WHO WE ARE

Siderval S.p.A., founded in 1972 in Talamona (Italy), is a global leader in the hot extrusion of special steel and titanium profiles. With over 50 years of experience, we design and produce tailor-made hollow and solid profiles in a wide range of shapes to meet the needs of each project and client. Continuous investment in advanced technologies ensures high quality, fast delivery,

and strong operational flexibility. Our expertise covers carbon steel, stainless steel, special alloys, and titanium, serving diverse and evolving industrial sectors worldwide. Thanks to our know-how and commitment to innovation, Siderval is a trusted partner for companies seeking excellent performance and customized solutions.

HOT EXTRUSION TECHNOLOGY

At Siderval, the hot extrusion process lies at the heart of our production capabilities. Using cutting edge technology, we transform raw materials into seamless and high-precision profiles.

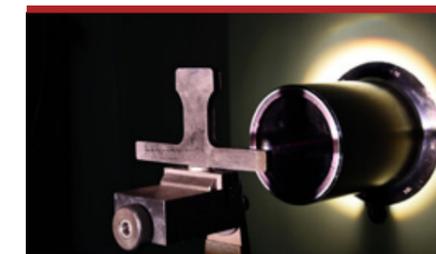
The extrusion process ensures excellent material compactness, homogeneous mechanical properties and a high-quality surface finish straight from the press, often eliminating the need for further machining. Using horizontal hydraulic press, we can manufacture profiles with an inscribed diameter of up to 255 millimetres, a weight of up to 120 kilograms per metre and lengths up to 16.8 metres.

Hot extrusion is ideal for both high-volume series and limited production runs, with tooling costs significantly lower than other forming technologies such as rolling or forging. The ability to create solid or hollow cross-sections in a single operation, without welding or assembly, makes hot extrusion a reliable and cost-effective choice for demanding industrial applications.

THE ADVANTAGES OF SIDERVAL KNOW-HOW

The use of state-of-the-art technologies allows us to provide technically innovative and cost-effective solutions, offering greater efficiency, reliability, and added value, such as:

- Production of complex and unusual profile shapes in tubular and solid section which cannot be produced using other hot or cold working techniques
- Production of small quantity orders allowing competitive prices due to limited tooling costs, giving the possibility to have a number of sample bars at no added cost
- Transformation of high alloy steels which, due to their high cooling velocity and consequential hardening of the material, require rapid deformation
- Tooling exclusivity for custom shapes, with profile protection and tooling management handled by Siderval.



DIMENSIONAL CAPABILITIES

MATERIAL THICKNESS
min 4 mm

SIZE RANGE
fit in a circle of max Ø 255mm.

INSIDE DIAMETER FOR HOLLOW PROFILES
from 20mm to 160mm

WEIGHT PER METER
from 2.5Kg/m to 120Kg/m

LENGTH
max 16.800 mm, depending on profile cross section and weight per meter

TOLERANCES
depending on profile cross section and material

QUALITY CERTIFICATION

Siderval operates to quality standards: UNI EN ISO 9001, TÜV AD2000-MERKBLATT WO/TRD 100 ADMERKBLATT WO/TRD 100 AQAP 2120 Ed.1. Also to the environmental management system, UNI EN 14001. Siderval is also able to comply with the specifications of various external bodies or other control systems (Lloyd Register, Rina, TÜV etc.). Our quality department is equipped to carry out destructive and non-destructive tests:

- Technological (hardness, microhardness and tensile tests)
- Chemical analysis (by spectrographic methods)
- Non destructive (magnetoscopic examination)
- Surface (roughness)

THE BEST SOLUTIONS
FOR THE MOST COMPLEX SHAPES



THE PRODUCTION PROCESS

1

RAW MATERIAL PREPARATION



Purchase of high-quality rolled, forged, or continuously cast round bars, either as-rolled or peeled, in compliance with European and international standards. Siderval operates an automated peeling plant with an annual capacity of 42,000 tons, meeting both in-house needs and external orders. Raw material diameters include 155, 180, 220, 260, and 270 mm.

4

FINISHING AND STRAIGHTENING



After extrusion, bars are straightened and cut to length using advanced stretching and straightening machines. A first alignment is achieved through stretching, followed by cutting with either a cut-off machine or band saw, depending on tolerance requirements. Siderval ensures high precision and quality in every profile through refined finishing processes.

2

CUTTING - RADIUSING - PIERCING

Automatic band saws cut and radius the steel bars with high precision, preserving material quality. Each piece is ID-marked for full traceability and stored in labeled containers. For hollow profiles, billets are automatically pierced using dedicated equipment, ensuring accurate and efficient processing.



5

HEAT TREATMENT

Siderval performs standard heat treatments such as annealing, normalising, and stress relieving using in-house furnaces. More complex treatments are carried out by trusted external specialists. Heat treatment modifies steel's mechanical properties, such as hardness, strength, and toughness, through controlled heating, soaking, and cooling cycles.



3

BILLET HEATING AND EXTRUSION



Billets are heated in four induction furnaces under a controlled atmosphere, ensuring optimal temperature based on steel grade. The extrusion process is carried out using a 2600-ton horizontal press, producing solid or hollow profiles up to 16 meters long with complex geometries and high precision without the need for further machining.

6

LABELLING, PACKAGING & SHIPPING



Siderval offers a range of secure packaging solutions tailored to each shipment: bundled with steel straps, PVC-wrapped for extra protection, palletized for shorter bars, or packed in ISPM 15-compliant wooden crates ideal for sea and air freight. Every option ensures product integrity and meets international shipping standards.

APPLICATIONS

AEROSPACE



AGRICULTURE



DEFENSE



DRILLING EQUIPMENT



AUTOMOTIVE



FORKLIFT TRUCKS



LIQUID TRANSPORT



CONVEYOR SYSTEMS



ARCHITECTURE



RAILWAYS



BRIDGES



SKI LIFTS



MATERIALS

HEATING SYSTEM



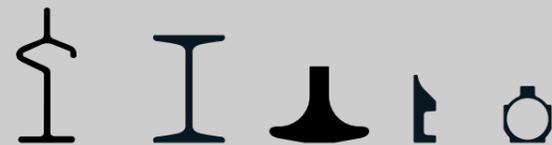
POWER GENERATION



MEDICAL INDUSTRY



FOOD INDUSTRY



NAVAL INDUSTRY

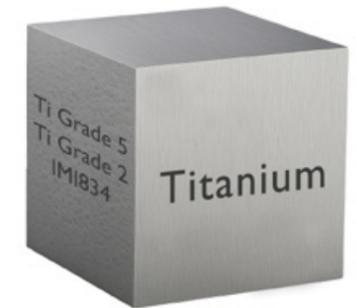
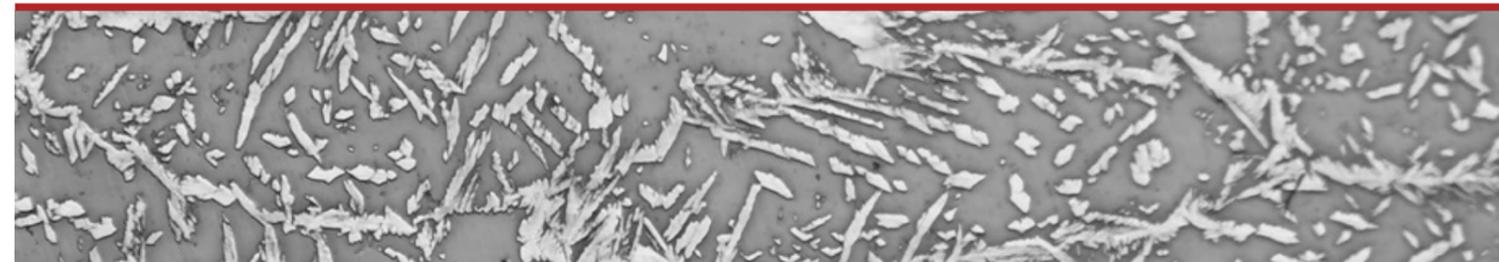


SHEET BENDING



At Siderval, we combine advanced hot extrusion technology with a wide selection of premium alloys to produce custom profiles that meet the highest mechanical and structural standards. Our expertise ensures excellent dimensional precision, seamless cross-sections and high surface quality, even when working with challenging materials such as stainless steel and titanium. We process carbon steel for its strength and cost efficiency, stainless steel for superior corrosion resistance, and titanium for its lightweight performance in extreme environments. These materials allow us to serve a wide range of industries, including transportation, energy, aerospace, architecture and high-tech engineering.

THE RIGHT MATERIALS
FOR THE HIGHEST DEMANDS



CARBON STEEL

Carbon steel is a cost-effective material offering excellent mechanical strength, impact resistance and weldability. It is ideal for structural and industrial applications where performance and affordability must go hand in hand. Siderval extrudes a wide range of carbon steel grades, suitable for both standard and custom profiles.

STAINLESS STEEL

Stainless steel stands out for its corrosion resistance, durability and clean finish. It is the preferred choice for applications in harsh or hygienic environments such as construction, transport, food processing and chemical industries. Hot extrusion enhances its performance by producing seamless sections with high dimensional accuracy.

TITANIUM

Titanium is a lightweight, high-strength metal with outstanding resistance to corrosion and fatigue. It is essential in industries such as aerospace, medical and advanced engineering where strength-to-weight ratio and long-term reliability are critical. Siderval's hot extrusion process allows for precise and consistent profiles, even with this challenging material.

SIDerval PART OF MONTANSTAHL GROUP

EXTRALLOYS
SPECIAL PROFILES IN STEEL

STAINLESS STRUCTURALS
SPECIAL PROFILES IN STEEL

MONTANSTAHL
SPECIAL PROFILES IN STEEL

SIDerval
SPECIAL PROFILE IN STEEL



WE ARE SHAPING A NEW STAGE IN OUR HISTORY:
STRONGER, MORE INNOVATIVE, AND FOCUSED ON
OUR CUSTOMERS.

Siderval S.p.A.

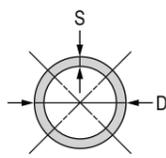
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STANDARD PROFILE TOLERANCES

HOT EXTRUDED AND STRAIGHTENED - HOLLOW SECTION

EXTERNAL DIAMETER D

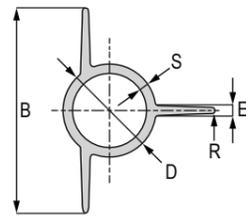
A



Up to 50 mm: ± 0.5 mm
 Over 50 mm: $\pm 1\%$
 Thickness S: $\pm 10\%$ of the nominal thickness

EXTERNAL DIAMETER D

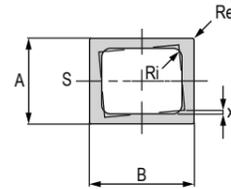
B



Up to 50 mm: ± 0.5 mm
 Over 50 mm: $\pm 1\%$
 Thickness S: $\pm 15\%$
 Thickness of fin e: ± 0.5 mm
 Width of fin b: ± 2 mm (or less on agreement)

DISPLACEMENT OF INTERNAL FORM X: ± 1 MM

C



The tolerances of other hollow profile shapes must be agreed after study. For all other tolerances see table for solid sections profiles.

HOT EXTRUDED AND STRAIGHTENED - SOLID SECTION

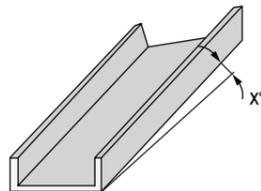
DIMENSIONAL TOLERANCES OF THE TRANSVERSE SECTION:

A

Less than 25 mm	± 0.5 mm
from 25 to 75 mm	± 0.8 mm
from 75 to 100 mm	± 1.0 mm
from 100 to 125 mm	± 1.2 mm
Over 125 mm	± 1.4 mm

WARP

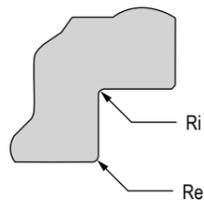
F



Déviation maximale de 1 mm par mètre, ou moins selon accord, conformément aux exigences.

MINIMUM RADII

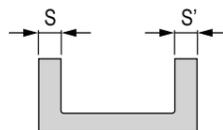
B



Ri = internal radius: minimum 4^{+2}_0 mm
 Re = external radius: minimum 1.5 ± 0.5 mm

DIMENSIONAL DIFFERENCES BETWEEN SYMMETRICAL PARTS:

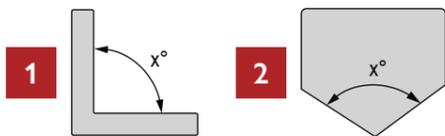
G



Max difference between S and S' half tolerance of point A
 e.g. $S = S' = 28 \pm 0.8$ mm
 max difference 0.8 mm
 (hypothesis $S = 27.6$ $S' = 28.4$)

ANGULAR TOLERANCES

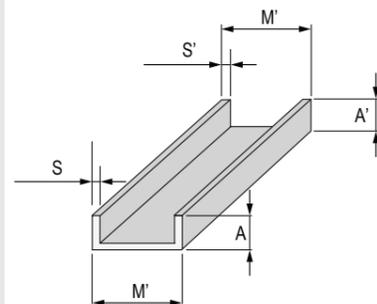
C



Type 1 case $\pm 1^\circ 30'$
 Type 2 case $\pm 0^\circ 30'$

DIMENSIONAL DIFFERENCES BETWEEN SYMMETRICAL PARTS

H



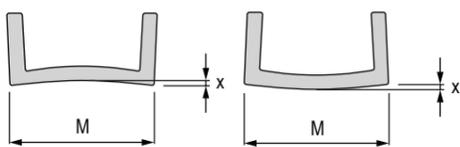
Max variation: half tolerance at point A

e.g.: nominal values
 $M = M' = 80 \pm 1$ mm
 $A = A' = 40 \pm 0.8$ mm
 $S = S' = 15 \pm 0.5$ mm

Example:
 $M = 79.5$ $M' = 80.5$
 $A = 39.4$ $A' = 40.2$
 $S = 14.75$ $S' = 15.75$

TRANSVERSE CURVATURE

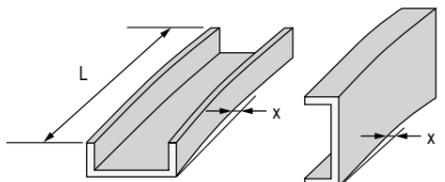
D



$x_{max} = 1\%$ di M
 (or less on agreement)

LONGITUDINAL CURVATURE

E



Max deviation ≤ 1 mm/m
 (or less on agreement)

LONGITUDINAL BAR TOLERANCES

I

- a) From production ± 1 metre
- b) Fixed: ± 2 mm; from 0+10 mm (or on request)
- c) Multiple: ± 1 mm each multiple (or on request)

**TAILOR MADE HOT EXTRUDED
 SPECIAL STEEL PROFILES**



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