



FABRICATION DIVISION

CUSTOM METAL CONTRACTING

CALGARY 2023

SHEET METAL FABRICATION SERVICES

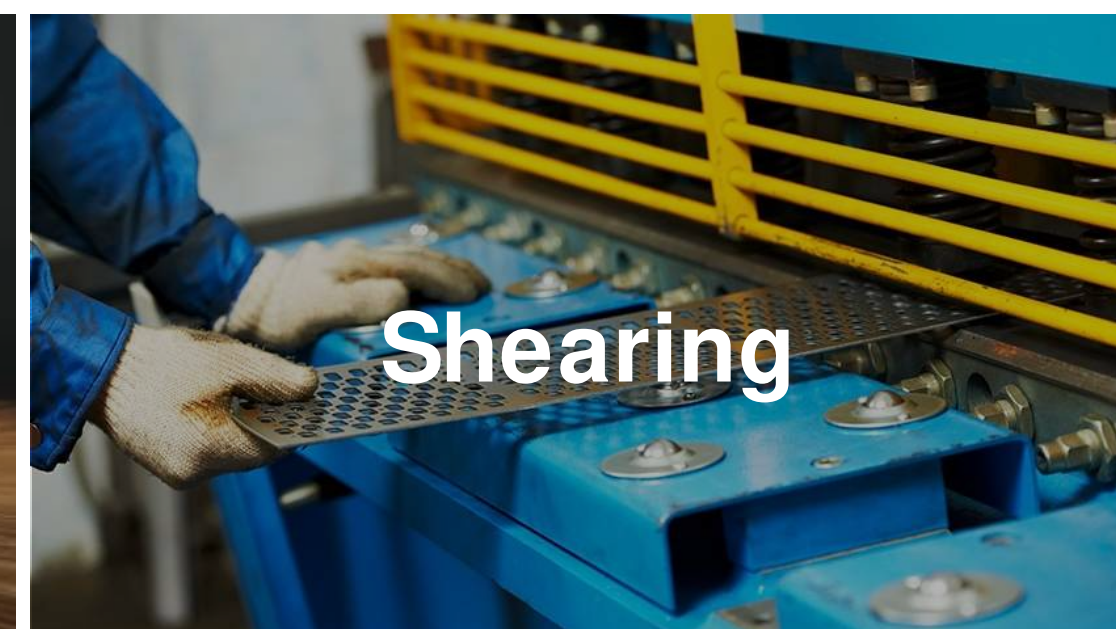
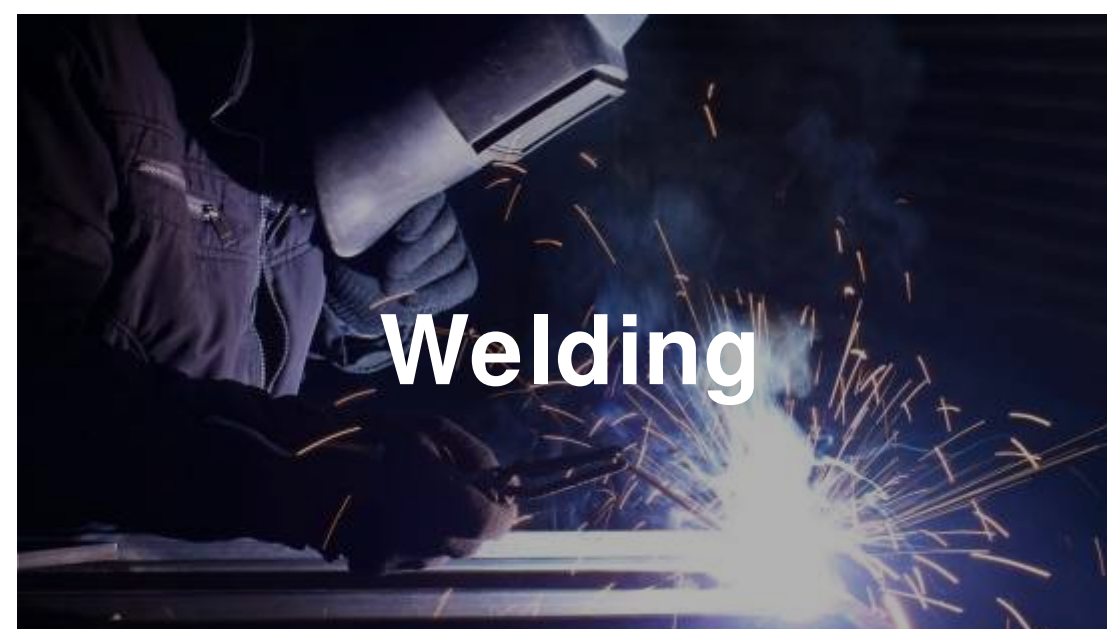
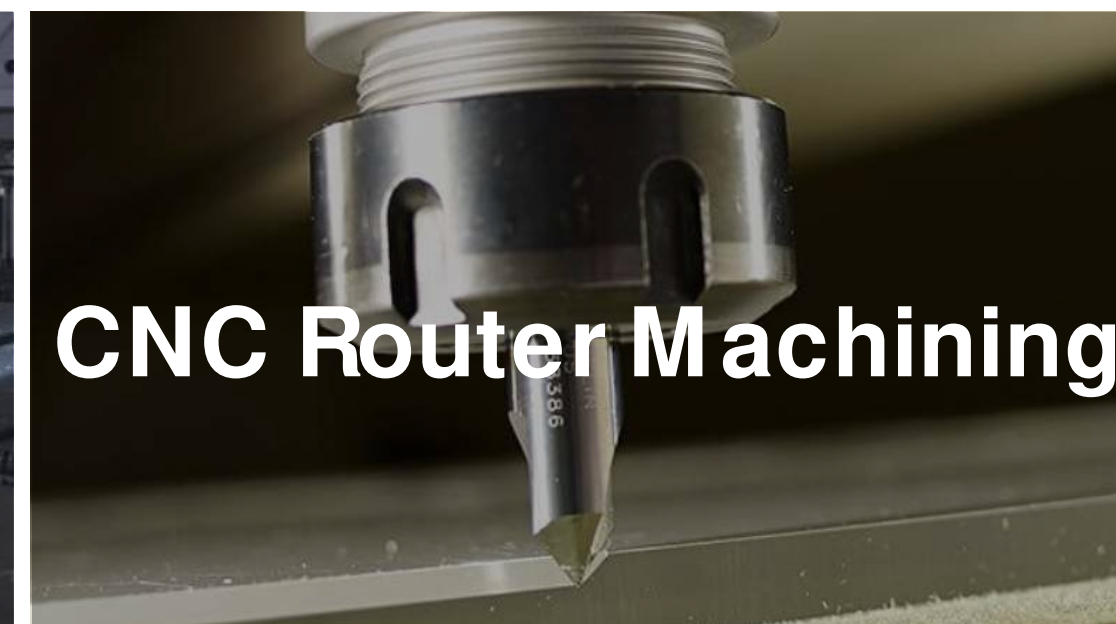
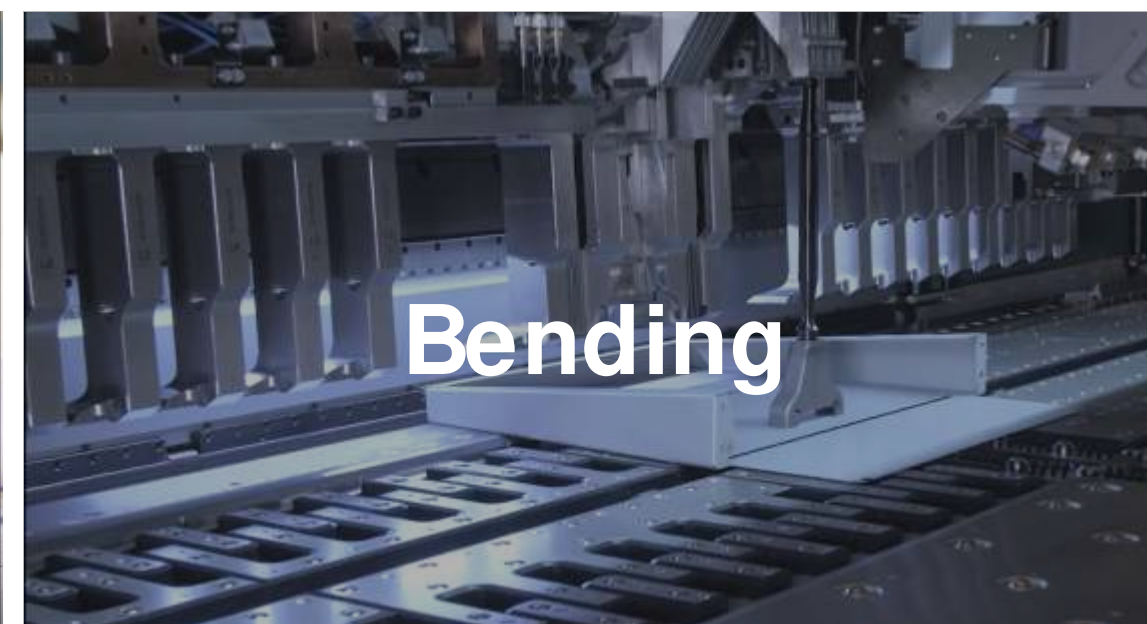
Custom projects



Custom Metal Contracting provides an exclusive fabrication service to local Canadian and international companies. Based on our experience in the construction industry, we are handling a full cycle metal fabrication process including product or system design, fabrication engineering, a single batch or mass production, quality assurance, final assembly, delivery logistics to the client's facility, and after-sales service.

OUR BENEFITS:

- State-of-the-Art equipment
- All-in-one solution
- Quality assurance system
- Lean manufacturing technology
- Short lead time
- Agile project management





INDUSTRIES WE SERVE

Custom solutions for any industry

HVAC	INDUSTRIAL EQUIPMENT	AGRICULTURE	MANUFACTURING
CONSTRUCTION	COMMERCIAL EQUIPMENT	MEDICAL	LIGHTING
ELECTRICAL ENCLOSURES	METAL FURNITURE & SHELVES	AEROSPACE	
AUTOMATION & ROBOTICS	WAREHOUSE EQUIPMENT	LANDSCAPING	



HIGH-QUALITY PRODUCTS

Precise and excellent



Our fully automated production line allows the fabrication of a wide range of products with different metal materials. Moreover, the levels of quality and complexity of products in most cases are not achievable on equipment from other manufacturers. The system can process orders in small batches and/or in assembly kits, keeping the prime cost with comitative rates. The production technology eliminates the possibility of manufacturing defects and ensures precise quality with 100% repeatability.

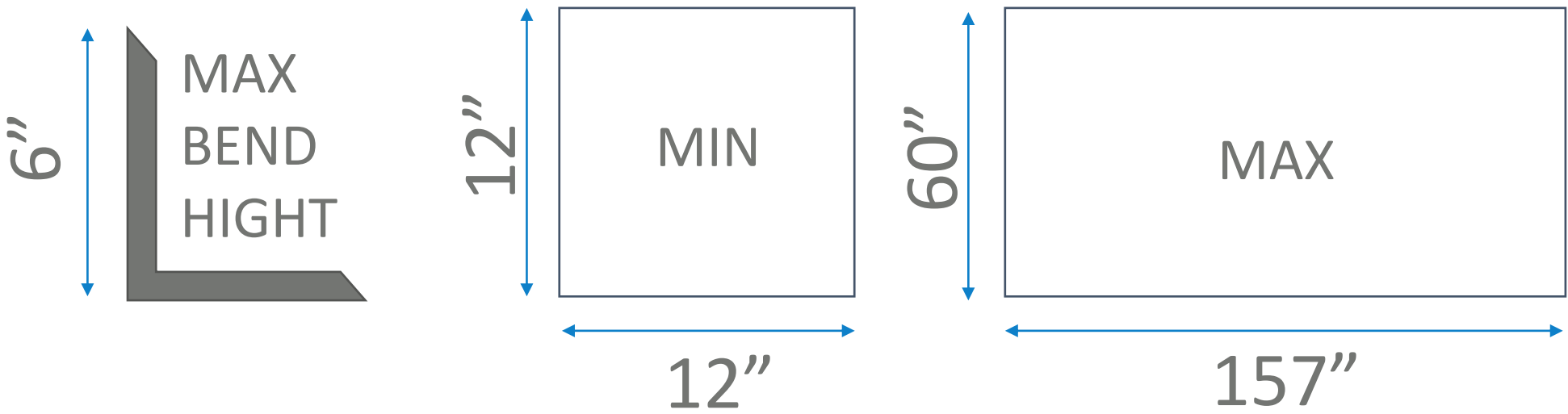


MATERIAL OPTIONS

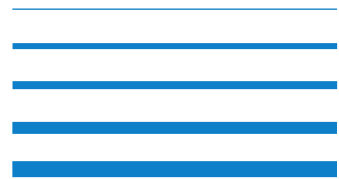


Corten steel Aluminum Stainless Steel Carbon Steel Galvanized Steel

MATERIAL SIZE



THICKNESS



	Bend	Alum	Steel
Max		4mm	2.5mm
Min		0.5mm	0.5mm

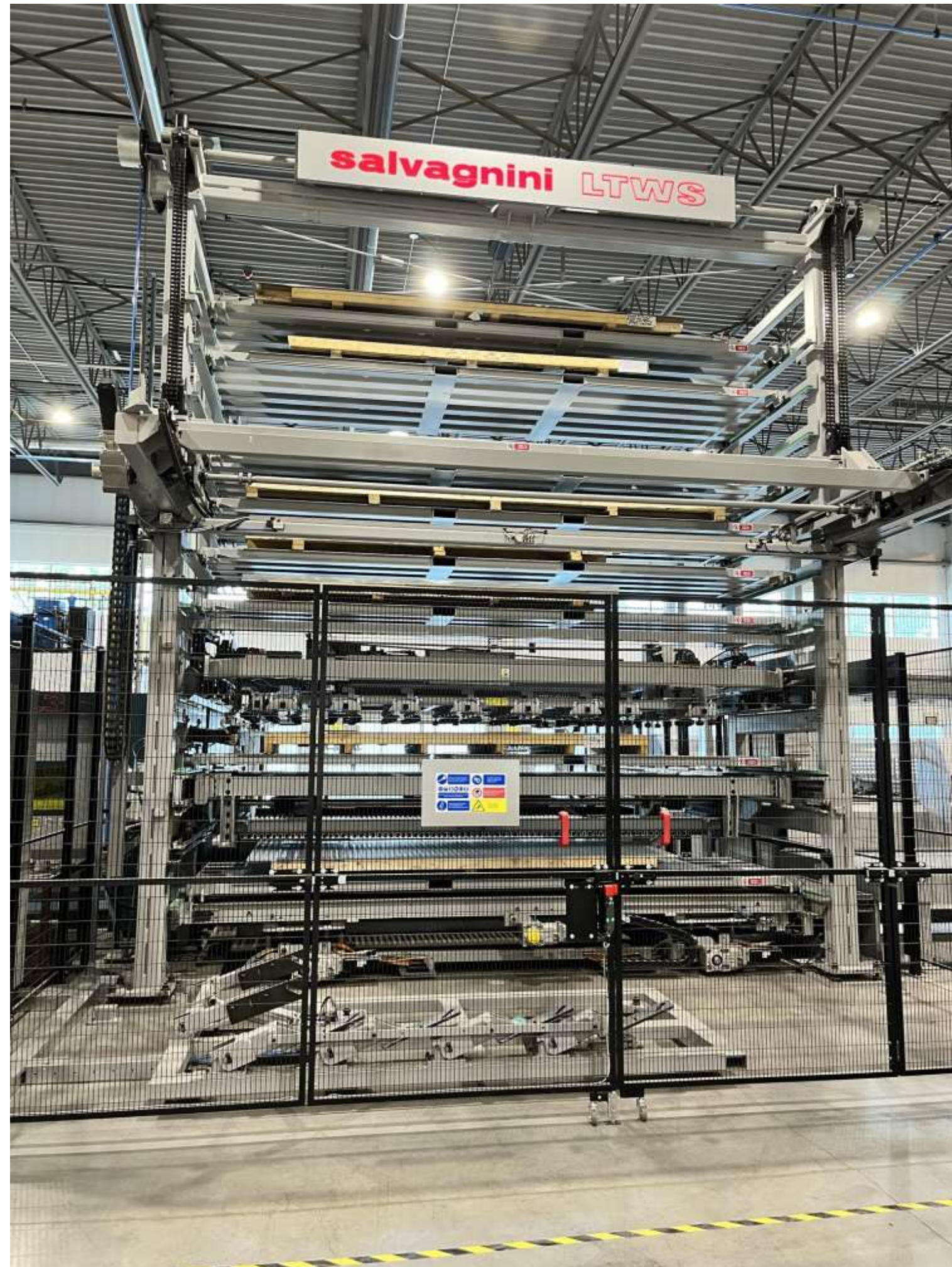
LASER



CAN CUT UP TO
20MM MATERIAL

STATE-OF-THE-ART EQUIPMENT

Sheet metal fabrication line



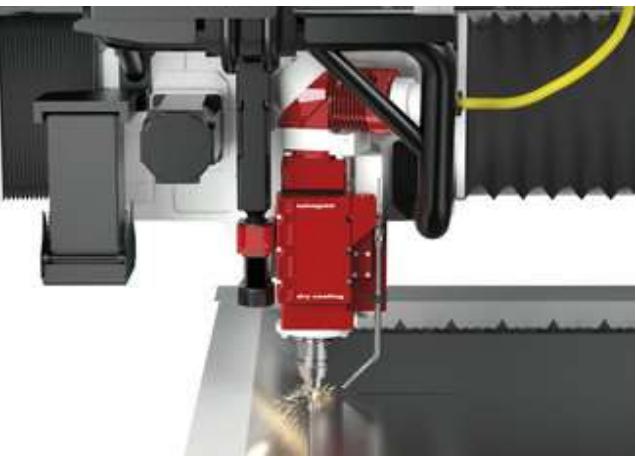
MANUFACTURING TECHNOLOGY

Fully automated production line



Laser (L3)

L3 fiber laser system for perforating, engraving, or cutting sheet metal blanks in two dimensions with oxygen, nitrogen or compressed air options.



Laser with the dry cooling system

Storage tower (LTWS)

LTWS is a storage tower for raw materials with 8 loading trays for non-stop production and leftover materials unloading conveyor.



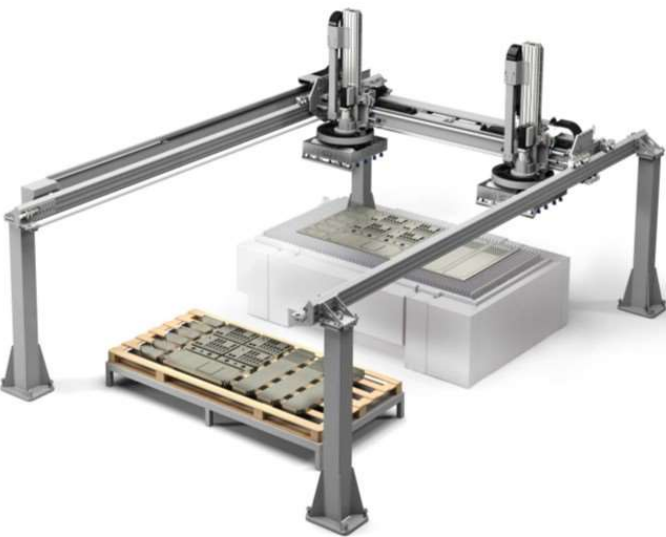
Laser doors (manual loading area)

Operator PC

Automatic materials loader

Cartesian manipulator (MC)

MC is designed to pick up and stack parts processed by the laser system or transfer them to the next operation station.



Belt unloading conveyor from Laser section

Finished products

Lean Panel Bender (P4)

P4 moves, turns, grips, bends, and rotates the sheet metal throughout the machining cycle to get the final product out from the side conveyor.



Bending manipulator

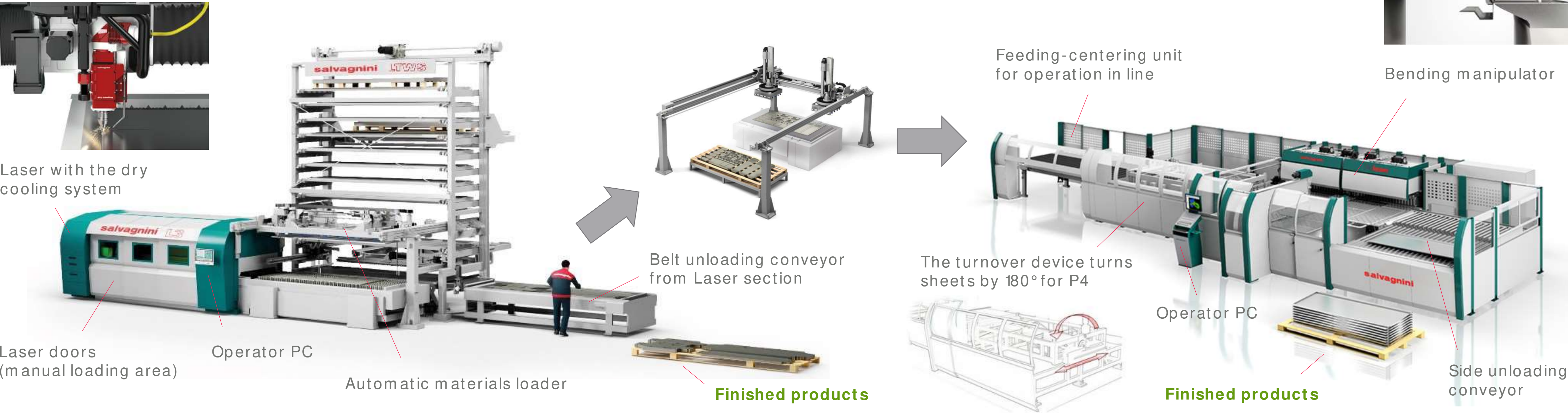
Feeding-centering unit for operation in line

The turnover device turns sheets by 180° for P4

Operator PC

Finished products

Side unloading conveyor





MANUFACTURING TECHNOLOGY

Automatic storage tower & Cartesian manipulator



Automatic store

The trays of the store are used to contain raw or processed material with wooden pallets; this means that raw material must be loaded with the pallet.

	(in)	(mm)
Pack maximum height	9.45"	240 mm.

Number of trays	Store height (in)	Store height (mm)
8	255"	6500 mm

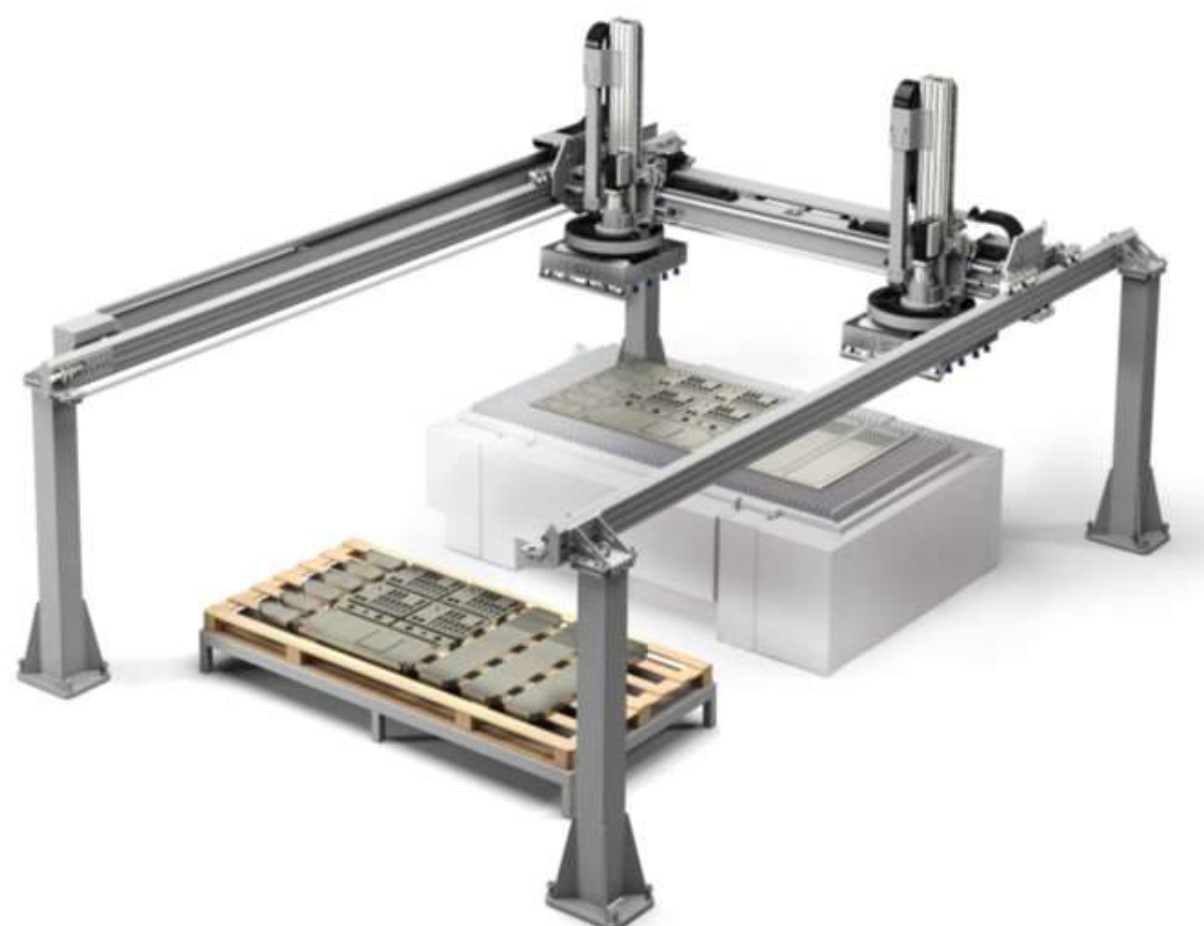
Cartesian manipulator

It's designed to pick up and stack parts processed by the laser system compatibly with the arrangement and reachability of the parts and of the gripping devices' suction cups and with the pick-up force of the suction cups.

Part maximum weight with one gripping device (all suction cups activated)	143.3 lb	65 kg
Part maximum weight with two gripping devices (all suction cups activated)	286.6 lb	130 kg
Part minimum dimensions	19.68" x 19.68"	500 x 500 m m
Part maximum dimensions	160" x 60"	4064 x 1524 m m
Nominal steel sheet thickness	0.137"	3.5 m m
Nominal aluminum sheet thickness	0.0197"	0.5 m m
Part maximum thickness (with magnets and multigripping function)	0.472"	12 m m

Air blowing bars for the Cartesian manipulator

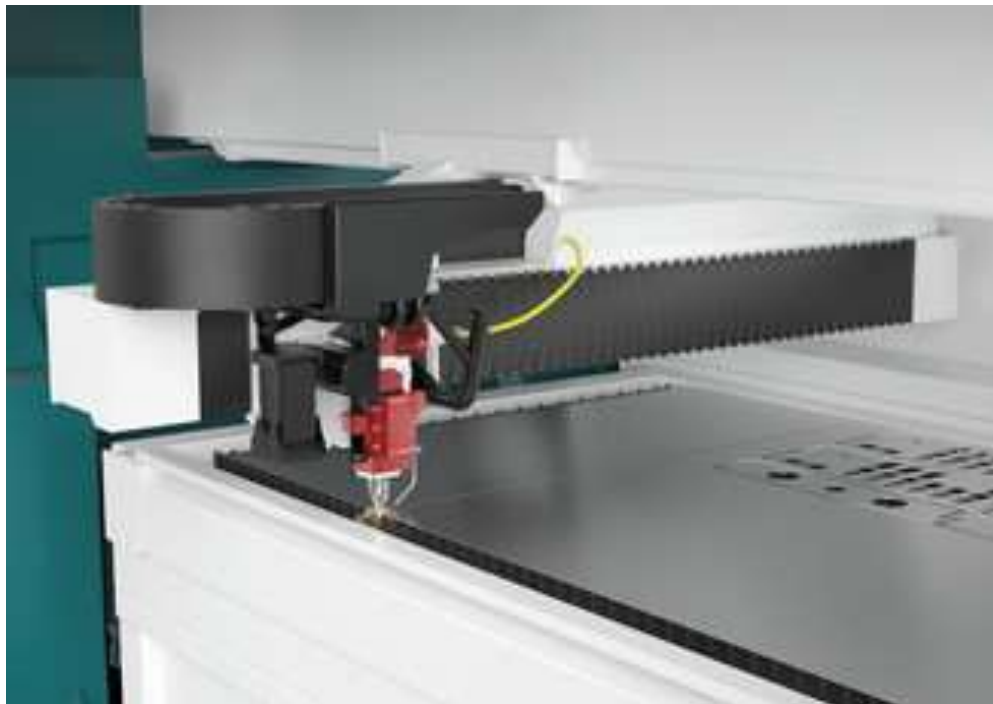
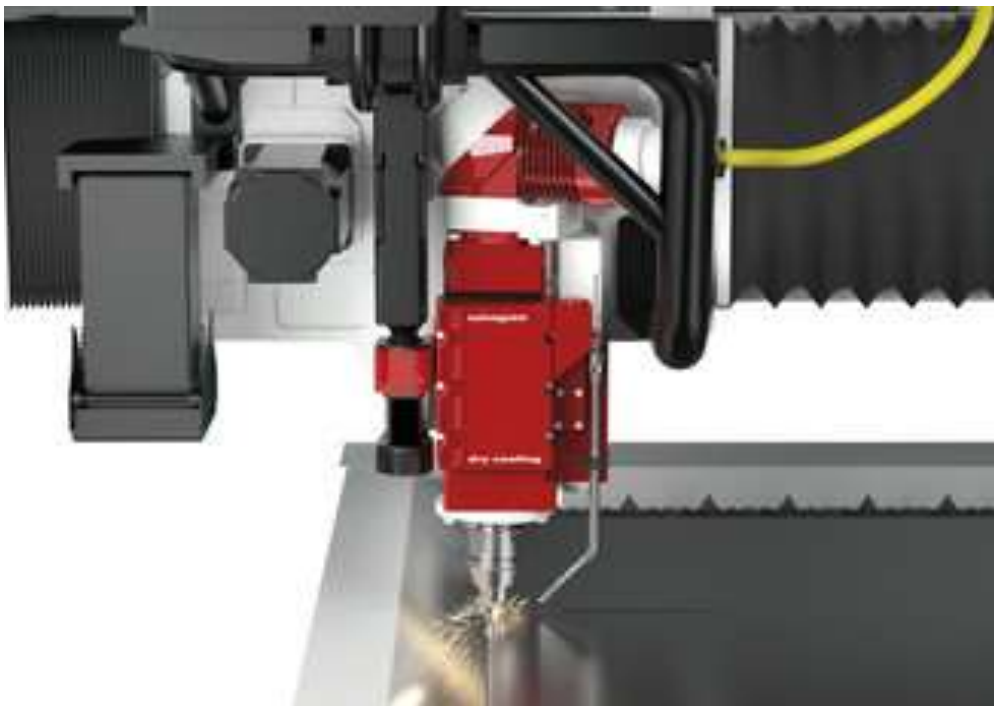
A pair of air-blowing bars, each placed on only one side of the suction-cup gripping device. The air blow is automatically managed by the software cycles and blows over the whole surface of the processed plate to reduce the presence any dross.



MANUFACTURING TECHNOLOGY



Laser L3



Material	Min thickness (Imperial)	Max thickness (Imperial)	Min thickness (Metric)	Max thickness (Metric)
Mild steel	0.0197"	0.7874"	0.5 mm.	20 mm.
Galvanized steel	0.0197"	0.2662"	0.5 mm.	6 mm.
Stainless steel	0.0197"	0.7874"	0.5 mm.	20 mm.
Stainless steel + Fiber film *	0.0197"	0.1181"	0.5 mm.	3 mm.
Stainless steel (THUNDER)**	0.0197"	0.7874"	9.5 mm.	20 mm.
Aluminum	0.0197"	0.7874"	0.5 mm.	20 mm.
Aluminum + Fiber film *	0.0197"	0.7874"	0.5 mm.	2 mm.
Pre-Paint Aluminum	0.0197"	0.7874"	0.5 mm.	20 mm.
Annealed brass	0.0197"	0.3150"	0.5 mm.	8 mm.
Annealed copper	0.0197"	0.3150"	0.5 mm.	8 mm.

* One step cutting; Accepted films for one-step cutting: Polyfilm PF584 C "ULF II".
Novacel 4228REF. Nitto Fiberguard 310GH5.

** THUNDER- Cutting with special nozzle design specific to cut thick Stainless steel.

Laser Cut system

Fiber laser system for cutting sheet metal blanks in two dimensions. This combines high performance, easy access typical of cantilever structures with the stability of gantry structures.

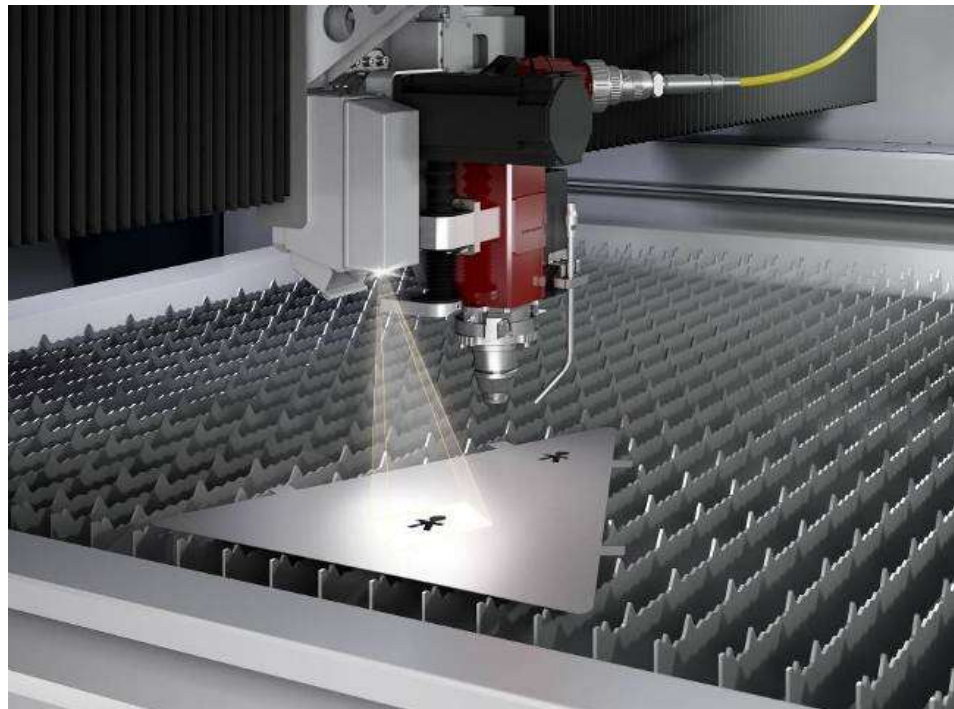
The machine is equipped with:

- Active fiber that carries the laser beam from the source to the focusing head;
- Circuit for supplying two different types of assist gases (Oxygen or Nitrogen); the circuit is equipped with an automatic pressure regulator and fine filtering system;
- Compressed air cutting. The circuit is equipped with a trigger valve to automatically control the pressure and a stage of filtration;
- "Dry Cooling" focusing head made to enhance the characteristics and dynamics offered by optical fiber transmission;
- Automatic nozzle change with 8-position nozzle carrier;
- Adaptive process control, which reads the light spectrum coming from the material during both the piercing and the cutting phases and is able to start the cutting phase as soon as the piercing is completed.

MANUFACTURING TECHNOLOGY



Laser features

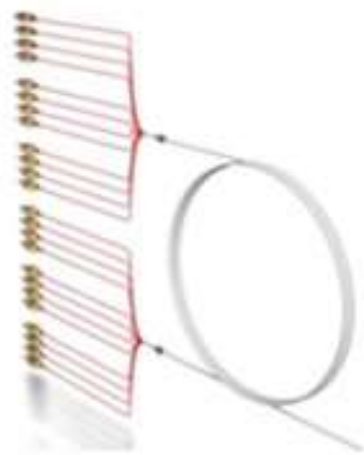


Artificial Vision System
Artificial vision, integrated in STREAMLASER, allows rapid alignment with reference to the edges of the workpiece or to features already present on the sheet, without any restrictions on shape; it also allows offcuts to be recovered and used as starting sheets for new nests.



Automatic nozzle change
Automatic nozzle change with 8-position nozzle carrier. To allow different types of material and thicknesses to be cut without operator intervention. The nozzle replacement cycle is handled automatically and occurs during the pallet change cycle.

6000 W high power-density fiber laser source with cooling unit



Functioning principle for the fiber laser source



Generation and transport of the laser beam in fiber

Solid-state laser source in which the laser beam is generated by using fiber-coupled pump diode modules to energize the active optical fiber. The source is equipped with dedicated sensors that monitor working conditions and intervene in case they are not within the predefined threshold values; the output of the sensor is displayed on the software interface to allow the operator to better interact with the source.

The Dry Cooling technology



Dry Cooling Focusing head

It guarantees optics refrigeration without using gas, increasing reliability and reducing consumption. Head equipped with a capacitance sensor which maintains the nozzle in a position programmed with respect to the surface of the metal sheet.

Laser software



User-friendly interface that offers simple accessibility to the system to control laser operations and system settings.

MANUFACTURING TECHNOLOGY

Lean Panel Bender P4

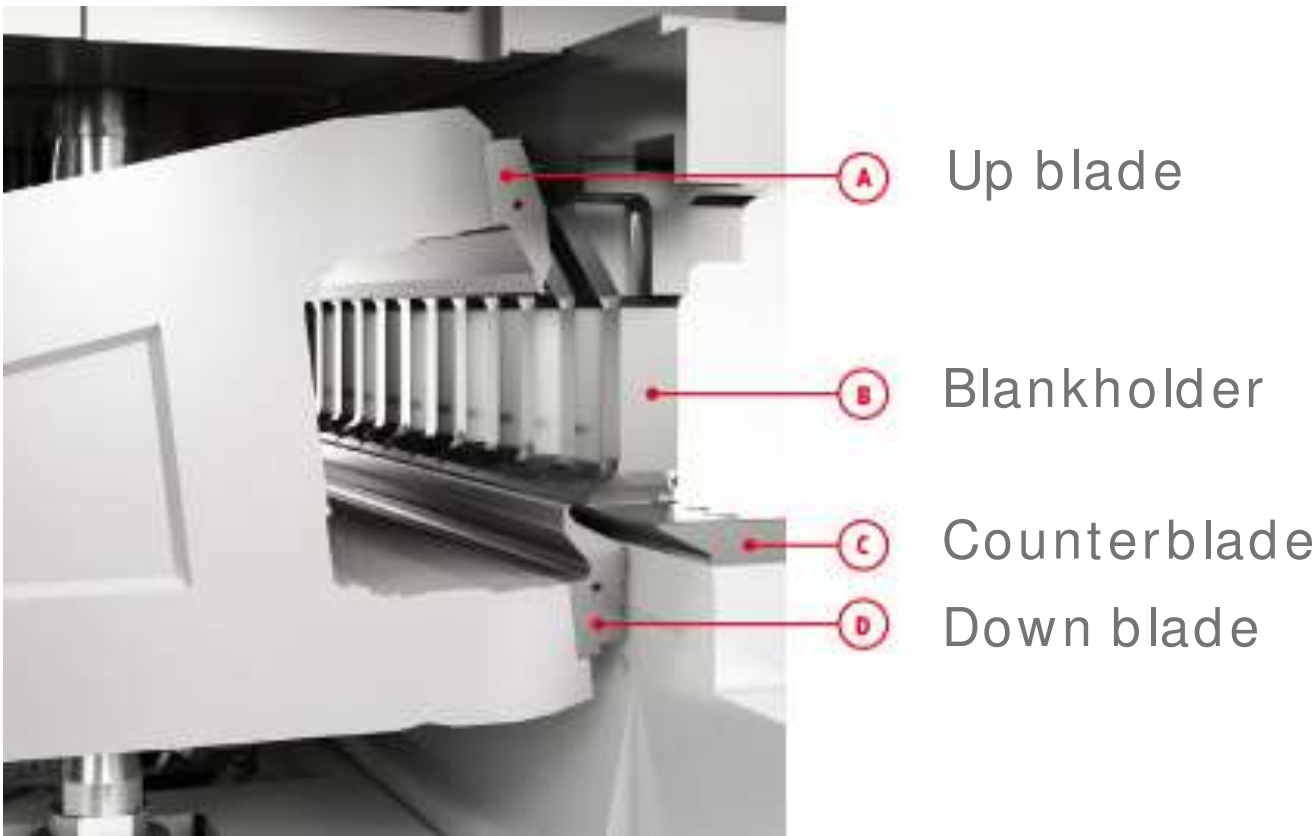


Lean Panel Bender



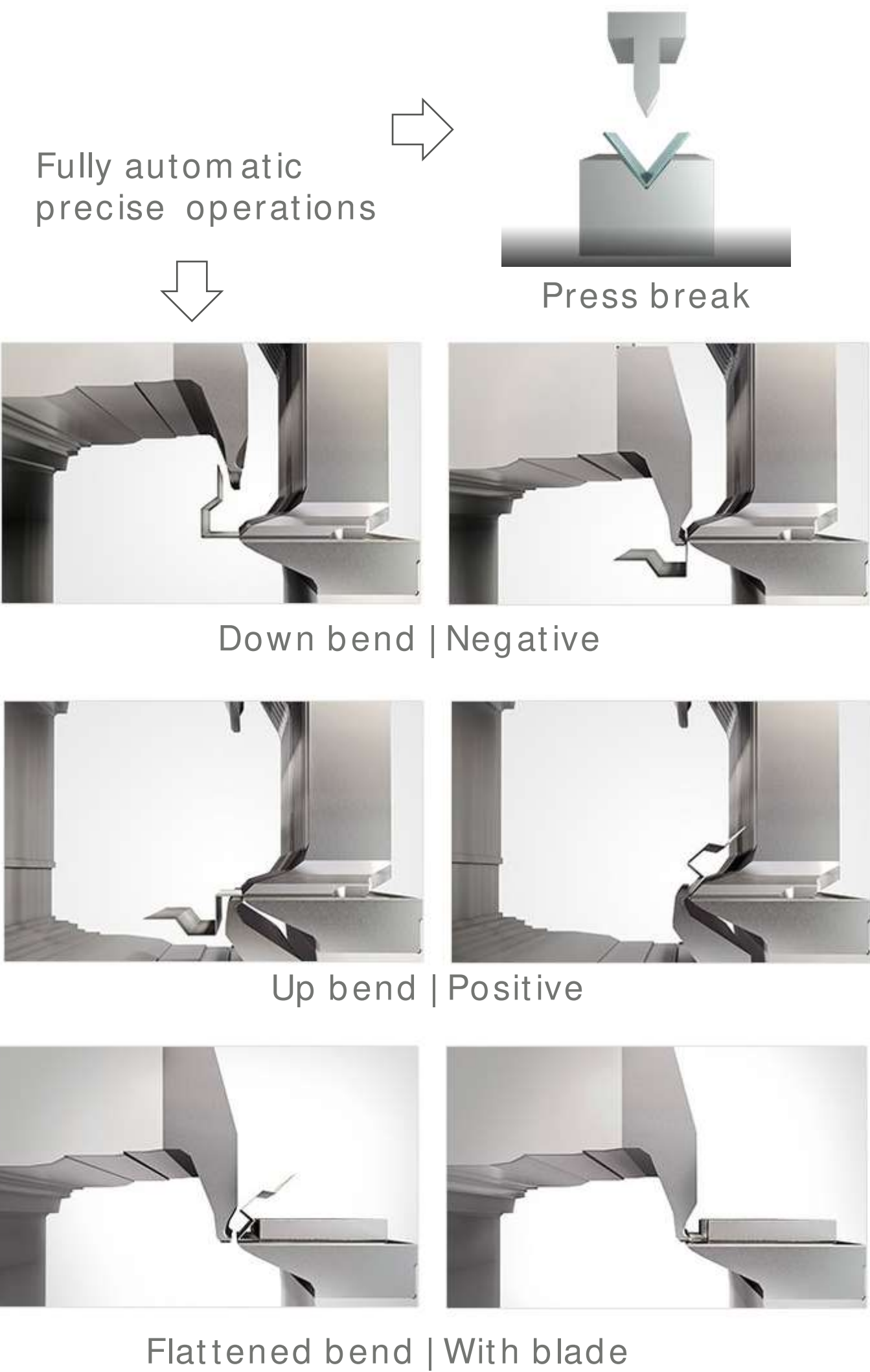
- **Flexible automation**
It uses universal bending tools which automatically adapt in-cycle to the panel geometry, without machine downtimes or manual re-tooling, allowing batch-one or kit productions. Quickly and fully automatically, this moves, handles, grips and rotates the sheet metal throughout the whole machining cycle.
- **Adaptive system**
The integrated adaptive technologies (advanced sensors, bending formula, MAC3.0) make the system intelligent and able to automatically adapt to changes in the material and the external environment, eliminating waste and corrections, and extending the range of products that can be made.

Automatic manipulator: fast and accurate



Bending limits

Limitation	(in)	(m m)
Minimum blank size	11.220"	285m m
Maximum blank size	157"	3990m m
Maximum blank diagonal	157.480"	4000m m
Maximum centering dimension	151.574	3850m m
Maximum height of bent part	6.496"	165m m
Maximum profile size for cut	95"	2413m m



SALVAGNINI LINE LIMITATION



Panel Bender P4 angles

Bending angle [°]:

This parameter specifies the bending angle of the current bend.
'A' does not need to be specified for a 90° bend.
In the following, the maximum bending angle is specified in dependence on the sheet thickness.

Material	max. tensile strength	min. sheet thickness	max. sheet thickness
aluminum	265 N/mm ²²	0.5	4.00 (±120°)
			3.50 (±130°)
			3.00 (±135°)
steel	410 N/mm ²²	0.5	3.20 (±90°)
			2.50 (±130°)
			2.10 (±135°)
Stainless steel	660 N/mm ²²	0.5	2.50 (±90°)
			2.10 (±125°)
			1.60 (±135°)

Properties for sheet lengths above 3200 mm:

Material	max. tensile strength	min. sheet thickness	max. sheet thickness
aluminum	265 N/mm ²²	0.5	4.00 (±120°)
			3.50 (±130°)
			3.00 (±135°)
steel	410 N/mm ²²	0.5	2.50 (±125°)
			2.10 (±130°)
			1.60 (±135°)
Stainless steel	660 N/mm ²²	0.5	2.50 (±90°)
			2.10 (±120°)
			1.60 (±135°)

Profile with negative and positive bends

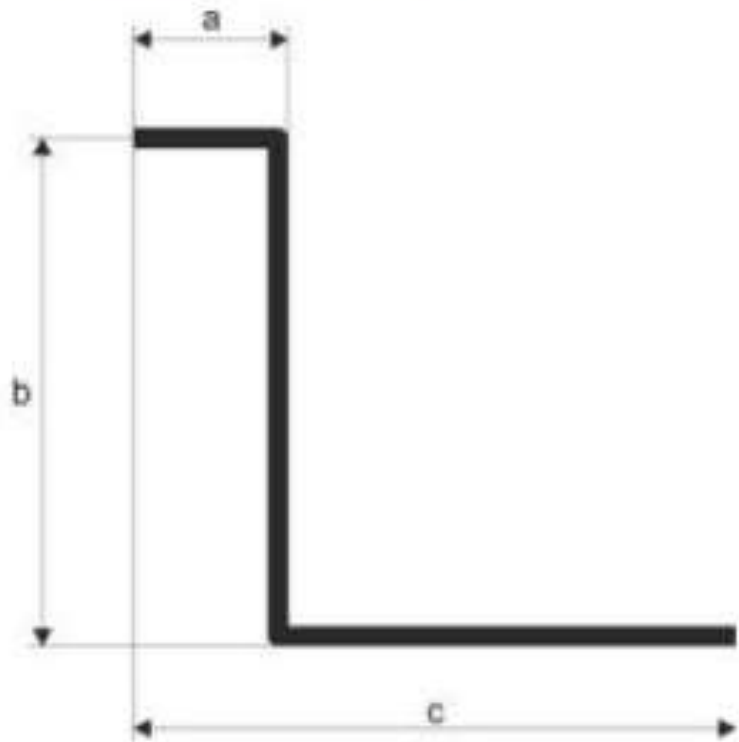
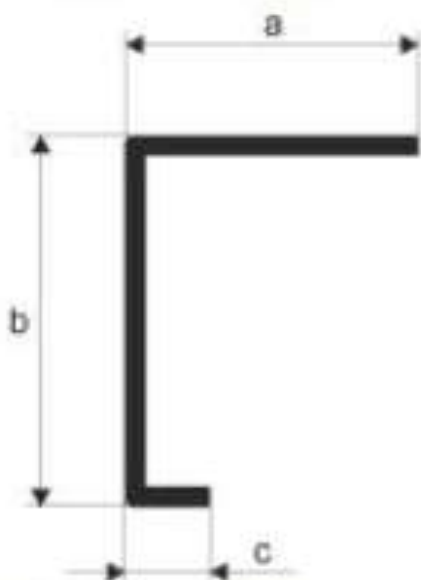


Figure 29: Dimensions for a profile with negative and positive bends

Dimensions for cutting profiles with a negative and a positive bend:
a = 55 mm
b = 140 mm
c = 167 mm

Profile with 2 positive bends



Dimensions for a profile with 2 positive bends
Dimensions for cutting profiles with 2 positive bends:
a = max. 45 mm (depending on blank holder)
b = min. 55 mm
Lmin = 5 * s (s = sheet thickness)

L profile

Minimum dimensions

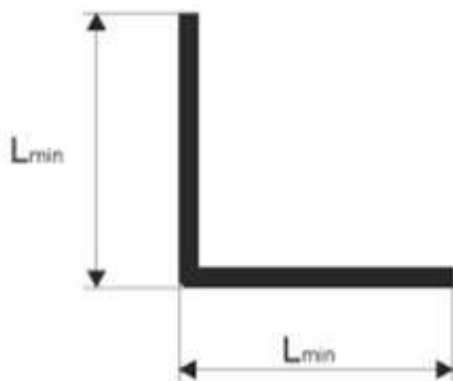


Figure 27: minimum dimensions of an L profile

Minimum dimensions for any torsion angle:
Lmin = 5 * s (s = sheet thickness)
Minimum dimensions for torsion angles of less than 5°:
Sheet thickness 1.0 mm: Lmin = 15 mm
Sheet thickness 1.5 mm: Lmin = 20 mm
Sheet thickness 2.0 mm: Lmin = 20 mm

Maximum dimensions

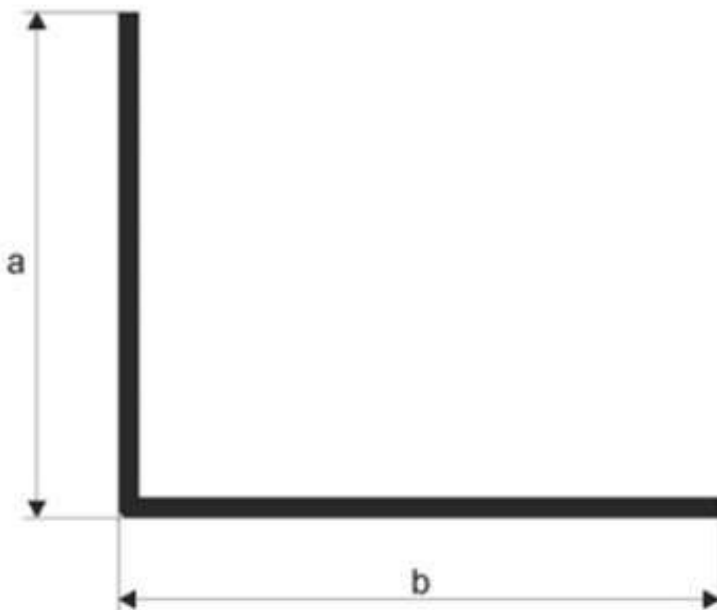


Figure 28: maximum dimensions of an L profile

Maximum dimensions:
a = 140 mm
b = 167 mm

Minimum/maximum sheet thicknesses and maximum cut length for CUT parts

Material	max. tensile strength	min. sheet thickness	max. sheet thickness
stainless steel	660 N/mm ²	0.7 mm	1.25 mm
steel	410 N/mm ²	0.7 mm	2.1 mm
aluminum	265 N/mm ²	0.7 mm	3.00 mm

The maximum cut length is: 2425 mm.



TRADITIONAL EQUIPMENT

We have equipment for all types of a sheet metal forming





PRODUCTS SCOPE

ARCHITECTURAL METAL PRODUCTS

Standards & custom solutions



PLATE WALL PANELS

A close-up photograph of large, dark-colored metal wall panels with prominent, sharp, angular joints.

PERFORATED PANELS

A photograph of a dark metal panel with a repeating pattern of small, white, five-pointed stars.

SIGNAGE

A photograph of large, three-dimensional metal letters, specifically 'L' and 'S', mounted on a flat metal surface in a workshop setting.

ARCHITECTURAL
LOUVERS

A photograph of a building's exterior featuring a series of horizontal, slanted metal louvers.

CURTAIN WALL
BACKPANS & SPANDRELS

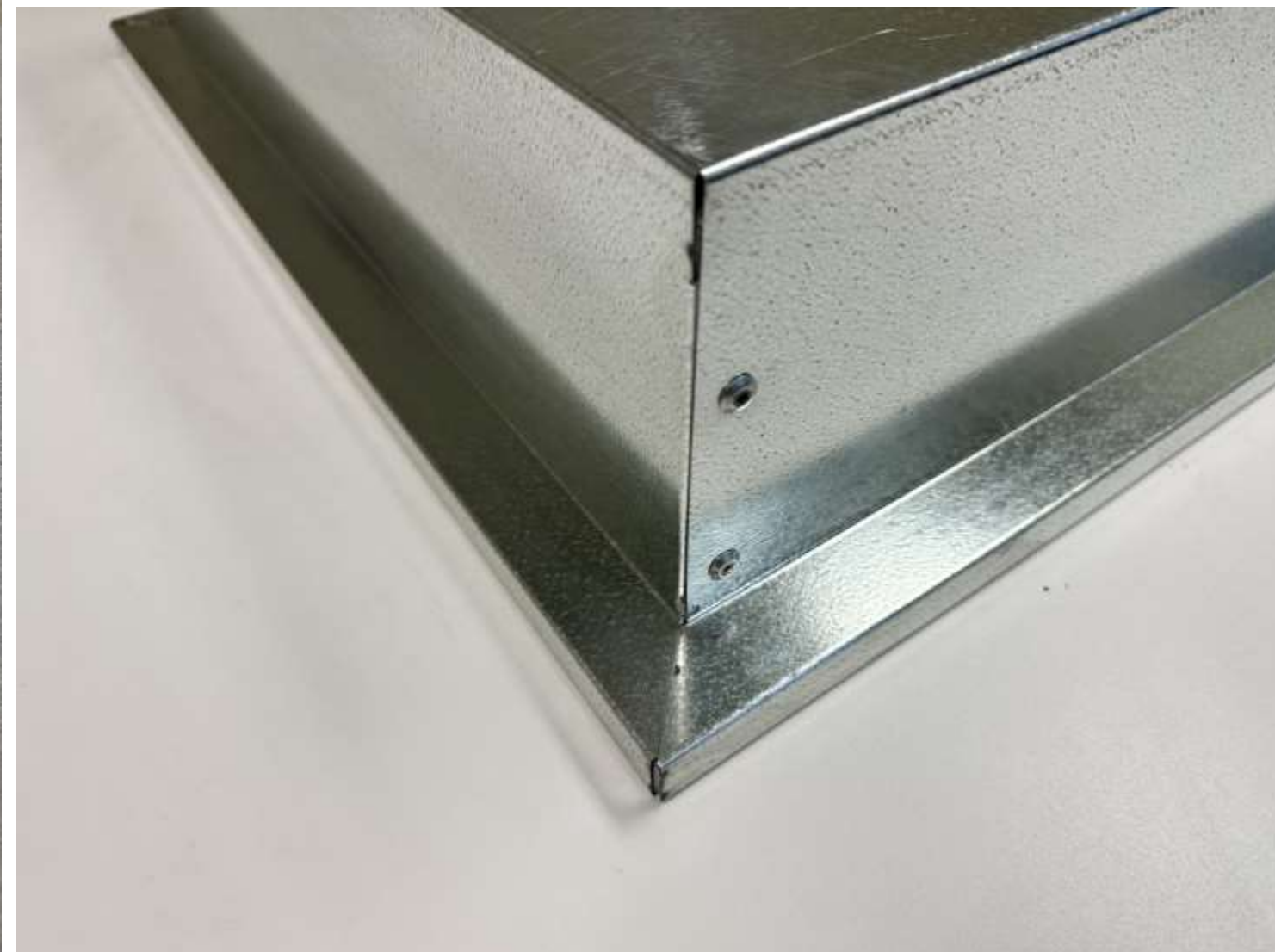
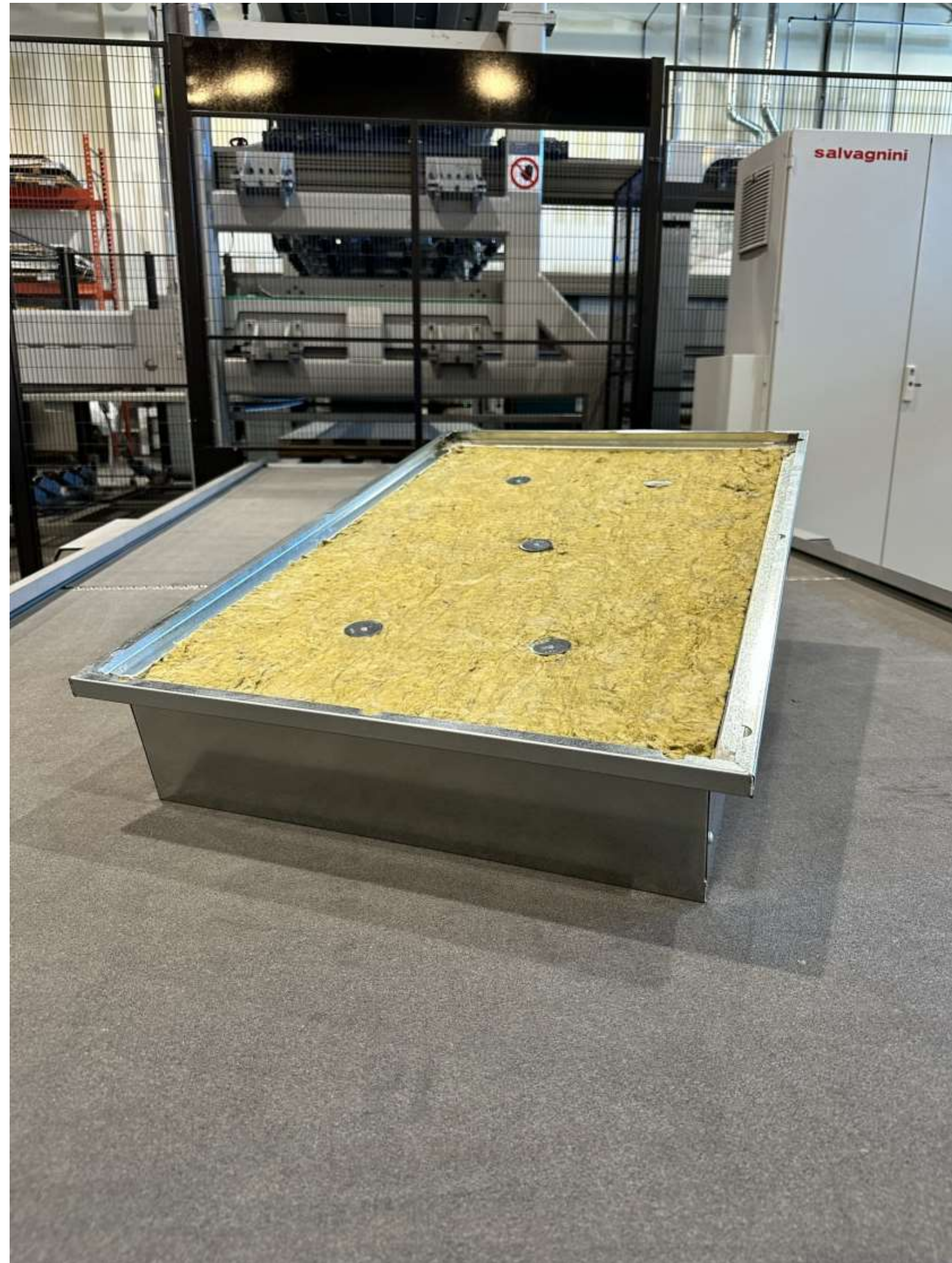
A photograph of a large, rectangular metal frame, likely a curtain wall backpan, filled with a yellowish material, sitting on a workbench.

METAL FLASHINGS,
TRIMS & CORNERS

A photograph showing various metal flashing, trim, and corner pieces arranged on a workbench.

CURTAIN WALL BACK PANS

CMC BACK PAN T1 MODEL



Why choose our back bans?

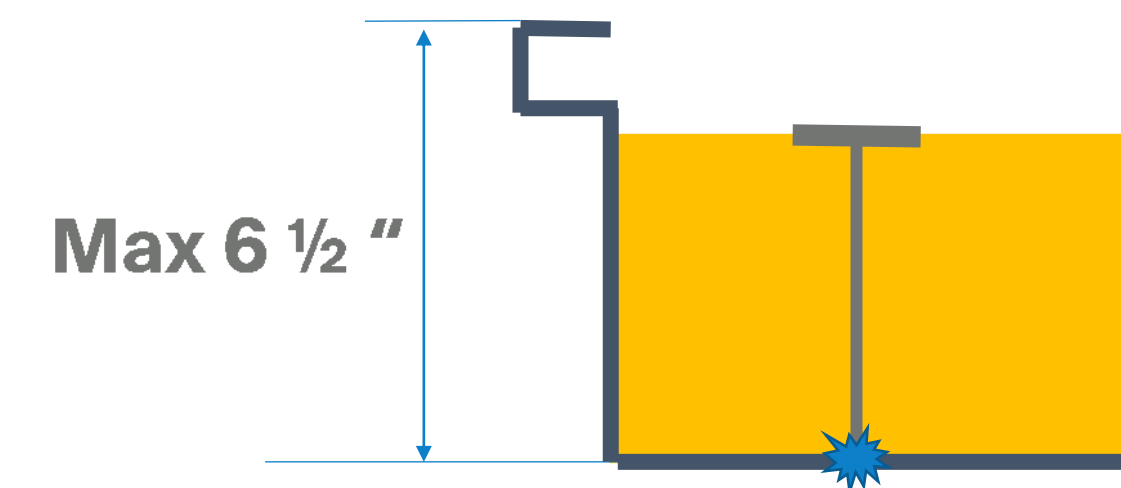
- Our technology guarantees joint tolerance with 100% repeatability
- Corrosion-free rivets assembly method
- The shortest possible lead time for back pans manufacturing

Materials: Galvanized Steel 20-22 gauge with Rockwool or Owens Corning insulation

Depth (D): 2"-6"

Pins standard: 1 pin per sq. feet

Stiffeners: 1 per every 10 sq. feet of oversize



OTHER PRODUCTS SCOPE

Our Capabilities

