



I. THE METALS



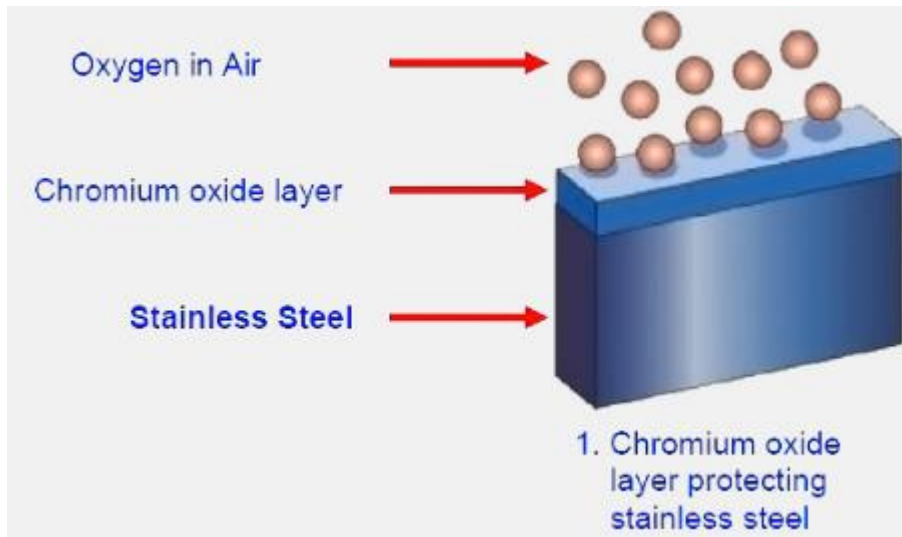
STAINLESS STEEL

Also known as inox steel or inox (*inoxydable*)

Stainless steel differ from carbon steel due to the presence of Chromium (>11%)

It is composed of several elements: chromium, nickel, molybdenum, silicon, aluminum, and carbon.

STAINLESS STEEL



Chromium reacts with oxygen and forms protective film

VS.

CARBON STEEL

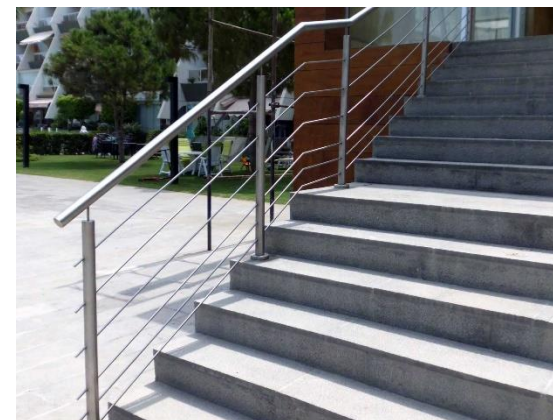
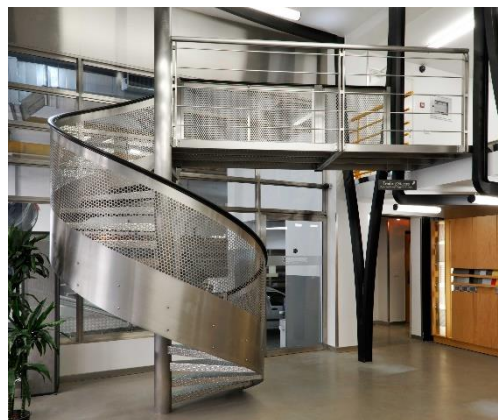


Iron reacts with oxygen and forms iron porous and fragile surface layer

STAINLESS STEEL

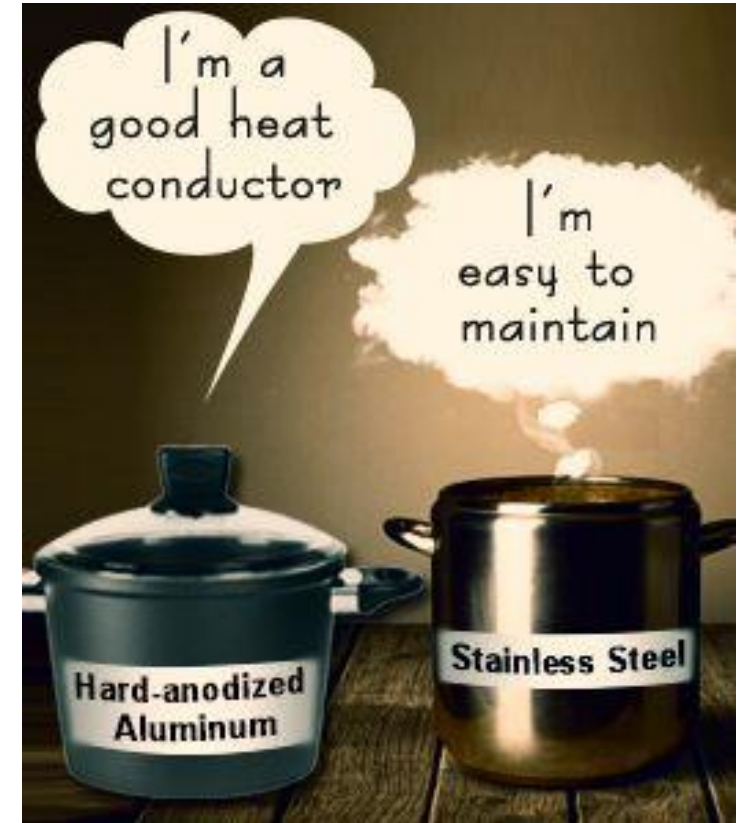
Stainless steel grade	Application
SS 304	Most common grade ; indoor and outdoor uses
SS 316L	Better corrosion resistance than 304; used in hospitals, pharmaceuticals, and items exposed to acid and moist
SS 309S / 310	High temperature & abrasion resistance (Temperature over 1100°C)
SS 430	Magnetic and corrodes; but less than normal steel

STAINLESS STEEL



ALUMINUM

- 3 times lighter than stainless steel
- Better conductor of heat; used for car radiators and air conditioning units
- Typically cheaper than stainless steel
- More difficult to weld

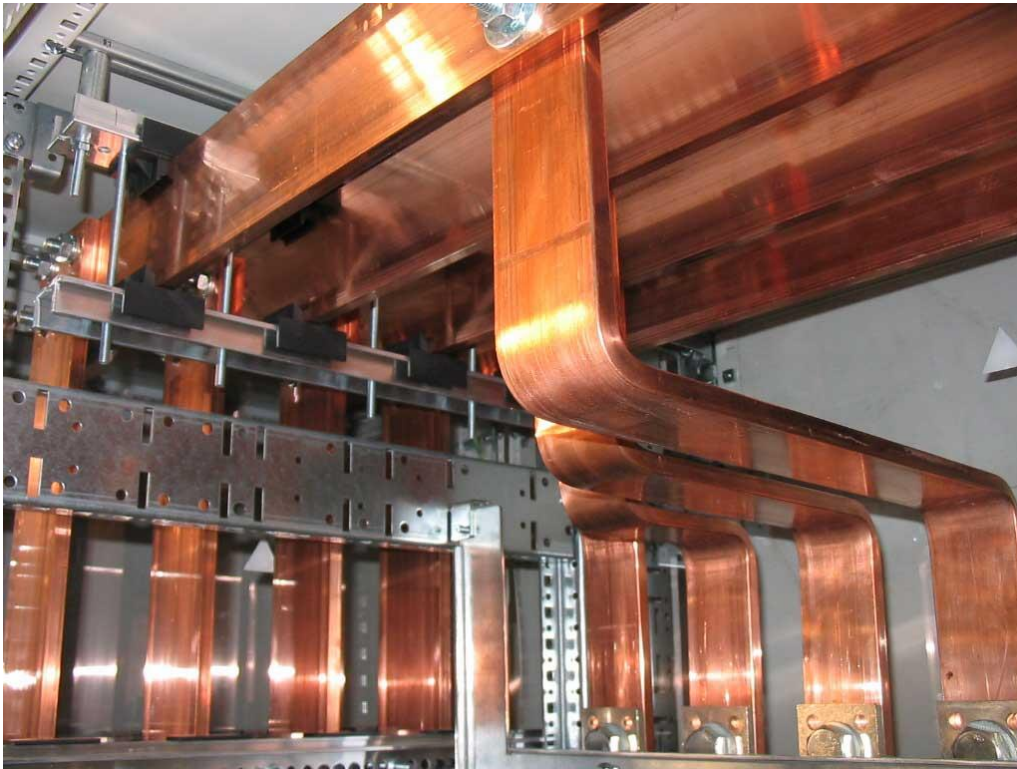


ALUMINUM



COPPER

Great conductor of electricity; but also used for architectural design



COPPER



Statue of Liberty ca. 1886 (left), today (right)

**DID YOU
KNOW?**

The statue of liberty is made of an iron frame with a 2.5 mm copper coating. The color green is the patina that formed with the oxidization of copper over time.

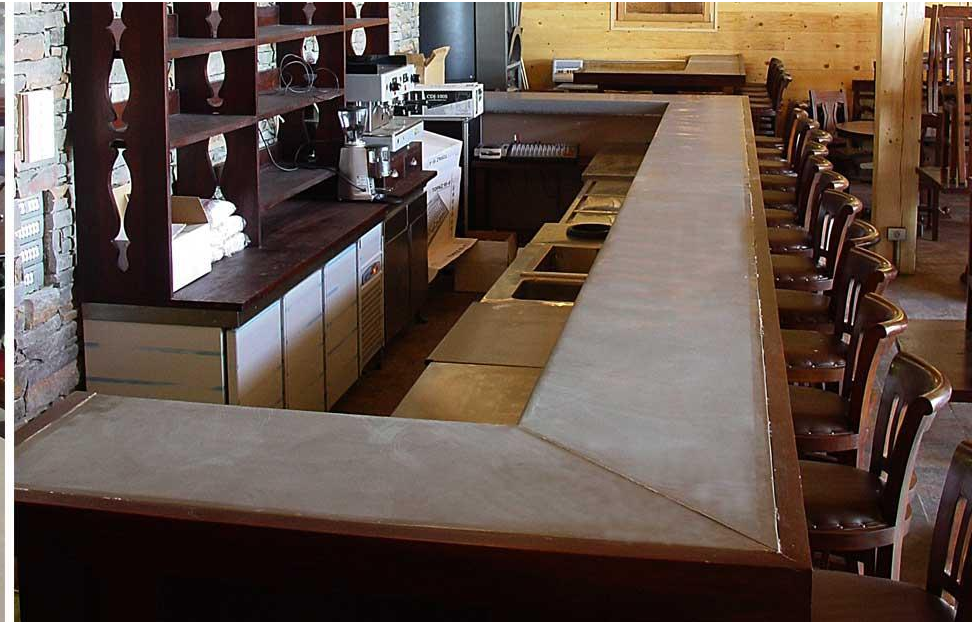
BRASS

Made of copper and zinc

Mostly used in silverware, handicraft, plumbing and architectural design



ZINC



NATURAL ZINC



QUARTZ-ZINC®



ANTHRA-ZINC®



PIGMENTO® blue



PIGMENTO® green



PIGMENTO® red



ZINC



**DID YOU
KNOW?**

85 percent of all metal roofs in Paris utilize zinc, which permanently changed the city's overall appearance and color.

II. THE SERVICES



Naggiar Service Centers offer specialized metal services and applications





CUTTING & BENDING



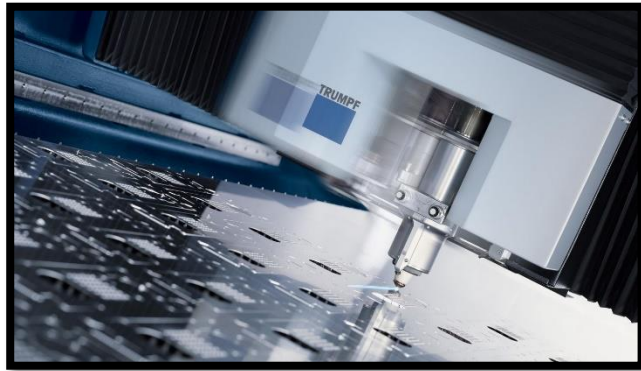
FOLDING



ROLLER BENDING



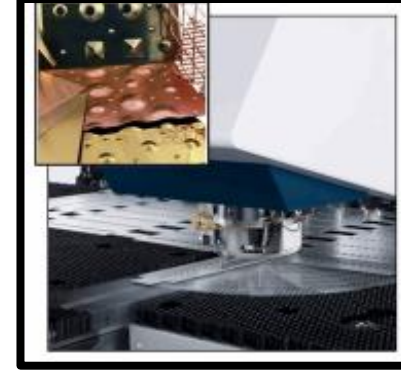
CUT TO LENGTH LINE



LASER CUTTING



LASER MARKING



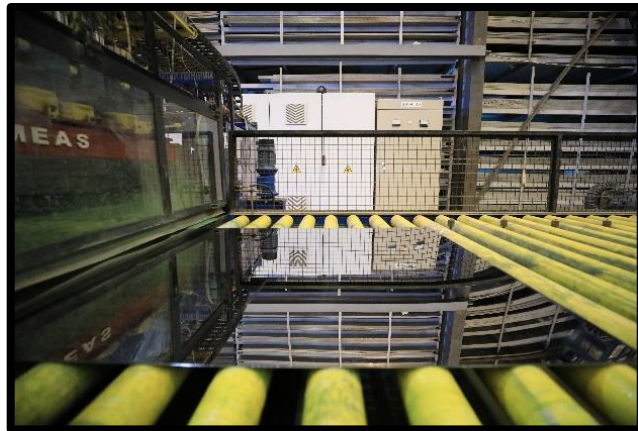
PUNCHING & EMBOSsing



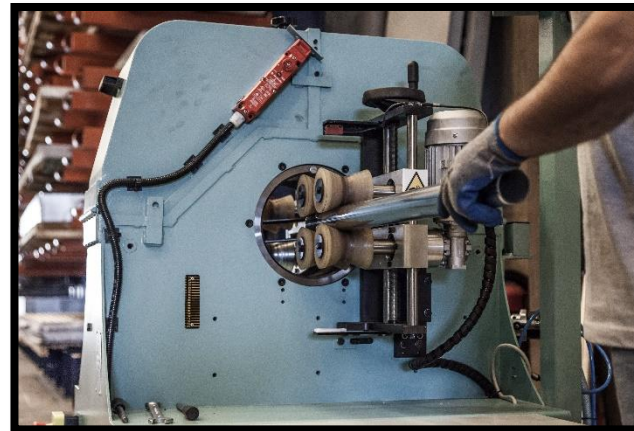
ROUTER



SHEET BRUSHING



SHEET SUPER MIRRORING

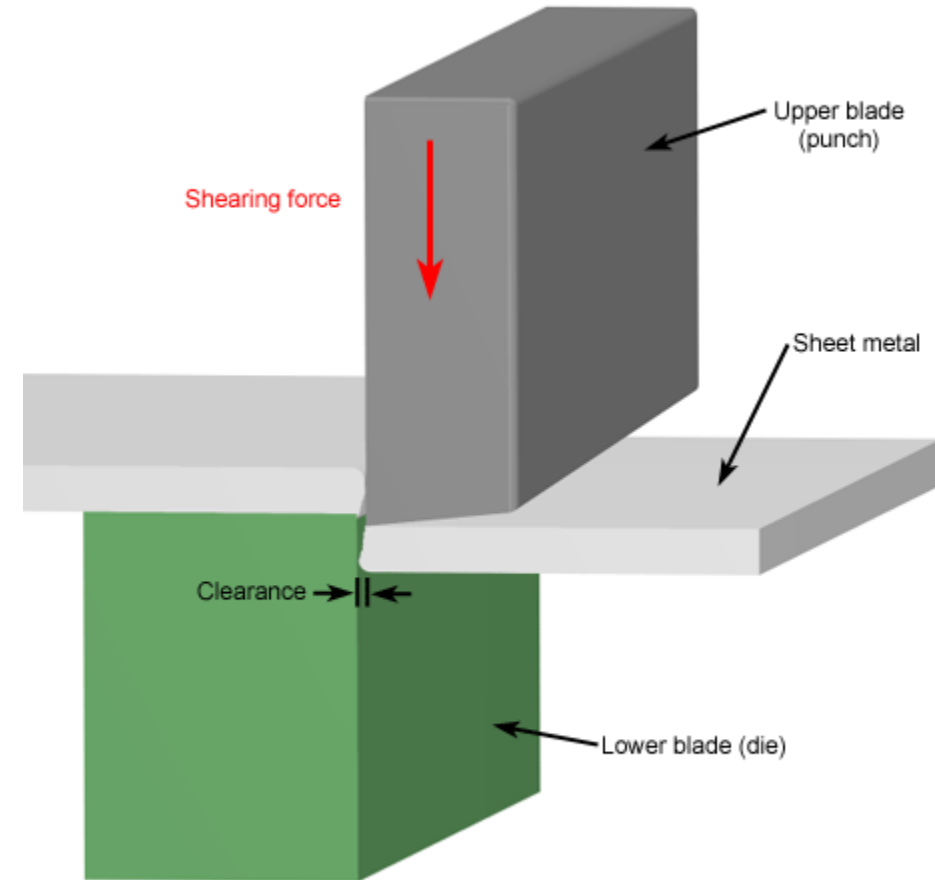


TUBE BRUSHING & MIRRORING



FLAT BAR BRUSHING

SHEARING UNIT



BENDING UNIT



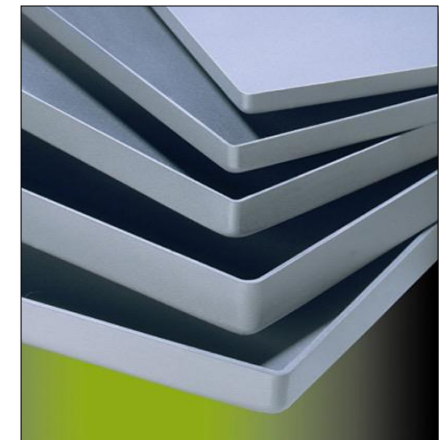
Press brake



V-grooving



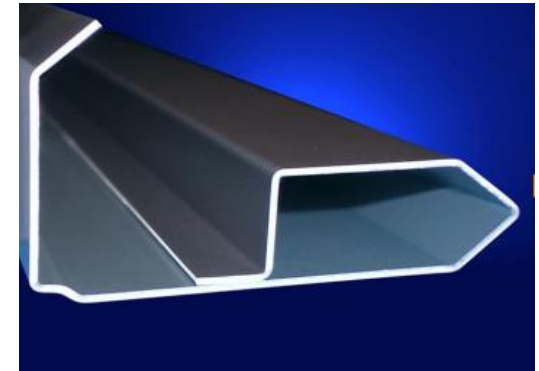
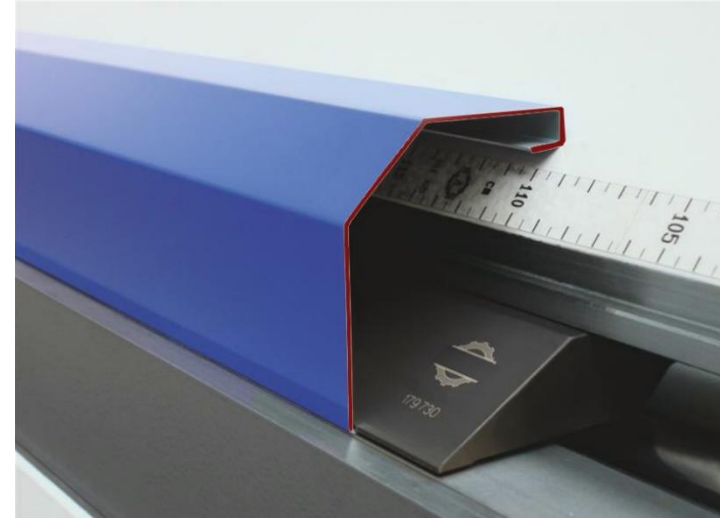
Corner forming



BENDING UNIT



Folding



BENDING UNIT



Roller bending for sheets

Creates cylindrical and conical shapes



Roller bending for tubes and flat bars

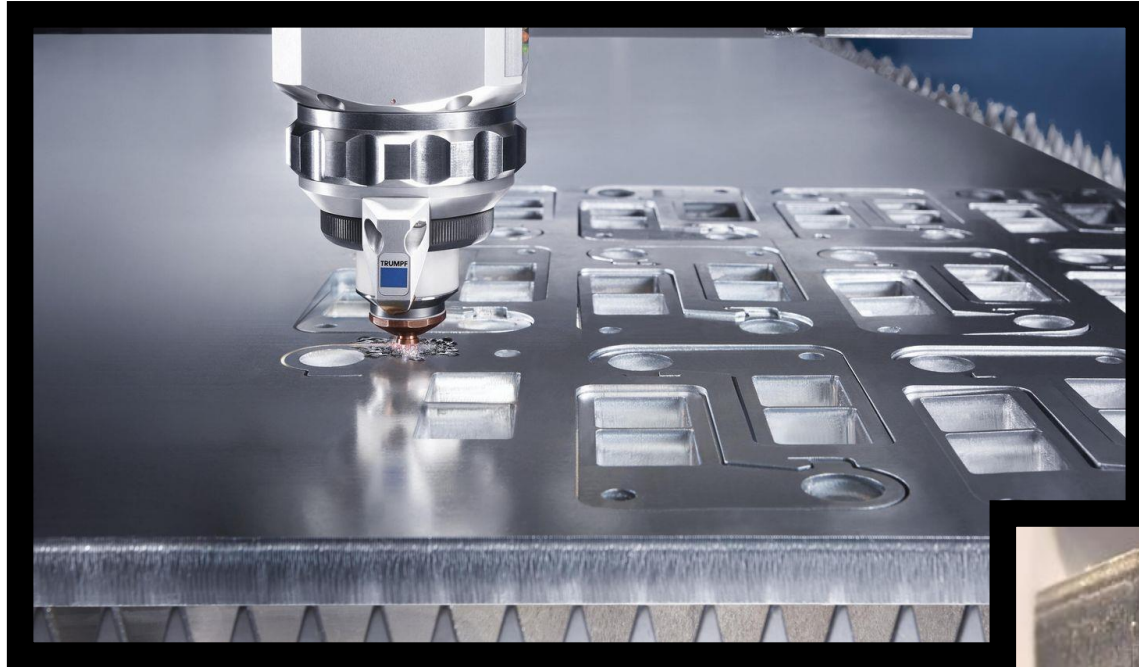
CUT TO LENGTH LINE



Coils capacity: up to 20T
Max width: 1500mm
Max thickness: 4mm

Transformation of coils into sheets

LASER CUTTING



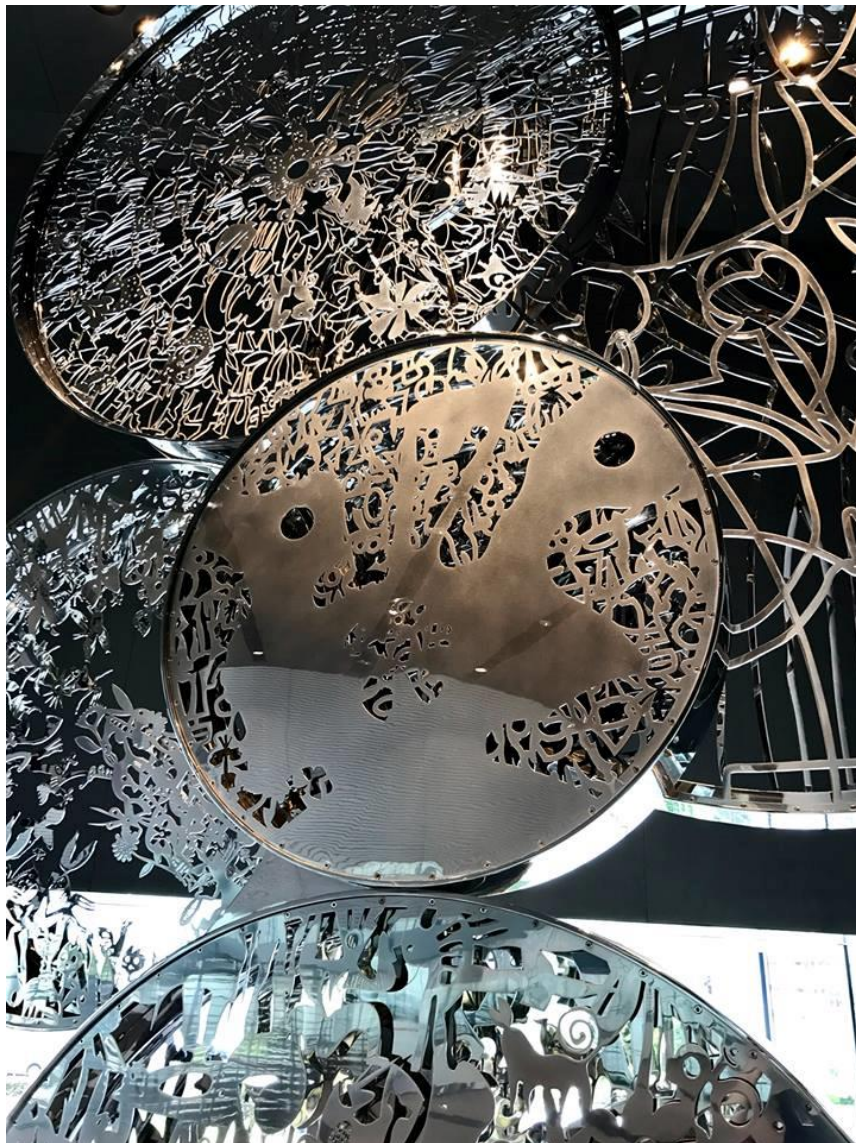
LASER CUTTING APPLICATIONS



Memorial Wall at Collège Notre-Dame de Jamhour
Architect: AAA Atelier des Architectes Associés
Contractor: Isotech S.A.L
Description: Laser cut COR-TEN A weathering steel



LASER CUTTING APPLICATIONS



Wheels of innovation
Nissan Headquarters, Yokohama - Japan
Artist: Nadim Karam
Production: Gebco Steel
Description: Polished stainless steel 316L,
laser cut at Naggiar Service Center

LASER CUTTING APPLICATIONS



Middle East Airlines Training Center – Auditorium Dome Cladding

Architect: Khatib & Alami

Contractor: Abniah

Installer: Alumco Metals

Description: 25 meter diameter dome in AISI 316L stainless steel super mirror triangles, Laser cut and bent at Naggiar Service Center



LASER CUTTING APPLICATIONS



LASER MARKING & ENGRAVING



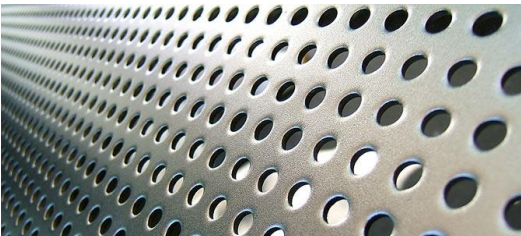
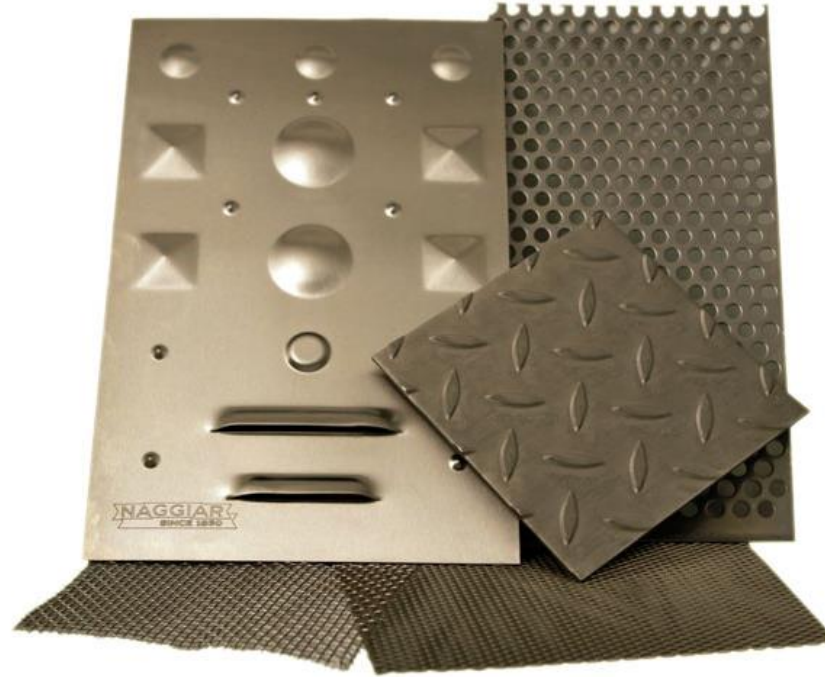
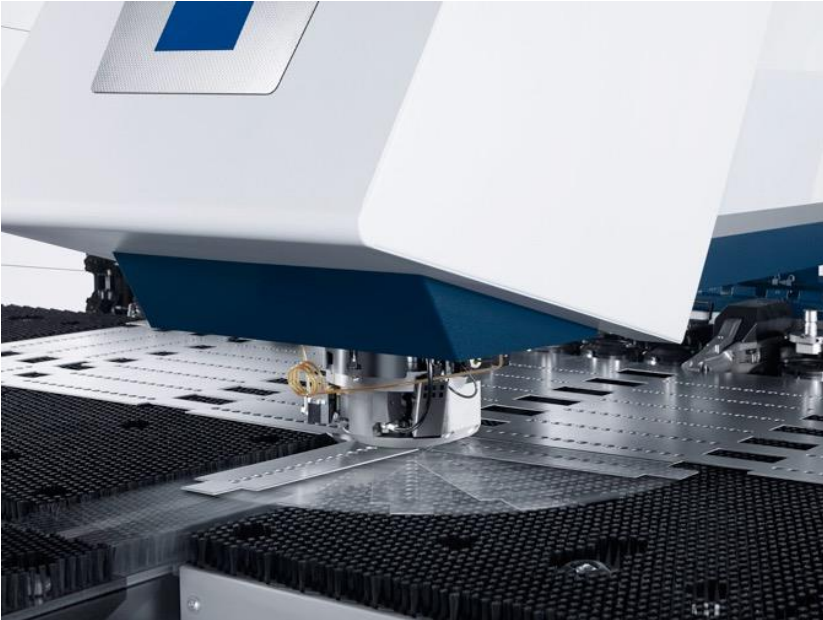
COMPOSITE PANEL ROUTER



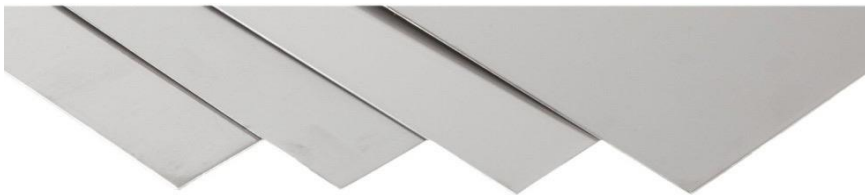
Mostly used for external cladding or facade of buildings, insulation, and signage

PUNCHING & EMBOSSING

**For specific pattern applications:
Round, square, rectangle, oblong, cross, etc...**



SHEET BRUSHING MACHINE



MIM Museum, Beirut, Lebanon

Brass squares brushed in different directions to create a 3D effect

SHEET SUPER MIRRORING MACHINE



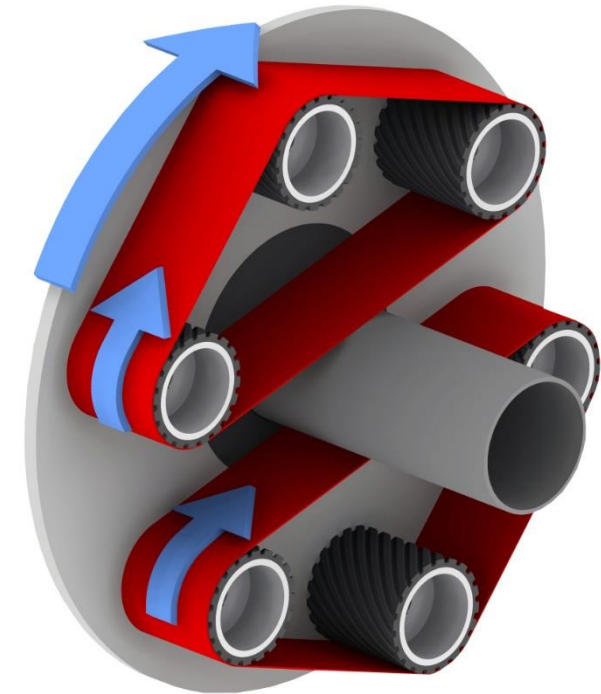
Middle East Training Center – Dome

Location: Beirut Rafic Hariri International Airport

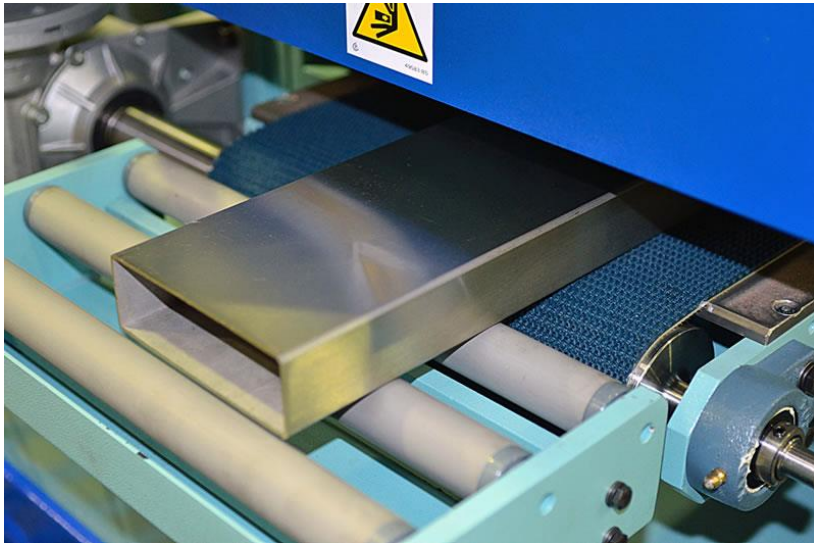
Contractor: Abniah

Description: Stainless steel super mirror triangles, laser cut and bent at Naggiar Service Center

TUBE BRUSHING & MIRRORING



FLAT BARS BRUSHING



EXAMPLES OF WORKABLE ITEMS:



Thank you

Questions ?