Laminazione Sottile
group

Laminazione Sottile italcoat ips ariflex CONTITAL i2r i2r Korea

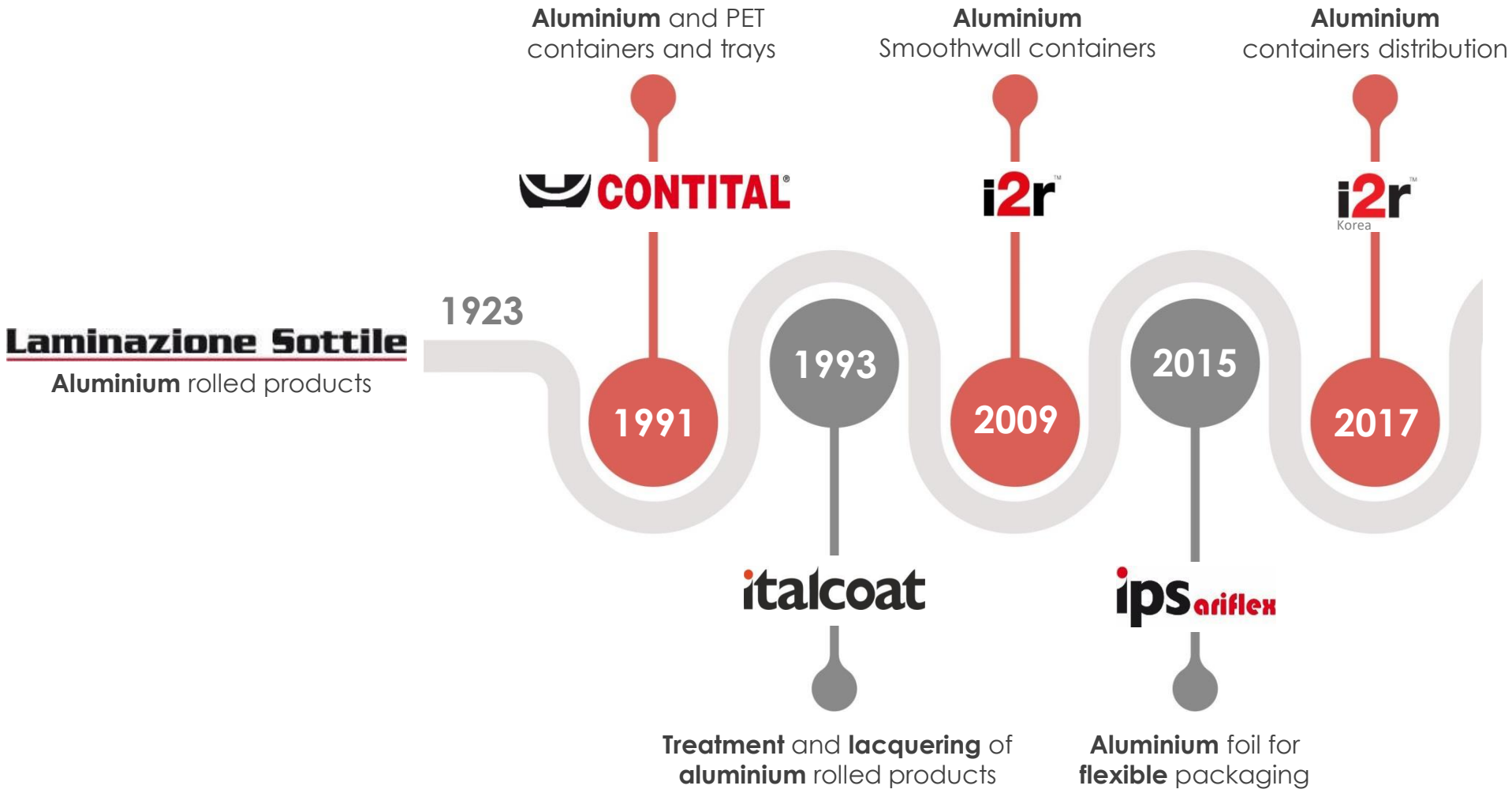
# Agenda

- The Group
- Business
- Production
- Applications
- R&D

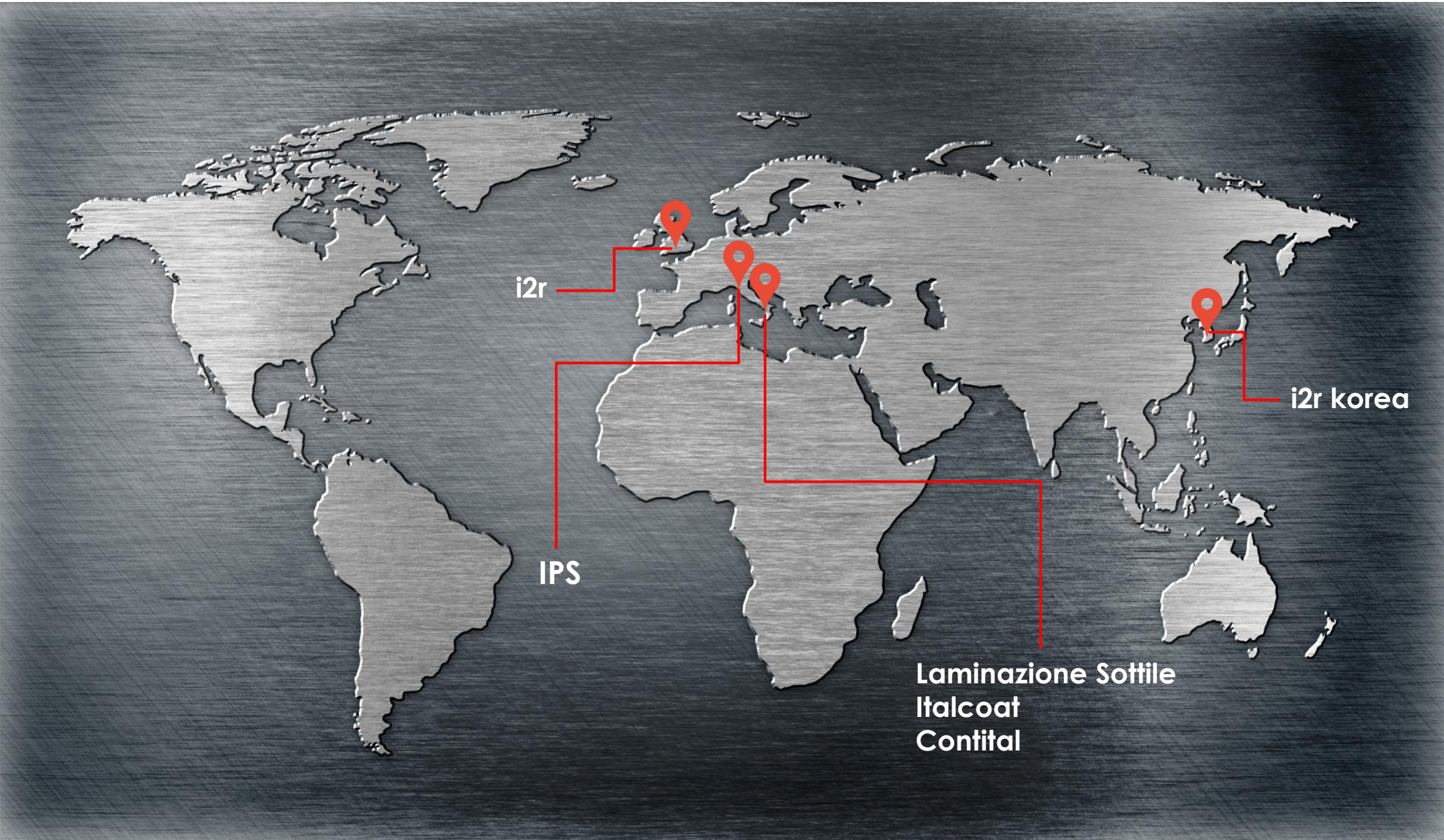
# THE GROUP

# The Group

Innovation since **1923**



# About Us



# Laminazione Sottile

established in **1923**

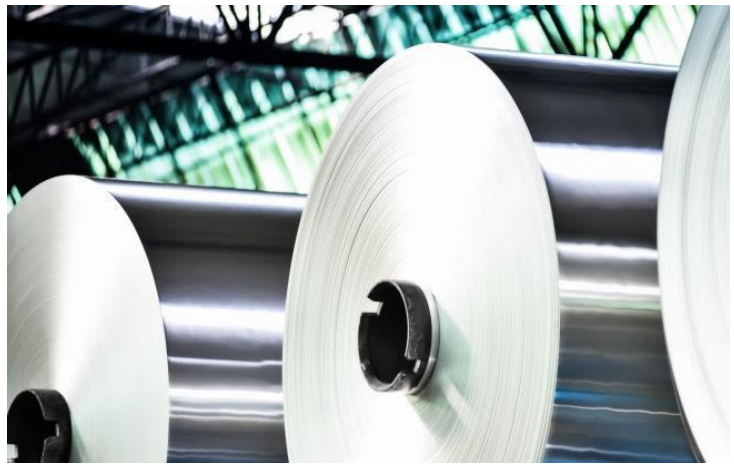
## ALUMINIUM COILS AND SHEETS

Thickness range: **0,006 – 6,000 mm**

| | |
|---|---|
| Production: | 105.000 tons (2017) |
| Capacity: | 160.000 tons/year |
| Employees: | 543 |
| Total plant area: | 150.000 $m^2$ |
| Covered area: | 90.000 $m^2$ |

## CERTIFICATIONS

- ISO 9001:2015
- ISO 14001:2015
- OHSAS 18001:2007
- SA 8000:2014
- EMAS
- AEO-F



# Italcoat

established in 1993

## ALUMINIUM COILS AND SHEETS

Thickness range: **0,05 – 0,4 mm**

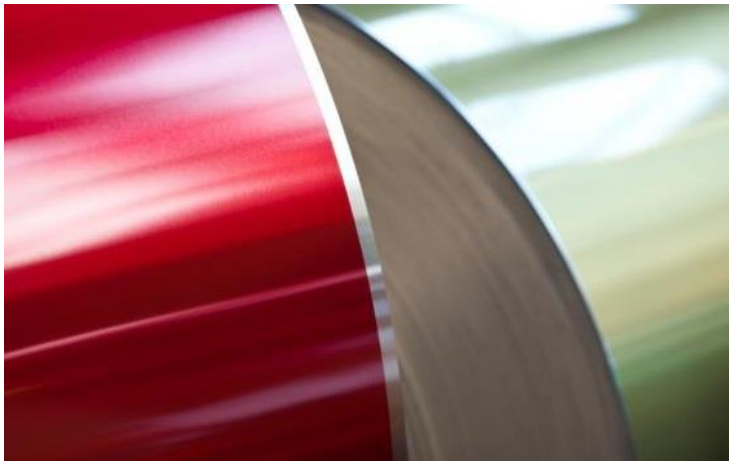
| | |
|---|---|
| Production: | 20.000 tons (2017) |
| Capacity: | > 24.000 tons/year |
| Employees: | 71 |
| Total plant area: | 25.000 $m^2$ |
| Covered area: | 12.500 $m^2$ |

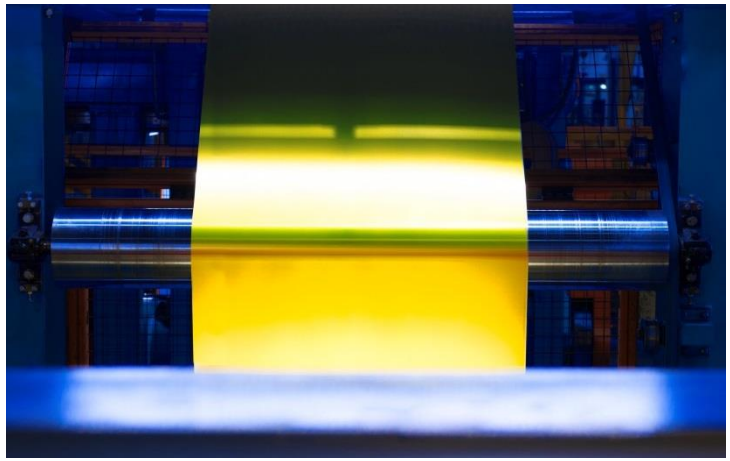
## MAIN EQUIPMENT

- **2** Coating Lines
- **2** Slitting Lines
- **1** Printing Line
- **1** Packaging Line
- **1** Research Lab

## CERTIFICATIONS

- ISO 9001:2008
- ISO 14001:2004
- OHSAS 18001:2007
- EMAS





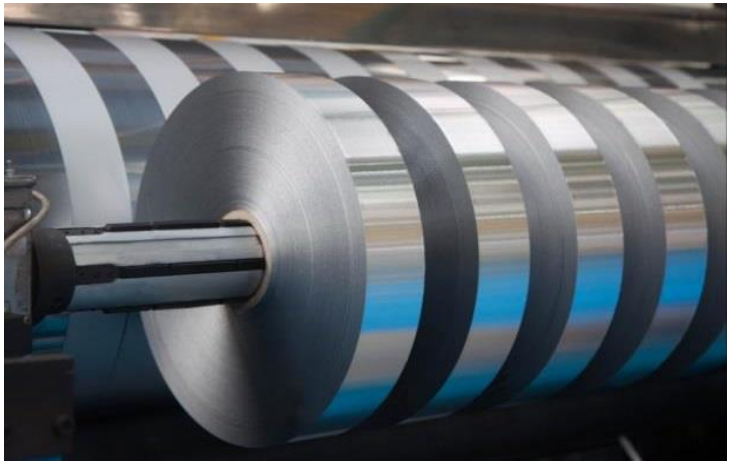
# IPS

acquired in 2015


## FOIL FOR FLEXIBLE PACKAGING AND INDUSTRIAL APPLICATIONS

Thickness range: **0,008 – 0,05 mm**

| | |
|---|---|
| Capacity: | 4.000 tons/year |
| Employees: | 39 |
| Total plant area: | 29.000 $m^2$ |
| Covered area: | 15.500 $m^2$ |



## MAIN EQUIPMENT

- **POLYTYPE** tri-lacquering / tetra-laminating press
- **CERUTTI** lacquering machine and printing press (rotogravure up to 7 colors)
- **7** Slitting machines
- **2** Embossing lines

## CERTIFICATIONS

ISO 9001:2008
ISO 14001:2015
BRC Grade A
EMAS

ips ariflex

# Contital

established in 1991

## ALUMINIUM AND PET CONTAINERS AND TRAYS

| | |
|---|---|
| Production (2017): | 750.000.000 trays |
| | 5.000.000 rolls |
| | 9.000 t of aluminium |
| Capacity: | 1.100.000.000 trays/year |
| | 7.000.000 rolls/year |
| Employees: | 113 |
| Total plant area: | 35.000 $m^2$ |
| Covered area: | 14.000 $m^2$ |

## CERTIFICATIONS

- ISO 9001:2015
- ISO 14001:2004
- OHSAS 18001:2007
- BRC Grade A
- EMAS

CONTITAL®

i2r

acquired in 2009

## WRINKLE WALL AND SMOOTH WALL ALUMINIUM TRAYS
## GREASEPROOF PAPERS AND TULIP MUFFIN WRAPS

| | |
|---|---|
| Production (2017): | 390.000.000 trays |
| | 8.500 t of Aluminium |
| Employees: | 100 |
| Total plant area: | 6.000 $m^2$ |
| Covered area: | 4.500 $m^2$ |

# i2r Korea

acquired in 2017

Distributor

## WRINKLE WALL AND SMOOTH WALL ALUMINIUM TRAYS GREASEPROOF PAPERS AND TULIP MUFFIN WRAPS

Established in **2015** and based in **Seoul**, **i2r Korea** supplies a variety of packaging products for food manufacturers and retailers across the region.

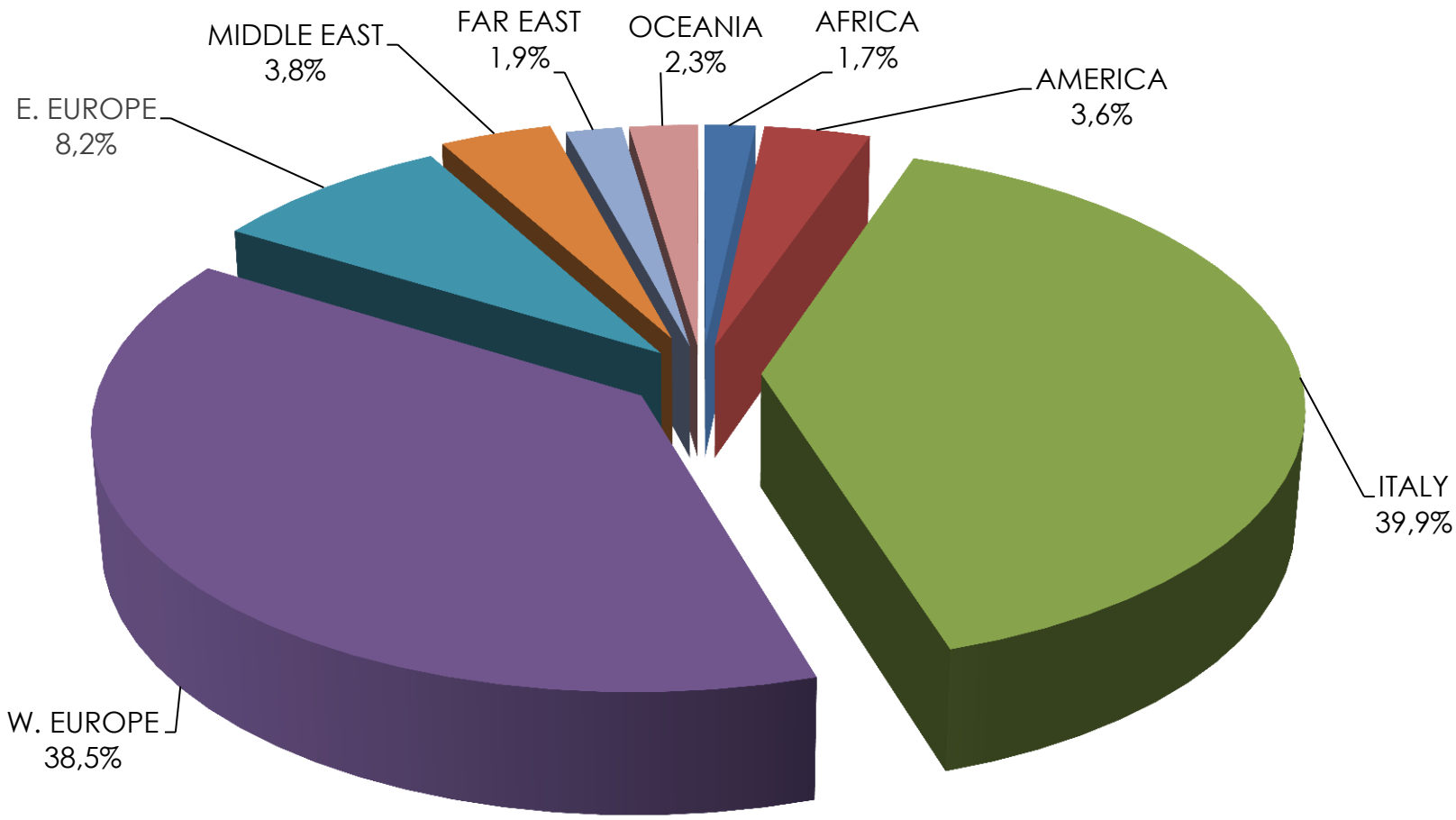
# BUSINESS

# Business

Export – oriented policy

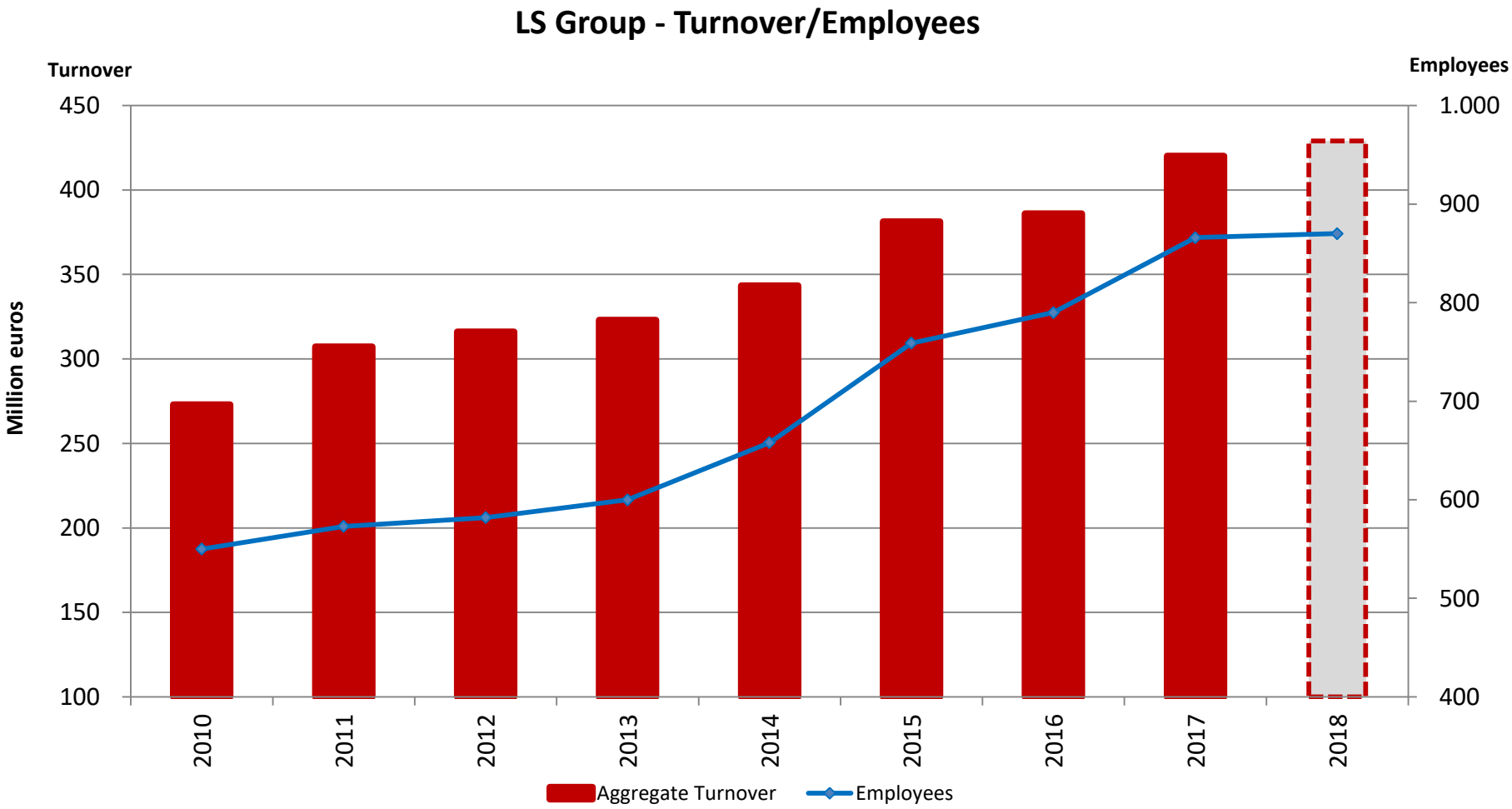
# Business

Sales distribution – Rolled Products **(LS+ITC)**



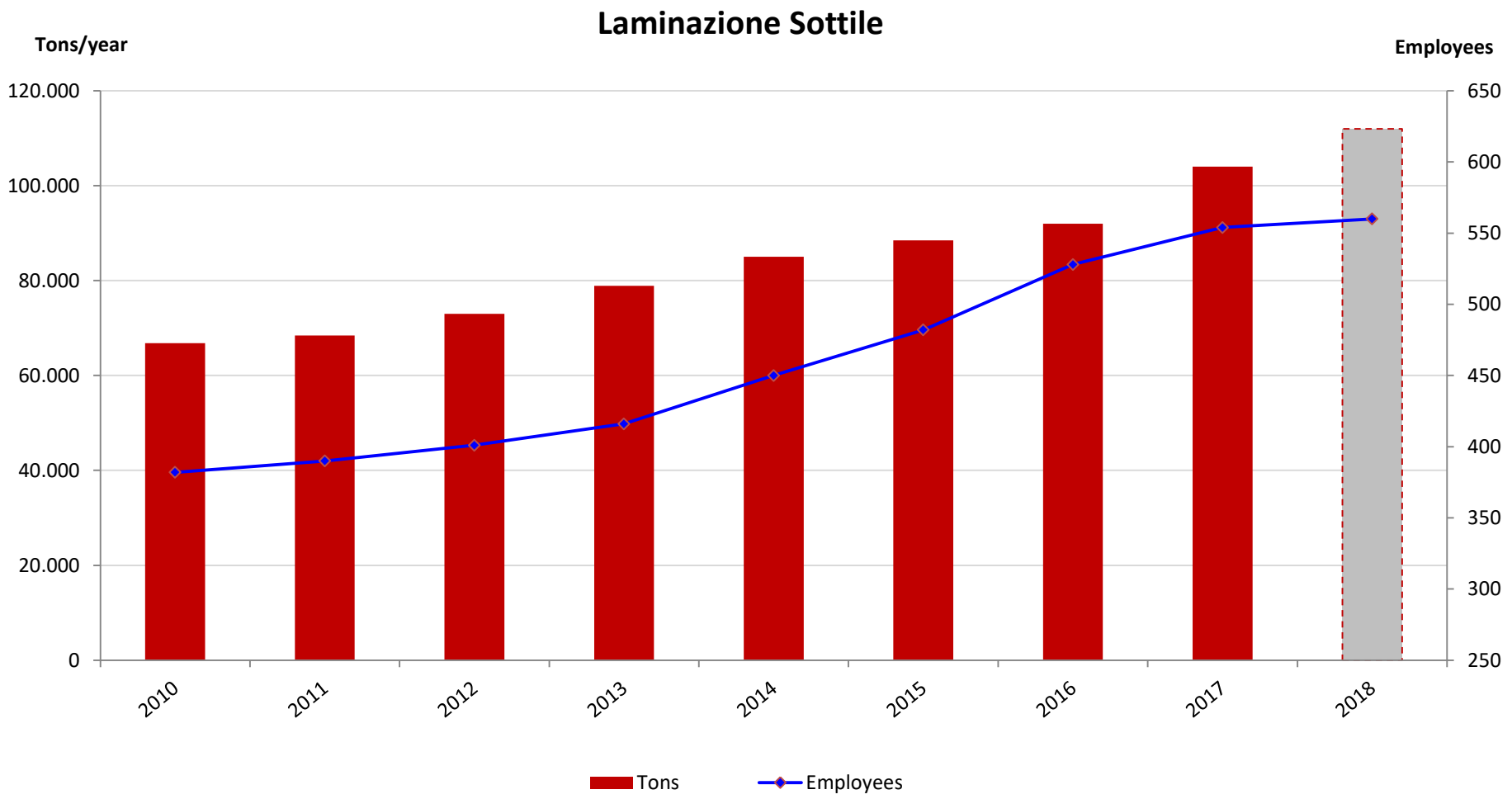
# Business

## Aggregate Turnover / Employees



# Business

## Tons / Employees



# Business

Investments

## Last **3** years

- **Intermediate Cold Roll Mill** € 30.000.000
- **4th Casting Line** € 9.500.000
  - Casting machine
  - Holding furnace
  - Traditional Melting Furnace
  - Double Chamber Melting Furnace
- **3 Heat Treatment Furnaces** € 1.800.000
- **Cold Mill Improvements** € 1.100.000

## 2018

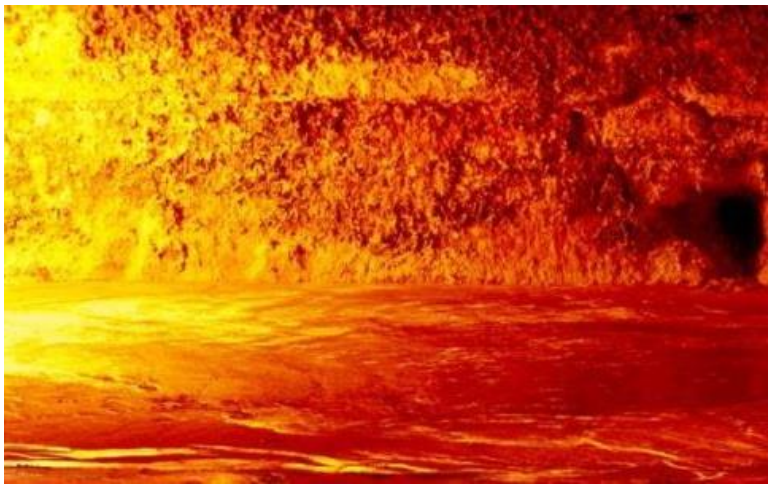
- **Finishing Rolling Mill** € 11.700.000
- **Surface treatment machine** € 4.300.000
- **Longitudinal slitting machine** € 3.200.000

# PRODUCTION

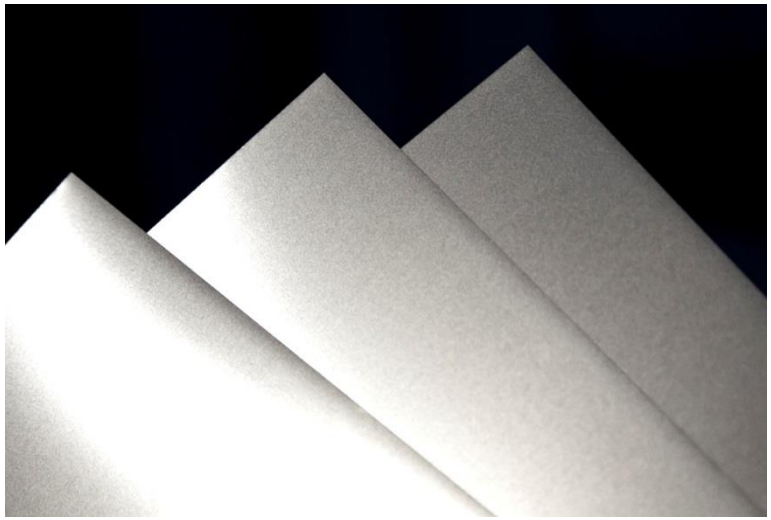
# Production

A complete production cycle

from **Foundry**…



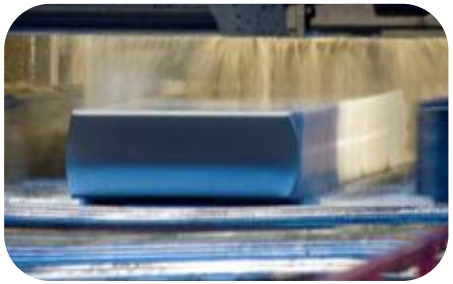
… to **Coils** and **Sheets**



# Integrated supply chain

FOUNDRY

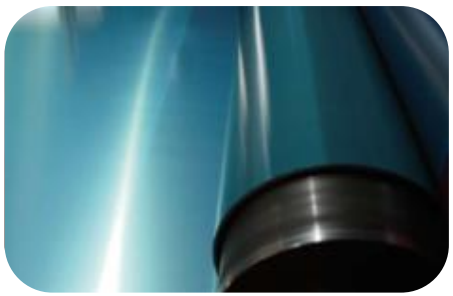
HOT/COLD ROLLING



ANNEALING

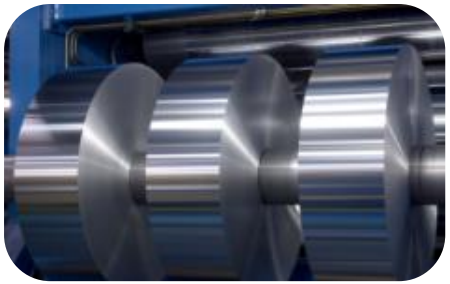
**Sinergy** among the Group's companies

SURFACE TREATMENT



LACQUERING *(IF NEEDED)*

PRINTING *(IF NEEDED)*



SLITTING

# Production Process

## Foundry

The raw material consists of T -bars (ingots T-shaped ), aluminum ingots , any swarf and any scrap from customers and / or from the market , is loaded in the melting furnace .The melting of the metal takes place at approximately 800 ° C. In this phase is determined the final chemical composition of the material with the addition of suitable alloying .

The output of this stage consists of a box , called "slab", with length and thickness standard (4980mm x 630mm) and width depending on the needs / demands of the customer.

## Milling

This operation is necessary to remove from the upper and lower surface of the slab (and possibly from the side surfaces) a few millimeters in order to remove oxides and irregularities (segregations) which are generated during the melting phase.

# Production Process

## Heat treatment of pre-heating

The slabs, after milling, undergoes a thermal treatment at a temperature normally between 550 and 600°C with the aim of pre-heat the slab (and then prepare it to the next stage of hot rolling). In some cases the process can provide a further stay of the slab in the oven with the aim to homogenize through a process of solid state diffusion aluminum and its alloying elements .

## Hot Rolling

The slab is preheated hot rolled (rolling of ''roughing'') at a temperature ranging between 520° and 560°. The reduction of the initial thickness of the slab (about 630 mm ) is carried out through several steps between the rollers of the ''hot mill'' to obtain a roll ''master coil' with a final thickness of between 3 and 6 mm.

## Cold Rolling (through intermediate mills)

The roll hot laminate is cooled to room temperature and subsequently subjected to a further rolling that leads the thickness from an initial value of 3-6 mm to a value between 0.2 and 0.7 mm . This process, like all subsequent rolling passes, is run cold .

# Production Process

## Heat treatment of annealing

Through the heat treatment in furnaces, the laminate acquires physical-mechanical properties (eg hardness, tensile strength, yield strength and elongation , etc.). Depending on the uses to which the semifinished product is intended, it is subjected to a given heat treatment (at a certain temperature and for a well-defined time) in order to give it the desired physical and mechanical characteristics .

This operation can take place, as well as in the passage of the roll, by a rolling mill intermediate to a finishing mill, even between one step and the other of the intermediate mill .

## Cold Rolling (through finishing mills)

The laminate, after having cooled to room temperature, is subjected to the final stage of the rolling process (finish rolling) in which the roll passes from a thicknesses of about 0.6 mm to a final thickness of minimum of 11 microns.

## Final annealing heat treatment

The laminate is subjected to a final heat treatment, conducted at appropriate temperatures and times , able to give it the physical-mechanical properties that make it conform to the customers' demands (ex. tensile strength , yield strength and elongation ).


# Production Process

## Surface treatment (chemical degreasing and possible surface conversion)

It is possible to predict in the cycle of production of the laminate intended for the production of laminate for trays and /or boxes, one final chemical degreasing which ensures the removal of any residues from the previous stages of the process. This is done by passing the tape through baths containing aqueous solutions with addition of acid or alkaline degreasers and surfactants and rinsing in demineralized water. Furthermore, if required by the process, the tape moves in bathrooms with solutions having a specific chemical composition able to realize the "surface conversion ." The blank is rinsed with demineralized water. Finally, the belt passes through a tunnel drying with hot air where it is completely dried out any remaining liquid.

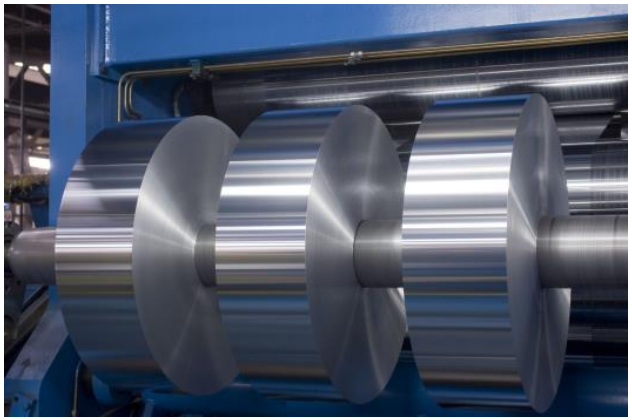
## Coating (Italcoat)

With coil coating technology can paint the two sides of the laminates in order to increase the corrosion resistance, improve aesthetics, confer special properties exploiting the synergy polymer-metal.

# Production Process

## Cutting

Once completed all the above described processes, the mother coils (master coils) are normally sent to a cutting system that can be longitudinal, transversal or by pressing discs.
In this phase in fact , the roll is cut either in strips with smaller widths or diameters, ( the inner and outer diameter depending on the customer request) or in slabs or disks also depending on the size required by the customer.



## Packing

The finished product, once completed also the cutting operation , is sent to the packaging phase. The packaging of the finished product is in function of the needs of the customer and is designed in such a manner as not to collapse during transportation and to ensure the integrity of the product up to the final destination.

# Completely Integrated Cycle

Supply

CUSTOMERS

Laminazione Sottile

italcoat

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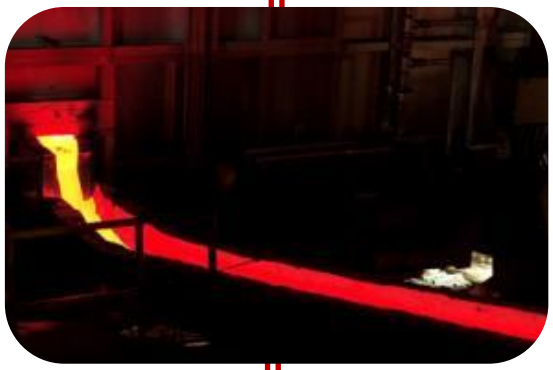
Scrap

To be recycled

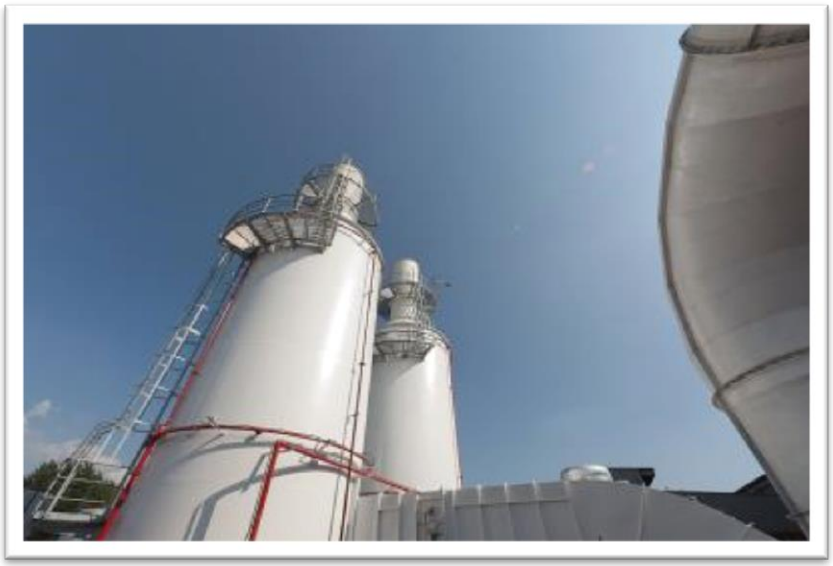


Supply

# Environment

Laminazione Sottile Group keeps on reducing:

**-VOC Emissions**
**-Water Consumption**
**-Packaging Materials**
**-Energy Consumption**
**-Industrial Waste Production**



**Exhaust air purification systems**

# APPLICATIONS

# Applications

## Rigid Packaging

- Extra Deep Caps
- Omnia Caps
- Pharma Caps
- PP Caps for Carbonate Drink
- Ring Pull Caps
- Standard PP Caps
- Tear Off Caps
- Cans and Easy-Open Lids

# Applications

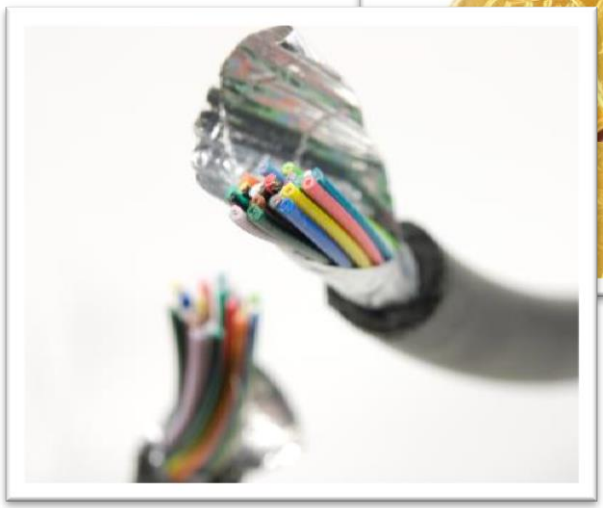
## Semirigid Packaging

- Air-line Food Containers
- Ashtrays
- Tealight
- Dose Containers
- Folded Food Containers
- Lids for Containers
- Pluri Compartment Containers
- Standard Containers
- Smoothwall Containers
- Stiff Containers
- Trays

# Applications

## Flexible Packaging

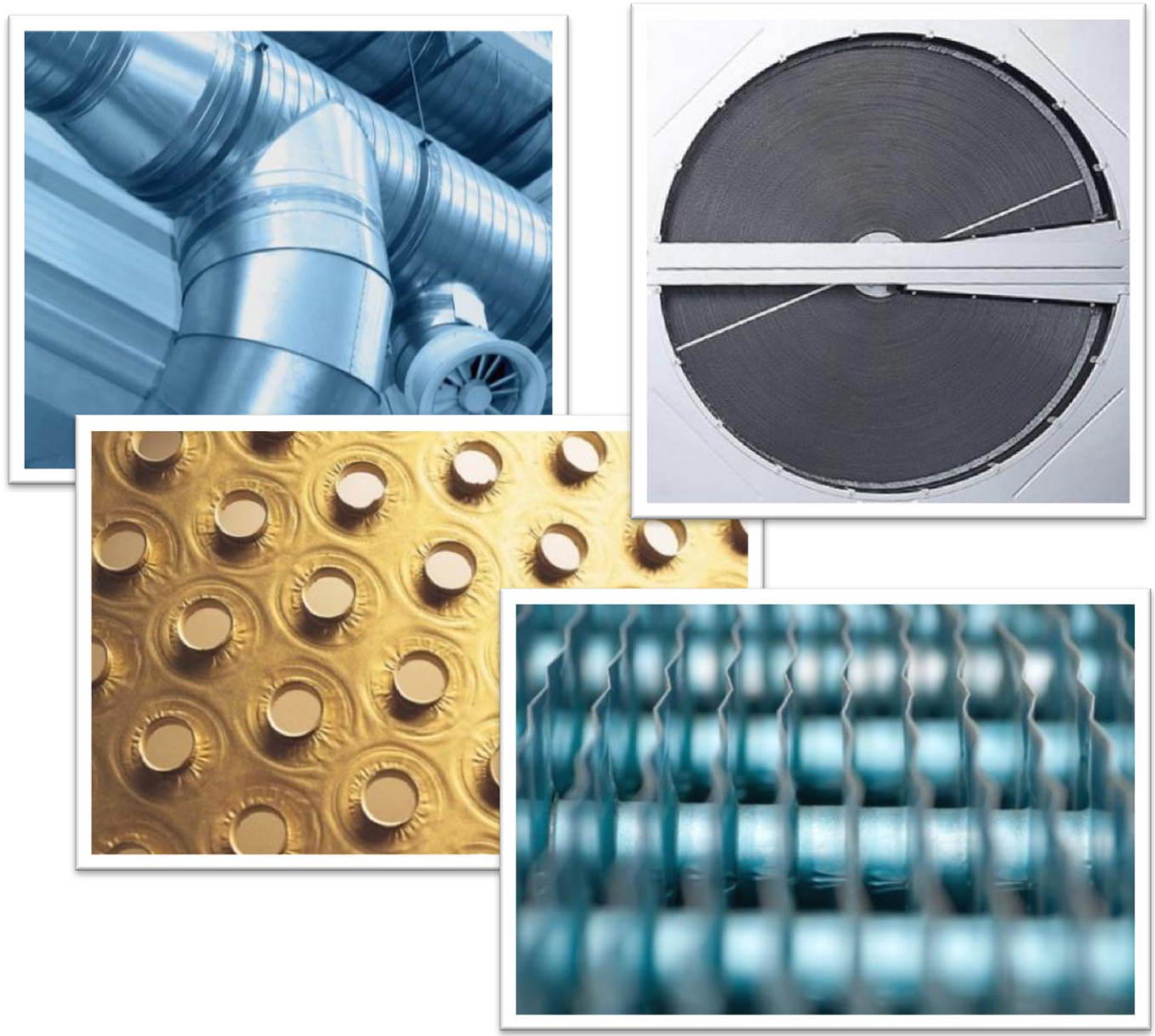
- Caps for Bottles
- Converter Foil
- Household Foil
- Blister
- Seals
- Yogurt Lids
- Adhesive Tapes



# Applications

## Heat Exchangers

- Finstock for Car Radiators
- Finstock Draw-Type
- Finstock Drawless-Type
- Refrigerator Panels
- Brazed Fins
- Vacuum Brazed Fins
- Inert Gas Brazed Fins
- Flexible Tubes
- Rotary Heat Exchangers
- Plate Heat Exchangers



# Applications

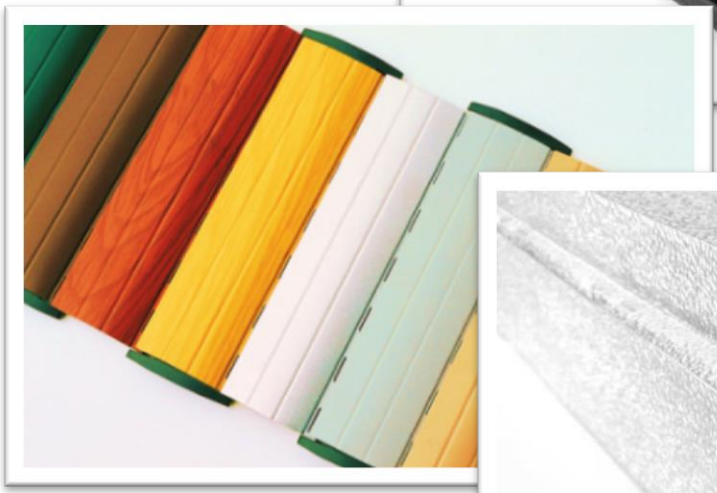
## Cookware

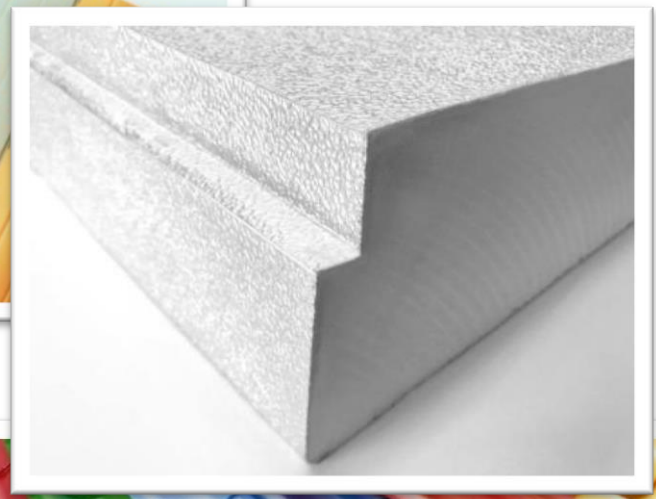
- Deep Drawing Pots
- Lids
- Pans and Cooking Tools

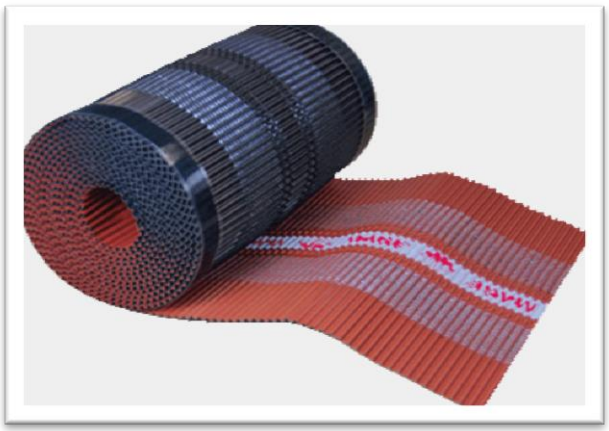
# Applications

## Building & Insulation

- Roofing
- Panels
- Roller Shutters
- Venetian Blinds
- False Ceilings
- Roof ridge strip
- Raised floor
- Security floating roof







# Applications

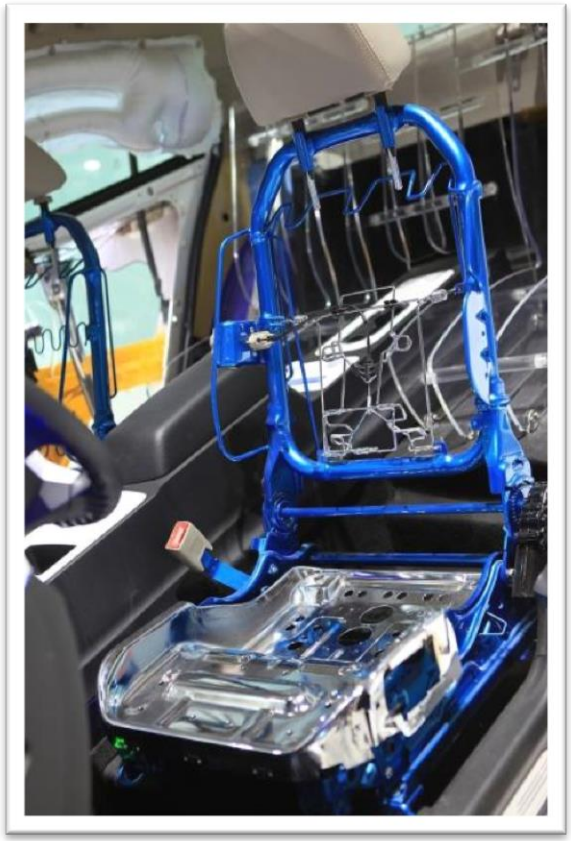
## General Engineering

- Multilayer Pipes
- Condenser Cases
- Filter Grid
- Honeycomb Panels
- Profile for Double Glazing
- Rollbond
- Fins for Spiral Tubes
- Substrate for El. Circuit Board Drilling
- Electrical Cable Sheaths
- Cladding on Steel
- Light Parabolas
- Light Bulbs – Neon Tubes

# Applications

## Automotive

- Heat and acoustic shields
- Structural and non-structural components



# R&D

# R&D

Cooperation with Customers & Universities focused on:

- **Innovative materials**
- **Innovative processes**
- **Innovative applications**
- **Environmental protection**

# R&D

## Cooperations:

**University of Naples «Federico II»**

DPTs: Metallurgy - Mechanical Eng. - Materials Eng. - Chemical Eng. - Logistic & Production Eng.

**Università degli studi Suor Orsola Benincasa**

**University of Rome Tor Vergata**

DPTs: Metallurgy - Mechanical Technologies

**University of Milan**

Dept. Of Food, Environmental and Nutritional Sciences

**Massachusetts Institute of Technology (MIT)**

**National Institute of Health,** Rome

**CNR** - Institute of Chemistry and Technology of Polymers, Naples

# THANK YOU
# FOR YOUR ATTENTION