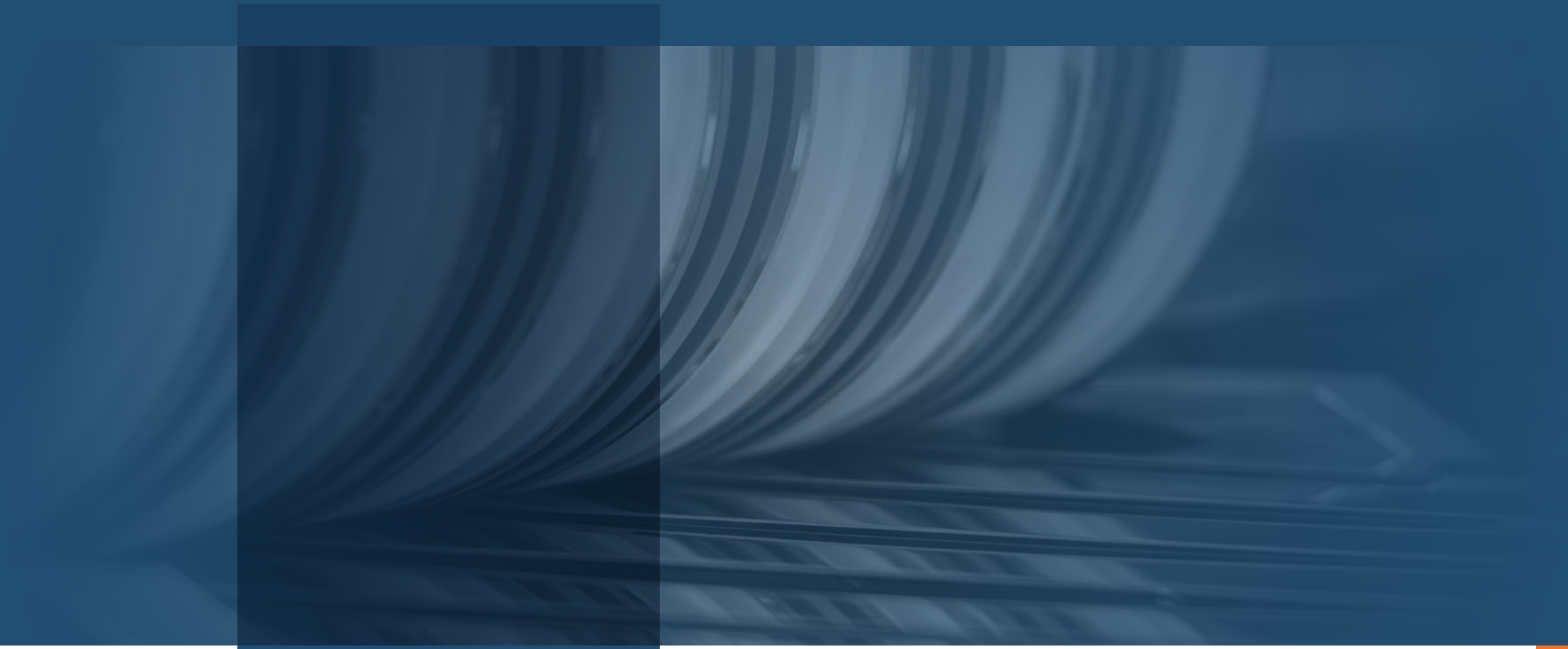
FIMI MACHINERY
Coil Processing Solutions



FIMIGROUP

SL
slitting and trimming lines

FIMI slitting philosophy.

Our **Slitting Lines** are designed to guarantee the **best surface and edge quality** of the strip and the highest production capacity.

These results are possible thanks to a range of special machines and devices engineered by FIMI.

FIMI Slitting Lines can be equipped with **complementary devices** such as: robots for slitting tooling and separator shafts, automatic change of the tooling set and of the cutting heads, strip thickness and width measuring devices, strip inspection devices, oiling machines etc.

Particular attention is paid to the quality of the surface when choosing the Slit Tensioning System among the many designs available, ranging from Vacuum Roll (best suited to most delicate Aluminium) to breaking pinch-rolls combinations up to the Patented "NFTS®" system.

NFTS® - Non-Friction Tensioning System.

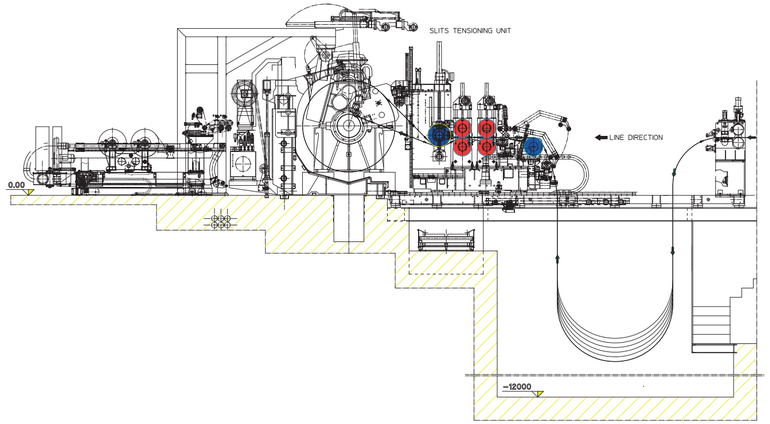
This is FIMI Patented System minded to achieve uniform tension among the slits as an outcome from coil slitting process.

Tensioning systems are designed in a complete variety of configurations to adapt to the most delicate surfaces, like aluminium, stainless-steel, painted-steel and the most rugged heavy-gauge steel: FIMI NFTS® is specifically designed to suit the former ones.

The unit pictured on the left is one of the several configurations, and it specifically features:

- A motorized pre-tensioning roll, blue color, collecting the strips from the looping-pit.
- A tension pinch-roll, red color, which provides uniform tension among the strips.
- A double deflecting roll, blue color.

Each roll is motorised, characterised by a special construction solution with independent pulleys and equipped with a patented internal braking system for the individual pulleys, which is as simple as it is effective and easy to maintain.



slitting and trimming line
at a glance.

Strip Thickness Range **0.03 ÷ 20.0 mm**

Strip Width Range **200 ÷ 2.200 mm**

Working Speed up to **800 m/min.**

Max Yield Strength **2.000 N/mm²**

Coil Weight up to **45 Ton**

Thanks to its expertise developed over 50 years and the incorporation of the company SA.MO., FIMI has nowadays the capability to offer a wide range of Slitting, Trimming, Recoiling & Coil Inspection Lines, that can be summarized as follows:

- For Automotive applications.
- For High Strength Steel (HSS) and Ultra High Strength Steel (UHSS)
- For Hot Rolled Heavy Gauge Steel (up to 20 mm.)
- For Tinplate and Pre-painted Steel
- For Stainless Steel, Aluminium e non-Ferrous Alloys.
- For Coil Inspection, Recoiling and Repairing.

Our lines give the final customer the advantages of high productivity with easy-to-use equipment and personnel reduction thanks to a high degree of automation.

For Automotive Applications

Slitting Lines for automotive applications are especially designed to fulfil the surface quality needs, cutting precision and quality required by car manufacturers. The typical thickness range is 0,3-3 mm, but it goes up to 8 mm in the case of car structural steels.
FIMI supplies also special applications to process strips, with thickness variation up to 50% in short length steps throughout the coil length obtained by a special rolling process.
The materials processed are carbon steel, stainless steel and aluminium, even in high tensile grade.

For High Strength Steel (HSS) and Ultra High Strength Steel (UHSS)

Special Slitting Line configuration for processing high and ultra-high strength material, up to 2.000 Mpa tensile value.
Typical application: for grass cutting machines blades.

For Hot Rolled Heavy Gauge Steel (up to 20 mm)

Slitting Lines for Hot Rolled Heavy Gauge Steel have been successfully developed to match the typical applications in structural engineering, cranes, lifting equipment in general, poles for wind turbines and for the pipes & tubes industry. The thickness range is from 2 to 20 m.
These Slitting Lines require special solutions for the strip feeding process especially after the slitting shear, for scrap chopping and handling, for strip recoiling and discharge.

For Tinplate, Pre-Painted and Silicon Steel

Dedicated decoiling, shearing, braking and recoiling solutions for achieving both strip surface respect and strip internal metallic structure integrity, requested by pre-painted steel and grain-oriented steel processing.

For Stainless Steel, Aluminium e non-Ferrous Alloys

These kinds of Slitting Lines are featured with machines, technical solutions and devices designed to adapt to the nature and typical figures of these metals:

- Stainless steel up to 15 mm. thickness, for application in chemistry, nuclear plants, food industry, architecture.
- Aluminium, Copper and Brass down to thickness of 0,1 mm., which require the line to run at a high-speed of 800 m/min.
- For all the applications, strip tension is applied with high accuracy downstream the Uncoiler.
- For all the applications, the Slitting Shear is featured either with automatic-change of Slitting Tooling Set-up or automatic-change of the complete Slitting-head.
- Special features like the quick change of the recoiler mandrel are implemented.

For Coil Inspection, Recoiling and Repairing

Recoiling & Coil Inspection Lines are required mainly in the Automotive Industry to check the quality of the material surfaces, but they find application also in the Rolling Mills to reduce the size of rolled coils, divide the coils in length, check the surfaces.

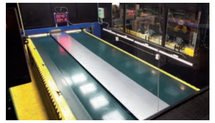
Recoiling

These lines running at high speed (typically up to 400 m/min) are designed for very high productivity (about 400'000 ton/year) and are equipped with special devices such as:

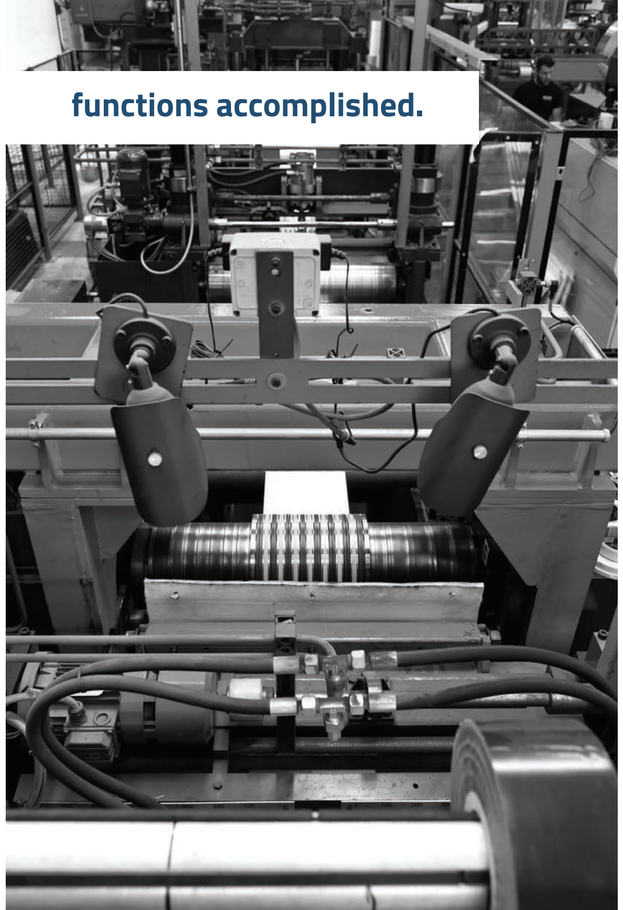
- Thickness measurement;
- Inspection cabins with lights, mirrors and surface quality inspection devices;
- High speed rotary shear for discarding damaged portions of coils thanks to a Level 2 connection between the line and the recordings from the Rolling Mill;
- Side trimming and center cut with scrap chopper;
- Laser welding of coils;
- Surface oiling and oil thickness measurement;
- Belt wrapper to avoid strip clamping in the mandrel;
- Automatic coil strapping, weighing and labellig.

Coil Inspection

The design of these Lines is intended for carrying out top and bottom surface inspection of metal strips: a typical case is represented by the automotive carbon steel. Specific areas of the Line are developed to perform several checks of the strip to identify possible defects among which the minors can be rectified on the spot thanks to a properly designed dedicated area. The recording of 45 different kinds of defects is possible: data are stored into our design LEVEL 2 System for their further elaboration. The Line typically features an Edge Trimming Machine complete with a Scrap Baller or Scrap Cutter. Central cutting is an available option: to guarantee coils are tightly wound, Tensioning Systems are fitted onto a Tension Carriage, same as in a Slitting Line. Both top and bottom recoiling of the strip are possible and assisted by a Belt Wrapper.



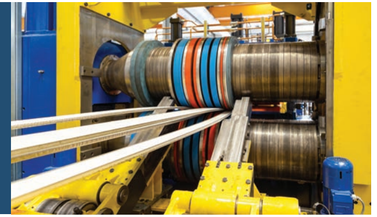
functions accomplished.



Entry Group

- Coil storing and loading.
- Coil opening and uncoiling.
- Strip centering and guiding.
- Strip straightening and/or pre-levelling.
- Cutting of coil head and tails.

Shearing



- Longitudinal shearing or trimming, equipped with strip centering and calming.
- Side scrap winding and/or chopping.

Loop

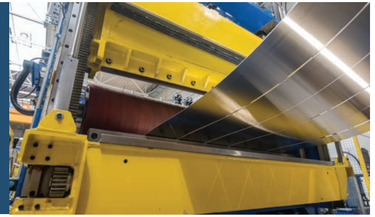
- Devices for controlling and guiding the coil and/or the strips in the loop.
- Devices for facilitated overtaking of the loop during the introduction of the material.
- Anti-fall devices of the strip tails in the pit.

Tensioning

Tensioning of the slit strips is a peculiar function of a Slitting Line: tension is set onto the slit strips to generate aperfect accumulation of tightly wound coils on Recoiler.
Tensioning is featured ranging among a variety of systems engineered and designed according to the quality surface of the strip and its gauge: the extreme limits in this regard are represented respectively by aluminium, stainless-steel BA quality and carbon steel gauging 18 mm.
Tensioning Systems are grouped into two families:

- friction Systems, applied for carbon steel;
- non-friction Systems, applied for stainless steel BA quality and every other delicate surface.

Cropping of Coil Tails and Baby Coils Shearing



Automatic solutions for cutting of coil tails and for the division of the coils into baby coils with rapid resumption of processing.

Recoiling

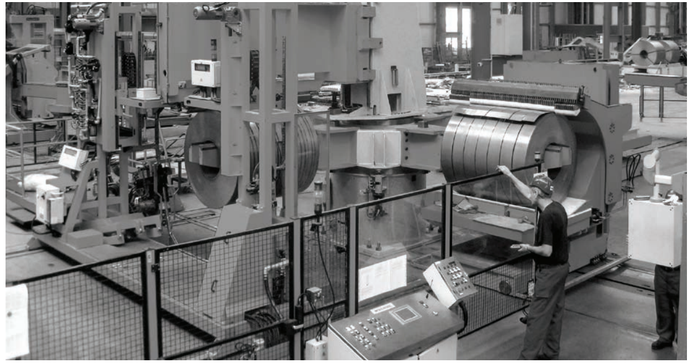
Winding from above and below, with or without clamping.
Solutions dedicated to avoid marking sensitive materials.

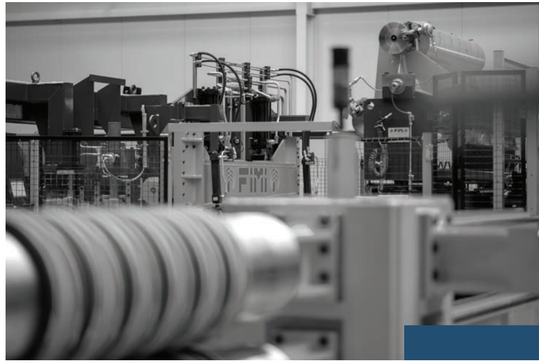
Unloading

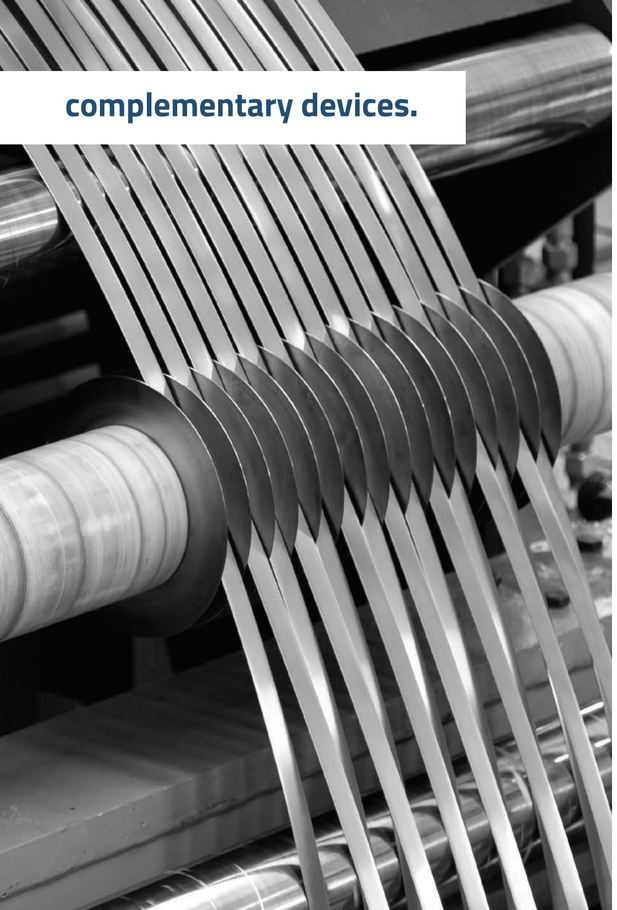
Exit coil car with different configurations for off-line strapping.

Packing

“Customized design” packing lines.



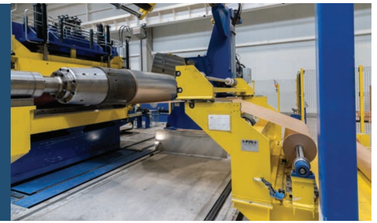




complementary devices.

Automatic Change of Slitting Shear Head

Automatic Paper Application Device on Recoiler



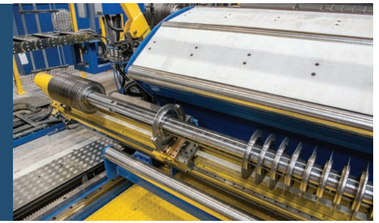
Slits Threading Grippers from Slitting Shear to Recoiler Mandrel

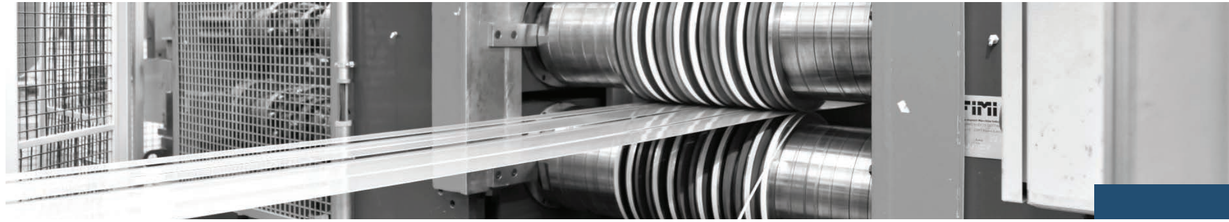
Automatic Change of the Recoiler Mandrel

Tooling Set Managed by Robots

Belt Wrapper

Separator Disks Managed by Robots





LAGO DI COMO
ITALIA
A WORLD WITHIN A WORLD

FIMIGroup sustains and promotes the environment

FIMI MACHINERY
Coil Processing Solutions

F.I.M.I. - Fabbrica Impianti Macchine Industriali - S.p.a.
Via dell'Industria, 15 | 23897 Viganò (LC), Italy
Tel. +39 039 92141 | Fax +39 039 9272090
info@fimimachinery.com | **www.fimimachinery.com**