



FIMI tube mill philosophy.



To design and manufacture machines without compromises in order to guarantee maximum reliability to the Customer, continuity of production, consistently high quality of tubes, short time and low cost of toolings and maintenance.

FIMI's tube mills have to guarantee the best quality of the products giving also the best performances during the production (in terms of speed reached) and in maintenance/set-up phase (in terms of easiness in maintainability and quick change solution for the set up operations).

The experience reached is also giving FIMI the possibility to offer the optimal solution needed by the customer, guiding and letting him also grow in tube mill world. The possibility to offer all the machines required for a complete factory is one of the most important characteristics of FIMI.

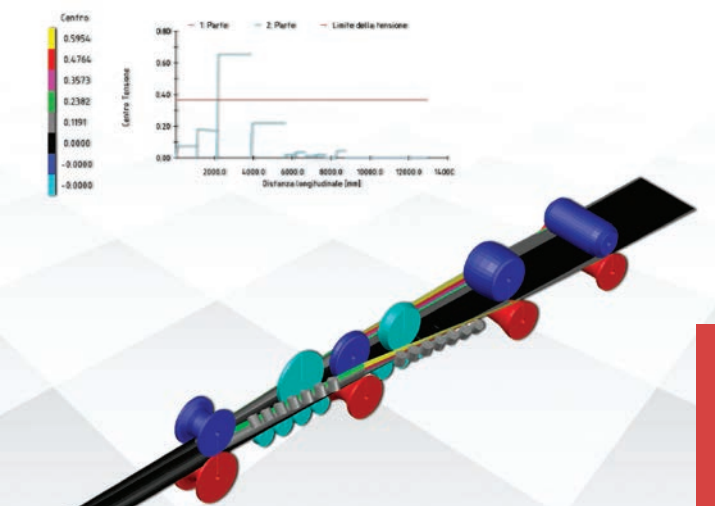
The market is asking more and more attention to the time necessary for the set up.

For this reason, FIMI has developed different proposals to give the best solution combining the quickness and the automatization that the customer is looking for.

To reach the best performances, the line also needs the best cutting technology. That is why a lot of research has been dedicated to flying cut-off systems. The control in speed and the precision in cutting guarantee the best performances in terms of cycle time and blade life.

For high quality tube mills, FIMI proposes also single motorization on each shaft of the roll forming section. This allows an extreme control of the speed and the torque on each shaft and the possibility to adjust the ratio between upper and lower speed in order to avoid slidings on the surfaces of the metal strip, also after the grinding usually done on the rollers that changes their nominal diameters changing consequently the quality of the product.

Our Know - How



FIMI engineers are facing every day challenges in order to keep their machines to the top level in technology, maintainability and reliability. Each project is verified in every detail in order to give the Customer the best result. The flexibility, the experience of the engineers and the wide know-how reached in all the areas related to industrial machineries, allow FIMI to offer a complete portfolio of production lines and accessories machines for the complete process of tube mills.

The technology in profiling has been increased including cage forming for the linear profiling of the tube substituting some of the standard passages giving more flexibility and productivity to our tube mills.

Depending on the production range, FIMI Tube Mills can be composed in different ways in order better adapt to the requests of the customer and the quality obtained.

- The maintaining of the tension between one passage to the next one on the forming section is one of the key aspects for a good tube quality. This is obtained optimizing the motorization on each shaft depending from the range of OD and WT requested to the line.

- Highly advanced electronics continuously keep under control the motor torque in order to uniform the stress on the material. The high flexibility of the system allows the operators to adjust all the parameters in the way they prefer in order to increase the quality.

Time by time, the experience in tube mills has grown passing from small sizes and thicknesses up to the top range of tubes production. The quality of the tubes produced has also increased from structural to oil and gas including also machinery for the profiling, finishing and testing of the tubes.

This brought the know-how also in machinery types like end-facing, hydrostatic-test, NDT island (online and offline) and automatic packing.

API Electro-Welded Tube Mills at a glance.

Tube Diameter Range **13 ÷ 508 mm**

Material Thickness Range **0.3 ÷ 16.0 mm**

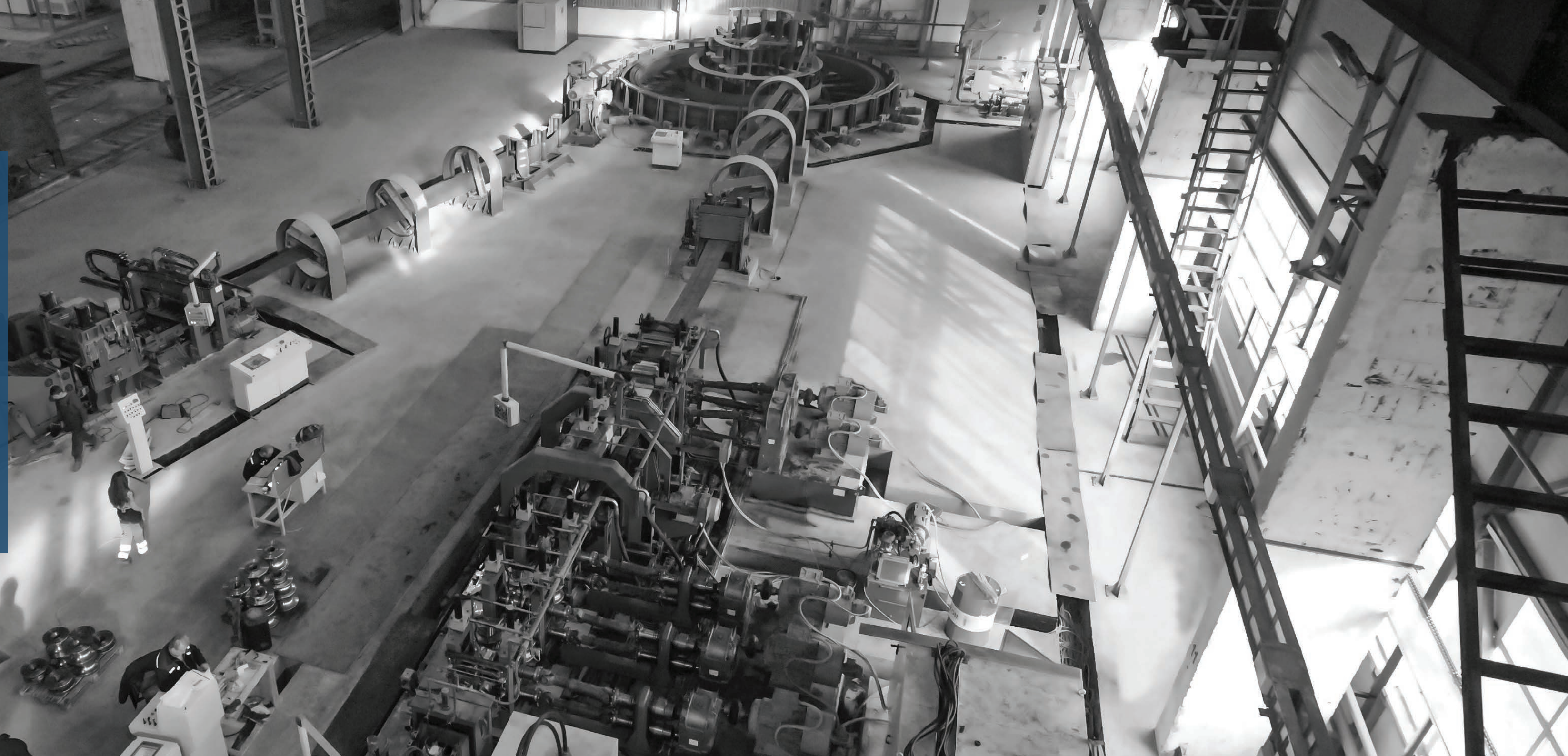
Tube Length Range **500 ÷ 20.000 mm**

Working Speed up to **150 m/min**

Coil Weight up to **30 Ton**

Product Range:

- API Electro-Welded Tube Mills
- Automatic Strip Joint Benches.
- Strip Accumulators.
- Cut-Off Units.



API Electro-Welded Tube Mills

Thanks to the know-how acquired over the years, FIMI is able to design, build and install plants for the production of tubes in the range from 13 up to 508 mm API diameter, manufacturing them according to production speeds and thicknesses to customer specifications.

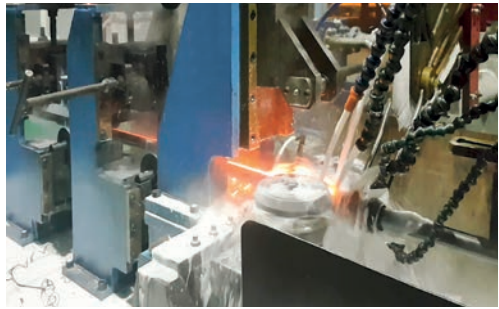
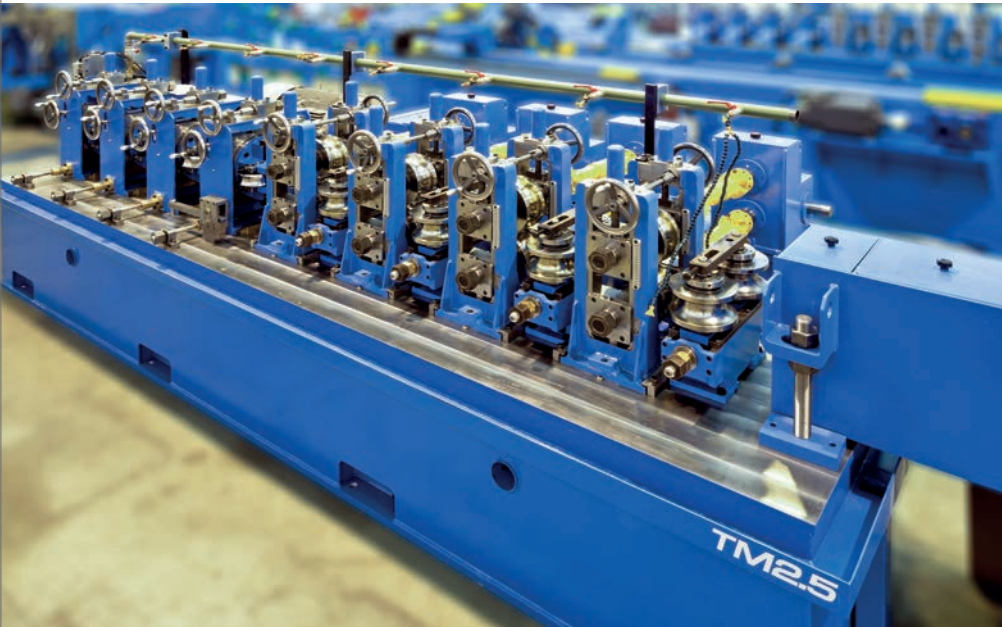
Besides complete lines, FIMI provides individual parts for the replacement or integration into existing production lines: uncoilers, coil opening units, automatic strip joint benches, horizontal spiral accumulators, straighteners.

API Electro-Welded Tube Mill able to produce from 127,0 up to 273,0 mm with optimal performances and quality. Composed of both standard cages and linear cages; the cutting system is the FIMI standard Double Blade flying Cut-Off. This provides high flexibility and high speed up to 60 m/min.

- Tube Diameter » **127,0 ÷ 273,0 mm**
 - Wall Thickness » **3,0 ÷ 8,0 mm**
 - Tube Length » **6,0 ÷ 12,0 m**
 - Working Speed » **0 ÷ 60 m/min**
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- Linear Cage Forming.
 - Quick Change Tooling System.
 - Internal Scarfing System.
 - Eddy Current System.



- Tube Diameter » **90,0 ÷ 219,0 mm**
- Wall Thickness » **3,0 ÷ 8,0 mm**
- Tube Length » **6,0 ÷ 12,0 m**
- Working Speed » **0 ÷ 60 m/min**



- Tube Diameter » **25,0 ÷ 76,0 mm**
- Wall Thickness » **1,5 ÷ 4,0 mm**
- Tube Length » **4,0 ÷ 8,0 m**
- Working Speed » **0 ÷ 120 m/min**

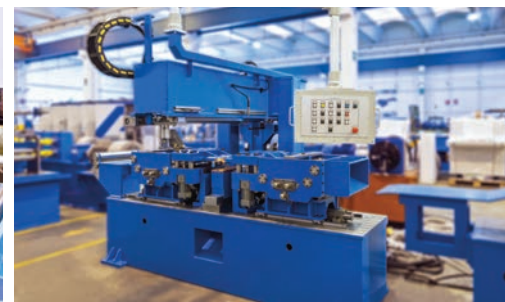
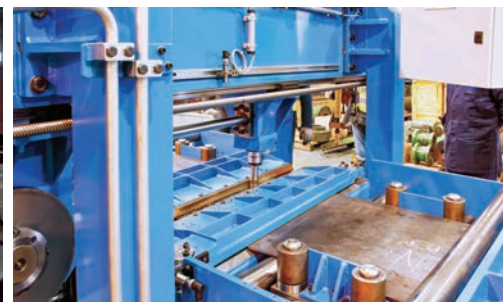
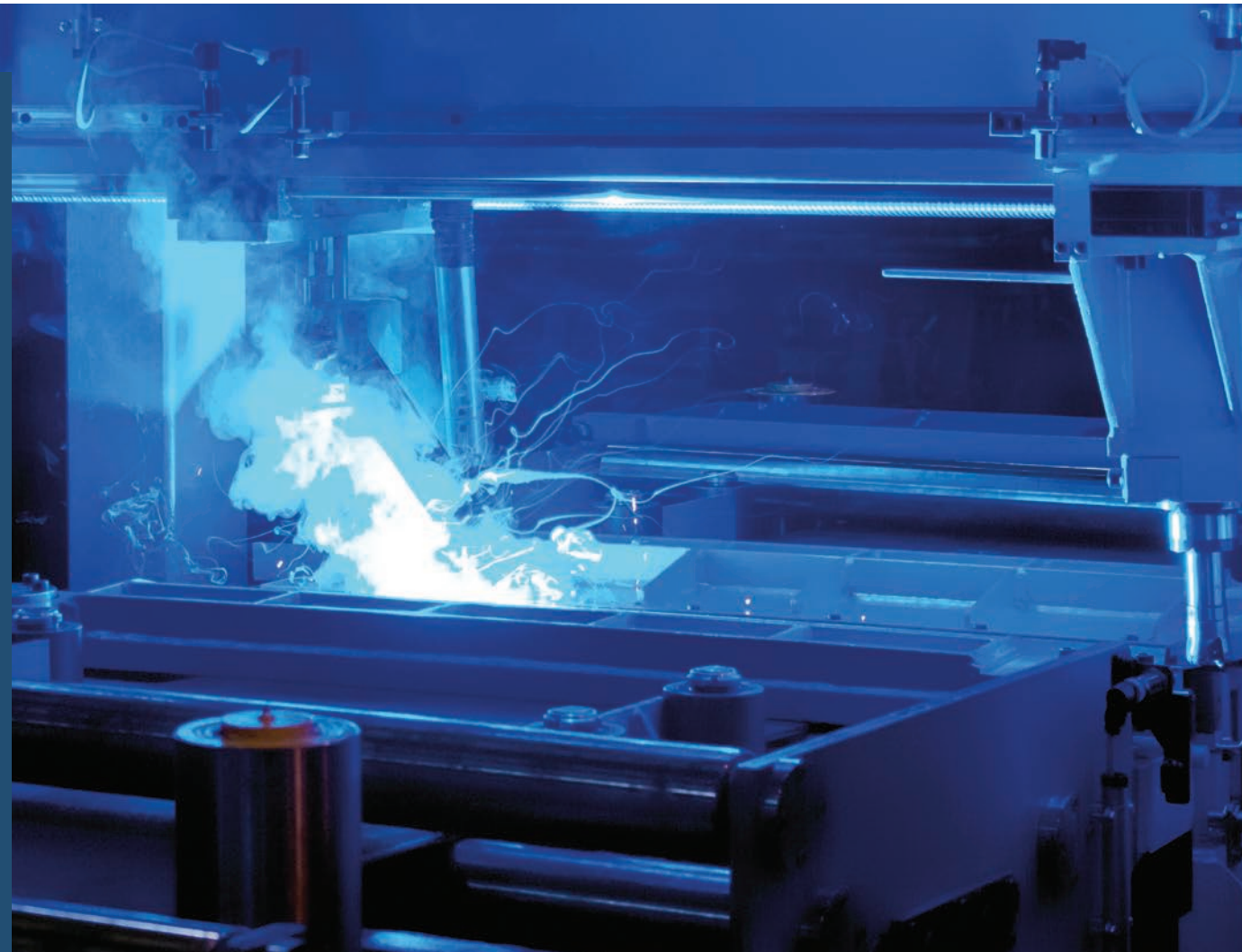
Automatic Strip Joint Benches

Together with the accumulator, they allow to change coil and joint it with the already working strip maintaining constant the speed of the tube mill.

In order to grant a no-stop function of the mill and avoid the introduction of material head for every coil, the strip preparation joint bench is able to joint the head and the tail of 2 coils after having crop them in order to have a clear welding edge. The entire cycle can be performed in fully automatic mode.

The unit is composed by:

- Entry Guiding Adjustable System.
- Pinch System for the head of the strip.
- Welding Torch.
- Milling System for welding seam.
- Pinch System for the tail of the strip.
- Exit Guiding Adjustable System.



Strip Accumulators

To avoid stopping the production during the joint of coil to coil, a spiral accumulator is present to give the correct buffer for this operation. The entry section run faster than the profiling unit giving the margin to weld head and tail.

The system can work with the following methods:

- Synchronized functioning: the entry speed and the outlet speed are the same of the mill.
- Stop of the line for the welding of the tail/head. In this phase the mill takes the material stocked in the accumulator.
- When the welding process has finished, the entry speed is higher than the outlet in order to accumulate quickly the quantity of strip used during the welding phase.
- When the defined strip quantity is reached, the machine is automatically synchronized with the speed of the tube line.



Cut-Off Units

FIMI's cut-offs are machines completely designed, manufactured, assembled and commissioned as a result of the perfect understanding of the technological cycle, customer's needs and feedback constantly received from our experience on the field.

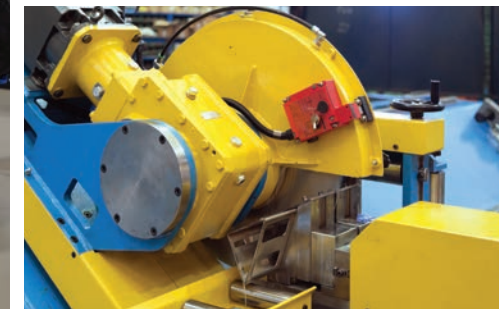
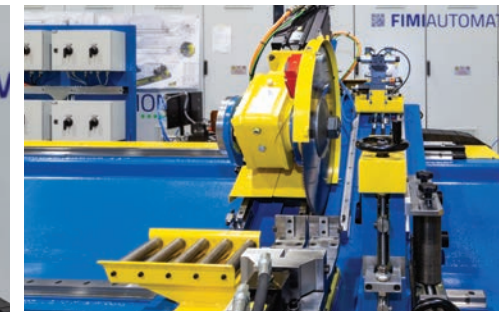
FIMI develops, manufactures and installs milling cut-off units able to cut pipes in the range from 13 up to 610 mm API outside diameter, according to customer's specifications based on production speed and wall thickness.

- Four Blades shear - Orbital Flying Cut-Off.
- Double Blade Shear - Flying Cut-Off.
- Single Blade Shear - Flying Cut-Off.

- Use of reduced diameter TCT blades with a high rigidity and low vibrations.
- Very strong construction for a precise and vibration-free cut.
- Possibility to continue the production even in case of blade breakdowns, using two coaxial blades.
- Great simplification, reduction and unification of the components which minimize the needs for technical assistance and stock of spare parts.
- System of universal clamps used to cover all the profiles to be cut and their correspondent dimensions, with minimal setup time and number of clamps.



- Extreme flexibility - the wide range of sizes and sections that can be cut always with the best parameters requested by the blades (also) for this machine either HSS or TCT.
- High-quality of cut and a long blade life.
- Unique cutting line in the world can follow unequal pathways.



- Possibility to adjust feed per tooth, cutting speed and milling speed in a wide range in order to optimize the working conditions for both HSS and TCT blades.
- Reduced time for clamp/blade replacement.
- Minimal necessity of maintenance and easy chips evacuation and cleaning.
- Low operating costs.



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