CAPITANIO TAILORED AUTOMATION

SOLUTIONS PORTFOLIO

Marking & Tagging

Special Machines

Vision Systems

Tying Machines

Accessories

MARKING AND TAGGING MACHINES

BAT (Bundle Automatic Tagging) For Bundles and Billets

CAT (Coil Automatic Tagging) For Coils

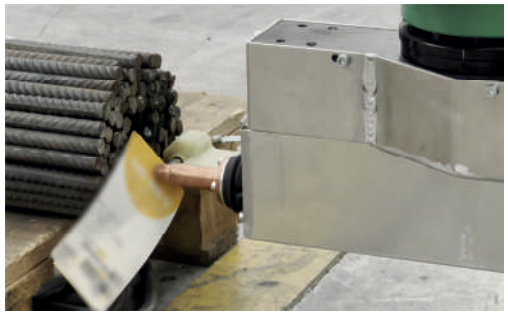
PAT (Plates and Sheets Automatic Tagging) For Plates and Sheets

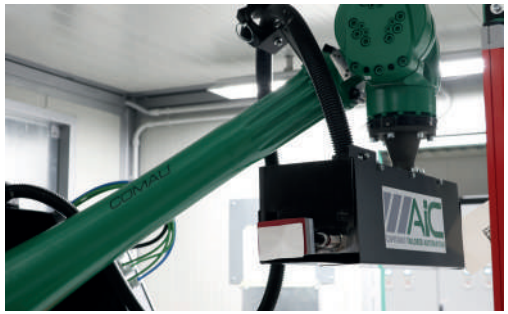
Types of application

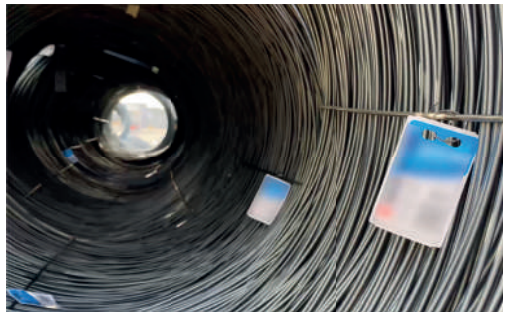
- Labelling
- Punching
- Tagging
- Color tagging
- Laser marking
- Hot and cold labelling

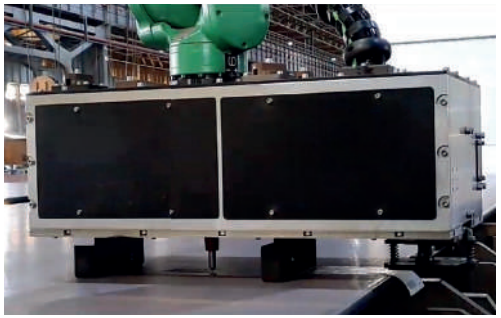
Connectors

- Nail
- Wire
- Ring
- Clip
- Cramp









Our Marking and Tagging machines are the perfect solution for any type of product: **profiles, billets, coils, plates and sheets,** from **light to heavy sections**. We design each application to be fully customized, maximizing efficiency for our clients, with in-house testing and assembly at AIC IT's operational headquarters.

Fast and high-performing, our machines **print and apply a full-color label in just 15 seconds** and complete the entire cycle in 30 seconds - a groundbreaking innovation that makes us the first to offer this technology.

Label ready in 15 seconds, 30 seconds for a complete cycle

Our team handles every stage, from installation to commissioning, ensuring timely support and dedicated training. Before shipping, customers can test the system and verify its performance during the Factory Acceptance Tests (FAT).

SPECIAL MACHINES
ROBOTIC STACKER

The Robotic Stacker is designed to **optimize productivity, reduce downtime, and enhance finished product quality** and process **up to 30 tons** of product **per hour**.
It efficiently handles light, medium, and heavy sections with widths ranging from 3 to 7 mm and lengths between 4,5 and 13 meters.

With limited maintenance requirements, the system ensures a seamless and optimized workflow. Each cycle processes up to 6 bars, with a layer cycle time between 8 and 15 seconds, depending on the profile.

A standout feature is its quick and simple setup - in 7 minutes, a single operator can reconfigure the robot for a new profile, ensuring minimal downtime and maximum efficiency.

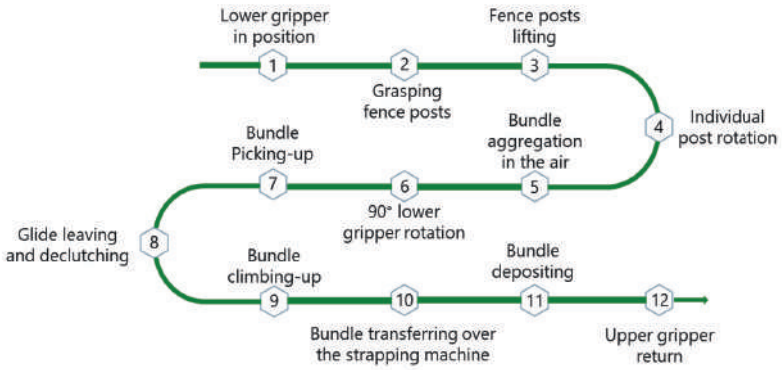
PALLETIZING AND STRAPPING SYSTEM

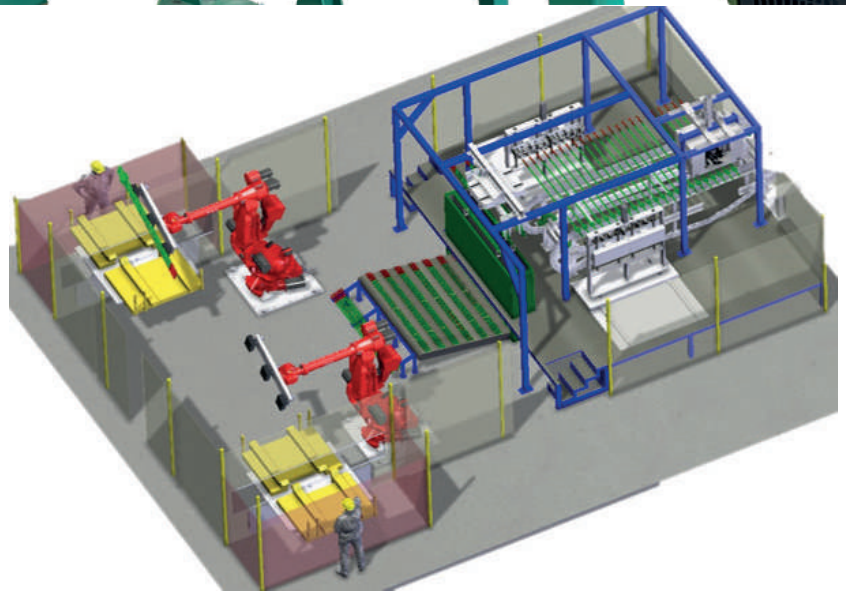
The system is composed in two parts, the first one that **forms the bundle and the strap** with the strapping machine, and the second part with two robots that palletize the product in the finishing area.

There are two rotating tables that allow the unload of the packs when the bundle is formed.

The conveyor that delivers one post per second, so that **two bundles are formed simultaneously**.

The system **optimizes resources, makes process faster ensuring precision and flexibility**, allowing **different profiles to be handled**. It also improves safety and working conditions of the operators by reducing human intervention. A better use of resources leads to a reduction of production costs.





BIN PICKING, QUALITY & PALLETIZING SYSTEM

This system includes a robotic island composed by two robots, one dedicated to the **bin picking** and the identification of the brake disc by a camera with an integrated vision system.
After the picking phase the the disc is laid on a rotating platform that inspects the disks for defects, after that the second robot palletizes the discs.

The vision system uses a polarized camera and AI for **defect detection**, it also has self-learning capabilities and can identify its own malfunctions. The system discards products that do not meet the set thresholds in these areas.

The entire control cycle takes **10-second per brake disc**, from bin pick-up.

Additionally, the bin-picking system ensures **full unloading capacity.**

This application adheres to the qualitative standards of the **automotive industry**

MASTER COIL BINDING STATION

The machine has the function to compact and tie multicoils with **external diameter between 1200 and 1600 mm.**

The system is equipped with our horizontal compactor HCM 400-4W/S on which the coil is loaded via forklift, or alternatively with AGVs.

All the following steps are completely automated, allowing a **full loading and unloading cycle in 2.5 minutes.**

Maintenance is simplified with a detailed manual outlining necessary activities allowing real-time tracking of remaining cycles for component replacement.

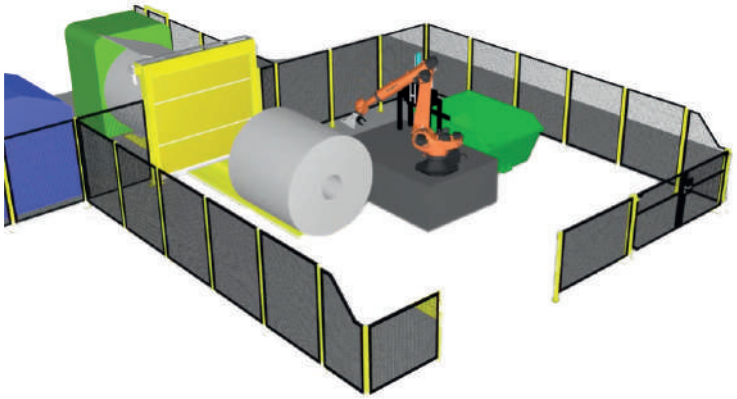
The Master coil binding station features:

- A coil dimensional control system
- Weighing system
- Spray-paint marking for product identification
- Automatic traceability system for welded joints
- Laser marking for binding wire
- Exhausted coil recognition system.

DESTRAPPING SYSTEM

The destrapping system allows to cut straps and retaining wires of varius type of products, **ensuring efficient waste management.**

It is designed to handle, identify and **cut the steel strap (up to 32x1mm in HT) or tying wire (from 5 to 7 mm both carbon steel and stainless steel)**.



The system is suitable for various materials - including **coils, wire in coil, billets, sheets, bundles, and packs**.

An option is available to add a scrap bin in the loading area in order to leave the area clean and safe.

COIL HEAD DETECTOR

The coil head detector system can be integrated to the destrapping system; after the cut of the strap, the system rotates the reel to detect the coil start by using an AI-powered vision system.

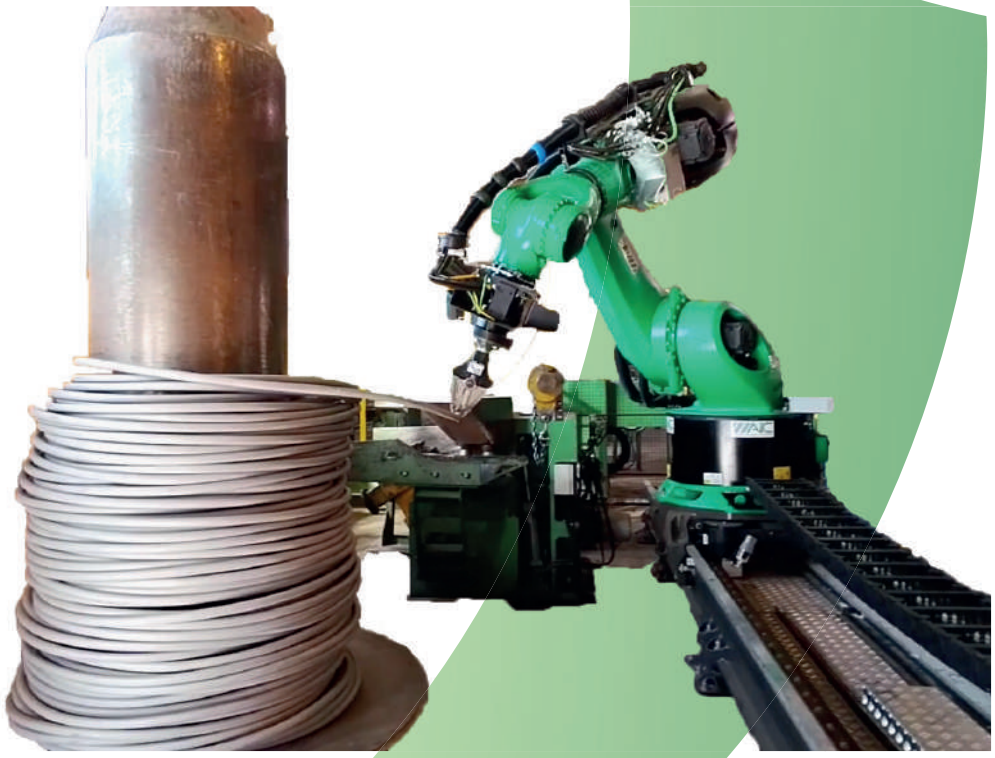
This advanced technology enables to **recognize any alloy, regardless of lighting conditions or surface brightness.**

The vision system can be made by **2D or 3D cameras mounted on board of the robot or on the floor according to reach the best performance.**

ROBOTIC GUIDANCE SYSTEM

Our automation system is designed for processing profile dimensions ranging from 8 to 30 mm. It supports various materials, including steel, stainless steel, brass, and alloys.

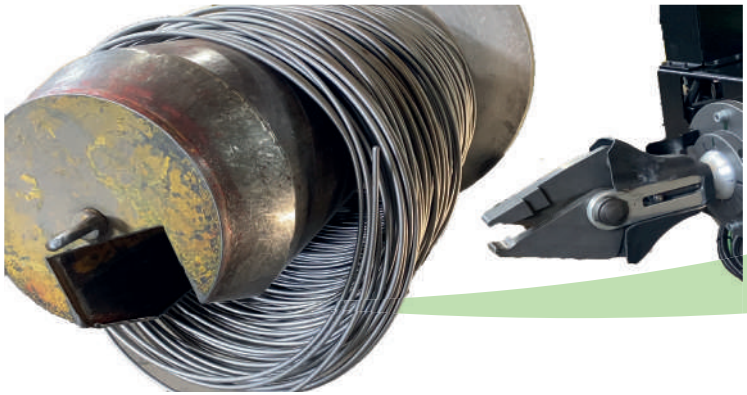
The system enables the automatic insertion of drawing lines, facilitating the transformation of coils into bars with precision and efficiency.



Key Benefits

- **Safety & Repeatability** reducing manual intervention.
- **Optimized Cycle Time**: The entire process, from coil loading to insertion in the drawing line takes **under 3 minutes.**

The robotic guidance system reduces heavy and dangerous workload for workers and improve the productivity of the plant.



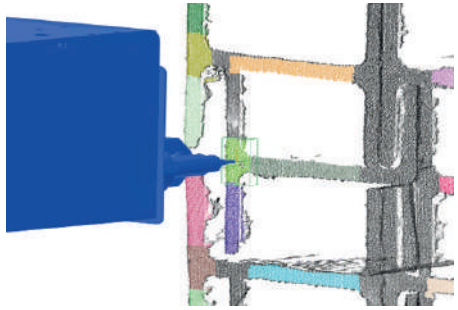
VISION SYSTEMS

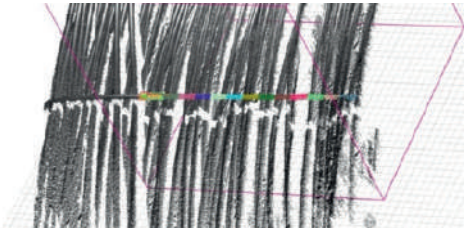
Fields of application:

ROBOTIC GUIDE

The vision system guides the robot by providing coordinates or a full trajectory based on 2D or 3D scans of the working area.

- Coordinates and trajectory identification
- Definition of localization parameters
- Collision control
- Bin picking
- Palletizing system
- Gripping point identification

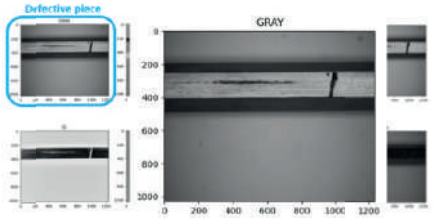


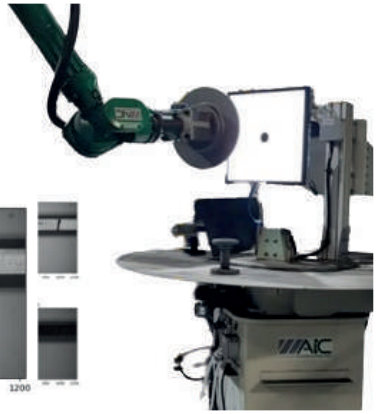


QUALITY CONTROL

The quality control system uses machine learning, trained on images of defective and compliant pieces. It operates with standard 2D cameras or 3D sensors for accurate inspection.

- Adjustable acceptance threshold
- Visual feedback
- Automatic report and image storage
- Statistics

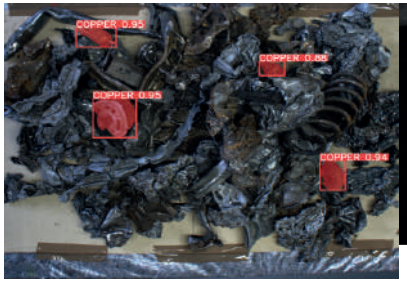




MATERIAL TRACKING

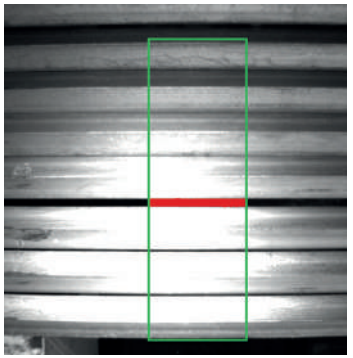
The AIC vision system supports 2D barcode reading to enhance tracking reliability and recognize letters and symbols. It associates labels and barcodes with material positions, ensuring real-time tracking accuracy.

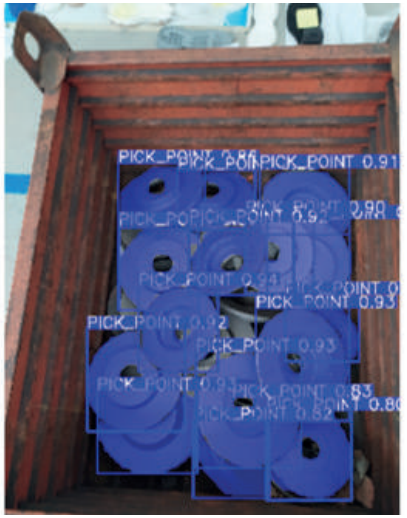
- Bar code and QR code reader
- Product counting
- Material identification
- Scrap detection
- Real time position tracking
- Damaged label reconstruction



PROCESS CONTROL

The AIC vision system replaces traditional sensors by detecting material presence and measuring system conditions to control process flow in complex plants. It enhances automation by providing real-time data for efficient process management.





- Material presence detection
- Measurements
- Unexpected behaviour detection
- Product identification
- Process optimization

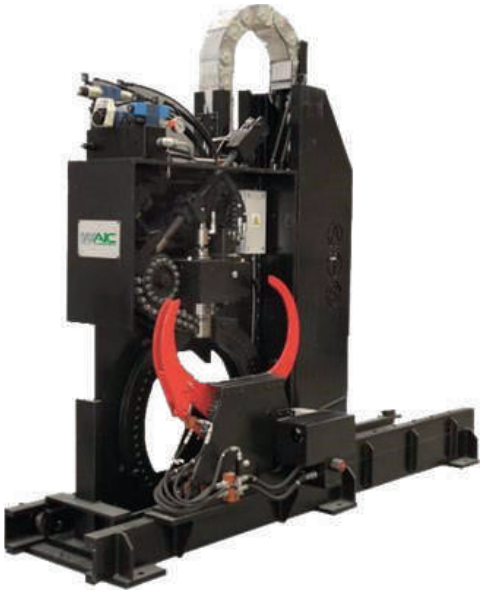
All AIC vision systems can be integrated with AI and machine learning when necessary to improve the performance or to adapt to the most demanding requirements.

All systems can be stand alone and can be integrated into leve 2 and 3 and MES

TYING MACHINES

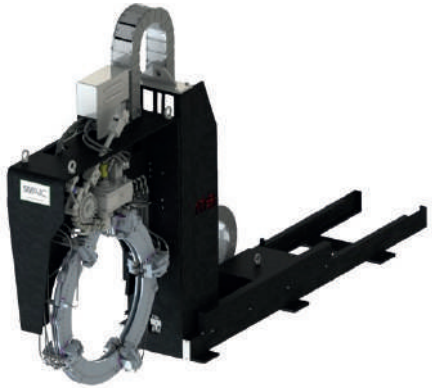
TMB150

Technical Specification	
Min. stack size	16 mm
Max. stack size	150 mm
Wire diameter	2 - 3 mm (upon customer request)
Knot position	90 degrees
Number of turns and turn type	1, tight
Installed power	6 Bar (Pneum.)
Working pressure	120 Bar (Hydr.)
Tying cycle	4,8 s



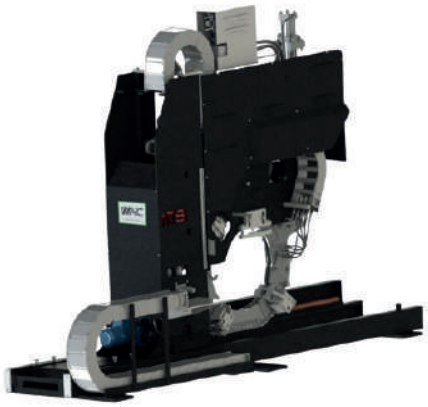
TMB400

Technical Specification	
Min. bundle diameter	150 mm
Max. bundle diameter	400 mm
Wire diameter	5,5 - 8 mm upon customer request
Knot position	90 or 45 degrees
Number of turns and turn type	1 or 2, tight/loose (selectable via control panel)
Installed power	20 kW
Working pressure	120 bar (Hydr.)
Tying cycle	6,8 s



TMB400-C (Cantilever)

Technical Specification	
Min. bundle diameter	150 mm
Max. bundle diameter	400 mm
Wire diameter	5,5 - 8 mm upon customer request
Knot position	90 or 45 degrees
Number of turns and turn type	1 or 2, tight/loose (selectable via control panel)
Installed power	20 kW
Working pressure	120 bar (Hydr.)
Tying cycle	6,8 s



TMB400-CA (Cantilever Openable)

Technical Specification	
Min. bundle diameter	150 mm
Max. bundle diameter	400 mm
Wire diameter	5,5 - 8 mm upon customer request
Knot position	90 or 45 degrees
Number of turns and turn type	1 or 2, tight/loose (selectable via control panel)
Installed power	20 kW
Working pressure	120 bar (Hydr.)
Tying cycle	6,8 s

TMB400-SP

Technical Specification	
Min. bundle diameter	150 mm
Max. bundle diameter	400 mm
Wire diameter	5,5 - 8 mm upon customer request
Knot position	90 or 45 degrees
Number of turns and turn type	1 or 2, tight/loose (selectable via control panel)
Installed power	20 kW
Working pressure	120 bar (Hydr.)
Tying cycle	6,8 s

The TMB400-S is a specialized tying machine with bolted traversing rails for easy maintenance, a quick-change system for the tying head allows to test it in the workshop testing station.
These advanced features ensure seamless performance, reduced downtime, and enhanced reliability in demanding industrial applications.

TMP500

Technical Specification	
Min. stack size	150 x 150 mm
Max. stack size	500 x 500 mm
Wire diameter	5,5 - 8 mm upon customer request
Knot position	45 degrees
Number of turns and turn type	1 or 2, tight/loose (selectable via control panel)
Installed power	20 kW
Working pressure	120 bar (Hydr.)
Tying cycle	7,5 s

TMP1100

Technical Specification	
Min. stack size	300 x 300 mm
Max. stack size	1100 x 1100 mm
Wire diameter	5,5 - 8 mm upon customer request
Knot position	45 degrees
Number of turns and turn type	1 or 2, tight/loose (selectable via control panel)
Installed power	35 kW
Working pressure	120 bar (Hydr.)
Tying cycle	11,5 s

TMC020-SP

The tying machine is designed for coil tying, with positioning controlled by mechanical microswitches. The tying head moves vertically via guides and a pneumatic cylinder. Constructed from durable steel, it includes a wire feeding device, a rotating knot-forming mechanism with a built-in cutter, and pneumatic-powered guide clamps for efficient wire handling.

WIRE TIES MACHINE TL700/S

Technical Specification	
Diameter of binding rings (min-Max)	350 mm – 700 mm
Number of rings/hour	Approx. 60-110
Number of turns (which can be preset)	from 1 to 13
Diameter of the binding wire	6,5 mm (5,5 – 6,0 – 7,0 mm)
Material of the wire	Steel or Inox (AISI304)

All our machines are equipped with bundle jaws and pack compactor, all can tie in steel or stainless steel wire

STRAPPING MACHINE SSM650-T

The machine is complete with:

- strap recovery system
- dispenser with maximum capacity of jumbo strap rolls up to 900 kg
- pneumatic and electrical components

Technical Specification	
Machine	Extractable
Strap size	32 x 090 HT (high resistance)
Strapping coil	Jumbo and Sjumbo (up to 450 kg)
Type of joint	Open seal
Cycle time	Less than 15 seconds
Bundle dimensions	650 x 650mm
Bundle size	300 – 650 mm

STRAPPING MACHINE PSM250-F

Technical Specification	
Pack dimensions	Up to 250 x 250 mm
Strap material	PET
Strap dimensions	19 x 09 mm
Cycle time	15 seconds

HORIZONTAL COMPACTOR HCM400-4W/S

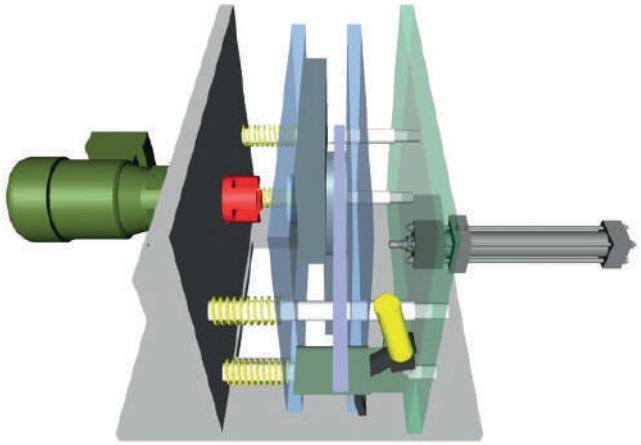
Technical Specification	
Min. compression force	10 Ton
Max. compression force	40 Ton
Weight of the coil	from 1 to 3 Tons
Diameter of the wire	From 5,5 to 55 mm
Number of heads	4
Type of head	Wire (7 mm) or Strap (32x9mm HT)
Cycle time	< 38 seconds

VERTICAL COMPACTOR VCM400-4W/S

Technical Specification	
Min. compression force	10 Ton
Max. compression force	40 Ton
Weight of the coil	from 1 to 3 Tons
Diameter of the wire	From 5,5 to 55 mm
Number of heads	4
Type of head	Wire (7 mm) or Strap (32x9mm HT)
Cycle time	< 38 seconds

MACHINES ACCESSORIES

STRAP AND WIRE WINDER



The system efficiently wraps the removed strap around itself to compact it, minimizing the space occupied by the waste material. This process enhances waste management by reducing volume, making disposal or recycling more convenient and cost-effective.

UNWINDING MACHINE

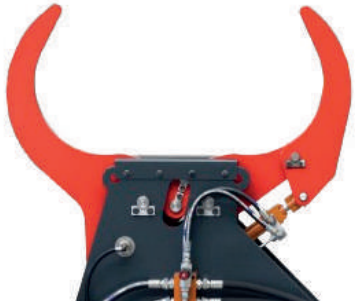
The unwinding machine smoothly unwinds wire from the coil without knots or stoppages, maintaining consistent tension and preventing tangling. This ensures a continuous, efficient process with minimal downtime and preserves the quality of the wire for the next production stage.

HYDRAULIC POWER UNITS

Designed and optimised for the smooth operation of the tying machines, they are designed for high energy efficiency and have an oil collection tank underneath in the case of leaks.

BUNDLE RETAINING JAWS

Forms and compacts the bar bundle while keeping it securely in the binding position.



PACK FORMER

Ensures the bundle remains securely positioned throughout the tying and strapping process.

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