



PESMEL FULLY AUTOMATED STRIP PACKING LINES

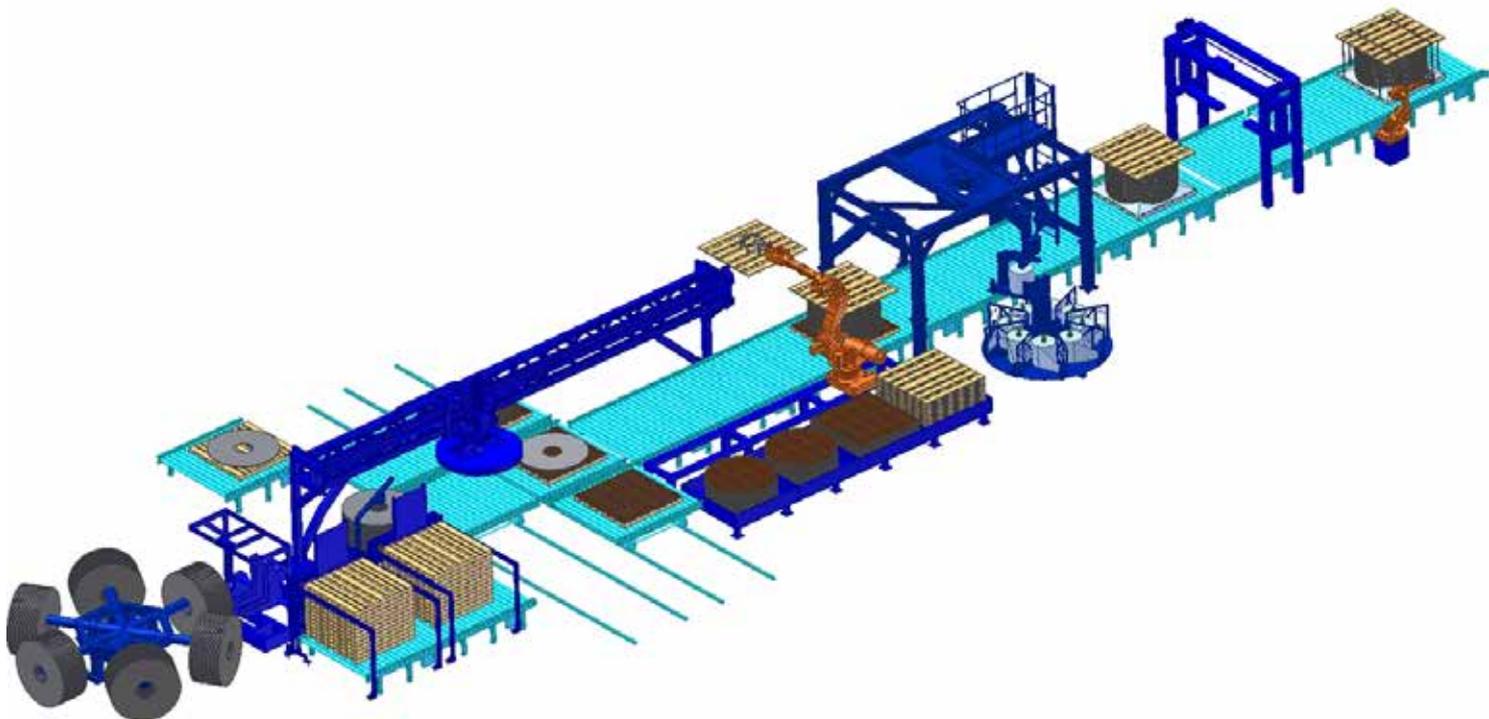
New Sensitive Way of Packing with High Capacity

Pesmel Strip Packing Line, is designed to protect strips against damages, moisture and dirt. The new way of packing is especially developed for sensitive, high value products. Due to the high capacity, one line can serve several slitters.

Pesmel's Technical solution to pack slit strips is based on the latest technology to minimize the handling of unpacked material. The surveys made with the leading manufacturers of slit and rolled products – especially for thin rolled, soft materials like copper and aluminum – has shown that the handling and moving of material during the packing process is causing the product damages mainly.

Flexibility is the keyword. The line is designed to handle different size and shape of coils and palletize the coils in different patterns in same line. The line itself can make and choice packing material required automatically from different pre programmed packing codes (all codes can easily be created or modified by operator).

Adding quality value by PesVision camera inspection system all strips are photographed from both sides. Operator can from safe distance see defects and choice if rejecting is necessary. The pictures can be saved on a hard disk and used as quality securing if reclamations or transport damages are claimed.



Working Procedures



Turnstile at line entry

The **Basic Pesimal Packing line** is a fully automatic line including tracking, level 2 control and PesInterface connected to MIS, as a standard for all functions.

The interface is reading and measuring the strips by PesProfile in the beginning of the line. This makes it possible to handle different strip sizes and customer packing requirements automatically without any set ups. There are several packing choices, the right packing method is received from the tracking information fully automatically. PesWeighing is scaling the strips in the palletizing station. All this information is compared to information received from MIS.

1. Loading Station

Loading is made from turnstile, which can buffer and sort the coils before packing. The coils are brought to turnstile from slitters by Pesimal Logistic system or by some other system.

From turnstile, the coil is picked and upended to a belt conveyor for palletizing. The Loading station is equipped with following main equipments: Turnstile, Up-ending carriage, Belt conveyor.

2. Palletizing Station

Immediately after the coil is upended, palletizing and packing starts. The station is equipped with following main equipment: Palletizing portal, PesVision camera inspection system, Packing Robot, Palletizing carriage with PesWeighing, Pallet magazines and Pallet feeding carriage, Material magazines.

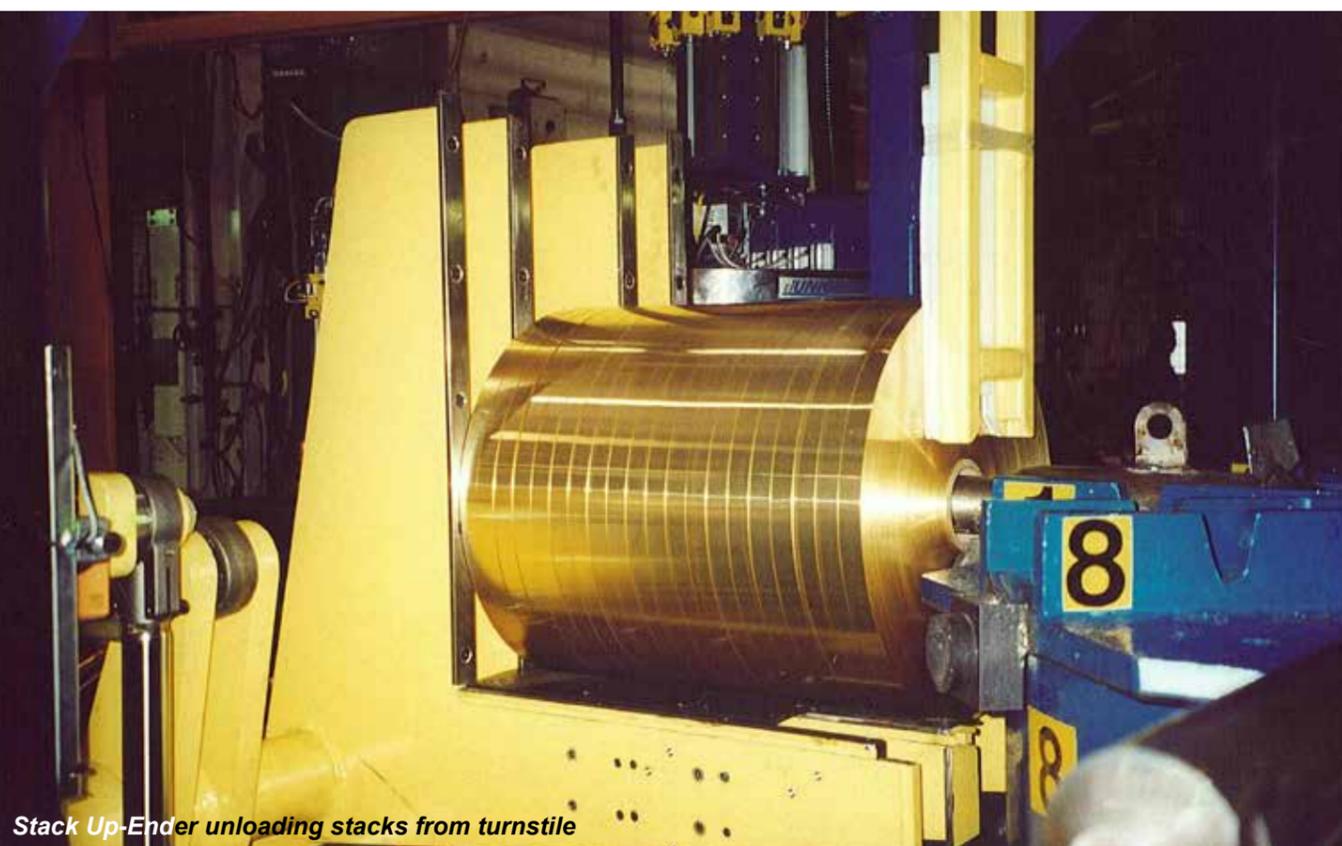
The palletizing portal, equipped with Patented Vacuum Gripper, palletizes the strips onto a pallet according to tracking information. During the palletizing process, packing robot installs paper cardboards between the strips and on to the pallet, under and on top of the strip pile.

PesWeighing is recording the single strips' weights and also pallet cross weights into the tracking information for further label printing.

Palletizing ends the most critical part of the strip handling. The products are protected properly and without any remarkable handling.



Palletizing with turning manipulator and vacuum lifter



Stack Up-ENDER unloading stacks from turnstile



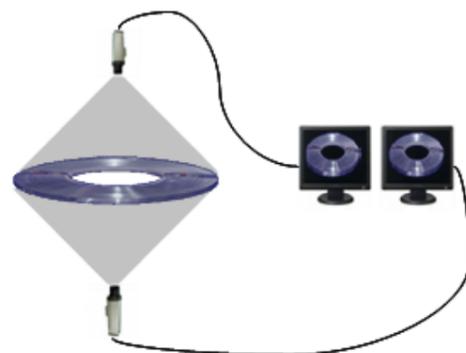
Palletizing with portal robot and vacuum gripper

3. PesVision Quality inspection system

PesVision system is documenting in pictures every slit coil during the movement to the pallet. The operator makes the quality inspection from a safe distance in the operator room. The operator can choose which coils should be scrapped with the portal to scrap pallets or if they should be marked as defect but still be packed on the pallet.

The individual pictures are stored on the computer. PesVision system improves your quality management and customer service cause the pictures can be used as a proof of package quality in case of a reclamation from the customer.

After the desired amount of strips are palletized on to the pallet in the packing station, a top cover is installed by packing robot and the pallet is transported to pallet wrapping.



4. Pallet wrapping station

Pallet wrapping station is equipped with the following equipment: pallet wrapping machine, top sheet applicator, top press/lid lifter, pallet lifter and automatic film roll changer.

Station has flexibility to wrap with different methods specified in the packing codes. In normal procedure, the pallet is lifted off the conveyor, also the top cover is lifted by vacuum.

Wrapping machine wraps the pallet with desired amount of film according to packing code received from tracking information. During the wrapping process the top sheet is pulled over the pallet and wrapped tightly into pallet. This ensures the best possible moisture protection.

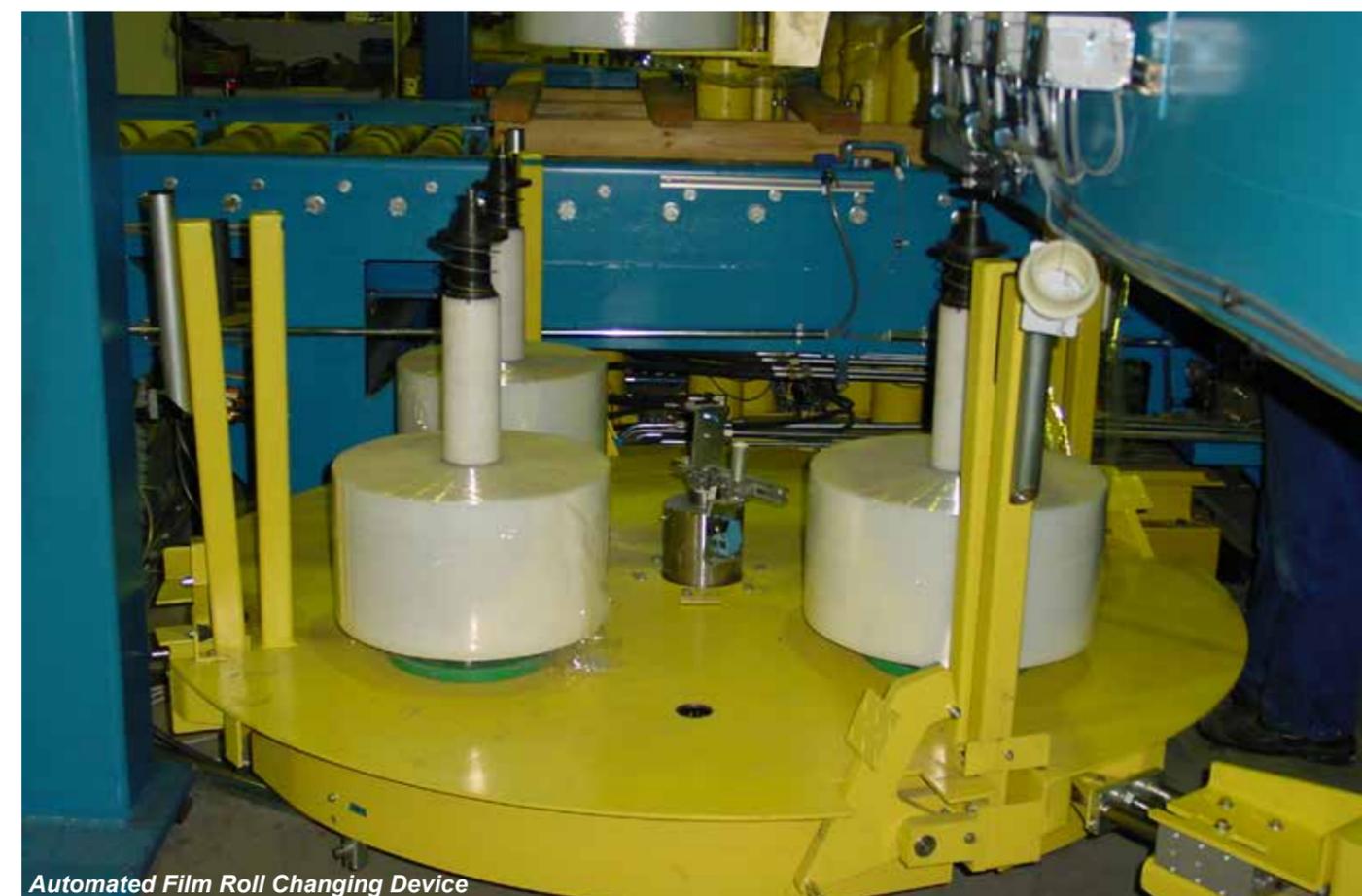
Machine automatically detects when the film roll is finished and makes the roll change automatically. This Automatic Film Roll Changing enables the continuous operation without any stops to production.



Pallet wrapping station



PesVision system is imaging each strip during the gentle vacuum palletizing



Automated Film Roll Changing Device



Pallet Strapping Station

5. Pallet strapping station

After the pallet is wrapped, the top cover is lowered back and the pallet is transported to Pallet Strapping Station. The station is equipped with following main equipment: Strapping Machine and Turntable.

The number and location of the straps are generated automatically from tracking information according to packing code.

6. Automatic Labeling

The pallet package is labeled with ABB robot between Strapping and Unloading Station. Self adhesive labels are printed by the printer one by one and a robot picks and installs the labels with vacuum gripper.



Automatic Labeling

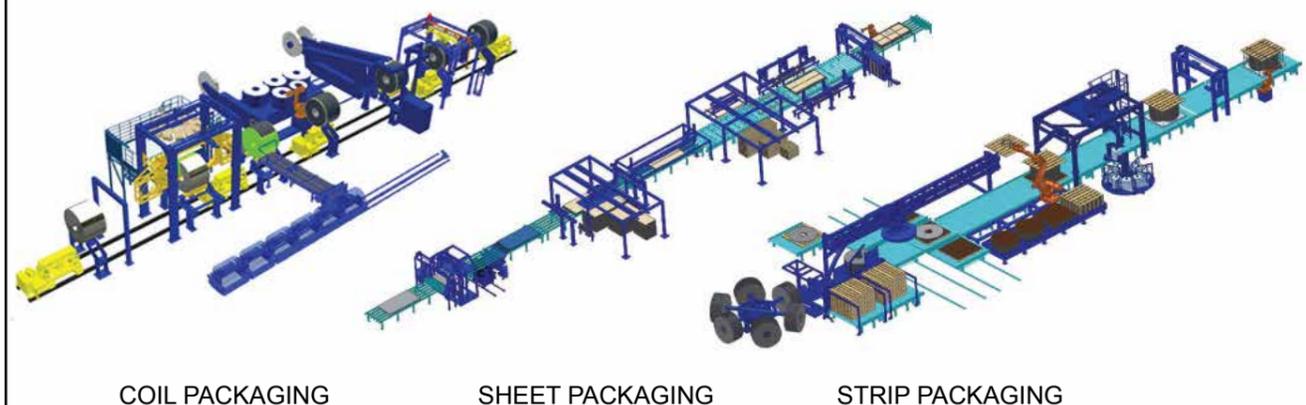
7. Unloading Station

The packed and labeled coil can be picked and transported from the unloading stand by logistic system, crane, forklift or some other method. PesInterface connected to mill information system (MIS) tells that the pallet is ready for pick up.

Pesmel Logistic and Warehousing

From this point, the pallet can be taken into our Logistic and/or Warehousing system (High Bay Storage).

Pesmel has also automatic coil and sheet packing lines available



Technical data

Areas of application

Packaging of cold rolled strips: (galvanized, painted, stainless, aluminium, copper, and other high value products).

Line Features

Drives	Frequency drives
Interfaces	PesInterface, connected to MIS
Tracking	Yes, Strip ID is Tracked by PesTrack
Measuring Station	Automatic Inspection with PesProfile
Weighing	PesWeighing, commercial scale
Quality inspection	PesVision
Buffering, sorting	8 arm turnstile
Loading the line	Up-ending carriage
Palletizing Portal	Fully automatic equipped with Vacuum gripper
Packing robot	ABB Robot with linear motion and gripping tools
Palletizing carriage	Different palletizing patterns
Pallet feeding	Magazines and carriage
Pallet Wrapping	Automatically according to packing code
Film Changer	8 place ARC
Top Sheet	Integrated to pallet wrapping machine
Strapping of Pallets	Fully automatic
Labeling	Automatically by Robot
Transport in Line	By Roller conveyors
Capacity of the line Strips	Up to 240 strips/hour
Pallets	Up to 80 pallets/hour
Electrics and Automation	
Operating	PesMonitoring WinCC system, PesOperator Controls
Control system	Simatic S7
Communication	Wired through
Power feed	Wired through
Motor voltage	To be confirmed

Main Fuse	160 A
Consumption	35 kW/h
Hydraulics	
Pressure	Max. 160 bar
Pneumatics	
Pressure	5 bar minimum working pressure
Air consumption	1000 NI/min
Packing materials	
Pallets	Size to be defined
Bottom Paper	Multilayer cardboard, paper, plastic
Isolation Paper	Solid cardboard, paper, plastic
Top Cover	Wood, plywood, plastic
Wrapping	Stretch film
Top Sheet	Stretch film, Thick film
Strapping	Plastic, Steel
Labeling	Self adhesive labels, copy paper with hot melt glue.

For other materials ask the suitability

Option Machines

- PesID identification system (BCR or RFID)
- PesWireless HMI (PDA type remote for operating)
- Individual labelling (each strip labelled)
- Individual wrapping (through the eye wrapping)
- Pallet manipulator (for big size variation)
- Wood stick installation (extra tool for packing robot)
- Drying bag installation (for high humidity conditions)

Also many other options and specialties are available please contact Your Representative for assistance.

Space Requirements
Length 40m x Width 12m



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