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

The Basic Pesmel 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 Pesmel 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.
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.
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.

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).

Technical data

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

<table>
<thead>
<tr>
<th>Line Features</th>
<th>Frequency drives</th>
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</thead>
<tbody>
<tr>
<td>Drives</td>
<td></td>
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<tr>
<td>Interfaces</td>
<td>PesInterface, connected to MIS</td>
</tr>
<tr>
<td>Tracking</td>
<td>Yes, Strip ID is Tracked by PesTrack</td>
</tr>
<tr>
<td>Measuring Station</td>
<td>Automatic Inspection with PesProfile</td>
</tr>
<tr>
<td>Weighing</td>
<td>PesWeighing, commercial scale</td>
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<tr>
<td>Quality inspection</td>
<td>PesVision</td>
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<tr>
<td>Buffering, sorting</td>
<td>8 arm turnstile</td>
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<tr>
<td>Loading the line</td>
<td>Up-ending carriage</td>
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<tr>
<td>Palletizing Portal</td>
<td>Fully automatic equipped with Vacuum gripper</td>
</tr>
<tr>
<td>Packing robot</td>
<td>ABB Robot with linear motion and gripping tools</td>
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<tr>
<td>Palletizing carriage</td>
<td>Different palletizing patterns</td>
</tr>
<tr>
<td>Pallet feeding</td>
<td>Magazines and carriage</td>
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<tr>
<td>Pallet Wrapping</td>
<td>Automatically according to packing code</td>
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<tr>
<td>Film Changer</td>
<td>8 place ARC</td>
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<td>Top Sheet</td>
<td>Integrated to pallet wrapping machine</td>
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<tr>
<td>Strapping of Pallets</td>
<td>Fully automatic</td>
</tr>
<tr>
<td>Labeling</td>
<td>Automatically by Robot</td>
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<tr>
<td>Transport in Line</td>
<td>By Roller conveyors</td>
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<tr>
<td>Capacity of the line</td>
<td></td>
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<tr>
<td>Strips</td>
<td>Up to 240 strips/hour</td>
</tr>
<tr>
<td>Pallets</td>
<td>Up to 80 pallets/hour</td>
</tr>
</tbody>
</table>

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 kWh

Hydraulics
Pressure Max. 160 bar

Pneumatics
Pressure 5 bar minimum working pressure

Air consumption 1000 Nl/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