sheet packing line

fully automatic sheet packing solutions

Pesmel Sheet Packing Line protects sheets against moisture, dirt and damages. The key equipments in the line are longitudinal Steel Wrappers equipped with Edge Wrapping, especially designed for sheet packing and having excellent protection for storage and transport.

Customized sheet stacks add great value, since we can ship the required quantity directly to clients.

Customizing the package by, for example, smaller size of sheets, can be piled on patterns to be packed on a bigger package, for sensitive materials insert automatically a paper between every sheet.
Adding quality value by camera inspection of the surface where operator can see defects from a safe distance and decide to reject it or not. Pictures can be saved on a hard disk and used as quality assurance in case of dispute.

Working procedures

1 loading station

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.

Measuring sheets at the beginning of the line makes it possible to handle different sizes of sheet and customer packing requirements automatically. Without any set ups, right packing method is automatically received from tracking information. All these information are compared to data received by MIS.

In Steel Wrap, sheets are wrapped without cradle to achieve very tight packages. Protections against mechanical stress are added automatically as required by packing specifications. When required, manual functions can replace some automatic ones.
2 Wrapping station

Pesmel Packing Line starts with a wrapping station, protecting against moisture and dirt. This station is equipped with the following: edge wrapping machine, longitudinal wrapping machine.

Wrapping starts with edge wrapping reinforcing the 4 sides of the trimmed plate stack with thicker film. We aim to get the material exactly where it’s needed, optimizing packing costs.

Immediately after edge wrapping, longitudinal wrapping begins. Ring-type wrapper provides airtight wrapping and offers excellent protection against moisture and dirt. As an option, wrapping machine can be equipped with 2 materials.
3 bottom protection feeding

Mechanical protection starts by feeding the bottom protection under the ready wrapped sheet stack. Station is equipped with following main equipments: bottom protection feeding unit, roll magazine. This 2-4mm thick canal or solid plastic is automatically fed from conveyors with synchronized speed. Correct length is automatically cut according to sheet received from tracking information. As an option, the station can be equipped with movable magazine carrier.

4 top cover installation

Top cover installation is made by manipulator. Correct length combination is installed automatically according to package length. The station is equipped with top cover manipulator.

As an option, front and rear edge protectors can be installed by applicators in the same station; installation is made after the top cover is installed.
5 longitudinal strapping

Automatic longitudinal strapping is made attaching materials and tying up the sheets on stack. This station is equipped with the following: movable longitudinal strapping machine, chain conveyor with integrated strap canals. Amount and location of straps is generated automatically by tracking information according to packing code.

6 side edge protection and longitudinal runner wood feeding

After longitudinal strapping sheet stack is driven to side edge protection station where the longitudinal runner woods are fed and side edge protectors are installed. This station is equipped with the following: runner wood manipulator, stack lifter, side edge protection applicators.

Sheet stack is lifted off from the conveyor and longitudinal runner woods are driven under the stack. Manipulator feeds correct length and combination of woods automatically to conveyor.

Side edge protections are installed according to package length. As an option, the station can be equipped with edge protection formers producing protectors with length given by tracking information.

7 side strapping and runner wood feeding

Side runner woods and straps are added in this automatically. The station is equipped with the following: runner wood feeding system, side strapping machine, runner wood magazine. Number and location of runner woods and straps are generated automatically from tracking information according to packing code. As an option, the station can be equipped with long wood handling system which automatically makes runner woods of the right length according to package width, short pieces are extended automatically by nailing unit to optimize wood consumption.
8 labelling and unloading

Eventually, ready packed sheet stack is labelled by a robot. Pesmel Automatic Labelling finalizes packing operations. Ready packed ad labelled sheets stacks can be picked up and shifted by the unloading conveyor by logistic system, crane, forklift or others. PesInterface connected to the mill information system (MIS) shows that the sheet pack is ready for collection.

pesmel logistic and warehouse

From this point, sheets can be managed also from our logistic and/or warehousing system (high bay storage)
technical data  Areas of application packaging of sheets

line features
drives Frequency drives, servo in wrapping machine; interfaces PesInterface, connected to MIS;
tracking Yes, PesTrack; measuring stations Automatic Inspection by PesProfile; weighting PesWeighting, commercial scale; edge wrapping fully automatic, seaming with heat resistors;
longitudinal wrap fully automatic, adjustable parameters; Bottom protection automatically according to dimension and code; top cover vacuum based handling, fully automatic; longitudinal strap automatic according to packing code; side edge 2 fully automatic applicators, one on each side; runner wood fully automatic, magazine for different lengths; stack lifter hydraulic, integrated to conveyor; lateral strapping fully automatic according to packing code; runner wood feed integrated to strapping machine, 6 place;
magazine labelling ABB robot, self adhesive labels; transport on line by chain and roller conveyors;
capacity up to 40 stacks/hour

electrics and automation
operating PesMonitoring WinCC system and PesOperator; control system Simatic S7;
communication Wired through; power feed wired through; operator control control panel (HMI) outside of fences; motor voltage to be confirmed; main fuse 160 A; consumption 30 Kw/h

hydraulics
pressure Max 160 bar

pneumatics
pressure 5 bar minimum working pressure; air consumption 1400 Nl/min

packing materials
wrapping stretch Film; bottom protection canal plastic, solid plastic, cardboard paper, steel;
top cover plywood, plastic; longitudinal woods wood, plastic; side edge protection steel, plastic, paper;
runner woods wood, plastic; lateral strapping plastic, steel; labelling self adhesive labels, copy paper with hot melt glue. For other materials ask for suitability

option machines
PesID (BCR or RFID), Pes ID / PesVision quality control system, PesVision / PesWireless HMI (PDA type remote for operating) / Robotized piling of sheets / Paper insert between layers / Paper covering equipment before wrapping / Twin head for longitudinal wrapping machine (2 different material at the same time) / Double head machine for high capacities (2 sledges with same material) / Automatic film changing for longitudinal wrapping / Magazine for canal plastic coils (suitable for lines handling frequently different sheets widths) / Lower side edge protection / End edge protection / Whole cradle adding / Integrated short corner protection to lateral strapping / Sawing and nailing unit for using long wood in runner wood feeding / Machine to produce steel edge protection from strip

Space requirements
Width of the fully automatic sheet packing line varies from 15m to 20m.
Length of the line varies from 50m to 100m depending on the pile length, capacity and selected options.

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