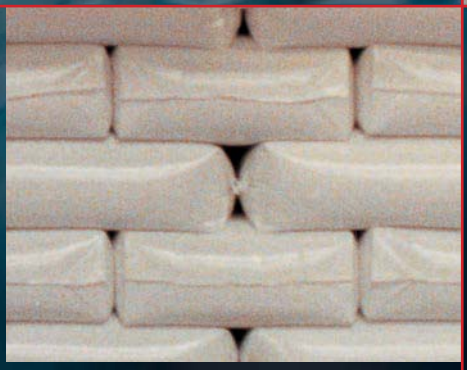
PALLETISERS



Metral

Palletiser M4

4000S

The M4000S palletiser is a high-capacity machine designed for the most demanding applications as regards performance and good layout quality of the finished pallet.

It is equipped to palletise 50, 40, 35, 30 and 25 kg bags or others in accordance with the specific requirements of each application.

Its particular design represents an innovation in the field of bag palletising. The incorporated distribution system enables work to be carried out at low linear speeds, preventing the bags from being deformed, and with a high final output.

The conception of the machine, which is always in line with **Metral®** philosophy, is characterised by its excellent level of both robustness and simplicity.

Changes in format are quickly and simply carried out. The machine can be fitted with automatic regulation systems so that all the elements are positioned by simply selecting the necessary program from the operating terminal.

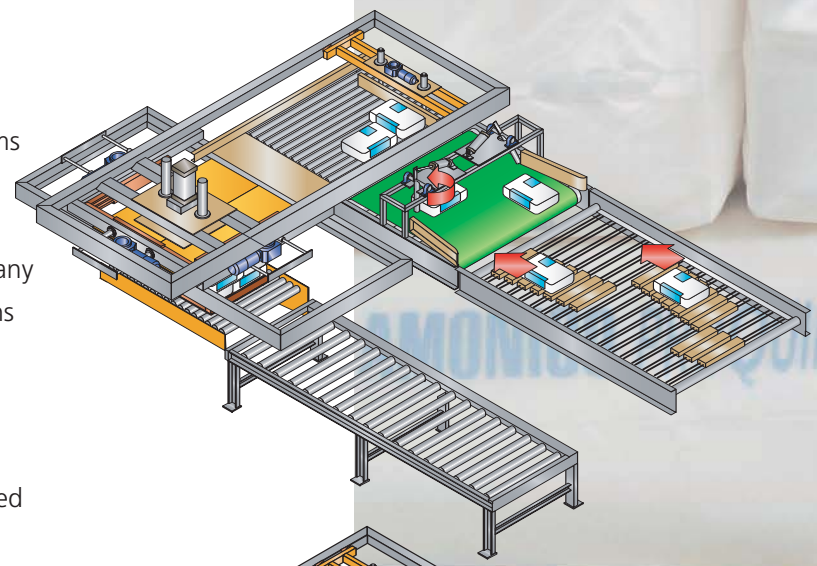
The distribution assembly performs the bag-positioning operation, guiding the bags to each entry line to the main machine body without any displacers or other mechanical means being necessary.

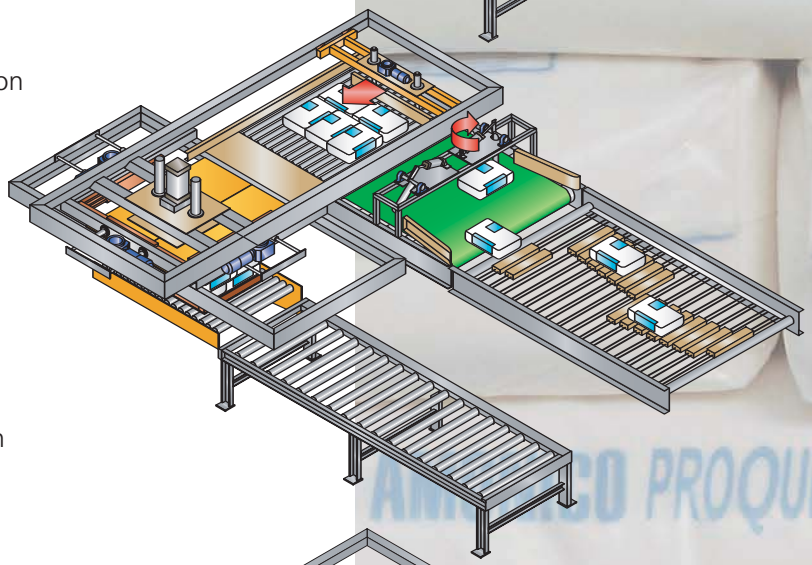
On the next conveyor belt, the bags are rotated or they pass straight through, depending on the associated mosaic layout.

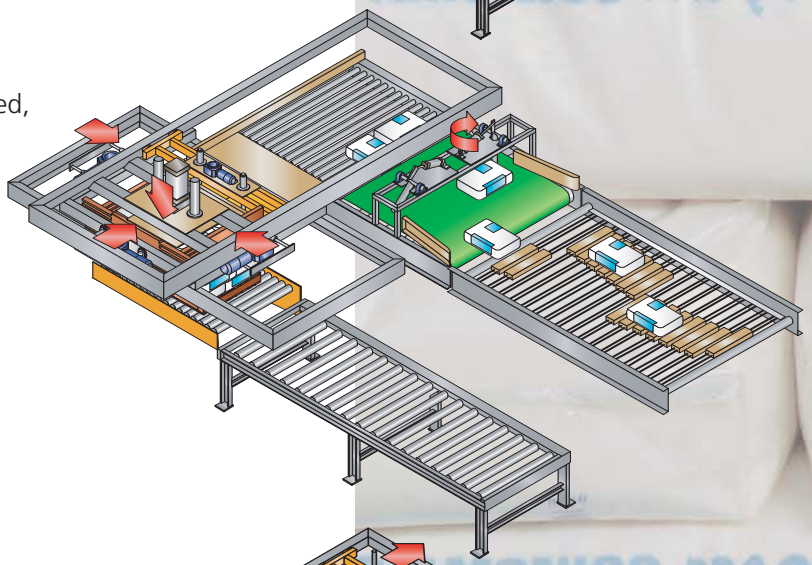
Entrance to the whole layer formation area is carried out step by step, without the bags coming into contact with each other, thus preventing them from being deformed.

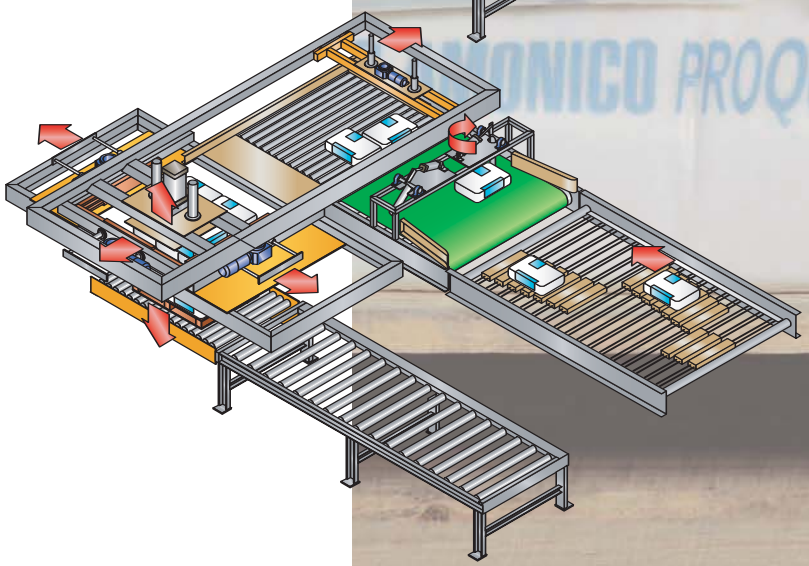
The next stage of the palletising process positions the whole layer of bags on the hatches, using the main pusher, which is also known as the pusher device.

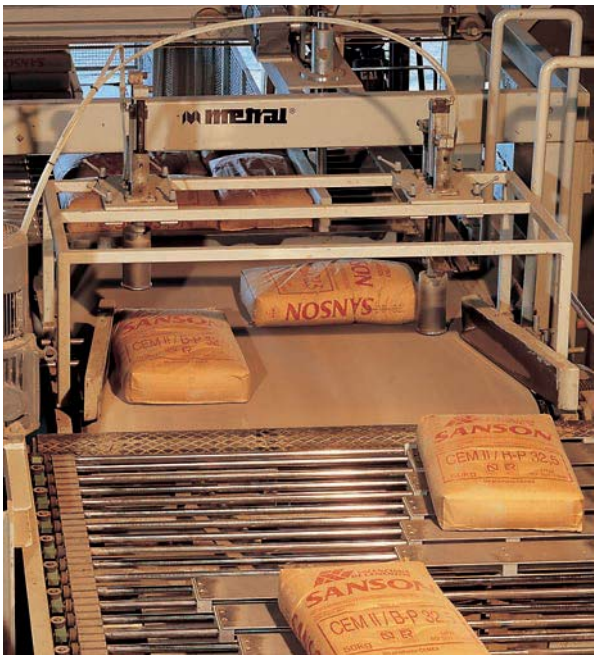
Once the mosaic layer is on the hatches, the side presses are activated, together with the upper layer press, which produces the required geometric shape for the layer thereby achieving adequate bag layout on the pallet.



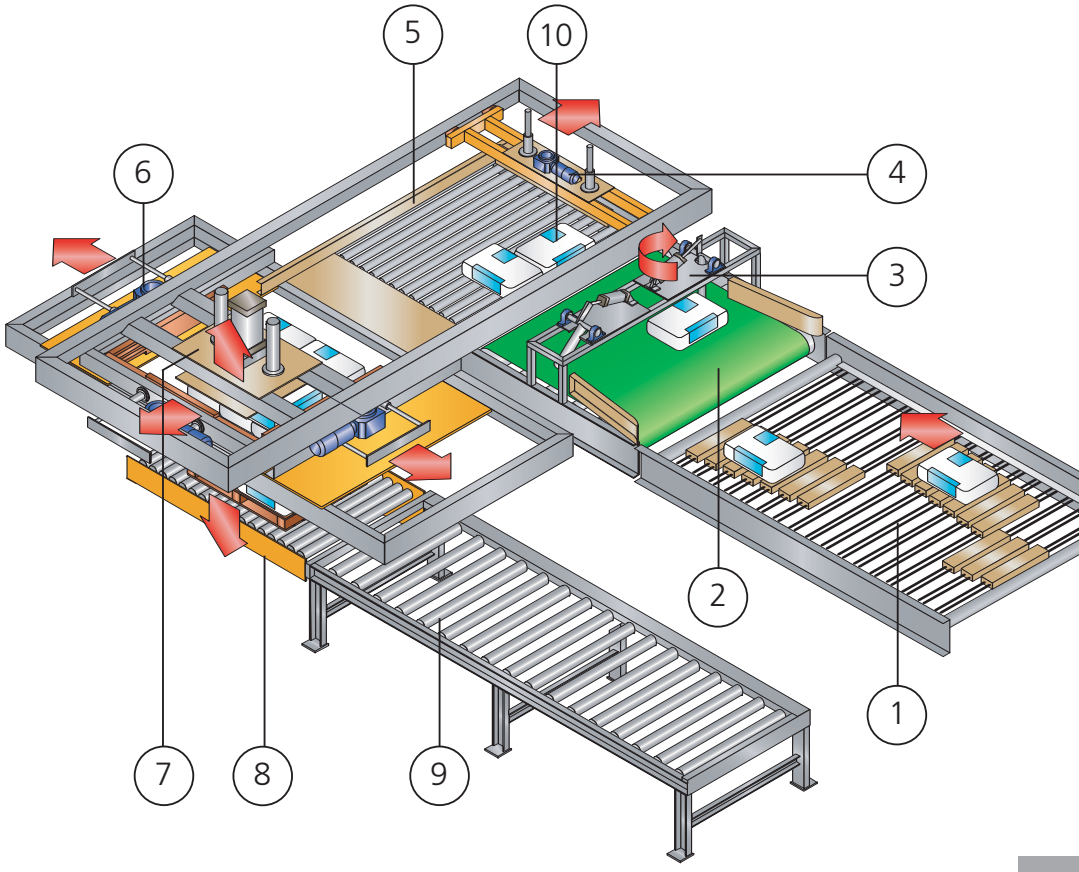








Bag handling is carried out carefully thanks to a steady linear speed throughout the entire machine. In this way the number of breakages is minimised and, at the same time, a compact and perfectly finished pallet is obtained.



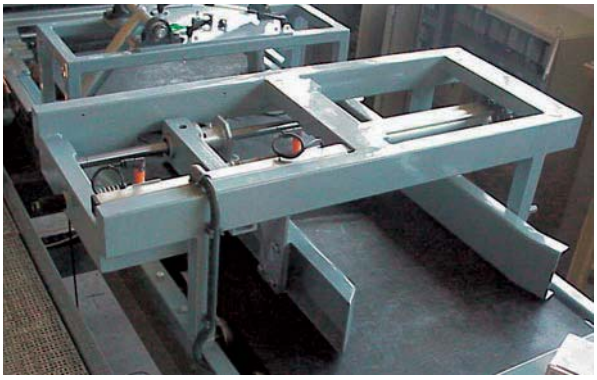
1 - Distribution conveyor
2 - Programmed belt
3 - Swing arm
4 - Pushing device
5 - Front stopper
6 - Side press
7 - Upper press
8 - Lift
9 - Full pallets roller conveyor
10 - Bags

Our machines are equipped with auxiliary devices to carry out the specific functions of each application.

The manufacturing program includes:

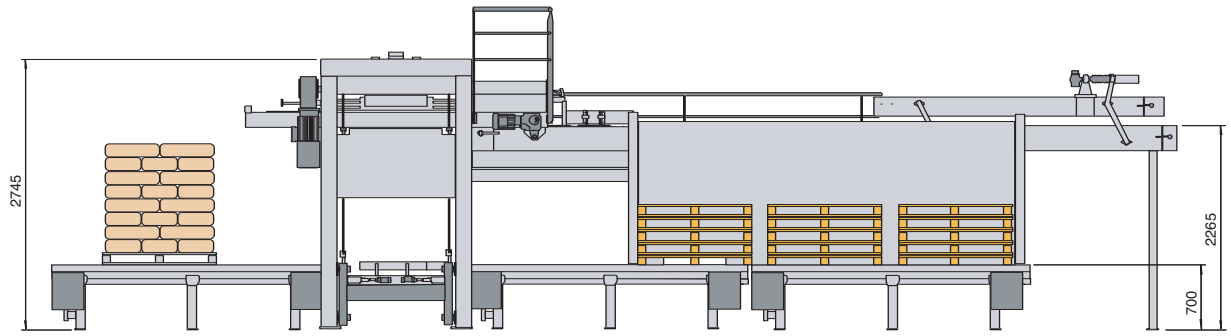
- Packing machines of several types and capacities.
- Bag placers.
- Check-weighers.
- Bag rejection systems.
- Bag destroyers with elements for the separation of the product from the paper.
- Bag accumulation conveyor belts.
- Flattening belts with double belt.
- Flattening belt with vibrator.
- Mechanical or electrical bag shifters.
- Rotation system with cross, gripper or swinging arm.
- Hydraulic pallet presses.
- Various packaging machines for protecting the pallet with plastic.
- Pallet transport and stock systems.
- Machines for automatic positioning of boxes.
- Machines for the positioning of plastic sheets.
- Truck loading conveyors.
- Train loading conveyors.

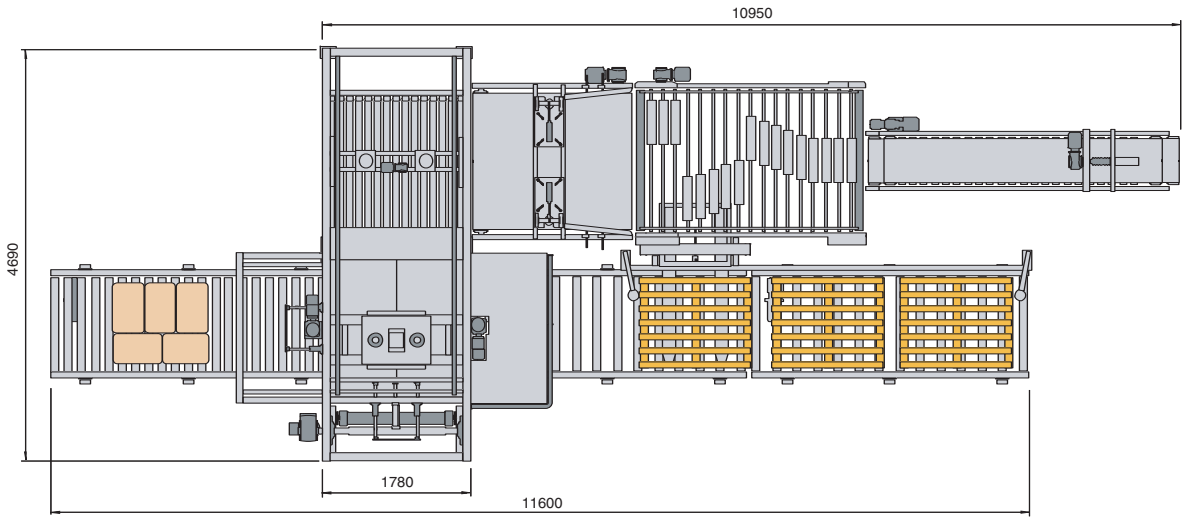
Layers press.



Bags neumatic shifter.

Electric bag shifter, driven by a connecting rod – crank system.

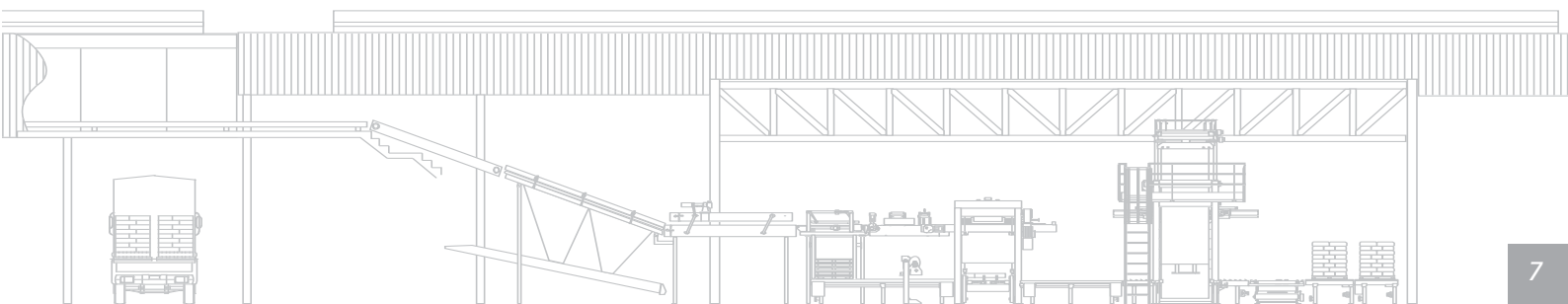




Typical layout of the model M4000S palletiser.

The machine can be configured in various layouts, adapting in each case to the customer's needs.

The dimensions shown are for guidance purposes only and are for a pallet with dimensions 1000 x 1200 and a height of 1400 mm.

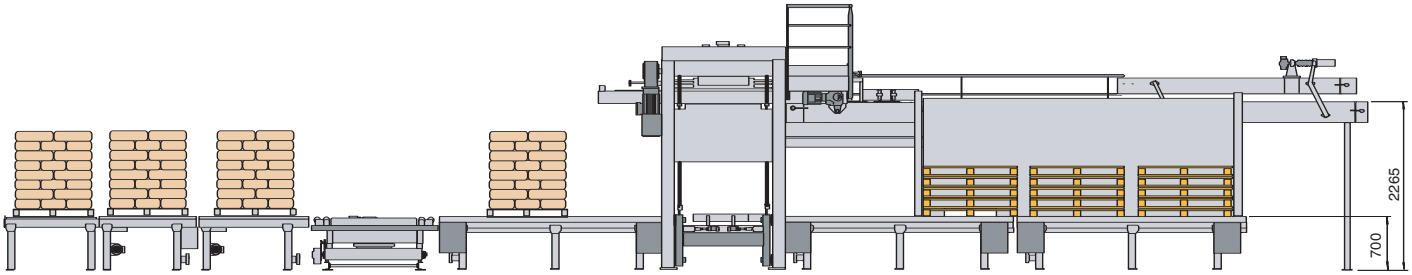


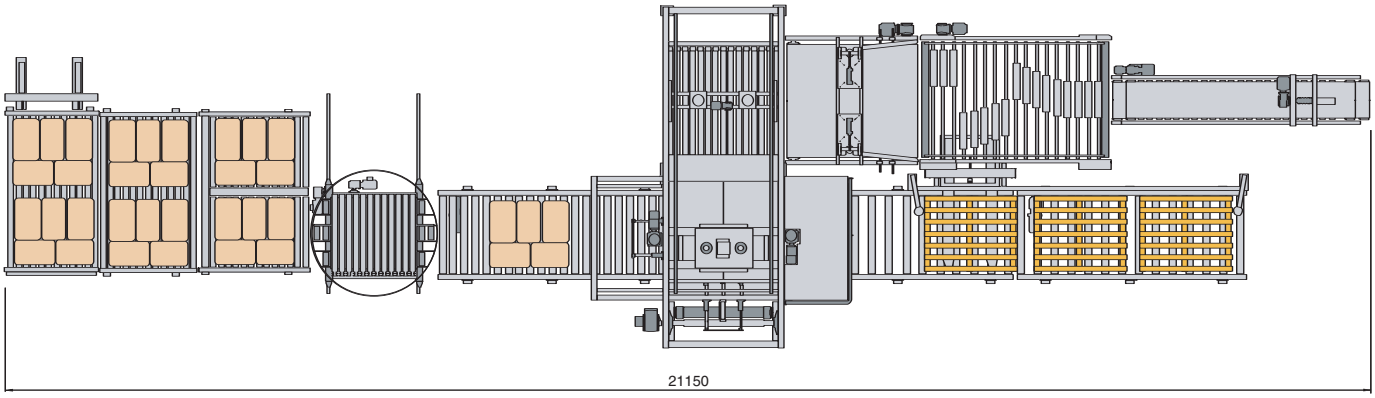
In addition to the palletiser, **Metral®** designs, manufactures and supplies the rest of the machines which are necessary for completing an installation.

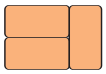
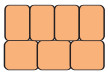
Band conveyors for bag stock prior to the palletising and wrapping machine with stretch film (Stretch Hood).

Stretch hood

A diagram of a typical layout of the M4000S palletiser with 6+2 roller conveyors for the accumulation of loaded pallets.

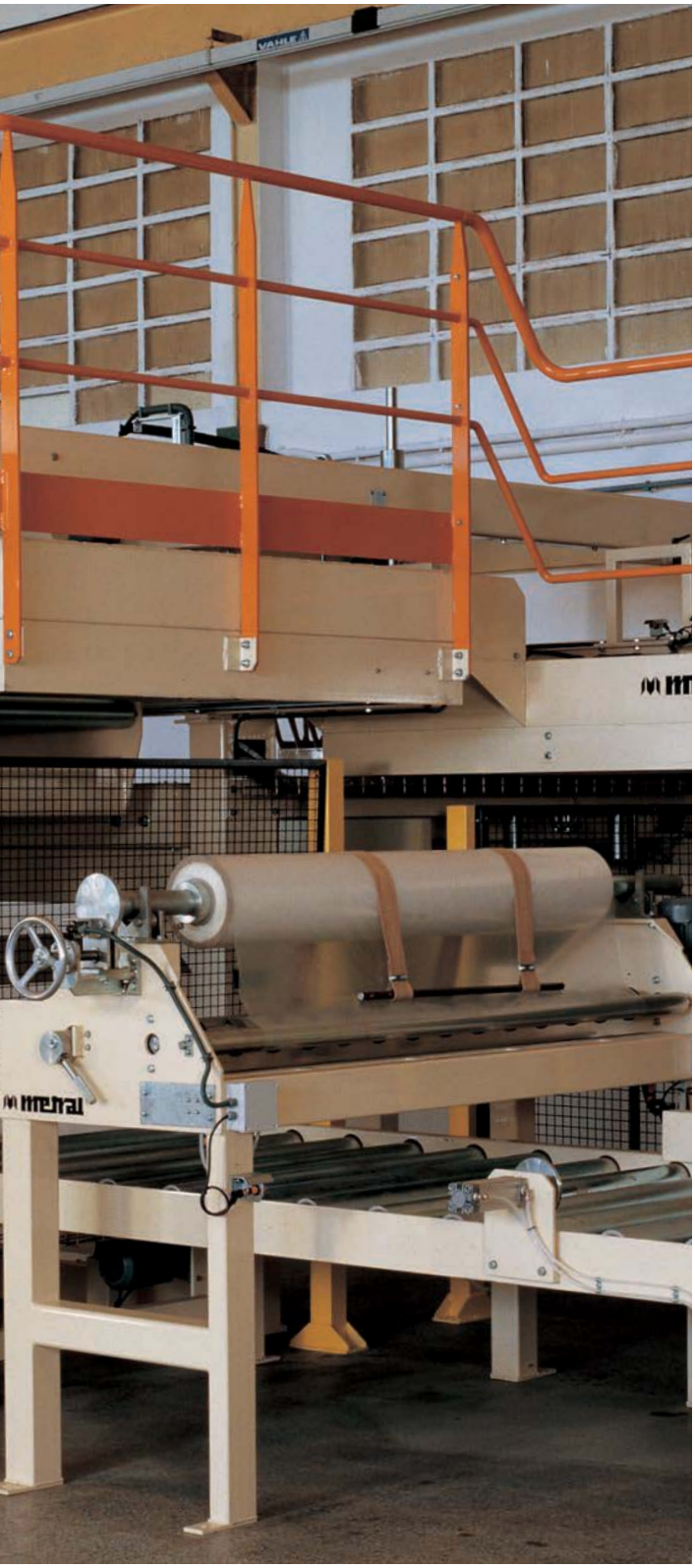




Bags per layer	2	3	4	5	6	7	8
Pallet 1200 x 800							
Pallet 1200 x 1000							
Pallet 1100 x 1000							
Pallet 1100 x 1100							
Production bags/hour	600	800	1200	3000	3400	4000	4000
Pallets/hour 6 layers	25	44	50	100	95	86	83

Palletiser M2

2400S

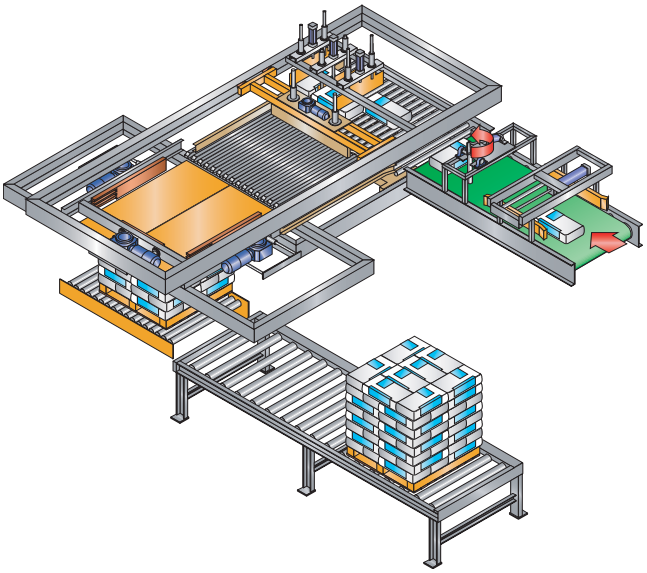


The M2400S palletiser is a standard machine that is suitable for multiple applications covering capacities from 1500 to 3000 bags per hour, depending on the pallet format and the bag characteristics.

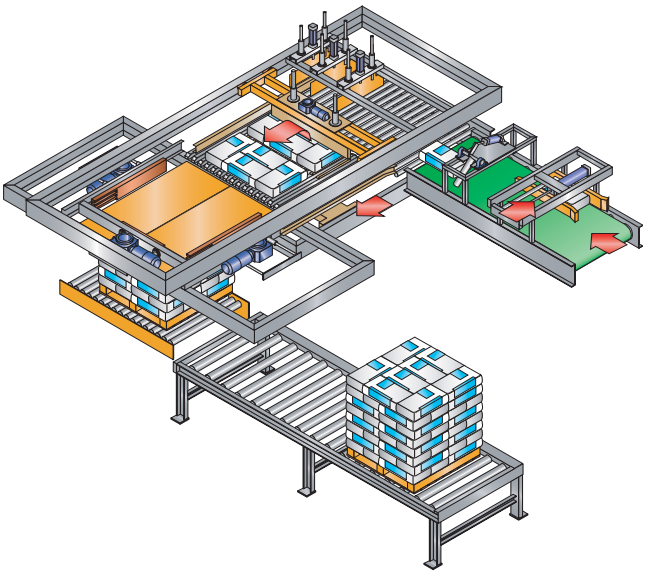
Its modular configuration allows multiple combinations in order to satisfy the needs of production rate and available space requirements in each application.

A personalised study in collaboration with the customer is the normal way of achieving the correct technical solution in each case.

Our customers' needs have been fulfilled thanks to the design and development of modular palletisers, which provide the possibility of adapting to the available space and production requirements.

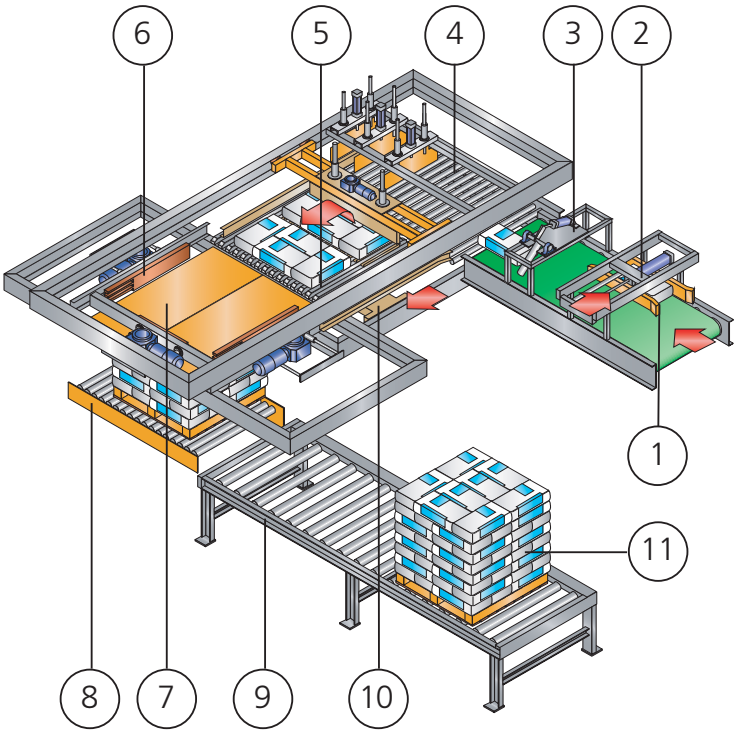


Bags arrive at the palletiser through the programmed belt where they are positioned and inserted into the line formation area.

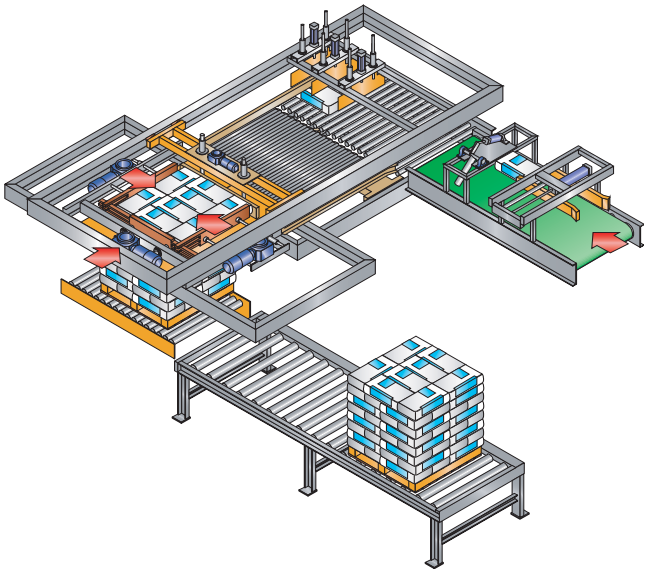


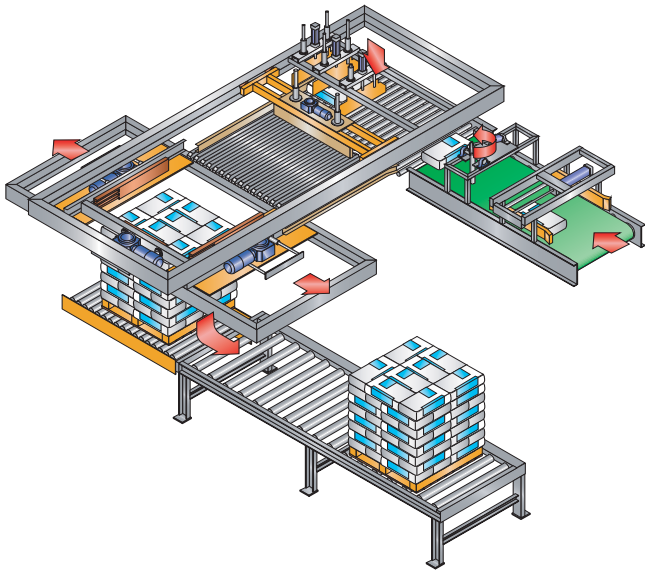
The first pusher, also known as pushing device one, lifts the bags and moves them to the pre-layer area. Once the layer has been completed, main pusher device is activated and slides them over the hatches.

In parallel to this sequence of events, the empty pallet store will have released a pallet that will be transported on the lift to the lower section of the hatches.



1 - Programmed belt
2 - Bags shifter
3 - Swing arm
4 - Upper stoppers
5 - Prelayer
6 - Side press
7 - Hatches
8 - Lift
9 - Full pallets roller conveyor
10 - Pushing device 1
11 - Full pallet

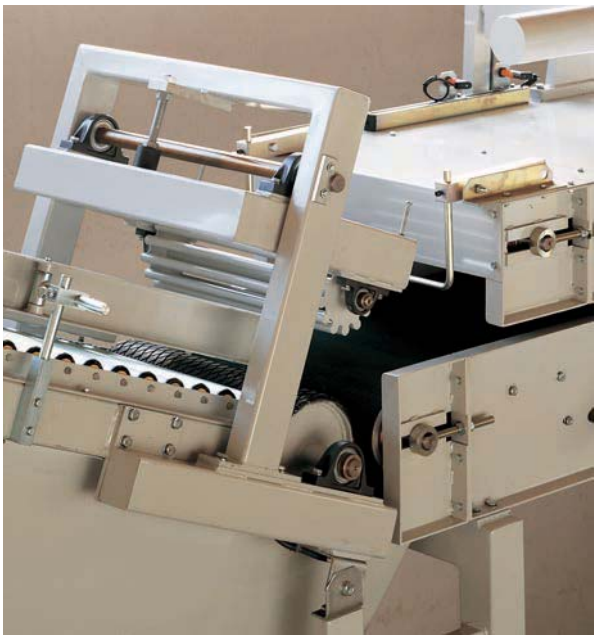




Once the bags have been placed over the hatches, the latter open, in order to deposit the layer onto the pallet. Then it moves down, and the hatches close in preparation to receive a new layer.

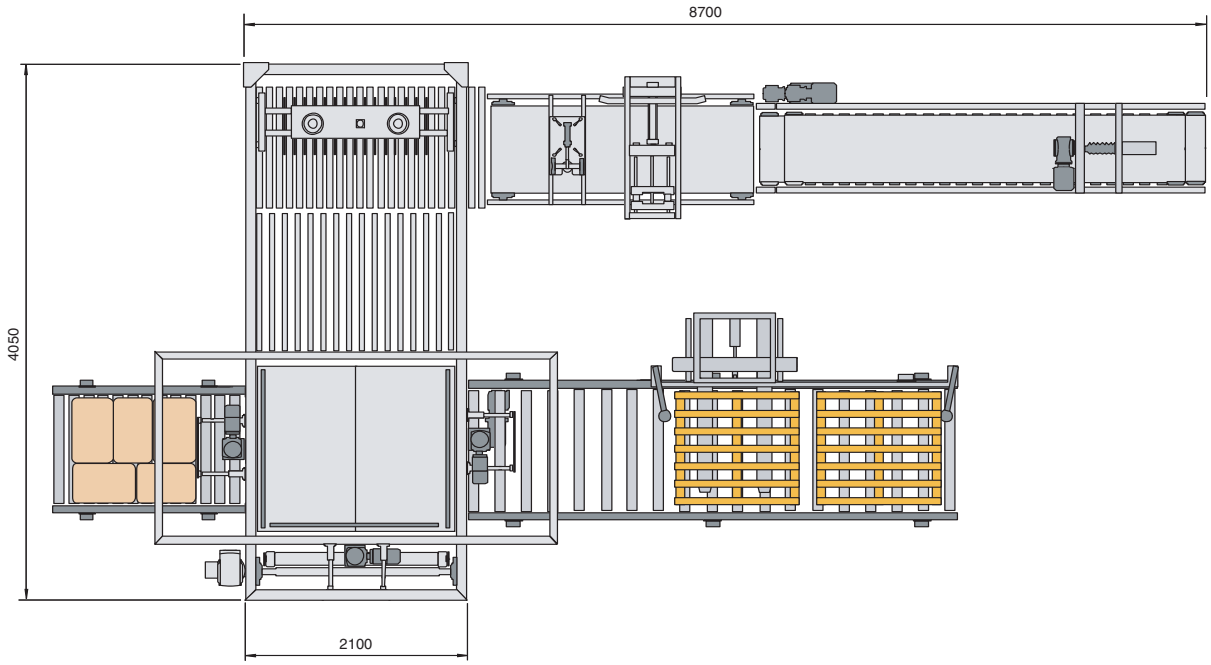
When pallet formation has been completed, it leaves the palletising area via the full pallet roller conveyor.

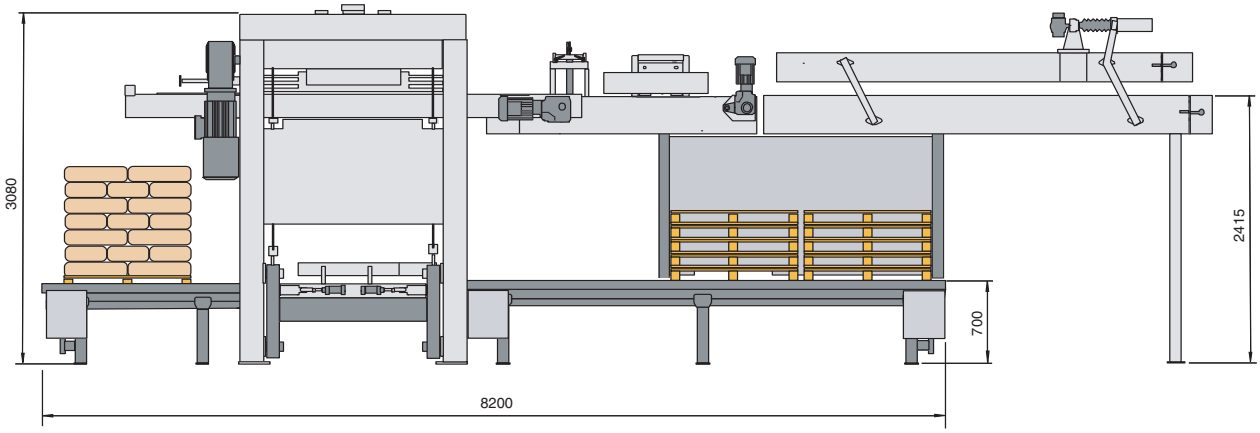
At the same time another empty pallet goes into the lift, beginning a new palletising cycle, without interrupting the entrance of the bags.



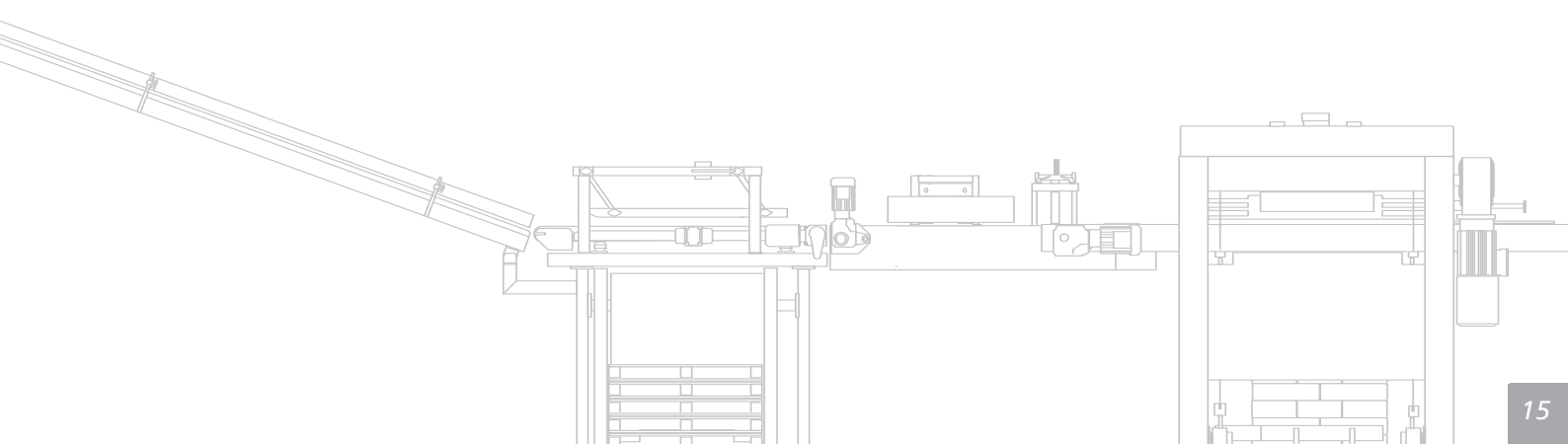
Metral® palletisers are equipped with the most modern and reliable components on the market in order to guarantee the highest quality in the machine.

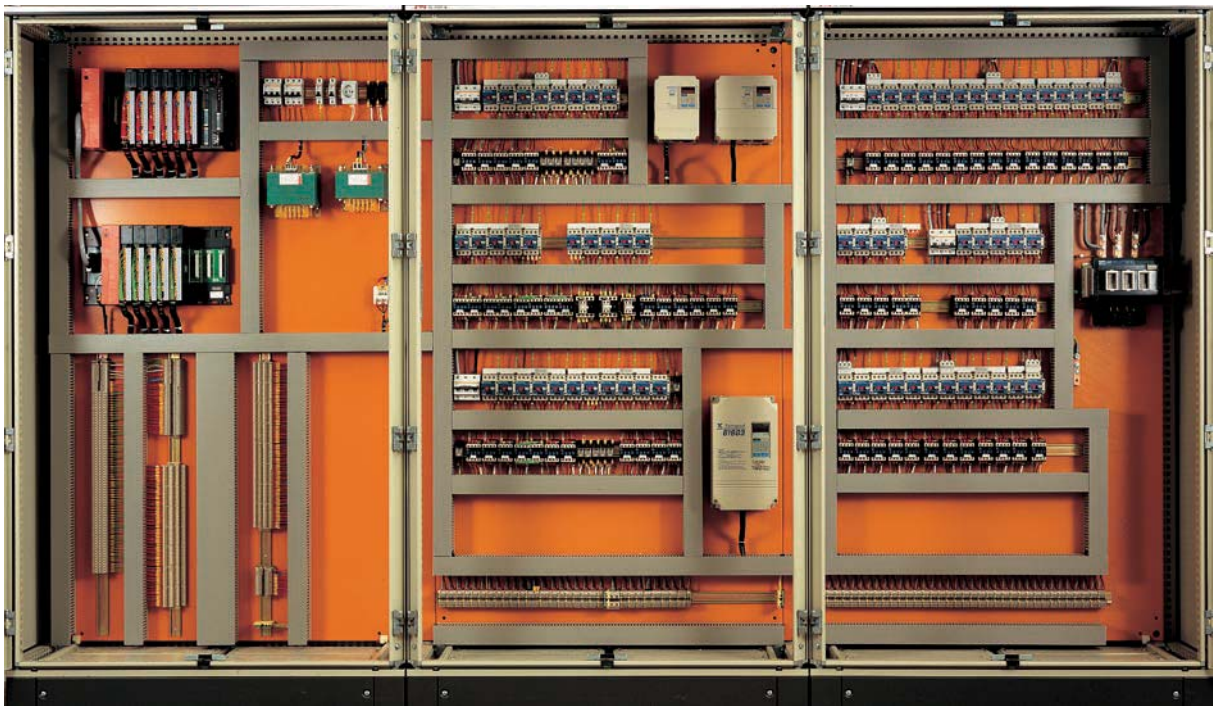
The photos show a pallet being formed, a roller ramp with a dispensing roller and, at the bottom, there is a Stretch wrapping machine with a rotating arm.





A layout of a M2400S palletiser for a pallet having dimensions of 1000 x 1200 and a height of 1400 mm, with space available for incorporating a plastic sheet dispenser above the empty pallet.
The flattening belt is of the vibrator type.





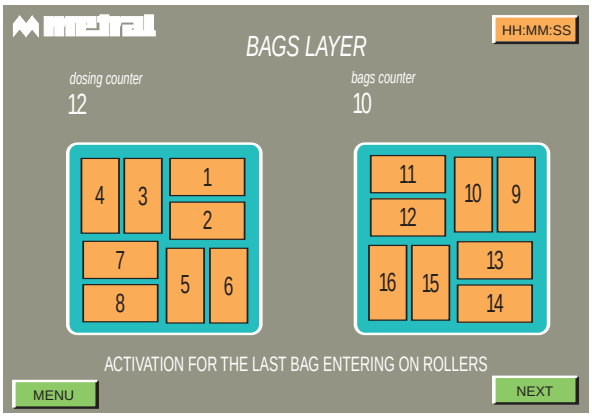
All **Metral®** machines include one or more electric cabinets, PLCs and graphic displays.

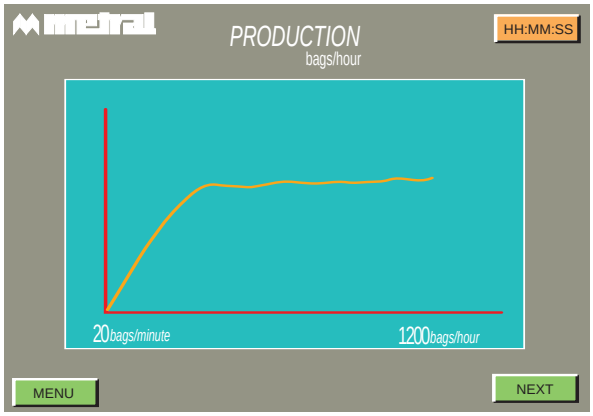
Frequency inverters are employed to achieve fast cyclical movement control that are able to guarantee speed, precision and smoothness of movements.

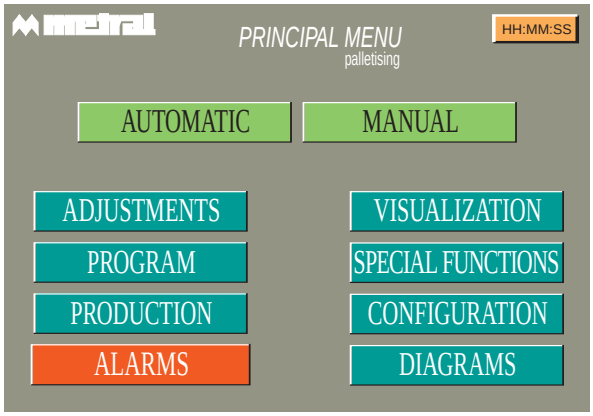
All components are selected with reliability in mind and also to assure efficient customer after-sales service.

All components are tested by our Technical Service prior to being selected as components for installation in a **Metral®** machine.

Weight control belt



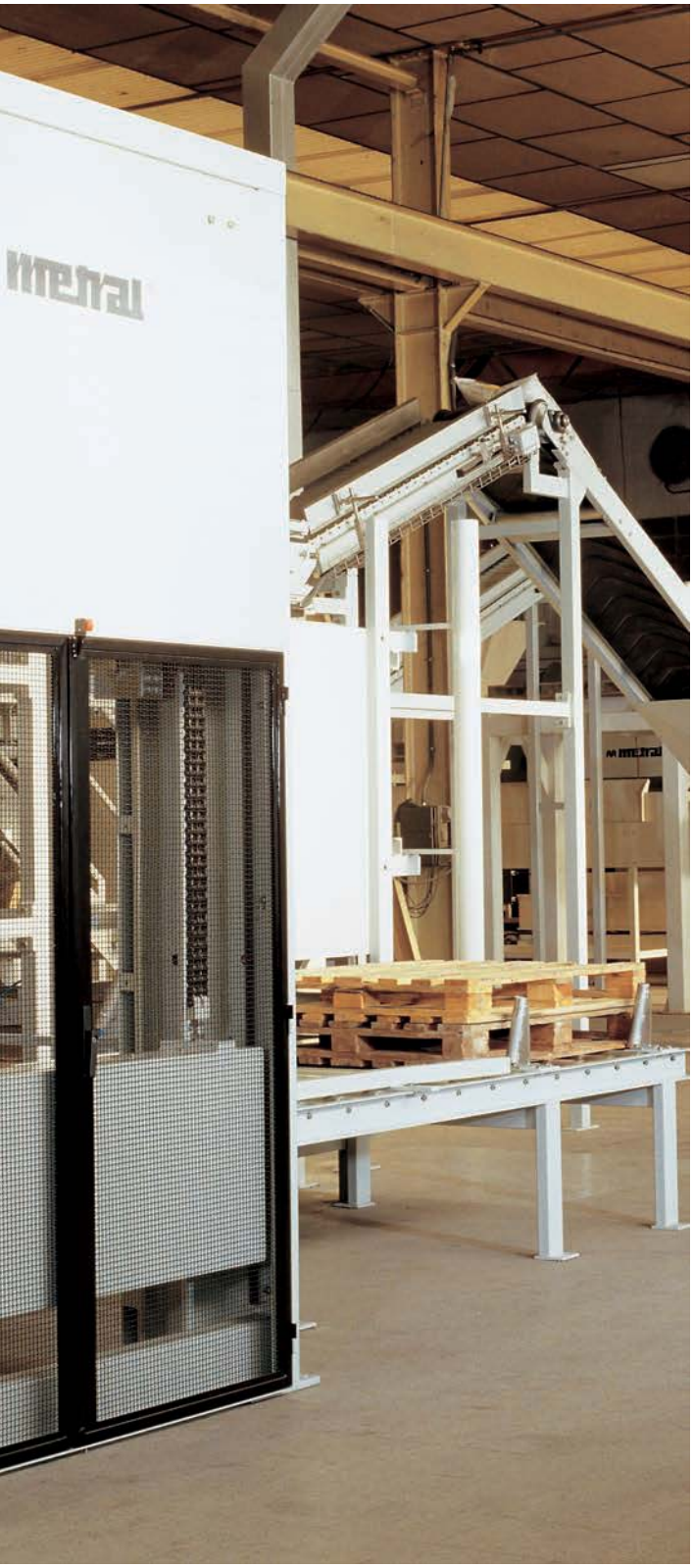




Our machines make use of control and display components, which assist in installation operation. In the event of a fault, the control application is programmed to trigger an alarm and show this on the display. The operating software is open and allows customised versions to be developed for each application.

Palletiser MP1

1200S



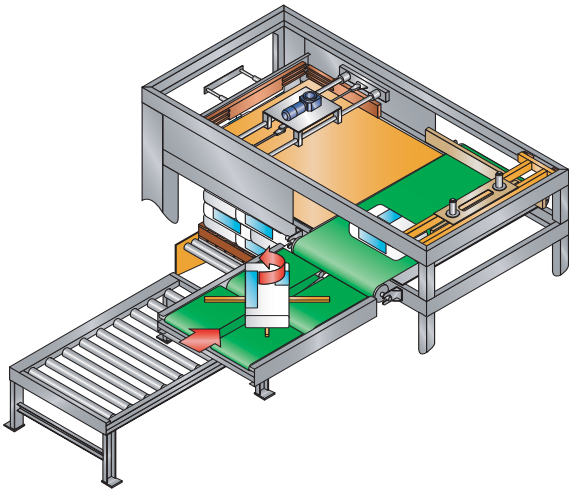
The MP1200S palletiser has been specially designed for handling plastic bags or other difficult-to-handle materials.
The main difference with respect to other models is that the process is carried out using a single hatch.

All our machines have a layer pressing system employing a pressure-limiting device.
This system guarantees a perfect finish in terms of both aesthetics and load stability.

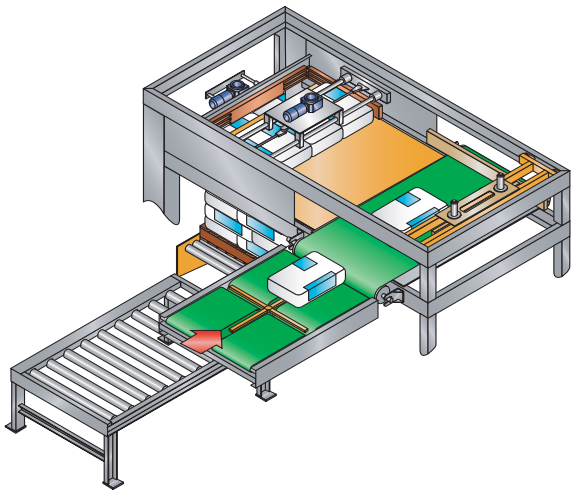
The manufacturing portfolio is completed with auxiliary equipment for bag preparation, marking, gluing and layer to layer pressing etc, in addition to other peripheral equipment, such as the hydraulic pallet press, shrink or stretch wrappers, hood stretchers and complete lines for the formation of shrink wrapped packages without a wooden pallet (pallet-less).

Operation of **Metral®** palletisers is smooth and quiet. Frequency inverters, toothed belts and polyurethane-covered wheels etc, are used to improve performance, reach the highest production levels and, at the same time, reduce maintenance costs to a minimum.

In the model MP1200S, the bags are transported on belts and in this way they do not deform, breakages are avoided and its handling is excellent.

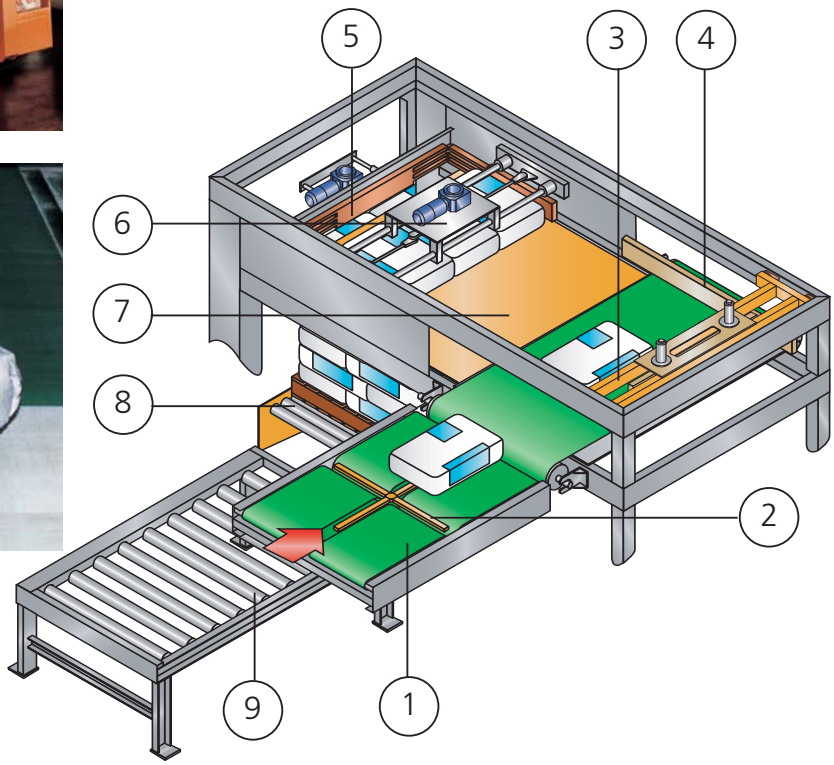


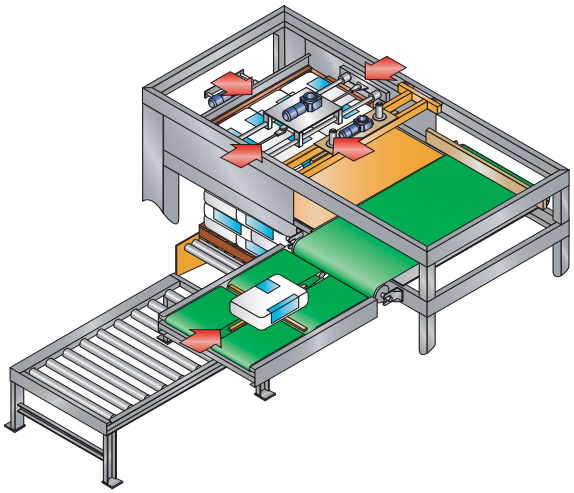
Layer mosaic-forming process makes use of a rotating cross. When the bag is on the cross, it raises and rotates by 90° or 180°.



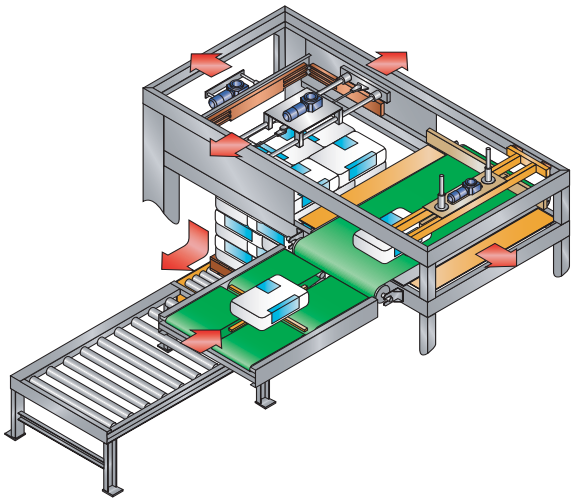
When the cross descends it allows the bag to exit towards the palletiser. The formation of the layer is made step by step without coming into contact with any stopper.

1 - Programmed belt
2 - Rotation cross
3 - Pushing device
4 - Adjustable stopper
5 - Front press
6 - Side press
7 - Hatch
8 - Lift
9 - Pallet exit conveyor





At the next step, the pusher (pushing device) moves the row over the hatch, successively repeating the movements until the layer has been completed.



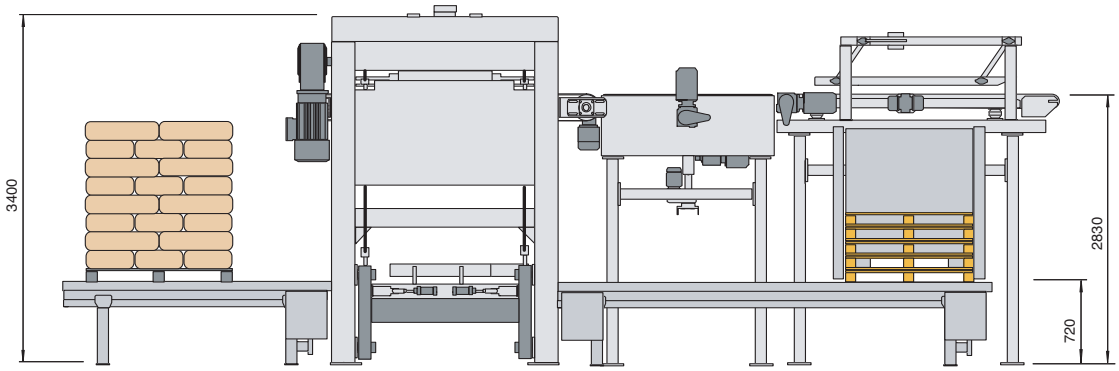
Simultaneously the hatch is opened and the pallet descends, thus completing the full layer formation cycle.

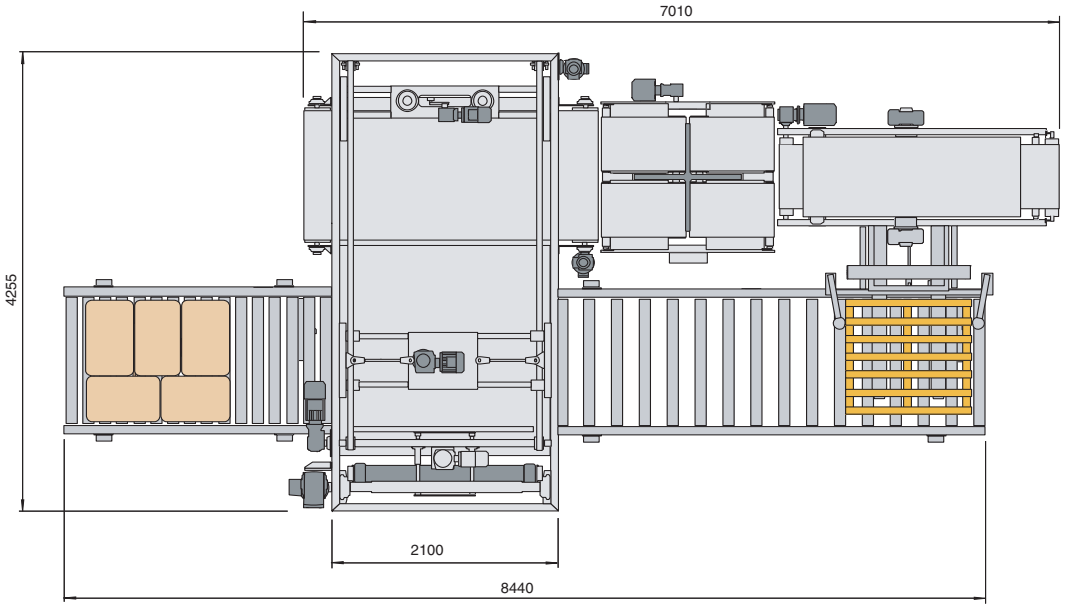
The MP1200S palletiser is a machine with a compact design with a high-level entrance where great care has been taken to ensure the elimination of sharp edges and corners where dust could accumulate.

The lift is counterweight type that, among its other advantages, requires less power to achieve the same force and, in addition, the chains are always tight so periodic adjustments are not necessary.

In addition, there are no mechanisms where any remains of the product could accumulate.

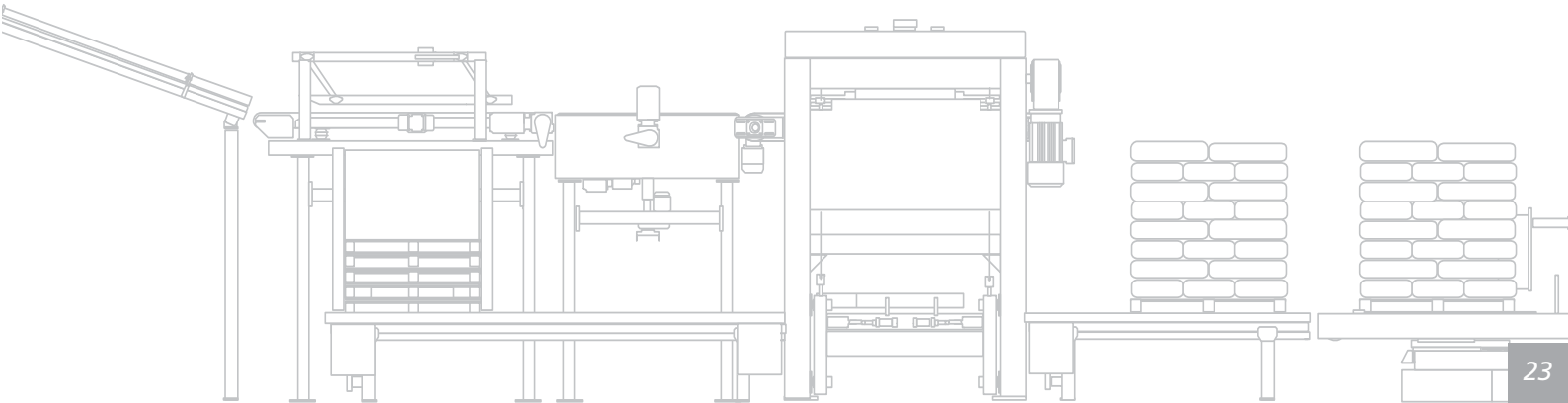
The model MP1200S, with its variable geometry shrink frame and a double-roll shrink wrapping machine, is shown in the photos.





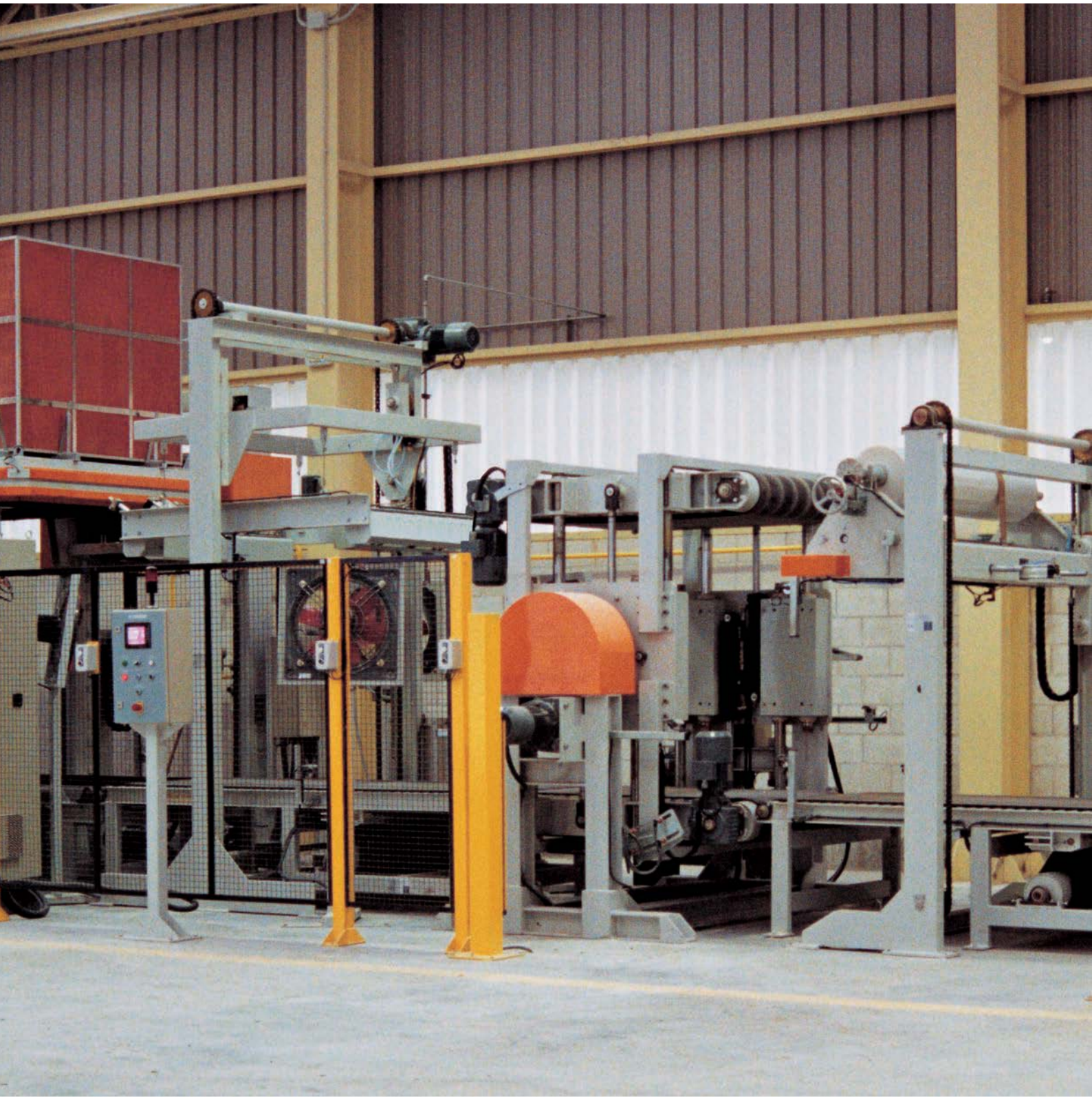
The diagram shows a basic layout of the MP1200S palletiser with a vibrator type flattening belt, rotating cross and side presses controlled by just one central drive mechanism.

General measurements shown are for a 1100 x 1350 pallet, with a height of 1800 mm.



Palletisation line

Palle



t-less

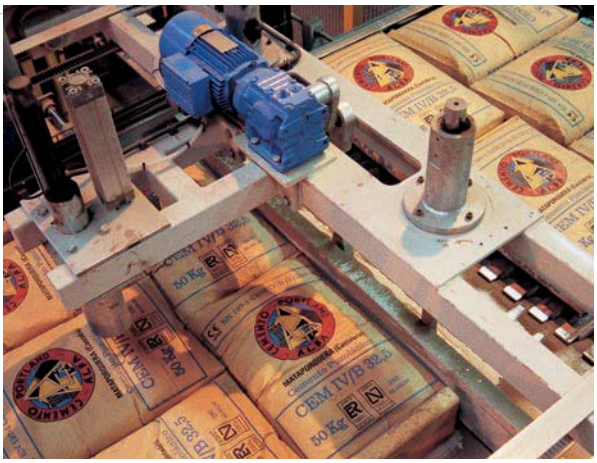
The pallet-less line forms the pallet wrapped in shrinkable plastic, with a lower bag distribution that allows the forks lift to be inserted and to carry out handling operations as if it were a standard pallet.

As wooden pallets are not employed, the associated logistics costs are avoided. In addition, it is wrapped in shrink plastic, so a much higher degree of protection is achieved than when other procedures are used. All this allows the pallets to be stored in outside weather conditions, whilst product preservation is improved.

In the case of cement, ageing is delayed for a minimum of two months when compared to other wrapping methods.

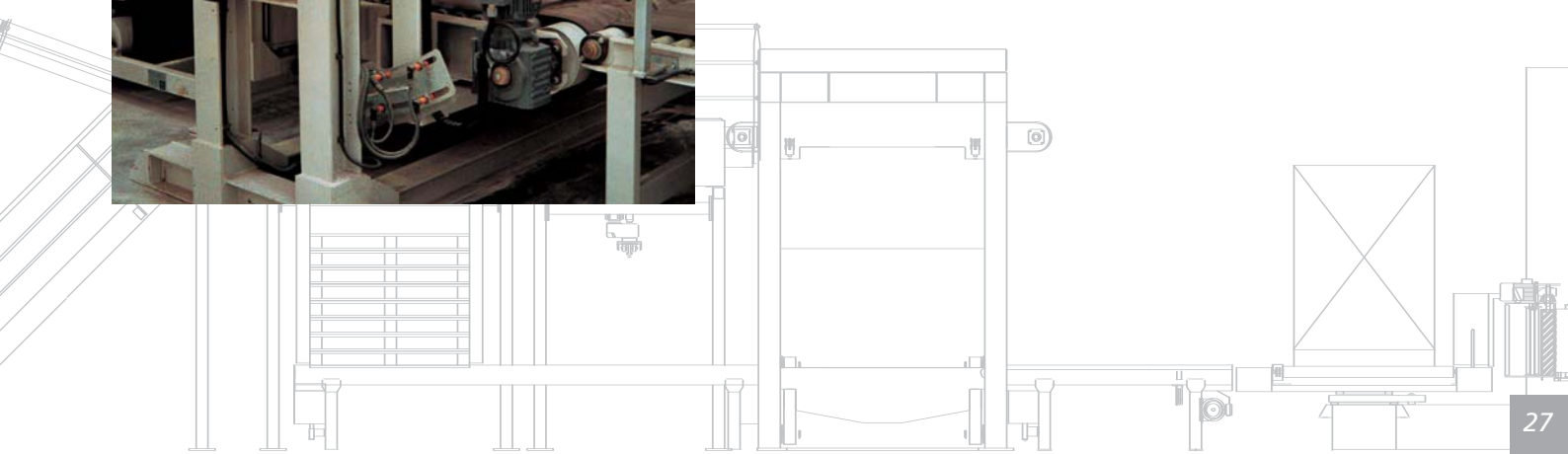
The total cost of the plastic consumed, together with the power for the shrinking operation is less than half the cost of a wooden pallet.

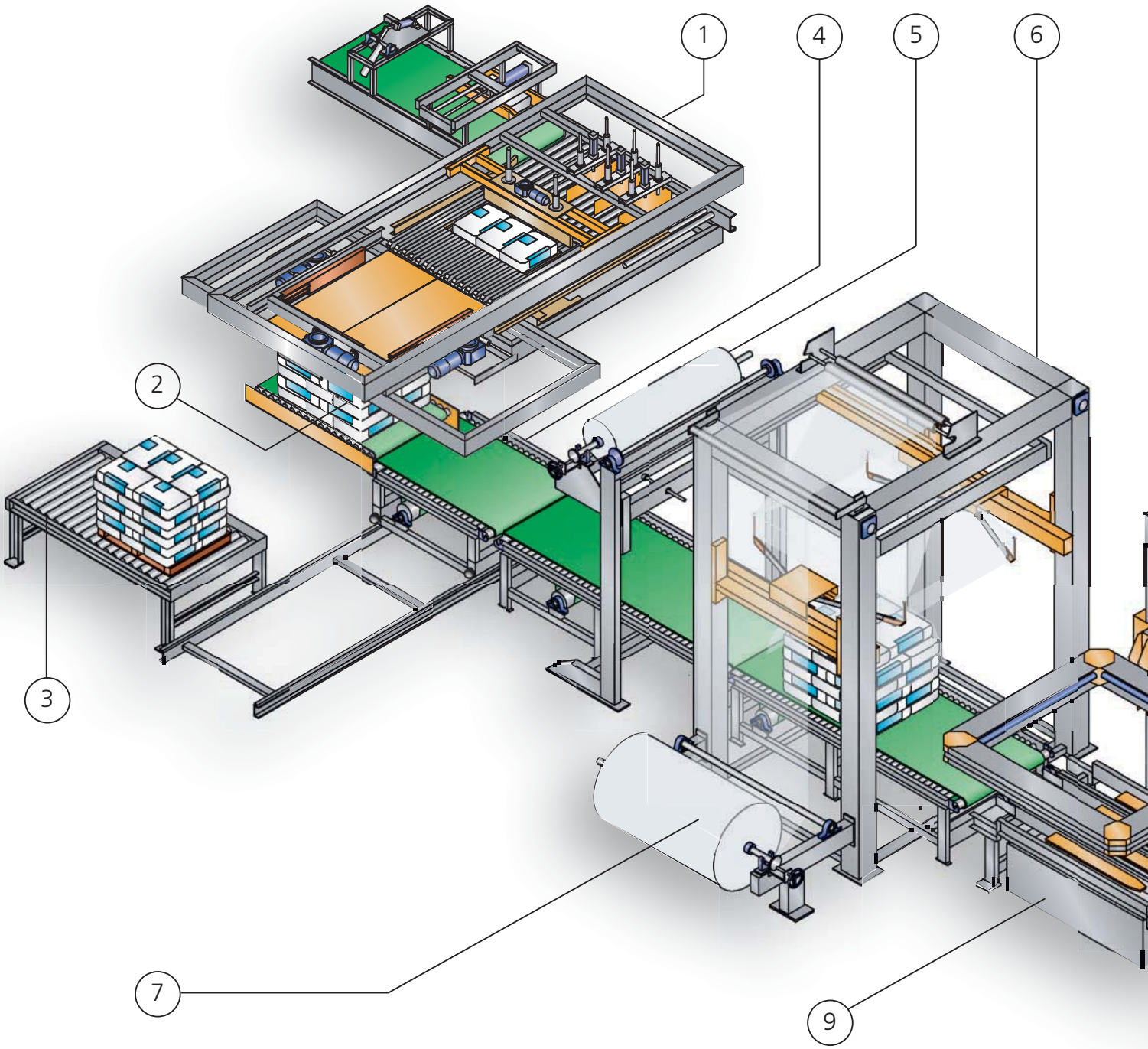
The pallet-less forming procedure is similar to the standard palletiser to which the necessary accessories are added. The various layers are placed on a wide belt with the final one shaped to produce the steps that will later be required to handle the packet with a forklift. This last layer always has fewer bags than the others so as to leave the necessary space for the steps.



Different layer designs can be made from three to eight bags per layer. Special products and layer designs require customised study, as well as the appropriate tests in order to guarantee perfect system operation.

A pallet-less line basically comprises the palletiser, shrink film wrapper, shrink frame, pallet turner and final accumulation. According to the required production rate and the product characteristics, transfer transporters, flat sheet dispensers, wooden pallet exit conveyors, etc. can be added.




1
4
5
6
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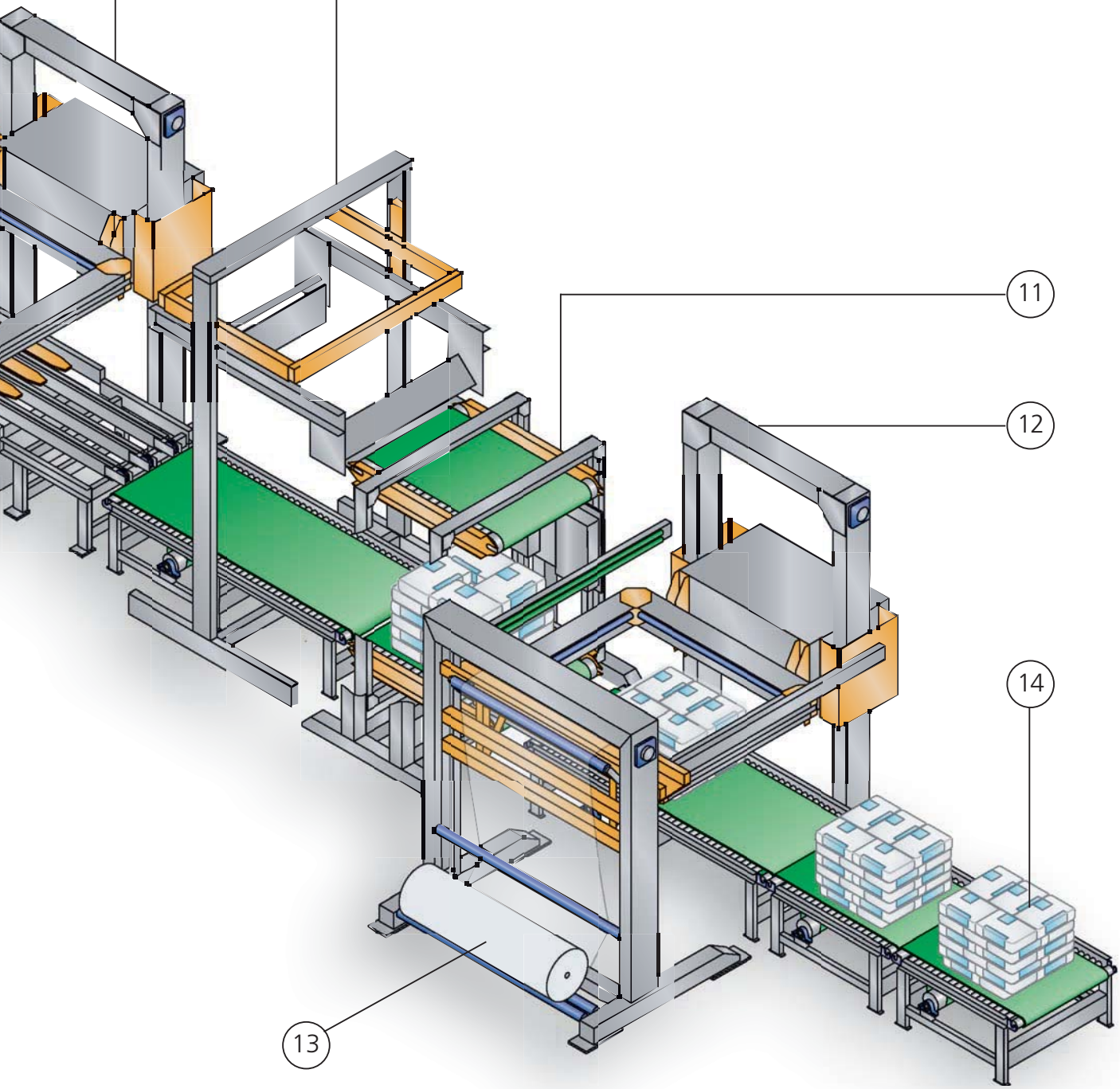
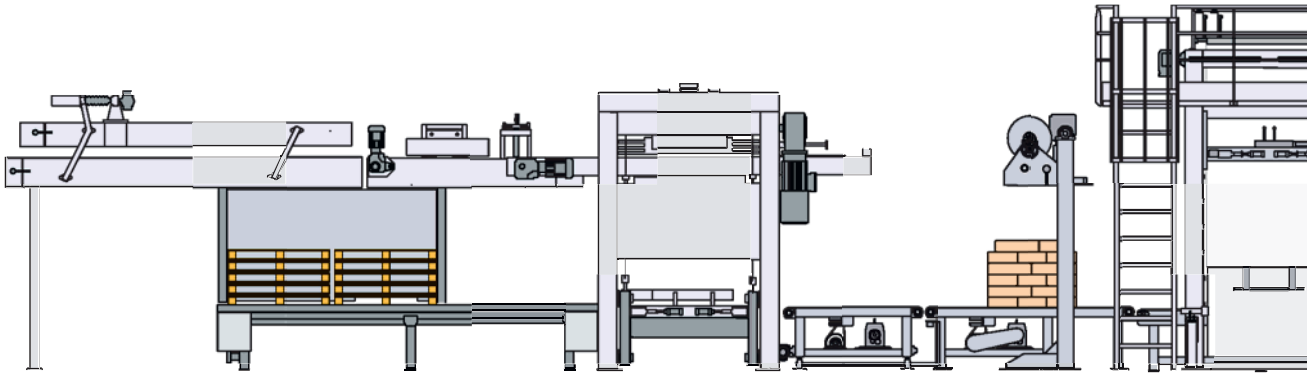
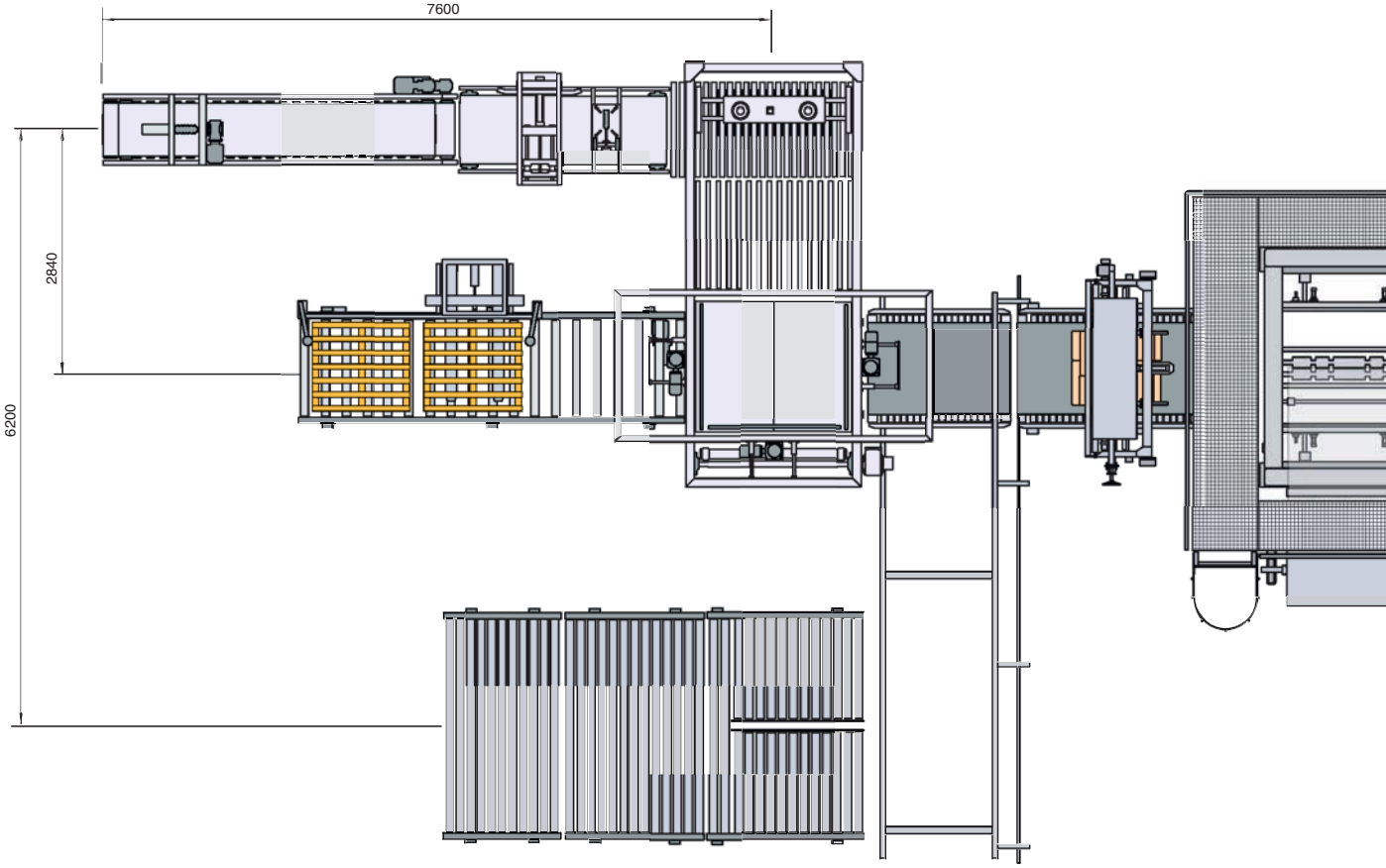
7
9

1 - Palletiser
2 - Full pallet
3 - Wooden pallets stock area
4 - Transfer
5 - Plastic sheet placer
6 - Shrink wrapping machine
7 - Shrink film roll
8 - Shrink frame machine
9 - Shrink frame machine conveyor
10 - Edge adjuster
11 - Pallets overturner
12 - 2nd shirnk frame machine
13 - Top cover
14 - Pallet-less



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2840
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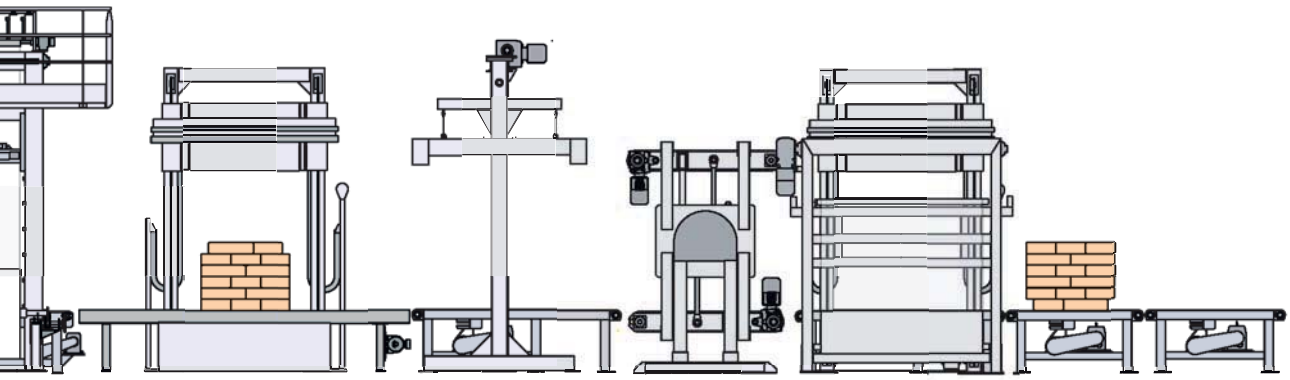
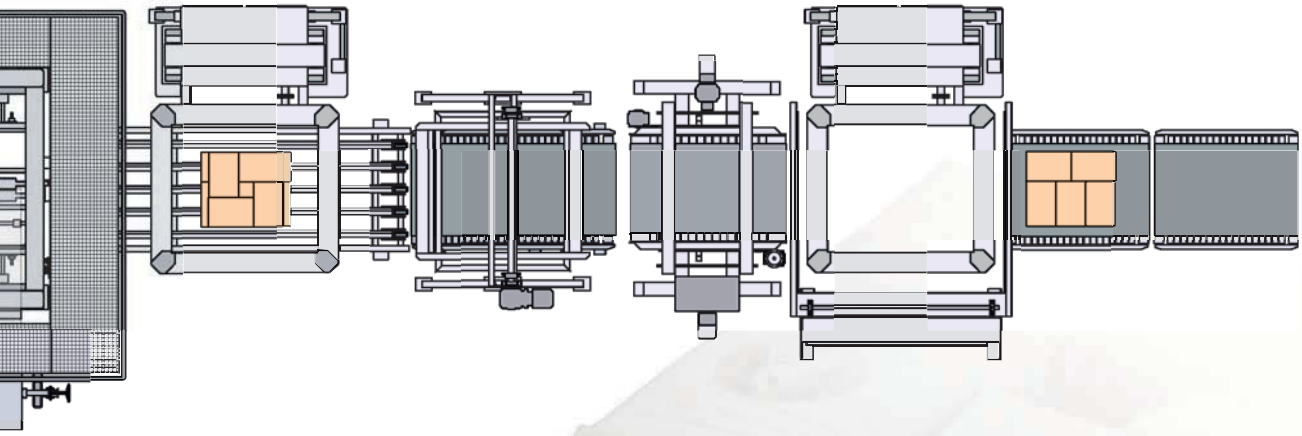




A diagram of a pallet-less line. Configuration and characteristics may change depending on the available space and the required production rate.

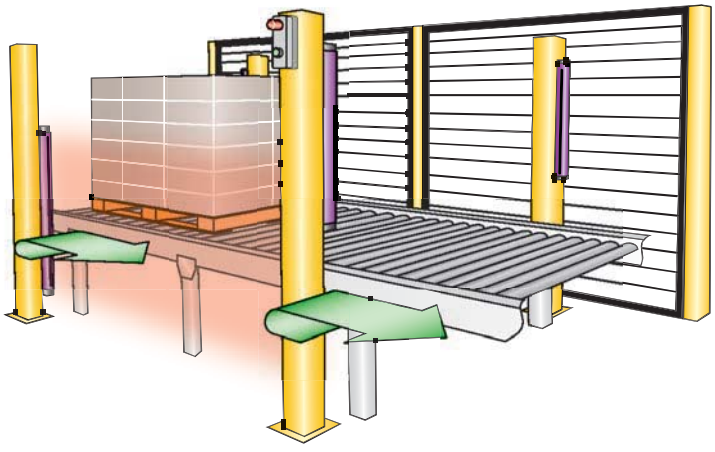
In the example shown, there is a direct wooden pallet exit with two pallets in parallel and a grouping device for the forklift truck with long forks capable of loading two pallets at the same time. This is a common solution, which facilitates the loading of trucks by opening just one side.

Safety is a basic concept in the design and construction of **Metral®** machines. The EU Directive establishes the essential requirements for hygiene and safety related to the safe design and construction of machinery, as well as their correct installation and maintenance. **Metral®** lines comply with all current regulations by complying with all basic technical and specific additional requirements for each machine.

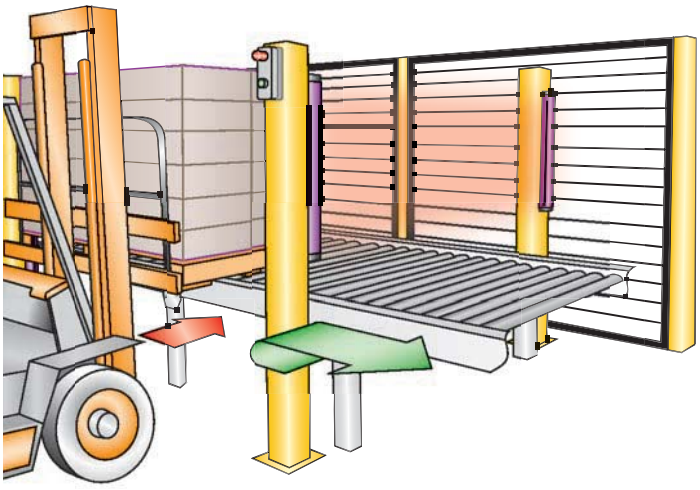
The CE declaration of conformity is included at delivery, together with operating, maintenance and spare-parts manuals.

The diagrams show some of the common components used as safety elements for the protection of the users of our machines. These include officially-approved photoelectric barriers with additional control modules, fences with smaller mesh than the maximum authorized by regulations, doors with safety limit switches and EU certificates of official approval etc.

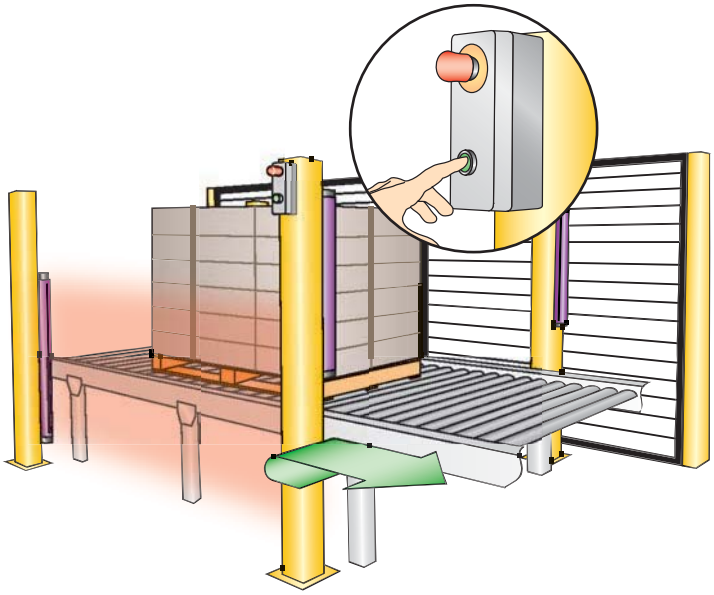
For the design of safety features included in **Metral®** machines, a prior risk assessment is carried out, together with the selection of the safety mechanisms. The strict observance of the procedures defined in operating manuals, together with continuous training of the people using the machines, will guarantee operator safety.



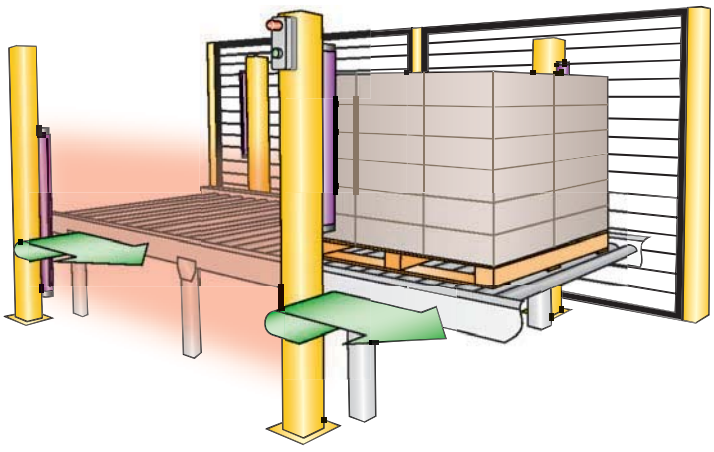
Machine in operation and protection system enabled.



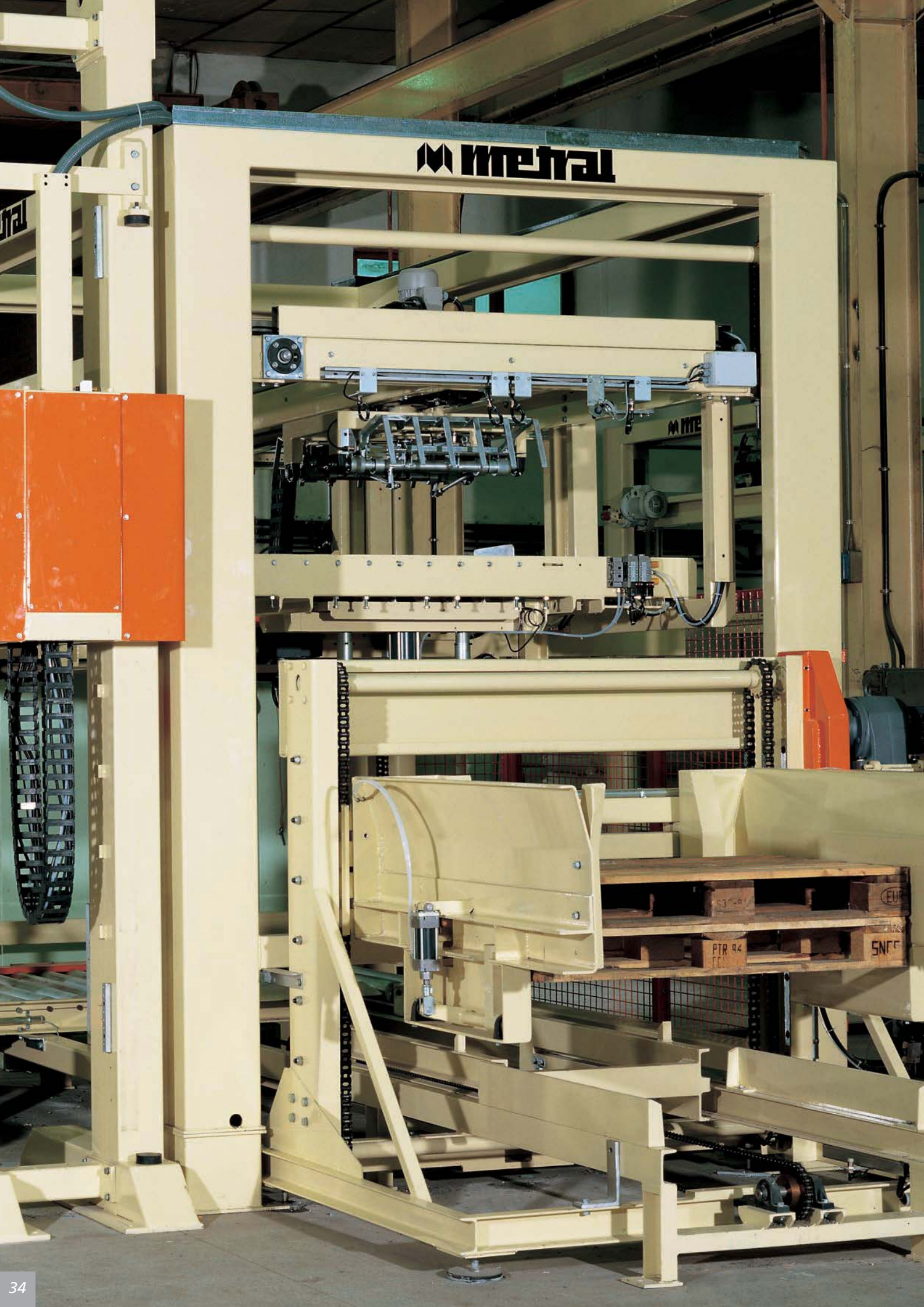
When the front barrier is interrupted, the side barriers are enabled to keep safety.



Once the pallet is entered or removed a manual machine reset is performed.



Activation of the front barrier and machine operation.

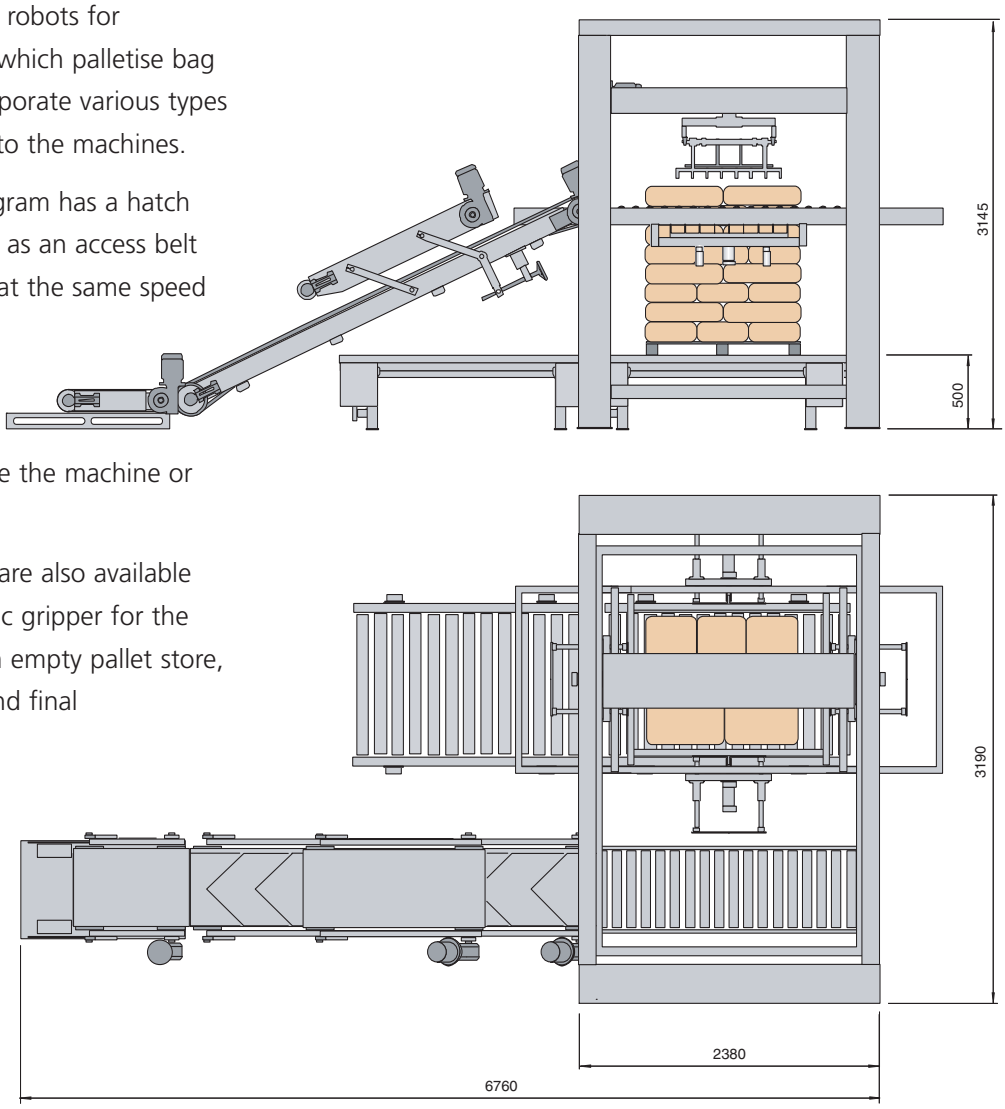

metal

Metral® has various types of robots for low-production applications which palletise bag by bag. It is possible to incorporate various types of gripper or suction pads into the machines.

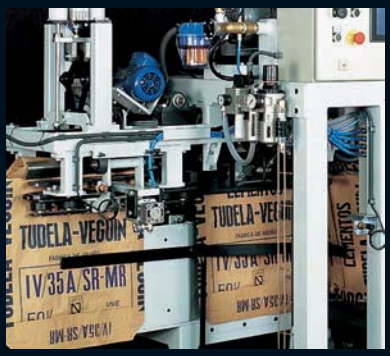
The model shown in the diagram has a hatch for forming the layer, as well as an access belt conveyor, which is operated at the same speed as the pallet formation.

For smaller spaces, a vertical bag lift can be incorporated which is installed either inside the machine or on one side.

Conventional robot versions are also available which incorporate the specific gripper for the application, together with an empty pallet store, rollers for pallet formation and final accumulation.







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