



FITECO

Filling Technology

**CHEMICALS PRODUCTS
PACKAGING LINE PROJECT**



Products analysis

- Bottles self made
- Original product characteristic
- Final product properties

Technology choice

- Filling material composing
- Filling technology choice

Project study



- Analysis data provided
- Machines project choice
- Safety reference regulations
- Proposal validation

Project technical implementation

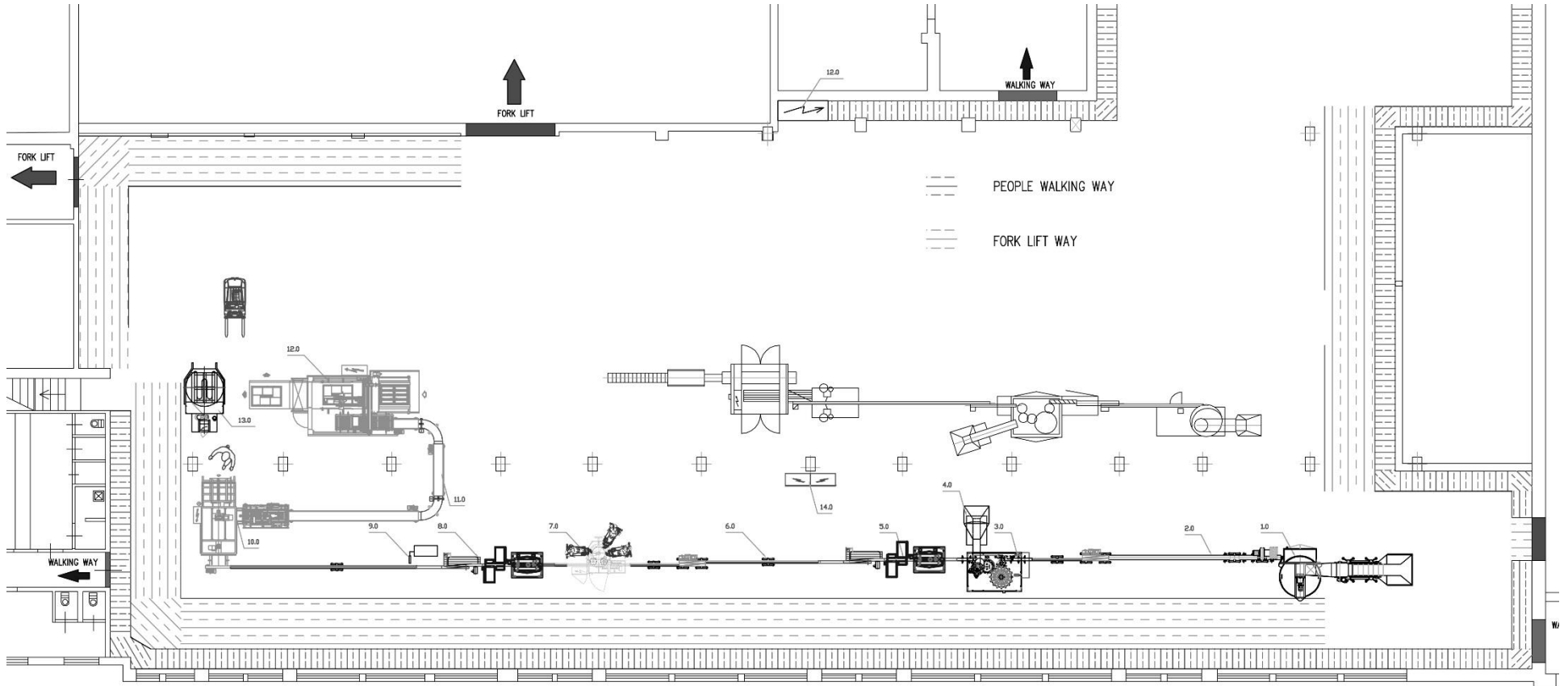
- Container feeding
- Container transport system
- Filling and capping
- Checking
- Labelling
- Packaging

Proposal presentation

- Project proposal to the customer
- Discussion of the project
- Finalization



PROJECT DETAILS AND LAY-OUT



- | | | | |
|------------|--|-------------|--|
| 1.0 | Rotative Unscrambler with bottles elevator (2m ³) | 9.0 | Ink Jet Coder |
| 2.0 | Vacuum belt conveyor for empty bottles | 10.0 | Packing Monobloc (erector-pick and place, closing by hot glue) |
| 3.0 | Rotative Filling And Capping Monoblock Mod FITRONIC/MAG/BLOCK 16/6 | 11.0 | Conveyor For Pack |
| 4.0 | Caps Elevator | 12.0 | Automatic palletizer (without interlayer) |
| 5.0 | Level and caps control with ejector and conveyor for fault bottles | 13.0 | Semi-automatic Pallet wrapper |
| 6.0 | Conveyor For Full Container | 14.0 | Electrical Pannel |
| 7.0 | Self Adhesive Labelling Machine for front, back and neck label | | |
| 8.0 | Labelles control with ejector and conveyor for fault bottles | | |

CONTAINER FEEDING AND ORIENTATION

Purpose of the machine

The machine is designed for the unscrambling of plastic empty containers of every shape and dimension (bottles, flacons, tanks, etc.) loaded in bulk into the feed hopper.

The containers exit the machine standing on their bases and are then transferred to a table top conveyor with or without vacuum, depending on the container type or on the required hourly output.



Structure

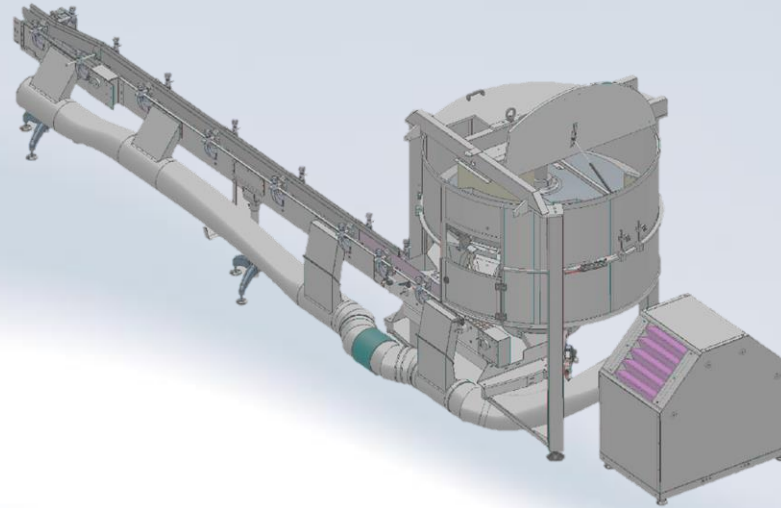
Plating made of AISI 304 stainless steel.

Selectors feed cone made of plastic composite material.

All the parts on contact with product made of AISI 304 or plastic material.

Safety protection with anodized aluminium frame and shock-resistant Lexan panels.

Rotating parts supported by life-lubricated ball bearings.



How the Machine Works

The upper part of the machine consists of the feed hopper receiving bottles from an elevator which meters out the quantity of bottles using photocell detectors. The bottles are fed onto a cone mounted inside the hopper which feeds the bottles towards rotating selectors mounted around a carousel.

Once bottles are inside the selectors they fall upright into vertical channels which set them on a plastic slat band conveyor. Vacuum slat can be used in order to stabilize containers better.

In order to feed the line smoothly and continuously, the unscrambler can run at a basic speed (corresponding to the nominal output) and at a "slowdown" speed, that can be set by the operator panel: the change from one speed to the other is automatically controlled by photocells checking the accumulation state on the downstream conveyor.

This unscrambler features a frame with motorization on top, thus leaving the central part of the machine clear of mechanical parts and the underneath area completely free for about one meter from the ground. The absence of mechanical components within the frame prevents off-shape bottles reaching the unscrambler from damaging or stopping the machine, besides it provides extended inner space available for any maintenance or inspection intervention.

One of the advantages of the unscrambler is its ease of changeover, which is carried out by inserts inside the selectors or inside the vertical channels: this operation is easy and quick thanks to the fast locking system used.

When there are large differences in dimensions in the sizes to be handled it is possible to increase the number of channels (more channels for smaller sizes) raising considerably the hourly output, according to the filler speed.

The adjustments are easily made thanks to visualisation instruments and to colour coded changeparts for each bottle set.

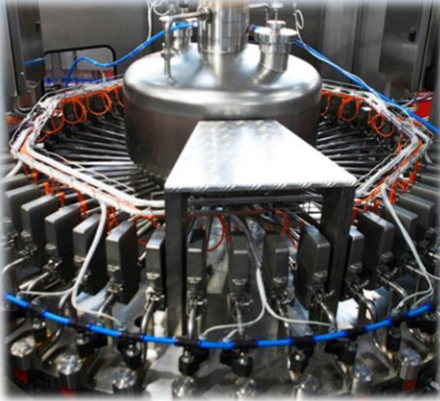
Guarding and Safety Devices

The machine has been designed to conform to full European Health & Safety Standards and CE Regulations, being provided with a transparent guard with anodized aluminium frame to allow safe operation.

Large hatches, equipped with electrical safety interlocks, enable easy maintenance and adjustment.



CONTAINER FILLING



Fully automatic management of product flow to have very precise control according to the filling productivity.

Flow meter managed by PLC which allows for a quick and precise variation of quantity to be dispensed, according to the format setting by the touch panel.

Flowmeters are placed in a protected area where chemical agents cannot reach them.

Bottles are maintained in position towards the dispenser (fill top) by centering forks.

Filling technology is based on the adoption of flow-meters which can be either of the inductive magnetic type (Volumetric Filling).

Both technologies have in common some main features which can be summarized as follows:

- High filling accuracy: $\sigma = 0,2\%$
- No moving parts inside the measurement devices, that equates to no maintenance
- Measurement flow meter technology, that is not sensitive to electrical EMI or RFI interference or mechanical disturbance
- CIP/SIP at temperatures up to 130°C

The nozzle are drawing and made to eliminates any turbulence ensuring to the product a filling with no foam.

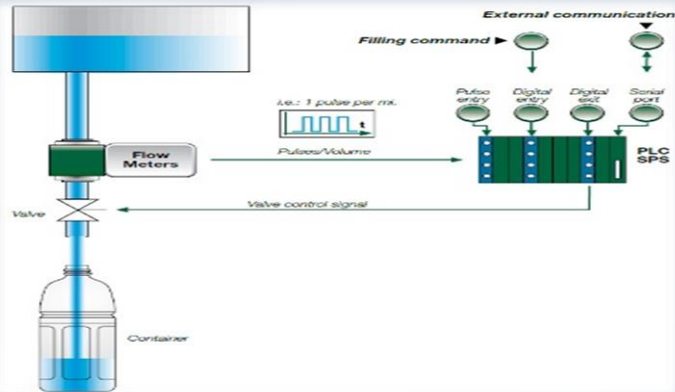
The structure and all the parts in contact with the liquid are made of stainless steel Aisi 316.



Monobloc filler/capper classic

-A very versatile filler/capper capable of handling a wide range of liquid viscosities and designed with no wear joints that could add particulates to product.

- Perfect drainability
- No dripping from nozzles
- High Temperature wash (Steam) possible
- High polish on all surfaces in contact of the product
- All parts in the product path are visible and inspectable
- No dead areas for product stagnation
- Small tank for a quick and economic washing
- Simplex and express change of nozzle without setting
- Fill Nozzles with open flow and no screens or restrictions



The fill nozzles Are made in Aisi 316L and silicon sealing, therefore all the moving parts in contact with the product.

Other external parts, not in contact with the product, may be manufactured in anticorrosion material.

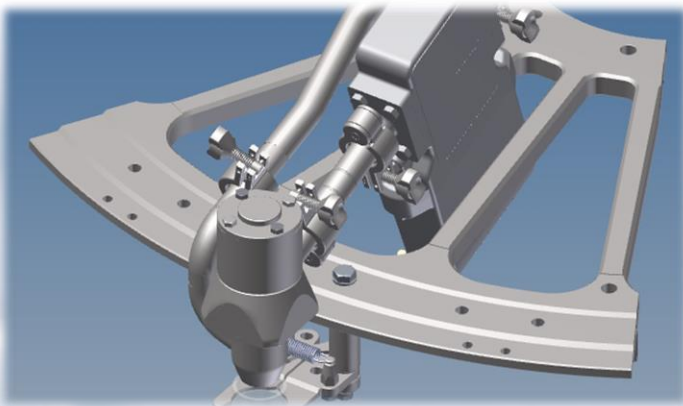
The flow meter are attached to the carousel of the machine with quick release mechanisms for the quick removal and replacement in case of an emergency. The instruments are enclosed in a "sandwich" through which a constant pressure of clean air assures protection from fumes or an eventual splash of product.

The filler tank of product is supply with a pump which transfers the product from the storage tanks to the tank of the filler.

The level in the tank is maintained constant by the level control system with capacitive probe. The capacitive probe allows to control the pump speed in function of the production speed of the filling machine to obtain always in any condition the same level.

The product filling into the bottles works by gravity through the flow meter.

The drive components. All the drive components (gears, electric motors, etc), are all below the table of the machine and are completely enclosed in a compartment that is over pressurized with clean air to keep them away from any fumes from the product. Access to these components is available through appropriate access doors.



Electronic filling technology

Assure accurate fill to both the consumer and to the producer

Ability to :

Calculate the standard deviation of the volume of the filled product into the container,

Assurance of accurate fill due to the continuous monitoring during the filling phase,

Complete check of all the parameters at every revolution of the machine in order to obtain a accurate final volume,

Automatic record of the production statistics

Rotary capping system

The **rotary series** capping machines are suitable for handling any kind of screw or press-on caps.

The machines are completely mechanical with a wide range of capping heads types.

Machines are available in different sizes for medium to high production speeds.

Rotary capping machine with magnetic clutch heads and Pick & Place device suitable to apply plastic **pre-threaded** screw caps on PET, glass and PVC containers.

Head with magnetic clutch, for screw caps.



Magnetic torque head originated from the improvement of the magnetic Torque head, following continued aesthetic innovation, as well as development of both the materials and technology used.



Rotary capping machine with magnetic clutch heads and Pick & Place device suitable to apply, on glass and PET bottles, **metal twist-off caps and plastic** pre-threaded screw caps with steam saturation inside bottles neck.

The caps are transferred by means of Pick & Place device.

Capping machine to apply shaped screw caps by **positive grip jaw**.



Mechanical pincers made from stainless steel, the three sector mechanical pincers is for closing special threaded caps or special applications, which can be installed on the magnetic torque head.



Cap Elevators

This accessory can be installed in high speed installations and permits to automatically feed the caps to the sorter tank of the capping machine.

Caps are fed in bulk inside a wide stainless steel tank at floor level and are then lifted by means of an elevating conveyor, made in anti-abrasion rubber.

This system can also be supplied in the pneumatic or magnetic version, depending on the caps to be treated.



LABELLING MACHINE

Leopard AD is a multi-labelling unit fit for cylindrical, conical, square-based and rectangular containers, available in different sizes in order to better suit all user requests and production needs, both from speed production and any new packaging requirements.

Leopard rotary labelling machines are designed to be reliable, user-friendly and versatile in every production contest, from small to large business. Advanced production technologies and high quality materials make these machines able to meet tough work loads at high speed production rates.

The container rotation is driven by a traditional mechanic system involving a toothed sector system and a programmed cam. A correct and accurated application of each label is possible thanks to the push-cap heads blocking the containers on the container-holding plates in a precise way.

ROTATIVE LABELLING MACHINES LEOPARD Series

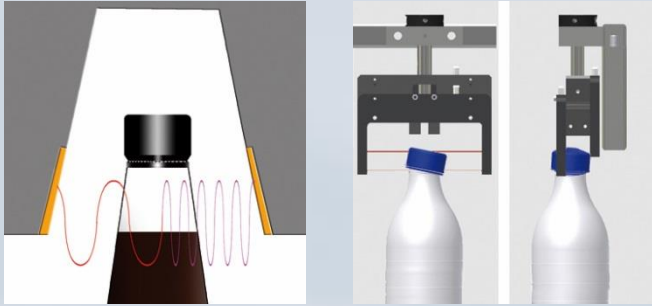
The LEOPARD rotary labelling machines can satisfy all different varieties of user requests, both speed production and any new packaging requirements. Designed to be reliable and user-friendly they are versatile in every production contest: from small to large business. Each machine is characterized by a specific design in order to meet the packaging customization. is suitable for the application of labels by wet glue system, whereas the LEOPARD AD machine applies self-adhesive labels. Furthermore it is possible to combine the two technologies in order to apply both wet glue and self-adhesive labels by the version LEOPARD FIX + AD. The LEOPARD series, thank to its design and production technology and the best materials in use, meets tough work loads at high speed production rates. It is driven by a traditional mechanic system: the containers rotation is possible through a toothed sector system and a programmed cam. The push-cap heads, by blocking the containers on the container- holding plates in a precise way, let a correct and accurated ap- plication of each label. The series is customizable with several optionals that let the machine work any kind of container or label.



TECHNICAL FEATURES

LEOPARD AD Label application stations JAGUAR 32/70 Mt/min. Paper transfer with stepmotor for paper outfeed and empty film recovery. Self-adhesive labelling station speed variation automatically synchronized with the machine Photocell for paper stop with automatic self-regulation for the read-out of the different label colours Photocell of presence of the container in fixed position for each station. Controls panelboard fitted on each head with speed production control and delayed start. Table support with 5 axes adjustments. Max. height of the paper passage 200 mm. Max. roller outer diameter 300 mm. Max. roller internal diameter 45-75 mm. Jaguar labelling station optionals Control of label reel end and paper tear-off Coding unit with thermic trasfer Photocell for transparent labels readout Ground label feeder by double label reel. "NON_STOP" Label feeder system

FINAL PRODUCT QUALITY CONTROLS



THE SYSTEM

Ideal for detecting the fill level of the containers in defence of the brand
The controll allow to prevent legal disputes due the distribution of under filled products.

The technology used is designed for the measurement of the product volume in the controlled area.

The system allows the detection of the fill level and the management of the rejection of under-filled or overfilled containers.

FEATURES

- Infrared technology
- Machine vision technology
- Management of rejection signals from external systems
- Independent structure for eliminating noise and vibration and ensuring maximum accuracy and minimum maintenance
- Designed to be integrated with additional inspections (They can be installed after the Monoblock)
- Cap presence
- High/cocked cap presence
- Cap color
- Foam presence (600 series version)
- Monitoring

IMPROVE PRODUCTIVITY

- Reduction of the number of rejects in the event of a filler malfunctioning.
- The system includes consecutive reject alarms and can monitor the performance of individual fill valves.
- Optimization of maintenance interventions on the filler (when integrated with the monitoring system)

IMPROVE QUALITY

- Eliminate customer complaints related to over filled or underfilled containers
- Ensure product quality and compliance with the minimum fill content,



THE SYSTEM

Ideal to ensure the presence of wraparound or sleeve labels, opaque or partially transparent, applied on any type of container.

The configuration of the label presence system is defined according to the type of container and label applied.

FEATURES

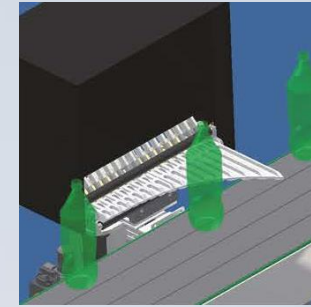
- Optical sensors technology
- The control of semi-transparent labels is based on advanced Smart-Sensor
- No change to the existing line for installation
- Can be remoted and integrated in the interface of other controls
- Can be integrated within the labeler in the case of partial labels

IMPROVE PRODUCTIVITY

- Reduction of the number of rejects in case of malfunctioning of the labeler through the control on consecutive rejects

IMPROVE QUALITY

- Eliminate customer complaints related to label absence
- Ensure the compliance with the regulations concerning the presence of the label
- Ensure product quality



THE SYSTEM

Ideal to ensure the rejection or the deviation towards specific channels of non-compliant products, destined to analysis laboratory or particular working cycles.
The ejection or deviation systems are based on different technologies and use different methods of intervention.

The ejection/deviation system is chosen according to the type of line and product, to ensure maximum effectiveness and precision of intervention.

FEATURES

- The ejection/deviation systems are also available with independent control unit, for the management of the rejection signal coming from from filling or labelling machines for defects related to the process:
- Prepared for the monitoring system to deviate sampling
- Devices with 8, 10, 16 fingers are available depending on the movement to be performed and the line speed

IMPROVE PRODUCTIVITY

- Reduction of the number of line downtime to remove non-compliant products

IMPROVE QUALITY

- Eliminate customer complaints related to non-compliant products
- Ensure rejection of non-compliant products
- Ensure product quality

PACKAGING

FORMINC 700 - Box erecting cartoning monoblock

DESCRIPTION

Monoblock painted after an inhibiting treatment equipped with bearing feet, adjustable in height. The machine is composed of the following parts.

Mainframe contained in case. It is made of metal profiles and plates bent by compression.

Head moving and lifting set mechanically driven. Both the movements are guided by precision linear guides. The vertical movement is controlled by inverter, the horizontal is controlled by a sinusoidal cinematic movement.

Support of the pick up head. Equipped with hooks for the quick change over.

Accumulation table. Equipped with low friction modular plastic belt inlet sorter and pneumatic front abutment.

Centering device with pneumatic drive. The centering device centers the carton and facilitates the cartoning during the bottles release.

Carton magazine. Made of :

Platform adjustable in height by hand wheel

Plastic modular belt

Lateral rails to hold the folded cartons

Pneumatic leafing device

Case erecting devices

Pick up carton sucker device

Pneumatic closing device of the back fold

Pneumatic closing device of the front and lateral fold

Carton pushing device to discharge the full cartons. The pushing device is assembled on slide guides and is pneumatically controlled

Idle roller conveyor to discharge the full carton

Safety guards. set of fixed and/or openable guards and safety devices to protect people by limiting their entrance in dangerous areas of the machine.

Electrical panel Equipped with touch screen operating panel.



NAS1011 - Case taping machine

The case taping machine closes the upper and the lower side of american cardboard boxes.

DESCRIPTION

The machine has a monoblock structure, which is painted after an inhibiting treatment, has bearing feet, adjustable in height. The machine consists of the following parts.

Machine body is made up of tubular profiles and plates which are bent through compression and bolted. On the body are assembled all the devices for the taping and transport, such as:

idle roller conveyor;

rubberized side belts, they allow the carton feeding;

upper bridge, it is adjustable manually. It supports the closing devices of the upper flaps and the taping units of the lower and the upper side.

Safety guards: set of fixed safety guards devices, which could be opened, to protect operators by limiting their entrance in dangerous areas of the machine.

Electric panel: equipped with touch screen operating

PALETIZING SYSTEM

CARTESIO3 - Cartesian palletizer

DESCRIPTION

Cartesio3 is a cartesian palletizer for low to high production rates. It consists of a portal frame made with tubular painted steel surrounding the whole working area. Such a sturdy frame let any positioning movement of the picking head be precise and repeatable since no vibrations occur during the working phase.

Each of the three (3) linear axis is sliding on linear guides; this system is able to carry on a relevant payload (tested up to 65kg).

The principal trolley (vertical-axis) is a counter-weighted-kind and it is actuated by a brushless motor with conical coupling in order to allow smooth and very fast movements.

The two axis for the head-movement (X-Y) are actuated by planetary gearboxes and brushless motors via belt rack.

The rotation of the product when necessary, is obtained through the device installed on the inlet product conveyor which also create a distance among packs at the inlet through a double motorisation.

Harmony of any movement is assured by a control which allows a high efficiency cinematic by adjusting and controlling any speed/acceleration parameter of any of the paths of the picking head.

Positioning of packs on the pallet anytime made by interpolation with a very high precision and care of the handled products.

Picking tools are specially designed and anytime customized: this way Cartesio3 can handle a wide range of products like cases, packs wrapped by film, unwrapped trays/packs, loose containers, buckets, canisters, etc...

Cartesio3 is designed to be modular: by adding the following optional modules it can become a fully automatic machine:

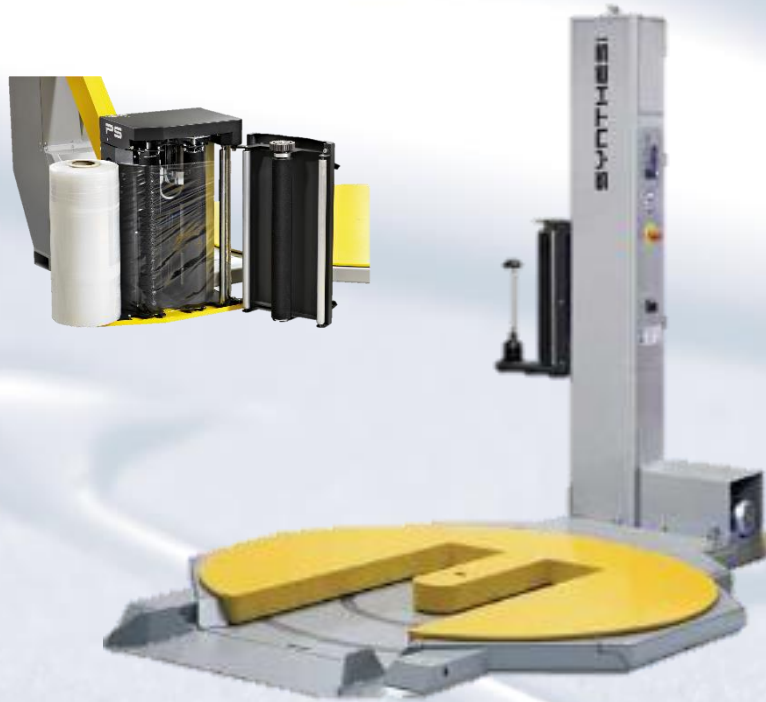
- automatic pallet infeed/outfeed conveyors (rollers or chain conveyors)
- automatic pallet de-stacker: a very sturdy frame in order to last for long time under very high weights; its self centring pneumatic system allows a precise positioning of the pallets on the conveyors; finally the self braking motor allow the possibility to load up to 10-15 pallets thus making the operating autonomy considerable and suited for any modern production need
- automatic pad placing device (carton or plastic pads between layers). Simply through the operator display and in a few seconds it can be decided and modified the number of pads between pallet layers to be placed.

Of course Cartesio3 can also work as a basic machine with the pallet on the ground and removing of pads by hand, but anytime with the highest EU safety standards for operators.



Pallet wrapping machine

- Table rotation speed.
- Independently adjustable upwards and downwards carriage speeds.
- Separate programming for high and low rpm.
- Pallet height photoelectric cell reading.
- Wrapping cycles with altimeter (Without photocell).
- Ascent / Ascent and Descent cycle.
- Sheet placement cycle.
- Manual cycles: Table rotation, Roll carriage ascent and descent.



CONVEYOR SYSTEM

Conveyor for Bottles

Very sturdy stainless steel structure.

Combiners, dividers, special units available for complex line layouts.

Description:

Structure made in stainless steel AISI 304

The conveyor belts are equipped with a wide range of chains to optimize the handling of cans and bottles, both plastic and glass, and several types of rollers that ensure smooth movement and without regular avoid damaging the conveyed.

The use of high quality components, together with wear resistant materials, reduces friction and noise and facilitates maintenance operations.



Conveyor for pack

Components designed by FITECO.

Very sturdy stainless steel structure.

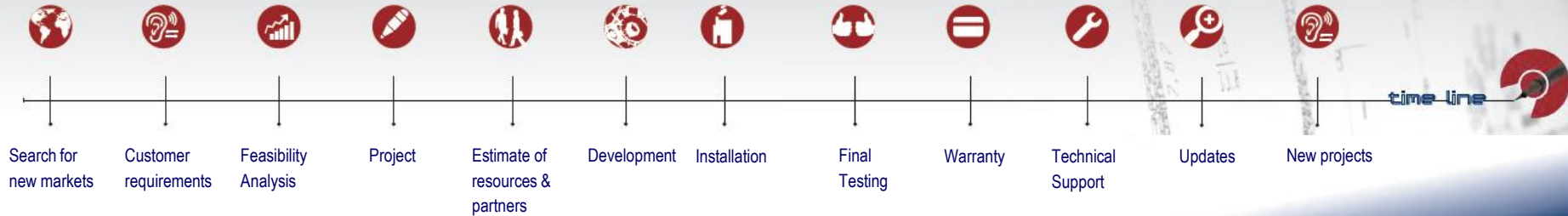
Combiners, dividers, special units available for complex line layouts.



Fiteco to 360°



“ Your trustworthy partner
to satisfy your ambitions ”



FITECO With over twenty years of experience in the field of bottling, automation and engineering of its employees, can guarantee a 360° support starting from the analysis of project feasibility and costs, focusing on customer requirements, through the development, the selection of the most suitable partners, to installation and testing.

The FITECO mission is to provide a high standard of engineering in food, beverage and packaging of complete plants, researching the best market solutions to satisfy customer's needs, and thanks to its versatile, dynamic and avant-garde corporate structure, can provide

filling technology



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