



Liquid Filling Solutions



Beyond Technology

The new business model from Romaco sets valuable incentives for meeting customer requirements. For the design of innovative solutions, Romaco relies on its unique knowledge portfolio.

With its diverse brands, Romaco focuses on important technological fields of competence. The single product lines offer the optimum

prerequisite for the development of comprehensive solutions.

Romaco promises its customers professional project handling, fast delivery times and a reliable service. Through this, Romaco provides its customers with a considerable boost to their earning and financial power.



Creating Value – best price/performance ratio

Romaco wins over its customers by offering an outstanding price/performance ratio over the entire life cycle of its products. In this way, customers can systematically optimise their cash flow. With efficient production and service management, Romaco prepares its customers for future long-term commercial success.

Delivering Solutions – high application expertise

Romaco offers integrated solutions for the growing markets of pharmaceuticals, cosmetics, food and industrial applications. Here, the customer benefits from the synergetic effects that result from the close collaboration of all the Romaco brands. This internal technology transfer imparts a considerable development potential and is the basis for comprehensive solutions.

Exploiting Technologies – strong brands

Romaco is synonymous with European engineering on the highest level. With its seven brands, the company is widely recognised around the world. Continuity and progress are the keys to a strong positioning on the market. Romaco relies on the profound knowledge and the long-time experience of its employees.



» *Romaco Macofar offers excellent value for money. Their liquid filling solutions are very simple to operate and extremely reliable.*«

Nicola Magriotis, Sales Director, Romaco S.r.l.



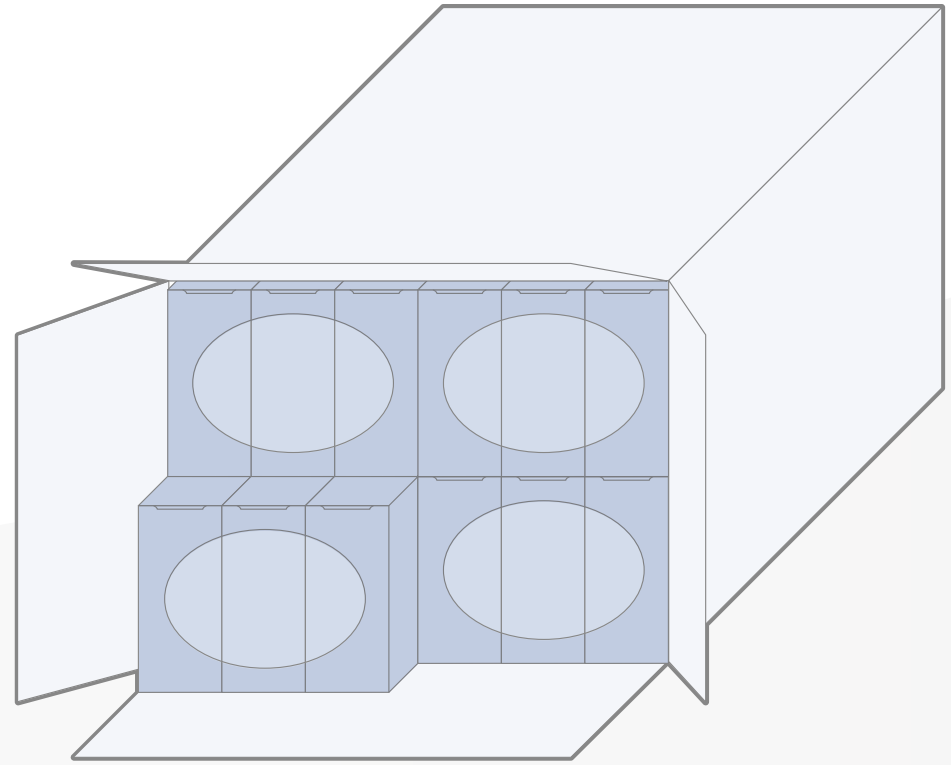
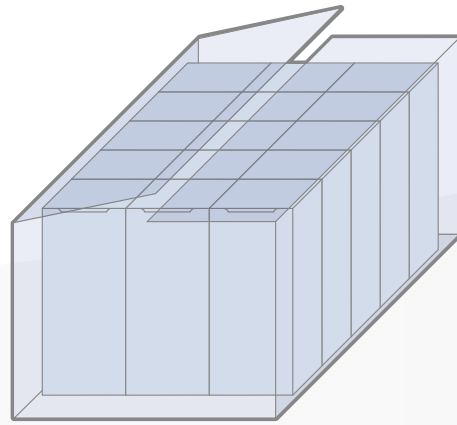
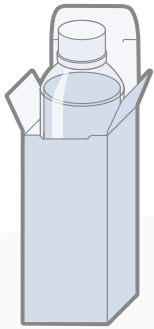
Delivering Solutions

Liquid Filling Made Easy

Liquid filling solutions made by Romaco are ideal for a wide range of applications. The technologies can be used to process pharmaceuticals and nutraceuticals with highly diverse product properties. Due to their modular design, these liquid filling systems can be combined very easily with Romaco's comprehensive portfolio of secondary and tertiary packaging solutions.

Filling into Bottles

- Suitable for both glass and plastic bottles
- Ability to fill liquids of almost any viscosity
- Designed to handle containers 16 to 80 mm in diameter and 35 to 200 mm in height
- Variable filling volumes from 0.5 to 500 ml
- Choice of single or double closure systems



Bottles in Cartons

- Wide choice of carton designs and materials
- Leaflets, booklets or medical devices can be inserted
- Glued or tuck-in closures together with a variety of tamper-evident features
- Inkjet, colour embossed, laser engraved or vignette

Carton Bundles

- Final packaging solution for all folding carton types
- Stretch or shrink-wrapping as an alternative

Cartons in Shipping Cases

- Suitable for feeding and packing single and bundled cartons
- Adhesive tape or hot melt closure





Delivering Solutions

High-Speed Liquid Filling

Liquid filling solutions made by Romaco are specifically designed to meet the market's growing demand for medium-high speed machines. Romaco Macofar technologies enable the flexible processing of products with very different flow properties.

The Macofar LF 200 and Macofar LVI liquid fillers can be supplied in several product-specific versions depending on the application. All models are extremely simple to operate. Romaco solutions can also be individually configured and precisely adapted to each user's unique requirements. The high level of automation assures absolutely reliable processes and optimal overall equipment effectiveness.



Flexible Configurations

- Various models for filling non-sterile liquids
- Modular architecture permits customised solutions
- Several possible dosing systems
- Flexible handling of numerous container sizes and designs
- Very quick product changeovers
- Single or double closure system

Wide Range of Closure Types

- Droppers, spray pumps, atomisers or pipettes
- Plastic or aluminium screw caps
- Child-proof caps
- Press-on caps with aluminium rings
- Dosing cups

cGMP Compliant Design

- Balcony structure guarantees highly reliable processes
- Strict separation between critical cleanroom and technical areas
- Linear configuration enables end-to-end monitoring of the production process when the containers are filled and closed
- Easy access allows optimal cleaning





Convenient Liquid Filling

The liquid fillers in the Macofar LF 200 series have a compact design and are simple to operate. Bottles with volumes ranging from 0.5 to 500 ml can be filled and sealed at a rate of up to 12,000 an hour (volumes up to 100 ml). The filling process is programmed for multiple dosing. Up to ten volumetric pumps fill the bottles in continuous or intermittent mode. Either stainless steel or ceramic pumps are used depending on the product type. Single or double closure systems, integrated directly in the machine or configured as a line component, are also available.

Positive Transport System

- Positive transport principle makes sure the bottles are guided safely
- Reliable handling of different container sizes and designs
- Centrally adjustable transport system for rapid adjustment to multiple formats
- Containers separated and discharged by means of starwheels
- Special plastic fingers as lateral guides to prevent the bottles or vials from toppling over

Absolutely Reliable Processes

- cGMP compliant balcony structure prevents contamination inside the machine
- Linear bottle transport on metal rails for optimal process hygiene
- Bottom-up filling process provides maximum precision
- In-line process monitoring with exact comparison of the empty and full bottle weights
- Servo motors ensure absolutely reliable processes

Simple to Operate

- Ergonomic HMI panel allows quick access to stored production parameters and formulations to be accessed
- Rapid, easy cleaning of machine groups in the critical white area
- Straightforward access to the closure feed system

*Exploiting Technologies
Romaco Macofar LF 200 Series*



Volumetric filling pumps



Cap closing head



Positive bottle transport





Exceptionally Versatile

The Romaco Macofar LF 200 product family comprises four different models.

LF 200 FC

- Intermittent filling process: efficient multiple dosing with six volumetric pumps
- Equipped with an integrated closure system
- Compact design with a small footprint
- Ideal for filling oral syrups such as cough or fever medicines
- Suitable for glass or plastic bottles with a volume of 0,5 to 500 ml
- Filling speed of 4500 bottles an hour (maximum output achieved with filling volumes up to 250 ml)

LF 200 FD & LF 200 FS

- Continuous filling process: optimal filling speed enabled by the dosing systems advancing with the bottles
- Equipped with an integrated single or double closure system
- Ideal for filling pharmaceutical liquids that are either orally administered or applied to mucous membranes or optically

- Suitable for glass or plastic bottles with a volume of 0,5 to 250 ml
- High-speed filling of up to 12,000 bottles an hour (maximum output achieved with filling volumes up to 100 ml)

LF 200 FA

- Continuous filling process with up to 10 volumetric pumps
- Stand-alone machine for continuous operation
- Ideal for filling healthcare or cosmetic products and food supplements
- Suitable for glass or plastic bottles with a volume of 0,5 to 250 ml
- High-speed filling of up to 12,000 bottles an hour (maximum output achieved with filling volumes up to 100 ml)

*Exploiting Technologies
Romaco Macofar LF 200 Models*



Positive bottle transport



Intermittent motion capping machine



cGMP compliant balcony design





Compact Design, Exceptionally Robust

The liquid fillers in the Macofar LVI series can be supplied in four different versions. These compact, monobloc machines process non-sterile oral liquids or ophthalmics in intermittent mode. The containers are transported to the dosing and closing stations by means of starwheels. The machine design meets all the requirements of cGMP and GAMP. Product and format changes are completed quickly and easily. The generously sized filling area is readily accessible and can be cleaned without any problems. Maximum productivity and minimal operating costs are the hallmarks of the Romaco Macofar LVI series.

Flexible Machine Configurations

- Multiple dosing at 4 to 6 filling stations
- Equipped with volumetric or peristaltic pumps
- All machine groups are height adjustable
- Optional flushing with nitrogen before, during and after filling
- Optional bottle blowing prior to filling
- Integration of one or two closing stations

Wide Range of Container Types

- Able to fill glass or plastic bottles and vials
- Designed to handle cylindrical, oval, square or rectangular containers
- Suitable for bottles with a volume of 0,5 to 500 ml
- Reliable handling of unstable containers

Reliable Processes

- Micrometric adjustment of the filling volume either manually or on the HMI panel
- Positive closure positioning
- Automatic rejection of capless containers
- Can be combined with a vertical laminar flow system
- Electronic torque control

*Exploiting Technologies
Romaco Macofar LVI Series*



Transport systems by starwheels



Filling pumps





The Perfect Solution to any Challenge

The continuous motion cartoners in the Romaco Promatic PC 4000 series are ideally suited for a wide range of applications. They are designed for both high-speed operation and also for medium packaging speeds. These cartoners can be switched flexibly between continuous and intermittent. The PC 4000 cartoner series packs up to 420 folding cartons a minute in continuous mode.

The intermittent motion cartoners in the Romaco Promatic P 91 series are available in a standard or high-speed version (P 91S). These compact machines boast a maximum output of 140 folding cartons a minute.

Ergonomic Design

- Strict balcony architecture with no supporting structure at the operator side
- cGMP compliant design meets even the most demanding standards in pharmaceutical production
- Easy access reduces retooling and cleaning times to a minimum
- Retractable carton magazine allows optimal access to all machine components and makes format changes easy
- Ergonomic working height for maximum operating convenience

Technical Highlights

- Positive carton opening system: servo-controlled carton pick-up protects the materials
- Torque limiters for all drives
- Modular design allows bespoke feed systems and the integration of numerous additional functions
- Reproducible and tool-less format changes in under 15 minutes
- No vacuum pumps: Venturi nozzles produce the vacuum for opening the cartons and folding the booklets
- Low vibration and noise levels thanks to servo motors and belt drives
- Minimal costs for maintenance: toothed belts and pulleys instead of chains and mechanical gears

Exploiting Technologies
Romaco Promatic PC 4000 Series
Romaco Promatic P 91 Series



Bottle feeding into bucket chain



Product feed into the open cartons





Carton Bundling Made Easy

The stretch banders in the Romaco Promatic SM 2000 series can be supplied with a mechanical (MV) or a servo (EV) drive. Depending on the model, these banders achieve a maximum output of 50 bundles a minute. They are also available with an optional shrink-wrapper. The folding cartons can be stacked either lying down or standing up on edge. A carton feed system can be configured on the front of the machine, if necessary.

Quick Product Changes

- Tool-less adjustment to the required format in less than 5 minutes
- A complete set of format parts consists of just 3 pieces
- Automatic quick-release system speeds up film changes

Balcony Structure

- Optimal access to all parts
- Short times for retooling, cleaning and maintenance

cGMP Compliance

- Clear structure conforms to high cGMP standards
- Self-cleaning heat-sealing bar prevents foil residues from accumulating

Technical Highlights

- Motorised film handling system at the top and bottom
- Dynamic stacking unit permits higher production speeds
- Sealing station cooled by an air gun

Exploiting Technologies
Romaco Promatic SM 2000 Series



Motorised film handling

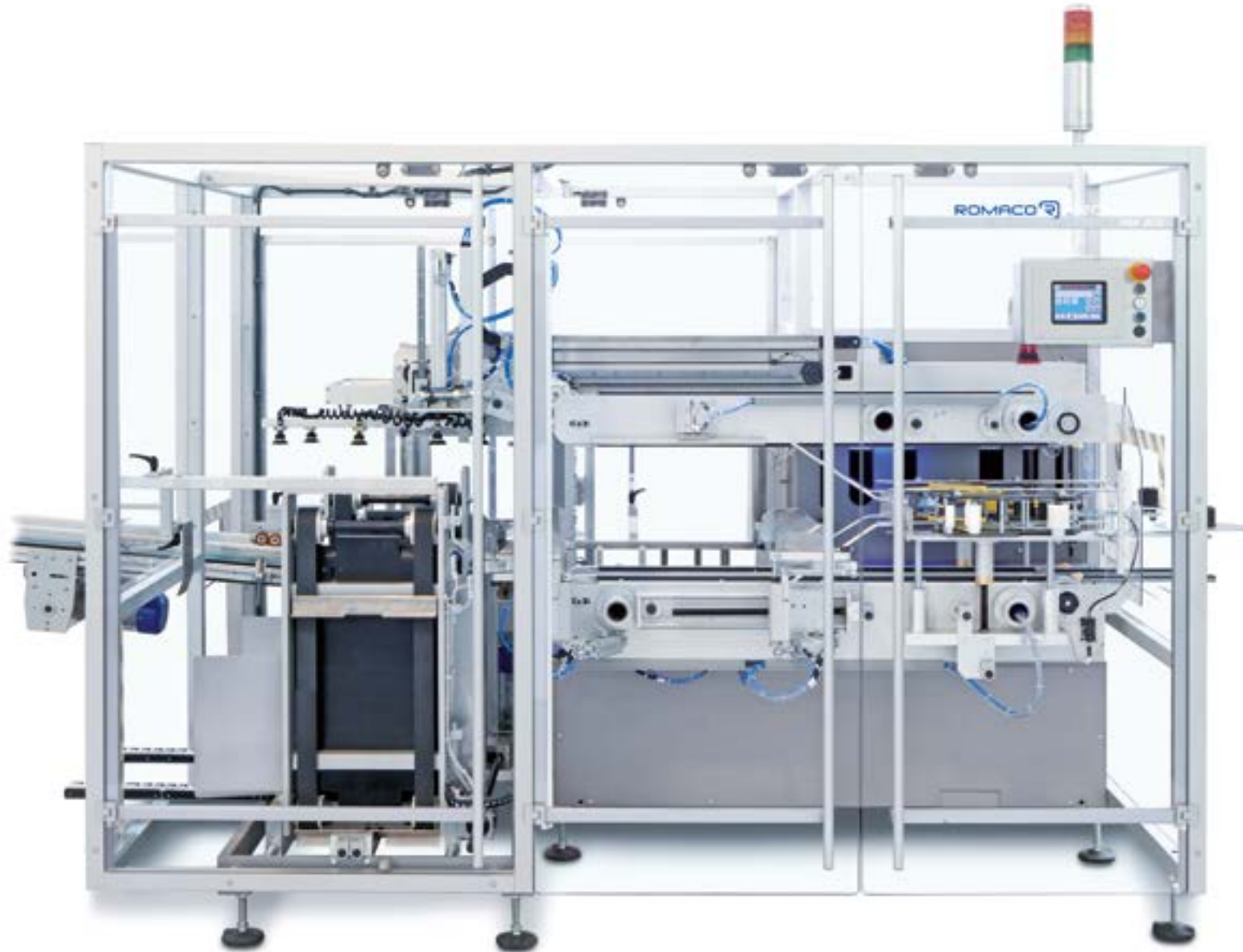


Strain release during foil unwinding



Stacking unit and hot sealing bar





Ideal Solution for a Wide Range of Final Packaging Applications

The Romaco Promatic PAK 320 case packer is a fully automatic final packaging solution. This side-loading machine fills up to 8 shipping cases a minute at maximum speed. Either hot melt or adhesive tape closure is possible. The clear design of the case packer enables critical operations to be checked optimally, so that machine downtime is reduced to a minimum.

The Romaco Promatic PAK 100 is a semi-automatic case packer that is absolutely affordable. This machine can be used to group, stack and insert folding cartons. The only manual steps are case erection and feeding. Thanks to the simple, compact design, the machine is also extremely easy to operate.

Special Features of the Promatic PAK 320

Ergonomic Design

- Servo-controlled case handling with positive opening system
- Vacuum produced by Venturi nozzles
- Vibration-free and silent operation
- Format changes in under 20 minutes
- Modular design with cGMP compliant balcony structure

Quality Control

- Easy integration of quality control systems
- Track & Trace: all systems required for seamless tracking implemented by Romaco
- Folding cartons identified layer by layer

Exploiting Technologies
Romaco Promatic PAK 320
Romaco Promatic PAK 100



Carton feeding



Automatic case erection



Carton flap closure





Creating Value – Romaco generates added value for the customer across the entire life cycle of its solutions

- Romaco is interested in a long-term solution partnership with its customers
- Romaco is familiar with its customers' critical success factors throughout the different life cycle phases of our jointly developed solutions
- The range of services from Romaco is specifically designed for these phases and is delivered through the appropriate modular components
- Romaco optimises the internal processes so that the customer can benefit from more secure decisions within the time gained
- In April 2014 the new business unit Romaco Systems was founded within the Romaco Group: the aim of this unit is to integrate the offering of the Romaco Group into comprehensive solutions

We understand the business model of our customers and with a diverse portfolio we offer the best price/performance ratio for generating additional cash flow.

Benefit for the customer

Across the entire life cycle

- Minimal life cycle costs and low TCO guarantee fast amortisation of the financial investment
- The wide range of customer service products ensures sustainable value creation

In the investment phase (designing value)

- Professional consulting to increase decision-making security
- Short processing and delivery times give maximum scope for investment decision and thus optimum decision flexibility
- Customised solutions development for the optimum preparation of the implementation phases (ramp-up and production)
- Reliable and customer-orientated project management according to efficient milestone principles provides professional delivery

In the ramp-up phase (leveraging value)

- The production phase is reached more quickly due to shortening of ramp-up
- Transfer of expertise provides increased security to the customer in implementing production systems at the highest level
- Minimisation of ramp-up costs

In the production phase (harvesting value)

- Maintenance of the value stream due to quick customer service response times
- Best delivery times in service, format and spare parts
- Consulting on the optimisation of the OEE
- Continuous training of the customer team
- Extension of the life span

Creating Value

Creating Value describes our constant willingness to secure our customers' – and our own – financial success.



Competent Range of Services from the Initial Installation Throughout the Service Life

Commissioning

- Installation: project planning and execution
- Commissioning and initial briefing of operators
- Process validation support
- Ramp-up support with shortened start-up phase

Maintenance

- Telephone advice available from Romaco experts
- Expert system guarantees coherent and efficient assistance
- Remote online support: prompt and reliable diagnostics using digital access
- On-site service: local emergency support provided where necessary
- Maintenance contracts: preventive maintenance reducing breakdowns to a minimum

Training

- Qualified training and seminars for machine operators and maintenance personnel
- FDA compliant training concepts with continuous performance reviews
- Provided on the customer's site or at the Romaco training centre

Production Optimisation

- Support for customers regarding the systematic optimisation of OEE values
- OEE audits on the customer's premises
- Detailed analyses of internal processes and downtime
- Combination of lean expertise and technical plant know-how

Retrofit, Expansion and Relocation

- Standard packages and customised solutions for machines in all series
- Special feed systems for complex products and specific layouts
- Plant relocation planning and execution

Original Parts

- Format sets compatible with all machines in the same series
- High-precision parts that fit exactly
- Format centre: each part is rigorously tested by Romaco before it leaves the factory
- Machine parameters and qualification documentation included in the scope of supply



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