



COSTER

MACHINERY DIVISION

*PHARMACEUTICAL
FILLING MACHINES
FOR AEROSOL, SPRAY
AND DISPENSING PRODUCTS*



COSTER offers global service in the aerosol sector, leveraging the experience and know-how of both its valve and machine divisions

Coster Tecnologie Speciali, founded in the early 1960's, serves as a global partner in the aerosol sector, offering aerosol components (valves, pumps, spray caps, standard and special actuators) and machinery for filling aerosol, spray and dispensing products. With over 40 years experience in the design and manufacture of machines, Coster is a world leader in the provision

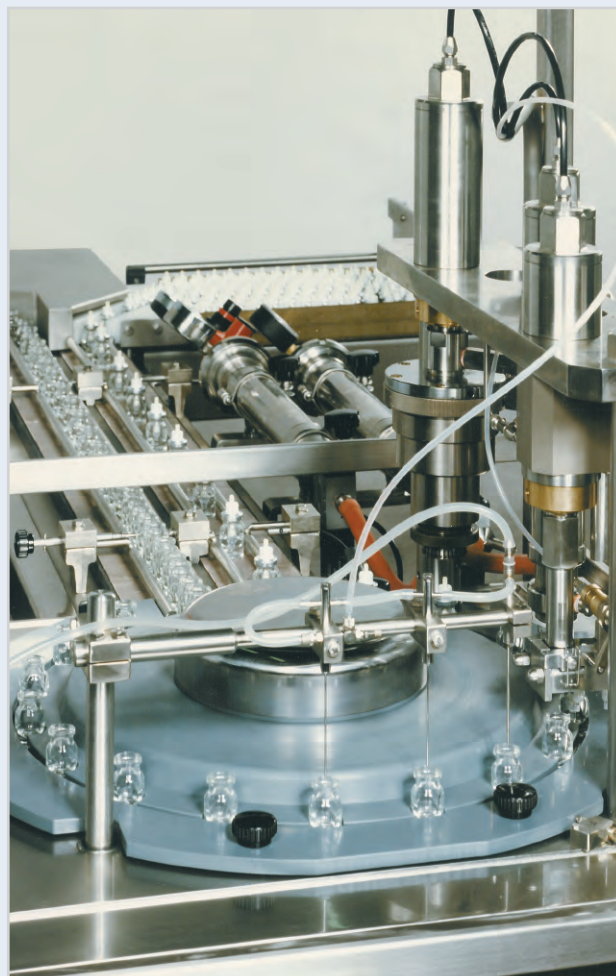
of equipment to companies in the pharmaceutical, household, technical products, perfumery and cosmetics industries. Leveraging its experience and the latest advances in technology, Coster offers innovative services and products designed to meet customers' needs and with the objective of enabling every customer to verify the quality of Coster machines.



Filling of pharmaceutical products in glass bottles.

Above, compact indexing machine for can cleaning, filling liquid product, pump insertion and pump crimping.

Right, detail shows liquid product filling heads.





Above: micro filling head and ceramic piston, whose extreme hardness guarantees zero contamination.

Right, from the top: a product metering cylinder (operates on syringe principle); a product filling head for levelling system; a liquid filling head for foamy products.

Coster pharmaceutical machines are designed to crimp 1" and 20 mm valves and pumps with maximum precision.

Below: crimping head for 20 mm valves. Bottom right: close-up of the crimping jaw. The 32 petals enable precision of 0.05 mm in crimping. The crimping jaw is manufactured with a special material that enables 3 million maintenance-free cycles. Bottom left: same crimping jaw with container and 20 mm mounting cup.



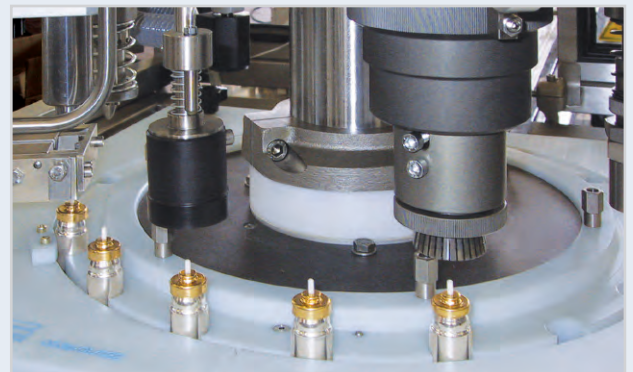
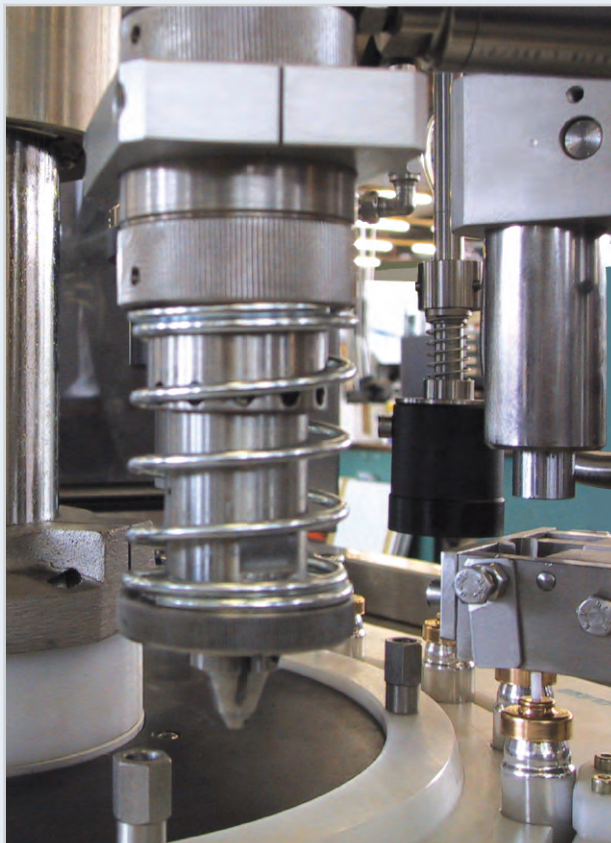
COSTER is fully committed to safety, innovation and excellence in the design and manufacture of pharmaceutical machines

In order to guarantee maximum safety, compliance and compatibility in the handling of pharmaceutical products, all Coster pharmaceutical machines and lines are manufactured with the following specifications:

- designed and manufactured to facilitate cGMP and ISO 14644-5:2004 compliance;
- AISI 316 L stainless steel construction;
- all materials which come in touch with product and propellant would support regulatory (FDA etc.) approval;
- metering cylinders are manufactured in AISI 316 L stainless steel and are internally polished to assure smooth surface for easy cleaning and to avoid contamination of product and/or propellant;
- ceramic (FDA-approved) piston rods suit-

able for abrasive suspension products filling;

- systems designs suitable for both single stage and two stage filling of canisters;
- filling head design fully compatible with external homogenization and re-circulation systems;
- metering cylinders designed for high fill accuracy ($\pm 1\%$, max ± 0.05 ml);
- food contact approved and CFR compliant PTFE gaskets and Viton[®] o-rings;
- crimping heads enable precision to 0.05 mm on crimping dimensions and 3 million maintenance-free cycles;
- all equipment is manufactured and tested using HFA 134a as standard and is 100% suitable for all current aerosol propellants (LPG, DME, Nitrogen, HFA, etc.);
- allows for connection to cleaning system for easy CIP/SIP;
- quick release systems allow easy parts replacement;
- units equipped with clamp connections.



Close-ups of Coster indexing filling machine for MDI.

Above: valve mount testing head and crimping head.

Left: filling head of high precision micro metering cylinder for pharmaceutical products and valve insertion head.

COSTER works closely with customers assuring full support from early development to full-scale production, installation and training

Coster has adopted a customer-facing quality system, committed to continuously improve both its products and services.

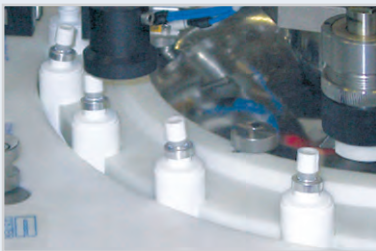
It is no longer enough to offer a good product at a good price; it is essential that product offerings are accompanied and enhanced through full-service technical assistance.

Coster Customer Care Service offers worldwide pre- and post-sales technical support, including:

- 2D/3D CAD-aided installation design;
- database assisted management of pro-

duction and design;

- prototypes;
- R&D integrated with design and testing;
- installation and customer training;
- documentation for operation, maintenance and validation to enable proficient use and complete satisfaction of legislative requirements for all production and testing units;
- certifications of conformance with European safety rules and to the Atex standard for operations in areas at risk of explosion and/or risk of fire.



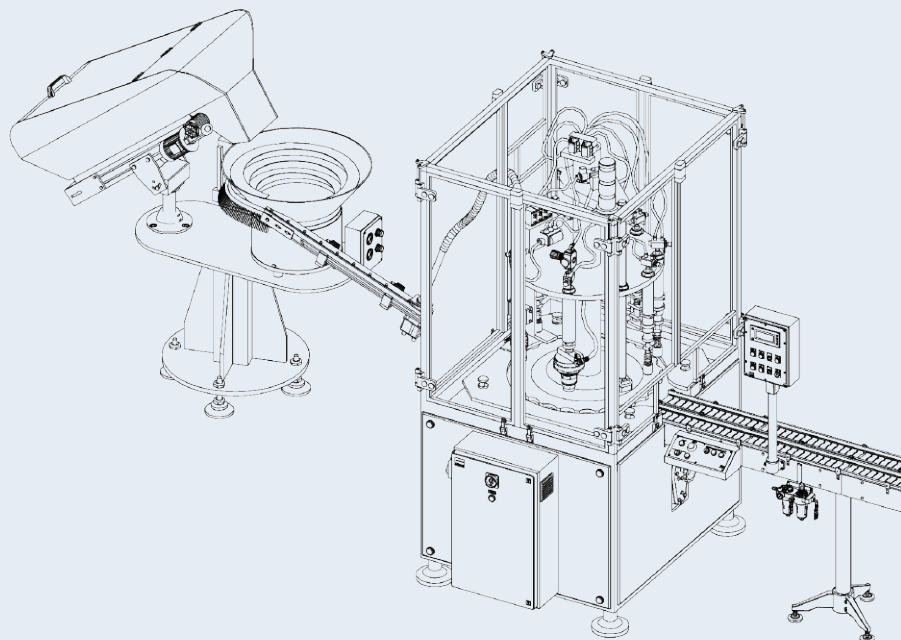
Above, detail of pump mount testing head and pre-crimping head.

Below, view of the filling machine.



3-D layout of the machine for filling plastic bottles for the pharmaceutical industry.

The machine is part of an electronic indexing line which performs the following operations: sorting and selection of empty bottles; filling liquid product; pump insertion; testing of mounted pumps, pre-crimping and crimping of pumps; insertion of leaflet in cap, cap mounting and labelling of bottles.



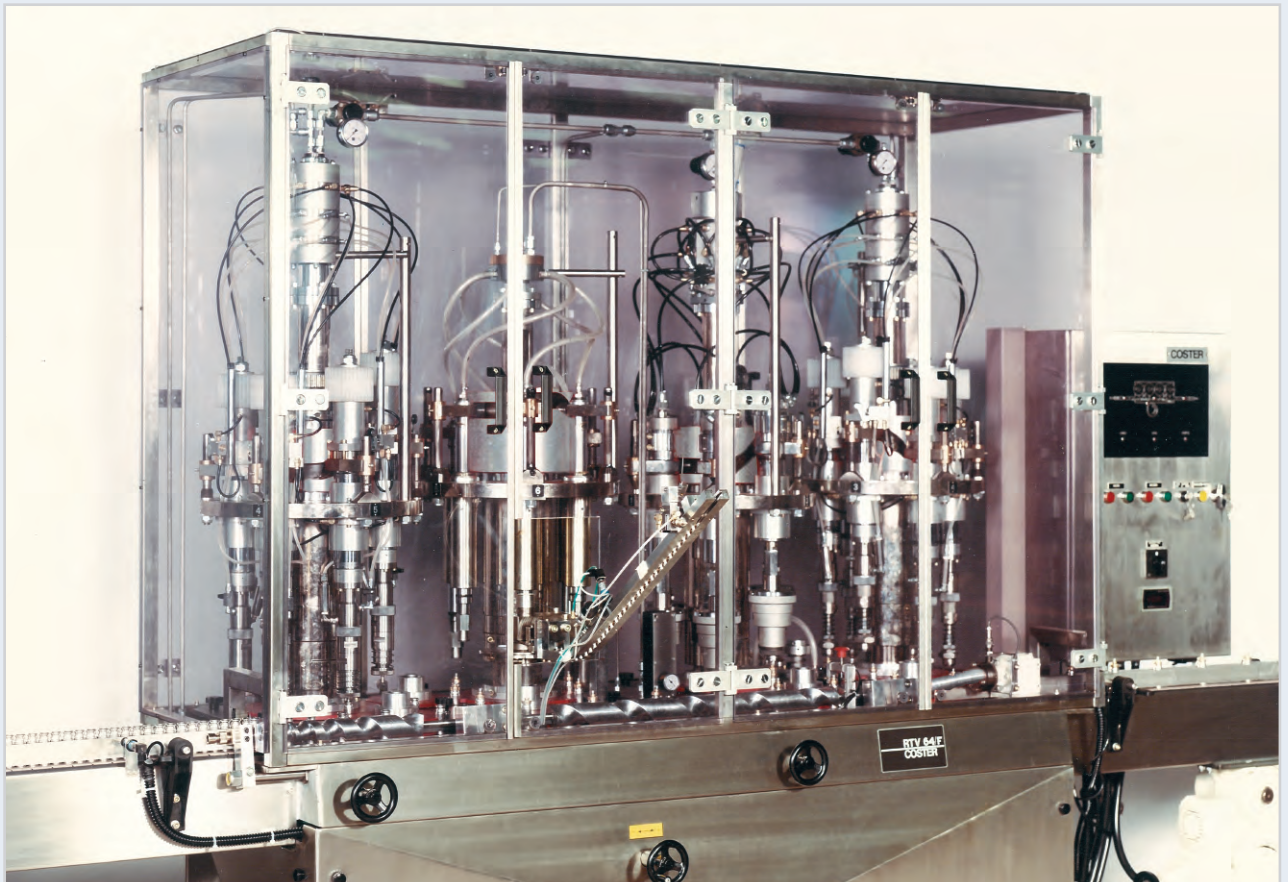
COSTER offers a wide range of filling and ancillary machines, from semi-automatic units to fully automatic high-speed rotary lines



Above: left, semi-automatic unit for crimping; right, semi-automatic unit for propellant filling. Semiautomatic units are suitable for laboratory and/or small-scale production (20-25 CPM).

Coster pharmaceutical machines range from semi-automatic (laboratory and low volume) machines to fully automatic high-performance machines, with a production capacity ranging from 10 to 250 cans per minute (CPM). Easy to operate, highly flexible, reliable, secure, long-lasting, low-maintenance, Coster pharmaceutical machines are based on a modular design and make use of the same operating heads (product fillers, crimpers, propellant fillers) to guarantee continuity between laboratory testing and full-scale production, minimising re-verification.

Compact automatic continuous high-speed rotary filling line for MDI. This line has a maximum production capacity of 120 CPM.



COSTER pharmaceutical machines allow safe handling of a wide range of products and propellants

Coster pharmaceutical filling machines can be used to fill glass, plastic and aluminium containers in a range of 0.15 ml to 1000 ml and to handle both 20 mm and 1" valves, as well as various pump configurations.

Coster machines have the capability to me-

ter products ranging from un-pressurized water-based solutions to aggressive products ranging from alcoholic emulsions to aerosol suspensions and are equipped to fill all types of propellants, as HFA 134a, HFA 227, LPG, traditional CFC's, nitrogen.

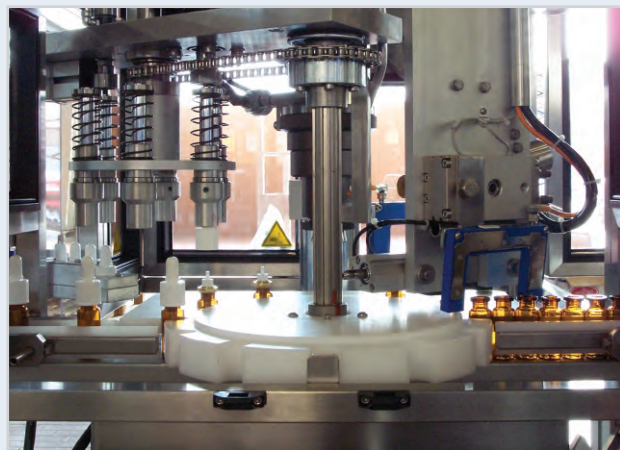
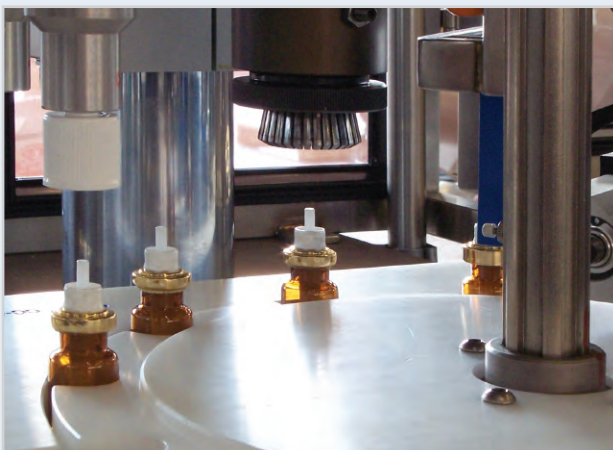


Above: automatic indexing unit for filling pharmaceutical products either in standard aerosol or dual-compartment systems (Bag-On-Valve). Line speed up to 60 CPM.

Bottom: close-ups of a Coster electronic automatic unit for 20 mm pump insertion on glass bottles, pump crimping and cap fitting on can. This unit has a production capacity of 60 CPM.

Bottom left: view of pump crimping and cap insertion.

Bottom right: view of central machine column showing cap insertion system.



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