

Eurotronica FM-C Eurotronica FM-LT

Monoblock filling for PET bottles



SPECIALLY DESIGNED FOR FILLING PET BOTTLES, THE EUROTRONICA FM-C AND EUROTRONICA FM-LT ARE CHARACTERIZED BY THE USE OF ELECTRO-PNEUMATIC VALVES WITH THE CONTENTS OF THE BOTTLE BEING DETERMINED VOLUMETRICALLY BY MAGNETIC FLOWMETERS.

The filling PET bottles

Eurotronica FM-C and Eurotronica FM-LT

The volumetric concept is particularly suitable for filling PET bottles, since under pressure their dimensions become unstable, thus making it difficult to control the content of the bottle with traditional level systems. Magnetic flowmeters may be considered the technologically most advanced volumetric measuring devices, able to guarantee the greatest precision, versatility, and hygiene.

MAIN FEATURES

- Volumetric filling with magnetic flowmeters
- high filling precision with possible important product saving respect to filling at level
- pneumatically-controlled filling valves
- minimal losses in product changeover due to the substitution of the ring shaped tank with a smaller-sized manifold
- decompression in a separate chamber
- product feed from fixed external tank (which can be integrated with the Sidel mix processor tank)
- reduced format changeover times
- high performing
- considerable product/container flexibility
- extensive sanitization
- can be blocked with rinsers and labelers.



Filling valves

EUROTRONICA FM-C

- Products handled: carbonated soft drinks, mineral water and still products
- phases of the filling process controlled by pneumatically operated membranes
- external assembly and pneumatic links with no connections mean that the valve can be easily and rapidly dismantled
- product conduct without turbulence
- product deflected onto bottle inner walls by a swirler to achieve perfect filling with a wide range of bottles
- for bottles with the same neck dimension no part of the valve requires replacing in the format changeover
- no filling tubes inside the bottle
- pneumatic-type raising and neck-handling with minimum track (optimal mechanical reliability)
- can be fitted with pre-filling CO₂ flushing

- can have separate air return
- gravity-filling for still products

EUROTRONICA FM-LT

- Products handled: beer, carbonated and still products liable to oxidation
- minimal oxygen pick-up due to filling by means of submerged tube
- phases of the filling process controlled by pneumatically-operated membranes made of food quality rubber
- external assembly and pneumatic links with no connections mean that the valve can be easily and rapidly dismantled
- product conduct without turbulence
- filling tubes with quick connection to minimize format changeover times when there are big differences in bottle sizes
- mechanical-type raising and hooking of the bottle in the filling position

- during raising, the bottle is kept steady by a centering bell
- the valve can effect various kinds of filling:
 - *one chamber: with air return in the tank*
 - *two chambers: with separate air return*
 - *one or two chambers: with flushing*
 - *three chambers: with air used as counter-pressure gas*
- the valve is designed for two-speed filling: initial low speed, in order to reduce oxygen pick-up in the first stage (until the tip of the tube is covered), second phase at higher speed until filling is complete.



Eurotronica FM-C



Eurotronica FM-LT

Magnetic flowmeters

WORKING PRINCIPLE

According to Faraday's law of electromagnetic induction, a voltage will be induced in a conductor moving through a magnetic field.

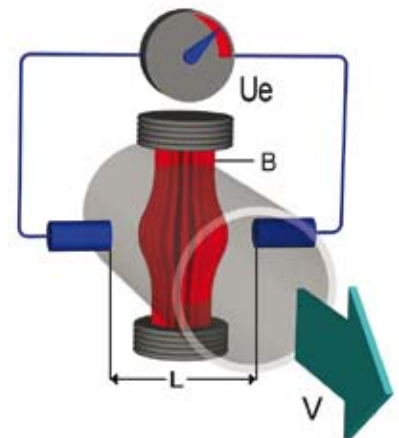
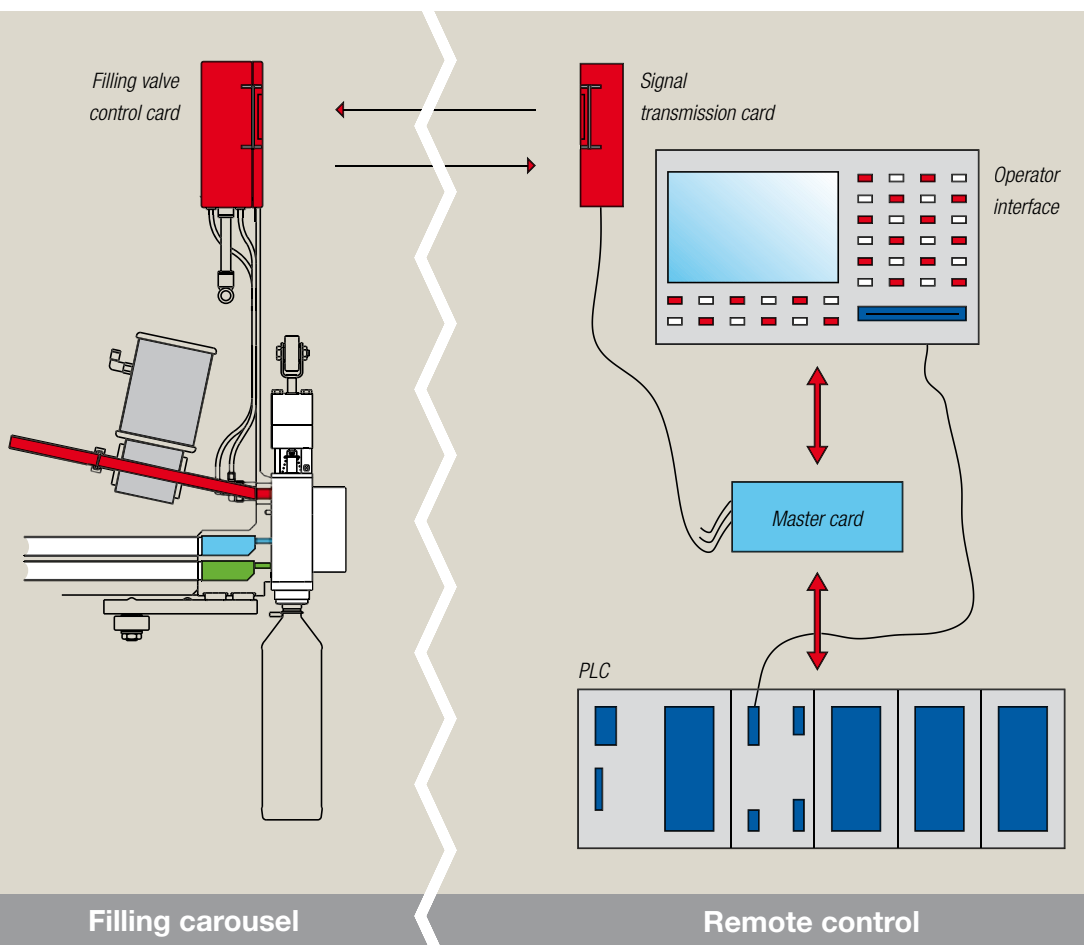
In magnetic-inductive measurement the flowing fluid is the moving conductor. The induced force is proportional to the speed of flow and is measured by an electrode couple. The volume of fluid is determined from the cross-section of the tube.

CONTROL SYSTEM

The filling parameters and control signals required for the correct functioning of the filling valve are situated in an electronic card (master) in the control PC. The control signals are sent to each individual electronic card (slave) controlling every valve by an infra-red communication system. This system has simplified cabling of the rotary parts and makes troubleshooting much easier.

The system provides continuous monitoring of each individual valve with the possibility of modifying the working parameters automatically.

Due to the independent valve control, in cases of malfunction, any individual valve can be switched off without affecting the overall working of the machine.



- $U_e = B \cdot L \cdot v$
- $Q = v \cdot A$
- $U_e =$ Induced voltage
- $B =$ Magnetic induction (magnetic field)
- $L =$ Distance between electrodes
- $V =$ Flow velocity
- $Q =$ Volume flow
- $A =$ Pipe cross-section

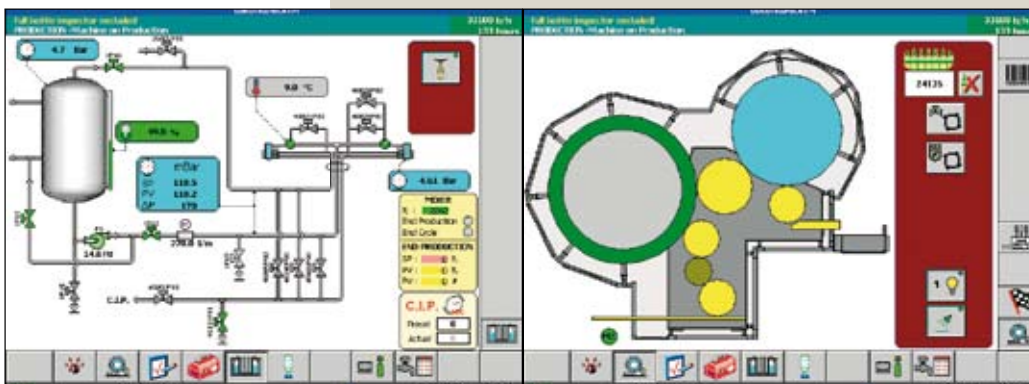
Capper



Part of the monoblock, the capper can handle all types of caps:

- aluminum screw caps
- pre-threaded plastic caps
- sport-caps
- special caps.

Operator interface



The machine is controlled from a user-friendly PC with suitable graphic software. The IT platform also includes an on-board handbook, teleservice and history archives (alarms, production data, working parameters).

Bottle handling

Bottles arriving from the air conveyor at capper infeed are transferred by the neck through to the capper outlet. The bottles are kept stable by starwheels with easily adjusted pitches for various diameters (patented system).

With the neck-handling system there is no longer any need to adjust the height in the filler, capper, or rinser, thus practically eliminating the traditional format changeover.



Ultraclean baseframe

Upon request, the front baseframe is provided in an ultraclean version, characterized by the double slope of the upper surface.

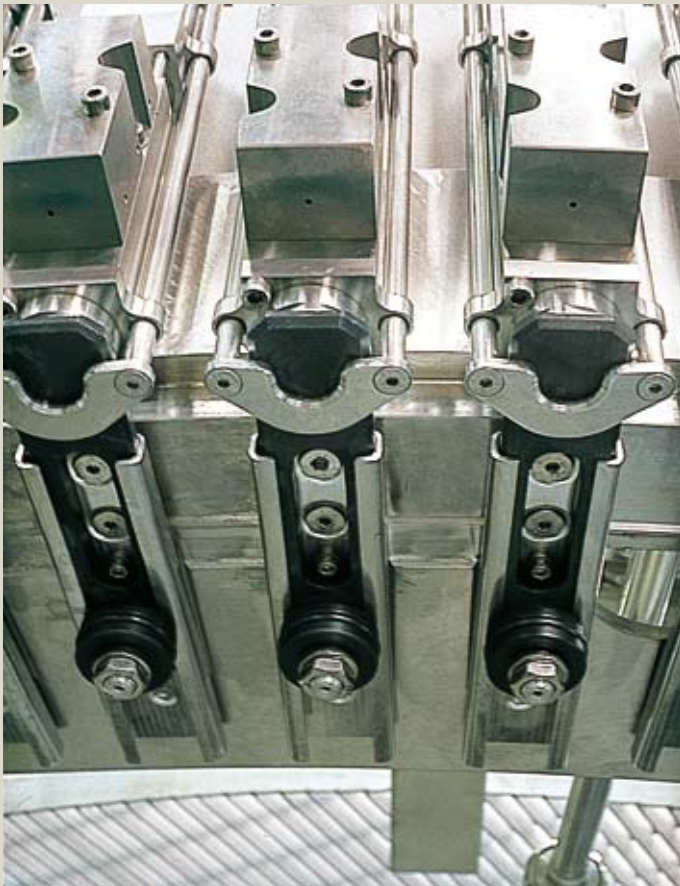
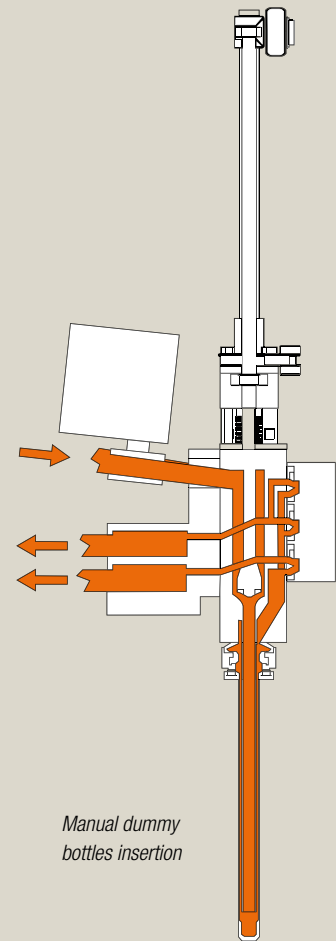
This special design guarantees complete rapid draining of all product residue, water, and broken bottles. Cleaning operations are thus much easier and effective and guarantee optimal hygiene conditions in the filling area.



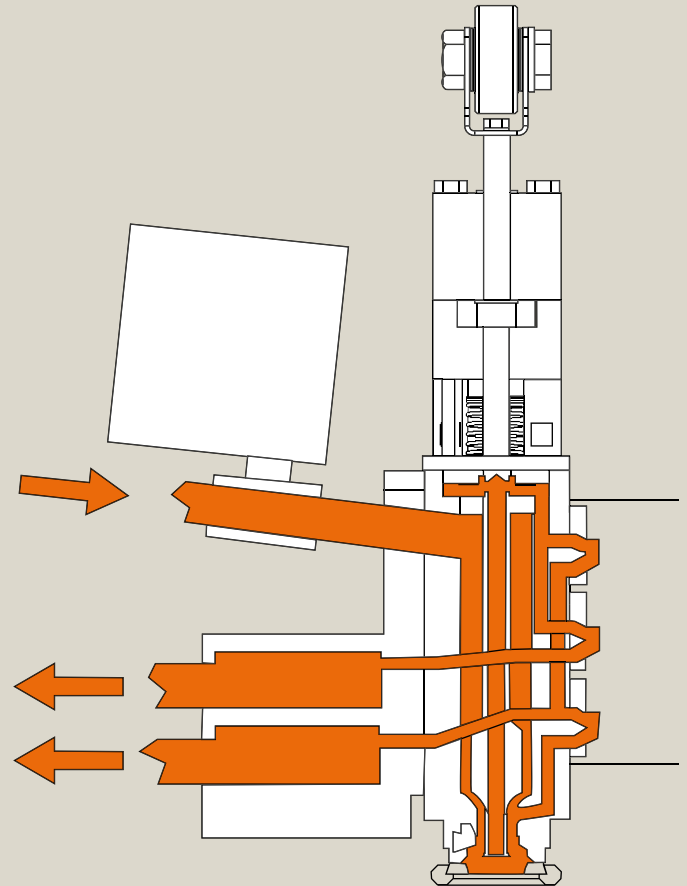
Sanitization

The machine is designed to be cleaned and sanitized in a closed circuit, making use of dummy bottles. All parts which come into contact with the product are subject to the sanitization cycles.

The Eurotronica FM-C version is supplied with automatic dummy bottles insertion. The Eurotronica FM-LT version is supplied with manual dummy bottles insertion.



Automatic dummy bottles insertion



Automatic dummy bottles insertion

