BARIFILL
Operating manual of the machine

KOSME

F01827 - F01828
K967557

CHAPTER 1

INTRODUCTION 1

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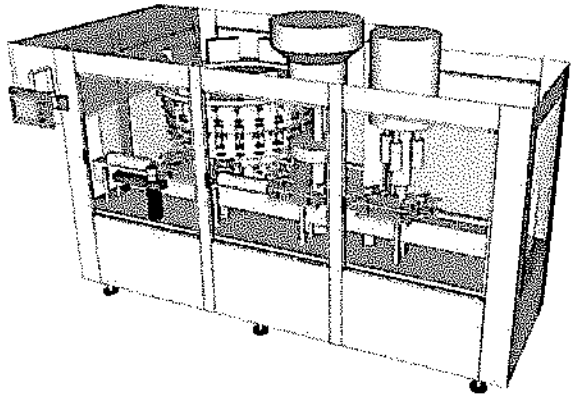
INTRODUCTION

1.1 GENERAL INFORMATION

This rotary filling machine is suitable for automatic filling of liquids in bottles, containers, and other recipients in various formats.
The containers enter the machine on the conveyor belts. Based on the machine model, they may be rinsed or blown. After that, they are positioned under the filling vales, filled, and transferred to a capper (optional) where closures are applied according to the order specification. The containers then exit the machine and go to the packaging line.
This manual describes the principles for operation, use and maintenance in details.
The machine is built, equipped and installed based on the customers requirements in the order.

Example - Overview of a Filler:

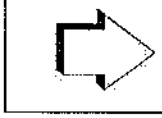


1.2 HOW TO USE THE INSTRUCTION MANUAL

- Read the content of this manual carefully prior to performing any operations on the machine.
- This manual refers to the machine model indicated on the cover.
- Look for the topic you are interested in the *Index* and read the content of the manual carefully.
- Keep this instruction manual with care in an area protected from humidity and heat.
- Do not remove, tear, or rewrite the manual for any reason.
- The wiring, pneumatic, hydraulic, and mechanical diagrams are provided in the attachments.

NOTE: The manufacturer declines any and all responsibility for operations performed on the machine to procedures other than those indicated in this manual and for operations performed on the machine that are not described in this manual.

The content of this manual is compliant with the Machine Directive ANSI Z535.6-2006.



THIS MANUAL HAS BEEN TRANSLATED INTO ENGLISH FROM THE ORIGINAL VERSION WRITTEN IN ITALIAN.

1.3 GRAPHIC SYMBOLS USED IN THE MANUAL

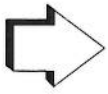
This manual uses warning, requirement, and prohibition symbols in order to call the operators attention to the presence of residual intrinsic risk for this type of machine.
The symbols used are compliant with the requirements of the Machine Directive 2006/42/CE for the minimal requirements for safety warning signs and/or for worker health and safety.
To this end, we would like to provide information on the sings for:

WARNING: These are triangular with a black pictogram on a yellow background and are used to indicate hazards or risks.

REQUIREMENTS: These are round with a white pictogram on a blue background and are used to indicate a specific behaviour that must be followed.

PROHIBITION: These are round with a black pictogram on a white background with red edges and bands. They are used to prohibit a specific behaviour that could create or cause danger.

NOTE: These signs are used to provide complementary instructions.

SYMBOL	TYPE	MEANING
	WARNING	General hazard
	WARNING	Hazardous voltage
	WARNING	Danger due to moving organs
	WARNING	Protective gloves must be worn
	WARNING	Danger due to high temperatures
	DANGER	General prohibition
	NOTE	Information to be read very carefully

1.4 SIGNS ON KOSME MACHINES

Here you will find prohibition, warning, and instruction signs for the machine with the corresponding description.

The signs are subdivided into the following categories:

- GENERALLY APPLICABLE SIGNS;
- COUNTRY-SPECIFIC SIGNS;
- KOSME-SPECIFIC SIGNS.

The signs alert you to potential risks or provide instructions.

Symbols are used to identify the type of hazard and/or instructions.

The signals which the machine is provided with depend on the machine model and features.

When operating the machine, please observe the operating manual; in particular, the chapter titled "Safety".

1.5 GENERALLY APPLICABLE SIGNS

ILLUSTRATION	EXPLANATION
	Follow operating instructions!
	Wear gauntlets
	Do not remove safety devices
	Do not enter, authorised personnel only
	Warning of high voltage
	Warning of hot surface
	Warning: moving parts may crush and cut
	Warning of danger of crushing
	Warning of danger of crushing

	Lifting point for the forklift truck
	Lifting point with eyebolt
	Overall stripes
	Warns of dangerous area
	Note! Observe the electric manual / connection diagram! Warns of high voltage
	Identification sticker (protective earth conductor)
	Caution Forbidden to carry out works on equipments under voltage
	Keep off

1.6 COUNTRY-SPECIFIC SIGNS

The safety of the persons in charge is to be laways considered at the very first place in both planning and realization of a plant/machine/equipment.
In an industrial environment there are many dangers: mechanical parts in motion, electric power, pneumatic power, water power, hot surfaces, noise and the persons in charge should be correctly protected against these dangers though also trained and informed. Even when safety barriers, protections or mechanical devices are carried out to reduce the risks for the persons in charge, there still exist residual risks; it is indeed against these residual risks that the safety pictograms (signals) play a basic role.

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⚠CAUTION	It shows a situation of incidental risk, which could cause damages of minor or medium entity, if not avoided. It could be used to warn against dangerous practices. It identifies a low level of risk.
⚠WARNING	It shows a situation of incidental risk, which could cause death or severe injury, if not avoided. It identifies a medium level of risk.
⚠ DANGER	It shows a situation of incidental risk, which can cause death or severe injury, if not avoided. This sign must be used only in situation of estreme danger, it identifies a high level of risk.

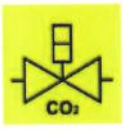
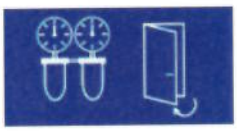
ILLUSTRATION	EXPLANATION
	Warning! Follow operating instructions!
	Warning! Hazardous voltage

	Warning! Keep the protections
	Danger! Hazardous voltage. Disconnect power before servicing or cleaning.
	Danger! Risk of electric shock.
	Warning: moving parts can crush and cut. Keep hands away. Stop machine to service or clean. Do not operate if any guard is removed.
	Danger! Hazardous voltage inside. Contact will cause electric shock or burn. Disconnect power before servicing.
	Warning: No Step
	Caution! Burn hazard. Hot surfaces. Do not touch. Wear gloves.
	Danger! Rotating blade
	Caution! Burn hazard. Wear gauntlets.

	Danger! Pinch Point. Moving pallets may crush and cut. Stop machine to service or clean.

1.7 KOSME SPECIFIC SIGNS

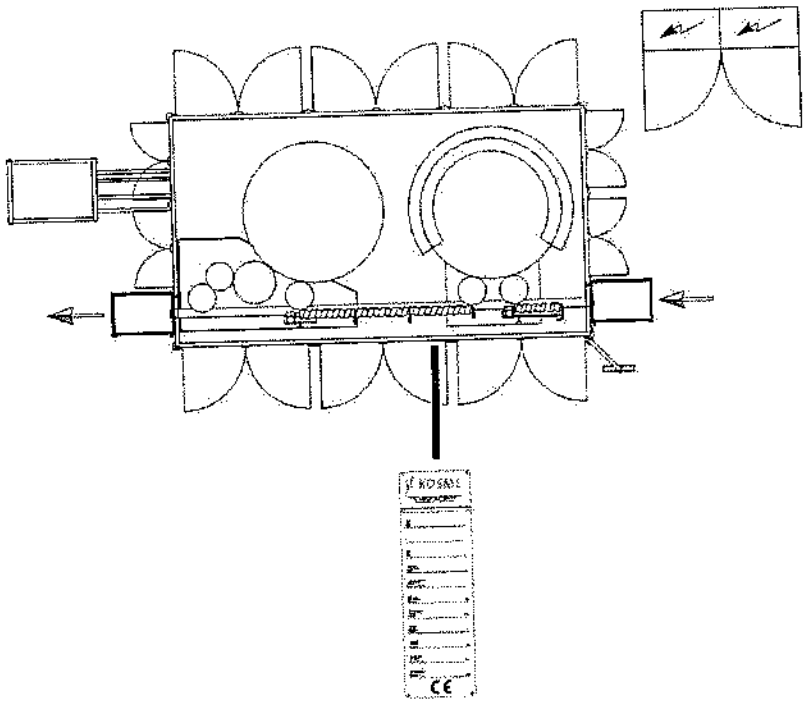
ILLUSTRATION	EXPLANATION
1	Number signs for the identification of specific machine components
A	Letter signs for the identification of specific machine components
	Follow lubrication instructions in operating manual
	Drain the condensation water
	Water inlet
	Product inlet
	Air inlet
	Sterile air inlet
	CO2 inlet

	Nitrogen inlet
	CIP inlet
	CIP return
	Foamer
	Vacuum pump
	Product modulating valve
	CO2 modulating valve
	Check the air pressure daily
	Air service unit inside
	Emergency emptying

	Main tap
	Water at max 60°C
	Caution! Remove pressure inside tank before any maintenance procedure.
	It is compulsory to remove all eyebolts before machine ignition.

1.8 MACHINE IDENTIFICATION

The identification plate is always on one side, as shown on the picture:



1.9 RESIDUAL RISK

Following is a list of the residual risks which cannot be completely eliminated using the solutions allowed by the current state of the art and technology.
The user must intervene with suitable safety measures when operating the machine, aimed at minimizing the operator's exposure to risk.

List of residual risks:

- **Risk of being cut** when cleaning the machine table (broken containers, shards from bottles)
- **Risk of abrasions** when using aggressive detergents (use suitable protective equipment (safety glasses, gloves, etc.).
- **Risk of knocks, impact, compression, puncture, cuts and, abrasions** (during the handling phases required for shipping, commissioning, installation, maintenance, and repair of the elements that make up the machine)

1.10 WARRANTY

The terms and conditions of the warranty are specified in the Order Confirmation.

1.11 OBJECT OF THE WARRANTY

For all of the machines produced directly and for the entire warranty period specified, the manufacturer commits to repairing or replacing free of charge the parts subject to breakage or early wear due to the poor quality of the material used, production defects, or installation defects.

The warranty is not valid for parts that break or wear due to:
- Not following the instructions contained in the Manual for Use and Maintenance
- Improper or lack of maintenance
- Lack of or improper cleaning of all of the line parts that require cleaning for proper operation.
- User negligence in terms of checking the lubrication and other fluid levels, auxiliary services, compressed air supply, and electric power
- Use of unsuitable tools for ordinary and extraordinary maintenance
- Modifications or tampering performed by the user or third parties without specific approval from the manufacturer
- Use of non-original spare parts

1.12 WARRANTY PERIOD

The warranty is supplied as specified in the Order Confirmation.

1.13 WARRANTY APPLICATION

To determine the cause and therefore the application of the guarantee, it is mandatory that the parts requested in replacement under warranty be sent to our company. All costs of packaging and shipment of the goods under warranty is the responsibility of the customer.

If a specialized technician is required to determination of the application of guarantee and replacement of the parts, the customer is responsible for all travel and lodging expenses of the personnel, a well as packaging and shipment of any replacement parts.

1.14 EXCLUSIONS AND LIMITATIONS

All parts subject to normal wear are excluded from the warranty, such as gaskets, seals, belts, etc., as well as parts for which the life expectancy cannot be pre-determined, such as light bulbs, fuses, etc.

Components and accessories purchased from external suppliers are subject to the same terms of warranty as the machine.

1.15 USEFUL CONTACTS AND ADDRESSES

KRONES, INC.
9600 South 58th Street
Franklin,Wi 53132-6241

Tel: (414) 409-4000
Fax: (414) 409-4160
Internet:www.kronesusa.com

KOSME s.r.l. unipersonale
Via dell'Artigianato, 5
46048 ROVERBELLA (MN) ITALY

Tel: +39 0376.751011
Fax: +39 0376.751012
Internet: www.kosme.com
E-mail: kosme@kosme.it

GENERAL WARNINGS

2.1 GENERAL SAFETY STANDARDS

- Unloading and handling of the machine at the site of installation must only be performed by specialized, authorized personnel.
- The machine must only be entrusted to persons physically and mentally adequate, who can guarantee reliable performance of their roles.
- Service, maintenance, and repair of the machine must not be entrusted to personnel under the effects of alcohol, drugs, or other.
- The presence of one operator is required for machine operation. All other personnel must remain at a suitable distance.
- Prior to starting work, the operator must check the machine and safety devices for any visible defects.
- The person in control of the machine must be informed of the emergency stop switch operation and must inspect it regularly.
- The operator must inform his superior and, on shift change, the person who replaces him, of any machine defects, especially those involving safety.
- If an accident should occur that compromises the safe operation of the machine, the machine must be stopped.
- If, due to repairs or other operations, more than one person is working on the machine, prior to starting the machine all individuals working must be advised.
- The machine can only be sued for the purpose for which it was manufactured according to the contract with the manufacturer (our company).
- Technical modifications that influence the operation or safety of the machine can only be performed by our personnel or with our explicit consent. Otherwise, our company declines any and all responsibility for the changes made and for any damages caused.
- Do not operate or regulate any drive elements, control devices, etc. unless authorized and aware of the function.
- During the normal production cycle of the machine never deactivate the guards and safety devices.
- It is prohibited to enter the guards when closed.
- In order to allow the machine to be inspected, it is possible to run the machine in slow jogs with the guard housings open. Prior to jogging, the operator must ensure that there are no other persons near the machine.

- If the safety devices must be disabled for installation, maintenance, and repair, these operations must only be performed by authorized personnel who must ensure that no damages are caused to people or machines.

- In order to perform the tool change, and for cleaning, maintenance, and repair operations, wear suitable personal protection equipment. Clothing must be close and resistant to detergents.

- Based on the operation performed, wear protective eyewear, cap, helmet, safety shoes, gloves, etc.

- Do not wear jewellery, rings, chains, etc. which could catch in the moving parts of the machine. Protect long hair with a hairnet.

- When changing tools, performing maintenance, and at start-up:
- Turn off the main switch and lock it to prevent the machine from starting up again
- Press the emergency stop so that the machine cannot be accidentally operated. If the machine must be operated to perform the works, turn on the power to the machine only for the time necessary to perform the operation. Ensure that turning on the machine does not cause damages to people, equipment, or the machine itself.

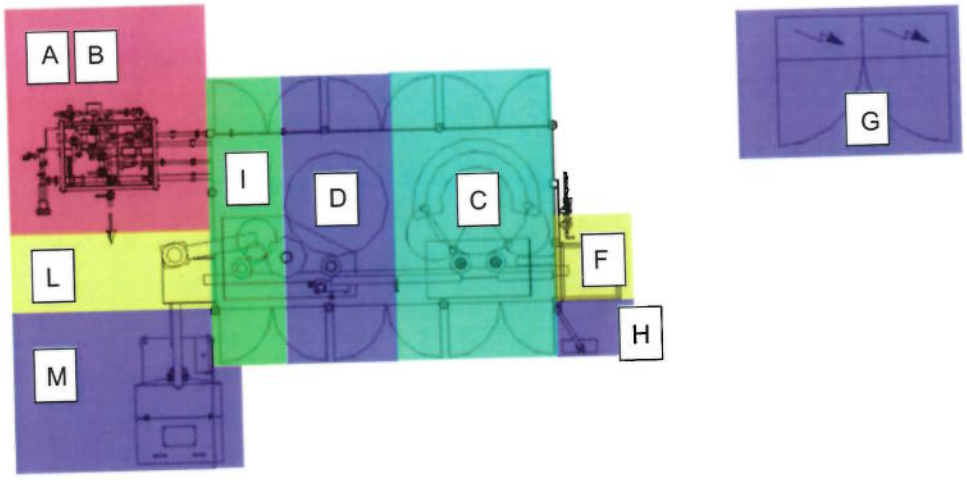
- The container, box, pallet, etc. containers can only be crossed using ladders, gangways, etc.

- Follow the safety norms of your professional association.

- KOSME doesn't supply any kind of equipment for format change-overs involving elevation.

2.2 WORKPLACES

The whole machine can be considered one only work area for the operator. The machine overall area as well as the strictly surrounding (1 meter) zones have been divided, for simplicity purposes, in workplaces. These places, also called workareas, can be used by the operators for the normal control, adjustment, maintenance and repair of the machine. the access to the workareas can be free or dependent on the opening of a cab door.



A - PNEUMATIC PANEL
B - PIPING
C - RINSER MACHINE
D - FILLER MACHINE
E - RINSER TANK
F - INLET CONVEYOR
G - ELECTRIC PANEL
H - TOUCH SCREEN
I - CAPPER MACHINE
L - OUTLET CONVEYOR

2.3 RISKS LINKED WITH THE MACHINES FEATURES (ZONES SUBJECT TO RISK)

ZONE REF.	ZONE SUBJECT TO RISK	DESCRIPTION OF KIND OF DANGER
A	PNEUMATIC PANEL	Risk of impact, stumbling, compression by moving parts.
B	PIPING	Risk of impact, stumbling, compression by moving parts. Risk of burns - abrasions during the use of aggressive detergents.
C	RINSER MACHINE	Risk of impact, stumbling, compression by moving parts. Risk of burns - abrasions during the use of aggressive detergents. **Risk of cut** during cleaning of the machine table (broken containers, bottle debris).
D	FILLER MACHINE	Risk of impact, stumbling, compression by moving parts. **Risk of cuts** during cleaning of the machine table (broken containers, bottle debris)
E	RINSER TANK	Risk of impact, stumbling, compression by moving parts.
H	TOUCH SCREEN	Risk of impact, stumbling, compression by moving parts.
I	CAPPER MACHINE	Risk of impact, stumbling, compression by moving parts. **Risk of cut** during cleaning of the machine table (broken containers, bottle debris)
M	FEEDER CAPS / SORTER	Risk of impact, stumbling, compression by moving parts.
G	ELECTRIC PANEL	Risk of electrocution or burns due to presence of electric tension. Risk of electric shock even by open main switch due to the presence of residual tensions in the electric condensers. Such a risk becomes evident when retiming the network (refer to the Electric Scheme). Risk of electric shock even by open main switch due to the presence of residual tensions in the electric condensers. Such a risk becomes evident in case of electric switch-on (extruder, chiller, etc...). Risk of electric shock even by open main switch due to the presence of hot circuits.
F	INLET CONVEYOR	Risk of impact, pulling, compression by moving parts.
L	OUTLET CONVEYOR	Risk of impact, pulling, compression by moving parts.

	ALL ZONES	Risk of cut due to the breaking of the glass safety guards. Mechanical risks - Incorrect use of tools, lubricants and cleaning products. - Risk of air under pressure even by machine standing still. Electric risks: - Electromagnetic phenomena in the electric equipment due to outer disturbances - Electrostatic phenomena in the electric equipment and machine aboard - Live elements in the electric equipment, machine aboard and inside the switchboard. - Whole machine overloaded if no differential gear forecasted - Parts of the whole machine that may get hot due to malfunctioning or failure. - Whole machine short-circuited, due to failure. - Electric machine aboard with thermic radiations, in case of short-circuit. Thermic risks: - Flames machine electric aboard, in case of short-circuit - Radiations from hot surfaces in electric motors, in case of overload. Physical - noise risks: - Noise coming from worn out parts, that require maintenance Physical - vibration risks: - Vibrations coming from worn out parts, that require maintenance (mostly bearings) Physical - radiation risks: - Low-frequency electromagnetic radiations coming from the switchboard / machine aboard panel - Ergonomic risks: - Due to the control systems positioning - Machine working zone, just in case of no suitable lighting. - Machine working zone, due to carelessness during cleaning and maintenance procedures. Risks linked with the room conditions of the machine positioning: - Electromagnetic disturbances coming from electric/electronic equipments fitted in the room. - Poor lighting in the machine working zone, just by machine fitted where the directions in force are not complied with. - Too high or too low humidity rate. Rates as per Chapter "Technical Features" are to be followed up - Too high or too low temperature. Rates as per Chapter "Technical Features" are to be followed up Combination of risks: - Risks linked with repeated activities, poor dedication or high room temperatures.

PROCEDURES TO BE CARRIED OUT BEFORE STARTING THE MACHINE AND DURING PRODUCTION:

NOTICE	Only use the predetermined containers.
⚠CAUTION	Before machine start-up, make certain that: - All replaced parts are inserted and fastened correctly - That nothing is loose on the machine (rags, tools, etc.)
⚠CAUTION	Before starting up the machine, make certain that no-one is inside the danger areas of the machine.
⚠WARNING	When working in manual, the operator must make certain that no-one is working on the machine as machine operation is possible with the guards open.
⚠WARNING	Do not handle tools, detergents, or other similar things near the machine when operating.
⚠WARNING	Do not take action when the machine is running and stay at a safe distance due to the moving machine parts.
⚠WARNING	Do not run the machine when not watched.
⚠CAUTION	Do not operate the machine when tools, lamps, or control elements are defective.
⚠CAUTION	Stay away from the machine if it has been stopped due to automatic adjustment of the flow rate. The machine will restart automatically once the cause of the stop has been eliminated (jams or lack of bottles).
NOTICE	During machine operation, pay attention to unusual noises. Find the cause and resolve the malfunction.

PROCEDURES TO BE CARRIED OUT DURING MAINTENANCE:

⚠WARNING	Do not clean the electric parts of the machine with water or other fluid.
⚠WARNING	Take care when using aggressive detergents, acids, lye, etc. Use the products according to the manufacturer's instructions. If using detergents, wear suitable protective clothing (protective eyewear, gloves, etc.).
⚠WARNING	Make certain that all handles, steps and platforms are free of oil, grease and other materials that may cause you to slip.
⚠CAUTION	Check control elements for damages, for example broken levers, etc., and replace these parts.
NOTICE	Lubricate according to the instructions provided in the paragraph "Lubrication".

PROCEDURES TO BE CARRIED OUT DURING REPAIRS:

NOTICE	If the machine is defective, post a sign on the control panel.
⚠CAUTION	All repairs must be performed under the direction of a responsible person.
⚠CAUTION	For the duration of the maintenance and repair of the machine, the mains switch must remain turned off. Prohibit operation by unauthorized personnel using a lock.
⚠WARNING	Machine repairs must only be performed by suitably trained, skilled personnel. This personnel must perform the works with due attention in order to avoid damages to persons or property.
⚠ DANGER	Before starting works on the electric system, turn off the power. To turn off the power, the following safety rules must be followed: - Turn the power switch to the "OFF" position - Secure the machine against start-up - Check that the power is off Surrounding parts that are powered must be covered or barred.
⚠WARNING	During maintenance and repair, unauthorized persons must remain at a safe distance from the machine. If, due to repair or other operations, more than one person is working on the machine, prior to starting the machine all individuals working must be advised. Once repairs have been completed, the machine can only be started up once the person responsible determines so. Prior to giving his approval, this person must check that: - The works are completely finished - The entire machine is in the condition to guarantee safe operation. - All employees have left the danger areas of the machine.
⚠WARNING	Repair operations of pneumatic and hydraulic parts to be carried out only when not under pressure.
NOTICE	Please pay attention to the following: Our company does not guarantee any repairs or damages due to dismantling, new installation, and start-up that is not performed by our personnel but is performed by the customer or his representative.

2.4 USE OF PERSONAL PROTECTION EQUIPMENT PPE

During lifting, shipping, handling, assembly, commissioning/decommissioning, maintenance, and mechanical repair of the parts of the machine, the operators must wear:

	**EYES:** Wear protective eyewear to avoid the risk of accidental contact. If oil comes into contact with eyes, wash with copious amounts of water
	**WORK GLOVES** (against knocks, bumps, impact, compression, puncture, cuts, and abrasions).
	**SAFETY SHOES** with reinforced toe and non-skid, isolating soles (to protect against slipping and electric risk)
	**SKIN:** compulsory protective clothing.

2.5 SKILLS REQUIRED FOR USE AND MAINTENANCE OF THE MACHINE

In general, persons who operate the machine must have the following characteristics:
- Use of lower and upper limbs
- Recognize and know colours
- Good vision and hearing
- Know the hazard and warning signs
- Know how to use the production equipment and machines with central control

- Know the machine operating cycle, that is have performed *theoretical-practical* training shadowing *expert* operators or machine controllers; or shadowing one of the manufacturer's technicians.

Not Qualified Operator (QUALIFICATION 1)	Personnel without specific skills, responsible for the machine in automatic operation using the devices provided on the control panel with the guards closed.
Qualified Maintenance Mechanic (QUALIFICATION 2)	Qualified technical personnel capable of operating the machine under normal conditions, of acting on the mechanical parts to perform all necessary regulations, repairs, and maintenance. This person is not qualified for operations on the electric system with power present.
Qualified Maintenance Electrician (QUALIFICATION 3)	Qualified technical personnel capable of operating the machine under normal conditions and, furthermore, can act to perform any electrical repairs, regulations, repairs and maintenance. This person is qualified for operations on the electric system with power present.
Manufacturer Technician (QUALIFICATION 4)	Qualified technical personnel provided by the manufacturer to perform operations of significant difficult under special situations, and with the customer's agreement.

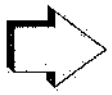
2.6 SAFETY SYSTEMS

The machine has been designed and manufactured in compliance with the basic safety requirements of the directives:

- **CSA C22.1**, Canadian Electrical Code (CEC), 2012 ed
- **CSA C22.2 n° 14**, Industrial Control Equipment
- **SPE-1000**, Model Code for Field Evaluation of Electrical Equipment (specific for Ontario, Manitoba and British Columbia)
- **CSA Z432**, Safeguarding of Machinery;
- **NFPA 79** Industrial Machinery ed. 2012
- **ANSI/B11.0** Risk assessment and risk reduction - a guide to estimate, evaluate and reduce risks associate with machine tools
- **ANSI/PMMI B155.1-2011**Safety Requirements for Packaging Machinery and Packaging-Related Converting Machinery
- **CSA Z460-05** – Control of Hazardous Energy – Lockout and Other Methods
- **CRN / ASME**

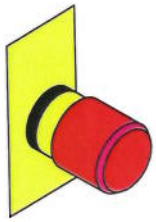
For this reason, when delivered it is equipped with all permanent and mobile safety devices required by the abovementioned directives.

Before starting activities on the machine, each operator must have perfect knowledge of the machine function and its commands, and must have read and understood all of the information contained in this manual.



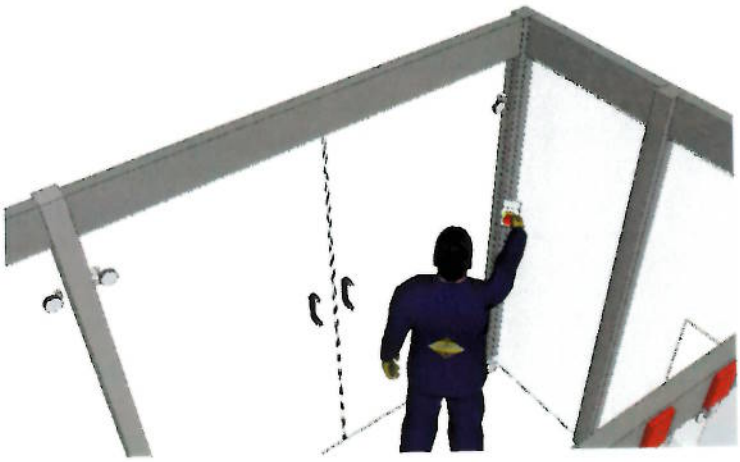
THE MANUFACTURER DECLINES ANY AND ALL RESPONSIBILITY FOR DAMAGES TO PERSONS OR PROPERTY DUE TO TAMPERING WITH OR REMOVAL OF THE MACHINE SAFETY DEVICES.

2.7 EMERGENCY STOP BUTTON

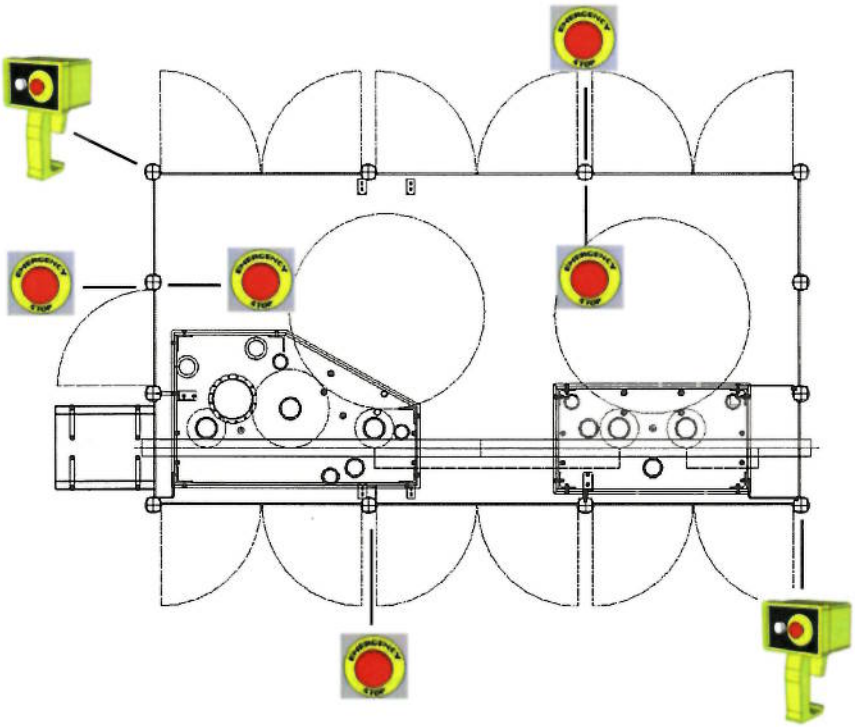


These buttons are located on the machine's main control panel and on the sides of the machine.
They are to be used only to stop the machine in case of an emergency.
In case of emergency, press the nearest EMERGENCY STOP device.
Be aware of the positions, use, command, etc. of all of the EMERGENCY STOP devices on your machine.

CAUTION: Do not use the EMERGENCY STOP devices to stop the machine for during normal operation. When the machine is stopped so quickly, the mechanical parts are subject to stress



CAUTION:
The emergency push-buttons inside the machine eliminate the danger for the operator entrapment in case of casual lockup of the doors.



The machine is equipped with a **mobile – jog keypad** (fig.1) for adjustment operations and maintenance. It is equipped with:
- The JOG button (which can also be double (fig.1); in this case the machine will advance only if both buttons are pressed at the same time)
- The EMERGENCY STOP button
- The head lift/lower selector switch.

CAUTION !

By jog function running is only possible by all guards closed, same function as the automatic running, additionally the jog control lasts 30 seconds.
So, after 30 seconds have passed from the pushing down of the jog button the machine stops.
To get the machine turn again, the JOG button has to be released and pushed down again

When this keypad is enabled, the safety shield warning signals are deactivated.

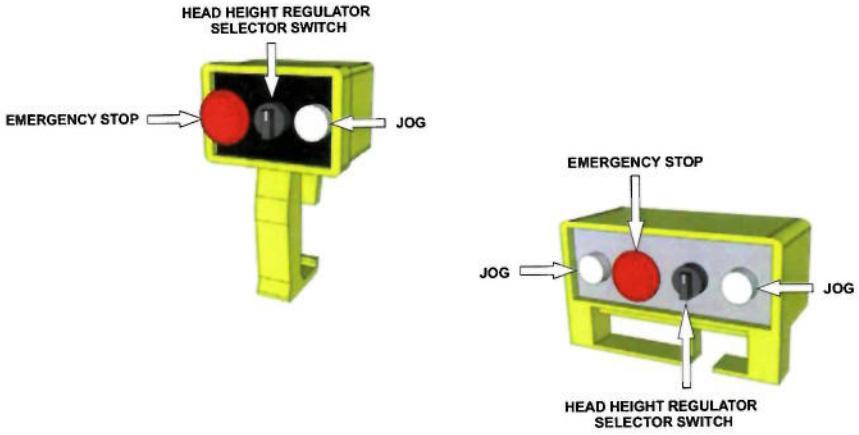

HEAD HEIGHT REGULATOR
SELECTOR SWITCH
EMERGENCY STOP
JOG
EMERGENCY STOP
JOG
JOG
HEAD HEIGHT REGULATOR
SELECTOR SWITCH

fig.1

2.8 POSITION OF THE ELECTRIC DISCONNECTORS

The electric switchs are located on the machine main control panel:

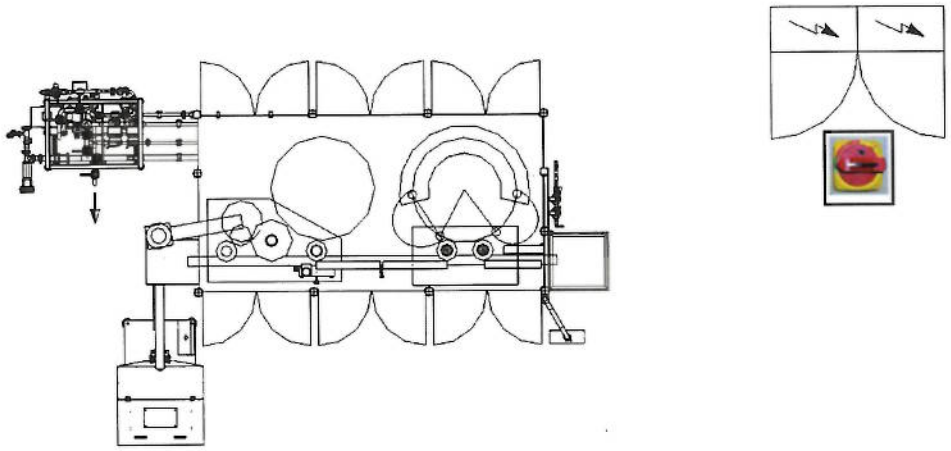


fig.2

The main switch is used to turn on/off the power supply of the machine and its modules.
Turn to the "**I**" position to turn on the power supply.
Turn to the "**O**" position to turn off the power supply.
CAUTION: Do not use the main switch to stop the machine during normal operation, nor in the case of emergency

Remember that:
- The mains switch is a cut-off of the electric mains, used to activate the machine's electrical system.

2.9 POSITION OF THE AIR INLET UNLOCKING VALVE

The air inlet locking / unlocking valve is located on the machine side, as indicated:

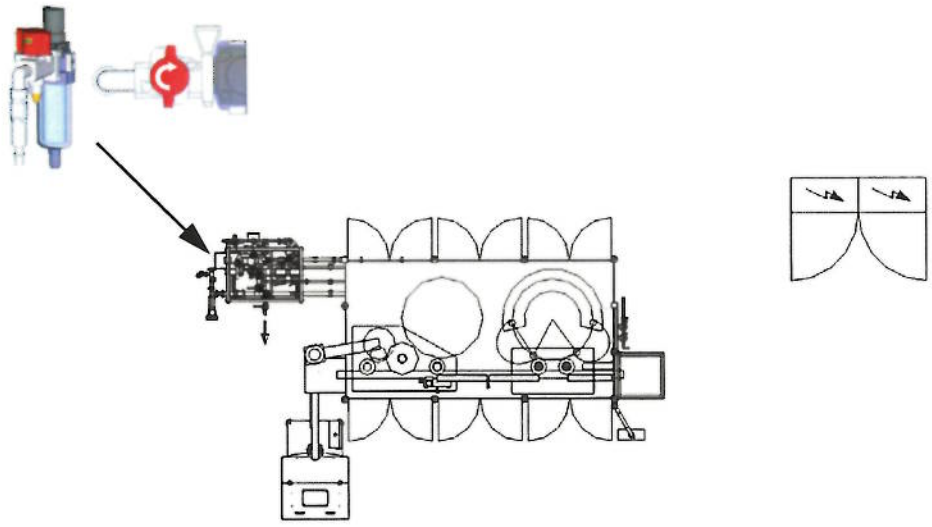


fig.3

When the main air inlet is open (**SUP.** - supply) the whole pneumatic circuit is supplied with compressed air.
Turn the knob in position **EXH.** (exhale) to close the valve.

2.10 PERMANENT SAFETIES (GUARDS, DEVICES)

In order to avoid accidental contact with the moving parts of the transmission and the electric panel on machine, the lower part of the machine is equipped with permanent metal guards. Use the wrench provided with the machine (fig.4) to remove them temporarily only when required for maintenance or regulations.

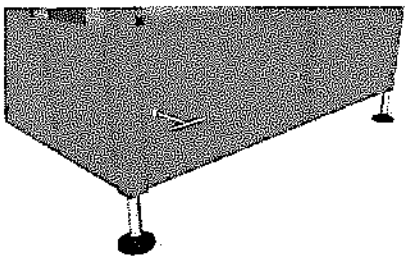
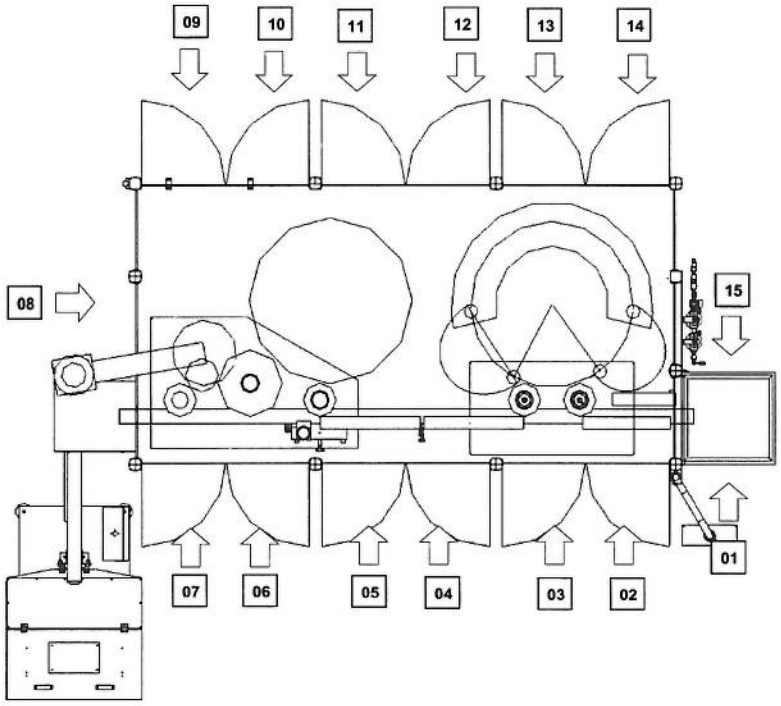


fig.4

2.11 REMOVABLE MACHINE PROTECTIONS (GUARDS, DEVICES)

In order to prevent unintentional contact with working components, the upper part of the machine is equipped with removable protections, hatchdoors in glass or transparent plexiglas panelling (fig.5), connected to cut-out switches operating the machines emergency stop. The opening of these guards triggers the immediat machine stop.
To resume operation, close all guards and press the reset button located on the operating panel.



POSITION SWITCH

fig.5

The machine is forecasted to hold 3 reset push-buttons, 1 on the panelboard, 1 on the side, 1 at the rear.

The machine has 15 safety guards, which have been divided into 3 areas.

Safety guards from 1 up to 8 are reset just by the panelboard reset.

Safety guard 9 is reset just by the side reset.

Safety guards from 10 up to 15 are reset just by the reset at the rear.

Besides resetting the safety guards of its own area, the panelboard reset works as a general reset, although it cannot reset the safety guards of the other areas.

As to the control lights:

each RESET has its own control light.

control light ON FIXED to advise that there is an open safety guard in the relevant area.

control light ON FLASHING to advise that the safety guards in its own area are closed but have not been reset, therefore it is possible to reset them.

Reset control light of the beacon:

control light ON FIXED to advise that one of the safety guards stands open.

Control light ON FLASHING to advise that it is possible to reset (general reset on the panelboard)

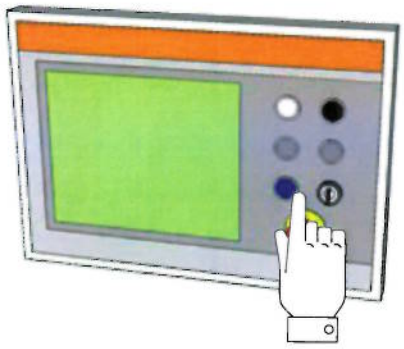
Nevertheless refer to the machine electrical scheme for the good numbering of the safety guardings.

2.12 FIRE FIGHTING EQUIPMENT

	Use CO_2 foam, dust, or water fog extinguishers. Use water to cool heated containers. Pressurized water can be used to remove oil spills, moving them away from the area involved in the fire. If there are leaks or spills, absorb it using sand or other inert material. Collect it and dispose of it in an authorized waste facility according to current regulations. Use SCBA gear to fight fires in closed areas.

2.13 CONTROL AND WARNINGDEVICES FOR MONITORING THE MACHINE

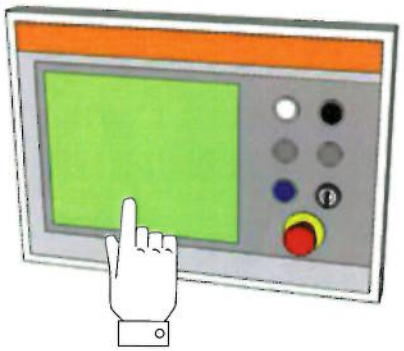
CONTROL INDICATOR LIGHTS



• On the control panel

These lights indicate the operative status of the machine.
The corresponding control indicator lights light up or blinks.

TOUCH SCREEN

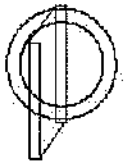


• On the control panel

Used to provide production data, the operative status, and faults.
Each individual display can be called up, one after the other.
The data is indicated as either a graphic warning and/or text.
A detailed description of the touch screen is found in the paragraph "TOUCH SCREEN".

2.14 LIST OF COMMANDS

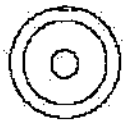
Selector Switch



AUT-MAN - AUTOMATIC/MANUAL (key switch)
It enables machine jogging operation by means of a button located on the mobile push-button panel.

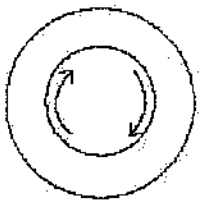
Buttons

MACHINE START (White - button 1)
When pressed it activates the machine.



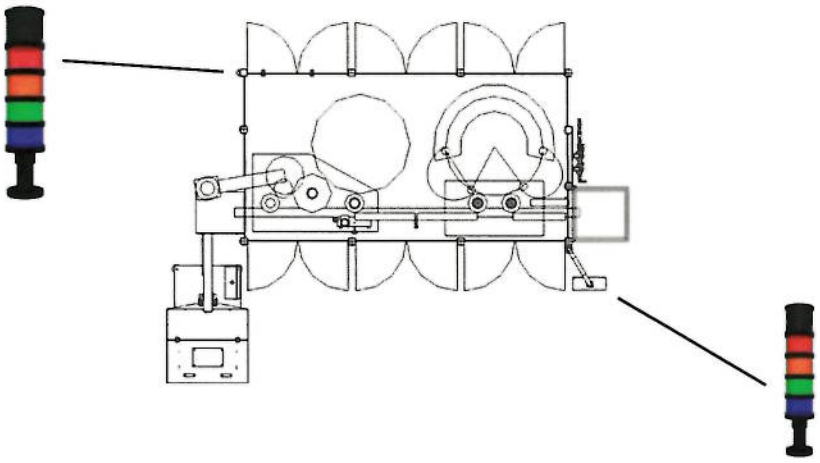
MACHINE STOP (Black - button 0)
When pressed it stops the machine.

RESET - EMERGENCY (Blue)
This button is used to restore operation after pressing one of the red mushroom emergency stop buttons.



EMERGENCY STOP
It allows a complete stop of the machine by disabling power and compressed air supply.

2.15 BEACON



The beacon lights up/blinks under specific operating/fault conditions.

The meaning of the light signals can be found in the following table.

SIREN

EMERGENCY (RED)

WARNING (YELLOW)

NORMAL CONDITIONS (GREEN)

RESET (LIGHT BLUE)

LIGHT BEACONS	MEANING	NOTE

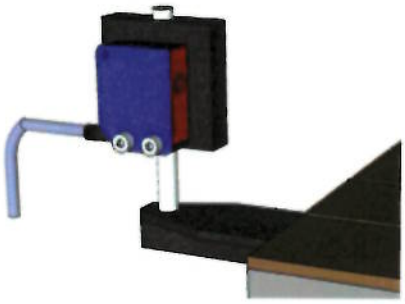
Red, lit up	Error signal Fault with machine stop. The machine will not be ready for operation until the fault is eliminated.	The fault is displayed on the touch screen.
Yellow, lit up	Warning signal. Faults have occurred during operation, for example - no containers in the infeed area, container jam at the discharge area.	The fault is displayed on the touch screen.
Green, lit up	The machine is running production normally.	No fault warnings.
Light blue, lit up	Reset required	

To control the beacon and siren function, go to the DIAGNOSTICS - TEST WARNINGS screen on the control panel.

2.16 PHOTOCELLS / SAFETY SENSORS / CONTROL

These are mainly used for:
- Detection of disturbances
- Detection/control of the various machine states or individual parts of the machine
- To control the operative process
- To detect the containers
- To detect the maximum height limit during height adjustment
- To regulate the speed in the infeed/discharge zone

Based on the operational status or the problems, the machine is stopped and restart is cut-off, delayed, or accelerated.



IT IS PROHIBITED TO REMOVE OR TAMPER WITH ANY SAFETY DEVICE PROVIDED WITH THE MACHINE.

THE MANUFACTURER DECLINES ANY AND ALL RESPONSIBILITY FOR DAMAGES TO PERSONS OR PROPERTY DUE TO TAMPERING WITH OR REMOVAL OF THE MACHINE SAFETY DEVICES.

2.17 ELECTRIC POWER AND SAFETY FEATURES CIRCUITS SWITCHBOARD

fig.6

The board with the circuits of electric power is made out of a cabinet close to the machine. The two doors for the access to the inner circuits (to be opened by a special procedure) are provided with:

- two door opening handles;
- the yellow / red main feed disconnector, with two positions (0 – OFF; 1 – ON).

To open the main switchboard, it is necessary to turn the main disconnector in position 0 – OFF and, at the same time, to press the yellow lever of the disconnector clockwise to the bottom.

ONLY QUALIFIED TECHNICAL PERSONNEL (LEVEL 3) IS AUTHORISED TO OPEN THE SWITCHBOARD IN ORDER TO PERFORM ADJUSTMENT OR REPAIR OPERATIONS.

2.18 DISPOSAL AND ELIMINATION

Before performing any dismantling of disposal operations, the machine must be disconnected from the electric mains and air supply.
When disposing of the machine, remember that the materials the machine is made of are not hazardous or toxic.
Follow the current regulations for waste disposal and divide the components of the machine in order to dispose of the electric cables, the oils, the iron parts, the plastic parts, etc. properly.

DISMANTLING THE ELECTRICAL SYSTEM

Disconnect the wiring to the control panels and shunt boxes. Refer to the machine wiring diagram and pay attention to the initials on the terminal board and each cable.

Pay careful attention to not remove or damage the initials of the cables and the terminal boards on the machine.

DISMANTLING THE BUFFER BATTERIES (TOUCH SCREEN AND PLC)

Remove the buffer batteries from the PLC and any control panels on the machine.
Dispose of these batteries properly at an authorized recycling center.

Never throw away wasted batteries in the garbage or in containers not suitable for this reason.

DISMANTLING THE GEARBOXES

The contents of the gearboxes must be disposed of according to the current regulations. For the correct procedure, please refer to the gear motor documentation.

Be very careful during all phases when removing the oil contained in the gearboxes.

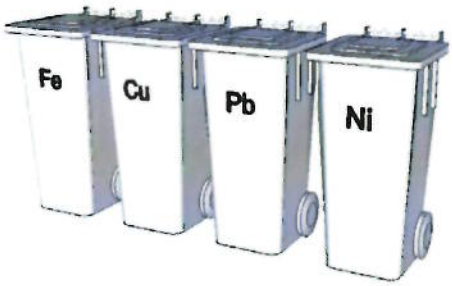
DISMANTLING THE MACHINE

Neither the material used in the machine construction nor the scrap from processing are harmful.
Before dismantling the machine, it is good practice to wash all parts that have come into contact with the product handled (see the chapter on CLEANING).
To remove the machine from the plant, use suitably sized lifting equipment (see the chapter on HANDLING AND POSITIONING).

Be very careful during all phases of disposal of the machine.

METALLIC SCRAP DISPOSAL

I Iron or cast iron scrap should be selected and separated from the other metals and scrap material.Non ferrous scrap, i.e. non iron and/or cast iron, contain residues of stainless steel and relevant alloys, with a high chrome content.



Other non ferrous metallic scrap,
besides stainless steel and aluminium are:

- copper;
- brass;
- lead;
- nichel;
- tin;
- bronze;
- other mixed metals and alloys.

Proceed with all metals disposal phases with the utmost care.

TECHNICAL SPECIFICATIONS

3.1 MACHINE SPECIFICATIONS

MODEL	BARIFILL G 1200-35-35-7
VOLTAGE	460Y/265V
PHASE	3 PH
FREQUENCY	60 Hz
TOTAL LOAD CURRENT	86.94A
LARGEST MOTOR FLA	11.0 A
ENCLOSURE ENVIRONMENTAL TYPE	12
SHORT CIRCUIT RATING OF OVER-CURRENT PROTECTION DEVICE	65kA rms at 208V
SHORT CIRCUIT RATING	10kA rms at 208V
SERIAL NUMBER	F01827 - F01828 - K967557
MAXIMUM AIR PRESSURE ALLOWED	174 psi (12 bar)
MAXIMUM WORK PRESSURE	87 psi (6 bar)
WEIGHT	3527 + 8377 LB (1600+3800 kg)

CONTINUOUS ACOUSTIC PRESSURE LEVEL PONDERED EQUIVALENT TO (rounded off to the closest 0.5 dB più vicini) L_{Aeq}: 68 dB(A) (with normal load).
MAXIMUM NOISE LEVEL: **MAXIMUM ACOUSTIC PRESSURE:** P: 70 dB(C) – Position as regards the machine: at 3,28 ft (1 m) from the machine perimeter; at 5,25 ft (1.60 m) of height from the ground.
REFERENCE DOCUMENTS: **ANSI B 11. TR5-2006 SOUND LEVEL MEASUREMENT GUIDELINES** **ISO 11200** Noise produced by machines and equipment. Guidelines for the use of basic standards for the determination of noise levels at the operator's working place and in other specific locations. **ISO 11204** Noise produced by machines and equipment. Measurement of sound levels at the operator's working place and in other specific locations.With this method, an environmental correction is required.

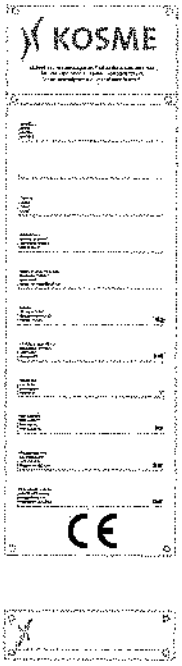
WORKING TEMPERATURE	from +68 F up to +95 F (from +20 up to +35°C) The right value is however indicated in the Order Confirmation.
HUMIDITY	from 20% up to 70% without condensation. The right value is however indicated in the Order Confirmation.

3.2 MACHINE IDENTIFICATION

The following paragraph shows the user how to identify the machines supplied by the Constructor. This aspect is particularly important, in order to grant the Constructor the possibility to supply the Customer in a safe and fast way with technical supporting information for requirements of any kind. Therefore we recommend not to distort neither to remove all required information to identify the product.

3.3 IDENTIFICATION PLATE LOCATION

The material support of the machine identification is a silk-screened plate with the engraving of the data to be indicated to the constructor in case of need. Said plate is the only way for the maker to identify the machine.
The picture below reproduces the plate



MODEL: machine model.

CODE: internal code of the Manufacturer.

KOSME SERIAL NUMBER: indicates the machine serial number.

MANUFACTURING YEAR: indicates the year of manufacturing.

TOTAL WEIGHT: indicates the total machine weight.

REQUIRED POWER: indicates power capacity in kW.

VOLTAGE: indicates the labelling machine nominal supply voltage.

FREQUENCY: indicates the power supply frequency.

AIR PRESSURE: air pressure, expressed in Bar.

WATER PRESSURE: water pressure, expressed in Bar.

KRONES SERIAL NUMBER: indicates the machine serial number.

IT IS FORBIDDEN TO MODIFY, OBLITERATE OR DEFACE LABELLING MACHINE IDENTIFICATION DATA.

MACHINE TRANSPORT AND POSITIONING

4.1 HANDLING INSTRUCTIONS

The operations described in this chapter must be executed by personnel sufficiently instructed in the use of forklift trucks and the safety regulations for moving loads.

The machine is supplied in a wooden case or crate with basepallet (fig.1).

fig.1

During transport, the (covered or uncovered) labelling machine must be protected from atmospheric influences, blows and violent impacts. The machine must never be overturned. Following are the symbols provided on the packaging for worker information.

	Upwards position of the case
	Keep covered
	Fragile
	Lifting points for chains/belts

	Center of balance of the package
	Do not stack

There is an ID label (fig.2) on the crate or on the plastic film that provides information for unpacking the goods.

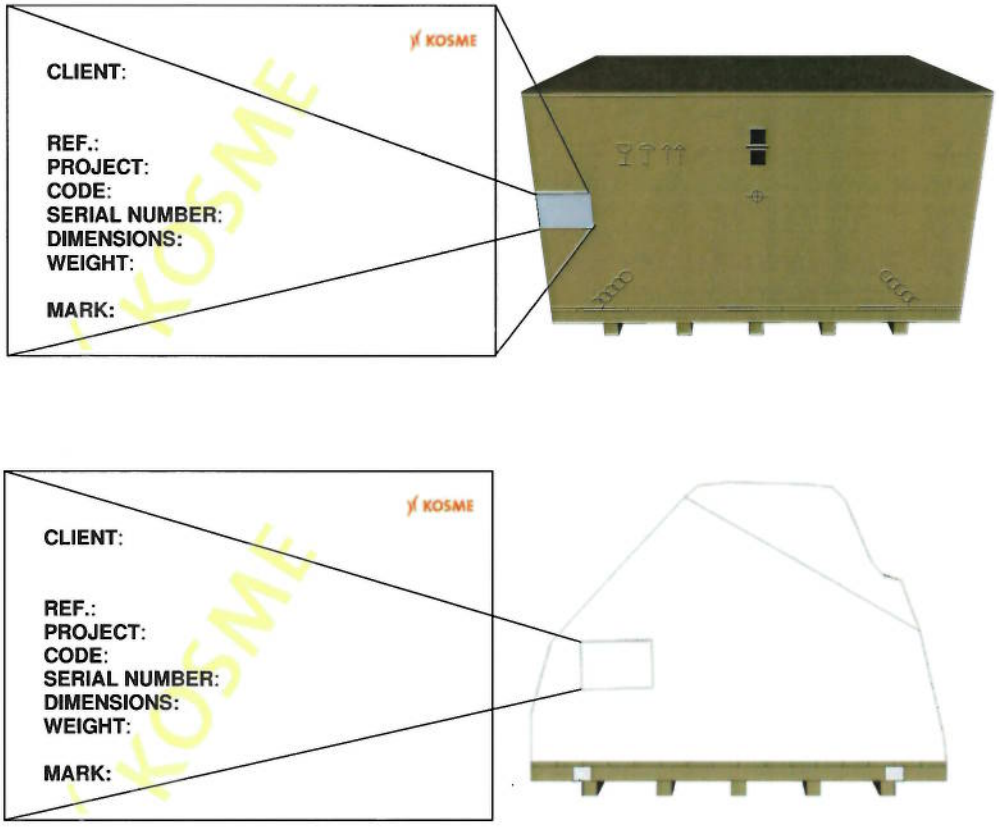


fig.2

CHECK THE INFORMATION PROVIDED ON THE LABEL SUCH AS THE DIMENSIONS AND WEIGHT FOR PROPER UNLOADING OF THE MACHINE.

4.2 LIFTING THE CASES

The packing case allows the machine to be handled using cranes or hoists using suitable steel cables under the crate at the positions indicated (fig.6), or using a forklift (fig.4).

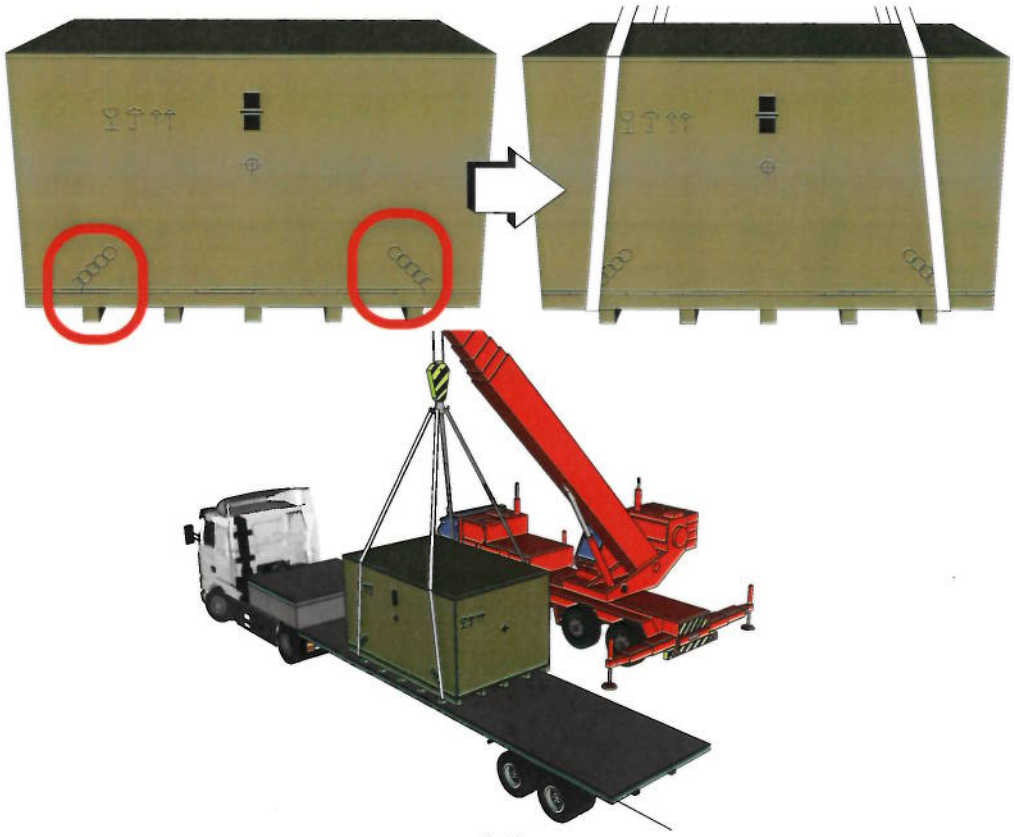


fig.3

fig.4

CHECK THE WEIGHT ON THE ID PLATE IN ORDER TO CORRECTLY SELECT A SUITABLE FORKLIFT OR CRANE AND CABLES FOR UNLOADING.

4.3 LIFTING PLATFORMS

The platforms are usually handled using forklifts (fig.5).
However, should it be necessary to lift them using a crane or overhead hoist, suitable steel cables must be run under the platform at the corresponding points of reference (fig.6).
Particularly heavy platforms are protected by "L" shaped steel bars.

When lifting the platforms using a crane or overhead hoist, use of a balance lever is mandatory in order to avoid crushing the sides of the packaged product.

fig.5

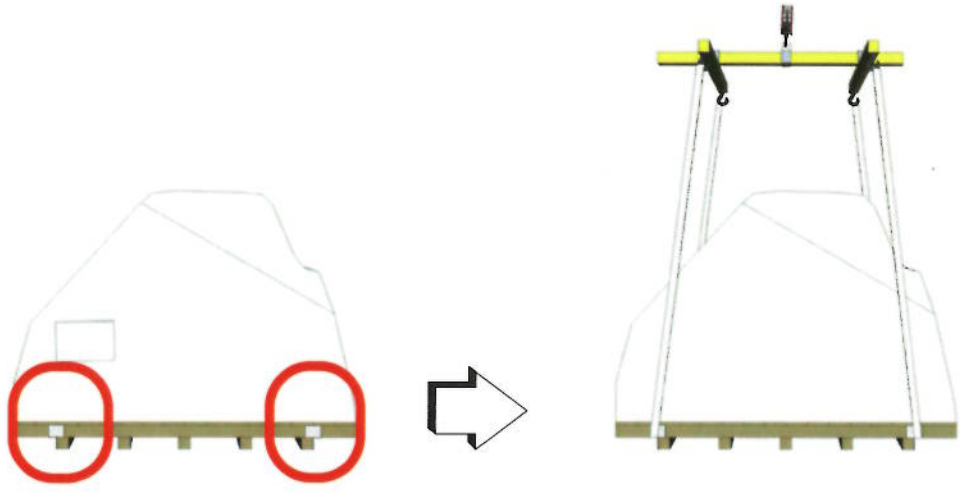


fig.6

fig.7

CHECK THE WEIGHT ON THE ID PLATE IN ORDER TO CORRECTLY SELECT A SUITABLE FORKLIFT OR CRANE AND CABLES FOR UNLOADING.

4.4 UNPACKING THE MACHINE

Personnel occupied with the unpacking must be equipped with protective gear and accident prevention garments.

In order to unpack the machine do the following:

- Position the machine package on a levelled and dry surface which supports its gross weight.
- Remove the cover and the four walls of the crate with a crowbar.
- The machine rests on wooden spacer beams (**A**) on the base pallet (fig.8).

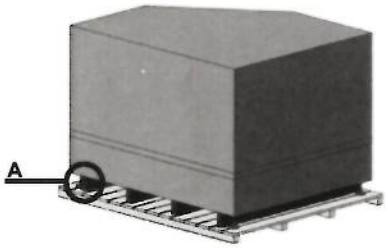


fig.8

Remove the lock nut (fig.9).

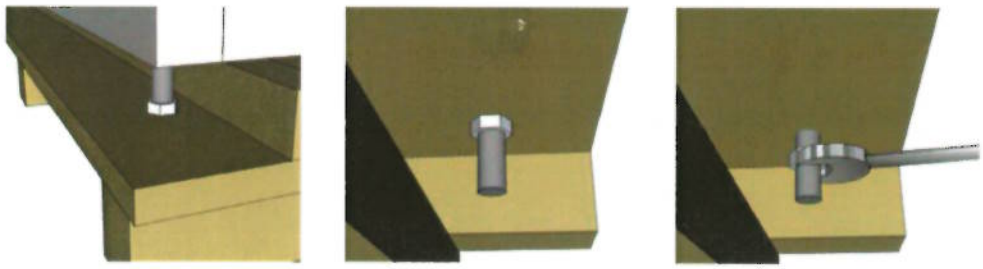


fig.9

The forks of the forklift must be inserted under the main machine frame at the lifting points indicated with the special sticker (fig.10).
The lifting points indicated by the Manufacturer guarantee maximum handling stability.

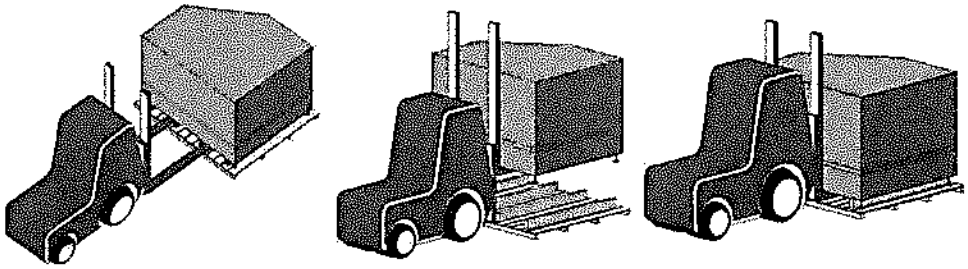


fig.10

- The forks must support the baseframe for all its length (**B**). Make sure that the forks of the forklift truck are sufficiently long to support the machine in its complete depth. This will avoid instability during transport (fig.11)

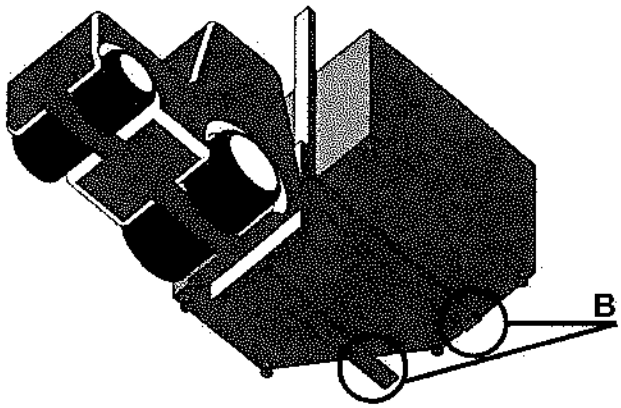


fig.11

- Lift the machine marginally off the pallet and make shure that it rests perfectly steady on the forks of the forklift truck (fig.12). Now lift the machine to a minimum necessary hight for transportation and extract it from the pallet. Port it to its final destination, lower it slowly to the floor and extract the forklift truck from underneath.

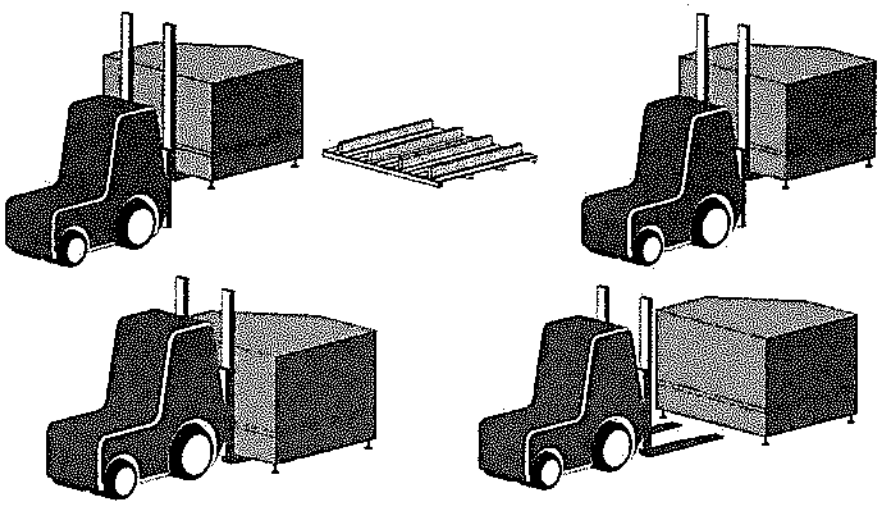


fig.12

Make shure the forklift truck supports the gross weight of the machine!

Make shure the forks of the forklift truck support the overall dimensions of the machine!

4.5 IMPROPER LOADING AND TRANSPORTING

Below you will find examples of improper machine load and transport. This can lead to dangerous instability and overturning of the loaded machine (fig.13)!

fig.13

If machine dimensions limit or obstruct the operator's view, he must be assisted by other personnel.

4.6 PNEUMATIC CONNECTION

The machine requires compressed air supply for its operation.

Check that the set work pressure of the air treatment unit corresponds to the value indicated on the machine identification plate. Higher pressure values may damage the machine, while lower ones may limit its correct functioning.

• The main compressed air supply must be connected to the machine air treatment unit, with a **1/2" gas** coupling, located on the machine side.
• In order to enable the air, sterile air or CO2 inlet, turn the handle (fig.14)

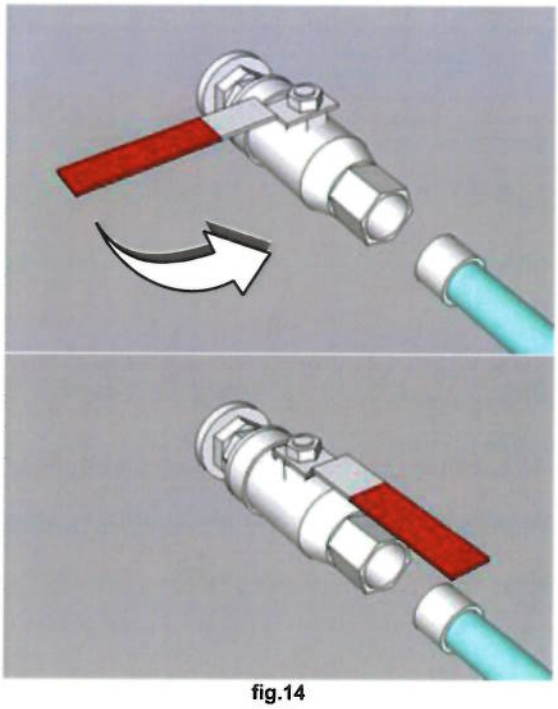


fig.14

4.7 AIR TREATMENT UNIT - CHARACTERISTICS AND GENERAL INSTRUCTIONS OF USE

The air treatment unit (fig.15) is made up of a series of components allowing to:

- Blocking/unblocking air inlet.
- Filter incoming air.
- Regulate air pressure
- Drain condensation.

The air treatment unit is composed of the following elements:

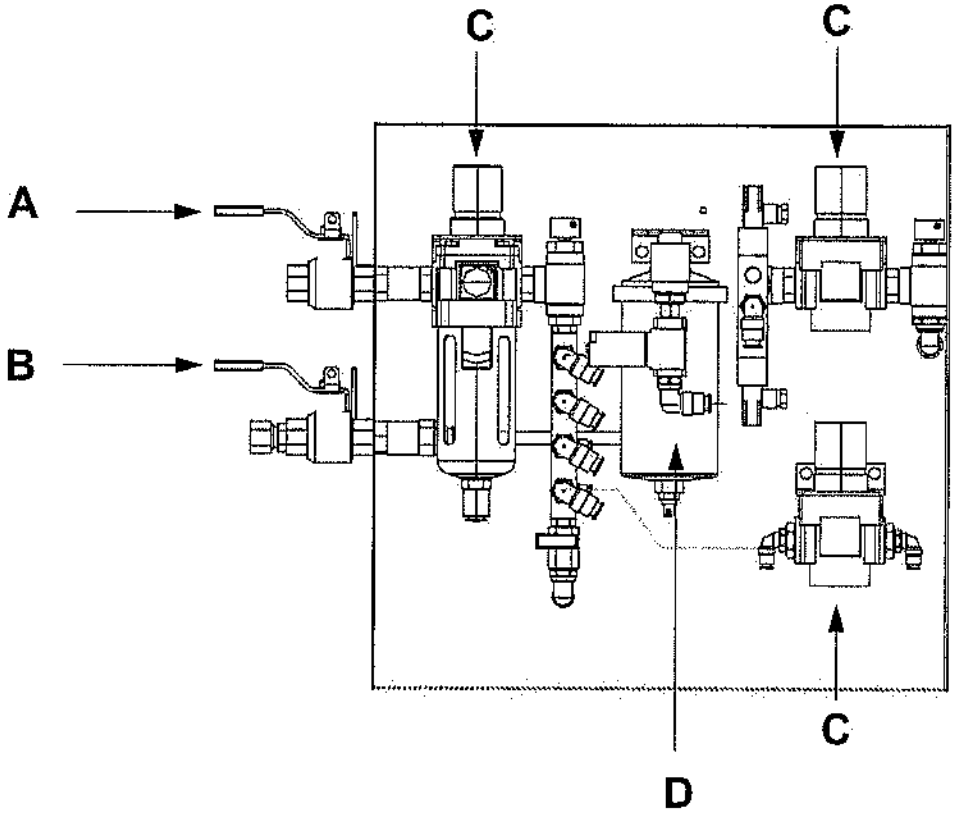


fig.15

A = Compressed air inlet
B = Sterile air inlet
C = Air filter / condensate collector / manometer / pressure regulation device
D = Air filter

4.8 GENERAL INSTRUCTIONS

- Check the **condesate level** in the the filter bowl at least **once a day** and drain when necessary.

Note: Check the filter periodically. When damaged or blocked it may interfere with the correct functioning of pneumatic valves and electrovalves!

- Check regularly (once every day) the working pressure of the pneumatic system and adjust when necessary.

Note: Inadequat working pressure may cause malfunctioning and system failiure!

4.9 SAFETY ADVICE

Turn off air supply and release air pressure before any intervention on the pneumatic system.

Note: **Wear eye protection and protective gloves as well as protective garments when effectuating maintenance and cleaning.**

Note: **Pay special attention to all potentialy hazardous parts when effectuating maintenance and cleaning.**

4.10 OPENING AND CLOSING THE AIR INLET

Whit the inlet valve closed, in the display window of the valves control knob appears **EXH.=** exhale. The compressed air bypasses the valve and flows out of the silencer, mounted on the lower part of the valve (fig.16).

In order to open the valve, turn the control knob clockwise

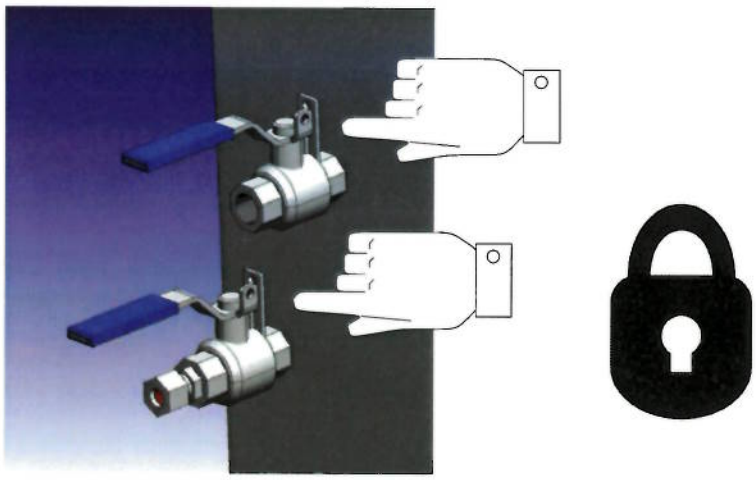


fig.16

4.11 FILTER AND PRESSURE REGULATOR DEVICE MOD.AW40

The **FR** regulates the compressed air supplied to the set working pressure and compensates for fluctuation in pressure. It filters air impurities (dirt particles and condensation) out of the compressed air flow (fig.17).

fig.17

4.12 REGULATING THE WORKING PRESSURE

In order to regulate the working pressure of the pneumatic circuit do the following:

- Close the main compressed air inlet valve **B** and release the pressure from the circuit.
- Pull the pressure adjustment wheel upwards, away from the housing, to unlock it (fig.18).
- Turn the pressure adjustment wheel in the direction "**-**" as far as possible (fig.18).
- Slowly pressurize the complete system.
- Turn the pressure adjustment wheel in the direction "**+**" until the desired pressure is displayed on the manometer. The input pressure has to be at least 1 bar higher than the output pressure (fig.18).

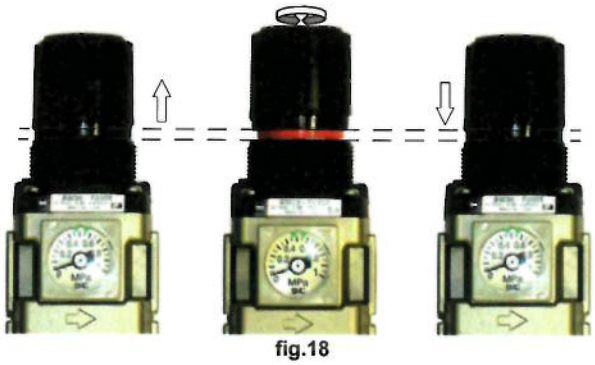


fig.18

- Push the pressure adjustment wheel downwards (towards the housing) in order to secure it against unintentional turning

4.13 RELEASE THE CONDENSATE

When the condensate level has arrived approximatly 10mm below the filter element in the filter bowl it has to be drained as described below:

• Open the bleed screw **F** (**only with the discharge pipe connected!!**) turning it anti-clockwise (seen from below). The condensate can now flow out. Once finished the draining, close the bleed screw tighly (fig.19).

fig.19

A plasic tube with a diametre of 10mm **must** be connected to the quick release connector of the bleed screw (fig.20).

fig.20

When with time a relatively slow flowing speed (at unchanged pressure setting) is detected (after about 1000 working hours) the filter element has to be replaced.

4.14 FILTER ELEMENT CHANGE

In order to change the filter element on the **FR-**, do the following :

- Close the main compressed air inlet valve and release the pressure from the circuit.
- Unlock the filter bowl, pulling the black plastic lever downwards (fig.21).

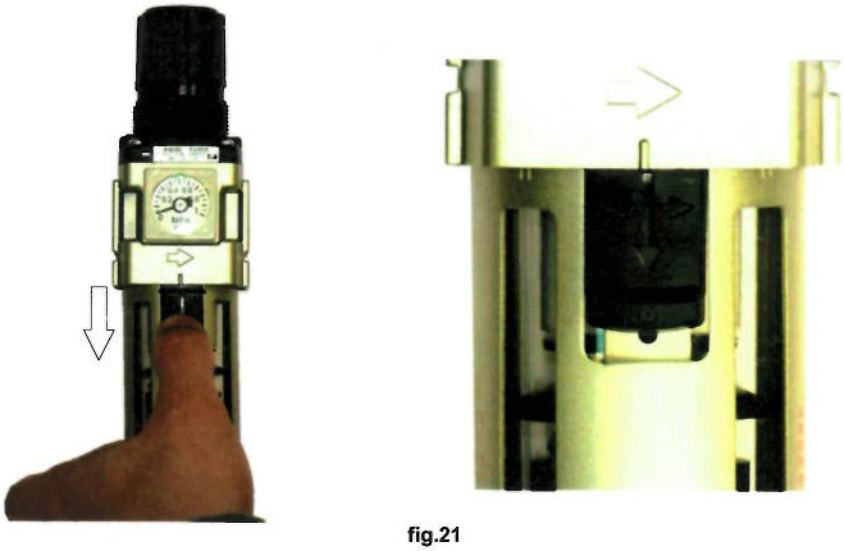


fig.21

- Turn the filter bowl for about a 1/4 turn until the two lines embossed on the bowl line up with the line mark on the main body of the **FR-** , keeping the black plastic lever pulled downwards. (fig.22).

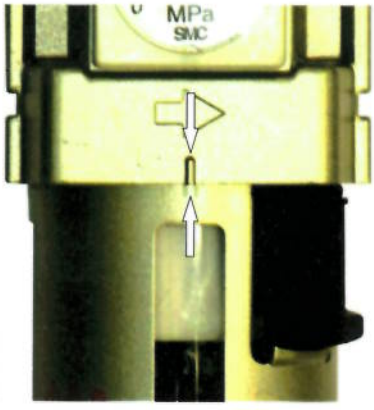


fig.22

• Pull the filter bowl out of its seat in the main body of the **FR-** and extract it completely, pulling it away from body, while keeping the black plastic lever pulled downwards (fig.23).

.

fig.23

• Disconnect the filter fixing nut **X** and extract it . Replace the filter element **Y** with a new one (hold the new filter element only at its lower end) (fig.24).

fig.24

When remounting the unit follow the above instructions at the contrary.

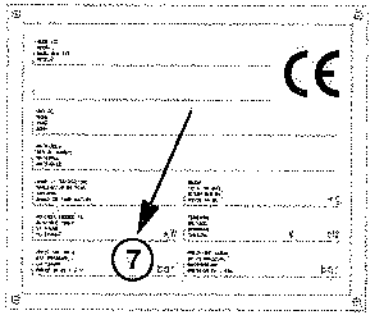
4.15 CLEANING

Use only soap suds (max. +60°C) and other solvent free detergents.

4.16 MAXIMUM PRESSURE AND WORK PRESSURE

Max. permitted **air pressure** is **12** bar, **max.** permitted **work pressure** is 7 bar.

The value of the specific work pressure for the machine can be found on the machines **Id - tag** mounted on the outside of the machine.



4.17 RINSER WATER INLET SYSTEM AND WASHING

The machine's rinser requires water for operation.

Check that the water pressure at the system inlet corresponds to the pressure indicated on the machine ID plate. Higher pressures could damage the machine an lower pressures could inhibit correct operation.

The water distribution line must be connected to the line coupling located on the side of the machine (fig.25)

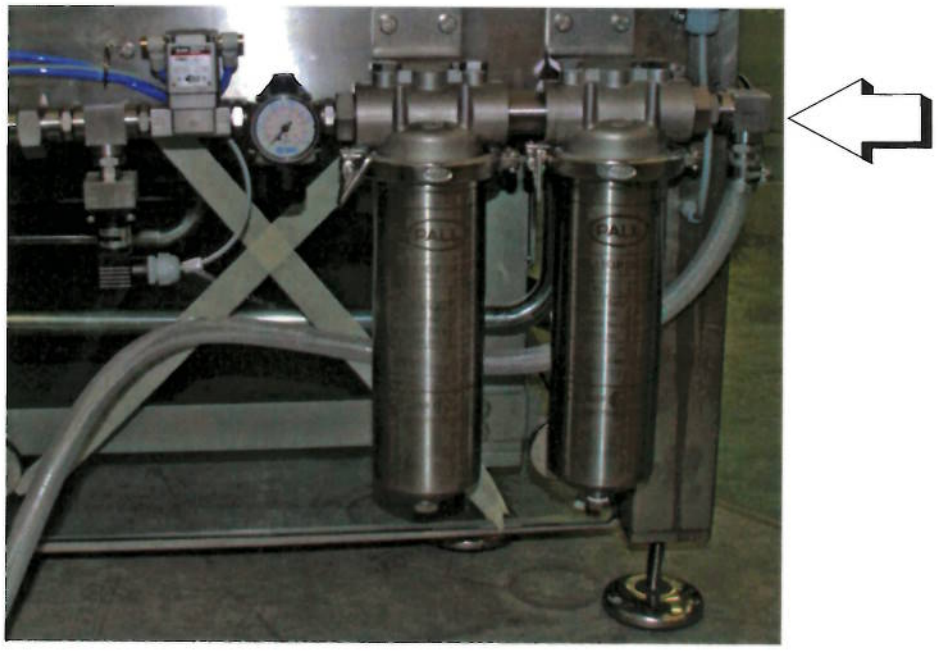


fig.25

WARNING:

- Cartridge and filter fitting: see enclosed handbook PALL.
- We recommend to make the very first filter and cartridge cleaning as shown in the use manual PALL.

The water system consists of the following elements:

A = Water inlet
B = Water pre-filter
C = Water filter
D = Pressure regulator with pressure gauge

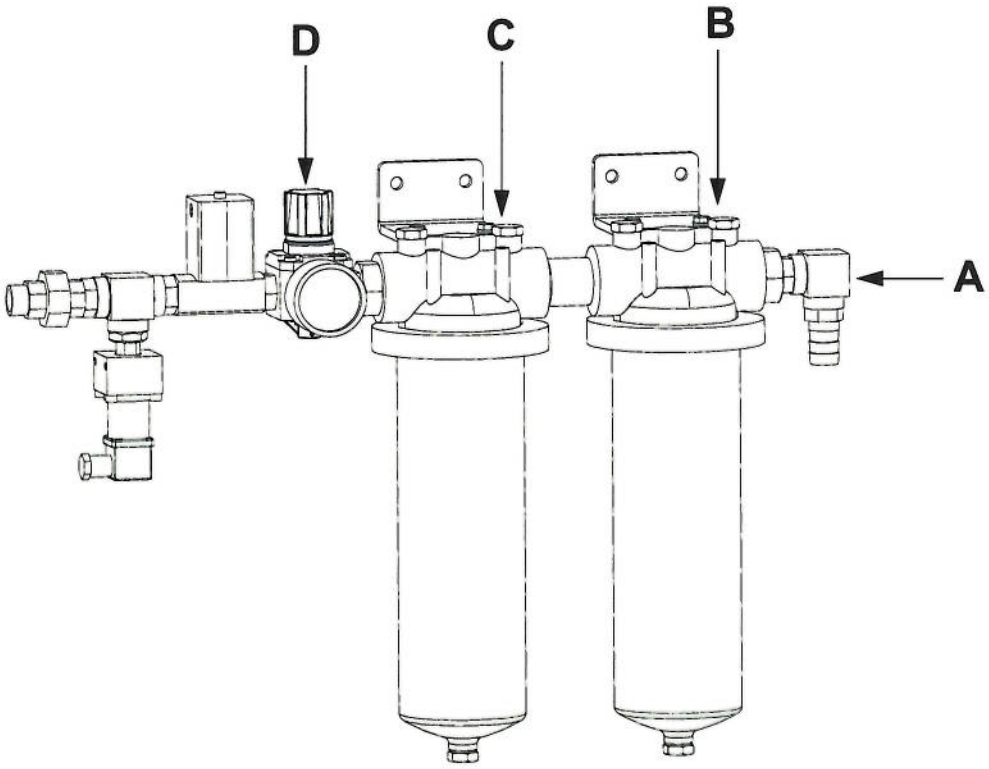


fig.26

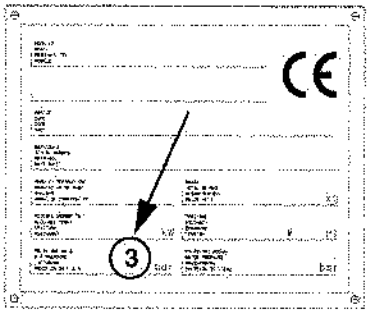
4.18 CLEANING

• Only clean the line using soapy water (max +60 °C and other detergents not containing solvents.

If performing CIP washes with chemicals, **REMOVE** the filter cartridges and wash them separately.

4.19 WATER PRESSURE

The **operating pressure** is indicated on the external machine ID plate.



4.20 INSTALLATION OF MACHINE IN LINE

The machine must only be assembled by skilled personnel.
When performing these works carefully adhere to the Safety Standards!
After unpacking the machine, check that all parts are present as listed on the packing list.
Check for any damages.
If necessary, clean the parts.

4.21 POSITION ON LINE

The operations described in this chapter must only be performed by qualified operators.

The machine can only function according to the technical parameters and with the precision specified by the manufacturer if correctly positioned stably on the floor of the factory in such a manner as to limit vibrations during operation. To do this, follow the instructions provided below.

For correct use, the machine must be installed so that the operator has an open space of at least 90 cm along the entire perimeter for movement.

4.22 PLACING ON LINE

After unloading, the machine must be positioned in the production line. This operation must be performed with maximum precision and care as improper positioning may have negative effects on the correct operation of the machine. Insert the machine in the line. Connect the conveyor belts to the existing ones (fig.27) in order to allow the containers to enter and exit the machine continuously without jerking or jumping.

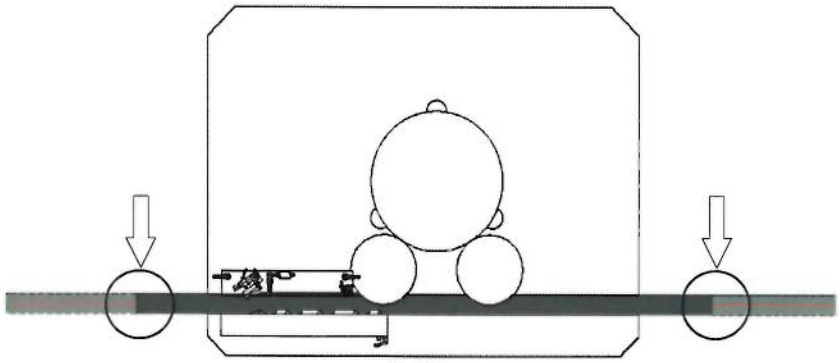


fig.27

If the machine has automatic drive, the conveyor belt must be positioned next to the existing conveyor (fig.28).

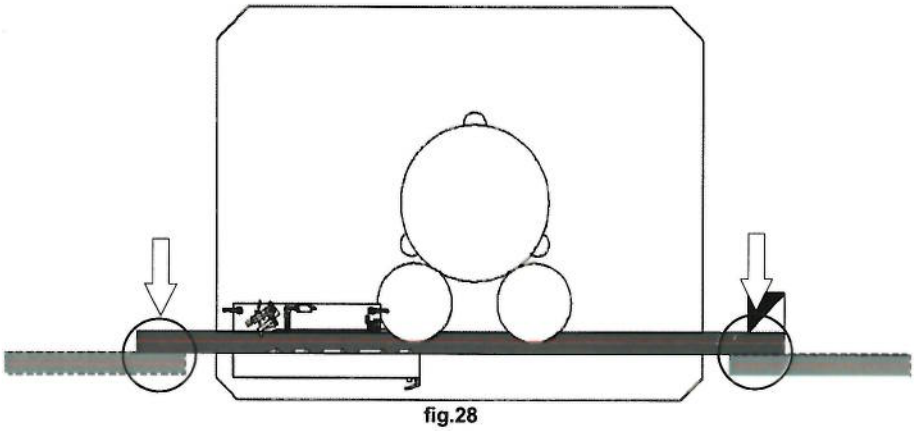


fig.28

4.23 LEVELLING

To complete correct installation in line, the machine must be perfectly levelled. This is easy to check. Place two sprit levels at 90° to each other on the machine base and then on the conveyor as indicated in (fig.29).

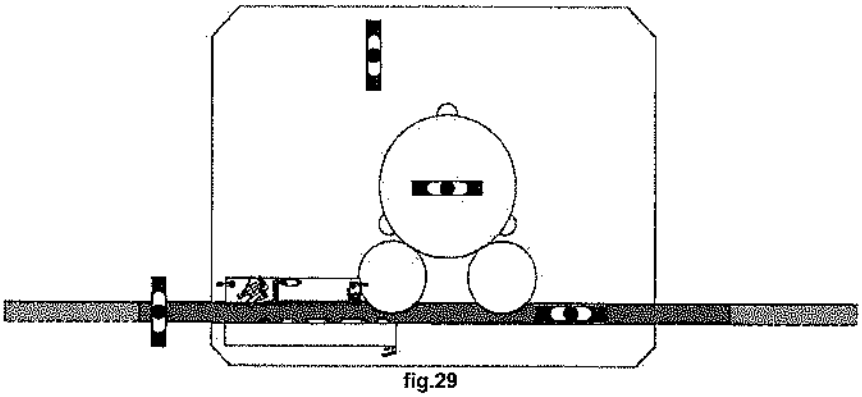


fig.29

To complete proper installation of the machine on the production line, make certain that the machine base is perfectly level.

To level the machine, perform the following operations:

- Position two levels at 90° above the machine base, as shown in (fig.30) (**1**).
- Unscrew the lock nut of the support foot with a wrench as shown in (fig.30) (**2**).
- Adjust the height of the support foot. To do this, insert a wrench in the slot on the threaded rod, as shown in (fig.30) (**3**). Turn. Check the levels until perfectly level.
- Tighten the lock nut of the foot using a wrench. This will block the foot in the levelled position.

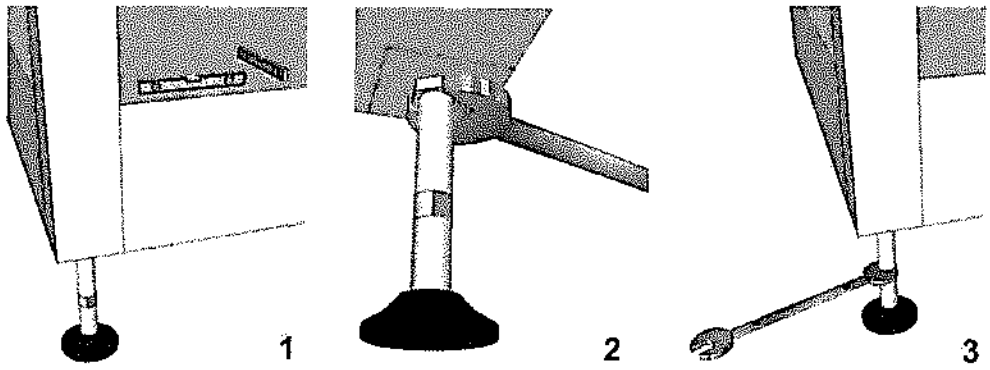


fig.30

4.24 COMMISSIONING OF THE MACHINE

The operations described in this chapter must only be performed by qualified operators.

4.25 REQUIREMENTS FOR SPACE NECESSARY FOR USE

A space, minimum 90 cm wide, must be left clear around the entire perimeter of the machine. This guarantees the operator easy, safe access for performing handling, adjustment and control operations on the machine.

4.26 ENVIRONMENTAL CONDITIONS FOR USE

For optimum operation, according to the information provided in this manual, the machine must be installed in an enclosed area that is dry and not at risk of fire or explosion.
The floor where the supporting structure rests must have sufficient loading for the static and dynamic stresses created by the weight and moving parts of the machine.

The machine is designed for exposure to continuous, frequent washing with products that are non corrosive for stainless steel (AISI 304 and AISI 316).

The place of installation must have the following characteristics:

- HORIZONTAL flooring
- Clean and non-slip flooring
- Effective lighting with at least 60 lux
- Electrical conduits protected from accidental damages

Ambient temperature:
From +5 to +50 °C.

Relative humidity:
Non-condensing 30% o 90%

Altitude:
Up to 1000 m a.s.l.

Contaminants:
The standard machine model is not suitable for operation in the presence of abnormal levels on contaminants, such as dust, liquids, corrosive gas, salt, salt deposits, flammable or explosive materials, etc.

4.27 INSTRUCTIONS FOR CONNECTION TO POWER SOURCES

Electrical Circuits

Before performing an electrical connections, check that the power line characteristics are compatible with the machine, as indicated on the ID plate.

Before performing any electrical connections make certain the machine is off. This is done by turning the main power switch (red with yellow trim, located on one side of the machine as shown) to the "O" position.

fig.31

4.28 ELECTRICAL CONNECTION

- The machine must be powered by an electric line protected by differential circuit breakers and magneto-thermal switches that are suitably dimensioned for the rated machine power (for this, see the rated power shown on the ID plate).
- Check that the distance between the selected point of installation and the plant electric power distribution panel is such that there are no power losses during machine use due to the cross-section of the wires used.
- The power supply line must be correctly connected to a ground system.
- The power supply line must be located in such manner that it cannot be damaged while performing normal work activities.
- The electric connection must such that water cannot penetrate into the connectors.
- Use only connectors protected from water sprays (IP 55).

To perform the electric connections of the machine with the main electric system, you only need to plug the plug supplied with the machine into a mains socket.
If special circumstances require the power to be supplied directly to the machine, this can be performed by connecting the wires on the terminal board in the machine panel.

This operation must only be performed by manufacturer's technicians or by skilled personnel qualified to perform connections in compliance with the current regulations.

Before performing any operations in the electric panel, the main power switch must be disconnected. For further safety, remove the line protection fuse or open the automatic magneto-thermal switch. The ground wire is always green-yellow as required by international standards.

To access the electric circuit and safety device power panel, remove the stainless steel panel that acts as a housing for the machine base. To do this, use the special wrenches provided and perform follow the procedure indicated.

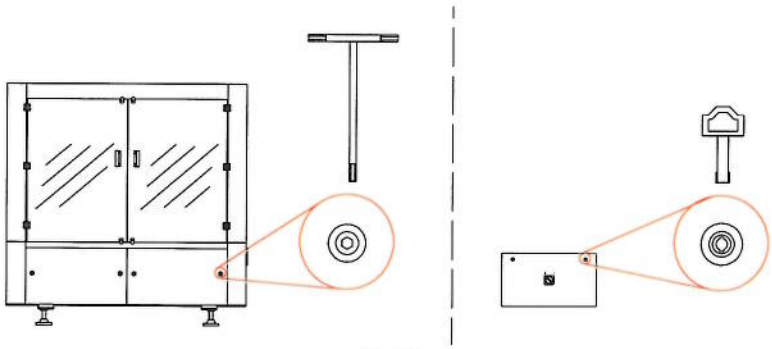


fig.32

Electrical connection

- The machine must be supplied with an electric power line equipped with differential protection and magnetothermal switch ,suitable to support the maximum machine power absorption (for this purpose, refer to the power capacity indicated on the identification plate).
- Check that the distance between the chosen installation point and the main electrical connection point, compared with the chosen conductor section, is sufficient to prevent voltage drop during machine operation.
- The electric power line must be correctly grounded.
- The electric power line must be protected against mechanical damages during normal operation.
- The electric power connection must be water resistent.
- Use only spray water resistent connectors and plugs (IP55).

In order to connect the machine to the electric power system, insert the provided machine plug into the main power socket.
If, for special applications, it is necessary to apply voltage directly to the machine, just connect electric supply cables to the terminal block on the machine switchboard.

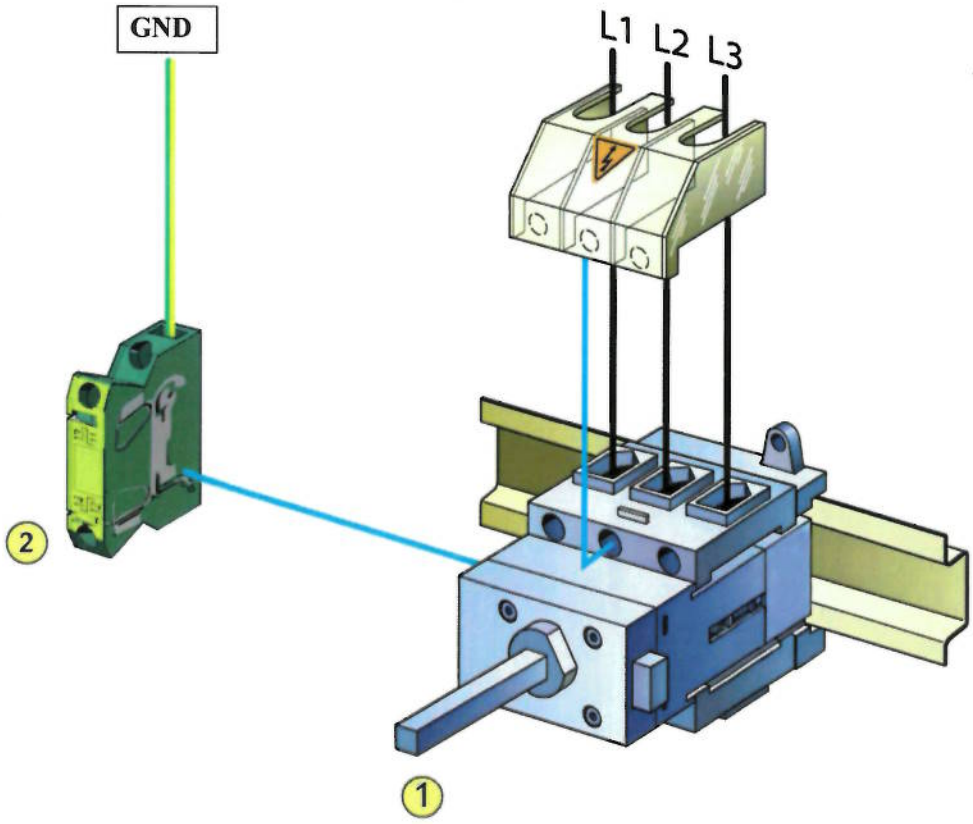
This operation must be performed only by the manufacturer's technicians or by qualified electricians capable to perform connections in compliance with current regulations.

Before carrying out whichever procedure inside the switchboard, it is necessary to disconnect the power supply from the main switch. For further safety, remove the fuses that protect the line or the automatic circuit breaker. The earth wire, as foreseen by the international standards, is always green – yellow.

The manufacture declines any and all responsibility for connections that do not comply with the instructions in this manual!

4.29 THREE PHASE POWER SUPPLY

The indicated arrangement of disconnectors (fig.33) is involved in all electric plants, that ARE NOT supplied with the neutral GND wire.



1 **3-pole Main Switch**

2 **Ground terminal**

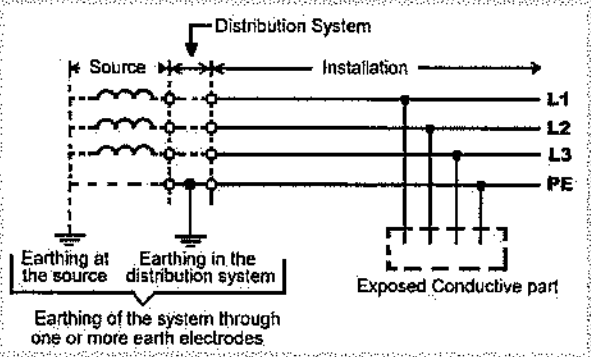
fig.33

INPUT SIGNAL L1 - L2 - L3

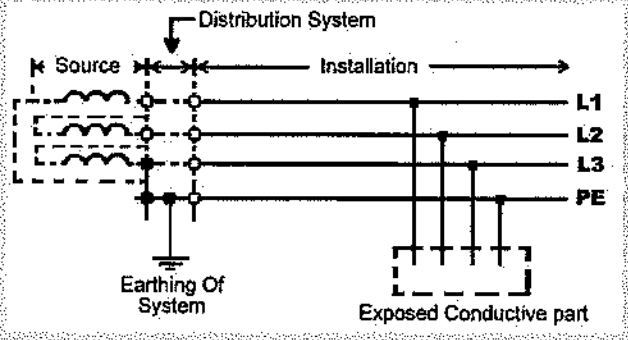
GROUND SIGNAL PE

4.30 DISTRIBUTION SYSTEMS

The distribution transformer secondary is a **STAR (Kosme preferred):**



The distribution transformer secondary is a **DELTA** :



OPERATION PRINCIPLE

5.1 OPERATION CYCLE

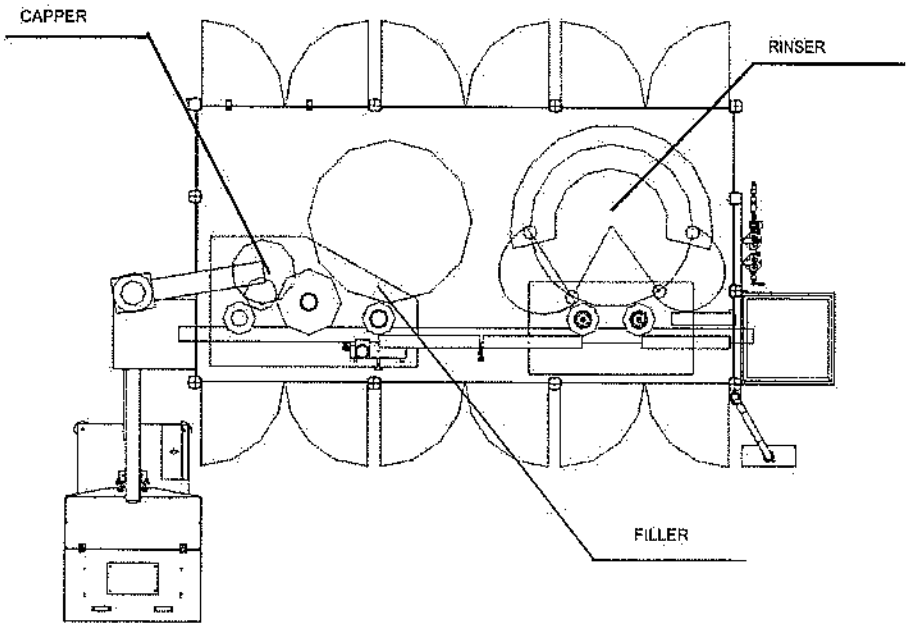
- The containers to be filled are carried by the infeed air conveyor to the selector worm screw. For correct operation the bottles must accumulate at the infeed of the worm screw; they must pile one against the other. If they don't, if the bottles enter directly into the worm screw at the speed of the conveyor, they may jam in the worm screw.
- To avoid that the buffer of bottles before the infeed worm screw runs out, there is a photocell on the infeed conveyor that detects if there is a bottle buffer. When the photocell does not detect the required buffer, the infeed bottle flow is halted by a "gate", a blocking device. Under these conditions the machine continues to run at slow speed, waiting for the bottle buffer to be restored and the automatic opening of the gate.
- The selection worm screw picks the bottles off the infeed conveyor and distances them to the circumferential pitch of the machine. The worm screw then releases the bottles to the rinser infeed starwheel.

RINSER OPERATIONAL CYCLE

- The bottles to be rinsed enter the rinser carousel.
- The rinser grippers close around the bottle necks.
- The grippers gradually turn the bottles upside-down during the carousel rotation.
- A special nozzle injects rinse water into the bottles. The water is filtered by a sterilizing filter.
- The water that drained out of the bottles is collected and sent to the drain.
- The grippers turn the bottles over again and return them to their initial position.
- The rinsed bottles are then released (standing up) to the discharge starwheel and positioned on the discharge conveyor.

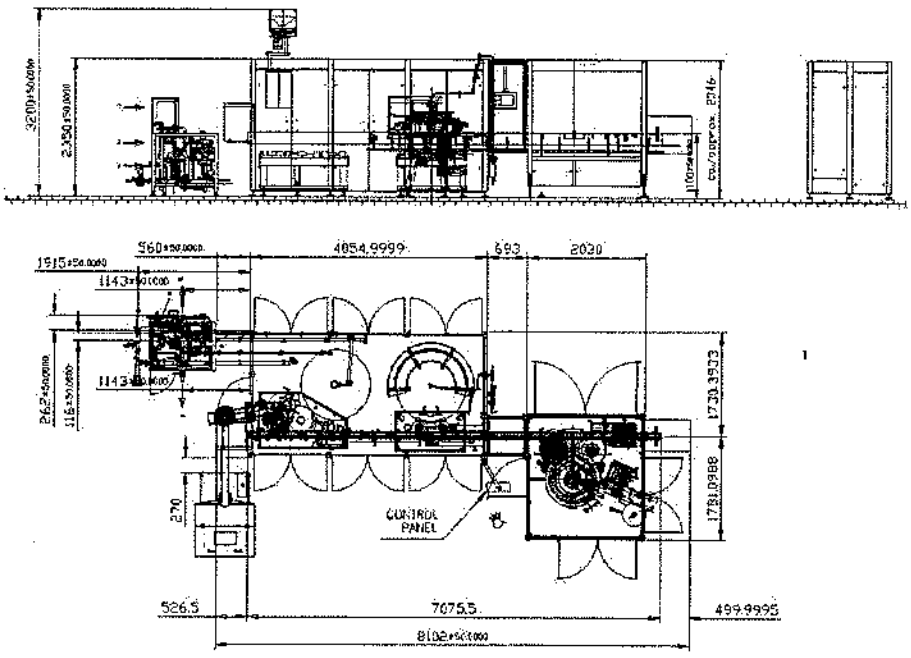
FILLER AND CAPPER OPERATIONAL CYCLE

- The infeed starwheel carries the bottles to the carrier plates on the filler carousel (called filling stations).
- Filling can be performed in various phases, described later on in this manual.
- Continuing their travel, the bottles are released by the filler carousel to the transfer starwheel, and from the starwheel to the capper carousel.
- The closure reaches the capper from a feeder, usually called the closure sorter, which orders the closures from a bulk loader and sends them, correctly oriented, along a horizontal closure transfer duct.
  Normally the closures are blown forward by air (pneumatic duct); alternatively , in rare cases, the duct can consist of a conveyor belt.
  Along the duct are two photocells that detect if there is a buffer of closures in front. One of the photocells (the one closest to the closure sorter) is responsible for starting the closure sorter if there is not buffer and to stop it once the buffer is created. The other (the one farthest from the sorter) is responsible for stopping the capper (and the entire machine) if there is no buffer. For correct operation the system requires a minimum buffer of closures.
- The duct conveys the closures to the closure release head and onto the bottle.
- Finally, via the discharge starwheel, the bottles are directed by the conveyor belt out of the machine.


CAPPER
RINSER
FILLER

5.2 MACHINE HEIGHTS AND CONVEYORS

When positioning the machine, adjust the heights of the machine and of the conveyors based on the machine layout agreed to with Kosme.
Example layout:



5.3 CONTROLS SECTION - OPERATOR PANEL

Below is a scheme of the control panel provided with all machine models, and the explanation of relevant control and emergency buttons functions (fig.1).

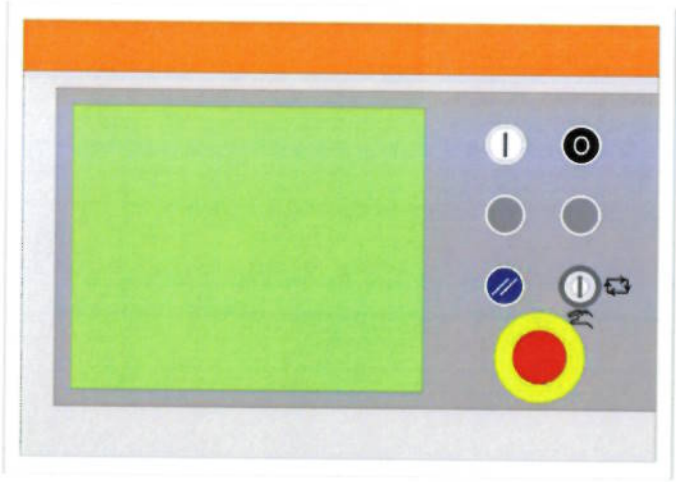
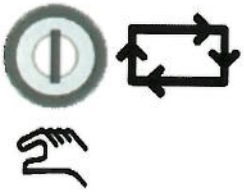


fig.1

5.4 CONTROL LIST

Selector switches



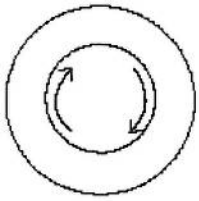
JOG MODE (key selector) - MANUAL / AUTOMATIC
It enables machine jogging operation by means of a button located on the mobile push-button panel.

Buttons

MACHINE START (White - button 1)
If pressed, it starts the labelling machine.

MACHINE STOP (Black - button 0)
If pressed, it stops the labelling machine.

EMERGENCY RESET (blue light)
It allows to resume operation after a machine stop.



EMERGENCY STOP
It allows a complete stop of the machine by disabling power and compressed air supply.

5.5 OPERATOR'S STATION

he work area (and most of all the areas of installation of the control panels and the emergency push-buttons) should never be occupied by material or anything else, so that nothing may interfere with the operator's freedom of movement.
In case of emergency, the immediate access of the personnel in charge to the machines is to be granted.
We recommend to forbid the access to the work area to persons not directly in charge with the machine running, by using the special warnings.

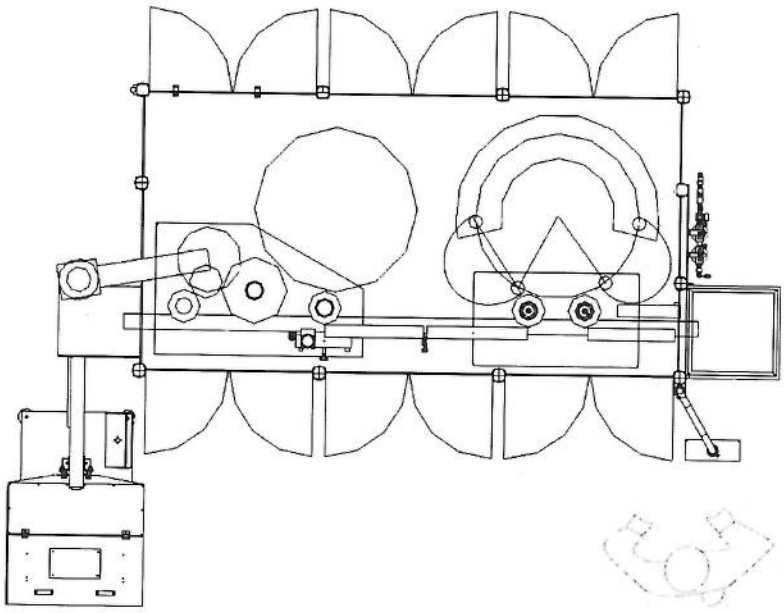


fig.2

CAUTION: FORBIDDEN ACCESS OF WORK AREA TO UNAUTHORIZED PERSONNEL!

5.6 FILLING VALVES

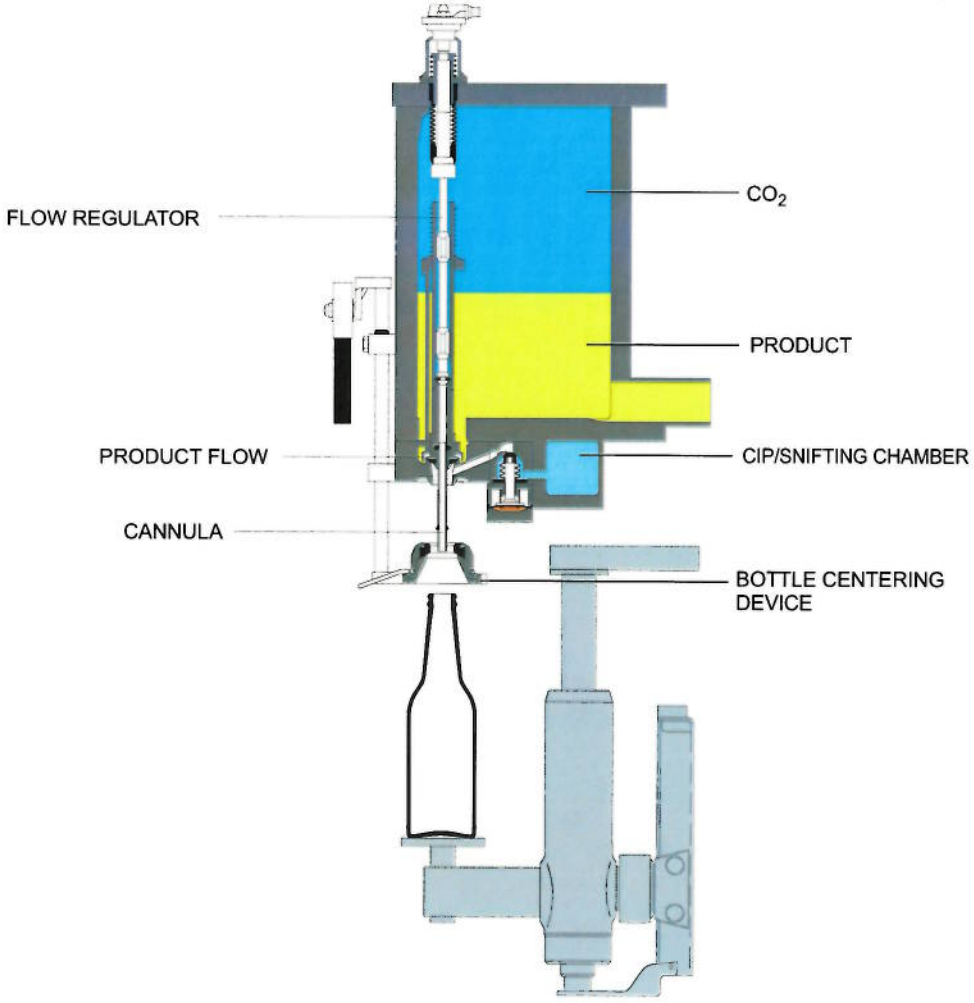


fig.3

5.7 FILLING PHASE

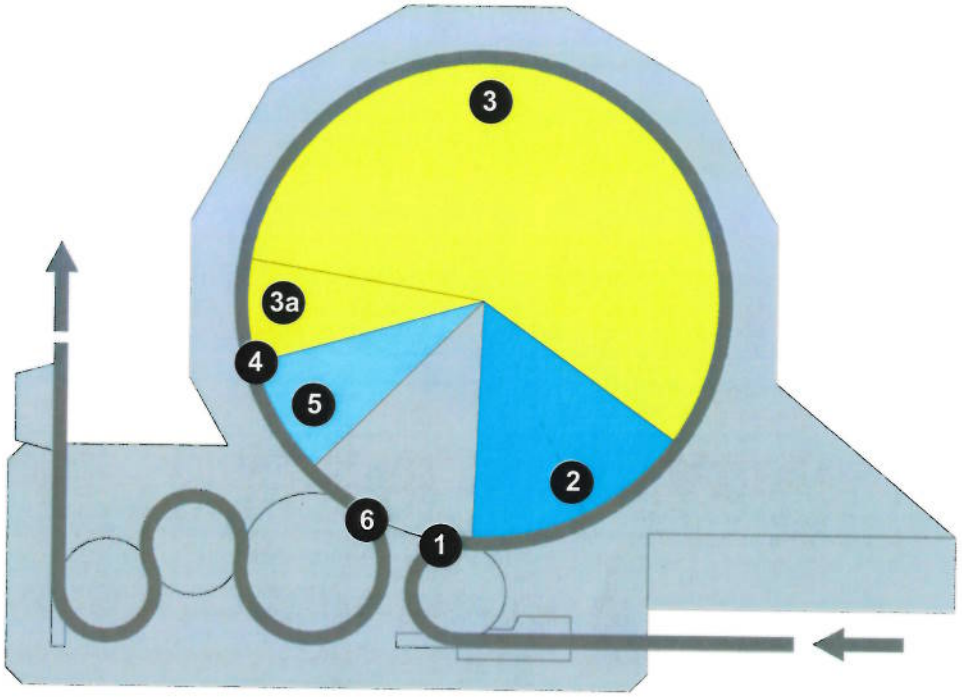
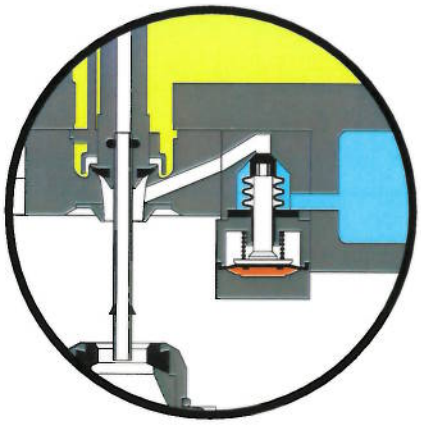
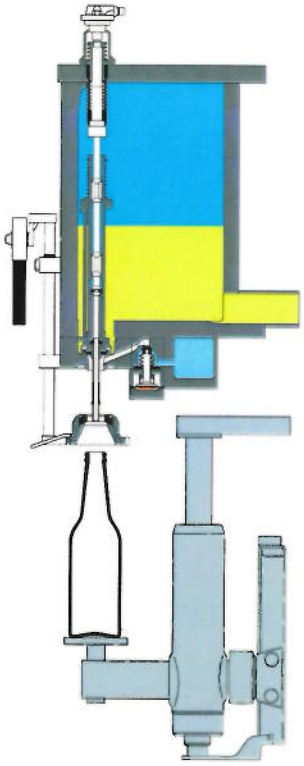


fig.4

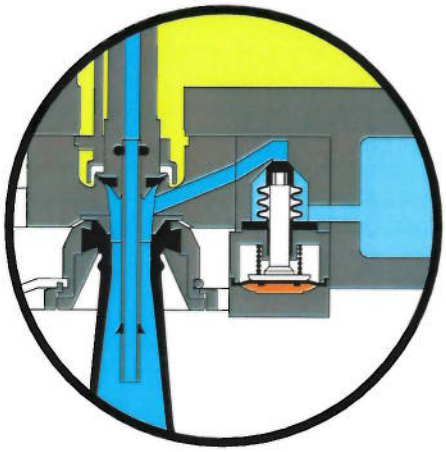
01. Base position (container infeed zone)
02. Injection of inert gas / CO_2 - Pressurization
03. Product Filling
04. End Filling
05. Snifting (decompression)
06. Container discharge

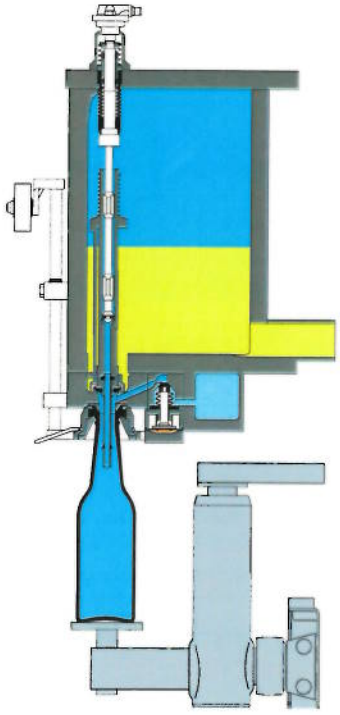
01. BASE POSITION
CONTAINER INFEED ZONE
The containers enter the filler carousel and are moved by carrier plates to the filling valve centering device.
Thanks to the gasket they are sealed under the valve body.





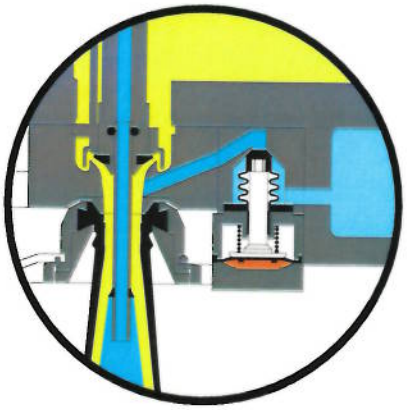
02. INJECTION OF INERT GAS / CO_2 AND PRESSURIZATION
Inert gas or CO_2 is injected into the containers. The containers are put under pressure forcing the tank gases to flow in.

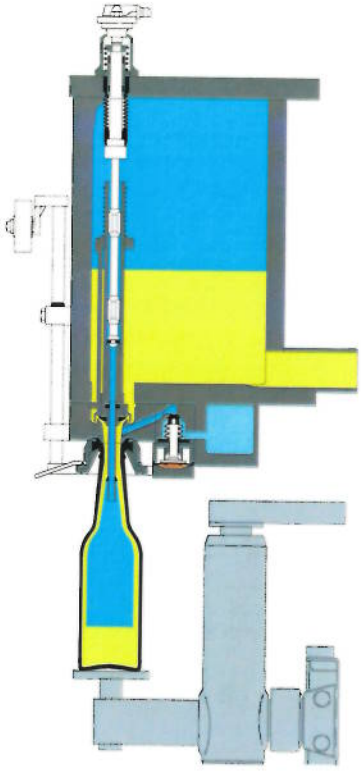




03. PRODUCT FILLING

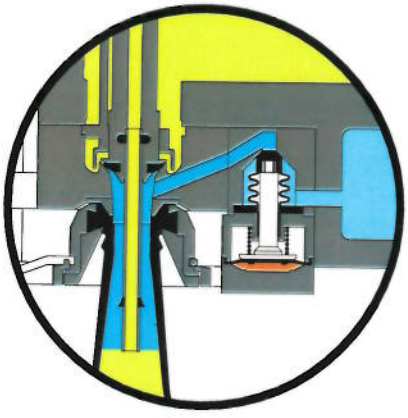
Filling starts when the pressure in the containers reaches that of the tank.
At this point, the filling valve opens automatically and the produce fills the containers.
You can see that filling ends when the product reaches the level of the cannula.

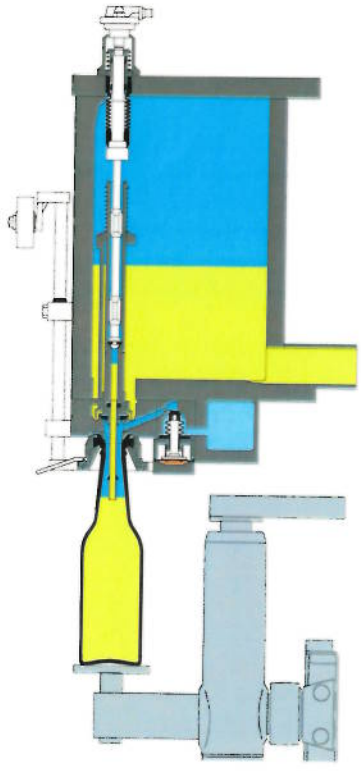




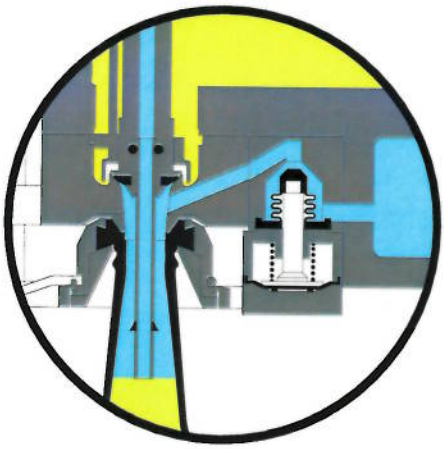
04. END FILLING

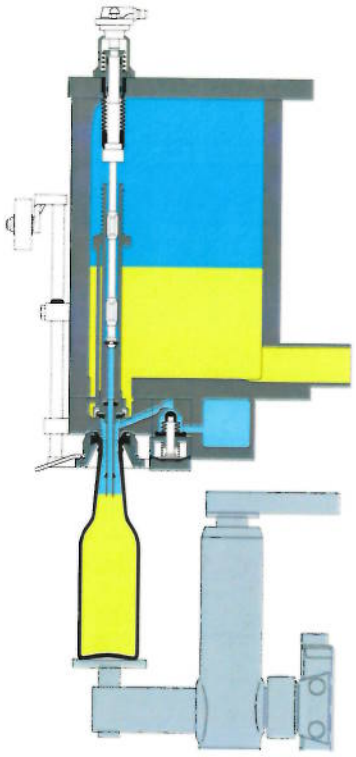
The gas and product shutters close.



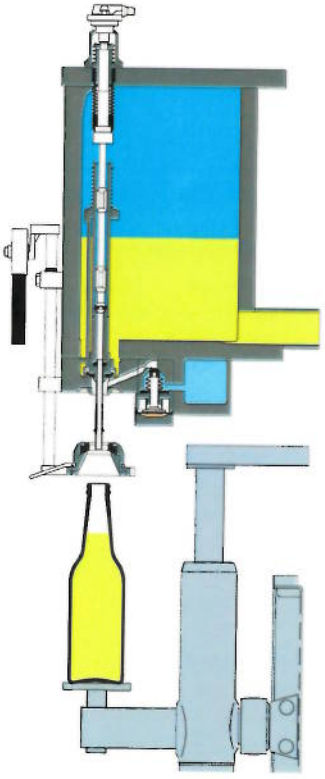


05. SNIFTING (DECOMPRESSION)
The containers are decompressed in the Snifting chamber where the gasses remaining in the bottle neck are exhausted.





06. CONTAINER DISCHARGE
The containers leave the filler carousel by the discharge starwheel.



5.8 OPERATION PRINCIPLE OF CIP

CIP cleans/disinfects the interior parts of the machine, without requiring that the machine be disassembled or any changes.

See Para. 7 (Machine Use) for the instructions with the correct procedure for using the CIP system.

The figure (fig.5) illustrates an example of the CIP operational flow.

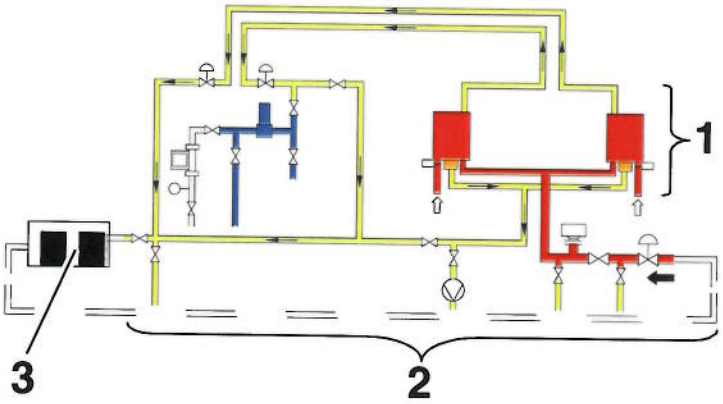


fig.5

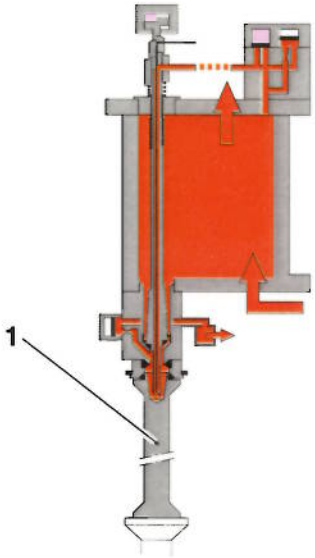
Basic Operation Principle of CIP:

1. Machine
2. Piping
3. Tanks (for example: CIP unit, special equipment)

• Machine and piping, based on the type of product filled, can be washed/cleaned using liquid detergents/disinfectants, water, or the product itself.
A certain amount of detergent/disinfectant, or product, can be lost depending on the machine type/model or cleaning/disinfecting program.

Cleaning/Disinfecting of the Internal Parts of the Machine:
- The cleaning product enters the product infeed piping and then passes to the tank
- The cleaning product, or water, enters the spray-ball piping and washes the top part of the tank

Cleaning/Decontamination of the Filling Stations:



• The CIP cups (false-bottles) (**1**) cover the exit of the filling valve and enclose all of the external parts of the filling stations that have been in contact with the product, for example the return air tubes, probes, etc.).

• The detergent/disinfectant flows from the product tank through the filling valves into the CIP cups.
Then in flows from the CIP cups through the vacuum return cannula/CIP through the piping system.
In this manner, the following are also **cleaned and disinfected**:
- the filling valves
- The external parts of the filling stations and parts that come into contact with the product
- The internal piping (for example the vacuum/ discharge piping

5.9 MACHINE PIPING SYSTEM

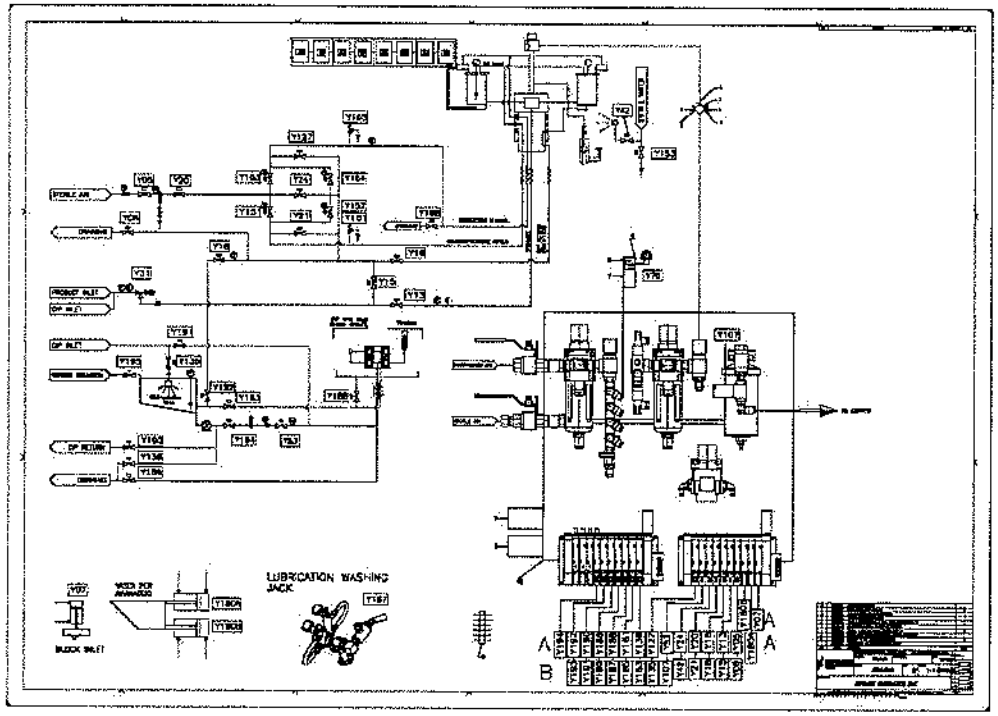


fig.6

The figure above shows an example of a piping diagram.

The piping diagram for the machine is also provided in the spare parts documentation.

The piping is used to supply the machine with the material for use. Valves and regulators control the supply of liquids and gases, and regulate the pressure in the piping system.

The piping must be correctly regulated for the individual operating programs. For this reason the user must adjust the individual valves in the piping system according to the desired program.
Based on the operating specification, the piping can be adjusted in two different manners:

Semi-Automatic: The user selects a program and adjusts the individual valves manually.

Manual: The user adjusts everything by hand.

5.10 CONTRAINDICATIONS FOR USE

Do not use the machine for filling aggressive liquids (acid or alkaline solutions, bleach, hydrogen peroxide, solvents, etc.) unless these liquids were included in the order. The manufacturer is not responsible for any damages due to corrosion caused by aggressive products or unsuitable cleaning solutions.

Do not use the machine in areas with risk of explosion or to bottle flammable liquids (high proof ethanol or methanol, solvents, flammable oils, etc.) if the machine is not specifically designed to handle these products.

If the machine is suitable for operating in areas with risk of explosion, do not use the machine to fill using liquids other than those for which it has been designed. In particular, make certain that the temperature class and group of the liquids to be filled are compatible with the types of safeties installed on the machine. In general the machine is suitable for liquids in group IIC and in temperature class T3. Check the documentation attached to the certifications for the explosion proof materials effectively used.

The machine CANNOT function at speeds greater than those for which it was originally tared by the Manufacturer's technicians. Do not make any changes to the machine to increase the production speed.

Do not close yourself or others inside the guards to better observe the machine function.

Use NON-TOXIC detergents to clean the machine if the product is a food product or cosmetic.

Do not use hydrocarbon based solvents to clean the transparent safety guards. The panels may become opaque and weaken.

MACHINE USE

The machine must be inspected before each start-up.
To do this: Check that the machine is ready to be turned on.

Remember:
- To check the overall status of the machine one more time.
- That cleaning and maintenance must already be performed and completed.
- That for the warnings regarding cleaning and maintenance, see the chapters "Cleaning", "Maintenance", and "Lubrication".

6.1 QUALITY AND HYGIENE ASSURANCE

CIP
When the CIP system washes with only water:
- Take water samples from the safety valves and from the test taps on the system and the product piping
- Check to see if the water contains detergents/disinfectants
- Check the water for micro-organisms.

If production must start after washing, the wash water **must not contain**:
- Detergents / disinfectants
- Micro-organisms that are hazardous to peoples health or to the product

MACHINE STOP AFTER AN ALARM

All of the measures for eliminating the alarms must be performed while controlling the hygiene of the product to avoid contamination.
The parts of the fillers that come into contact with the product must never be touched with bare hands.
The tools used on the machine must be disinfected before use with physiologically neutral means. For the same reason, all of the parts that transport the product must be sterilized after the alarm is eliminated.

Avoid contact with the infeed starwheel.
If necessary, disinfect your shoes before entering the filler.

6.2 INSPECTION BEFORE STARTING UP

Before starting up the machine, you must inspect:
- The overall status of the machine
- The safety for use
- that the machine is ready to be turned on

PROCEDURE TO BE PERFORMED IN SEQUENCE:

1	 • When the machine is running, respect the accident prevention norms and safety instructions. • Perform all procedures carefully. • For other information, see the para. "Safety"
2	 • Perform the inspection works and start-up of all the other machines in the filling line. • Read the documentation for the machines in line. • The filler must only be started only when all of the machines before and after it are ready for operation.
3	 Make sure all guards are closed.
4	• Turn on the main power switch: The "Command Power" control indicator light must turn on. • Replace any defective parts prior to starting-up the machine. • Check for any alarms. Eliminate any problems indicated and confirm if necessary. • Check that the infeed container block is closed.
5	Check the supply connections for: • Electricity • Gas (for ex. CO2, N2, sterile air) • Service air • Water • Product piping • CIP return piping Make sure that all connections and pressures are correct.
6	**Open** the open/close taps for the gases (for example CO2, N2, sterile air), service air, and water.
7	Make certain that the service pressures are correct and regulate them if needed. For the correct values, see Para. "Technical Information".

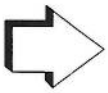
8	Ready all auxiliary components: • Conveyor belts • Conveyor belt lubrication • Cleaning / disinfection system • Auxiliary parts for the capper, vacuum pump, etc.
9	Check that all cleaning and maintenance has been performed and that all lubricated points are fed lubricant. See the Para. "Cleaning", "Maintenance", and "Lubrication".
10	Check to see if the machine equipment must be changes due to the type of container to be processed. If not, perform the necessary equipment change (see "Format Change-Over")  Discharge the pressure and empty the machine prior to changing the tooling.
11	Each time the machine is started-up, make certain that: • All of the format change-over parts are mounted and fastened correctly • All of the regulation operations have been finished.
12	Check the quality of the containers. When the containers are of highest quality, the process should run without interruption.
13	Perform a check for foreign bodies. Remove any parts remaining on the machine that are not part of the machine, for example tools, rags, etc.
14	Switch the selector on the control panel to "AUTO".

6.3 FILLING MODE

Use the piping diagram, annexed to the manual, to ensure that all of the valves are in the correct position (open/closed) based on the format being filled.

The machine must work at slow speed when starting filling.

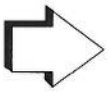
- On the touch screen, access the "Production" menu and enable production using the special key.
- At this point filling will start.



Read the **Touch Screen Instruction Manual** very carefully (attached to this manual).

Keep the following under control:
- Filling pressure
- Product temperature

When the desired values are reached, increase the production speed.



The product temperature has a strong influence on the machine yield. For this reason respect the recommended filling values.

- Continuously check that the machine is supplied with the materials for operation (for example, product, containers, gas (CO2, N2, sterile air), and compressed air).

If there is an error, immediately stop production until the cause(s) is(are) eliminated.

6.4 PRODUCT CHANGE - EMPTYING

Procedure:

- Deactivate the PRODUCT INFEED on the control panel in order to allow the **tank to drain completely**.
- Perform the correct filling program on the control panel (see the Touch Screen Instruction Manual) and wait for the level of the product in the tank to reach the minimum.
- Perform the CIP washing procedure (read the Touch Screen Instruction Manual carefully).

 During the CIP washing procedure, wear tough, detergent-resistant protective clothing.

Activate the PRODUCT INFEED on the control panel.

Start filling with the new product.

6.5 ASSEMBLY OF FALSE BOTTLES FOR CIP WASHING

Before proceeding with assembly of the false bottles, go to the CIP screen on the control panel (carefully read the touch instruction manual) and enable the button to remove air from the jacks (the trays will be lowered).
Subsequently go to the ADJUSTMENTS screen and place the tank in the position MAX TANK HEIGHT DURING CIP.

fig.1

To assemble the false bottles it is necessary to proceed as follows:

• Lift the centering device to facilitate insertion of the false bottle (fig.2).

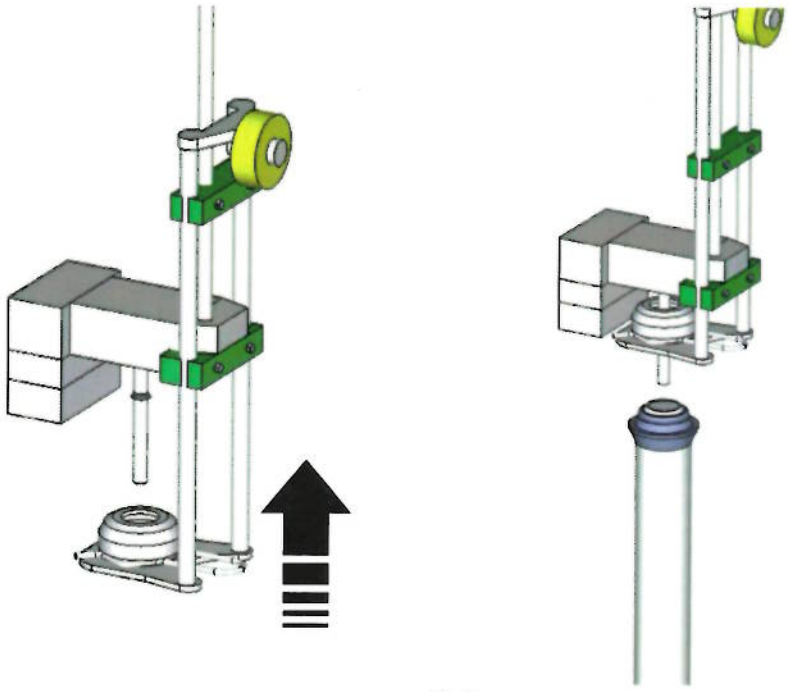


fig.2

• Center the false bottle under the valve, leaving the cannula inserted and blocking it in the centering device (fig.3)

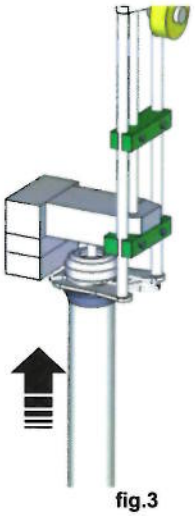


fig.3

• After positioning all of the false bottles, lower the tank to the position TANK MINIMUM HEIGHT DURING CIP.
• Enable air supply to the jacks on the touch screen. The trays automatically ascend a few mm to move the false bottles into contact with the respective valves (fig.4).

fig.4

• Conclude the washing cycle by disassembling the false bottles.

6.6 CIP (CLEAN IN PLACE) WASHING

CIP CIRCUIT (Clean in place)
The CIP washing requires the use of the following products:
- Detergents
- Disinfectants
- Hot/cold water

CAUTION:
Before each wash the operator must wear detergent-resistant clothing.
-Ear protection
-Safety glasses
-Protective gloves
-Apron
-Suitable work shoes

This personal protection equipment protects the operator from detergent spray that could come out of the machine.

FILLER TANK WASH TO BE PERFORMED DAILY

CIP SANITIZING (Clean in place)
All of the interior parts of the filler (tank and piping) are disinfected using liquid products (see the table and washing diagrams attached).

Liquid Used	Percentage %	Time	Max. Temperature
Water and Caustic Soda	Max 2%	30 min	80 °C
Water		10 min	20 °C
Water and Peracetic Acid	Max 0,1%	20 min	30 °C
Sterile Water		45 min	90 °C

CIP WASHING WITH FALSE BOTTLES
During the washing phase false bottles which do not allow product to come out of the filling valves are applied. These bottles allow product to circulate in the other tubes (see the washing diagram attached to the manual).
Recovery of sanitizer is part of the washing phase through return tubing.
After the use of detergent and disinfectant, the machine must always be rinsed with water.

The working and washing system has valves and regulators fitted on the tubes to control the supply of liquids, gases and pressures.

Washing can be: automatic, semiautomatic or manual.
AUTOMATIC: The user selects the program from the TOUCH SCREEN.
SEMI-AUTOMATIC: The user selects the program and manually positions the valve.
MANUAL: The user regulates the entire operation manually.

FORMAT CHANGEOVER

7.1 GENERAL WARNINGS

In general, our machines are designed and constructed to fill various container formats, specifically requested by the customer during the order phase.

To facilitate substitution, each part is identified by the format reference number and color.

Before proceeding with a format changeover, you must perform the following operations:

- The machine must be emptied and the selector switch on the control panel must be moved to the "MAN" position.
- Block the switch so that the machine cannot be started.

If the machine must be run for a short time, be carefully that there are no risks to people or property when it is turned on.

SAFETY GUARDS

Never tamper with the safety guards.

To perform operations on the machine, the jog button can even be used when the guards are open.

Before using the jog, the operator must make certain no one is located on the machine.

When operations have been completed, close the guards and remount the protective grilles and housings.

When performing works on the upper parts of the machine only use suitable means (for example, stable ladders).

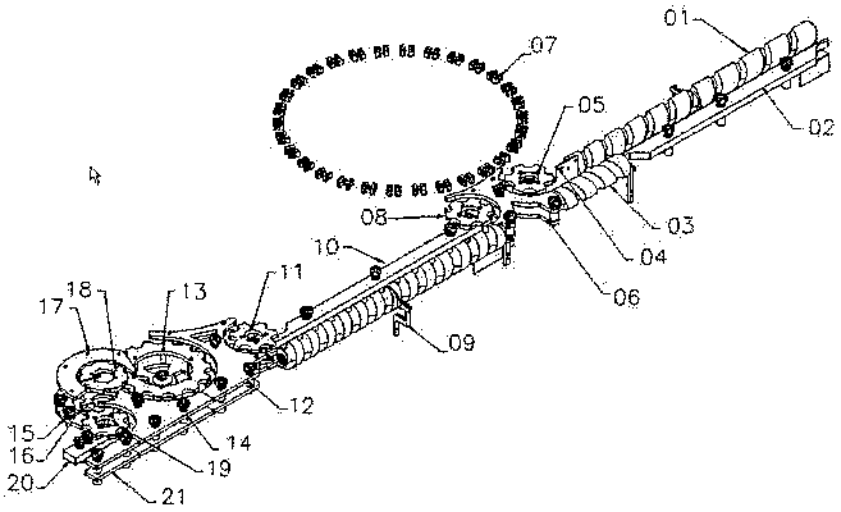
PRESSURIZED DEVICES

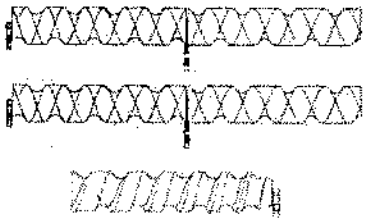
The machine, or parts of it, may be under pressure (for example pressure tanks, pneumatic components, CIP components, hydraulic components, machine piping, etc.).
The pressure source to the machine and its parts must be stopped for the equipment changeover operations.

When the pressurized parts must be opened or dismantled: Relieve the pressure
Darin the operative gas/liquid
Wash away detergents and disinfectants before starting works.

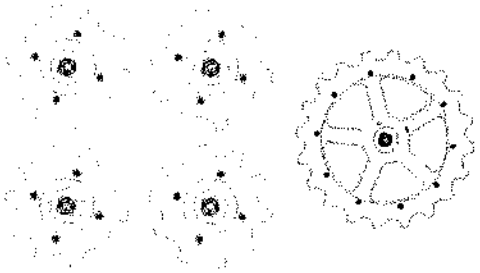
7.2 EQUIPMENT CHANGE

The equipment to be changed during the format changeover is:

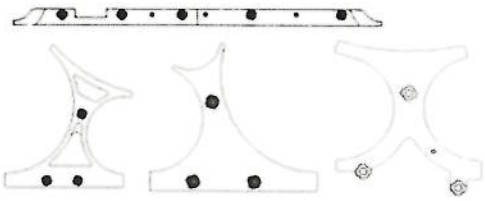




01.03.09. Wormscrew



05.08.11.13.19. Starwheel



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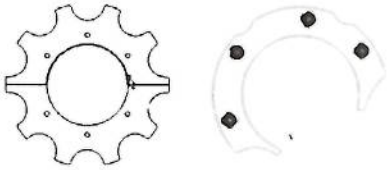


15.16.17.18. Capper Equipment

Rubbers

Tube

Centering Device

To facilitate substitution, each part is identified by the format reference number and color.

Before proceeding with a format changeover, you must perform the following operations:

- Stop the machine.
- Clean the machine (See the para. CLEANING).
- Lubricate the machine (See the para. LUBRICATION).

7.3 AUTOMATIC TOWER HEIGHT REGULATION

Before starting up the machine, the height of the filling tower, capper tower, etc., must be regulated for the dimensions of the containers in production.
In machines with automatic operation, the height is regulated by an electric motor commanded by a function on the Touch Screen.
Together with the benefit of remarkably rapid easy use, this type of option allows a single operator to perform the height regulation operations.

To perform automatic regulation of the towers, proceed as shown in the Touch Screen Instruction Manual, in the para. "Control Panel".

The machine must be emptied and the selector switch on the control panel must be moved to the "MAN" position.
No containers, washing tanks or CIP cups should enter the carousel.

7.4 REPLACEMENT OF RINSER PLUGS

To replace the bottle gripper plugs, proceed as follows:

- Pull the plugs outwards with force until they come out of their seats.

If necessary, adjust the height of the rinser tower based on the container for production. Correct regulation means that the bottle grippers hold the bottle as shown in (fig.1).
(The shape of the plug must perfectly match the shape of the bottleneck.)

Regulation can be either MANUAL or SEMI-AUTOMATIC.
- MANUAL: Regulation is performed using a hand wheel on the machine.
- SEMI-AUTOMATIC: Regulation is performed using the RAISE/LOWER button located on the control panel.
- AUTOMATIC: Regulation is performed using the AUTOMATIC ON/OFF button located on the control panel.

See the format change-over table attached.

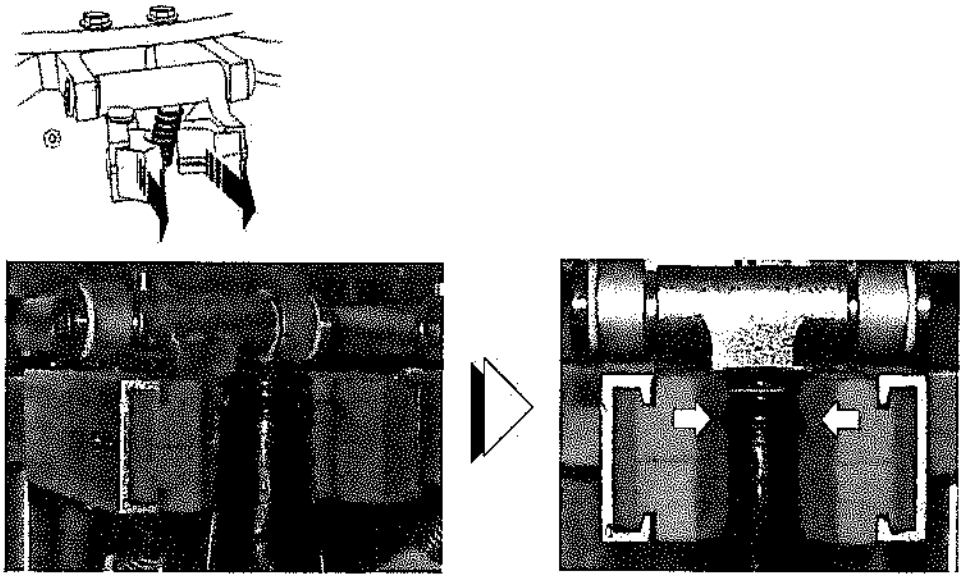


fig.1

7.5 WORM SCREW CHANGE

In order to perform the feed screw change, carry out the following operations:

• unscrew the pull-out handle by rotating it counterclockwise (fig.2):

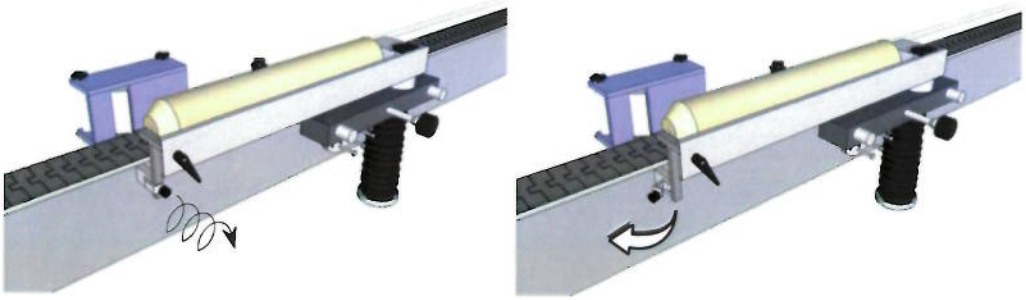


fig.2

• open the worm screw casing (fig.3)

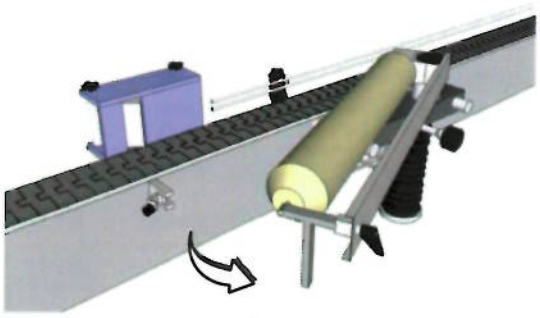


fig.3

• loose the worm screw by releasing and rotating the pull-out handle counterclockwise (fig.4):

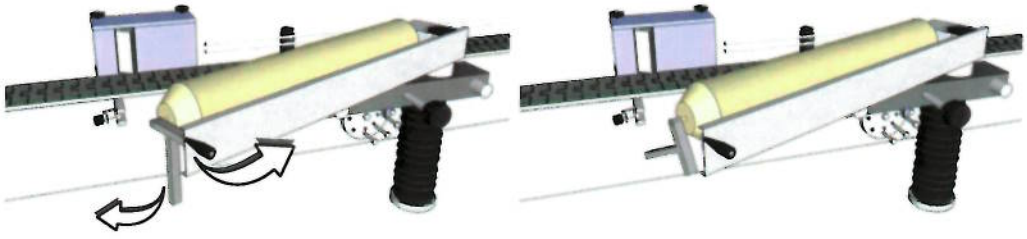


fig.4

• extract the worm screw by pushing in the direction indicated by the arrow (fig.5):

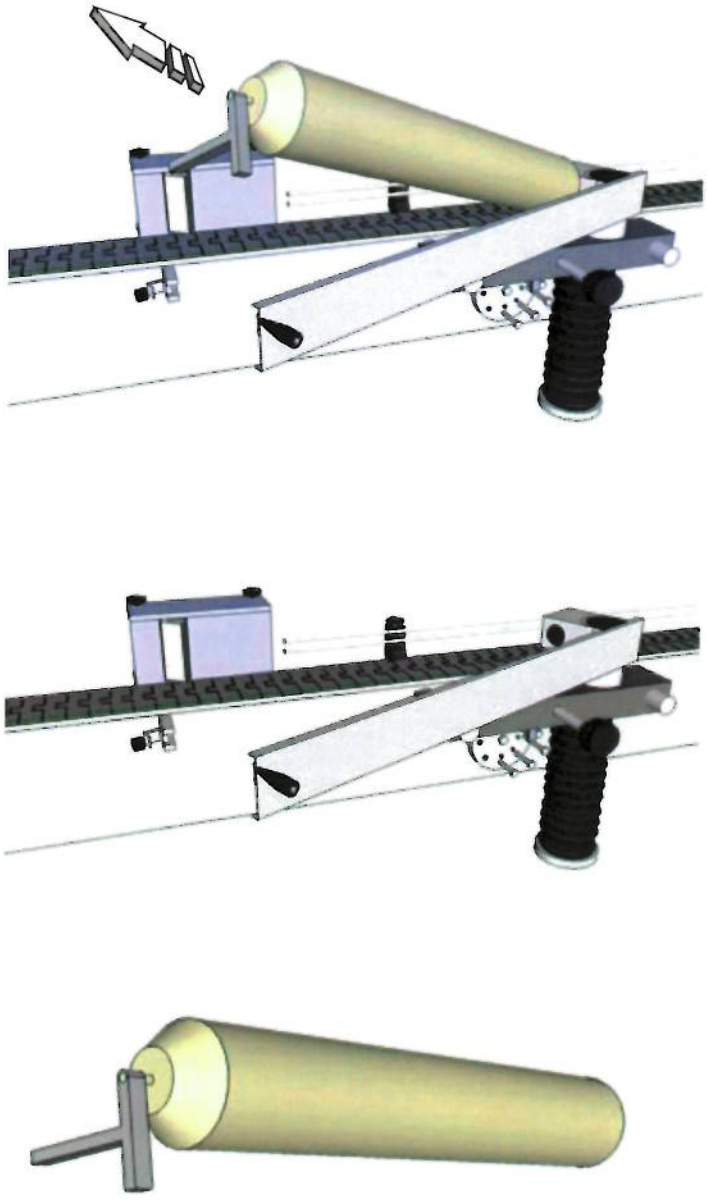


fig.5

• mount the feed screw type indicated in the Format list by performing the above described operations in the opposite order.

7.6 STARWHEEL CHANGE

To change the starwheel, follow the instructions below:

Loosen the lock knob, turning it counter-clockwise (fig.6)

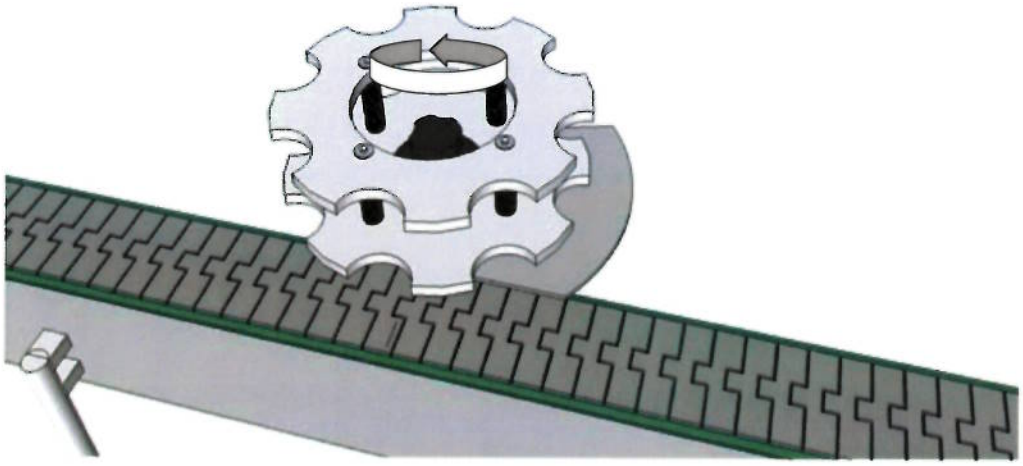


fig.6

• Remove the lock knob and lift it upwards (fig.7).

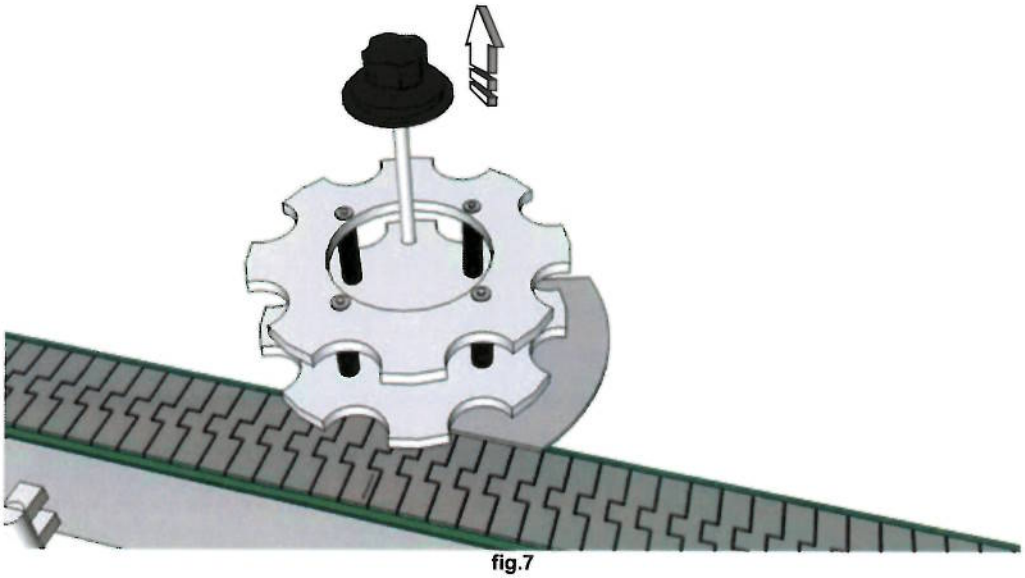


fig.7

• Remove the starwheel, lifting it upwards (fig.8).

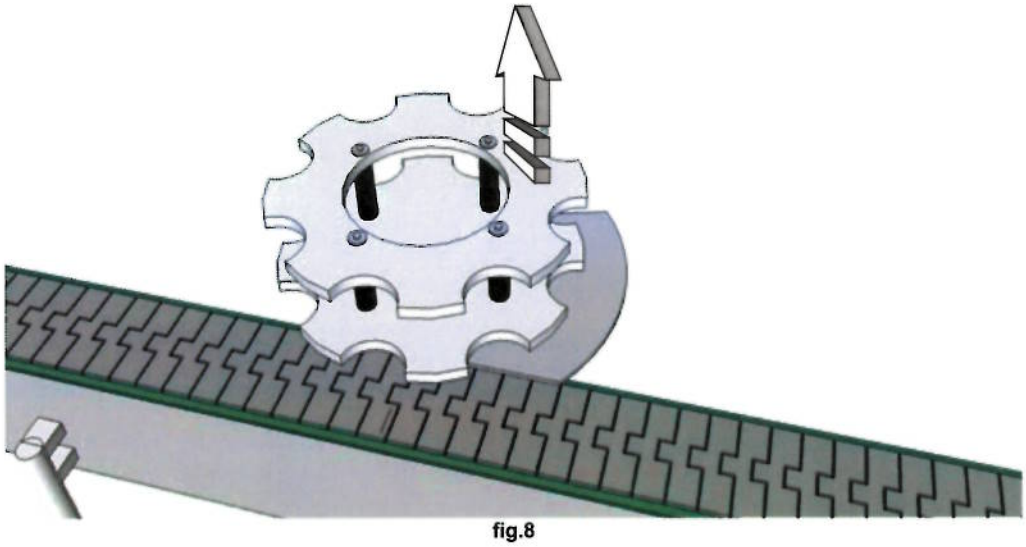


fig.8

• Mount the star wheel indicated in the format change-over card (check the codes and colors) by performing the steps indicated above in reverse order.

To position it correctly the starwheel must fit in the key (fig.9).

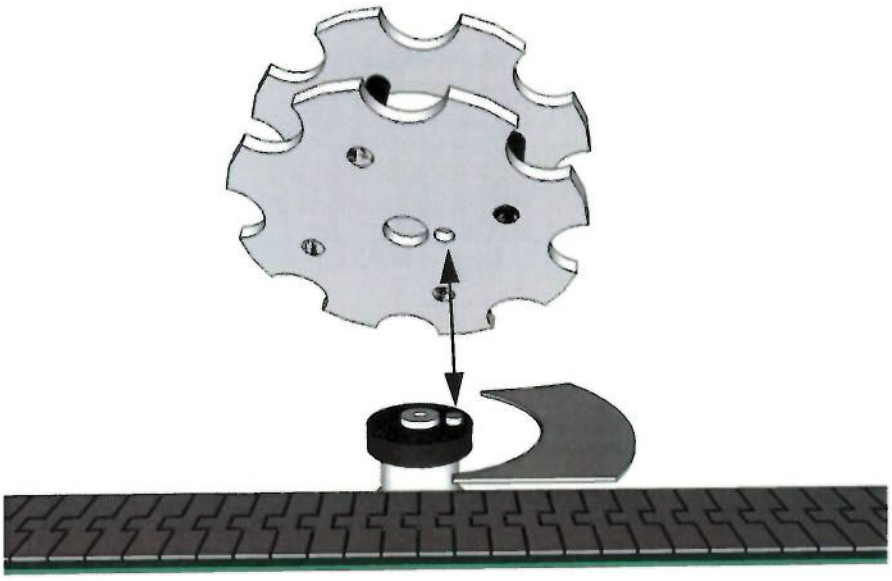


fig.9

7.7 CHANGING CHUTES

Proceed as follows to change the conveyors:

• Loosen the two lock knobs, turning them counter-clockwise (fig.10):

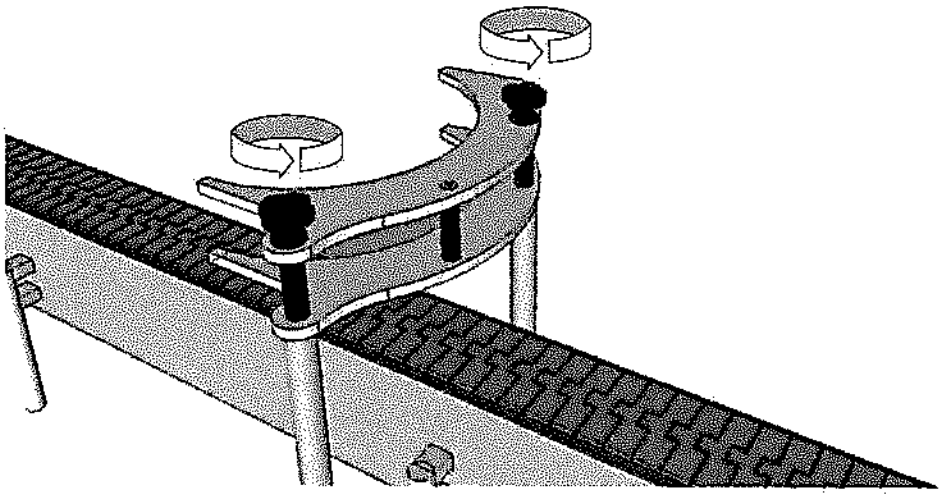


fig.10

• Remove the lock knobs and lift them upwards (fig.11):

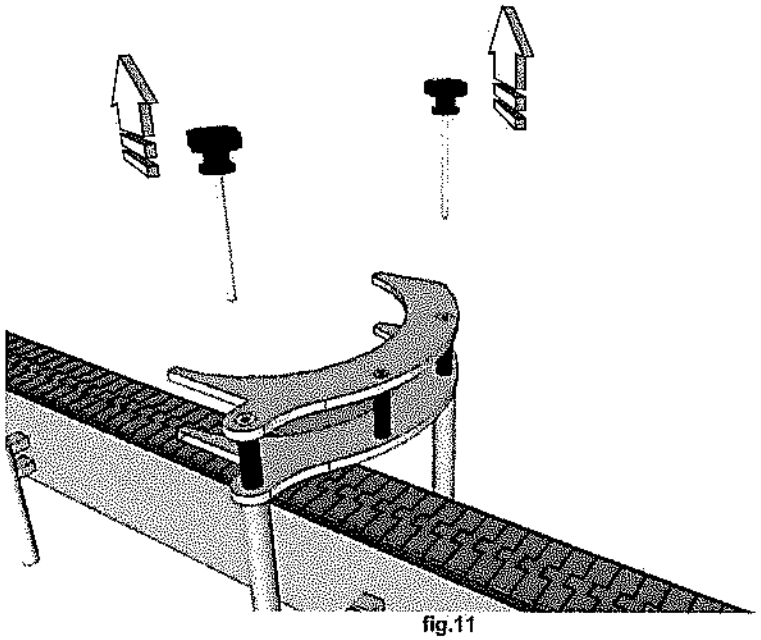


fig.11

• Remove the conveyor, lifting it upwards (fig.12):

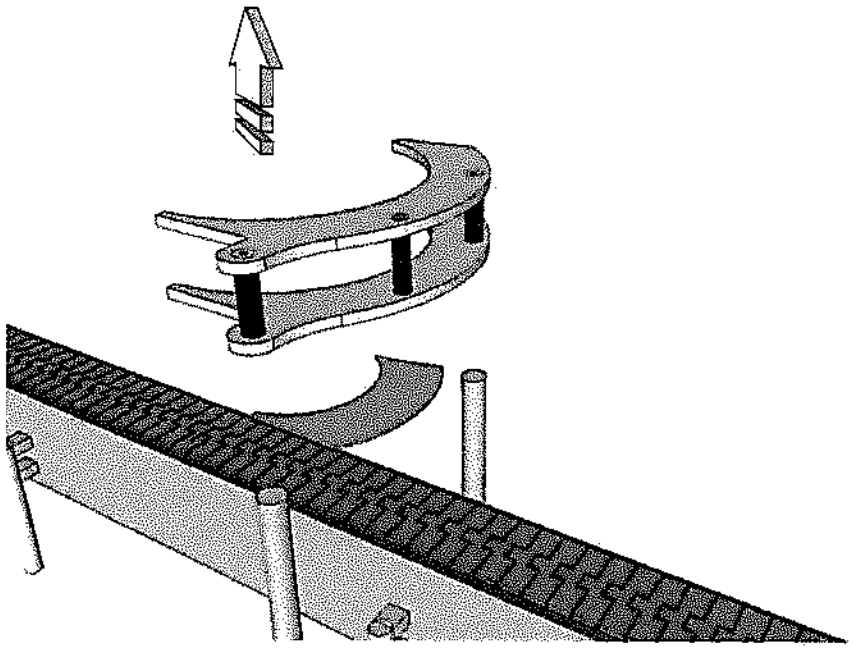


fig.12

• Mount the conveyor indicated in the format changeover card by performing the above steps in reverse.

7.8 CONVEYOR BELT SIDES ADJUSTMENT

In order to ensure a smooth flow of containers on the conveyor belt, conveyor belt sides must be correctly adjusted. Adjustment can be performed by carrying out the following operations:

• Release locking knobs (fig.13).

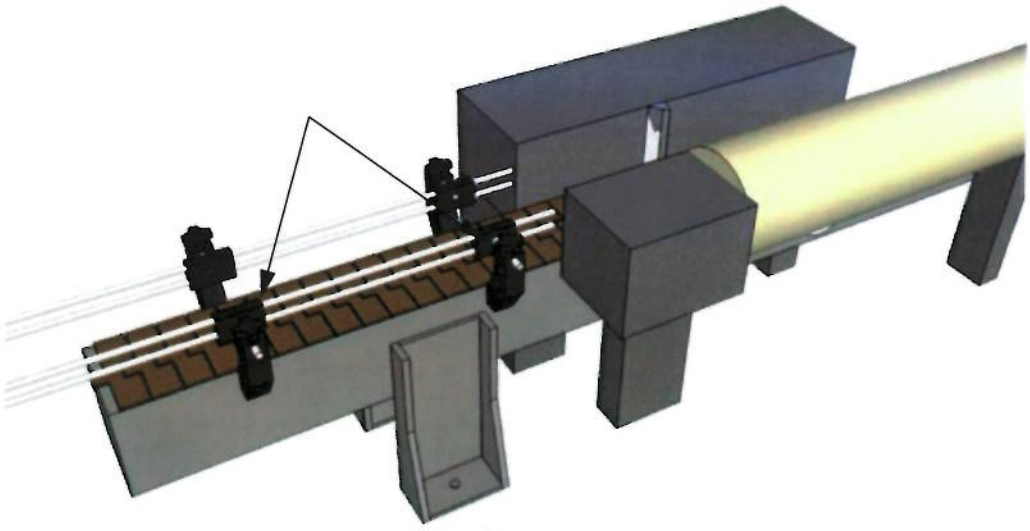


fig.13

• Conveyor belt sides at machine entrance (fig.14) must be always aligned with the feed screw. It is then advisable to adjust them after performing a feed screw type change (fig.15).

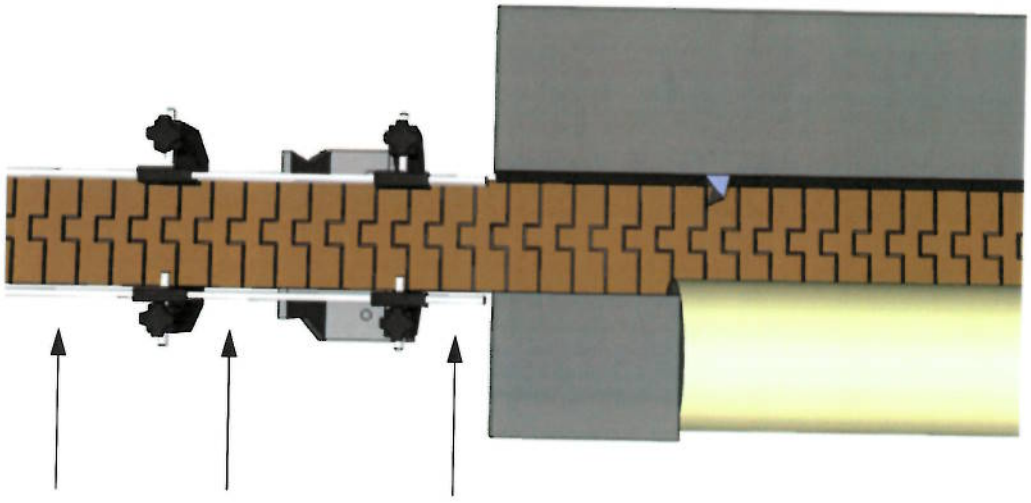


fig.14

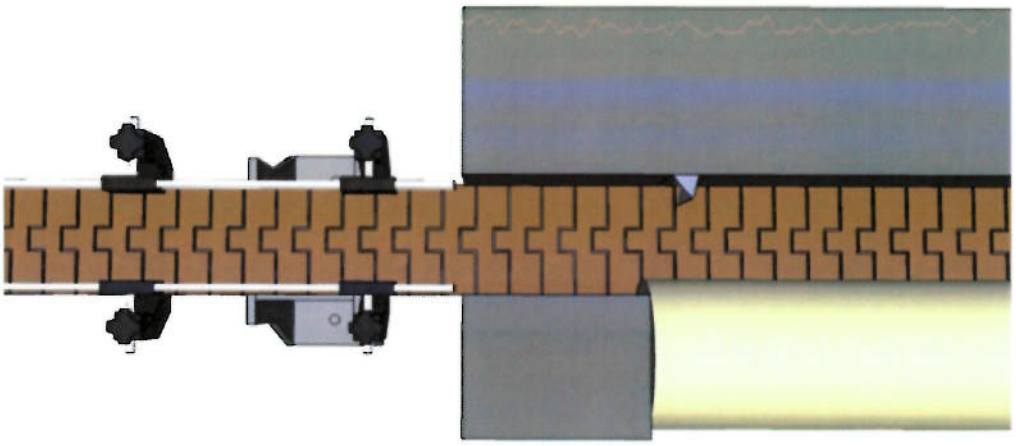


fig.15

• Place the container on the conveyor belt and position it near the knobs for a more accurate adjustment (fig.16) :

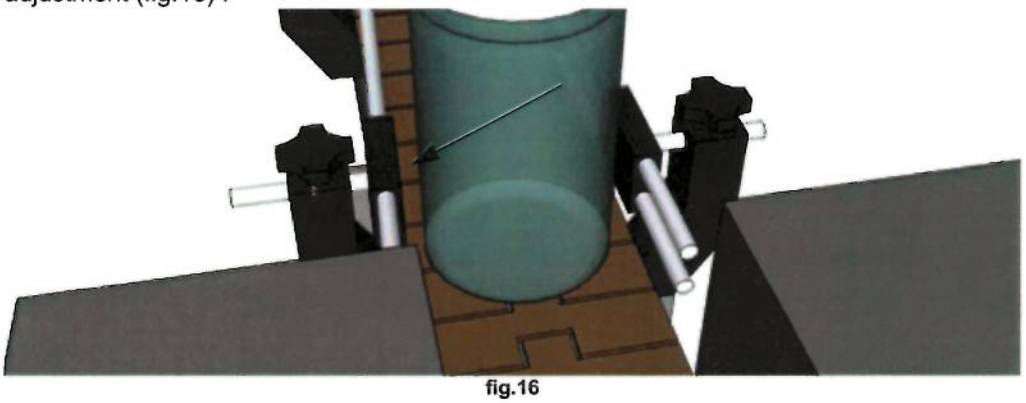


fig.16

• Push the container on one side and adjust the opposite side leaving a space of 2 mm. Once the adjustment has been performed, lock sides by making use of relative knobs (fig.17).

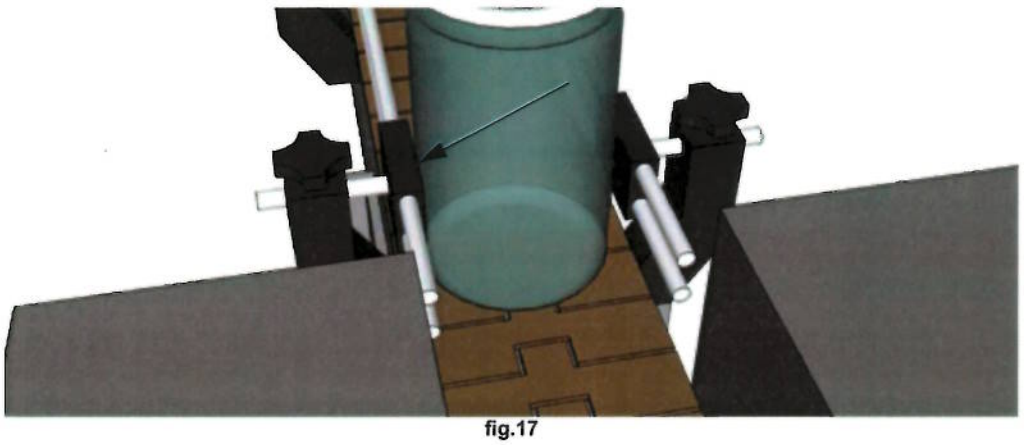


fig.17

• Conveyor belt sides at the exit of the machine: a space of more than 2 mm can be left without jeopardizing the container stability (fig.18).

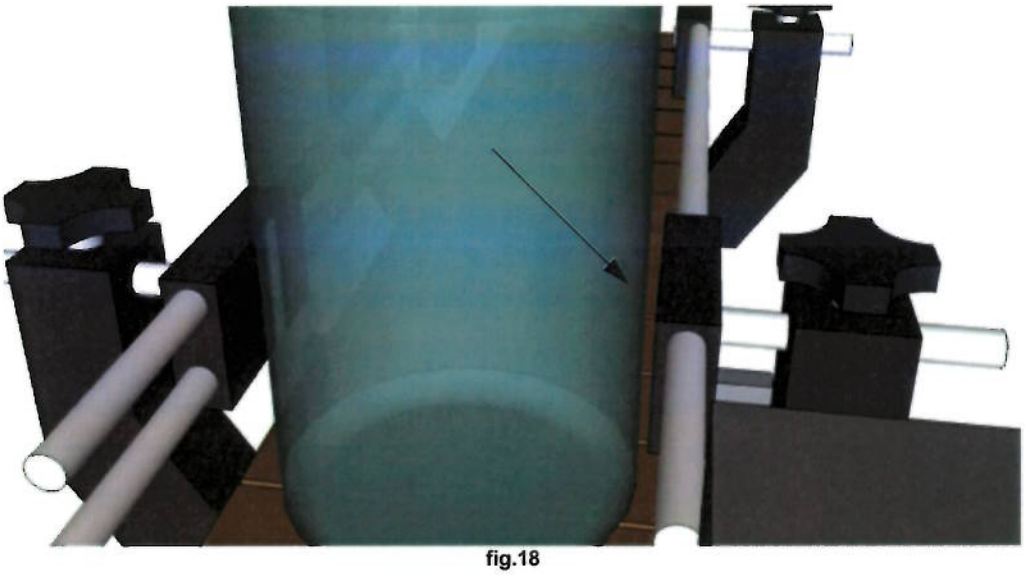


fig.18

• Position the container near other locking knobs on the conveyor belt and proceed to adjustment (fig.19).

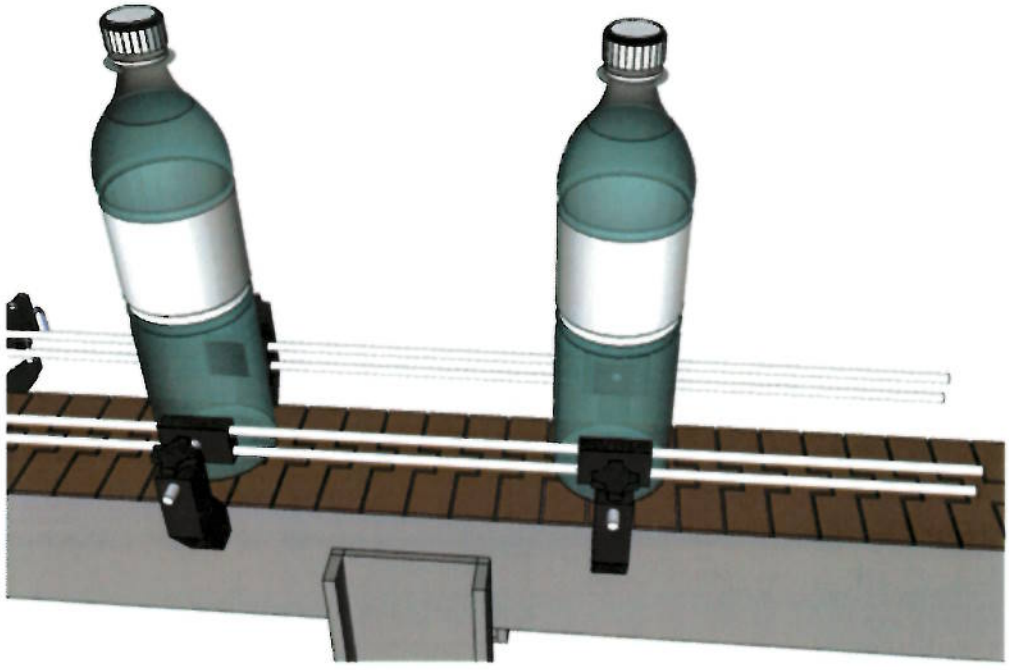
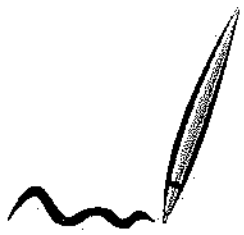


fig.19



7.9 REPLACEMENT OF THE CENTERING OF THE VALVE

To replace the centering device it is necessary to proceed as follows:

• Firmly pull the elastic fastening washer of the centering device (fig.20)

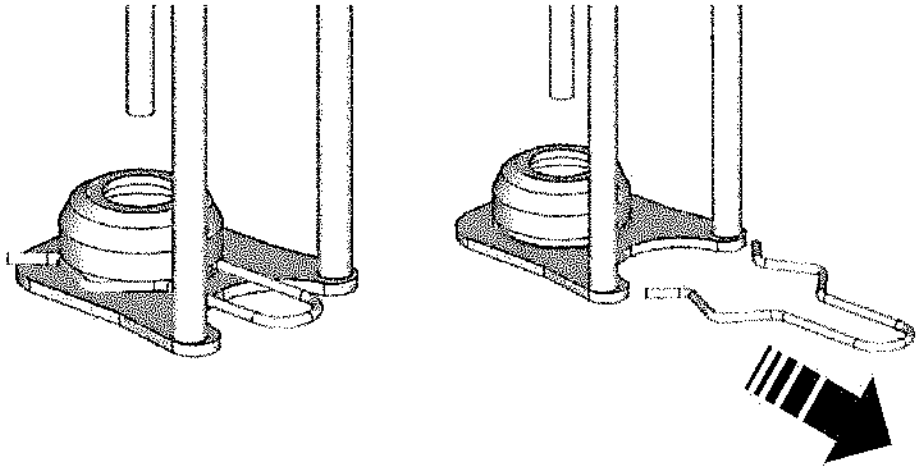


fig.20

• Remove the centering device and proceed with replacement, inserting a suitable washer in the housing, checking the code on the parts replacement form attached to this manual.

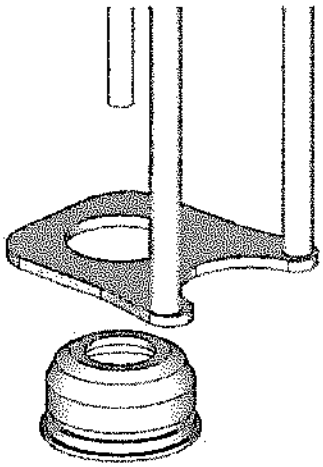


fig.21

7.10 REPLACEMENT OF THE CANNULA

To replace the cannula, proceed as follows:
• Lift the centering device to facilitate replacement of the cannula.

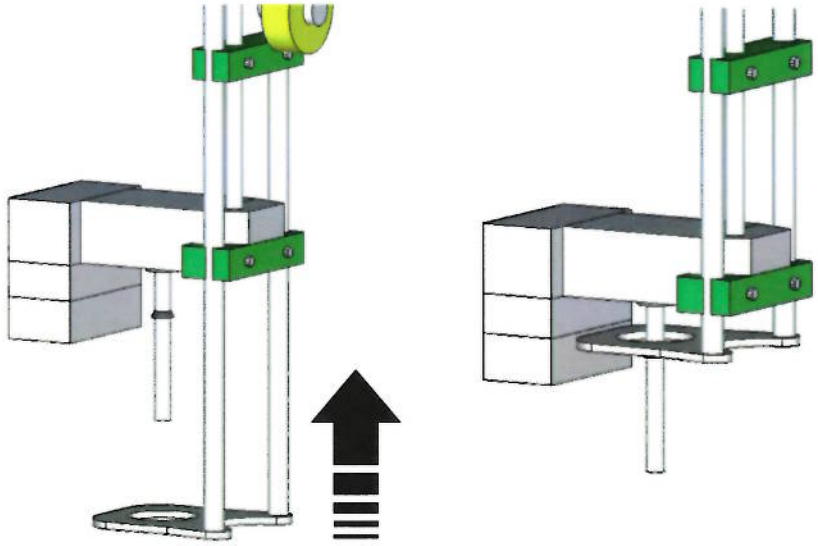


fig.22

• Pull the cannula firmly downwards until it is released from its housing, then proceed with replacement by inserting a suitable replacement cannula for the new format to be filled, controlling the code on the format change form attached to this manual.

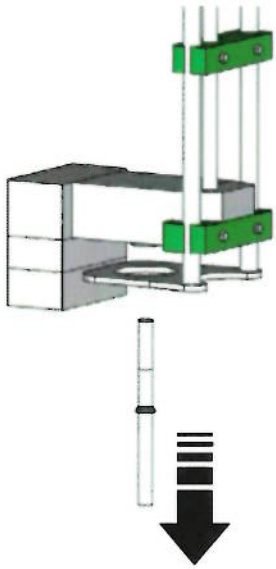


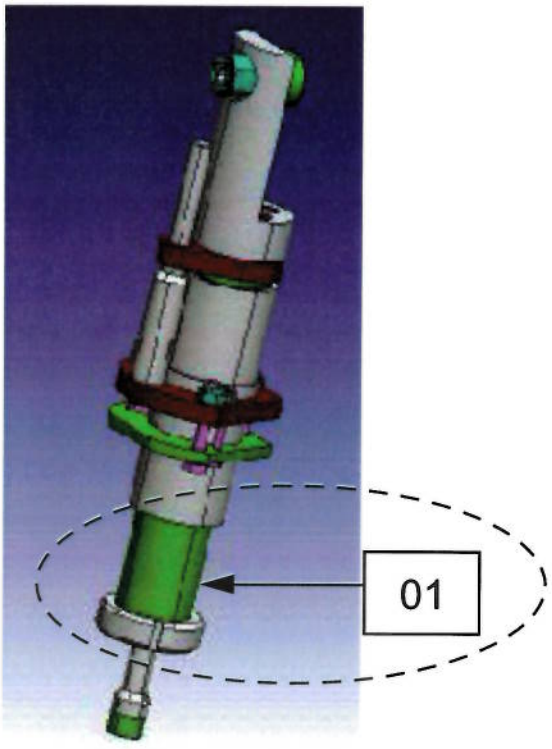
fig.23

7.11 FUNCTIONAL PRINCIPLES OF THE CAPPING TURRET (CROWN CAPS)

The capper tower is suitable for applying crown caps onto containers.

The caps are delivered by the cap feeder and are fed by a cap chute to the cap release head. Following the profile of a cam, the capping press removes the cap from the transport device with the aid of a magnetic system.
In the phases that follow, the cap is pressed and clamped onto the bottles.
Once the cap is applied, the system reset for the next closure

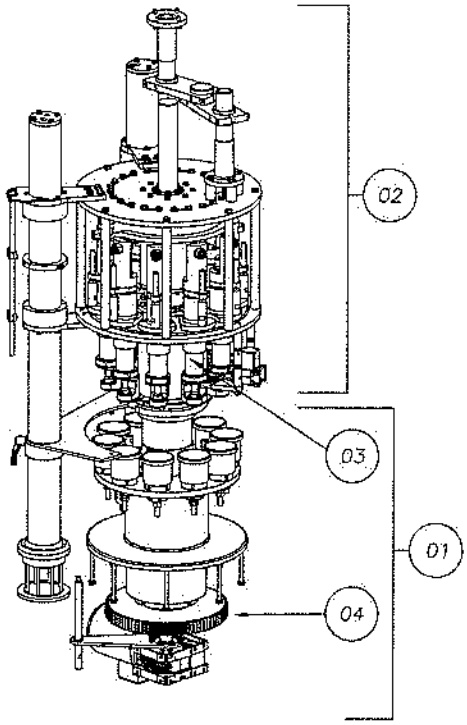
ATTENTION!!
During the machine startup, we recommend to make sure that the jack bottom of each capping head (pos. 01) has been actually greased with the fit grease:Interflon Code.8943 Food Lube CR.



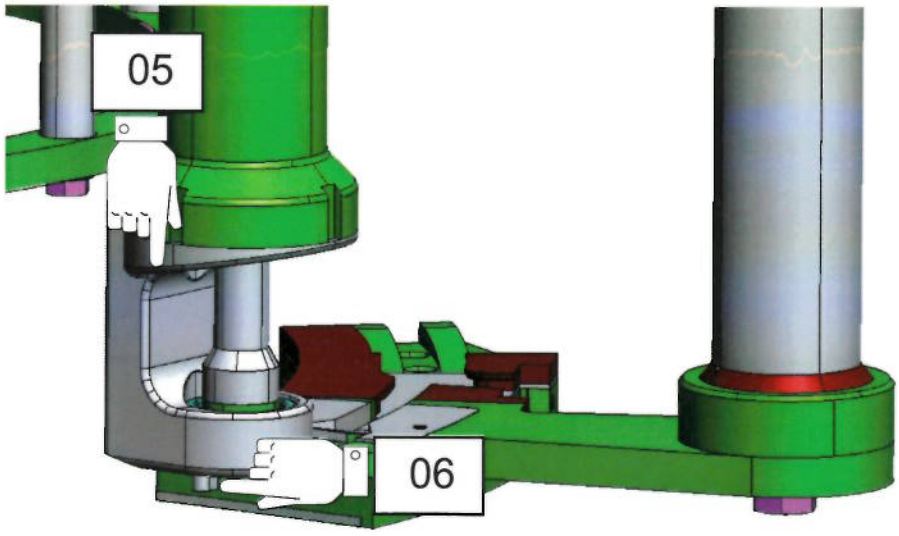
PARTI COMPONENTI LA TORRETTA CAPSULATRICE:

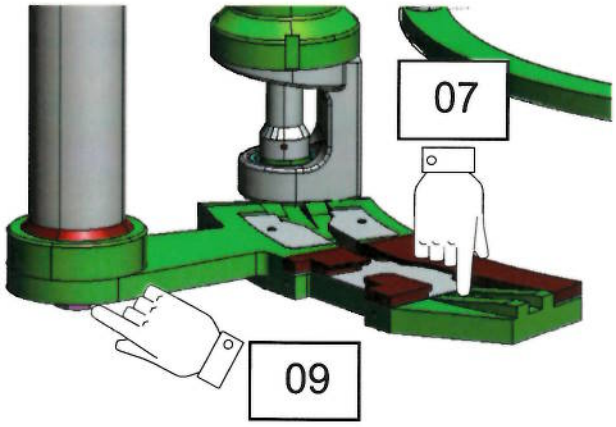
CAPPING TURRET COMPONENTS:

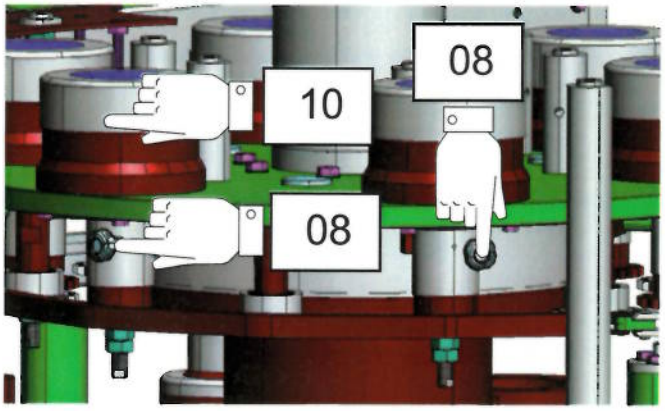
01 - LOWER FRAME
02 - UPPER FRAME WITH CAPPING HEAD GROUP
03 - CAPPING HEADS
04 - CAPPER GEAR



05 _ MOULD
06 _ CAP PUSHING PIN
07 _ CAP RELEASE HEAD
08 _ LOCKING PIN
09 _ LOCKING SCREW FOR THE CAP RELEASE HEAD
10 _ PLATFORM


05
06


07
09


08
10
08

7.12 CHANGE CAPPER STARWHEEL AND CONVEYOR

To change the starwheel and conveyor of the capper tower, perform the following operations:

Loosen the conveyor lock handles, turning counterclockwise, and remove them by sliding them upwards (fig.24)

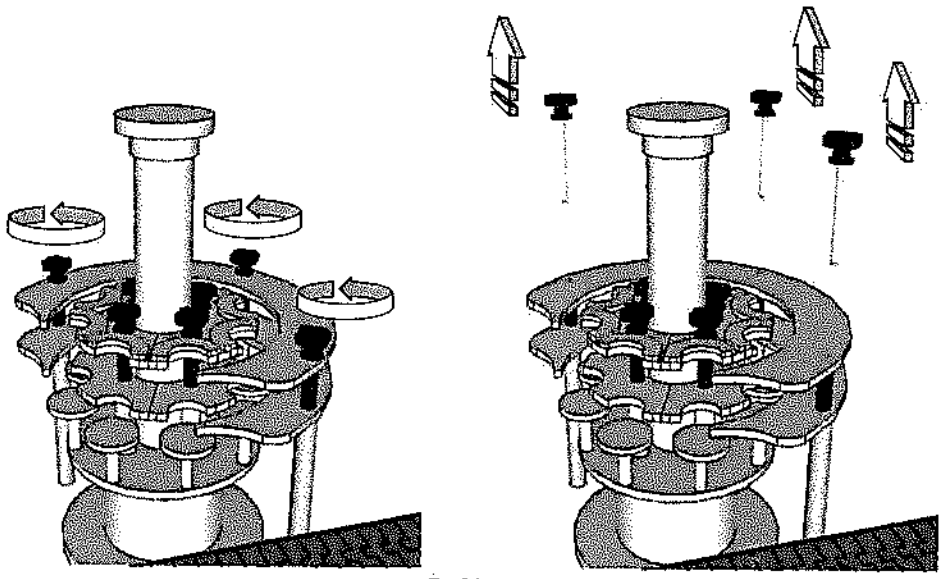


fig.24

• Remove the conveyor by lifting it upwards (fig.25).

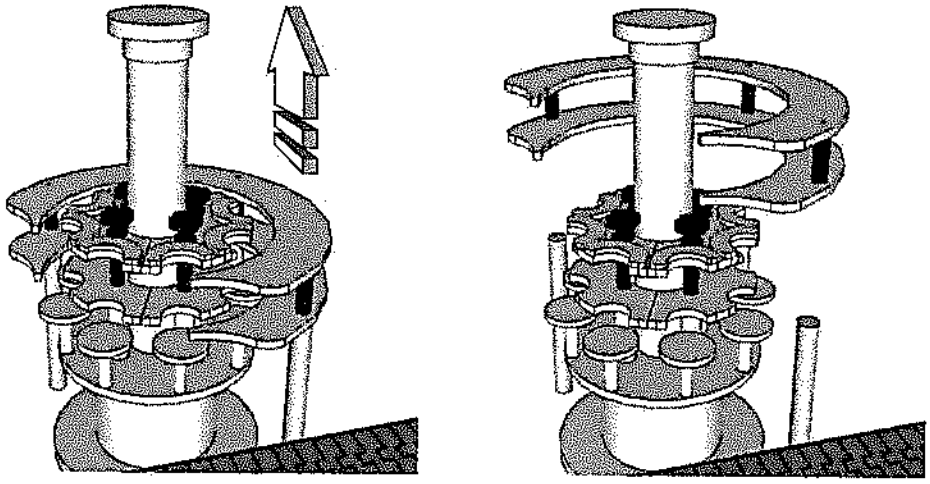


fig.25

• Loosen the starwheel lock handles, turning counterclockwise, and remove them by sliding them upwards (fig.26).

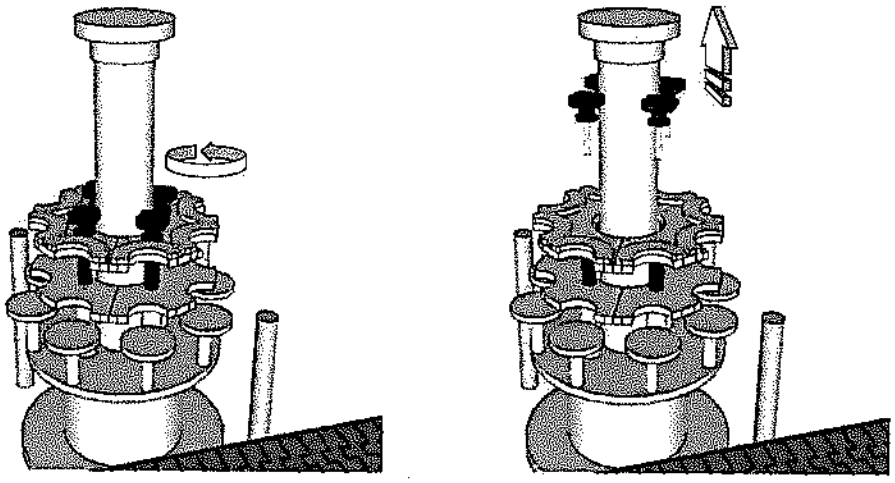


fig.26

• Loosen the first half-starwheel and lift it upwards slightly to remove it (fig.27).

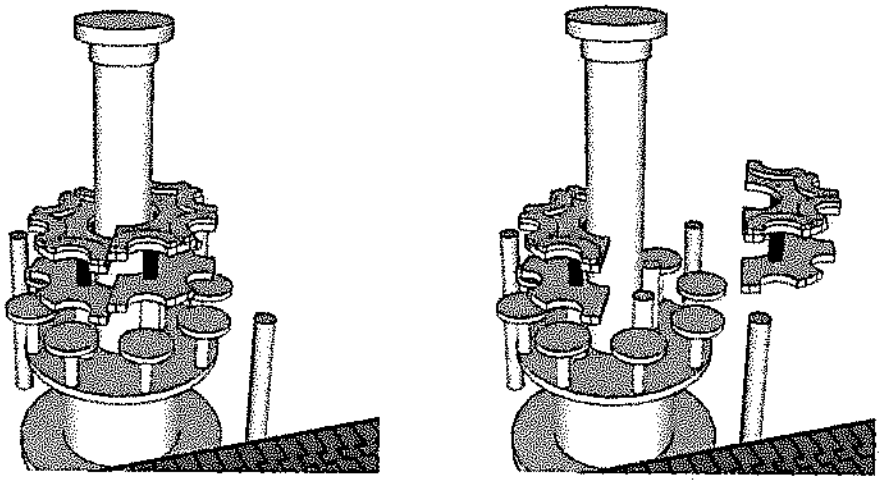


fig.27

• Loosen the second half-starwheel, lift it upwards slightly, turn it toward the free part of the capper (fig.28).

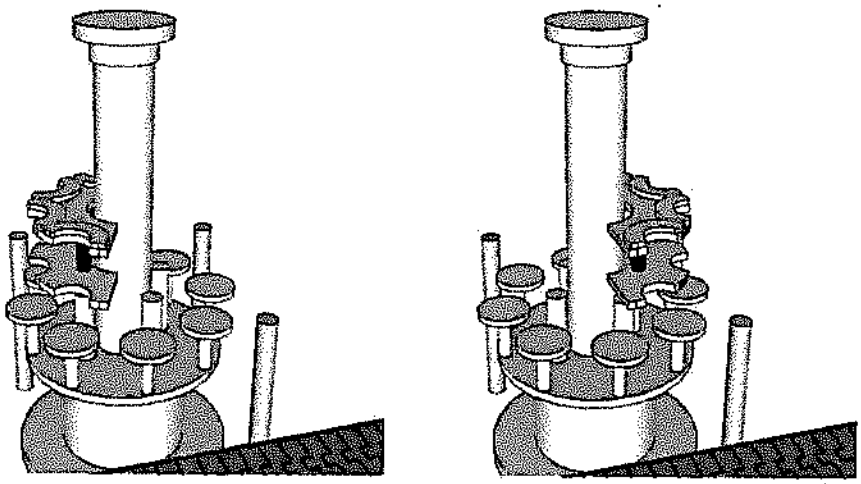


fig.28

• Remove the half-starwheel (fig.29).

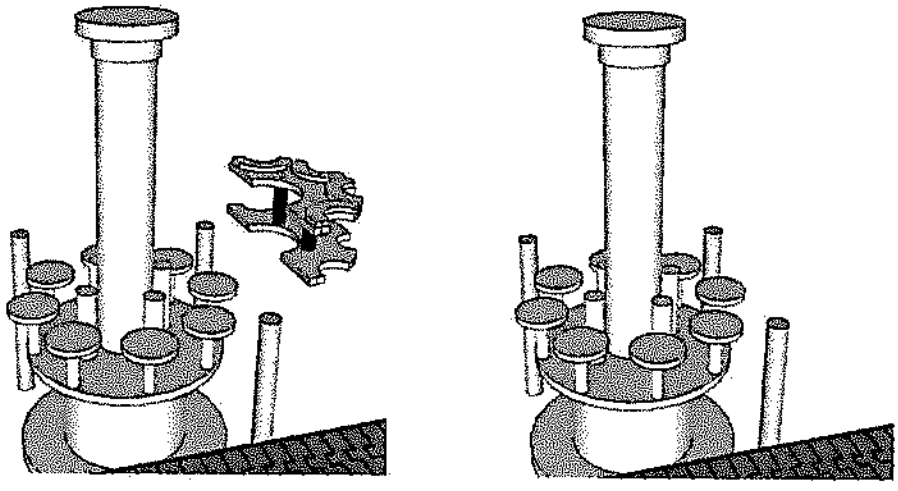


fig.29

• Mount the starwheel and conveyor indicated on the format changeover card (check code number and color) by following the operations described above in reverse.

7.13 CHANGE STARWHEEL AND CONVEYOR FOR THE BOTTLE NECK

To change the upper starwheel and the upper conveyor (for the bottle neck) of the capper tower, perform the following operations:

• Remove the conveyor lock screws (fig.30)

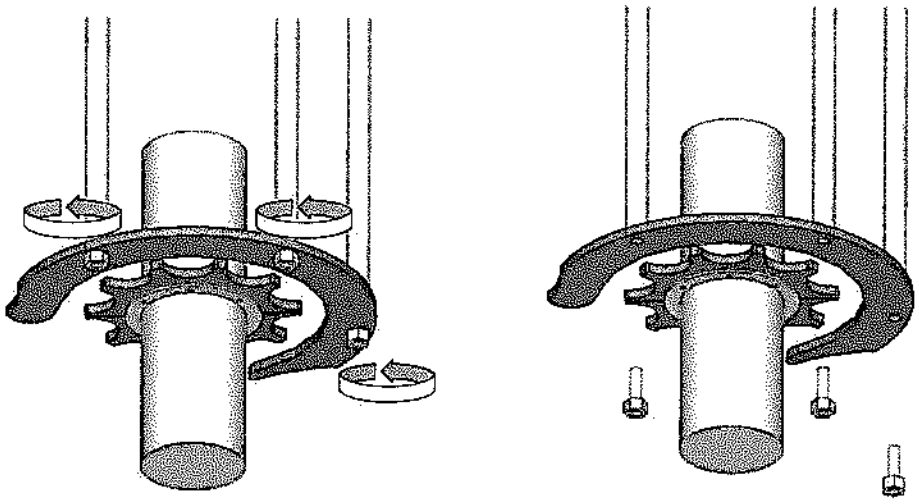


fig.30

• Remove the conveyor (fig.31).

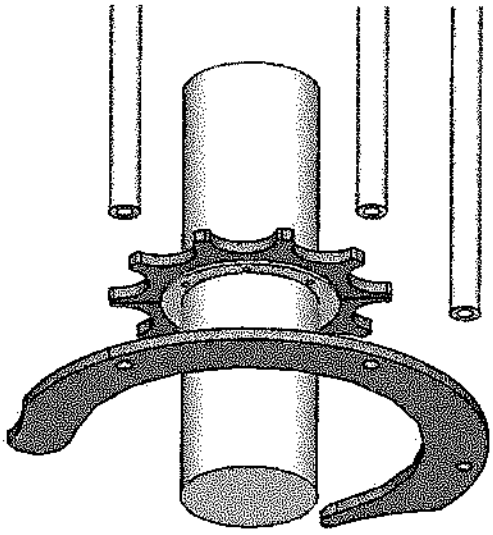


fig.31

• Loosen the 2 half-starwheels lock pins (fig.32).

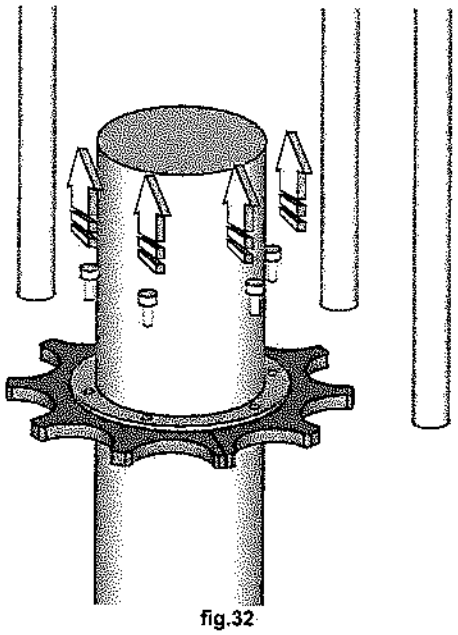


fig.32

• Extract the half-starwheels (fig.33).

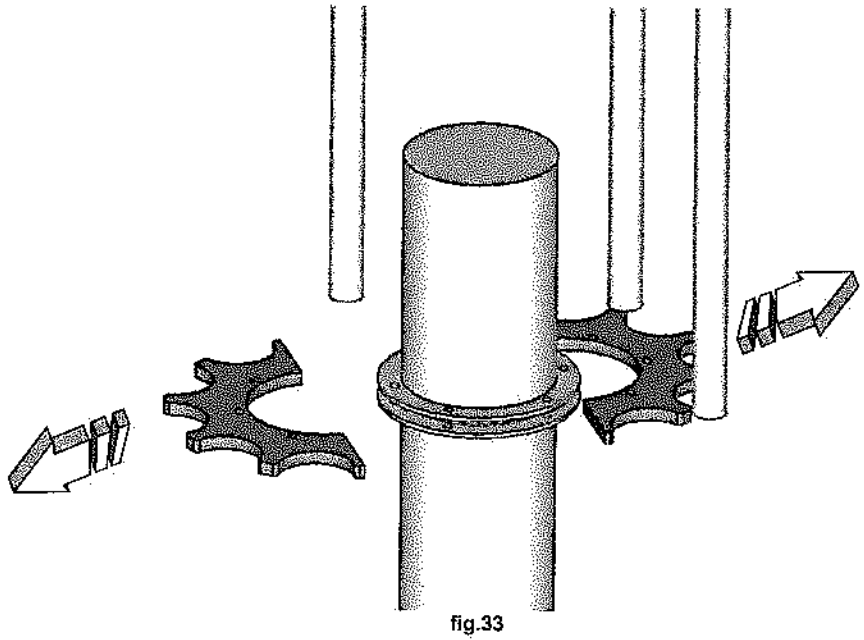


fig.33

• Mount the starwheel and conveyor indicated on the format changeover card (check code number and color) by following the operations described above in reverse.

7.14 CLOSURE PRESENCE PHOTOCELL REGULATION

To regulate the height of the closure detection photocell, perform the steps outlined below:

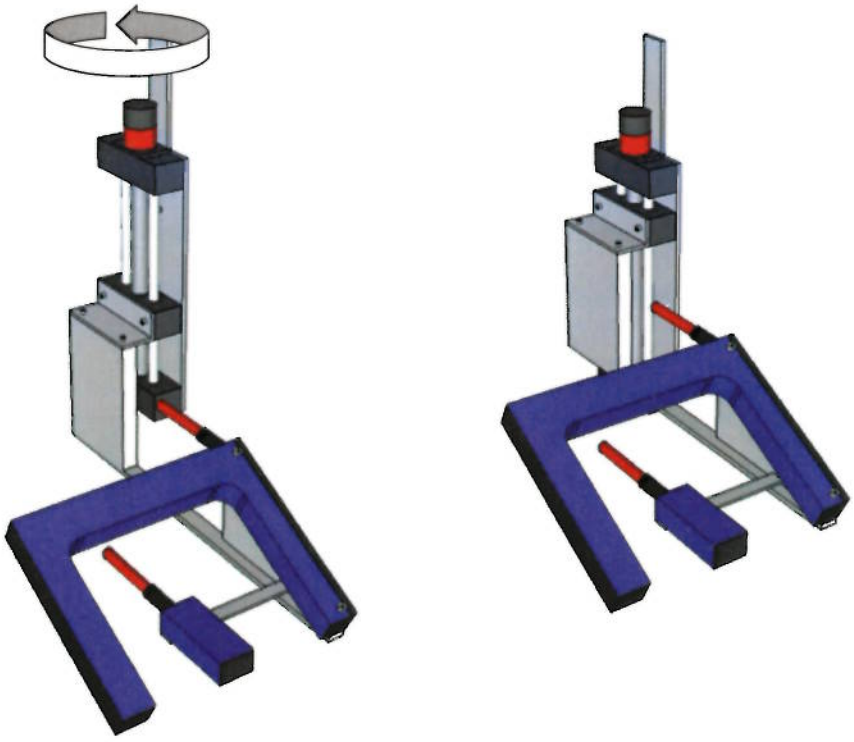
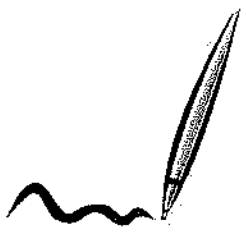


fig.34

Use a bottle from the new production format as a reference and using the handwheel, raise or lower the photocell. Keep the distance between the cell and the edge of the container at 3 to 4 cm.



MAINTENANCE

8.1 GENERAL WARNINGS

Respect the general warnings in the chapter on "Safety" and remember that:

- Any maintenance, cleaning, or lubrication operation must be performed exclusively with the machine and electric equipment disconnected from the electric system.
- It is prohibited to operate the machine in automatic mode with the fixed or mobile guards removed.
- Regulation operations under reduce safety conditions must be performed by a single person. When operations are performed, access to the machine by unauthorized personnel must be blocked.
- After performing regulations under reduced safety levels, the machine status with active guards must be restored as quickly as possible.
- Any operations performed on the line or electric equipment must be performed exclusively by a Qualified Maintenance Electrician.
- The operative space around the machine must be free of obstacles, clean and well lit for a distance of about 1.5 m.
- Use safety clothing according to the UNI EN 510 standard. Make certain sleeves fit tightly to wrists or better yet are turned up.
- When necessary to climb onto the machine, use a strong ladder with slip-proof rungs.
- Do not perform brusque movements, especially when climbing up on or down from the machine bed or the machine frame.
- Before performing any repairs or other operations on the machine, always communicate your intentions to the other operators around the machine and make certain that they have heard and understood your warning.

8.2 LOCK-OUT AND TAG-OUT PROCEDURE

"Lock-out"
Positioning of a of a locking device (padlock) next to the "OFF" position of an insulating device (disconnector, valve, etc.) of any power source (electric, pneumatic power, dangerous fluid, etc.).

"Tag-out"
Positioning of a sign next to the locking device for "lock-out", clearly indicating the name of the technician in charge authorized to carry out the procedure.

Involved Personel
Personnel operating around the plant or machinery that is subject to the "Lock-out".

Personnel in charge
Personnel that is authorized to operate the "lock-out" procedure after a specific training

8.3 CLEANING FOAMS AND GELS

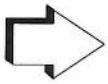
Prior to starting, read the instruction manual for each machine and perform the cleaning operations listed (be careful of the electric parts, polished surfaces, aluminum, etc.).
The most suitable detergents for cleaning the lines are foam and gel products made by the larger food-and-drink industry chemical manufacturers.
The cleaning foams and gels must be selected and used based on the manufacturers instructions (the worker must consult the technical data sheet of the product) to clean the exterior of lines in the food-and-drink industry.
Use at the concentration indicated in the manufacturer's instructions.
Cleaning foams and gels must be applied according to the manufacturer's instructions, cold or at room temperature, and must not exceed 30 minutes.
After the cleaning phases and rinsing with water, no traces of detergent should remain.

If you want to use cleaning foams and gels, please contact the Kosme Technical Service before use.

8.4 CLEANING DURING BREAKS IN PRODUCTION

In this paragraph cleaning operations are described that the operator can perform during breaks in production.

- remove labels remains or containers fragments from the machine working surface;
- remove glue left on the paddles with a cloth:



In order to facilitate the performance of above-described operations, the mobile push-button panel can be used to rotate the turntable and the applicator.

8.5 CLEANING FOAMS AND GELS

Prior to starting, read the instruction manual for each machine and perform the cleaning operations listed (be careful of the electric parts, polished surfaces, aluminum, etc.).
The most suitable detergents for cleaning the lines are foam and gel products made by the larger food-and-drink industry chemical manufacturers.
The cleaning foams and gels must be selected and used based on the manufacturers instructions (the worker must consult the technical data sheet of the product) to clean the exterior of lines in the food-and-drink industry.
Use at the concentration indicated in the manufacturer's instructions.
Cleaning foams and gels must be applied according to the manufacturer's instructions, cold or at room temperature, and must not exceed 30 minutes.
After the cleaning phases and rinsing with water, no traces of detergent should remain.

If you want to use cleaning foams and gels, please contact the Kosme Technical Service before use.

8.6 REMOVAL OF BROKEN CONTAINERS

If a container is broken, the machine must be immediately stopped by means of the machine stop button located on the control panel.

Fragments of broken containers on the machine working surface can be easily removed with a low pressure water jet.

In order to resume operation, disable the emergency stop by rotating it clockwise, press the emergency reset and then the machine start buttons on the control panel on board of machine.
If the machine is provided with conveyor belt self-contained motor, press the conveyor belt start button before machine start.

8.7 MAINTENANCE SCHEDULE

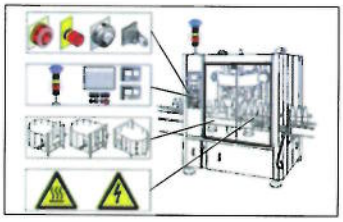
INTERVAL	INSPECTION POINT	WORK TO BE PERFORMED
EACH DAY or prior to start of production		
M1	All the machine	Clean
M2	Air treatment units	Check for condensate and drain if needed
M3	Filling valve exits	Check that are whole, check for wear and damages
M4	Machine safety systems	Check for damages, impurities, and operation
EACH DAY		
M5	Rinser tower: Maintenance operations	Check all parts visually and perform any necessary maintenance
M6	Filler tower: Maintenance operations	Check all parts visually and perform any necessary maintenance
M7	Capper tower: Maintenance operations	Check all parts visually and perform any necessary maintenance
EACH WEEK or every 50 hours of operation		
M8	Nozzles (conveyor lubrication, spray, wash)	Check components visually for impurities
M9	Vacuum pump (if present)	Check for any leaks. If necessary repair the gasket
M10	Conveyor belts	Check that the conveyor chains are correctly tensioned

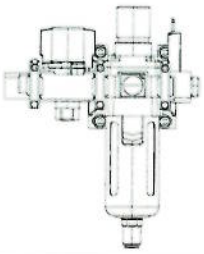
INTERVAL	INSPECTION POINT	WORK TO BE PERFORMED
EACH MONTH or Every 200 hours of operation		
M11	CIP circuit parts	During CIP inspect parts (piping system rotating distributor, CIP cups, cleaning tank, etc.)
M12	Filling Stations: Centerer lifting (if present)	Check. If necessary repair or replace.
M13	Filling Stations: Carrier plates (if present)	Check. If necessary replace.
M14	Head Capper	Check. If necessary replace.
M15	Tooling (starwheels, arches, wormscrews, chutes)	Check. If necessary replace.
M16	Equipment (Neck Handling starwheels, if present)	Check for wear on grippers, springs and rotating axis If necessary replace.
M17	Equipment (adjustable starwheels if present)	Check for wear on grippers, springs and rotating axis If necessary replace.
M18	Piping system: Valve actuator/pipe connection taps	Check operation. If necessary repair or replace.
M19	Piping system: Product regulation valve (modulating valve)	Check operation and for any product leakage. If necessary repair or replace.
M20	Piping System: Filter/ Sterile filter	Check for impurities and any damage. If necessary clean or replace.
M21	All drive mechanisms	Check lubrication and correct bearing clearance. If necessary add/change lubricant.

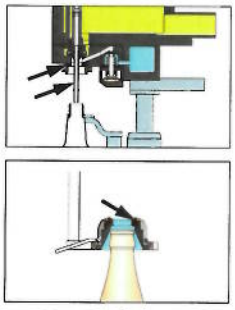
INTERVAL	INSPECTION POINT	WORK TO BE PERFORMED
EACH MONTH or Every 200 hours of operation		
M22	Jointed transmissions	Check the status of the joints for wear and any damage. If necessary lubricate or replace. Check torsional play.
M23	Traction: Toothed wheel under machine table	Check for deposits, wear, and lubrication of the toothed wheel and jointed shaft.
M24	Transmission belts and chains	Check for correct tension, surface wear, or any damages. If necessary tighten the belts or replace them. ⚠ Defective or worn belts/ chains must be replace immediately!
M25	Centralized lubrication: Connections, piping	After completing the lubrication process, check that the points lubricated have been greased enough.
M26	Pneumatic Parts: Connections, piping, valves, cylinders, filters, pressure gauges	Check seal, fastening and general status. If necessary, replace the parts involved.
M27	Vacuum pump (if present)	Check the yield of the vacuum pump.
M28	Conveyor belts	Check the surface of the chain and the play between the chain links, the teeth on the toothed wheel, the chain tension, the wear profile, and the idle wheel. If necessary replace any worn parts.

INTERVAL	INSPECTION POINT	WORK TO BE PERFORMED
EACH MONTH or Every 200 hours of operation		
M29	Filling Stations	Check the control lever, the rollers of the control lever, the control unit, the control cams, the pushers, etc. Check to see if containers are filled correctly (for example too full/ empty, too much foam, etc.). ⚠ Adjustments on the filling stations must only be performed by specialized, authorized personnel.
EACH YEAR or Every 2000 hours of operation		
M30	Gaskets in contact with the product	Replace all gaskets in the product area, for example: - Piping system gaskets - Filling valve gaskets ⚠ Works must only be performed by specialized, authorized personnel.
M31	Rotary distributor for liquids: Bearings and gaskets	- Check the bearings - Replace the gaskets - After which, check the seal of the distributor.
EVERY TWO YEARS or Every 5000 hours of operation		
M32	Gear motor filled with synthetic lubricant	Check the water content in the lubricant.

8.8 LIST OF MAINTENANCE POINTS

MAINTENANCE INTERVAL	Each day or prior to start of production
MAINTENANCE POINT	**M4** - Machine safety systems
	Check for impurities, damages and operation of the following safety elements: • Switches/operational units for safety (for ex. EMERGENCY STOP devices, test lights, etc.). • Warning and alarm devices (for example: siren, beacon, etc.) • Guards (for example: protective doors, protective covers, etc.) • Hazard signs and warning tags (for example: on piping, guards, etc.) If necessary clean, repair or replace.

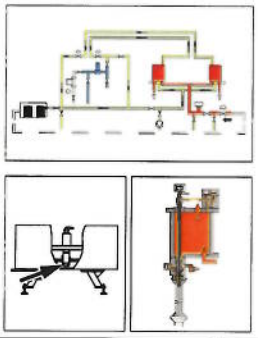
MAINTENANCE INTERVAL	Each day or prior to start of production
MAINTENANCE POINT	**M2** - Air Treatment Units
	Bleed off pressure/media before performing works on the air system. If necessary: Replace the parts, clean filters, and drain condensate • Excessive amounts of water must not be present in the air separators. • The filter must be clean

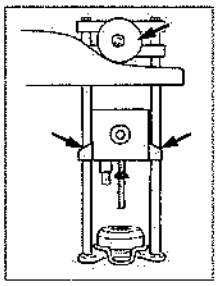
MAINTENANCE INTERVAL	Each day or prior to start of production
MAINTENANCE POINT	**M3** - Filling valve exits
	Check the integrity, wear, and for damages on all discharge parts from the filling valves, for example: Centerer gaskets, recycle hoses, filling hoses, level sensors. If necessary replace. Perform only a visual inspection. Do not touch the parts.

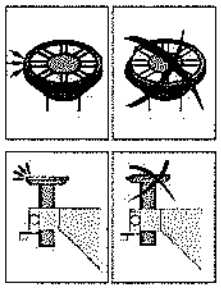
MAINTENANCE INTERVAL	Every 50 hours of operation
MAINTENANCE POINT	**M8** - Nozzles (conveyor lubrication, spray, wash)
	Check nozzles visually for impurities If necessary: Clean or replace. The nozzles must not be clogged or damaged. Based on the specification for the machine, many parts with nozzles may be present (for example conveyor lubrication, sprayers, washing).

MAINTENANCE INTERVAL	Every 50 hours of operation
MAINTENANCE POINT	**M9** - Vacuum pump (if present)
	Check for any water leaks. Read the instruction manual for the vacuum pump attached to this manual.

MAINTENANCE INTERVAL	Every 50 hours of operation
MAINTENANCE POINT	**M10** - Conveyor belt chains
	Check that the conveyor belt chains are correctly tensioned. If necessary: tighten the chain or shorten it by removing a link.

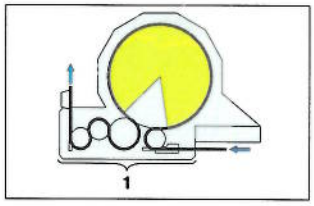
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M11** - CIP circuit parts
	During CIP operation, check all parts of the circuit, for example: • Piping system (for example: safety valves, drain valves, etc.) • Rotating distributor • Filling stations (for example: CIP cups, etc.) Observe the machine for outside with the guards closed. The parts in the CIP circuit must be watertight. No cleaning liquid or disinfectant must leak out.

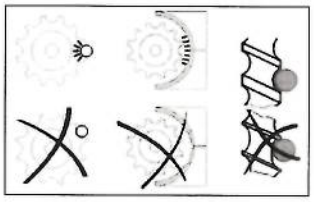
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M12** - Filling Stations: Centerer lifting (if present)
	• The suspensions must be easily moved • The rolls must not be worn or damaged • The guides must not be worn. In no event must the filling valve parts be damaged during operation. If necessary repair or replace.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M13** - Filling Stations: Container carrier plates (if present)
	The surface of the container carrier plates: • Must be planar and flat • Must not be worn only on one side. If necessary replace the plates.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M14** - Head Capper
	If necessary replace

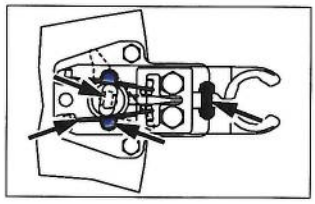
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M15** - Tooling (starwheels, arches, wormscrews, chutes)

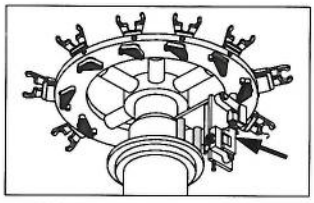




- Containers must be conveyed by the equipment without slippage.
- Surfaces must be flat and without any damage
- The swells on the wormscrew and the starwheels must correspond to the shape of the container
- No corners must stick out in the container passage area.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M16** - Equipment (Neck Handling starwheels, if present)



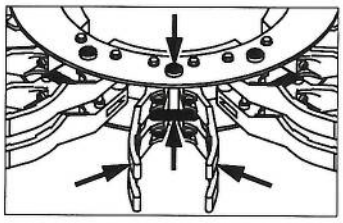


Check for wear or damages on grippers, springs and rotating axis.

Open and close the grippers by moving the rotating axis:
- The gripper must close correctly and firmly
- The spring must open correctly.

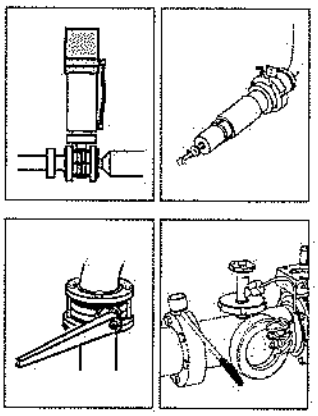
If necessary replace.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M17** - Equipment (adjustable starwheels, if present)



Check for wear or damages on grippers, springs and rotating axis.
If necessary replace.

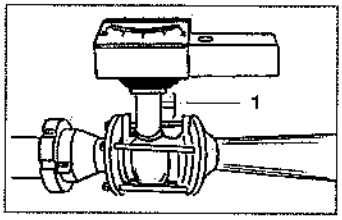
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M18** - Piping: Valve/tap actuator, tube connections



Check the operation of the following components:
- Valve actuator on valves in piping
- Safety valves
- Closure taps

If necessary repair or replace.

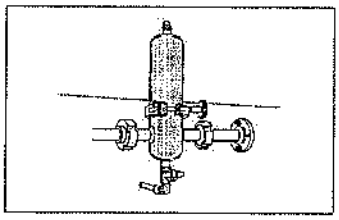
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M19** - Modulating valve



If the valve does not seal perfectly and leaks, the problem may be due to impurities or a damaged gasket.
We recommend dismantling the parts, cleaning it carefully and, if necessary, replacing them.

For maintenance operations, read the instructions in the manual for the modulating valve attached to this manual.

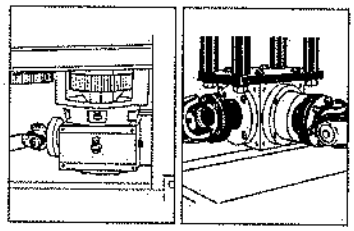
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M20** - Piping: Filter/Sterile filter

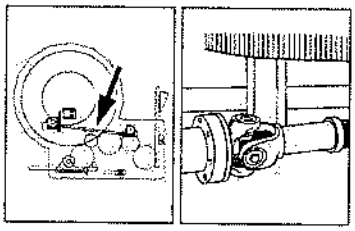


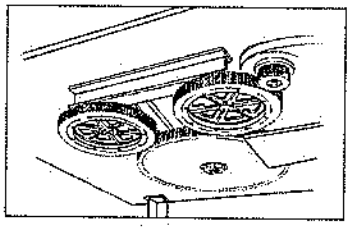
Bleed off the pressure prior to performing works on the machine.
Sterilize after finishing operations.

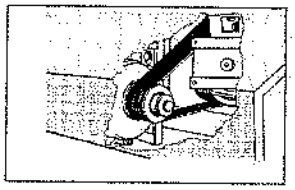
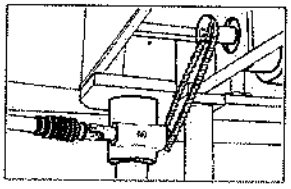
Check for impurities and any damage to the filters.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M21** - All drive mechanisms

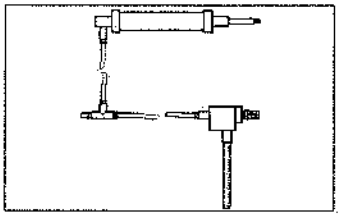
	Check lubrication of the mechanisms and correct bearing clearance. If there is too much play, recondition them/replace the mechanisms. If necessary add/change lubricant.

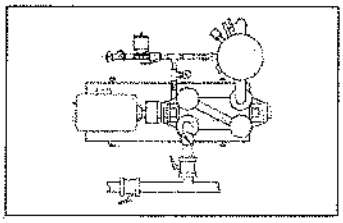
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M22** - Jointed transmissions
	Check the status of the joints for wear and any damage. If necessary lubricate or replace. Check the torsional play (nominal value 0 mm). Replace if the torsional play is greater than 2 mm. Play must be measured on the external diameter of the jointed transmission flange.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M23** - Traction: Toothed wheel under machine table
	Check for deposits, wear, and lubrication of the toothed wheel and jointed shaft. Check that the lubricant is evenly distributed. If there is too much wear or uneven wear, replace the toothed wheel.

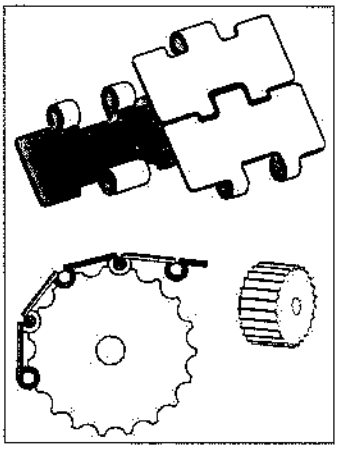
MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M24** - Transmission belts and chains
 	Check for correct tension, surface wear, or any damages. If necessary tighten the chains/belts or replace them. ⚠ Defective or worn belts/chains must be replaced immediately!

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M25** - Centralized lubrication: Connections, piping
	After performing the full lubrication process (with automatic pump or with at the centralized greasing points), check that all points are sufficiently lubricated. Grease accumulations in the lubricant piping indicates losses in the lubrication system. If possible, eliminate immediately the damages or at most after 10 hours of operation!

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M26** - Pneumatic Parts: Connections, piping, valves, cylinders, filters, pressure gauges
	Check seal, fastening and general status. If necessary replace the parts in question.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M27** - Vacuum pump (if present)
	Check the yield of the vacuum pump. For all operations, read the instruction manual for the vacuum pump attached to this manual.

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M28** - Conveyor belts

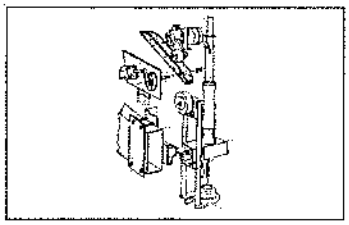


Check:
- The surface of the chain and the clearance between the chain links.
- The teeth on the toothed wheel
- The tension of the chain
- The wear profile and idle of the chain.

Replace the parts if:
- The chain has lengthened more than 25 mm for each meter of initial length
- The chain slides on the toothed wheel
- Wear of the plates down to half the initial thickness
- Extensive wear on the profiles

⚠ Use only original parts (see the spare part manual)

MAINTENANCE INTERVAL	Every 200 hours of operation
MAINTENANCE POINT	**M29** - Filling Stations

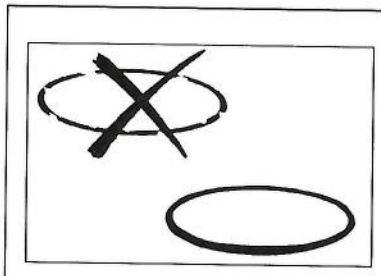


Check:
- The command lever
- The rollers of the command lever
- The command unit
- The command cam
- The pushers
- etc.

Check to see if containers are filled correctly (for example too full/empty, too much foam, etc.).

⚠ Adjustments on the filling stations must only be performed by specialized, authorized personnel.

MAINTENANCE INTERVAL	Every 2000 hours of operation
MAINTENANCE POINT	**M30** - Gaskets in contact with the product

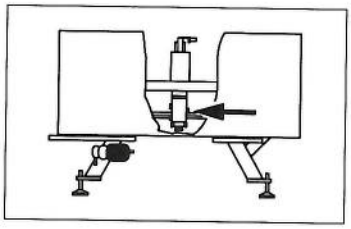


Replace all gaskets in the product area, for example:
- Piping system gaskets
- Filling valve gaskets

The works must only be performed by qualified, authorized personnel.

After replacement, check the gasket seal.

MAINTENANCE INTERVAL	Every 5000 hours of operation
MAINTENANCE POINT	**M31** - Rotary distributor for liquids: Bearings and gaskets

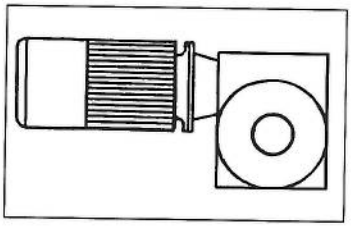


- Check the bearings
- Replace the gaskets
- After which, check the seal of the distributor.

Check that no gas or liquid leak.

The works must only be performed by qualified, authorized personnel.

MAINTENANCE INTERVAL	Every 5000 hours of operation
MAINTENANCE POINT	**M32** - Gear motor filled with synthetic lubricant



Depending on the conditions of use and the environment, water may accumulate in the gear motors.

We recommend you check the water content in the lubricant.

LUBRICATION

9.1 INSTRUCTIONS FOR LUBRICATION

LUBRICANTS

We have provided a table of lubricants that includes warnings to avoid insufficient use of lubricant.
For centralized lubrication systems, use only suitable lubricants.

CHANGE LUBRICANT

- Change lubricants when the machine is not hot due to running.
- Lubricants may be hot. Danger of combustion!
- Used lubricants are hazardous to the health. Avoid skin contact with used lubricants.
- Do not leave filling caps and drains open longer than necessary.
- Dispose of used lubricants correctly.

CLEANING LUBRICATION POINTS

- Keep the lubricant points clean in order to avoid the penetration of impurities.

Bear in mind that:
- the lubrication screws must be clean before lubricating in order to not introduce dirt particles in the system
- Remove any drips of grease after lubrication, but a slight greasy residue should remain to protect from humidity and dirt
- Clean any oil residue from drains and top-offs after lubrication

For cleaning lubrication points, use only:
- Clean rags without fibers
- ecological detergents, not hazardous to worker health and suitable for the material (for example, low density cleaning oils, without solvents).

Never use waste wool, gasoline, benzol, or other detergents with similar effects.

LUBRICATION POINT SEALING

- During lubrication, avoid pressing with force as you could damage the gaskets.
- Check that closed mechanisms are sealed closed and that there no lubricant leaks. In the case of significant of leaks, repair them and, if necessary, reseal the mechanism.

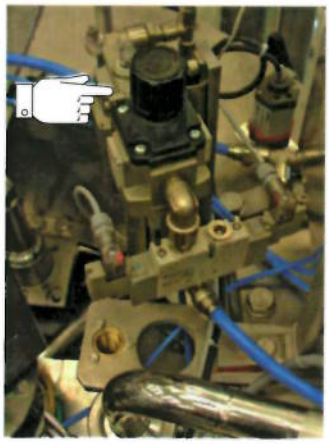
9.2 LUBRICATION SCHEDULE

INTERVAL	LUBRICATION POINT	LUBRICANT	WORK TO BE PERFORMED
Every 40 hours of operation			
L1	Jacks: Oil tank	Food grade oil	Check the oil level. If necessary top-off.
L2	Rotating connection: Lubrication points	Food grade grease	Lubricate with grease gun
Every 80 hours of operation			
L3	Cardan wormscrew	Food grade grease	Lubricate with grease brush
L4	Capping Heads	Food grade grease	Lubricate gears and cam of the capper heads.
Every 160 hours of operation			
L5	Centralized lubrication: Centralized greasing points	Food grade grease	Lubricate with grease gun in many points.
L6	Centralized lubrication: Central automatic lubrication unit	Food grade grease	Top-off grease in the automatic pump if necessary.
L7	Air treatment unit (if the lubricator is present)		Check the oil level. If necessary top-off. See the AIR TREATMENT UNIT chapter in the instruction manual.
L8	Lower part of capper: Bearings, clutch	Food grade grease	Lubricate with grease gun
L9	Gear motor oil (Rossi or Bonfiglioli brands)	High performance synthetic oil for gears and bearings	Check the oil level. See the attached manual from the motor manufacturer.

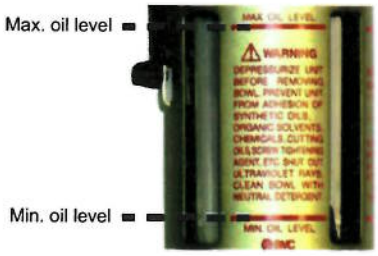
INTERVAL	LUBRICATION POINT	LUBRICANT	WORK TO BE PERFORMED
Every 160 hours of operation			
L10	Transmission cardans of the machine in synch (if present)	Food grade grease	Lubricate with grease gun
Every 500 hours of operation			
L11	Full machine: Chains	Spray lubricant	Spray lightly
L12	Height regulations: Carousel, centerer lifting cam	Food grade grease	Lubricate with brush
Every 1000 hours of operation			
L13	Height regulations: Cardan transmissions, straight supports, bearings	Food grade grease	Lubricate
L14	Vacuum pump drive motor bearing	Food grade grease	Lubricate with grease gun
L15	Vacuum pump bearing	Food grade grease	Lubricate with grease gun
L16	Air and water filters		Check and if needed replace the air and water filters.
L17	Pneumatic system		Check the pneumatic system: - Check the inlet air pressure - Check that the machine's pressure gauges indicate the pressure shown on the machine tag.

9.3 LIST OF LUBRICATION POINTS

LUBRICATION INTERVAL	Every 40 hours of operation
LUBRICATION POINT	**L1** - Jacks: Oil tank
LUBRICANT TYPES	Food grade oil
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE SEAL PFO 40 - viscosity ISO 32 CNC 27101999 NSF-H1 Certified

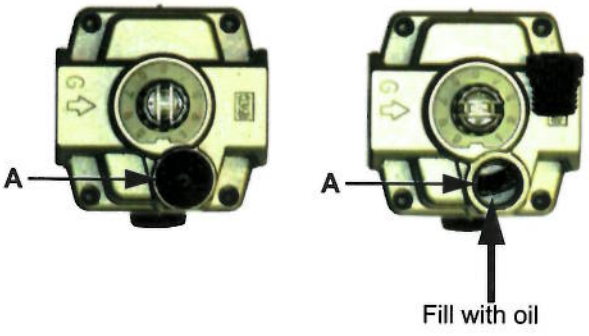


Check the level of oil on the side of the lubricant pan:



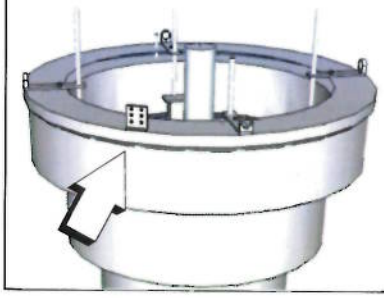
If necessary top-off.

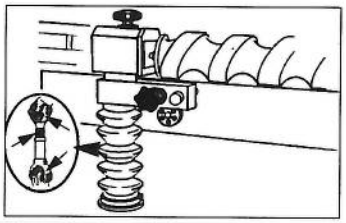
To fill up the oil, you must:
- Close the air inlet valve.
- Unscrew the black plastic screw, **A**, on top side.
- Fill the lubricator with oil using the hole on the top, up to the level indicated.
- Screw the black plastic screw, **A**, on top side.

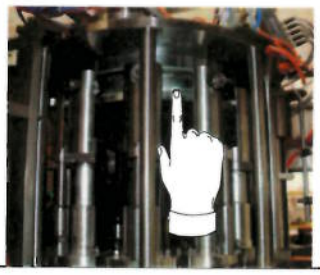


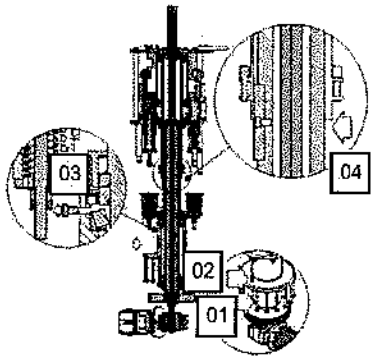
In addition to the recommended oil, other **ISO VG 32 OIL** brands can be used:

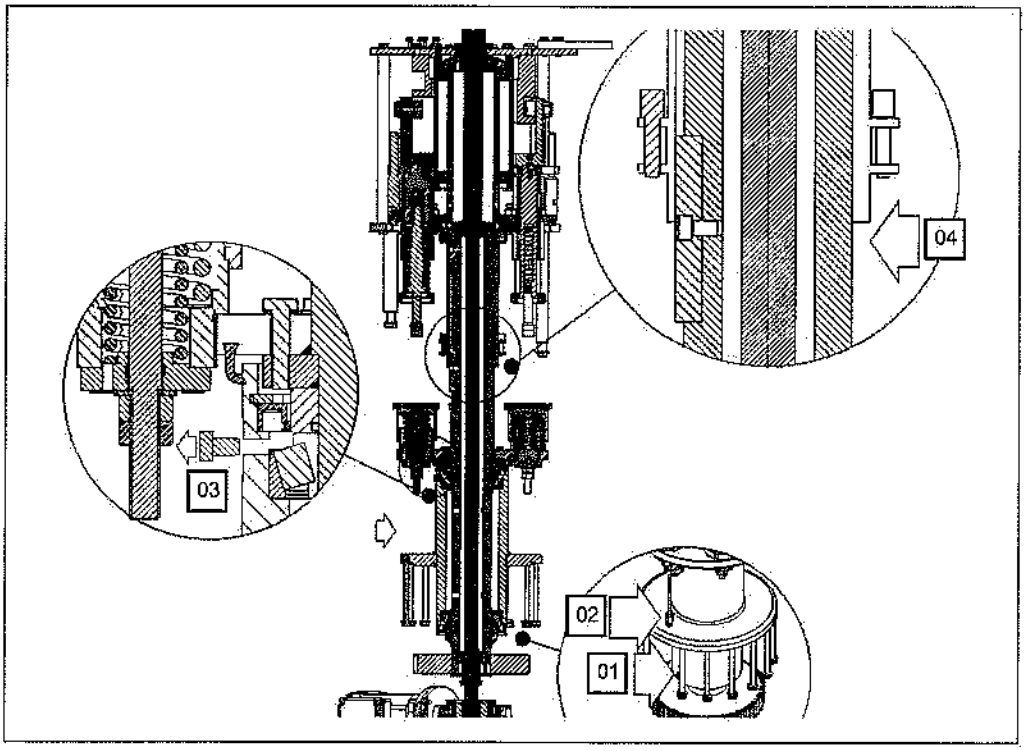
- FESTO Special oil
- AVIA Avilub RSL 10
- BP Energol HLP 10
- ESSO Spinesso 10
- SHELL Tellus oil C10
- MOBIL DTE 21
- BLAISER Blasol 154

LUBRICATION INTERVAL	Every 40 hours of operation
LUBRICATION POINT	**L2** - Rotating connection: Lubrication point under the towers (filler and rinser)
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE SEAL FLUOROCARBON GEL 880/885 F. G. NSF-H1 Certified
	Connect the grease pump to the grease guns and add proper amounts of grease (about 7or 8 pumps, or until the a bit of grease comes out on the other side of the lubrication point). **WARNING!** Do not use the same grease pump for different types of grease.

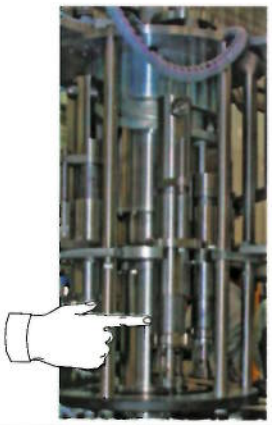
LUBRICATION INTERVAL	Every 80 hours of operation
LUBRICATION POINT	**L3** - cardan wormscrew
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	• Remove the protective sleeve on the wormscrew cardan. • Use a grease brush and lubricate the cardan joints. • Reattach the sleeve and have care to tighten it well.

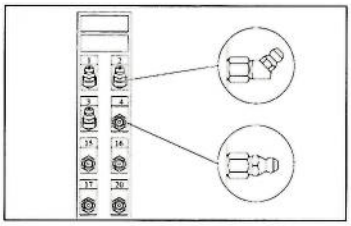
LUBRICATION INTERVAL	Every 80 hours of operation
LUBRICATION POINT	**L4** - Capping Heads
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	• Lubricate the capper head gears and cam using a grease brush.

LUBRICATION INTERVAL	Every 160 operating hours
LUBRICATING POINT	**L5** - Centralized lubrication.
LUBRICANT TYPOLOGY	Grease for food plants
LUBRICANT MODEL RECOMMENDED BY THE SUPPLIER	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	• Connect the greasing pump with the lubricator pos.01; • Set the capper at the maximum height; • Unscrew screw pos.03. • Introduce grease through lubricator pos.01 till the grease flows out from point pos.03. • Tighten screw pos.03 again. • Introduce grease through lubricator pos.02 till the grease flows out from point pos.04.

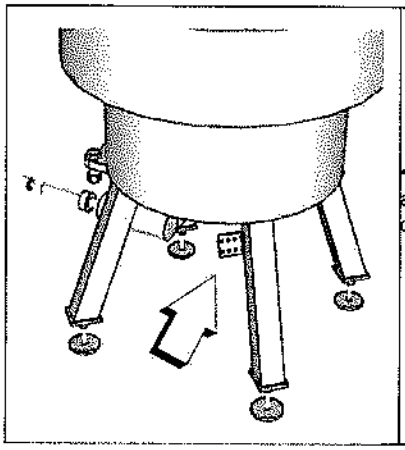


LUBRICATION INTERVAL	Every 160 operating hours

LUBRIFICANT TYPE RECOMMENDED BY THE SUPPLIER	TEFLON FOOD-GRADE INTERFLON COD.8943 FOOD LUBE CR - SPRAY
	• Grease the capping heads (CROWN CAPPER).

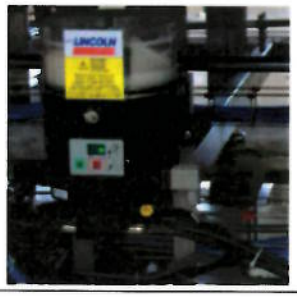
LUBRICATION INTERVAL	Every 160 hours of operation
LUBRICATION POINT	**L5** - Centralized lubrication (without automatic lubrication pump): Centralized greasing points **on machine**
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	The grease point diagram is on the machine. It is not present when there is centralized machine lubrication with an automatic pump. • Connect the grease pump to the grease guns and add proper amounts of grease (about 7or 8 pumps, or until the a bit of grease comes out on the other side of the lubrication point).

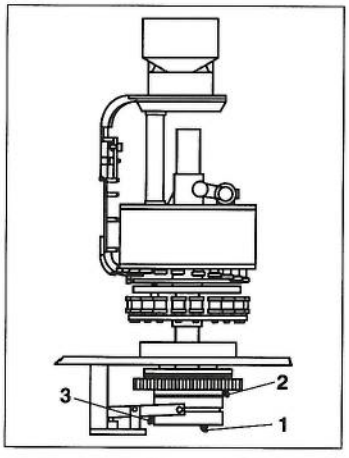
LUBRICATION INTERVAL	Every 160 hours of operation
LUBRICATION POINT	**L5** - Centralized lubrication (without automatic lubrication pump): Centralized greasing points **under the towers**.
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant

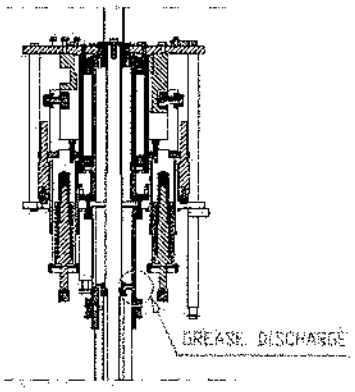


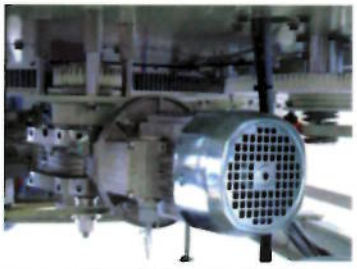
The grease points are located under each tower. It is not present when there is centralized machine lubrication with an automatic pump.

- Connect the grease pump to the grease guns and add proper amounts of grease (about 7or 8 pumps, or until the a bit of grease comes out on the other side of the lubrication point).

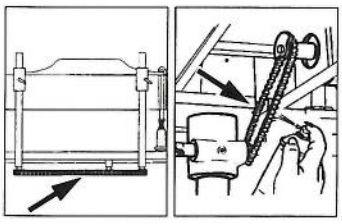
LUBRICATION INTERVAL	Every 160 hours of operation
LUBRICATION POINT	**L6** - Centralized lubrication: Automatic lubricant pump (if present)
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	• Top off the grease until the tank is full. Read the automatic grease pump instruction manual.

LUBRICATION INTERVAL	Every 160 hours of operation
LUBRICATION POINT	**L8** - Lower part of capper
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	Lubricate the bearings (1, 2) and the coupling (3) with the grease gun.

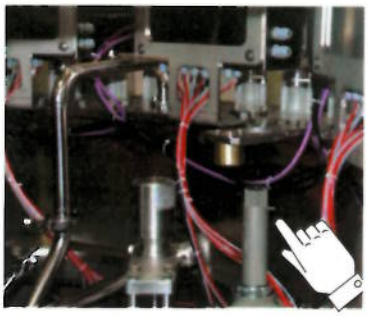
LUBRICATION INTERVAL	Every 160 hours running
LUBRICATION SPOT	**L8** - Capper bottom
LUBRICANT TYPOLOGY	Grease for food plants
LUBRICANT TYPE RECOMMENDED BY THE SUPPLIER	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	CROWN CAPPER (N.B. **just crown cappers D240)** - lubrication of bearings: get capper up to maximum height circuit breaker tripping; proceed with lubrication till grease discharge from the vent. CROWN CAPPER (N.B. **just crown cappers D360)** - lubrication of bearings: get capper down to minimum height circuit breaker tripping; proceed with lubrication till grease discharge from the vent.

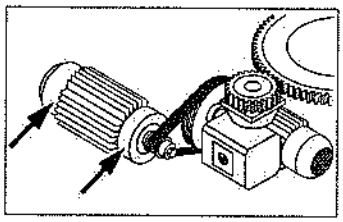
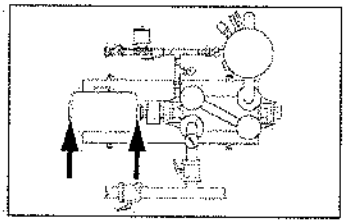
LUBRICATION INTERVAL	Every 160 hours of operation
LUBRICATION POINT	**L9** - Gear motors
LUBRICANT TYPES	High performance synthetic oil for gears and bearings
MANUFACTURER RECOMMENDED LUBRICANT TYPE	For Rossi brand gear motors: MOBIL MOBILUBE HB 80W-90 For Bonfiglioli brand gear motors: SHELL TIVELA OIL S 820
	Check the level of the gear motor oil and if needed top off. Read the manufacturer's instruction manual for the gear motor carefully.

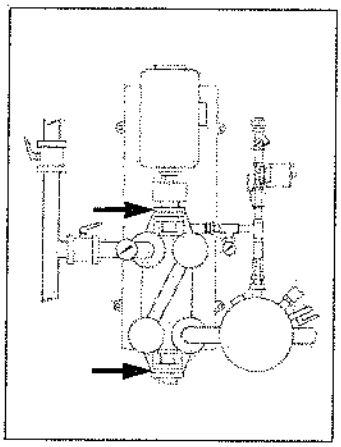
LUBRICATION INTERVAL	Every 160 hours of operation
LUBRICATION POINT	**L10** - Transmission cardans of the machine in synch (if present) (se previsti)
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	Lubricate the transmission cardans with a grease gun.

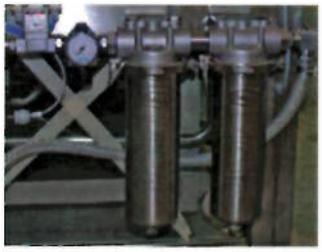
LUBRICATION INTERVAL	Every 500 hours of operation
LUBRICATION POINT	**L11** - Chains
LUBRICANT TYPES	Spray lubricant
MANUFACTURER RECOMMENDED LUBRICANT TYPE	
	Spray lightly Lubrication with chain spray offers advantages over traditional lubrication methods, for example, better adhesion and better penetration in the points to be lubricated.

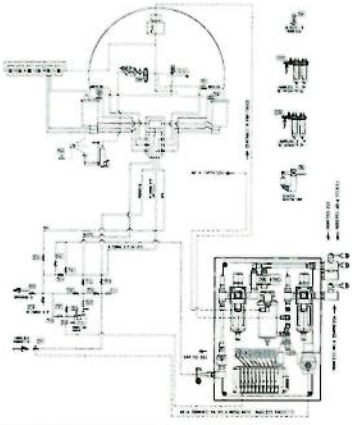
LUBRICATION INTERVAL	Every 500 hours of operation
LUBRICATION POINT	**L12** - Height regulation: Carousel, centerer lifting cam
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant

LUBRICATION INTERVAL	Every 1000 hours of operation
LUBRICATION POINT	**L13** - Filler height regulation screws
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	Move to the upper part of the filler tower and pump the grease in the height regulation column grease guns to adjust the heights inside the tower.

LUBRICATION INTERVAL	Every 1000 hours of operation
LUBRICATION POINT	L14 - Vacuum pump drive motor bearing
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
 	Lubricate all of the bearings with a grease gun. Perform lubrication according to the motor manufacturer's instructions.

LUBRICATION INTERVAL	Every 1000 hours of operation
LUBRICATION POINT	L15 - Vacuum pump bearing
LUBRICANT TYPES	Food grade grease
MANUFACTURER RECOMMENDED LUBRICANT TYPE	TECNOLUBE FOOD GRADE GREASE 151/L, USDA-H1 compliant
	Lubricate all of the bearings with a grease gun. Perform lubrication according to the pump manufacturer's instructions.

LUBRICATION INTERVAL	Every 1000 hours of operation
LUBRICATION POINT	**L16** - Air and water filters
LUBRICANT TYPES	
MANUFACTURER RECOMMENDED LUBRICANT TYPE	
 	Check and if needed replace the air and water filters. Read the air and water footer instruction manual.

LUBRICATION INTERVAL	Every 1000 hours of operation
LUBRICATION POINT	**L17** - Pneumatic system
LUBRICANT TYPES	
MANUFACTURER RECOMMENDED LUBRICANT TYPE	
	Check the pneumatic system: - Check the inlet air pressure. - Check that the machine's pressure gauges indicate the pressure shown on the machine tag.

9.4 LUBRICANT TABLE

GREASE TABLE (only for ROTATING CONNECTIONS)	
1	**TECNOLUBE SEAL** FLUOROCARBON GEL 880/885 F.G. Certified NSF-H1
2	**KLUBER** PARALIQ GTE 703

GREASE TABLE (for all other lubrication points)	
1	**TECNOLUBE SEAL** FOOD GRADE GREASE 151/L Compliant USDA-H1
2	**ESSO** _ BEACON EP2
3	**ESSO**_ CAZAR K2
4	**FINA**_ CERAN LT
5	**FINA**_ CERAN WR2
6	**FUCHS** FN 745
7	**KLUBER** _ CENTOPLEX 2 EP
8	**KLUBER** _ KLUBERBIO M32-82
9	**MOBIL** _ MOBILGREASE 28
10	**SHELL**_ RETINAX C
11	**FUCHS** _ PLANTOGEL S2
12	**AGIP** _ F1 Grease 24
13	**AUTOL** _ TOP 8000 W
14	**CASTROL** _ CLS – GREASE

OIL TABLE	
1	**TECNOLUBE SEAL** PFO 40 - viscosity ISO 32 CNC 27101999 Certified NSF-H1
2	MINERAL LUBRICATOR USDA H1 HLP – 68
3	**ESSO** _ HYDRAULIC OIL FM 68
4	**MOBIL** _ DTE FM 68
5	**TOTAL** _ LUBRIPLATE FMO-350 AW
6	**TRIBOL** _ FoodProof 1840/68

CLEANING

10.1 GENERAL WARNINGS

Respect the general warnings in the chapter on "Safety".

Basically, cleaning and disinfecting must be performed in-depth and correctly; therefore:
◆ Pay attention to the concentration, temperature and activation time of the substance.
◆ Before starting to fill bottles, make certain that the cleaning or disinfectant used has been completely rinsed from the line.
◆ If disinfectants are used during the bottling phase (or example disinfection of spray bottles), clear the question of its non-toxicity, concentration, etc. ahead of time.

The type, extent and interval at which the operations are performed must be suitable:
◆ for the required hygiene level
◆ for your plant and process
◆ for your product
◆ for the cleaning procedures used

10.2 USE OF CLEANING PRODUCTS AND DETERGENTS

FIELD OF APPLICATION

The following standard defines the use of cleaning agents and disinfectants for cleaning the machine and the lines.
All products used that differ from those described in following, or with different technical characteristics (for example: higher concentration, different reaction times, high temperatures compared to those indicated) must be agreed with the Manufacturer.
The components and materials used to build our machines must resist cleaning products and the normal cleaning operation described by the manufacturer.

REFERENCE STANDARD
DIN 11483 -1,2

10.3 RECOMMENDED CLEANNG PRODUCTS AND DISINFECTANTS (COMMONLY USED CONCENTRATES BY THE MAIN MANUFACTURERS IN THE BOTTLING INDUSTRY)

Cleaning products/disinfectants for stainless steel and EPDM gaskets	Chlorine content in mains water		Max. Concentration	Max. Reaction Time	Max. Temperature
	AISI 304	AISI 316			
Caustic soda NaOH	100 mg/l	150 mg/l	2-3%	30-45 min.	90°C
Acid cleaning product based on H3PO4	100 mg/l	150 mg/l	1-3%	20-30 min.	40°C
Acid cleaning product based on HNO3	100 mg/l	150 mg/l	0.5-1.5%	20-30 min.	30°C
Steel cleaning product based on mix of phosphoric acid and nitric acid	100 mg/l	150 mg/l	0.5-1.5%	20-30 min.	30°C
Disinfectant based on peracetic acid with about 5% concentration	100 mg/l	150 mg/l	0.2-1.0%	20 min.	25°C
Disinfectant based on peracetic acid with about 15% concentration	100 mg/l	150 mg/l	0.1-0.5%	20 min.	25°C
Rinse with peracetic acid with concentrate based on pure pareacetic acid.	80 mg/l 40 mg/l	120 g/l 60 mg/l	450 mg/l 800 mg/l	Permanent Permanent	25°C 40°C
Ozone rinse	80 mg/l	120 mg/l	1-3 mg/l	Permanent	25°C
Hydrogen peroxide based disinfectant	100 mg/l 80 mg/l	150 mg/l 120 mg/l	0.5-1.0% 0.3-0.5%	30 min. 60 min.	25°C 25°C
Hydrogen peroxide as agent to strengthen NaOH 1 - 2% (permanenet injection or once started with caustic solution)	100 mg/l 100 mg/l	150 mg/l 150 mg/l	Injection 0.1% Batch 0.5%	30 min.	80°C
Acid disinfectant with halogenated acid / phosphoric acid, or hallogen steel / nitric acid	100 mg/l	150 mg/l	0.5-1.0%	20 min.	25°C
Cleaning / disinfecting products (pH > 11)	80 mg/l	120 mg/l	0.5-1.5%	20 min.	40°C
Hot water sterilization	100 mg/l	150 mg/l		45 min.	95°C
Steam sterilization, max 1.5 bar				45 min.	110°C

Use of chlorine dioxide as CIP disinfectant, for external cleaning and rinsing, and as protective media for the water areas of the rinser.

Chlorine Dioxide	Chlorine content in mains water		Max. Concentrate	Max. Reaction Time	Max. Temperature
	AISI 304	AISI 316			
Filler/rinser exterior with jet	60 mg/l	100 mg/l	2 mg/l	20 min.	25 °C
CIP	60 mg/l	100 mg/l	2 mg/l	30 min.	25 °C
Rinse process with open or closed circuit rinse	60 mg/l 20 mg/l	100 mg/l 40 mg/l	0.8 mg/l	Permanent	25 °C
Conservation of the rinser water zones	80 mg/l	120 mg/l	0.8 mg/l	Permanent	40 °C
General hygiene operations for potable water	80 mg/l	120 mg/l	0.2 mg/l	Permanent	25 °C

After the processes, the treated components and their surfaces must be rinsed with water that does not contain an excess amount of chlorine.

10.4 CLEANING FOAMS AND GELS

Before beginning, read the instruction manual for each machine and perform the cleaning operations listed (pay careful attention, for example, to the electronic parts, sanded surfaces, aluminum, etc.).
The most suitable foam and gel products for cleaning the lines are those by major manufacturers of chemical cleaning products for the food and beverage industry.
The cleaning foams and gels must be selected and used based on the manufacturer's indications (the user must consult the product data sheet) to clean the external parts on the line in the food and beverage industry.
The concentration used must be that indicated by the manufacturer.
The application of cleaning foams or gels using the manufacturer's methods must be performed cold or at room temperature and must not exceed 30 minutes.
After the various cleaning phases and after rinsing with water no trace can remain.

If you want to use cleaning foams or gels, first contact Kosme Technical Service!

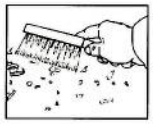
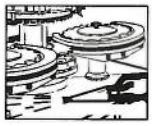
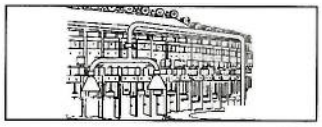
10.5 CIP (CLEAN IN PLACE)

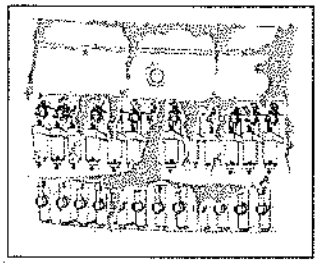
- Never use mineral acids, not even blends.
- Never use highly aggressive mineral acids such as hydrochloric acid (HCl) and sulfuric acid (H2SO4), not even in low concentrations.
- Use disinfectants that contain halogens only as packaged detergents from well-known producers and only with alkaline pH.
- Do not use substances containing halogens or strongly oxidizing. Never use hot and only after consulting the Manufacturer.
- Never use plant water with a high chlorine content.
- Observe the limit values in the detergent and disinfectant table.

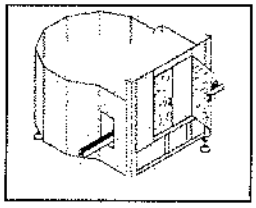
10.6 CLEANING SCHEDULE

INTERVAL: EVERY DAY or whenever necessary

CLEANING POINT	Internal machine - Container infeed/discharge, filling stations, ...
CLEANING EQUIPMENT	Test/Samples
WORK TO BE PERFORMED	• Check the status of the cleanliness and disinfectant. - Right after completing production - Before tool changeover works, works for care and maintenance, lubrication operations, and eliminating alarms - Before cleaning and disinfecting In this manner you can get a clear idea of the dirt on the machine and you are capable of determining the conditions for harmful micro-organisms that may damage the product before the product becomes infected. Hygiene problems must be eliminated immediately using intense cleaning and disinfection. You can determine the frequency and type of controls, as well as the cleaning and disinfection, based on your product/plant.

CLEANING POINT	Internal machine - Machine table, carrousel, etc.
CLEANING EQUIPMENT	Brush, water hose, hot/cold water spray/wash
WORK TO BE PERFORMED   	• Remove the worst dirt using a brush. • Spray the guide equipment /machine table using the water hose. • Action the sprays/washing when the machine is ready for operation. • Do not spray directly on to sensitive components or parts (for example: electric or pneumatic components, lubrication points, etc. • Do not use high pressure water jets for cleaning.

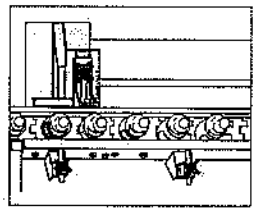
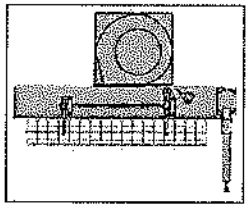
CLEANING POINT	Foam/disinfectant cleaning - Machine table, carousel, etc.
CLEANING EQUIPMENT	Detergent foam / rinse disinfectant, water
WORK TO BE PERFORMED 	• Foam the machine • Allow the foam to act • Spray off the foam, for ex. using the water hose or by spraying/washing • Based on the degree of dirt, foam cleaning and disinfection can replace completely or partially main cleaning and external disinfection. • Before foam disinfecting, remove any dirt deposits using a brush or sponge and clean delicate parts with detergents/disinfectants on rags (for example electric ort pneumatic parts). Read the foaming system instruction manual attached to this manual.

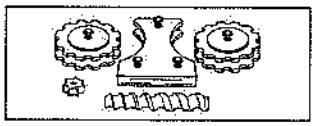
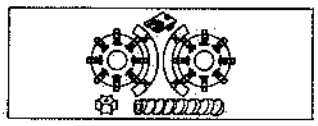
CLEANING POINT	Full machine - Guards / Safety shields
CLEANING EQUIPMENT	Brush, sponge, rag, water
WORK TO BE PERFORMED 	• Manually clean/disinfect the safety guards / shields internally and externally. Delicate equipment must be cleaned with rags wet with detergent or disinfectant (for example electric and pneumatic parts, Plexiglas sheets, etc.).

CLEANING POINT	Closure feeder / Closure sorter (if present)
CLEANING EQUIPMENT	Vacuum, rag, brush, alcohol detergent
WORK TO BE PERFORMED	 • Remove dirt in the closure sorter and feeder using a vacuum. Then clean and disinfect. • If there contaminated, it causes - Greater frequency of disturbances - Danger of infection • Use cleaning alcohol to clean/disinfect the parts. Pay attention to the directive for the application of easily flammable liquids. • Some parts are plastic. The cleaning products used for their maintenance must absolutely NOT contain: - Organic solvents - Alcohol/spirit greater than 25% - Abrasive or polishing additives

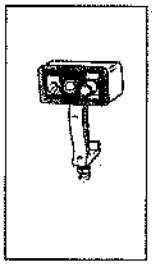
CLEANING POINT	Full machine - CIP Product tank, product container, piping, etc.
CLEANING EQUIPMENT	Cold/hot water, cleaning and disinfection equipment
WORK TO BE PERFORMED	**CIP without external drain** (for example with acid or dilute alkaline substances) The internal surfaces of the machine and bottling stations are washed and disinfected without leakage of the cleaning fluid. **CIP with external drain** (for example with cold/hot water, neutral cleaning and disinfectant products). The internal surfaces of the machine and bottling stations are washed and cleaned with the exit f the cleaning and disinfectant fluids, especially is specific points, for ex. Safety valves, drain, vacuum pump, etc.). Avoid these areas in order to exclude potential danger. • Pay careful attention to the minimum/maximum pressure during CIP. • When using cleaning and disinfectant mediums, never exceed the maximum concentration, temperature or period of action.

Interval: EVERY WEEK or every 50 hours of operation

CLEANING POINT	Conveyor belts / Air conveyors
CLEANING EQUIPMENT	Brush, sponge, rag, water, cleaning and disinfectant product
WORK TO BE PERFORMED  	During "Primary external cleaning and disinfection" clean/disinfect the components, for ex. the railing, wear strips, etc. If necessary dismantle the parts.

CLEANING POINT	Guide equipment
CLEANING EQUIPMENT	Brush, sponge, rag, water, cleaning and disinfectant product
WORK TO BE PERFORMED  	**Plastic Equipment** During "Primary external cleaning and disinfection", clean/disinfect the components, for ex. starwheels, curved segments, guides, pushers, etc. If necessary dismantle the parts. **Neck Handling Equipment** During "Primary external cleaning and disinfection", clean/disinfect the components, for ex. starwheels, curved segments, guides, pushers, etc. If necessary dismantle the parts.

CLEANING POINT	Full Machine - Command Elements
CLEANING EQUIPMENT	Damp sponge, rag
WORK TO BE PERFORMED	



Clean/disinfect the parts, for ex. the touch screen, switches, jog, etc.

⚠ Do not spray these parts with water or other liquids directly. Clean and disinfect the parts only using a wet sponge or a rag.

10.7 FUNDAMENTAL INFORMATION - HANDLING HAZARDOUS SUBSTANCES

INFORMATION FOR THE OPERATING COMPANY OF THE MACHINE/LINE

Applicable chemical laws focus on the following points:
- Occupational safety
- Occupational health
- Environmental Protection

Personal responsibility
These instructions do not exempt the operating company from their personal responsibility to conform with applicable, official requirements (maximum workplace concentrations, emission guidelines, food laws, etc.)

Maximum workplace concentration:
- The maximum concentration of a substance in the air at the workplace, which is generally not hazardous to the employee's health.

CAUTION: Incompatibility of dangerous substances!
Even if prescribed levels are complied with, individual persons may react intolerant (e.g., nausea) to these substances.
- Check whether the substances, when used at their maximum concentration, are harmless for those persons who come into contact with them.

Environmental protection
The operating company bears the following responsibilities:
- To prevent avoidable, hazardous environmental effects using state-of-the art technology.
- To limit the development of unavoidable environmental effects using state-of-the art technology.
- To properly dispose of produced waste.

Protective Clothing
For handling hazardous substances, the operating company must provide his personnel with adequate "personal, protective clothing":
- Eye protection
- Face protection
- Hand protection
- Respiratory protection
- Body protection

Information regarding personal protective equipment is provided, for example, in the corresponding safety data sheets of the chemical manufacturers.

SAFETY

Observing information alerting you to possible hazards:
• Before using hazardous substances, familiarise yourself with the hazard symbols, safety symbols, and the R-codes and S-codes.
• These symbols are found at the workplace, on chemical containers, and in the safety data sheets;
• R-codes: Alert you to specific hazards.
• S codes: Safety recommendations.
Examples
- R 26 Very toxic if inhaled.
- R 27 Very toxic if contacts the skin.
- R 28 Very toxic if ingested.
• Observe warning symbols and observe safety signs.

General Safety Instructions
Observe the following:
• Eating, drinking, and smoking are prohibited during work!
• When working with hazardous substances, wear appropriate protective clothing, e.g., protective gloves, safety glasses, or face or respiratory protection.
• Make sure closed rooms are provided with good ventilation!
• It is imperative that contact with the eyes, skin, and mucous membrane is prevented.
• Wash off substances that are splashed on the skin with cold water!
• Gently wash out irritated eyes with plenty of flowing water (or with special eyewash). See your physician immediately!
• Remove clothes soaked with corrosive substances.
• Always consult a physician if an accident occurs, or you are not feeling well!

SAFETY SIMBOLS (EXAMPLES)

1 - Very toxic

2 - Toxic

3 - Harmful

4 - Corrosive

5 - Irritant

6 - Extremely flammable

7 - Highly flammable

8 - Oxidising

9 - Explosive

10 - Dangerous for the environment

SAFETY SYMBOLS (EXAMPLES)

1 - Wear eye protection

2 - Wear protective gloves

3 - First aid kit

4 - Eyewash

10.8 USE OF CLEANING AGENTS, DISINFECTANTS AND STERILISING AGENTS

IMPORTANT INFORMATION

Observe the following for use:

• Have work involving the use of cleaning agents, disinfectants, and sterilising agents done only by professionals who have been instructed in the handling of hazardous substances.

• Base your selection of cleaning agents, disinfectants, sterilising agents on the "Media Types and Values" section.

• The recommendations in the section apply to commercial cleaning agents, disinfectants, and sterilising agents from leading manufacturers of chemicals for filling lines. The recommendations in the section do not exempt you from consulting the use of the chemicals with the supplier, and when in doubt, with the Costumer.

• Do not, under any circumstances, use media which have not been approved by the respective manufacturer for use on stainless steels.
(chrome-nickel steel and chrome-nickel molybdenum steel)

• Even if utmost care is taken when using cleaning agents, disinfectants,sterilising agents, the high-grade materials used are still subject to fatigue. Therefore, follow the supplier's instructions for the use of chemicals (concentration, time, temperature, pressure) and always rinse the machine after its interior or exterior has been cleaned or disinfected, without leaving any trace.

• Never allow chemicals to dry on the machines The concentration build-up can cause serious damage.

• Do not, under any circumstances, use media from an unknown source or with an unknown composition.

• The chloride concentration (Cl^-) in the batch water must not exceed a specific value. See the "Media Type and Values" section.

• When doing this and any other work, observe the corresponding information in the operating manual of your machine.

BEARING
Example of generally applicable rules:
• Do not save or store hazardous substances in containers with a shape or designation which will easily allow you to confuse their contents with food.
• Save or store hazardous substances neatly and do not save or store them in the direct proximity of medicine or food, or of any additives used in medicine or food.

10.9 COMMISSIONING CIP-COMPATIBLE MACHINES

CIP
To wash out any traces of substances resulting from transport/installation (e.g., dust, drilling oil, preserving media), first of all, the machine must be thoroughly cleaned.

Cleaning Methods
CIP according to the "Media Type and Values" section:
• Alkaline CIP with caustic plus active cleaning additives (surface-active agents, complexing agents, dispersing agents).
• Intermediate rinsing followed by CIP with acid.
• Rinsing with water; passivation by air.

After initial cleaning
Observe the following:
• Check the cleaning water for traces of substances resulting from transport/ installation. If necessary, repeat cleaning until no traces are left.
• Rinse the machine's interior and exterior until there are no traces left in the water.

Important information
• The surface of all product-contacting parts of the machines have already been mechanically or chemically treated - passivated.

PASSIVATION

Permissible Passivation
Permissible passivation:
• Passivation with citric acid is permissible.
- Concentration: 4 to 10%
- Reaction time: max. 60 minutes
- Temperature: Ambient temperature
After passivation residuals must be flushed out thoroughly with cold water. Afterward a 24-hour drying period should be observed.
• Passivation which involves values that exceed those provided in the "Media Type and Values" section for one-time initial cleaning (degreasing), must be planned in conjunction with the chemical suppliers, and the resulting concept must be discussed with the Customer.

Non-Permissible Passivation
• Passivation by treating the machine/line with concentrated, aggressive (oxidising) acids is prohibited. If the external pipe system of the machines is to be passivated after installation, the KRONES machines must be separated from the cleaning circuit by means of shut-off devices.

EXTERIOR CLEANING
Clean the exterior of the machine thoroughly when it is commissioned. See the "Exterior Cleaning of the Machines" section.

10.10 EXTERIOR CLEANING OF THE MACHINES

IMPORTANT INFORMATION
Important information about cleaning the exterior of the machines:
• Due to the fact that many different materials are used for the exterior of the machines, the requirements which must be satisfied by cleaning agents and disinfectants used for exterior cleaning are particularly high.
• When doing this and any other work, observe the corresponding information in the operating manual of your machine.
• Electrical components, lubrication points, and third-party add-on parts (measuring devices, optical instruments, etc.) should be excluded from exterior cleaning and should not be cleaned with high-pressure washers.
• Painted components should not be cleaned with aggressive media. Follow the instructions in the operating manuals of these machines, which are generally not automatically cleaned. Neutral all-purpose cleaners are well-suited for this cleaning job (repair damaged paintwork).

MECHANICAL EXTERIOR CLEANING

CAUTION: Damage Caused by Improper Cleaning
Improper cleaning (e.g., due to the use of unsuitable cleaning agents and disinfectants) can cause damage to the machine or bodily injuries.
• Observe the concentrations recommended by the manufacturer for use.
• Observe the guidelines for the use of highly flammable liquids.
• Do not, under any circumstances, use media/devices which damage the surface of the materials (e.g., wire brushes, brushes, containing abrasives, abrasive fleece, steel wool, sandpaper).
• Wear appropriate protective clothing.
•

Information about mechanical cleaning of the exterior of the machine:
• The products listed in the attached table for CIP and chemical exterior cleaning are likewise recommended for manual cleaning.
• Always rinse the machine with water after cleaning, without leaving any trace.
• Alcoholic or alternative neutral, non-oxidising disinfectants are suitable for manual exterior cleaning, and will cause no problems.

CHEMICAL EXTERIOR CLEANING

Information about chemical cleaning of the exterior of the machine:
• The foam and gel cleaners from leading chemical suppliers for the beverage industry are suitable for exterior cleaning of KRONES machines/lines. To prevent damage to the machines/lines, make sure the corresponding instructions for use are followed.
• Never allow the media to dry on the surface, and rinse, without leaving any trace, after treatment.
• Residual foam on the floor must be rinsed off if necessary.
• If different foam/gel cleaners are used one after another, rinse in between, without leaving any trace, to prevent interaction increasing the risk of corrossion.

DISINFECTION DURING BREAKS

Information about disinfection during breaks:
• The limits set in the "Media Types and Values" section also apply for occasional disinfection of the exterior surfaces.
• Rinsing after disinfection with sterile water after breaks is recommended.

DISINFECTION WITH CHLORINE COMPOUNDS

Information about disinfection with chlorine compounds:
• Observe the limits in the "Use of Chlorine Compounds" section:
• Chlorine compounds are used to maintain the hygiene status.
Chlorine compound applications:
Scopo di impiego dei prodotti al cloro:
- Flushing medium
- CIP medium
- Continuous spraying medium
- Rinsing medium
• Parts and lines which come into contact with chlorine compounds must be rinsed with water.

10.11 INTERIOR CLEANING OF CIP-COMPATIBLE MACHINES

CIP

Information about the use of operating and processing materials for CIP:
• Do not, under any circumstances, use concentrated mineral acids and/or mixtures of these for CIP.
• Do not, under any circumstances, use highly aggressive mineral acids such as hydrochloric acid (HCl) and sulphuric acid (H2SO4) - not even at low concentrations.
• Use halogenated disinfectants only from leading manufacturers in pre-mixed form and with an alkaline pH value.
• Never use hot halogenated or highly oxidising media without consulting KRONES.
• Never use process water containing a high level of chloride.
• Observe the limits in the "Media Types and Values" section.
CIP = Cleaning In Place: Internal cleaning or disinfection of the machine, without having to dismantle it or having to make substantial changes, as regards the operating condition. To do so, a cleaning agent/disinfectant flows through the machine.

STEAMING AND HOT-WATER STERILISATION

Information about steaming and hot-water sterilisation:
• Generally speaking, if steam and hot water are used in conjunction with the limit values provided in the "Media Types and Values" section, this will not cause any problems.
• The machine must be pre-cleaned thoroughly. Otherwise, the heat could cause residual beverage to scorch.
• The higher the temperature and pressure, and the longer the reaction time, the shorter the seals will last.
• The machine should be allowed to cool down before the next cleaning step.

STATIONARY DISINFECTION

NOTICE: Aggressive Disinfectants!
If disinfection measures are taken over an extended period of time, there is a risk of pitting and/or crevice corrosion.
• Recirculate acidic or halogenated disinfectants as regularly as possible.
To prevent pitting/crevice corrosion, maintain the chloride content in the batch water as low as possible.

Information about stationary disinfection:
• Use pH-neutral, non-oxidising disinfectants for stationary disinfection. They usually do not cause any problems when used.
• They are also suitable for immersion disinfection of accessories such as centring bells, vent tubes, CIP cups.
• The media best suited for stationary disinfection are those which are intended by the manufacturer for this particular purpose while following to the corresponding instructions for use.

10.12 MEDIA FOR NON-ASEPTIC MACHINES

Permissible application of the media referred to in the next section:
Cleaning, disinfection, or sterilisation of the machine's interior and exterior.
Impermissible application:
Treatment of bottles, cans, and caps.

Basic ingredients from leading manufacturers are recommended.
Use the basic ingredients, usually concentrates, only at the concentrations indicated below.
The minimum concentration of the media depends on the application and the degree of machine contamination.
The cleaning agents, disinfectants, and sterilising agents must be suitable for stainless (AISI 304 and 316L) steels and FKM or EPDM seals.

NOTICE: Maximum Values Exceeded!
The machine can be damaged if the maximum values are exceeded.
• It is imperative that the maximum values are observed (e.g., concentration, times) for the cleaning agents, disinfectants, and sterilising agents used!

CLEANING AGENTS

Alkaline Cleaning Agent with Caustic Soda
Caustic soda (NaOH)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of caustic in batch water	For machines with EPDM seals: max. 3 % For machines with FKM seals: max. 1.5 %
Reaction time	max. 45 minutes
Temperature	For machines with EPDM seals: max. +90 °C [+194 °F] For machines with FKM seals: max. +80 °C [+176 °F]

Hydrogen Peroxide Concentrate as an Intensifier
Hydrogen peroxide concentrate can be use to make 1 to 2 percent caustic soda more potent.
Hydrogen peroxide (H2O2)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	Continuous injection: max. 0.1 % Single batch: max. 0.5 %
Reaction time	max. 30 minutes
Temperature	max. +80 °C [+176 °F]

Acidic Cleaning Agent with Phosphoric Acid Concentrate
Phosphoric acid (H3PO4)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 3 %
Reaction time	max. 30 minutes
Temperature	max. +40 °C [+104 °F]

Deviating Values for Machines Used in Product Preparation and Product Treatment
Phosphoric acid (H3PO4)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 3 %
Reaction time	max. 30 minutes
Temperature	max. +65 °C [+149 °F]

Acidic Cleaning Agent with Nitric Acid Concentrate
Nitric acid (HNO3)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 1.5%
Reaction time	max. 30 minutes
Temperature	max. +40 °C [+104 °F]

Deviating Values for Machines Used in Product Preparation and Product Treatment
Nitric acid (HNO3)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 1.5 %
Reaction time	max. 30 minutes

Temperature	max. +65 °C [+149 °F]

Acidic Cleaning Agent with Phosphoric Acid Concentrate and Nitric Acid Concentrate
Phosphoric acid and nitric acid

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 1.5%
Reaction time	max. 30 minutes
Temperature	max. +40 °C [+104 °F]

Deviating Values for Machines Used in Product Preparation and Product Treatment
Phosphoric acid and nitric acid

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 1.5 %
Reaction time	max. 30 minutes
Temperature	max. +65 °C [+149 °F]

DISINFECTANTS

Chlorinated Alkaline Cleaning Agents/Disinfectants
Chlorinated alkaline cleaning agents/disinfectants

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 80 mg/l For special machines (AISI 316L material): max. 120 mg/l
pH value	min. 11
Concentration of concentrate in batch water	max. 1.5%
Reaction time	max. 20 minutes
Temperature	max. +40 °C [+104 °F]

Acidic Disinfectant with Peracetic Acid Concentrate with a Concentration of 5% by Volume

Peracetic acid with a concentration of 5% by volume

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 1 %
Reaction time	max. 20 minutes
Temperature	max. +40 °C [+104 °F]

Acidic Disinfectant with Peracetic Acid Concentrate with a Concentration of 15% by Volume

Peracetic acid with a concentration of 15% by volume

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 0.5%
Reaction time	max. 20 minutes
Temperature	max. +40 °C [+104 °F]

Acidic Disinfectant with Halogenated Carboxylic Acid Concentrate and Phosphoric Acid Concentrate

Halogenated carboxylic/phosphoric acids

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 1 %
Reaction time	max. 20 minutes
Temperature	max. +40 °C [+104 °F]

Acidic Disinfectant with Halogenated Carboxylic Acid Concentrate and Nitric Acid Concentrate

Halogenated carboxylic/nitric acids

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l

Concentration of concentrate in batch water	max. 1 %
Reaction time	max. 20 minutes
Temperature	max. +40 °C [+104 °F]

Neutral Disinfectant with Hydrogen Peroxide Concentrate
Hydrogen peroxide (H2O2)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l
Concentration of concentrate in batch water	max. 0.5%
Reaction time	max. 60 minutes
Temperature	max. +25 °C [+77 °F]

Ozonised Water
Use ozonised water only on machines with EPDM seals.
Ozonised water:

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 80 mg/l For special machines (AISI 316L material): max. 120 mg/l
Ozone content	max. 3 mg/l
Reaction time	max. 45 minutes
Temperature	max. +25 °C [+77 °F]

STERILISING AGENTS

Hot Water for Sterilisation

Values deviating from those for cold water:		
Customer's supply pressure at the machine (gauge pressure p_e)	min. 2 bar [29 psi]	max. 3 bar [43,5 psi]
Chloride content (Cl-)	For standard machines (AISI 304 material): max. 100 mg/l For special machines (AISI 316L material): max. 150 mg/l	
Reaction time	max. 45 minutes	
Temperature	min. +85°C [+185°F]	max. +95 °C [+203 °F]

Steam for Sterilisation of Product-Contacting Parts
Steam - Product-contacting parts

Customer's supply pressure at the machine (gauge pressure $p_{e)}$	max. 0.5 bar [7.2 PSI]
Reaction time	max. 45 minutes
Temperature	max. +110 °C [+230 °F]

Deviating Values for Machines Used in Product Preparation and Product Treatment
Steam - Product-contacting parts

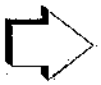
Customer's supply pressure at the machine (gauge pressure $p_{e)}$	max. 4 bar [58 psi]
Reaction time	max. 45 minutes
Temperature	max. +150 °C [+302 °F]

Steam for Sterilisation of Sterile Filters
Steam

Customer's supply pressure at the machine (gauge pressure $p_{e)}$	min. 2.5 bar [36.3 psi]	max. 3.5 bar [50.8 psi]
Input pressure (Value set at pressure regulator -optional additional equipment)	min. 1.1 bar [16 psi]	max. 2 bar [29 psi]
Reaction time	Approximately 20 minutes after a temperature of +121 °C [203 °F] is reached at the condensate drain valve.	
Temperature	max. +134 °C [+273 °F]	

If a steam pressure regulator is not provided, the supply pressure at the machine must not exceed the prescribed input pressure.

10.13 USE OF CHLORINE COMPOUNDS - WATER WITH ACTIVE CHLORINE



Chlorine compounds are used to maintain the hygiene status.
Parts and lines which come into contact with chlorine compounds must be rinsed with water.
The following tables do not constitute a KRONES recommendation! These are merely material compatibility tables.

Possible adverse effects:
- Formation of undesired byproduct
- Changes in the taste of the product
- Risk of corrosion
- Environmental impact

ELECTROCHEMICALLY ACTIVATED WATER (ECA WATER)

ECA Water for CIP
ECA water

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Active chlorine content	max. 80 mg/l
Reaction time	max. 30 minuti
Temperature	max. +25 °C [+77 °F]

ECA Water for Flushing
Water with active chlorine

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Active chlorine content	max. 10 mg/l
Reaction time	max. 20 minuti
Temperature	max. +25 °C [+77 °F]

ECA Water for Continuous Spraying or Rinsing Medium
Water with active chlorine

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l

pH value	min. 7
Active chlorine content	max. 3 mg/l
Temperatura	max. +25 °C [+77 °F]

WATER WITH SODIUM HYPOCHLORITE (NaOCl)

Water with Sodium Hypochlorite (NaOCl) for CIP
Water with sodium hypochlorite (NaOCl)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 80 mg/l For special machines (AISI 316L material): max. 120 mg/l
pH value	min. 10
Active chlorine content	max. 150 mg/l
Reaction time	max. 30 minutes
Temperature	max. +40 °C [+104 °F]

Water with Sodium Hypochlorite (NaOCl) for Flushing
Water with sodium hypochlorite (NaOCl)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Active chlorine content	max. 10 mg/l
Reaction time	max. 20 minutes
Temperature	max. +25 °C [+77 °F]

Water with Sodium Hypochlorite (NaOCl) for Continuous Spraying or Rinsing Medium
Water with sodium hypochlorite (NaOCl)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Active chlorine content	max. 3 mg/l
Temperature	max. +25 °C [+77 °F]

10.14 USE OF CHLORINE COMPOUNDS - WATER WITH CHLORINE DIOXIDE (ClO_2)

Chlorine compounds are used to maintain the hygiene status.
Parts and lines which come into contact with chlorine compounds must be rinsed with water.
The following tables do not constitute a KRONES recommendation! These are merely material compatibility tables.

Possible adverse effects:
- Risk of corrosion caused by aerosols
- Maximum workplace concentration (MAKvalue) will be exceeded.

Water with Chorine Dioxide (ClO2) for CIP
Water with chlorine dioxide (ClO2)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Chlorine dioxide content (ClO2)	max. 2 mg/l
Reaction time	max. 30 minutes
Temperature	max. +25 °C [+77 °F]

Water with Chorine Dioxide (ClO2) for Exterior Flushing
Water with chlorine dioxide (ClO2)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Chlorine dioxide content (ClO2)	max. 2 mg/l
Reaction time	max. 20 minuti
Temperature	max. +25 °C [+77 °F]

Water with Chlorine Dioxide (ClO2) for Continuous Spraying or Rinsing Medium
Water with chlorine dioxide (ClO2)

Chloride content (Cl-) in batch water	For standard machines (AISI 304 material): max. 60 mg/l For special machines (AISI 316L material): max. 100 mg/l
pH value	min. 7
Chlorine dioxide content (ClO2)	max. 0,8 mg/l
Temperature	max. +25 °C [+77 °F]

DIAGNOSTICS / ALARMS

11.1 OPERATION MALFUNCTIONS

Operator Level: Qualified Electrician
Manufacturer's Technician

Operations to eliminate alarms for which untrained personnel must be assisted by technicians!

The machine electric system consists of high-quality electrical-mechanical parts and is extremely robust and reliable over time.
Never the less, these parts can malfunction at times due to faults in the electrical components.
Following are some recommendations for resolving these problems. Greater information is available from the manufacturer's Technical Service.

Before performing any operations on electrical parts or performing any checks on the machine:

- Stop the machine
- Cut-off power to the electrical panel by turning the main power switch to the off position, indicated by the symbol "**O**".
- Block the switch so that the machine cannot be started.
- Observe all safety regulations.

11.2 ERROR MESSAGES AND RESOLUTIONS

MESSAGE	CAUSE AND POSSIBLE SOLUTION
DOWNSTREAM ACCUMULATION	The sensor indicates that there are too many containers on the discharge conveyor exiting the machine.Eliminate the cause of the jam at the machine discharge.Production restarts automatically.
REJECT ACCUMULATION	The sensor indicates that there are too many containers on the reject conveyor downstream.Eliminate the cause of the jam at the machine discharge. Production restarts automatically.
FFU FAN ALARM FROM LAMINAR FLOW	The laminar flow filters are dirty.Read the laminar flow instruction manual and clean the filters.
EXPELLER ALARM	Alarm from the expeller following an error for too many consecutive errors, or generic operational alarm.
MAXIMUM LEVEL ALARM	Check the operation of the product inlet valve.(It is probable that it is not closing correctly).Empty the tank until the level is below the maximum level.Press RESET and restart production.
MINIMUM LEVEL ALARM	Check the operation of the product inlet valve (it may not open correctly or not enough product arrives).When the tank reaches a level above the minimum level and product restart automatically.
DOWNSTREAM REJECT SYSTEM ALARM	Error from the control system (ex. level control, weight control, closure control) on the discharge conveyor.
DOOR 1, 2, 3, etc. OPEN	Close the safety door indicated. Press RESET and restart production.
WARNING GUARDS OPEN	The machine guards are open.Check for open shields on the touch screen on the CONTROL PANEL display and close it.Press RESET and restart production.
WASH TANK SENSORS MALFUNCTION	Check the sensors that control the wash tank position, which is not detected correctly.
SLAVE INPUT BLOCKED	If two machines are used in synch, the Slave machine has the infeed gate closed.Eliminate the cause of the jam.Press RESET and restart production.
CAM OUT OF POSITION	The tank cam is not in its proper position. Call the manufacturer's Technical Service.
INTERNAL FEED SCREW CUT-OUT	Containers are jammed at the internal wormscrew. Remove the jam. Adjust the timing of the wormscrew.Press RESET and restart production.

DISCHARGE ON SIGNAL FROM BELTS(EMPTYING IN PROGRESS)	Signal from the conveyor belt control panel.The infeed gate closes. The machine runs until it empties.The machine will restart once it receives the command from the conveyor panel.
TOO MANY CONSECUTIVE REJECTS FROM ONE CELL DUE TO HIGH SPEED	One of the safety cutoff valves has reduced the filling flow (causes: dirt, nozzle started poorly, etc.) and is not able to fill the container completely.Find the defective safety cutoff valve by checking on the Production page of the Touch Screen (see the manual). Press RESET and restart production.
TOO MANY CONSECUTIVE WEIGHT REJECTIONS	The filling valves cannot fill the containers completely. Reduce the production speed.
MACHINE EMERGENCY SLAVE	If two machines are connected in synch, the emergency button was pressed on the Slave machine. Eliminate the cause of the emergency.Press RESET and restart production.
CONVEYOR UPSTREAM OF MACHINE IN EMERGENCY	Conveyors stopped at machine infeed.Restore operation of the conveyors. Press RESTART and restart production.
PRODUCT EMERGENCY	Excess level of product in the tank-Check the operation of the product inlet valve and piping. In MANUAL mode, empty the tank until you reach the correct level.Press RESET and restart production.
COMMUNICATION ERROR	Check the components connected to the Profibus in the electric cabinet. Call the manufacturer's Technical Service.
EV RINSER VENT NOT IN POSITION	The solenoid valve under the rinser is not responding correctly to the open/close commands.Check it for correct operation.
ELECTRONICS FAULT	Alarm from the filling system PLC. Call the manufacturer's Technical Service.
LINE END NOT READY	One or more downstream machine stopped.Once the problem has been resolved, press RESET and restart production.
FALLEN CONTAINER	The container infeed photocell has detected a container has fallen. Remove the container and press RESET and restart production.
CONTAINER WEIGHT NOT COMPLIANT	The machine has been stopped because it detected a container that was not filled correctly. Remove the container and press RESET and restart production.(for machines without reject conveyor)
CONTAINER NOT ORIENTED	The infeed photocell detected that a container was not oriented correctly. Remove the container and press RESET and restart production.(For lines with orienting machine)

LOW LEVEL IN RINSER BURETTE	The probes on the rinser burette indicate that the water or washing liquid level is too low.Fill the burette to the correct level.Press RESET and restart production.
MAX LEVEL IN BURETTE	The probes on the rinser burette indicate that the water or washing liquid level is too high.Check the operation of the washing liquid inlet valve.Empty the burette to the correct level. Press RESET and restart production.
LEVEL ABOVE SET THRESHOLD	Check the levels indicated on the Touch Screen control panel. Check the operation of the product inlet valve and piping. Empty the tank until the level is below the maximum level.Press RESET and restart production.
LEVEL ABOVE CANNULA ALARM	The tank is too full and the product is reaching the height of the internal cannula.Lower the tank level set on the Touch Screen. Press RESET and restart production.
LEVEL BELOW SET THRESHOLD	Check the operation of the product inlet valve (it may not open correctly or not enough product arrives).When the tank reaches a level above the minimum level and product restart automatically.
NO AIR TO LIFTS	The pressure gauge on the pneumatic panel indicates insufficient pressure. Check the compressed air supply system. Press RESET and restart production.
NO NITROGEN	The pressure gauge on the pneumatic panel indicates insufficient pressure. Check the nitrogen supply system.Press RESET and restart production.
NO WATER PRESSURE	The pressure gauge on the water inlet system indicates insufficient pressure. Check the water supply system.Press RESET and restart production.
NO CO2-STERILE AIR PRESSURE	The pressure gauge on the pneumatic panel indicates insufficient pressure. Check the sterile air-CO2 supply system. Press RESET and restart production.
NO AIR	The pressure gauge on the pneumatic panel indicates insufficient pressure. Check the compressed air supply system. Press RESET and restart production.
NO AIR TO CAPPER SORTER	The pressure gauge detects insufficient pressure. Check the air supply to the sorter.Press RESET and restart production.
NO AIR TO CAPPER	The pressure gauge detects insufficient pressure. Check the air supply to the capper.Press RESET and restart production.
NO CONTAINERS	The sensor at the machine infeed does not detect enough containers in the buffer before the worm screw.Find the reason. Production restarts automatically once the buffer of containers is large enough.

NO PRODUCT	Check the operation of the product inlet valve (it may not open correctly or not enough product arrives).When the tank reaches a level above the minimum level and product restart automatically.
NO CLOSURE LINERS ON CHANNEL	Find the reason (closure liners jammed in the duct, empty sorter, etc.). Press RESET and restart production.
NO CLOSURES IN CLOSURE LOADER	Add a good number of closures to the closure lift hopper.Press RESET and restart production.
NO CLOSURES ON CHANNEL	Find the reason (closures jammed in the duct, empty sorter, etc.). Press RESET and restart production.
NO CLOSURES ON STARWHEEL	The closures are not reaching the closure release starwheel even if they are present in the duct.Check the closure release system. Press RESET and restart production.
MAXIMUM TANK LEVEL REACHED	When adjusting the height, the tank reached its maximum level.Press RESET and restart production.
MAXIMUM CAPPER HEIGHT	When adjusting the height of the capper, the capper reached its maximum level.Press RESET and restart production.
MINIMUM TANK LEVEL REACHED	When adjusting the height, the tank reached its minimum level.Press RESET and restart production.
MINIMUM CAPPER HEIGHT	When adjusting the height of the capper, the capper reached its minimum level.Press RESET and restart production.
MANUAL MODE	The control panel selector switch is turned to "MAN".
CONVEYER MOTORS DISABLED	The conveyor disconnect switches are in the OFF (0) position.
INFEED CONVEYERS DISABLED	The infeed conveyor disconnect switches are in the OFF (0) position. Return the disconnect switches to the ON (1) position to enable them.
DISCHARGE CONVEYERS DISABLED	The discharge conveyor disconnect switches are in the OFF (0) position. Return the disconnect switches to the ON (1) position to enable them.
LUBRICATION PUMP STOPPED	The automatic lubrication system indicates a fault (for ex. no grease).Check the error code shown on the grease pump display.Refer to the pump manual.Press RESET and restart production.
PRESSURE SYSTEM BELOW SET THRESHOLD	The valve correction channel pressure is incorrect. Check the inlet air pressure.Press RESET and restart production.
PRESSURE OUT OF TOLERANCE	The tank cannot reach the pressure set on the panel. Set-up the pressure regulator correctly on the pneumatic panel and check for any leaks. Press RESET and restart production.

TANK PRESSURE BELOW SET THRESHOLD	The tank cannot reach the pressure set on the panel. Set-up the pressure regulator correctly on the pneumatic panel and check for any leaks. Press RESET and restart production.
FOAMER PRESSURE SWITCH	Correctly set-up the foamer pressure regulator located under the capper.Press RESET and restart production.
UPSTREAM MACHINE PROBLEMS	One of the machines upstream from the line is stopped.
DOWNSTREAM MACHINE PROBLEMS	One of the machines downstream from the line is stopped.
END PRODUCTION	The set number of containers for production in count-down has been reached.
FILLER FRONT EMERGENCY SWITCH	The front emergency switch on the filler has been pressed. Remove the cause for the stop.Press RESET and restart production.
CAPPER FRONT EMERGENCY SWITCH	The front emergency switch on the capper has been pressed. Remove the cause for the stop.Press RESET and restart production.
FILLER REAR EMERGENCY SWITCH	The rear emergency switch on the filler has been pressed. Remove the cause for the stop.Press RESET and restart production.
CAPPER REAR EMERGENCY SWITCH	The rear emergency switch on the capper has been pressed. Remove the cause for the stop.Press RESET and restart production.
RC INFEED CONVEYER EMERGENCY SWITCH	The emergency switch on the infeed conveyor has been pressed. Remove the cause for the stop.Press RESET and restart production.
EMERGENCY SWITCH ON ELECTRIC PANEL	The emergency switch on the electric panel has been pressed. Remove the cause for the stop.Press RESET and restart production.
STOP SWITCH	The stop button on the control panel has been pressed. Restart production.
K14.10G EMERGENCY BUTTON PRESSED	One or more emergency buttons have been pressed. Release the buttons and press RESET.Press RESET and restart production.
FILLER: INSUFFICIENT SUCTION	The motor of the air suction fan inside the machine is in error.Check that the fan is not blocked.Press RESET and restart production.
CLOSURE LINER SORTER SHIELDS OPEN	The door to the closure sorter is open. Close the door. Press RESET and restart production.

CLOSURE SORTER SHIELDS OPEN	The door to the closure sorter is open. Close the door. Press RESET and restart production.
EXTERNAL FEED SCREW CUT-OUT	The external feed screw is jammed. Remove the jam. Return the worm screw to it correct position, until it clicks.Press RESET and restart production.
INFEED SCREW CUT-OUT	The feed screw is jammed. Remove the jam. Return the worm screw to it correct position, until it clicks.Press RESET and restart production.
CAPPER INFEED FEED SCREW CUT-OUT	The feed screw is jammed. Remove the jam. Return the worm screw to it correct position, until it clicks. Press RESET and restart production.
RINSER / BLOWER FEED SCREW CUT-OUT	The feed screw is jammed. Remove the jam. Return the worm screw to it correct position, until it clicks.Press RESET and restart production.
CAPPER SCREW CUT-OUT	The feed screw is jammed. Remove the jam. Return the worm screw to it correct position, until it clicks. Press RESET and restart production.
INVERTER xxx CUT-OUT	The inverter of the indicated motor, in the electric panel, indicates malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
UPSTREAM CONVEYOR INVERTER CUT-OUT	The inverter of the indicated upstream conveyor, in the electric panel, indicates malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
INVERTER INFEED CONVEYER xxx CUT-OUT	The inverter of the indicated infeed conveyor motor, in the electric panel, indicates malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
INVERTER DISCHARGE CONVEYER xxx CUT-OUT	The inverter of the indicated discharge conveyor motor, in the electric panel, indicates malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
PRODUCT PUMP INVERTER CUT-OUT	The inverter of the product pump motor indicates a malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
FILLER INVERTER CUT-OUT	The inverter of the main motor of the filler indicates a malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.

BLOWER INVERTER CUT-OUT	The air conveyor fan motor inverter indicates a malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
SORTER INVERTER CUT-OUT	The sorter motor inverter indicates a malfunction. Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
CAPPER HEAD INVERTER CUT-OUT	The capper head inverter indicates a malfunction.Identify the inverter using the wiring diagram.Check the error code indicated in the inverter user manual. Press RESET and restart production.
FILLER INFEED STARWHEEL CUT-OUT (or RINSER or CAPPER)	The indicated feed screw is jammed. Remove the jam. Return the worm screw to it correct position, until it clicks. Press RESET and restart production.
INTERMEDIATE STARWHEEL CUT-OUT	The intermediate starwheel is jammed. Remove the jam. Return the starwheel to it correct position by turning, until it clicks.Press RESET and restart production.
FILLER DISCHARGE STARWHEEL CUT-OUT (or RINSER or CAPPER)	The discharge starwheel is jammed. Remove the jam. Return the starwheel to it correct position by turning, until it clicks.Press RESET and restart production.
CLOSURE LOADER THERMAL CUT-OUT	The closure lifter motor has triggered the overheat breaker in the electric panel.Check the operation of the closure lifter motor. Press RESET and restart production.
WASHING PUMP THERMAL CUT-OUT	The washing pump motor has triggered the overheat switch inside the electric panel.Check the operation of the washing pump motor.Press RESET and restart production.
INFEED CONVEYER THERMAL CUT-OUT	The infeed conveyor motor has triggered the overheat breaker in the electric panel.Check the operation of the infeed conveyor motor. Press RESET and restart production.
FILLER HEIGHT REGULATOR BREAKER	The filler header height regulator motor has triggered the thermal breaker in the electric panel. Check that nothing is jamming the raising and lowering of the header. Close the safety guards.Press RESET and restart production.
CAPPER HEIGHT REGULATOR BREAKER	The capper header height regulator motor has triggered the thermal breaker in the electric panel. Check that nothing is jamming the raising and lowering of the header. Close the safety guards.Press RESET and restart production.
CAPPER BREAKER	The main capper motor has triggered the overheat switch inside the electric panel.Check the operation of the motor. Press RESET and restart production.

EXHAUST FAN BREAKER	The exhaust fan motor has triggered the thermal breaker in the electric panel.Check that nothing obstructs the normal operation of the fan. Press RESET and restart production.
EXHAUST FAN UNDER BED BREAKER	The exhaust fan motor under the machine bed has triggered the thermal breaker in the electric panel.Check that nothing obstructs the normal operation of the fan.Press RESET and restart production.
CLOSURE FAN BREAKER	The closure duct fan motor has triggered the thermal breaker in the electric panel.Check that nothing obstructs the normal operation of the fan.Press RESET and restart production.
RINSER AT MINIMUM LIMIT	During manual regulation of the height using the Touch Screen, it reached the lower limit.Increase the height of the rinser tower.
RINSER AT MAXIMUM LIMIT	During manual regulation of the height using the Touch Screen, it reached the upper limit.Decrease the height of the rinser tower.
FILLER INFEED GRIPPER SAFETY	The filler infeed starwheel does not pick-up the bottles off the infeed conveyor, nor it does not release them to the filler tower grippers. Check the operation of the grippers.
RINSER INFEED GRIPPER SAFETY	The filler infeed starwheel does not pick-up the bottles off the infeed conveyor, nor it does not release them to the rinser tower grippers. Check the operation of the grippers.
FILLER DISCHARGE GRIPPER SAFETY	The filler discharge starwheel does not pick-up the bottles coming from the filler tower, or it does not release them to the conveyor belt. Check the operation of the grippers.
SORTER JAMMED	Closure jammed in the sorter. Remove the jam. Press RESET and restart production.
MOBILE SIDE RELEASED	A container has jammed near the mobile side. Remove the jam.Press RESET and restart production.
CAPPER NOT IN POSITION	The capper is out-of-phase with the filler (when there is an electronic axis). Check the encoder belt and the hook sensor. Press RESET and restart production.
CAPPER SORTER BREAKER	The sorter motor has triggered the overheat breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress.Press RESET and restart production.
CAPPER LOADER CUT-OUT	The closure lifter motor has triggered the overheat breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress.Press RESET and restart production.

CAPPER HEAD MOTOR CUT-OUT	The capper header motor has triggered the overheat breaker in the electric panel.Check the operation of the motor. Press RESET and restart production.
VACUUM PUMP CUT-OUT	The sorter motor has triggered the overheat breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress. Press RESET and restart production.
RINSER INFEED PUMP CUT-OUT	The motor of the feed pump between the burette and the rinser has triggered the overheat breaker in the electric panel. Check the operation of the motor and clear any obstructions causing excess motor stress.Press RESET and restart production.
RINSER HEIGHT ADJUSTMENT BREAKER	The rinser height regulator motor has triggered the thermal breaker in the electric panel. Check the operation of the motor and clear any obstructions causing excess motor stress.Press RESET and restart production.
CAPPER HEIGHT REGULATOR BREAKER	The capper header height regulator motor has triggered the thermal breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress. Press RESET and restart production.
HEIGHT REGULATOR BREAKER TRIGGERED	The height regulator motor has triggered the thermal breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress. Press RESET and restart production.
MAIN MOTOR SERVO-FAN BREAKER	The servo fan motor for the main motor has triggered the overheat breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress.Press RESET and restart production.
PRODUCT PUMP SERVO-FAN BREAKER	The servo fan motor for the product pump has triggered the overheat breaker in the electric panel.Check the operation of the motor and clear any obstructions causing excess motor stress.Press RESET and restart production.
TOO MANY SHIELDS OPEN	The machine guards are open.Check for open shields on the touch screen on the CONTROL PANEL display and close it.Press RESET and restart production.
TOO MANY CONSECUTIVE MISSING CLOSURES	The sensor signals that there are not enough closures for the closure release heads. Closures may be jammed on the conveyor. The sorter may be damaged.Press RESET and restart production.
STERILE AIR ENABLE VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
STILL WATER VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.

VACUUM PUMP SUCTION VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
CO2 INPUT VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
PRODUCT TO CIP CONNECTION VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
VACUUM CUT-OFF VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
BURST BOTTLE WASH VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
BURETTE WASH VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
CO2 PIPE WASH VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
CIP TO CLIENT RETURN VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
BURETTE DRAIN VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
INFEED PRODUCT DRAIN VALVE NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
PRODUCT INFEED SAFETY PUMP NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
TANK OUT OF POSITION	The wash tank is not in its expected position and could be an obstacle during production. Reposition the wash tank.Press RESET and restart production.
PRODUCT DISCHARGE TANK NOT IN POSITION	The solenoid valve indicated does not respond correctly to the open/close commands.Check it for correct operation.
TOO FAST	The filling valves cannot fill the containers completely because the set production is too fast.Reduce the production speed.

11.3 TROUBLESHOOTING GUIDELINES

THE MACHINE DOES NOT START OR STOPS

POSSIBLE CAUSE	POSSIBLE SOLUTION
The machine protections have caused an alarm.	Observe the information displayed on the Touch Screen.
The emergency stop cannot be released	Find the cause and eliminate the problem.

CONTAINERS DO NOT ADVANCE CORRECTLY ON THE BELT OR FALL

POSSIBLE CAUSE	POSSIBLE SOLUTION
The sides, transfer plates, or other equipment may be worn.	Replace worn parts.
During tool changeover parts were not installed correctly.	Install the equipment correctly.
Infeed starwheel out of phase.	Have the starwheel regulated by a specialist.

CONTAINERS CANNOT BE TRANSFERRED FROM THE WORMSCREW TO THE IN-FEED STARWHEEL OR FROM THE INFEED STARWHEEL TO THE CAROUSEL

POSSIBLE CAUSE	POSSIBLE SOLUTION
The regulation of the transfer points is incorrect.	Leave this regulation to a specialist.

THE CONTAINERS ARE FILLED INCORRECTLY AT REGULAR INTERVALS - THE FILLING VALVES DON'T WORK CORRECTLY

POSSIBLE CAUSE	POSSIBLE SOLUTION
Mechanical error in the filling element.	Check: • The valve gasket • The return pipe or filling pipe
The support of the centerer is bent	Repair the support.
The centerer gasket is defective.	Replace the gasket.
The product valves do not open.	Repair the product valves.
Some parameters are regualted incorrectly in the filler program, for example: • During filling phase • Pause during filling	See the Touch Screen Instruction Manual.
The pneumatic system of the individual filler elements is defective.	Check: • Connections, piping • Membranes • Magnetic valves, main cylinders
Short circuit of the tank probe	Check: • The electric connections to the probe • Probe insulation
The filler valve nozzles are plugged.	Eliminate the plug.

CONTAINERS ARE FILLED INCORRECTLY IN GENERAL

POSSIBLE CAUSE	POSSIBLE SOLUTION
The filling parameters are set incorrectly, for example: • product level in the tank • Pressures • During filling phase • Pause during filling	Enter the correct values (See the Touch Screen user manual)
The incorrect operating values are entered in the pneumatic panel, for example operating air	Enter the correct operating pressures

DISTURBANCES DURING CIP - CIP DOES NOT FUNCTION

POSSIBLE CAUSE	POSSIBLE SOLUTION
On machines with manual valves in the line, the valves are not positioned correctly for the cleaning phase.	Put the valves into the correct position (open/closed); check the cleaning diagrams.

DISTURBANCES DURING CIP - CONTINUOUS LEAKAGE FOR LIQUID FROM THE CIP CUPS (when using CIP with CIP cups)

POSSIBLE CAUSE	POSSIBLE SOLUTION
Damaged gaskets	Replace the gaskets
CIP cups not mounted correctly.	Reposition the CIP cups correctly.

DISTURBANCES DURING CIP - FILLER OR FILLING VALVE LEAKS

POSSIBLE CAUSE	POSSIBLE SOLUTION
Filling valve gaskets damaged.	Replace the gaskets and use a suitable grease.

MANUAL GREASE GUNS - GREASE CANNOT BE INJECTED

POSSIBLE CAUSE	POSSIBLE SOLUTION
Point for lubrication or lubrication hose blocked.	Contact a specialist to identify the cause and fix the problem.

MANUAL GREASE GUNS - THE GREASE IS INJECTED TOO EASILY

POSSIBLE CAUSE	POSSIBLE SOLUTION
Break in piping or bearing gasket.	Contact a specialist to identify and fix the leak.
The grease gun is not correctly connected to the machine and grease leaks from the connection.	Use a suitable grease gun.

CENTRALIZED LUBRICATION UNIT - GREASE PUMP

For any problems, please see the grease pump manual.

LEVEL REGULATION ERROR - THE LEVEL IS TOO HIGH OR TOO LOW

POSSIBLE CAUSE	POSSIBLE SOLUTION
Insufficient SP level.	Regulate the SP (set point) value on the Touch Screen.

LEVEL REGULATION ERROR - THE LEVEL DROPS

POSSIBLE CAUSE	POSSIBLE SOLUTION
The product inlet pressure is too low.	Increase the pressure.

THE TANK PRESSURE CONTINUES TO DROP (in lines with pressurized tanks)

POSSIBLE CAUSE	POSSIBLE SOLUTION
The inlet pressure is too low.	Increase the inlet pressure
Damaged gaskets, for example: • On the filling valves • In the piping system • On the rotating distributor	Replace the gaskets
Dirt filter in piping dirty.	Clean the filter.