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Exclusion of liability

The greatest of care has been taken in the compilation of illustrations and texts. However, errors and technical changes cannot be excluded. The compilation is made without any guarantee.

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1. Usage limits

1.1 Intended use

The LEIBINGER filling machine CANVASA II + II is designed for the automatic filling of beverages in the temperature range from 0 to 20 °C, and for the sealing of cans.

Only beverage cans that are capable of withstanding the internal pressure generated by the filling process may be used as filling containers.

The LEIBINGER filling machine CANVASA II + II must only be used for filling goods that have been explicitly approved by LEIBINGER.

1.2 Misuse

The following points shall be regarded as misuse and must be avoided at all costs:

- Any use other than that described by the manufacturer
- Use of filling containers not approved by LEIBINGER
- Use of incorrect or no can guide parts (adapter pieces)
- Temperature range of the filling medium outside the permitted tolerance
- Incorrect pressure settings for CO₂, compressed air and the product
- No or incorrect parameter adjustment after retrofitting
- Use of unsuitable cleaning agents (danger of machine damage)
- Insufficient ventilation of the machine and its immediate surroundings => risk of suffocation
- Operating the machine using spare parts other than original Leibinger spare parts
- Incorrect loading of the filling containers (e.g. inserting the can upside down)
- Loading of the machine with damaged filling containers

1.3 Spatial limits

The required space is stated in the overview plan of the machine. See machine layout: "CANVASA II + II.

The machine must be freely accessible from all sides.

A working area of approx. 1.5 m around the machine must be reserved for cleaning and maintenance work.
1.4 Time limits

The machine is designed for a service life of 20 years.

The prerequisites for this service life are:

- Use as intended
- Compliance with the maintenance intervals as per the maintenance plan
- Compliance with cleaning as per cleaning recommendations and care plan
- Use of original LEIBINGER spare parts. Wear parts which have to be replaced depending on operating hours or wear are excluded from this

1.5 Other limits

The following points must be fulfilled for the location of the machinery:

- The machine must be set up in a weatherproof industrial building
- The location must be suitable for bottling foodstuffs (beverages)
- The entire machine and its immediate surroundings must be sufficiently ventilated (CO2 emissions of the machine)
- Transport/storage:
  - Temperature -20 to +50 °C
  - Relative air humidity 30 to 75% without condensation
  - Air pressure 500 to 1060 hPa
2. **Obligations of the operator**

The following points must be observed and complied with by the operator:

- Regular visual inspection of the lines
- The strict observance of this operating manual
- Compliance with inspection and maintenance work
- The operator must check if and which safety components must be replaced after 20 years in order to ensure the continued safety of the machine.
- A CO\textsubscript{2} warning system should be installed in the immediate vicinity of the machine. This warning system must report any uncontrolled and increased release of CO\textsubscript{2} from the machine.
- Adequate ventilation and deaeration around the machine
- Regular monitoring of CO\textsubscript{2} emissions
- Testing according to DGUV Regulation 3
- Checking the function of guard door monitoring and the pressure activation valve before production starts
- Regular leakage checks on all pneumatic components
- Provision of power supply in accordance with applicable regulations and standards
- Ensure constant pressures for:
  - Air
  - CO\textsubscript{2}
  - Water
  - Product
3. Exclusion of liability

Any usage that is different or which goes beyond the specified intended use shall be considered improper.

The manufacturer is not liable for any resulting damage. Modifications to the LEIBINGER filling machine CANVASA II + II are prohibited.

The LEIBINGER filling machine CANVASA II + II must only be used in a technically flawless and operationally reliable condition. Any misuse shall invalidate the manufacturer’s warranty, guarantee and general liability.

The LEIBINGER filling machine CANVASA II + II must only be operated by the following persons:

- Persons who have been suitably trained and instructed in the operation of this machine
- Persons who are familiar with the regulations on work safety and accident prevention
- Persons who are thoroughly familiar with the contents of this operating manual.

Flawless functioning and operational safety as well as the greatest possible trouble-free operation are only guaranteed provided that only components tested and approved by LEIBINGER GmbH are used.

Only accessories that have been tested together with the devices and approved by LEIBINGER GmbH can be used. LEIBINGER GmbH cannot guarantee the safe operation and functioning of the system if third-party accessories are used.

LEIBINGER GmbH cannot guarantee the safe operation and functioning of the system if third-party accessories are used.
4. About this manual

Important information!
This operating manual must be read prior to commissioning. The following points must be observed and complied with:

- All instructions intended to ensure the safety of the operator and the environment must be observed!
- This operating manual forms an integral part of the machine. It must be kept ready and made available to the appropriate persons as required.
- The precise compliance with the operating manual is a prerequisite for the intended use and correct handling of the machine.
- All supplied technical information, care and maintenance instructions must be observed.

4.1 Function of this document

This operating manual is intended to instruct the technical personnel on the safe assembly, installation, commissioning, operation, handling and maintenance of the CANVASA II + II machine.

4.2 Target group

This operating manual is intended for persons who are responsible for the following activities:

- Incorporating the machine into a unit
- Putting the machine into operation for the first time
- Operating, retrofitting and servicing the machine
4.3 Safety information

The safety information is designated on the basis of the severity of the danger as follows:

Danger!
Indicates an immediate hazard involving a high degree of risk that directly results in death or extremely serious injury.

Warning!
Indicates a hazard involving a moderate degree of risk that results in death or serious injury.

Caution!
Indicates a hazard involving a low degree of risk that results in minor or moderate injury or material damage.

Types of hazards

The following types of hazards may occur during the installation, operation, repair and disposal of electrical devices and components:

Risk of death from electric shock
Disconnect the machine from the power supply and secure it against reconnection prior to opening electrical devices.

Risk of injury due to crushing
Ensure the proper positioning of all covers before operating the machine!

Risk of injury due to automatic start-up
The automatic sequence inside the machine begins automatically once the can has been inserted. Do not reach into insertion or discharge openings!

Risk of burns due to hot parts
Parts heat up and can cause burns. Wear suitable protective clothing.

Risk of tripping due to cables and hoses
The left and rear sides in particular pose an increased risk of stumbling.
Risk of slipping due to wet floor surfaces
The floor around the machine will become wet during operation, which increases the risk of slipping.

Risk of poisoning due to harmful gases and vapors!
CO₂ is released during operation of the system. This is why it is necessary to provide sufficient room ventilation.
The appropriate control measurements must be taken at maximum machine throughput.
Store chemical liquids appropriately

Risk of splashing!
Machine parts are under pressure. Liquid can escape at high speed. Wear eye protection

Danger from chemicals!
Wear safety gloves!
4.4 Information note

This operating manual contains information notes. Information notes contain important instructions for setting up and operating the machine without any problems. These must be observed without fail.

**Important information!**
This information note indicates that failure to comply may result in material or financial damage.

**INFO:**
This information note refers to helpful information.
4.5 Qualification of operators / specialist personnel / electricians

Risk of injury and material damage due to incorrect operation!
Only trained operators, specialist personnel or qualified electricians are permitted to carry out work on the machine.

Trained operators

Trained operators are those who have been trained by authorized representatives of LEIBINGER GmbH

Authorized representatives are fitters and employees of LEIBINGER GmbH.

Specialist personnel

Specialist personnel are those who, due to their specialist training, knowledge and experience as well as familiarity with the relevant regulations, are able to carry out the work assigned to them and to identify and avoid potential hazards independently.

Qualified electricians

Qualified electricians are those who have successfully passed an apprenticeship, e.g. as an electrical engineer, electrical technician, master electrician or journeyman electrician, and have proven their professional qualification.

The specialist qualification can also be proven by several years of experience with theoretical and practical training, verified by a qualified electrician. Such verification must be documented.

(Extract from the accident prevention regulation DGUV 3 "Electrical systems and equipment")

The regulations of the respective country in which the system is operated shall also apply.
### Qualification for certain activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trained operators</td>
</tr>
<tr>
<td>Operation in set-up mode</td>
<td>●</td>
</tr>
<tr>
<td>Operation in automatic mode</td>
<td>●</td>
</tr>
<tr>
<td>Set-up, changing the set-up</td>
<td>●</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>●</td>
</tr>
<tr>
<td>Maintenance</td>
<td>●</td>
</tr>
<tr>
<td>Work on electrical equipment</td>
<td></td>
</tr>
<tr>
<td>Work on pneumatic or hydraulic equipment</td>
<td></td>
</tr>
</tbody>
</table>
4.6 Markings on the machine

Important information!
The signs and markings on the housing of the machine and components must not be changed or removed.

Symbols on the machine

Caution, high voltage

CE marking

Risk of crushing

Hot surface

Wear eye protection

Wear gloves

Only lift the machine here
5. Structure and function

5.1 Machine overview

Fig. 1 Machine overview 1

(1) Valve cabinet (4) Product connection (7) Can insert
(2) Rinser (5) Lid slide (8) Can discharge
(3) CIP return flow (6) Operating panel (9) Access door
Fig. 2 Machine overview

(1) Control cabinet
(2) Media connections
Fig. 3 Machine overview 3

(1) Can insert
(2) Pre-gassing
(3) Filling
(4) High-pressure injection and bubble breaker
(5) Sealer
(6) Outlet with can spray
5.2 Production sequence

1st The can casings are provided on a pallet. The operator fills the lid magazine prior to the start of production.

2nd The operator starts the machine. The machine is ready for operation after the home position run and production can start.

3rd The operator takes two cans and cleans them on the rinser with the connected medium.

4th The operator inserts the cans into the two openings.

5th The two cans are automatically detected. The rotary table continues to clock automatically and is then ready again for can insertion, which is indicated by a green signal on the panel.

6th The operator repeats steps 3 and 4.

7th The filling process starts automatically as soon as the first cans reach the filling position. The same applies to the sealing process provided that the sealing process has been activated via the corresponding switch on the operating panel.

8th The cans are pushed through at the outlet under a can spray, whereby the top side of the can is cleaned and blown dry.

9th The first two cans are filled and sealed. They can be removed and packed.
5.3 Panel (control panel with controls)

Emergency stop switch

For immediate stopping of all machine functions in case of emergency. The control unit is
switched off.

The emergency stop switch must be pulled up again and all axes must be re-referenced before
the control unit is switched on again.

Reset and emergency stop

The alarm messages are acknowledged with Reset.

“Auto Start/Stop” button

Starts or stops the automatic mode. All motors stop and return to their starting position.
6. Transport

The packaging is determined by the route and type of transport. If no special agreements have been made, the packaging shall comply with the guidelines of the Verein Deutscher Maschinenbauanstalten (VDMA) [association of German engineering companies]

The machine is normally delivered on a pallet or in a container.

**Important information!**
The pictograms and notes on the packaging must be observed.

**Important information!**
The customer is responsible for the internal transport of the machine to its place of set-up, even in the presence of LEIBINGER employees.

The following points must always be observed:

- All safety and accident prevention regulations must be observed.
- Protective clothing must always be worn.
- The work equipment used (crane, lifting gear, forklift trucks, roller transport vehicles, etc.) must be sufficiently dimensioned.
- If using forklift trucks, the fork dimensions have to be such that the machine can be fully gripped on the underside. The fork width must be set such as to ensure that the machine is gripped as far out as possible.
- Transport damages must be immediately reported to the forwarding agent or LEIBINGER.

The following points must be observed for intermediate storage:

- The machine must not be placed directly on the ground
- No aggressive chemicals must be stored near the machine in the storage area
- The machine must be protected against extreme temperature fluctuations, dust and moisture
7. **Setting up the machine**

**Touchscreen**

Menus with messages, parameters and position information are displayed on the touch screen. Menus can be accessed and parameters can be entered using the touchscreen.

**Basic principles**

The machine is normally set up by LEIBINGER service technicians during initial commissioning and handed over to the customer ready for operation.

The following sections of the chapter "Setting up the machine" must, however, be observed, in particular if the machine is not set up and commissioned by LEIBINGER service technicians, e.g. after a change of location.

**Place of set-up**

The place of set-up must fulfill the following requirements:

- The floor must be free of vibrations, level and have a corresponding load-bearing capacity
- The machine must not be set up in potentially explosive areas
- The ambient conditions specified in the technical data must be complied with.
- Do not set up any heat sources, such as radiant heaters, in the immediate vicinity of the machine. Components sensitive to heat, such as plastic covers or electronic components, will be damaged.

**Space requirements**

The required space is stated in the overview plan of the machine. The machine must also be freely accessible from all sides.

A working area of approx. 1.5 m around the machine must be reserved for cleaning and maintenance work.

**Repositioning and aligning the machine**

The machine is mounted on four rollers and can therefore be moved. The brakes of the rollers must be fixed if the machine is at the desired location.

The machine is aligned using the four nuts on the threaded rod of the rollers.
8. Connecting the machine

8.1 Media connections

The following connections can be found on the connection panel for the hose connections:

![Connection panel](image)

Fig. 4 Connection panel

Water connection:

The can spray and high-pressure injection are supplied via the water connection. Drinking water quality is essential because the water also enters the product via the high-pressure injection.

CO\textsubscript{2} connection:

The CO\textsubscript{2} connection supplies the pre-gassing, bubble breaker and bottom lid gassing. N\textsubscript{2} can also be used here in principle. However, this can lead to increased O\textsubscript{2} uptake.

Rinser connection:

There is a separate connection for the rinser so that the rinsing medium can be freely selected. Both water as well as inert gases (e.g. CO\textsubscript{2}, compressed air etc.) can be connected.

Compressed air connection:

All pneumatic movements are supplied via the compressed air connection.

---

**Important information!**

The connections on the connection panel are G3/8.
The operator is responsible for connecting all supply lines for the connection panel properly and for checking them regularly.

---

**essed air, CO\textsubscript{2}**

**Attention! Risk of tripping**
The compressed air/CO\textsubscript{2} lines must be laid so that there is no risk of tripping.
Attention! Machine damage due to impure compressed air
The machine requires properly conditioned compressed air for operation. All pneumatic equipment is operated with oil-free compressed air unless otherwise indicated.

Important information!
The following quality classes as per ISO 8573-1 must be adhered to:
- Solids: Class 5, max. particle size 40 µm
- Water content: Class 5, max. pressure dew point +7 ºC
- Oil content: Class 4, max. oil concentration 5 mg/m3.
Compressed air that is contaminated by particles, oil, water or other media can cause serious damage to the machine.
Damage caused by contaminated compressed air shall not be covered by the warranty!

Important information!
The mains pressure of the compressed air/CO2 supply must not exceed 6 bar. An operating pressure of 5 bar must be ensured in each case.

Water

Important information!
Drinking water quality is necessary for can spraying and high pressure spraying.
The drinking water supply network must be connected in accordance with the applicable local legislation and must only be carried out by a licensed fitter.

Waste water
The waste water produced as a whole does not contain any special substances and can be disposed of in the local sewage system.

8.2 Electrical connection

Risk of death from electric shock!
All installation work must be carried out with the power switched off!

Important information!
The following points must be followed without fail!
The relevant standards, safety regulations as well as the technical connection conditions of the local utility companies must be observed!

If the dosing filling machine is connected to a 230V mains that is separate from the machine, an all-pole isolation switch must be provided in the mains supply line!

Operate the CANVASA on a separate residual current circuit breaker.

The relevant standards, e.g. VDE 0100, annexes to VDE Group 700 (humid rooms), and other national standards and regulations must be observed as a rule. The systems must be operated with RCD, RCM or other monitoring devices. If you are uncertain about mains connection, please contact your qualified electrician.

Machines with frequency converters may only be operated with all-current sensitive residual current circuit breakers.

The local mains supply must be checked at regular intervals in accordance with DGUV Regulation 3. The function of the RCD B+ must be checked and documented regularly.

A visual inspection of the switch cabinet/control unit must be conducted at regular intervals to ensure they are properly sealed.

Caution! Material damage due to incorrect power supply
Prior to connecting the machine to the mains supply, check whether the mains voltage and frequency specified on the nameplate match the values of the mains supply.

Important information!
Only so-called "universal current sensitive circuit breakers" may be used as residual current circuit breakers.
9. Commissioning

**Risk of injury**
Ensure that nobody is working on the machine and that all protective covers are properly fitted before commissioning.

**Switching on the machine**

1st Ensure that the machine is supplied with compressed air, CO2 and water.
2nd Switch on the main switch on the control cabinet.
   - The control unit starts up and the "Main" menu appears on the operating panel.
   - The "Alarm/Reset" lamp lights up
3rd Press the "Alarm/Reset" button
4th Press the "Start" button
   - The machine moves to the home position
5th The "Start" button illuminates green. The machine is now ready for operation.

**Switching the machine off**

1. Press the button: “Control unit off”
2. Flip the main switch.

9.1 Function test prior to commissioning

The flawless functioning of the machine and safety equipment must be checked prior to each commissioning. The safety equipment includes:

- The emergency stop switch

**Checking the safety equipment**

- Emergency stop switch
- Main control cabinet
- Operating console

**Important information!**
All safety equipment must be inspected by a specialist at least once a year.
10. Operation

10.1 The menus

Start screen

<table>
<thead>
<tr>
<th>Operation</th>
<th>User interface for automatic operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings</td>
<td>General settings, product management</td>
</tr>
<tr>
<td>Manual operation</td>
<td>Manual control of all actuators</td>
</tr>
<tr>
<td>CIP</td>
<td>Cleaning program</td>
</tr>
<tr>
<td>Logoff</td>
<td>Log off currently logged in user</td>
</tr>
</tbody>
</table>
**Operation**

Press “Operation” after the start screen appears. The following screen appears:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Displays the active product</td>
</tr>
<tr>
<td>Preload pressure</td>
<td>The desired differential pressure is entered. The preload pressure is then calculated from the inlet pressure and the differential pressure.</td>
</tr>
<tr>
<td>Offset filling end</td>
<td>Moves the end position of the filling process upwards to correct the filling quantity upwards</td>
</tr>
<tr>
<td>Green bars</td>
<td>“Ready for can insertion” signal</td>
</tr>
<tr>
<td>Sealing process</td>
<td>Activates the sealing process; the cans are not sealed if this function is not selected</td>
</tr>
<tr>
<td>High-pressure injection heating</td>
<td>Switches the high-pressure injection heating on/off</td>
</tr>
<tr>
<td>Emptying ON</td>
<td>Runs the system empty. Cans that are already in the machine are automatically fully filled and sealed. Do not insert new cans!</td>
</tr>
<tr>
<td>Reset can counter</td>
<td>Resets the resettable can counter</td>
</tr>
<tr>
<td>Inlet pressure</td>
<td>Displays the pressure at the product infeed</td>
</tr>
<tr>
<td>Cans per h</td>
<td>Shows the projected output per hour, based on the duration of the last work cycle. Selecting this option opens a submenu showing the cycle times for the individual processes.</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Can counter</td>
<td>Can counter that can be reset; only sealed cans are counted</td>
</tr>
<tr>
<td>Can counter</td>
<td>Can counter that cannot be reset; only sealed cans are counted</td>
</tr>
<tr>
<td>Product management</td>
<td>Access to the parameters of the active product</td>
</tr>
<tr>
<td>Control unit on</td>
<td>Switch the control unit on, i.e. off.</td>
</tr>
<tr>
<td>Messages</td>
<td>Displays pending messages</td>
</tr>
</tbody>
</table>

**Clock times**

![Clock times diagram](image)
<table>
<thead>
<tr>
<th><strong>User management</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage passwords, user groups and automatic logoff time settings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User</th>
<th>Password</th>
<th>Group</th>
<th>Logoff time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Login</strong></th>
<th><strong>Logoff</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Log in user</td>
<td>Log off user</td>
</tr>
</tbody>
</table>
CIP cleaning program

<table>
<thead>
<tr>
<th>Inlet pressure</th>
<th>Displays the pressure at the product infeed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIP Start</td>
<td>Starts the first CIP run with the specified runtime</td>
</tr>
<tr>
<td>CIP Stop</td>
<td>Interrupts the current CIP run regardless of the remaining time.</td>
</tr>
<tr>
<td>Clean/flush CO2 units</td>
<td>Switches all relevant valves for flushing the nozzles after the appropriate 3-way ball valves have been opened (see 13.3)</td>
</tr>
<tr>
<td>Remaining time</td>
<td>Displays the remaining duration of the current CIP run.</td>
</tr>
<tr>
<td>Runtime</td>
<td>Entry of the runtime for the next CIP run.</td>
</tr>
</tbody>
</table>
CIP sequence

Start CIP

Insert rinsing bottle message

Rotary axis clocking

Sealing 1 + 2 in S position

Switch on CIP system message

Filling axis to cleaning position

Time elapsed or CIP Stop

Switch off CIP system message

System restart or stop

Connect water

Axis traverses

Time elapsed

Start further CIP run

Please insert rinsing bottle and acknowledge

CIP ended

Please switch off CIP system and acknowledge

Connect water to the system

Rinsing bottles are clocked out

Drive traverses

Sealing 1 + 2 in H position

Filling valve in H position
Manual operation I

Switch on machine

Select manual operation after the start screen appears

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling valve 1 open</td>
<td>Opening and closing of filling valve #1</td>
</tr>
<tr>
<td>Filling valve 2 open</td>
<td>Opening and closing of filling valve #2</td>
</tr>
<tr>
<td>Fill axis jog +</td>
<td>Moves the filling axis downwards</td>
</tr>
<tr>
<td>Open filling axis reference side</td>
<td>Opens the menu for referencing the filling axis (password protected)</td>
</tr>
<tr>
<td>Vacuum</td>
<td>Switches on the vacuum to suck in the lid</td>
</tr>
<tr>
<td>0000000 mm</td>
<td>Current position of the fill axis</td>
</tr>
<tr>
<td>Sealing on</td>
<td>Running up and down of centering bells</td>
</tr>
<tr>
<td>Blow</td>
<td>Switch on the blowing-air for blowing air to the lid for 5 seconds</td>
</tr>
<tr>
<td>Filling axis jog -</td>
<td>Moves the filling axis upwards</td>
</tr>
<tr>
<td>Start filling process</td>
<td>Starts one complete filling cycle</td>
</tr>
<tr>
<td>Trigger OP1 + OP2</td>
<td>Apply pressure to both sides of the sealing cylinder</td>
</tr>
<tr>
<td>Sealer drive on</td>
<td>Switches the sealer motor on/off</td>
</tr>
<tr>
<td>Lid separator</td>
<td>Forward/backward stroke of the lid separator</td>
</tr>
</tbody>
</table>

BACK NEXT page Menu
<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lid carriage</td>
<td>Forward/backward stroke of the lid carriage</td>
</tr>
<tr>
<td>Rotary table jog +</td>
<td>Clockwise movement of the rotary star wheel</td>
</tr>
<tr>
<td>Set rotary table zero point</td>
<td>Defines the current position as the new zero point</td>
</tr>
<tr>
<td>00000°</td>
<td>Display of the current rotary star wheel position</td>
</tr>
<tr>
<td>Extend rotary plate</td>
<td>Forward/backward stroke of the rotary plate on the sealer</td>
</tr>
<tr>
<td>OP1</td>
<td>Execution of sealing process OP1</td>
</tr>
<tr>
<td>OP2</td>
<td>Execution of sealing process OP2</td>
</tr>
<tr>
<td>Rotary table jog -</td>
<td>Anticlockwise movement of the rotary star wheel</td>
</tr>
<tr>
<td>Clock</td>
<td>Further clocking of the rotary star wheel to the next position</td>
</tr>
</tbody>
</table>
### Manual operation II

<table>
<thead>
<tr>
<th>High-pressure injection</th>
<th>Forward/backward stroke of the high-pressure injection nozzles</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 pre-gassing</td>
<td>Actuates the valve for pre-gassing to set the flow rate for 10 seconds</td>
</tr>
<tr>
<td>Bubble breaker</td>
<td>Actuates the valve for the bubble breaker to set the flow rate for the duration saved in product management</td>
</tr>
<tr>
<td>Bottom lid gassing</td>
<td>Actuates the valve for bottom lid gassing to set the flow rate for 10 seconds</td>
</tr>
<tr>
<td>Blow off chuck</td>
<td>Blows compressed air into the vacuum line to blow it free when required</td>
</tr>
<tr>
<td>Can spray</td>
<td>Actuates the valve for the can spray for as long as the button is pressed</td>
</tr>
<tr>
<td>Blow-off cans</td>
<td>Actuates the valve to blow of the lid as the button is pressed</td>
</tr>
<tr>
<td>Component</td>
<td>Function Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Can feed</td>
<td>Actuates the feed pusher of the automatic can feed (optional)</td>
</tr>
<tr>
<td>Rinser cylinder</td>
<td>Actuates the rinser cylinder of the automatic can feed (optional)</td>
</tr>
<tr>
<td>Rinser water</td>
<td>Actuates the rinsing valve of the automatic can feed (optional)</td>
</tr>
<tr>
<td>Can turner</td>
<td>Actuates the slew drive of the automatic can feed (optional)</td>
</tr>
<tr>
<td>Can barrier</td>
<td>Actuates the can lock of the automatic feed (optional)</td>
</tr>
<tr>
<td>Printer</td>
<td>Moves the date printer of the automatic can feed (optional)</td>
</tr>
</tbody>
</table>

**Manual operation III (password protected)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Function Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured value</td>
<td>Input field for the distance measured as shown in the photo</td>
</tr>
<tr>
<td>Set filling axis reference point</td>
<td>Sets the entered value as the actual position for the current axis position</td>
</tr>
</tbody>
</table>

**Reference filling axis**

**28.08.2019 12:19:15**

Measured value: 0,0 mm

Set filling axis reference point
### Product management I

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ / -</td>
<td>Product selection</td>
</tr>
<tr>
<td>00 00000000000000000</td>
<td>Display of the active product</td>
</tr>
<tr>
<td>Can type</td>
<td>Selection of can type from the library</td>
</tr>
<tr>
<td>Filling speed</td>
<td>Traversing speed during the filling process</td>
</tr>
<tr>
<td>Filling acceleration</td>
<td>Length of the acceleration ramp after which the filling speed is reached</td>
</tr>
<tr>
<td>Begin bubble breaker</td>
<td>Deceleration of the bubble breaker of the can plate from the rotary star wheel in position</td>
</tr>
<tr>
<td>Bubble breaker duration</td>
<td>Blowing duration of the bubble breaker</td>
</tr>
<tr>
<td>Begin high-pressure injection</td>
<td>Deceleration of the high-pressure injection from rotary star wheel in position</td>
</tr>
<tr>
<td>High-pressure injection duration</td>
<td>Dwelling time of the high-pressure injection nozzles above the can</td>
</tr>
</tbody>
</table>
### Product management II

**Product management**

<table>
<thead>
<tr>
<th>Product:</th>
<th>00</th>
<th>0000000000000000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary table speed:</td>
<td>00</td>
<td>%</td>
</tr>
<tr>
<td>Rotary table acceleration:</td>
<td>00</td>
<td>%</td>
</tr>
<tr>
<td>Rotary table deceleration:</td>
<td>00</td>
<td>%</td>
</tr>
<tr>
<td>Relief stroke:</td>
<td>00,00</td>
<td>mm</td>
</tr>
<tr>
<td>Relief speed:</td>
<td>0000</td>
<td>mm/s</td>
</tr>
<tr>
<td>Relief acceleration:</td>
<td>0000</td>
<td>mm</td>
</tr>
<tr>
<td>Relief deceleration:</td>
<td>0000</td>
<td>mm</td>
</tr>
</tbody>
</table>

**+ / -**

<table>
<thead>
<tr>
<th>+ / -</th>
<th>Product selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 0000000000000000</td>
<td>Display of the active product</td>
</tr>
<tr>
<td>Rotary table speed</td>
<td>Setting of the rotary table speed</td>
</tr>
<tr>
<td>Rotary table acceleration</td>
<td>Setting for the rotary table acceleration ramp</td>
</tr>
<tr>
<td>Rotary table deceleration</td>
<td>Setting for the rotary table deceleration ramp</td>
</tr>
<tr>
<td>Relief stroke</td>
<td>Definition of the relief stroke after closing the filling valves for pressure relief</td>
</tr>
<tr>
<td>Relief speed</td>
<td>Speed at which the relief stroke is executed</td>
</tr>
<tr>
<td>Relief acceleration</td>
<td>Length of the acceleration ramp after which the relief speed is reached</td>
</tr>
<tr>
<td>Relief deceleration</td>
<td>Length of the deceleration ramp after which the relief speed is reached</td>
</tr>
</tbody>
</table>
Product management III

Parameters (e.g. reference position, pressure, etc.) are displayed in the fields with a white background. These parameters can be modified.

<table>
<thead>
<tr>
<th>+ / -</th>
<th>Product selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 0000000000000000</td>
<td>Display of the active product</td>
</tr>
<tr>
<td>Begin pre-gassing</td>
<td>Deceleration of the pre-gassing measured from rotary star wheel in position</td>
</tr>
<tr>
<td>Rotary plate deceleration</td>
<td>Deceleration of the lifting movement of the can plate from the rotary star wheel in position</td>
</tr>
<tr>
<td>Rinsing time</td>
<td>Duration of the rinsing process before the valve closes automatically</td>
</tr>
<tr>
<td>Copy parameters</td>
<td>Copies the parameters from the first product entered to the second.</td>
</tr>
<tr>
<td>Maximum downtime</td>
<td>Determination of the maximum downtime after which the machine leaves automatic mode. Cans that have commenced are not finished.</td>
</tr>
<tr>
<td>Save parameters</td>
<td>Saves the currently entered parameters for the active product.</td>
</tr>
<tr>
<td>Next screen</td>
<td>Jump to further product parameters</td>
</tr>
</tbody>
</table>
## Settings

<table>
<thead>
<tr>
<th>Menu</th>
<th>Date / time</th>
<th>Date and time setting options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Language</td>
<td>Selects the language of the user interface</td>
</tr>
<tr>
<td></td>
<td>Product management</td>
<td>Access to product-specific parameters</td>
</tr>
</tbody>
</table>

![Diagram of the settings menu with options: Date/time, Language, Product management.

The diagram shows the user interface layout with options for date/time, language, and product management.]
Language

<table>
<thead>
<tr>
<th>Language</th>
<th>Select language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login / Logout</td>
<td>User log in/out</td>
</tr>
<tr>
<td>Start screen</td>
<td>Back to the start screen</td>
</tr>
</tbody>
</table>
System

### Time

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Day</th>
<th>Hours</th>
<th>Minutes</th>
<th>Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>00</td>
<td>00</td>
<td>00</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>


- **Set time**: Saves the newly input system time

### Old messages

- **Year, month etc.**: Manual input of date and time
- **Current time**: Display of the currently set system time
- **Set time**: Saves the newly input system time

#### Old messages

<table>
<thead>
<tr>
<th>Pending messages</th>
<th>Displays currently pending messages</th>
</tr>
</thead>
</table>

#### Cleaning screen

**30s**

#### Touch calibri.

### Menu
Pending messages

Should the operator be required to intervene during operation of the system, an operation message is shown on the display. This message contains instructions on what to do next.
Automatic operation sequence

**Rinsing sequence**
- Rinsing active
- Both cans on ring unit
- Rinsing in progress
- Can removed
- End rinsing

**Clock sequence**
- Insert cans
- Release of all stations
- Drive clocks
- Drive position reached Release at stations

**Filling sequence**
- Cans clock in station
- Fill axis in pre-position
- Sealing in S position
- Fill axis in fill start position
- Fill axis in fill end position
- Filling valve 1+2 in 0 position
- Fill axis in real position
- Sealing in 0 position
- Waiting for next can

**Lid separation sequence**
- Release of the seam or rotary axis
- Lid separation in S position
- Seam sequence finished
- Lid separation in 0 position
- Lid carriage in S position
- Lid carriage in 0 position

**Seam sequence**
Can present

Lid carriage in H position

Rotary plate in S position

OP 1 + 2 in S position

OP 1 + 2 in S position

Rotary plate in H position

OP 1 + 2 not in S position

Rotary plate does not come to A position

Rotary plate in G position

Rotary plate in S position
## Fault messages

<table>
<thead>
<tr>
<th>Fault Message</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No compressed air present</td>
<td>Connect compressed air to the system</td>
</tr>
<tr>
<td>Protective flap open</td>
<td>Close protective door</td>
</tr>
<tr>
<td>Supply 24V triggered collective message</td>
<td>Check fuse Contact service department</td>
</tr>
<tr>
<td>Emergency-stop relay switched off Acknowledge emergency-stop</td>
<td>Reset emergency stop with the reset button</td>
</tr>
<tr>
<td>Emergency-stop operating panel actuated</td>
<td>Pull emergency stop (turn)</td>
</tr>
<tr>
<td>Fuse blown sealing drive</td>
<td>Check fuse Contact service department</td>
</tr>
<tr>
<td>Fuse blown rotary table</td>
<td>Check fuse Contact service department</td>
</tr>
<tr>
<td>Fuse blown fill axis</td>
<td>Check fuse Contact service department</td>
</tr>
<tr>
<td>Siemens servocontroller fault MC power</td>
<td>Reset fault Contact service department</td>
</tr>
<tr>
<td>Siemens servocontroller fault MC reset</td>
<td>Reset fault Contact service department</td>
</tr>
<tr>
<td>Siemens servocontroller fault MC home</td>
<td>Reset fault Contact service department</td>
</tr>
<tr>
<td>Siemens servocontroller fault MC moveabsolute</td>
<td>Reset fault Contact service department</td>
</tr>
<tr>
<td>Siemens servocontroller fault MC movejog</td>
<td>Reset fault Contact service department</td>
</tr>
<tr>
<td>Siemens servocontroller no reference present</td>
<td>Reference drive Reset fault Contact service department</td>
</tr>
<tr>
<td>Condition</td>
<td>Action</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Filling valve 1 not in H POS</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Filling valve 1 not in S POS</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Filling valve 2 not in H POS</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Filling valve 2 not in S POS</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Lid carriage not in H pos</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Lid carriage not in S pos</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Lid separation not in H pos</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Lid separation not in S pos</td>
<td>Set the sensor</td>
</tr>
<tr>
<td>Can insert sensors switch continuously</td>
<td>Set sensors Clean sensors</td>
</tr>
<tr>
<td>Check sensors</td>
<td></td>
</tr>
<tr>
<td>Maximum downtime time reached</td>
<td>System has reached the maximum downtime of the system Automatic restart</td>
</tr>
</tbody>
</table>

### 10.2 Product-specific parameterization

The product-specific parameterization is particularly important when beer is filled. In view of the large variance of products and the considerable influence of CO2 content and product temperature, in particular, on foaming characteristics, the ideal filling parameters cannot be defined in a generally valid manner but must be determined on an individual basis.

**INFO:**

We recommend restricting the adjustment, especially at the beginning, to the most important parameters. These are summarized in the product management on the first page.
Fig. 5 Product parameters

The following sequence is recommended for adjusting the parameters:

1st Parameterization of the filling process until a quick, foam-free or low-foam filling is ensured and the desired filling quantity is reached.

2nd Set start, duration and intensity high-pressure injection

3rd Set bubble breaker

4th Check the filling quantity (e.g. by weighing)

5th If necessary: Correct the filling quantity using the “Offset filling end” parameter

6th Pre- and bottom lid gassing setting

**INFO:**
Before checking the filling quantity by weighing, the exact density of the beverage must be determined and used to calculate the correct target weight. Alternatively, a can that has been perfectly filled (e.g. using a volumetric flask) can be weighed.

**INFO:**
For standard cans, changing the “Offset filling end” parameter by one millimetre is approximately equivalent to an additional filling volume of three millilitres. After adapting the parameters, check the settings of the high-pressure injection and of the bubble breaker again and adapt them if necessary.
Filling process parameterization:

Four parameters are essential for the filling process:

- Input pressure (set via tank pressure); experience indicates 1.3 to 1.6 bar
- Preload pressure; experience indicates a relative pressure (pressure difference) of 0.3-0.4 bar.
- Filling speed; experience indicates that a slow initial speed (e.g. 40mm/s) is recommended, which can then be increased gradually.
- Filling acceleration; experience indicates that a high value is recommended here (e.g. 90mm; the acceleration is specified as the length of the acceleration ramp, i.e. the higher the value, the smoother the acceleration).

The objective is to find the parameters in which the process runs at maximum speed and the beer is still filled into the can almost free of foam or at least low in foam.

Fig. 6 Pressure transmitter at product infeed

Setting of the high-pressure injection

The effect of the high-pressure injection can be influenced by three control variables:

- Begin high-pressure injection
- High-pressure injection duration (i.e. dwelling time of the nozzles above the cans)
• Intensity, i.e. flow rate; can be adjusted via a needle shut-off valve on the rear side of the machine.

The following foaming behavior can be achieved by adjusting these settings:

• High-pressure injection takes place directly before the rotary table is cycled forwards.
• The beer foams up but not over.

Fig. 7 High-pressure injection needle shut-off valve

Fig. 8 High-pressure injection

**Bubble breaker settings:**

The effectiveness of the bubble breaker depends on three control variables:

• Duration, i.e. how long the blowing time is
• Height above can top edge; can be set via adjusting ring
• Intensity, i.e. how much is blown; can be adjusted via flow regulator

The following should be achieved by adjusting these settings:

• All large bubbles are blown down from the foam crown.
• As large a foam crown as possible remains.

Fig. 9 Height setting of the bubble breaker

**Pre- and bottom lid gassing setting:**

Both the pre- and bottom lid gassing are set via flow regulators and are used to reduce the oxygen uptake. Flow rates that are set too low can therefore lead to increased oxygen uptake. Values that are set too high lead to unnecessarily high CO₂ consumption. Comprehensive trials including oxygen measurements are necessary to determine the ideal settings.
Fig. 10 Flow regulator for bubble breaker, pre- and bottom lid gassing
10.3 Rinsing cans

The cans can be rinsed or blown out before being deposited in the machine (depending on connected media; see 8.1). The cans are held manually into the prisms in this case. When both cans are in position, the respective valve opens for one second. We recommend turning the cans, especially when rinsing with water.

Fig. 11 Rinser
11. Retrofitting up the machine

The machine is designed for the filling of standard and sleek cans (optional). The machine’s set-up has to be changed accordingly if different types of cans are to be used.

Caution! Material damage
It is important to always make sure to use the can guide parts designated for use with the relevant can type you are using and to select a product for which this particular type of can is specified. Incorrect can guide parts can lead to severe machine damage for which LEIBINGER GmbH shall assume no liability.

11.1 Retrofitting to other can heights

There are two corresponding spacers for each type of can, which are fitted under the running plate so that a constant height of the can top edge over all types is guaranteed.

Fig. 12 Spacers under the running plate (here for 330ml standard can)
The only exception is the 500ml standard can, for which no spacer is required.

Fig. 13 Running plate without spacers (for 500ml standard can)

For removing or inserting the spacers, the rotary star wheel can be raised by turning the handwheel (2) after loosening the clamping screw on the adjusting ring (1) and the rotary plate. Once the desired spacers have been inserted, the rotary plate must be turned down again to the stop and the rotary star wheel must also be secured in its lowest position.

Fig. 14 Height adjustment for rotary plate and rotary star wheel
In addition, spacers matching the can height must be put on the rotary plates for the sealing unit. The only exception is the 500-ml standard can for which no spacer is required.

Fig. 15 Spacers for rotary plates

Fig. 16 Rotary plates
11.2 Retrofitting to other can diameters (optional)

Sleek cans can also be filled with the machine if the convertible filling valve is installed. This does, however, require advanced retrofitting:

- Retrofitting to other can heights (see 11.1)
- Adjustment of the bypass
- Replacement of the drivers
- Modification of the filling valve

**Adjustment of the bypass:**

Since the diameter of the sleek can is smaller than that of the standard can, the inner diameter of the upper and lower bypass must be reduced. This is done with the help of two rings.

![Bypass without rings (for standard cans)](image1)

*Fig. 17 Bypass without rings (for standard cans)*

![Bypass with rings (for sleek cans)](image2)

*Fig. 18 Bypass with rings (for sleek cans)*
Replacement of the drivers:

Since the diameter of the sleek can is smaller than that of the standard can, the corresponding drivers (6x) must be used in each case. These can be removed by loosening two screws in each case.

![Fig. 19 Changing drivers](image)

Modification of the filling valve:

It is important that the outer diameter of the filling tube corresponds to the inner diameter of the can due to the operating principle of the filling valve. This is why the filling tube has a removable sleeve. With the sleeve (see below right), the outer diameter corresponds to that of the standard can; excluding that of the sleek can (see below left).

![Fig. 20 Filling valve with and without sleeve (for standard and sleek cans)](image)
Since this outer diameter must be sealed accordingly, the two centering bells (1) are also replaced by loosening two screws (2) each.

![Fig. 21 Centering bells](image)

**INFO:**
The valve must only be modified provided that no drivers are fitted, since only then is the required space available. The filling axis must be brought to the uppermost end position in manual mode (position "0").

**INFO:**
The two bearing plates 21083-01 must be placed beneath the centering bells for the can format Sleek 250ml.

![Fig. 22 Bearing plate 21083-01](image)
## 12. Faults

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine cannot be switched on</td>
<td>Main switch not switched on</td>
<td>Switch on main switch</td>
</tr>
<tr>
<td></td>
<td>Fuse defective</td>
<td>Notify specialist, replace fuse</td>
</tr>
<tr>
<td>Product is discontinued</td>
<td>Seals damaged or obsolete</td>
<td>Replace seals</td>
</tr>
<tr>
<td>No air pressure present</td>
<td>Supply line defect</td>
<td>Check supply line and repair if necessary</td>
</tr>
<tr>
<td>Can not completely filled</td>
<td>Leakage, damage to contact rubber</td>
<td>Replace seals</td>
</tr>
<tr>
<td></td>
<td>Filling tube not correctly mounted</td>
<td>Check filling tube</td>
</tr>
<tr>
<td>No or low pressure in the supply line</td>
<td>Filling pressure in tank too low</td>
<td>Establish the right pressure in the tank</td>
</tr>
<tr>
<td>The beverage foams over the can when it is removed from the filling valve</td>
<td>Inside of can soiled</td>
<td>Ensure cleanliness of cans</td>
</tr>
<tr>
<td></td>
<td>Incorrect parameter for the relief height</td>
<td>Correct parameters</td>
</tr>
<tr>
<td>Excessive formation of foam</td>
<td>Beverage too warm</td>
<td>Check filling temperature</td>
</tr>
<tr>
<td></td>
<td>Tank pressure too high</td>
<td>Check pressure</td>
</tr>
<tr>
<td></td>
<td>Air enters product line at start of work</td>
<td>Briefly open filling valves</td>
</tr>
<tr>
<td></td>
<td>Incorrectly selected product parameters (e.g. filling speed too high)</td>
<td>Parameter adjustment</td>
</tr>
<tr>
<td>Extraordinary heating of the motor or motor hums when switched on</td>
<td>Failure of a phase</td>
<td>Notify specialist</td>
</tr>
<tr>
<td></td>
<td>Loose clamp connection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Defective contactor</td>
<td></td>
</tr>
</tbody>
</table>
Fault | Possible cause | Remedy
--- | --- | ---
Motor overloaded | | |
Motor defective | | |
Ventilation openings contaminated | Clean openings | |
Faults occur when the lid is fed in | Bottom lid gassing displaced | Realignment via adjusting ring |
Unusually strong vibrations occur during sealing | Incorrect rotary star wheel position. | Manually bring the rotary star wheel into the ideal position and reset the zero point. |
The cans are not properly sealed | The strokes of the sealer are set incorrectly. | Readjustment of the stops |
High-pressure injection heating (optional) is not heating | Temperature limiter in the heater has tripped | Reset the limiter |

12.1 Starting machine after emergency stop

Proceed as follows after the emergency stop has been triggered:

- Identify the trigger for the fault
- Rectify the fault
- Unlock emergency stop switch
- Acknowledge fault with the "Reset" button
13. Cleaning

13.1 General cleaning

**Risk of injury due to crushing**
Prior to cleaning the machine, switch off the main switch and secure against reconnection. Once the machine has been cleaned, all the covers provided must be properly reattached.

**Risk of burns due to hot parts**
There is a risk of burns on all pipes and valves throughout the cleaning process. This applies especially to cleaning with steam. Always wear your personal protective equipment when cleaning, including safety goggles and protective gloves.

**Risk of splashing!**
Wear eye protection.
Adhere to the safety data sheets for the cleaning agents on all accounts!

**Danger from chemicals!**
Wear safety gloves!
Adhere to the safety data sheets for the cleaning agents on all accounts!

Depending on which cleaning agents are used, they can be corrosive, irritating or pose significant health risks. Adhere to the safety data sheets for the hazardous substances on all accounts!

The owner is responsible for instruction and documentation of the machine operators. Only instructed persons may work with hazardous substances.

---

**Important information!**
The operator is solely responsible for correct and regular cleaning.

The information provided here for cleaning the machine are recommendations from LEIBINGER GmbH. LEIBINGER GmbH is not liable for any damage caused by unsuitable cleaning agents.

All values specified, such as intervals, may vary depending on the machine and the customer’s system (CIP system).

**Caution! Material damage due to chlorinated cleaning agents**
Do not use cleaning agents containing chlorine!
Cleaning agents that contain chlorine cause considerable damage to plastic parts such as centering bells or shut-off valves made of plastic. LEIBINGER shall assume no liability for damage caused by the use of cleaning agents that contain chlorine.

**Caution! Material damage**

The following components must not be hosed down with water:

- Electrical components
- Terminal and distribution boxes
- Electric motors
- Control cabinets
- Operating panels
- Control devices and display units
- Pneumatic components

**Caution! Material damage**

The use of unsuitable cleaners can cause premature damage to seals on electrical components or system parts. Liquids can penetrate into the unsealed electrical components and damage the system, or even present a mortal danger to the user.

**Caution! Material damage**

It is forbidden to use steam jets and high-pressure cleaners on any part of the machine.

**Caution! Material damage**

When selecting cleaning agents, attention must be paid to the durability of the materials used.

The following substances are used in the machine:

**Metals:** V4A; V2A; CuZn; CuSn; Al alloys

**Plastics:** PE; FKM; PEEK; POM; PTFE; PA; EPDM; NBR; PC
13.2 Cleaning product line (CIP)

Risk of burns due to hot parts
There is a risk of burns on all pipes and valves throughout the cleaning process. This applies especially to cleaning with steam.
Always wear your personal protective equipment when cleaning, including safety goggles and protective gloves.

Risk of splashing!
Wear eye protection
Adhere to the safety data sheets for the cleaning agents on all accounts!

Danger from chemicals!
Wear safety gloves!
Adhere to the safety data sheets for the cleaning agents on all accounts!

Important information!
The operator is solely responsible for correct and regular cleaning.
Refer also to the general instructions for cleaning!

The information provided here for cleaning the machine are recommendations from LEIBINGER GmbH. LEIBINGER GmbH is not liable for any damage caused by unsuitable cleaning agents.

Caution! Material damage due to chlorinated cleaning agents
Do not use cleaning agents containing chlorine!
Cleaning agents that contain chlorine cause considerable damage to plastic parts.
LEIBINGER shall assume no liability for damage caused by the use of cleaning agents that contain chlorine. Refer also to the general instructions for cleaning!

Important information!
There are corresponding rinsing bottles for each can format allowing cleaning without retrofitting. The CIP process must only be carried out with these. It must also be ensured that a product with the corresponding can type is active before the CIP process is started.
A special program is available for cleaning:

1st  Connect the CIP system to the product infeed of the machine.
2nd  Connect the CIP return flow to the machine.
3rd  Enter the desired duration for the first rinse cycle with water.
4th  Press “CIP Start”
5th  Follow the step-by-step instructions displayed on the screen.

**Caution! Danger due to acids and alkalis**
The first CIP run must always be performed with water so that any unclean seals on the rinsing bottles can be discovered in good time. Only when this is ensured can chemicals be used in the next CIP runs.

---

**Important information!**
In the last step of the CIP sequence, the filling pipes move out of the seals so that the seals etc. are also rinsed with water. This step must not be carried out with chemicals for safety reasons. We recommend, however, that you clean this area manually from above using the appropriate cleaning agents.
Fig. 24 Area to be manually cleaned

Fig. 25 Rinsing bottles for different can formats
13.3 Cleaning the CO₂ and vacuum nozzles

Several nozzles are installed on the machine:

- Pre-gassing
- Bubble breaker
- Bottom lid gassing
- Vacuum

These can be connected to the water connection and flushed via four 3-way ball valves below the valve cabinet. The respective valves must also be opened here using the "Flush CO2 units" button in the "CIP" menu.

Fig. 26 3-way ball valves for nozzle cleaning

13.4 Cleaning the high-pressure injection nozzles

The high-pressure injection nozzles can become clogged over time. This is particularly the case with water containing a lot of lime. This can be recognized by different effects:

- The overall effectiveness of the high-pressure injection diminishes.
- The formation of foam after high-pressure injection is not uniform.

The nozzles must be removed and cleaned in this case.
14. Maintenance

Important information!
The maintenance intervals must be adhered to so that the functional and operational safety of the machine is preserved.
All work on the electrical system must only be carried out by specialist personnel complying with the safety requirements of EN 50110-1.
The legal regulations relating to the documentation of maintenance work must be complied with.
Servicing must be performed every 2000 operating hours or every 12 months.
Please call our customer service department to arrange a service appointment: +49 76 41 / 46885-130.

Carrying out maintenance work

Risk of death from electric shock
Disconnect the machine from the power supply and secure it against reconnection prior to opening electrical components! Only qualified electricians may perform maintenance and servicing of electrical systems.

Warning! Risk of injury
Interrupt the compressed air and CO2 supply and secure against reconnection.
Disconnect the machine from the electrical supply network

Switch off and lock the main switch or attach an appropriate warning sign.

Fig. 27 Main switch switched off and secured against reactivation

Disconnect the machine from the compressed air supply

The compressed air supply is connected to the machine via a quick coupling. Disconnect the quick coupling for the compressed air supply from the machine.

Disconnect the machine from the CO₂ supply

The CO₂ is supplied via a quick-release coupling. Disconnect the quick coupling for the CO₂ supply from the machine.

Readability of symbols and labels

Important information!
Check whether all symbols and labels on the machine are present and legible once a year. Missing or illegible symbols/labels must be replaced.
14.1 Lubrication

Caution! Material damages
The following points must be observed when lubricating and greasing to avoid material damage:
- Only use the food grade lubricant prescribed by LEIBINGER (NSF H1).
- The lubrication intervals relate to single shift operation (8 hours/day).

Filling valve lubrication points

The sealing surface of the filling tube must be lightly greased before each use in order to lubricate the rod seals.

Fig. 28 Filling valve lubrication points (left: sleek; right: standard)
Spindle axis lubrication points

Fig. 29_2 Spindle axis lubrication points

1 = Ball screw lubrication bore: 2.5 g lubricant quantity per lubrication

3 = Guide lubrication bores: 0.8 g lubricant quantity per lubrication

See the included original FESTO operating manual!
14.2 Care

Safety

**Warning! Risk of injury**
Switch off the machine prior to starting work and secure it against reconnection.

**Warning! Risk of injury**
Ensure that nobody is working on the machine and that all protective covers are properly fitted before switching the machine on.

**Caution! Material damage**
The machine must only be put into operation again after it has been inspected by the customer service department if liquid penetrated into the electrical components of the machine.

14.3 Checking the safety functions

The guard door must be opened when the machine is switched on and the pneumatic pressure is connected. The following is mandatory as soon as it is open:

- trigger an EMERGENCY STOP.
- audibly remove all pressure from the pneumatic system.

**Warning! Risk of injury**
If any of these responses does not occur, this must be rectified immediately. The machine must not be operated until this has taken place.
## Maintenance plan

<table>
<thead>
<tr>
<th>Work to be carried out</th>
<th>d</th>
<th>w</th>
<th>m</th>
<th>q</th>
<th>y</th>
<th>U</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>External cleaning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>Clean product lines</td>
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<td></td>
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<td></td>
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<td>X</td>
<td></td>
</tr>
<tr>
<td>Grease sealing rollers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Grease filling valve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check positioning of rotary star wheel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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</tr>
<tr>
<td>Check sealing strokes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Checking the safety functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check emergency-stop button function</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check function of safety hinge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Leakage checks on the pneumatic components</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Testing according to DGUV Regulation 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Clean the filter on the control cabinet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check water filter and replace if necessary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check all bearings (or after 1000 operating hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

- **d** = daily (before start of production)
- **w** = weekly
- **m** = monthly
- **q** = quarterly
- **y** = yearly (or after 2000 operating hours)
- **U** = after changing the set-up
- **P** = after each production run
Daily maintenance (every 8 operating hours)

- Cleaning of the complete machine. Removal of all fragments and other impurities.
- Visual inspection of the control panel. Immediately replace damaged or non-functional elements.
- Flushing the media-carrying components.
- Visual inspection of all contact rubbers on the filling valves for intactness. Immediately replace defective sealing rubbers.
- Visual inspection of all filling pipes for intactness. Straighten bent filling pipes or replace damaged filling pipes.

Weekly care (every 40 operating hours)

- Check the exact centering of the can under the sealer and reset the zero point if necessary.

Yearly care (every 2000 operating hours)

In addition to the work listed under "Monthly care", the following work must be performed annually (every 2000 operating hours).

- Check drive including gear motor, toothing and torque support.
- Gear oil change as per the manufacturer's instructions.
- Check all bearings.
- Check all mechanical and electrical devices for correct functioning.

Additionally with filling and sealing machines:

- Replace fill valves, centering bells, lifting elements, sealing cylinder, damaged seals/wear parts.
Filter plate control cabinet

**Risk of death from electric shock**
Prior to opening the control cabinet, switch off the main switch and secure against reconnection.

![Filter plate control cabinet](image)

Fig. 30 Filter plate on fan (example)

- Replace filter plate on the fan if it is black-gray.

**INFO:**
We highly recommend concluding a maintenance contract with LEIBINGER customer service.
14.4 Setting the sealing strokes

The stroke of the sealing rollers is set via stop nuts in the rear area. It is important to note that the sealer for OP1 moves to the center of the machine and to OP2 from the center. These movements can be performed individually in manual mode.

1st Proceed to the "Manual operation" menu
2nd Place two cans with the lid on in the rotary star wheel
3rd Close the protective door
4th Move the can under the sealer using the "Clock" function.
5th Press the "Actuate OP1+OP2" button
6th Press the "Extend rotary plate" button
7th Press the "Sealing drive on" button
8th Press the "OP1" button and wait until it has been executed
9th Press the "OP2" button to check the finished fold. Skip this step if only OP1 is to be evaluated.
10th Switch the sealing drive off.
11th Lower the rotary plate back down
12th Move the cans out of the machine with the "Clock" function
13th Measure the fold width
14th If necessary: Adjust the individual strokes by altering the stop nuts and check the result again.
Fig. 31 Manual operation menu

1.88mm - 1.98mm

OP1

Fig. 32 Fold width after OP1

1.07mm - 1.17mm

OP2

Fig. 33 Fold width after OP2
14.5 Setting rotary star wheel position

The zero point of the rotary star wheel can be approached and set again in the "Manual operation" menu if required. This must be selected so that both cans can rotate freely in the sealing unit.

![Manual operation menu](image)

Fig. 34 Stop nuts for OP1 (right) and OP2 (left)

Fig. 35 Manual operation menu
14.6 Adjusting bottom lid gassing

The bottom lid gassing can be adjusted via the adjusting ring on the holder.

Fig. 36 Bottom lid gassing holder
14.7 Resetting the heater temperature limiter

The temperature of the high-pressure injection heating is monitored by two sensors. One is connected to the thermostat that regulates the heat output. The other serves as additional protection against overheating. If this overheats, the limiter switches off the heater to prevent any damage. After the system has cooled down, this limiter must be reset manually using the green switch inside the heating system.

Fig. 37 Resetting the temperature limiter
15. Technical data

General data

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal capacity</td>
<td>Up to 1200 cans/h (330 ml)</td>
</tr>
<tr>
<td>Connection values</td>
<td>230 V; 50Hz</td>
</tr>
</tbody>
</table>

Ambient conditions

- Transport/storage:
  - Temperature -20 to +50 °C
  - Relative air humidity 30 to 75% without condensation
  - Air pressure 500 to 1060 hPa

- Operation
  - Temperature +10 to +40 °C
  - Relative air humidity 30 to 75% without condensation
  - Air pressure 700 to 1060 hPa
16. Annex

16.1 Dismantling and disposal

Risk of death from electric shock!
Prior to opening the device housing, disconnect the device from the power supply and secure against reconnection

Proper disposal

The machine and accessories must be disposed of at the end of their service life pursuant to the applicable local laws.

This applies especially to waste oil, used grease and other chemical substances. Please contact LEIBINGER GmbH in case of any questions.

Machine parts and operating resources must not be disposed of with household waste.