



DRAUGHTMASTER MODULAR 20 USER MANUAL

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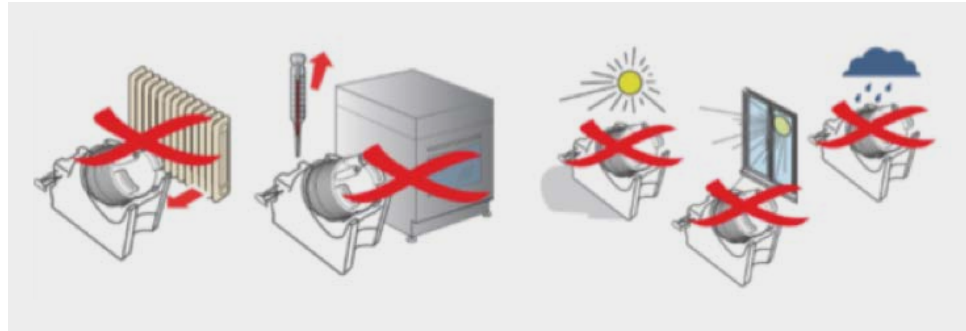
PROPERTY RIGHTS. IMPORTANT.

The machine contains technical solutions protected by intellectual property rights including patents and trade secrets belonging to Carlsberg Breweries A/S. An obligation of strict confidentiality for the holder applies. No part of this manual may be reproduced.

1.0 GENERAL

1.1 SAFETY

The Equipment positioning, installation and disassembly must be carried on by trained and specialized personnel. Personnel must have carefully read and understood equipment user manuals. For installation use standard tools only as listed in this manual. The Equipment is not suitable for installation outdoors and/or in places exposed to atmospheric agents (rain, direct sunlight, etc.).



Do not remove, tamper with or make the equipment identification labels / marking illegible (also applies to cleaning module). In case of eye contact with cleaning detergent, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye / face protection according to local legislation requirements. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). The cleaning detergent material and its container must be disposed of as hazardous waste. Recommended safety personal protection sheet.

CAUTION!	Protect garments	Safety footwear	Gloves	Glasses	Ear protectors	Mask	Safety helmet	
Transport		●	○					● PPE required
Handling		●	○					○ PPE available or to be used if necessary
Unpacking		●	●					■ PPE not required
Installation		●	○					
Normal use								
Adjustments								
Routine cleaning	●	●	●	●				
Extraordinary cleaning	●	●	●	●				
Maintenance	●	●	●	●				
Dismantling	●	●	●	●				
Scrapping	○	●	○					

1.2 SYMBOLS USED IN THIS MANUAL

Refer to Appendix A sec. 6.1.

1.3 DISCLAIMER AND NOTES TO INSTRUCTIONS

Prior to commencing any use and/or operating, personnel must have carefully read and understood this manual to ensure a safe and intended use.

IMPORTANT NOTE:

This manual may include short description and illustrations, which are intended as guidance and summary for parts of the operation such as i.e. the cleaning module. The Operation Manual supplied with the cleaning module (where applicable in the actual installation), must be carefully read and understood. Illustrations in this manual are provided to aid the basic understanding for the user and may deviate from the actual design. This manual must be placed at the disposal of the operating and maintenance personnel at all times. Please store these instructions as reference for operation and service. Carlsberg Breweries A/S declines any risk and liability for operations carried out on the equipment without respecting the instructions given in this manual and the supporting manuals for integrated equipment.

1.4 TRANSPORTATION/HANDLING /STORAGE

- Do not stand under suspended loads during loading/unloading operations.
- Arrange suitable area with flat floor for equipment unloading and storage operations for correct and safe lifting operations refer to following identifications regarding weight identified on equipment.
- Do not push or pull the equipment to move it as it may tip over.
- Do not make modifications to the equipment and parts supplied with equipment. Any missing or faulty parts must be replaced with original parts.
- The equipment must be levelled, otherwise its operation could be affected.
- The equipment has a safety valve (set at 3,3 bar) which must not be tampered with in any way.
- Never clean the plastic surfaces with acid substances or oils.
- The equipment is not suitable for installation in areas exposed to water sprays, therefore do not clean with jets of water.
- Do not use the detergents containing chlorine, solvent-based detergents (i.e. trichloroethylene) or abrasive powders.

See Appendix

2.0 DESCRIPTION OF THE M20 SYSTEM

2.1 GENERAL OVERVIEW

Draught Master (DM) Modular 20 (M20) is a draught equipment system using PET (polyethylene terephthalate) kegs used in Europe since 2011. The kegs are available in a 20L size and suitable for recycling. The assembly includes a Modular 20 unit (keg module), which is a pressurized plastic vessel (air working pressure 2.8 – 3.0 bar) supported by an external frame/structure that is designed to facilitate the beer keg.

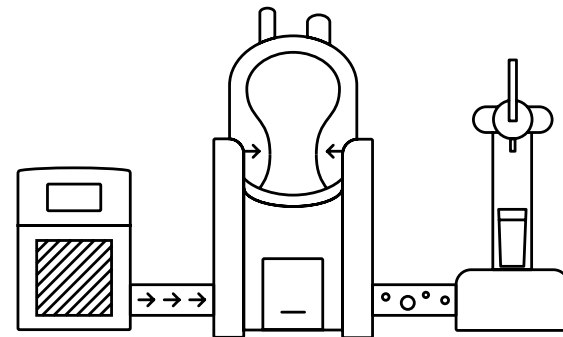
The system employs a combination of equipment such as cleaning equipment and pressure source that provide the necessary cleaning and pressure possibility to pressurize the keg module in GF PP Polymer, where the 20L keg container containing carbonized liquids, such as beer is inserted. Here the beer is driven through insulated polymer pythons passing a beer cooler and forward to tap or taps in a serving area for serving customers.

2.2 THE SYSTEM

The steel kegs and couplers are replaced by keg modules and the CO2 equipment (cylinder + regulators) by a compressor. The compressor is allocated in a semiautomatic cleaning module which allows the bar staff to clean himself.

The advantages of the system are:

- **Better quality of beer for Consumer.**
- **No CO2 bottles.**
- **Light one-way kegs.**
- **Less waste of beer.**
- **Long shelf life (6 months before opening, 31 days once opened).**
- **Lower environmental impact. This is coupled to the Draught Master system either in the cellar or in under bar outlets.**



The system uses a bespoke compressed air system that is also an integrated cleaning system. The pressure driven cleaning system uses advanced technology tracking the line cleaning activity in the outlet and when the maximum length of time between cleans elapses then the system will stop dispensing and the screen on the cleaning unit will flash to indicate this. Only after the lines have been cleaned will it then allow product to be dispensed. The system does have a postpone button which can be used once only each time; this is for when the total time elapsed and it can be extended by 1 day. The cleaning unit will require a permanent water supply. A drain tube is fitted to the cleaning unit, so this will need to be either routed to a drain or a suitable container such as a 5 lt. container. The cleaning unit can be located away from the keg modules (up to 4 m away through the extension pipe connection). If the cleaning module is located next to the keg module then place it on the left side as the water/compressed air outlet is situated on the right side of the cleaning unit.

3.0 INSTALLATION AND TAKEN INTO USE

3.1 INSTALLATION

DM Modular 20 is installed by a professional Technician appointed by Carlsberg Breweries A/S before handed over and taken into use by the customer. The installation can contain of an Cleaning equipment, min. one Keg Module, Pythons, beer cooler, foam stop and beer boost pump. The installation is mounted on a rack or base pallet with or without wheels. Depending on installation the modules can also be stacked in layers.

3.2 BEFORE STARTING UP / HANDOVER

Before start up and during handover the customer should be handed out the troubleshooting card and be part of a step-by-step instructions according to troubleshooting. The technician should give examples and physically show customer how to clean, how to change a keg, and check beer is running correctly through taps.

The Technician will go true the following points together with the customer:

- How to change the keg incl. the handling of the kegs from cardboard opening to keg loading into the keg modules including the keg storage.
- How to remove the keg from the keg module, stressing the importance of waiting for the decompression of the chamber before removing the lid.
- How to preform a cleaning process where applicable.
- Safety instructions..
- What are the error messages of cleaning modules.
- The countdown (number of days till the next cleaning process).
- How to react to basic messages from the system to avoid – troubleshooting before calling for service.
- Check ice bank in cooler.
- Avoid leaving the detergent in the pipes throughout the night because it affects their functionality.
- How to use the equipment, including the periodical gasket cleaning, pressure chamber cleaning, and hints to ease the lid opening/closing.
- Check power supply for cleaning module.
- Check cleaning detergent is connected to cleaning module before opening.
- Check the water valve is connected and open.
- How to read trouble shooting instructions.

The Technician have gone true the following points before handover:

- Go through entire installation for any leaks:
- Connections at the beer cooler.
- Connections at the keg modules.
- Connections at the cleaning modules
- Check connections at beer tower for any leaks.
- Check light in product branding.

3.3 STORAGE OPERATIONS CONDITIONS

Always place the kegs away from sources of heat (and sunlight) and in any case at a room temperature between **+4° to +35°C**.

The equipment must only be operated within temperature between **+4° to +35°C**.

FOR BEER KEGS THE FOLLOWING APPLY:

- Only use original Carlsberg Breweries A/S brands kegs.
- Kegs must be stored vertically and used according to specifications on the cardboard box.
- Keg exceeding **+35 C** must not be used.

3.4 SAFE USE (INCL. CHANGE OF KEGS)

When changing keg, please follow Instructions on Cardboard box packaging and Instructions In handling and changing keg supplied by the Technician.

Always place the lid in a safe place when changing keg and never leave any part of the equipment on surfaces that are not clean or where they could fall from.

See Appendix



WARNING!

SAFE OPERATION:

Always ensure to release the pressure by the use of the Pressure release pin before opening the lid. Do not push or pull the equipment to move it as it may tip over unless it is on wheels.

BE AWARE OF BELOW WHEN HANDLING THE KEG AND EQUIPMENT:

- Do NOT use any tools on equipment in for example trying to open and close the lid.
- Do NOT force volume expanded beer kegs into the keg module.
- Do NOT subject the equipment to impact, mechanical shock or weight load.
- Do NOT use or operated the equipment with damaged or broken parts.
- Do NOT remove / replace original parts of equipment's design.
- Do NOT repair equipment yourself.

IN CASE OF FAILURE OR DAMAGED TO EQUIPMENT,
PLEASE CONTACT SERVICE TECHNICIAN.

4.0 MAINTENANCE & IN-SERVICE

4.1 MAINTENANCE AND INSPECTION

Lag of service checks or maintenance according to specifications may lead to failure of the system and/or parts in the system subject to wear and tear.

4.2 CHECKS / SERVICE INTERVAL

Always remember to ensure the equipment and parts are not defect (such as modular, lid, gaskets, cleaning module). This may be specified and written as service intervals or agreements made for technician visits to cover (including cleaning). Integrated equipment's intended lifetime are registered by the Carlsberg service technicians and are replaced accordingly during service intervals.

4.3 CLEANING

IMPORTANT NOTICE BEFORE CLEANING:

It is recommended to place on the tap the "red sign" showing that cleaning is in progress.



During cleaning the use of detergents with content of chlorine or substances such as thinners, trichloroethylene, ammonia, etc. **is prohibited**.

IMPORTANT NOTE:

The Operating Instructions for the cleaning module must be clearly read and followed.
Below is a short illustration of the process.

During cleaning the use of detergents with content of chlorine or substances such as thinners, trichloroethylene, ammonia, etc. **is prohibited.**

IMPORTANT NOTE:

The Operating Instructions for the cleaning module must be clearly read and followed. Below is a short illustration of the process.

Start a cleaning process shall be done as following below list.

- Open the water supply and start with cleaning mode.
- Be aware about the compressor cycles (Start/stop).
- Check cleaning flow through taps in bar (colour).
- At the end of countdown start the rinsing mode.
- At the end of the cleaning process make sure to flush with water and then move to beverage mode.
- Remove the tube from detergent bottle and tight the cap of the bottle to preserve the effectiveness of the detergent.

WARNING:

Excess detergent might exit the tube

HUMAN INTERFACE:

Beverage Mode:

Device is waiting for cleaning or rinsing process by pressing corresponding button.



Cleaning Mode:

After the default specified 20 minutes cleaning, the device allows the operator to switch to rinsing process by pressing the corresponding button.



Rinsing Mode:

With 10 minutes, delay in Rinsing Mode and according to requirement's it is possible to switch to Beverage or Cleaning Mode by pressing the corresponding button.



System Error:

Abnormal conditions like continuous compressor operation, compressor overcurrent, a predefined time without cleaning cycle or "bear cut" will be monitored and can be displayed.



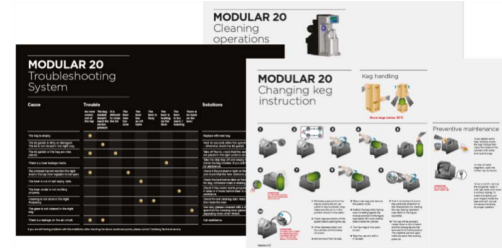
NOTE:

Report the date when the cleaning has been done. This to show to the Health Authorities in case of check. Cleaning sequence may be directed by local legislation or as recommended by the Carlsberg Breweries A/S service technicians.

5.0 TROUBLE SHOOTING

5.1 FAILURE INTRO / MODES

To manage the Equipment see instructions cards on cleaning modules and keg modules, There is also provide a report to note the date of installation (by Technician) and the cleaning process date (by Customer).



5.2 WARNINGS

The following warnings can appear, see dedicated operation manual for cleaning module.

- CLEANING UNIT BLOCKED (with message: “error compressor” on the display)**
 The pressure is low on all keg modules, on the display of the cleaning unit there’s a message stating “compressor error”.
- CLEANING UNIT BLOCKED (With message: “No cleaning” on the display)**
 Cleaning unit does not work, on the display the picture of a the cleaning symbol bottle will appear.
- NO PRESSURE ON KEG MODULES (compressor can’t fill the air)**
 No pressure on keg modules. One or more keg module doesn’t reach the right pressure.

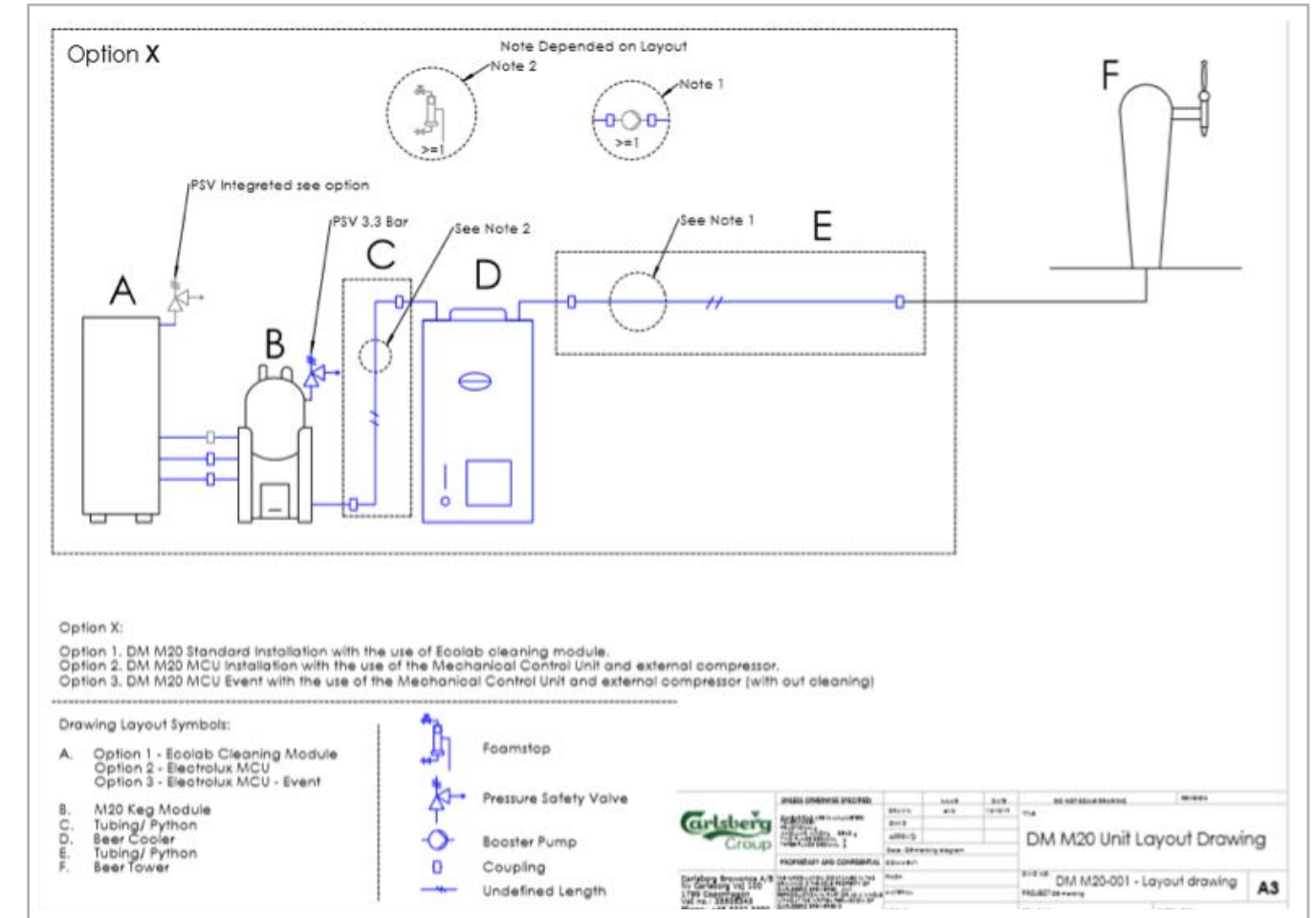
5.3 OTHER FAILURES

Failures that can appear during the equipment life time or if exposed to misuse.

- WATER LEAKAGES.**
 Shut of the water valve and contact Technician.
- NO INFO ON DISPLAY**
 Turn of power and turn it on again, still no Info on display contact Technician.
- BUMPER RING DEFECT.**
 Contact Technician for new one.
- GASKETS DIRTY.**
 Wipe the gasket clean with a clean damp cloth and do not leave any particles on a gasket if noticed, they could result in microleaks and defects.



6.0 APPENDIX

6.1 APPENDIX A – UNIT DRAWING/DIAGRAM


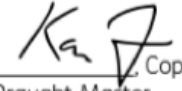


6.2 APPENDIX B – COPY OF MARKING PLATE

(Placed visible on the equipment)

	
<p>Type: DM M20 Max Work. Press. 3,3 bar Min T +4 °C Max T +40°C</p>	
<p>Year built: 20_____ Serial No. _____</p>	
<p>CARLSBERG BREWERIES A/S Ny Carlsberg Vej 100 1799 København V CVR 25508343 www.carlsberg.com</p>	

6.3 APPENDIX C – EU DECLARATION

CARLSBERG BREWERIES A/S Ny Carlsberg Vej 100 1799 København V CVR 25508343	
<p>Herewith declares under the sole responsibility of the manufacturer, that the pressure equipment:</p>	
Description	Draught Equipment Assembly
Type	DraughtMaster DM M20
Category	I
Design pressure PS [Bar]	3,3
Design temperature TS [°C]	Min. T +4 Max. T +40
<p>is manufactured in accordance with the requirements of the:</p> <ul style="list-style-type: none"> • 2014/68/EU - Pressure Equipment Directive – Module A 	
<p>Signed for and on behalf of Carlsberg Group:</p> <p>Date: <u>26.11.2019</u>  Copenhagen, Denmark Kaare Jessen, VP Draught Master</p>	
DM M20-004 - EUDoC.docx	www.carlsberggroup.com

6.4 APPENDIX D - INSTRUCTION FOR CHANGING A KEG

MODULAR 20 INSTRUCTIONS FOR CHANGING A KEG

CHANGING KEG

01 Depressure the keg by pulling the pin upwards to the automatic stop. Make sure that the pin is in the position shown in the image.

02 Check the system pressure before opening the cover.

03 When it is depressured, rotate the cover a half-turn anticlockwise.

04 Remove the cover from its position.

05 Get a new keg and remove the plastic protection.

06 Lean the keg against the pressure module as shown in the image, raise it up and slide it into the pressure module.

07 The new keg is now correctly positioned.

08 Return the cover to its position.

09 Rotate the cover a half-turn clockwise. When starting to close the cover, pay attention to the starting point (detail in the image). To close the cover, pull the pin upwards and guide the cover until it is closed (9.1 - 9.2).

10 The cover is closed correctly if you hear a click and the closing pin is in the initial position. At this point, the system automatically reaches service pressure.

CAUTION! Do not force to fix the keg in the module and do not turn it.

CAUTION! The beer will be ready for dispensing when the gauge reaches 3 bars. This will take approx. 20 seconds.

HANDLING THE KEG

STORE THE KEGS AT TEMPERATURES BELOW 35° C

PREVENTIVE MAINTENANCE

If there is beer residue in the pressure module, clean it with water and mild soap.

If there is stagnant water, remove the rubber stopper as shown in the image.

Every month, remove the cover seal and clean it with tap water. Replace it without drying it. To ensure correct positioning, insert a finger into the seal and position it correctly using circular movements.

CAUTION! Once the keg has been inserted into the pressure module, it may not be removed. If it is removed for any reason, a new keg must be inserted.



Version 3.0

MODULAR 20 SOLVING TECHNICAL PROBLEMS

CAUSES	PROBLEMS								SOLUTIONS	
	No beer comes out of the tap	The pressure module does not reach service pressure	The cover does not close	The beer is pouring slowly	The beer quality has been compromised	The beer is cloudy	Beer is leaking onto the floor	The beer is warm and/or too frothy		The beer has no head
The keg is empty. Insert a new keg.	●									The keg is empty. Insert a new keg.
The cover seal is dirty or damaged. The cover is not closed correctly.		●								Wait 30 seconds. If the system does not reach service pressure, check the cover seal.
The cover seal or the keg is not positioned correctly.	●		●							Remove the cover, check that the keg and the cover seal are positioned correctly, close the cover again.
Beer is leaking within the pressure module.						●				Empty the drip tray and reposition the keg. Contact Carlsberg Technical Customer Services if the problem persists.
The pressure is insufficient or the flow regulator is not open.	●			●						Check that the manometer is displaying the correct pressure and that the flow regulator is open.
The beer is past its best before date.					●					Check the beer's expiry date. If it has expired, change the keg; if not, carry out a cleaning cycle.
The beer is not being cooled correctly.							●			Check that the cooling system is working correctly (if it was not active, it will take 3-4 hours for the beer to cool); if not, contact Carlsberg Technical Customer Services.
The cleaning cycle has not been carried out frequently enough.						●	●			Check the date of the last cleaning cycle; carry out a new cleaning cycle and taste the beer.
The glass was not cleaned correctly.								●		Only use glasses that have been cleaned with detergents designed for use with beer glasses; clean them separately from other tableware.
The air circuit is leaking.	●	●								Contact Carlsberg Technical Customer Services.

IF THE PROBLEM PERSISTS DESPITE THE ABOVE INSTRUCTIONS, PLEASE CONTACT CARLSBERG TECHNICAL CUSTOMER SERVICES.




Version 3.0

6.5 APPENDIX E – CLEANING CYCLE

MODULAR 20 CLEANING CYCLE

EVERY 6 WEEKS


1. CLEANING PROCEDURE

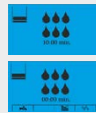
- Place a sign at the tapping point that indicates that a cleaning cycle is in progress.
- Open the water inlet valve.
- Press the **Clean** button ().
- At the tapping point, open the taps one by one.
- The pipes are emptied of beer and detergent starts to emerge. It is green. Close the tap and open the next one. Repeat this procedure for all taps. Repeat the procedure from the first tap until the colour of the detergent is purple (it may be necessary to repeat the procedure more than once for an individual tap). **NOTE** During the cleaning procedure, the container for the mixture is cyclically filled and the flow of detergent is stopped for approx. 40 seconds as it fills. This is a normal part of the procedure – do not close the tap and the cleaning procedure will continue.
- When the detergent changes colour and becomes purple at all taps and the display flashes, wait at least 20 minutes before moving on to phase 2.
- Move on to phase 2.



NOTE Only detergent approved by Carlsberg may be used. The use of any other detergent could damage the system and cause safety issues.

2. RINSING PROCEDURE



- Press the **rinse** button (). This mode stops the flow of detergent and rinses the lines with water. This rinsing procedure must be carried out accurately to ensure that every residue of detergent is removed before moving on to the next step. Allow the water to flow until it is completely clean and transparent.
- The display flashes when the rinsing procedure is finished. Move on to phase 3.



NOTE The rinsing procedure can also be used separately to rinse the system with water before the complete cleaning cycle.

3. FILLING THE LINES WITH BEER

In the final phase, the lines are drained of water and prepared for tapping of the beer.

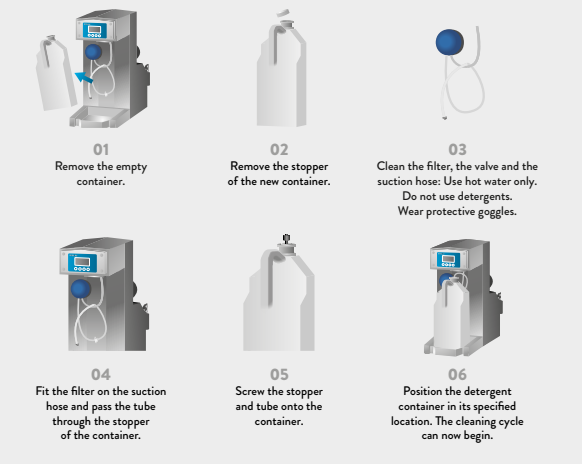
- Press the **beer** button ().
- Close the water inlet valve ().
- Open the taps one by one.
- Water comes out first, followed by beer.
- Now you can begin tapping the beer.



NOTE Remember to note the date of every cleaning cycle on the report.








WHEN NECESSARY

REPLACING THE DETERGENT CONTAINER



SAFETY STANDARDS
If the detergent accidentally comes into contact with the eyes, rinse immediately with plenty of water and, if necessary, consult a doctor. If possible, show them the label / Wear protective clothing, gloves and a mask to protect the face and eyes / The liquid detergent and its container are to be treated as toxic waste.

MODULAR 20 SOLVING TECHNICAL PROBLEMS

SCREEN WARNING	CAUSES	SOLUTION
	The display flashes alternately blue and green. The container for the mixture is filled in beer mode > the water valve is not closed correctly.	Close the valve/water inlet tap. Clean the water valve with compressed air and, if necessary, contact Carlsberg Technical Customer Services.
	If the machine temperature rises above 65°, the compressor switches off and a thermometer symbol appears on the display.	The compressor restarts when the temperature goes below 50°.
	The process is stopped if there is insufficient detergent in the container during cleaning. For the procedure to resume, check the detergent container and the peristaltic pump. The display flashes alternately red and white.	Replace the detergent container.
	If cleaning is due while the machine is in operation, the beer block alarm appears on the display. The display flashes alternately red and white.	Carry out a cleaning procedure.
	The display flashes alternately red and white. 1 The compressor doesn't start due to an unstable current. 2 The compressor continues to function for 15 minutes, causing loss of air or a malfunction of the pressure sensor.	Restart the machine. Contact Carlsberg Technical Customer Services if the problem persists.
	If the display flashes alternately red and white: 1 The peristaltic pump is blocked. 2 The peristaltic pump is defective.	Check the pump and, if necessary, contact Carlsberg Technical Customer Services.
	If a cleaning procedure is overdue, an alarm is shown on the display and the beer block is activated. If it is not possible to carry out a cleaning procedure, the system permits an additional day once only. The display flashes alternately red and white.	Carry out a cleaning procedure immediately.

IF THE PROBLEM PERSISTS DESPITE THE ABOVE INSTRUCTIONS,
PLEASE CONTACT CARLSBERG TECHNICAL CUSTOMER SERVICES.



DRAUGHTMASTER
Carlsberg Breweries A/S
100 Ny Carlsberg vej
1799 Copenhagen V
Denmark

www.draughtmaster.com