

Nitro Dispenser Operation Manual

Model: 2017-CS-01, 2018-CS-01



Attention:
Before start of operation,
study this manual.

Table of Contents

1.	Safety Instructions	3
1.1.	Setup / Commissioning	3
1.2.	Operations	3
1.3.	Spare Parts	3
1.4.	Transport and Storage	3
1.5.	Electrical Connections	4
1.6.	Service	4
1.7.	Intended Usage	4
2.	Before Starting	5
2.1	Dispenser Functionality	5
2.2	Dimension	5
2.3	Technical Data and Properties	6
2.4	Filtration	6
3.	Commissioning	7
3.1.	Scope of Supply	7
3.2.	Setup and Start	8
3.3.	Adjustments	11
4.	Decommissioning	13
5.	Hygiene, Cleaning, Maintenance	14
5.1.	Product shelf life after connection	14
5.2.	Break times	14
5.3.	Chemical cleaning	15
5.4.	Preventive Maintenance	18
6.	Packaging and Shipping	19
7.	Troubleshooting	20
8.	Disposal	22
9.	Warranty	22
10.	CE Declaration of Conformity	22
11.	Contact Data	22
12.	Cleaning Protocol	23

1. Safety Instructions

1.1. Setup / Commissioning

The use and maintenance of the machine shall be limited to trained personnel only.

Place the unit upright standing in a horizontal, level, dry, and clean place. Ensure that the power connection cable is routed directly to the socket. The connecting cable must never be kinked or squeezed and the lateral and top case openings require a free distance of 2-3 cm to provide the required air circulation.

As an operator pay attention to the listed safety measures:

- Operate dispenser within a temperature range of +6 to +35°C
- Prevent dirt (dust, fibers, etc.) from entering the unit
- Connect only the specified supply voltage.
- The wall socket used must be connected to an overcurrent protection device (16A).
- The device may only be operated with a properly wired protective earth conductor.
- Protect the device against moisture, especially by penetrating liquids
- Do not insert objects into rotating parts (fan or compressor)
- Observe the warning, safety and service instructions in this manual

1.2. Operations

The device described here may only be operated by suitably trained persons. Children shall not play with the machine. This machine can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision and instruction concerning use of the machine in a safe way and if they understand the hazards involved. Cleaning and user maintenance shall not be made by children.

Do not use a water jet for cleaning purposes.

Serious personal injury and material damage can be caused by:

- Improper use
- Incorrect installation or operation
- Unauthorized removal of the necessary protective covers or housings
- Invalid opening of the device during operation
- Failure to comply with the applicable legislation / standards for beverage dispense installations.
- Service and repair jobs where access to the machine inside is required, may only be carried out by a trained or instructed technician

If, for any reason, it can be assumed that the safety is impaired or when it is changed from normal operation, the appliance must be put out of service and marked so that it is not inadvertently put back into service by a third party. In addition, the customer service has to be notified. Safety may be impaired if the appliance is not working properly or is visibly damaged.

1.3. Spare Parts

If modules or parts are replaced, only identical & original assemblies or parts may be used.

1.4. Transport and Storage

Damages determined after delivery must be communicated immediately to the carrier. Commissioning may be excluded. The device must only be stored in a dry environment at temperatures of 0 to 60°C.

1.5. Electrical Connections

All work must be carried out only if:

- The electrical system is switched off and protected against unintentional reconnection
- Verified that no current is present.
- It is ensured that additional monitoring and protection devices, which are provided for the operation of this control, are installed in a professional manner.

When connecting, ensure that applicable local standards and regulations are observed.

In case of a damaged power cord cable or plug, disconnect the device from the power source carefully and contact the service technician from your coffee supplier. If no technician is available contact CARBOTTEK (www.carbotek.com).

1.6. Service

For service and repair jobs please refer to the technical service manual.

1.7. Intended Usage

The Carbotek Nitro Dispenser is a ready-to-use dispenser to tap nitrogenated and cooled beverages in particular cold-brew coffee. This machine is intended for indoor use only. Such as: Small shops, convenience stores and kiosks, bars and restaurants, staff kitchen areas in shops, offices and other working environments, hotels and motels.

The device is only approved for this application and is not suitable for cooling hot liquids, unfiltered liquids, chemicals or similar.

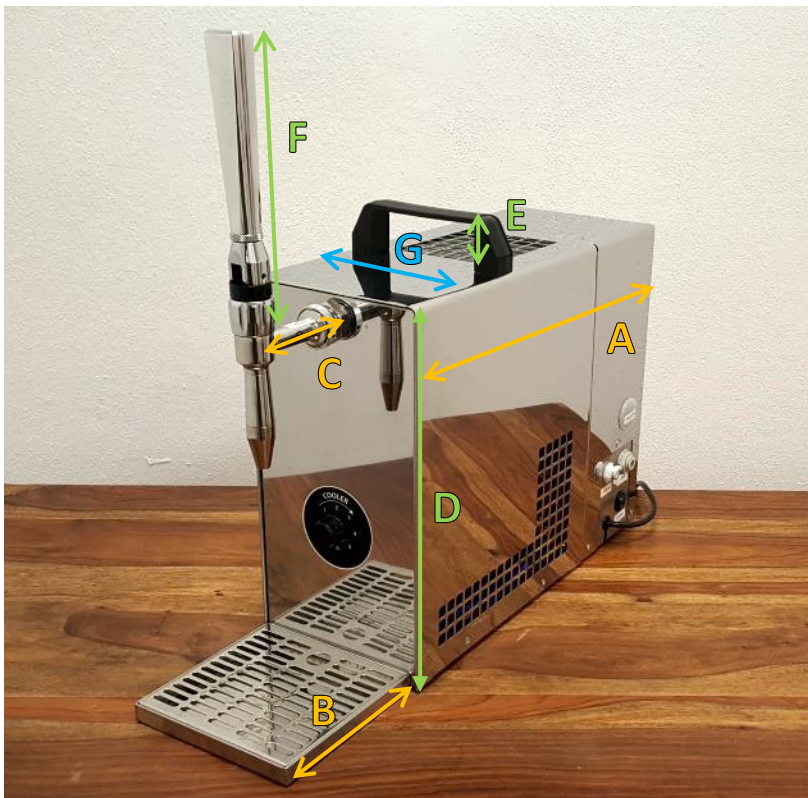
2. Before Starting

2.1 Dispenser Functionality

The Carbotek Nitro Dispenser combines different functions in one device.

- Suction of filtered liquids (e.g. cold-brew coffee) from an unpressurized or pressurized container, possibly from a bag-in-box.
- Cooling the liquid in the dispenser cooling block
- Injection of filtered compressed air into the liquid. The atmospheric nitrogen (78%) in the air creates the cascading nitro effect. A built in compressor is used. There is no nitrogen generator embedded.
- The Dispenser has a so called Nitro-Port. By connecting a N2 bottle at 4.5 bar pure N2 from the bottle is used for nitrogenation instead of compressed air. The usage of the Nitro-Port is optional. If you want to use this port, you need to place and handle an additional N2 bottle. Pay attention to the safety instructions of the pressurized gas bottle supplied through your local dealer.
- The liquid and the gas are blended in the jet-nozzle spout of the tap.
- Dispense of nitrogenated beverages in the typical Guinness Style.
- Temperature and amount of gas can be adjusted.

2.2 Dimension



Depth (A+B) = 55.0 cm

A = 40.5 cm

B = 14.5 cm

C = 10.0 cm

Height (D+F) = 51.5 cm

D = 32.5 cm

E = 4.5 cm

F = 19.0 cm

Width (G) = 17 cm

2.3 Technical Data and Properties

- Available for power supply: 230V & 50Hz Alternating current (AC ~)
- Wattage / amperage:
230 V version: 334 W / 1,45 A
- Refrigerant / amount: HFC R-134a / 68 g Climatic class: N
- Cooler type: dry
- Noise emission level: <= 64 dB
- Weight: 18.6 kg
- No N2 bottles supply needed, because the device uses the atmospheric based nitrogen. Customers have the option to connect an external gas source (N2) at 4.5 bar if preferred.
- Micro air filter included (filter class U 15) for particle filtration > 0,1 µm.
- Flowrate: 0.6 l/min or 1.2 l/min with the alternative 5-hole disc (instead of 2-hole disc)
- Default gas volume stream: 15-20 l/h
- Dispense temperature: Default setup at 5° C (+/- 1 ° C) at max cooling power
Units for coffee spirits can be set to -1°C (+/- 1 °C) at customer's request.
- Liquid volume in the dispenser: 500 ml
This volume is kept in the inside cooling zone.
- In case of continuous dispense of more than the pre-cooled volume (500 ml), the cooling effect is 7°C at a flowrate of 0.6 l/min between coffee input and output temperature. At a higher flowrates the cooling effect is less. With 1.2 l/min cooling effect is 3.5°C.
- Continuous (non-stop) dispense is only possible until an ambient temperature of 30°C. Between 30 and 35°C non-stop dispensing is possible up to 30 min. Then the dispenser needs a recovery break of 15 min to cool down again.
- Interfaces:
Product In : Linktech Coupler; 3/8" JG hose; 1.5 m
Nitro-Port: JG 5/16" (optional to use)
Power cable Firmly connected; 1.5 m

2.4 Filtration

Ensure that the coffee was filtered with a fineness of at least **100 µm** (100 micron). Coarser filtration sizes lead to clogging of the filter in the intake line or in the jet-nozzle outlet-spout of the tap. Make sure the filter adapter is installed in the coffee intake line. The filter adapter provides a particle size filter of 100 µm.





Attention!

By not using an appropriate intake filter the internal dispenser pump might be damaged or destroyed through coffee particles.

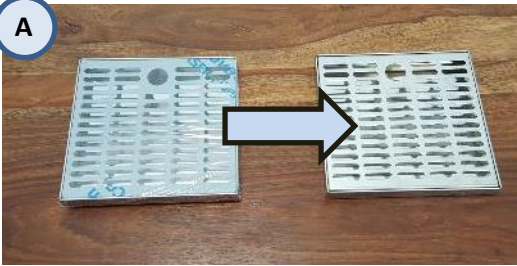
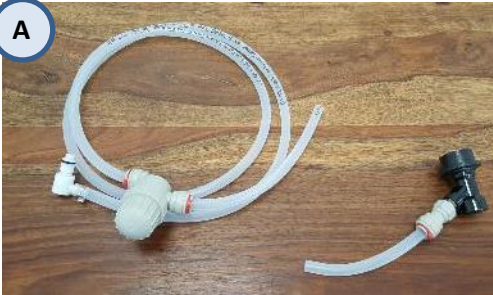

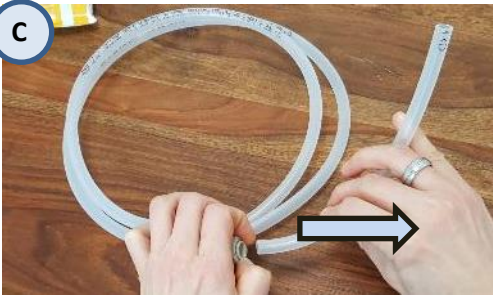
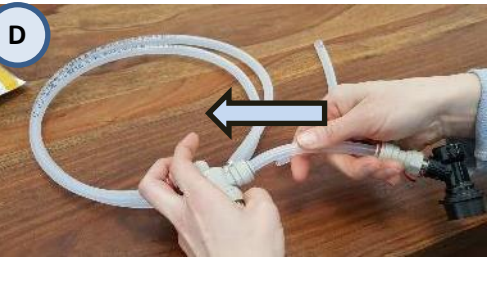


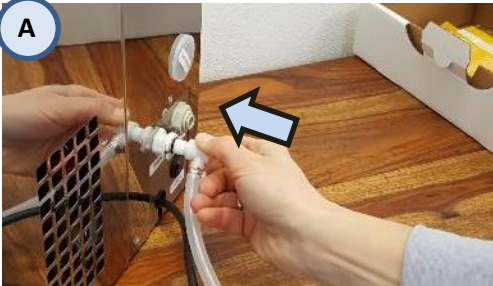

3. Commissioning

3.1. Scope of Supply





The Nitro Dispenser is delivered with the components as listed below:

	<ul style="list-style-type: none"> 1 : Nitro-Dispenser 2 : Accessories box 3 : Optional: 5l Coffee-Canister, valved
	<ul style="list-style-type: none"> 2.1 : Drip tray 2.2 : Tap valve body 2.3 : Tap handle 2.4 : Detergent sample packs 2 x "DESANA MAX CL" powder 2.5 : Intake line, including intake filter 2.6 : CE label with series number 2.7 : Optional: Ball lock-coupler with 3/8" hose 2.8 : 5-hole disc for faster flow-rate

3.2. Setup and Start

1. Remove foil from drip tray	
A 	
2. Prepare intake hose	
A 	B 
C 	D 
E 	F 
3. Connect hose to dispenser	
A 	B 




4. Prepare tap

<p>A</p> 	<p>B</p> 
<p>C</p> 	<p>D</p> 

5. Set temperature to 7 (max cold)

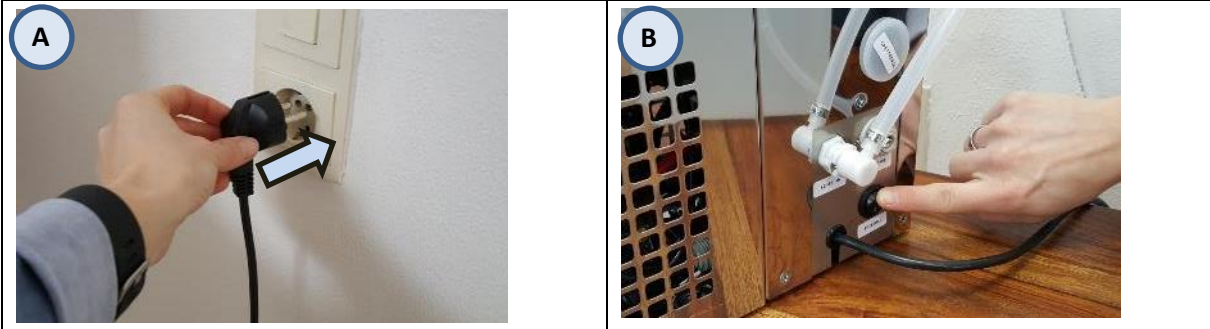
<p>A</p> 	
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6. Prepare coffee canister (if included)

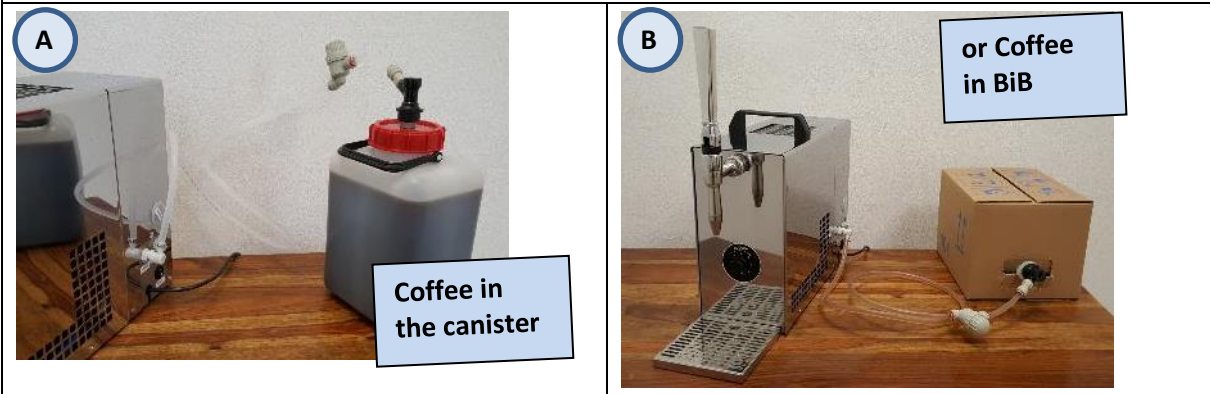
<p>A</p> 	<p>B</p> 
<p>C</p> 	

7. Apply the chemical cleaning procedure as described in chapter 5.2

8. Power on



9. Prepare & connect your coffee



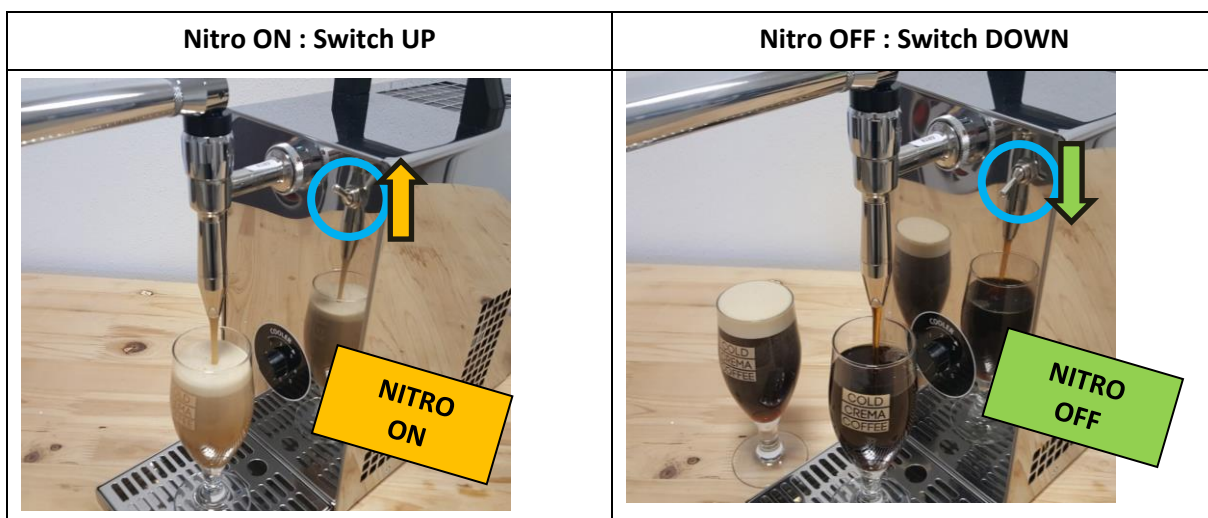
3.3. Adjustments

Things that can be adjusted from the operator are:

1. Nitro On/Off Toggle-Switch (optionally available)
2. Flowrate
3. Target dispense temperature

1. Nitro On/Off Toggle-Switch (optionally available)

This feature is available as an option. In case the machine has it – it looks like this:



When changing from NITRO-ON to NITRO –OFF it takes about 50 ml of coffee until the remaining nitro gas is out. Open & close the tap handle a couple of times (3-4) and dispense the 50 ml in small batches, like this the gas in the tap is flushed out.

2. Flowrate

The flowrate can be adapted by changing the disc.

The **2-hole disc** (standard) provides a **flowrate of 0.6 l/min** and the **5-hole disc** provides **1.2 l/min**.



3. Temperature

The target dispense temperature can be adjusted at the thermostat knob at the front within a range of 12°C.

Turning it clockwise = make it colder (max position is 7)

Turning it counter clockwise = make it warmer or switch cooling off at a position of 0.

Coldest temperature is: 5°C (+/- 1°C)

Warmest temperature is: 17°C



Dispensers used for coffee-spirit blends can be set colder at customer's request. The temperature level is lowered by 6°C. The temperature of stage 7 is then: -1°C and the temperature of stage 1: 11°C. When tapping non-alcoholic beverages, cleaning and rinsing, the unit must be set to level 4 or lower (3,2,1) - otherwise the beverage may freeze. Level 4 corresponds to approx. 5°C.

The dispenser has an internal buffer of 500ml that is kept cold according to the thermostat settings. In a non-stop dispense situation the cooling effect is reduction by 7°C from the intake temperature of the coffee. (at a flowrate of 0.6 l/min with 2-hole disc)

4. Decommissioning

1. Before putting the dispenser out of service we recommend a chemical cleaning if you want to keep it out of service for a longer time.
2. After the chemical cleaning flush dispenser and canister with clean water.
3. Let the dispenser suck air and by this the internal liquid buffer (around 500 ml) is emptied.
Do NOT disconnect the intake line (4) from the dispenser in order to suck air. The Linktech coupler system has a check valve that prevents air sucking and by this the internal liquid buffer cannot be emptied.
4. Disconnect the intake line and remove power plug.
5. Pull handle to release internal pressure

Protect the dispenser against rain, dust and temperatures lower 0 °C or higher 60°C.

5. Hygiene, Cleaning, Maintenance

5.1. Product shelf life after connection

The product shelf life after connection depends on a couple of circumstances that are independent from the dispenser. Such as:

- Shelf life of product before connection
- Connection spout system (hygienic concept / design)
- Ambient or cooled environment before and after connection
- Tapping frequency
- Cleaning frequency and detergent used at cleaning procedure

In our experience a shelf life of 1 weeks (after connection) with a flash-pasteurized, aseptically packed cold-brew coffee in bag-in-box with an appropriate valve system, at ambient storage can be achieved with a minimum tapping frequency of 1.0 l every day. In such a scenario, we recommend a weekly chemical cleaning only without any intermediate rinsing.



If the coffee is prepared on site and placed in a vessel with air contact, standing at ambient temperature – it should not be connected and used for longer than two days. In this scenario we recommend to flush the system with water every second day and provide a weekly chemical cleaning.



The product shelf life and the product quality are in the responsibility of the operator of the dispenser. Carbotek can just provide general recommendation at this stage.

5.2. Break times

Consider the points below only as a general guidelines to provide enduring high coffee quality to your guests. There might be coffee / product specific differences in your application.


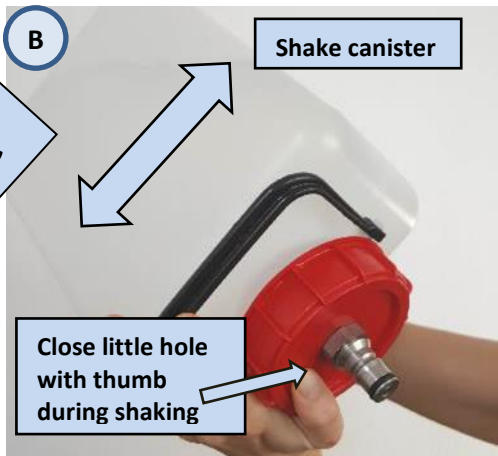




- Keep the cooling on “max cold” during dispense break times
- If the dispense break is longer than 2 days, disconnect your coffee and flush the dispenser with fresh water before restart of coffee dispense
- Don’t wait longer than 3 days to remove remaining product from the dispenser and flush with water. Otherwise micros and mould will grow in the system and might clog parts of it.
- If the break time is more than 4 days follow the “Decommissioning” steps in chapter 4.
- After a break time always check the coffee quality with a small sip, before restart of operations.

5.3. Chemical cleaning



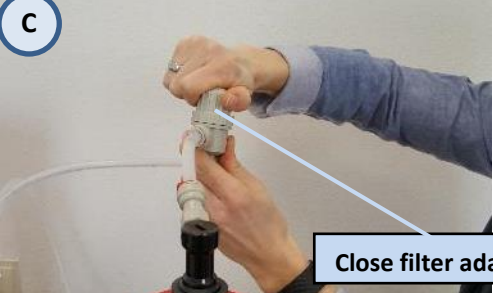







The dispenser should be cleaned chemically every 7 days. We recommend the cleaning powder: "DESANA MAX CL" by the company Thonhauser because it is simple to handle and removes potential biofilm reliable. The color indicator provides information about the cleaning result to the operator.

Since the Nitro-Dispenser is a modified dispensing system, we recommend the operator to track the cleaning activities in a cleaning protocol - in case that a cleaning proof is requested from a food inspection.

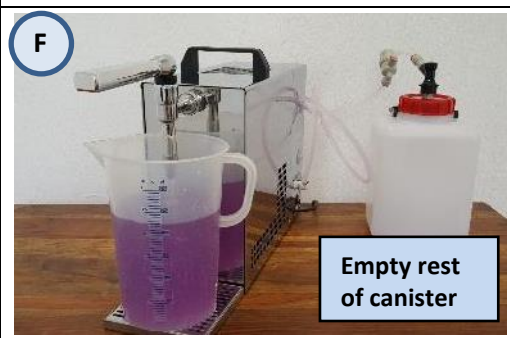
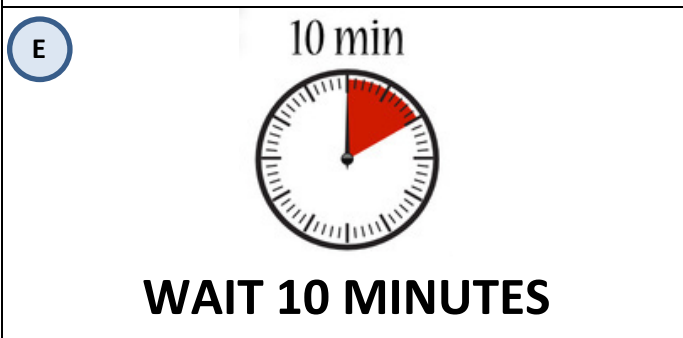
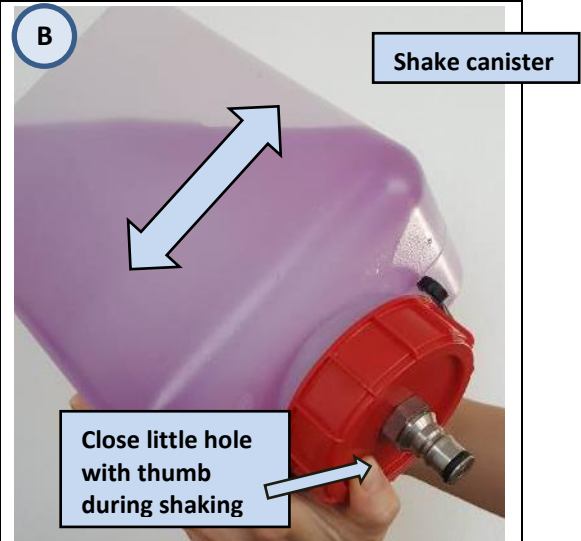
When using machines for coffee spirits, the temperature should be set to level 4 (or less) during rinsing and cleaning - otherwise the liquid may freeze.

1. Rinse with water	
	
	
2. Switch air compressor off and release system pressure	
	

3. Check intake filter, jet-nozzle and tap valve and flush with tap water


<p>A Open filter adapter</p> 	<p>B Take out filter and rinse with water</p> 
<p>C Close filter adapter</p> 	<p>D Unscrew jet nozzle</p> 
<p>E Check and rinse with water</p> 	<p>F Unscrew bottom part of jet nozzle</p> 
<p>G Check disc and rinse with water</p> 	<p>H Screw jet nozzle back on</p> 
<p>I Unscrew tap valve</p> 	<p>J Check and rinse with water</p> 

4. Prepare cleaning solution with 4.5 l warm water + 1 x DESANA MAX CL powder
Flush the solution through the dispenser.



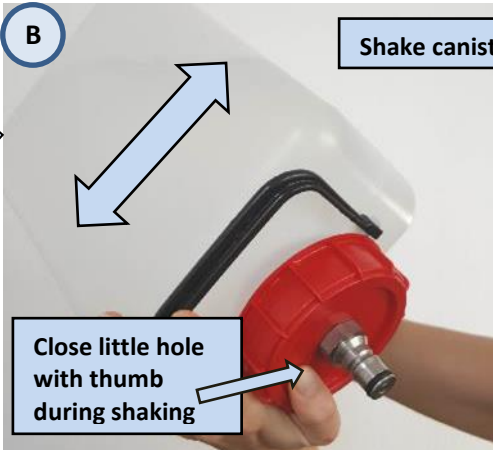
5. Rinse with water

A



Fill half canister with water (2.5l)


B



Shake canister

Close little hole with thumb during shaking


C



5l

Fill up canister completely with water

D



Rinse until canister is empty

6. The cleaning procedure is finished – you can reconnect the dispenser to coffee.
Note the cleaning activity in your cleaning protocol.
If necessary, set the temperature back to the desired value.

5.4. Preventive Maintenance

As preventive maintenance jobs are considered:

- | | |
|--------------------------------------|----------------|
| • Change of micro-airfilter | every 2 years |
| • Change of Linktech coupler O-rings | every 2 years |
| • Dust removal from condenser grid | every 6 months |

These are described in the service manual.

6. Packaging and Shipping

In case Nitro-Dispenser shipping is required - please pay attention to the latest shipping instructions. If those are not available. Please contact Carbotek and request those. Inappropriate shipping might result in Nitro-Dispenser damage.

Shipping principle with canister



Shipping principle without canister



7. Troubleshooting

Below find a table with potential problems, its causes and solutions.

Problem	Cause	Solutions
1) Not enough or too much foam	a) The gas needle valve is not setup in a proper way.	Contact a Service Technician or check the service manual
	b) The flowrate of the coffee and the gas have to be adjusted to match together. If a change of coffee flowrate occurs e.g. through change of the flowrate disc (2-hole or 5-hole), also the gas flowrate has to be readjusted.	Contact a Service Technician or check the service manual
	c) A change in the foaming behavior can also be effected through a flowrate reduction due to clogging of the filter adapter or the tap jet-nozzle.	Check all your filters or strainers and remove any particles in it. Unscrew the tap nozzle and check if particles have clogged the strainers in the top part.
	d) If there is too much foam suddenly the dispenser might suck air in via the product intake line.	Check if all your connections between dispenser and coffee container are sealed well. Sometimes the John-Guest push-in system causes air leaks that need to be removed then.
	e) If the machine is fitted with the Nitro-ON/OFF toggle switch, the position might be set to NITRO-OFF	Change the direction of the Nitro-SWITCH and try again.
2) Not cold enough	No electrical power or thermostat knob is turned off.	Check if dispenser has electrical power (does the air compressor run?) For max cooling turn the thermostat knob clockwise until 7 o'clock position.
	The temperature can be adjusted on the thermostat knob on the front panel. The target dispense temperature at max setup is 5 °C (+/- 1 °C). In case of heavy tapping operation, or a too high input temperature of the coffee, these 5 °C might not be achieved.	If the cooling capacity of the device is not strong enough, you need to increase the cooling capacity. Contact your Service Technician.
3) Flowrate is too high or too low.	The perforated disc, which is mounted in the jet-nozzle outlet-spout (lower part), determines the dispense flowrate.	The 2 hole disc provides a flowrate of 0.6 l / min. The 5 hole disc provides a flowrate of 1.2 l / min.

		Put the suitable disc into the tap nozzle. Be aware that a faster flowrate lowers the cooling result at non-stop dispense.
4) The dispenser does not dispense coffee	a) Filter adapter in the intake line is clogged.	Check if the filter strainers are clogged.
	b) Strainer of the jet-nozzles outlet spout is clogged (tap nozzle top part)	Check if jet jet-nozzle strainer is clogged.
	c) Little holes in the nozzle disc are blocked (tap nozzle bottom part)	Check if holes in the nozzle bottom part are free
	d) Air compressor is turned off or has no electrical power.	Check whether the air-compressor switch at the side of the dispenser is turned on and if the dispenser has power.
	e) The Linktech adapter of the intake line is not pushed properly into the dispenser socket.	Push intake line adapter properly into dispenser socket.
	f) Coffee is frozen To achieve the 5°C dispense temperature the dispenser inside cools down a bit lower. Sometime it overcools the liquid and the coffee can freeze.	Set the temperature knob on the front to 0 and wait about 30 minutes. Then try again.
	g) If the gas amount to be dosed to the coffee is setup too high, the gas flow overpowers the liquid flow. In this case no coffee comes out of the tap any more.	Contact a Service Technician or check the service manual.
	h) If the dispenser was used without filter adapter in the intake line, coffee particles (in case of insufficient filtration) can get into the pump and damage or block valve parts. This could lead to the situation that no liquid is sucked any more.	Pump must be changed. Contact a Service Technician or check the service manual.

8. Disposal

The dispenser can be disposed in a recycling center for electrical appliances / refrigerators. Do not dispose it in domestic waste. Observe the corresponding official regulations.



9. Warranty

The guarantee and warranty period during proper and intended use is 2 years.

Defect components are replaced from Carbotek.

10. CE Declaration of Conformity

Carbotek Systems GmbH, Germany, declare under our sole responsibility that the product: Nitro Dispenser / Model-SKU: 2018-CS-01 to which this declaration relates is in conformity with the following directive(s) and standard(s):

List of the technical regulations:

Directive 2006/42/EC - Machinery Directive

Directive 2014/30/EU - Electromagnetic compatibility (EMC)

Directive 2011/65/EU - Restriction of Hazardous Substances (RoHS)



11. Contact Data

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PATENT APPLICATION PENDING

