

Before start of operation, study this manual Carbotek Systems GmbH, Germany

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# **Table of Contents**

1.	Safe	ty Instructions	3
:	1.1.	Setup / Commissioning	3
	1.2.	Operations	3
:	1.3.	Spare Parts	4
	1.4.	Transport and Storage	4
:	1.5.	Electric Connections	4
:	1.6.	Service	4
:	1.7.	Intended Usage	4
2.	Befo	ore Start	5
:	2.1	Dispenser Functionality	5
:	2.2	Dimension	5
:	2.3	Technical Data and Properties	6
:	2.4	Filtration	7
3.	Com	missioning	8
;	3.1.	Scope of Supply	8
;	3.2.	Setup and Start	9
;	3.3.	Adjustments	12
4.	Dec	ommissioning	13
5.	Hygi	ene, Cleaning, Maintenance	14
!	5.1.	Product shelf life after connection / opening	14
!	5.2.	Break times	14
į	5.3.	Recommended Cleaner and Strength	14
!	5.4.	Chemical Cleaning	15
!	5.5.	Preventive Maintenance	18
6.	Pack	kaging and Shipping	19
7.	Trou	ubleshooting	20
•	7.1.	Online	20
•	7.2.	Step by Step Guide	20
8.	Spar	e Parts for Operators	22
9.	Disp	osal	24
10	. W	/arranty	24
11	. D	eclaration of Conformity	24
12	. Co	ontact Data	24



## 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. Do not locate multiple portable socket-outlets or portable power supplies at the rear of the appliance. The connecting cable must never be kinked or squeezed and the lateral openings require a free distance of 5 cm to provide the required air circulation. The free distance behind the dispenser must be as well 5 cm. The dispenser front, with the tap outlet must stay open and uncovered.

As an operator pay attention to the listed safety measures:

- Operate dispenser within a temperature range of +43 to +95°F
- 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
- 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.

Keep ventilation openings, in the appliance enclosure, clear of obstruction. The air circulation must be possible at any time.

Do not damage the refrigerant circuit. The R290 refrigerant is an extremely flammable gas.

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 32 to 140°F.

### 1.5. Electric 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.

#### 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 or coffee cocktails. 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. It may be used in private households as well.

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



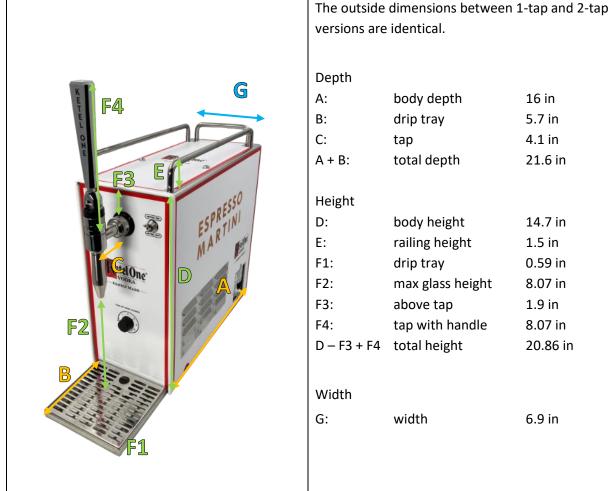
### 2. Before Start

#### **Dispenser Functionality** 2.1

The Carbotek Nitro Dispenser combines different functions in one device.

- Suction of filtered liquids 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%) and the oxygen (21%) in the air creates the cascading nitro effect. A built-in compressor is used. There is no nitrogen generator embedded.
- The liquid and the gas are blended in the jet-nozzle spout of the tap.
- Dispense of nitrogenated beverages in the typical Guinness style.
- With a toggle switch the operator can switch between nitrogenated and non-nitrogenated drinks.
- Outlet temperature control.

#### **Dimension** 2.2



versions are identical.		
Depth		
A:	body depth	16 in
B:	drip tray	5.7 in
C:	tap	4.1 in
A + B:	total depth	21.6 in
Height		
D:	body height	14.7 in
E:	railing height	1.5 in
F1:	drip tray	0.59 in
F2:	max glass height	8.07 in
F3:	above tap	1.9 in
F4:	tap with handle	8.07 in
D – F3 + F4	total height	20.86 in
Width		
G:	width	6.9 in



# 2.3 Technical Data and Properties

Taps	1 Tap	
Model	ND-20-01-02 DI	
Picture	ESPRESSO MARTINI	
Beverages	Espresso-Martini, Coffee-Cocktails, Cold-Brew-Coffee	
Electrical & refrigerant		
Power supply	115 V / 60 Hz	
Wattage / amperage	368 W / 3.2 A	
Refrigerant / amount	R290, 1.66 oz  Propane is an extremely flammable gas	
Electrical connection	C14 socket	
Power cable	NEMA 5-15P plug (type B – grounded)	
Cooler type	dry	
Climatic class	N	
Accessories		
5l cleaning or product canister with CPC socket	2 x	
5l cleaning or product canister with blank red cap	1 x	
Intake hose with strainer and CPC coupler	1 x	
Inlet strainer for particles > 0.1 mm	1 x	
Drip tray	1 x	
Cleaning agent	1 jar (20 oz) of ONE-PRO cleaner from URNEX	
Features		
Nitrogen source	Filtered compressed air (78% nitrogen)	
Jet Nozzle Mono with spray crowns		
flowrate: 0.6 I (20 oz)/min	1 x	
Nitro toggle switch to switch between NITRO and NON-NITRO	1 x	



Foam level control	No adjustment – default factory setup		
Particle air-filter	Yes		
Nitro-Port	No		
to connect nitrogen bottles			
	For cleaning put at level 4 on front scale		
Temperature setup	Coldest temperature is at level 7 on front scale		
Liquid volume inside dispenser	1 x 370 ml (12.5 oz)		
Cooling effect during nonstop dispense	Δ 13°F (at 0.6 l (20 oz)/min)		
Continuous (non-stop) dispense is only po	ossible until an ambient temperature of 86°F.		
Between 86 and 95°F non-stop dispensing	g is possible up to 30 min. Then the dispenser needs a recovery		
break of 15 min to cool down again.			
Device connections			
Product inlet	1 x CPC coupler		
Product fillet	3/8" hose		
Others			
Noise emission level	<= 64 dB		
Warranty	2 years (after date of production)		
Weight & dimensions			
Net / gross weight	49.2 lb. / 54.2 lb.		
Dispenser dimensions (H x W x D)	20.86 x 7.6 x 21.65 in		
including tap handle			
Packaging dimensions (H x W x D)	27.0 x 10.0 x 23.2 in		

### 2.4 Filtration

Ensure that the drink was filtered with a fineness of at least **100 \mu m** (100 micron). Coarser filtration sizes lead to clogging of the filter in the intake line or in the jetnozzle outlet-spout of the tap. Make sure the filter adapter is installed in the product intake line. The filter adapter includes a mesh filter with 100  $\mu m$  particle size.



#### Attention!

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

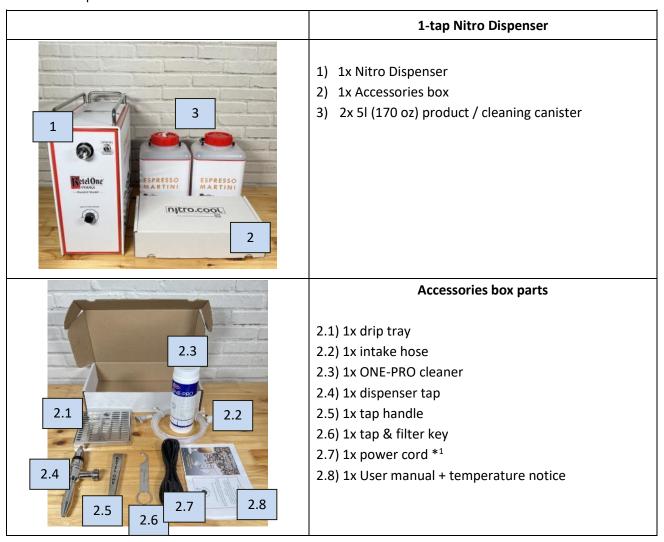


# 3. Commissioning

## 3.1. Scope of Supply

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

The model specific differences are listed in the table.



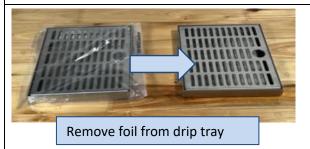
<sup>\*1:</sup> The power cord has a C13 plug to connect to the dispenser. The socket plug is country specific



## 3.2. Setup and Start

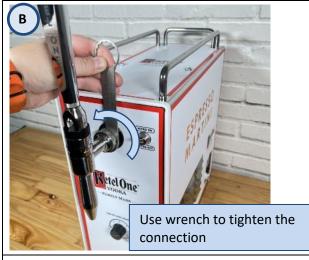
The setup and starting procedure between one and two tap versions in principle is identical except the number of taps, intake hoses and canisters differ between the models.

### 1. Remove foil from drip tray



### 2. Connect tap and handle to dispenser

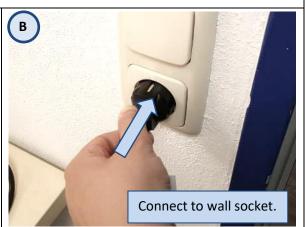


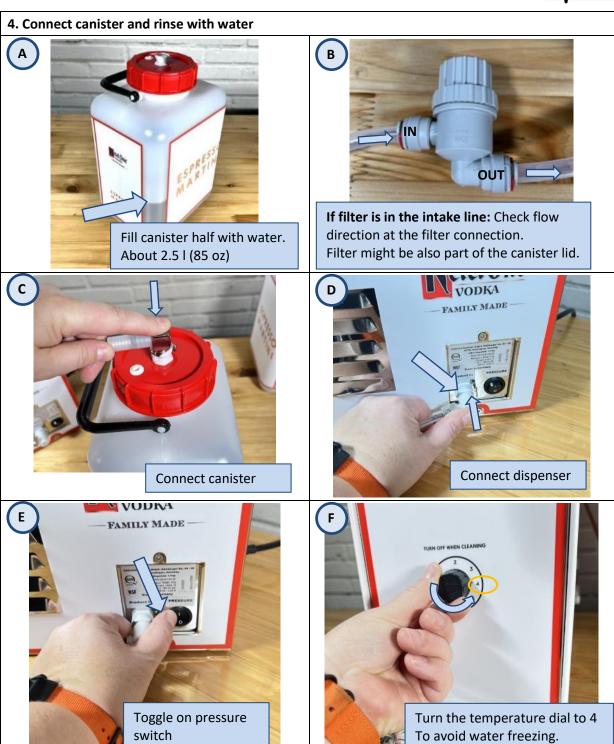




### 3. Establish electrical connection







# nitro.cool



### 5. Start product dispense







# 3.3. Adjustments

Things that can be adjusted from the operator are:

- 1. Nitro On/Off Toggle-Switch
- 2. Target dispense temperature

### 1. Nitro On/Off Toggle-Switch



When changing from NITRO-ON to NITRO-OFF it takes about 50 ml (1.7 oz) of product until the remaining nitro gas is out. Open & close the tap handle a couple of times (3-4) and dispense the 50 ml (1.7 oz) in small batches, like this the gas in the tap is flushed out faster.



#### 2. Temperature

The target dispense temperature can be adjusted at the thermostat knob at the front within a range of  $\Delta$  24°F. 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 position 7
Warmest temperature is position 1



When tapping non-alcoholic beverages during 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. 41°F.

The dispenser has an internal liquid buffer that is kept cold according to the thermostat settings. In a non-stop dispense situation the cooling effect is a reduction of  $\Delta$  13°F from the intake temperature of the cocktail (at a flowrate of 0.6 l / (20 oz)/min).

## 4. Decommissioning

Before putting the dispenser out of service, we recommend a chemical cleaning – especially if you want to keep it out of service for a longer time.

- 1. Provide a chemical cleaning (as in chapter 5.4) OR flush the dispenser and canister with clean water.
- Let the dispenser suck in air until air is coming out of the nozzle.
   Do NOT disconnect the intake line from the dispenser in order to suck air. The CPC coupler system has a check valve that prevents air sucking and by this the internal liquid buffer cannot be emptied.
- 3. Disconnect the intake line and remove power plug from electrical socket.
- 4. Pull handle to open tap and release internal pressure

Protect the dispenser against rain and dust and store it in a temperatures range between 32 °F and 140°F.



# 5. Hygiene, Cleaning, Maintenance

### 5.1. Product shelf life after connection / opening

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

- Shelf life of product before and after connection
- Product type and product sensibility
- Ambient or cooled environment before and after connection
- Tapping frequency and break times

Carbotek recommends a weekly cleaning interval – however this is just a general recommendation. The appropriate, product specific shelf life after connection and the corresponding cleaning interval needs to be evaluated with the concrete product.

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

### 5.2. Break times

Consider the points below only as a general guideline to provide enduring high product quality to your customers. Product specific differences may exist.

- Keep the cooling on "max cold" during dispense break times
- If the dispense break is longer than 2 days, disconnect your product and flush the dispenser with fresh water before restart of cocktail dispense.
- If the break time is more than 4 days follow the "Decommissioning" steps in chapter 4.
- After a break time always check the product quality with a small sip, before restart of operations.

## 5.3. Recommended Cleaner and Strength

As a cleaner we recommend the product ONE-PRO from URNEX with a strength of two teaspoons (11g / 0.4 oz) of powder to 2.5 I (0.7 gal) of warm (40°C / 104°F) water.

ONE-PRO is a so-called one-step cleaner that combines cleaning and disinfection.



+ 2.5l of WARM WATER (40°C/104°F)

= 2.5l of CLEANING SOLUTION



### 5.4. Chemical Cleaning

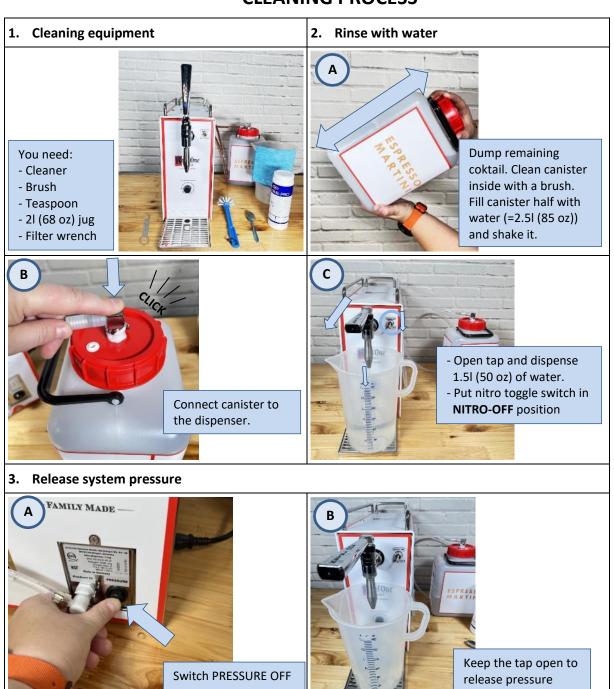
Track the cleaning activities in a cleaning protocol in case cleaning records are requested from a food inspection.

If the machine is setup/used for coffee cocktails the dispensing temperature might drop below the water freezing point. In such cases we recommend to reduce the temperature settings during the cleaning process. The thermostat dial at the front should be set on pos 4 or less. Otherwise, the detergent or rinsing water might freeze.

It's recommended to wear gloves and safety glasses when working with chemical detergents.

Pay attention to the local safety standards.

### **CLEANING PROCESS**

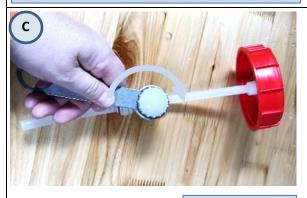


### 4. Check intake filter, jet-nozzle and tap valve



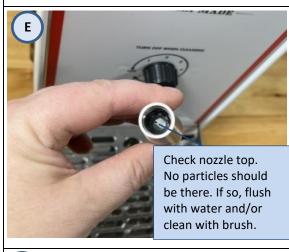
Open filter adapter with wrench Note: Filter adapter might have different position

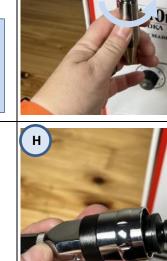




Close filter again











valve and clean with a brush if required.

Check tap

Then put it back in its position.

#### 5. Prepare 2.5 I of cleaning solution and flush dispenser

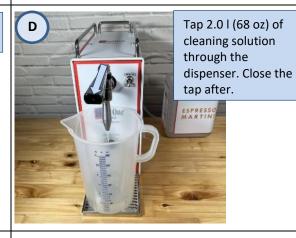


Prepare cleaning solution with 2.5I (85 oz) hand warm water (104°F) and 11g/0.4 oz (two teaspoons) of ONE-PRO powder.



Shake canister







Clean driptray meanwhile



# **WAIT 10 MINUTES**

#### 6. Rinse with water



- Dump the rest of the cleaning solution.
- Rinse canister with water
- Fill up canister with fresh water (around 2.0 I (68 oz))
- Shake it
- Connect canister to the dispenser



# If you want to continue with product dispense:

- Tap 1.5 l (50 oz) of water through
- the dispenser.
- Now connect back to your dispensing product

# If you want to take the dispenser out of service:

- Keep tap open until canister is empty and air is coming through the tap nozzle
- 7. If required set the temperature back to the setting before start of the Cleaning Process.



### 5.5. Preventive Maintenance

As preventive maintenance jobs are considered:

#### • Rinse the vacuum valve at the canister with warm water.

**Every 4 weeks** 

This is required if the canister is used as a product canister for beverages. For sugary liquids this is recommended to be done with <u>every cleaning cycle</u>.

Take out the silicone vacuum valve at the canister lid.



Rinse it with warm water to remove cocktail residuals. These residuals might lead to a clogging effect of the vacuum valve.



### • Dust removal from condenser grid at the backside

**Every 6 months** 

Blow away the dust at the condenser grid with compressed air.





# 6. Packaging and Shipping

If parcel shipping is intended, please ship the dispenser ONLY with the original packaging components as shown below. The dispenser tap must be detached before packaging.

#### **Packaging Components**



#### Parts and article numbers

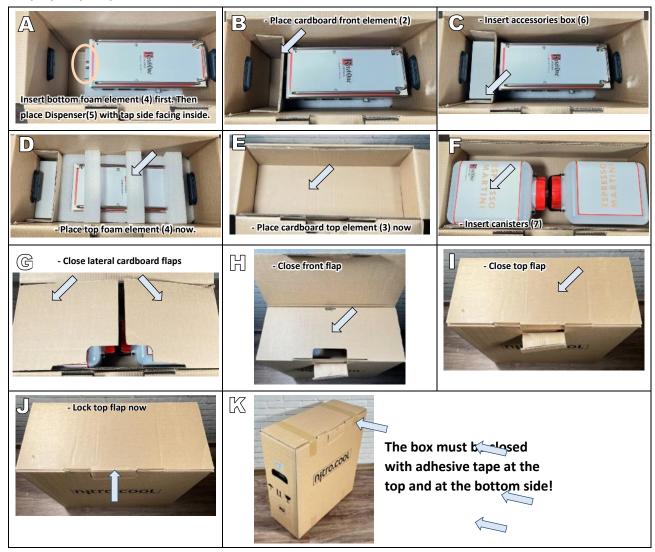
- 1) Transport carton (art 413) with handles (2 x 420)
- 2) Cardboard cut-out front (art 417)
- 3) Cardboard cut-out top (art 418)
- 4) Bottom and top foam elements (art 414)
- 5) Nitro-Dispenser
- 6) Accessories box
- 7) Two Canisters

#### **Transport carton SET ND 2020**

419 = 413 + 417 + 418 + 420 (2x)

Foam elements not included!

#### Step by Step (Tap must be detached)





# 7. Troubleshooting

### 7.1. Online





Nitro-Dispenser Service: Troubleshooting 1-Tap | Ketel1 | 115V

Helping the operator to identify and resolve problems

# 7.2. Step by Step Guide

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

Problem	Cause	Solutions
1) Not enough or too much foam	A change in the foaming behavior can be caused through a flowrate increase or decrease at the liquid side. This causes a liquid/gas mismatch and leads to a non-perfect dispensing result.	The standard target flowrate is 0.6 I (20 oz)/min (+/- 10%) Check the dispenser flowrate with water and a timer.
	a) Clogging issues of intake filter or nozzle.	Check your filter in the intake line and remove any particles in it.  Unscrew the tap nozzle and check if particles have clogged the components.
	b) Flowrate reduction through scaling.	If the dispenser was standing unused for a longer time the nozzle holes might have closed through scaling.
		Disassemble nozzle elements and clean them in acetic solution.
	c) If there is too much foam suddenly the dispenser might suck air in through the product intake line.	Check if all your connections between dispenser and container are sealed well. Sometimes the John-Guest pushin system causes air leaks that need to be fixed. There must be no air bubbles coming through the intake line together with the product into the dispenser.
	d) Check the Nitro-ON/OFF toggle switch.	Change the direction of the Nitro-ON/OFF toggle SWITCH and try again.
	e) Product related. Certain recipes or ingredients are not foam stable.	Try pure cold-brew coffee as reference medium. It this works fine it's a product related issue.
	f) Traces of rinsing agent on the glass can destroy the foam as well	Try to use different glasses or single use plastic cups to verify this aspect.
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 1 o'clock position is about 54°F warmer than the coldest position.
	The thermostat setup at the coldest position is the 7 o'clock position) -	The thermostat setup can only be changed through the instructions in the service manual.
	The temperature can be adjusted or switched off through the thermostat knob at the front panel.	If the cooling capacity of the device is not strong enough, you need to precool your beverage or reduce the inlet temperature of your product.
3) Flowrate is too fast or too slow.	Flowrate is controlled through the 3 spray crowns in the nozzle. Each crown has 2 holes. If flowrate is too low one of	Remove the complete Nozzle from the Dispenser and check the flowrate. It should be more than 1 l/min.
	the holes might be closed or clogged.	If flowrate is lower, the root cause might be in the internal pump pressure supply. Contact Carbotek or technician in this case.
		If flowrate check above is ok, disassemble the Nozzle and check spray crowns for debris.
4) The dispenser doesn't dispense anything at all	a) Filter adapter in the intake line is clogged.	Check if the intake filter is clogged.
	b) Tap-nozzle is clogged	Disassemble the Nozzle and check spray crowns for debris.
	c) Air compressor is turned off or has no electrical power.	Check whether the PRESSURE switch at the side of the dispenser is turned on and if the dispenser has power.
	d) The CPC adapter of the intake line is not pushed properly into the dispenser socket.	Push intake line adapter properly into dispenser socket.
	e) Product is frozen To achieve the 30°F dispense temperature the dispenser inside cools down a bit lower. Sometimes it overcools the liquid and the product can freeze. This can also happen to non-alcoholic liquids.	Set the temperature knob on the front to 0 and wait about 30 - 90 minutes. Then try again.
	f) 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 exchanged as shown in service manual.



# 8. Spare Parts for Operators

Article Code	Picture	Article Text	Notes
432		Canister 5L, PE, food safe BLANK RED CAP	Canister for cleaning and / or product storage
488	<b>&amp; 2</b>	Lid for 5L-canister with CPC Ketel 1 Panel Mount Female 3/8 Filter in uptake line	Lid with valve for canister (432) Used from Ketel1 USA
495		Lid for 5L-canister with CPC Panel Mount Female 3/8	Lid with valve for canister (432)
659	<b>₽</b> €	Check valve - combination valve 7.7 mm material: ML-153 silicon white	Vacuum valve for lid (495)
195		Double click Intake hose Ketel1 USA CPC Coupler / 1.5 m hose / CPC Coupler	Intake hose – KETEI1 USA
196		Double click Intake hose CPC Coupler / 0.13 m hose / filter / 1.5 m hose /CPC Coupler	Intake hose
822	4	Strainer adapter, 100 micron for JG 3/8" intake line 3/8" - 3/8"	Intake filter
1179	I	Fine filter - strainer, 200 mesh per inch 100 micron particle size	Filter element of filter (822)
1316	10	CPC Elbow coupler 3/8 PTF - NSF valved, POM hose 9.5mm OD, 6.4mm ID	
1310-Q5	0	O-Ring 7.65 x 1.78 mm (QTY 5 each) for CPC Elbow-Coupler (1316) Type: AS568-011 / FDA Buna-N	O-Ring for CPC Elbow (1316)
382		Drip tray NSF compliant dimensions 165x150x16mm AISI 304	
1437		Tap handle - chrome plated plastic (BI)	
1447		Tap handle - stainless (BI)	
1411		Tap handle - Oak wood Height 16 cm, conical	



	Stout-Tap NSF (BI) without nozzle, handle and shank	
	Jet Nozzle Mono (0.6 l/min) Connection thread IT: 9/16" - 26 TPI	
orth cost	Nitro Dispenser Combi-Key	Tool for filter (822) and tap (1472)
4	Rubber feet 7,2/11 LDPE, black	
	Power plug cable North America type B - C13 plug / Nema 5-15 P 1.8 m	
[hjtro.coot]	Accessories box Nitro-Dispenser (Spare part) All parts 1-tap Ketel1 (USA/CA)	All parts included as shown in manual
	Transport carton SET ND 2020 slim with handles and carboard inserts Size: 650 x 255 x 590 mm (H x W x D)	Transport packaging components
M	Packaging foam parts ND 2020 slim	Transport packaging components
Si de la companya de	ONE-PRO Cleaner Jar 566 g	Good for approx. 100 cleaning cycles
		without nozzle, handle and shank  Jet Nozzle Mono (0.6 l/min) Connection thread IT: 9/16" - 26 TPI  Nitro Dispenser Combi-Key  Rubber feet 7,2/11 LDPE, black  Power plug cable North America type B - C13 plug / Nema 5-15 P 1.8 m  Accessories box Nitro-Dispenser (Spare part) All parts 1-tap Ketel1 (USA/CA)  Transport carton SET ND 2020 slim with handles and carboard inserts Size: 650 x 255 x 590 mm (H x W x D)  Packaging foam parts ND 2020 slim  ONE-PRO Cleaner



# 9. Disposal

The dispenser can be disposed in a recycling center for electrical appliances / refrigerators. Do not dispose it in domestic waste. Please notice the relevant national regulations.



# 10. Warranty

The guarantee and warranty period during proper and intended use is 1 year. Defect components will be replaced

# 11. Declaration of Conformity

Carbotek Systems GmbH, Germany, declare under our sole responsibility that the product is in conformity with the following standards:





# 12. Contact For Service and Warranty

KYK Marketing 2600 Constant Comment Place Louisville, KY 40299

Phone: 800-847-6963

Email: Service@espressomartinimachine

Website: WWW.Espressomartinimachine.com