

# Nitro-Box Operation Manual



Single  
Double  
Tripple  
Quattro

**Attention:**  
Before start of operation,  
study this manual.

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# 1. Safety Instructions

## 1.1. Setup / Commissioning

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

### Health and Safety Note

When using CO<sub>2</sub> for driving the Nitro-Box pump it might be necessary to install an exhaust line, in case of installations in poorly ventilated rooms. Otherwise there exists a danger of suffocation due to an increased CO<sub>2</sub> concentration. 1 kg of CO<sub>2</sub> in the CO<sub>2</sub> bottle corresponds to about 0.5 m<sup>3</sup> in gas form. An acute exposure is given when the CO<sub>2</sub> concentration reaches a level of 5% in the breathing air. Thus, the critical point is given at 1 kg of CO<sub>2</sub> per 10m<sup>3</sup> room space. This corresponds to a dispense volume of about 100 liters, when the pump is driven with CO<sub>2</sub>. **The usage of a CO<sub>2</sub> warning device is strongly recommended.**

## 1.2. Operations

The device described here may only be operated by suitably trained persons. Children shall not play with the device. Cleaning and user maintenance shall not be made by children.

Material damage can be caused by:

- Improper use
- Incorrect installation or operation
- Service and repair jobs where access to the Nitro-Box inside is required, may only be carried out by a trained or instructed technician

## 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. Intended Usage

The Nitro-Box is designed to be integrated into dispense installations to serve nitro-beverages typically cold-brew coffee or coffee-cocktails. The beverage cooling can be done by a cooler (dry or water based) or through environmental cooling like a fridge.

These beverages should be served cold and must be filtered with at least 100 micron or finer. Typical places where used are: 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 hot liquids, unfiltered liquids, chemicals or similar.







## 2. Before Starting

### 2.1 Functionality

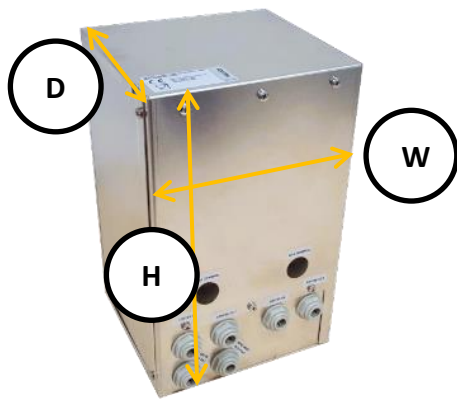
How it works

- The Nitro-Box does not require electricity. However, it is required to be integrated into a cooling environment (flow-through or fridge cooling) and it needs to be supplied with OIL-FREE compress air and optionally with N2 gas.
- Suction of filtered liquids (e.g. Cold-Brew Coffee or Coffee-Cocktails) from an unpressurized (bag-in-box or canister) or pressurized container (keg, key-keg). The pump inside is pneumatic and driven with compressed air.
- The cascading Nitro effect in the glass is based on compressed filtered air (main elements are 78% nitrogen and 21% oxygen) OR pure nitrogen (100% N2 gas). This gas is injected into the liquid stream.
- Make sure the compressed air is coming from an OIL-FREE air compressor.
- The usage of pure nitrogen (N2) is optional. The system can be operated with or without NITRO-PORT-GAS feed.
- Dispense of nitrogenated beverages in the typical cascading Guinness Style.
- The foam (crema) height can be adjusted through the amount of gas added to the liquid stream.
- There are additional components that are recommended to be used in combination with the Nitro-Box.



Article-Number	Article	What it does	Picture
167	Nitro-Blender	Improved blending of Nitro-Gas into the liquid stream. Max-flow is 2.5 lpm One Blender can be used for 2 taps.	 
410	Jet Nozzle Mono Flow: 0.6 l/min	Dispense of drinks with fine crema due to gas-liquid blending crowns in the Nozzle. <b>The 1.2 l/min version is generally preferred</b>	 
409	<b>Jet Nozzle Mono Flow: 1.2 l/min</b>		
931	Nitro-Dosing-Flowmeter	Verify the gas dosing setup of your Nitro-Box	 

## 2.2 Technical Data and Properties



W : Width

H : Height

D : Depth

Beverage Lines	1	2	3	4
Model SKU	NB-20-1-NP-MF	NB-20-2-NP-MF	NB-20-3-NP-MF	NB-20-4-NP-MF
Article-Number	249	250	252	251
Height (H)	276,0	276,0	276,0	276,0
Width (W) in mm	96,1	181,1	266,1	351,1
Depth (D)	156,5	156,5	156,5	156,5
Weight	2,6	4,2	5,7	7,3
Pumps Flojet G80	1	2	3	4
Liquid Flowrate l/min	depends on Nozzle 0.6 or 1.2	depends on Nozzle 0.6 or 1.2	depends on Nozzle 0.6 or 1.2	depends on Nozzle 0.6 or 1.2
Nitro-Port	yes	yes	yes	Yes
Gas-Micro-Filter 0.1 µm	yes	yes	yes	yes
Interfaces Total 3/8" tubing	4	6	8	10
Interfaces Liquid IN/OUT	2	4	6	8
Interfaces Gas GAS-IN / NITRO-PORT	2	2	2	2
Default Gas Setup per line (l/min)	0.3	0.3	0.3	0.3
Max-Flow gas limiter orifice (0.3 l/min)	yes	yes	yes	yes
Adjustable gas dosing	yes	yes	yes	yes

## 2.3 NITRO-PORT Explanation

The usage of the Nitro-Port is optional. Below you find a comparison between Nitro-Port usage and without.

NITRO-PORT USAGE	NO	YES
GAS-IN PORT (2.5 bar) Connected to compressed air	YES	YES
NITRO PORT (3.0 bar) Connected to N2 bottle	NO	YES
Pump is driven with	AIR	AIR
Nitrogenating gas	AIR	N2 gas
Pros and Cons	<b>Pros</b> <ul style="list-style-type: none"> <li>No separate N2 bottle required</li> </ul> <b>Cons</b> <ul style="list-style-type: none"> <li>Beverage is getting in touch with air</li> </ul>	<b>Pros</b> <ul style="list-style-type: none"> <li>Beverage is getting in touch with N2 (not with air)</li> </ul> <b>Cons</b> <ul style="list-style-type: none"> <li>Separate N2 bottle required</li> </ul>
What it means	<p>If the liquid is standing in the lines for a while the oxygen in the air will oxidize the beverage which might have impact to the beverage taste.</p> <p>Due to the micro-air filter, there is no problem with micro-growth. The issue is more the taste impact if left longer than 24 hours.</p>	<p>As the nitro-gas is pure N2 there is no problem with oxidation – but it has the disadvantage that the N2 needs to be changed from time to time.</p> <p>Please note: The N2 bottle needs to be changed when the pressure goes below 3.0 bar. If it reaches 2.5 bar no N2 will be used from the gas bottle any more.</p>
Suitable for	Sweet beverages where oxidation taste will not be detected. Eg cocktails. Also good for fast moving products.	Beverages which are sensitive to taste change. Eg cold-brew coffee. And where the product demand is low or it stays in the line without movement for more than 24 hours.

## 2.4 Liquid Filtration

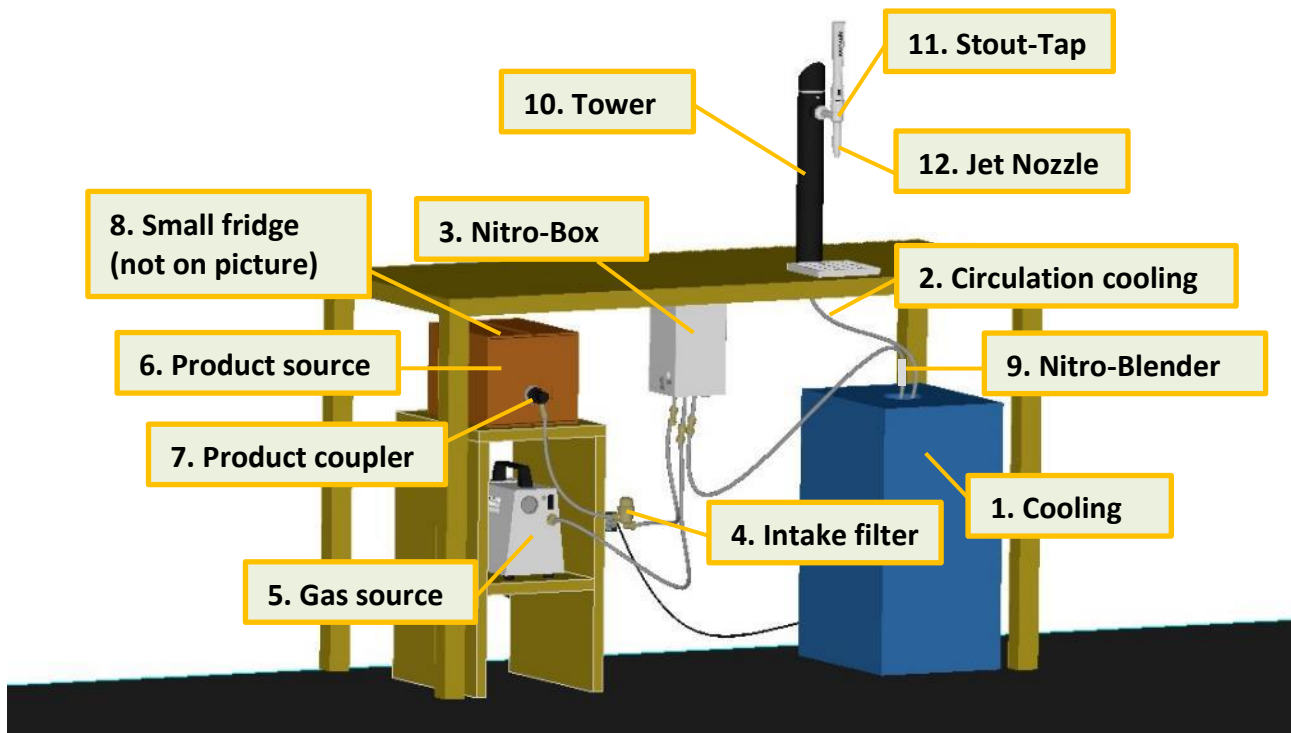
Ensure that the beverage was filtered with a fineness of at least **100 µm** (100 micron with a 200 filter mesh size). Coarser filtration sizes lead to clogging of the filter in the intake line or in the jet-nozzle outlet-spout of the tap. Make sure the filter adapter is installed in the liquid intake line.



### 3. Installation

#### 3.1. Parts Guideline

The required parts depend on the installation concept. Such as gas supply, cooling concept, etc. Therefore, we just can provide some general guidelines below.

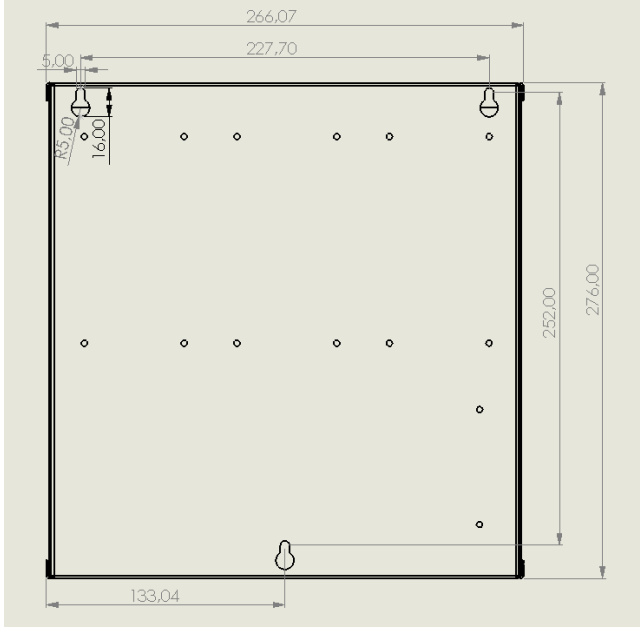
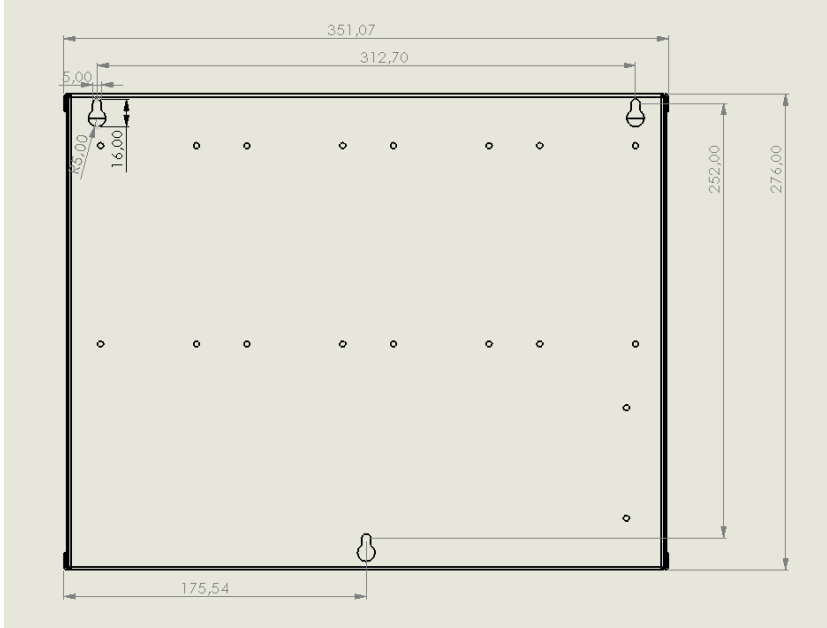


No	Item	Notes	Carbotek item
1	Cooling	The Nitro-Box can be combined with different cooling concepts. When using dry or water-based coolers, the Nitro-Box is installed before those. When using ambient cooling, the Nitro-Box can be installed inside the cooled room.	no
2	Circulation cooling	Circulation cooling is only available when a water-based cooler is used. Without circulation cooling it is important to use a thin hose to minimize the amount of liquid that can warm up. For nitro applications with a flowrate of 0.6 or 1.2 lpm we recommend a 1/4" hose with an ID of 0.17" (4.3 mm). 1m of a hose of 1/4" size (ID = 0.17") has a volume of 15ml which can warm up between dispense breaks. The line between the cooler and the tap shall be isolated as well.	no
3	Nitro-Box	The Nitro-Box is placed before the cooler (dry or wet) or inside the cooled room if environmental cooling is used.	1 line : 249 : NB-20-1-NP-MF 2 lines : 250 : NB-20-2-NP-MF 3 lines : 252 : NB-20-3-NP-MF 4 lines : 251 : NB-20-4-NP-MF
4	Intake filter	The intake filter is always recommended to be used. Use a mesh size of 200 to achieve a 100 micron filtration rate - which is required to protect the pump, the blender or the jet-nozzle from clogging up with particles.	822 : Strainer (200 mesh / 100 micron)

5	Gas source	Typically, the Nitro-Box is operated only with compressed air. An <u>OIL FREE</u> compressor must be used. Optionally an additional N2 bottle can be connected to avoid oxidation taste of the beverage.	371 : Mini-Aircompressor (230V/50Hz) 372 : Mini-Aircompressor (115V/60Hz)
6	Product source	The product can be stored in pressurized (KEG, KEYKEG) or unpressurized (Bag-in-Box, canister) containers. When using a pressurized container, you have to feed in gas when taking out liquid. When this gas is in direct contact with the product, you need to take N2 gas - or you choose a small vessel that is consumed within 2 days. The oxygen in the air will spoil the product if it stays in contact for more than 4 days. A small (thermoelectric) fridge might be considered to pre cool the product and extend the product shelf life.	430 : 5l ball-lock canister 433 : 11l ball-lock canister 435 : 20l ball-lock canister  490 : 5l CPC valved canister 493 : 11l CPC valved canister 494 : 20l CPC valved canister
7	Product coupler	The product coupler must fit to the container valve.	031 : Ball-lock coupler with 3/8" hose 1316: CPC elbow coupler
8	Small fridge	Small fridges can be used to extend the product shelf life and to relieve the cooler after the Nitro-Box. In case of peak demand this might be helpful as less cooling power is required then.	307 : Mobicool F16 mini fridge for 5l canister; without hose bore 308 : Mobicool F16 mini fridge for 5l canister; with hose bore
9	Nitro-Blender	Nitrogen (or compressed air) is not dissolving in the liquid. So the injected gas bubbles might consolidate somewhere in the product line and create gas burps at the tap. The blender helps to premix the nitro gas and to avoid such burps. Typically, the blender is installed before the cooler. It is optional and only required on installations longer than 2m, where the gas can consolidate somewhere in the line.	167 : Nitro-Blender for 3/8 hose Max-Flow is 2.5 l/min
10	Tower	All tower styles can be used.	Many models available, ask for tower document.
11	Stout tap	All stout taps can be used as long as it fits together with the Jet-Nozzle thread. (9/16" x 26 TPI)	1472 : Stout-Tap NSF (BI) 1446 : Stout-Tap (MMBEV)
12	Jet-Nozzle	The Jet-Nozzle breaks down the nitro gas bubbles and creates the cascading effect. Also the flowrate is defined through hole size in the spray crown elements inside. The nozzle has an inside thread of: 9/16" x 26 TPI (also fits on	410 : Jet Nozzle Mono : 0.6 lpm 409 : Jet Nozzle Mono : 1.2 lpm





<p>Trippl (252) SKU: NB-20-3-NP-MF</p>	
<p>Quattro (251) SKU: NB-20-4-NP-MF</p>	

### 3.3. Pressure Settings

**GAS-IN                      Compressed Air                      2.5 Bar**

**In installations with floor changes, increase the pressure by 0.5 bar for each floor change.**

*Note: This gas is used to drive the pump. If NITRO-PORT is connected, NITRO-PORT gas is used for nitro injection, otherwise GAS-IN gas is used for nitro injection.*

**NITRO-PORT                      N2 (optional)                      3.0 Bar (MUST BE 0.5 Bar HIGHER THAN GAS-IN !!)**

If the Nitro-Box is connected to a pressurized container / keg. The gas feed for the container must not be higher than 0.5 Bar

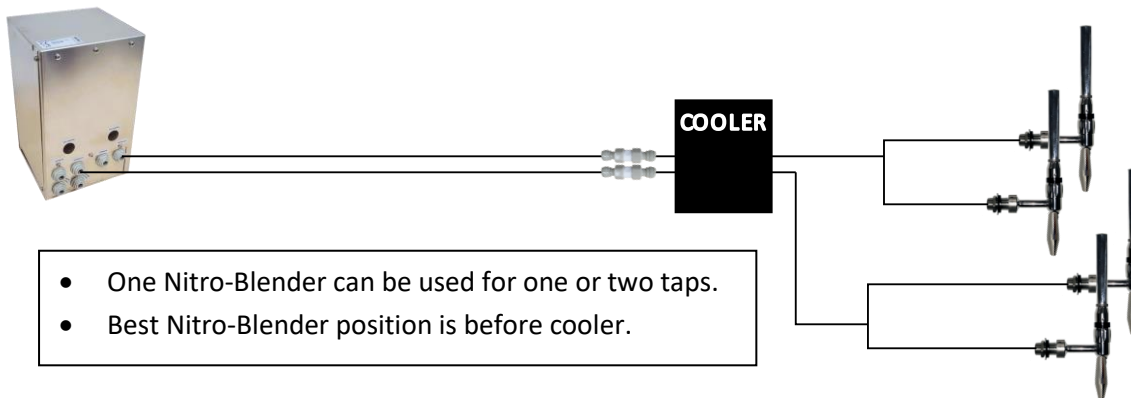
**GAS-FEED to KEG                      N2 (recommended)                      0.5 Bar**

### 3.4. General Recommendations

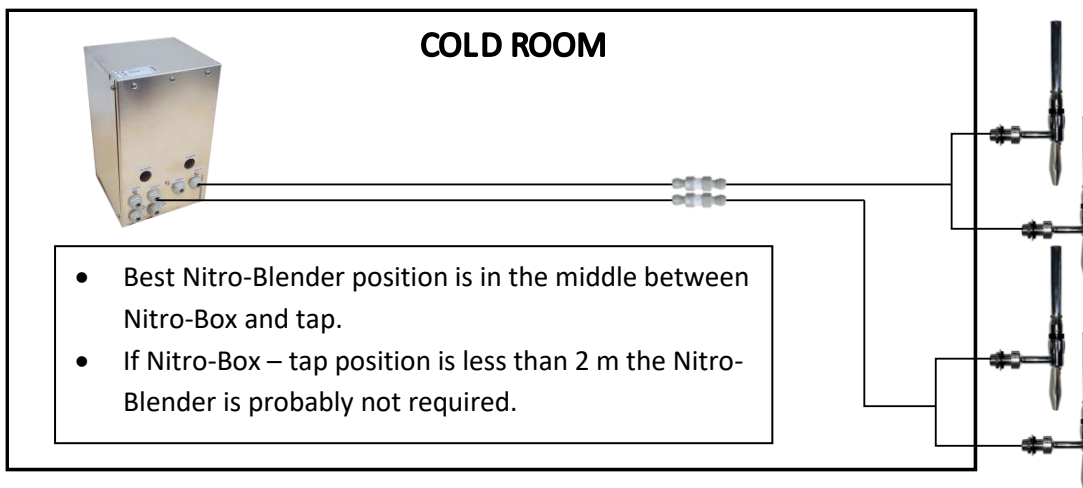
<p><b>Shut-Off valves</b></p> <ul style="list-style-type: none"> <li>Usage of shut-off valves We recommend to install the Nitro-Box with shut-off valves on each liquid and gas line as in the picture shown. This makes service works easier.</li> </ul>	
<p><b>Nitro-Blenders</b></p> <ul style="list-style-type: none"> <li>When using Nitro-Blenders, please consider that a blender has a flowrate of about 2.5 l/min at 2 bar liquid pressure. One Nitro-Blender can be used to support 1 or 2 taps.</li> <li>Installations with bigger liquid volumes in the lines (eg very long lines, floor changes, thicker tubing id than 6.7 mm), a second blender might be required to avoid or reduce splashes during dispense. See chapter: 3.5.4</li> </ul>	
<p><b>FOB Stop</b> When using a FOB stop device:</p> <ul style="list-style-type: none"> <li>Use the Nitro-Box with a pressurized container or KEG</li> <li>Place the FOB stop before the Nitro-Box</li> </ul> <p><b>Attention:</b> <b>When the FOB-stop device stops the liquid flow to the Nitro-Box the nitro gas keeps flowing and pushes the liquid slowly after the Nitro-Box up to the tap!! A solution to this is under development.</b></p>	
<p><b>Foam Water</b> For setup verification we recommend to make a foam-water solution based on Methylcellulose. Simply a teaspoon of the white powder + 5l of water provide an excellent reference liquid for testing. Methylcellulose is used as a food additive – so can be even consumed without health issues.</p> <p>Simply look for Methylcellulose in the internet. Product Metil is tested and suitable.</p>	
<p><b>Air-Compressor Power</b> Check the power of your air compressor. Specially if you run several pumps, you need a free flow rate of about 10 lpm for each pump. So for 3 pumps you need an air compressor with 30 lpm free flow rate to cover peak demand situations.</p>	
<p><b>Dispensing lines</b> We recommend 3/8 dispensing lines with 6.0 or 6.7 mm ID. Thicker lines can lead to splashing problems during dispense</p>	

### 3.5. Typical installation scenarios

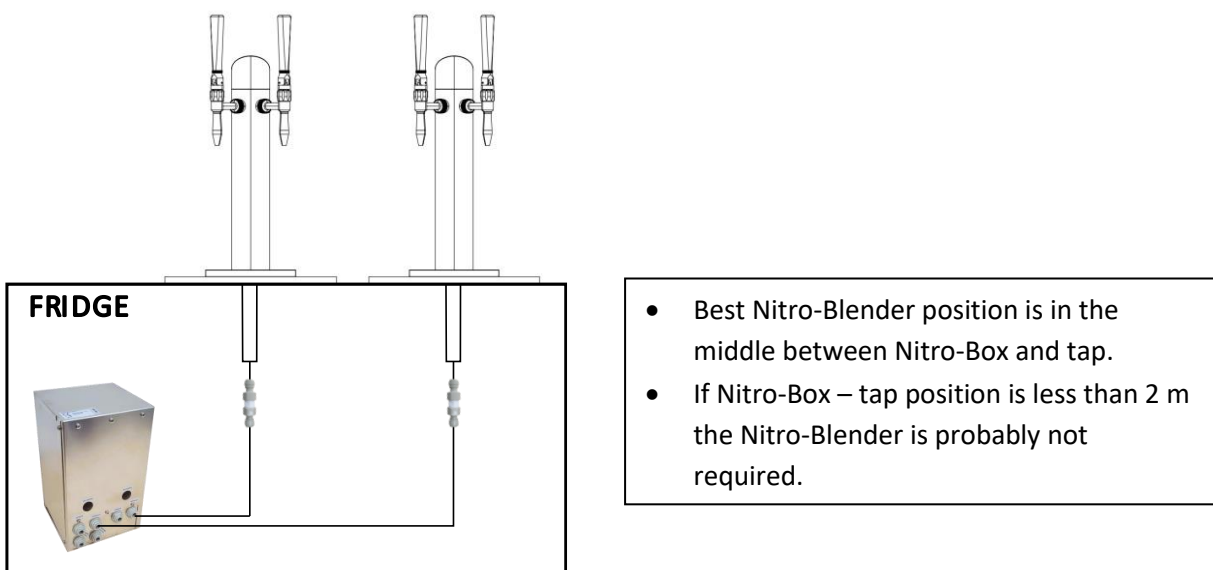
#### 3.5.1. Water or dry cooler installation



#### 3.5.2. Cold room installation



#### 3.5.3. Fridge installation



### 3.5.4. Additional Nitro-Blenders

An additional Nitro-Blender is useful, if you have problems with splashes during dispense. These are the type of installations, where an additional Nitro-Blender has shown a positive effect.

- Long installation lines (more than 50 m)
- Floor changes.
- Lines with thicker ID tubing. Thicker ID tubing means, more liquid volume is in the system

#### How-to position an additional Nitro-Blender?

- The additional Blender shall be placed closer to the tap. If there is already a Blender, leave some meters between the two Blenders.
- Do not position the additional Blender at the Nitro-Box outlet or before a floor change.

### 3.6. Gas Adjustment

The Nitro-Boxes have a pre-adjusted gas-flow of 0.3 l/min at 3.0 Bar gas pressure. This gas flow generally produces an excellent crema.

The Nitro-Boxes have a Max-Flow limiter. This means the amount of dosing gas only can be reduced but not increased furthermore, even by opening the needle valve as described below.



#### 3.6.1. Tools

- Gas adjustment with small slot screwdriver  
Tip properties: 4 mm width / 1 mm thickness
- Wrench 7 mm  
Required if gas flowmeter as below is used
- To verify the gas setup a small flowmeter (max 1 lpm) can be used.

Carbotek item 931 / Nitro-Dosing-Flowmeter

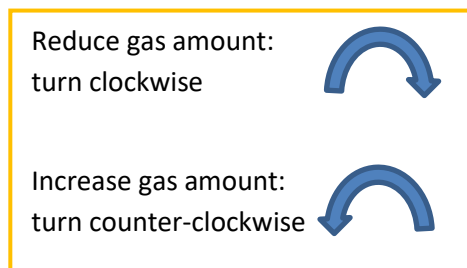


### 3.6.2. How to Adjust

- The Nitro-Boxes have a Max-Flow limiter orifice. This orifice limits the max gas flow that can be adjusted.
- The **gas dosing BASE position** can be achieved like this:
  1. Turn the needle valve clockwise to close it completely
  2. Open the needle valve by turning it counter clockwise by ONE turn.
 Now the Nitro-Box is setup to provide 0.3 l/min gas flow.

Still a reduction of the nitro gas amount is possible. Recommended steps:

- Setup the Base gas dosing position as described above.
- Now reduce the needle valve by 45 – 90° steps (turn clockwise) and verify the dispensing result. Please note you must dispense as much as liquid is stored in the lines up to the tap to verify the result.
- Flowmeter validation is possible. Through gas limiter  
To use the flowmeter, the hood must be taken off.



### 3.6.3. Gas Setup Verification

To validate or check the gas flow there are three possibilities:

#### 1. Try and error with product

- Adjust the gas setup until the product at the tap is as desired. Depended of your setup you might have to pour half a liter (or more) after each modification to see the effect. To minimize the product usage, you can use reference foamwater. See in FAQs how to create this.

#### 2. Check gas bubble at tap

- Fill the system with water
- Close the product inlet, to make the pump stop due to suction vacuum



- Open the tap and dip in the nozzle in glass with water.



After a short while there is a slight gas bubbling visible.

This method requires some experience to be able to judge what is the right level of bubbling.

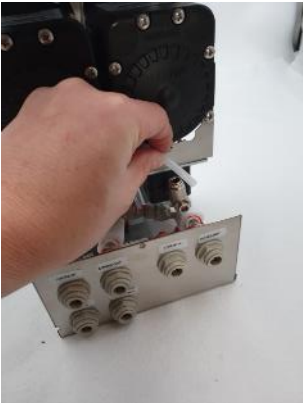
#### 3. Check with flowmeter



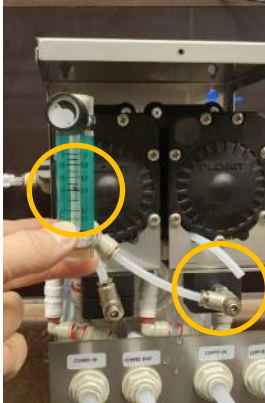
Use a 7 mm wrench to disconnect hose from needle valve output



With the wrench push down the retaining ring.



Then pull out the 6mm tube



Connect the flowmeter and check the gas flow according the ball.

Target is a flow rate of 0.3 l/min

Adjust gas level with screwdriver until target level. Then built reverse again.

## 4. Hygiene, Cleaning, Maintenance

### 4.1. Product shelf life after connection

The product shelf life after connection to the dispense line depends on a couple of circumstances that are independent from the dispense system. 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.


### 4.2. Recommended Cleaner and Strength

As a cleaner we recommend the product ONE-PRO from URNEX.

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



## RECIPIE PER TAP !!

**2 x  of ONE-PRO powder (11g)**  
**+ 2.5l of WARM WATER (40°C/104°F)**  
**= 2.5l of CLEANING SOLUTION**



### 4.3. Chemical Cleaning

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

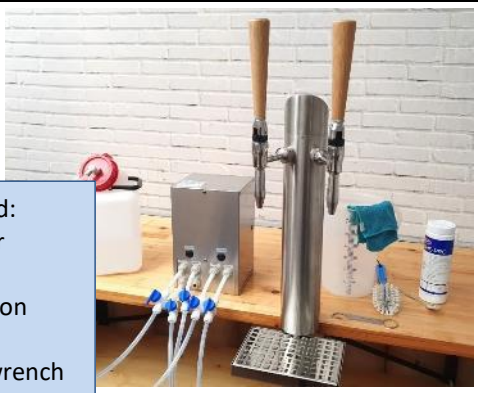
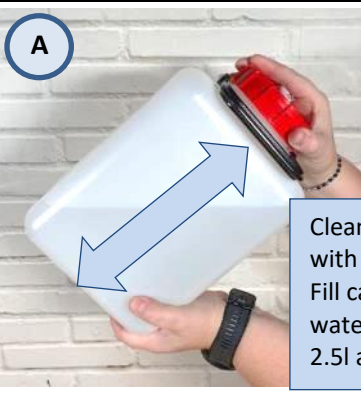
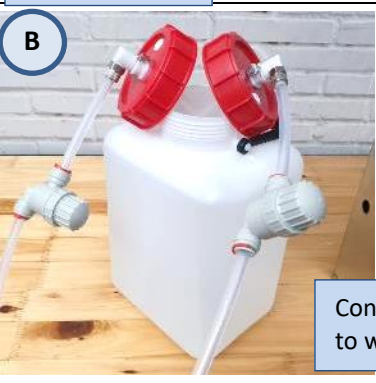
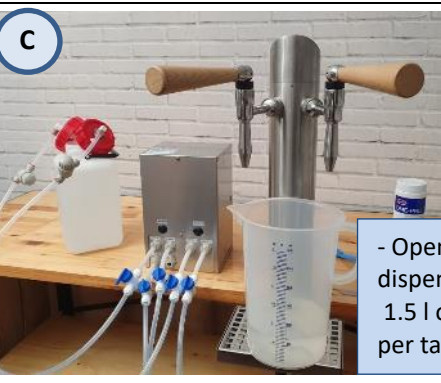
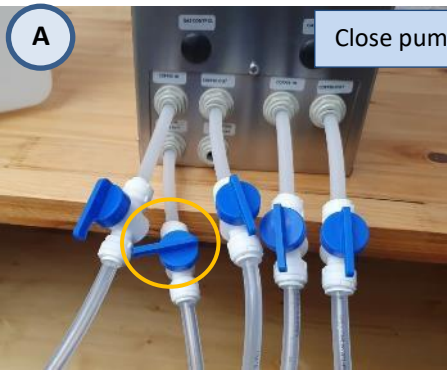

It's recommended to wear gloves and safety glasses when working with chemical detergents.

Pay attention to the local safety standards.

The principal cleaning steps are as below

1. Rinse installation with water
2. Check the intake filter and Jet-Nozzle parts for particles
3. Apply the chemical cleaning
4. Rinse installation with water

#### CLEANING PROCESS

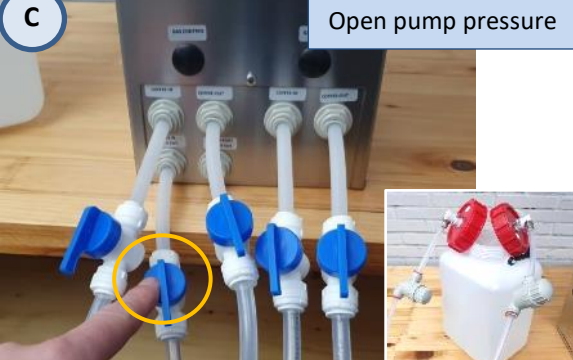
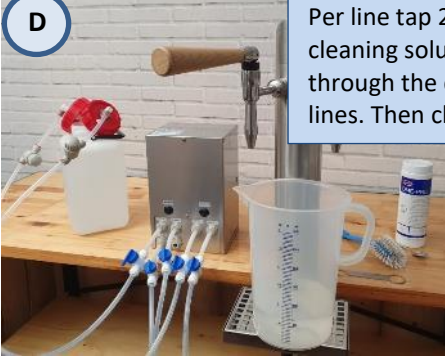
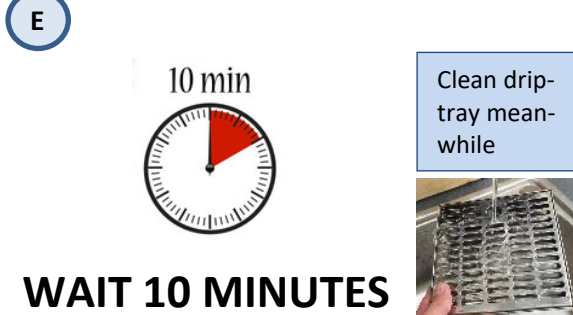
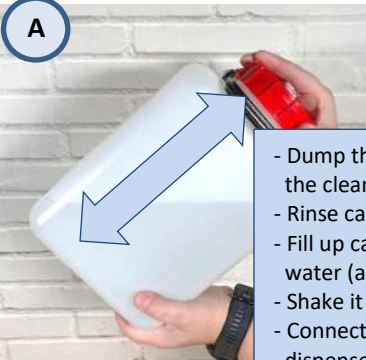

1. Cleaning equipment	2. Rinse with water
 <p>You need:</p> <ul style="list-style-type: none"> <li>- Cleaner</li> <li>- Brush</li> <li>- Teaspoon</li> <li>- Jug</li> <li>- Filter wrench</li> </ul>	 <p><b>A</b></p> <p>Clean canister inside with a brush. Fill canister with water. Per line about 2.5l and shake it.</p>
 <p><b>B</b></p> <p>Connect intake lines to water canister.</p>	 <p><b>C</b></p> <p>- Open tap and dispense 1.5 l of water per tap.</p>
3. Release dispense line pressure	
 <p><b>A</b></p> <p>Close pump pressure</p>	 <p><b>B</b></p> <p>Keep the tap open to release pressure</p>

**4. Check intake filter, jet-nozzle and tap valve (for each tapping line)**

	<p><b>A</b></p> <p>Open filter adapter with wrench</p>		<p><b>B</b></p> <p>Take out filter element and clean with water in case of particles or clogging.</p>
	<p><b>C</b></p> <p>Close filter again</p>		<p><b>D</b></p> <p>Unscrew the tap nozzle</p>
	<p><b>E</b></p> <p>Check nozzle. No particles should be there. If so, flush with water and/or clean with brush.</p>		<p><b>F</b></p> <p>Reconnect the nozzle to the tap.</p>
	<p><b>G</b></p> <p>Unscrew the tap valve</p>		<p><b>H</b></p> <p>Check tap valve and clean with a brush if required. Then put it back in its position.</p>

**5. Prepare 2.5 l of cleaning solution (per tap) and flush dispense lines**

<p><b>A</b></p> <p><b>2 x per tap</b></p> <p>Prepare cleaning solution: Per tap 2.5 l hand warm water and 11g (two teaspoons) of ONE-PRO powder</p>	<p><b>B</b></p> <p>Shake canister with cleaning solution</p>
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<p><b>C</b></p>  <p>Open pump pressure</p>	<p><b>D</b></p>  <p>Per line tap 2.0 l of cleaning solution through the dispense lines. Then close tap.</p>
<p><b>E</b></p>  <p>10 min</p> <p>Clean drip-tray meanwhile</p> <p><b>WAIT 10 MINUTES</b></p>	
<p><b>6. Rinse with water again</b></p>	
<p><b>A</b></p>  <ul style="list-style-type: none"> <li>- Dump the rest of the cleaning solution.</li> <li>- Rinse canister with water</li> <li>- Fill up canister with fresh water (around 2.0 l per line)</li> <li>- Shake it</li> <li>- Connect water canister to dispense lines</li> </ul>	<p><b>B</b></p>  <ul style="list-style-type: none"> <li>- Per line tap 1.5 l of water through the system.</li> <li>- Now connect back to your dispensing product</li> </ul>

## 4.4. Preventive Maintenance

As preventive maintenance jobs are considered:



- Change of micro-air-filter (code: 821) inside the Nitro-Box: **Every 2 years**



## 5. FAQs

<ul style="list-style-type: none"> <li>Nitro-Port N2 gas consumption?  Or how long does a N2 bottle last?</li> </ul>	<p><b>Consumption of N2 gas</b> At 0.3 l/min (default gas flow) with 0.35 g N2 / l</p> <p><b>Bottle Start:</b> 10 l bottle of N2 (at 200 bar) = 2.5 kg = 2,500 g</p> <p><b>Bottle End:</b> 10 l bottle of N2 (at 3 bar) = 0.05 kg = 50 g</p> <p><b>Nitro Coverage:</b> (2,500 g – 50 g) / 0.35 g / l = 7,000 l</p> <p>⇒ <b>A 10 liter gas bottle lasts for 7,000 liters</b></p>												
<ul style="list-style-type: none"> <li>How many taps can be supplied with a Nitro-Box?</li> </ul>	<p>Each pump in a Nitro-Box can provide a flowrate of about 2.5 l/min (at a pressure of 2.5 bar). When using the recommended Carbotek Jet Nozzle (article 409), the flowrate is about 1.2 lpm.</p> <p>⇒ <b>Per pump 2 taps can be supplied</b></p>												
<ul style="list-style-type: none"> <li>Distance between Nitro-Box and tap?</li> </ul>	<p>This follows the same rules as for beer line installations. The pressure loss can be calculated.</p> <p>Vertical pressure loss: 0.1 bar per height meter</p> <p>Horizontal pressure loss bar per meter (flowrate / ID tubing)</p> <table border="1" data-bbox="638 1176 1324 1288"> <thead> <tr> <th>Flowrate</th> <th>4 mm</th> <th>7mm</th> <th>10 mm</th> </tr> </thead> <tbody> <tr> <td>1 lpm</td> <td>0,07</td> <td>0,01</td> <td>0,002</td> </tr> <tr> <td>2 lpm</td> <td>0,66</td> <td>0,02</td> <td>0,004</td> </tr> </tbody> </table> <p>The starting pressure at the Nitro-Box outlet is 2.0 Bar If the pressure loss trough horizontal + vertical distance is getting <b>more than 0.5 bar</b>, please increase the Nitro-Box GAS-IN pressure by this amount. If you do so, be aware that the Nitro-Port pressure must be kept 0.5 Bar higher than the GAS-IN pressure.</p>	Flowrate	4 mm	7mm	10 mm	1 lpm	0,07	0,01	0,002	2 lpm	0,66	0,02	0,004
Flowrate	4 mm	7mm	10 mm										
1 lpm	0,07	0,01	0,002										
2 lpm	0,66	0,02	0,004										
<ul style="list-style-type: none"> <li>Which impact does the liquid temperature have on the dispensing result.</li> </ul>	<p>Temperature has no impact on the dispensing result. A good crema or foam is NOT dependent on the drink temperature.</p>												
<ul style="list-style-type: none"> <li>Can other drinks be used. E.g. ale beer?</li> </ul>	<p>No The system will not work with liquids that contain CO2 – simply because the CO2 breakout will produce too much foam. Also wine has about 1.0 g CO2/l which might be too much for the system.</p>												
<ul style="list-style-type: none"> <li>Does the crema (foam) quality depend on the drink ingredients?</li> </ul>	<p>Yes Generally, a foam holding structure is required. E.g. protein. There are ingredients that lead to a bad foam quality. E.g. There were problems reported with honey sirup.</p> <p>Use Methylcellulose to create a reference foam water liquid.</p>												

## 6. Troubleshooting

Problem	Solution
<p><b>Not enough foam</b></p>	<ul style="list-style-type: none"> <li>• <b>Check dispensing flowrate</b> Dispensing flowrate at the tap should be 1.0 – 1.2 l/min. Check this flowrate.</li> <li>• <b>Check for the Carbotek Nitro Nozzle</b> This nozzle is required for a good foam result.</li> <li>• <b>Check pressure settings</b> GAS-IN : 2.5 Bar NITRO-PORT : 3.0 Bar (0.5 Bar higher than GAS-IN) If product is in container / keg: GAS-FEED: max 0.5 Bar</li> <li>• <b>Adjust gas setup to Base position (3.6.2)</b></li> <li>• <b>Follow instructions in “3.6.3 Gas Setup Verification” 4</b></li> <li>• <b>Check if liquid is suitable. See FAQ chapter.</b></li> </ul> 
<p><b>Too much foam</b></p>	<ul style="list-style-type: none"> <li>• <b>Check dispensing flowrate</b> Dispensing flowrate at the tap should be 1.0 – 1.2 l/min. Check if the flowrate is correct. If it's too low the amount of gas doesn't match. Potential reason for slow flowrate: <ul style="list-style-type: none"> <li>- Clogged nozzle</li> <li>- Clogged intake filter</li> </ul> </li> <li>• <b>Check for the Carbotek Nitro Nozzle</b> This nozzle is required for a good foam result.</li> <li>• <b>Check pressure settings</b> GAS-IN : 2.5 Bar NITRO-PORT : 3.0 Bar (0.5 Bar higher than GAS-IN) If product is in container / keg GAS-FEED: max 0.5 Bar</li> <li>• <b>Consider floor levels</b> For each floor level change, increase GAS-IN and NITRO-PORT by 0.5 bar.</li> <li>• <b>Adjust gas setup to Base position (3.6.2)</b> If still too much foam, gas can be reduced further down.</li> <li>• <b>Follow instructions in “3.6.3 Gas Setup Verification”</b></li> <li>• <b>Suitable liquid</b> Do not use liquids with CO2. This will create too much foam. These are sparkling drinks like beer, but also Wine has a CO2 concentration of about 1 g CO2/l. The liquid should have no CO2 at all.</li> <li>• <b>Suitable gas for container / keg</b> Do not use CO2 as a gas feed gas for a container or keg. This would result in a slow carbonation process where the liquid absorbs CO2 and after a while tapped drinks will have too much foam. N2 is recommended to be used.</li> </ul> 

<p><b>Splashes during dispense</b></p>	<p><b>The reason for splashes during dispensing is that too much gas is added into the dispensing line or that during a dispense break gas pockets build up.</b></p> <p><b>Strategies against these “splashing” interferences</b></p> <ul style="list-style-type: none"> <li>• Check gas setup as on previous page under “Too much foam”</li> <li>• Check the blender position. See chapter 3.5. Consider an additional blender</li> <li>• Reduce gas dosing             <ul style="list-style-type: none"> <li>- Either through needle valve adjustment (3.6.2)</li> <li>- Or by reducing the NITRO-PORT pressure. Reduce in 0.2 bar steps. This will reduce the amount of gas added.</li> </ul> </li> </ul>
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## 7. Warranty

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

## 8. Contact Data

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