User manual

& Safety instructions


karbönes

Preamble

Thanks for choosing Karbones. You are now free to breath under water with an equipment made and designed with the collaboration of beginners and experienced underwater divers.

To begin with, before the first use of a Karbones product, it is very important to entirely read and understand this instruction manual.

Please, always be sure that the product is used according to the conditions defined in this manual, no matter who the user is.

Karbones can not be held as responsible of any material or physical accident in case of non respect of the given instructions.

Karbones was developed to be used in sea or swimming pools. A use in a different environment can potentially accelerate the aging of the equipment.

Karbones retains the right to change or to improve the manual without warning. Please get to know the current version during the usage of the product.

It is necessary to keep the user manual during the life of the product. You can also find it on the updated version website www.karbones.com.

You can also consult our help section with video/tutorials directly on our website.

The end of particular parties contains the mention **"WARNINGS"** to underline a specific situation which have to be taken into consideration to avoid a risky situation.

To be put in a plane for a journey, the tank must not be pressurised, you will certainly need to unscrew the cylinder tank from the head regulator. To do this, unscrew (counterclockwise) simply the 2 elements. These 2 elements must be screwed down with the Original O-ring delivered by Karbones, the torque must be 90 N.m (regarding regulator's manufacturer), please note that regarding the reglementation, you are responsible for reassembling the equipment.

INSTRUCTIONS TO RESPECT IMPERATIVELY

NEVER block your breathing, breathe continuously

NEVER go up to the surface faster than air bubbles

Use at SHALLOW depth

Watch your MANOMETER VERY REGULARLY

USE PROHIBITED WITHOUT KNOWLEDGE OF USE HAZARDS

Table of contents

1. Content of the kit **(depending on pack and options)**

- 1x 0.5 L diving tank (in aluminium for Karbones Alu) or 0.48 L diving tank (in composite for Karbones Carbon)
- 1x Head regulator (with mouthpiece and manometer)
- 1x DIN or Yoke filling station (if you choose this option)
- 1x Hand pump (if you choose this option)
- 1x 12 V Compressor (if you choose this option)
- 1x 12-110/220 V Inverter (if you choose this option)
- 1x Manual & safety instructions

*if you have chosen this option

2. Warnings

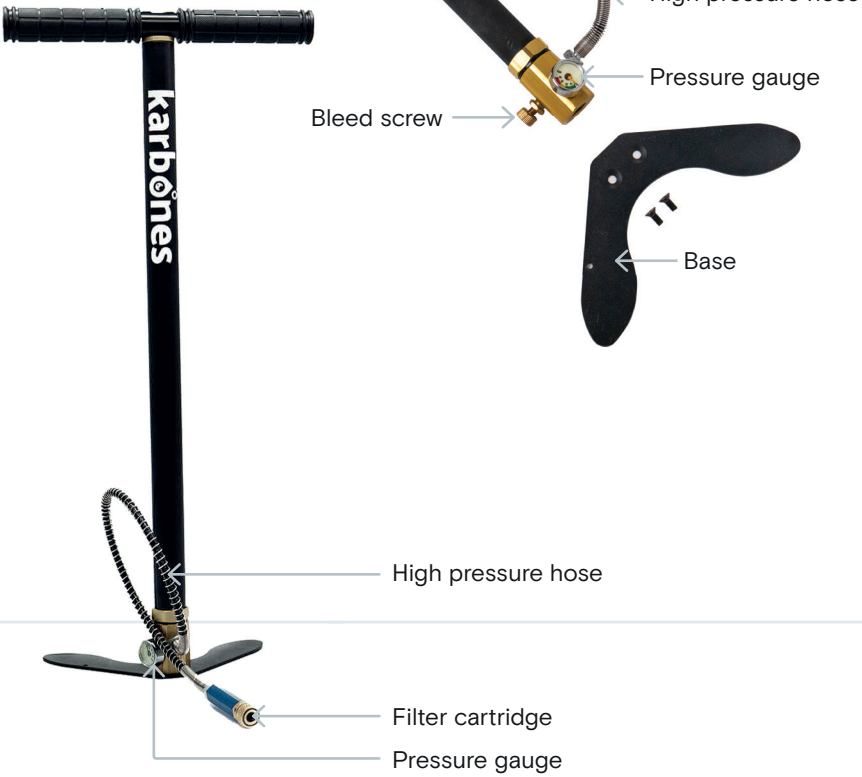
- We advise users **to follow the elementary rules related** to the scuba diving which are given by authorised organisations
- A use without **the awareness of the security rules endangers the user**
- Don't use Karbones with an air supply from the surface
- No assembly of setting can be done by the user, except the ones provided for this purpose
- A piece or an element of the Karbones, the hand pump or the compressor should not be used on an other device, or else the guarantee could be cancelled and the users could endangers themselves
- The recommended minimum age to use the Karbones is eight (under adult supervision)
- Never grease the pieces of the equipment, it can lead to the deterioration of the equipment and of the leakproof seals
- The user always has to correctly read the good pressure unit (**bar or PSI**) on the manometer(s)

WARNINGS

The use of Karbones **under 3 m (10 ft) depth is forbidden** for any person who did not follow specific formation of scuba diving from an official center

3. Presentation of the product

Hand pump



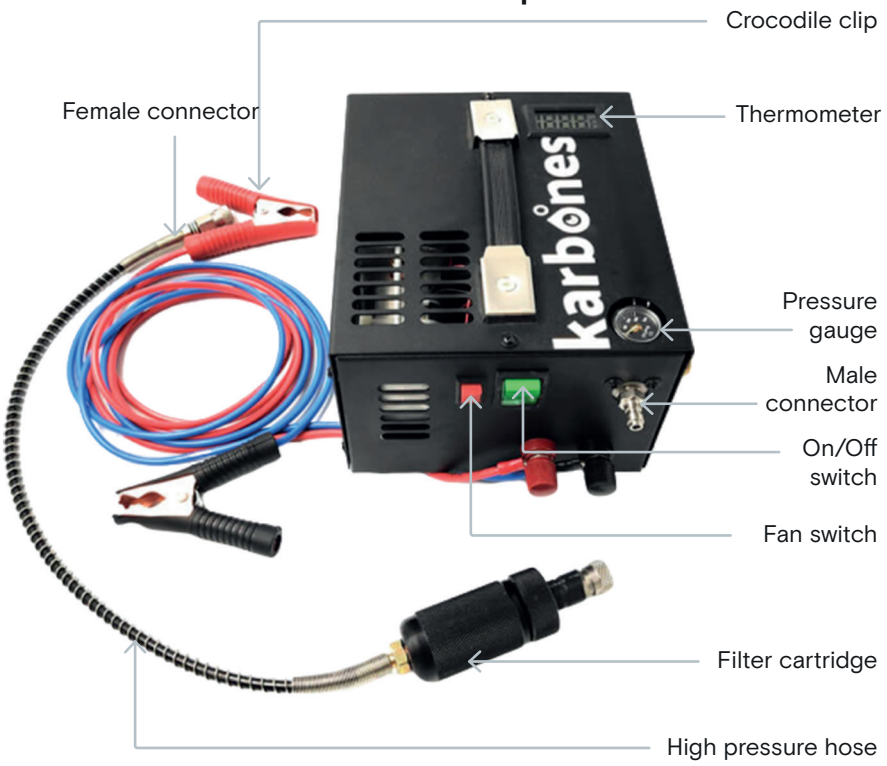
Aluminium tank

Carbon tank

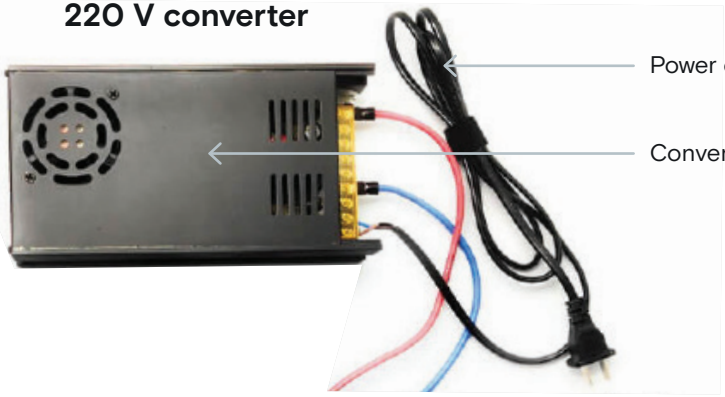
Pressure gauge

Maximum pressure:
Aluminium tank: 200 bar
Carbon tank: 250 bar

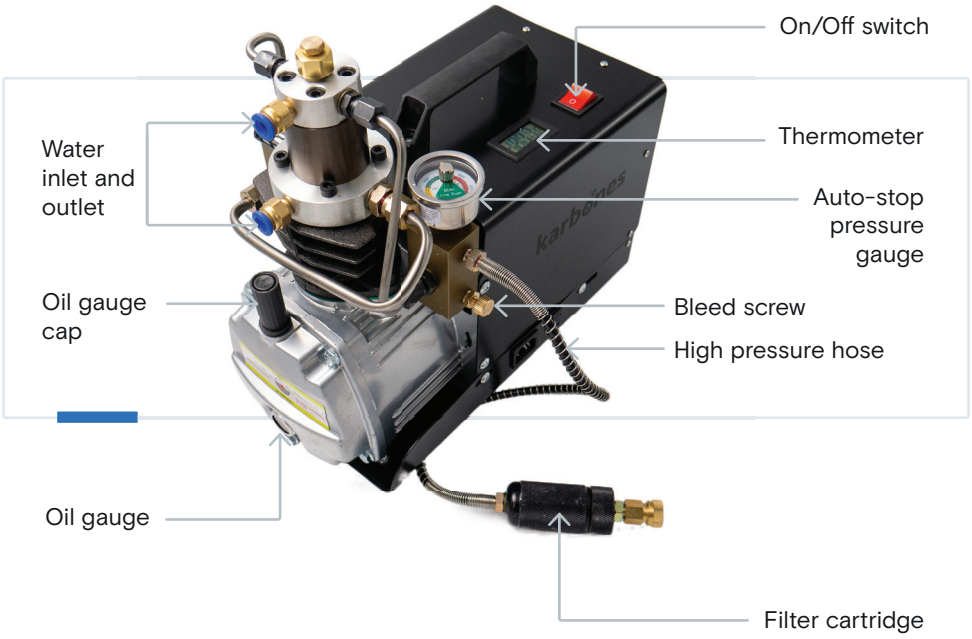
12 V mini-compressor



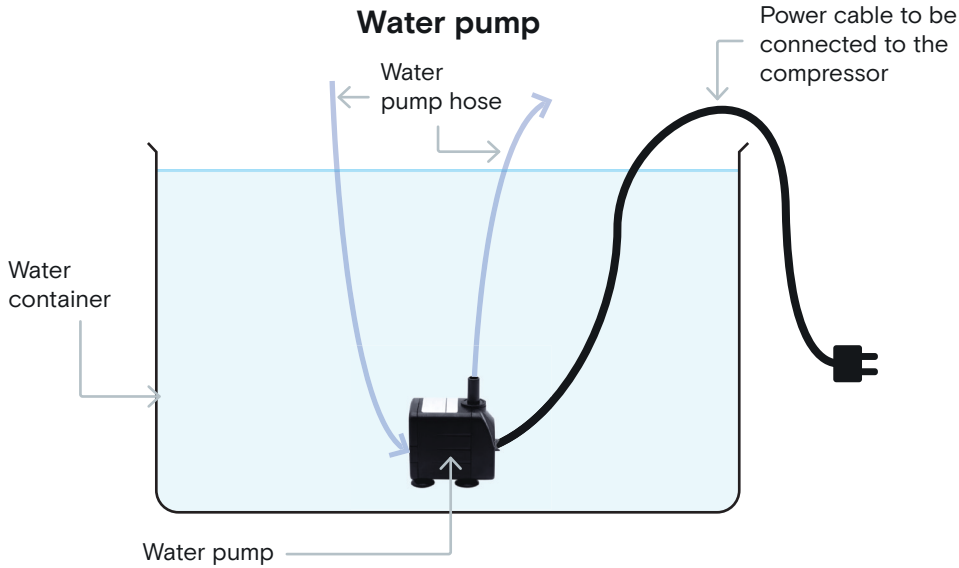
220 V converter



220 V compressor



Water pump



4. Technical features

Karbones:

- Internal water volume of the tank : 0,5 L (30 cu in) for Karbones Alu and 0,48 L (29 cu in) for Karbones Carbon
- **Maximum authorised pressure (PS) : 200 bar (3000 psi) for Karbones Alu, 250 bar (3750 psi) for Karbones Carbon**
- Service temperature : +10°C / +40°C (50°F / 104°F)
- Weight : 1,1 kg (2.4 lbs) empty for Karbones Alu / 0,9 kg (2 lbs) empty for Karbones Carbon
- Dimensions : 29x7 cm (11.4x2.8 in) for Karbones Alu / 32x6 cm (12.6x2.4 in) for Karbones Carbon
- **Maximum authorised depth of use : 3 m (10 ft)**
- **Maximum operational depth of the equipment (allowed for certified divers according to their scuba certification) : 50 m (164 ft)**

Hand pump:

- Maximum pressure authorised : 250 bar (3750 PSI)
- Dimensions (h x l) : 60x18 cm (23.6x7.1 in)
- Weight : 2 kg (4,4 lbs)

12V Mini-compressor:

- Maximum pressure authorised : 300 bar (4500 PSI)
- Dimensions (h x l) : 20x20x10 cm (7.9x7.9x3.9 in)
- Weight : 6 kg (13.2 lbs) without inverter and 6.5 kg (14.3 lbs)
- Maximum temperature: 80° C

220 V compressor:

- Maximum pressure: 300 bar (4500 psi)
- Dimensions (h x l x d): 37x18x36 cm
- Weight: 18 kg
- Maximum temperature: 80°C
- Power: 1800 W (> 10 000 W on start-up)
- Operating voltage: 220 V - 230 V / 50 Hz

5. Precaution of general use

- Due to its vital fonction, always use it with care
- Never force on the valve
- When Karbones is not used, don't let the head regulator under pressure, purge the air thanks to the membrane

- Too much stress on the membrane can engender a too important air expulsion, to stop it, obstruct the mouthpiece
- Avoid any contact between sand or condiment and the Karbones, the hand pump or the 12 V compressor
- Don't expose the material to the sun for a long time
- During the first use, make a complete test of the tank into the air to evaluate your feeling

WARNINGS

In case of leak or suspicion of dysfunction, do not place your ears near the equipment, close the valve and refer to these instructions, contact your dealer if necessary

5.1. Before diving

- In addition to a good health, it is necessary for the user to consult a health specialist
- Visually control the equipment before diving or filling it (the head regulator can arrived a bit unscrewed)
- Make 2 or 3 inspiration/expiration cycles test before setting to water to verify the good working
- Never do a rotation (except the ones provided by this purpose) of the element after the pressurising
- Adapt your dive to the pressure on the manometer

5.2. When diving

- **Always adopt flexible and continuous breathing**
- Use the equipment in a water above +10°C (50°F)
- Karbones should only be used by one person at a time
- **The maximum depth authorised is 3 m (10 ft).** A safety buoy is available on our site to limit and indicate a dive to a maximum of 3 metres.
- **Regularly control the remaining pressure of the tank with the manometer**
- **The user should stay at the surface when the remaining pressure is equal or inferior to 50 bar (725 PSI) (red zone of the manometer)**
- Stop the dive in case of leak coming from the Karbones, slowly go back up to the surface

Plan to stop using the equipment before the total lack of compressed air

WARNINGS

- **Never go back up to the surface faster than the air bubbles**
- **Stop the dive in case of discomfort towards the ears or sinuses, do not dive with a cold**
- **NEVER stop your respiration during your descent or your ascent**
- **Do not immerge the Karbones when it is not pressurised**

5.3. After diving

- After using the Karbones please follow the following instructions :
- Purge the head regulator by pressing the membrane
- Rinse out the equipment in pure water
- Let the equipment dry
- Do not use aerosols or other solvents for the cleaning

WARNINGS

The cleaning of the head regulator has to be gently done. A too strong jet of water through the mouthpiece can damage the internal membrane

6. Refill of compressed air

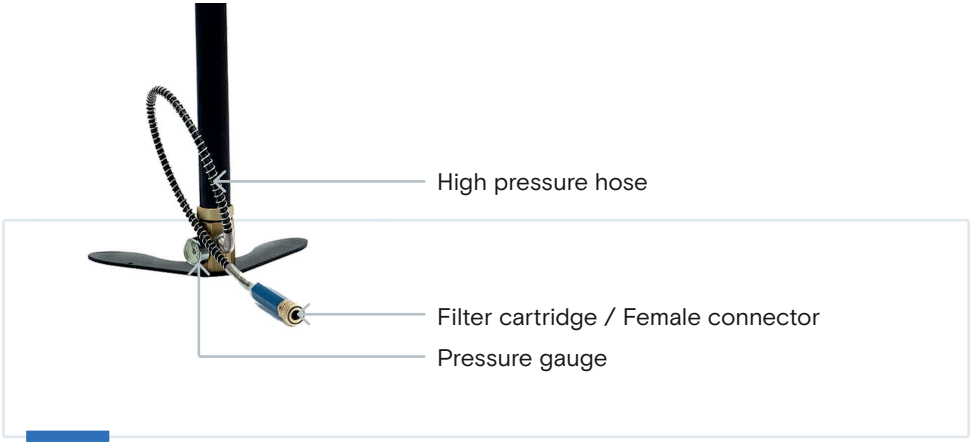
- **The person who refills the tank is responsible for the quality of the compressed air**
- If there is a difference between the pressure in the refilling tank and the manometer of the tank which has to be refilled, **take into consideration the higher value.**

WARNINGS

- **Karbones Alu should not be refilled with a pressure superior to 200 bar (3000 psi).**
- It is to the person responsible of the refilling to make sure of this.
- **Karbones Carbon should not be refilled with a pressure superior to 250 bar (3750 psi).**
- It is to the person responsible of the refilling to make sure of this.

6.1. High pressure hand pump

To refill the Karbones with the Hand pump, please follow the following instructions :



- Pull the pump's female clip before introducing the male clip of the head regulator («click» = good connection)
- Pump until the pressure desired (max. 250 bar / 3750 psi)
- Open the pump valve

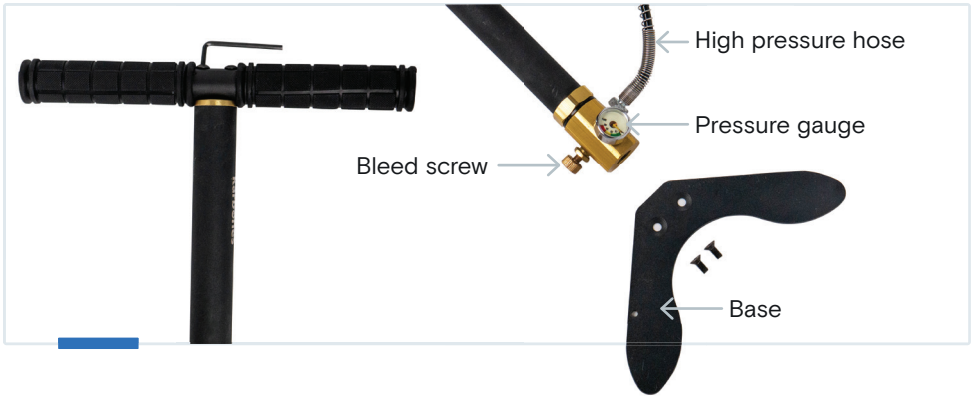
Conseils & Entretient

- We advise to not use the pump more than **5 minutes continuously**, a little cooling time is necessary
- Between every pumping cycle, you can purge the pump to let the base cool (let the tank connected)
- **The optimum pumping cycle is : 2 mins 30 secs of pumping - little pause - pump again...**
- Only the high pressure manual pump sold by Karbones is compatible with Karbones
- Do not let the pump connected under pressure when it is not used
- Regularly compare the manometer (gauge) of the hand pump with the one of the Karbones
- Please make sure that no dust, water traces or other foreign elements is present in the clips, once the protections are removed
- A bad orientation of the male clip in the female clip can be the origin of a micro-leak (not causing any danger whatever the pressure is). In this case, reposition the clip in a way that the weight of the tank does not make any constraint on the clip
- After 5 complete fillings of your tank, you have to change the filter inside the cartridge. You have 5 white foam filters already supplied with the pump.

Filter replacement

- To replace the filter of the hand pump, you need to unscrew the filter cartridge located on the air outlet of the pump hose (see video on our website). You can use an adjustable spanner to loosen the bolts and thus remove the old filter located in the filter cartridge, then slide in the new one.

Hand pump assembly



- Check that the package is supplied with all the elements required, namely the body of the pump, the handle, the base, the high pressure hose, a bag of filters and a bag of accessories
- Using the small screws and the Allen key provided in the bag of accessories, securely attach the base of the pump.
- Then attach the handle with the long screws.
- Connect the high pressure hose by screwing it to the air outlet provided for that purpose (opposite the decompression screw)
- Check that all bolts and screws are properly tightened before using the pump

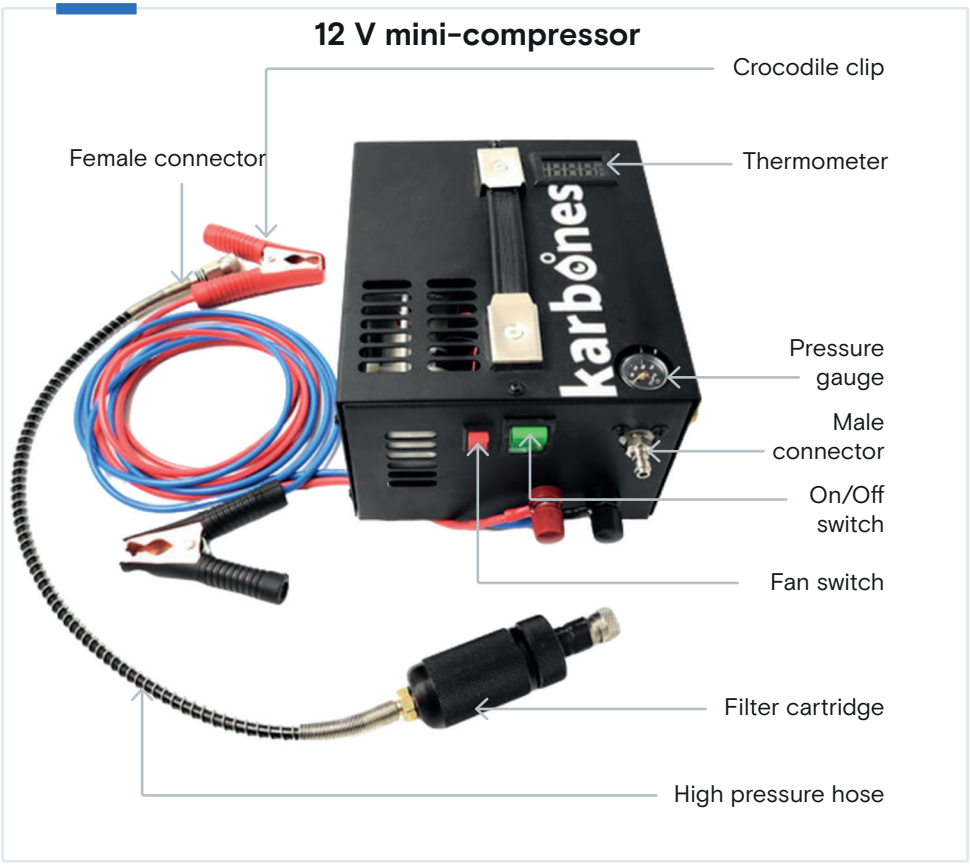
6.2. DIN and YOKE tank refill adapter

- Install the tank refill adapter by screwing it on your scuba tank.
- Connect the fill station tank to the adapter of the tank to be refilled : you must pull the female connector of the tank refill adapter before inserting the male connector of the regulator in the Karbones tank («click» = good connection)
- Slowly open the valve of the source tank to avoid a pressurisation and a brutal filling
- During the pressurisation of the filling station, do not orientate the manometer in your direction
- Please make sure that no dust, water traces or other foreign elements is present in the clips, once the protections are removed
- **Be careful to the unit in PSI (3000 psi = 200 bar; 3750 psi = 250 bar)**

AVERTISSEMENT

- **The person in charge of the filling must stay next to the equipment during filling**
- **The filling should be at a maximum pressure of 200 bar (3000 psi) Karbones Alu, 250 bar (3750 psi) for Karbones Carbon**
- **The filling needs to be done very slowly (1 minute or more)**
- **Make a break during the filling in case of a too important heating for the tank to refill**

6.3. 12V compressor



- **Connect the wires from the battery (or the inverter) to the 12 V compressor**
- Connect the high pressure flexible to the compressor by pulling the female clip of the flexible and introducing the male clip of the compressor («click» = good connection)
- Pull the cartridge's female clip before introducing the male clip of the head regulator («click» = good connection)
- Screw the brass decompression screw at its maximum
- Switch on the fans by pushing the green switch (make sure the fans are working)
- Switch on the compressor by pushing the red switch
- Regularly compare the manometer (gauge) of the compressor with the one of the Karbones
- Regularly control the temperature display, the temperature should not be higher than 85 °C (185 °F)
- Let the compressor run until the pressure desired (max 250 bar / 3750 psi)
- Unscrew the brass decompression screw to remove the pressure from the flexible

- Disconnect the tank from the cartridge by pulling the female clip
- Change the filters inside the cartridge with a new mix of molecular sieve and active coal.

WARNINGS

Make a break during the filling in case of a too important heating

6.4. 220 V compressor

6.4.1. Package contents

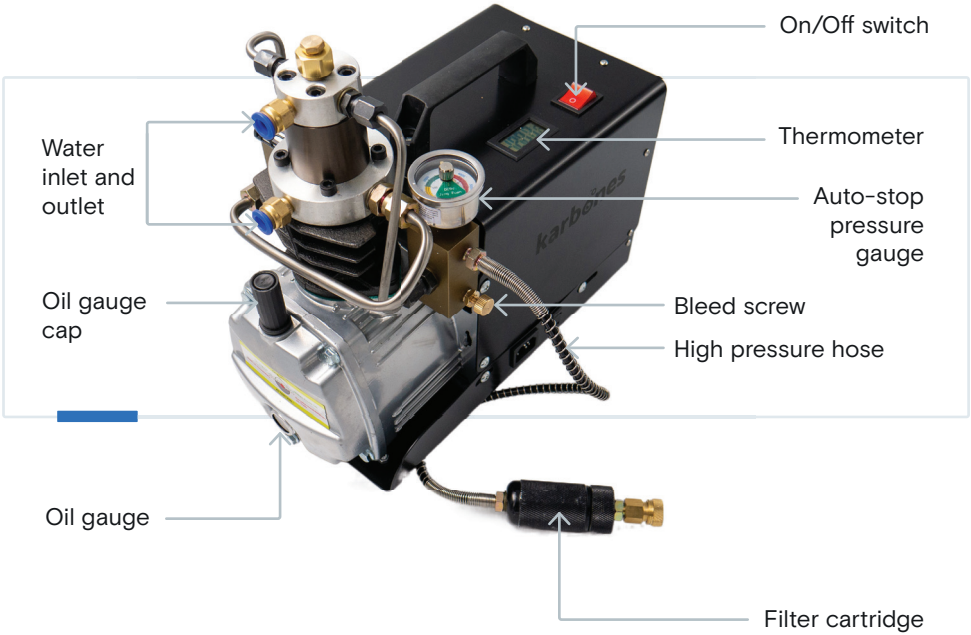
- 1 high pressure compressor with its carrying handle
- 1 power cable
- 1 hose with its filter and connector
- 1 water pump
- 2 flexible hoses for the water pump
- 1 mixed bag of molecular sieves and carbon filters
- 1 can of oil
- Bag of spare parts

6.4.2. Caution and warning

- The compressor can refill tanks up to 1 litre and may reach a maximum pressure of 300 bar
- **Have your tank checked (retested) regularly, beware of rust on steel tanks**
- Use without proper knowledge of safety rules puts the user at risk
- The user should not perform the assembly, disassembly or adjustment of any component, except those designed for such purpose
- Under no circumstances should any part or component of the compressor be used on other equipment under penalty of voiding the warranty as well as putting users at risk
- The minimum recommended age for using the compressor is 18 years old
- Never lubricate the compressor parts as this can lead to deterioration of the equipment and seals
- Always use the compressor on a flat and horizontal surface
- Do not expose the compressor to direct sunlight for extended periods of time

- Safety is the most important aspect during the filling operation ; handle the equipment with care
- The user must always ensure the correct pressure unit (bar, psi or MPa) is read on the pressure gauge(s) 200 bar = 3000 psi = 20 MPa

6.4.3. 220 V compressor operation



- Extract the compressor and place it on a flat, horizontal surface. Place the compressor on the mat provided so as to stabilise it and limit vibrations.
- Pour the oil supplied with the compressor into the oil tank located at the front. The oil level should be above the red marker. Use a funnel if necessary.
- Tightly close the oil tank with the cap, wait 10 minutes (you can perform the following steps in the meantime)
- Connect one of the 2 flexible hoses of the water pump to the water inlet of the compressor, then connect the other hose to the water outlet of the compressor ; the hoses can be connected in either direction. Connect the end of one of the hoses to the water pump (hole on top of the water pump provided for that purpose)
- Put water in a container (bucket, saucepan, etc.) and fully submerge the water pump. The water level must be above the pump. To cool down the compressor faster, you can add ice cubes in the water container.
- Also place the outlet of the second hose of the water pump in the water bottle so that the water flows into it
- Connect the water pump plug to the 220 V compressor

- Tightly screw the high pressure hose to the compressor air outlet located between the pressure gauge and the bleed screw. Check that all bolts and screws are properly tightened to avoid micro air leaks. Pull the female plug of the cartridge on the hose then insert the male plug of the tank regulator («click» = good connection)
- Turn on the compressor by pressing the red switch.
- Power up the compressor by keeping the switch ON.
- When turning on the power, make sure water flows from the outlet of the water pump hose into the water bottle.
- The compressor temperature must not exceed 80°C.
- When its temperature approaches that value, turn it off by keeping the switch OFF.
- Wait for the compressor to cool down before continuing to fill the tank.
- Do not hesitate to change the water in your bucket if it is too hot.

CAUTION

- **The oil introduced must be the one originally supplied or purchased from our website www.karbones.com**
- **The water pump must operate with fresh, soft water, otherwise the motor may be subject to damage**
- **It is recommended that the filters on the 220 V compressor and 12 V compressor be replaced after each refill.**

7. Dangers

- The non-respect of these elementary rules of scuba diving may engender risks of drowning or physical damages which can cause death
- In case of shock, the equipment can be damaged without visual harms, in case of doubt, make your equipment inspected by a specialist
- It is totally forbidden to change the layout or to modify the different pieces of the Karbones
- Never integrate elements from the Karbones on an other (diving) equipment or vice versa
- Never introduce water in the equipment

8. Storage

- After the drying, store the products in a box or a clean and closed bag
- Store the products in a dry place, protected from the light, between +5°C and 35°C (41°F to 35 °F)
- Let the valve closed during storage, the top compartment should not be under pressure
- Do not store the products near gasolines, oils or other chemical products
- Do not store the products in a dusty place or where there is sand
- The flexible should be free from all constraints, tank should be in a vertical position, valve to the top
- During storage, remove the first stage regulator from valve and protect the output with the cap included

9. Maintenance & Upkeep

- The proper functioning and the proper preservation of your equipment do not necessarily depend on its frequency of use. Even when it is not used, a bad storage can significantly damage the device
- Make your Karbones regularly inspected by a specialist, an annual inspection is recommended
- The French law doesn't impose inspection or obligatory re-test for the Karbones tank. It is not mandatory but recommended
- The French law do not impose inspection or obligatory re-test for the pressure regulator but it is advisable (inquire by country)
- It is recommended to replace the hand pump filter every 5 refills
- It is possible that after a certain number of refill, the movement of the pump becomes harder, apply silicon grease in small quantities on the metallic tube of the pump
- Prefer the replacement of a defective piece by an original one
- If the breathing is too hard, remove the membrane by unscrewing it from the head regulator. Then you can adjust the sensitivity by tightening the small screw located under the white bar
- Do not try to fix your equipment by yourself else-way than by the instructions given in this manual
- Do not forget that your security and the proper functioning of your equipment depend on its maintenance
- For the upkeep of your regulators and your tank, consult a diving center
- **A FAQ is also available for all products on karbones.com**

Adjustment if breathing is too difficult

- If breathing is too difficult, remove the membrane by unscrewing it from the regulator.
- Then adjust the sensitivity by tightening the small screw located under the white bar

10. Warranty

- The equipment is guaranteed for one year starting from the date of purchase of the products
- The guarantee is only valid for the first owner of the equipment
- In case of claim for guarantee, you will have to have a proof or purchase delivered by your dealer
- This guarantee is only valid for « defective » pieces due to a manufacturing fault
- A non-followed maintenance can engender a guarantee cancellation
- The guarantee does not cover the damages caused by a faulty use or by carelessness like it is said in this present document
- The guarantee does not take in charge the « normal » usury of the productsThe guarantee does not include the recommended periodic inspectionsThe guarantee is invalidated if the equipment has been disassembled in a different way from this guide
- In a case of modification of the product by a qualified person, he or she undertakes the responsibility of the repairs/ changements done on the product
- The guarantee is available for the repair or the replacement of a piece by Karbones, the freight charges and the packing costs are on the buyer
- The exchanged pieces are Karbones' goods. These new replaced pieces cannot extend the guarantee of the product in any case
- The responsibility resulting from the sale is limited to the described guarantee above. It excludes the possibility to use penalties, damages and interests

- The rules is apt to change according to the territories at a later writing date of the manual, an adaptation can be necessary
- Every modification of the product involves the loss of the guarantee and can involve risks during the use
- Do not interchange the pieces between other equipments or your guarantee can be cancelled
- To benefit from the guarantee, please contact your dealer

11. Standards and regulation

- The tank and the head regulator are CE certified
- The compressor is also CE certified
- Other norms or rules may be applied for certains areas, including some in the European Union

12. Behaviours to follow and avoid during diving

The non-respect of these instructions can expose you to dangers leading to serious consequences on your health.

Preamble

The scuba diving is a risky activity if done without knowledge of safety rules. You will find in this document the main tips to follow and avoid to make your dives enjoyable leisure time. Other tips may be given by qualified diving instructors.

Rules & basics advises

Prior to diving, it is highly advisable to consult your doctor to assess your fitness to dive.

Prior to diving, it is highly advisable to consult your doctor to assess your fitness to dive.

If you suffer from cardiovascular disease, asthma, diabetes, heart disease or vascular, ENT diseases, epilepsy and other neurological disorders, scuba diving practice is strongly discouraged. It also applies to transient diseases such as colds, sinusitis, bronchitis, infection of the nose, throat, ears (otitis) or teeth (caries).

Other factors must also make you give up scuba diving as peptic ulcer disease, retinal detachment, glaucoma, enlarged spleen (splenomegaly) or pregnancy.

You will find in Annex a (french) document of the FFESSM (French CMAS) with a more complete list of contraindications.

Do not fly and avoid ride in altitude the same day of diving.

Throughout the dive, you need to adopt a continuous breathing while regularly checking your manometer gauge.

Do not use earplugs, they prevent pressure equalisation. Dive only if you feel good and you feel like it, hydrate yourself before and after the dive (to avoid drying up the mucous membranes with the cool and dry air)

The descent

The descent (even shallow) leads to an increase of the ambient pressure. To maintain a level of equal pressure between you and the environment, you have to do the maneuver of Valsalva.

This process involves blowing (slowly) while holding your nose pinched and your mouth shut.

By performing this operation you avoid the main risk during the descent : barotrauma, which exerts its effects on the eardrums and sinuses mainly.

Si vous ne parvenez pas à effectuer cette manœuvre correctement, ne descendez pas plus et remontez lentement à la surface.

The ascent

During the ascent, you have to do the maneuver of Toynbee, simply pinch your nose but this time swallowing (swallowing saliva).

Pulmonary overpressure accident is one of the most serious dive accidents, it occurs when the diver stops breathing during an ascent. To avoid this, simply adopt a flexible and continuous breathing.

The diver's ascent speed mustn't be faster than the small air bubbles.

For experienced users and graduates of an accredited center, the ascent of a significant depth may require decompression according to the dive time and the depth reached. The goal is to remove nitrogen accumulated in your body, if you ascend too quickly, the nitrogen will not be eliminated.

Worse, gas bubbles of blood-borne risks to block some vessels, it can cause among other risk paralysis or thrombosis.

Any pain or discomfort during ascent or descent should get you to stop your progress.

Go slowly and gradually to the surface while controlling the pressure of your tank and your breathing.

Physical effort

Do not make useless efforts before and especially during and after the dive.

Do not apnea before and after the dive.

Never attempt to exceed your limits, the Karbones isn't developed for performance. Manage your breath, in case of shortness of breath, slowly and gradually head towards the surface by adopting the slower breathing you can.

Adaptation to the environment

Underwater, touch only the elements you know and safely.

Adapt your dive to your environment, poor visibility can be a stressful factor.

Stress is often the beginning of a vicious circle ending accident, stress management is essential to assure a good dive.

Equip yourself the dive environment, choose a suitable mask and flippers. An emergency tuba is also advisable.

Cold can also be a stress factor, a suitable combination reduces problems due to cold as breathlessness. Do not dive in too choppy water, assess the current and ask about the weather forecas.

FAQ

What kind of air is present in the Karbones tanks?

At a pressure of 200 bar, the Aluminium tank contains 100 L of air for an equivalent volume of water of 0.5 L / and at 250 bar, the Carbon tank contains 125 L of air for a equivalent volume of water of 0.5 L.

Can I refill a tank with the air compressor I have at home?

No, this is not possible for 2 reasons, the first one being that standard compressors deliver operating pressures of 15 to 20 bar maximum, while our compressor is capable of reaching pressures in excess of 200 bar.

The second reason is a matter of air quality, since standard compressors do not include the filter required to make the air breathable.

What happens if we dive to a depth greater than 3 metres?

Nothing will happen to the Karbones tank. This limit has been set only to minimise the risks for non-divers.

However, even at a depth of 3 metres, there are risks for the user who does not comply with safety instructions.

Only certified divers are allowed to use a tank to a depth greater than 3 metres.

We recommend that you equip yourself with our Karbones safety buoy to ensure you do not dive below 3 metres.

What are the safety instructions that must be observed?

- Never hold your breath while ascending or descending
- Never dive down if you feel discomfort in your ears, nose or eyes
- Never ascend too quickly (under no circumstance faster than small air bubbles)
- Check the pressure gauge very regularly and use the Karbones tank at the water surface when the needle of the pressure gauge is in the red zone.
- It is also very important to explain these basic rules to anyone who is about to use a Karbones product.

Is it possible to refill a tank using a bicycle pump?

No, a bicycle pump is only capable of delivering pressures of 15 to 20 bar maximum.

Our special hand pump is capable of reaching a pressure in excess of 200 bar.

Its special design (patented) makes it robust.

Several refills can also be made in succession, provided a cooling time is observed every 5 minutes.

Is it possible to travel by plane with a Karbones tank?

It is not prohibited to take a tank on a plane, as long as it is empty, with the tank valve open and declared as such at the time of boarding.

If necessary, the airline may request that the valve be disconnected from the tank, which is a very simple and very quick procedure : simply unscrew the upper part of the tank.

Is the tank subject to the French regulation on mandatory retesting?

The tank is not subject to compulsory retesting.

Each country has its own legislation on the use and retesting of scuba tanks. We advise you to contact the relevant authorities in your country.

Can I refill a 0.8 L or 1 L tank from a different brand with a Karbones compressor or mini-compressor?

Yes, you can refill your 0.8 L and 1 L scuba tanks with our compressor and mini-compressor.

Care must be taken to perform the refill in multiple stages, with a pause every 100 bar.

At least 2 stages would be needed to refill a 0.8 L tank, and a 1 L tank would require at least 3 pauses.

What is the solution to have as much autonomy as possible?

What is the solution to have as much autonomy as possible?

You simply need to buy other Karbones tanks that you can refill before use in order to increase your autonomy.

If you wish to benefit from more autonomy from the very beginning, we recommend our packs which are more advantageous in terms of cost.

When diving, take long, slow and smooth breaths to optimise your air consumption.

What is the lifespan of the equipment?

The equipment has been developed and tested over tens of cycles and subjected to hundreds of refills for the Karbones tanks, the hand pump and the compressor.

Extensive strength testing was carried out before the products were inspected and certified by an independent body in order to be placed on the market.

And we continue to test our products to make them ever more reliable and safe.

If you follow the tanks storage conditions specified in this manual, you will not see any sign of deterioration for several years.

Do the products require any specific maintenance?

The inspection frequency of a Karbones tank depends on its usage, and is recommended every year if the product is used frequently.

Maintenance must be carried out at an approved facility (please contact a diving centre) in order to check the internal condition of the tank and the working condition of the entire system.

It is also mandatory to clean all the equipment with fresh water after each use.

What happens if the maximum allowable pressure is exceeded?

The products have been developed and tested to withstand a pressure above 200 bar.

There is no risk of bursting if the pressure exceeds 200 bar, but you must not exceed this pressure, otherwise the tank materials may degrade after only a small number of uses.

F.E.S.S.M. C.M.P.N. Published on January 4th, 2012

APPENDIX

RECREATIONAL SCUBA DIVING CONTRAINDICATIONS

This list is indicative but not necessarily exhaustive.

Individual affections must be addressed on a case-by-case basis, and when possible, after a specialised opinion. Decisions should be made in light of diver experience and condition (beginner, confirmed diver or instructor).

In case of disagreement, the final decision must made by the Regional Medical Commission, with a possibility of appeal to the National Medical Commission (CMPN).

	Definitive contraindications	**Temporary contraindications**
Cardiovascular conditions	Congenital heart disease Symptomatic heart failure Obstructive cardiomyopathy Pathology with risk of syncope Paroxysmal tachycardia Non pacing 2nd degree or complete AV block Rendu-Osler disease Valvular heart disease(*)	Uncontrolled high blood pressure Coronary artery disease: evaluation required(*) Pericarditis Antiarrhythmic treatment: evaluation required(*) Systemic or topical beta blocker treatment: evaluation required(*) Right-to left shunt evidenced after a cerebral or vestibular form of decompression sickness(*)
Ear, Nose and Throat conditions	Unilateral cophosis Petromastoidectomy Ossiculoplasty Tracheostomy Laryngocele Bilateral deafness: requires audiometric exploration(*) Otospongiosis Fracture of the petrous temporal bone Uni or bilateral destructive labyrinthitis Perilymph fistula Uncompensated vestibular hypofunction	Otologic surgery Acute ENT infection Nasal-sinus polyposis Tubo-tympanic disorders leading to alterno-baric vertigo Vertiginous seizure or immediate aftermath of a seizure Unexplored vertigo Vestibular asymmetry equal or greater than 50% (6 months) Punctured eardrum (and transtympanic aerators) Barotrauma of the inner ear Labyrinthine decompression accident + Right-to left shunt: evaluation required(*)
Pneumology	Respiratory failure Interstitial fibrosis Pulmonary vasculitis Asthma: evaluation required(*) Spontaneous pneumothorax or after surgery for subpleural emphysemal blebs: evaluation required (*) Lung surgery	Infectious pathology Pleurisy Chest trauma
Ophthalmology	Vascular disease of the retina, choroid, or papilla, non stabilised and susceptible to bleeding Keratoconus > stage 2 Hollow eye prosthesis or implant For level 3-4 divers or instructors: binocular vision with correction < 5/10 or one eye vision < 1/10 if the other < 6/10	Acute diseases of the eyeball or its appendages, until healed Photorefractive keratectomy and LASIK: 1 month Phacoemulsification-trabeculectomy and vitreo-retinal surgery: 2 months Corneal graft: 8 months Topical beta blocker treatment: evaluation required(*)

Neurology	Epilepsy Severe neurological deficit syndrome Repeated loss of consciousness Neuro-surgical, traumatic or ENT meningeal effraction wounds Cerebral palsy	Severe cranial trauma: evaluation required(*)
Psychiatry	Severe psychiatric disorder Chronic alcoholism	Antidepressant, anxiolytic, antipsychotic or hypnotic treatment Acute alcohol intoxication
Hematological conditions	«Peripheral thrombopenia Congenital thrombopathy» Repeated phlebitis and/or evidence of coagulopathy after work-up Hemophilia: evaluation required(*)	Unexplored phlebitis
Gynecology		Pregnancy
Metabolic conditions	Insuline-dependent diabetes mellitus: evaluation required(*) Oral hypoglycaemic treatment (other than biguanides)	Tetanitis / Spasmophilia
	Severe metabolic or endocrinologic disorders	
Dermatology	Different disease entities may lead to temporary or definite contraindication depending on their severity and/or associated respiratory, cardiovascular or neurological effects	
Gastrointestinal conditions	Antireflux prosthesis	Hiatal hernia or symptomatic gastro-oesophageal reflux: evaluation required
Any treatment or drugs likely to affect behaviour may lead to contraindication The occurrence of a disease from this list requires further review.		
Conditions marked with (*) require further evaluation, in these cases medical certification permitting diving can only be issued by a bona fide federal physician.		
Following decompression sickness, pulmonary barotrauma, oxygen recompression treatment or any other severe diving injury, scuba diving may be resumed only after a positive opinion by a bona fide federal physician or a certified underwater medicine physician (in accordance with CMPN rules).		

Legal Notice

Company name	COQPIT
Trade name	« Karbones » registered trademark
Head office	8 allée Evariste Galois
Postcode	63000
City	Clermont-Ferrand
Country	France
E-mail	contact@karbones.com
Telephone	06 59 23 16 54
SIRET	81882332000010
VAT No.	FR68818823320

contact@karbones.com
06 59 23 16 54

@Karbones
@KarbonesWorld

@Karbones_

karbones