

# **User manual & Safety instructions**

## **MiniDive Pro & M3S pump**

# Preamble

Thanks for choosing MiniDive. 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 MiniDive product, it is very important to entirely read and understand this instruction manual.

In order to show that you took notice of this manual, please inform MiniDive through the page named "contact" on the website [www.minidive.com](http://www.minidive.com). This operation is compulsory and only takes a few seconds. You just need the serial number of the product, which is placed above the label put on the tank, beginning by 000.

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

MiniDive can not be taken as responsible of any material or physical accident in case of non respect of the delivered instructions.

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

MiniDive 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 utilisation manual during the life of the product. You can also find it on the website [www.minidive.com](http://www.minidive.com).

The end of particular parties contains the mention "warning" 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 pressurized, you will certainly need to unscrew the cylinder tank from the valve. To do this, drag the protection of the tank towards the valve and unscrew (counterclockwise) simply the 2 elements. These 2 elements must be screwed down properly with the original O-ring for reassembly.

## INSTRUCTIONS TO RESPECT IMPERATIVELY

Open COMPLETELY the valve before use  
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**

\*

**CE 0062**  
**MINIDIVE / 20XX**  
**MINIDIVE PRO**  
**AIR COMPRIMÉ**  
**GAZ GR. 2**  
**0,5 L / PS200BAR**  
**+10°C / +40°C**

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## 1. Content of the box (not including pack and options)

- 1 0.5 L aluminium diving tank with his valve
- 1 first stage regulator with its protection cap
- 1 manometer
- 1 refilling clip with its protection cap
- 1 MP (Medium Pressure) hose
- 1 second stage regulator
- 1 manual & safety instructions

## 2. Warnings

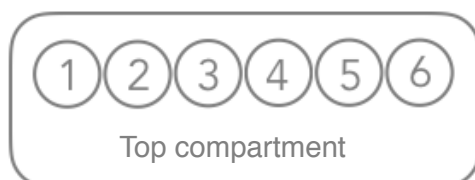
- We advice users **to follow the elementary rules related** to the scuba diving which are given by authorized organizations
- A use without **the awareness of the security rules endangers the user**
- Don't use MiniDive Pro with an air supply from the surface
- No assembly of setting can be done by the user, except the ones provided by this purpose
- A piece or an element of the MiniDive Pro (and M3S Pump) should not be used on an other device, or else the guarantee could be cancelled and the users could endangers themselves
- Always open slowly and completely the valve
- The recommended minimum age to use the MiniDive Pro 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 ready the good pressure unit (**bar or PSI**) on the manometer(s)

### WARNINGS

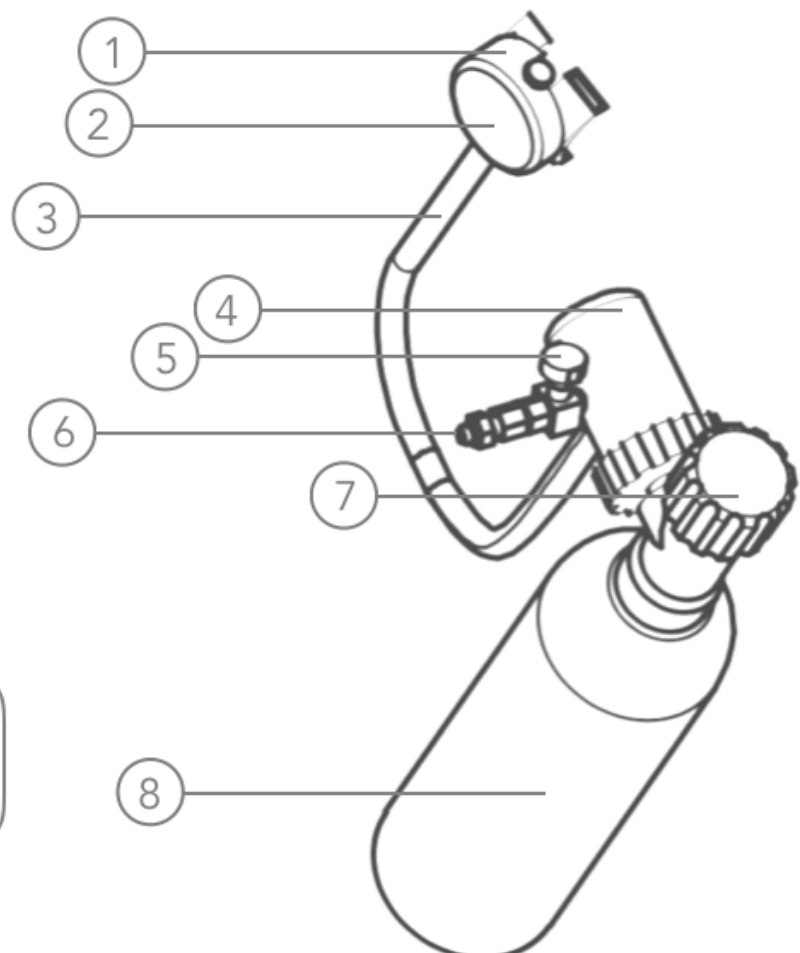
- The use of MiniDive Pro **under 3 meters (10 ft) depth is forbidden** for any person who did not follow specific formation of scuba diving from an official organization

## 3. Presentation of the product

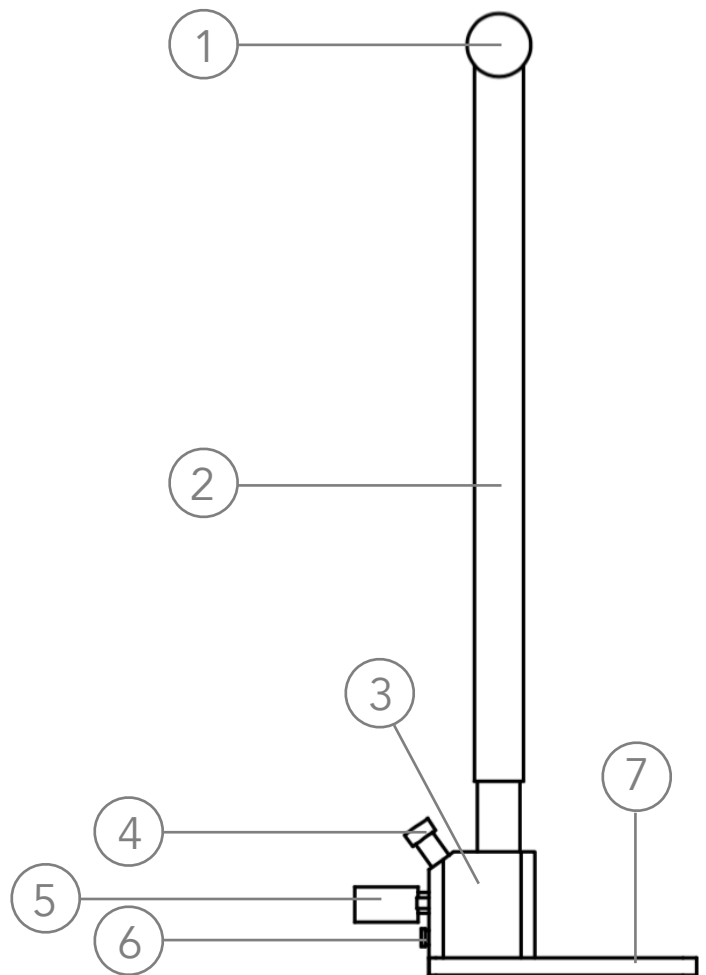
- ① 2nd stage regulator
- ② Membrane
- ③ Flexible MP
- ④ 1st regulator
- ⑤ HP\* manometer
- ⑥ Male refill clip
- ⑦ Valve
- ⑧ Tank



\* High Pressure



- ① Handles
- ② Body
- ③ Base
- ④ Female refill clip
- ⑤ Manometer HP
- ⑥ Valve
- ⑦ Feet



#### 4. Technical features

##### MiniDive Pro :

- Internal water volume of the tank : 0,5 L
- **Maximum authorized pressure (PS) : 200 bar**
- Service temperature : +10°C / +40°C (50°F / 104°F)
- Weight : when empty 2,1 kg (2,2 kg to 200 bar)
- Dimensions (L x l x h) : 30,5 x 20 x 11,5 cm (except flexible and second stage)
- **Maximum authorized depth of use : 3 m**
- **Maximum operational depth of the equipment (allowed for certified divers according to their scuba certification) : 50 m**

##### M3S pump :

- Maximum pressure authorized : 200 bar
- Dimensions (h x l) : 62 x 21 cm
- Weight : 2 kg

#### 5. Precaution of general use

- By its vitale function, always use it with care
- Never force on the valve
- **When MiniDive pro is not used, don't let the top compartment under pressure**, purge the air thanks it the second stage membrane
- Too much stress on the second stage membrane can engender a too important air expulsion. To stop it, obstruct the mouthpiece
- Avoid any contact between sand or condiment and the MiniDive Pro and the M3S Pump
- **Don't expose the material to the sun for a long time**
- During the first use, connect the first stage regulator to the valve and make a complete test of the tank into the air to evaluate your feeling
- Never unscrew the top compartment until it is completely purged completely because it can expel the Oring between the valve and 1st stage regulator, replace it if it's happens

## WARNINGS

- In case of floral 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 opening the valve
- The MP and HP outputs of the first stage should not be easily slacked by hands when the pressure regulator is not under pressure, idem for hose / 2<sup>nd</sup> stage regulator connexion
- During the opening of the valve, **do not direct the manometer towards you**
- To open the tank, slowly turn the cuff of the valve in the counterclockwise direction, **valve must be completely open, then make a quarter turn backwards (do not let the valve reaching the stop)**
- 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 pressurizing
- Adapt your dive to the pressure on the manometer

## WARNINGS

- If the valve is not completely open, the user will not be able to use all the compressed air of the tank. It is therefore **essential to entirely open the valve and then, a quarter turn backwards**

### 5.2 When diving

- **Always adopt flexible and continuous respiration**
- Use the equipment in a water above +10°C (50°F)
- MiniDive Pro should only be used by **one person at a time**
- **The maximum depth authorized is 3 m**
- **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 (red zone of the manometer)**
- Stop the dive in case of leak coming from the MiniDive Pro, slowly **go back up to the surface**
- Expect 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 MiniDive Pro when it is not pressurized

### 5.3 After diving

After using the MiniDive Pro, please follow the following instructions :

- Remove the remaining water in the second stage
  - Close the valve
  - Purge the top compartment by pressing the membrane
  - Rinse the equipment in pure water
  - Let the equipment dry
- Do not use aerosols or other solvents for the cleaning

## WARNINGS

- The cleaning of the second stage 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

- **All should not be refilled with a pressure superior to 200 bar. It is to the person responsible of the refilling to make sure of this.**

### 6.1 High pressure manual pump

To refill the MiniDive Pro thanks to the M3S pump, please follow the following instructions :

- Pull the female clip ring before introducing the male clip (a « click » ensures you to make sure the connection is good)
  - Slowly open the tank valve
  - Close the pump valve
  - Pump until the desired pressure (**max. 200 bar**)
  - Close the tank valve
  - Open the pump valve
  - Purge the top compartment if the MiniDive Pro is not used immediately
- **The pump should not be used more than 5 minutes continuously**, the cool down time should at least the same as the using time
  - Between every pump cycle, purge the pump to avoid the condensation of the air (let the tank connected)
  - Only the high pressure manual pump M3S sold by MiniDive is compatible with MiniDive Pro
  - Do not let the pump connected under pressure when it is not used
  - Regularly compare the value marked by the pump manometer with the one marked on the tank
  - 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 exerce any constraint on the clip

### 6.2 Filling station

- First open the valve of the tank that needs to be refilled, then connect the filling station between the 2 tanks
- Slowly open the valve of the source tank to avoid a pressurization and a brutal refilling
- During the pressurization 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)

### WARNINGS

- **This operation has to be done by a professional**
- **The filling should be at a maximum pressure of 200 bar**
- **The filling needs to be done very slowly**
- **Make a break during the filling in case of a too important heating**

### 6.3 High pressure compressor

- **This filling operation should be done by a qualified person**
- When the first stage is separated from the valve, protect it thanks to the supplied protection
- During the reassembling of the first stage regulator, make sure that the outputs are well-oriented

## WARNINGS

- This operation has to be done by a professional
- The outlet air flow rate of the compressor has to be slowed down comparing to the filling of a diving tank called « usual » of several liters
- The filling must be done very slowly, from 0 to 200 bar in 3 minutes minimum
- Make a break during the filling in case of a too important heating

## 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 MiniDive Pro
- Never integrate elements from the MiniDive Pro 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 and 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 (and 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 MiniDive Pro regularly inspected by a specialist, an annual inspection is recommended
- The French law do not impose inspection or obligatory re-test for the tank but it is **recommended (inquire by country)**
- The French law do not impose inspection or obligatory re-test for the pressure regulator but it is **advisable (inquire by country)**
- Unscrew the pump filter and heat it up at 70°C (158°F) during 20 minutes every 10 full refill of the tank (every 5 full refill in wet locations)
- It is **recommended** to replace the M3S pump filter every **30 refill**
- It is possible that after a certain number of refill, the movement of the pump becomes harder, apply grease in small quantities (silicon) on the metallic tube of the pump
- Prefer the replacement of a defective piece by an original one
- Do not try to fix your equipment by yourself
- 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

## 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 of 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 products
- The guarantee does not include the recommended periodic inspections
- The 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/ changes done on the product
- The guarantee is available for the repair or the replacement of a piece by MiniDive, the freight charges and the packing costs are on the buyer
- The exchanged pieces are MiniDive's 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 regulators meet to standard EN250
- The manual hand pump doesn't meet to the non-mandatory EU standard EN12021
- The products are evaluated, controlled and certified CE (n°0062), under the 2014/68.UE directive, the UE declaration of conformity is available on simple request
- Other norms or rules may be applied for certain areas, including some in the European Union

## 12. Behaviors to follow and avoid during diving

The document is available on the website [www.minidive.com](http://www.minidive.com)

**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.**

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 contra-indications.

**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 earplug, they prevent pressure equalization.

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.

**If you can't do this procedure correctly, you shouldn't go deeper, ascend slowly to the 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 accident, 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 products aren'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 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 forecast.

## **13. Contact**

MiniDive  
3, rue Clément Ader  
63360 GERZAT  
FRANCE

# Annex

F.F.E.S.S.M. C.M.P.N.

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## CONTRE-INDICATIONS À LA PLONGÉE

Cette liste est indicative et non limitative. Les problèmes doivent être abordés au cas par cas, éventuellement avec un bilan auprès d'un spécialiste, la décision tenant compte du niveau technique (débutant, plongeur confirmé ou encadrant).  
En cas de litige, la décision finale doit être soumise à la Commission Médicale et de Prévention Régionale, puis en appel, à la Commission Médicale et de Prévention Nationale.

	Contre indications définitives	Contre indications temporaires
<b>Cardiologie</b>	Cardiopathie congénitale Insuffisance cardiaque symptomatique Cardiomyopathie obstructive Pathologie avec risque de syncope Tachycardie paroxystique BAV II ou complet non appareillés Maladie de Rendu-Osler Valvulopathies(*)	Hypertension artérielle non contrôlée Coronaropathies : à évaluer(*) Péricardite Traitement par anti-arythmique :à évaluer(*) Traitement par bêta-bloquants par voie générale ou locale: à évaluer (*) Shunt D G découvert après accident de décompression à symptomatologie cérébrale ou cochléo-vestibulaire(*)
<b>Oto-rhino-laryngologie</b>	Cophose unilatérale Évidement pétromastoïdien Ossiculoplastie Trachéostomie Laryngocèle Déficit audio. bilatéral à évaluer (*) Otospongiose opérée Fracture du rocher Destruction labyrinthique uni ou bilatérale Fistule peri-lymphatique Déficit vestibulaire non compensé	Chirurgie otologique Épisode infectieux Polypose nasosinusienne Difficultés tubo-tympaniques pouvant engendrer un vertige alterno-barique Crise vertigineuse ou au décours immédiat d'une crise Tout vertige non étiqueté Asymétrie vestibulaire sup. ou égale à 50%(6mois) Perforation tympanique(et aérateurs trans-tympaniques) Barotraumatismes de l'oreille interne ADD labyrinthique +shunt D-G :à évaluer(*)
<b>Pneumologie</b>	Insuffisance respiratoire Pneumopathie fibrosante Vascularite pulmonaire Asthme :à évaluer (*) Pneumothorax spontané ou maladie bulleuse, même opéré : à évaluer(*) Chirurgie pulmonaire	Pathologie infectieuse Pleurésie Traumatisme thoracique
<b>Ophtalmologie</b>	Pathologie vasculaire de la rétine, de la choroïde, ou de la papille,non stabilisées, susceptibles de saigner Kératocône au delà du stade 2 Prothèses oculaires ou implants creux Pour les N3, N4 , et encadrants : vision binoculaire avec correction<5/10 ou si un œil<1/10,l'autre <6/10	Affections aiguës du globe ou de ses annexes jusqu'à guérison Photokératectomie réfractive et LASIK : 1 mois Phacoémulsification-trabéculéctomie et chirurgie vitro-rétinienne : 2 mois Greffe de cornée : 8 mois Traitement par bêta bloquants par voie locale : à évaluer(*)
<b>Neurologie</b>	Épilepsie Syndrome déficitaire sévère Pertes de connaissance itératives Effraction méningée neurochirurgicale, ORL ou traumatique Incapacité motrice cérébrale	Traumatisme crânien grave à évaluer
<b>Psychiatrie</b>	Affection psychiatrique sévère Éthylisme chronique	Traitement antidépresseur, anxiolytique, par neuroleptique ou hypnogène Alcoolisation aiguë
<b>Hématologie</b>	Thrombopénie périphérique, thrombopathies congénitales. Phlébites à répétition, troubles de la crase sanguine découverts lors du bilan d'une phlébite. Hémophiles : à évaluer (*)	Phlébite non explorée
<b>Gynécologie</b>		Grossesse
<b>Métabolisme</b>	Diabète traité par insuline : à évaluer (*) Diabète traité par antidiabétiques oraux (hormis biguanides)  Troubles métaboliques ou endocriniens sévères	Tétanie / Spasmophilie
<b>Dermatologie</b>	Différentes affections peuvent entraîner des contre-indications temporaires ou définitives selon leur intensité ou leur retentissement pulmonaire, neurologique ou vasculaire	
<b>Gastro-Entérologie</b>	Manchon anti-reflux	Hernie hiatale ou reflux gastro-œsophagien à évaluer
<b>Toute prise de médicament ou de substance susceptible de modifier le comportement peut être une cause de contre-indication</b> La survenue d'une maladie de cette liste nécessite un nouvel examen		
<b>Toutes les pathologies affectées d'un (*) doivent faire l'objet d'une évaluation, et le certificat médical de non contre indication ne peut être délivré que par un médecin fédéral</b>		
<b>La reprise de la plongée après un accident de désaturation, une surpression pulmonaire, un passage en caisson hyperbare ou autre accident de plongée sévère, nécessitera l'avis d'un Médecin Fédéral ou d'un médecin spécialisé selon le règlement intérieure de la C.M.P.N.</b>		