

· GENERAL INFO

***lappas***  
*climbing.com*



GHOST+

D10 & D12

**LAPPAS S.A.**

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📷 [lappas climbing bolts](#)

## GENERAL INFORMATION

This general information explains how to use correctly the anchors.

The general information must be associated to the technical data sheet / user's manual.

Read both documents to have a complete information and ascertain to understand well all the information, before to use the product.

Only the techniques shown without symbol of death are authorized.

Take Vision of the updates and of all the additional information on the website [www.lappasclimbing.com](http://www.lappasclimbing.com).

In case of doubt or difficulty to understand the information, don't risk, but contact us.

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**Anchor Device Ghost+ (D10)**

**Anchor Device Ghost+ (D12)**

**Rock Anchor Device:**

**Ghost+ (D10) + Rock Anchor II**

**Ghost+ (D12) + Rock Anchor II**

**Reference Standard: EN 959: 2018**

**"Mountaineering equipment - Rock Anchors - Safety requirements and test methods"**

**UIAA 123 (for Rock Anchor Devices)**

**"Mountaineering and Climbing Equipment - Rock Anchors"**

**Material:**

**Stainless Steel AISI 316L**

## USE AND APPLICATION

These anchors are intended for rock climbing, caving, canyoning, rescue, rope access and mountaineering.

The anchor devices **Ghost+ (D10) & Ghost+ (D12)** have been tested:

- According to **EN 959:2018** and **UIAA123-3** if couple with its relative Rock Anchor II . Devices are intended for rock climbing, caving, canyoning, rescue and mountaineering. Rock anchors are defined as anchor devices insert in a rock hole, held in place by resin or expansion forces and with an attachment point for a connector.

When the anchor device is used as part of a fall arrest system, the user must be equipped with the necessary means to limit the maximum dynamic forces exerted on it during the arrest of a fall to a maximum of 6 kN.

A full body harness is the only acceptable body holding device that can be used in a fall arrest system.

**WARNING:**

This anchor device must be used exclusively for personal fall protection equipment and not for lifting equipment.

Don't stress the product beyond its limits or in other different situations than that for which it is intended.

Check that the product is compatible with the other materials you want to use: contact **LAPPAS S.A.** if you are not sure of compatibility.

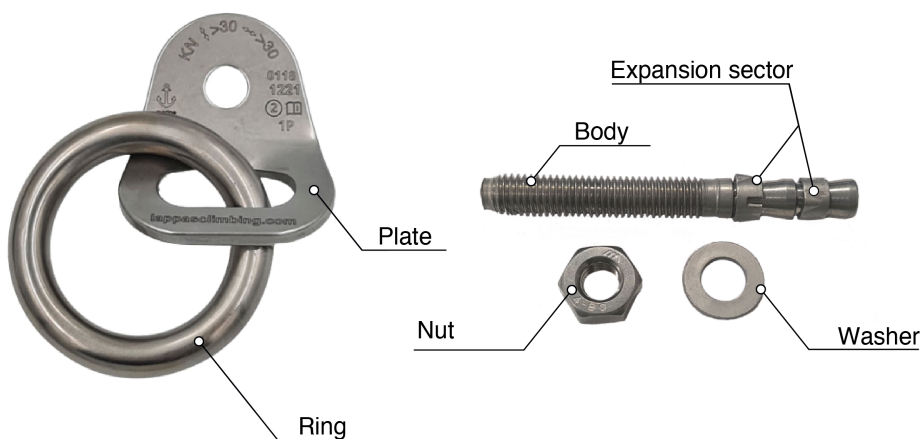
**WARNING:**

Activities involving the use of this device are all dangerous and high risk and may also involve in fatal injuries.

Make sure you fully understand the use of this product and work out in how to use it, to familiarize yourself with it and learn to know its performances and limits.

**NOMENCLATURE**

- 1. Nut
- 2. Body
- 3. Washer
- 4. Expansion sector
- 5. Plate
- 6. Ring

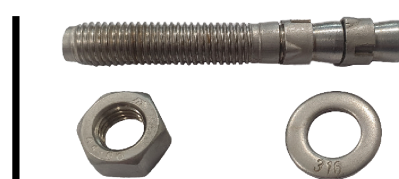


**Rock Anchor II**

•Rock Anchor II (Ø 10)  
Dimensions: M10x90mm  
M10x110mm



•Rock Anchor II (Ø 12)  
Dimensions: M12x90mm  
M12x110mm



**Material:**  
Stainless Steel AISI 316 L

## Dynamic Strength & Static Strength Tests

A) Direction parallel to longitudinal axis of the device

B) Direction perpendicular to longitudinal axis of the device

### Ghost+(D10/D12) – Rock Anchor(II)

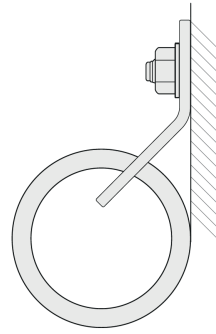
resistance requirements - statics tests

απαιτήσεις στατικής φόρτισης

**A** EN 959:2018 15kN  
UIAA 20kN

**B** EN 959:2018 25kN  
UIAA 25kN

**A** kN ←



**B** kN ↓


effective strength / μέγιστη φόρτιση

**A** 30kN

**B** 30kN

## MARKING

Manufacturer: **LAPPAS S.A.** – identified with logo “LAPPAS”

Pictogram  : indicating the need to read the instructions before use

Serial number (example 1020)

- 10= week of year
- 20=2020 year

Reference Standards:

EN 959:2018

Class of the anchor, surrounded by a circle: 2

Radial load bearing capacity and Axial Load bearing capacity

• **Ghost+ (D10)**

Radial load bearing capacity Ghost+: 30kN  
Axial Load bearing capacity Ghost+: 30kN

• **Ghost+ (D12)**

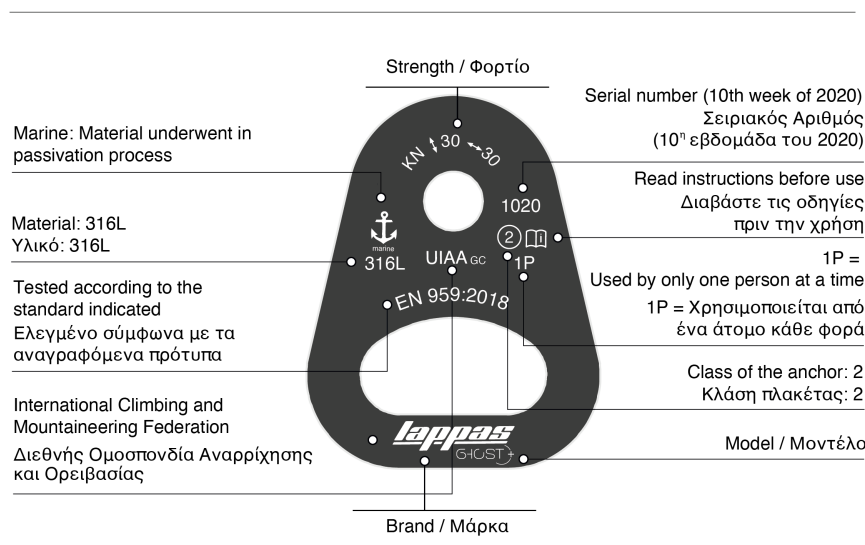
Radial load bearing capacity Ghost+: 30kN  
Axial Load bearing capacity Ghost+: 30kN

Material: Stainless Steel INOX AISI 316L

**Marine:** Material underwent in passivation process

Passivation is a widely-used metal finishing process to prevent corrosion. In stainless steel, the passivation process uses nitric acid or citric acid to remove free iron from the surface. The chemical treatment leads to a protective oxide layer, or passivation film, that is less likely to chemically react with air and cause corrosion. Passivated stainless steel resists rust.

Device usable by only a single connected user: 1P



Markings should always be read for all the lifetime of the product and must not be removed.

It's recommended that the anchor device is marked with the date of the next or last inspection.

If the marking of the device is no longer accessible after installation, it must be provided some additional markings near the device.

## SECURITY REQUIREMENTS

Depending on environmental factors, the anchors are potentially responsible for suffering from:

- galvanic corrosion
- corrosion
- SCC: Stress Corrosion Cracking. Our anchors are made of 316L stainless steel and classified of class 2, suitable for environments that are not aggressive enough to cause SCC. The environment in which they will be installed will be without signs of SCC in evidence and not suspect, with few corrosive agents.

## RISKS OF USE AND RESPONSIBILITY

This product should only be used by competent persons and who have received adequate training, having been subjected to visual inspection by a trained and competent person. It's yours responsibility to know this product, learn to use it, learn the proper techniques and the safety measures. Any possible damage, injury or death that may be caused to you or other people, due to the incorrect use of any LAPPAS S.A. product, is solely your own risk and responsibility. Keep these instructions that describe the range of use and the methods of application of the product. You are responsible to consider all the notices and updates regarding these products.

**No liability will be recognized by the company LAPPAS S.A. for damages, injuries or death caused by:**

- Improper use (also due to support or unsuitable environment), stresses the product beyond its limits
- Modification of the product,
- Repairs made by unauthorized persons.

If you are not able to undertake this responsibility and take these risks, do not use these products. Your life depends on the continual efficiency of your equipment (we strongly recommend that the equipment is for personal use) and its history (use, storage, controls, etc.)


If the product is not for personal use (for example is of associations), we strongly recommend that the pre and post use controls carried out by a competent person. Check and make sure that all the anchors do not show signs of cracks or wear. Before using the equipment consider as a possible rescue, in case of emergency, it can be performed safely and efficiently.

### WARNING:

Do not use the product if the user's physical conditions are not appropriate for work prescribed. Do not use this product if you suffer from medical conditions such as vertigo, labyrinthitis or other conditions which may compromise the safety of the equipment in normal use or emergency.

## CHECKS AND INSPECTIONS

**Before each use, make sure that the product is:**

- In very good condition and working properly
- Suitable for the use you intend to do: they are authorized only the techniques not crossed out by the symbol .

## Any other use is forbidden: beware of death!

The examples shown in the attached form are just some of the wrong applications: there are many other more that is impossible to list;

- Free of cracks, deformations and corrosions

Carefully check the state and the type of support in that you want to fix the product; if the rock is cracked, etc. avoid it. If you have the minimum doubt about the safety and the effectiveness of the product, replace it immediately.

### During each use:

- Regularly check the state of the product and make sure you have correctly connected all devices among themselves .
- Check visually the goodness of the anchor. The resistance of natural/not natural anchors, in the rock, can't be guaranteed in advance, so It's necessary a critical judgment by the user, to guarantee an appropriate protection.

### Periodical inspections:

- It's not enough to check the material before and during each use, but periodical checks must be done by a technician authorized by the manufacturer at least every 12 months.
- All the checks pre and post use must be done by a competent person (the frequency depends from the intensity and type of use).
- When carrying out the checks is necessary to report the results of an inspection sheet (equipment record). This should allow you to record a lot of data. The inspection sheet should always be attached to the general information of the product and is also downloadable from the site [www.lappasclimbing.com](http://www.lappasclimbing.com).

EQUIPMENT RECORD				
Product:				
Model & type/identification		Trade name	Identification number	
LAPPAS S.A.		5th Km nat.rd Ioannina - Athens, IOANNINA, 45500 GREECE	Tel: +30 26510 41855 Fax: +30 26510 41235 email : info@lappasclimbing.com www.lappasclimbing.com	
Year of manufacture expiry date		Purchase date	Date first put into use:	
Other relevant information (e.g document number)				
PERIODIC EXAMINATION AND REPAIR HISTORY				
Date	Reason for entry (periodic examination or repair)	Defects noted, repairs carried out and other relevant information	Name and signature of competent	Periodic examination next due date

The product should be used only by one person, so that you know well the whole story of the product. Devices that doesn't pass the check control have to be removed from the rock surface.

### **WARNING:**

You must make regular periodic inspections!

The safety of users depends on the continued efficiency and durability of the equipment. We recommend to hold and fill the inspection sheet for each component, system and subsystem. You can also download it from the site [www.lappasclimbing.com](http://www.lappasclimbing.com)

## COMPATIBILITY

This product can be used in conjunction with personal protective equipment, in compliance with applicable European Standard in accordance with the instructions of use.

An anchor must be compatible to the device to which it is connected; if the connection is inconsistent, you can compromise the security features of the system (release or break). Compatible devices are, for example, manufactured and certified harnesses according to EN 12277, dynamic ropes certified according to EN 892, connectors in accordance with EN 362 or 12275, etc.

Anchor device could be used with components of a personal fall protection system in accordance with EN 363 (for example harnesses EN 361, EN 813, belt EN 358, rope EN 1891, energy absorber EN 355, lanyard EN 354, etc.)

### WARNING:

Please avoid the use of these anchors with others made of different materials. For example, do not use plates made of stainless steel and galvanized steel anchors, because also in a modest hostile environment there will be obtained effects of galvanic corrosion. User has to connect its devices only to the integrated ring and has not to use the hole of the plate where the ring is mounted. Contact **Lappas S.A.** if you are not sure of the compatibility of your device.

## OPERATING MODE

- See **User's Manual** sheet about: **Installation**.
- Make sure about the hardness, the nature and compactness of the rock on which you'll insert the anchor.
- Clean the rock and remove any friable part; create a pitch to put the Rock Anchor II and the plate. The area for fixing the anchor must be absolutely massive. In addition to all the other evaluations, a good method is to beat vigorously on the chosen area with a hammer. The "sing" of the rock must be dry and clear, and not as an isolated and "march" plaque.
- You perform the hole in the rock with an appropriate electropneumatic hammer-drill, taking care to make it perpendicular to the drilling plane. The depth of the hole should be at least 5mm longer than the total length of the Rock Anchor II. Attention to the diameter of the drill bit: must be exactly as the diameter of the anchor.
- Clean the hole from the powder, blowing inside it with the help of a little tube. At this point it is necessary to proceed to fix the plate Rock Anchor Device (**Ghost+**).
- After mounting the Rock Anchor II on the plate you have to put the Rock II into the hole that you've made.
- Hit with the hammer on the head of the threaded fix and introduce it until when the plaque is tight to the rock. Orient the Rock Anchor Device in the direction of the load that will be applied and then, with a hex wrench fix the nut, operating a suitable torque, observing the established torque.
- Check the exposed part of the hang fix. The nut has to be totally screwed on the hang fix but the hang fix has not to come out during installation. In this way you can check the correct depth of installation.



## **WARNING:**

- When using a plate, always make sure the Rock Anchor II is made of the same material and the same diameter of the hole of the plate.
- These devices are resistant to corrosion according with standards (excellent resistance to corrosion in the interior, but not excellent in environment or surrounding area of the seaside - see general information/lifetime).
- The installation must be tested in an appropriate manner, for example by calculation or test.
- The installer must be a responsible person or organization, who has received an appropriate training.
- Do not connect the rope directly to the plate.
- The load-bearing of the anchor cannot be guaranteed if the rock in which it is installed is less strong or not very homogeneous, not consolidated or with microcracks. In these cases we recommend using the **Ghost+** with a Rock Anchor II as long as possible or prefer a different type of anchoring system, or choose a different area in which to install it.

## **RESISTANCE**

Our products are tested according to the requirements of **EN 959:2018**. They are also tested according to the requirements of **UIAA 123**.

Please note that the company **LAPPAS S.A.** disclaims any responsibility in case of improper installation and/or use in inappropriate rocks or inappropriate environments or inappropriate dowels.

### **Precautions for use Attention**

## **WARNING:**

After a fall or a major impact, check:

- rock around the anchor: there must be no cracks;
- anchor: observe it visually and check that there are no cracks, deformation, and
- verify that the anchor is not rotated or moved; If you're in doubt replace it. Use only if the external temperature is between  $-40^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$ . For safety purposes, it's essential to systems of arrest fall from a height, that the anchor point is always placed, if possible, above the user.
- Use a fall arrest and work positioning harness.
- Fixing is performed so as to minimize potential falls and their height.

### **The position is essential for safely blocking a fall:**

- Carefully verify what will be the height of the fall, length of rope and "pendulum" effect to avoid all possible obstacles (es. The ground, rubbing against the rocks, etc.).
- Get used to always use double system, during your activities, for extra security.
- Always make sure that connectors inserted in their anchorage are free to move and position in the right direction of load application.

## COMPLEMENTARY STANDARDS INFORMATION

- Provide for a rescue plan and define the means to act quickly in case of difficulties (It means to be trained to apply the appropriate rescue techniques).
- Allow a sufficient height under the user so, in case of fall, do not collide with obstacles (remember that also the length of the carabiner can affect on the height of the fall).
- Check to use the product with respect to government regulations and the safety regulations in force.
- Respect all the instructions of use given in the general informations of each device used or associated with this product.
- Attention: you need health fitness for the activities at height.
- To the user of these devices must be provided all the instructions of use; the retailers must deliver the device with these instructions, in the language of the country of use, when it's sold out of the first country of destination. It's a user responsibility to record and store with these instructions, the information provided in the inspection sheet.

## GENERAL INFORMATION

### Life time

The potential life time of the **LAPPAS** products is undefined (it is advisable to replace them anyway after 10 years).

It is known that equipment may degrade progressively when it is used, so the actual life time of the products can not be quantified precisely.

The lifetime is also reduced considerably by the conditions and intensity of use: heavy use, contact with chemicals substances, use near sea water or splashing water, high temperatures, abrasions or cuts, damage to parts/components of the product, chemical environments, mud, sand, snow, ice, competence of the user, violent shocks, storage, are some of the factors that accelerating product wear.

### WARNING:

The duration may be limited to only one use in specific conditions (contact with acids, dangerous chemicals products, if the product suffers sharp falls or tensions, etc ... this list is not exhaustive). In a marine environment or other potentially corrosive environments, it would be better to use materials with high corrosion resistance, of class 1, like titanium; we invite the installer to monitor and inspect the anchors at regular intervals to check their status.

### WARNING:

Anchors installed in marine areas, on rocks containing ferrous inclusions or other minerals of not certain nature, in some cases may suffer violent corrosive attacks that can compromise its use even in very short time!

### WARNING:

The life of the anchorage is considerably limited in the case of installation in an environment with obvious Stress Corrosion Cracking SCC.

## DO NOT USE THE PRODUCT

- After a violent fall, since no visible deformations could be considerably impair resistance;
- If the result of the check is not satisfactory;
- When you do not know the entire history of its use and when it becomes obsolete and you have the slightest doubt about its reliability;
- general wear of the plate and/or significant reduction of the section in correspondence with the carabiner;
- if there're cracks, wear or defects;
- when corrosion severely alters the surface condition. Destroy retired equipment to prevent further use.

### Product obsolescence

The product may be judged obsolete and thus retired from service, when they occur, for example, incompatibility with other equipment, changes in applicable standards, etc ...

### Chemical products

All chemicals, solvents or corrosive substances can be very dangerous for these items. If there's a chance to come in contact with these substances contact directly **Lappas S.A.** indicating composition and exact name of the product, so we can respond properly after studying the case.

### Changes and repairs

Modifications and/or repairs not authorized by the company **LAPPAS S.A.** are prohibited because they can reduce product performance. Repairs or modifications must be carried out inside the department production of **LAPPAS S.A.** and not outside.

### Warranty

This product has a 3-year warranty, against every defects in manufacturing or material. The guarantee excludes oxidation, normal wear and tear, modifications or alterations, incorrect storage, damage due to accidents, incorrect storage, negligence and improper use.

### Transport

It does not need any special precautions for transportation, however avoid contact with chemical reagents or other corrosive substances and adequately protect from any pointed objects or sharp.

### Maintenance and storage

The user should not perform any special maintenance, but should be limited to the cleaning of the product as explained below.

### Cleaning

Frequently rinse the product only with lukewarm fresh water (max 40°C). Leave it to dry naturally away from direct heat.

Do not put the product in contact with corrosive substances or solvents; do not store at extreme temperatures.

### Storage

After cleaning and drying, store the equipments in a dry, cool, dark place (avoid UV rays), chemically neutral place (absolutely avoid saline environments), away from sharp edges, heat, humidity, corrosive substances or other potentially harmful conditions.

**WARNING:**

Do not store when wet! Improper storage, as well as the aging of the product, may damage it and impair its performance and safety.

**Testing and conformity**

This product is tested in accordance with the standard by the DOLOMITICERT S.C.A.R.L., Z.I. Villanova 7/A- 32013 Longarone (BL). This product is also tested and complies UIAA 123 : Quality Label of the International Climbing and Mountaineering Federation.

**WARNING:**

Laboratory tests, the instructions for use and standards are not always able to reproduce the practice, so the results obtained in real conditions of use in natural environments may sometimes differ to a considerable degree. The best instructions can be had from continuous use under the supervision of qualified and prepared instructors.