

INSTRUCTION MANUAL

DUCK / EN Forcer

Rope Access Back-Up Device

CE 0598 EN 12841:2006 Type A / EN 353-2:2002

WARNING

All users must read and understand this manual before use. This product must only be used by persons who are trained and competent in its use as part of a double rope access system. Users accept all risks and responsibilities for all damage, injury or death during all rope access activities involving the use of this product. If users are not able to accept full responsibility or all risks involved they should not use this product. All users must be competent in emergency procedures and rescue methods associated with the use of this device. These are detailed in the 'Deployment' section of these instructions. Users should take great care that hair, fingers, clothing or other items do not become entangled with the **T04**. DO NOT allow anything to affect the proper function of the device.

Do not use the device for any other purpose.

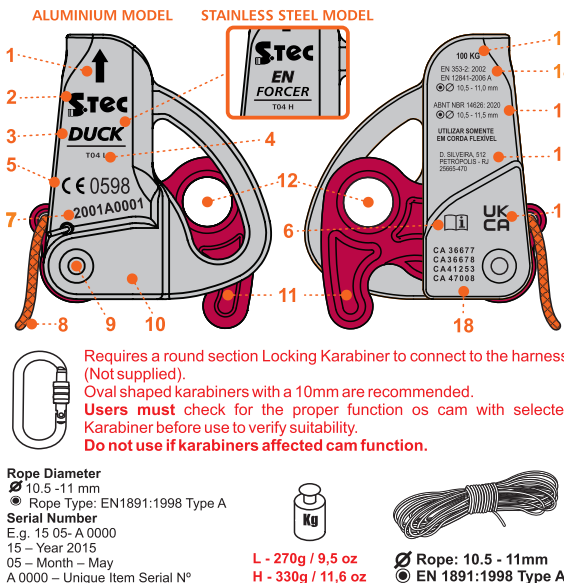
INDIVIDUALLY TESTED



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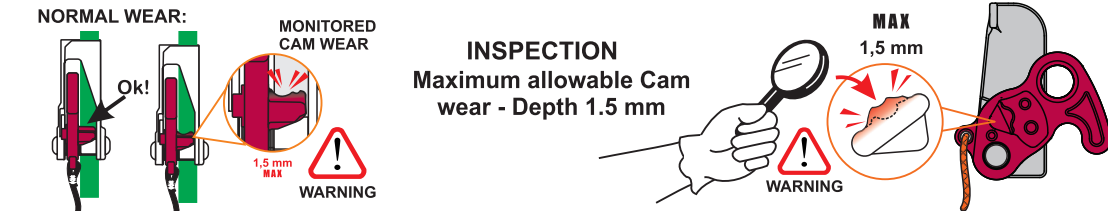
1 - PARTS & MARKING



ATTENTION:
If marking with users identification care must be taken to ensure that full function is maintained and the device is not damaged.

2 - INSPECTION

This **T04** must be inspected prior to each use. This inspection should check for any corrosion, cracks, evidence of abrasion, deformation, loose bolt or missing components together with full function test and markings are clear and readable. In addition to pre-use checks a regular detailed examination should be carried out by and recorded by an authorized competent person at suitable periods, these should be at no more than six months intervals. Following any emergency loading, incident or droppage **T04** must be removed from service for examination. If users or inspectors are not 100% confident that the **T04** is fit for use, it must be removed from service. Devices passing inspection shall only be re-used once written records are completed.

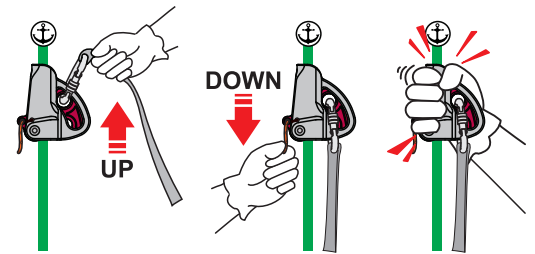


8 - POSITIONING

At all times that the user is stationary the **T04** should be positioned as high as possible. The **T04** must always be above the descender or chest ascender and never below its lanyard/cows-tail attachment point (FF1).

Ascent

To move the **T04** up the rope by holding the lanyard or karabiner - do not hold the device.



Descent:

The **T04** backup device is fitted with a Positioning cord. Users must always perform full function checks of both their descent device and **T04** before each descent. To move the **T04** down, pull the Positioning cord down using the index finger and thumb. Users should only hold the positioning cord for as short a period as necessary and ensure that they are prepared to let go of the Positioning cord immediately at all times.

In many applications the **T04** should be controlled independently of the descent device, in others it may be necessary to control both **T04** and descent device simultaneously. It is the responsibility of the user to carry out a risk assessment and determine which method is best for their operational activity and environment.

WARNING

If users keep hold of Positioning Cord the device will not function. Users must release their hold of the Cord immediately if anything unexpected occurs. At all times users must check that the lanyard is not caught on obstacles and that it will not come in to contact with sharp edges, heat, tools or any other source of damage.

15 - DEPLOYMENT

WARNING

The body of the **T04** must NOT be squeezed or the Cord be pulled with more than the index finger and thumb to de-weight a loaded or partially loaded **T04**.

Accidental Deployment

It is essential that all users are competent in the techniques required to overcome accidental loading. If accidental loading occurs during ascent, first check the ascent equipment, then continue ascending until the **T04** is no longer under any loading. If loading occurs during descent, first check the descent equipment, then use techniques to complete a short ascent of the Working Rope until the **T04** is no longer under any loading. Any other accidental loading should be assessed and appropriate methods used to overcome the loading. At all times two safety systems must be in place.

Emergency Deployment

If failure of the Working system e.g. Working Rope failure or user detachment from the Working Rope, occurs and the user becomes suspended on the Back-up Rope, the user and work colleagues must consider the planned procedural options available with regard to all factors of the actual event.

These options may include amongst others:

- The deployment and use of a new Working Rope.
- The rescue by a colleague using new ropes.
- The use of the Back-up Rope to attach escape equipment (descender or ascenders) for the user to evacuate on the single Back-up Rope.
- Other techniques undertaken by competent persons.

All emergency actions should only be carried out following a risk assessment of the situation. During emergency deployment of the Back-up system any downward movement of the user will be determined by several factors: back-up rope stretch, cows-tail stretch, knot tightening and device slippage. With the exception of very minor glazing a properly used **T04** will lock on to the Back-Up Rope without causing any damage to itself, lanyard, karabiners or the Back-Up Rope. Following any Emergency Deployment all equipment must be removed from service for inspection by a competent person.

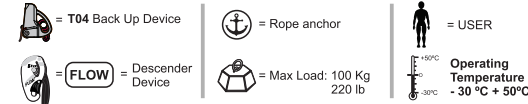
- Body with Orientation Arrow pointing to Rope anchor
- Manufacturer's Logo
- Model Name
- Model: L - ALUMINIUM / H - STAINLESS STEEL
- CE marking
- Read User manual instructions
- Serial Number
- Positioning Cord
- Bolt
- Body
- Cam: Red - L (aluminium) / Silver - H (stainless steel)
- Connection Point
- Max tested load to meet EN and NBR standards
- International Standards and Applied Ropes
- Brazilian Standards and Applied Ropes
- Manufacturer's address
- Certification details
- CA marking

MATERIALS

The Safetec **T04** devices are available with either Aluminium Cam or Stainless Steel Cam. The Cam colour identifies the model: Aluminium Cam Model has a Red anodised Cam, the Stainless Steel Cam Model has a Silver Cam.

Body - Stainless Steel Silver / Red Cam - Aluminium / Silver Cam - Stainless Steel / Spring - Stainless Steel / Cord - Polyester / Axis - Stainless Steel / Bolts - Stainless Steel.

LEGENDS



3 - TERMS

'Back-Up Rope' is used to describe the 'Safety Line' as termed in EN 12841:2006. 'Device' is used in place of the product name. 'User' refers to individuals or persons selecting this device for use.

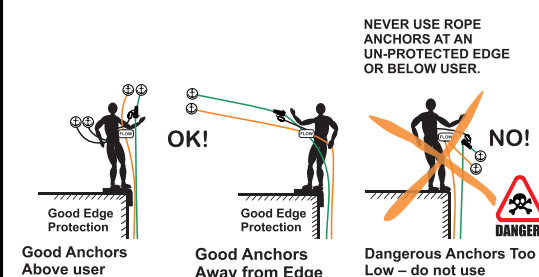
4 - COMPATIBILITY

Lanyard: It is recommend that an EN354 lanyards up to 60cm long.
Cows-tail: Connection may be made using a dynamic climbing rope with suitable terminations, attached to either ventral (waist) or sternal (chest) points. **Recommended length: waist <80cm, chest <50cm.** Further information provided in section 22.
Harness: Front attachment point of an EN361:2002 or EN813:2008 harness. **Connectors:** EN 362:2004 Connector - Locking Karabiner.
Ropes: the type of rope and its condition will greatly affect the dynamic designed slippage of the device. Factors include: manufacturer's coatings, weave pattern and tightness, wear from use, contaminants. Safetec recommend that 11mm ropes are used for most applications and that users assess performance prior to use. Rock Engineering (Geo) and other 'dirty' operation will often choose 10.5mm due to working conditions increasing friction on devices. *Abrasive contaminants - grit and dirt will provide more rapid breaking whilst grease may increase slippage beyond acceptable. The **T04** is a non-aggressive device and during correct operational use it will not damage ropes. In emergency deployment (see 'Deployment' section) with the exception of very minor glazing a properly used **T04** will lock on to the Back-Up rope without causing serious damage to itself, its lanyard, karabiners or to the rope. The user is responsible for ensuring the combination of all components in the rope access system do not adversely affect the performance of any item with due regard to all user instruction. **Gloves:** the use of suitable work gloves is recommended.

5 - INSTALLATION

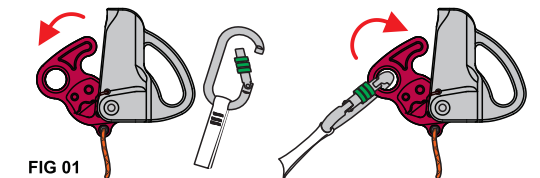
Always install the **T04** from a position safety or when two additional safety systems are in place.

- Working Rope Anchor Min 15 kN
- Back-Up Rope Anchor Min 15 kN

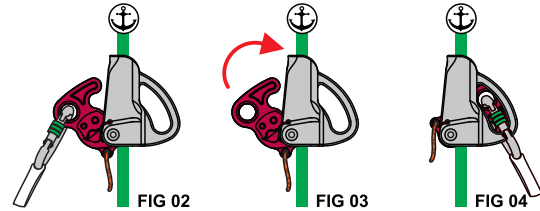


6 - STAGES OF INSTALLATION

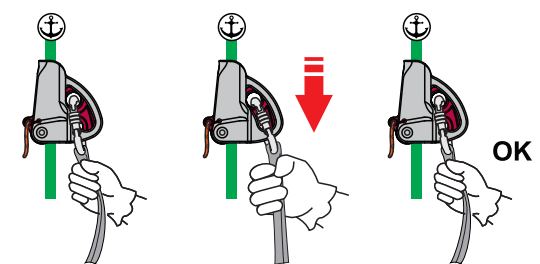
- Push the cam through the device body to the opposite side. Temporary attachment of the lanyard karabiner helps to prevent dropping the device.



- Attach the device on to the rope with the Orientation Arrow pointing in the direction of the rope's anchor.
- Remove the lanyard karabiner and allow the cam to return through the device body.
- Attach the lanyard karabiner to the connection point, check that the karabiner gate is fully closed and locked.



7 - OPERATIONAL CHECK - FUNCTION TEST

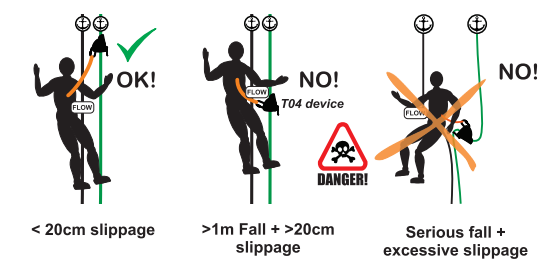


Move the device along the rope and check that it stays in position, then pull down vigorously using the lanyard or cows-tail to verify that the device locks on to the rope.

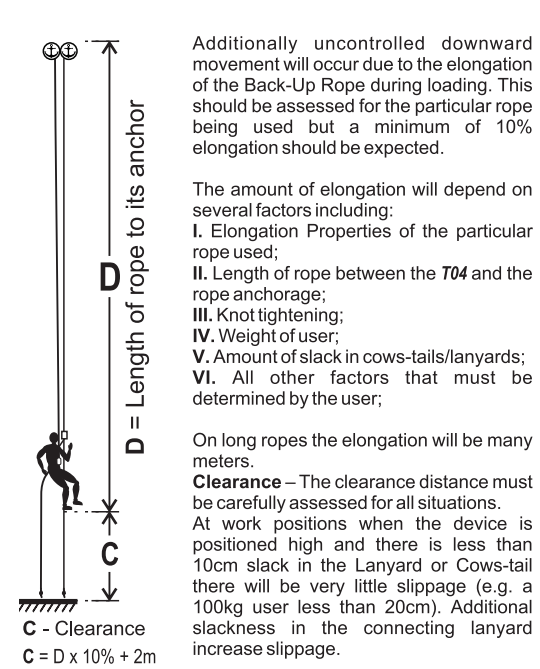
To maintain good spring action ensure that cam spring is lubricated regularly. See section 16.

13 - CLEARANCE DISTANCE

ROPE STRETCH



14 - EXAMPLE BASED ON 10% ELONGATION



Additionally uncontrolled downward movement will occur due to the elongation of the Back-Up Rope during loading. This should be assessed for the particular rope being used but a minimum of 10% elongation should be expected.

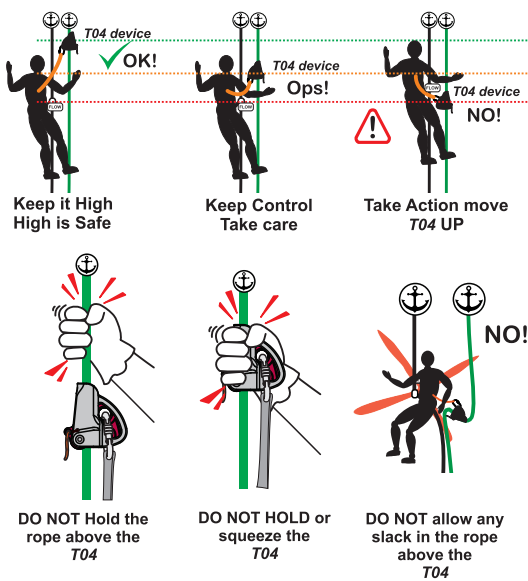
The amount of elongation will depend on several factors including:
I. Elongation Properties of the particular rope used;
II. Length of rope between the **T04** and the rope anchorage;
III. Knot tightening;
IV. Weight of user;
V. Amount of slack in cows-tails/lanyards;
VI. All other factors that must be determined by the user;

On long ropes the elongation will be many meters.

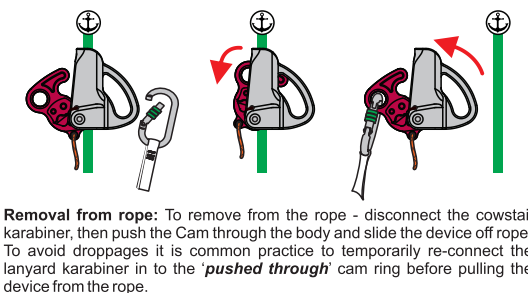
Clearance – The clearance distance must be carefully assessed for all situations.

At work positions when the device is positioned high and there is less than 10cm slack in the Lanyard or Cows-tail there will be very little slippage (e.g. a 100kg user less than 20cm). Additional slackness in the connecting lanyard increase slippage.

9 - OPTIMUM POSITION



10 - REMOVAL FROM ROPE



Removal from rope: To remove from the rope - disconnect the cowstail karabiner, then push the Cam through the body and slide the device off rope. To avoid droppages it is common practice to temporarily re-connect the lanyard karabiner in to the 'pushed through' cam ring before pulling the device from the rope.

WARNING

Never leave the **T04** on a rope with the karabiner attached to the Cam when it is pushed through the body.

16 - GENERAL INFORMATION

Rope Condition: wear, wetness and contaminants will affect the performance of the **T04**. Some rope conditions will make positioning of the **T04** more difficult. Others e.g. oil & grease will affect the device's ability to perform - Back-Up may not be provided. The effective operation of the **T04** should be monitored and checked in all conditions. Where any performance doubt exists, the **T04** should not be used.

Sea Water: It is essential that this **T04** is cleaned as soon as practicable after each exposure to sea water or saline environment.

Chemical reagent: avoid contact with any substance or material that may causes corrosion or other damage to the device. If contact occurs consult expert advice as to damage and cleaning requirements. Inspect prior to any re-use.

Maintenance: the **T04** is not user maintainable with the exception of disinfection, cleaning and lubrication as detailed below.

Disinfection: following any contamination the source of the contamination should be determined and advice obtained as to suitable disinfecting procedure. After disinfection the device should be re-cleaned. Sterilisation may be required.

Cleaning: If soiled rinse in clean warm water of domestic supply quality (maximum temperature 40°C) with mild detergent at appropriate dilution (pH range 5.5 - 8.5). Dry naturally away from direct heat sources. To remove grease use a detergent that has properties that do not affect the metal spring, body, cam or nylon cord.

Lubrication: It is essential to maintain lubrication of the Cam spring. Lubricate regularly and after cleaning with light machine oil or teflon or silicone lubricant to ensure free movement of the cam. Wipe off the excess to avoid contamination of ropes and textile equip.

Lifespan: it is very difficult to define the safe lifespan due to varying use and storage conditions and may be as little as one use, or even earlier if damaged (e.g. in transit or storage) prior to first use. For the product to remain in service it must pass a visual and tactile examination. Maximum lifespan: 10 years from 1st use. Maximum Cam wear 1.5mm.

Obsolescence: this device may become obsolete before the end of its lifespan. Reasons for this may include changes in applicable standards, regulations, legislation, development of new techniques, incompatibility with other equipment etc.

Transportation & Storage: after cleaning store unpacked in a cool, dry, dark place in a chemically neutral environment away from excessive heat or heat sources, high humidity, sharp edges, corrosives or other possible causes of damage.

Declaration of Conformity: Can be accessed on www.safetecbr.com.br

Do not store wet.



CE 0598
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17 - POSITIONING CORD

A positioning cord is factory fitted. If this becomes damaged or worn it can be replaced using cord. If 4mm cord is used it must be no longer than 40mm, 3mm cord must be no longer than 50mm. The only knot used must be to secure it tightly to the attachment point.

18 - RESPONSIBILITIES

This product is warranted for 3 years against manufacturing faults. This excludes normal wear during use, corrosion due to incorrect storage, lack of maintenance or incorrect use. Uses outside those outlined in these instructions together with negligence or miss-use are also excluded.

Safe Tec Industria accepts no responsibility for the selection of this device for user applications or any consequences resulting from the use of this device.

No alterations or additions are to be undertaken without the prior written consent of Safe Tec Industria.

For more informations of our latest version go to:

19 - FURTHER INFORMATION

Safe Tec acknowledge that the **T04** has successfully passed the EN12481:2006 A Fall Factor 2 (FF2) test with a 1m dynamic rope cows-tail, but do not advise or recommend its use in FF2 situations. SafeTec do not recommend 1m cows-tails. SafeTec recommend use in situations with no more than Ff1.
See sections 8 & 9.

Ff1 tests with 1m cows-tails produce lower impact forces and considerably less slippage that the maximum allowed by EN12841:2006 A. If users choose to use a 1m cowstail, a risk assessment should be completed and control measures must include the requirement for users to kept Fall Factors below Ff1.

SafeTec do not recommend 1m costails in normal use. If users choose to use a cowstail of a different lenght to that recommended in this user manual; a full risk assesment shall be required and the user accept responsibility for the back-up provided.

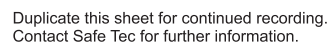
The use of Lanyards/Cows-tails of lengths or material different to those recommended should be assessed for compatability and allow proper function of the **T04** following a risk assessment sopecific for the intended use.

All users must be aware of, and pay attention to all factors associated with slack in cows-tails or lanyards:

rope elongation/stretch, clearance, entanglement and any other factor/s affecting the safety of users and the performance of the **T04**.

All users should ensure optimal positioning of the **T04** during all use as detailed in section 9.

20 - RECORD OF USE



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T04 DUCK / EN Forcer

Additional Applications and Information

Other Users: The **T04 DUCK / EN Forcer** has been used for applications that are outside the scope of EN 12841:2006 A and the CE mark attached to each device. Some uses are illustrated here, these and any other uses must be undertaken by persons who understand the dangers and limitations of rope systems. The design of systems, planning and verification of system suitability for the specific intended applications is the responsibility of the user, all anchorages must be suitable for any load. Competence is required for all applications, additional safety measures must be implemented during training exercises, this must include the close supervision by competent instructor. Users must consider all sections of the user manual with special attention to the **Positioning Warning** and the information detailing **Clearance Distance** and **Rope Stretch** considerations and limitations. All installed devices should be independently function checked with suitable back-up in place prior to any rope operations.

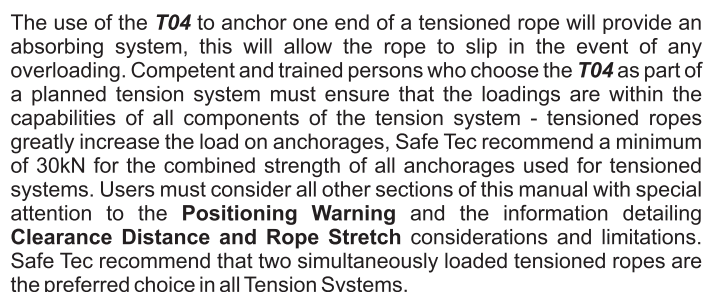
ON-ROPE RESCUE:

Users must consider all factors affecting **T04** performance including obstacles, additional rope elongation and increase clearance requirements as well as all other sections in the user manual.



Loads over 200 kg use 2 X descending devices. Safe Tec recommended the use of 1 X **T04** during these rescues and where possible this should be on a third rope system. Always follow the user instructions for descent devices.

TENSION SYSTEM



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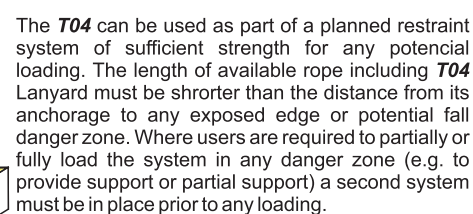
ISO 9001

ON-ROPE RESCUE:

Nothing should affect the proper function of the **T04** in the event of any emergency loading. During use as a Back-up for a Hauling or Lowering System the Back-up rope must be attended to constantly and no more than 20 cm of slack be allowed in the back-up rope, before repositioning the **T04**. Safe Tec recommend that the **T04** is controlled by its own attendant so that optimum positioning can be maintained at all times.

Safe Tec recommend that two tensioned (equally loaded) ropes are the preferred choice in all **Hauling and Lowering Systems** - both ropes being hauled or lowered simultaneously and sharing the load. More than one person maybe required to operate Hauling or Lowering Systems

LOWERING EXAMPLE



Use on Vertical ropes. The **T04** can be used as part of a safety system attached to a fixed rope. The top anchorage for the rope must be a minimum of 15 kN. The system must be verified prior to use and the user must follow the positioning methods specified in section 8 of this document.

FIXED ROPE

Use on fixed ropes. The **T04** can be used as part of a safety system attached to a fixed rope. The top anchorage for the rope must be a minimum of 15kN. The bottom of the rope must be either secured (not highly tensioned) or be weighted to allow the **T04** to move freely. Recommended attachment is to the Harness Sternal (chest) point using a 50 cm lanyard . The system must be verified prior to use and the user must follow the positioning methods specified in the positioning section of this manual.



Use on a loaded or pre-tensioned rope:

The **T04** is designed to be used on an unloaded untensioned ropes as required in EN12841:2006A. The performance on a rope that has been deliberately tensioned must be verified prior to use. If during a rescue (or rescue training) a casualties ropes are to be used for access to the casualty; the performance of both the rescuers and the casualties back-up and main working systems must be assessed and performance verified prior to starting rescue access. Additional safety measures will normally be required, including additional training and equipment. For rescue training additional ropes and/or safety attachments is best practice.