

For use on 10.5mm - 12mm kernmantle rope

Methods of use:

Controlling a safety rope (lifeline)

Thread device as shown to the right (fig 1). Hold the tail rope in one hand and the live rope in the other. You should not need to touch the body of the device.

Paying out - gently pull the live rope whilst feeding the tail rope into the device. Repeat this action, taking care not to let go of the tail rope at any time. Pulling too hard on the live rope will cause the device to lock.
Taking in - the reverse of paying out. Pull in slack on the live rope whilst pulling out on the tail rope. Once again, take care not to let go of the tail rope at any time.

Never operate the handle whilst in this mode of use. Due to the reduced amount of friction, extra care is required if using 10.5 mm rope for life lining purposes.

Use as a locking pulley

Thread the device as shown above (lifeline) and run the tail rope into the required pulley system.

Pulling on the tail rope (via the pulley system) will pull rope through the device.
Releasing the load on the tail rope will cause the device to lock.

Lowering

Start with the device fully threaded, i.e. with the rope around the upper bobbin and between the pivoting handle section and the brake block as shown in the diagram (fig 2). To lower the load, hold the tail rope firmly, unfold the handle and gently squeeze it towards the body of the device. As the handle is squeezed the rope will start to pass through the device (fig 3). Further movement of the handle reduces the braking action of the lower bobbin and will increase the speed of passage of the rope until the secondary braking system comes into effect. The friction then increases, slowing the passage of the rope. Finally, as the handle is squeezed even more firmly, the rope is brought to a halt as it is pinched between the pivoting handle section and the brake block.

Connect the device to the anchor point and the 'live' rope to the person to be lowered. Before lowering, remove any slack rope from the system by pulling on the tail rope.

Descending

Thread and operate the device as for lowering (fig 2). Connect the live rope to the anchor point and the device to the harness. Before descending, remove any slack rope from the system by pulling on the tail rope.
It is possible to ascend using the device with an appropriate rope grab and footloop. To ascend - change to lifeline mode (fig 1) then stand in the footloop whilst pulling on the tail rope to remove the slack. Hold the tail rope at all times whilst carrying out this operation.

Threading the Quadra

Hold the device so that the handle is on the right hand side and pivot the top plate open. Pass the rope under the lower bobbin and then close the top plate. Position the rope into the notch on the right of the top plate, then pivot the top plate towards the open position, whilst placing the rope into the gap between the lower bobbin and the brake block. The rope should now be in a U shape around the lower bobbin. Pivot the top plate closed. The device is now ready for use as a locking pulley or to control a lifeline (see below). Check for correct threading by pulling sharply on the live rope. The device should lock. It is possible to change the mode of use whilst the device is under load. With the device locked (handle fully out) hold the tail rope and thread or unthread the rope around the upper bobbin as required. With the rope threaded around the upper bobbin and between the pivoting handle section and brake block the device is ready for lowering or descending.

Never operate the handle while changing from one mode to another

Locking off - all methods of use

It is possible to 'lock off' the device so that the tail rope does not have to be held. This is necessary whenever the user needs to have both hands free. To lock off the Quadra, pass a loop of the tail rope through the attachment connector (fig 5), pass over the top of the device, and position over the body and the handle as shown (fig 6).

Pre-use check

The condition of the equipment should be verified before every use. Check for cuts, nicks, deep scratches, wear, abrasion, deformation, evidence of chemical contamination, or anything which might affect strength or correct operation of moving parts. Pay particular attention to the following:

- proper movement of side plates
- security and fixing of all fasteners
- free movement of upper and lower friction pulleys
- return action of spring
- free movement and straightness of handle.
- rear handle stop pin

Do not use the equipment if any doubt exists to its good condition. If doubt exists, remove from service immediately until inspected by a competent person or refer to heightec for guidance.

Intermittent inspection

As the pre-use check, with special regard given to components which might be subject to wear or damage, particularly the condition of the friction surfaces and proper function of spring. It should not be necessary to conduct intermittent inspections of pre-packed items of emergency equipment which are stored under correct conditions.

Thorough examination

This should be done at intervals no greater than six months. The time, place, inspecting person and results of the inspection should be recorded (see record card on back page). Note should be made of the ongoing condition of the product, together with its suitability for continued use. In addition to the requirements of the pre-use check and intermittent inspection, the product should be particularly examined for:

- corrosion
- wear or sharpness of side plates
- play or slackness in pulley spindles
- security of fixings
- rear handle stop pin

If this device has been used to hold any significant fall it should be withdrawn from use and replaced immediately.

Thorough examination of pre-packed items of emergency equipment should take place at intervals no greater than one year.

Warnings

Ensure the device is threaded correctly before use (see over). Always hold the tail rope when the device is under load. If it is necessary to let go of the tail rope, first lock off the device as shown above. Take care not to let anything foul the operation of the handle (fingers, clothing). Attach only via the point shown (see over) - it is essential that the attachment connector passes through the holes in both side plates. Never operate the handle without holding the tail rope.

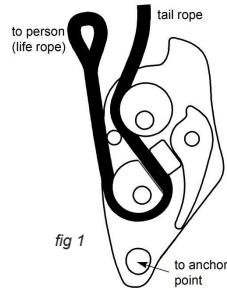


fig 1

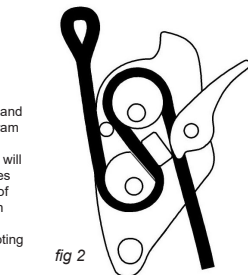


fig 2

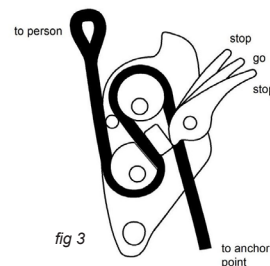


fig 3

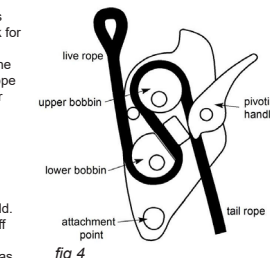


fig 4

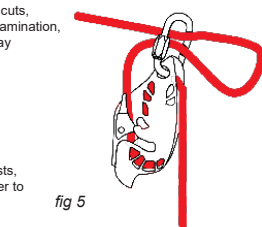


fig 5

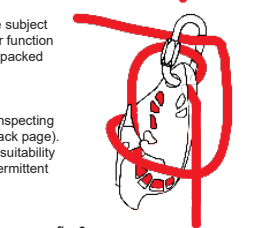


fig 6

Intended use

The Quadra rope device is designed for use with low stretch (EN 1891, type A) kernmantle rope of between 10.5mm and 12mm diameter, for the following purposes:

- to arrest the movement of a safety rope attached to a person
- as a self braking pulley in a hauling system for personnel
- for lowering a person
- descent or ascent of a rope

No other form of use is permitted.

In all of the situations described above, it is important that an additional back-up safety system is used, attached to a separate anchor point. The safety system may be controlled by another person, or the user may be attached by a suitable rope grab or fall arrester. This condition may not be possible during situations of emergency, e.g. evacuation.

Training and competence

The Quadra must only be used by persons who are competent, trained in its use and familiar with its limitations. Initial training is essential, with regular retraining if necessary, at periods no greater than six months. Training should always be undertaken in conjunction with an additional safety system, attached to a separate anchor point. It is recommended that initial training should take place at ground level to allow familiarisation without risk. Training providers should be able to demonstrate competence and experience of the equipment with which they intend to train.

Performance with high loads

The Quadra is designed for use with loads of two persons. Users must be aware however, that such use may create additional hazards because of the high loads which might be placed upon other parts of the system. It is therefore important that when used for loads greater than one person, operators have received appropriate training and have practical experience of this mode of use and the associated hazards. It is especially important to guard against any possibility of high shock loads and/or rope damage. The Quadra is not suitable for use with loads greater than 200kg (such loads will also exceed the SWL of most ropes).

Material

All components are made from stainless steel 316 except the upper friction pulley and folding handle section which are made from aluminium.

Compatibility

For use only known compatible equipment as described:

- Non-compatible equipment may result in an accident or injury.
- Helmets: It is recommended that this product is used with an appropriate helmet e.g. mountaineering helmet (EN 12492) or industrial helmet (EN 397) with side impact rating and four point chin strap.
- Harnesses: industrial sit harness (EN 813), full body harness (EN 361) or evacuation harness.
- Connectors: must have a locking gate mechanism. Mountaineering connectors (EN 12275) or industrial connectors (EN 362); most locking karabiner or screwlink types will be suitable. Connectors should sit in the anchor point without twisting. Be aware that the gate of some types of locking connector can open accidentally.
- Rope: low stretch kernmantle rope (EN 1891, type A) of between 10.5 mm and 12 mm diameter. Don't use excessively old, stiff, worn or abraded ropes. Edge protection should be used wherever there is the risk of damage to the rope. Note that very new ropes will provide less friction and so need to be 'worn in'. 12 mm rope may only be used for lowering and self locking pulley operations.

11mm rope is recommended for use in all operations.

SWL statements

It is difficult to ascribe a 'single' safe working load to this device because of the varied ways in which it can be used. Regardless of the mode of use, the Quadra should never be used with loads greater than 200kg. The following loading characteristics should be noted (all tests carried out on unused low stretch rope to EN 1891).

Under a static load, the locking system of the Quadra will begin to slip at:

Rope Diameter (mm)	Load (kg)
10.5	338
11	333
12	615

With the handle 'open' (i.e. locking mechanism off) and a 20 kg restraint force (grip) on the tail rope, the device is able to control the following loads:
10.5 mm rope - 130 kg
12 mm rope - 150 kg

The device is capable of withstanding a fall of 1m (factor 1) with 100 kg (in lowering/ descending mode) on 10.5 mm or 12 mm rope. See prEN 12841 for more information about this test.

Check the equipment immediately on delivery and first opening. There are three levels of inspection (periodical examination) which should be undertaken throughout the lifetime of this product. Each type of inspection should be carried out by a person competent at that level. A competent person may be defined as 'someone suitably trained or qualified by knowledge and practical experience to enable the task to be carried out properly'.

Care of rope during use

Take any steps necessary to protect the rope from damage during use, including rope protectors, edge protectors, intermediate anchor points or deviations to avoid sharp or rough edges. Consider also the position of the rope below the user. Ensure rope cannot suffer from the effects of wind, or become trapped around obstacles.

Hazards

Do not allow slack rope to develop in any part of the suspension system. When used as a descender, a front harness connection point should be used. Ensure that exclusion zones are used to protect third parties if necessary and that objective hazards are identified before use.

Contamination with oils, lubricants, water or solvents may alter the performance of the device. Behavior will vary according to the age, type, diameter and characteristics of the rope used. Use only ropes between 10.5 mm and 12 mm diameter. Do not use excessively old, worn or abraded ropes.

Personal issue and traceability

This device is personal protective equipment. It is designed for use in conjunction with other, compatible items of PPE as described in these instructions. It is preferable for this item to be personal issue. It should be uniquely identified and should be traceable to the original certificate of conformity, with records kept of subsequent use. It is essential that every user is issued with these user instructions.

All users must be suitably trained and should be competent to work in situations where a risk of falling may be present. The heightec Group take no responsibility for injury or accident of any kind arising from the use of this product.

Method of threading the rope correctly for lowering, descending:



Method of threading rope correctly for lifeline and raise:



1 - Personal issue and traceability:

If this product is classed as personal protective equipment it should be individually issued to the person who will be using it. The product should remain traceable to the original certificate of conformity and a permanent record should be kept of its use. This user instruction forms part of the permanent product record. All users must receive and read a copy of these instructions and should understand what the instructions mean and be familiar with them, including, but not limited to function, suitability, compatibility of the product and inspection for defects arising from damage. A copy of this user instruction should be kept with the equipment, and referred to before and after each use. In the event of a rescue, these instructions should be provided to the rescuer.

2a - Anchor Points:

The anchor device or anchor point used should be of sufficient strength to sustain foreseeable loads in all permitted directions. Specific standards requirements:
EN: Anchor device should conform to EN795, with minimum static strength of 12kN. heightec recommend a higher strength of 15kN as specified in the IRATA ICOP and BS7985.
When more than one system is attached to an anchorage, these strengths should be multiplied by the number of systems. Anchorages should be positioned to minimise the potential for falls, and the distance and consequences of any potential fall, ideally above the user. Verify there is sufficient free space beneath the user to avoid collision with the ground or other obstacles and minimise sideways or pendulum falls. The connecting system instructions should give advice on clearance required, but a fall arrest energy absorber may extend by up to 1.75m.

2b - Further Requirements for Anchor Points in US (ANSI):

ANSI: (a) where certified, twice the maximum arrest force, or (b) where not certified 22.2kN (5,000lbf) for fall arrest, 13.3kN (3,000lbf) for work positioning, or 4.5kN (1,000lbf) for restraint. When designing, selecting, and certifying a fall arrest anchorage, the qualified person shall include the limitations on use of the system in fall protection procedures described in ANSI Z359.2. Design, selection and installation of certified fall arrest anchorages shall include determining a safe location where and how to connect those anchorages by taking into consideration the forces generated by arresting a fall, total existing and anticipated loading, load path, structural member strengths, connection and support strengths, stability, clearance requirements, swing fall, rescue deflection of the system, and impact on the structural members to which the fall arrest system is attached.

Anchorage selected for rescue systems shall have a strength capable of sustaining static loads, applied in the directions permitted by the rescue system of at least 3,100lbf for connection of rescue system only, or meet a Factor of Safety of 5:1 based on the static load placed on the system when the system is designed, installed and used under the supervision of a qualified person.

Persons engaged in rescue operations that are exposed to a fall hazard, must be provided an anchorage suitable for fall arrest in accordance with ANSI Z359.1.

Anchorage connectors shall not be attached to anchorages where such attachment would reduce the anchorage system strength below the applicable level set forth above or reduce the anchorage strength below the allowable level set by applicable structural codes. A suitable anchorage connector shall be used for rigging the connection of lanyards and lifelines to structural members. A lanyard shall not be connected back onto itself for use as an anchorage connector unless specifically designed for this purpose.

Anchorage connections shall be stabilised to prevent unwanted movement or disengagement of the rescue system from the anchorage. Verify system connections by pre-tensioning the system before applying the intended load. Other components used in fall protection or work positioning systems must conform to the relevant standards, be compatible with each other and be used in accordance with their user instructions.

3a - Inspection and care:

The strength of this product may be affected by cuts, nicks, deep scratches, wear, abrasion, deformation, chemical contamination, UV degradation, exposure to flame, extreme temperatures and other factors. Keep this equipment away from such sources of damage. Use this product with caution near moving machinery, electrical hazards, sharp edges and abrasive surfaces. This product must be inspected before and after use, and particularly after being used for rescue, to ensure the product is in a suitable condition and operates correctly. Written records should be kept of all inspections.

If there is any doubt about condition of the product, or it has been subjected to a fall or substantial shock load, withdraw it from use until confirmed to be safe, in writing, by a person deemed to be competent by The heightec Group.

No repairs of this product should be undertaken, any attempt to do so may invalidate it's compliance and/ or certification.

The safety of users depends upon the continued efficiency and durability of this equipment, which must subjected to detailed visual and tactile examination by a competent person* at intervals of no greater than 6 months for textiles or 12 months for metals, taking into account relevant legislation, equipment type, frequency of use and environmental conditions. These examinations should be carried out strictly in accordance with the manufacturer's periodic examination procedures. Detailed examinations should include confirmation of the legibility of product markings.

*A competent person may be defined as someone who "...has appropriate theoretical and practical knowledge and experience..."

The results of examinations should be recorded. Intermittent inspections of components which may be subject to excessive wear may also be appropriate. The results of these need not be recorded. It is recommended that this product is marked with the date of the next or last inspection. Contact your distributor for information on suitable inspection procedures.

3b - Inspection criteria:

Textile products or elements: check material and stitching for damage including cuts, nicks, abrasion, fraying, discolouration, heat or chemical damage etc. Ensure stoppers are present on ends of adjustment webbing.

Metal devices or components: check for damage, corrosion, excessive tightness, sharp edges, excessive play, deformation, cracking or anything that might affect strength. Check security and correct operation of any moving parts e.g. side plates, return action of springs, cams, operating handles, bearings. Check function of closure mechanisms, where present (e.g. screwlink thread, connector gates).

3c - Cleaning, maintenance and storage:

Wash textiles by hand with non-detergent soap at approx 25°C (cool). Rinse and dry naturally, away from direct sources of heat and sunlight. If necessary use a disinfectant compatible with polyamide and polyester. Use diluted and rinse thoroughly in clean water. Dry as previously stated. These cleaning procedures must be strictly adhered to. Mechanical metal products with moving parts should be occasionally oiled, at bearings or pivot points, with excess oil removed. Store and transport in a dry, clean condition, away from sources of severe vibration, humidity, direct heat, sunlight and any physical or chemical contaminants.

4 - Lifespan:

Textile products or elements: maximum 10 year lifespan from date of manufacture, subject to competent use, maintenance and examination programme.

Metal products: indefinite lifespan, subject to competent use, care and examination programme. The lifespan of all products will be reduced by normal wear and tear, particularly when used in abrasive or corrosive environments. In extreme circumstances, the life of an item may be reduced to a single use.

5a - General usage:

Users should be suitably trained and competent to work in situations where a risk of falling may be present or under the direct supervision of such a person, fully trained in the use of this product and free of medical contra-indications for work at height or rescue. Do not use this product outside of its limitations or if you are unsure of any aspect of its use. No alterations or additions may be made to the product. The heightec Group do not take any responsibility for injury or accident of any kind arising from the use of this product.

INSPECTION RECORDS		ID Number:			
Product:		PO/ Certificate No.:			
Model/Type:		Purchase Date:			
Manufacture Date:		First Use Date:			
Date	Observations / Comments	Actions	Inspector	Next Due	

It is essential a rescue plan is in place to deal with emergencies and in particular to consider treatment and recovery of a fallen or suspended person. Rescue equipment must be present and personnel should be competent in its use. Orthostatic intolerance can occur when a person is suspended motionless in a harness, and is potentially fatal. Ensure that the rescue of a suspended person is carried-out promptly. Contamination with oils, lubricants, water or solvents may alter the performance of the product. For rope devices behaviour will vary according to the age, type, diameter and characteristics of the rope used.

5b - Care of rope during use:

Take any steps necessary to protect the rope from damage during use, including rope protectors, edge protectors, intermediate anchor points or deviations to avoid sharp or rough edges. Consider also the position of the rope below the user. Ensure rope cannot suffer from the effects of wind, or become trapped around obstacles.

6 - Guarantee:

This product is guaranteed for three years against faults arising from manufacturing errors or materials defects. This guarantee does not include normal wear and tear, faults arising from uses for which the product was not designed and accidental damage.

7 - Notes:


If this product is re-sold outside the original country of destination the reseller shall provide these instructions in the language of the country in which the product is to be used.


Markings:


The following markings may be present on the product:

 UKCA mark - UK Conformity

 CE mark - European Conformity.

 Read these instructions before use.

 For use with kernmantel ropes conforming to EN1891 type A

 XX-YY - Diameter range of rope which this product may be used, in mm

 Direction of use

Date of manufacture is marked on the product in the form: DAY MONTH YEAR, DDDMMYY eg.120510.

The ID no. is unique to this item. Do not remove or obscure the product labels or markings. Unique ID should be read in conjunction with product code and batch number e.g. D01 120510 123