heightec
with respect to gravity...™

D321 Powerlock

Rescue Descender

CE 0120
EN12841 (C)

Manufactured by;
The heightec Group Ltd, Kendal, Cumbria LA9 6NH, UK

Type approval;
SGS United Kingdom Ltd, Weston-Super-Mare, BS22 0WA, UK

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USER INSTRUCTIONS

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Intended Use
The Powerlock is designed for use with low stretch (EN1891, type A) kernmantel rope of 11mm diameter, for the following purposes:

- Descent of a rope
- Lowering of a person
- Ascent of a rope
- Hauling

In all of the situations described above, it is important that an additional backup safety system is used, attached to a separate anchor point. The safety system maybe 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.

The Powerlock has a double-braking mechanism when in normal friction configuration, meaning it will brake if the handle is either released or squeezed fully. The Powerlock can be used on a working line at any angle.

The Powerlock has been certified with a Maximum Rated load of 200kg, compliant with EN12841(C). It has a minimum rated load of 30kg.

The Powerlock has also been independently tested for a descent energy of 1.5×10^6J, with 20 consecutive descents of 100m each, meeting the requirements of EN341(B):1993. Note: EN341 is outside of the scope of the CE mark.

Before Each Use
Check condition and operation of device. Refer to notes on reverse for more information.

Ensure that the handle, gate, bobbin and top plate are all free to move smoothly over their full range and that spring-loaded elements return fully.

Confirm braking and descending functions under operational load in a location where there is no fall risk.

Materials
All components are made from stainless steel 316 except the plastic handle grip and the side plates and handle which are made from aluminium.

Performance with high loads
The Powerlock is designed for use with loads of two persons. Users must be aware however that such a 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 associated hazards. It is especially important to guard against any possibility of high shock loads and/or damage.

Inserting Rope
The Powerlock may be opened without removing the connector. Open the gate and manipulate the connector through the opening, this allows the top plate to swivel anti-clockwise.

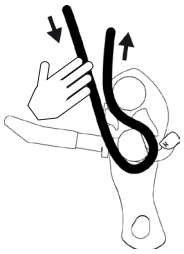
Lay the rope across the lower part of back plate, then underneath the top plate, then between the cam and block and then between the bobbin and bollard.

- For reduced friction configuration, close the Powerlock by swivelling the top plate clockwise. The top plate will automatically lock onto the connector.

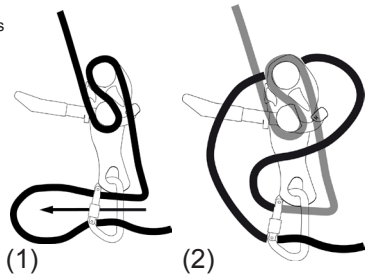
- For normal friction configuration, take in the slack, then bring the rope around the bobbin and insert in channel between the top plate and the handle bollard.

Removing Rope
Release the rope from the channel between the top plate and the handle bollard. Open the top plate by opening the gate and passing the connector through the opening as the top plate is swivelled anti-clockwise. Release the rope from the bobbin and from the cam, then pass under the top plate and over the back plate.

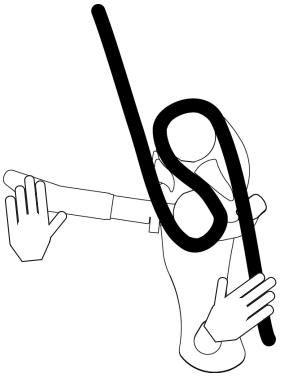
To haul/take in
In reduced friction mode. Feed the rope into the Powerlock with one hand, while pulling the load rope out through the Powerlock with the other hand.



Locking off
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 Powerlock pass a loop of the tail rope through the attachment connector (1), pass over the top of the device, and position over the body as shown (2) making sure the karabiner remains fastened.

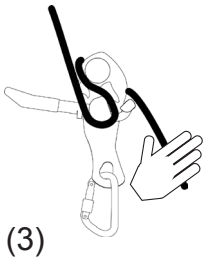


Descending
Start with the device threaded as shown. Connect the 'live' rope to the anchor point and the device to the harness. Before descending remove any slack rope from the system as shown opposite. **Caution:** the Powerlock must be in normal friction mode before commencing a decent, a rapid descent will occur in reduced friction mode. To descend, hold the tail rope firmly and gently pull back on the handle. As the handle is moved the rope will start to pass through the device. Further movement of the handle reduces the breaking 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 pulled even harder the rope is brought to a halt as it is pinched between the second brake pin and the brake block.



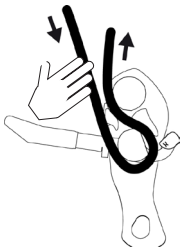
Normal Friction - The Powerlock has a double-braking function and will brake if the handle is released or if it is squeezed fully. The Powerlock does not require additional friction from a second connector to hold higher loads.

Reduced Friction - The Powerlock is easily adjusted and can be used for: ascending, paying rope in and out or under partial load, such as when moving across a horizontal surface towards an edge prior to abseiling. Pass rope around back as shown (3). Caution: this will give a rapid descent if used when fully suspended.



Lowering
The Powerlock should be connected to a suitable anchorage. Thread and operate the device as for descending. 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.

To pay out slack
The Powerlock should be in reduced friction configuration - gently squeeze the handle with one hand, while pulling the load rope out through the Powerlock with the other hand.



Ascending
The Powerlock should be in reduced friction configuration - lift body weight by pulling on the anchor rope with left hand, while simultaneously pulling the tail rope up through the Powerlock with right hand.

Warnings

- Always use in conjunction with a suitable back-up system.
- Always maintain control of tail rope, unless Powerlock is "locked-off".
- Always keep right hand on tail rope and in a low position close to hip, in order to keep rope in Normal Friction configuration when descending
- Always use a connector (EN362 Class B) with bar size between Ø10mm and Ø12.7mm.
- Do NOT use screwlinks (EN362 Class Q) with bar size less than Ø10mm
- Do NOT allow the handle movement to become obstructed, such as by fingers, clothing or other equipment.
- Always minimise slack in anchor line.
- Do NOT over-load or apply dynamic load as this may damage the rope.
- Always be aware of the device temperature rising during long/fast descents due to friction - this may damage the rope.
- Ensure a knot or other end termination is used at the bottom of the working line, to prevent descending off the end of the line.
- Ensure the rope does not run over any sharp edges or abrasive surfaces.
- Do NOT use outside of limits or for any purpose than described above.
- Do NOT use as part of a fall arrest system.

1 - Personal issue and traceability:
This product is personal protective equipment and 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.
Anchorages 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 termperatures 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. 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:

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, DDMMYY 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