



USER INSTRUCTIONS

The Quantum is personal protective equipment designed to protect the user against falls from height.

Functions and Limitations

The Quantum is designed to serve a variety of functions including but not limited to:

- Mobile fall arrester on a flexible anchor line, it will accompany the user while ascending and descending. When used on lines that are not completely vertical, the device may not automatically accompany a descending user.

Pre-Use Check

Before use check the following:

1. Cam moves freely
2. The front plate and catch open and close correctly
3. Rope is correctly inserted between the two cams
4. Both side plates are connected together. See fig 3.
5. Device runs freely up the anchor line and locks when pulled downwards

The standards/regulations of different countries require differing information be supplied to the end user. Please read the relevant sections carefully (overleaf).

Compatibility

For use with 10.5mm to 11.5mm kernmantel (typically polyamide) rope to EN1891 Type A standard and connection to the device should be made using components that conform to relevant EN standards (e.g. EN 354, EN 892, EN 362 & 5 EN 566).

Use as Fall Arrester/Backup Device

- For maximum protection the Quantum should be connected to the chest fall arrest 'A' attachment point of an EN 361 full body harness. Connection to the rear fall arrest or waist attachment (of an EN 813 sit harness) may also be used.
- heightec recommends a maximum 0.45m* dynamic rope or webbing lanyard to connect to the harness to the device. These may be used upto fall factor 2.
- Longer lanyards upto 0.9m* may also be used provided the fall factor is kept at less than 1.
- Caution: connectors must be free to move, do not use Karabiner retainers or captivating knots (e.g. Barrel knot).
- A shorter connection may provide smoother operation, e.g. heightec product MQX32.
- The Quantum may also be connected directly to the harness with a single connector.
- To reduce fall distance, always keep the device as high as possible during use. Lift it by the connector or lanyard and tug downwards to lock onto the rope.

*Length includes connectors.

Operation

Prior to use, carry out a simple functional test by sliding the Quantum up the anchor line and then pulling down on the connector to ensure the Quantum holds firm on the line.

When safely working with the Quantum, it should be kept as high as reasonably practical, ideally above the user's waist.

Never hold onto the device while ascending, descending or in the event of a fall. In the event that the device locks onto the rope while descending. Only hold the connector to manipulate. In the event of a fall, the device will still operate.

Ascending

Allow the device to be towed up the rope by the lanyard attachment.

The anchor line between the device and anchor point needs to remain reasonably tight with no slack.

Descending

- Smoothly descend allowing the device to hang from the connector so that it will slide down the anchor line under its own weight.
- Where possible avoid manual manipulation when used as a fall arrest/backup device. Move the device by the lanyard or connector only.
- If working in restraint on flat roofs it is advisable to put a stopper knot at roof edge.
- All anchor lines must have a stopper knot or other termination at the free/bottom end of the rope.
- A small mass (about 1.5kg) at the bottom of the anchor line helps the Quantum run downwards and prevents it dragging the anchor line up in ascent, e.g. wind + low level.
- Avoid holding the anchor line while using the device to ensure it operates and moves along the line correctly.
- Regularly check that connectors are closed and secure during use.

Minimum Free Space

To avoid collision with the ground or other substantial object during a fall from height, it is essential to calculate the minimum free space necessary below the feet of the user (see fig.

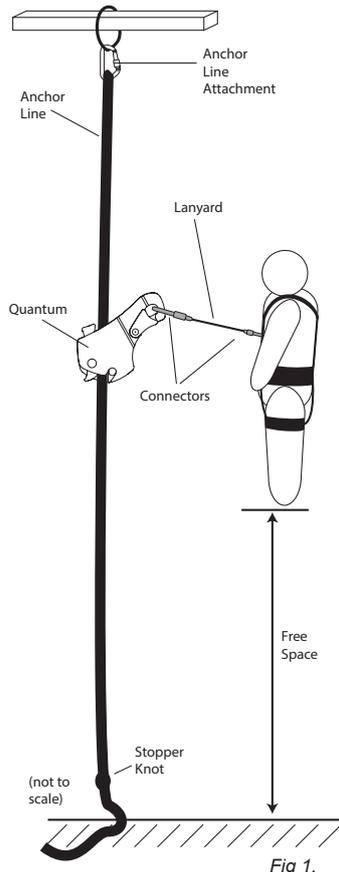


Fig 1.

1). This takes into account the arrest distance, the length of the connection, the elongation of the anchor line and a safety margin of 1.0m.

The minimum free space can be calculated by:
rope stretch + double connection length + arrest distance + safety

Worked Example: For simplicity the worst case maximum arrest distance with a safety margin is to be 1.0m

Standard 10.5mm kernmantle (EN 1891 Type A) ropes/anchor lines could stretch approximately 1m for every 10m in use (10%).

e.g. for a 15m kernmantle anchor line using 100kg mass:

Rope stretch (10% of 15m)	1.5m +
Double connection length (e.g. 0.45m):	0.9m +
Arrest distance:	0.2m +
Safety:	1.0m
Min Free Space	= 3.6m

Placing the Quantum on the anchor line

Open the catch. To save dropping, the device back plate can remain clipped.

Rotate open the front plate. Feed the anchor line between the cam and the friction bollard (fig 2)

Close the front plate and ensure the catch closes (fig 3).

To remove the device, reverse this process.

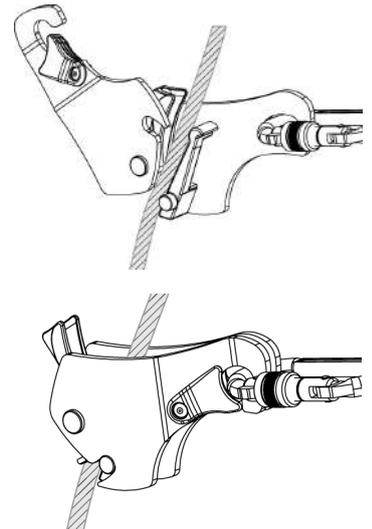


Fig 3.

Two Person Rescue

If necessary, the Quantum may be used with two person loads up to 200kg. During such use the Quantum must be kept as high as possible to keep potential fall distances to a minimum (<FF1). Failure to do this could result in high forces being transmitted to the anchor point. Note: rescue is outside the scope of EN 12841 and the CE mark.

Use When Near to Anchor Point

The Quantum uses rope stretch to absorb energy in a fall. If the Quantum is within 3m of the anchor point, the fall distance should be kept to a minimum by keeping the device as high as possible and/or by using a shorter cowstail in order to reduce any potential impact forces.

Warnings

- Ensure connector cannot damage or operate the catch (check compatibility before use)
- Connectors must be free to move, do not use Karabiner retainers or captivating knots (e.g. Barrel knot).
- Do NOT connect to the device using screwlinks (EN362 Class Q) with bar size less than Ø10mm
- Do NOT allow cam movement to become obstructed, such as by fingers, clothing or other equipment.
- Always minimise slack in anchor 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.
- Ensure a knot or other end termination is used at the bottom of the anchor line

