



**WARNING!**

All users must read and understand this manual before use. This product must only be used by persons who are trained and competent 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 (or supervised by persons who are) competent in emergency procedures and rescue methods associated with the use of this device as detailed in these instructions. Users should take great care that hair, fingers, clothing or other items do not become entangled with the FLOW. DO NOT allow anything to affect the proper function of the device.

**Do not use the device for any other purpose.**

1

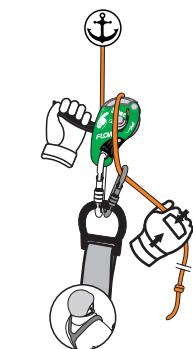
**ADDITIONAL APPLICATIONS AND INFORMATION**

Safe Tec design and manufacturer Safety Equipment for the International Market and submit items for various international tests and certification throughout the world including ANSI, CE, EN, NBR, etc. These products are used by a range of operations including Industrial, Military, Emergency Services and Recreational. The FLOW is suitable for many applications as well as those covered by certification specific to those indicated in the INSTRUCTIONS for use section of the documentation provided for the region of supply. This section details additional applications, techniques and uses that are both safe and functional, providing very high margins of safety in both strength and easy of user checks. The uses described here have been tested and effective performance verified and ensuring that the safe control can be maintained. Verification also confirmed that operator can accomplish function checks prior to deployment. The FLOW descender can be used for applications that are outside the scope of EN 12841 type C, EN 341 and CE mark attached to each device. Some uses are illustrated here, these and any other uses must be undertaken by persons who are competent and understand the dangers and limitations of rope systems. Training and supervision are recommended for all people not fully competent. 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 EN instructions for use. All systems and installed devices should be verified, and each component function checked with suitable back-up in place prior to any operation exposing people to danger.

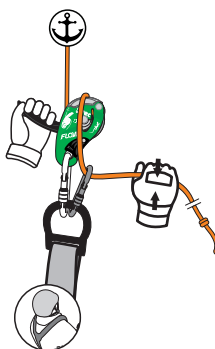
2

**EFK – EXTRA FRICTION KARABINER**

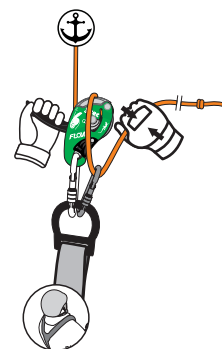
For some uses it is essential that the FLOW operator has the option to increase friction in the system as described in sections of the information provided with the FLOW. An Extra Karabiner can be attached to D ring or one side D for high load descents or to anchor point during lowering. **WARNING** – ensure that the rope between the FLOW and EFK does not rub on any safety components.



EFK on main D – Installed ready for activation



EFK providing partial additional friction



EFK providing maximum additional friction

3

**ROPE DIAMETERS**

**Additional notes on compatibility.**



10mm – 13mm

The FLOW has been tested successfully on a range of internationally available ropes with diameters ranging from 10mm to 13mm. These including both EN 892 **Dynamic Climbing Ropes** (10mm – 11mm) and EN 1891 **Semi Static/Low Stretch Ropes** (10mm – 13mm). Users must verify the performance of all ropes in a safe environment prior to operational work of recreational activities – complete Function Checks. The variation in load, rope design, coatings, sheaf construction, use environment and the rope condition (wear and contamination) all have effects on both rope and device performance. Functions Checks must include full operational performance checks of: descent, ascent (COL) and both auto, and panic lock functions. Where Lowering or Hauling techniques are to be used, testing with the planned load should be undertaken.

Section 12 of the EN Instructions for Use provide further information on compatibility and ropes condition.

An **EXTRA FRICTION KARABINER (EFK)** should be used for all high loads and sub 10.5mm ropes

**Note:** Field testing by experienced, cavers, climbers and rope access operatives, has shown that smaller diameters have been possible on used rope. EFK are installed and used.

During ascent of a rope the FLOW handle should be kept in the locked position. This provides increase safety to user during all stages of the ascent and when other tasks/operations are undertaken.

4.1 - SHORT ASCENT

Use FLOW in its locked position to ascend using an ascender and foot loop on the rope above. Operator need to pull the control rope upwards whilst simultaneously standing in the foot loop. If coordination of the pull and stand is poor the smoothness of the FLOW adjustment is hindered and less efficient. Users should visually monitor rope pulling through the FLOW until competent in this technique.



Example: Climber Pulling rope up through FLOW whilst simultaneously standing in foot loop.

4.2 - ASCENDING – LONG ASCENT

The following example technique is slower but requires less effort by climber. If a long ascent is required, the control rope can be passed through a pulley attached to an ascender on the rope above. When standing, the control rope is pulled downwards. To improve the efficiency further a second ascender and foot loop is attached to the control rope (below the pulley). The FLOW should be in the locked position throughout ascent.



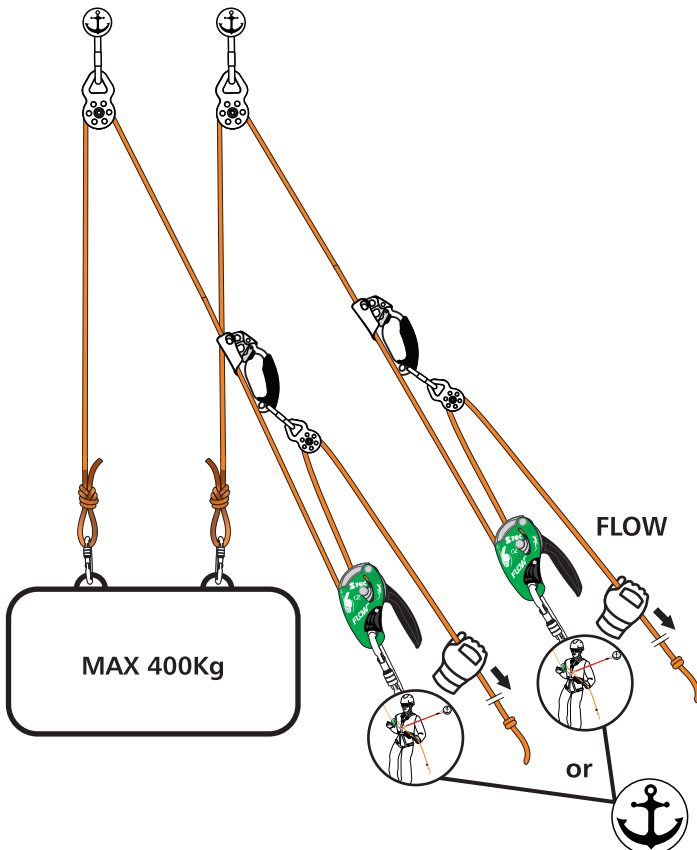
Example: Operator climbing a rope with control rope passed through Pulley on a hand ascender and second ascender and foot loop on the tail rope.



Example: Operator climbing a rope with control rope passed through Pulley on a hand ascender.

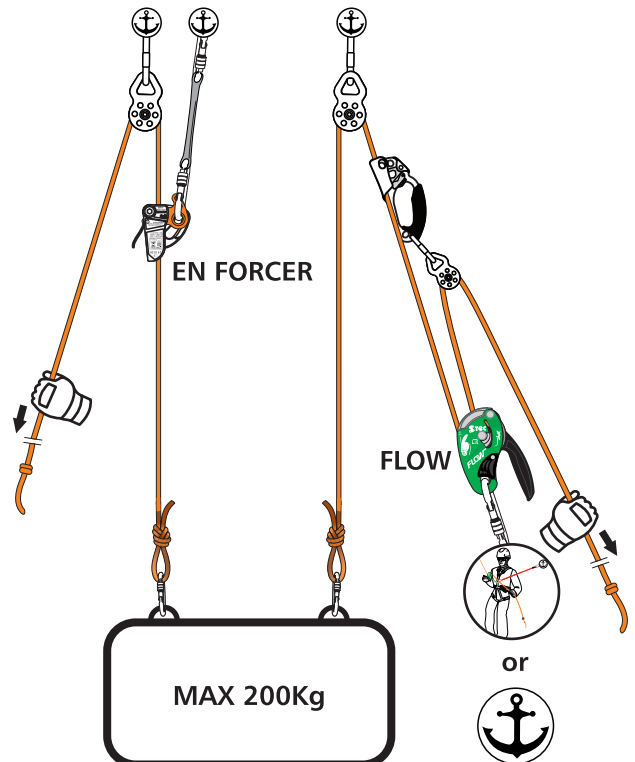
The FLOW can be used as locking device during simple counter balance and pick off rescuers as well as in more complex haul systems. The use of S.Tec FLOW is hauling systems allows loaded ropes to be released and loads lowered. Safe Tec recommend that double rope systems are used for all personal lifting. For personnel hauls two controllers are required to ensure that rope tension is maintained and that no slack is allowed to develop.

Max 400kg on double rope system (equally loaded).



IMPORTANT – Maintain equal tension during hauling.

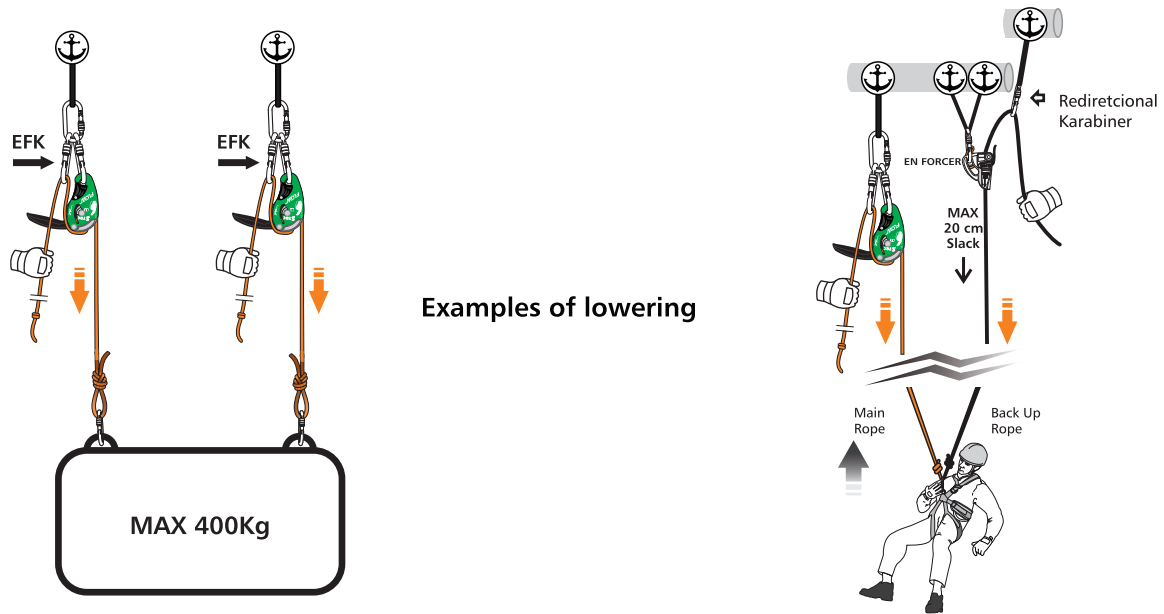
Max 200kg on single rope system.



IMPORTANT – Ensure that no slack develops in the back-up rope.

The FLOW can be used to safely lower loads on up to 200kg – recommend the use of additional friction (EFK) on all lowering systems. Industry standard and best practice is to use double rope systems. For most lowering applications Safe Tec recommend the use of a double system using 2x FLOW and that 2 controllers are used to ensure simultaneously lowering and maintaining equal load to each system.

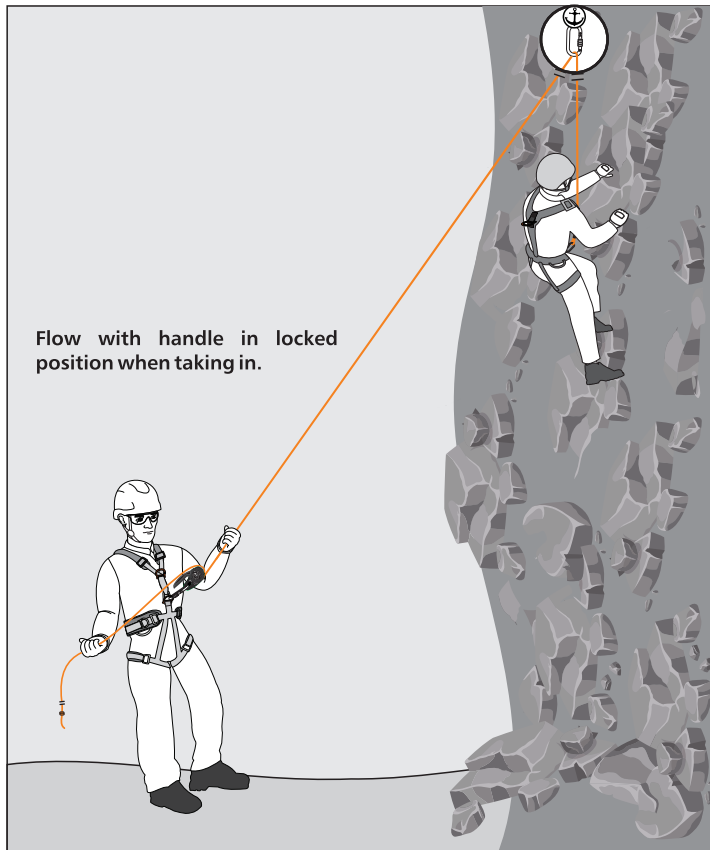
Where a back-up device is used on a second rope, operators must allow no or minimal slack between to load and the back-up device.



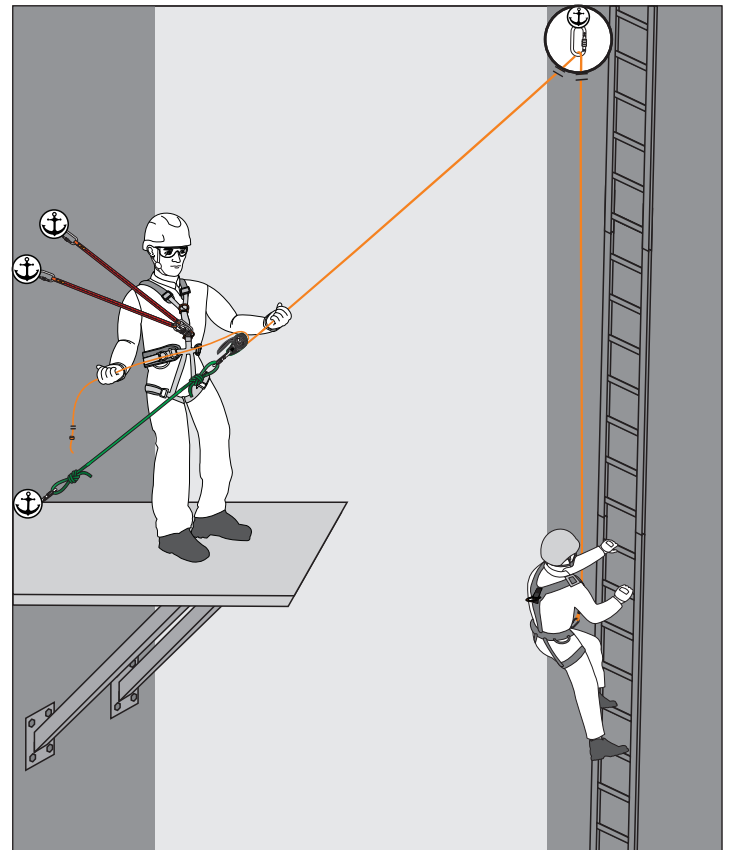
The FLOW can be used to control safety ropes from above or on traverses. Secure anchorages are required – 20kN for up to 100kg and 30kN for loads 100kg to 400kg. Although the FLOW is rated for 200kg loads, for climbers above 140kg it is recommended that a double rope system is used. Always perform full function checks before climber begins and check that the rope path is clear of obstacles and wear dangers. When Belaying an ascending climber the FLOW is used in Locked MODE and take in all slack during ascent, ensuring that the rope does not become snagged. To avoid entanglement or rope, use a Rope bags.

When the safety controller / belayer is secure in safe a zone it is possible to anchor the FLOW direct to their harness. Where necessary deviate rope to a high point above climb.

FLOW attached directly to the anchor.  
FLOW with handle in locked position when taking in rope during climbing ascent.

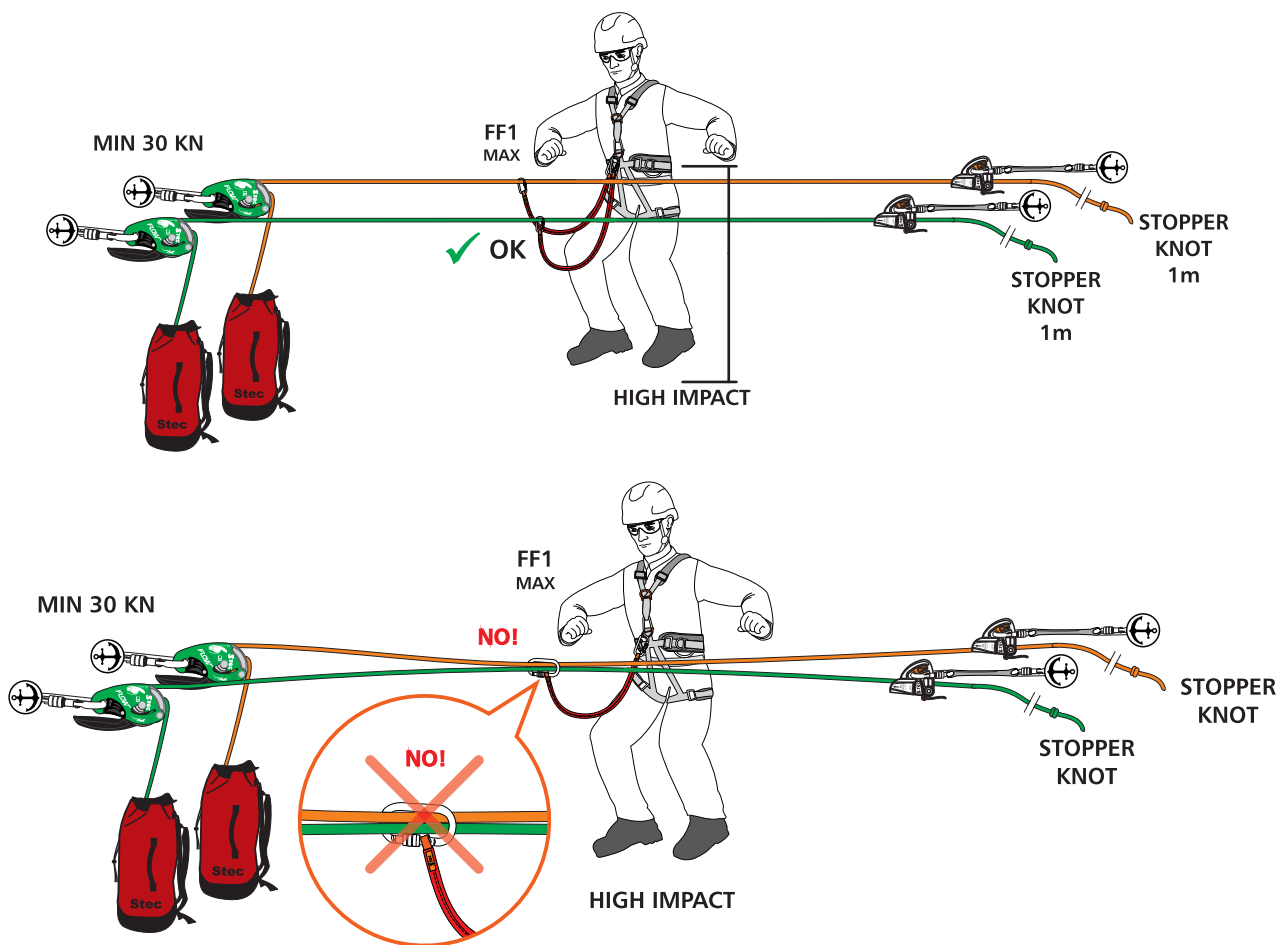


This technique is only suitable where the weight difference between the climber and belay is assessed and comparable – generally the belayer needs to be heavier than climber.

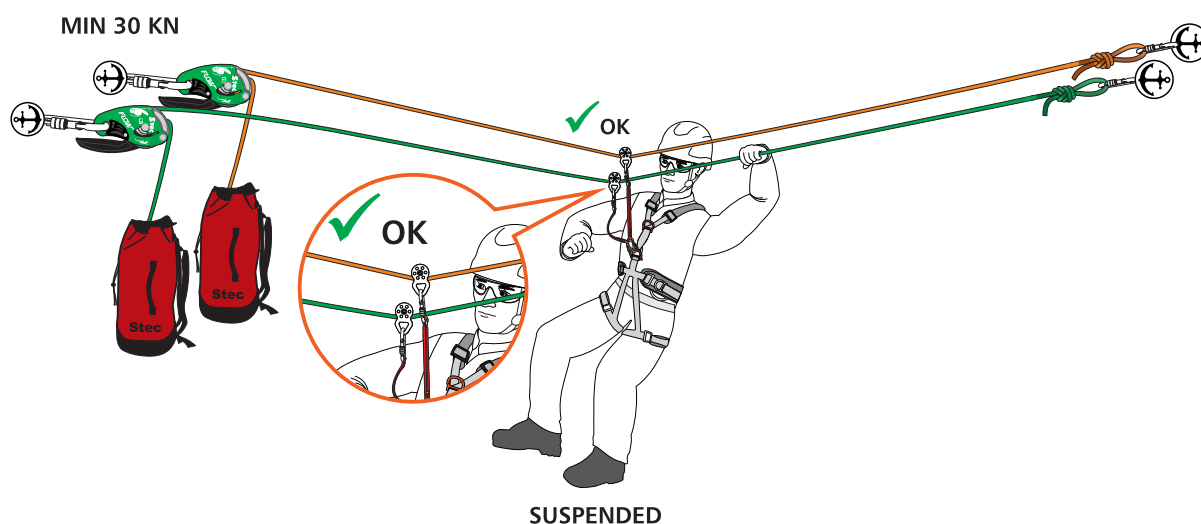


Recommended that an additional karabiner is available and used to provide additional friction during emergency lowering – EFK

The FLOW can be used to provide a releasable, tension-able anchorage for rope systems. The FLOW can be released under load, allowing the tension to be adjusted and the load lowered. Tensioned rope systems produce high anchor loads and anchors with minimum strength of 30kN are required. For systems subject to high loads or designed to take impact loadings (small falls) and those designed for more than one person it is recommended that to prevent overloading, energy absorbing components are used.



User loaded systems and those where users are traversing below with well-adjusted connecting lanyards with minimal slack between harness and tensioned ropes will subject the tensioned system to a much lower loading than those rigged below users or lanyards have slack in them.



Designers and Installer must understand and allow for all factors that will influence the safety of the system including anchor strength, load forces, change of rope path as load moves, rub points, rope stretch and the safety clearance distance below. Two simultaneously loaded tensioned ropes are the preferred choice in all tensioned systems. Expert advice and training essential to ensure loadings are within safe limits. Recommend that no more than two people are used to tension ropes using 2:1 or one person using 3:1. NEVER use winches or other mechanical means. An over-tensioned system can damage the FLOW and generate dangerous forces on the anchors and on the rope. If you need high tension, use a purpose designed steel rope system.

### WARNING

Maximum load for tensioned systems is depending on angle created, and tension applied. The higher the applied tension the lower the system can be loaded – expert knowledge and competence is critical in the use of tensioned rope.

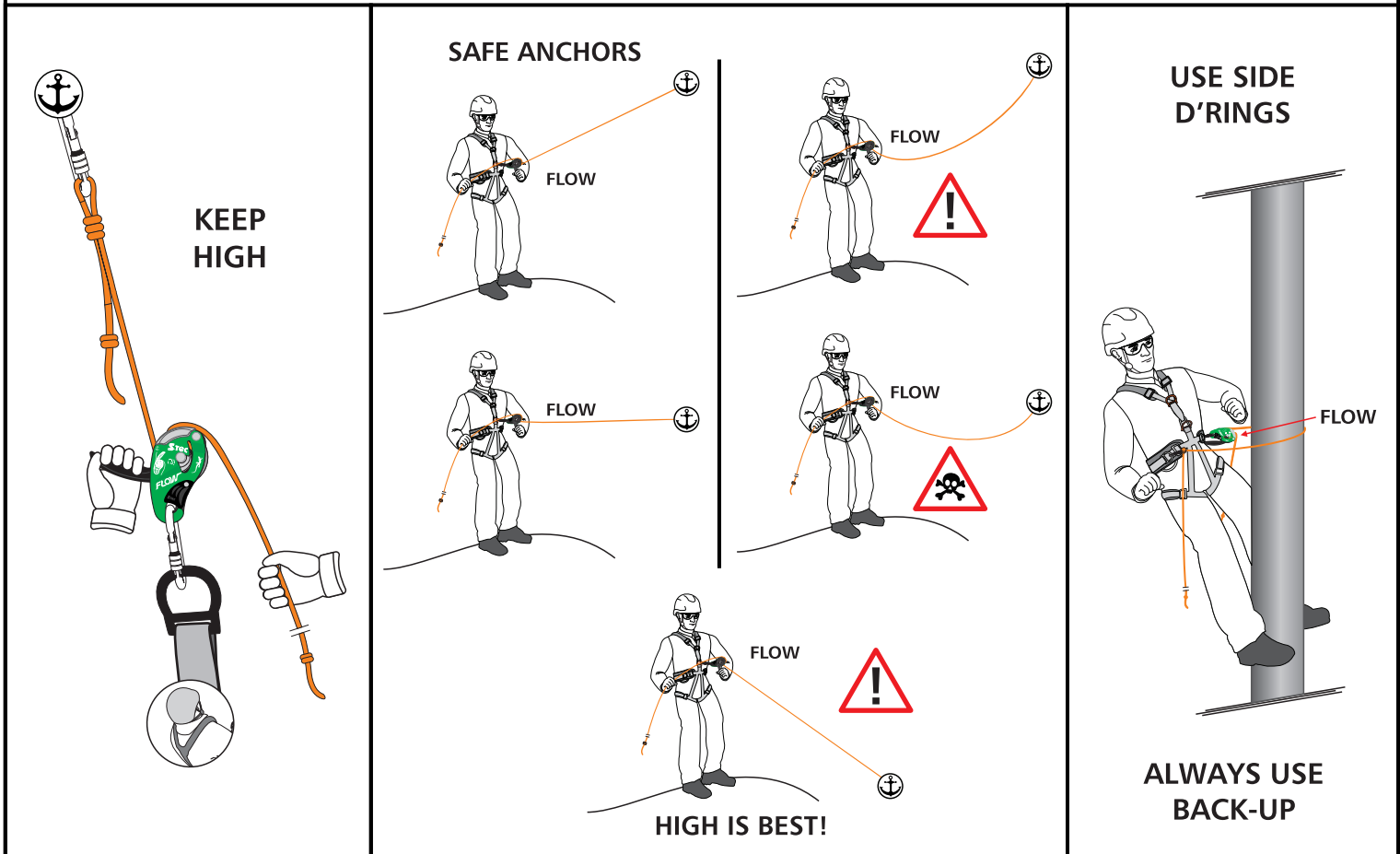
The FLOW can be used as part of adjustable positioning system.

This requires an appropriate length of suitable rope to be installed in the FLOW with a connector attached to the load end and a topper knot in the other. Prior to use the user must verify that the rope is installed correctly as shown, the stopper knot is secure and that a full function check of the FLOW has been successfully any danger zone (e.g. to provide support or partial support) a second system must be in place prior to any loading.

Some harnesses have the facilities to use this system with the rope around the structural member/pole etc.

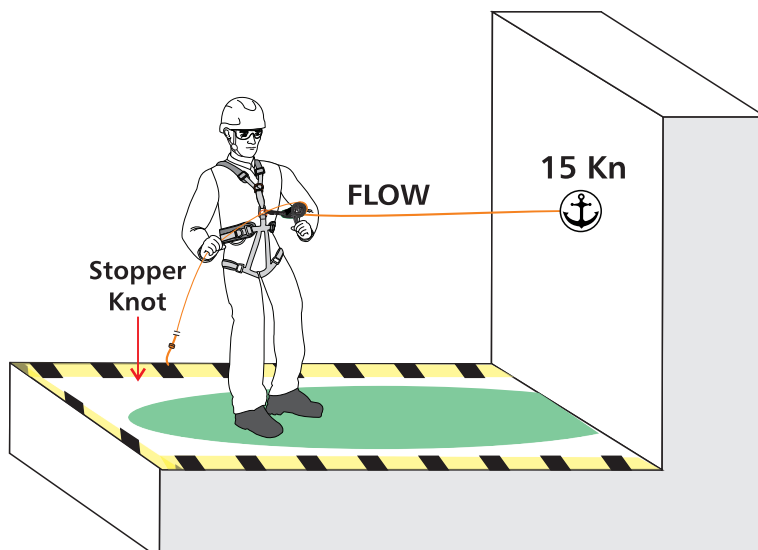
FLOW attached to one side D and the connector to the other ensuring that the rope between is free from dangers.

It is important that the length of the adjustable rope is suitable for the task and that excessive rope is tidy and does not allow entanglement.



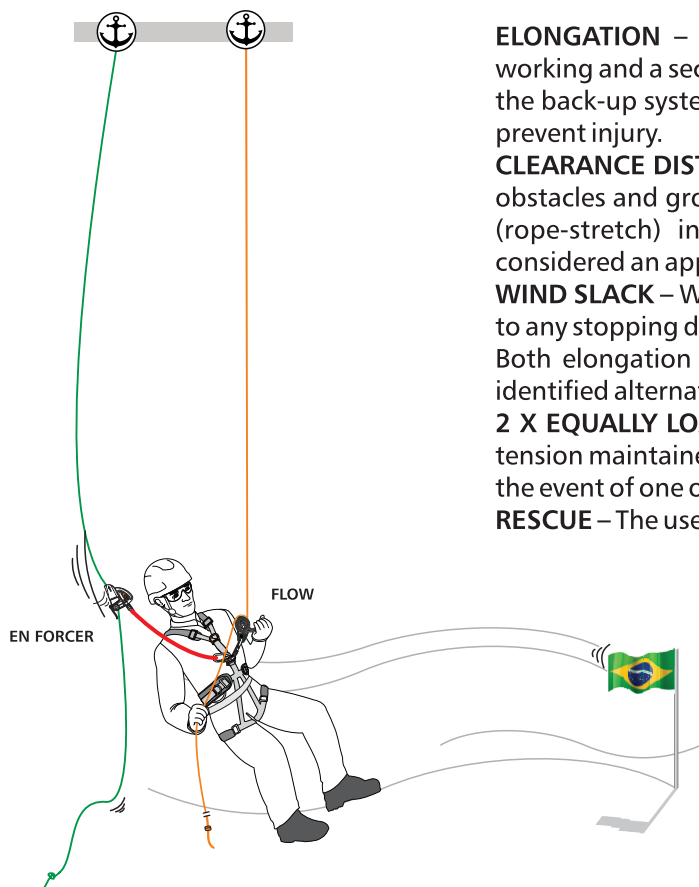
### WARNING

Protect the positioning rope from danger – check rope path and where wrapping around structure check all contact surfaces. Use suitable protection devices around rope or pad out structure.



The FLOW can be used as part of a planned restraint system of sufficient strength for any potential loading. The length of available rope must be shorter than the distance from its anchorage to any exposed edge or potential fall danger zone. Where users are required to partially or fully load the system in any danger zone for support, a second safety system must be in place prior to use/loading.





**ELONGATION** – When using a traditional two rope access techniques, one working and a second, the safety rope with back-up device in use effectiveness of the back-up system must be considered to ensure that back-up deployment will prevent injury.

**CLEARANCE DISTANCE** – Clearance distance should be assessed to ensure that obstacles and ground impacts would be avoided. On long ropes the elongation (rope-stretch) in the back-up rope must be considered, normally 10% is considered an appropriate amount to expect in the event of working rope failure.

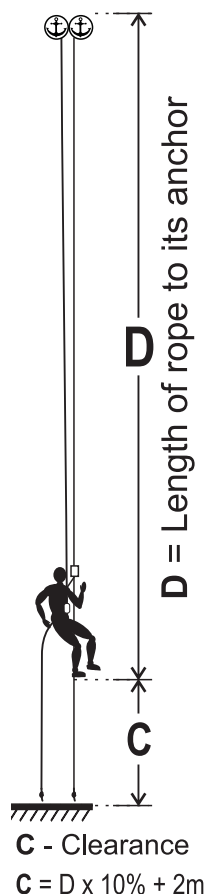
**WIND SLACK** – Wind can create slack rope above the back-up rope. This will add to any stopping distance in the event of working rope failure.

Both elongation and slack rope must be considered and where a problem is identified alternative systems must be used.

**2 X EQUALLY LOADED FLOW** – The use of 2 x FLOW both equally loaded, and tension maintained evenly will eliminate Wind Slack and reduce the elongation in the event of one of the ropes becoming damaged to failure.

**RESCUE** – The use of 2 x FLOW during descent rescue is recommended..

**PAY ATTENTION TO WIND SPEED.**



#### ASSESSMENT ELONGATION

Simplified method of assessing the elongation expected in of back-up rope deployment when using traditional rope access technique: 1x working & 1x back-up rope.

Length of working rope deployed plus 10% plus 2m (6'6")

$$C = D + (D \times 0,1) + 2$$

**PAY ATTENTION TO WIND VELOCITY AND DIRECTION**

Do not proceed on ropes if wind exceeds the safe limit.