

RIGGING FRAME

User manual

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**HAND-BUILT
IN SWEDEN**

DISCLAIMER

WARNING

Adequate Training and experience are required to reduce the risk of serious bodily injury or death.

This user manual provides general information about the safe operation and risks associated with the use of the ActSafe Rigging Frame. It also gives details of maintenance procedures.

Never use the equipment unless you have read and understood this manual and completed ActSafe-approved training in the use of the Rigging Frame. ActSafe Systems AB, our partners and subsidiaries, disclaim any liability for damages, injuries or death resulting from the use of the equipment which is not in compliance with this manual.

This manual may be updated without notice. For more information about updates and safety warnings, visit www.actsafe.se



Failure to read and follow the instructions within this manual may result in damage to property, personal injury or death.

FOREWORD

Thank you for choosing the Rigging Frame from ActSafe Systems.

The Rigging Frame is a lightweight and portable edge management system for the deviation of ropes over edges, for rope rescue, and rope access.

The main benefit of this frame is to pass casualties, operators and loads, in a controlled way, over any edges in both lowering and lifting operations. The Frame has been successfully used in both urban and outdoor environments for rope rescue and industrial rope access applications all over the world.



DANGER

The Rigging Frame is designed purely to deviate ropes over edges. The Rigging Frame is **NOT approved as an anchor point** and should not be used as such, neither as standalone anchor construction or anchor point extension. Always use a backup system that is not rigged via the Rigging Frame.

A

INTRODUCTION

About ActSafe	A.01
About this manual	A.02
Definitions	A.03

A

We are completely committed to our customers and do our utmost to deliver top quality products and service.



A.01 ABOUT ACTSAFE

ActSafe is a pioneer in developing powered Rope Ascenders and has been delivering high-performance equipment since 1997.

ActSafe has a worldwide distribution network of dedicated experts selling our innovative products to a wide variety of users.

ActSafe products are redefining the possibilities for work in vertical environments.

A.02 ABOUT THIS MANUAL

This manual gives detailed information on features and safety. However, this manual cannot replace the need for training and experience. The Rigging Frame must only be used by operators who have undergone the ActSafe approved training.

Safety messages of extra importance are highlighted throughout this manual using the signals 'danger', 'caution', 'note' and 'recommendation'.



DANGER

Not following instructions or training methods may result in **SERIOUS BODILY INJURY** or **DEATH**.



CAUTION

Not following instructions or training methods may result in **BODILY INJURY**, or **DAMAGE TO PROPERTY**.



Note

Important information on the use of the equipment used with the Rigging Frame.



RECOMMENDATION

Instructions and tips on how best to use the Rigging Frame.

A.03 DEFINITIONS

Anchor

Attachment point for rope, rope adjustment devices or Ascender.

Backup system

A rope system which captures the load in case of primary rope failure or if any other components in the work system should fail. Approved according to backup system requirements.

Guying line

A tensioned rope that is used to stabilise the Rigging Frame in its desired position.

Lifting system

The main rope system that is used to lift or lower any persons or loads with an ascender.

Resultant force

An object may have several different forces acting on it, which can have different strengths and directions. But they can be added together to give the resultant force. This is a single force that has the same effect on the object as all the individual forces acting together.

User/operator

Person that operates the Rigging Frame, Backup system or Ascender and/or is suspended on the lifting system.

SWL

Safe Working Load. The maximum load (as certified by a competent person) that an item of lifting equipment may raise, lower or suspend under particular service conditions.

B

ASSEMBLY

Assembly

B.01

Pre-use inspection

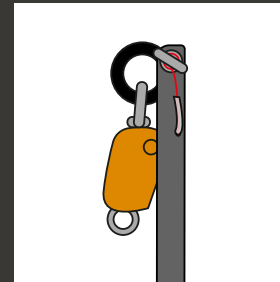
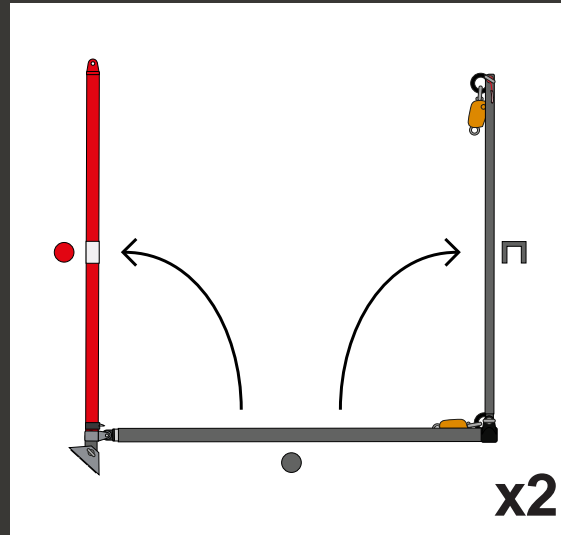
B.02

B

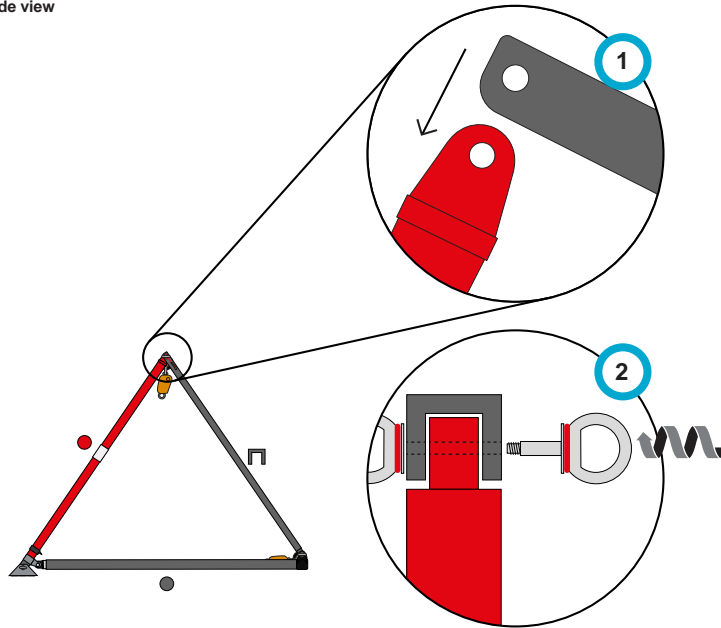
B.01 ASSEMBLY

The Rigging Frame is made up of two sets of aluminium poles. Each set is a group of three distinct tube types which, when connected, form a triangle structure.

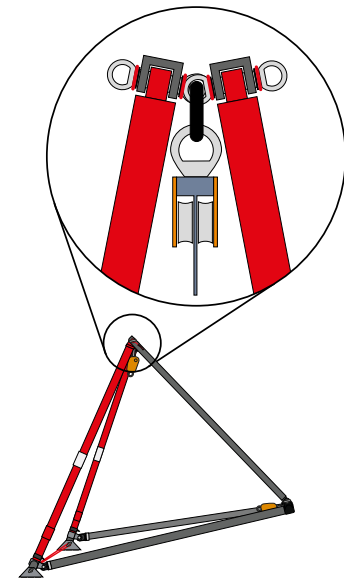
When combined, the two triangle forms create the Rigging Frame.



Side view

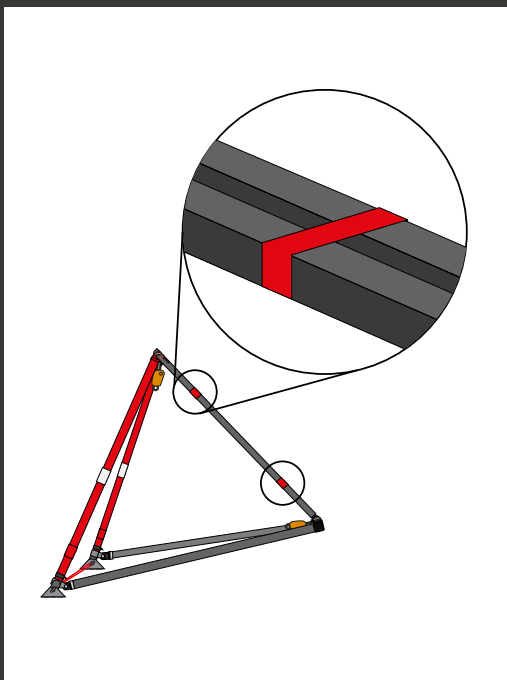


Rear view – fastening complete

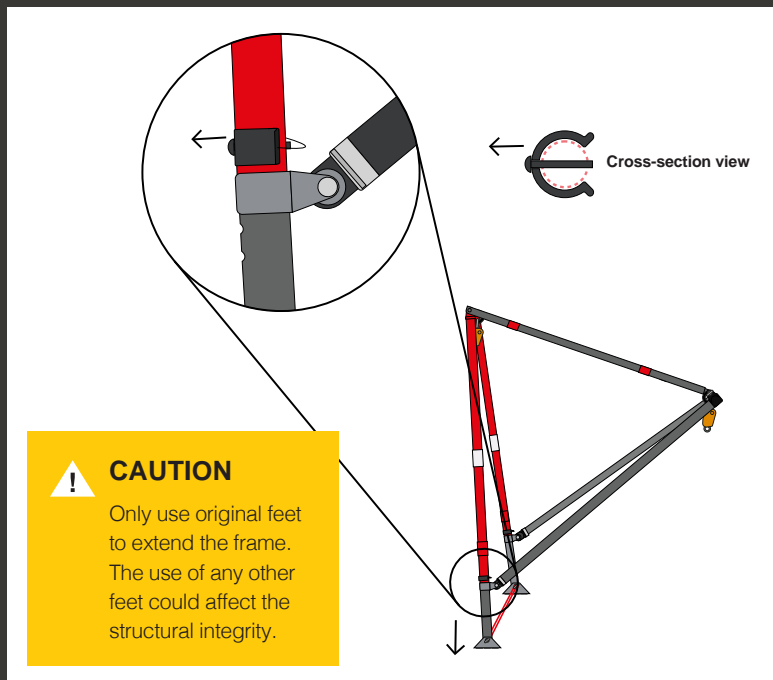


1. Lay the two pole sets out on the floor. Place the end of the U-sections over the top of the red tubes and align the bolt holes.

2. Secure the fastening by screwing together both parts of the eyelet bolts through the bolt holes.



3. Fasten the two red ties around the two U-sections tubes. Pull them tight to give more stability.



4. The frame can be raised if required. Extend the legs by pulling the steel clip at the base of the red section sliding into the desired hole. Secure the feet at the desired height by putting the clip back in.

B.02 PRE-USE INSPECTION

Check the Rigging Frame thoroughly in accordance with your training and this manual.

If you are in any doubt about the condition of the Rigging Frame, do not use it and contact your ActSafe distributor or ActSafe directly.

Structure (tubes)

Check that the tubes are not damaged in a way that it could compromise the static strength of the frame.

- ✓ No cracks or holes
- ✓ No bending of tubes
- ✓ No indentations more than 5mm deep
- ✓ Tubes must be round

Bolts

- ✓ Check that all bolts and eyes are original
- ✓ Remove top bolts and check thoroughly
- ✓ No cracks or deformations on bolts or eyes
- ✓ Closely check the bolts threading to ensure there is no bending

Feet

- ✓ Check that feet are not bent, and pivot freely
- ✓ Rubber should be present under both feet
- ✓ No damage to tubes
- ✓ Check that both locking pins are present and connected to the frame
- ✓ Both feet can be easily adjusted in height after removing pins
- ✓ Other components such as pulleys, connector rings etc. (see respective user manuals for these parts)
- ✓ Annual documented inspection

C

APPLICATION

Overview and Pivoting Frame	C.01
Fixed Frame	C.02
Tramway Frame	C.03

C

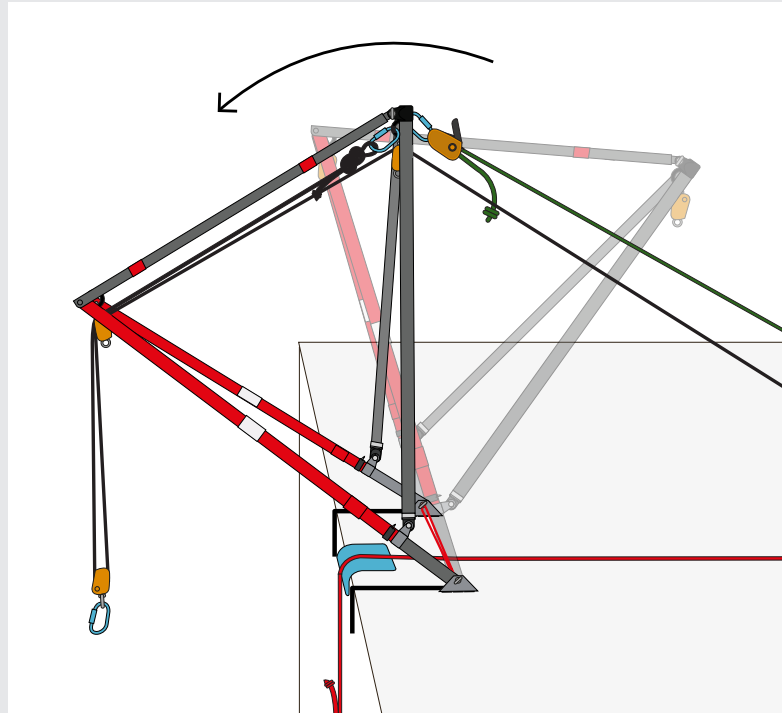
C.01 OVERVIEW AND PIVOTING FRAME

In this section, three basic Rigging Frame applications are shown. For more detailed information about these applications and the exact setups, see the respective sections in the manual.

Pivoting Frame

The Pivoting Frame setup, with its inwards/outwards pivot, is ideal for lifting a casualty over an edge in a controlled manner. Allow enough space for positioning and maneuvering the frame properly in order to benefit fully from the pivoting principle.

The Frame will hold its final, balanced, position on the equalisation of forces alone, with the resultant force pushing onto the right-angle towards the feet.



C.02 FIXED FRAME

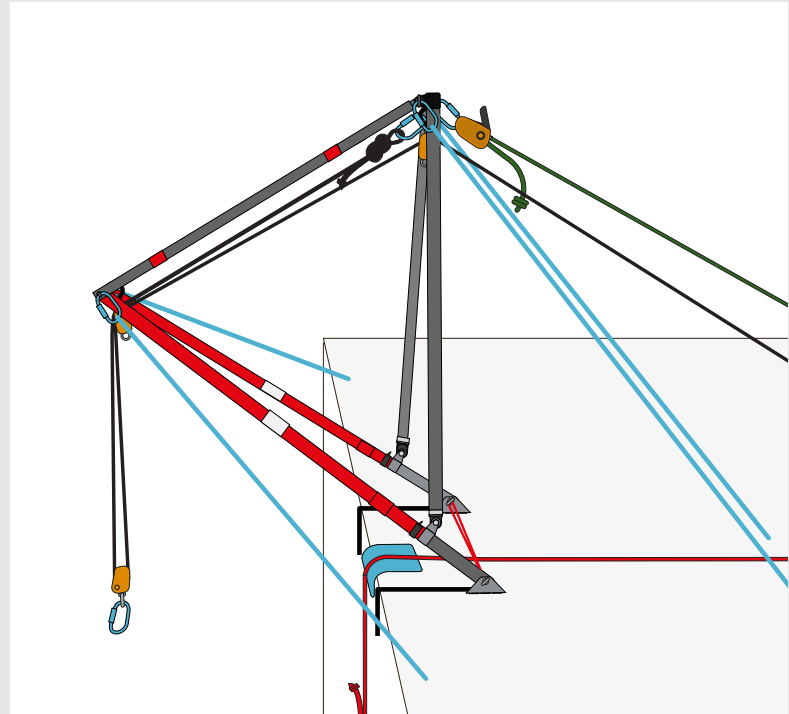
Fixed Frame

The Rigging Frame can also be used in a fixed position with multiple guying lines. The Fixed Frame setup allows edges to be cleared in situations where there is little space to manage the frame, or where the frame cannot stand on a level surface. This setup does not have the advantage of moving a controlled load over the edge with the frame (as per the Pivoting Frame setup).



Note

Displayed are the 3 basic setups as recommended by ActSafe, other setups are possible but should only be used by expert user who can ensure the safe operation of and take the full responsibility for that particular use.



C.03 TRAMWAY FRAME

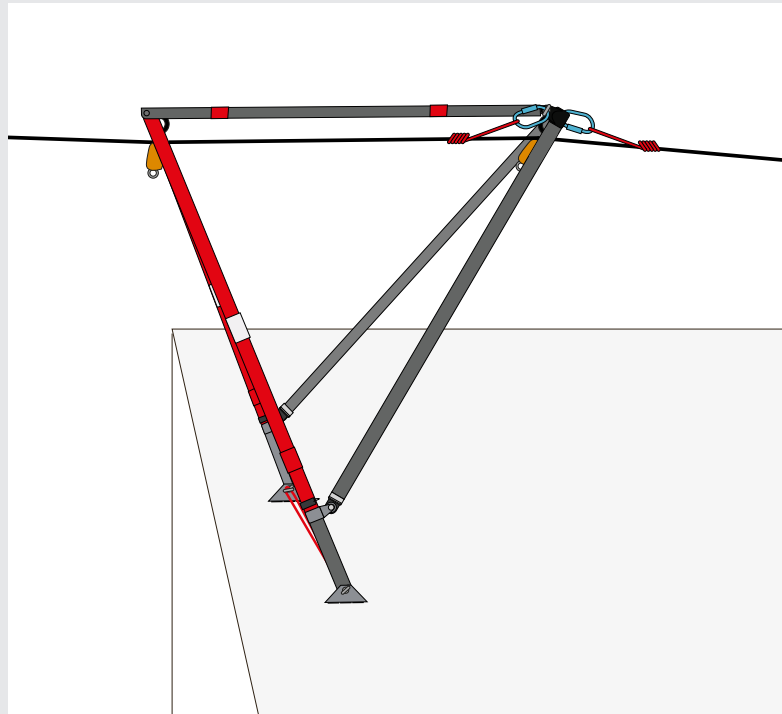
Tramway Frame

The Rigging Frame can also be used as a support frame for Tramway guidelines, to facilitate further ground clearance for easier access and exit on the Tramway. The frame can be fixed on the Tramway ropes for improved stability.



Note

It is recommended to use the Rigging Frame with the red side facing towards the edge for optimal balance and function, especially when used in the pivoting frame setup. However, the structural integrity of the frame is not affected if the frame is used with the black tubes facing towards the edge.



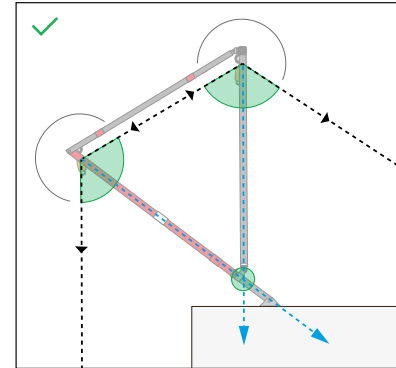
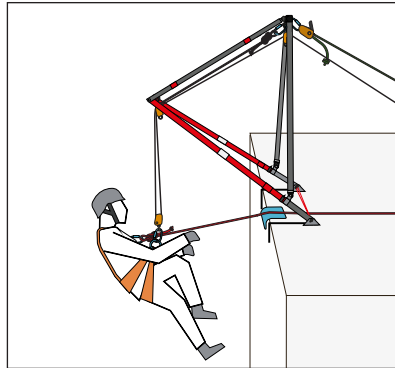
D

PIVOTING FRAME

Working principle, angles and resultant forces	D.01
Setup position	D.02
Rigging	D.03
Outward edge transition	D.04
Inward edge transition	D.05

D.01 WORKING PRINCIPLE, ANGLES & RESULTANT FORCES

The basic principle of the pivoting frame is that it can be flipped outwards/inwards under load and will stand in balance in its outwards position. This working principle is ideal for passing edges with people or loads with reduced effort.



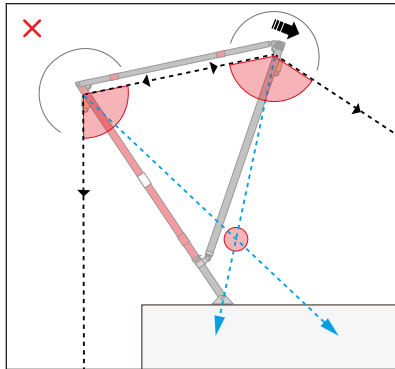
! CAUTION

Secure the feet of the rigging frame to avoid them slipping away.

Balance position

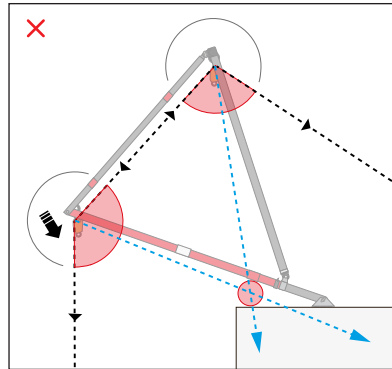
The pivoting frame will stand in balance in its outward position, when the angles of the ingoing and outgoing rope are equal.

As a result, the forces that are working will stabilise the frame and the resultant forces point towards the area around feet and therefore the feet do not slip away.



Top instability

If the frame is leaning too far inwards, the outward rope angle will become too small and will move backward and eventually rest on its rear tubes when not properly controlled.



Feet instability

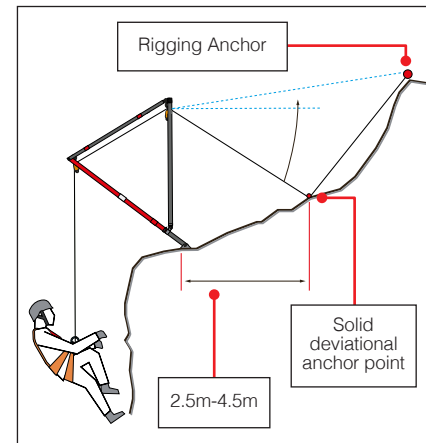
If the frame is moved too far outwards, the resultant force will move behind the feet of the frame and will increase the risk of the feet slipping underneath them. The frame will end up resting on the front tubes.

In order to achieve a steadily balanced frame with equalised angles, it is important to position the frame and the anchors well – ideally between 2.5 and 4.5 meters behind the frame. More detailed information about setup requirements will be explained in the next section.

D.02 SETUP POSITION

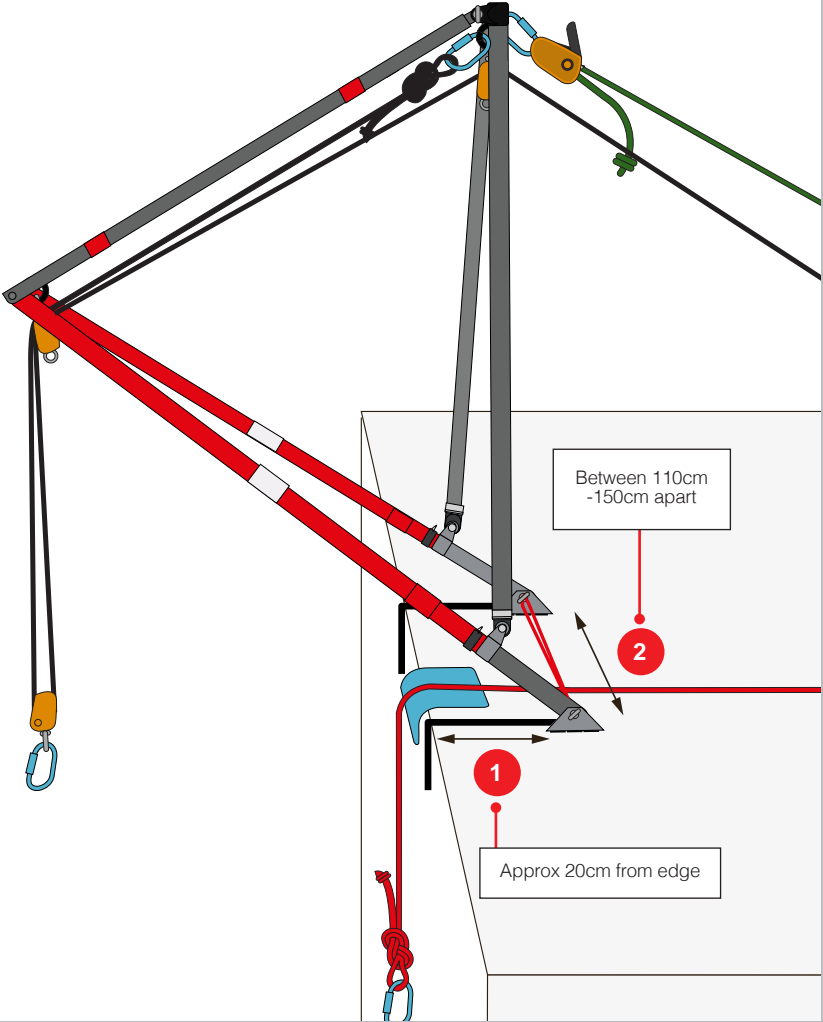
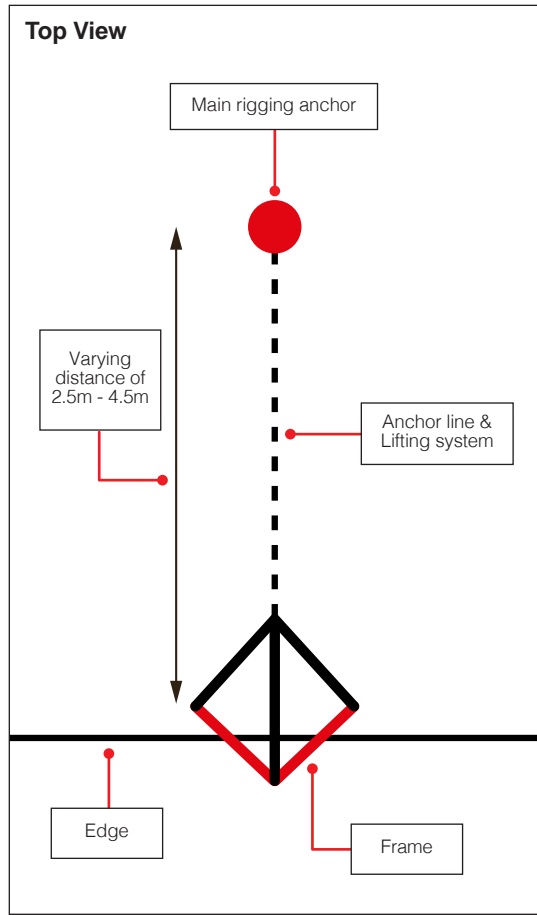
Ensuring optimal stability

1. The frame must be positioned on a solid, stable surface able to withstand the down-force of the frame.
2. The feet of the frame need to be secured to the edge with hooks, or any other points, to prevent them from slipping. This is especially true in the case of smooth surfaces, or a where there is a potential risk of unfavorable loading angles on the feet.
3. Both feet should ideally be 20 cm parallel away from the edge, to ensure a solid surface and optimal movement.
4. The feet should be between 110 and 150 cm apart for optimum stability and be secured with the long red strap supplied.
5. The in-going rope should be in line with the top bar to prevent the frame from being pulled sideways
6. The distance of the rigging point should be at least 2.5 m away from the feet of the frame in order to prevent excess compression force on the frame legs. Ideally, the distance between the rigging point and the frame should not exceed 4.5 m. This helps to prevent the rope angles becoming too large, which can negatively affect the handling of the frame.
7. The anchor should never be positioned above the top of the frame. If needed, a deviation rigging point can be used (see diagram, right).



DANGER

The frame should never be used as anchor, either for the work rope, the backup rope or for connecting lanyards of any operator who are standing next to the frame.



D.03 RIGGING

Anchors

It is recommended to use 2 anchors that are load shared. The anchor strength should meet local requirements and ideally hold a minimum of 15 KN in order to have a main rigging anchor. The backup system can be also be rigged to the main rigging anchor or rigged to separate anchors. This depends on the specific situation operating procedures and preferences.

Anchor line

The anchor line is directly connected to the main rigging anchor and on the other side via a rope adjustment device karabiner and a short sling to the rear rigging ring of the frame.

This line has 2 functions, it serves as the anchor extension towards the rear rigging ring on the frame and should

never show any slack. The other function of the anchor line is to adjust the secure position of the frame during operation. When the frame is in its balance position it is important to avoid high tension on the anchor line. This adjustment can prevent the frame being pulled out of equilibrium.

Lifting system

The end of the lifting rope is connected with a karabiner and a short sling to the rear rigging ring and then rigged through both sides of the double pulley on the front end of the frame. The returning rope is fed through the rear pulley into the Actsafe ascender that is connected to the main rigging anchor. Connect a single pulley to the loop of the lifting rope at the front side frame to finalize the lifting system with a 2:1 mechanical advantage.



CAUTION

Do not connect the end of the lifting rope to the front end of the frame otherwise the frame will become part of the anchor system, which is to be avoided at all times.



CAUTION

The 2:1 lifting system is installed for smoother operation and better balancing of the frame. Be aware to prevent potential overloading of the frame (275KG SWL) with a maximum lifting capacity of up to 500KG during operation.

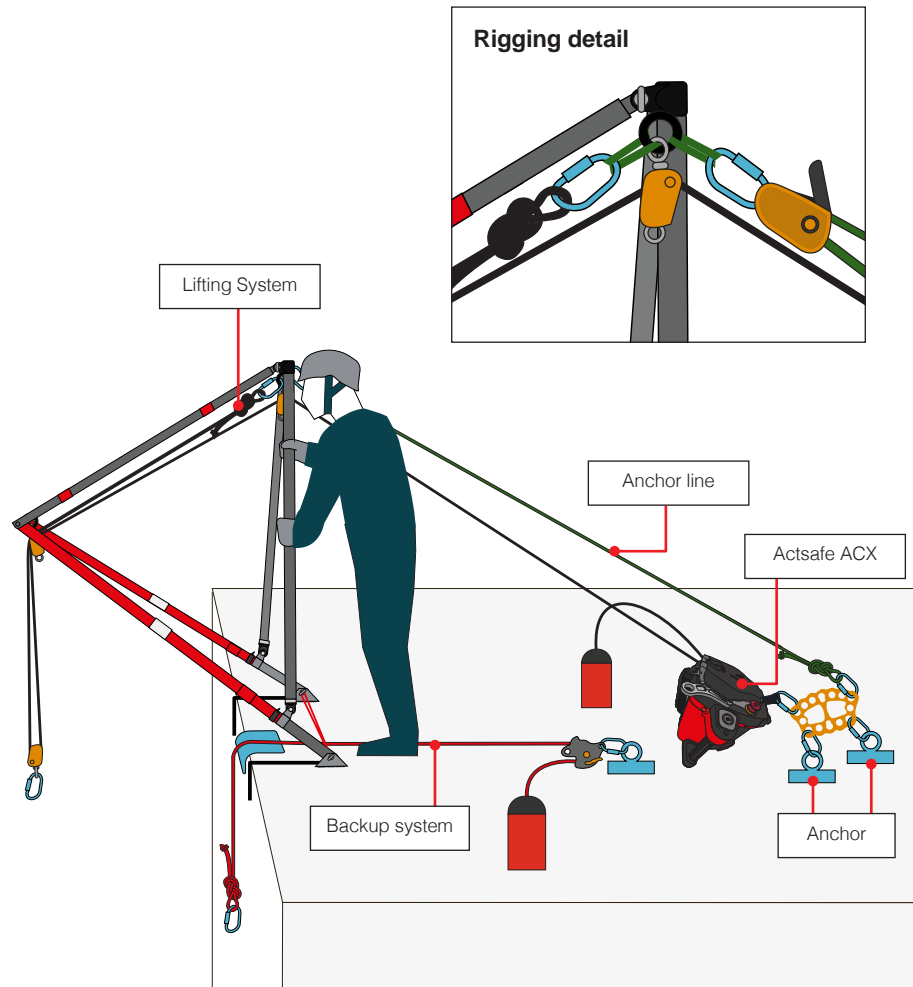
Backup system

The backup system should meet local regulations and operating procedures. The backup system should run in a direct line towards the suspended load/person(s) and the rope should never be slack in order to reduce the impact force in case of a main rope failure. The backup system can be rigged to the main rigging anchor or to separate anchors, this depends on the specific situation operating procedures and preferences.



DANGER

Never connect the backup system to the Rigging Frame, not directly or as deviation and be aware of any sharp edges when rigging this system.



D.04 OUTWARD EDGE TRANSITION

Good teamwork and understanding of the operating procedure is required for a safe and smooth edge transition with the Rigging Frame.

Once the Rigging Frame is correctly positioned and all ropes are correctly rigged and checked, the edge transition operation can begin.

The edge transition operation requires a minimum of 3 operators when lowering/lifting person(s):

- Lifting system/ascender operator
- Operator for the backup system
- Frame operator for positioning the Rigging Frame and adjusting the anchor line.

Preparation

All operators take their positions, perform a final check, and adjust all three rope systems (anchor line, lifting system and backup system) to the shortest length possible without changing the position of the Rigging

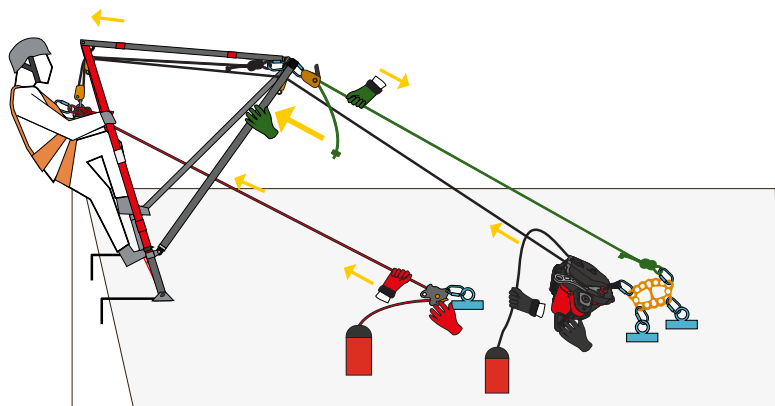
Frame feet. The frame will sit on the ground on its rear poles. The operator is connected to both the lifting and backup system and positions him/herself on the front side of the frame, close to the edge and facing inwards.



CAUTION

The frame and therefore lifting system can be loaded up to a safe working load of 275KG making this operation suitable for any rescue operations.

Outward transition



Frame operator: While focusing on the distance between the two pulleys the topside of the frame is pushed outwards and the anchor line slowly lengthened. It is recommended to push the frame with the full body/shoulder outwards to overcome the inward pushing force of the frame.

Ascender operator: The lifting rope is gently lowered while observing the operator – maintaining minimum distance between pulleys and frame operator.

Backup system operator: The backup rope is gently given. Avoid any slack in the backup rope.



Note

During the outward transition it is important to keep the distance between the double front frame pulley and the single operator pulley as short as possible in order to achieve a smooth transition.

The moment the distance between the pulleys increases, the harder will it be to push the frame outwards.

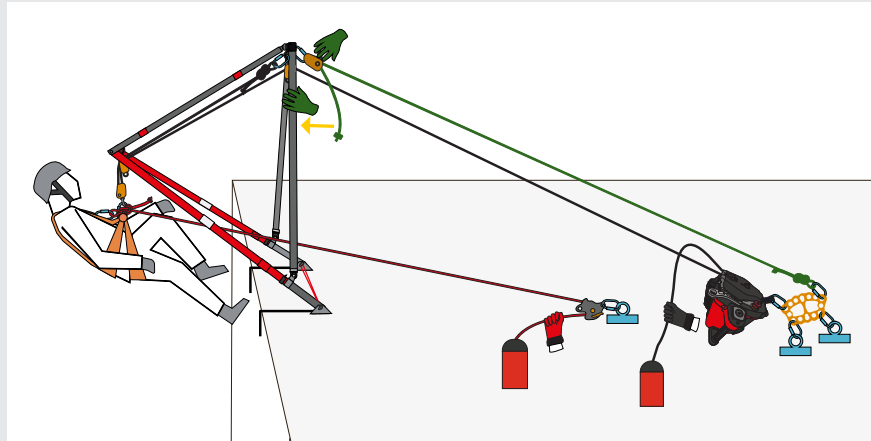


RECOMMENDATION

The operator can assist in keeping the pulleys close together by holding the outward Rigging Frame tubes while being moved outwards.

Final outward position

The Rigging Frame is pushed outward until it reaches the outward balance position. This is where the rear part of the frame is standing nearly vertical. The force to push the frame outwards diminishes and eventually the frame will stand by itself in the balance position (where the ingoing and outgoing angles of the lifting system are similar).



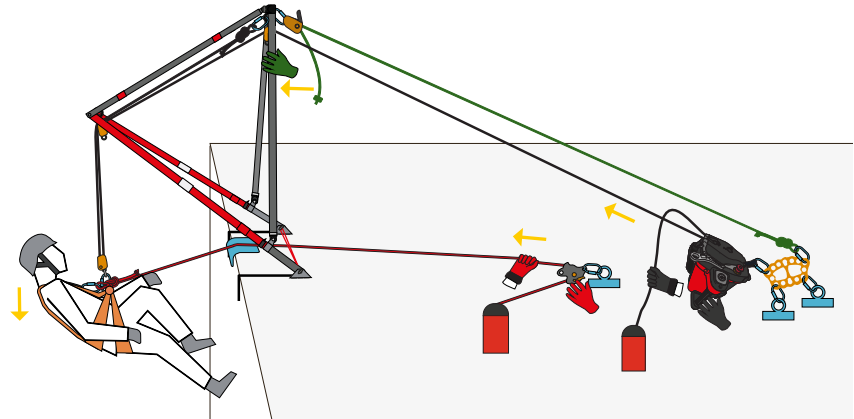
Frame operator: The adjustment device of the anchor line will be locked once the frame has reached the balance position. The Rigging Frame is gently held to ensure it stays in its balance position.

Ascender and backup system operator: Wait until frame is secured by frame operator

Suspended operator: The front tubes can now be released, if they were held, in order to enable lowering.

Lowering

Once the frame is secured the lowering can begin.



Frame operator: The Rigging Frame is gently held to ensure it stays in its balance position. The frame operator should assist in communication between suspended operator and other operators.

Ascender and backup system operator: The suspended operator is lowered to their destination under the direction of the frame operator and the suspended operator themselves.

D.05 INWARD EDGE TRANSITION

Inward edge transition

The inward edge transition is essentially all the steps of the outward transition, but performed in reverse.

Lifting

The lifting is done in the same manner as lowering.

Frame operator: The Rigging Frame needs to be held firmly to prevent it from being pulled out of its balance position.

Ascender and backup system

operator: The suspended operator is lifted under the direction of the frame operator and the suspended operator themselves.



RECOMMENDATION

The suspended operator can assist in reducing the inward force pushing on the frame operator by holding the outward Rigging Frame tubes while being moved inwards.

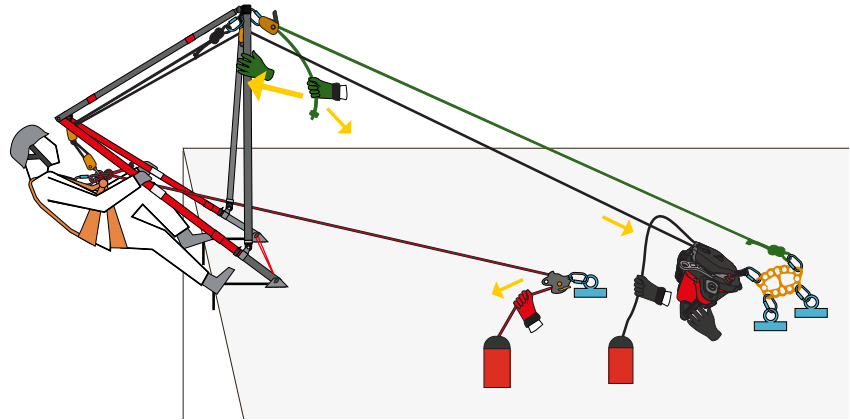


Note

Keep the pulleys as close as possible to each other in order to keep the inward pushing force of the Rigging Frame as low as possible for the frame operator.

Inward transition

The moment the single pulley connected to the suspended operator and the double pulley on the frame touch each other the inward transition can begin in order to lift the suspended operator over the edge.



Frame operator: Firmly push the top of the frame outwards with the body to prevent it from flipping inwards. The moment both pulleys touch each other, let the frame gently pivot inwards while shortening the anchor line to prevent slack.

Ascender operator: The lifting rope is gently pulled in, while keeping an eye on the frame operator and the distance between pulleys.

Backup system operator: Pull the backup rope inwards in order to prevent any slack in the system.

E

FIXED RIGGING FRAME

Setup

E.01

E.01 SETUP

For situations where the surface is uneven; there is not enough room to move the frame; or where the Rigging Frame isn't required to move, it can be fixed with guying lines to ensure a smooth pivoting operation.

The rigging and setup of the Rigging Frame are the same for the fixed Rigging Frame. The frame should be positioned on a solid surface and be fixed in a position so that the load is shared equally over both feet.

For guying ropes/tensioning, use systems that are suitable, approved, and strong enough to hold the frame in position.



F

TRAMWAY FRAME

Tramway Frame

F.01

F.01 TRAMWAY FRAME

The Rigging Frame can be used as a support structure to lift any Tramway systems from the ground, or over any edges for easier operation/ access to the Tramway.

Setup

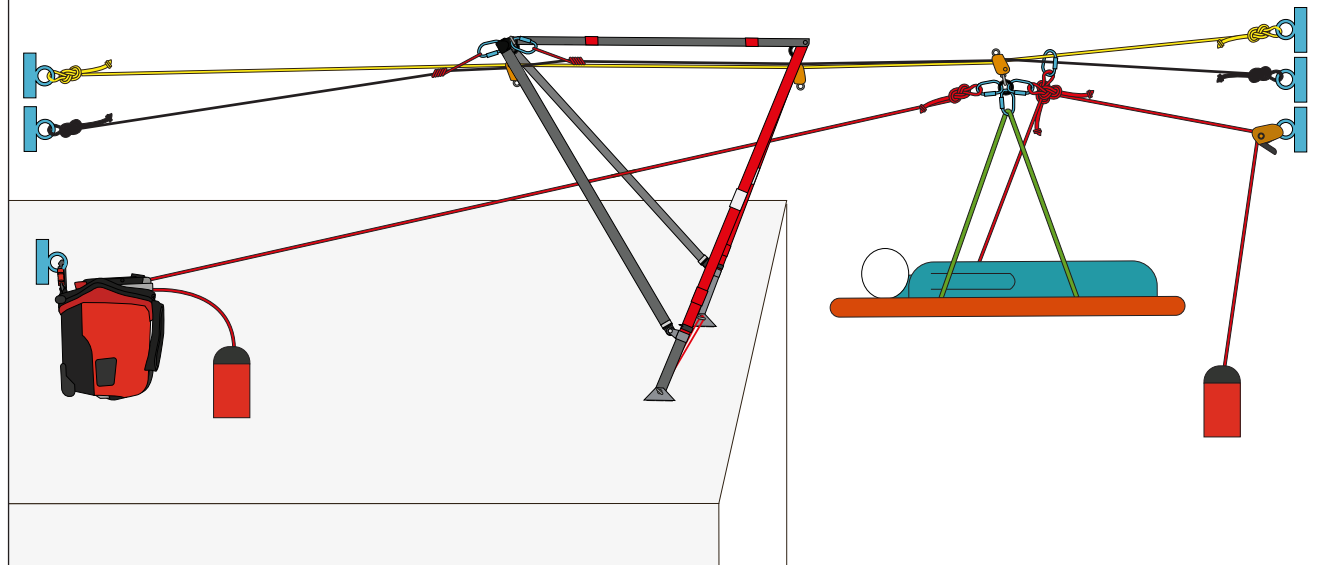
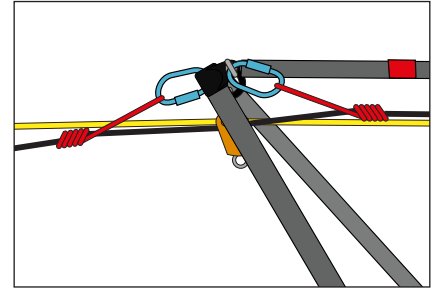
The Rigging Frame should stand on a solid surface and should be fixed to prevent tilting or movement. This can be achieved with guying ropes, similar to the fixed edge setup. Another option is to fix the frame onto the Tramway rope with Prusik rope to prevent it from tilting.





Note

The rigging of the tramway setup serves as an example and can be adjusted to meet local regulations, standard operating procedures or personal preferences.



G

RIGGING FRAME WARRANTY TERMS

Warranty terms

G.01

G.01 WARRANTY TERMS

ActSafe Systems AB (“ActSafe”) guarantees that the Rigging Frame (“Product”) purchased has no defects in material and workmanship. This is subject to the terms of the limited warranty (“Warranty”) given below.

Any claim must be made within the warranty period which is one year from delivery unless otherwise agreed.

ActSafe will, through repair or replacement as appropriate in ActSafe’s reasonable discretion, remedy any defect that is covered by the limited warranty and notified in writing within the warranty period. ActSafe reserves the right to use reconditioned parts with performance parameters equal to those of new parts in any repair performed under the Warranty.

Claim under ActSafe’s warranty

Claims under ActSafe’s Warranty may be made only by direct customers of ActSafe who, upon ActSafe’s request, can present the original sales invoice from ActSafe.

The Warranty is not transferable from one user or customer to another.

If you have purchased your product from an authorised distributor of ActSafe products, please contact the distributor for warranty claims.

Warranty Limitations

The warranty does not extend to:

- (i) Products which have been modified, repaired or reconditioned by a party not authorised by the Seller;
- (ii) defects or damage resulting from failure to maintain or operate the Products in accordance with the Seller’s recommendations;
- (iii) normal wear and tear;
- (iv) damages which are the result of abuse or negligence including but not limited to water intrusion, physical damage; electrical faults external to the Products, rust or corrosion;
- (v) Products for which the serial number has been removed or tampered with; and (vi) Products to which a component or product not

authorised by the Seller has been added. Repair and replacement in accordance with the warranty terms are the sole and exclusive remedies for defects. The warranty is exclusive and no other warranties, whether statutory or implied shall apply to the Products, including but not limited to warranties of merchantability or fitness for a particular purpose. Any implied warranty that may be imposed by applicable law is limited to the warranty period.

Except as otherwise required by governing law, under no circumstances (including negligence) shall ActSafe, its affiliates, and their respective directors, officers, employees or agents be liable for any consequential, incidental, indirect, punitive, special or other similar damages, whether in action of contract, negligence or other tortious action, arising out of, in connection with or resulting from the sale or provision of any Products.





TECHNICAL DATA

Technical data

H.01

H.01 TECHNICAL DATA

TECHNICAL DATA

Length	2m
Weight	13kg
SWL	275kg

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