



INSTALLATION GUIDE

JOMY

COUNTER-BALANCED LADDER

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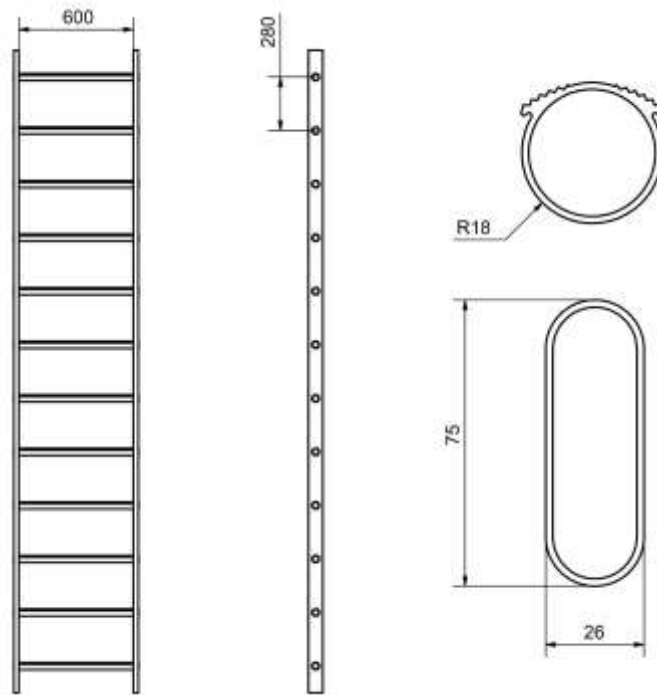
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1 Ladder composition

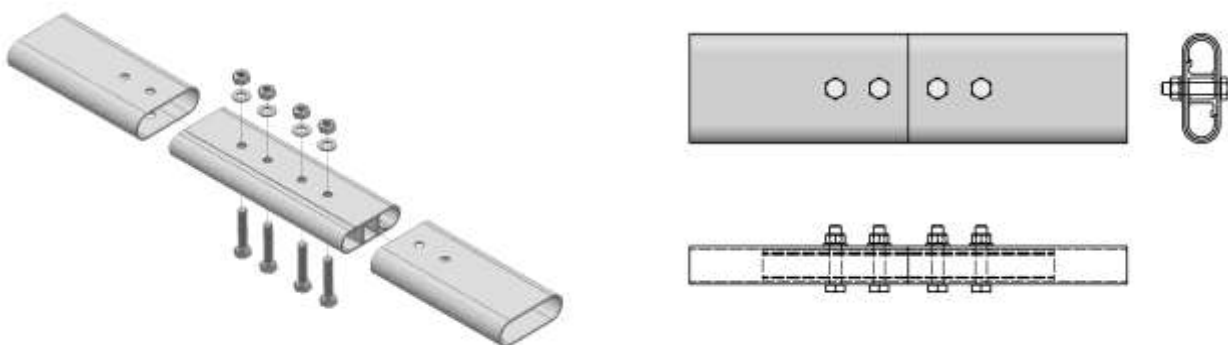
1.1 Basic ladder element

The JOMY® AlFix® basic ladder element is composed of two tubular beams and a series of tubular rungs. The width in between the beams is 600 mm (23.62") and the rungs are spaced at 280 mm (11"). The beams have an oblong cross section of 75 mm x 26 mm (2.95" x 1.02") and the rungs a circular section of $\varnothing = 36$ mm (1.42") with an antiskid top face, as shown below.



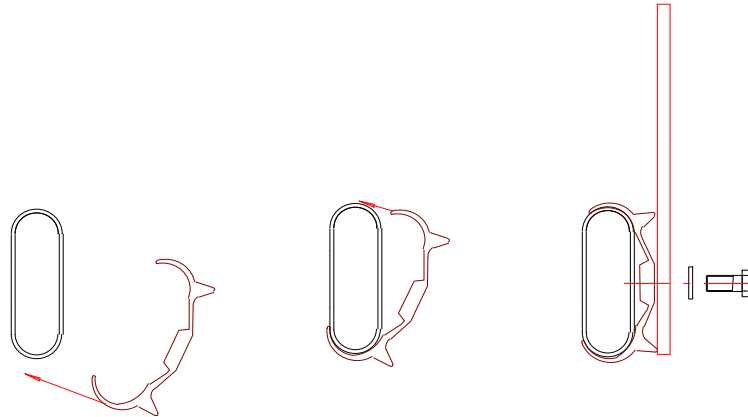
1.2 Ladder joints

Individual ladder elements are joined together by special JOMY joint profiles. These profiles are slid into the ladder beams and bolted to each beam by 2 ISO M8x40 bolts, nuts and washers.

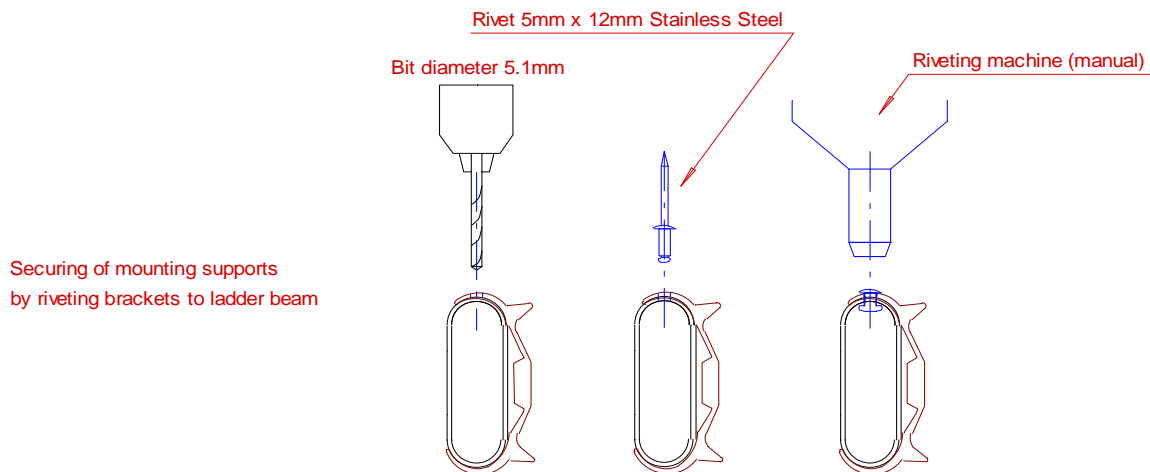


1.3 Brackets

A special bracket is used by which all other parts can be clamped onto the ladder beam. This bracket has a slightly asymmetric section that allows it to be clipped onto the beam. Once clipped on, the bracket can be clamped by tightening 2 screws M8 on the side of the bracket through a flat support.



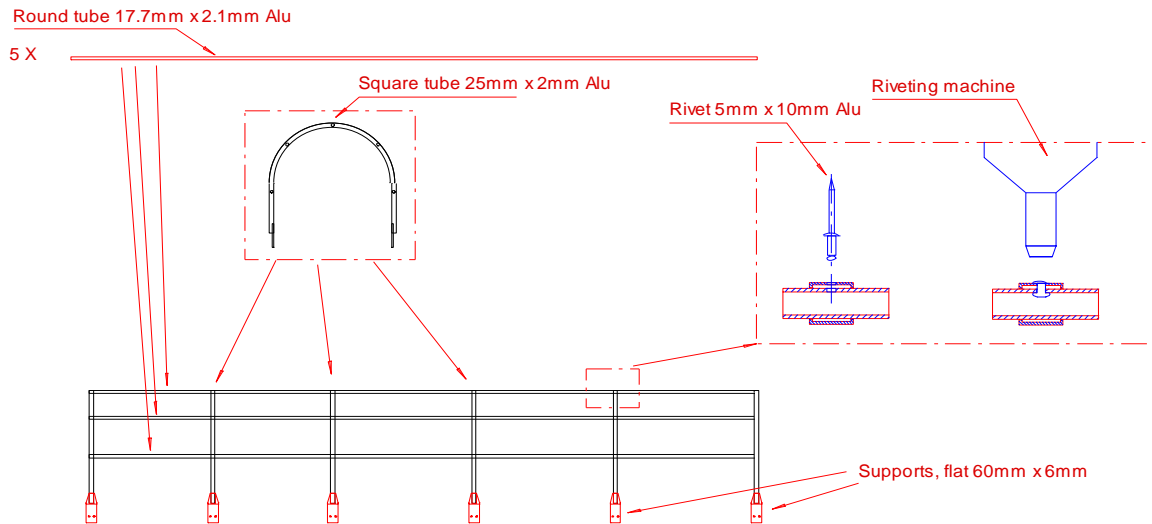
If this bracket is meant to withstand vertical loads, it needs to be secured to the ladder beam by a blind rivet, as shown below.



1.4 Cage

- Parts:
- 1° aluminum tubes, round, outer $\text{Ø}17.7$ mm (0.69"), inner $\text{Ø}13.5$ mm (0.53")
 - 2° hoops, square aluminum tubes 25 mm x 2 mm (0.98" x 0.08"), bent
 - 3° aluminum rivets, $\text{Ø}5$ mm (0.2"), length 10 mm (0.4")
 - 4 aluminum supports, flat 60 mm x 6 mm (2.36" x 0.24")

The cage parts are assembled as shown below. Typical distance between intermediate hoops is 1000 mm (40"). The hoops are riveted to the tubes and to the supports.

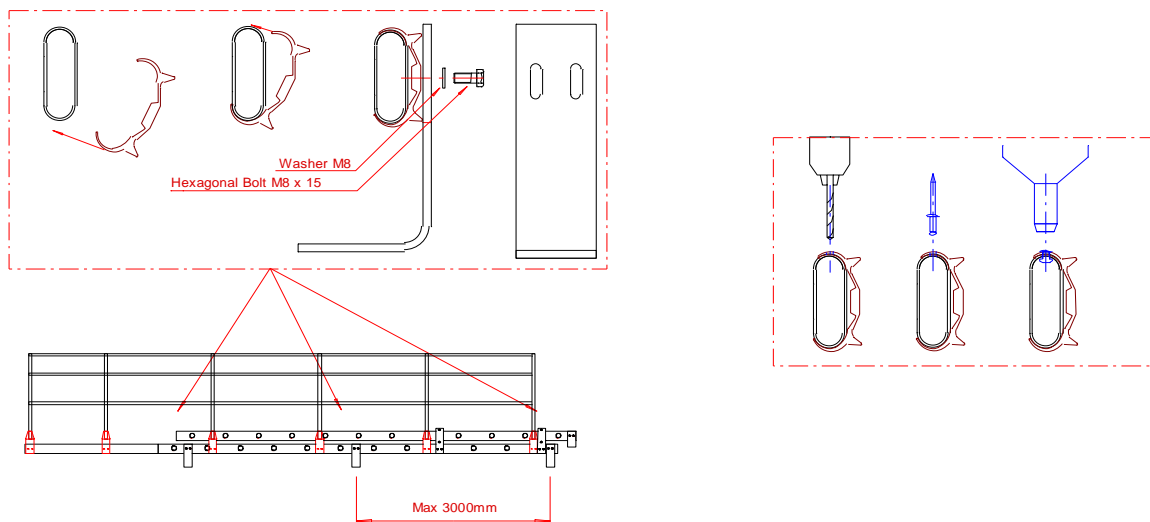


1.5 Wall supports

- Parts: 1° aluminum brackets
- 2° ladder mounting supports (rounded L-shaped)
- 3° hexagonal bolts M8 stainless steel A2
- 4° washers M8
- 5° stainless steel rivets, 5 mm x 12 mm

The brackets are clipped onto the beams (outer side) as shown in the graph below. Once clipped on, they can be slid to the desired position and subsequently clamped by tightening the 2 hexagonal M8 bolts. The maximum distance allowed between two supports is 3000 mm (10').

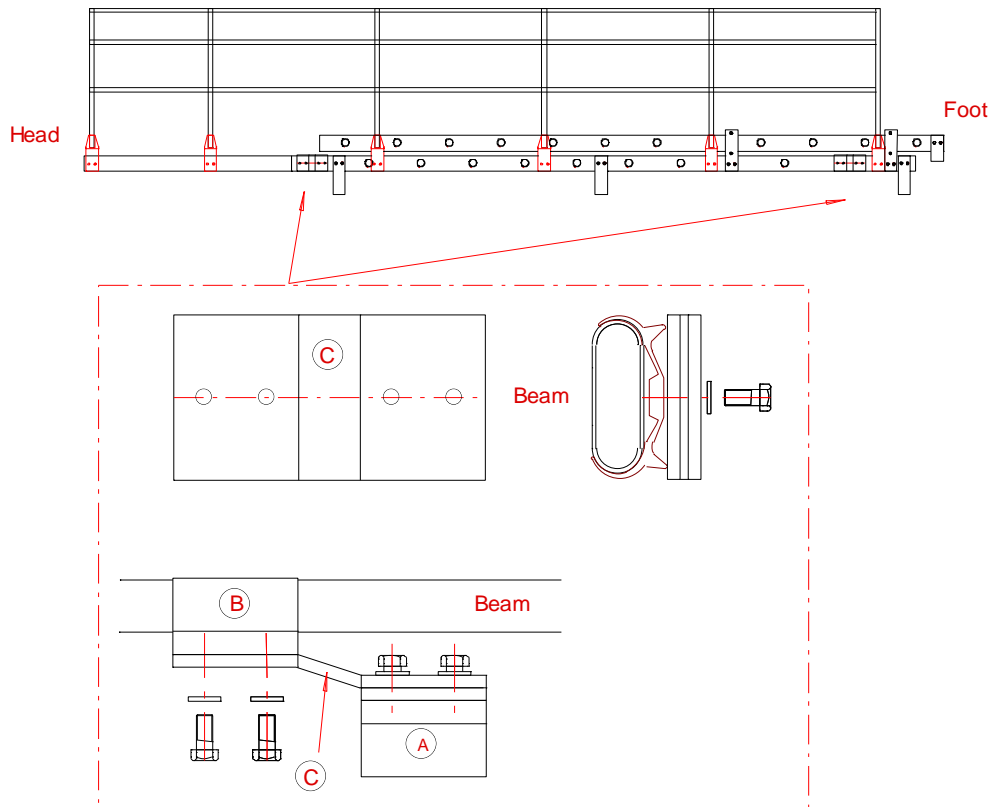
Once correctly placed, the aluminum brackets are riveted to the beams as explained before.



1.6 Counterweight system

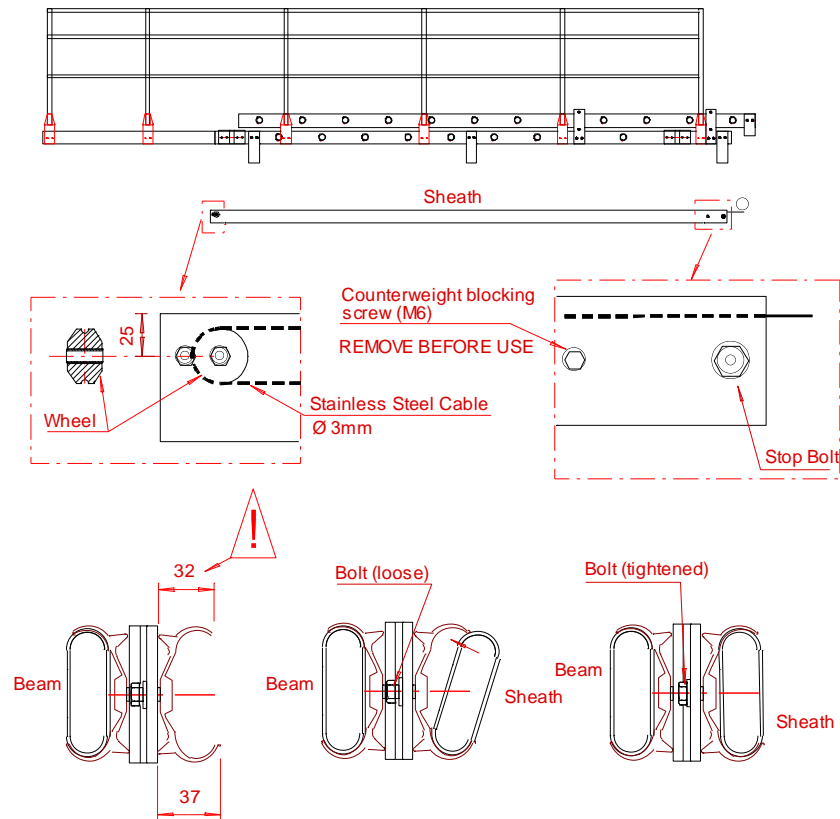
- Parts:
- 1° aluminum brackets
 - 2° sheath mounting support plates (part C on drawing below)
 - 3° sheath profiles (same as ladder beam profile), including cable system
 - 4° hexagonal bolts M8x15 stainless steel A2
 - 5° washers M8

At either side of the ladder the sheath is supported by two support plates (C). The sheath is clipped into the brackets (A) whilst the support plates (C) are fixed on the ladder beams by brackets (B). The foot of the sheath is fixed to the bracket by a blind rivet.



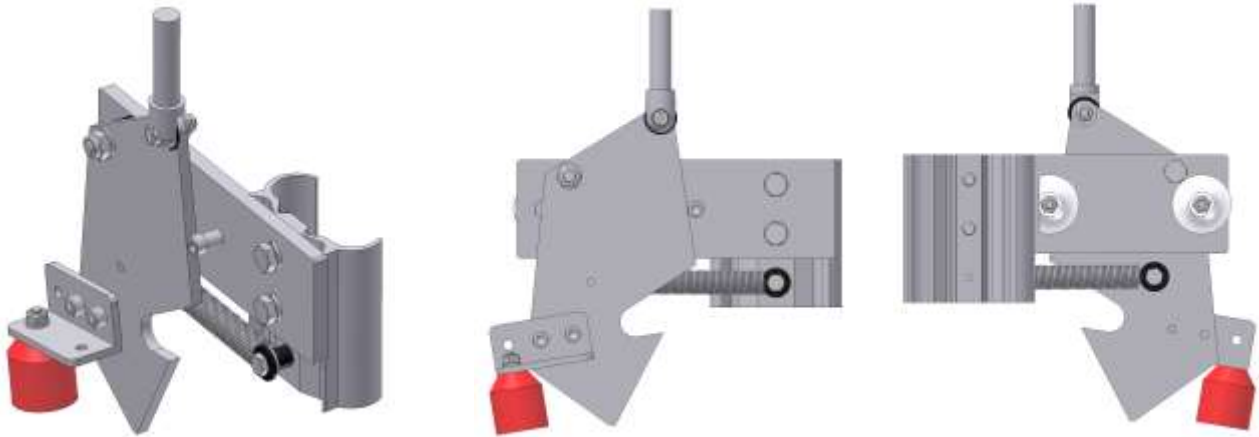
The upper side of the sheath has a small wheel in it that serves as reversing pulley. A counterweight is fixed to one end of the cable and the other end comes out of the bottom of the sheath and is fixed to the foot end of the mobile ladder part. The lower side of the sheath has a stop bolt that serves to prevent the counterweight from leaving the sheath. A screw (M6) is used to block the counterweight for transport and needs to be taken out before use.

As the mobile ladder part descends the counterweight moves upward. Ascending the ladder makes the counterweight travel down. The counterweight's mass is slightly less than that of the mobile part so that the ladder will descend of its own accord at a moderate pace once the latch is opened. The upward movement is to be done manually by pushing it up.

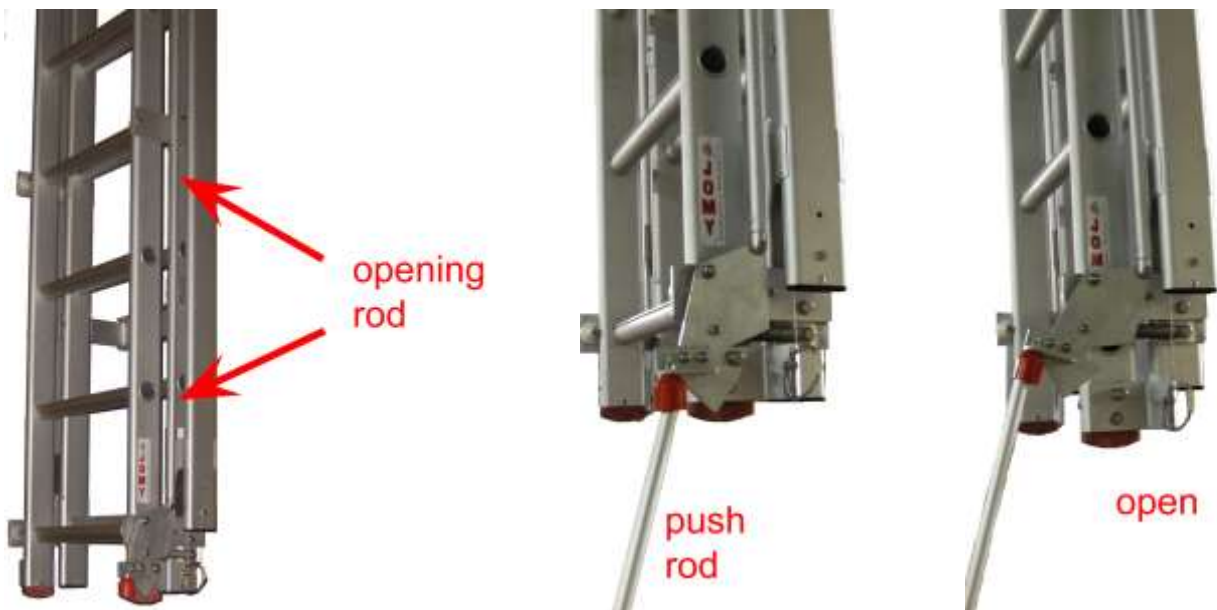


1.7 Latch

The mobile ladder is locked in the upper position by a side latch that can be operated from the bottom and/or from the top of the ladder. The latch is mounted to the foot section of the fixed part of the ladder.



The latch can be opened from the bottom with a push rod, as showed in the picture below. At the same time another rod is mounted alongside the ladder up to the top where it can be pushed down in order to open the ladder.



2 Ladder mounting

2.1 Preparing the ladder for mounting

Unpack the case and put the ladder on a horizontal support so that you can easily work on it.

Slide out the mobile part until the top rung of the mobile part coincides with the 4th rung bottom-up of the fixed part.



Clamp the two ladder sections together by clamping two coinciding rungs in between 2 wood boards with a C-clamp.



Use a load strap with cam buckle (maximum load at least 500lbs) to join the top rung of the mobile ladder to the 3rd rung from the bottom of the mobile ladder. This way you'll be able to put the ladder vertically without it collapsing.

**DO NOT STRAP IN ANY OTHER WAY.
MAKE SURE THE LADDER CANNOT COLLAPSE
BEFORE PUTTING IT VERTICAL.**

Measure the exact distance from the ground floor level up to the point of ladder access. The upper side of the upmost ladder rung should not rise above the floor level at the ladder top (except when you have a lateral ladder access). Check this dimension on the ladder.

2.2 Cage mounting

Parts: 1° aluminum tubes, 3000mm long pieces, 5 piece sets

2° joints for tubes, i.e. round tubes of Ø12 mm

3 hoops including support plates and brackets

4° aluminum rivets, Ø5 mm (0.2"), length 10 mm (0.4")

Mounting the cage needs to be done in a careful and accurate way.

The cage needs to be mounted onto the ladder beams, **NOT ONTO THE COUNTERWEIGHT SHEATHS.**

1. Preparation

First you have to determine the total length of the cage. The bottom hoop cannot be fixed lower than 200 mm (8") upward from the fixed ladder part's bottom end. The distance between hoops is a function of local standards but should not exceed 1000 mm (40"). With this in mind, decide on the number of hoops and the distance between hoops.

Attention: If the anchor positions on the wall are to be set exactly without any possible margin, you first have to mark on the ladder beams the spots where the ladder support brackets are to be fixed (you can already fix these brackets to the beams). Then check if the cage brackets do not interfere with the ladder wall support brackets. If they do, you should change the cage layout in order to avoid this. You can change for example the number of hoops, or change the individual positions of the hoops (it is not required that the hoops are equally spaced).

If the wall support positions can be moved up or down by 60 mm (2 1/2") you do not have to check the cage bracket positions as described above.

2. Once the position of each hoop is determined, mark these positions on the beams.
3. Detach one bracket of each hoop.
4. Clip each hoop onto one side of the ladder and slide it to the required position.
5. Mark the position of the bracket on the other beam; it must be aligned so that the hoop will be perfectly parallel with the rungs.
6. Clip on the detached brackets, slide them in their exact location and fix to the hoop support plates by the 2 M8 bolts and washers that were previously detached (step 3). Check the parallelism between hoops and rungs. The hoop should also be perpendicular to the plane of the ladder.
7. Slide 5 tubes through the holes in the hoops. If the hoops are well aligned this should be an easy job. If not, loosen the bracket bolts on one side of the hoops that are suspected to be misaligned, align them and retighten all bolts.
8. Once the tubes in place, fix them with rivets to all hoops except the top hoop as outlined before (§ 1.3). Make sure each tube is flush with the lower side of the bottom hoop.
9. If the cage is shorter than 3 m (10'), cut the tubes flush with the upper side of the top hoop and rivet all tubes to it, if not, go to the next step.
10. If the cage size exceeds 3 m (10'), the tubes need to be joined together. Each tube joint is to be fitted into a hoop profile so the each tube is well supported and linked to a hoop.

11. Mark the upper side of the top hoop onto each tube, see picture below.



12. Tilt the hoop slightly in the direction of the ladder foot and saw the tubes at a distance of 4 to 5 mm (1/6" to 1/5") from the marks in the direction as shown in the picture.
13. Slide a joint halfway into each tube, tilt the hoop back into its aligned position and fix it to the tubes with blind rivets as was done for the other hoops, i.e. drill through the hole in the hoop and rivet the hoop / tube / joint tube.



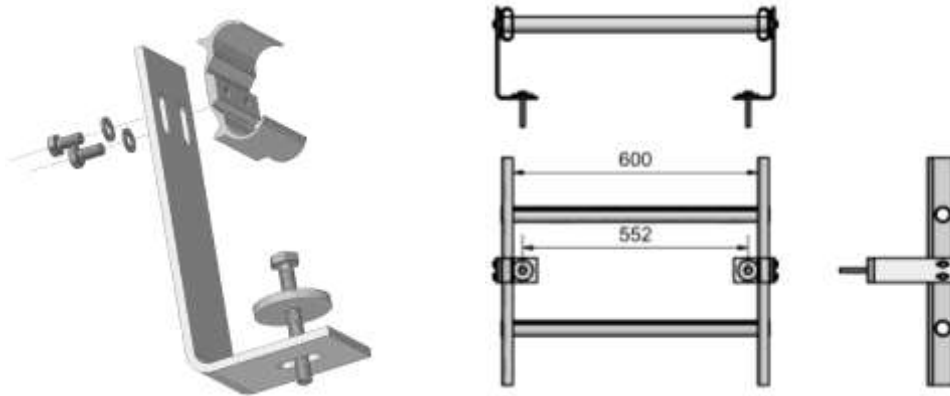
14. Now you can slide the next cage tube over the joint's free end and thus continue to the next hoop element. The tubes that are supplied have a hole drilled at one end; make sure this end is slid over the joint tube. When the next hoop elements are well positioned and aligned, the tube must be positioned so as to touch the previous tube inside the hoop profile.
15. Drill a hole in the joint through the existing hole in the round tube and fix both by a rivet, as is shown in the photographs below.



16. Repeat steps 11 through 15 for the other 4 cage tubes.

2.3 Fixing the ladder to the wall

Parts: 1° expansion plugs M10, bolts M10x80 stainless steel A2-70; or lag screws \varnothing 10 mm
2° aluminum washers 50 mm x 6 mm for M10 bolts



The ladder fixing anchors have to be drilled 552 mm (21 3/4 in) apart. Each anchor bolt is fitted into an oblong hole in the ladder fixation base that allows for a 20 mm (0.8") clearance.

Drop a vertical line and chalk on one of the anchor sides and mark the points where to drill. The vertical distance between two sets of support brackets has to be less than 3 m (10 ft). Do the same for the other side at a horizontal distance of 552 mm (21 3/4 in).

Now you have to make sure that the brackets, thus positioned onto the wall, will not interfere with any other attachment brackets on the ladder beams (e.g. those for the cage or the counterweight sheaths). Measure for each meant anchor position its height and trace this distance on the ladder (which is still horizontally laid out) from its foot bottom-up. If a support bracket will interfere with an existing bracket, you will have to slightly move the anchor location on the wall in such a way that the interference will no longer be there without losing firm anchor base.

After this the anchor holes can be drilled. Drill with a hammer drill and concrete drill bit of 16 mm diameter, drilling depth 80 mm. These drilling instructions are only valid for full concrete walls, brick walls, stone walls, or other kinds of block walls capable of withstanding the maximum ladder operating charges.

Two ways of proceeding are now possible:

1. Anchor the supports (only the L piece) to the wall. Next lift the ladder and put it into position by a secure means. Then, at each support, clip a bracket onto the ladder beam and slide it in front of the support so that you can bolt it to the support using 2 M8 bolts and washers. Repeat this for every other support.
2. Fix the complete supports, i.e. brackets and L pieces, to the ladder after having pinpointed and marked their exact locations on the ladder beams. Next lift the ladder and put it into position by a secure means. Then anchor the plug bolts. You may have to loosen the bracket bolts (2 M8 bolts) in order to slide the bracket slightly to its exact position, in that case: **DO NOT FORGET TO RETIGHTEN.**

Make sure all anchor bolts and all bracket bolts are correctly tightened.

Put in the rivets to fix the support brackets firmly to the ladder beams, as outlined in § 1.4.

Remove the clamp and wood boards and remove the strap.

Slide the mobile part as far up as you can until it is well latched.

2.4 Installation of counterweight sliding sheath

In order to reduce the total weight of the ladder during vertical mounting, you can mount the counterweight sheaths after the ladder has been fixed to the wall.

The support plates and brackets have been mounted in the factory. You only have to clip in each sheath as explained before in § 1.5, and fix it by a blind rivet. At the foot of the sheath and in the bottom bracket, the holes for the rivet have already been drilled at the factory. When mounting the sheaths you have to make sure that the holes coincide so that you only need to put the rivet in and pop it.

DO NOT DRILL ANY OTHER HOLE AND DO NOT PUT A RIVET AT ANY OTHER PLACE OF THE SHEATH AS THIS WILL CAUSE MALFUNCTIONING.

2.5 Cable connection

With the retractable part fully inserted and well latched, connect the cables coming out of the sheaths to the foot end plates, as shown below. Make sure the cable is taut.

Next, the counterweight blocking screw (M6) can be removed from each sheath (this screw only serves to block the counterweight during freight).



2.6 Opening rod for latch

Parts: 1° rod, aluminum tube, same as cage tube, 3 m (10') long

2° guides, stainless steel ring mounted on a bracket, 2 pieces per rod

Clamp the opening rod guides laterally to the ladder beam and insert the rod through the rings. The top guide should be positioned at about 20 cm (8") below the top end of the opening rod, the other guide in the middle between the latch and the top guide. Fix the rod with a rivet to the connection pin on the latch, see picture below. The holes have been drilled in the factory, the rivet is supplied.



If the rod length needs to extend beyond 3 m (10'), combine rods and join them in the same way as is done for the cage tubes. Space all guides equally between the latch and the top of the rod (top guide about 20 cm (8") below the top end of the opening rod).

Insert the handle (picture below) on the top of the rod, drill a hole of $\text{Ø}5.1$ mm through handle and tube and fix with the blind rivet that is supplied.



2.7 Resizing the ladder

This section will explain how to cut a ladder element in order for the ladder to fit the required sizes.

Shortening a ladder element

1. Mark the middle point at either ladder beam between the two rungs where you need to cut the ladder and saw. Ideally this is done by a circular machine saw with the beam well clamped. It can be done with a hand saw but then you have to provide for a means to saw along a straight line.
2. Debur sharp cut edges with a file.
3. Take the ladder beam plugs out of the beam ends that have been removed and put them into the freshly cut ends. Fix them with a rivet if necessary.

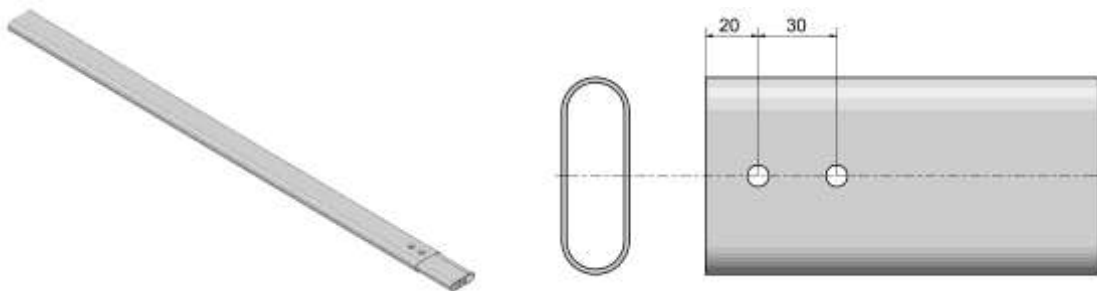
Cutting and extending

1. If you're resizing the base element make sure the counterweight sheaths are not mounted to it. If they are mounted, remove them before continuing.
2. Follow steps 1 and 2 as above.

ALWAYS CUT SO THAT THE TOP PART IS REMOVED.

NEVER REMOVE THE BOTTOM PART BECAUSE THE LATCH AND GUIDANCE PIECES ARE ATTACHED IN THAT ZONE.

3. Insert an extension in either ladder beam. These extensions have a joint mounted at one end that has no holes in the visible end.



4. With the extension firmly inserted, drill two holes of diameter 8.2 mm (0.33") in the center of the beam profile, one at 20 mm (0.8") from the end and the second at 30 mm (1.2") from the first, as shown in the drawing above. You have to drill all the way through the beam and the joint inside it.
5. Fix by two bolts M8x40 with washer and nut.
6. Cut the extension to the required size if necessary and put a plug into its free end. If you're working on the base element make sure that the combined length of the ladder element and the extensions equals at least the length of the counterweight sheath. The extensions have to run up at least to the counterweight profiles top.