

AXS – FL Ramp

ACDEOS
Simplicity in Accessibility

Manual



Acdeos BV
Touwbaan 1A
2352 CZ Leiderdorp
Netherlands
www.ACDEOS.com
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1 Technical specifications

Product description	Manual operated wheelchair ramp for vans and mini buses.
Installation	On the vehicle Floor at the middle or rear door
Dimensions	Ramp length 2100, 2500, 2800 mm For detailed dimensions please refer to the installation drawings
Weight	AXS AR FL 210-8/2 39 Kg AXS AR FL 250-8/2 45 Kg AXS AR FL 280-8/2 48 Kg AXS AR FL 280-10/2 52 Kg
Load	Maximum load 400 Kg (4000 N) This is always labeled on the Ramp.
Materials	Ramp; Anodized Aluminium structure with Aluminium profile anti-slip platform. Integrated Aluminium hinge. Mounting points: steel.
Legislation	The product complies with the 2006/42/EC and NEN-EN 1756-1

2 Nomenclature

The type of the ramp has to be understood as follows:

AR FL-XXX/Y Z where:

AR = AXS Ramp

FL = FL series of products

XXX = Length of platform in Centimeters (210, 250 or 280)

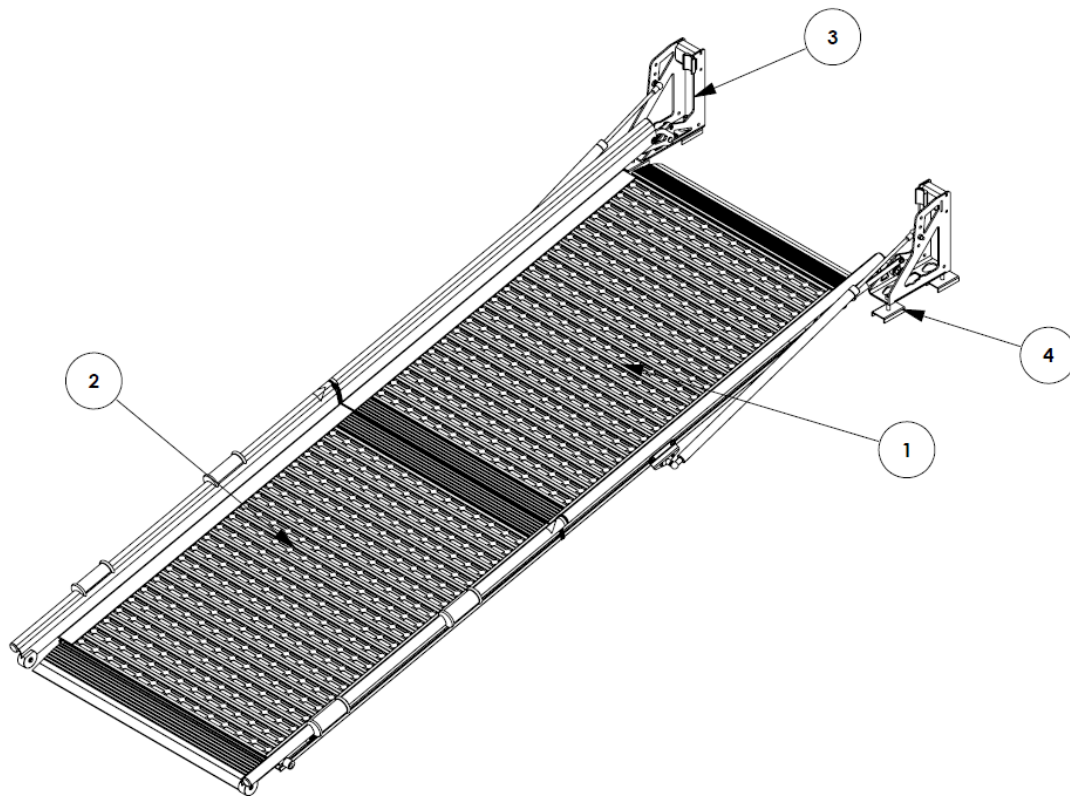
Y = Width 8 = 86 cm / 10 = 97 cm

Z = Number of platforms (2 or 3)

Meaning a AR FL 210-8/2 is a AXS ramp of the FL series with a 2,1 meter length, 0,86 meter width in two parts (platforms).

Components of the double ramps

1. first platform
2. second platform
3. feet assembly
4. fixation kit



3 Safety instructions

These Safety instructions should always be with the ramp. The operator has to be made aware of these instructions before operating the ramp. Read these safety instructions carefully and act on them.

The ramp is constructed as a boarding device for passengers in a wheelchair. It should be used accordingly by passengers and assisting persons, as long as they are not heavier than the maximum load, to enter or exit a minibus, van, taxi or other vehicle.

- 1. Before you can operate the ramp the Vehicle must be stopped and the hand or park brake applied.**
- 2. Make sure it is safe to load or unload your passengers.**
- 3. Before operating the ramp, make sure that there neither anyone nor any obstacle at or near to the ramp. Also ensure that there is neither anyone nor any obstacle outside the vehicle or in the path of the ramp when in motion.**
- 4. It is recommended that the ramp is operated by the driver only or other qualified operators.**
- 5. The driver or operator must have a clear view of the ramp when maneuvering the ramp.**
- 6. Wheelchair passengers should always be assisted while boarding or un-boarding the vehicle.**
- 7. The ramp platform must be kept clean and free of oil and other slippery materials.**
- 8. If you have any questions about the safe operation of the ramp, contact the person responsible immediately.**
- 9. Never use the ramp for any other use than as described above.**
- 10. Never overload the ramp.**
- 11. The ramp should be used when it is completely unfolded and firm on the ground.**
- 12. Repair and maintenance must to be carried out by qualified and trained staff only.**
- 13. In case of exchanged parts – only the original parts of the ramp must be used.**
- 14. Always use the recommended cleaning materials.**
- 15. Report any unsafe conditions of the ramp or problems during operation to the ramp supplier.**

4 Constraints

The AXS Ramp has been designed to be functional and reliable. The product is made as simple and reliable as possible. The possibility of use during severe environmental conditions has been taken into consideration for the design of the ramp.

The double ramp is made without supporting legs. This is the only way to ensure having a straight platform under any loading condition.

4.1 Legal requirements:

The legal requirements in and outside Europe are different for each region / country.

There is a common bus directive 2001/85 EC in Europe (as previously mentioned the product complies with this directive) also used by Norway; however this is only applicable for M2 and M3 vehicles. In addition to this many countries do have their local requirements.

Also many applications of the AXS ramp will be found in vehicles under M1 legislation. There are no European guidelines for ramps in these vehicles.

Two important aspects in all the different legislations are the platform width and the slope of the ramp. The table below gives a guideline for the different known legislations.

Country	Legislation / guideline	Max slope	Minimum width	Max Load	Other requirements
Denmark	none				
Finland	InvaTaxies	8 %			
France		25%	800 mm	300 Kg	height side edge 50 mm
Germany	DIN 75078-1				
Netherlands	Permanente taxi regeling	20%	800 mm	300 Kg	height side edge 30 mm
Sweden	M1 wheelchair bus	15%			
United Kingdom	DPTAC	12%	800 mm	300 Kg	
EU	2001/85 EC	12% ¹	800 mm	300 Kg	Only M2 and M3
Notes					
1) measured from a curbstone of 150 mm					

ACDEOS recommends a maximum slope of 25 % when the wheelchair passenger has assistance from trained staff.

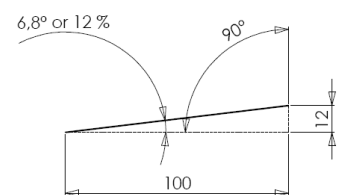
If the person has to enter the vehicle by himself the maximum slope should be 12 %.

4.2 Slope in % and Deg.

Often % slope and Deg are mixed-up. Below you find the explanation of a slope in ° (Deg) and %.

An angle is divided in degrees or °. A straight angle is 90° a full circle is 360°

Example: For a ramp according to EC bus directive the maximum angle is 6,8°



Another way to measure an angle is the % of the slope. If you move 100 cm forward and in that 100 cm raise 12 cm the percentage of that slope is 12%

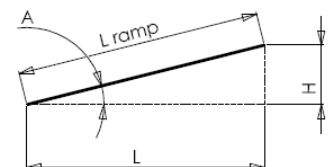
How to calculate:

If you want to know the slope A in % from a ramp

The % slope of a ramp is: $A = H / L * 100\%$.

Normally you don't know L you only know L_{ramp} . For relative small slopes you can say $L_{ramp} = L$. This is not exact right but normally good enough. So than the formula is:

$$A = H / L_{ramp} * 100\%$$



For calculating the angle A in deg you need a calculator with sin, cos and tan.

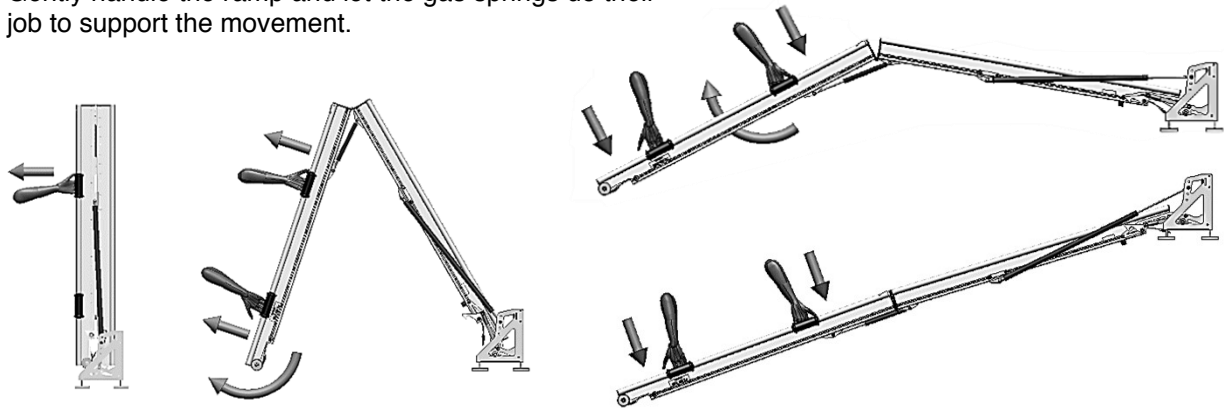
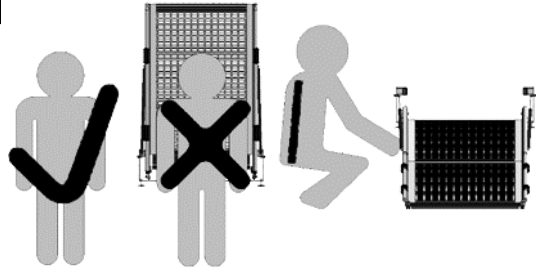
Calculate H / L_{ramp} than take the inv (inverse) tan of this value and you have the angle of the ramp. Again this is not exact right but for small angles good enough.

So the formula is: $A = \text{inv tan} (H / L_{ramp})$

5 Operation

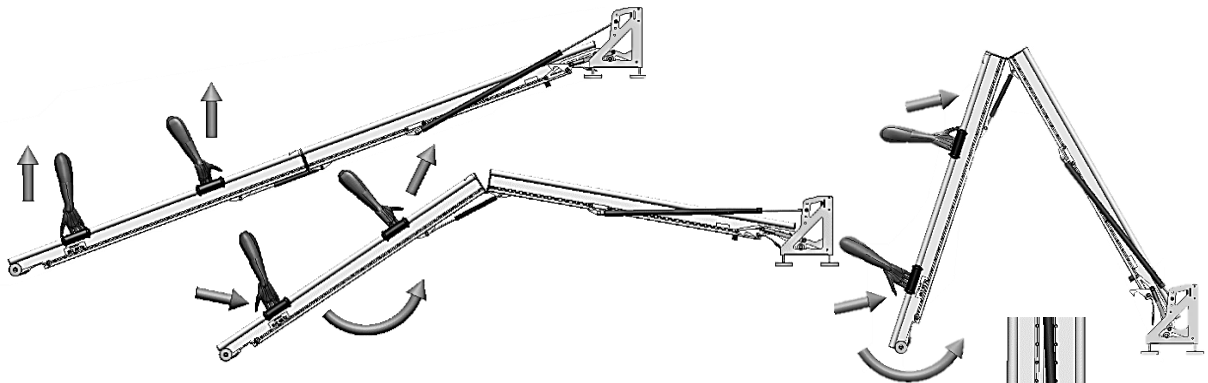
5.1 Deploy Operation procedure ramps with auto lock

To open the ramp, first grab the highest handle and pull out. The auto lock system will unlock the ramp automatically. When the ramp is coming out, place the second hand at the second handle and guide the ramp to the ground. The ramp is supported by gas springs. Gently handle the ramp and let the gas springs do their job to support the movement.



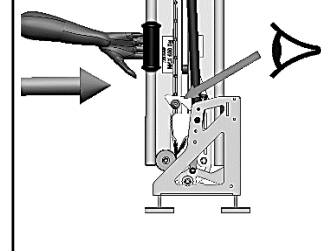
5.2 Close operation procedure ramps with auto lock

Grasp the ramp with two hands at both handles **at one side**. Lift the platform and at the same time let it bend in the natural way. Do not try to bend it against the force of the middle gas spring. Close the ramp further by pushing it in. When the second platform is standing vertical, let the first platform loose and let it go. It will drop close and close automatically.



5.3 Emergency operation procedure ramps with auto lock

To open the ramp from inside, first open the doors then firmly push the ramp at the top. It will go out and open automatically.



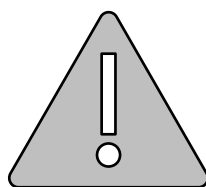
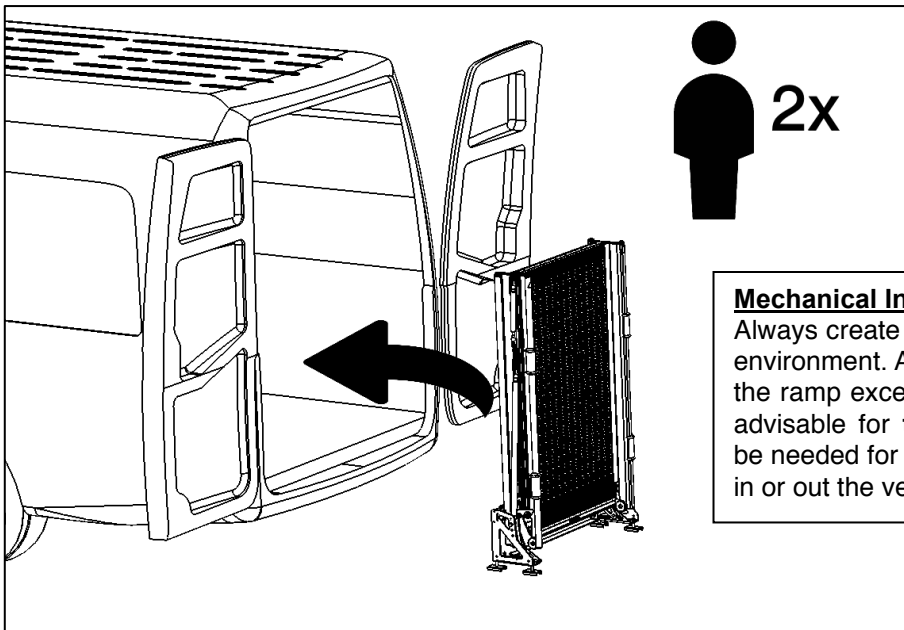
Do NOT use the emergency operation as the standard way to open the ramp, this will cause damage to the ramp!

6 Mounting / Installation

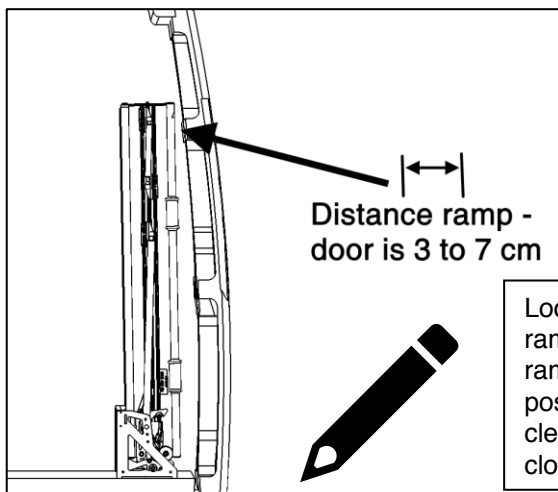
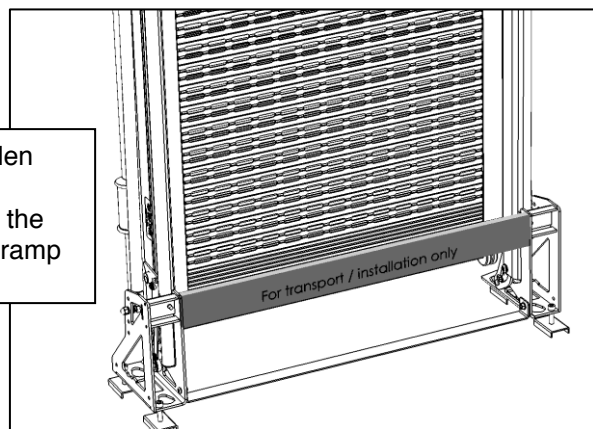
The installation can only be carried out by a company familiar with building or modifying vehicles and which has the staff qualified for such work.

6.1 Mechanical Installation

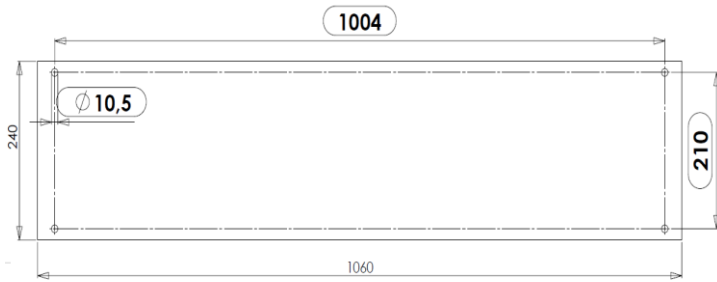
The fitting of the ramp does not involve major vehicle adaptations. The ramp is mounted on top of the floor in the middle or rear door. No modification of the chassis is needed. Exact measurements of the product should be taken from official installation drawings. Ask Acdeos for the final revision and official installation drawing. The figures and drawings used in this manual are for indication only.



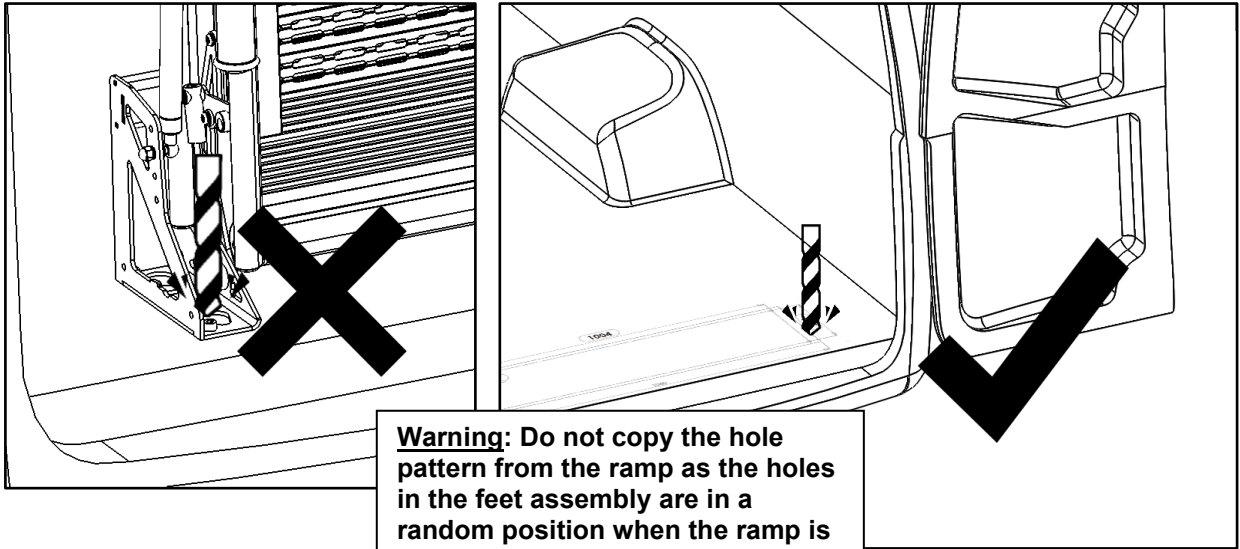
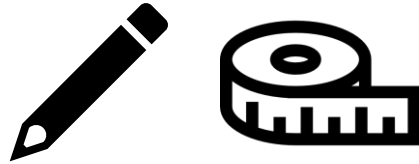
Do not remove the wooden and steel transportation distance pieces between the feet assemblies until the ramp is fitted into the vehicle.



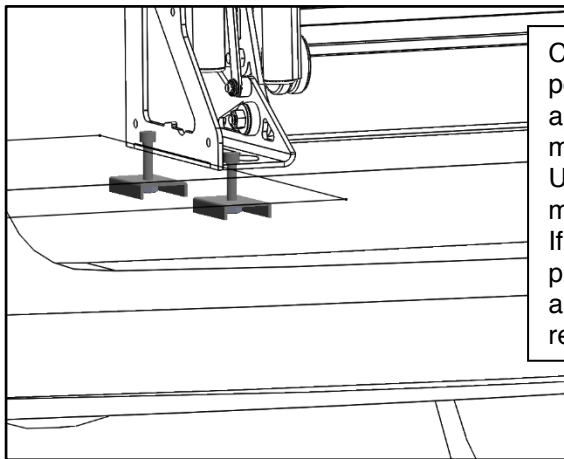
Locate the exact position where the ramp will be fitted at the floor. The ramp should be placed as close as possible to the door, leaving 3-7cm clearance space when the door is closed.



Mark out the position for the 4x M10 mounting bolts. Drill the 4 (Ø10.5mm) holes through the floor in a rectangular pattern of 1004mm x 210mm.

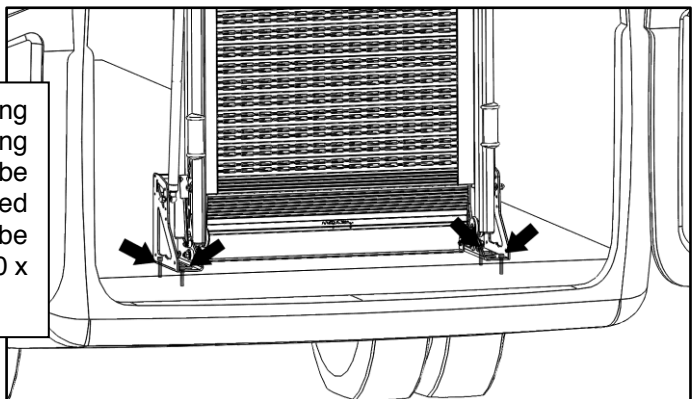


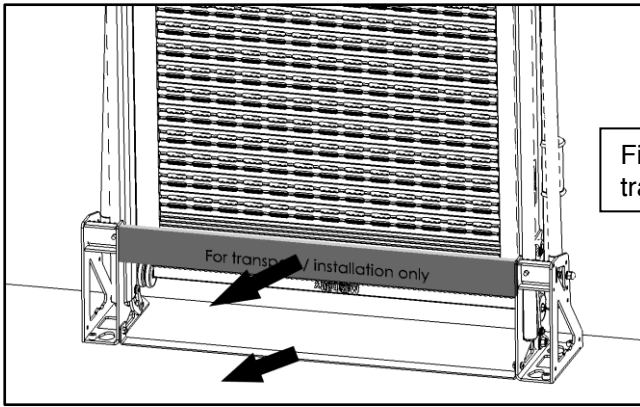
Warning: Do not copy the hole pattern from the ramp as the holes in the feet assembly are in a random position when the ramp is loose from the floor.



Check under the vehicle for the position of the chassis. In some applications the reinforcing U-profiles may not fit properly, in such cases the U-profile will need to be modified to make it fit.
If a new back-up plate is required please use one with a similar surface area of 35 cm² to fit the requirements.

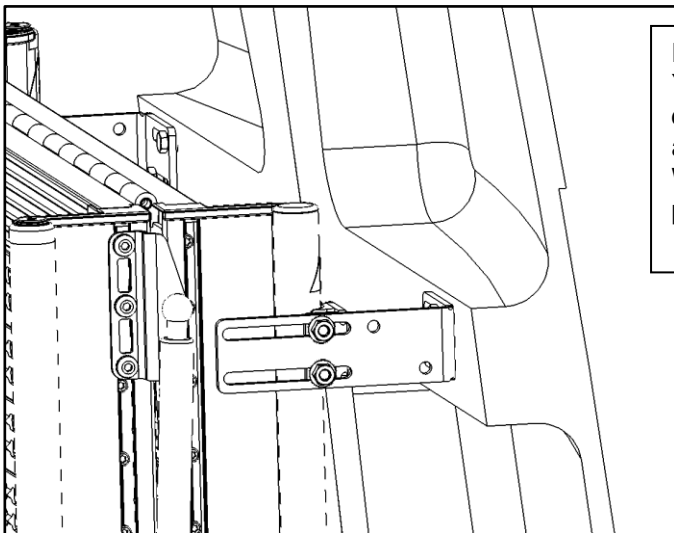
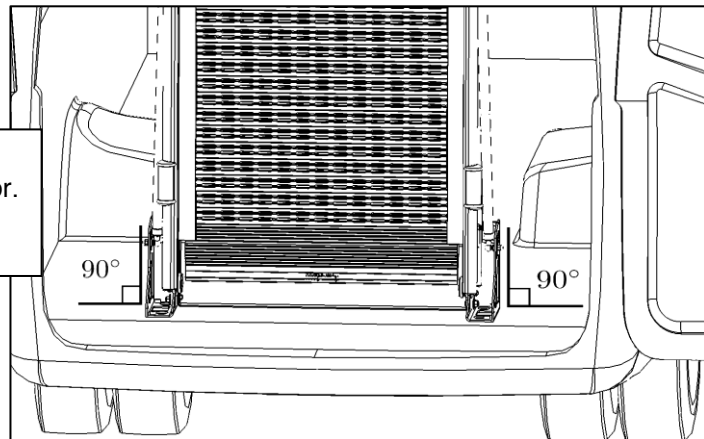
Place the ramp in the vehicle and fix using the M10 bolts. If the holes are going through the chassis, longer bolts may be needed. These bolts can be purchased from a local supplier. Bolts used must be to DIN 912 / ISO 4762 specification M10 x length (as regulated) – 10.8.



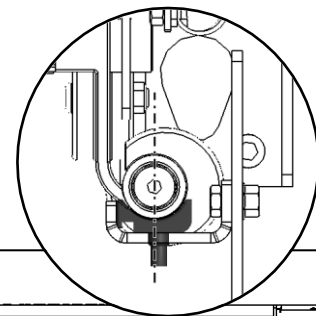


Finally remove the wooden and steel transportation distance pieces.

Check if the Feet assembly is standing straight under 90 with the floor. If not tighten or loose the M10 fixations bolts

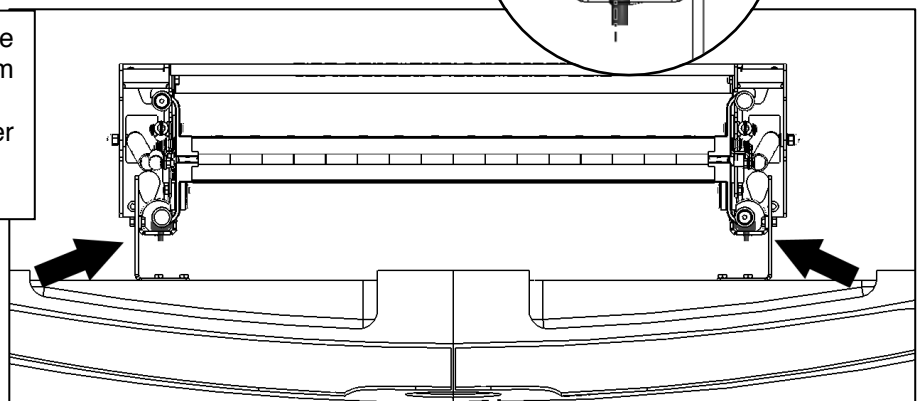


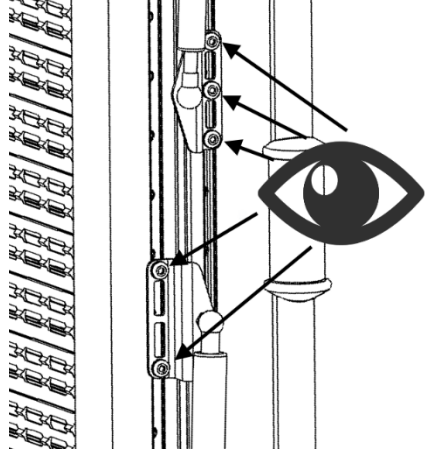
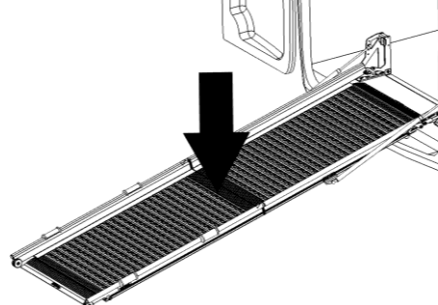
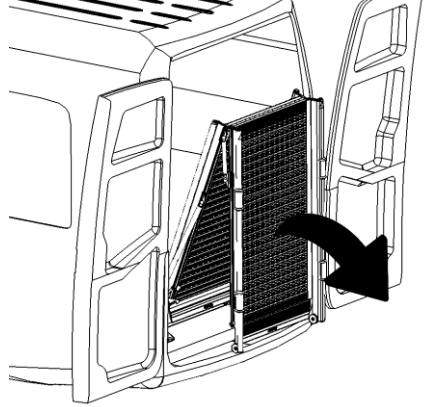
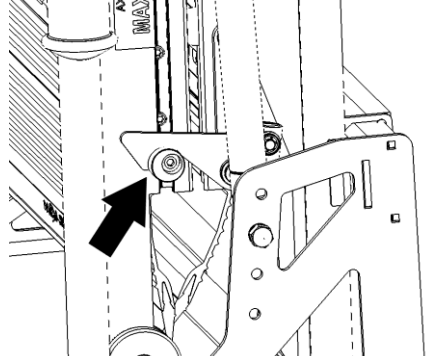
Ramp stop / Ramp Anti rattling device. You will also need to install the ramp stop at the door to prevent the ramp for rattling or hitting against the rear door/window. We recommend positioning this as high as possible at the door



The bracket needs to be fitted with the two rivet nuts M8. (Drill Ø11 mm holes). Position the bracket so that the rubber aligns with the rail of the ramp. **Place brackets left and right**

Adjust the brackets so the ramp is held tight when the door is closed.



<p>Before using the ramp: The ramp should always be tested after installation. Follow the following instructions</p>	<p>checked</p>	
<p>MOUNTING – Check that all bolts on the ramp are in place and tightened. Check that the MAX load stickers are on the ramp</p>		
<p>MOUNTING – Unfold the ramp and load it with the max load as indicated at the ramp or approx 4-5 people. Check that the fixing & fitting of the ramp is strong enough for this weight.</p>		
<p>OPERATION – Move the ramp in and out to check that all moving parts are running freely.</p>		
<p>Check that the ramp closes properly into the auto lock The black nylon roll is eccentrically and can be adjusted if the ramp lock is to loose. See 8.2 A loose lock will give a rattling noise.</p>		
<p>If this small test procedure is followed with success the ramp is ready to be used. If one of the steps is failed please resolve the problem before putting the ramp in to service use.</p>		

7 Installation of options

7.1 600 Kg leg kit

This installation should be done at an installed ramp in the car.
It is possible at ramps in stock but you need to unfold the ramp.

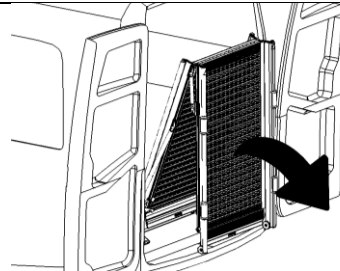
Needed tools:

Allen key 6 mm + 3 mm

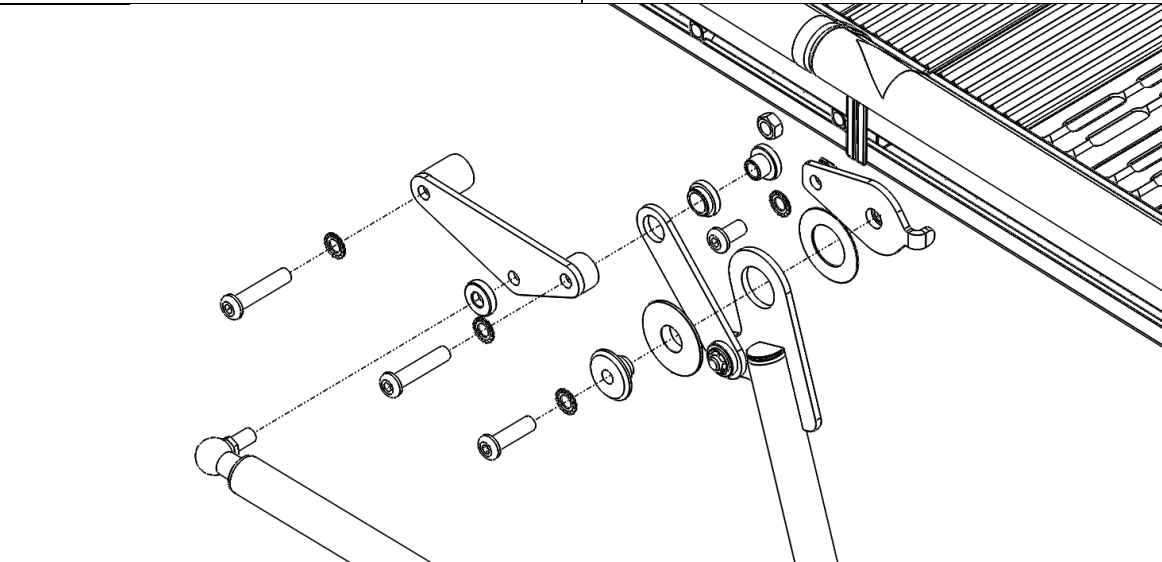
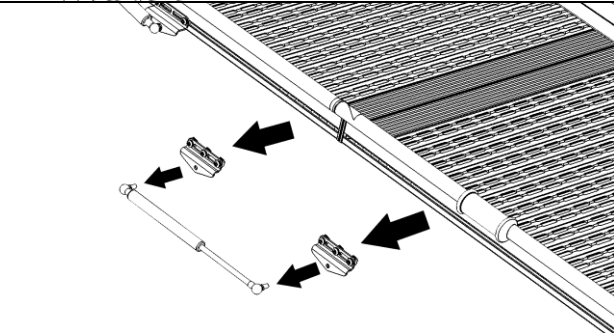
Warning: Always check the position of the T nuts after fitting. They must be at a straight angle with the slot in the Alu profile

Needed parts
Leg kit AR 200 073

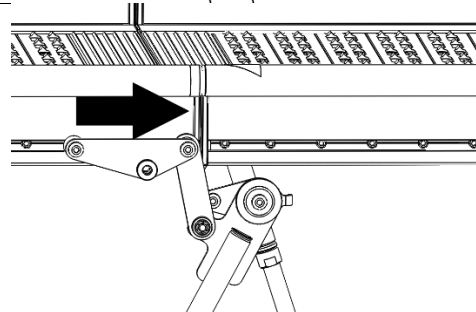
Unfold the ramp.

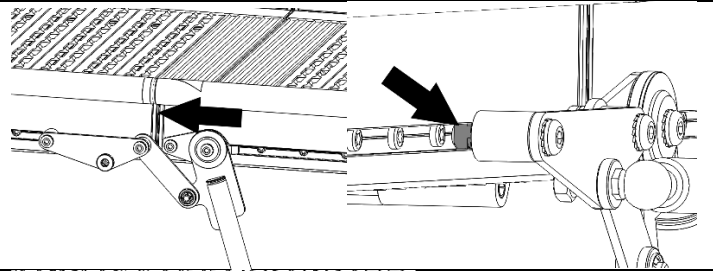
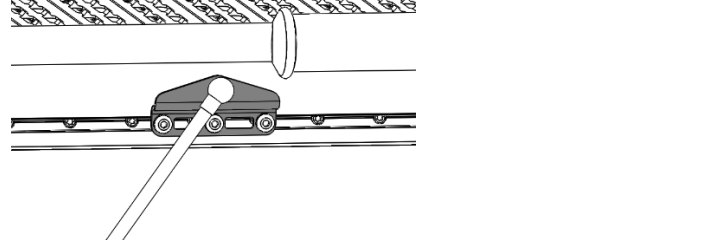
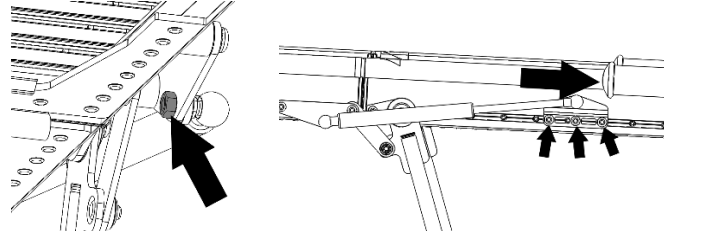
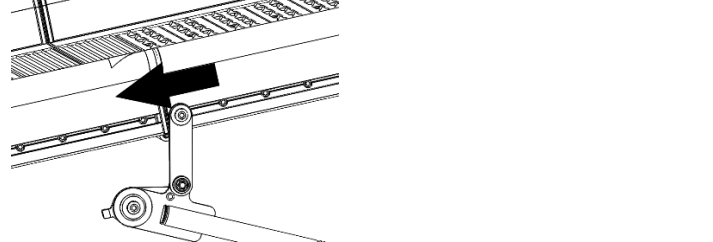
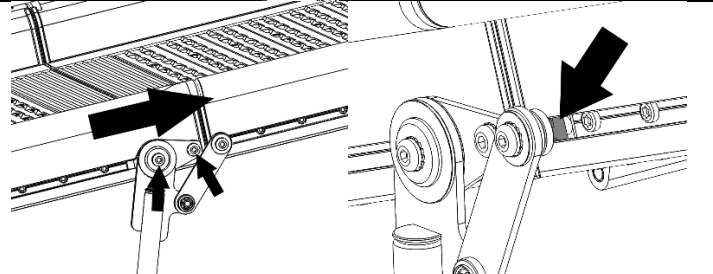
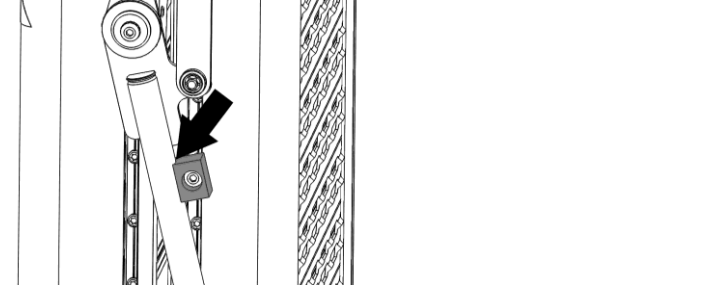
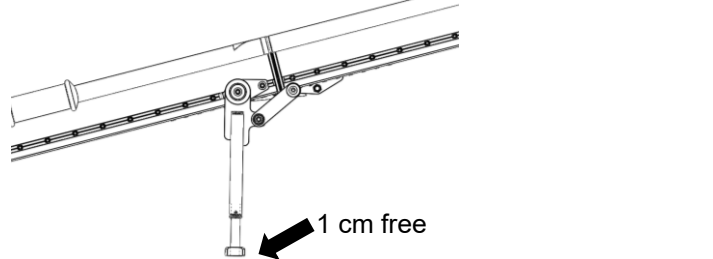


Remove the centre gas spring including the ball joint from the bracket on platform 1 by unscrewing the M8 nut holding the ball joint in place.
Remove the mounting bracket and leave the T Nuts in the slot from the side profile.



- mount the bracket of the leg using the T nuts of the previous bracket following beside picture.
- Make sure it is mounted as far to the plastic end cap as possible.
- Tighten the bolts M8 (30 Nm)
- check the position of the T nuts

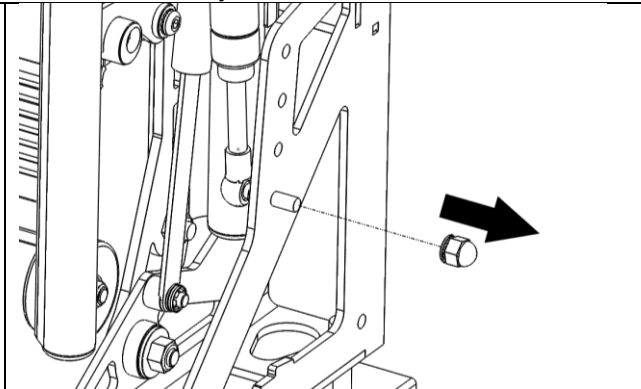


<ul style="list-style-type: none"> - Mount the leg hinge part at the second platform, as far to the plastic end cap as possible. - Make sure the lip falls in slot. - Tighten the bolts M8. (30 Nm) - check the position of the T nuts 	
<p>Flip over the gas spring mounting bracket, so the ball is facing up instead of down. Do not tighten the bolts entirely so the bracket can still slide in the slot.</p>	
<p>Mount the gas spring to the bracket of the leg and move the other bracket to the furthest extend and tighten the bolts</p>	
<p>Mounting the right leg</p> <p>Mount the turning point of the push rod at platform 1 as far to the plastic end cap as possible.</p>	
<p>Mount the turning point of the leg as close to the plastic end cap as possible, make sure the lip falls in the slot before tightening the M8 bolts</p> <ul style="list-style-type: none"> - check the position of the T nuts 	
<p>Place the holding blocks for the legs in such a way they hug the legs when the ramp is closed.</p>	
<p>Adjust the length of the leg on both sides by turning in or out the leg feet. At a flat ground, with the ramp unfolded from the vehicle, the legs should be approx. 1 cm free from the floor. Fix the legs with the set screw.</p> <p>And you are ready</p>	

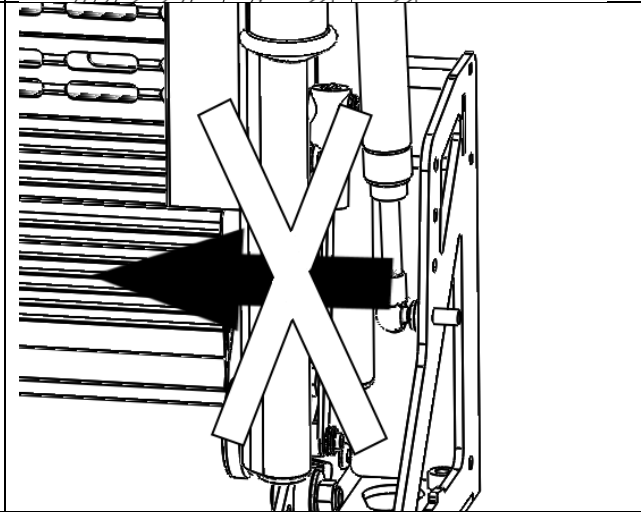
7.1.1 Bump stop

Needed tools: size 13 wrench, allen key size 5

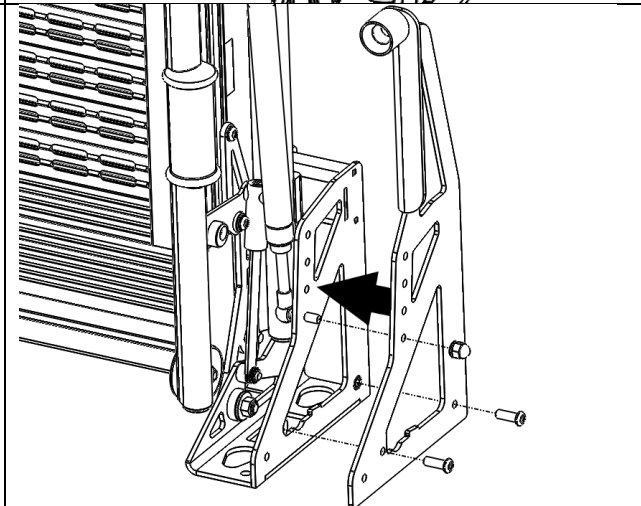
Remove the m8 nut from the gas spring.



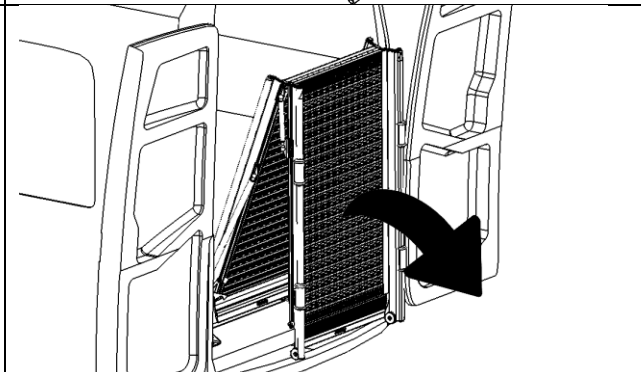
Do not remove the gas spring from the hole.

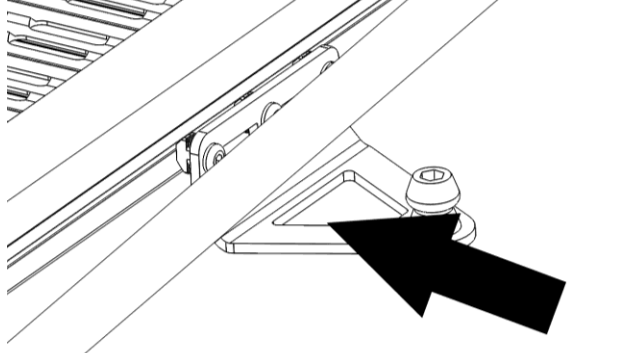
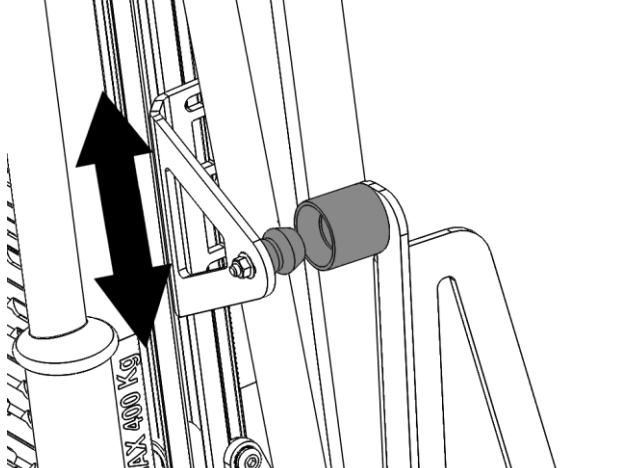
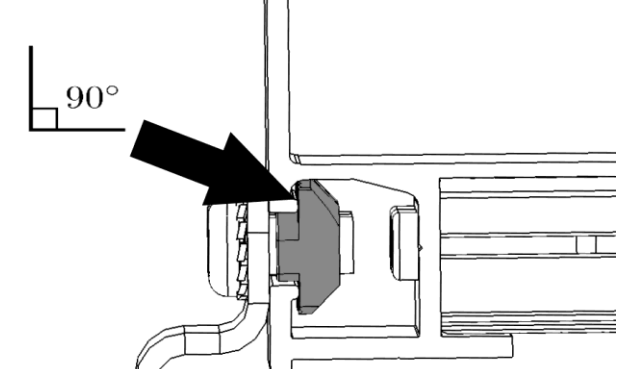


Place the bump stop assembly on the feet.

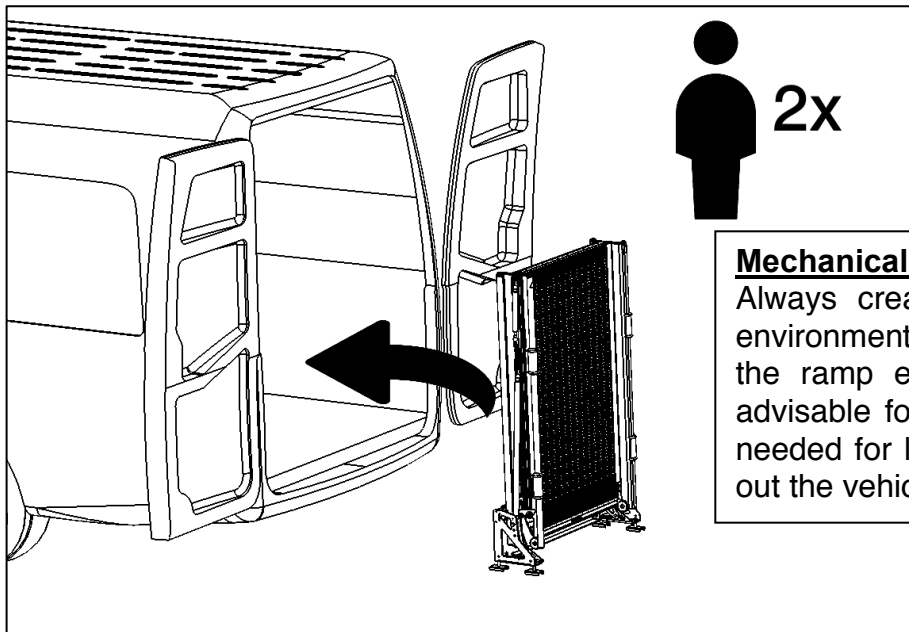


Open the ramp

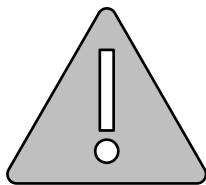


<p>Place the bracket with loosely fixed bolts in the side profile.</p>	
<p>Close the ramp and adjust the bracket so the rubber bump stops aligns with counterpart</p>	
<p>Check the t-nuts for being fit properly square on the slot</p>	
<p>Tighten all nuts and bolts to 30 Nm</p>	<h1>30 Nm</h1>
<p>Repeat on other side</p>	

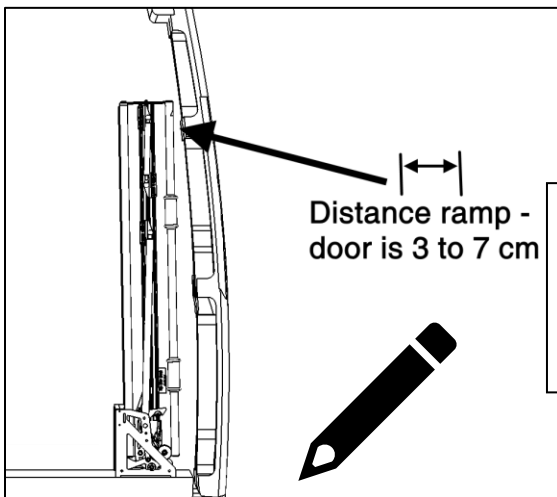
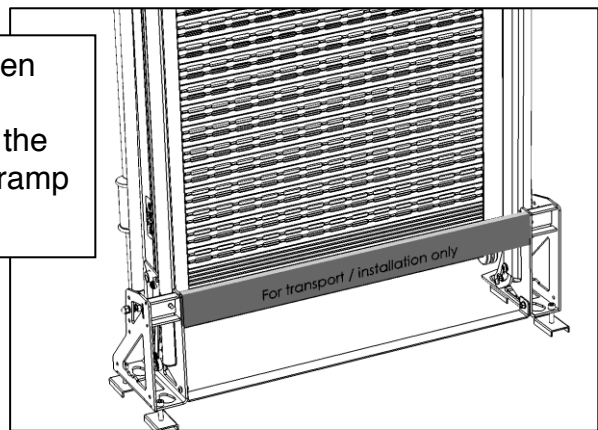
7.2 Quick lock



Mechanical Installation
 Always create a safe working environment. As the weight of the ramp exceeds 25Kg; it is advisable for **two people** to be needed for lifting the ramp in or out the vehicle.



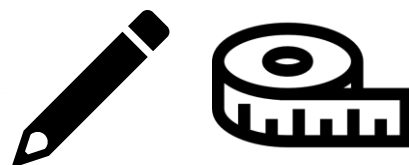
Do not remove the wooden and steel transportation distance pieces between the feet assemblies until the ramp is fitted into the vehicle.

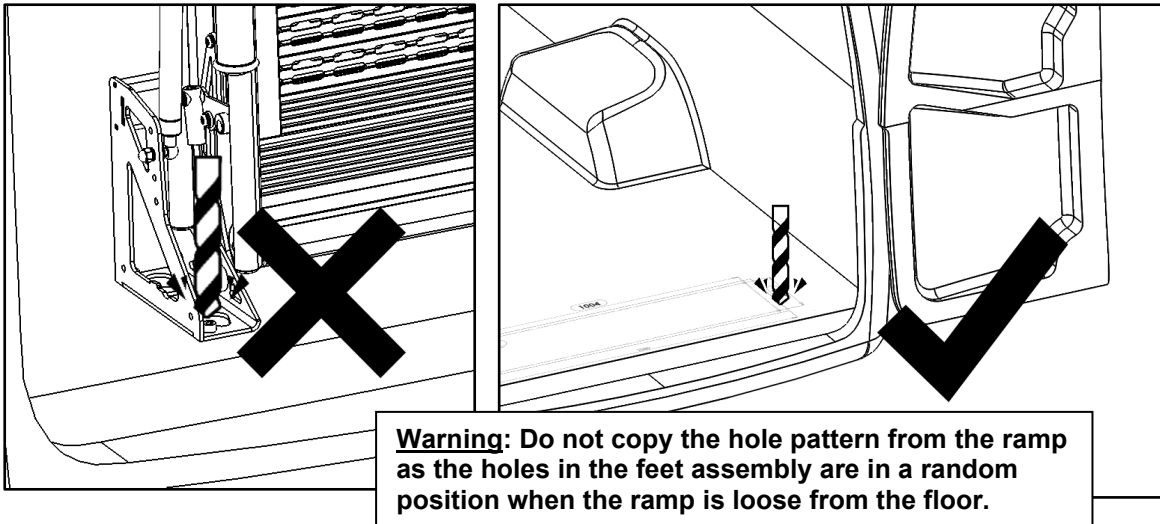


Distance ramp - door is 3 to 7 cm

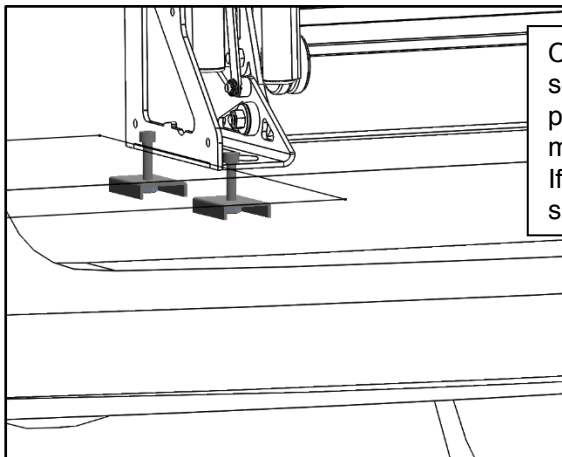
Locate the exact position where the ramp will be fitted at the floor. The ramp should be placed as close as possible to the door, leaving 3-7cm clearance space when the door is closed.

Mark out the position for the 4x M10 mounting bolts for the Mounting plates. Drill the 4 (Ø10.5mm) holes through the floor in a rectangular pattern of 956mm x 155 mm this is a different pattern as for fixed installation

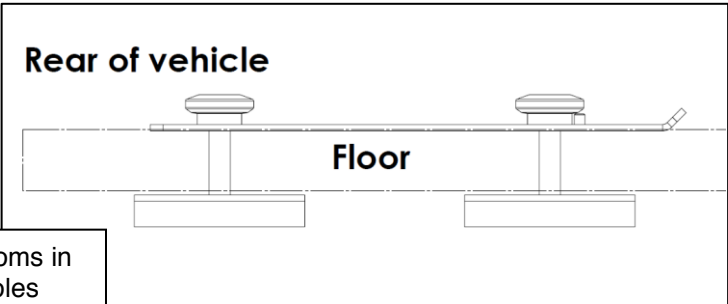




Warning: Do not copy the hole pattern from the ramp as the holes in the feet assembly are in a random position when the ramp is loose from the floor.

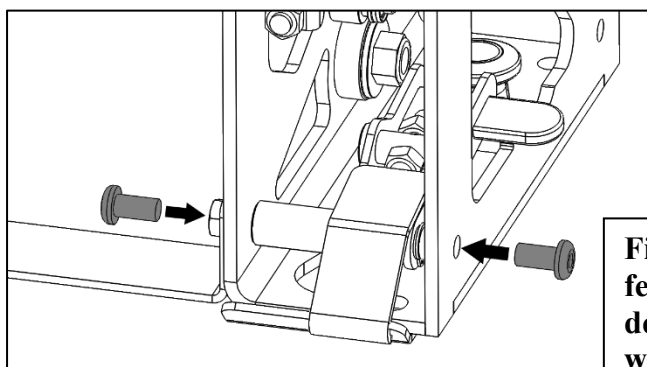
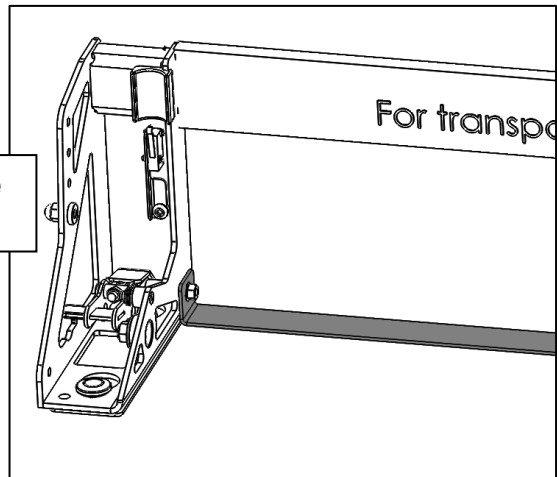


Check under the vehicle for the position of the chassis. In some applications the reinforcing U-profiles may not fit properly, in such cases the U-profile will need to be modified to make it fit. If a new back-up plate is required please use one with a similar surface area of 35 cm² to fit the requirements.



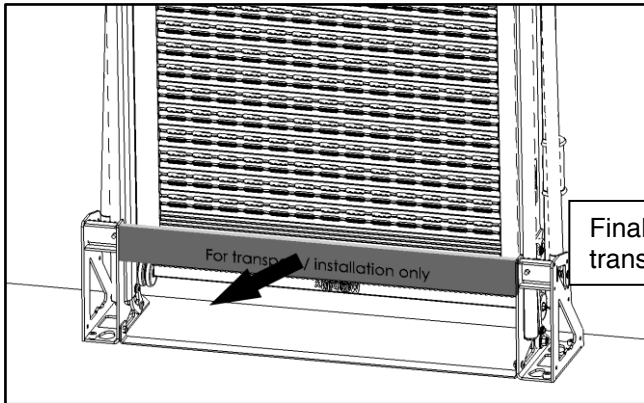
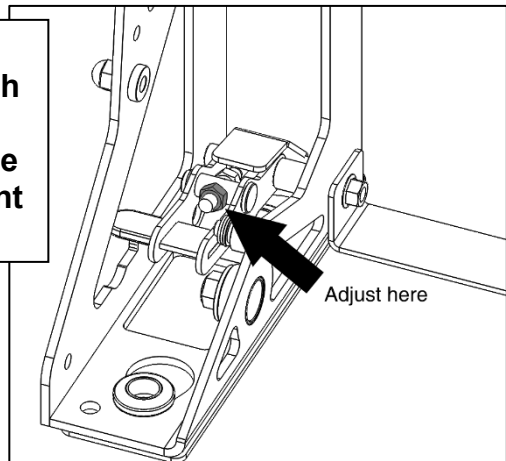
Place the two mounting plates with the mushrooms in the vehicle and fix using the M10 bolts. If the holes are going through the chassis, longer bolts may be needed. These bolts can be purchased from a local supplier. Bolts used must be to DIN 912 / ISO 4762 specification M10 x length (as req'd) – 10.8

Place the distance bar between the two feet assemblies



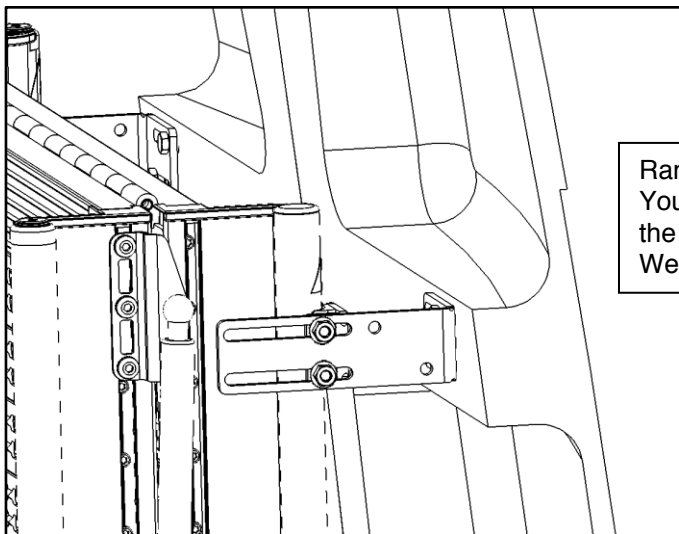
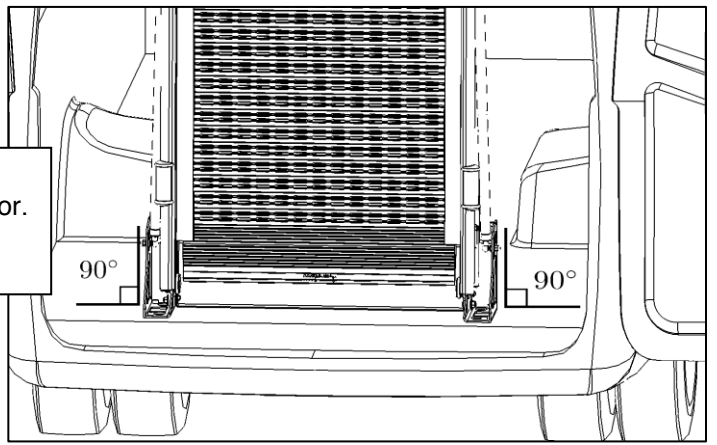
Fit the toggle device at the left and right feet. Carle full there is a left and right device. Fix with the two M8 screws together with the distance bar.

Place the ramp in the vehicle and slide over the mushrooms / mounting plate with the slot holes.
Lock with the toggle device and adjust the toggle if needed to get a tight fit to prevent the ramp from rattling.

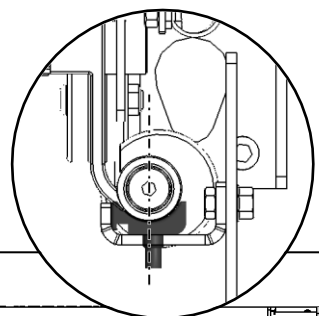


Finally remove the wooden transportation distance piece.

Check if the Feet assembly is standing straight under 90° with the floor. If not tighten or loose the M10 fixations bolts

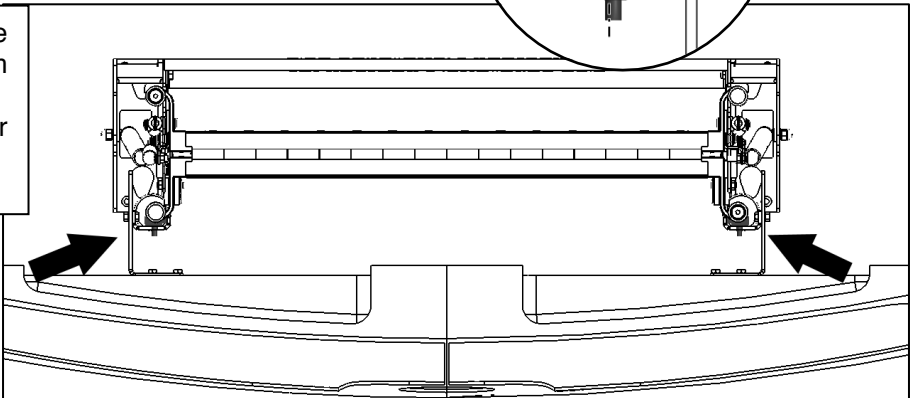


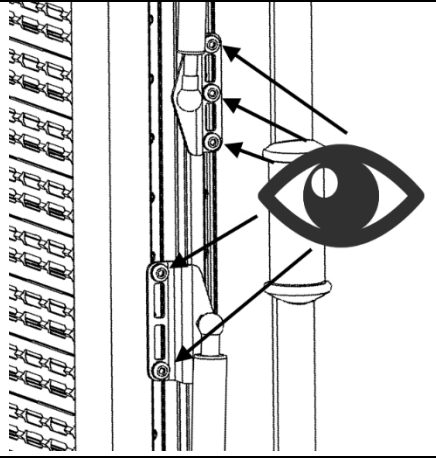
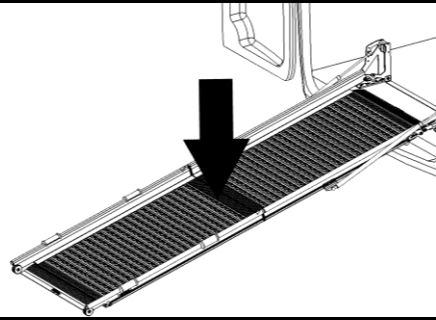
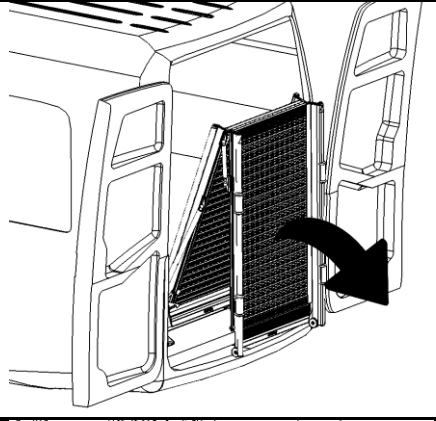
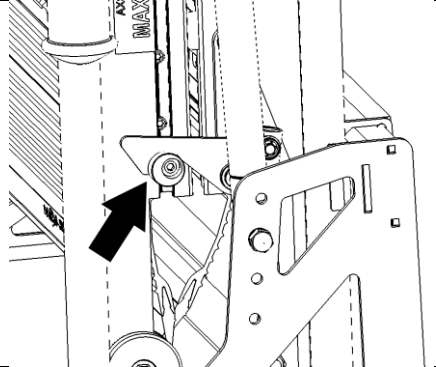
Ramp stop / Ramp Anti rattling device.
You will also need to install the ramp stop at the door to prevent the ramp for rattling or hitting against the rear door/window. We recommend positioning this as high as possible at the door



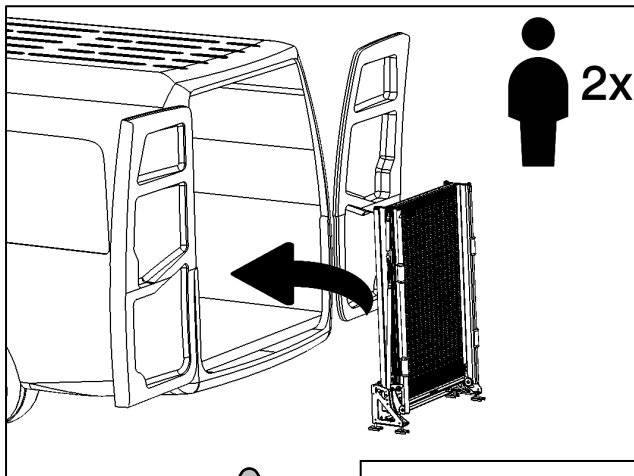
The bracket needs to be fitted with the two rivet nuts M8. (Drill Ø11 mm holes).
Position the bracket so that the rubber aligns with the rail of the ramp.
Place brackets left and right

Adjust the brackets so the ramp is held tight when the door is closed.

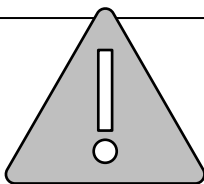
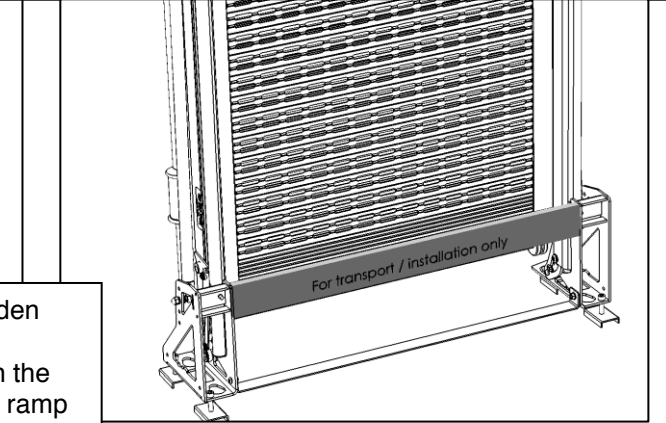


<p>Before using the ramp: The ramp should always be tested after installation. Follow the following instructions</p>	<p>checked</p>	
<p>MOUNTING – Check that all bolts on the ramp are in place and tightened. Check that the MAX load stickers are on the ramp</p>		
<p>MOUNTING – Unfold the ramp and load it with the max load as indicated at the ramp or approx 4-5 people. Check that the fixing & fitting of the ramp is strong enough for this weight.</p>		
<p>OPERATION – Move the ramp in and out to check that all moving parts are running freely.</p>		
<p>Check that the ramp closes properly into the auto lock The black nylon roll is eccentrically and can be adjusted if the ramp lock is to loose. See 8.2 A loose lock will give a rattling noise.</p>		
<p>If this small test procedure is followed with success the ramp is ready to be used. If one of the steps is failed please resolve the problem before putting the ramp in to service use.</p>		

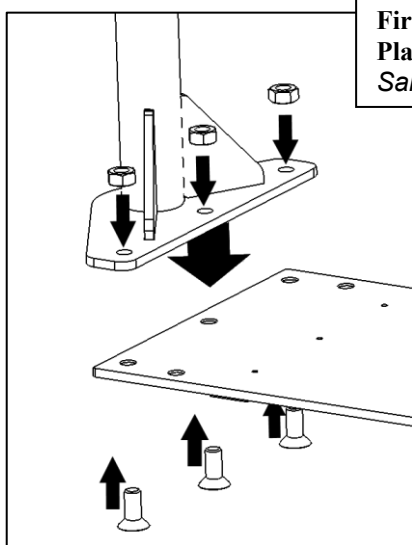
7.3 Turning device



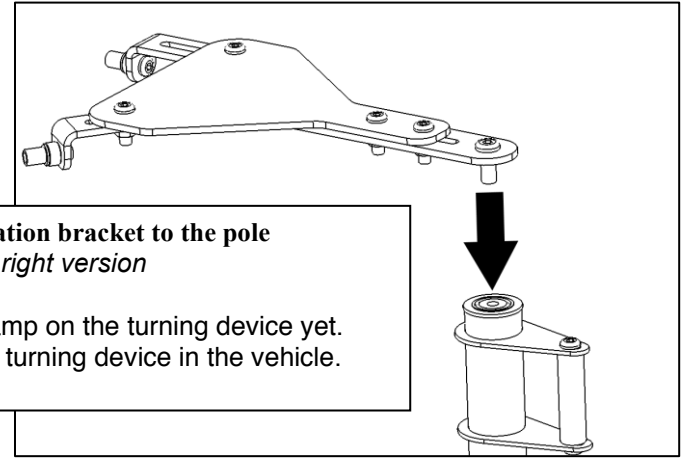
Mechanical Installation
 Always create a safe working environment. As the weight of the ramp exceeds 25Kg; it is advisable for **two people** to be needed for lifting the ramp in or out the vehicle.



Do not remove the wooden and steel transportation distance pieces between the feet assemblies until the ramp is fitted into the vehicle.

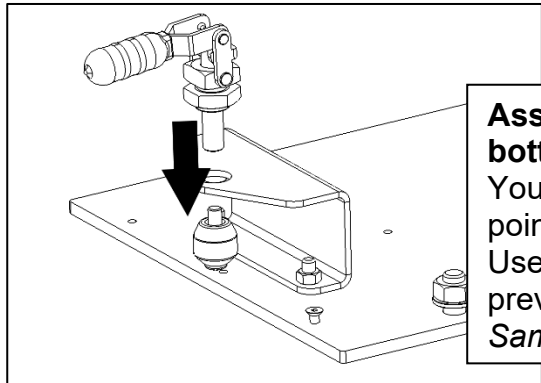


First assemble the turning device.
Place the pole at the bottom plate and fix with the 3 bolts (M10)
Same for Left or right version

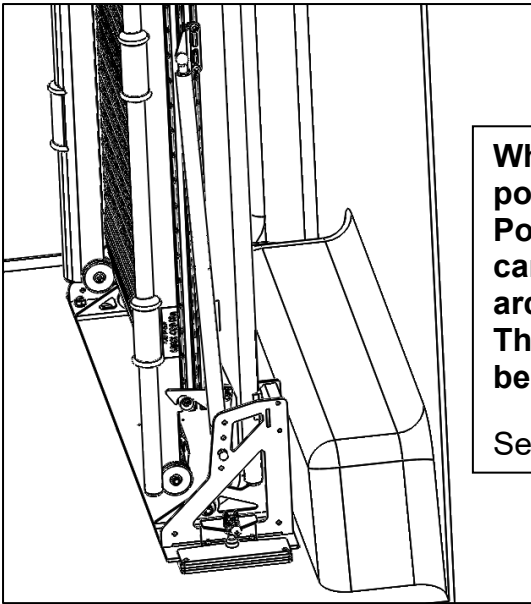


Fix the upper fixation bracket to the pole
Same for Left or right version

Do not put the ramp on the turning device yet.
 First position the turning device in the vehicle.

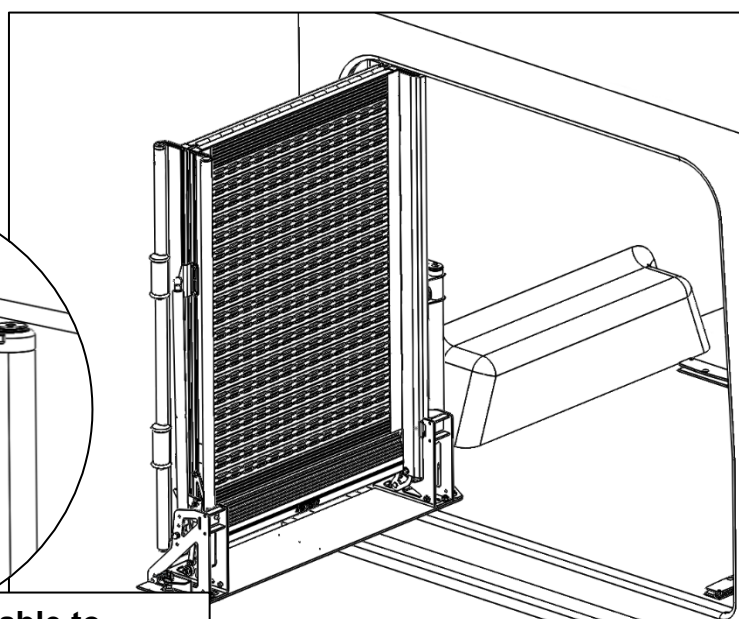
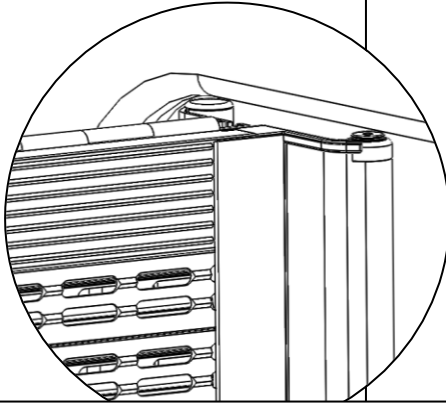


Assemble the lock and the centre piece in the bottom plate assembly.
 You can choose the direction of the locking lever pointing side or rear
 Use blue Loctite on the M6 wire from the center piece to prevent it from loosening
Same for Left or right version

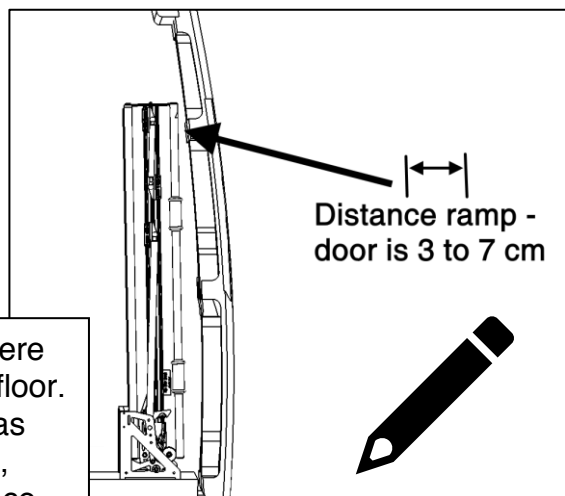


When the ramp must have a swing in stow position:
Position the turning device in such a way that it can turn inside but does not collide with the wheel arch.
This only applies when the ramp must be able to be turned to an inside stow position

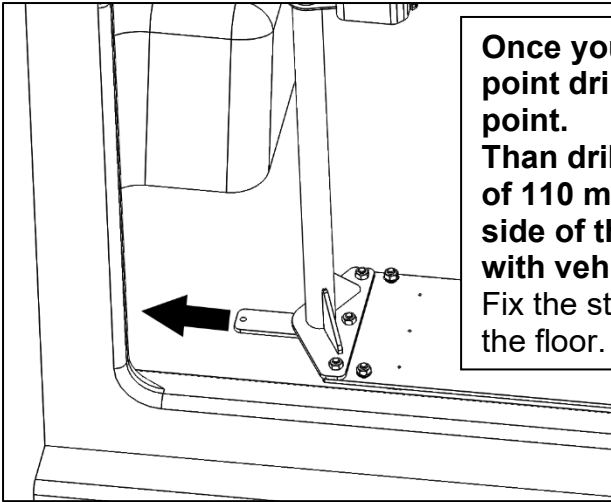
See below sketch with approximately dimensions



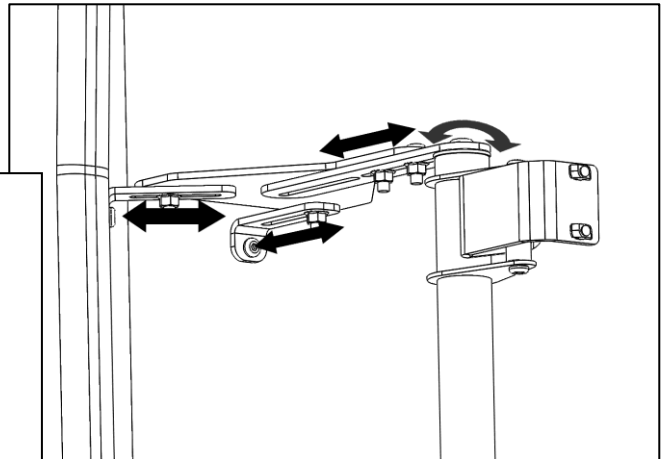
In case the ramp should only be able to swing out, you should position the swing unit in such a way that it stays clear from the door post in the swing out position
Important note:
 Ensure that the ramp will stay free from the door post if the door post curves in at the top of the door. As you have not fitted the ramp at the turning device yet, you should pull down a line from the imaginary highest point of the ramp projected at the doorpost down to the turning device.



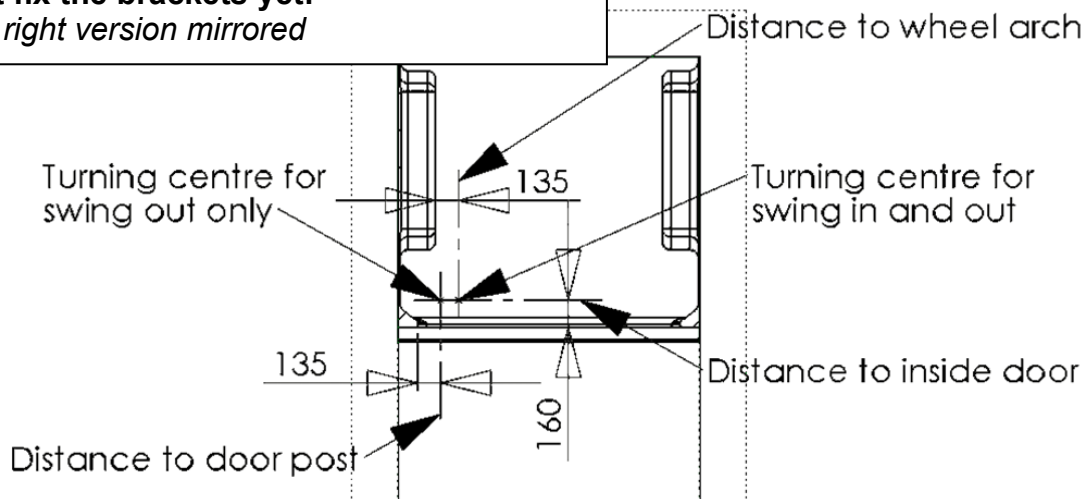
Locate the exact position where the ramp will be fitted at the floor. The ramp should be placed as close as possible to the door, leaving 3-7cm clearance space when the door is closed.



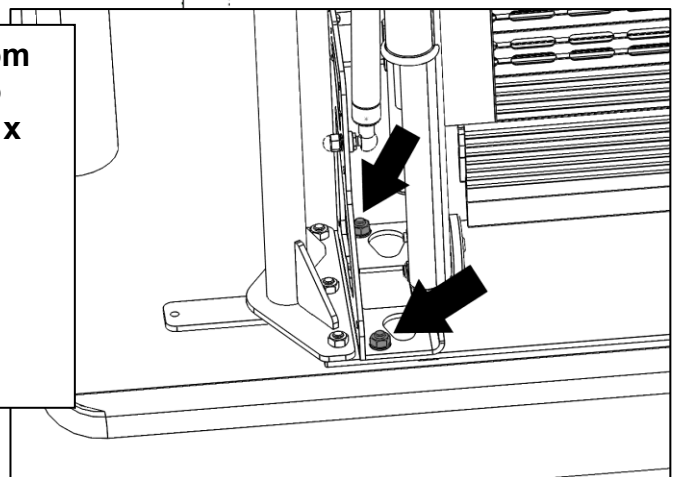
Once you have determined the position of the turning point drill a hole of 11 mm in the floor at the turning point.
 Then drill a second hole of 11 mm at a center distance of 110 mm from the first hole, in the direction of the side of the vehicle so that the strip stands at 90 deg with vehicle direction.
 Fix the strip from the pole with the M10 wire struts through the floor. (you will need to remove this later)

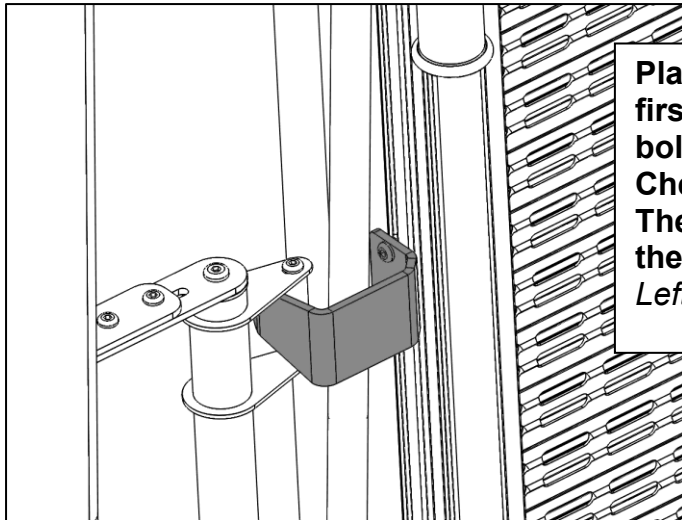


Move the top fixation bracket as close as possible to the wall. Then position the two fixation 90 deg brackets on the wall and position at a place where you have a firm counter section in the wall.
 Note that all brackets are adjustable.
 Drill two 11 mm holes and fix the rivet nuts in the wall.
Do not fix the brackets yet!
Left or right version mirrored



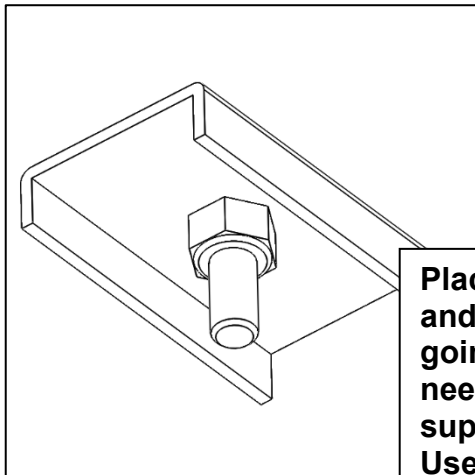
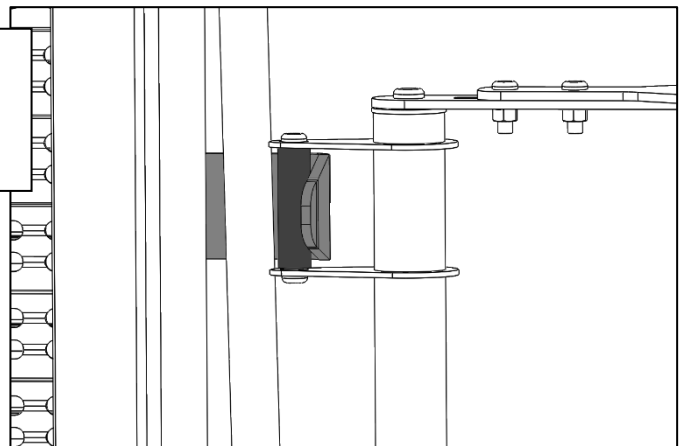
Remove the turning device from the vehicle and fix the ramp to the turning device using the 4 x M10 countersunk bolts.
 Once fitted to the turning plate, remove the steel and wooden distance piece between the feet assemblies
Left or right version mirrored



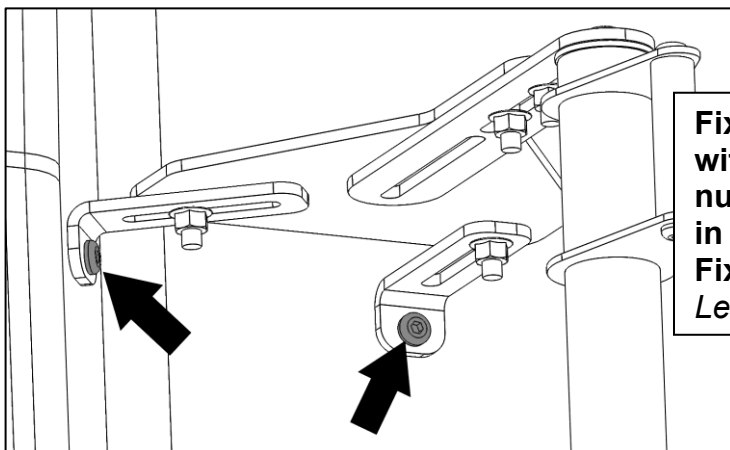


Place the hook at the slit in the first (inner) platform using the M8 bolts and T Nuts.
Check the T Nuts after fitting.
They must be under 90 deg with the profile
Left or right version mirrored

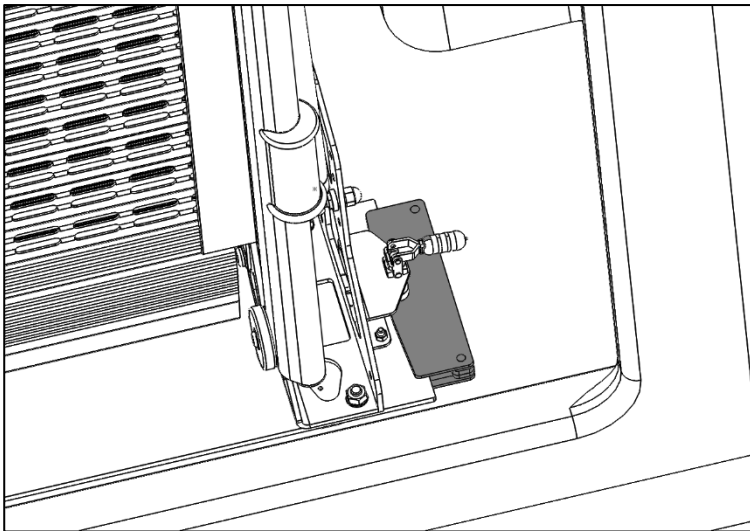
The hook should be aligned with the center of the lock roll (approximately)



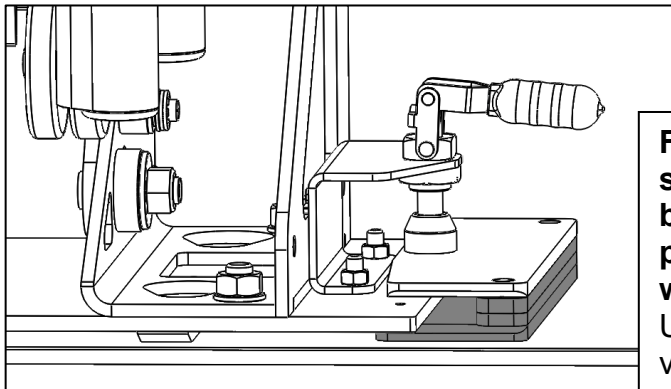
Place the ramp and the turning device in the vehicle and fix using the M10 wire struts. If the holes are going through the chassis, longer struts may be needed. These struts can be purchased from a local supplier.
Use the U shape counter brackets under the vehicle.



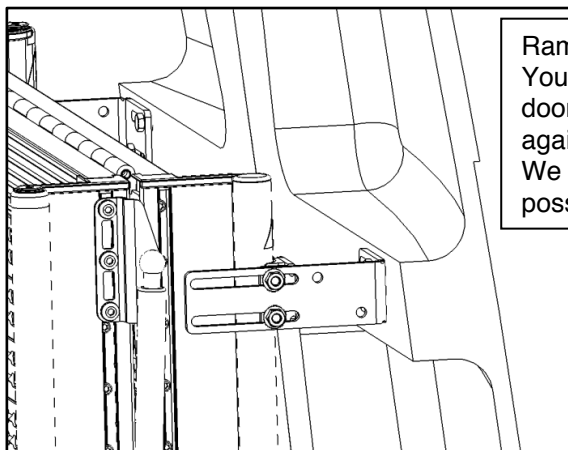
Fix the top bracket to the wall with the two M8 bolts at the rivet nuts that already have been put in place.
Fix all bolts firmly
Left or right version mirrored



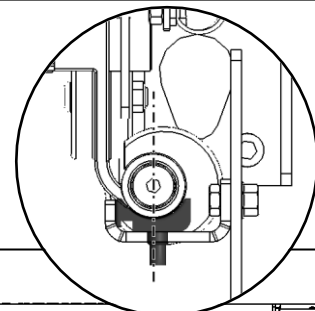
Place the lock plate (red part in picture) in the lock on the bottom plate and close the lock. Make sure the lock plate is aligned with the side of the bottom plate. Align the ramp / bottom plate with the rear of the vehicle floor. Make two centre points in the floor - with a drill of 8 mm drill through the two holes from the lock plate. Then remove the lock plate and drill with a drill of 11 mm through the floor. If the ramps needs to be stowed at the 90 deg inside position, repeat this exercise in this position.
Left or right version mirrored



Fix the lock plate(s) with enough spacers at the floor. Adjustment should be made in such a way that the bottom plate slides easily under the lock plate with very little play. Use the U shaped counter plates under the vehicle floor

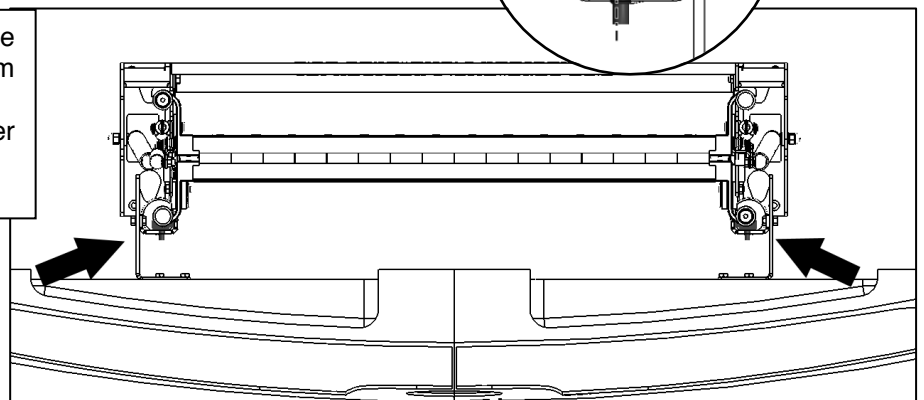


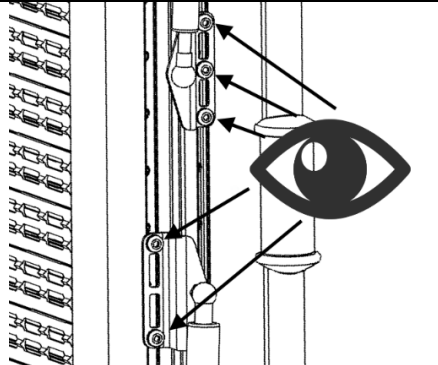
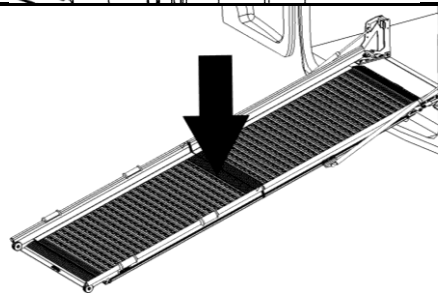
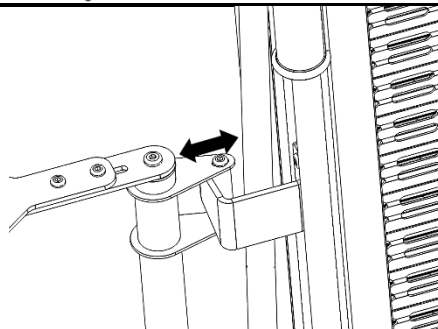
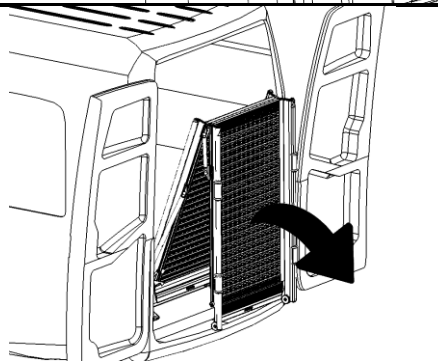
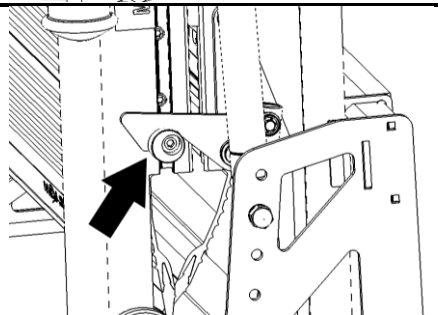
Ramp stop / Ramp Anti rattling device. You will also need to install the ramp stop at the door to prevent the ramp for rattling or hitting against the rear door/window. We recommend positioning this as high as possible at the door



The bracket needs to be fitted with the two rivet nuts M8. (Drill Ø11 mm holes). Position the bracket so that the rubber aligns with the rail of the ramp. Place brackets left and right

Adjust the brackets so the ramp is held tight when the door is closed.



<p>Before using the ramp: The ramp should always be tested after installation. Follow the following instructions</p>	<p>checked</p>	
<p>MOUNTING – Check that all bolts on the ramp are in place and tightened. Check that the MAX load stickers are on the ramp</p>		
<p>MOUNTING – Unfold the ramp and load it with the max load as indicated at the ramp or approx 4-5 people. Check that the fixing & fitting of the ramp is strong enough for this weight.</p>		
<p>The lock roller can be adjusted in the slot hole. Swing the ramp to the outside position and then swing it back into the vehicle. When closing the ramp it should pass easily back over the vehicle floor. If there is too much collision with the floor you need more pre-load on the hook. The roller needs adjustment in direction of the arrow. <i>Left or right version mirrored</i></p>		
<p>OPERATION – Move the ramp in and out to check that all moving parts are running freely.</p>		
<p>Check that the ramp closes properly into the auto lock The black nylon roll is eccentrically and can be adjusted if the ramp lock is to loose. A loose lock will give a rattling noise.</p>		
<p>If this small test procedure is followed with success the ramp is ready to be used. If one of the steps is failed please resolve the problem before putting the ramp in to service use.</p>		

Maintenance

7.4 Cleaning

The ramp must be cleaned in the normal cleaning schedule of the vehicle, depending on the use of the vehicle and the dirtiness of the operation. Normal non-aggressive cleaning materials, as used for cleaning the other parts of the vehicle, should be used.

Do not use aggressive solvents; these could affect the paint, rubber and glue as used at the ramp.

7.5 Periodical maintenance

The product is maintenance free. This means that it is not necessary to grease any of the moving parts.

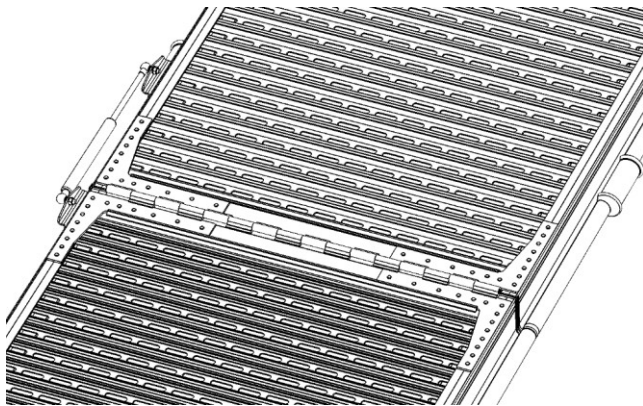
7.6 Yearly inspection

The inspection of the ramp can only be done by a company that is familiar with ramps and lifting devices and which has trained staff.

This is a people caring device. ACDEOS recommends inspection maintenance should be carried out yearly or at intensive use every 3-6 months

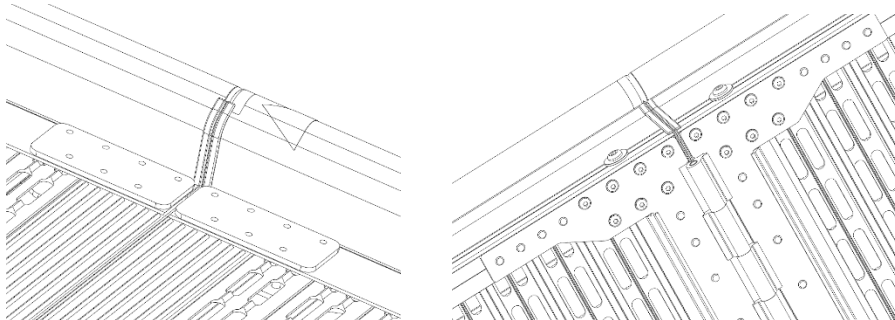
The following points should be checked every inspection.

1. Check the hinge area for stress cracks and loose rivets



2. Check All bolts and screws on the ramp are fixed and in place
Bolts need to be fixed with Blue Loctite.
fixation of M8 bolts with 30 Nm. M10 bolts 44 Nm.

3. For special UK versions also check the additional hinge reinforcements as on below picture.



4. Check that the max load stickers in place and good condition
5. Check if the anti-slip of the platform is still sharp.
6. Check if the platform is straight when it is unfolded to the ground. If not adjust following section 8.4

If any repairs are needed we refer to the section 8 repairs. Finally a general impression of the ramp is needed to decide whether it is safe for another inspection period in service.

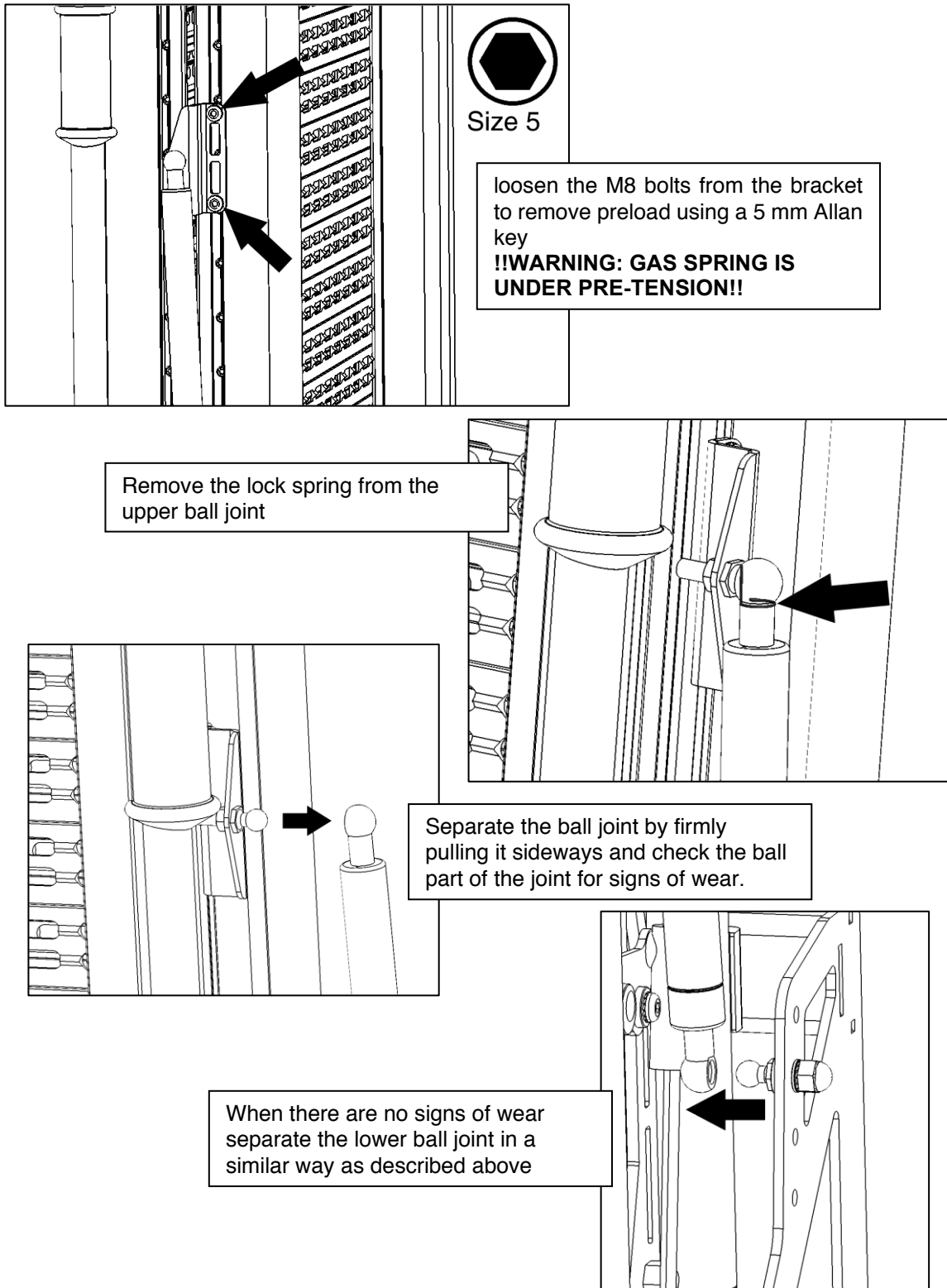
8 Repair

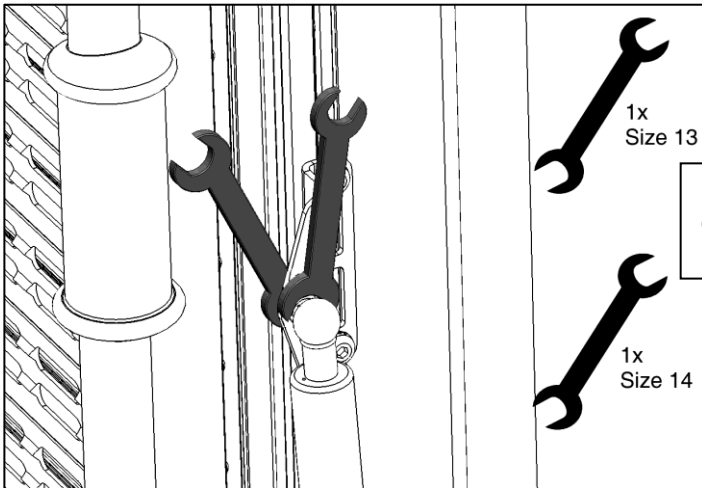
The repair of the ramp is simple and can be done with the normal available workshop equipment and tools. All bolted or screwed parts can be replaced by workshop personal with average technical skills. Replacement of these parts does not need further instructions.

8.1 Replacement of Gas springs

!! Careful the gas springs are mounted under pre-tension!!

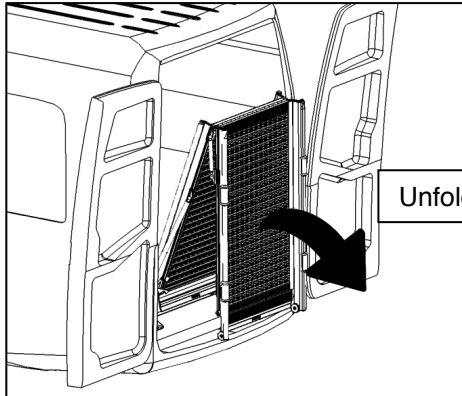
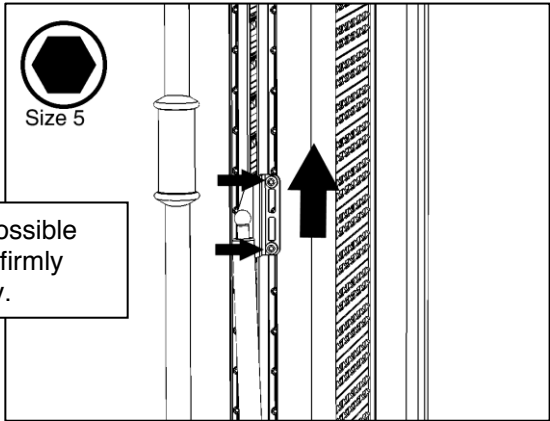
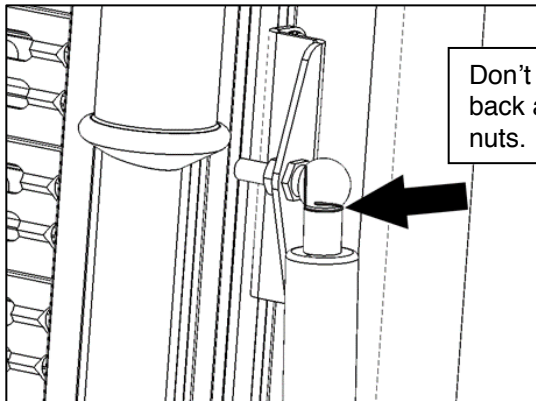
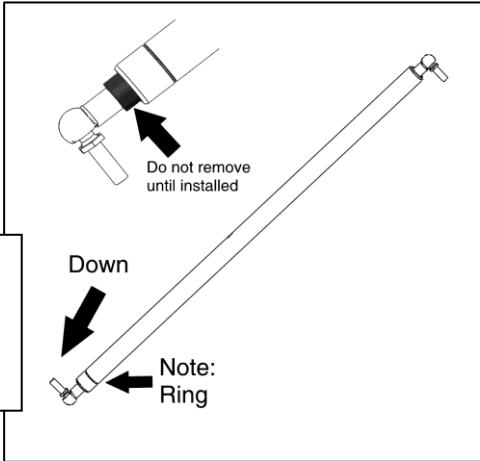
Follow these instructions to replace them:



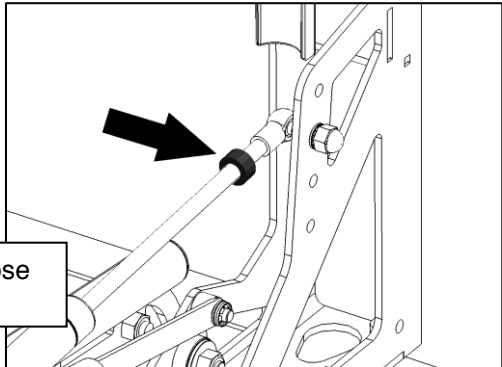


In case of signs of wear remove the entire ball joint using a spanner size 13 and 14

Put the new gas spring in place.
Do not remove the pre-tension rings before the gas spring is installed.



Unfold the ramp

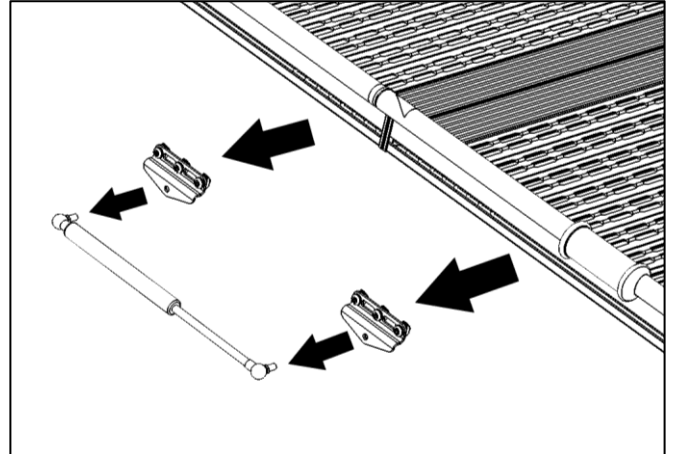
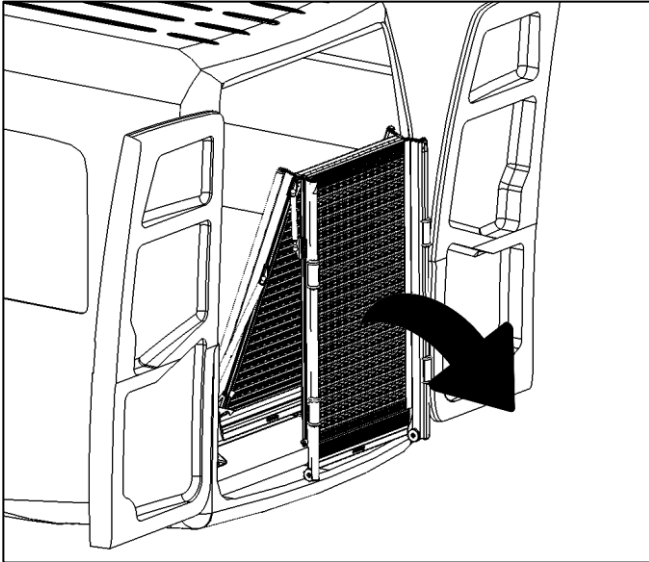


Remove the pre-tension rings, close the ramp and you are ready.

8.2 Replacement of middle gas spring

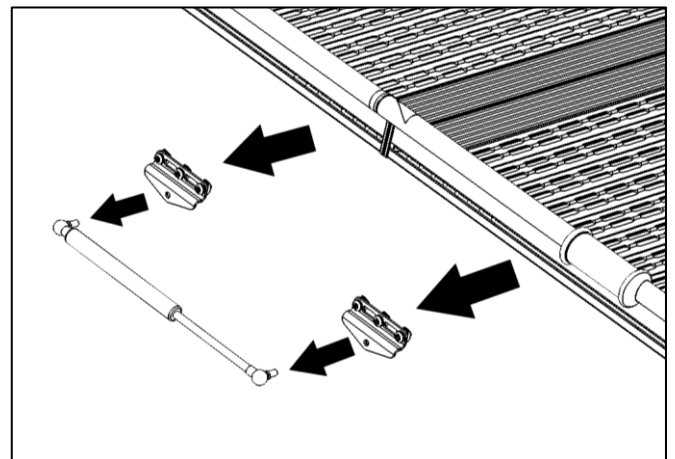
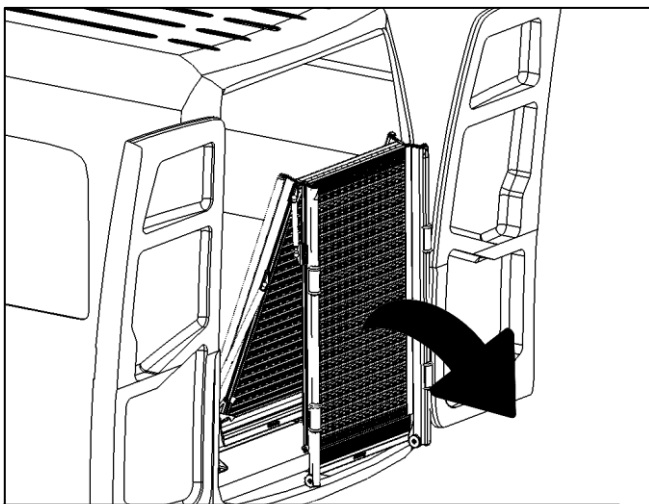
Important note. Since 2021 the middle gas spring is not fitted any longer at the ramps. So in case of malfunction of the middle gas you can remove it without replacement.

disassembly

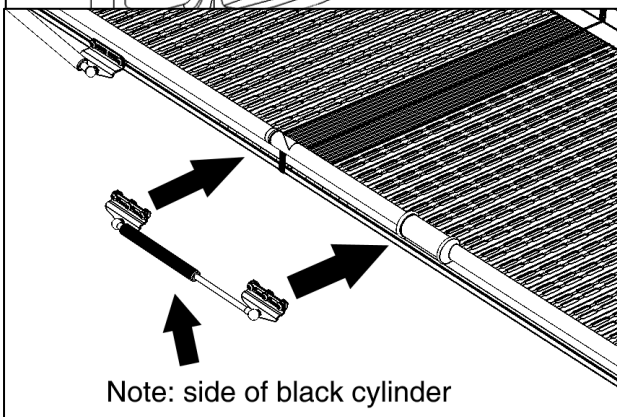


Unfold the ramp, remove the middle gas spring from the ramp and take off the brackets.

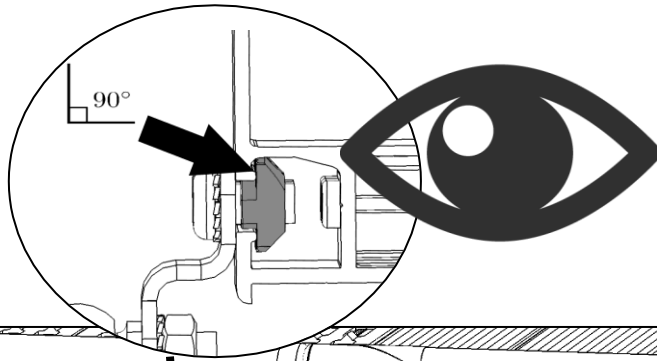
assembly



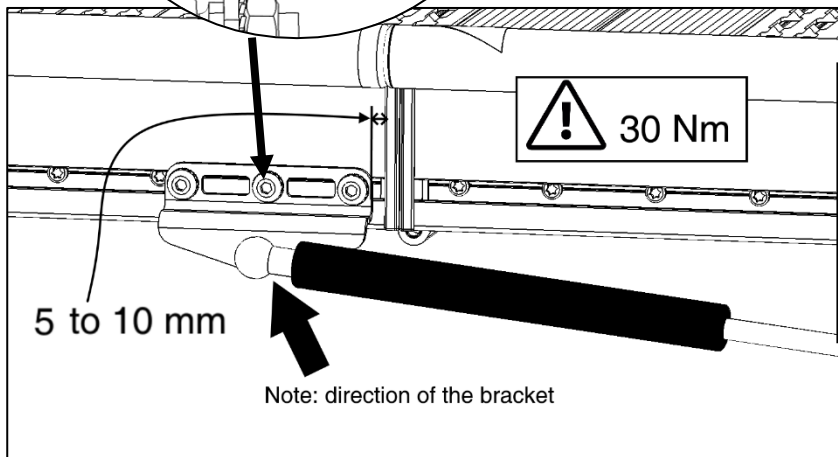
Unfold the ramp, remove the middle gas spring from the ramp and take off the brackets.



Fix the gas springs to the brackets or mounting plates before installing on the ramp.

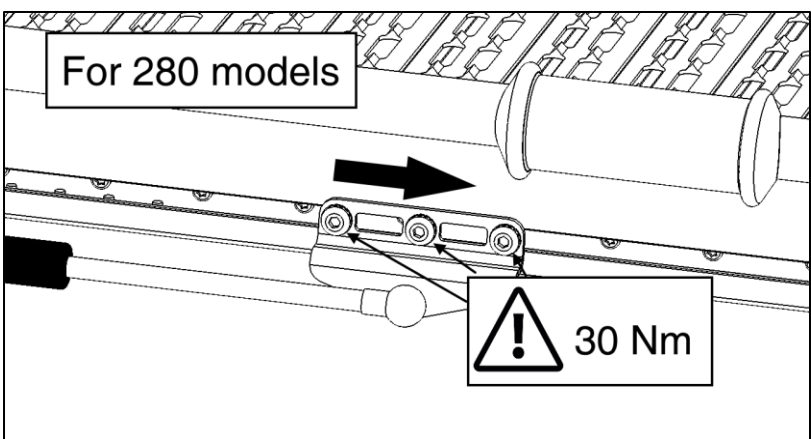


When fixing the bolts to the platform check that the T-nuts are at 90 degrees to the platform so they have a firm grip



First fit the bracket at the first or upper platform
Position is 5- 10 mm from the edge.
Standard is 7 mm
5 mm for less force 10 mm for more force opening the two platforms from each other, tighten to 30 Nm

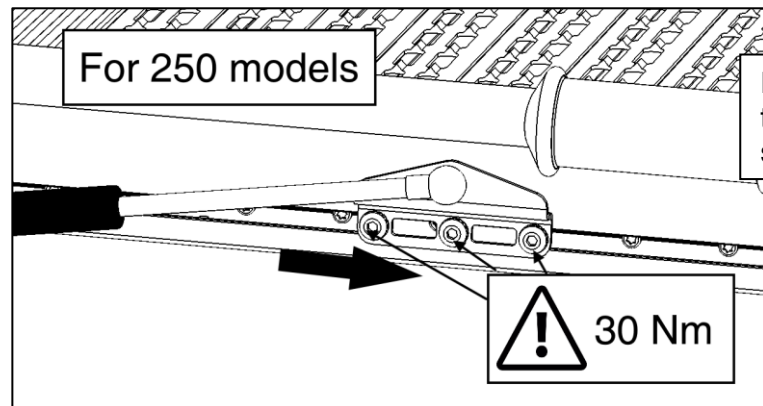
For the 280 models the 2nd bracket should be placed as shown right.



For 280 models

30 Nm

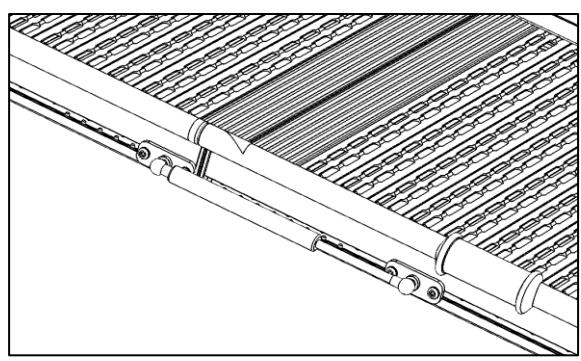
For 250 models



For the models of the 250 series, the bracket should be placed as shown left.

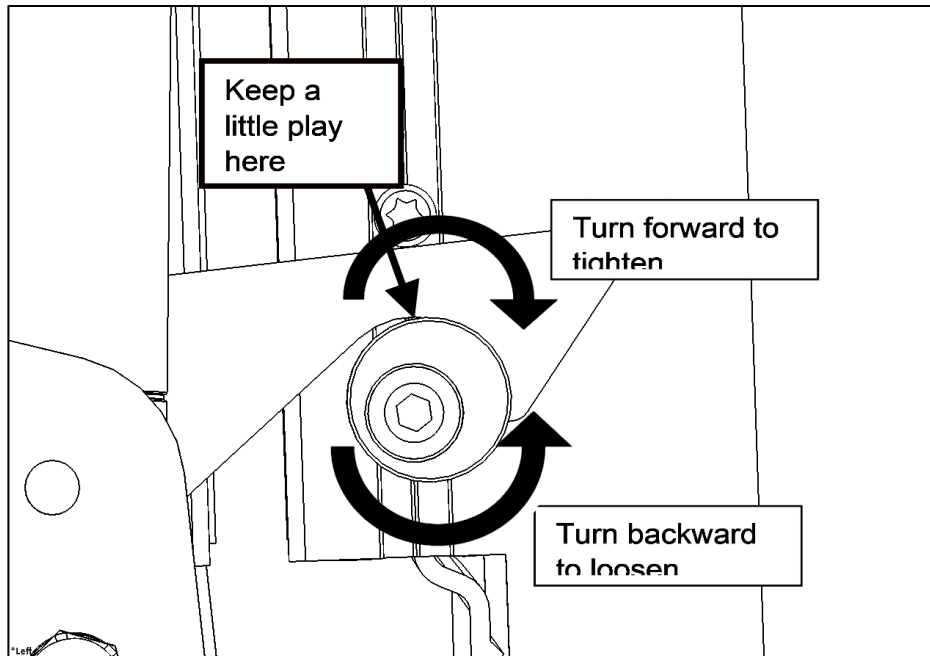
30 Nm

The drawing on the right shows the situation for an heavy duty ramp and gas spring.



8.3 Adjustment of the auto lock

If the auto lock is too loose it could cause rattling. If it is adjusted to tight it can cause problems with closing. The Lock adjustment is very easy. The lock roll is eccentric. Loosen the M8 bolt in the roll a bit and turn the roll back wards to loosen, or forward to tighten the lock. In closed position the lock roll should, on the top, have a little play with the lock arm. Firmly tighten the M8 bolt after adjustment



8.4 Adjustment of the platform

The straightness of the platform can be adjusted at the center hinge. In two possible ways: There are two M10 bolts at the left and right side of the platform around the center hinge that can adjust straightness of the platform.

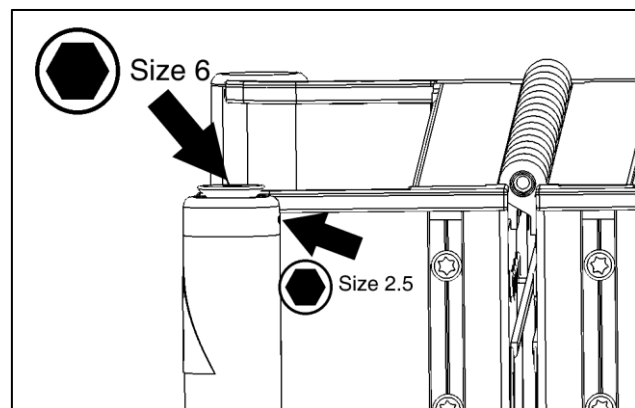
Older versions;

The M10 bolts are secured by a small setscrew. Loosen the setscrew with a 2,5 mm Allen key.

Adjust the platform with the two M10 bolts. (6mm Allen key)

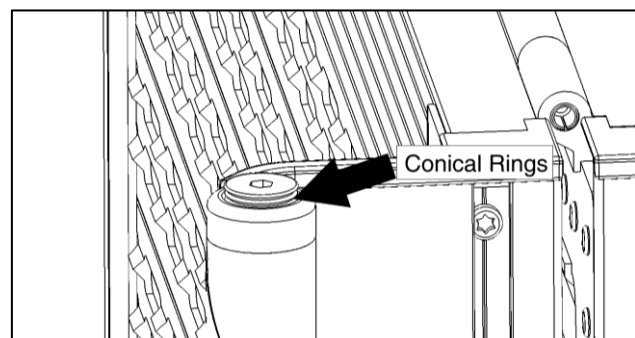
Make sure you adjust left and right in the same way.

Fix the bolts with the setscrews.

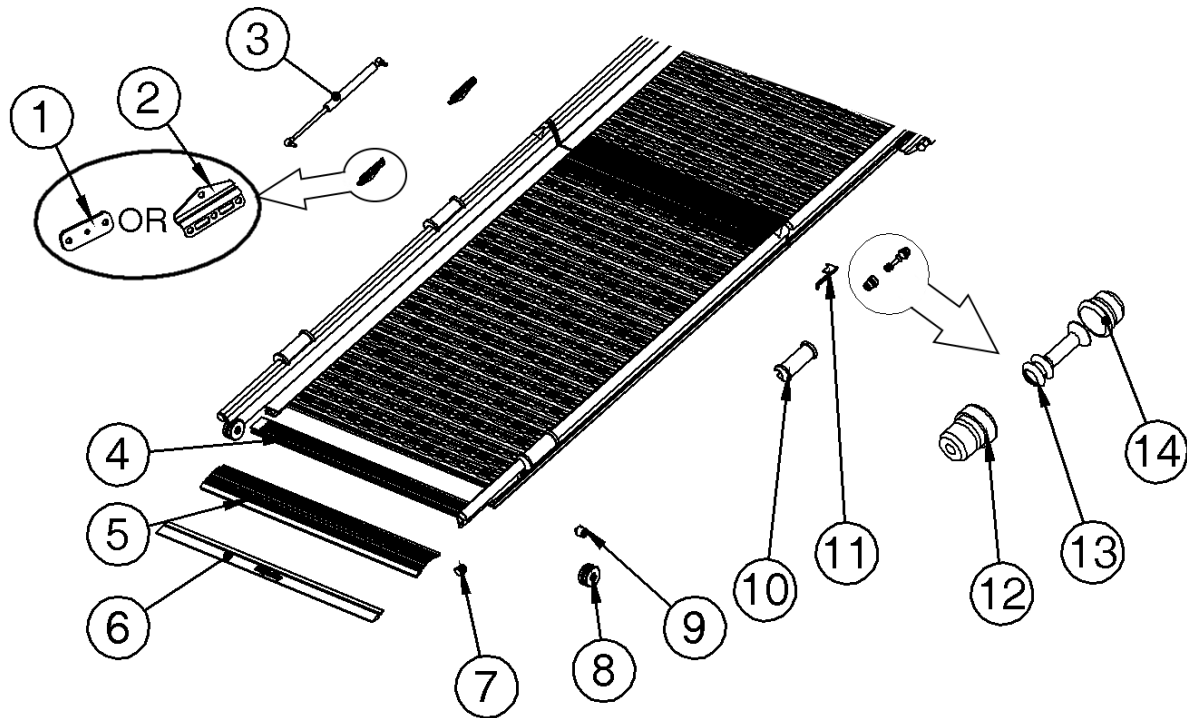


New version;

Take out the large bolt, add or remove conical rings and tighten the bolt again, make sure there are equal amounts of conical rings on each of the bolts. (conical rings part number is AR 380)

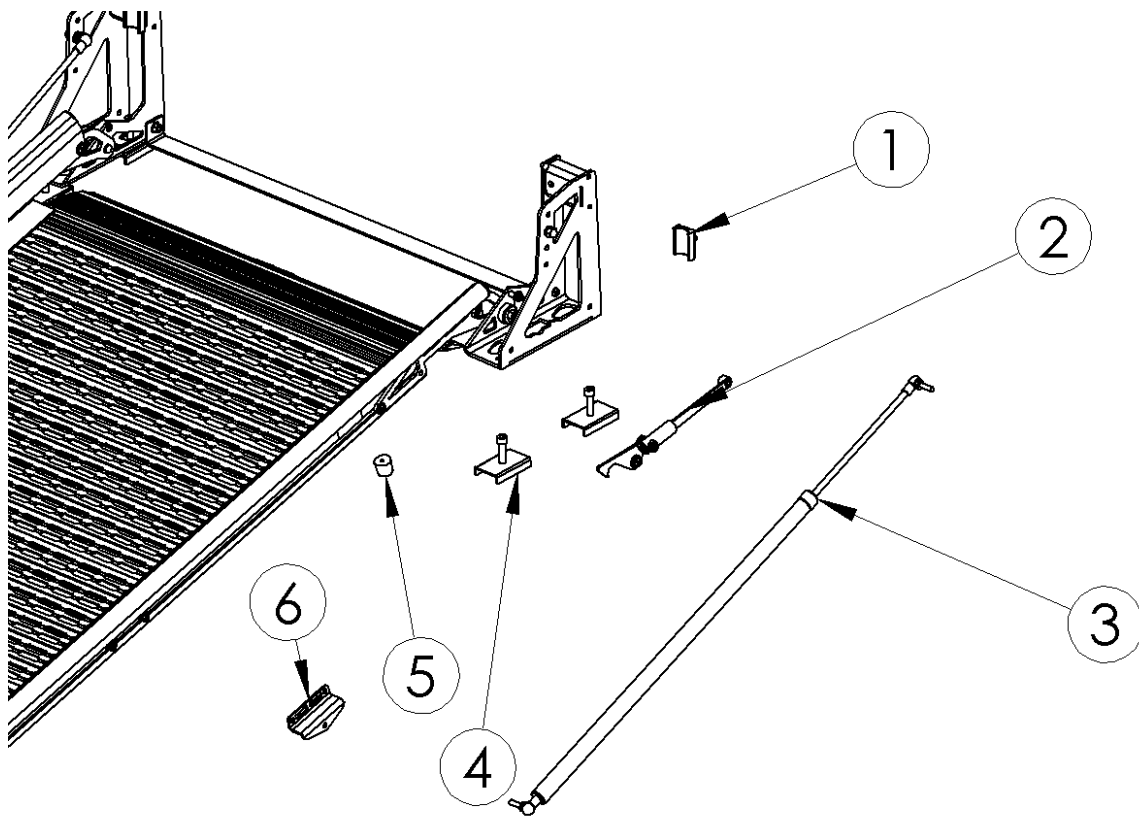


9 Spare parts



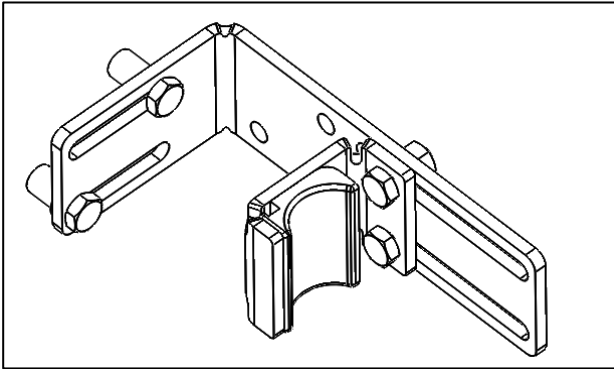
item	Part description	Part number
1	Mount block middle gas spring	AR 374
2	Bracket middle gas spring	AR 121
3	Middle gas spring	AR 055
4	End profile	AR 312
5	End flap Alu part	AR 242
6	End flap rubber part	AR 060
6a	End flap with Logot	AR 243
7	End Alu cap	AR 053
8	Wheel kit (new)	AR 200 079

item	Part description	Part number
8a	Sliding Wheel (old)	AR 020
9	Lock roll	AR 022
10	Handgrip	AR 117
11	Black plastic middle end cap (left)	AR 245
11a	Black plastic middle end cap (Right)	AR 244
12	Alu end cap (Bolt side)	AR 077
13	Conical ring	AR 380
14	Alu end cap	AR 053

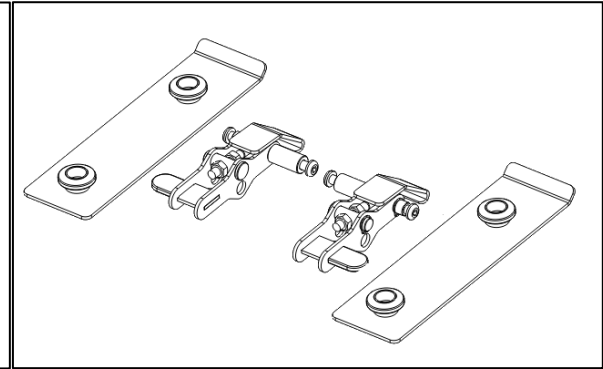


item	Part description	Part number
1	Rubber bump stop	AR 075
2	Lock mechanism left	AR 200 005 / 004 + AR 032 / 116
2a	Lock mechanism right	AR 200 006 / 004 + AR 032 /116
3	Lower Gas Spring	AR 200 060
4	Mounting kit 1x	AR 200 023
5	Bump stop	AR 047
6	Bracket gas spring	AR 360

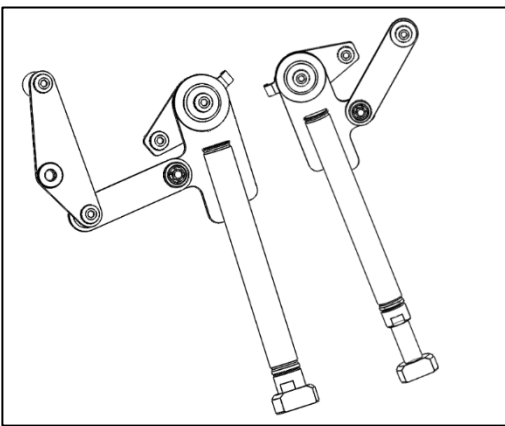
10 Additional kits



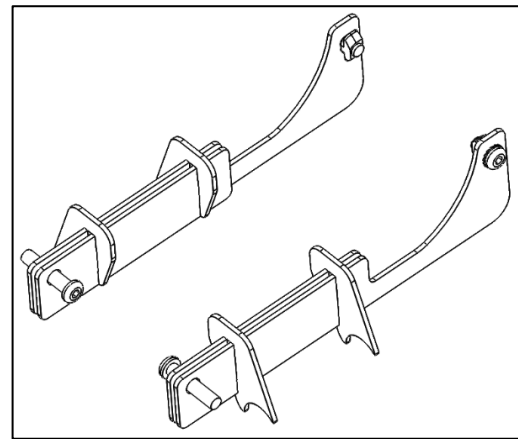
Door stop kit AR 200 032



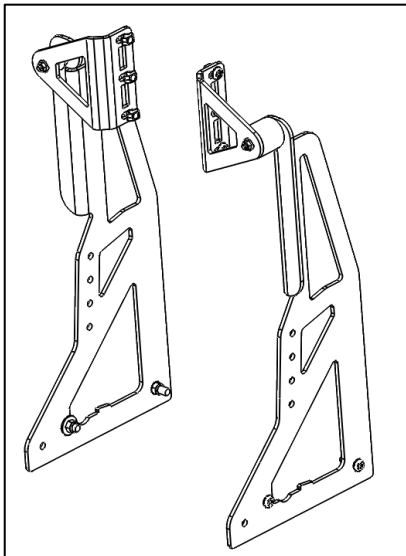
Quick out kit AR 200 043



600 Kg leg kit AR 200 091



HD wheel fixing kit AR 200 092



Bump stop kit AR 200 096

Stickers	
Operation Sticker	AR 381
Sticker pinch warning	AR 273
Yellow edge stickers	AR 270

11 Environment

The AXS ramp is made of durable materials which can all be recycled. Each different material can be easily being separated for individual recycling.

12 CE Certification

Certification

Product	Product description AXS FL Ramp Manual operated wheelchair ramp
Type	AR FL 210-8/2 AR FL 250-8/2 AR FL 280-8/2 AR FL 280-10/2
Company	Production under responsibility of Acdeos BV
Address	Touwbaan 1A
City	2352 CZ Leiderdorp
Country	Netherlands
Website	WWW.ACDEOS.COM
Legal represented by	Mr. A de Moes
	Conformity Product is designed, tested and produced conform: The loading recommendations in the Machine directive 2006/42/EC and NEN-EN 1756-1 Ramp is tested for a maximum weight of 400 Kg

On behalf of producer:
Name / Function
A de Moes / Engineering
Date
12 December 2012
Place
Leiderdorp, Netherlands



13 M1 Certification

M1 Self Certification

Product	Product description AXS FL Ramp Manual operated wheelchair ramp
Type	AR FL 210-8/2 AR FL 250-8/2 AR FL 280-8/2 AR FL 280-10/2

Company	Production under responsibility of Acdeos BV
Address	Touwbaan 1A
City	2352 CZ Leiderdorp
Country	Netherlands
Website	WWW.ACDEOS.COM
Legal represented by	Mr. A de Moes

Conformity

Product is, tested following the M1 test procedures for car seating.
The ramp construction is strong enough resist a 20G force corresponding 76/115 EC in standing (closed) position

On behalf of producer:

Name / Function

A de Moes / Engineering

Date

22 February 2013

Place

Leiderdorp, Netherlands



DATENBLATT ZUGPRÜFUNG

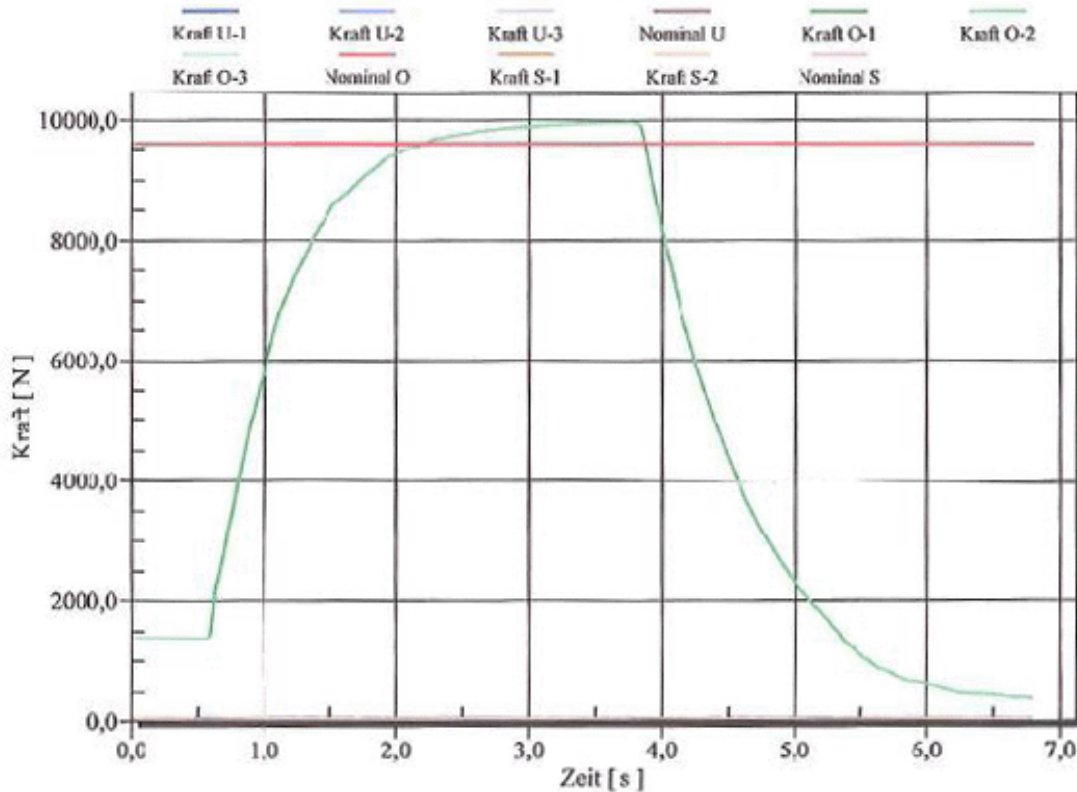
nach **M1**



Datei:	D:\Zuganlage\Daten\2013\02-2013\ACDEOS AR 28_8_2(21.02.2013)V1		
Bearbeiter:	Hr. Lex de Moes; B. Pfiffer	Zeichnung-Nr.:	
Datum:	Do 21.02.2013 V1	Prüfgestell:	Fiat X250
Prüfling:	AR28-8/2	F_rom oben:	9613 N
Masse:	49 Kg	F_rom unten:	0 N
Kurznotiz:	F_rom S-Kräfte: 0 N		
Zw. 7° Masseschwerpunkt 720 über Boden; Vorverlagerungsmessung auf dieser Höhe			

KRAFT - ZEIT - DIAGRAMM

Sensoren: HBM S9



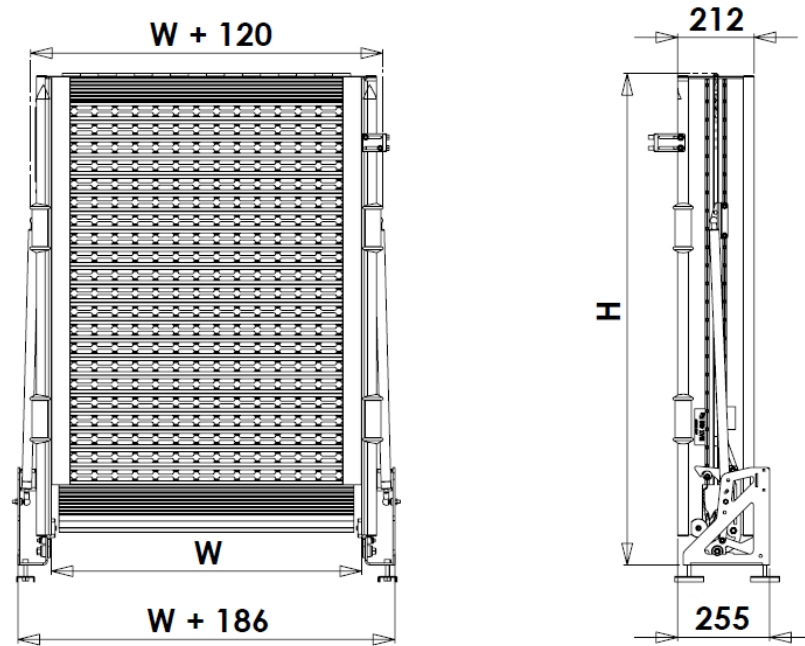
Maximalwerte der einzelnen Kraftverläufe:

Kraft U-1	Kraft U-2	Kraft U-3	Kraft S-1
22 N	57 N	22 N	17 N
Kraft O-1	Kraft O-2	Kraft O-3	Kraft S-2
14 N	9970 N	17 N	31 N

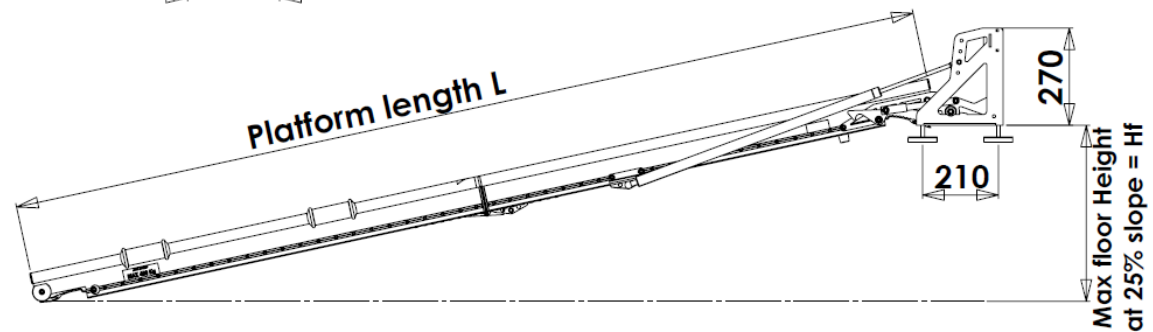


AXS – Ramp Manual

Appendix I; Installation drawing Double ramps:

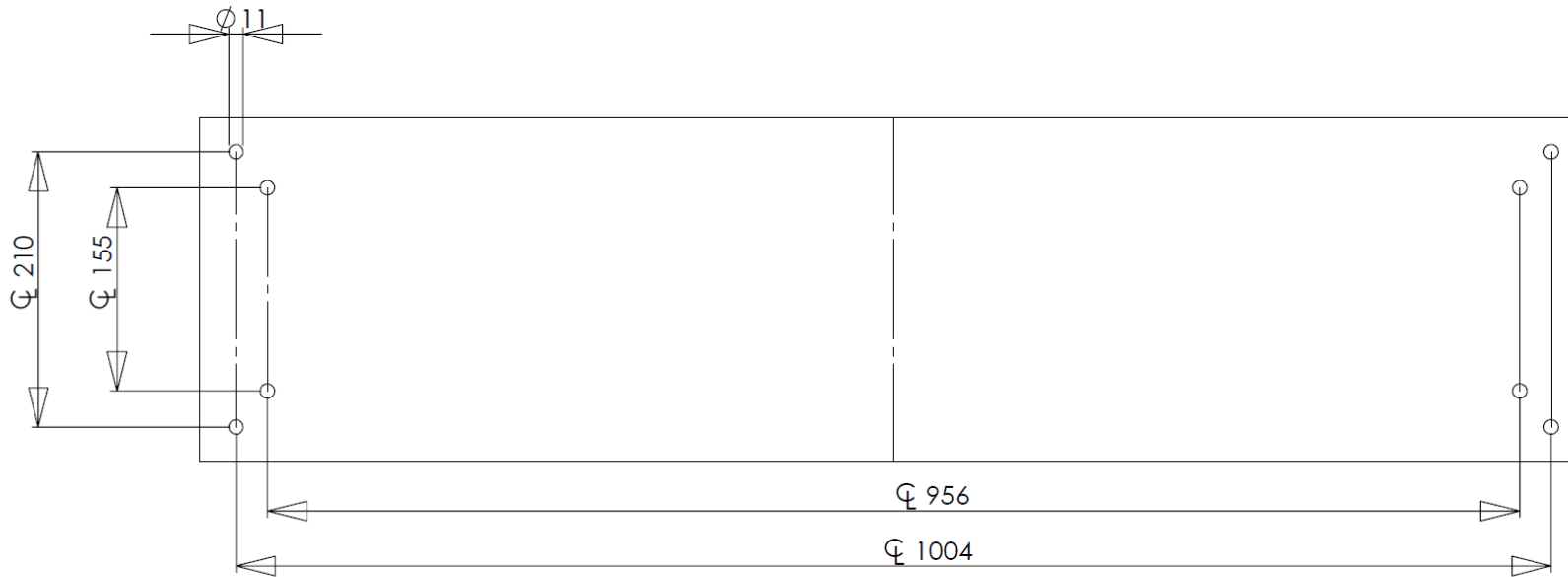


Type	Dimensions in mm			
	L	W	H	Hf
AR FL 210-8 / 2	2120	860	1150	475
AR FL 250-8 / 2	2520	860	1350	584
AR FL 280-8 / 2	2820	860	1500	650
AR FL 280-10 / 2	2820	970	1500	650



AXS – Ramp Manual

Appendix II: Drill tool



4 Holes at 1004 x 210 for fixed mounting of the ramp
4 Holes at 956 x 155 for mounting with optional quick out kit