

MechRail Aluminium Jib Crane

Installation and Log Book

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Although the greatest care was taken regarding the information in this catalogue, we assume no responsibility for any errors. We reserve the right to make changes.

ILLUSTRATIONS – The illustrations in the catalogue represent the described products, however the delivered goods may differ in some respects from the illustrations.

SPECIFICATIONS – The right is reserved to make changes in design and dimensions compared with the information in the catalogue in order not to prevent development of designs, materials and manufacturing methods.

The customer is reminded that in the purchase of products for specific applications or elsewhere, there may be supplementary, information that could not be included in this catalogue.

All relevant information must be provided to the persons who are responsible for the application of the product into the workplace.

Safety

The aim of this documentation is to provide the user with practical instructions for safe operation and simple maintenance of the equipment.

Anyone who deals with the installation of the equipment (including related equipment), operational procedure, use, maintenance, and/or repair functions must have read and understood this manual.

In order to avoid misuse and to ensure the reliable operation of the products, we recommend that the instruction manual is always made readily available to the user/operator.

Intended usage

The equipment is intended exclusively for transportation, lifting and lowering of load. Any other use, including the towing of a load and the transportation of passengers, is prohibited (see below for more examples).

Materials Handling Pty Ltd does not accept responsibility for damage caused by such use. All risks are the sole responsibility of the user.

The equipment may only be used in perfect technical condition by trained staff, and in accordance with current safety and workplace regulations. Furthermore, the user must observe operational and maintenance conditions contained in the instruction manual. Severe personal injury and damage to equipment can be caused by:

- Removal of covers and safety mechanisms
- Incorrect installation of equipment
- Incorrect usage
- Insufficient maintenance

Prohibited usage

Certain types of activities and operations are prohibited, as in specific circumstances they can cause personal injury as well as permanent damage to the equipment. For example:

- It is prohibited to convey passengers using the equipment.
- Never transport suspended loads above anyone's head.
- Never drop a suspended load and make sure it is lifted in a straight line.
- Never loosen secured or fastened loads by using the equipment.
- Do not overload.
- Do not leave a suspended load unattended.

General safety aspects

The instruction manual should always be kept within easy reach of the equipment. It contains important safety information and sections that relate to safe operation and maintenance of the equipment. Failure to follow this instruction manual may result in personal injury or death. In addition to the instruction manual, generally applicable regulations and rules must be followed and adhered to in order to avoid accidents and protect the environment. This also applies to regulations relating to the handling of products dangerous to the environment and the use of personal safety equipment.

All work associated directly or indirectly with the equipment, the user must follow and adhere to all the instructions as well as current work safety regulations. In spite of this, serious risk still prevails in cases where the equipment is used and operated by non-trained staff in an unintended way. The user should supplement the instruction manual with instructions that consider the nature of the operation, e.g. company organisation, work procedures, and work environment.

The members of staff who are assigned to work with the equipment must have read the instruction manual prior to undertaking any work, and should pay particular attention to the chapters containing safety instructions. It is too late once work has commenced. This applies in particular to members of staff who are working with the equipment on a temporary basis, e.g. for maintenance purposes.

The equipment should be taken out of operation immediately if functional damage or defects are discovered. Personal safety equipment should be used when necessary, or when required by regulations. Safety and warning devices, such as signs, stickers and labels must not be removed or made illegible.

All safety and warning devices on or adjacent to the equipment should be complete and maintained in a legible/functional condition.

All changes, extensions or reconstruction that may affect safety are forbidden without written permission. This also applies to assembly and adjustment of safety equipment and welding of structural parts. Spare parts must comply with stated technical requirements. This compliance is guaranteed when original spare parts are used. The intervals prescribed or stated in the instruction manual for regular testing/inspection must be adhered to!

Staff selection and qualifications

Competent staff must carry out work with/on the equipment. The owner of the equipment is responsible for supplying necessary training and instructions to operators and maintenance staff, including professionals and/or apprentices.

It is recommended that the user create specific instructions and guidelines relating to the causes of errors, communicates these to the relevant staff, and provide directions in appropriate and clearly visible places.

It is recommended that the user makes sure that the knowledge of the staff is adequate in regards the following points, prior to the operation of the construction:

- Knowledge of the contents of the instruction manual
- Knowledge of the safe operation contained in this manual
- Knowledge of applicable work safety regulations

Only trained and competent staff should be permitted to work with the equipment. Parameters relating to use, maintenance and installation should be clarified.

Safety instructions for usage

The only persons allowed to work on the electrical equipment are competent staff members who work in accordance with local regulations and standards for high-voltage equipment. No persons under the influence of drugs, alcohol or medication which affects their ability to react, are allowed to use, maintain or repair the equipment.

All stated actions and instructions relating to work protection and issues relating to general safety and protection of workers that should be carried out or studied prior to, during or following operation must be followed to the letter.

Failure to do so may result in fatal accidents.

The equipment should be stopped or taken out of operation at the time of detection of faults relating to safety and operational accessibility. Safety equipment must not be deactivated, altered or used in a way that conflicts with applicable regulations.

Appropriate actions must be taken to ensure safe operation and functional conditions for the user. The equipment should only be used when all protective and safety equipment, such as detachable guards and emergency stop devices, are in place and in working order.

Any type of modification and alteration of the equipment is prohibited.

However, this does not apply to lesser changes that do not affect the strength, operational safety or work protection, or to actions which promote an increased level of safety. The fundamental responsibility for these changes lies with the owner of the equipment.

The equipment should be stopped and locked immediately when functional faults occur. Faults should be identified and corrected immediately. A person who detects an immediate danger must without delay press the emergency stop button. This also applies to damage to parts of the equipment that demand immediate stoppage of operation.

Following an "emergency stop" the user has to wait for the cause of the disruption to be identified and repaired and for an assurance that there is no further danger before restarting the equipment and resuming operation.

The equipment should be disconnected immediately in the following cases:

- When electrical equipment, cables, and/or insulation material is damaged
- When brake functions and/or safety equipment are defect

Specific local circumstances or applications may lead to situations that were unknown at the time of writing this document. In such cases, the user must ensure safe operation and disconnect the equipment until measures to maintain safe operation have been completed.

Ensure that no one can become injured when they use the equipment prior to connecting/activating the equipment.

If the user notices the presence of persons who may become injured during operation, the operation should be discontinued immediately and must not be resumed until these persons have left the dangerous area.

The user must make sure that the equipment is in a perfect and operationally safe condition prior to all operations using the equipment.

The user should carry out all prescribed safety measures and make sure that automated procedures are completed when the equipment is disconnected (e.g. when there are deficiencies relating to operational safety, an emergency situation exists, repair or maintenance is being carried out, damage is noticed or at the completion of work).

Work with the equipment is only allowed when the operator has been instructed to do so by his superior, and if the operator has knowledge of the equipment and its function.



Service and maintenance

All service and maintenance shall be recorded. The user should make sure this material is easily available.

NOTE: Make sure that damaged components are replaced immediately in order to avoid personal and material damage.

1. Pre Operational

Before commencement of each work shift the crane is to be given a visual and functional test including the following:

- 1.1. Operation of Isolator/Emergency stops
- 1.2. Limit switches (if fitted)
- 1.3. Travel through range of movement
- 1.4. Condition of hoist to manufacturer's recommendation
- 1.5. Personal Protective Equipment (PPE)
- 1.6. Signage
- 1.7. Check log book for any recorded defects or occurrences

2. Periodic Inspection

Periodic inspection intervals shall not exceed 12 months and should be carried out to the attached check list by a competent person and recorded in log book. For cranes of high use the inspection intervals should be:

2-8 hours per day	6 months
8-16 hours per day	3 months
16 or more hours per day	2 months

Maintenance safety instructions

The prescribed procedures and service intervals, including those concerning the replacement of parts/accessories, are described in the instruction manual and must be followed. Only competent staff are allowed to carry out such procedures. Staff members with appropriate competence and authority are the only persons who are allowed to carry out mechanical and electrical repair and maintenance work. Unauthorised persons should be prohibited to work with machines and devices inside the equipment.

The equipment should be disconnected and secured against un-intentional or unauthorised use, including reconnection, during all repair and maintenance work. It should be confirmed that the equipment is free from voltage before any work on electric equipment is commenced.

Make sure that:

- The main power supply is disconnected
- Moving parts are stationary and locked
- Moving parts cannot move accidentally during maintenance work
- It is not possible to accidentally reconnect the power supply during maintenance and repair work

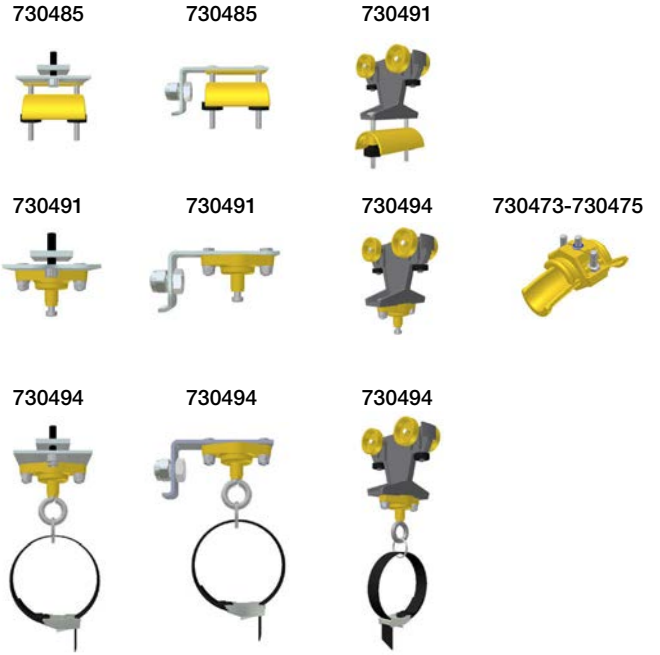
Optional products

Media	End fix	Strain relief	Cable trolley
Flat cable A	730485	730482	730467
Round cable B	730491*	730493*	730469*
Vacuum hose C	730494	730495	730497

*Combined with cable/hose clamp

Cable/hose clamp	730473	730474	730475
Diameter cable/hose mm	10-16	17-25	26-36

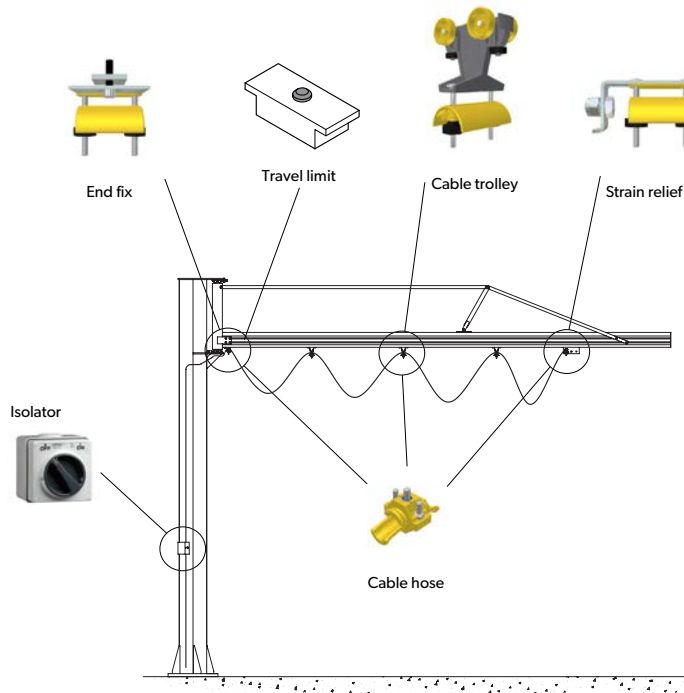
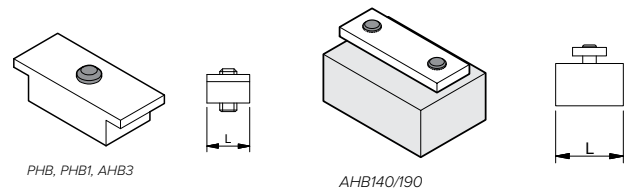
Recommended # of cable trolleys	Reach	2000-2500	3000-3500	4000-4500	5000-5500	6000
	Quantity		1	2	3	4



TRAVEL LIMITER (A)

Mechanical stop. Used for protecting cable trolleys from collisions.

30s	L	
736834	PHB	20
50s		
730354	PHB1	30
743615	AHB140/190	60
75		
730465	AHB3	30



ISOLATOR

- IP56
- Lockable
- Mounting screws and cable fittings are not included
- Electrical installation may be performed only under the supervision of a qualified technician



End stops

End stops (A)

30s - PHB, LHB

- If it is required, drill holes for the end stops at the end of the profile: -
Measure and mark where the end stops are to be fitted, see image

NB! It is important that the holes are in the middle of the profile and vertical.

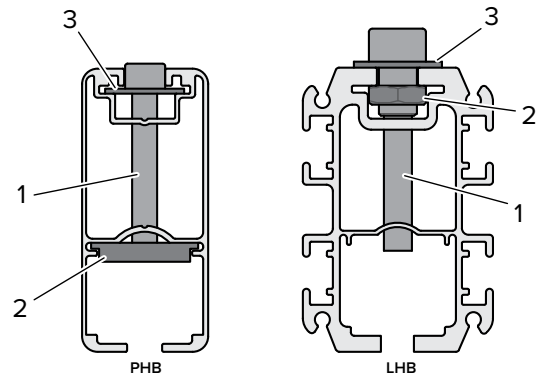
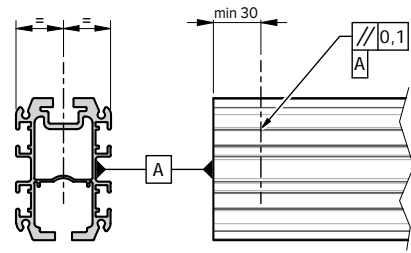
- Drill the holes for the end stops.
Diameter: **Ø10 mm**
- Deburr the holes.
- Clean the inside of profile. It is most important that all drill shavings are removed or else they may stick in the wheels of the trolley.

- PHB: Push in the threaded plate into the upper t-slot in the lower cavity of the profile. Position the plate directly under the hole.

LHB: Insert the nut under the upper flange and position it directly over the hole.

- Put the washer on the screw and insert the bolt into the drilled holes. Screw it into the threaded plate/nut.

- Tighten the screw.
Tightening torque: **10 Nm**



- Screw
- PHB: Threaded plate
- LHB: Nut
- Washer

50s - PHB1

- If it is required, drill holes for the end stops at the end of the profile.
Measure and mark where the end stops are to be fitted, see image.

NB! It is important that the holes are in the middle of the profile and vertical.

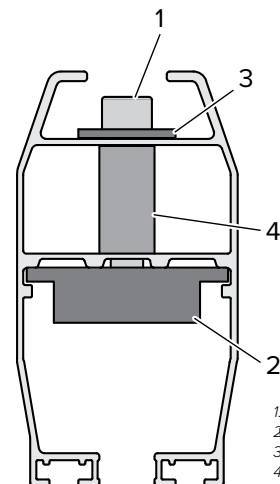
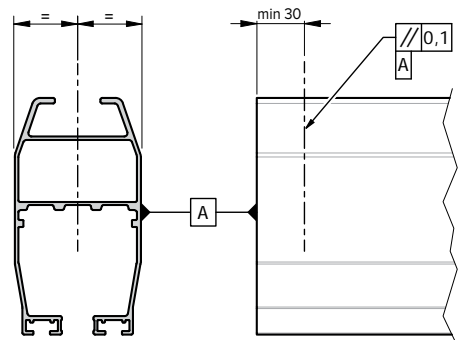
- Drill the holes for the end stops.
Diameter: **Ø13 mm**
- Deburr the holes.
- Clean the inside of profile. It is most important that all drill shavings are removed or else they may stick in the wheels of the trolley.

- Push in the threaded plate into the upper t-slot in the lower cavity of the profile. Position the plate directly under the hole.

- Position the sleeve against the holes in the middle cavity of the profile.

- Put the washer on the screw and insert the bolt into the drilled holes. Screw it into the threaded plate/nut.

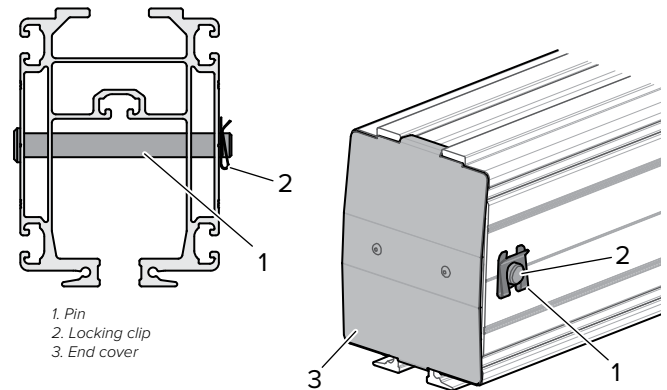
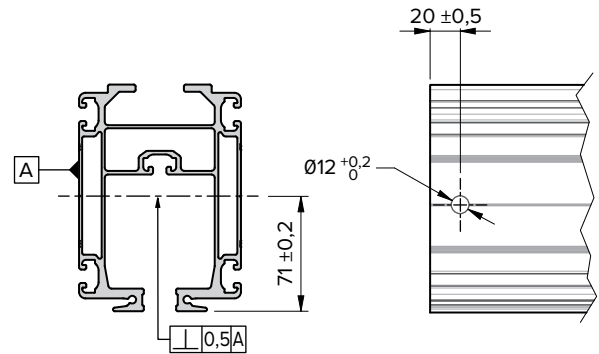
- Tighten the screw.
Tightening torque: **20 Nm**



- Scre
- Threaded
- Washer
- Sleeve

50s - AHB140, AHB190

- If it is required, drill holes for the end stops at the end of the profile.
Measure and mark where the end stops are to be fitted, see image.
 - Drill holes for the end stops (use drill template **744025**).
Diameter: **Ø12.2 mm**
 - Deburr the holes.
 - Clean the inside of profile. It is most important that all drill shavings are removed or else they may stick in the wheels of the trolley.
- The end cover for AHB140/190 is fitted at the same time as the end stop:
Place the end cover at the end of the runway profile.
- Insert the pin into the drilled holes and through the end cover.
- Lock the pin with the lock clip.

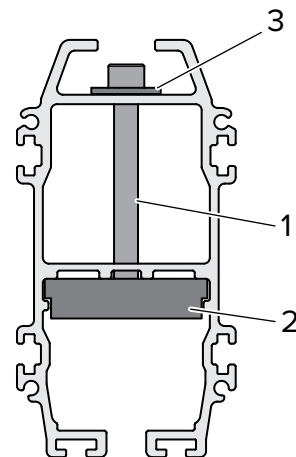
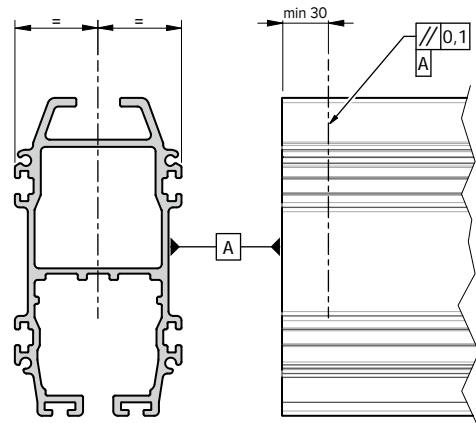


75s - AHB3

- If it is required, drill holes for the end stops at the end of the profile.
Measure and mark where the end stops are to be fitted, see image.

NB! It is important that the holes are in the middle of the profile and vertical.

 - Drill the holes for the end stops.
Diameter: **Ø13 mm**
 - Deburr the holes.
 - Clean the inside of profile. It is most important that all drill shavings are removed or else they may stick in the wheels of the trolley.
- Push in the threaded plate into the upper t-slot in the lower cavity of the profile. Position the plate directly under the hole.
- Put the washer on the screw and insert the bolt into the drilled holes. Screw it into the threaded plate/nut.
- Tighten the screw.
Tightening torque: **20 Nm**

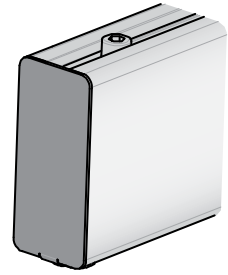
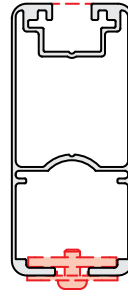


1. Screw
2. Threaded plate
3. Washer

End cover

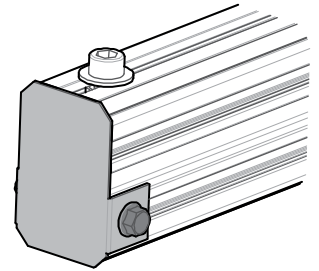
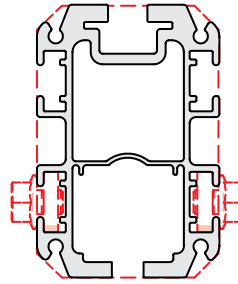
30s - PHB

1. Place the end cover on the profile so that the threaded plate and the tab clamp the lower flange of the profile.
2. Tighten the screw.
Tightening torque: **8.1 Nm**



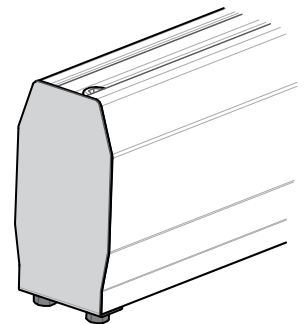
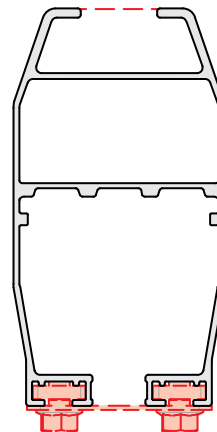
30s - LHB

1. Insert the slot nuts in the lower external t-slot of the runway profile.
2. Tighten the screws.
Tightening torque: **24 Nm**



50s - PHB1

1. Insert the slot nuts of the end cover in the lower t-slot of the profile.
2. Tighten the screws.
Tightening torque: **24 Nm**

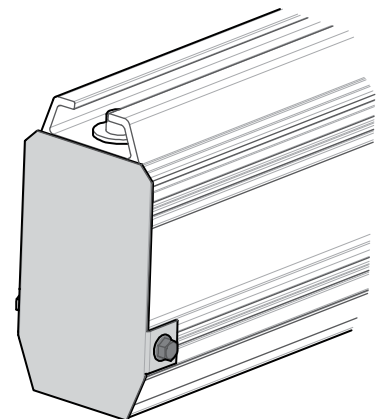
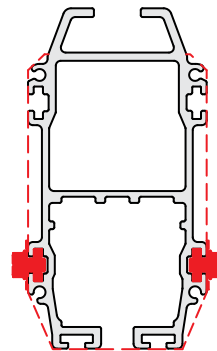


50s - AHB140, AHB190

The end covers for AHB140/190 are fitted the same time as the end stop, see "50s - AHB140/190" under "End stops (A)".

75s - AHB3

1. Insert the slot nuts in the lower external t-slot of the profile.
2. Tighten the screws.
Tightening torque: **24 Nm**



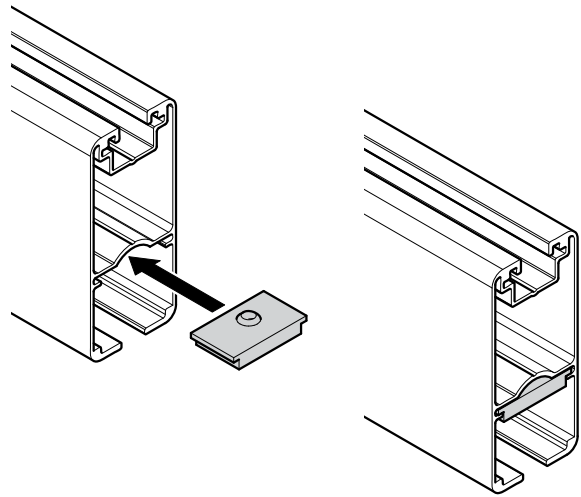
Travel limiter

Travel limiter (A)

1. Remove the end stop and the end cover.
2. Push the travel limiter into the upper t-slot in the lower cavity of the profile.
3. Push the travel limiter to the desired place and tighten the screw(s) of the travel limiter.
Tightening torque: **10 Nm**
4. Refit the end stop and the end cover.

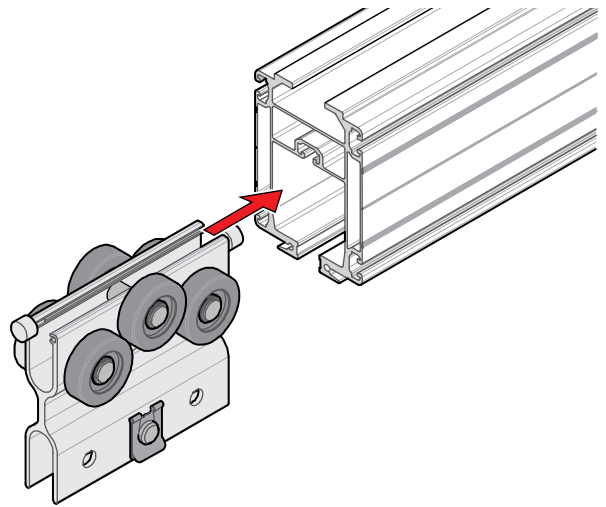
NOTE:

The purpose of the travel limit is to prevent the load trolley from colliding into the cable trolleys. The travel limit is secured into position at one end of the rail to limit the travel of the load trolley and prevent damage to the cable trolleys and end fix.



Trolleys

1. Remove the end covers, end stops and travel limiters if they are fitted to the runway profile.
2. Push in the trolley(s) into the lower cavity of the runway profile.
3. Refit the end covers, end stops and travel limiters.

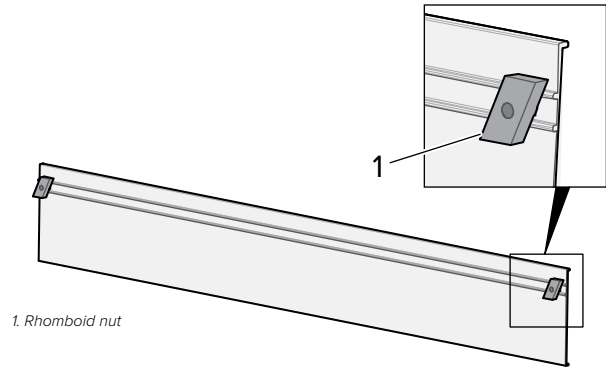


Signage

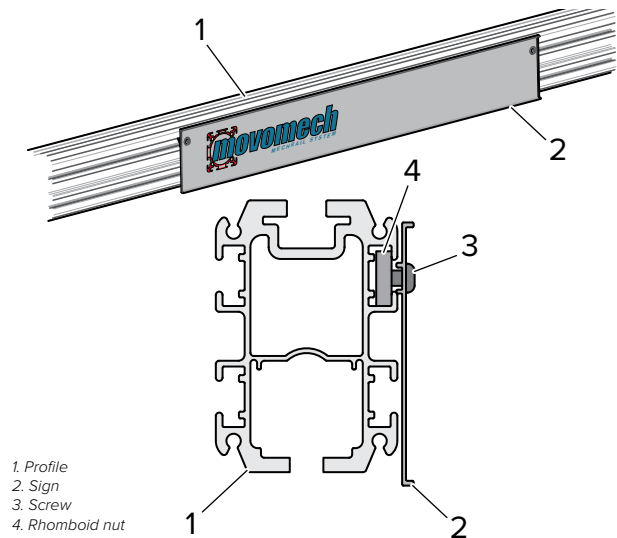
30s - LHB

75s - AHB3

1. Undo and remove the rhomboid nuts (M4) at the back of the sign.



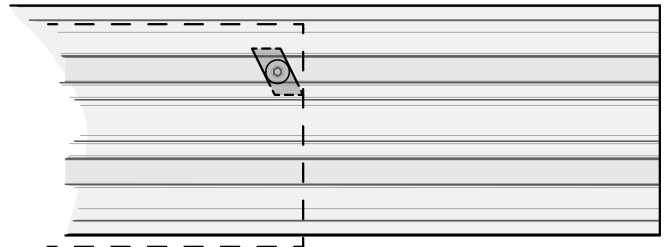
2. Insert the nuts into the upper outside t-slot of the profile.



3. Screw in the screws to the rhomboid nuts to secure the sign.

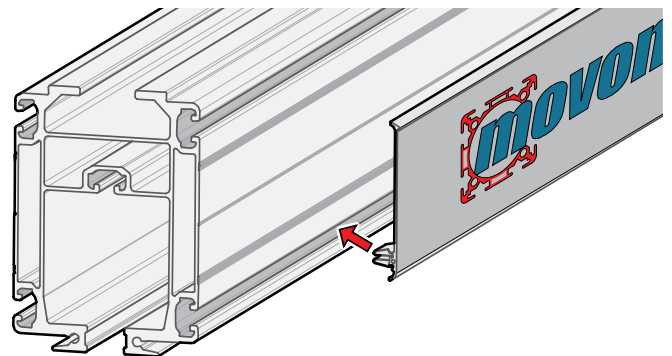
4. Make sure the rhomboid nuts are correctly positioned, see image.

The rhomboid nut will spin clockwise as the screw is tightened and the nut will lock itself into the slot.



50s AHB140, AHB190

1. The sign profile is press fitted to the lower outer t-slot of the profile.



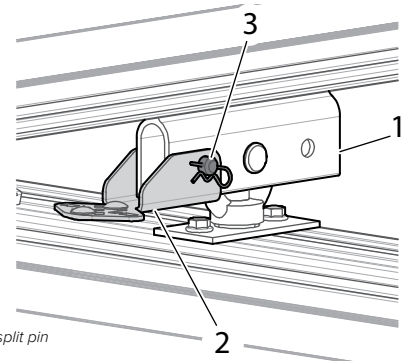
Cable trolleys, strain relief and end fix

The installing instructions below are applicable to the types (A) saddle, (B) ball joint, (C) strap and (D) shackle. The images show the end fix, cable trolley and strain relief for shackle type (D).

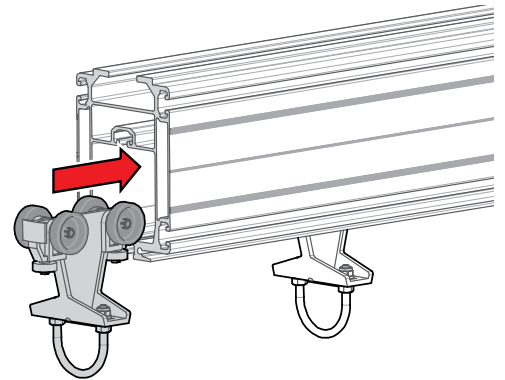
1. Remove the end stop, end cover and travel limiter, if fitted.
2. Fit the strain relief to the trolley with the locking bolt.



1. Trolley
2. Travel limiter
3. Locking bolt with split pin



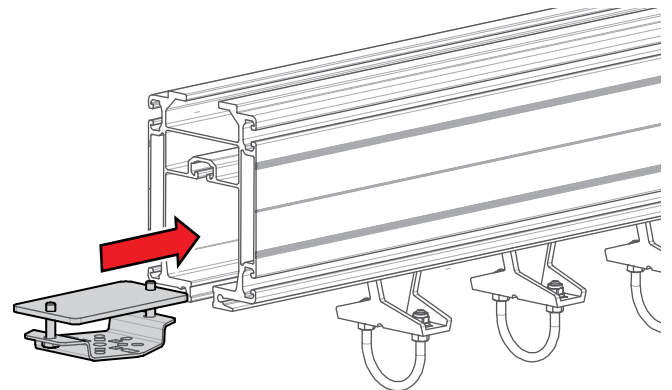
3. Insert the required number of cable trolleys into the lower cavity of the profile.



4. Insert the end fix into the lower cavity of the profile. Secure the end fix by tightening its screws.

Tightening torque: **8 Nm**

NB! It is not possible to insert the carriage bolts for the cable trolleys afterwards.

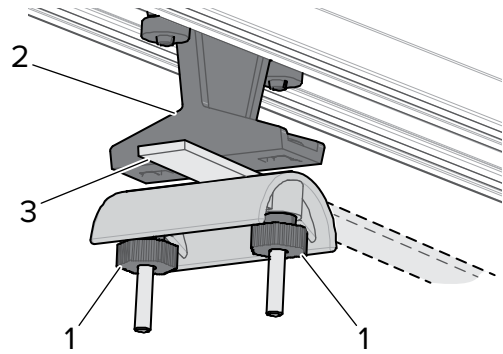


5. Refit the end stop, end cover and travel limiter, if fitted.
6. Make sure that the cable trolleys are fully operational if travel limiter fitted.



Fitting a cable to the strain relief, cable trolley or end fix type (A) saddle

1. Undo the plastic nuts of the strain relief/cable trolley/end fix.
2. Insert the ribbon cable through the saddles.
3. Tighten the plastic nuts by hand.

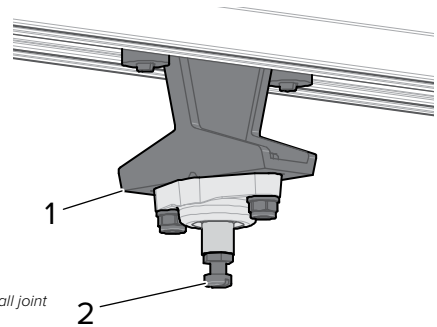


The image shows cable trolley (A) saddle
1. Plastic nut
2. Cable trolley
3. Ribbon cable

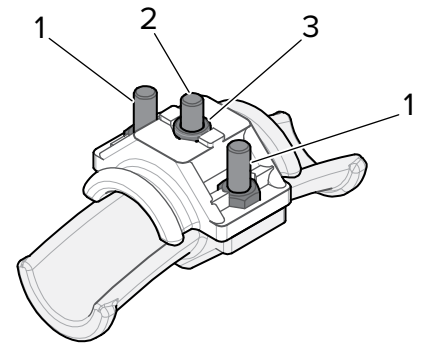
Fitting clamps and hose or cable to the strain relief, cable trolley or end fix type (B) ball joint

The first clamp is fitted as follows:

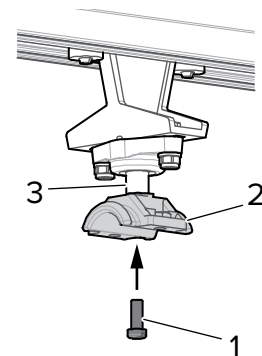
1. Remove the screw from the ball joint.
2. Open the cable clamp by undoing and removing the screws keeping it together.
3. Remove the screw and the lock nut in the middle of the upper part of the cable clamp.
4. Fit the upper part of the cable clamp to the ball joint and secure with the screw from the ball joint.



1. Cable trolley with ball joint
2. Screw on ball joint

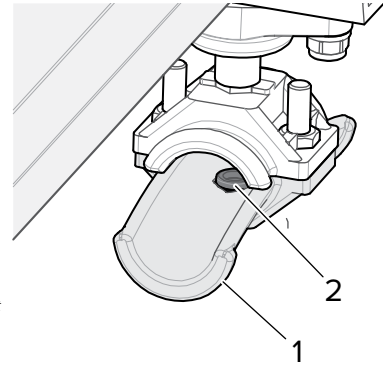


1. Screws holding together the cable clamp
2. Cable clamp retaining screws
3. Cable clamp retaining lock nut



1. Screw from ball joint
2. Cable clamp upper part
3. Ball joint on cable trolley

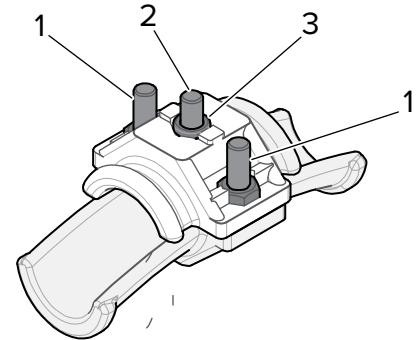
5. Reattach the lower part of the clamp to the upper part.
6. Place the lock nut that was removed from the cable clamp with the locking side up in the cut-out in the lower part of the cable clamp.
7. Insert hose/cable through the cable clamp.
8. Tighten the screws holding the cable clamp together.
Tightening torque: 4 Nm



1. Cable clamp lower part
2. Lock nut

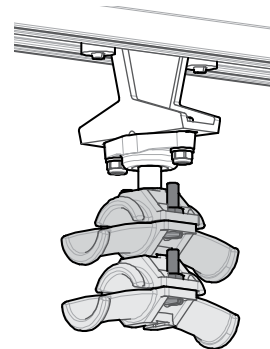
Fitting clamp number two and following:

9. Open the cable clamp by undoing the screws holding it together.
10. Remove the screw and the lock nut in the middle of the upper part of the cable clamp.



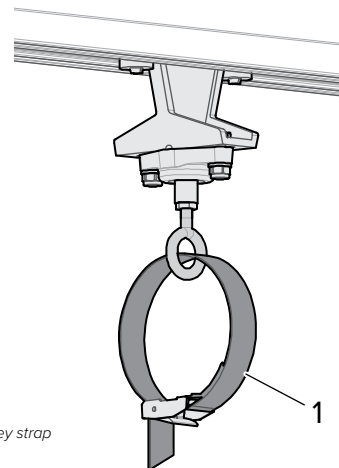
1. Screws holding together the cable clamp
2. Cable clamp retaining screws
3. Cable clamp retaining lock nut

11. Hold the cable clamp up against the cable clamp that is already fitted. Make sure the raised part of the cable clamp ends up in the groove of the already fitted cable clamp.
12. Fit the cable clamp to the already installed clamp with the screw from the clamp.
13. Place the lock nut that was removed from the cable clamp with the locking side up in the cut-out in the lower part of the cable clamp.
14. Insert hose/cable through the cable clamp.
15. Tighten the screws holding the cable clamp together.
Tightening torque: 4 Nm



Fitting a vacuum hose to the strain relief, cable trolley or end fix type (C) stop

1. Undo the strap of the strain relief, cable trolley or end fix.
2. Insert the vacuum hose through the strap.
3. Tighten the strap.



1. Cable trolley strap

