Periodic Inspection protocol

Liko™ overhead rail system

3EN111001 Rev. 13

System information		Customer reference	
Type of rail system:		Agreement No:	
S/N:		Name:	
Approved Max Load:		Address:	
Year of installation:		Post Code	

△ Liko™ Overhead Rail System must be thoroughly inspected at least once per year. Inspection and service must be carried out by Hill-Rom authorized personnel. See "Installation condition checklist" on next page, to determine how to perform inspection points 2 and 5.

Periodic Inspections are available for: Liko™ Overhead Lifts (3EN191001), FreeSpan and FreeStand (3EN301001), Accessories (3EN601001) and Mobile Lifts (3EN371001)
North America only: For non Liko® Rail system, use "Non Liko® Rail Installation Periodic Inspection" (193725)

If printed: Make a colour print of this instruction.

INSTALLATION		**Action required:**	*Approved*	*Not approved*
1	Decal rail marking			
2	General inspection			
3*	Rails			
4	End stops			
5	Ceiling/Wall attachments			

ADDITIONAL COMPONENTS		*N/A*	*S/N:*	**Action required:**	*Approved*	*Not approved*
6*	Rail Switches					
7	Ultra Twist					
8	Transfer Motor Traverse					
9	Activity Rail					
10	Pool Side Lifter					
ENVIRONMENTAL IMPACT						
11	Corrosive environments					

LOAD TESTING		*Max Load applied:*		*Approved*	*Not approved*
12	Maximum load rail system	Kg:	Lbs:		

REQUIRED MEASUREMENTS:	*N/A*	*Dimension and unit*		*Approved*	*Not approved*
3 Joint Gap*		*mm:*	*Inch:*		
6B Rail Switch play*		*mm:*	*Inch:*		
6C Turn Table clearance*		*mm:*	*Inch:*		

Inspection sign off

Complete inspection according to the instructions (page 2-11), fill in this page and sign below.

Approval to use the overhead system ☐ **Approved** ☐ **Not approved**

If the overhead system has one or more inspection points "Not approved", the system must not be used.

Action required: Actions according to the inspection items "NOT APPROVED" should be performed immediately. After performed actions sign below. If anything is unclear or if you have questions, please contact Hill-Rom or your local Hill-Rom representative.
Contact information is to be found at www.hill-rom.com.

Inspection performed by:		Date:	
Next inspection:			

Inspection performed in accordance with ISO 10535:2006 Annex B- Periodic inspection

Enhancing outcomes for patients and their caregivers.

Installation condition checklist

Liko™ overhead rail system

This checklist helps to determine ways to perform inspection points 2 and 5, depending on what environment the system is installed in.

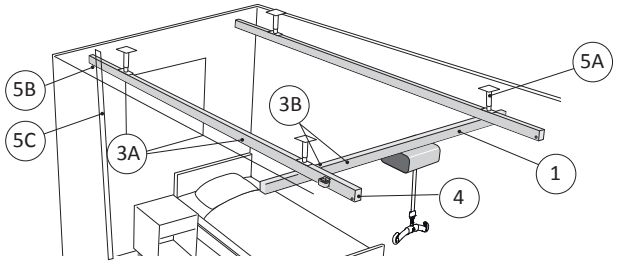
All other inspection points has to be performed according to the instructions.

Environment:	**Accessible fixing points:** *All attachments are visible*	**Partly accessible fixing points:** *E.g. false ceiling with inspection hatches*	**Non accessible fixing points:** *E.g. false ceiling*
Non corrosive environment	• Inspect a minimum of 20% (at least two) of the fixing points.	• Inspect a minimum of 20% (at least two) of the fixing points. • If less than 20% can be inspected, extended maximum load test must be performed on non visible fixing points, according to section 12.	• Extended maximum load test according to section 12.
Corrosive environment *e.g. bathroom or other high humidity environment.*	• Inspect all fixing points. • Perform corrosion inspection according to section 11.	• Inspect a minimum of 20% (at least two) of the fixing points. • If less than 20% can be inspected, extended maximum load test must be performed on non visible fixing points, according to section 12. • Perform corrosion inspection according to section 11.	• Extended maximum load test according to section 12.
Chlorinated corrosive environment *e.g. indoor pool*	• Inspect all fixing points. • Perform corrosion inspection according to section 11.	• Inspect all fixing points. • Perform corrosion inspection according to section 11. ***NOTE!*** ***Make inspection with inspection hatches or similar.***	• Inspect all fixing points. • Perform corrosion inspection according to section 11. ***NOTE!*** ***Make inspection with inspection hatches or similar.***

△ In this document, this warning symbol indicates that special care should be taken.
If instructions are not followed there is a risk of serious injury.

Instructions for inspection points

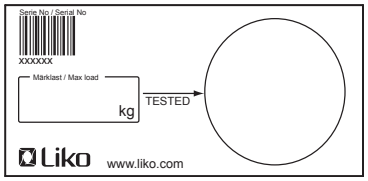
Liko™ overhead rail system



INSTALLATION

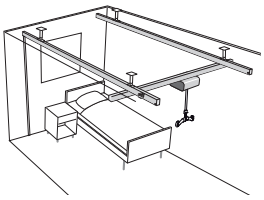
1 Decal rail marking

- Inspect the S/N on the decal on the rail, if available
- Make sure the maximum load at the decal on the rail is equal to or higher than the maximum load for the lift unit installed in the system.
- Verify that there is a valid Installation Certificate for the overhead lift system. If no certificate is available a new needs to be created.



2 General inspection

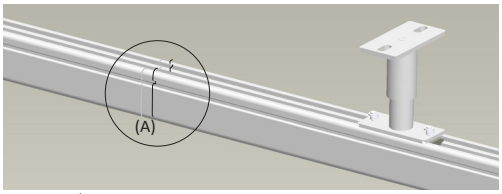
- Inspect that the overhead lift system has no visible damage or deformations and that it is clean.
- Inspect that the distance between the installation points and the overhang match the instructions for the rail and the max load for installed lift unit. *Se Tables in Overhead System Installation Hand Book 3EN680001.*
- Use the appropriate inspection method for the bolts. (This is given by the supplier of the bolt.)

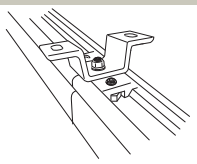


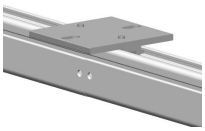
3 Rails

3A Primary rail (straight rail and traverse)

- Inspect that joint gap (A) is max 2 mm / 0,08 inch.
- Make sure that the rail joint is supported by a fixing or a proper joint section.

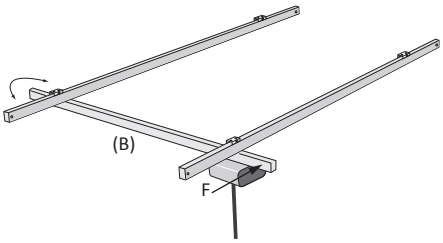






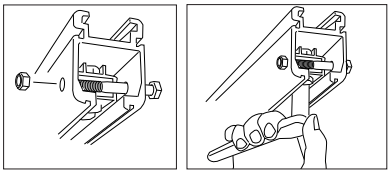
3B Secondary Rail (traverse)

- Make sure the secondary rail (B) run freely, by placing a force (F) on one side. Listen for abnormal sounds from movable parts.
- Check traverse carrier bolts and nuts.



4 End stops

- Inspect that safety-through bolts with locking nuts are mounted.
- Inspect that the end stop is correctly mounted.



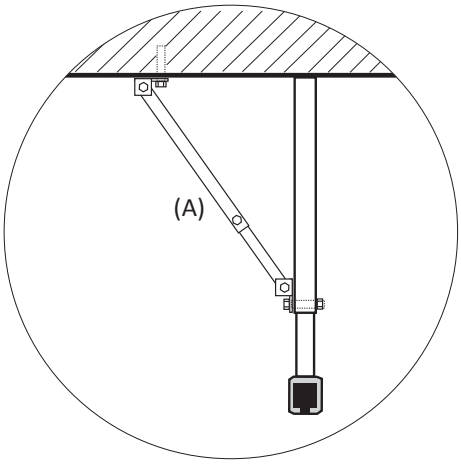
Instructions for inspection points

Liko™ overhead rail system

5 Ceiling / Wall attachments

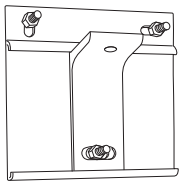
5A Ceiling / Pendant / Ceiling Fixture

- Inspect a minimum of 20% of the fixing points scattered throughout the rail to make sure that bolts and nuts are not loose, or see “Installation condition checklist” on previous page if fixing points are unaccessible.
- If applicable check Side Support attachments (A) so they not are loose.



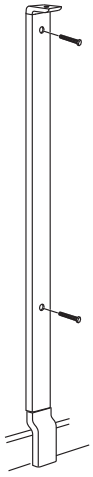
5B Wall / Wall Bracket

- Make sure there is no play between the wall and the bracket.
- Inspect the fixing between the rail and the wall bracket.



5 C Upright Support

- Inspect the fixings and make sure there is no play between the fixing points between the wall and the upright support.
- Make sure the Upright Support is solid supported by the floor.
- Inspect the floor for damage/deflection around the bottom of the upright support.



ADDITIONAL COMPONENTS

6 Rail Switches

General Inspection Rail Switches

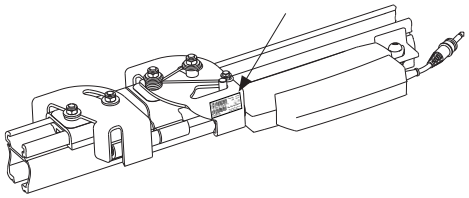
- Visually inspect to ensure that the switch are free from any sharp edges or deformities.
- Make sure bolts, nuts and joint screws are tightened.
- Make sure the switch is clean.
- Run the Side Rail Switch and Traverse Switch all the way in and out. Listen for peculiar noises and vibrations. Make sure the carriage runs easy when passing over the play between the rails.
- Check that the Turntable or Ultra Twist™ system rotates freely on its bearings.
- Verify all functions on the handcontrol, or other options to operate the switch.
- Make sure cables, cords and mains power supply are intact without damages.
- Check connector pins on Multi station and connector rails on top of Multi-connector if applicable.

Instructions for inspection points

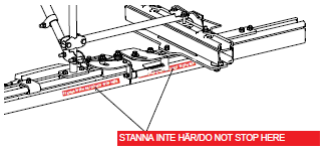
Liko™ overhead rail system

6A Traverse Switch

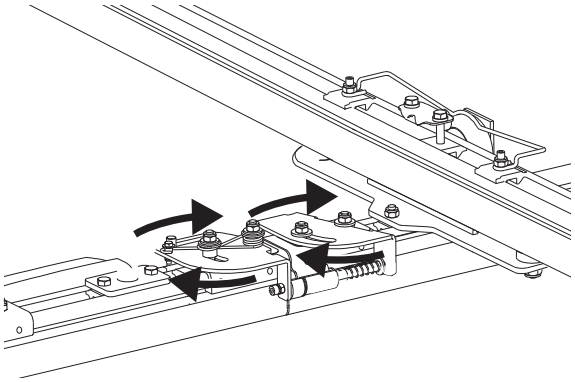
- Verify presence of product decal with model type and serial number.



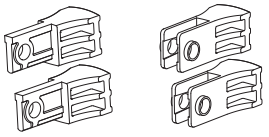
- Verify presence and inspect decals for readability on the rails “STANNA INTE HÄR/DO NOT STOP HERE", 4 pce.



- Make sure the secondary rail is locked when the switch is open.
- Close the switch, make sure the end stops in the rails stop a movement of the motor.
- Check the end stop mechanism. Make sure the switch stop arm and pins are not bent.



- Verify that Dampers are attached to the carriage and transfer motor, according to the Liko™ overhead rail system Installation Handbook 3EN680001.

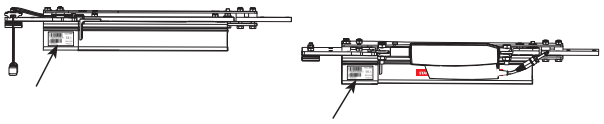


Damper QR *31290126*

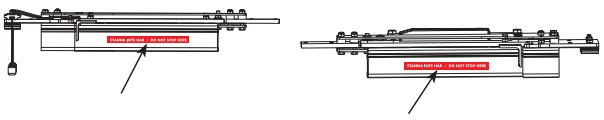
Damper *31290125*

6B Side Rail Switch (manual and electric)

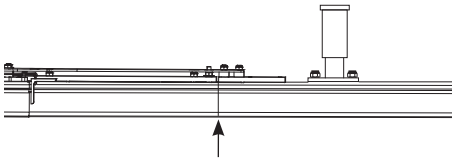
- Verify presence of product decal with model type and serial number



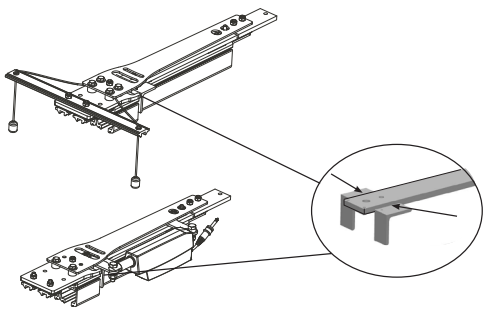
- Inspect decals on the rails “STANNA INTE HÄR/DO NOT STOP HERE), 4 pce



- Ensure that the play between the rails are max 2 mm (1/12 inch).



- Inspect the angle bars at supporting plate. Make sure the weld joint at the two angle bars on the supporting plate are intact.

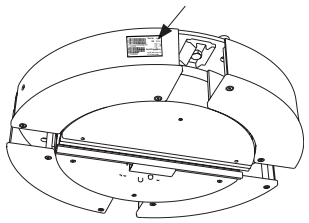


Instructions for inspection points

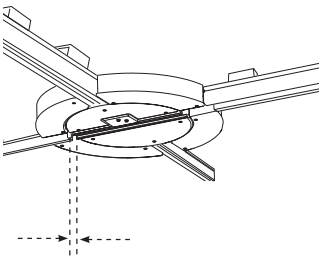
Liko™ overhead rail system

6C Turntable

- Verify presence of product decal with model type and serial number

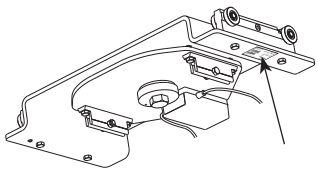


- Ensure that there is a small clearance, max 2 mm (1/12 inch) between the turntable's rotating rail and the four static rail sections.



7 Ultra Twist

- Verify presence of product decal with model type and serial number

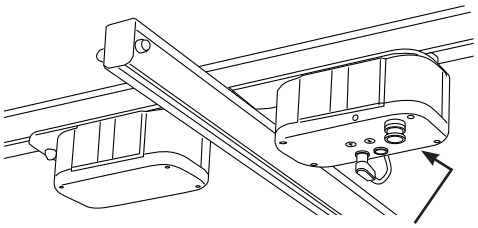


General Inspection Ultra Twist

- Inspect visually to ensure that the steel construction is free from any sharp edges or deformations.
- Check that the unit rotates freely on its bearings.
- Verify that all functions on the hand control are working.
- Make sure the Ultra Twist is clean.
- Make sure bolts, nuts and joint screws are tightened.
- Inspect split pin at the center bolt and make sure it's intact
- Make sure cables are intact without damages.
- Roll the carriage within the rail. Verify that each wheel turns freely and the plastic wheel bearing covers not are cracked or missing.

8 Transfer Motor Traverse

- Verify presence of decal with model type and serial number.



General Inspection Transfer Motor traverse

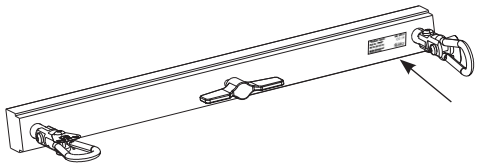
- Visually inspect to ensure that the Transfer motor is free from any sharp edges or deformities
- Make sure bolts, nuts and joint screws are tightened.
- Make sure the Transfer motor is clean.
- Make sure the emergency stop is working.
- Verify all functions on the handcontrol.
- Make sure cables, cords and mains power supply are intact without damages

Instructions for inspection points

Liko™ overhead rail system

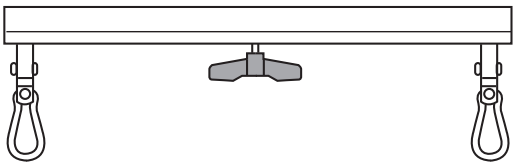
9 Activity Rail

- Verify presence of decal with model type and serial number.

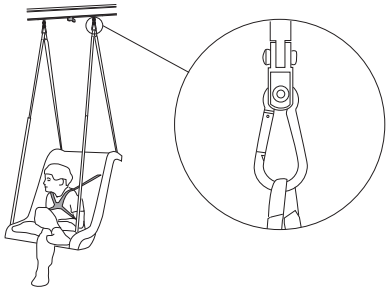


General Inspection

- Visually inspect to ensure that the Activity Rail is free from any sharp edges or deformities or damage.
- Move the Activity Rail all the way in the railsystem. Listen for peculiar noises and vibrations.
- Make sure the Activity Rail is clean.



- All bolts and safety clips on the Activity Rail is classified as safety critical and must be thoroughly checked for wear.



10 Poolside Lifter

For Service and manintenance steel construction on Poolside Lifter- contact Abus (www.abuscranes.com)

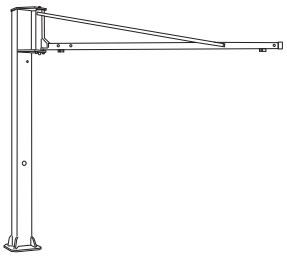
General Inspection

- Verify presence of decal with model type.
- Visually inspect to ensure that the Poolside Lifter is free from any sharp edges or deformities or damage.
- Move the Poolside Lifter all the way. Listen for peculiar noises and vibrations.
- Make sure the Poolside Lifter is clean.

10A Poolside Lifter, for ground mounting

- Inspect the floor foundation
- Make sure all bots and nuts ar tightened.
- Inspect that the end stop is correctly mounted.

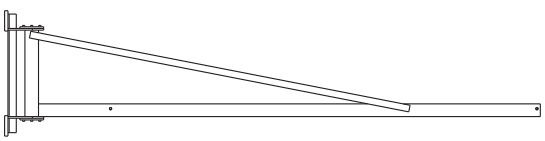
Maximum Load 200 kg / 440 lbs



10B Poolside Lifter, for wall mounting

- Inspect the wall foundation
- Make sure all bots and nuts ar tightened.
- Inspect that the end stop is correctly mounted.

Maximum Load 200 kg / 440 lbs



Instructions for inspection points

Liko™ overhead rail system

11 Environmental Impact – corrosive environments

Due to the environment an overhead system is installed in, components may be subject to corrosion.
High temperature, high relative humidity, poor ventilation, presence of chlorine and different combinations of these factors, will affect the corrosion rate.
Depending on material type a corrosion attack can occur suddenly or in other cases form gradually.
The corrosion rate and type of corrosion attack might be different in one area of the installation compared to another.

△ ***Fixing points classified as safety critical, installed in a corrosive environment such as indoor pool or bathroom, must be inspected. When a component has reached a certain stage of corrosion it might need to be replaced.***

Note! Print out in color.

Check for visible severe corrosion and material loss and identify if components need to be replaced.

Galvanized steel

These pictures describes the evaluation method for all galvanized steel components.


1. New bolt


2. Acceptable

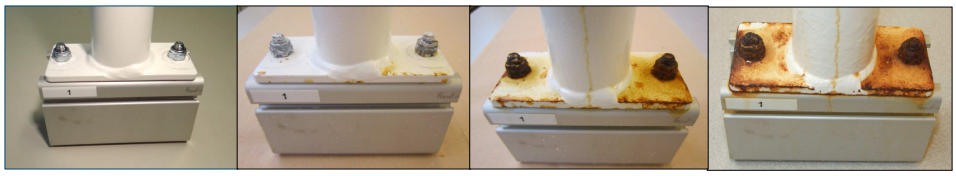

3. Replace


4. NOT acceptable

1. A galvanized steel component.
2. White rust on a component appears when the surface treatment corrodes.
3. Red rust appears when the actual steel has started to corrode. Corroding steel will result in material loss and should therefore be replaced.
4. A component covered in red rust is unfit for use.

Powder coated steel

These pictures describes the evaluation method for all powder coated steel components.

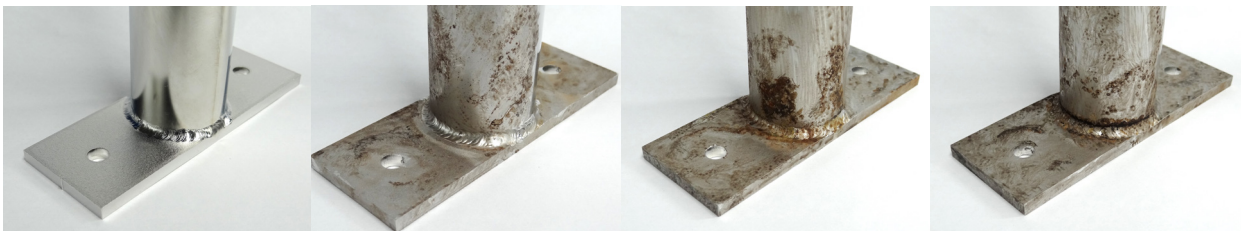

1. New — 2. Acceptable — 3. Replace — 4. NOT acceptable

1. A powder coated steel component.
2. Local discoloration may occur in close proximity to corroding non-painted components. Stains on the painted surface is acceptable.
3. Cracks in the paint and red corrosion under the paint is a sign of corroding steel. Corroding steel will result in material loss and should therefore be replaced.
4. A component with peeling coating, bubbles in the paint and red corrosion under the paint is unfit to use.

11 Environmental Impact – corrosive environments, cont.

Stainless steel

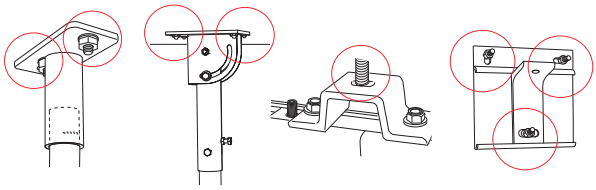
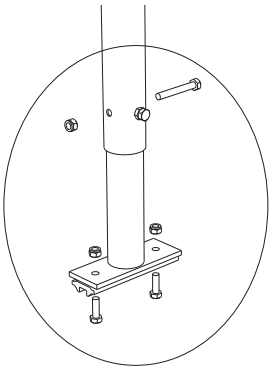
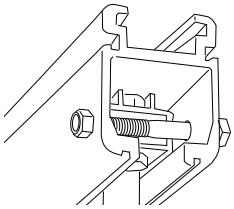
These pictures describe the evaluation method for all stainless steel components.



1. New 2. Acceptable 3. Replace 4. NOT acceptable

1. A stainless steel component.
2. Local discoloration may occur on stainless steel components. Minor stains on stainless steel surfaces NOT in the direct proximity of welds are acceptable.
3. Discoloration of stainless steel surfaces in the direct proximity of a weld might be an indication of Intergranular Corrosion. Corrosion will lead to material loss and the component should therefore be replaced.
4. A stainless steel component with visible cracking, gouging or extensive corrosion in the direct proximity of a weld is unfit to use.

Safety critical fixing points:

• Ceiling and wall attachments	
• Load bearing bolts and nuts in - Pendants - Ceiling and wall brackets - Traverse carriers - Switches and turntables	Example of load bearing bolts and nuts: 
• End stop	

Instructions for inspection points

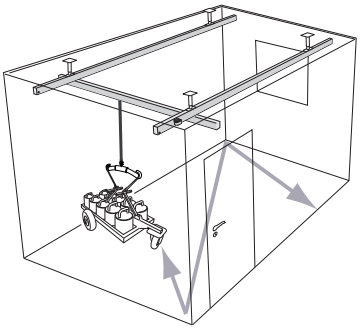
Liko™ overhead rail system

12 Maximum load rail system

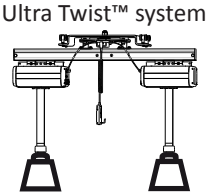
⚠ ***All handling of heavy weights can pose a risk. Ensure that weights are securely fastened before lifting. Attach the test load so that the weight is evenly distributed over all sling bar attachment points. Ensure that the sling bar is level when lifting.***

- Carry out load test with lift motor carriages and rail system, using maximum load ±5% for the rail system, across the whole lifting area, by manoeuvre the load along each primary rail, and then in a Z pattern.
- Listen for unusual noises and vibrations. Check for any abnormalities such as deflection, abnormal movement or resistance.
- If the system contains switches, run the load through the switch and make sure the carriage pass through the rails.

- Maximum load test in Ultra Twist system should be performed evenly and with straps vertically according to picture.



Ultra Twist™ system

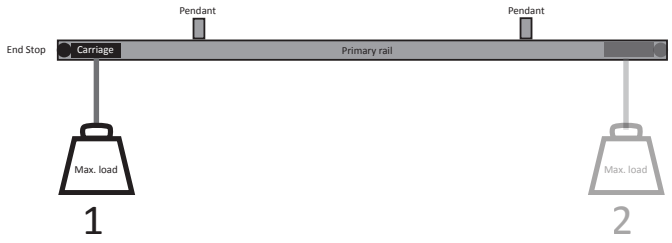


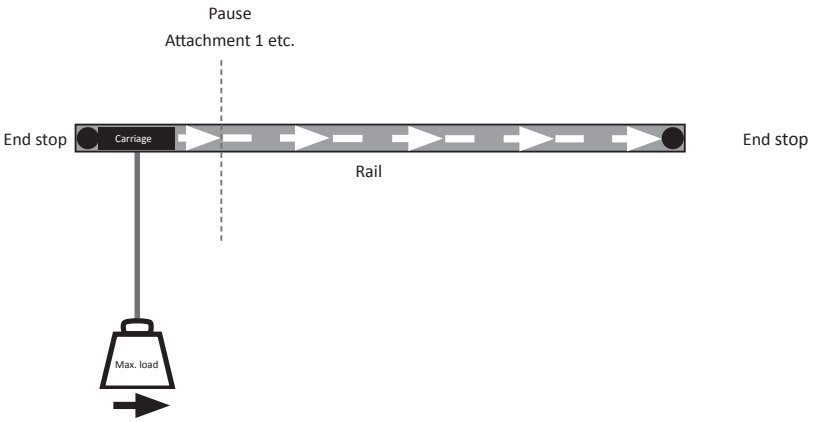
12 A Extended maximum load test

Installation condition checklist (page 2) determine when this extended test needs to be performed.

STRAIGHT RAIL SYSTEM

- Apply the maximum load for the overhead rail system. Move the load along the rail from one end stop to the other end stop, with a pause under each fixing point. Move the load as the dashed line shows.
- Listen for unusual noises and vibrations. Check for any abnormalities such as deflection, movement or resistance.





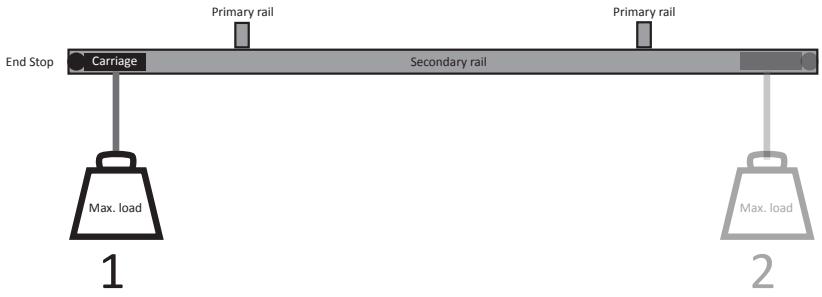
Instructions for inspection points

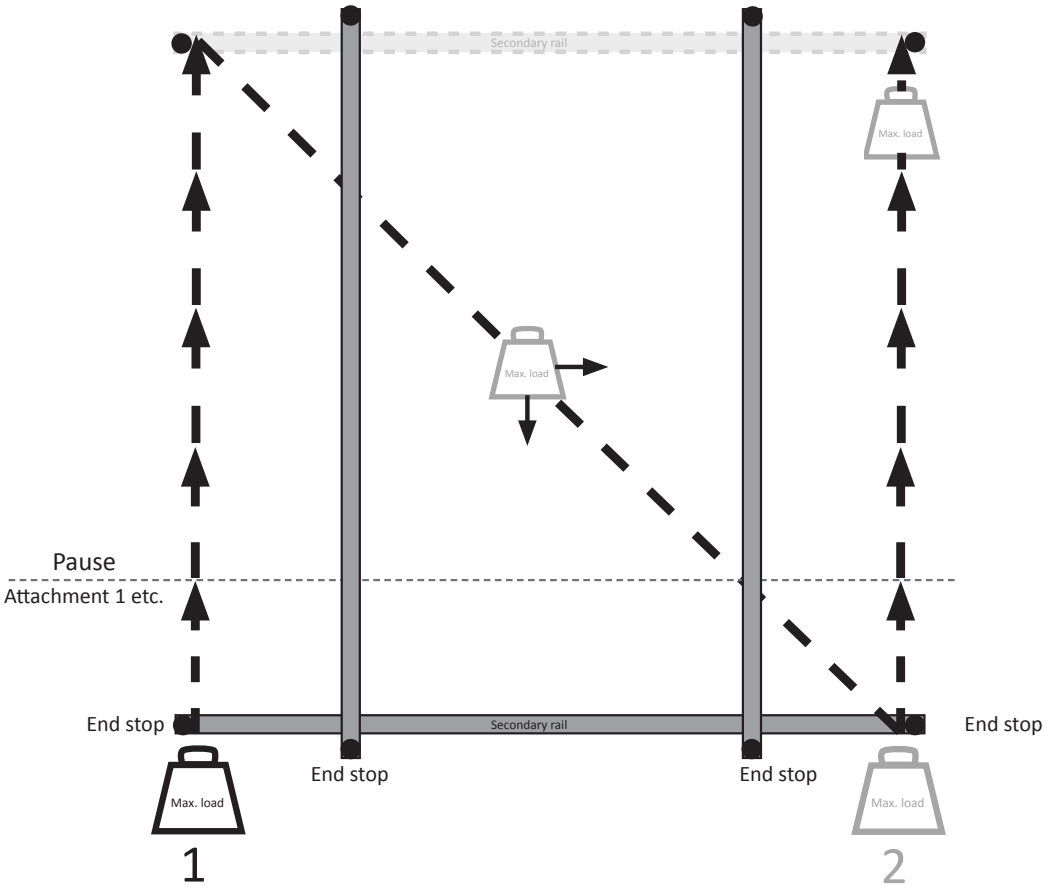
Liko™ overhead rail system

12 B Extended maximum load test

TRAVERSE SYSTEM

- Apply the maximum load for the overhead rail system.
- Place the carriage with load at the end stop of the secondary rail (1). Move the secondary rail, with a pause under each fixing point, from one end stop to the other end stop of the first primary rail.
- Continue by moving the load diagonally through the centre of the system over to the other side, as the dashed line shows.
- Now continue by moving the secondary rail with the applied load, from (2), with a pause under each fixing point, from one end stop to the other end stop of the second primary rail.
- Listen for unusual noises and vibrations. Check for any abnormalities such as deflection, movement or resistance.





Liko

www.hill-rom.com I www.liko.com

Liko AB
Nedre vägen 100
SE-975 92 Luleå, Sweden
+46 (0)920 474700

Enhancing outcomes for
patients and their caregivers.

Hill-Rom