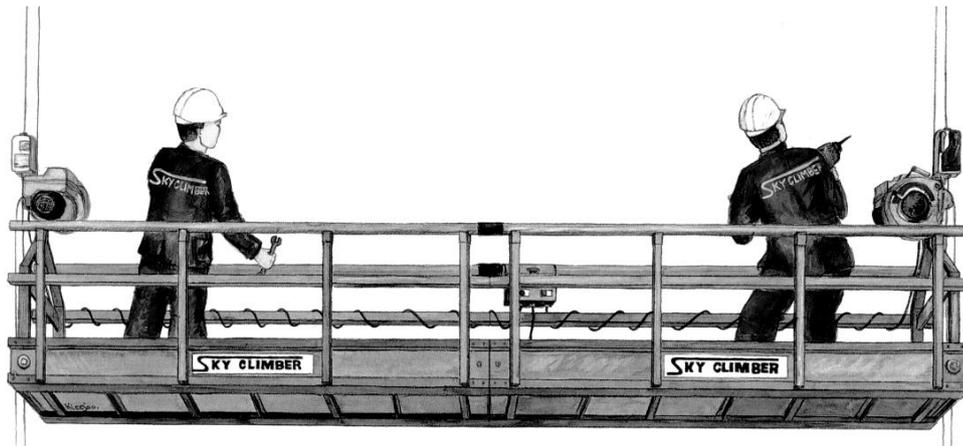


# **SKY CLIMBER**

*"Access Innovations Since 1955"*

## **User Manual**



**CE**

# **Temporary Suspended Platforms**

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# Introduction

## TO THE EXPERIENCED SKY CLIMBER ® OPERATOR :

The typical first reaction of the experienced operator to an instruction manual is "Why should I read it? I've had enough experience with Sky Climber hoists to write the Manual !" You may be right, but before you put this Manual aside, please hear us out.

The new European Safety Standard EN1808 prescribes the supply of a manual with the equipment. In addition, this manual is intended to remind experienced operators of the safe operating practices they should consistently follow. Are you operating the system according to the book, or have short cuts and omissions crept in ?

Have we omitted anything important ? Do you disagree with us on anything in this Manual ? If so, please let us know by any possible means. Our address, fax and e-mail address is on the front cover. We welcome your comments !

## TO THE NEW SKY CLIMBER ® OPERATOR :

Welcome to the ever growing group of Sky Climber hoist operators !

We know the Sky Climber hoist can be operated safely. Properly operated and maintained, it will continue to operate for many years to come.

This manual will guide you through the features of the Sky Climber hoist, and will help you to start operating it a safe way.

Throughout this Manual the words WARNING, CAUTION and NOTE appear in bold face font.

"WARNING" is preceded by the safety alert symbol  and, with its corresponding message, is underlined. This indicates that injury to personnel could occur if the proper procedures are not followed during operation or maintenance. Always read and fully understand and act according to the WARNING extremely carefully.

It is impossible for Sky Climber Europe, to know, evaluate and advise on every conceivable way in which our products may be used or serviced, and of all possible resulting hazardous consequences. It is therefore extremely important for anyone who uses a procedure about which this manual is silent to first satisfy himself that it will not jeopardise his own safety, the safety of others, or cause product or component damage.

Every effort has been taken to make this Manual as complete and accurate as possible at the time of publication. Sky Climber Europe, however, reserves the right to continually improve its products. For this reason, changes may have been made to the Sky Climber hoist or its accessories which are not detailed in this Manual.

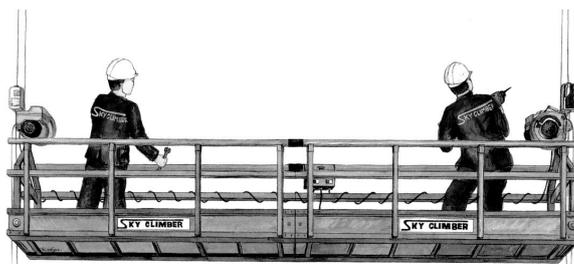
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# Definition, purpose, limitations and conditions of use

## General

Temporary Suspended Platforms (TSP) are Suspended Access Equipment (SAE) which are temporarily installed on a building or structure for specific tasks such as cladding installation, painting, maintenance, repair and refurbishment of buildings, bridges, chimneys and other structures. TSP's and its suspension rig are assembled at site prior to carrying out the task. The equipment are then dismantled and removed from site on completion of the work for which they were installed and may be reused elsewhere.



 Failure to operate, use, inspect and maintain of the hoist as described in this manual, could result in serious injury or death

## The suspension rig

The description of the equipment from which the platform is suspended on the roof structure of the building is not included in this manual. However, the rigging system that you use must be designed and calculated to withstand the load of the suspended platform(s) with a safety factor of minimum 3:1.

The suspension rig must comply with all safety requirements of state and national codes. Sky Climber Europe N.V. strongly recommends to use a rigging system following the requirements of European Standard EN1808. These rigging systems can also be ordered at Sky Climber Europe N.V.

## Wind conditions

Sky Climber TSP should not be used in wind conditions above 14 m/s (= 50 Km/h), unless adequate restraint is provided

## Explosive atmospheres

The ALPHA electrical powered hoists are not rated for operating in an explosion hazardous environment. Select (an) air powered hoist(s) if you want to use SAE in explosive atmospheres.

## Corrosive atmospheres

When Sky Climber ALPHA electrical powered hoists are being used in corrosive work-associated atmospheres such as acid washing, the hoist and its supporting steel wire rope shall be protected from direct contact with the corrosive solutions and agents. Each day, on the final descent, the steel wire rope shall be washed with a neutralizing solution and relubricated.

Stainless steel wire rope, which is far more resistant to corrosion deterioration can be obtained from Sky Climber. Daily examination of the full supporting length of wire rope is mandatory.

## Extreme temperatures



The Sky Climber TSP's may not be used at temperatures below – 10°C or above 45 °C otherwise the good functioning of the hoists cannot be guaranteed

## Allowed steel wire rope



Always use the Sky Climber type of steel wire rope with the correct diameter for each hoist, otherwise the good functioning of the hoists cannot be guaranteed.

Hoist Type		Diameter of Steel Wire Rope	Sky Climber reference number
Compact 400	All types	8 mm	51008304 <sup>1</sup> 51008305 <sup>2</sup>
	LNx	8 mm	51008304 <sup>1</sup> 51008305 <sup>2</sup>
CX500	All types	8 mm	51008304 <sup>1</sup> 51008305 <sup>2</sup>
Alpha 500	All types	9 mm	51008301 51008309
Alpha 800	All types	9 mm	51008301 <sup>2</sup> 51008309 <sup>2</sup> 51008009 <sup>1</sup>
Alpha 1000	All types	10.2 mm	51008315

<sup>1</sup> With steel core

<sup>2</sup> With polyprop core

## CE certification in Europe

Most of the Sky Climber SAE equipment components e.g. hoists, stages, safety devices and control boxes, are CE products in conformity with the provisions of Machine Directive 2006/42/CE.

It is strongly advised to combine only Sky Climber SAE components, ie. platforms, stages and safety devices, to constitute a complete Suspended Access Equipment that is in conformity with 2006/42/CE. If one combines Sky Climber SAE components following the prescriptions of this manual, these described assemblies, as a whole, are also certified CE products in conformity with the provisions of Machine Directive 2006/42/EEC, unless it is stated otherwise.



Each type of combination of a Sky Climber SAE component, with any other parts of other suppliers, to constitute a complete Suspended Access Equipment, must be examined and proved by the user / purchaser to be in accordance with the requirements of the EC Machinery Directive 2006/42/EEC!

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# Components for Suspended Access Equipment and their application limits

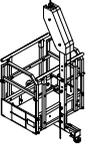
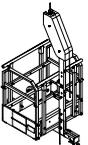
## Stages

<b>Double point suspended platforms</b>			Min. length	Max. length	Width inside
<b>Sky Stage Ultra</b>		Double point suspended platform CE certified <b>CE</b>	2m	12m	0.60 m
<b>Sky Stage 500</b>		Double point suspended platform CE certified <b>CE</b>	2m	16 m	0.59m
<b>Sky Stage 505</b>		Double point suspended platform CE certified <b>CE</b>	2m	16 m	0.59m
<b>Light Weight Stage</b>		Double point suspended platform CE certified <b>CE</b>	2m	16 m	0.65m
<b>Stages for special projects</b>		CE Certification on demand			

### Multiple point suspended platforms

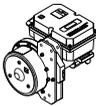
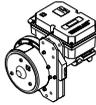
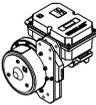
<b>Stages for special projects</b>	CE Certification on demand
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### Single point suspended platforms (Workcages)

			length	Width inside
<b>Sky Stage Ultra workcage</b>		Single point suspended platform CE certified <b>CE</b>	1- 2 m	0.60 m
<b>Sky Cage 500</b>		Single point suspended platform	1- 2m	0.59m
<b>Sky Cage 505</b>		Single point suspended platform	1- 2 m	0.59m

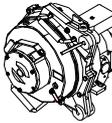
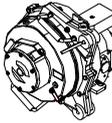
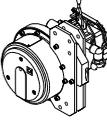
<b>Light Weight Cage</b>		Single point suspended platform CE certified <b>CE</b>	1.5 m	0.65m
<b>Cages for special projects</b>		CE Certification on demand		

## Hoists

<b>Electric powered Hoists</b>			Working Load Limit	Steel Wire Rope diam.	Climbing speed	Power supply
<b>Alpha 500</b>		Electric powered hoist CE certified <b>CE</b>	500 Kg	9 mm	8.5 m/min At 50 Hz 9.7 m/min At 60 Hz	1 Phase 220-240V or 3 Phase 380-415V
<b>Alpha 800</b>		Electric powered hoist CE certified <b>CE</b>	800 Kg	9 mm	8.5 m/min At 50 Hz 9.7 m/min At 60 Hz	1 Phase 220-240V or 3 Phase 380-415V
<b>Alpha 800 DS</b>		Electric powered hoist CE certified <b>CE</b>	800 Kg	9 mm	17m/min At 50 Hz 19.4 m/min At 60 Hz	1 Phase 220-240V or 3 Phase 380-415V
<b>Alpha 1000 S</b>		Electric powered hoist CE certified <b>CE</b>	990 Kg	10.2 mm	8.5 m/min At 50 Hz 9.7 m/min At 60 Hz	3 Phase 380-415V
<b>Alpha 1000 S DS Alpha 1000 S DS/M</b>		Electric powered hoist CE certified <b>CE</b>	990 Kg	10.2 mm	17m/min At 50 Hz 19.4 m/min At 60 Hz	3 Phase 380-415V
<b>Compact 400 S</b>		Electric powered hoist CE certified <b>CE</b>	400 Kg	8 mm	8.5 m/min At 50 Hz 9.7 m/min At 60 Hz	1 Phase or 3 Phase 220-240V  3 Phase 380-415V
<b>Compact 400 S DS Compact 400 S DSGB</b>		Electric powered hoist CE certified <b>CE</b>	400 Kg	8 mm	17m/min At 50 Hz 19.4 m/min At 60 Hz	1 Phase or 3 Phase 220-240V  3 Phase 380-415V
<b>CX500 S</b>		Electric powered hoist CE certified <b>CE</b>	500 Kg	8 mm	8.5 m/min At 50 Hz 9.7 m/min At 60 Hz	1 Phase or 3 Phase 220-240V  3 Phase 380-415V

<b>CX500 S DS</b> <b>CX500 S GSDM</b> <b>CX500 S DSGB</b> <b>CX500 S GDS</b>		Electric powered hoist CE certified <b>CE</b>	500 Kg	8 mm	17m/min At 50 Hz  19.4 m/min At 60 Hz	1 Phase or 3 Phase 220-240V  3 Phase 380-415V
<b>LNx</b>		Electric powered hoist CE certified <b>CE</b>	500 Kg  650 Kg	8-8.4 mm	10 m/s	1 Phase 220-240V or 3 Phase 380-415V

### Air powered Hoists

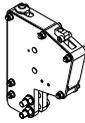
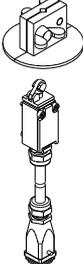
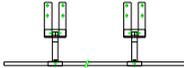
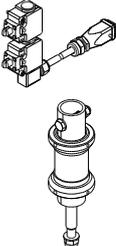
			Working Load Limit	Steel Wire Rope diam.	Climbing speed	Air Power Supply
<b>Alpha 500 AIR</b>		Air powered hoist CE certified <b>CE</b>	500 Kg	9 mm	8.5 m/min	6 bar
<b>Alpha 800 AIR</b>		Air powered hoist CE certified <b>CE</b>	800 Kg	9 mm	8.5 m/min	6 bar
<b>Compact 400 S AIR</b>		Air powered hoist CE certified <b>CE</b>	400 Kg	8 mm	8.5 m/min	6 bar
<b>CX500 S AIR</b>		Air powered hoist CE certified <b>CE</b>	500 Kg	8 mm	8.5 m/min	6 bar

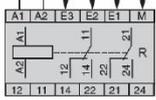
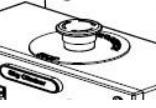
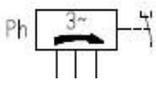
### Steel Wire Rope

Suspension rope and secondary rope

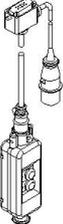
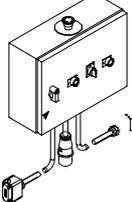
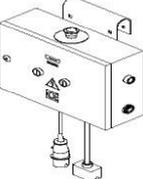
<b>SWR 8 mm</b>	CE certified <b>CE</b>
<b>SWR 9 mm</b>	CE certified <b>CE</b>
<b>SWR 10.2 mm</b>	CE certified <b>CE</b>

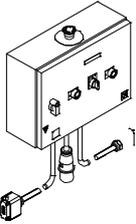
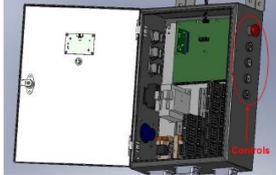
## Safety devices

<p><b>Sky Grip</b></p> <ul style="list-style-type: none"> <li>• hoist mounted</li> </ul> <p>(rope 8, 9 or 10.2 mm)</p>		<p>Mechanical anti-tilt device (En 1808 art. 8.3.8)          + sensing Slack Rope +          Fall arrest device - overspeed device (EN 1808 art. 8.9)</p> <p>CE certified <b>CE</b></p>
<p><b>Sky Lock</b></p> <ul style="list-style-type: none"> <li>• hoist mounted</li> <li>• end stirrup mounted</li> <li>• walk trough stirrup mounted</li> </ul> <p>(rope 8, 9 or 10.2 mm)          (single speed or double speed)</p>		<p>Fall arrest device - overspeed device          (EN 1808 art. 8.9)</p> <p>CE certified <b>CE</b></p>
<p><b>Top Limit Switch</b></p> <ul style="list-style-type: none"> <li>• Sky Lock mounted</li> <li>• Sky Grip mounted</li> <li>• Hoist mounted</li> <li>• Walk Through Stirrup mounted</li> </ul>		<p>Lifting Limit Switch (EN 1808 art. 8.3.10.1)</p> <p>CE certified <b>CE</b></p>
<p><b>Ultimate Top Limit Switch</b></p> <ul style="list-style-type: none"> <li>• Sky Lock mounted</li> <li>• Sky Grip mounted</li> <li>• Hoist mounted</li> <li>• Walk Through Stirrup mounted</li> </ul>		<p>Ultimate Lifting Limit Switch          (EN 1808 art. 8.3.10.3)</p> <p>CE certified <b>CE</b></p>
<p><b>Bottom trip bar</b></p> <ul style="list-style-type: none"> <li>• Mounted underneath the platform</li> </ul>		<p>Anti-collision device          (EN 1808 art. 8.3.9)          Lowering Limit switch          (EN 1808 art.8.3.10.2)</p> <p>CE certified <b>CE</b></p>
<p><b>Mechanical Overload Device</b></p> <ul style="list-style-type: none"> <li>• End stirrup mounted</li> <li>• Walk Through Stirrup mounted</li> </ul>		<p>Overload detection device          (EN 1808 art. 8.3.5)</p> <p>CE certified <b>CE</b></p>
<p><b>Mechanical Overload / Underload Device</b></p> <ul style="list-style-type: none"> <li>• End stirrup mounted</li> <li>• Walk Through Stirrup mounted</li> </ul>		<p>Overload detection device          (EN 1808 art. 8.3.5)</p> <p>No load detection device          (EN 1808 art. 7.9.3)</p> <p>CE certified <b>CE</b></p>

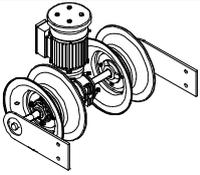
<p><b>Electrical Overload Device "SKY OL"</b></p> <ul style="list-style-type: none"> <li>• In Central Control Box (OPTIONAL)</li> </ul>		<p>Overload detection device (EN 1808 art. 8.3.5)</p> <p>CE certified <b>CE</b></p>
<p><b>Emergency stop</b></p> <ul style="list-style-type: none"> <li>• Mounted on Control Box (included by default in all control boxes)</li> </ul>		<p>Emergency stop equipment (EN 1808 art. 11.6)</p> <p>CE certified <b>CE</b></p>
<p><b>3 Phase Monitoring</b></p> <ul style="list-style-type: none"> <li>• Mounted in Central Control Box (included by default in CE control boxes)</li> </ul>		<p>3 Phase Monitoring (EN 1808 art. 10.1.1)</p> <p>CE certified <b>CE</b></p>
<p><b>Pneumatic Overload Device</b></p>		<p>NOT CE certified</p>
<p><b>Top Limit Air assy</b></p>		<p>NOT CE certified</p>

## Controls

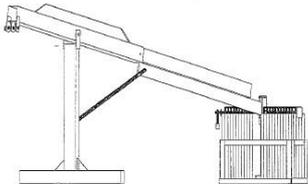
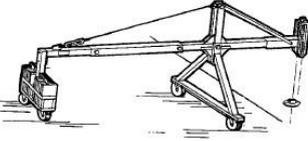
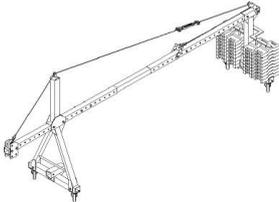
<p><b>Pendant control box</b> For 1 hoist</p>		<p>NOT CE certified</p>
<p><b>Control Box for 2 hoists</b> 1 phase or 3 phase</p>		<p>Emergency stop included NOT CE certified</p>
<p><b>Control Box 24V for 1 hoist</b> 1 phase or 3 phase</p>		<p>24 V Control CE certified <b>CE</b></p> <p>Emergency stop and 3 phase monitoring included</p>

<p><b>Control Box 24V for 2 hoists</b></p> <p>1 phase or 3 phase</p>		<p>24 V Control CE certified <b>CE</b></p> <p>Emergency stop and 3 phase monitoring included Optional: electronic anti-tilting, audio alarm and outlet for single phase handtools</p>
<p><b>Control Box For 2 Air powered hoists</b></p>		<p>Emergency stop included CE certified <b>CE</b></p>
<p><b>Control Box FNX</b></p>		<p>24 V Control CE certified <b>CE</b></p>

**Wire winders**

<p><b>Wire winders</b></p> <p>Capacity up to 150m 1 phase or 3 phase</p>		<p>CE certified <b>CE</b> but NOT required for Temporary Suspended Platforms</p>
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**Suspension Systems**

<p><b>Light Weight Roofbeam</b></p>		<p>CE certified <b>CE</b></p>
<p><b>Roofbeam Type 3</b></p>		<p>CE certified <b>CE</b></p>
<p><b>Telescopic mobile roofbeam</b></p>		<p>CE certified <b>CE</b></p>

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# Permitted Sky Climber CE configurations for TSP<sup>3</sup>

## Introduction

The permitted CE configurations as described below, indicate WHICH COMPONENTS SHALL BE COMBINED to constitute a complete CE certified Suspended Access Equipment.

These described assemblies of Suspended Access Equipment are valid only for Temporary Suspended Platforms, that are temporarily installed on a building or structure for specific tasks.

These permitted CE configurations shall not be used as a Building Maintenance Unit that is permanently installed and dedicated to a specific building or structure. For a Permanent Installation, other legal prescriptions are applicable. For more information about Building Maintenance Units, we refer to our SKY PI product and its manuals.

The below described assemblies of Temporary Suspended Platforms are , as a whole, CE products in conformity with the provisions of Machine Directive 2006/42/EEC. Sky Climber takes full responsibility for assessing the safety and conformity with the provisions of Machine Directive 2006/42/EEC, and we provide a legal written CE Declaration of Conformity for those configurations.

The user must respect strictly the prescribed configurations and combinations of components and shall not make other combinations of Sky Climber components, otherwise the safety and CE conformity cannot be guaranteed ! Each type of other combination of Sky Climber equipment that are not corresponding to the permitted CE configurations as described below, to constitute a complete Suspended Access Equipment, has NOT been proved to be in accordance with the requirements of the EC Machinery Directive 2006/42/EEC!

 Each type of combination of any Sky Climber equipment, with any other parts of other suppliers, to constitute a complete Suspended Access Equipment, must be examined and proved by the user /buyer to be in accordance with the requirements of the EC Machinery Directive 2006/42/EEC!

The application limits of each Sky Climber component (see section above), such as

- Working Load Limit
- Steel Wire Rope diameter
- Power supply tension limits
- Air pressure
- Minimum and maximum length of platforms

shall always be respected.

We refer to the specific Sky Climber User Manuals on the used components where you'll find all information about the limitations and conditions of use, load charts of platforms etc.

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<sup>3</sup> Temporary Suspended Platform

The suspension system can optionally be ordered at Sky Climber, as a part of the complete Suspended Access Equipment. If you use your own existing suspension system, or a system delivered by other suppliers than Sky Climber, it must be examined and proved by the user /buyer to be in accordance with the requirements of the EC Machinery Directive 2006/42/EEC!

In making a risk assessment of a no Sky Climber suspension system, consider the following:

1. Make certain the roof, parapet or cornice will support the load imposed by the suspended platform. Do not secure to a weak or questionable structure. When in doubt, consult a professional engineer and/or the building owner's qualified representative.
2. Make certain that the supporting devices, such as : "A"-frame, parapet clamp, cornice hook or roof beam will support the suspended platform load with a minimum of 3:1 safety factor. In case of doubt, consult a professional rigger/engineer.
3. Tie-backs shall be used on all supporting devices. Tie-backs must be perpendicular to the building facade, kept tight and attached to a structural member being capable of supporting the entire suspended load as well as the support system. Note : Professionally designed Davit systems do not usually require tie-backs.
4. Always use the correct type and size of rope clamps. Steel wire rope will slip through oversize clamps. Undersize clamps will damage the steel wire rope.
5. Never use a fluid or free-flowing material in a container as counterweight. Always use a solid material (with weight marking), that can be properly secured to the outrigger. Sandbags or liquid-filled containers shall never be used as counterweight.
6. The nut-type used for assembling suspension systems shall be of the self-locking type.
7. Never move a suspension support or roofbeam with the platform being suspended. The platform shall be lowered onto a solid surface and the suspension wires shall be slack before the suspension supports are to be moved.

## Composing a complete CE TSP

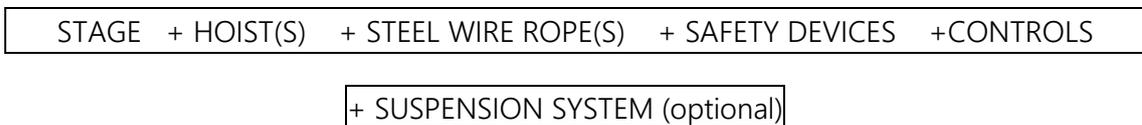
We refer to the Sky Climber leaflets and User Manuals for more detailed information on the different Sky Climber components.

We refer to the next section on "Permitted CE configurations for TSP" where you can find which components can be combined to form a complete TSP that meets the European CE regulations.

To compose a complete TSP, you need to choose the right components that

- are technically compatible with each other
- constitute a "CE" complete Suspended Access Equipment when combined together

To compose a complete Sky Climber Temporary Suspended Platform, you always need:



### Selection procedure:

1. Choose the STAGE type

according to the dimensions, loads and configurations that you require for it.

Refer to the specific User Manual of the stage that you use.

Refer to the section "Components for Suspended Access Equipment and their application limits" in this manual.

The selection criteria are : CE certification available or not, the number of suspension points (single or double point suspended platforms), the length, width, the maximum number of persons, the maximum rated load and the stirrup type (end stirrups or walk through stirrups), Work Load Limit (WLL) of the hoist(s). A double point suspension stage requires 2 hoists and 2 fall arrest/overspeed/anti-tilt devices

Example : Sky Stage Ultra, 7m platform in 2+3+2 configuration with 2 end stirrups  
(information from User Manual Sky Stage Ultra)

Load Rating of platform = 630 Kg (2)

Self weight of platform = 232 Kg

Max. number of persons : 6

Number of 2 hoists and 2 fall arrest/overspeed/anti-tilt devices

>>>> Work Load Limit of hoists = 500 Kg

2. Choose the hoist(s) type

according to the requirements for the selected stage type.

Refer to the section "Components for Suspended Access Equipment and their application limits" in this manual.

Refer to the specific User Manual of the hoist that you use.

The selection criteria are : CE certification available or not, environment (e.g. explosive, corrosive, temperature), type of power supply (electric or Air powered), Work Load Limit, climbing speed, motor current / air flow and steel wire rope diameter.

The WLL of the hoist(s) is also indicative for the Safe Working Load of your platform !



Refer to the specific User manual of the platform for Load Ratings of your platform. Compare the total WLL of hoists minus the selfweight of platform (1) with Load Rating of platform (2). Use the lowest value as the Safe Working Load. Failure to do so can result in injury or death.

Example: (for the Sky Stage Ultra mentioned above)  
Choice of 2 electric hoists CX500 S 380-415 V 3Ph 50Hz, Work Load Limit = 500 Kg,  
>>>> rope diameter = 8 mm  
>>>> total WLL of the hoists = 2 x 500 Kg = 1000 Kg  
>>>> total WLL minus self weight of platform: 1000 Kg – 232 Kg = 768 Kg (1)  
>>>> comparison (1) with (2) : lowest value is (2) so Safe Working Load of the platform is 630 Kg

### 3. Choose the correct Steel Wire Rope

according to the rope diameter of the hoist, the safety devices and the travel height of the platform.

Refer to the section "Steel Wire rope" in this manual.

The selection criteria are : CE certification (always available for standard Sky Climber steel wire rope), rope diameter (must correspond to the rope diameter for which the hoist and safety devices have been designed), number (corresponding to number of hoists and fall arrest/overspeed/anti-tilt devices-), and length.

Example: (for the hoists mentioned above)  
>>>> 4x Sky Climber Steel Wire Rope 8 mm, length 30 m  
(note: 2x for suspension rope, 2x for secondary rope)



Use of wire rope other than the correct wire rope obtained from Sky Climber, could result in injury or death.

### 4. Choose the Safety Device(s)

according to the rope diameter of the hoist and the travel height of the platform.

Refer to the sections "Fall arrest devices" and "Other safety devices" in this manual.

The selection criteria are : (necessity for) CE certification, The number of suspension points of the platform (single or double point), type of power supply (electric or Air powered), electric power supply tension and steel wire rope diameter.

Example: (for the stage/hoists mentioned above)  
>>>> 2x Sky Grip 8mm (for CE conformity of the TSP)  
>>>> Ultimate Top Limit Switch, Sky Grip, mounted  
>>>> Mechanical Overload Device

### 5. Choose the Controls

Refer to the section "Controls for electrical powered hoists" in this manual.

Refer to the specific User Manual of the Central Control Box that you use.

The selection criteria are : CE certification, type of power supply (electric or Air powered), number of hoists, electric power supply and additional functions (eg. Outlet for single phase hand tools, wire winders, trolley).

Example: (for the stage/hoists mentioned above)

>>>> Control Box 24 V for 2 hoists, 3 phase, 50 Hz with one tool outlet

#### 6. Choose the Suspension System

The suspension system is also an important part of a TSP.

Contact a Sky Climber sales representative for more information about Sky Climber Suspension Systems.

The selection criteria are : CE certification, Roof situation, stage dimensions, total suspended load and Work Load Limit of the hoist(s).

If you use your own existing suspension system, or a system delivered by other suppliers than Sky Climber, it must be examined and proved by the user /buyer to be in accordance with the requirements of the EC Machinery Directive 2006/42/EEC!

According to EN 1808, the Work Load Limit of the hoists is considered as the maximum calculated force in the wire ropes. The suspension system will support this load with a minimum of 3:1 safety factor.

Example: (for the stage/hoists mentioned above)

Work Load Limit of hoists CX500 S = 500 Kg

>>>> suspension system must be able to support a minimum weight of

3 x 500 Kg = 1500 Kg on each side of the platform !!!

>>>> 2x Sky Climber Roofbeam Type 1

Note :

You can always contact our Sales and Engineering department for any advice on selecting the right components of your Temporary Suspended Platform.

## CE configuration for single point suspended TSP

Nr.	Category	Qty	Type
1	Stage	1 pc	Sky Stage Ultra Workcage, L = 1.5m
2	Hoist	1 pc	CX500 S Electric Powered Hoist
3a	Steel wire rope	1 pc	Diameter 8 mm
3b	Steel wire rope	1 pc	Diameter 8 mm
4a	Safety device	1pc	Sky Lock III 8mm Fall arrest - overspeed device
4b	Safety device	1 pc	Electrical Overload Device (incorporated in Central Control Box)
4c	Safety device	1 ps	Ultimate Top Limit Switch
5	Controls	1 pc	Control Box 24V for 1 hoist

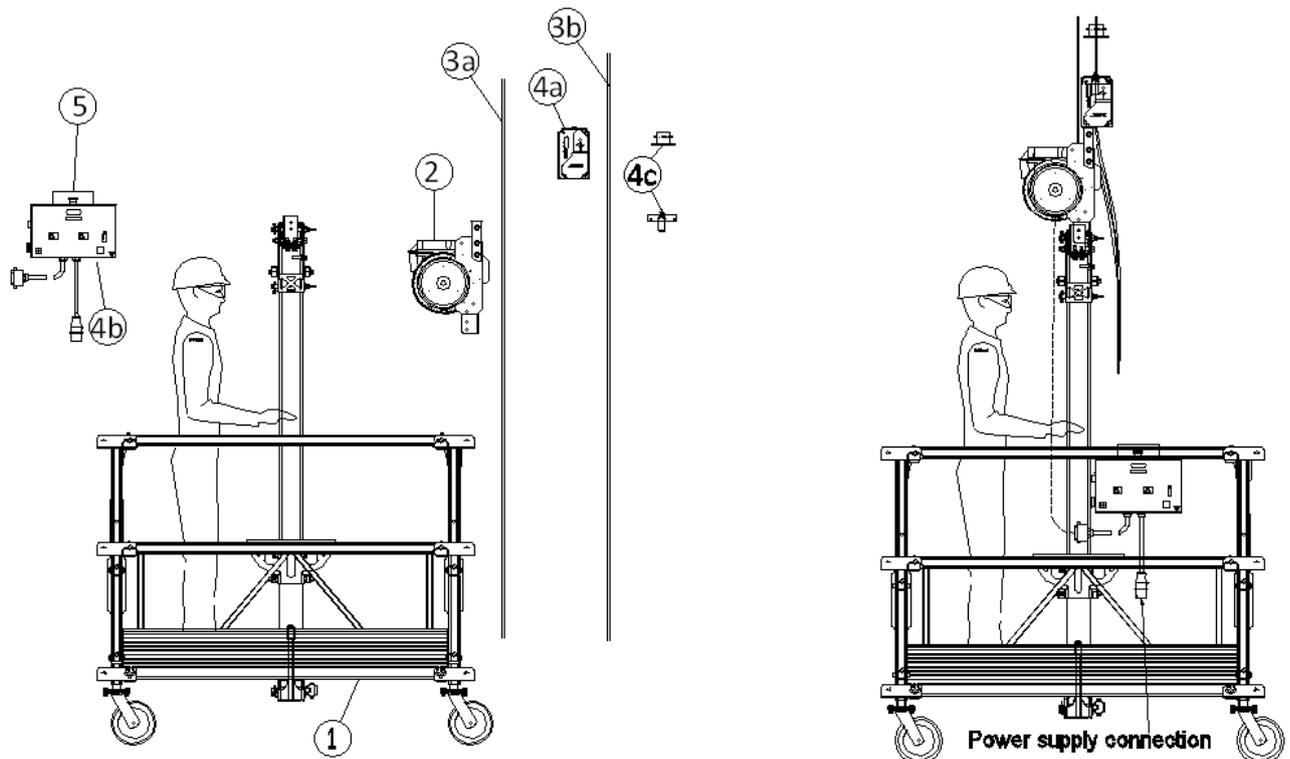


Fig.: 99000000-f01

## CE configuration for double point suspended TSP with END STIRRUPS

Nr.	Category	Qty	Type
1	Stage	1 pc	SSU, SS500(e), LWS
2	Hoist	2 pcs	Alpha – Compact CX Electric Powered Hoist
3a	Steel wire rope	2 pcs	Diameter ... mm
3b	Steel wire rope	2 pcs	Diameter ... mm
4a	Safety device	2 pcs	Sky Grip ... mm
4b	Safety device	2 pcs	Mechanical Overload Device ( alternative: electronical overload device in hoist)
4c	Safety device	2 pcs	Ultimate Top Limit Switch
5	Controls	1 pc	Control Box 24V for 2 hoists

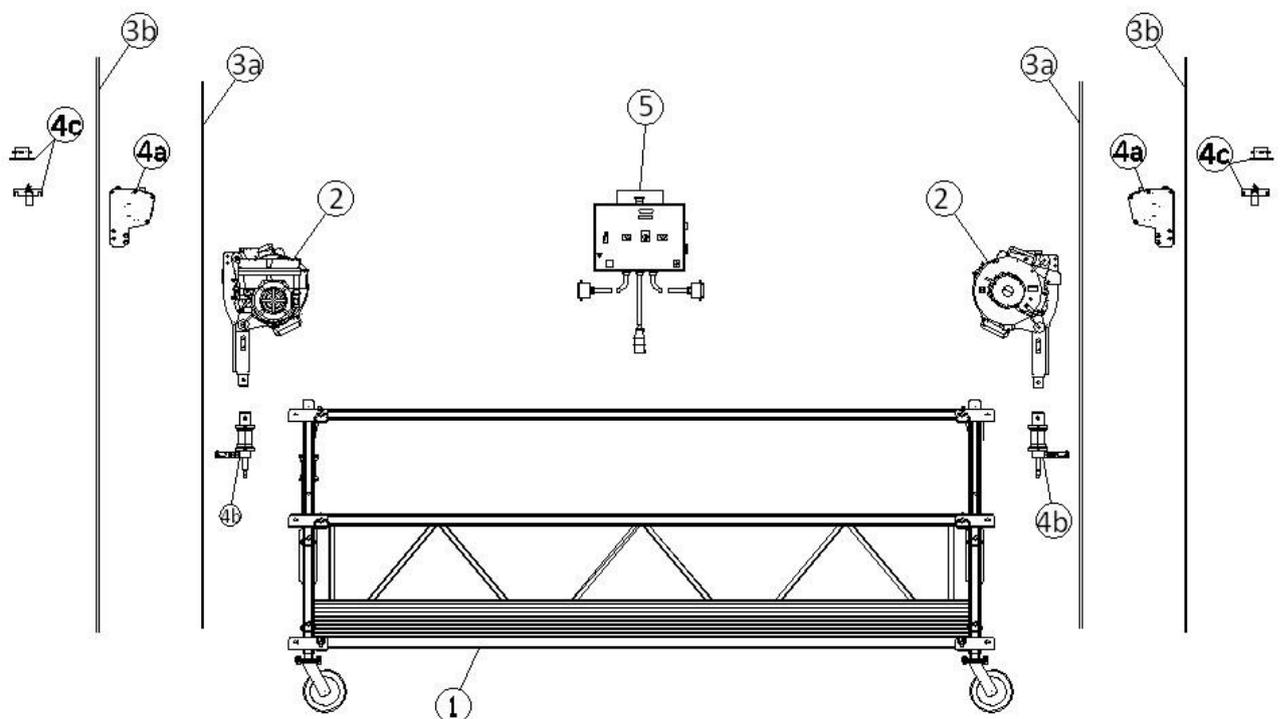
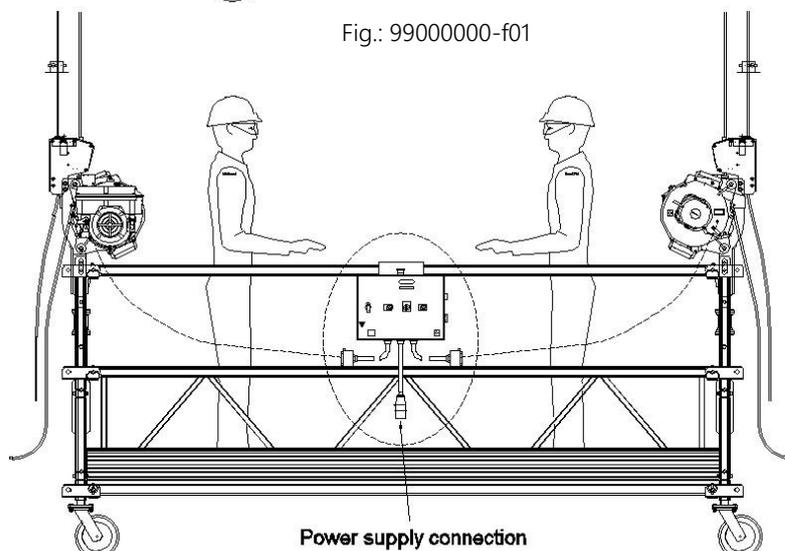
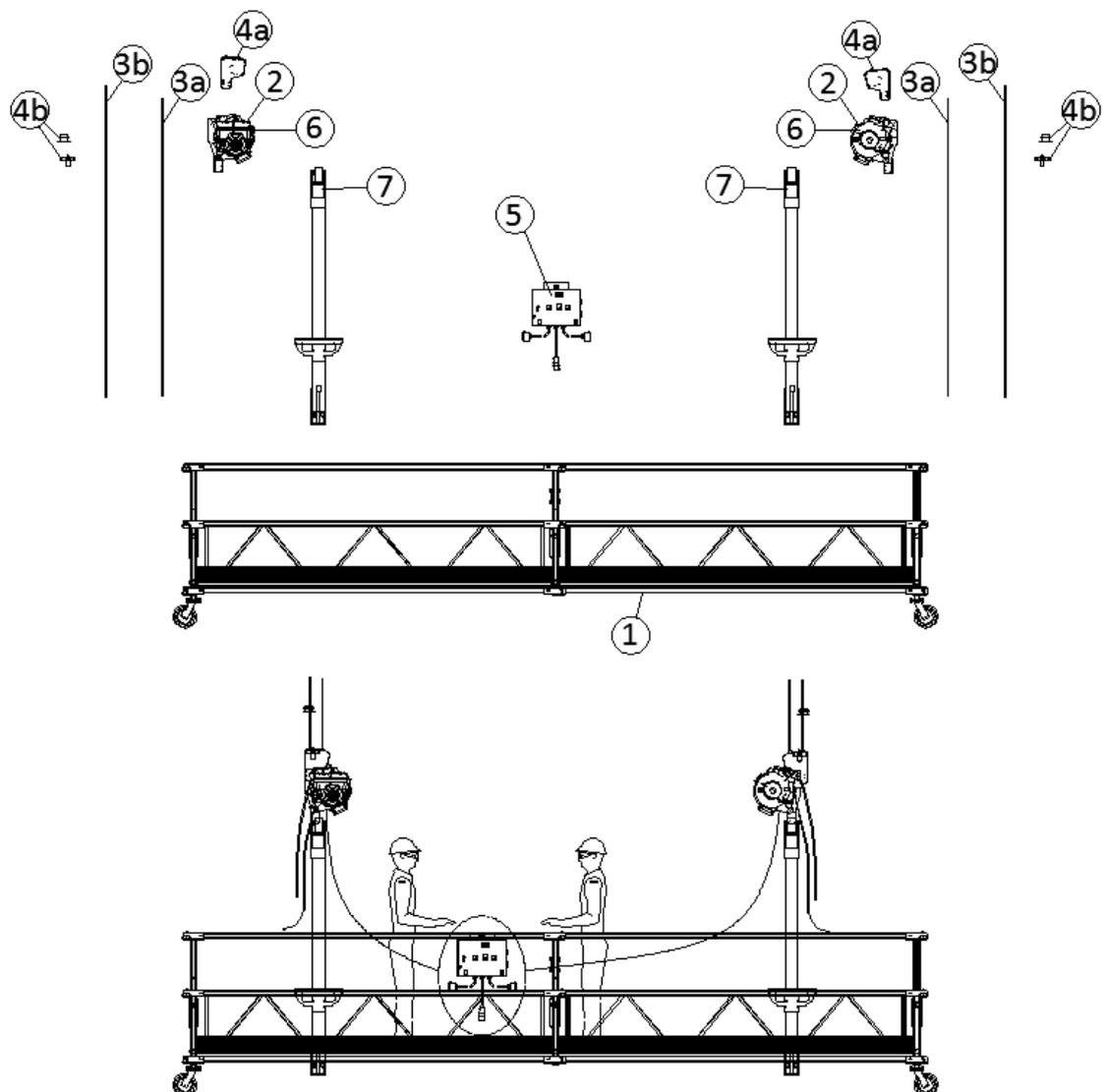


Fig.: 99000000-f01



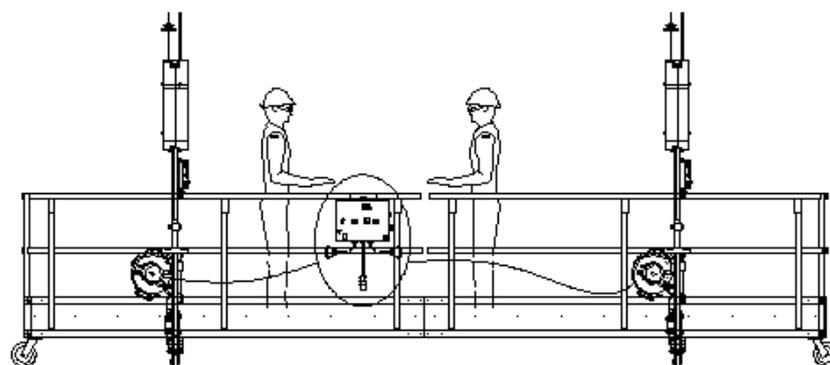
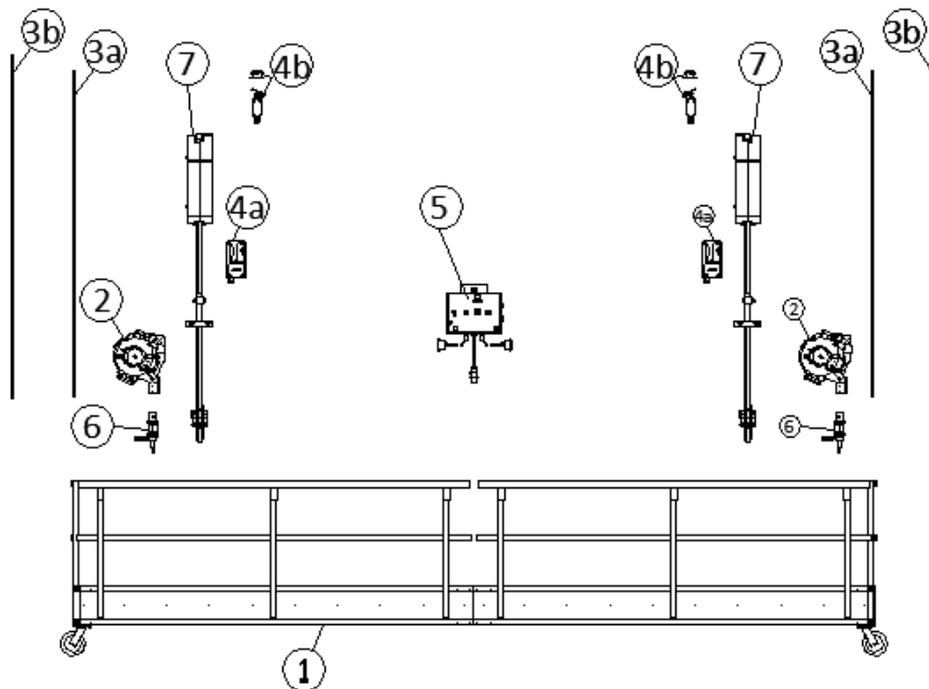
## CE configuration for double point suspended TSP with WALK THROUGH STIRRUPS

Nr.	Category	Qty	Type
1	Stage	1 pc	SSU, SS500(e), LWS
2	Hoist	2 pcs	Alpha – Compact CX Electric Powered Hoist
3a	Steel wire rope	2 pcs	Diameter ... mm
3b	Steel wire rope	2 pcs	Diameter ... mm
4a	Safety device	2 pcs	Sky Grip .... mm
4b	Safety device	2 pcs	Ultimate Top Limit Switch
5	Controls	1 pc	Control Box 24V for 2 hoists
6	Safety device	2 pcs	Electronic Overload device in hoist
7	Stage	2 pcs	Walk through stirrup 'hoist at top' type



## CE configuration for double point suspended TSP with WALK THROUGH STIRRUPS - ALTERNATIVE

Nr.	Category	Qty	Type
1	Stage	1 pc	SSU, SS500(e), LWS
2	Hoist	2 pcs	Alpha – Compact CX Electric Powered Hoist
3a	Steel wire rope	2 pcs	Diameter ... mm
3b	Steel wire rope	2 pcs	Diameter ... mm
4a	Safety device	2 pcs	Sky Lock .... mm
4b	Safety device	2 pcs	Ultimate Top Limit Switch
5	Controls	1 pc	Control Box 24V for 2 hoists
6	Safety device	2 pcs	Mechanical Over AND Underload Device
7	Stage	2 pcs	Walk through stirrup 'hoist below' type



99000000-d04

rev A

# Steel Wire Rope

## Specifications



WARNING: Always wear gloves to protect hands when working with wire rope.

Steel wire rope used for hoisting personnel must be treated with extreme care. It must be properly maintained or its useful life will be shortened.

Wire rope is an expendable item and begins to wear the moment it is put into use. A wire rope which is kept in use beyond its useful life endangers personnel and property. Therefore, wire rope must be periodically inspected to be sure that it is in good condition. Ropes which show sign of wear or deterioration must be replaced immediately to avoid personal injury and property damage.

Always use a Sky Climber type of steel wire rope of the correct diameter, construction and length, as described below.



WARNING: Use of wire rope obtained from sources other than Sky Climber could result in serious personal injury and/or property damage.

Sky Climber steel wire ropes can be ordered on specific length at Sky Climber, with the proper and complete preparations:

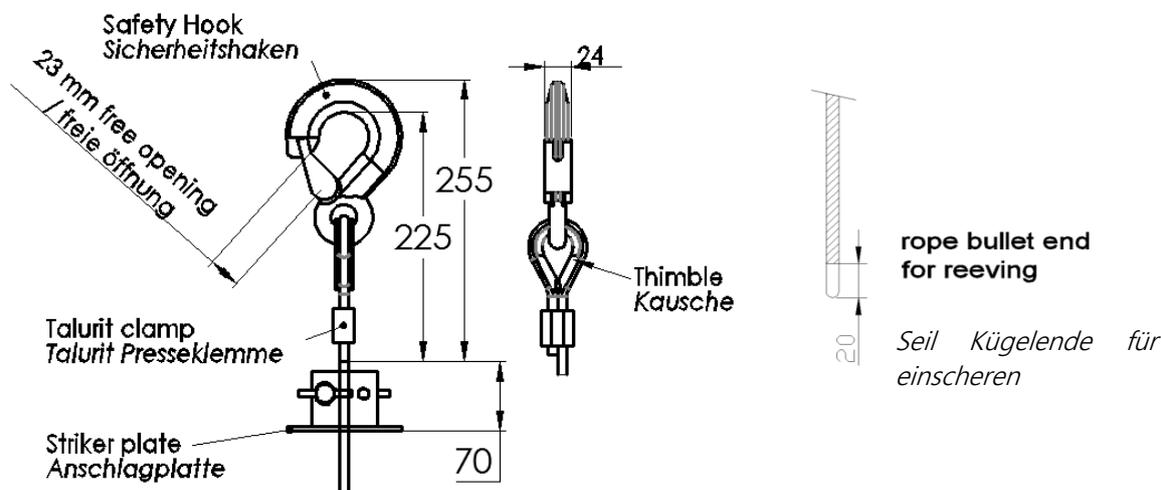
On the lower end : standard preparation by brazing to aid in reeving and to avoid unlaying. See figure below.



On the upper end : standard preparation of the end rope fitting set with a thimble, Talurit pressed clamp and a safety hook (optional, can also be replaced by a shackle). See figure below.



## End rope fitting sets with safety hook



51009008-f01

### 51009006 End rope fitting set for 8 mm SWR with steel core

Art.Nr.	Qt	Description - Beschreibung
51008090	1	Safety Hook - Sicherheitshaken
51008137	1	Talurit Clamp - Talurit Presseklammer
51008107	1	Steel Thimble - Stahl Kausche

### 51009008 End rope fitting set for 8.4 mm SWR with pp. core

Art.Nr.	Qt	Description - Beschreibung
51008090	1	Safety Hook - Sicherheitshaken
51008137	1	Talurit Clamp - Talurit Presseklammer
51008107	1	Steel Thimble - Stahl Kausche

### 51009009 End rope fitting set for 8.4 mm SWR with pp. core (length > 100m)

Art.Nr.	Qt	Description - Beschreibung
	1	Safety Hook - Sicherheitshaken
	1	Talurit Clamp Z9 - Talurit Presseklammer Z9
	1	Steel Thimble - Stahl Kausche

### 51009012 End rope fitting set for 9 mm SWR with pp. core

Art.Nr.	Qt	Description - Beschreibung
51008090	1	Safety Hook - Sicherheitshaken
51008137	1	Talurit Clamp Z9 - Talurit Presseklammer Z9
51008107	1	Steel Thimble - Stahl Kausche

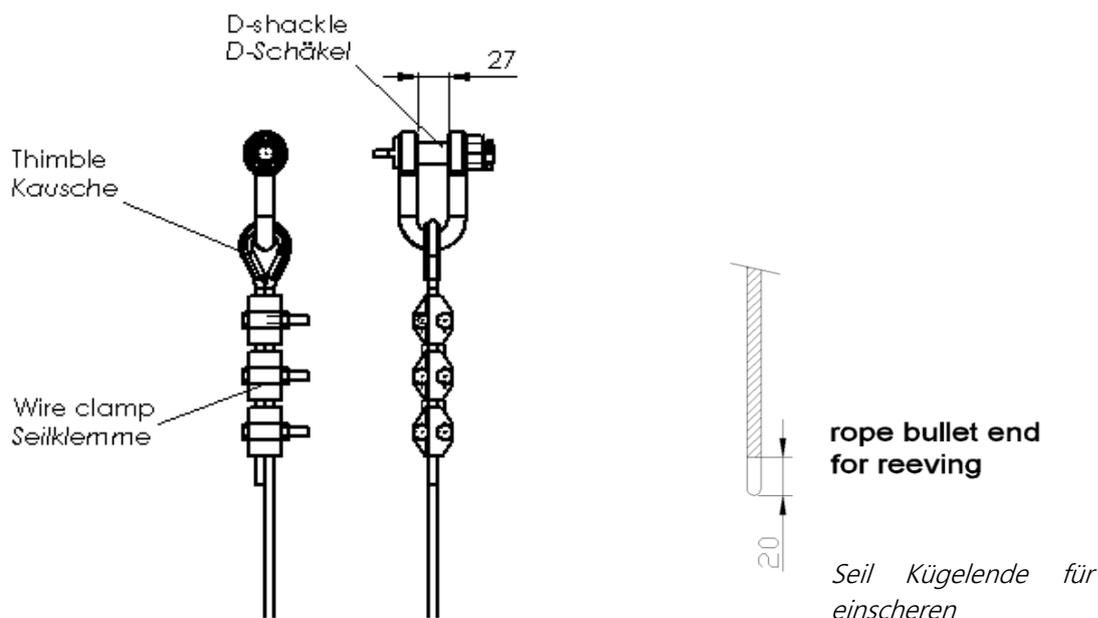
51009015 End rope fitting set for 9 mm SWR with pp. core

Art.Nr.	Qt	Description - Beschreibung
51008090	1	Safety Hook - Sicherheitshaken
51008137	2	Talurit Clamp Z9 – Talurit Pressklemme Z9
51008107	1	Steel Thimble – Stahl Kausche

51009025 End rope fitting set for 10.2 mm SWR with pp. core

Art.Nr.	Qt	Description - Beschreibung
	1	Safety Hook - Sicherheitshaken
	1	Talurit Clamp Z9 – Talurit Pressklemme Z9
	1	Steel Thimble – Stahl Kausche

**End rope fitting sets with d-shackle (BOILER APPLICATIONS)**



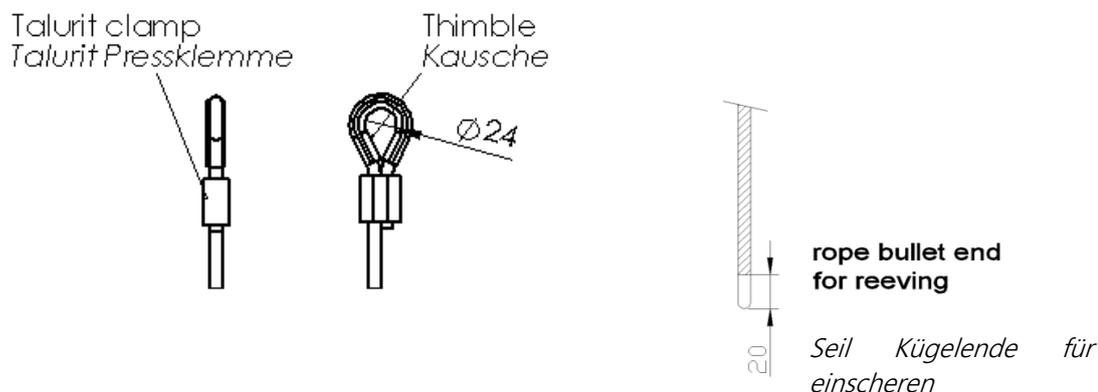
51009024-f01

51009024 End rope fitting set for 8 or 9 mm SWR with steel core / *Ende Satz für 8 oder 9mm Seil mit Stahkern*

Art.Nr.	Qt	Description - Beschreibung
51008151	1	D-shackle - D-Schäkel
51008141	3	Wire clamp - Seilklemme
51008107	1	Steel Thimble – Stahl Kausche



## End rope fitting sets with thimble only



51009024-f01

51009014 End rope fitting set for 8.4 mm SWR with pp. core / Ende Satz für 8.4 mm Seil mit Pp. Kern

Art.Nr.	Qt	Description - Beschreibung
51008137	1	Talurit Clamp – Talurit Pressklemme
51008107	1	Steel Thimble – Stahl Kausche

51009013 End rope fitting set for 9 mm SWR with pp. core / Ende Satz für 9 mm Seil mit Pp. Kern

Art.Nr.	Qt	Description - Beschreibung
51008137	1	Talurit Clamp – Talurit Pressklemme
51008107	1	Steel Thimble – Stahl Kausche

51009026 End rope fitting set for 10.2 mm SWR with pp. core / Ende Satz für 10.2 mm Seil mit Pp. Kern

Art.Nr.	Qt	Description - Beschreibung
	1	Talurit Clamp – Talurit Pressklemme
	1	Steel Thimble – Stahl Kausche

## Steel Wire Rope for LNX, Compact & CX500 Series

8mm Steel Wire Rope with polyprop core / *8 mm Stahldrahtseil mit Polyprop Kern*

Part Number Sky Climber <i>Artikelnummer Sky Climber</i>	51008305
Diameter	8,4 mm
Tolerance <i>Toleranz</i>	- 0,3 +0
Construction <i>Konstruktion</i>	5x26 WSR , Polyprop core - <i>Polyprop Kern</i>
Type and direction of lay <i>Typ und Schlagrichtung</i>	Right hand, regular lay, preformed <i>Rechtsgängig, Gleichschlag, vorgeformt</i>
Surface finish of the wires <i>Oberfläche der Drähte</i>	Galvanised <i>verzinkt</i>
Tensile strength <i>Zugfestigkeit</i>	2160 N/mm <sup>2</sup>
Theoretical breaking load <i>Theoretische Bruchlast</i>	64.6 kN
Actual breaking load <i>Aktuelle Bruchlast</i>	51.5 kN
Lubrication <i>Schmierung</i>	Lightly greased <i>Leicht gefettet</i>

8mm Steel Wire Rope with polyprop core / *8 mm Stahldrahtseil mit Polyprop Kern*

Part Number Sky Climber <i>Artikelnummer Sky Climber</i>	51008311
Diameter	8,4 mm
Tolerance <i>Toleranz</i>	+ 0,2 -0,1
Construction <i>Konstruktion</i>	5x26 WSR , Polyprop core - <i>Polyprop Kern</i>
Type and direction of lay <i>Typ und Schlagrichtung</i>	Right hand, regular lay, preformed <i>Rechtsgängig, Gleichschlag, vorgeformt</i>
Surface finish of the wires <i>Oberfläche der Drähte</i>	Galvanised <i>verzinkt</i>
Tensile strength <i>Zugfestigkeit</i>	2160 N/mm <sup>2</sup>
Theoretical breaking load <i>Theoretische Bruchlast</i>	64.6 kN
Actual breaking load <i>Aktuelle Bruchlast</i>	51.5 kN

Lubrication <i>Schmierung</i>	Dry <i>Trocken</i>
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The rope is delivered slightly lubricated and must be kept slightly lubricated at all times. If necessary, distribute a few drops of motor oil (for example 10W40) every 2 meter , with a rag.

*Das Seil wird leicht geschmiert geliefert und muss zu jeder Zeit leicht geschmiert eingehalten werden. Bei Bedarf : mit einem Lappen ein paar Tropfen Motoröl (zB 10W40) alle 2 Meter verteilen.*

## **Steel wire rope for Alpha 500 and 800 Series**



The steel wire rope (partn° 51008301) is conformed to the ISO 2408 and the NBN 04-001 standards and in accordance with the following specifications:

Diameter	9mm
Construction <i>Konstruktion</i>	4x36WS, polyprop core - <i>Polyprop Kern</i>
Type and direction of lay <i>Typ und Schlagrichtung</i>	Right hand, regular lay, preformed <i>Rechtsgängig, Gleichschlag, vorgeformt</i>
Surface finish of the wires <i>Oberfläche der Drähte</i>	Galvanised <i>verzinkt</i>
Tensile strength <i>Zugfestigkeit</i>	2160N/mm <sup>2</sup>
Theoretical breaking load <i>Theoretische Bruchlast</i>	78,5kN
Minimum breaking load <i>Mindestbruchlast</i>	62,7kN
Lubrication <i>Schmierung</i>	Lightly greased <i>Leicht gefettet</i>

The steel wire rope (partn° 51008009) is conformed to the ISO 2408 and the NBN 04-001 standards and in accordance with the following specifications:

Diameter	9mm
Construction <i>Konstruktion</i>	6x36WS, steel core - <i>Stahlkern</i>
Type and direction of lay <i>Typ und Schlagrichtung</i>	Right hand, regular lay, preformed <i>Rechtsgängig, Gleichschlag, vorgeformt</i>
Surface finish of the wires <i>Oberfläche der Drähte</i>	Galvanised <i>verzinkt</i>
Tensile strength <i>Zugfestigkeit</i>	2160N/mm <sup>2</sup>
Theoretical breaking load <i>Theoretische Bruchlast</i>	78,5kN
Minimum breaking load <i>Mindestbruchlast</i>	62,3kN
Lubrication <i>Schmierung</i>	Lightly greased <i>Leicht gefettet</i>

The steel wire rope (partn° 51008309) is conformed to the ISO 2408 and the NBN 04-001 standards and in accordance with the following specifications:

Diameter	9mm
Construction <i>Konstruktion</i>	4x36WS, polyprop core - <i>Polyprop Kern</i>
Type and direction of lay <i>Typ und Schlagrichtung</i>	Right hand, regular lay, preformed <i>Rechtsgängig, Gleichschlag, vorgeformt</i>
Surface finish of the wires <i>Oberfläche der Drähte</i>	Galvanised <i>verzinkt</i>
Tensile strength <i>Zugfestigkeit</i>	2160N/mm <sup>2</sup>
Theoretical breaking load <i>Theoretische Bruchlast</i>	78,5kN
Minimum breaking load <i>Mindestbruchlast</i>	66.1kN
Lubrication <i>Schmierung</i>	Dry <i>Trocken</i>

## **Steel wire rope for Alpha 1000 Series**

The steel wire rope (partn° 51008315) is conformed to the ISO 2408 and the NBN 04-001 standards and in accordance with the following specifications:

Diameter	10,2mm
Construction <i>Konstruktion</i>	5x19S, fiber core - <i>Faser Kern</i>
Type and direction of lay <i>Typ und Schlagrichtung</i>	Right hand, regular lay, preformed <i>Rechtsgängig, Gleichschlag, vorgeformt</i>
Surface finish of the wires <i>Oberfläche der Drähte</i>	Galvanised <i>verzinkt</i>
Tensile strength <i>Zugfestigkeit</i>	2160N/mm <sup>2</sup>
Minimum breaking load <i>Mindestbruchlast</i>	83.05kN
Lubrication <i>Schmierung</i>	Slightly oiled <i>Leicht geölt</i>
Marking <i>Markierung</i>	One red strand <i>Ein roter Strang</i>

The steel wire rope (partn° 51008315) is a 'dry' type that does NOT cause this type of deposits due to the absence of grease. It is delivered in a 'dry' state from our factory.

However this rope type needs to be lubricated by the user as per the following instructions :

- Lubrication before first use.
- periodic lubrication after every 200 cycli (eg. 1 cyclus= 1 x travel upwards total height + 1x travel downwards total height)
- Use lubricant spray Castrol Chain O-R spray (available at Sky Climber art. nr. 12009509 - 400ml aerosol)
- spray slightly on steel wire rope in a momentary way over 20 cm wire rope length, every 2 meters(ie. 20 cm sprayed, 180 cm not sprayed, 20 cm sprayed etc.)

.Always use the Sky Climber type of steel wire rope, otherwise the good functioning of the hoist cannot be guaranteed

*Das Stahldrahtseil (Teilnr. 51008315) ist ein 'trockene' Typ der nicht diese Ablagerungen verursachen kann da kein Schierfett anwesend ist. Es werd in trockene Zustand af Fabrik geliefert.*

*Doch der diesen Seiltyp muss vom Benutzer gemäß den folgenden Anweisungen geschmiert werden:*

- *Schmierung vor den ersten Einsatz*
- *regelmässige Schmierung nach jede 200 Zykli (zb. 1 komplette Zyklus = 1 trajekt aufwärts auf voller Hubhöhe + 1 trajekt abwärts auf voller Hubhöhe)*
- *Verwenden Sie Castrol Kettenspray O-R (.. Erhältlich bei Sky Climber art Nr 12009509 - 400ml Sprühdose)*
- *Sprühen sie sparsam auf Stahlseil in einer Weg über 20 cm Seillänge, alle 2 Meter (dh. 20 cm besprüht, 180cm nicht gespritzt, 20 cm besprüht etc.)*

*Benutzen Sie immer das Sky Climber Stahldrahtseiles, andernfalls kann die gute Wirkung der Winde nicht garantiert werden.*

## Handling, use and storage

Comply with codes, regulations and industrial standards which forbid or warn against the use of kinked, bird-caged or damaged steel wire rope. Inspect the steel wire rope for wear and damage prior to use and during operation. Steel wire rope is susceptible to serious damage if not handled in accordance with these instructions. Exposure to concentrated acids, caustic material, corrosion, fire, electricity, undue heat or abuse damages the steel wire rope. When such an exposure has occurred, replace the steel wire rope immediately.



WARNING: Always wear gloves to protect hands when working with wire rope.

Steel wire rope used for hoisting personnel must be treated with extreme care. It must be properly maintained or its useful life will be shortened.

Wire rope is an expendable item and begins to wear the moment it is put into use. A wire rope which is left in use beyond its useful life endangers personnel and property. Therefore, wire rope must be periodically inspected to be sure that it is in good condition. Ropes which show sign of wear or deterioration must be replaced immediately to avoid personal injury and property damage.



WARNING : The use of kinked, bird caged or excessively worn or damaged steel wire rope is unlawful. Such use may result in injury or death to yourself or others.

Use Sky Climber specified steel wire rope, clamps, thimbles and other work associated components.

Rig from top of structure allowing approximately 3 meter of extra steel wire rope at the bottom to reeve hoist. Sky Climber strongly recommends that all rope drops be of sufficient length to reach a safe surface level when reeved.

Steel wire rope must be rigged to remain vertical, with suspension points directly above the hoist entry guide or lead-in device at all times.

A double wire suspension (primary and secondary safety steel wire rope) system has to be used at all times in order to comply with European safety regulations. Make certain that each steel wire rope is attached to its own suspension point on the suspension device.

Steel wire rope fittings (J-clamps, shackles and Talurit clamps) must be checked for tightness at first loading and then at the beginning of each shift.

Wire rope shall be stored in a coil or on a drum. Stored wire rope shall be protected from physical abuse, inclement weather and corrosive materials.

Do not drop wire rope from top of structure. Wire rope shall be lowered hand-over-hand.

Unreeling or uncoiling of wire rope shall be done as shown in the figure below. Use extreme care to avoid kinking or inducing a twist.



During installation, care shall be observed to avoid dragging the wire rope in dirt or around objects which will scrape, nick, crush, induce sharp bends, or otherwise damage it.

Galvanized wire rope supplied by Sky Climber is lubricated when it leaves the factory. Under normal conditions, further lubrication is not required.

## Inspection and replacement criteria

The full length of wire rope to be used shall be inspected daily before use and before any new installation of a Temporary Suspended Platform.

Wire rope SHALL be taken out of service when ANY of the following conditions exist:

- a) Four randomly distributed broken wires in three lays, or two broken wires in one strand in three lays. (see figure)



Broken wires

- b) More than one valley break (broken wire). A wire break in the valleys between strands indicates an abnormal condition, possibly fatigue, and breakage of other wires not visible.

- c) Kinking, crushing, bird-caging or any other damage resulting in distortion of the rope structure. (see figures)



Kinked wire rope



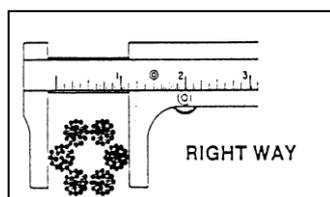
Crushed wire rope



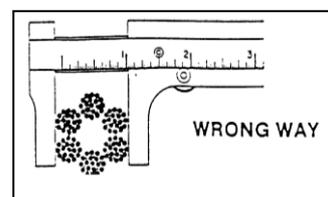
Birdcaged wire rope

- d) Evidence of any heat damage from any cause.
- e) Evidence of rope deterioration from corrosion.
- f) Noticeable rusting, corrosion, pitting or more than two broken wires in the vicinity of end attachments.
- g) Evidence of core failure (a lengthening of rope lay and a reduction in rope diameter suggests core failure).
- h) 5% reduction of wire rope diameter (when measured under load).

Wire rope is measured across its largest dimensions on the outer limits of the strands, as the figure shows.



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# Controls for electrical powered hoists

## General

The Sky Climber CE Central Control Boxes (CCB's) are made of steel and have a protection degree IP65.

The rubber supply cable is provided with a normalized CEE connector plug.

The electrical protection of the control box shall be provided in the electrical power supply of the building with a use that is appropriate for the operation current of the hoist(s) that you use.

In Europe and many other countries, it is legally obliged to provide in this supply (or supply group), a residual current device of max. 30 mA. Follow all applicable Federal, State and Local codes and regulations pertaining to electrical safety.

Before using electric powered hoists, have a qualified person check the voltage while hoisting with your maximum allowable load. The voltage should vary with no more than 10 % of the nominal power supply voltage indicated on the electromotor data plate.

Make sure that the electrical power source is "earthed" to a point of sufficient low resistance. Use only approved connector plugs and power supply cords with strain relief, correctly assembled from hoist to power supply. Verify ground continuity, and use a ground fault interrupter (as required by code in your location). Consult local safety authorities for further information.

Ensure that all metal parts, outlets, junction boxes and other components that might come in contact with live conductors are properly earthed.

Always use a power cable cord with earth conductor when using electrically driven handtools on a suspended platform. Verify that the handtools are properly earthed. (or use handtools of the double insulated type)

Control boxes exist in several versions, basically depending on:

- The number of hoists to be controlled
- The main power tension
- The CE conformity (24 V control)
- Required additional functions

## Electrical CCB's : versions and specifications

	Power supply tension	CE conformity	Emergency stop	3 Phase monitoring	Electrical Overload	Anti-tilting device	Audio Alarm	Tool Outlet Socket	Top Limit	Bottom Limit	Wire Winder	Trolley command
Pendant Control Bax	1 phase 230 V		●									
	3 phase 400 V		●									
	3 phase 230 V		●									
Control box for 1hoist	1 phase 230 V		●					Op				
	3 phase 400 V		●					Op				
	3 phase 230 V		●					Op				
Control box for 2 hoist	1 phase 230 V		●					Op				
	3 phase 400 V		●					Op				
	3 phase 230 V		●					Op				
Control box 24V for 1 hoist	1 phase 230 V	●	●	●	Op		●	Op	Op	Op	Op	Op
	3 phase 400 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
	3 phase 230 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
Control box 24V for 2 hoists	1 phase 230 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
	3 phase 400 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
	3 phase 230 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
Control box for 3 hoists	1 phase 230 V		●					Op				
	3 phase 400 V		●					Op				
	3 phase 230 V		●					Op				
Control box 24 V for 3 hoists	1 phase 230 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
	3 phase 400 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
	3 phase 230 V	●	●	●	Op	●	●	Op	Op	Op	Op	Op
Control box for 4 hoists	1 phase 230 V		●					Op				
	3 phase 400 V		●					Op				
	3 phase 230 V		●					Op				
Control box 24 V for 4 hoists	1 phase 230 V	●	●	●	Op	Op	●	Op	Op	Op	Op	Op
	3 phase 400 V	●	●	●	Op	Op	●	Op	Op	Op	Op	Op
	3 phase 230 V	●	●	●	Op	Op	●	Op	Op	Op	Op	Op
Control Box for SKY PI	1 phase 230 V	●	●	●	Op	●	●	●	●	●	●	Op
	3 phase 400 V	●	●	●	Op	●	●	●	●	●	●	Op
	3 phase 230 V	●	●	●	Op	●	●	●	●	●	●	Op

Legenda : ● =provided by default Op =Optional

For special Control Boxes: contact a Sky Climber sales representative.

## Installation

The installation needs to be done by a competent person that is experienced in access equipment.

- First check if the Control Box matches the needed power supply type of the hoist(s). A single phase hoist must be connected to a single phase Control Box and a three phase hoist with a three phase Control Box. The power supply tension must correspond as well. You 'll find the correct phase and tension on a yellow label on the control box and also on the hoist.
- For all types except Pendant Control Box : secure the Control Box to the stage handrail with the bolts provided.
- Push down the red emergency button on top of the Control Box.
- Connect the Control Box to ther hoist(s) by means of the 10 pin outlets. In case you have two or more hoists to connect: make sure the right plug is on the right hoist (e.g. left plug to the left hoist, right plug to the right hoist) otherwise the button(s) will not control the right hoist.
- For all 24 V types: open the door of the Control Box and switch the automatic fuse of the control circuit ON (red color on fuse is visible)
- Connect the power supply cable to the red connector of the Control Box.
- Switch OFF the emergency push button on top of the Control Box by rotating it (rotate red button to the right).
- Check that the general contactor is activated, if not the phase sequence is wrong: switch two phases in the power supply socket. Try again.
- Operate the platform in both directions. Make sure the platform goes UP while pushing the UP button, and vice versa.
- Test the emergency push button. Hit the emergency push button in each direction while operating the platform.
- Test the selector swith (if provided). Example : Control Box for 2 hoists: The selector switch has 3 positions, they are meant for operating the first hoist (I), both hoists (I+II) or the second hoist (II). Try out each position and check the reaction.
- Test the anti-tilting device (if provided): manually tilt the Control Box by 7° to the right while operating both of the hoists UP: the left hoist should now stop moving up. Repeat this test for the opposite side and also in the DOWN mode.
- The Control Box is now ready to use.

## Control elements

Example: Control box 24V for 2 hoists, with tool outlet and anti-tilting device.

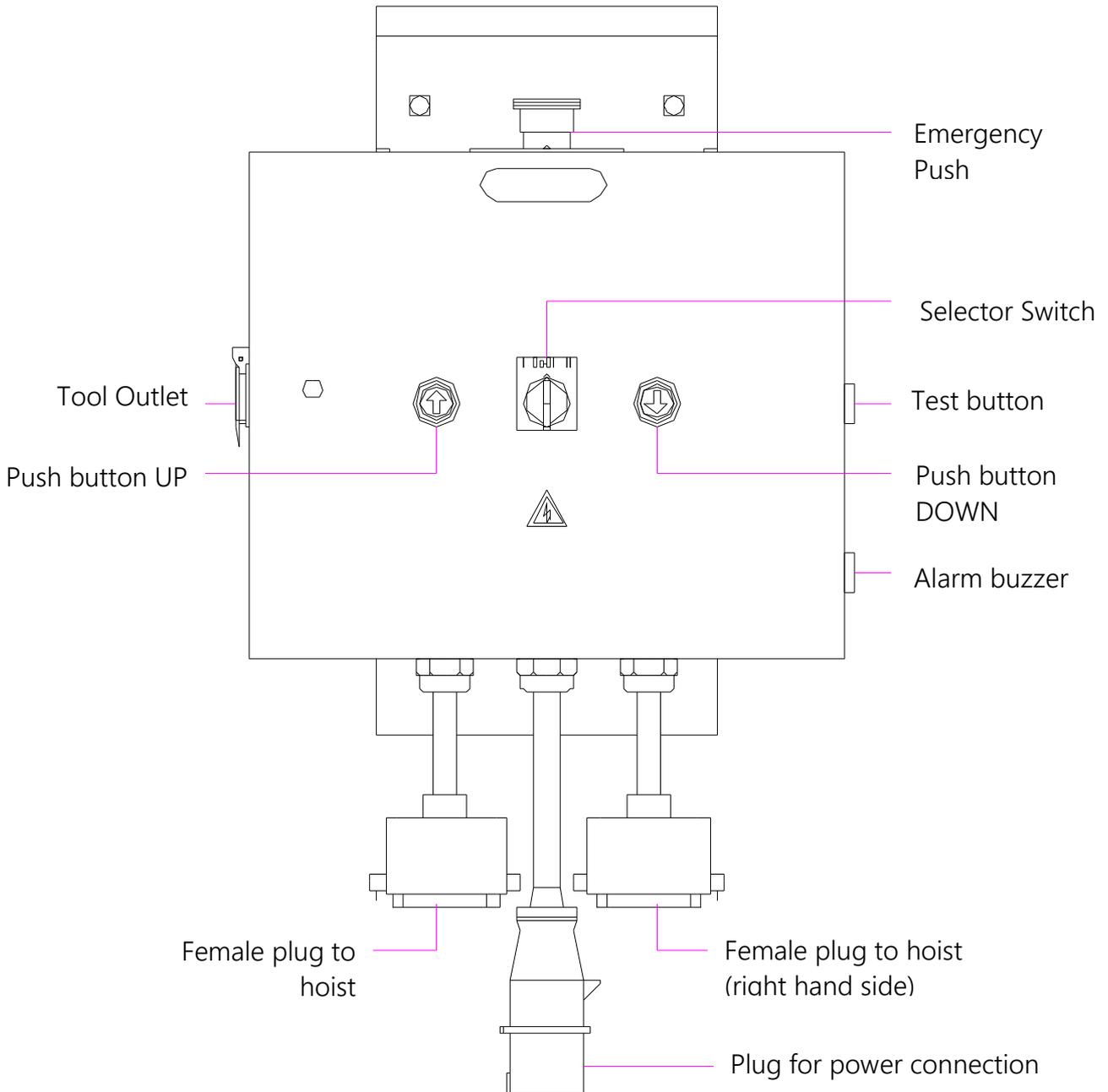


Fig.: 99000000-f05

## Operation

After everything has been connected and tested correctly by a competent person, the Control Box must be used as follows.

### Raising and lowering:

On the Control Box front panel, there are two push buttons: one to raise and one to lower the platform. For instance, to raise the platform, one has to push the down button until the platform reaches the required height. The buttons may never be blocked in an active (pushed inwards) position.

e.g. Control box 24V for 2 hoists : the Selector Switch has to point to the middle option : I + II. Both hoists will then be operated at the same time.

### Emergency situation:

The emergency push button of the control box is useful to switch off the complete installation in case of an EMERGENCY. The emergency push button can be reset by turning it.

### Reeving and dereeving:

To reeve the steel wire rope into the hoist, switch the selector switch to the hoist being reeved and use the UP button to activate the reeving.

To dereeve the steel wire rope from the hoist, switch the selector switch to the hoist being reeved and use the DOWN button to activate the dereeving.

### Tool outlet (optional):

The Control Box can be provided with a tool outlet socket where you can plug in electrical hand tools to work with.

### Anti-tilting device (optional):

The purpose of this device is to avoid the cradle going out of level. For instance when the cradle is being lowered and it tilts by more than 7 degrees, the lower hoist will stop automatically allowing the other to continue and return the cradle to its correct position.

When the cradle is being operated in the "up" direction and the platform goes out of level by more than 7 degrees, the upper hoist will stop automatically allowing the other to continue and return the cradle to its correct position.

It is therefore important to have the Control Box mounted correctly on the cradle. If this has not been done right, the anti-tilting device will not work properly.

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## Maintenance & Periodic inspections

Only a competent person may carry out maintenance.

- Pull out the power supply plug before touching the wiring. The wiring up to the emergency button can still be under tension.
- Each Control Box and hoist is delivered with a wiring diagram in a transparent plastic bag. Preserve this carefully in the Control Box and the hoist, to avoid needless searching.
- The box: check on water penetration and possible corrosion on the contacts.
- The emergency push button: check if the screws connecting the emergency button on the box are still fixed.
- The labels: check if all labels are present and legible.
- The cables: check if there are no external damages on the outer jacket and/or isolation in order to avoid short-circuit.

## Example of an electric wiring diagram

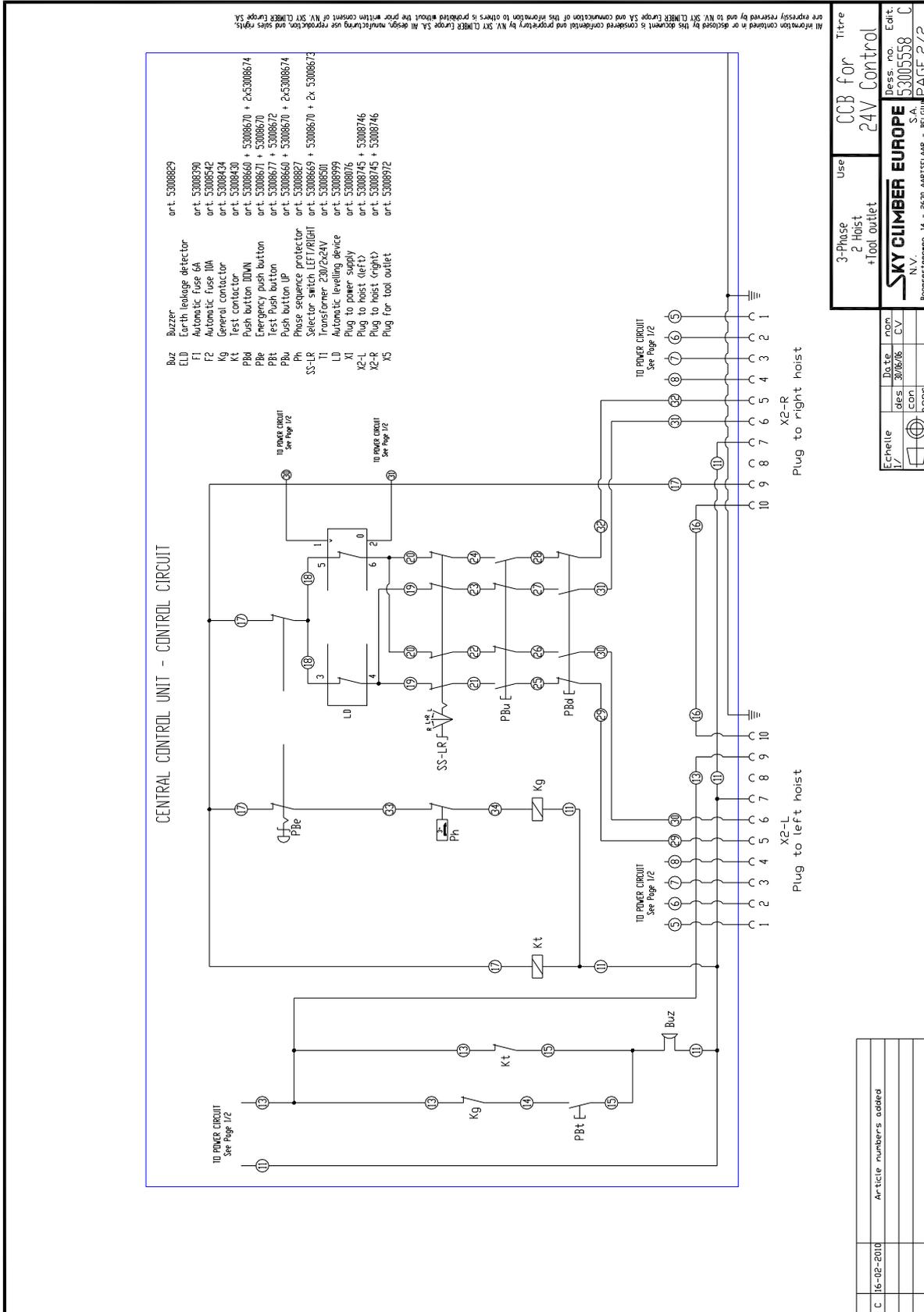
Example: Control box 24V for 2 hoists, 3 phase 400 V, with tool outlet and anti-tilting device

This is just an example of a specific control box type wiring diagram.

If you have another type of control box, we refer to its specific Operation and Maintenance Manual and to the wiring diagram that's present inside every delivered Sky Climber control box.



Example : Control box 24V for 2 hoists, 3 phase 400 V, with tool outlet and anti-tilting device



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# Assembling, Installing, Operation and Maintenance

## Assembling

Before any use or operation of a TSP, the components (stage, hoist(s), must be properly assembled together as described in their specific User Manual, using the correct bolts, nuts and connection pins. Do not use deteriorated or contaminated components.

Nuts shall be of the self-locking type.

Check stirrup bolts and verify that the bolts are in proper position and tightened firmly.

Assemble the rigging system as described in its proper User manual.

Connect the hoist(s) to the control box.

Because of varying platform load, source voltage and electrical system impedance, it is impossible to recommend optimum electric cord wire sizes, but Sky Climber recommended supply cable will be satisfactory in nearly all cases. Extremely long drops may necessitate the use of a voltage booster transformer or location of the power source in the middle of the drop, thereby reducing the required power cord length.

IF A BOOSTER TRANSFORMER IS NEEDED, CALL YOUR SKY CLIMBER REPRESENTATIVE.

The power cord must be secured to the platform by strain relief devices or other means to prevent the connector from pulling apart. When two power cords are used in series, include strain relief devices.

Make sure the power cord length is sufficient to permit free travel of the platform without applying undue strain to the cord strain relief. It may be necessary to connect to building power midway between upper and lower travel limits to ensure full travel of the platform and to avoid limitation of travel due to insufficient power cord or voltage drop.

When finished for the day, make certain the power cord is disconnected at the main outlets. Protect power cords from rain and water at all times.

Make certain the ground connector of the building power receptacle is grounded.

## Installation and Reeving

Read and understand the paragraphs describing operation of the hoist in the specific User Manual of the hoist, before attempting reeving. Prior to reeving,

- test the Sky Climber fall arrest device and make sure that its maintenance is properly done (see the specific Partlist and Maintenance Manual of the used fall arrest device)
- inspect the Hoist and make sure that its maintenance is properly done (see the specific Partlist and Maintenance Manual of the used hoist)

**STEP 1: Rigging**

Install rigging or arrange for rigging to be installed by your local Sky Climber Office.

**STEP 2:**

Install the stage as described in its specific User manual, using the correct components as described in its specific Partlist & Maintenance Manual.

**STEP 3: Mount the hoist on the workstage as shown in its Partlist and Maintenance Manual.**

Lift the Hoist, insert stirrup strap into recess in stirrup, and retain by use of the lock nuts and Grade 5 retaining bolts provided. Tighten nuts securely. Test the fall arrest device operation. Assemble the fall arrest device to the hoist entrance guide, making certain that the rectangular link is assembled to provide adequate clearance for the straight passage of the rope without interference. Set the fall arrest device brake by rotating the reset handle.

**STEP 4: Connect power**

Check technical specifications for minimum electrical power or air pressure requirements, as described in the specific User manual of the hoist(s).

CAUTION: An electric motor may overheat if the measured voltage at the motor during operation is less than 90% or more than 110% of the voltages shown on the motor data plate. On exceptionally long drops, locate the power source in the middle of the drop, thereby reducing the amount of power cord required.

Do not attempt to alter any connectors to fit power outlets. Do not use deteriorated or contaminated components.

**STEP 5: With the Hoist and stirrup maintained in the vertical position, thread the prepared steel wire rope top (see section "Steel wire rope") into the hoist entrance guide**

Push rope into the unit until it stops. Then move directional switch/lever in UP direction, while maintaining downward pressure on wire rope, until self-reeving starts. Also insert the secondary rope into the fall arrest device.



WARNING: Keep hands clear of pinch point where wire rope enters Sky Lock brake and Hoist entrance.

CAUTION: Be sure that exit guide is clear, and that the wire rope can run freely away from the Hoist.

STEP 6: Test rigging by raising Hoist and platform or other suspended equipment about 0.5 meter off the ground. Have an assistant jump on suspended equipment while an experienced operator/rigger checks all rigging. Visually inspect all bolted connections of rigging and suspended equipment.

Test emergency lowering system by raising suspended equipment about 1 Meter off the ground, then manually releasing and re-engaging main Hoist brake using Controlled Lowering Lever.

Test fall arrest device performance

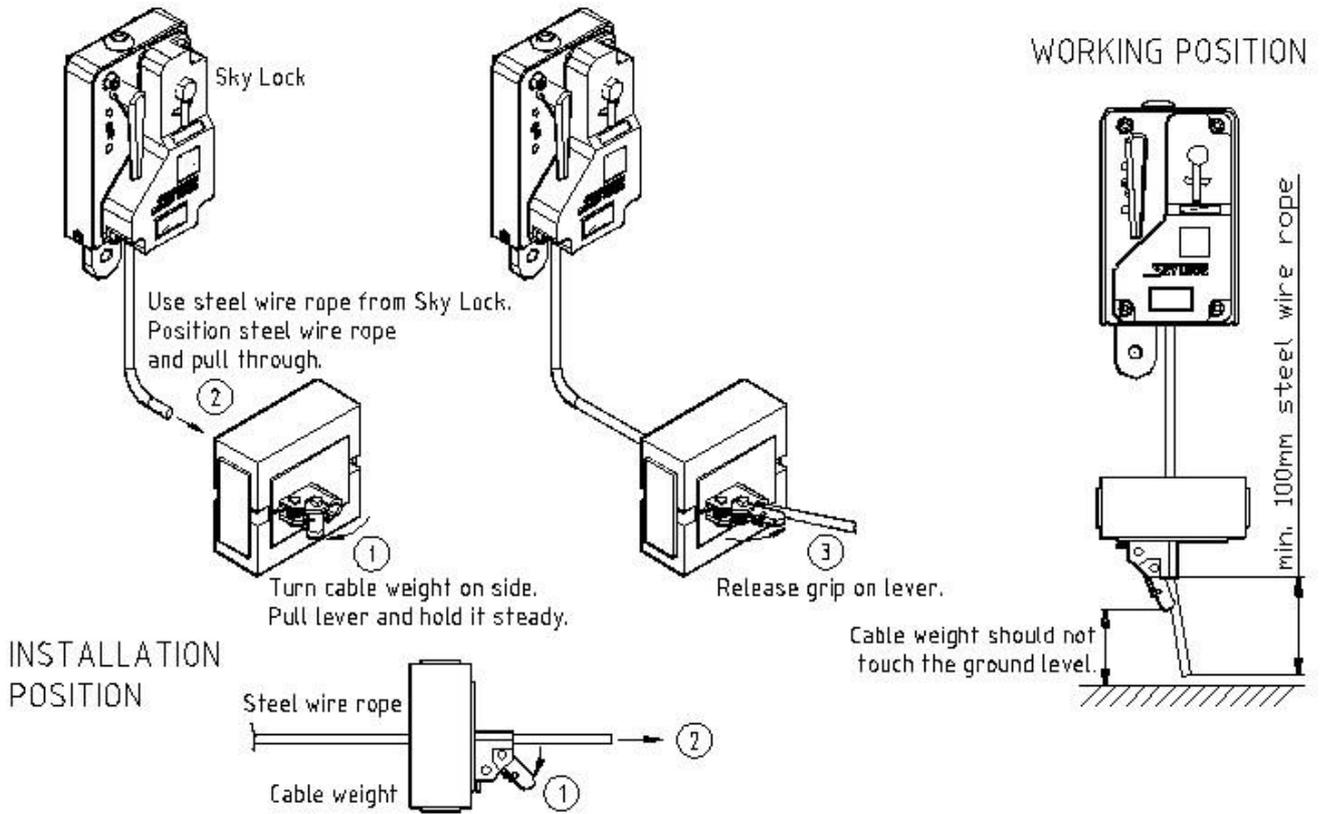
#### Cable weight

The secondary rope(s) on which the fall arrest and overspeed devices are fitted, need to be kept tight properly by means of a cable weight at the lower end of the secondary rope.

See figure below.

This figure shows the rigging of a cable weight on a secondary rope for Sky Lock. The rigging of the cable weight in case of a Sky Grip device is fully similar.

# INSTALLATION OF THE CABLE WEIGHT



## Operation

To operate a Sky Climber ALPHA electric powered hoist, one needs a separate Sky Climber CONTROL BOX (to be connected on the X2 plug) that must correspond to the hoist motor tension and control tension.

The electric hoist is activated by movement of the directional buttons ("UP" and "DOWN" buttons of the control box) in the desired direction of travel. Travel may be stopped by releasing the directional switch, which cuts power to the motor and sets the hoist brake.



WARNING: Allow Hoist to come to a full stop before changing direction of travel. Rapidly changing position of directional switch may result in loss of control.

## Operator's Safety

All persons who service, install, dismantle or use suspended access equipment must fully comprehend and act in accordance with this manual and all appropriate regulations. A competent person is a designated person, suitably trained, qualified by knowledge and practical experience to carry out the required task safely.

Training, manuals and other documentation are available at Sky Climber®. Do not hesitate to contact us for more details.

- Operators must be emotionally and physically able to withstand the stress of working at elevations. Do not work at elevations if subject to seizures or loss of physical control. Operators must be safety conscious, responsible and not under the influence of alcohol, drugs or other substances.
- Provide protection for operators from collision with overhead obstacles and falling objects.
- Provide adequate protection below the suspended system to prevent injury to persons from falling objects. Keep all persons from beneath suspended platforms.
- Maintain contact with your supervisor at all times.
- Make a copy of this manual available to every person using, erecting and assembling this equipment.
- Never work alone on suspended access systems
- Do not over load the equipment

## Operation Safety

- All suspended access equipment must be handled with care: during handling of equipment, installation and use (place loads gently on platform).
- Inspect and test the equipment before use, rigging, re-rigging, after de-rigging and at regular intervals to make sure that it is maintained in a safe workable condition. The supervisor should assign a competent person for inspection purposes. In case of equipment failures or difficulties noticed during testing and inspection prior to use, contact your nearest Sky Climber® representative and do not use the equipment until it is repaired or replaced. Only use Sky Climber® spare parts. Do not alter any equipment. Maintenance may only be carried out by Sky Climber® representatives.

- Verify if all decals and nameplates are properly affixed and legible. If they are obscured or missing, replacements are available from Sky Climber®.
- Always verify if a platform is properly counterweighted: check the rigging systems prior to each shift.
- Never load the platform above the indicated safe working load.
- In case of an emergency during operation press the red emergency stop button on the hoist or control unit. The platform will halt immediately (power is cut off, brakes are activated). Solve the problem first, prior to further use.
- Do not use hoists in conjunction with cableless control systems.
- Never use suspended access systems for transportation of passengers from one level to another.
- Keep the vertical travel zone of the platform free of obstructions. When running into an obstruction immediately stop the platform. Inspect the platform and the obstruction for possible damage and/or hang-up. Proceed in a safe direction. Take care not to overload the system or get in slack rope situations when running into an obstacle.
- Beware of obstacles when there is too small of a clearance between platform and façade. Use long-handled tools when working at large distances between platform and façade.
- Do not handle suspended loads in conjunction with suspended platforms.
- When leaving a suspended platform (in mid-air) first secure the platform to the face of the structure in order to keep it from moving away. Do not forget to disconnect the platform from the structure before lifting or raising, otherwise serious injuries and/or damage can occur.
- Hazardous situations occur when it is not possible to lower platform to a safe position, ex. over water and public roads.
- Never alter equipment once the platform is suspended. Keep all equipment out of reach of unauthorized persons.
- Rejected equipment must be destroyed prior to disposal so that it can not be misused, reused, or otherwise returned to service.

## Emergency operation – power failure

In the event of loss of power, the hoist may be raised by using the emergency hand wheel or the optional hand crank. The hoist may be lowered using the No Power Descent Lever.

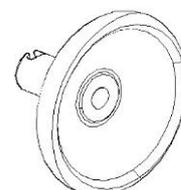


WARNING: Always Disconnect power at the power supply connector plug before using the emergency handwheel, the manual crank or No Power Descent Lever, otherwise serious injury or death may result.

## Emergency ascent – emergency hand crank operation

If power fails and you desire to raise suspended equipment:

- Disconnect power supply connector plug.



- Remove protective cover and insert the hand wheel (see figure) or hand crank (= optional)
- While tightly holding handwheel or hand crank with one hand, pull No Power Descent Lever as far as it will go with the other hand (thus brake), and begin cranking in a counter-clockwise direction.

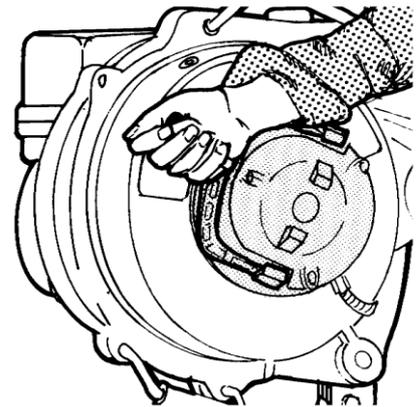


WARNING: Release Controlled Lowering Lever to set Hoist brake before releasing crank, otherwise serious injury could result.

## Emergency descent – No Power Descent Lever

If power fails and you desire to lower the hoist and its load:

- Disconnect power supply connector plug.
- Release Hoist brake by gently pulling no power descent lever as far as it will go. (See Figure)



CAUTION : Partial release of Hoist brake may result in overheating and premature brake wear.



WARNING: Before descending, be sure that optional hand crank is removed from hoist, otherwise, serious injury or death could result.

## Maintenance

Proper maintenance of stages, hoists and safety devices must be done on a regular base.

Refer to the specific Partlist & Maintenance Manuals of the components that you use.



WARNING: Failure to do proper maintenance can create hazardous situations that can result in injury or death..

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# Fall arrest devices

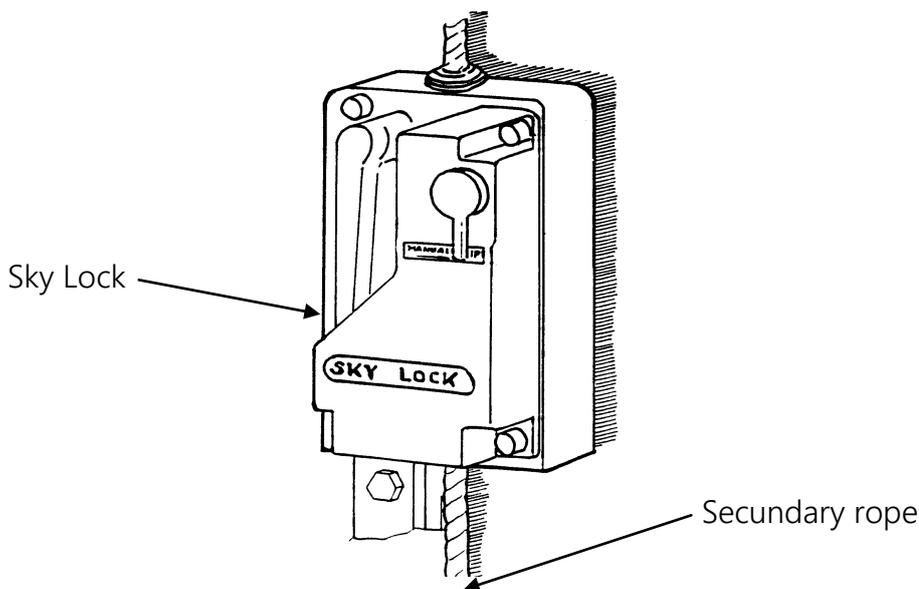
## Sky Lock overspeed device

### Definition and purpose

The Sky Lock overspeed brake provides additional backup to the safety devices built into the Sky Climber hoist. The Sky Lock is a device which senses the dynamic speed of the wire rope as it passes through the Sky Lock mechanism.

If, as the Sky Lock brake is travelling down the wire rope, the factory pre-set speed is exceeded, the Sky Lock brake will lock onto the wire rope and support the load.

The secondary steel wire rope cannot be released until the load on the Sky Lock brake is relieved.



### Sky Lock selection table

Sky Lock overspeed devices exist in several versions according to the rope diameter (8, 9 and 10.2 mm) and the nominal speed of the hoist (single speed 8.5 m/min or double speed 17 m/min).

The right type of Sky Lock should be used with the right type of hoist.

To choose the right type of Sky Lock, you can use the selection table below.

Sky Lock selection table:

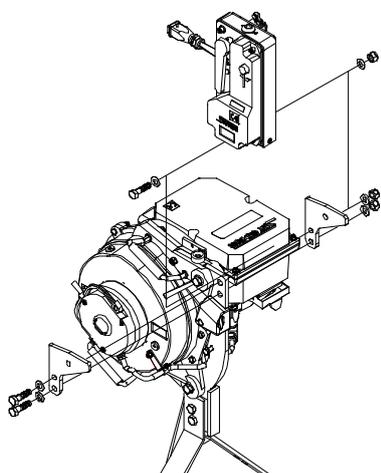
Hoist	Sky Lock II 9mm	Sky Lock II 9mm DS	Sky Lock II 10 mm	Sky Lock II 10mm DS	Sky Lock III 8mm	Sky Lock III 8mm DS	Sky Lock III 9mm
Alpha 500							●
Alpha 800	●						
Alpha 800 DS		●					
Alpha 1000 S			●				
Alpha 1000 S DS				●			
Compact 400 S					●		
Compact 400 S DS						●	
Compact 400 S DSGB						●	
CX 500 S					●		
CX 500 S DS						●	
CX 500 GSDM						●	
CX 500 S DSGB						●	
CX 500 S GDS						●	
FNX	Sky Lock functions are included in the hoist						
LNX							
Alpha 500 Air							●
Alpha 800 Air	●						
Compact 400 S Air					●		
CX 500 S Air					●		

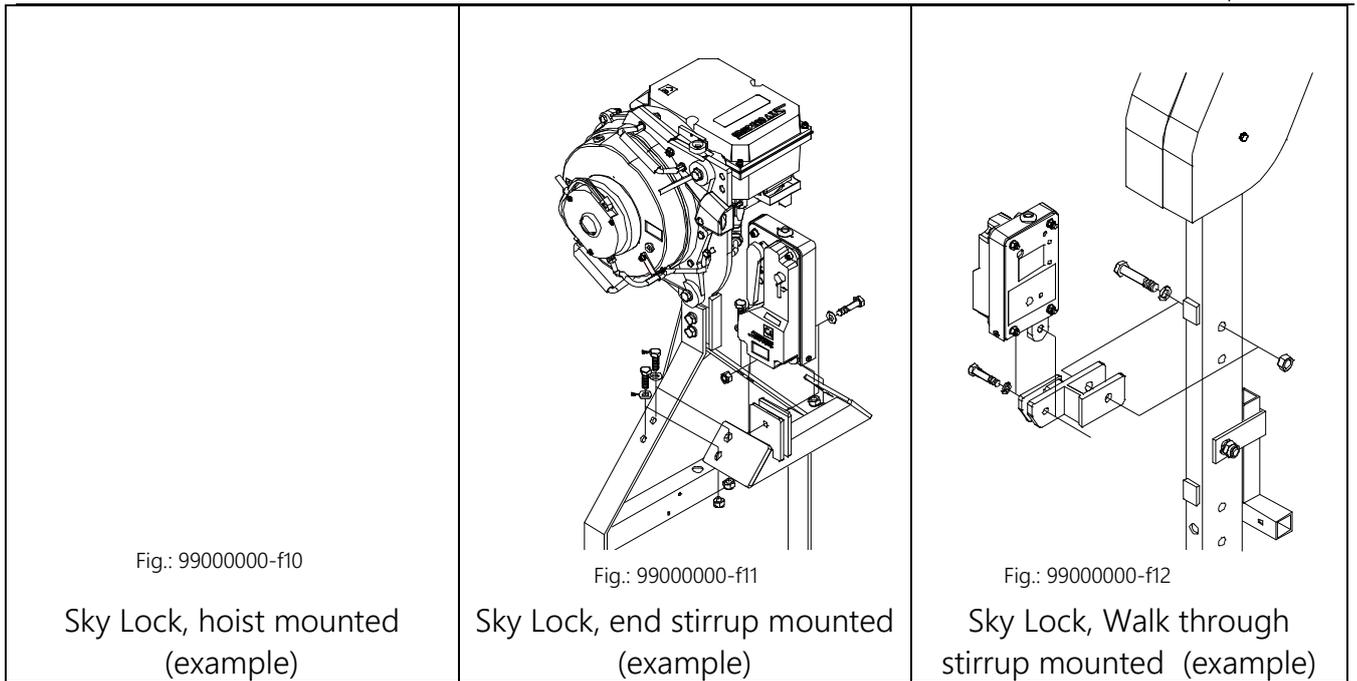
## Sky Lock installation

A Sky Lock overspeed device can be mounted in 3 different ways :

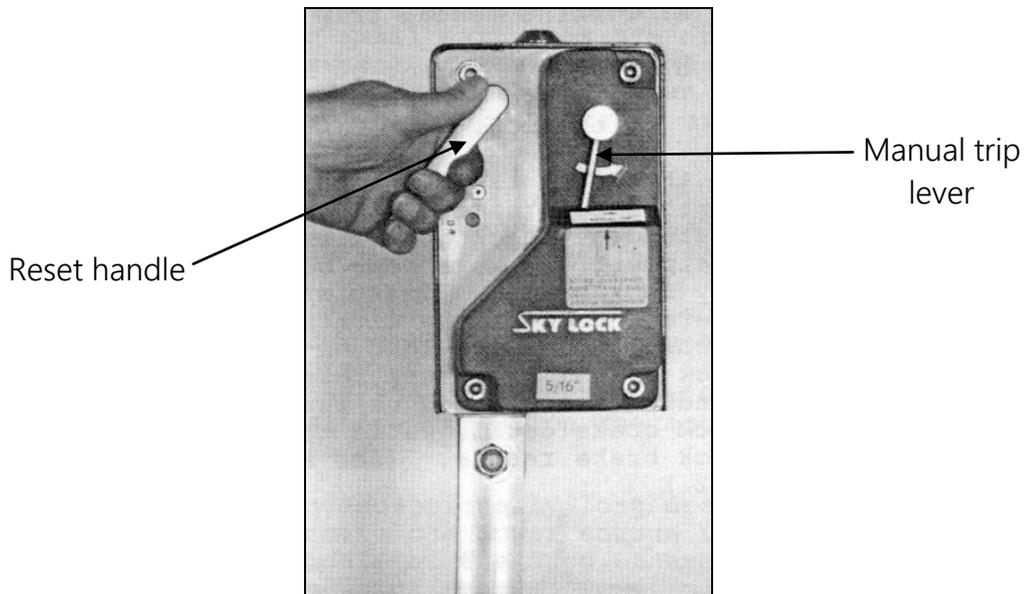
1. Hoist mounted
2. End stirrup mounted
3. Walk through stirrup mounted

For a detailed part list of the Sky Lock support assemblies, please read the specific Partlist & Maintenance Manual of the Sky Lock type that you use.





Before passing the wire rope through the Sky Lock brake, the reset handle must be placed in the reset position. See figure below



After the wire rope has been passed through the Sky Lock brake, the operation of the brake must be inspected. See further on in this manual.

## Work environment and conditions of use

The Sky Lock overspeed brake will be used in numerous adverse environmental conditions. These adverse conditions with recommended precautionary measures may be grouped as follows:

GROUP 1 - NORMAL (+0 °C and above, day/night)

A "Normal Work Environment" includes inspection operations, light maintenance, and window washing.

In this environment the only contaminant that would be expected to be deposited in the Sky Lock brake is lubricant from the support cable.

Inspection/functional check should be conducted by the operator on a daily basis. However, if any of the adverse conditions identified below in Group 2, "Contaminated Work Environment", are present in close proximity to operations identified in Group 1, the precautions noted in Group 2 should be followed.

GROUP 2 - CONTAMINATED (+0 °C and above, day/night)

A "Contaminated work environment" can be identified as one in which one or more of the following categories of contaminants are used or are in close proximity to the operation:

Category A:

Abrasive Material (e.g., sand, grit, dust, welding, etc.)

Category B:

Caustic Material (e.g., corrosive chemicals, salty environment, acids or fumes, etc.)

Category C:

Adhesive Material (e.g., cement, plaster, paint, caulking, compound, etc.)

In such work environments, every effort must be made to prevent entry of contaminants into the Sky Lock brake. Recommended minimum precautions for equipment protection are:

- 1) Cover the wire support cable above and below the Sky Climber Hoist for a distance of +/- 1.5m in each direction. A length of rubber hose taped in place is adequate to serve this function. If a wire winder is used, the guide tube will substitute for the rubber hose below the Sky Climber hoist.
- 2) Cover the wire winder with clear plastic covers.
- 3) Do not use contaminated wire rope.

For a work environment with contaminants in either Category A or B, daily inspections/functional checks by the operator should be conducted at the beginning of each work shift.

For a work environment with contaminants in Category C, inspection/functional checks must be conducted by the operator at the beginning of each work shift and every four hours thereafter. This is based upon the fact that the majority of adhesive materials such as cement or plaster will set up hard in four to eight hours; If the adhesive material being used has a faster setup time, the frequency of the inspections/functional checks shall be increased accordingly.

### GROUP 3 - FREEZING (0° C and below day/night)

Temperature of 0° C and below without the presence of moisture do not adversely affect the Sky Lock brake. However, if the work environment of either Group 1 or 2 changes to include freezing temperature and sufficient moisture to form ice inside the Sky Lock brake, there is a possibility that the unit will fail to function as intended, with resultant potential danger to the user.

Under these circumstances the operator must take reasonable precautions to prevent moisture from entering the Sky Lock brake. To ensure that the unit is functioning properly, it should be inspected/functionally checked at the beginning of each work shift and a minimum of every two hours thereafter during the course of the workday. Should the Sky Lock brake malfunction when being inspected, it can be assumed that the unit is frozen. The Sky Lock overspeed brake should be thawed out of the Sky Lock brake with pressurised dry air.



WARNING: When using compressed air, be sure to wear safety glasses.

Then pour approximately 1 cup of alcohol into the entrance guide of the Sky Lock brake. This procedure should clear the moisture from the inside of the Sky Lock brake and return it to a condition which will not be adversely affected by below freezing temperature, unless subjected to additional moisture. To confirm continued acceptable operation, the Sky Lock brake must be inspected and functionally checked every two hours as noted above.

## **Operation**

Should the SKY LOCK brake engage due to an overspeed condition, do not attempt to release or reset it. Instead, remove men from suspended equipment, and lower it to ground or raise it to roof by means other than the hoist. Then contact your nearest Sky Climber representative.

SKY LOCK brakes may also be engaged by:

- Turning manual trip lever (see figure above)
- Sudden movement of men on platform or repeated vibration

In the event the Sky Lock brake engages for reasons other than overspeed, check condition of equipment and wire rope below the Sky Lock brake. If satisfactory, operate hoist in up direction 5 to 10cm to relieve load on the Sky Lock brake, then turn reset handle as indicated on the Sky Lock brake decal, until the Sky Lock brake resets. )

## Inspecting a Sky Lock overspeed device



WARNING: Failure to inspect and functionally check Sky Lock brake operation at the beginning of each work shift could result in serious injury or death.

The following inspection procedures are for the Sky Lock (with external trip knob, 25 m/min. tripping speed).



WARNING: If the Sky Lock overspeed brake fails any of the following inspections, it must be replaced at once.

### Inspecting "trip" Performance of Mounted Sky Lock

Use following procedure to test the Sky Lock brake prior to reeving.

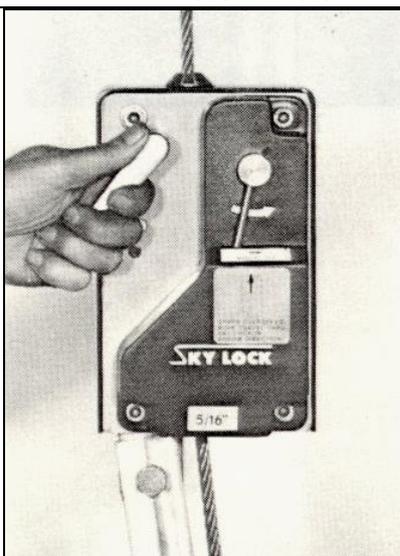
- 1) Insert the end of a wire rope through the Sky Lock.
- 2) Support the wire rope and Sky Lock in a vertical position. Let the Sky Lock drop down the wire rope. The accelerating brake should trip the mechanism, causing it to lock onto the rope before the brake falls more than 10 cm.
- 3) Reset the Sky Lock brake and repeat this procedure two times. If the Sky Lock brake does not trip and lock onto the rope before falling 10 cm during any test, it must be replaced.

Use the following procedure to test the Sky Lock brake after reeving

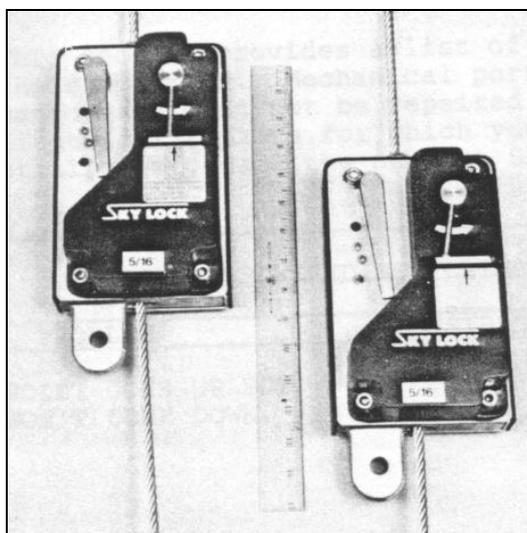


WARNING: Platform must be supported on a safe surface.

- 1) Make certain Sky Lock brake is properly set (See Figure)



- 2) Disengage the Sky Lock brake from the Sky Climber hoist or other platform attachment point by removing the attaching bolt from the lower Sky Lock fitting.
- 3) Raise the Sky Lock brake up the wire rope approximately 30 cm and release it (let it drop). The Sky Lock brake should trip and Lock onto the rope after a fall of not more than 10 cm.



- 4) Reattach the Sky Lock brake to the Sky Climber hoist by either:
  - Raising the hoist and platform by using power to a position where the attaching bolt can be inserted or,
  - Resetting the Sky Lock brake using the reset lever, and lowering it down to the hoist and inserting the attaching bolt.
- 5) Make sure attaching hardware is properly tightened.

### Inspecting load support performance

- 1) Raise the platform +/- 10cm of the surface with the Sky Climber hoist.
- 2) Engage (trip) the Sky Lock brake onto the wire rope by activating the manual trip lever on the brake.
- 3) Operate the Sky Climber hoist in the "DOWN" direction. The system should not descend, because the Sky Lock brake will be locked onto the wire rope and supporting the system.
- 4) Operate the hoist in the "UP" direction approximately 5 cm to relieve the load from the Sky Lock brake.
- 5) Manually reset the Sky Lock fall arrest device.



WARNING: Do not attempt to adjust or repair the Sky lock brake. It is a precision device and must be handled carefully.

## **Maintenance**

See section "Maintenance Procedures" in the Partlist & Maintenance Manual of the Sky Lock type that you use.

## Sky Grip antitilting/fall arrest device

### Definition, purpose and conditions of use

The SKY GRIP is a fall arrest safety device intended to be used for suspended access equipments with a single active rope suspension system. A single active rope system has a suspension rope and a secondary rope. The suspension rope, primary rope, is an active steel wire rope carrying the suspended. The secondary rope is a steel wire safety rope rigged in conjunction with the SKY GRIP. The secondary rope does not carry the suspended load.

The installed SKY GRIP provides a coherent system to overcome hazardous situation in case of failing platform. The SKY GRIP is conform the European standard EN1808 §8.9.1

The safety functions of a SKY GRIP device are :

- Mechanical anti-tilting
- Slack rope
- Fall arrest
- Overspeed

The SKY GRIP grips on the secondary rope in case of the following conditions:

- Slack rope of the suspension rope.
- Inclination of the platform compared to the suspension rope.

Correctly installed on a platform with two hoists it covers the risk of:

- Failure of the suspension rope.
- No load condition of the suspension rope.
- An inclination of more than 10 degrees of the platform.

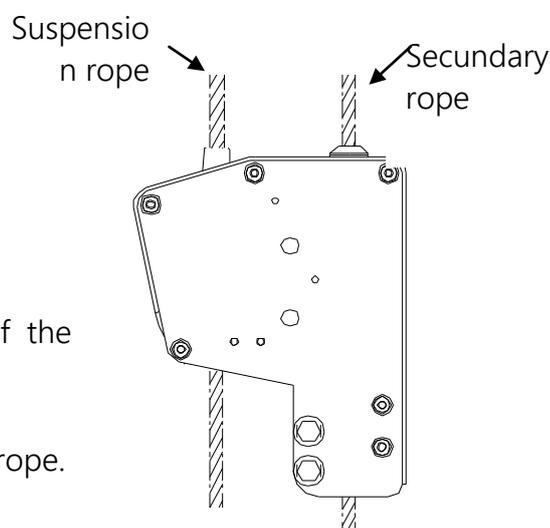
#### Important notes:

- The SKY GRIP might not be installed on systems with one suspension point or one hoist. For example on work cages. In this situation an SKY LOCK safety device should be installed.
- The sky grip might not be installed on systems on which the inclination of the platform is not sensed by the SKY GRIP.

The SKY GRIP is a complete and sufficient safety device for platforms with two hoists.

The Sky Grip 8 and 9mm is intended to be used with Steel Wire ropes with diameters between 8-9.5mm.

The total suspended load on the suspension rope shall not exceed 8000N (800kg)



The Sky Grip 10.2 mm is intended to be used with Steel Wire ropes with diameters between 10-10.5mm.

The total suspended load on the suspension rope shall not exceed 10000N (1000kg)

## Sky Grip selection table

Sky Grip devices exist in several versions according to the rope diameter (8, 9 and 10.2 mm).

The right type of Sky Grip should be used with the right type of hoist.

To choose the right type of Sky Lock, you can use the selection table below.

Sky Grip selection table:

Hoist	Sky Grip 8mm	Sky Grip 9mm	Sky Grip 10.2 mm
Alpha 500		●	
Alpha 800		●	
Alpha 800 DS		●	
Alpha 1000 S			●
Alpha 1000 S DS			●
Compact 400 S	●		
Compact 400 S DS	●		
Compact 400 S DSGB	●		
CX 500 S	●		
CX 500 S DS	●		
CX 500 GSDM	●		
CX 500 S DSGB	●		
CX 500 S GDS	●		
FNX	Sky Grip functions are included in the hoist		
LNx			
Alpha 500 Air		●	
Alpha 800 Air		●	
Compact 400 S Air	●		
CX 500 S Air	●		

## Sky Grip installation

The SKY GRIP may be attached to the hoist (recommended), to the stirrup, to the platform or other equipment that may require the use of a fall arrest safety device.

Slide the SKY GRIP with the slit onto the structure and connect with two bolts M12x70 DIN931 (quality 8.8), washers and a self-locking nut.

The SKY GRIP must be mounted laterally aligned to the platform. The suspension rope is at the inside of the platform while the secondary rope is at the outside of the platform.

The SKY GRIP is factory set for Sky Climber applications of 8, 9 or 10.2 mm diameter rope diameters. A decal on the SKY GRIP indicates the setting: 8, 9 or 10.2 mm. Use a correct setting.

Important notes:

Make sure the SKY GRIP:

- is strongly fixed perpendicularly to the platform to guarantee the SKY GRIP to sense the inclination of the platform. If the SKY GRIP is mounted directly to the hoist make sure the hoist

cannot rotate vis a vie to the platform and that all connections can take the load of an inclined platform.

- senses the inclination of the platform. There may be no pulleys or deviations of the suspension rope above the SKY GRIP.

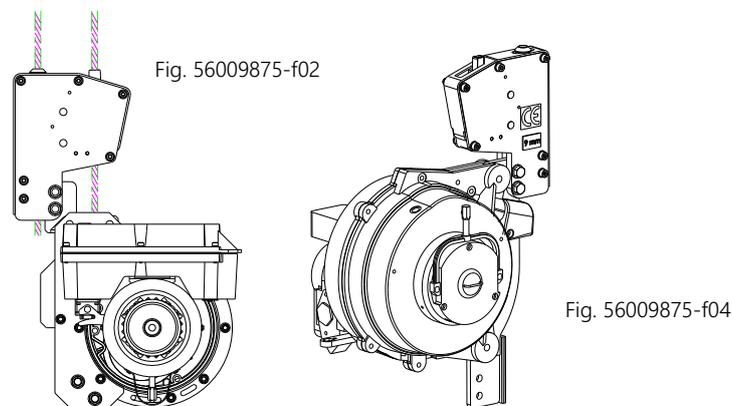
Reeving:

- Reeve the suspension rope through the inlet of the suspension rope and continue by reeving the rope into the hoist.
- Bring the suspension rope under tension.
- Reeve the secondary rope through the secondary rope inlet and fix a counterweight of minimum 7 kg on the suspension rope.
- Carry out the daily checks, see "56PMM006 Partlist and Maintenance Manual".

Dereeving:

Always dereeve the secondary rope before making the suspension rope slack. Otherwise the secondary rope cannot be dereeved as the SKY GRIP grips on the secondary rope.

Example of installation of the SKY GRIP on a Sky Climber Alpha hoist and Compact/CX hoist:



Installation details for CE environment:

As mentioned above it is important that the SKY GRIP is fixed strongly perpendicularly to the platform. With the combination of the SKY GRIP with the SKY CLIMBER overload safety device, this strong perpendicularly fixation is secured.

## Maintenance

See section "Maintenance Procedures" in the Partlist & Maintenance Manual of the Sky Grip.

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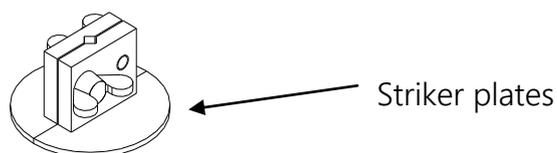
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## Other safety devices

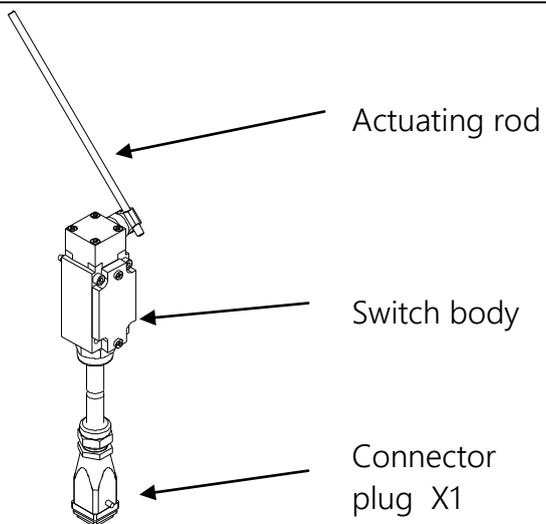
### Top Limit Switch<sup>4</sup>

#### Definition and purpose

A Top Limit Switch is a safety device that will automatically stop the platform at the highest level. It consists of striker plates, an actuating rod, a switch body and a connector plug. See figure below.



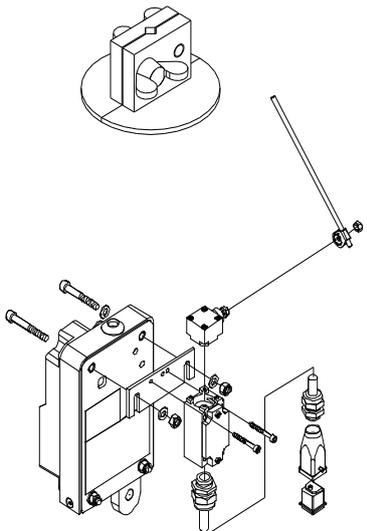
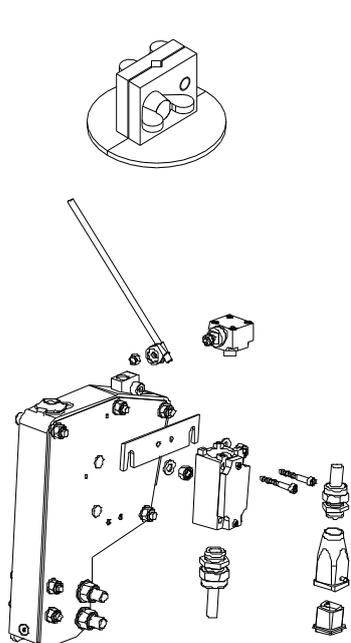
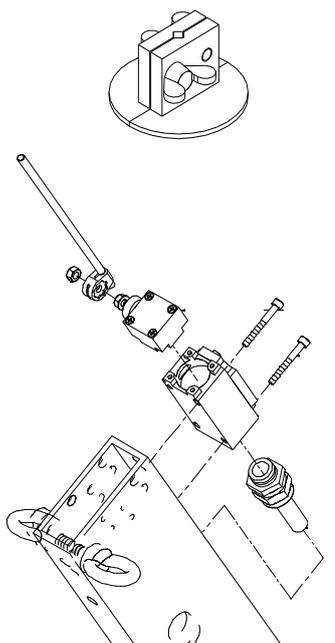
<sup>4</sup> A Top Limit Switch is not mandatory for Temporary Suspended Platforms according to European standard EN 1808, though an Ultimate Top Limit Switch is still needed.



## Installation

A Top Limit Switch assembly can be mounted in 3 different ways.

See table below:

 <p>Fig.: 99000000-f14</p>	 <p>Fig.: 41009824onskygrip10.2</p>	 <p>Fig.: -</p>
<p>Top Limit Switch Sky Lock Mounted</p>	<p>Top Limit Switch Sky Grip Mounted</p>	<p>Top Limit Switch Walk Trough Stirrup Mounted</p>

The CONNECTOR PLUG X1 must be plugged into the electrobox of the hoist  
See figure below



Connector  
plua X1

 Do not forget to plug the connector into the hoist. Otherwise, the hoist will not work !

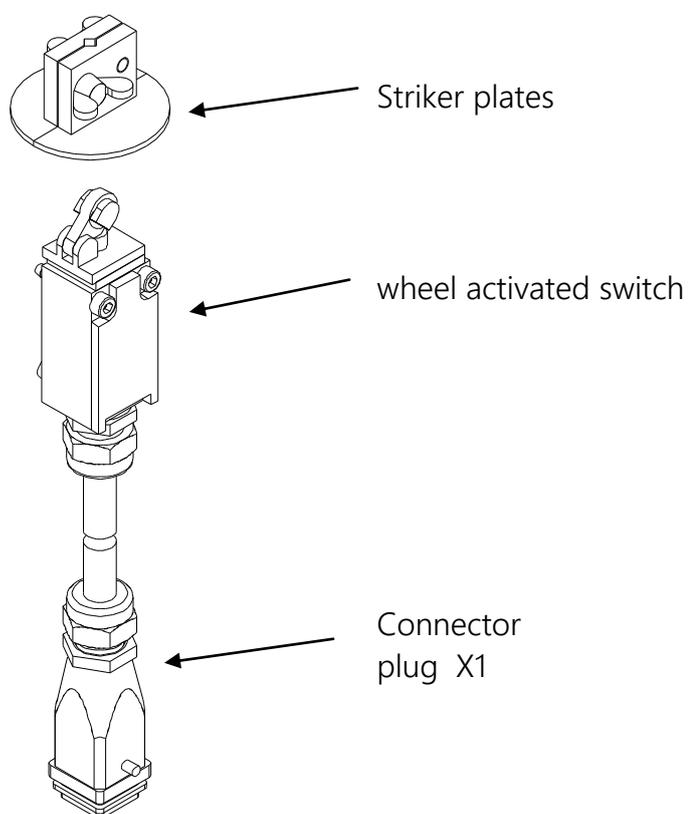
## Ultimate Top Limit Switch

### Definition and purpose

An Ultimate Top Limit Switch is a safety device that will automatically stop the platform before it reaches the top of the suspension rig..

It consists of striker plates, wheel activated switch and a connector plug.

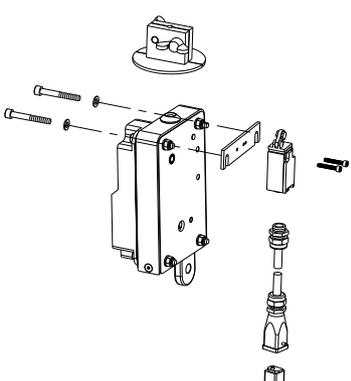
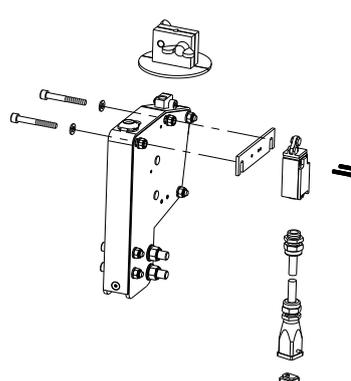
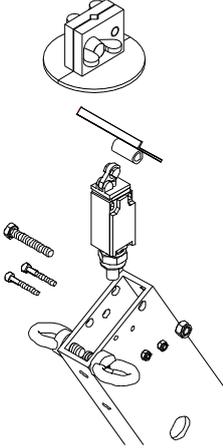
See figure below.



## Installation

A Top Limit Switch assembly can be mounted in 3 different ways.

See table below:

 <p>Fig.: 99000000-f15</p>	 <p>Fig.: 99000000-f15</p>	 <p>Fig.: 99000000-f16</p>
<p>Ultimate Top Limit Switch Sky Lock Mounted</p>	<p>Ultimate Top Limit Switch Sky Grip Mounted</p>	<p>Ultimate Top Limit Switch Walk Trough Stirrup Mounted</p>

The CONNECTOR PLUG X1 must be plugged into the electrobox of the hoist  
See figure below



Connector  
plug X1

 Do not forget to plug the connector into the hoist. Otherwise, the hoist will not work !

If you don't connect an Ultimate Top Limit switch

## Mechanical Overload / Underload Device

### Definition and purpose

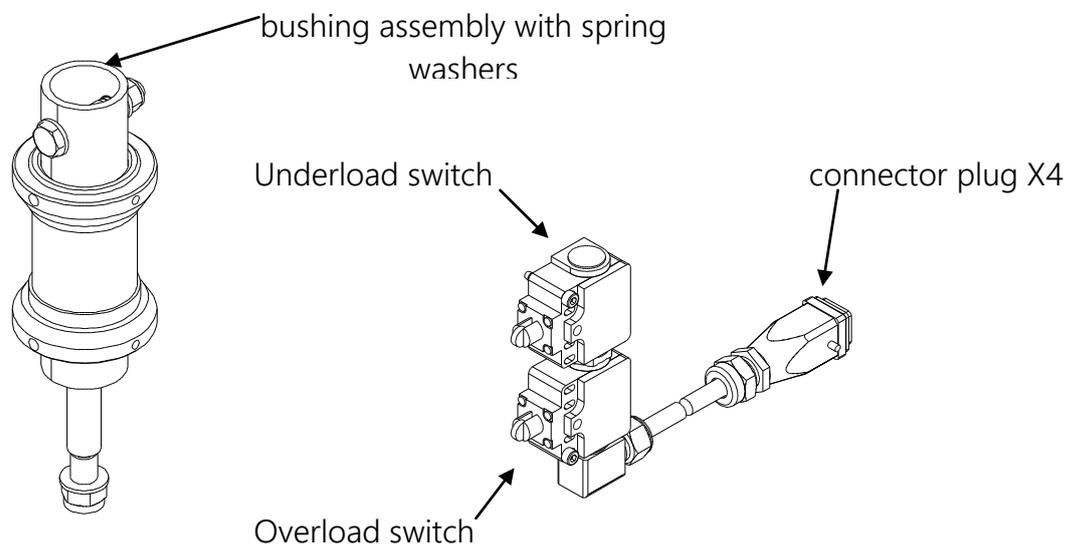
The over-/underload device is a combined device which detects an overload or underload situation to avoid danger to persons and damage to machines. It is mounted for each hoist on the end stirrup or on the walk true stirrup. Refer to the "Safety Devices Assembly Manual" for more detailed drawings.

The overload device prevents the hoist from moving upwards in an overload situation. The underload device prevents the hoist from moving downwards in an underload situation. In both situations an audio alarm will occur to warn the operators.

The device consists of the following components:

- A bushing assembly with washer springs
- An Overload switch
- An Underload switch
- A connector plug X4

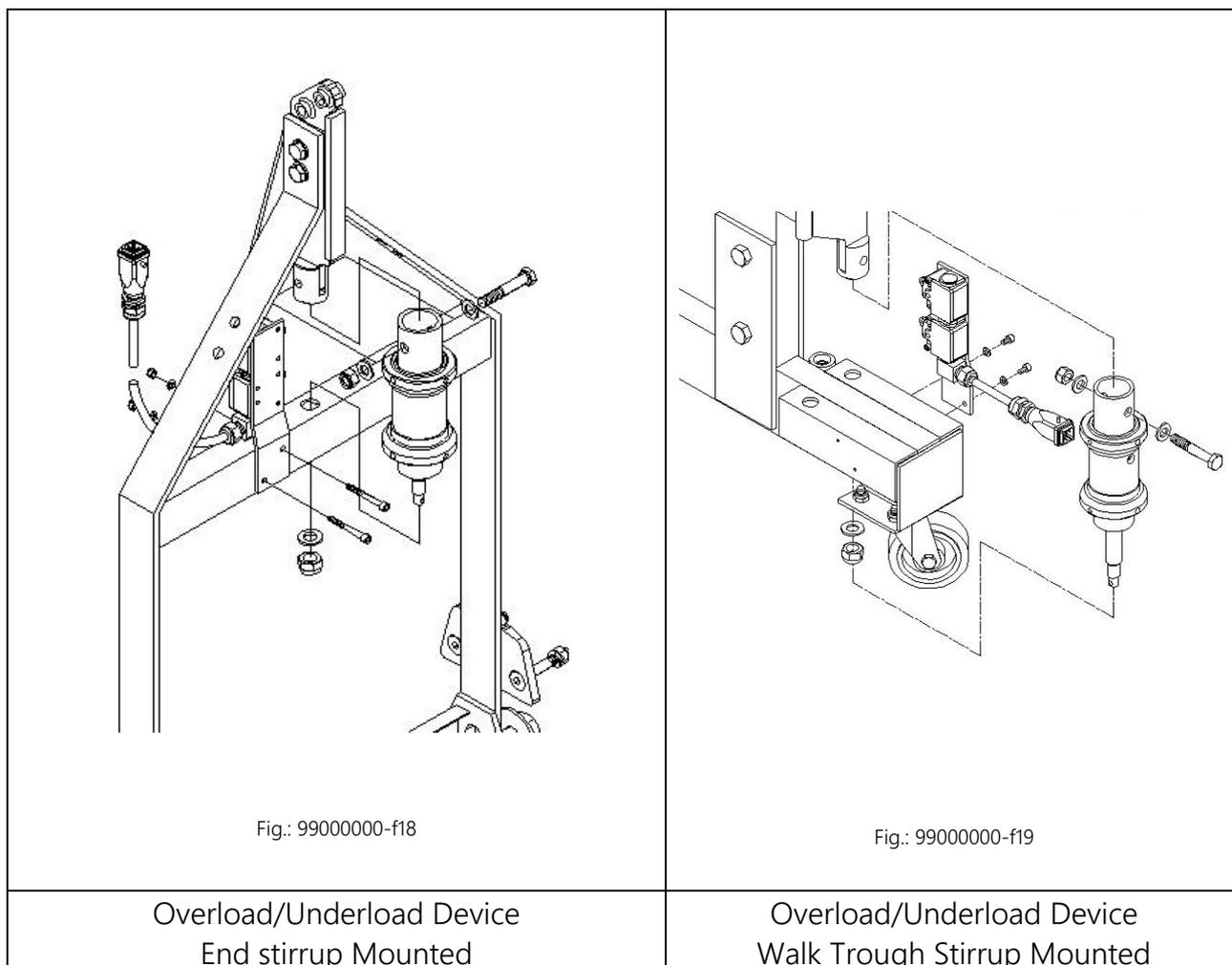
See figure below.



Refer to the "Safety Devices" manual for more details about the components.

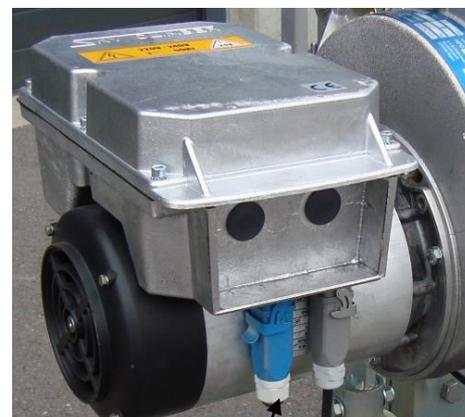
## Installation

A mechanical Overload Device or Overload/Underload Device can be mounted in 2 different ways.



The blue CONNECTOR PLUG X4 must be plugged into the electrobox of the hoist  
See figure.

-  Do not forget to plug the connector into the hoist. Otherwise, the hoist will not work !
-  If you don't connect an Overload and/or Underload Device to the hoist, a dummy plug must be plugged in the X4 connector, otherwise the hoist will not work !

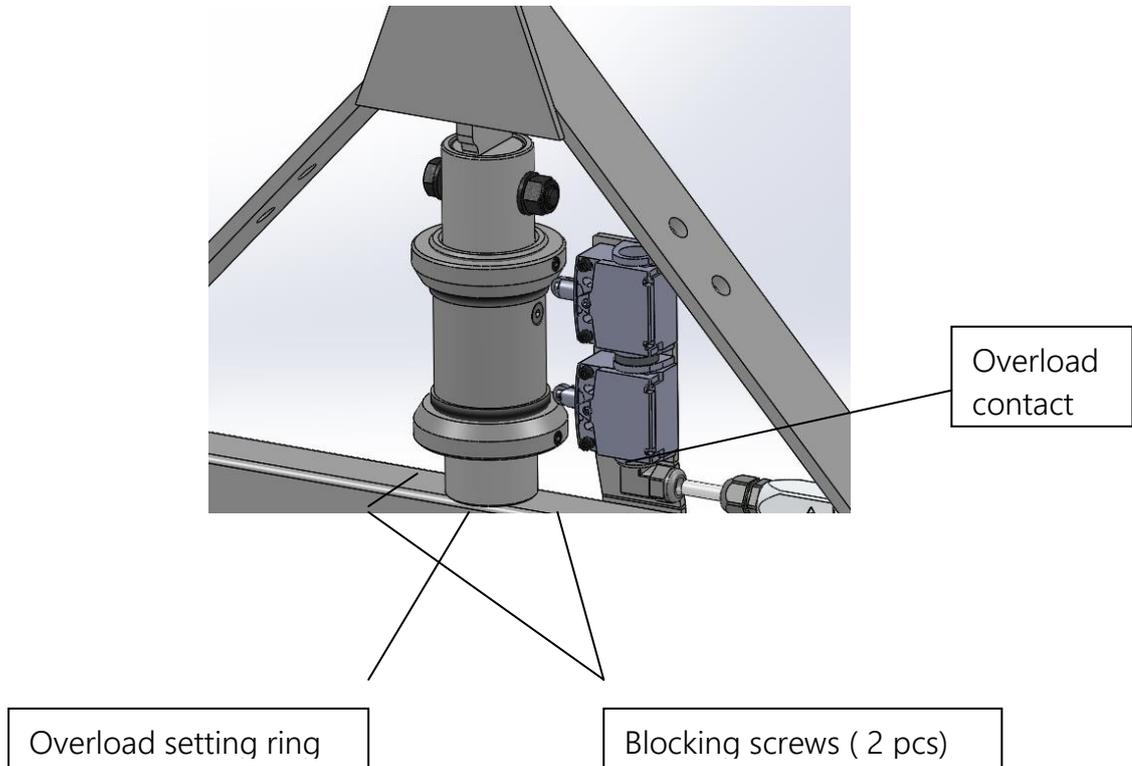


Connector  
plua X4



## Setting the overload device on site

On a platform, there is one overload device per each hoist. The setting procedure has to be carried out on the each overload device.

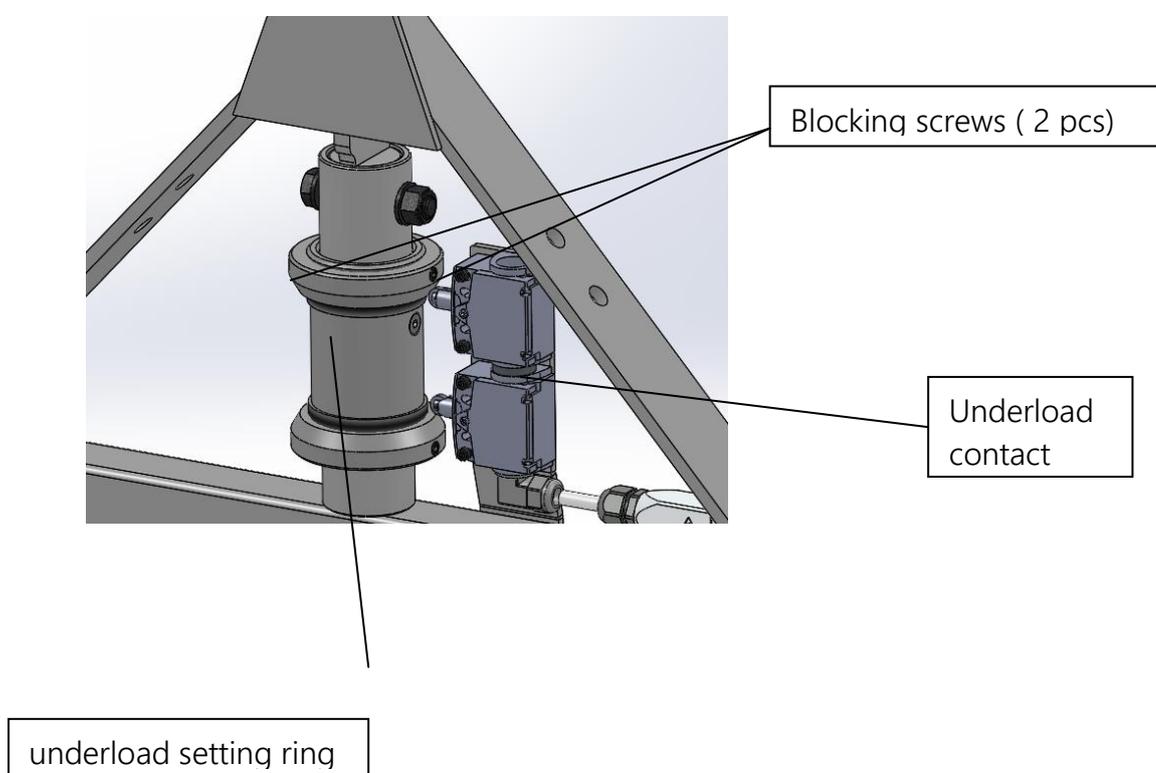


1. Determine the platform Rated Load (RL)  
It can be read on the platform load table or on the platform nameplate.  
RL = ..... Kg
2. Calculate the test load P  
Test load P to put on the platform is 1.25 times the platform Rated Load  
 $P = RL \times 1.25 = \dots\dots\dots$  Kg
3. Put the test load P on the platform  
Distribute the test load P on the platform, on the side of the overload device you are setting, as indicated on the platform load table.
4. Unscrew the blocking screws
5. Turn the overload setting ring  
Turn the overload setting ring, while operating the hoist upwards, until the overload contact trips and stops the hoist.

6. Tighten the blocking screws
7. Repeat the setting procedure on the other overload devices, if any.

## Setting the underload device on site

On a platform, there is one underload device per each hoist. The setting procedure has to be carried out on the each overload device.



The underload must be set for detecting a no load condition.

The adjustment is carried out in a similar way as the overload (see previous section), by turning the underload setting ring.

Check the adjustment by going down up to ground level. The hoist should stop running further.

# Safety checklists

## Safety checklist at first setup

Before setting up and using the working platform, the following checklist should be followed to ensure that all requirements are met (note also, daily checklist must be submitted on a daily basis):

### SAFETY EQUIPMENT

- Persons (users) trained in equipment use
- Instruction sheet given to users for safety equipment use
- Minimum of 2 persons going onto roof
- Equipment in serviceable condition
- Equipment all present
- Relevant persons notified that works to be carried out on roof

### ROOF SUSPENSION SYSTEM

- Set-up done by qualified worker : Name : ..... Id nr.: .....
- Equipment in correct position
- Power supply cables in good condition, insulation OK.
- Steel wire ropes in good condition. (see section "Steel Wire Rope")
- Steel wire ropes diameter matches with equipment used. (8 or 9 mm). (see section "Components for Suspended Access Equipment and their limits of application")
- Power lead plugged in, hung from rig and safely lowered.
- Steel wire ropes connected correctly, shackles moused. (see section "Steel Wire Rope")
- Steel wire ropes safely rigged to platform wire winders (optional)
- All bolts in place and tightened
- Rear counterweights of roofbeam in position and secured
- General suspension equipment condition OK
- Clamp plates safely connected to base channels
- Plywood under roofbeam castor wheels, where required

### PLATFORM

- All components present

- Unit set-up as per set-up drawing (see User Manual of stage that you use)
- All bolts and pins positioned, nyloc nuts on bolts, clips in pins
- Skylock device(s) fitted to platform and secondary steel wire ropes (if applicable)
- Sky Grip device(s) fitted to hoist(s) and secondary steel wire ropes (if applicable)
- Central control box hung on back handrail
- Wall rollers fitted to front end face (optional)
- Correct steel wire rope end-weights fitted.
- Restraint ropes present in working platform
- Hoists bolted to stirrups with HS bolts and Nyloc nuts
- Hoists greased, if necessary, serviced
- Sheave bolts in place with nylocs
- Fall prevention equipment present

#### OVERHEAD PROTECTION

- Protection under platform present. (Important in public areas).

#### TEST PROCEDURE

- Ensure POWER ON.
- Ensure overload devices are working properly.
- Inspect all bolts and pins for security.
- Inspect all top connections and general condition.
- "Snap" SKYLOCK rope through Skylock and ensure unit trips.

#### AT ROOF LEVEL :

- Drive stage up, activate Skylocks and drive down slightly to check Skylock holding on to secondary rope.
- Drive UP again to remove load from Sky Lock and deactivate Sky Lock.

#### ON SIDE OF BUILDING :

- Run platform to the ground, check all ropes reeling correctly, power cable paying out OK.
- At bottom of drop, check adequate wire rope on storage drums
- Drive to top of building, checking reeving of wire ropes and power cable

- Ensure all users are thoroughly briefed in platform use.
- Briefly check all bolts, pins and couplings.

RUN THROUGH DAILY CHECKLIST BEFORE USE

AFTER SETUP: RUN THROUGH DAILY CHECKLIST AFTER USE

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## Daily checklist before use

These checks must be carried out daily before using the platform:

- Visually inspect the hoist and stage for damaged, loose or missing parts
- Competent person to check gear
- Check the controls and functions of the central control box (see section "Controls for electrical powered hoists")
- Double check function of the E-button (or e-valve in case of an air powered hoist)
- Visually inspect supply cable
- Roof mounted suspension equipment inspected
- Power cable suspended safely and firm in outlet
- Wire ropes and bolts/pins secure
- Rope condition OK (see section "Steel Wire Rope")
- Sky Lock "snap" check (see section "Sky Lock overspeed device")
- Emergency descent of each hoist checked and OK.
- Stage working load below safe working load limit
- Stage condition, bolts/pins OK
- Central control box and overloads OK
- Hoist covers fitted
- Any service problems notified/actioned

## Daily checklist after use

- Stage on overhead structure or moved to an inaccessible position, which should be at least 3 meters above ground level
- Power off at roof
- Power cable and wire ropes safely tied off and stored
- Access to overhead structure secure
- Swing staging not resting on wire ropes or power leads
- Platform anchored to building to prevent damage to the equipment and property by wind movement
- All loose gear stowed
- If central controls are provided, the on/off switch should be turned to the "off" position.
- Clamp both Skylocks into ropes by operating the manual trip (if applicable)
- Raise trailing ropes and cables, store them in the platform

- 
- Exit from platform should be by ladder, which should then be stored in a lockable store or other secure place.

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