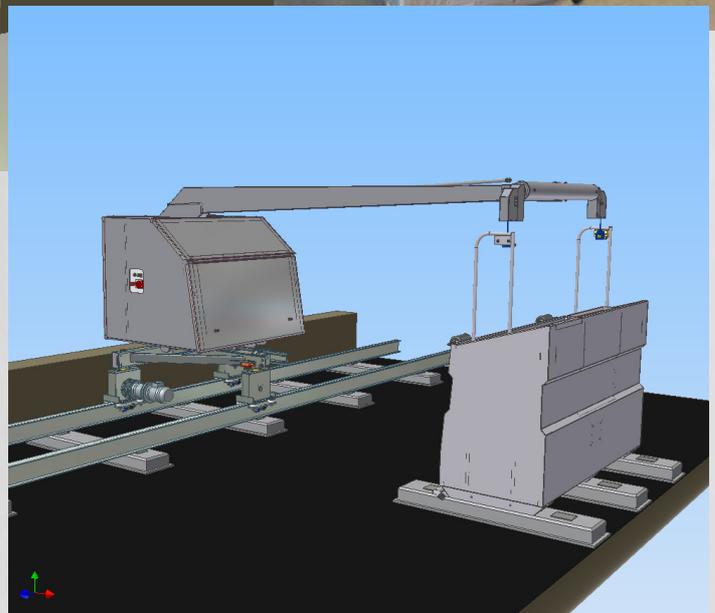
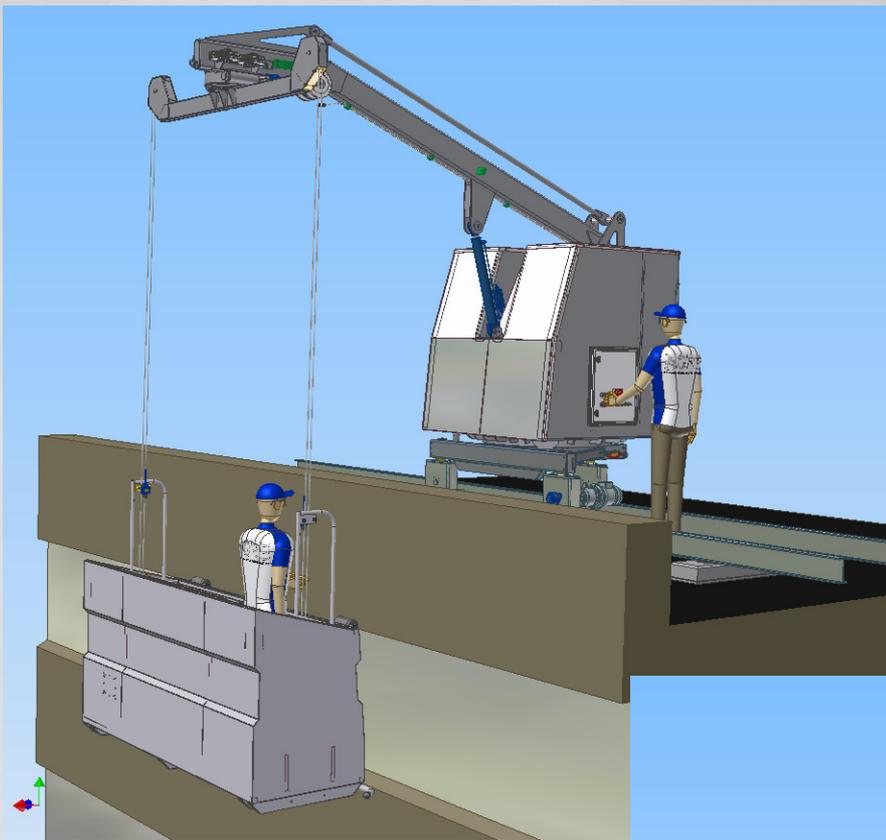


# NGRE

**Building maintenance units**



# NG Roof Elevators (NGRE)

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# N.G. ROOF ELEVATORS

We have the pleasure to introduce our company ***N.G. ROOF ELEVATORS LIMITED*** (***NGRE***), recently formed to give stature to the expansion of international group-activities of the mother-company ***Northern Glaziers Limited***, with designing, supplying, assembling and installation of building maintenance units.

***NGRE*** was established in co-operation with the undersigned. Together we have gained 27 years of experience in the field of building maintenance units in the most elaborated sense of the word.



***NGRE*** is a subsidiary company of the English installation- and assembling company that specialised itself in the beginning of the nineties in the field of installation and the assembling of structural glazing and curtain walling systems in the UK, Republic of Ireland and on the European mainland. Therefore Northern Glaziers Limited has successfully completed various large and medium projects in the past 10 years. References are available on request.

We have experienced that customers that are having maintenance units built are often let down concerning appointments made and execution of services with after-care advice. This conclusion has lead ***NGRE*** to give very high priorities especially to these aspects in approaching the market and execution, considering also the high quality working performance of the mother-company.

Besides designing, fabrication and installation of roof-cars, gondolas, monotracks, gantries, ladders, permanent safety-systems etc. our company can also offer maintenance on **every brand and type** of building maintenance units regardless of supplier. In the field of services, maintenance and after-care there has been, until now, no satisfactory price/quality proportion within the market. Consequently this led to relative high numbers of failure and undesirable high costs.

***NGRE*** will guarantee employers higher quality and service to a standard, until now, unknown in this field with 15 years experience in installation and 10 years in design.

We provide direct personal contact, reliable distribution of information, professional approach with quick delivery and proper finishing of the product.

The available manpower consists of professional personnel with a high standard of professional experience to designing advice, making, construction and maintenance jobs in this line of business.

We hope your company will consider putting ***NGRE*** on your tender list for future contracts or any ongoing contracts.

We hope with this summary to have given an impression of our professionalism and high standards, and always remain eager to give further information in a personal meeting.

# Maintenance

In the field off Building Maintenance Units can we maintain and/or repair every brand and type. Also an adjustment according to the latest demands off certification or norm belongs to the options.

There is an legal obligation for building Maintenance Units to give them a yearly inspection by a qualified person. For contract customers there is an 24-hours service available in case off calamities. Our goal is to achieve an as low as possible amount of waiting time for customer and users.

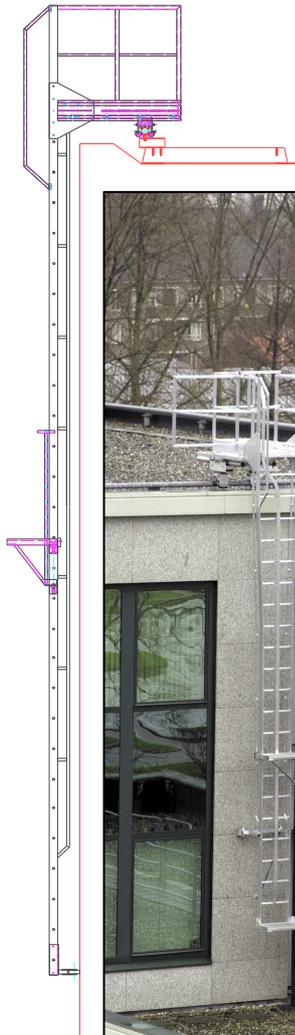
assisting with a yearly certification is also possible. With all our offers we will carefully watch the correct balance between price and quality.

We also realize that there is a demand in the market for one company that's able to maintain all BMU's belonging to our customer, which will give several advantages:

- One contact point for all BMU's disregarding which project or building.
- Price technical advantages in relation to more installations.
- Clear and direct communication also on o other matters like damage on the roof or leakage.
- Yearly overview and half yearly meeting with the involved property managers.
  - Possibility to fully arrange the yearly certifications.
  - If there are repairs or labor beside the maintenance, can they be done in between instead off doing them together with the next maintenance.
  - For every customer it's nice to be able to get an expectation of the costs over several years, with us. This is not a problem.
  - Reliable preventive maintenance will cause less malfunctions and will keep the total costs lower.



# Ladders



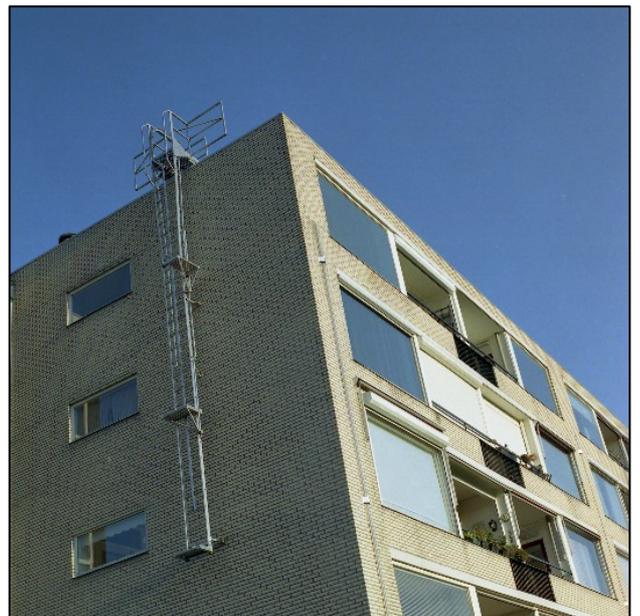
Suspended ladders are normally used for building maintenance, amongst others by window cleaners and painters. Especially in places that can't be reached from the ground, because of traffic, green or water area's suspended ladders are a perfect solution.

Suspended ladders can be placed on the existing roof through the use of concrete bars on which the aluminum tube tracks will be mounted. But they can also be placed directly on the roof depending on the situation.

The suspended ladders can be supplied with work platforms that can be placed in the desired position by the user.

The suspended ladder is designed according to the leading norms.

The suspended ladder will be supplied with the thereby belonging personal fall arrest devices.

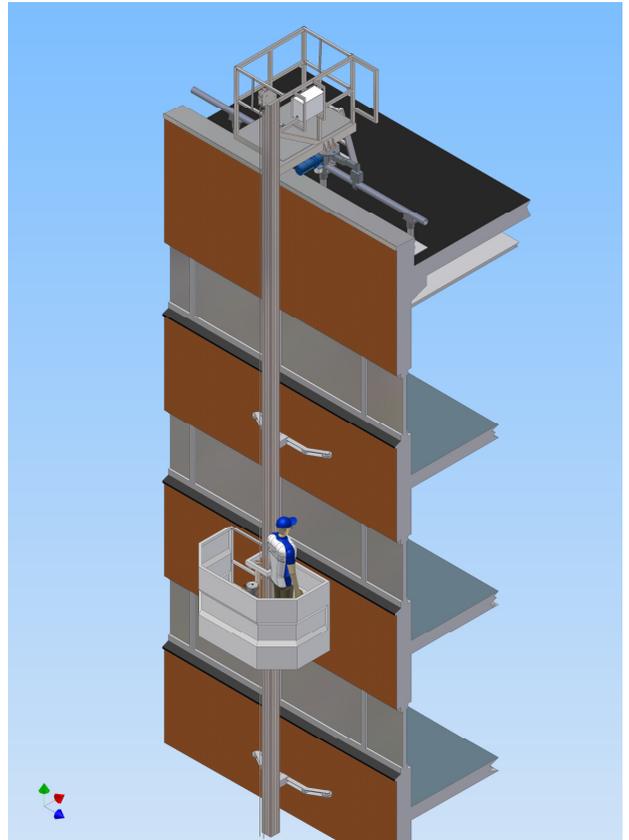


# *Mast Installations*

The Mast-Installation is an alternative for those cases in which it is not allowed to use permanent ladders. Or when things need to be done aside from cleaning the windows. Aside from that this installation can provide a safe working environment in an outside situation where the effects of the wind remain unpredictable. The working platform is guided by a mast-profile and as such is not freely suspended in the air. Unlike the one person gondola. The working platform is positioned on both sides of the mast. And can be easily configured by the user. The installation has been carefully balanced so that it will not flip to the inside when taking a turn. After use the installation can be secured on the track and to the front.

The Mast-installation consists of the following parts:

1. An aluminum profile running over multiple floors along the front. And is attached to it on several places.
2. A stair platform.
3. Aluminum working platform and control panel.
4. A hoist to move the working platform along the profile.
5. A fail safe device in case of malfunction i.e. wire fractures.
6. Steel frame with wheels to ride over the tube trajectory.



## *Technical specifications:*

- Electrical driving and winching
- A set of three wheels, of which one is operated.
- Track-type tube track-profile.
- Maximum hoist altitude of 15 meters
- Steel hot dipped galvanized
- Aluminum blank.
- Integrated steering power cable.
- Two-sided ergonomic work barge

# Roof Car semi-automatic Model RE-1

The model RE-1 can be divided in a RE-1a and a RE-1b model. The RE-1a has a self selfclimbing single person gondola and the RE-1b a self climbing gondola fit for two people. The roof car has the following functions, electrical/hydraulic movement, diverging of the upper frame and an optional adjustable reach of approximately one meter. The installation has been built from hot dipped galvanized steel. The installation has one fixed arm to which a one or two person gondola is attached. The upper frame of the installation can rotate, so that the gondola can be entered safely from upon the roof. The installation moves over an IPE-tracks with a distance of 2 meters in between the supports. The wheels are made of polyamide to prevent sound transit during the use of the installation as much as possible. The installation is controlled from within the gondola.

## ***Interchangeable 1-person gondola***

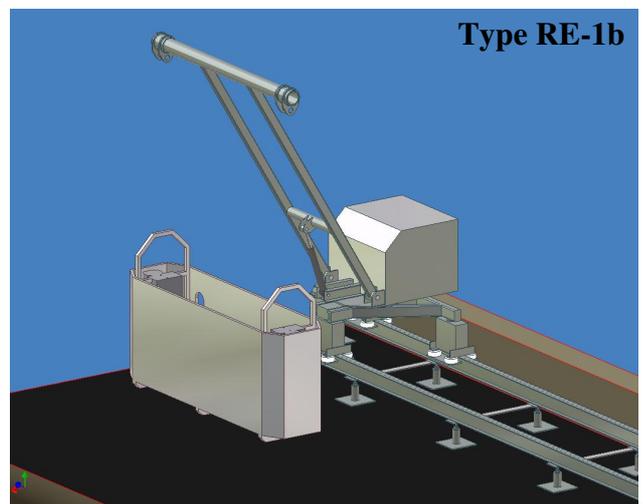
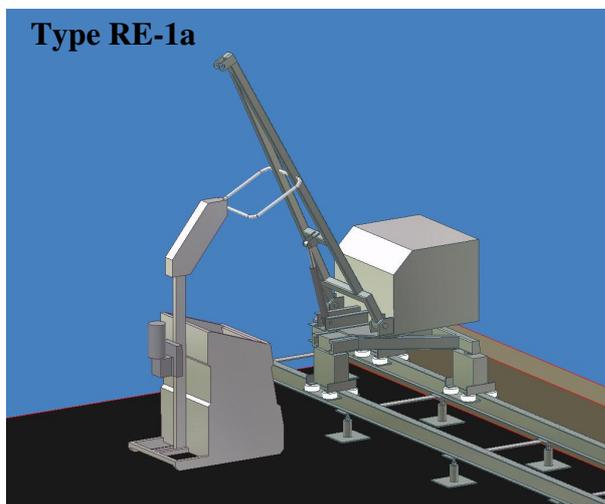
The 1-person gondola that is attached to the installation is built completely of aluminum profiles and is supplied with hoists and safety devices to secure it and it's operators in the event of a cable fracture as well as steel cable-drums. The power cable / steering power cable from the gondola to the installation is stored in a relief barge at the back of the gondola. The gondola has 4 transport wheels. The dimensions of the gondola are as follows:  
1000 x 800 x 2800 mm (LxWxH).

## ***Interchangeable 2-person gondola***

The 2-person gondola that is attached to the installation is built completely of aluminum profiles and is supplied with hoists and safety devices to secure it and it's operators in the event of a cable fracture as well as steel cable – cable drums. The power cable / steering power cable from the gondola to the installation is stored in a relief barge at the back of the gondola. The gondola has 4 transport wheels. The dimensions of the gondola are as follows:  
2000 x 600 x 1400 mm (LxWxH).

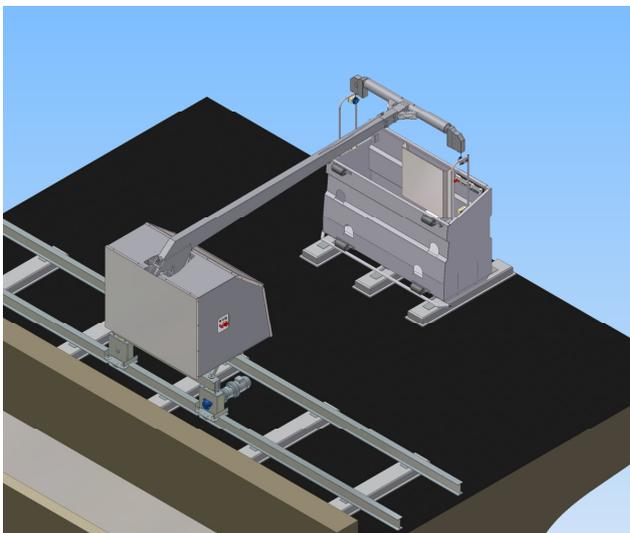
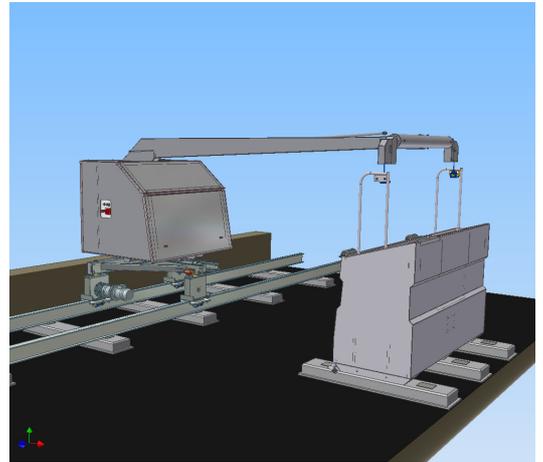
## ***Technical specifications:***

- Three wheel bogie
- Hydraulic rotation
- Maximum reach 1 t/m 5 meter.
- Track width 1000 mm.
- A maximum height of <40 meter
- Electrical driving
- Hydraulic tilting  $\pm 1000$  mm reach adjustment.
- One driven wheel
- Track type IPE 160.
- Steel hot dipped galvanized



# Roof car automatic Model RE-2

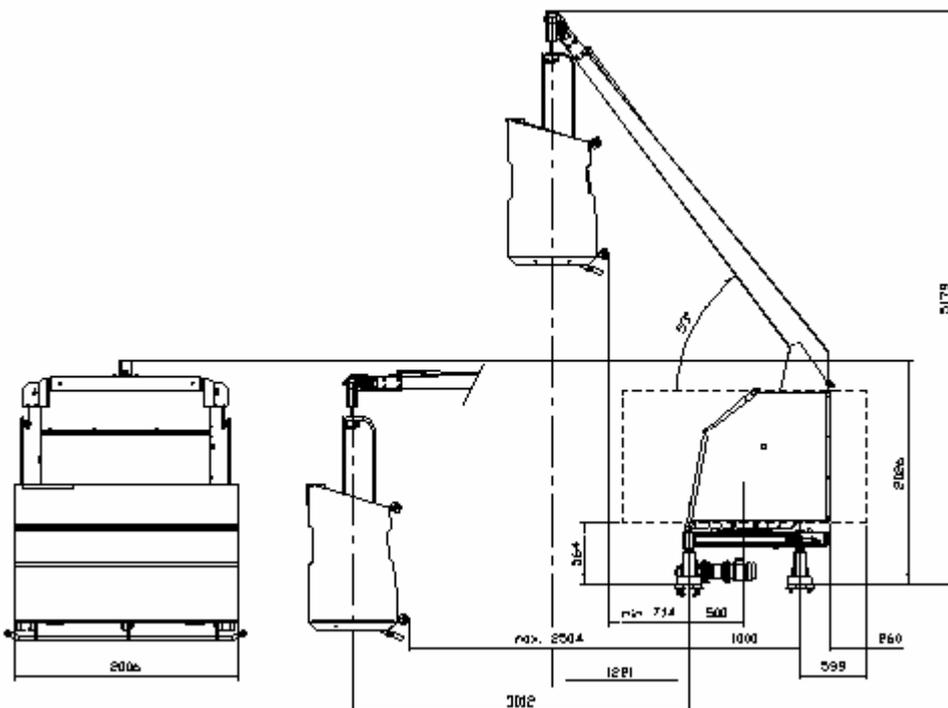
The roof car has the functions: electric/hydraulic movement, diverging of the upper frame and winching. The installation is built from steel plating and profiles and has been hot dipped galvanized. The installation has 1 fixed / hydraulic tilting arm with an balancer to which the two person gondola is attached. The dimensions of the gondola are 2000 x 800 x 1000/1200 mm(1xbxh). The upper frame of the installation is capable of rotating so that the gondola can be safely entered from upon the roof. The windlass has also been incorporated Within the upper frame. When the gondola is placed in the highest mode from the parking position the gondola



can be rotated outside the roof. The wheels have been made from polyamide to prevent sound transit during the use of the installation as much as possible.

A control box has been placed within the 2 person gondola. All functions can be controlled from within this control box. The panel can be positioned throughout the entire gondola as fits the user sees fit. The gondola has been constructed completely from aluminum. The power feed cable / steering power cable is stored in a relief barge on the inner back side of the gondola. The gondola has a maximum load of 240 KG, within the gondola.

## *Technische specificaties model RE-2:*



- Three wheel bogie
- Electrical driving.
- Electrical winching.
- Hydraulic rotation.
- Hydraulic tilting for reach adjustments
- Maximum reach 0.8 to 2,5 meter.
- One driven wheel
- Track width 1000 mm.
- Tracktype IPE 160.
- Lifting reach upto a maximum of 40 meter.
- Gondola width 2 meter.
- Steel hot dipped galvanized

# Roof Car automatic Model RE-3

The Roof Car Model RE-3 can be divided in four styles, all of them are equipped with the following functions: hydraulic tilting, swerving above the cart, winching, electrical driving with an hydraulic brake. This tilting arm makes it possible to give the installation a variable reach. The arm has been constructed with a fixed balancer or an hydraulic adjustable balancer to which the 2 person gondola is attached. The upper frame of the installation is capable of rotating to allow safe access to the gondola from upon the roof. The lifting operations have also been incorporated into the upper frame of the installation capable of lifting up to 100 meters high. When the gondola has been placed in the highest mode from the parking position, it can be rotated outside the roof. The installation is constructed of galvanized steel and profiles. The wheels are made of polyamide to prevent sound transit as much as possible during the use of the installation. If required all axles are of RVS 304 quality and the attachment resources of RVS A2 quality. A choice between gondola control or control on the upper frame can be made on the control panel.



The gondola that is attached to the installation has been made for two people, and bump protection has been placed on the gondola. The gondola has been constructed from aluminum plating and the floor has been equipped with anti-slip profile.

(foto model RE-3d)

The gondola has a relatively low mass, which has a positive effect on the total strain. The dimensions of the gondola are 2500 x 800 x 1000/1200 (LxWxD). A bottom limit bar has been placed under the gondola. A control panel has been placed inside the gondola, this control panel can be moved freely throughout the entire gondola. This panel contains the required buttons to control each function, and an emergency stop. The steering power cable from the gondola to the roof car is held in a relief barge on the inside of the gondola.

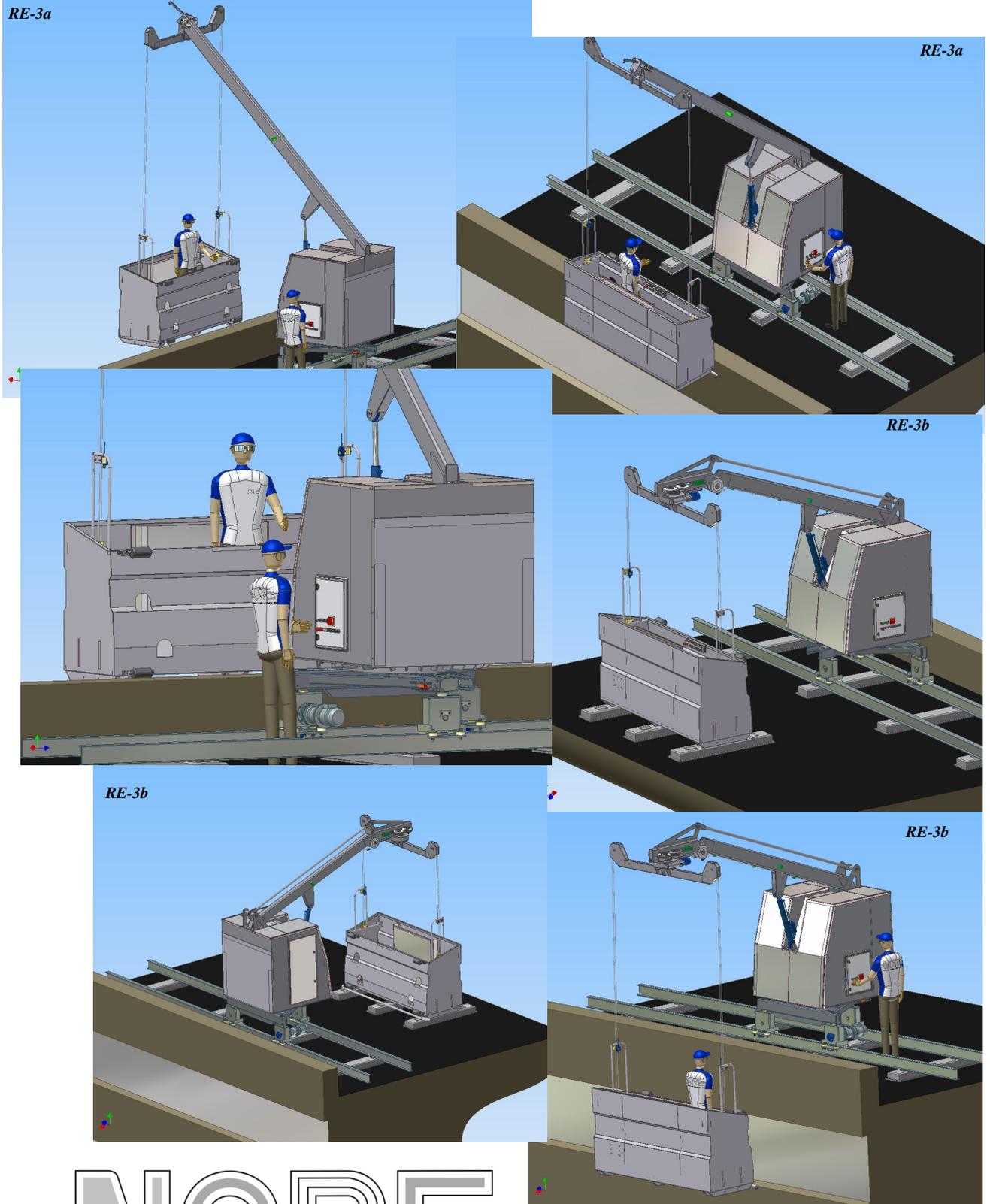
Technische specificaties model RE-3a tot d:

- Electrical driving.
- Hydraulic winching.
- Hydraulic rotation.
- Hydraulic tilting to adjust the reach.
- Hydraulic rotating balancer (deze functie is alleen mogelijk bij model RE-3b en 3d).
- One driven wheel with a three wheel bogie. Two engines with a four wheel bogie.
- Track width 1000 mm.
- Tracktype IPE 160.
- Lifting reach to a maximum of 60 or up to 100 meters.
- Gondola width 2.5 meter (can be increased on request).
- Steel hot dipped galvanized

## **Specifications models RE-3**

	RE-3a	RE-3b	RE-3c	RE-3d
Installation reach	1 to 4 meters	1 to 4 meters	5 to 7 meters	5 to 7 meters
Lower structure	Three wheeled	Three wheeled	Four wheeled	Four wheeled
Rotating balancer	No	Yes	No	yes

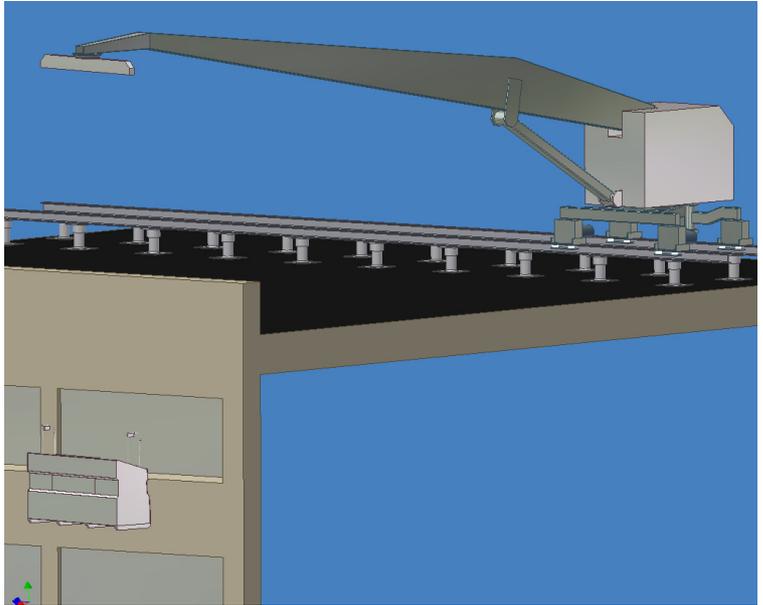
# Images Model RE-3



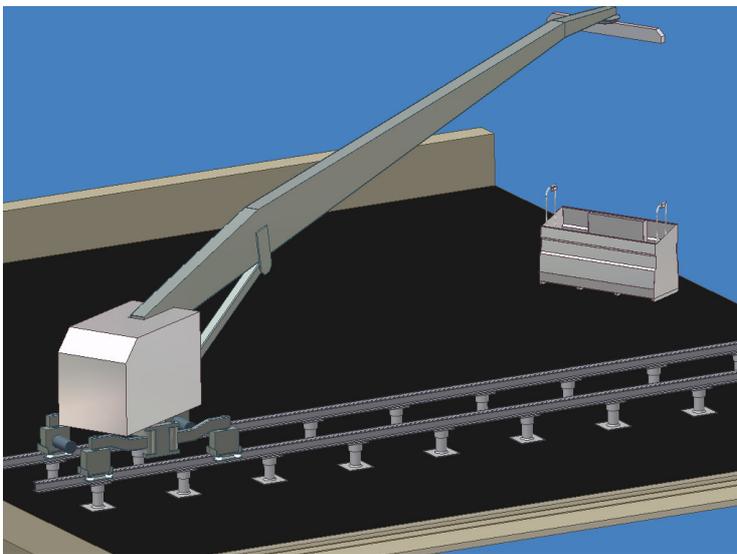
# NGRE

## *Roof car automatic Model RE-4*

The roof car model RE-4 has been built with the following functions: Hydraulic rotation of the upper frame, winching and electrical driving with a hydraulic brake. The arm can be created in several lengths from 6 to 20 meters. An balancer capable of rotating hydraulically has been attached to the end of the arm, To which the two person gondola will be attached. The upper frame of the installation can be rotated 355 degrees, to allow safe access to the gondola from upon the roof. The lifting operations have also been incorporated into the upper frame of the installation, capable of lifting upto a maximum height of 100 meters. When the gondola has been placed in the highest position from the parking positing, it can be placed off the roof. The installation has been constructed from steel plating and profiles, and has been galvanized. The wheels are made of polyamide to prevent sound transit during use of hte installation as much as possible. All axles are of RVS 304 quality, if required. And the attachment resources are of RVS A2 quality. The gondola can be controlled from either within the gondola, or the upper frame.



The gondola has a relatively low mass, which has a positive effect on the total strain. The dimensions of the gondola are 2500 x 800 x 1000/1200 (LxWxH). A bottom limit bar has been placed under the gondola. A control panel has been placed inside the gondola, this control panel can be moved freely throughout the entire gondola. This panel contains the required buttons to control each function, and an emergency stop. The steering power cable from the gondola to the roof car is held in a relief barge on the inside of the gondola.



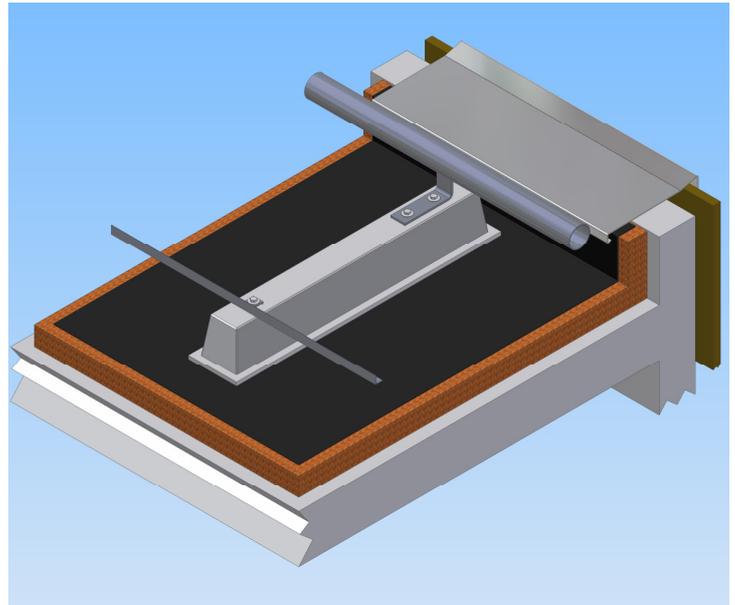
### *Technische specificaties:*

- Four wheel bogie.
- Electric Driving.
- Hydraulic winching.
- Hydraulic tilting.
- Hydraulic rotating balancer.
- Fixed reach
- Maximum reach 6 to 20 meters.
- Two driven wheels
- Track width 1500 / 2000 mm.
- Tracktype HEA-profiel.
- Lifting reach to a maximum of 60 / +100 meter.
- Gondola width 2.5 meter.
- Steel hot dipped galvanized.

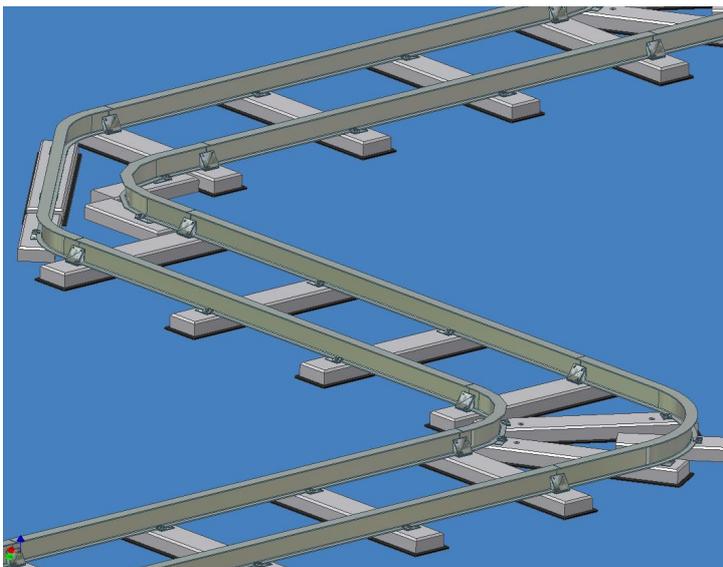
# Tracksystemen

## Tube track track laid loose

The single-tube track  $\varnothing$  76.1 or 88.9 mm. This track type is used for the suspended ladders and wordt gebruikt voor de hangladder and the mast-installations. The concrete track sleepers of 1000 x 150 x 150 mm are laid loose on the roof. The underlying distance between the concrete track sleepers is  $\pm$  1000 mm. For protection of the roof covering 15mm rubber granulaat-mats will be placed underneath the concrete track sleepers. The concrete track sleepers will be docked together at the back through the use of an angle line. This is to increase the stability of the concrete sleepers. The situation concerning roof edges and turnings and such, according to details that are to be discussed later. The steel has been hot dipped galvanized. As well as the fixing materials.

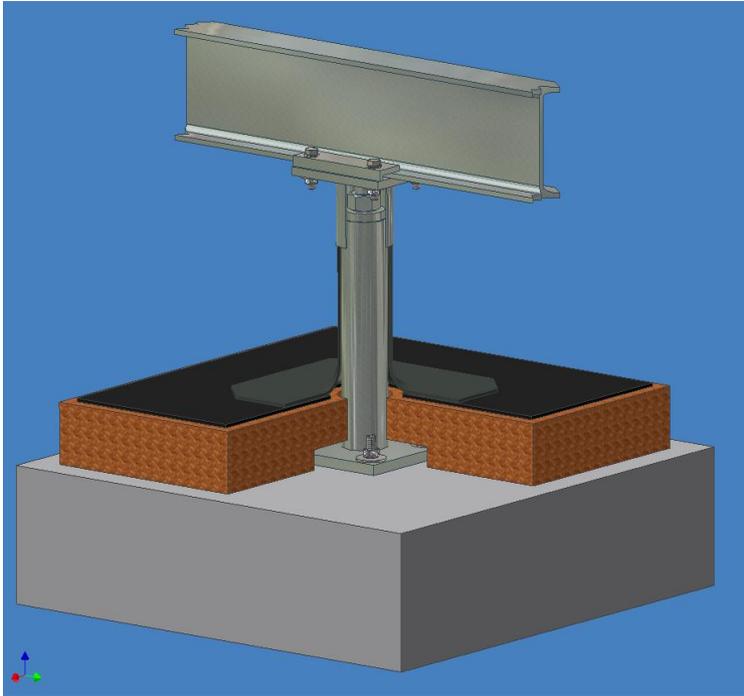


## Track track laid loose (IPE 160)



The double track track has been built from an IPE steel profile core to core 900/1000 mm. The tracks is supported by concrete track sleepers, and is laid loose on the roof's surface. To protect the roof surface 15mm thick granulaat mats are placed underneath the track sleepers. The IPE profiles with a maximum length of 4 meters are docked with the concrete with clamp plates. The following is included in the track: outer and inner curves, stopping at the end of the track. and moving of the power feed cable. End stops are placed at the end of the track. The steel has been hot dipped galvanized, as well as the fixing materials.

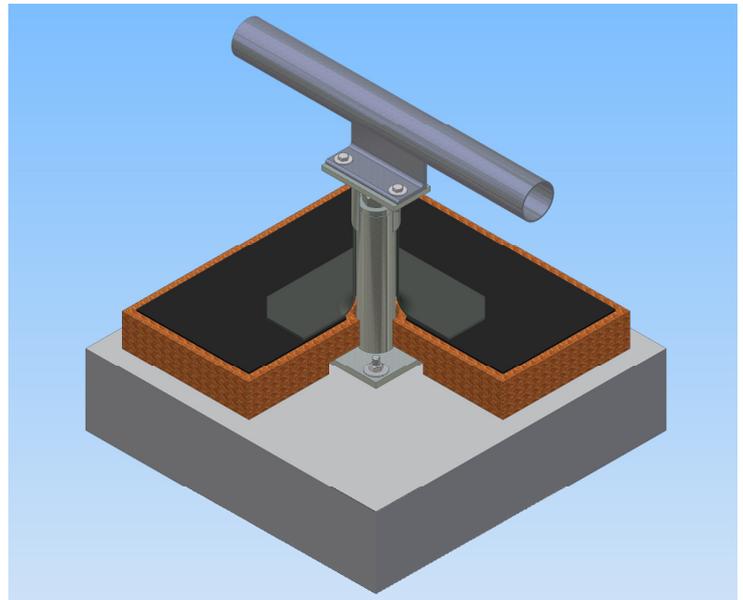
### **Track track fixed (IPE 160 high 500 mm )**



The double track consists of an IPE profile core to core 1000mm. The track is placed on the roof surface using tube supports with four anchors. The support distance is approx. 1800 mm. For water leaking an mastic will be provided that is to be placed around the support tube. Consecutively the whole is taped on the roof surface. An adjustable upper plating with rain cap is placed on top of the support. The IPE profile is attached to the upper plating with track clamp plates. The following is included in the track: outer and inner curves, automatically stopping at the end of the track and moving of the power feed cable. End stops are placed at the end of the track. The steel has been hot dipped galvanized. The fixing materials are either hot dipped galvanized, or made according to RVS A2.

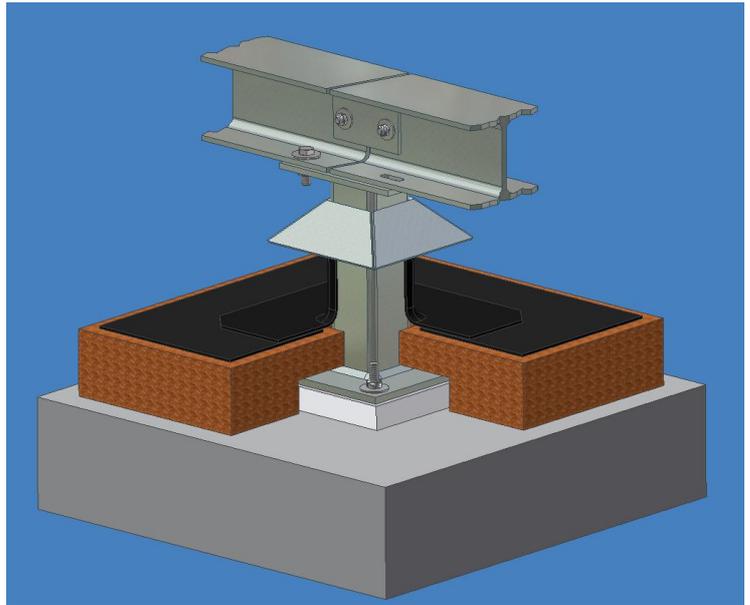
### **Tube track fixed (high 500 mm )**

The single tube track  $\varnothing$  76 mm or  $\varnothing$  88.9 mm is fixed to the roof using supports (due to concrete floor elements with through and through fixing) The support distance is  $\pm$  1800 mm. The steel has been hot dipped galvanized. An mastic will be placed around the support. Hereafter the entire structure will be sealed on the roof to make it water proof. An adjustable upper plating with a rain hood will be placed on top of the support. The tracks is connected with bolt connections through a corner line welded underneath the tube track. The steel has been hot dipped galvanized. The fixing materials are either hot dipped galvanized or produced according to RVS A2.



### **track fixed (HE 160A high 500 mm)**

The double track consists of HEA steel profiles, hart to hart 1500 mm. The track is fixed to the roof floor through the use of composed supports and anchors. The track is fixed directly on to the supports with bolt connections. The track pieces are docked with both a plate and a bolt connection. The following has been incorporated into the track: Turns, end stops, skating for identification of the end of the track. And moving the power feed cable. To make the structure water proof, the supports must be taped up to below the rain hood by a professional roofer. The steelwork has been hot dipped galvanized. The fixing materials have been galvanized.



### **Monotrack systems.**

Aside from delivering roof cars it is also possible for us to deliver monotrack systems with accesories (e.g. several types of gondolas). The available track systems for that application are: IPE-track, open box track, and several aluminum track-profiles. Suspended ladders can be attached to the monotrack, but also one or two person gondolas that can be both manually or electronically operated.



### **References N.G. Roof Elevators**

If you wish to see an overview of our previous work, It is possible to see a selection at our website [www.ngroofelevators.com](http://www.ngroofelevators.com) this list includes phone numbers and e-mail adresses of contacts within that company. Please feel free to contact these people to ask about experiences regarding our company.





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