



# Permanent fall-protection systems

# Experience & innovation to keep you safe

P. 4-5	Basic concepts of working heights
P. 6-7	The promise of turnkey safety
P. 8-9	Designing of tailored solutions
P. 10-11	Selection guide: systems

## Anchors & anchor points

P. 12-19	Anchors & anchor points for all types of roof
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## Horizontal lifelines

P. 20-21	Atiligne horizontal lifeline
P. 22-23	Batiligne horizontal lifeline
P. 24-25	Altirail horizontal fall protection rail
P. 26-27	Altirail LR long-span fall protection rail

## Angled lifeline

P. 28-29	COMBIRAIL angled fall protection rail
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## Vertical lifelines

P. 30-31	Vertiligne vertical lifeline
P. 32-33	Vertirail vertical fall protection rail
P. 34-35	Ladderrail vertical fall protection rail

## Collective protection

P. 36-37	EVO range & selection guide
P. 38-40	List of parts
P. 41	Self-supporting guardrail
P. 42	Guardrail for steel deck
P. 43	Guardrail for waterproofed slab
P. 44	Guardrail for waterproofed deck
P. 45	Guardrail on parapet
P. 46	Flat & surface-mounted guardrail
P. 47	Folding system for guardrails
P. 48 -49	Fall protection & grids for roof lights or translucent elements

## Ladder, accessories & personal protective equipment

P. 50-51	Ladder with safety cage
P. 52-53	Supports, embellishments & waterproofing accessories
P. 54-55	Personal protective equipment





## Collective protection

Types of solution

1



Self-supporting railing

2



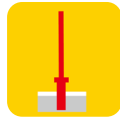
Railing on parapet

3



Railing on steel deck

4



Railing on waterproofed slab/deck

5



Ladder

6



Pathways

1



Extensive horizontal movement, suspended access and/or access under tension possible

2



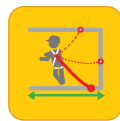
Extensive horizontal or vertical movement or on angled plane

3



Horizontal movement

4



Continuous horizontal movement

5



Vertical movement

6



Extensive vertical movement

7

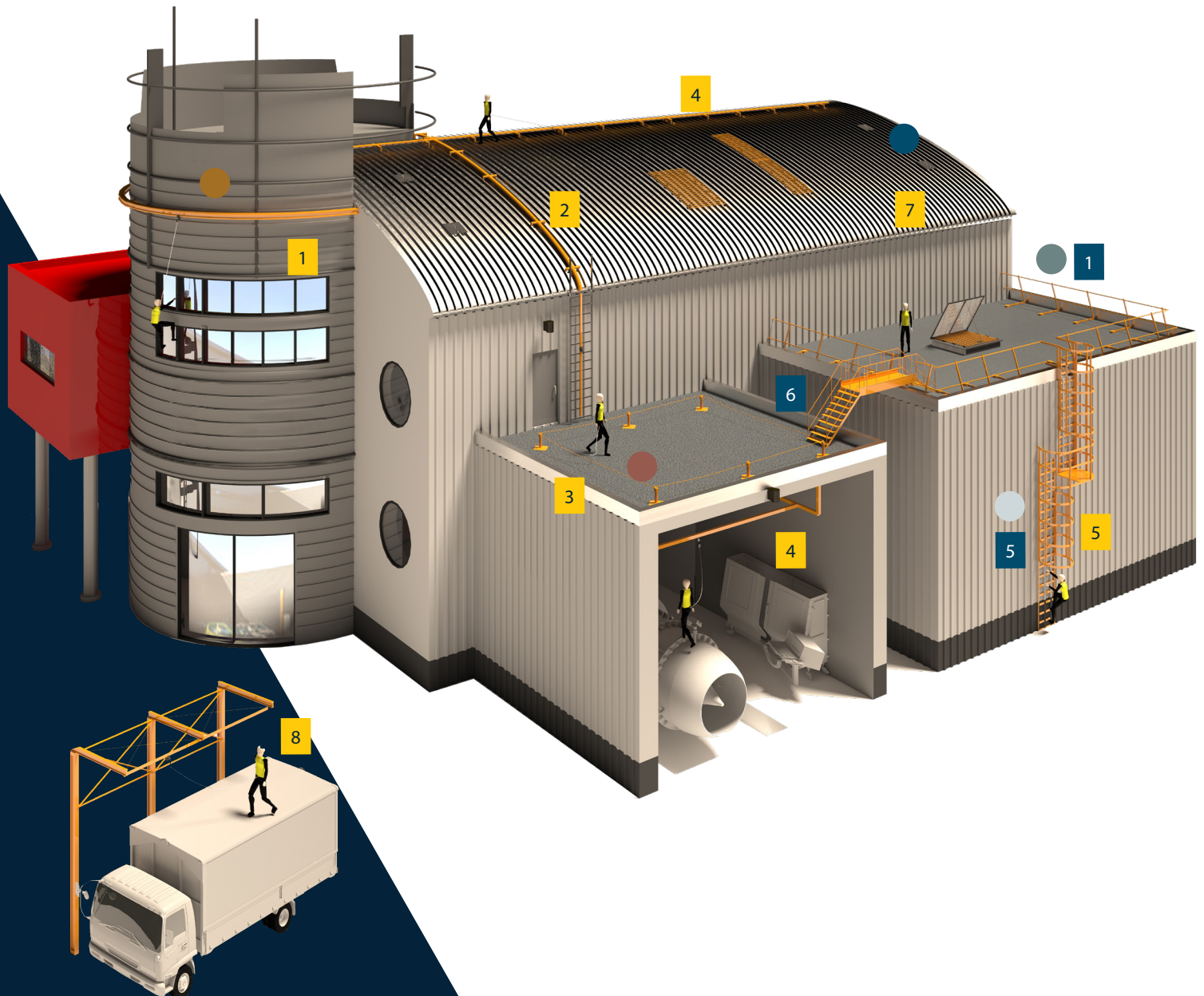


Limited horizontal movement (below 3 m)

8



Tailored safety solutions



# Basic concepts of working at heights

## Fall factor

### The fall factor represents the proportional severity of a fall

Its value ranges from 0 to 2 and is obtained by dividing the height of the fall by the length of the rope.

To limit the fall factor:

- always prefer work with restraint
- raise the position of the anchor point (the higher the worker is above their anchor point, the more severe the fall)
- make the connecting system as short as possible.



#### Factor 0

##### Limited free fall

The anchor point is located above the worker's head and their lanyard



#### Factor 1

##### Free fall that may reach up to once the length of the connecting system

The anchor point is located on the worker's chest (at the sternal attachment of the harness)



#### Factor 2

##### Free fall that may reach up to twice the length of the connecting system

The anchor point is located close to or under the worker's feet (between the sternal attachment of their harness and the ground)

## Clearance

### Distance between the user's feet and the first impact zone

Clearance is the distance between the user's feet and the first impact zone. There is a difference between available clearance and required clearance.

#### Available clearance

- 1 Distance between the structure on which the worker is working at a height and the nearest obstacle (ground, balcony etc.)

#### 2 Required clearance

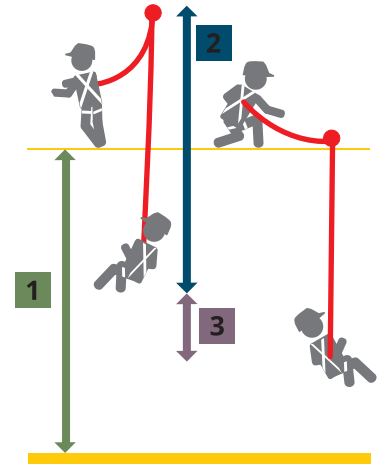
- + Minimum distance required for the worker to fall with no risk of colliding with the nearest obstacle.

3



## LEGEND

- 1** Available clearance
- 2** Length of the line  
+ energy absorber extension  
+ worker's height
- 3** Safety distance (1m)



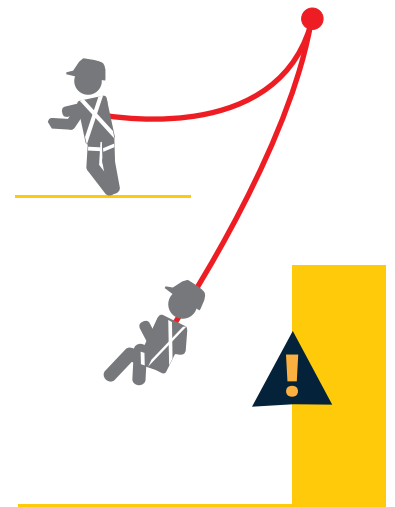
## Pendulum effect

### Risk of the worker swinging in multiple directions in the event of a fall

The pendulum effect is the risk that the worker may swing in multiple directions in the event of a fall.

That could lead to collision between the worker and the ground or even an obstacle (wall, platform, etc.). It generally occurs when the anchor point is not located exactly above the worker working at a height.

To limit the risk of the pendulum effect, the angle between the worker and the anchor must be reduced, while taking account of the fall factor.



## Impact force

### Severity of a fall depending on the weight of the user and their equipment

The greater the total weight of the worker and their equipment, the greater the quantity of energy to absorb during a fall. Exceeding 100 kg is fairly easy. That mass must be multiplied by 9.81 for a free fall over 1 metre.

That is why it is indispensable to make sure the energy absorption capacity of the fall-arrest system is never exceeded, to limit the force of the impact experienced by the user.

*Useful information: permanent fall-protection systems are now designed in Europe to limit the impact force to 600 DaN and are tested for factor 2, the least favourable.*



# The promise of turnkey safety

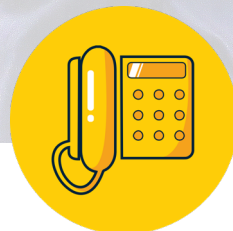
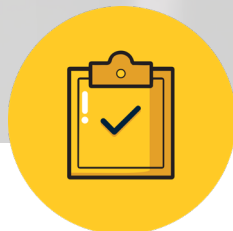
**Our duty is to protect people at work.**

**To that end, we design and manufacture complete solutions for personal and collective worker protection across the world.**

Through our **46 subsidiaries in 30 countries** all over the world, we operate and distribute our products in over **110 countries**.

Our complete offer encompasses five large families of personal protective equipment and collective protection systems.

Our products are designed to achieve three goals: **safety, comfort and good design**. Each of our solutions is challenged by our research and development experts. That enables us to offer ever more advanced and more differentiating solutions.



## Audit & advice

**Our primary concern: the user**

Every day, we make your concerns our own in order to design personal protective equipment and permanent fall-protection systems that are suited to your working environments.

## Integrated design and manufacturing

**A complete safety range**

Regardless of your organisation or the shape of your building, our in-house engineers work on designing tailored solutions that are fully adapted to your needs.

## Inspection

**The assurance of optimum quality**

As part of our continuous search for optimum quality, our products are tested and certified to applicable standards. Our products undergo in-depth testing in our own quality control laboratory before they are certified by notified independent testing bodies.

## Support

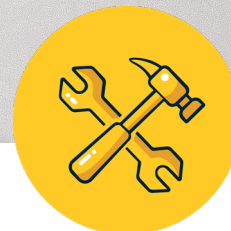
**Closeness to users**

Because we are convinced that human support is a key requirement, you will find our teams in France and elsewhere, ready to offer training and all the engineering and installation assistance you may need.



## Certified solutions to keep you safe

Our ISO 9001, ISO 14001 and MASE certifications bear testament to our dedication and our commitment to continually improve the quality of our products and services, and in favour of addressing health, safety and environment requirements.



## Installation

### Ready-to-use solutions

You can trust our installation partners, who are trained and certified all over the world, and benefit from a turnkey solution wherever you are located.

## Verification

### Verification and validation of your equipment

Our teams take charge of initial inspections, commissioning and the periodic verification of your fall-protection equipment and systems.

## Training & approval

### Teaching of good techniques and practices for safe working at heights

As a regulated training body, we can transmit our know-how and experience by training users in good techniques and practices so that you can address all the risks relating to your business activity.

## Maintenance and upgrading for compliance

### Replacement of equipment in the event of nonconformity

Our teams can inspect your fall-protection equipment and systems and replace them if they are found to be nonconforming.



# Designing of tailored solutions

Our international engineering team supports products that can address the local requirements of standards and customers.

Our project managers and trade specialists will support you in the development of your project and coordinate with our production staff to manufacture high-quality fall-protection systems.

Our **know-how** in the areas of **production** and assembly, combined with our **in-house design department**, allows us to **design tailored solutions that are adapted to your expectations and working requirements**, in compliance with **applicable standards**.

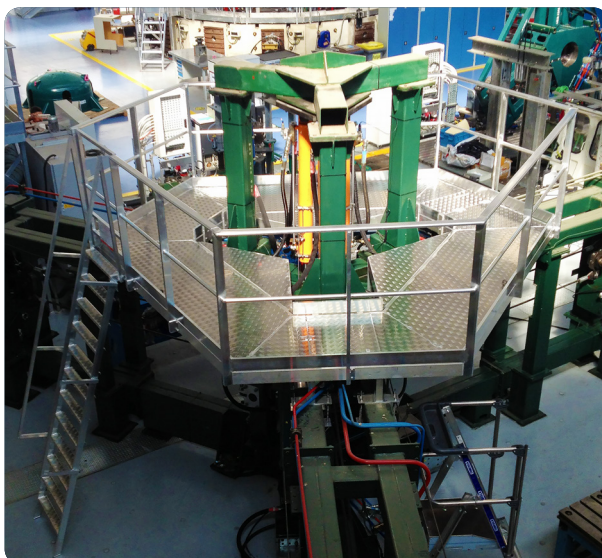
## Walkways with non-slip floors

Designing of tailored walkways (on supports, PRM and/or suspended) suitable for slopes ranging from 0 to 20° and all types of substrates



## Movement platforms with non-slip floors

Designing of platforms for maintaining equipment and machinery, adapted to all types of base structures





# From designing to standards, from environmental requirements to value creation

## Steps

Designing of tailored access equipment suitable for slopes ranging from 20 to 45° and all types of supports

Possibility to add locking doors to make use safer



## Step ladders

Designing of tailored step ladders with railings or fall-protection rails suitable for slopes ranging from 45 to 75°, for all types of support



## Gantries

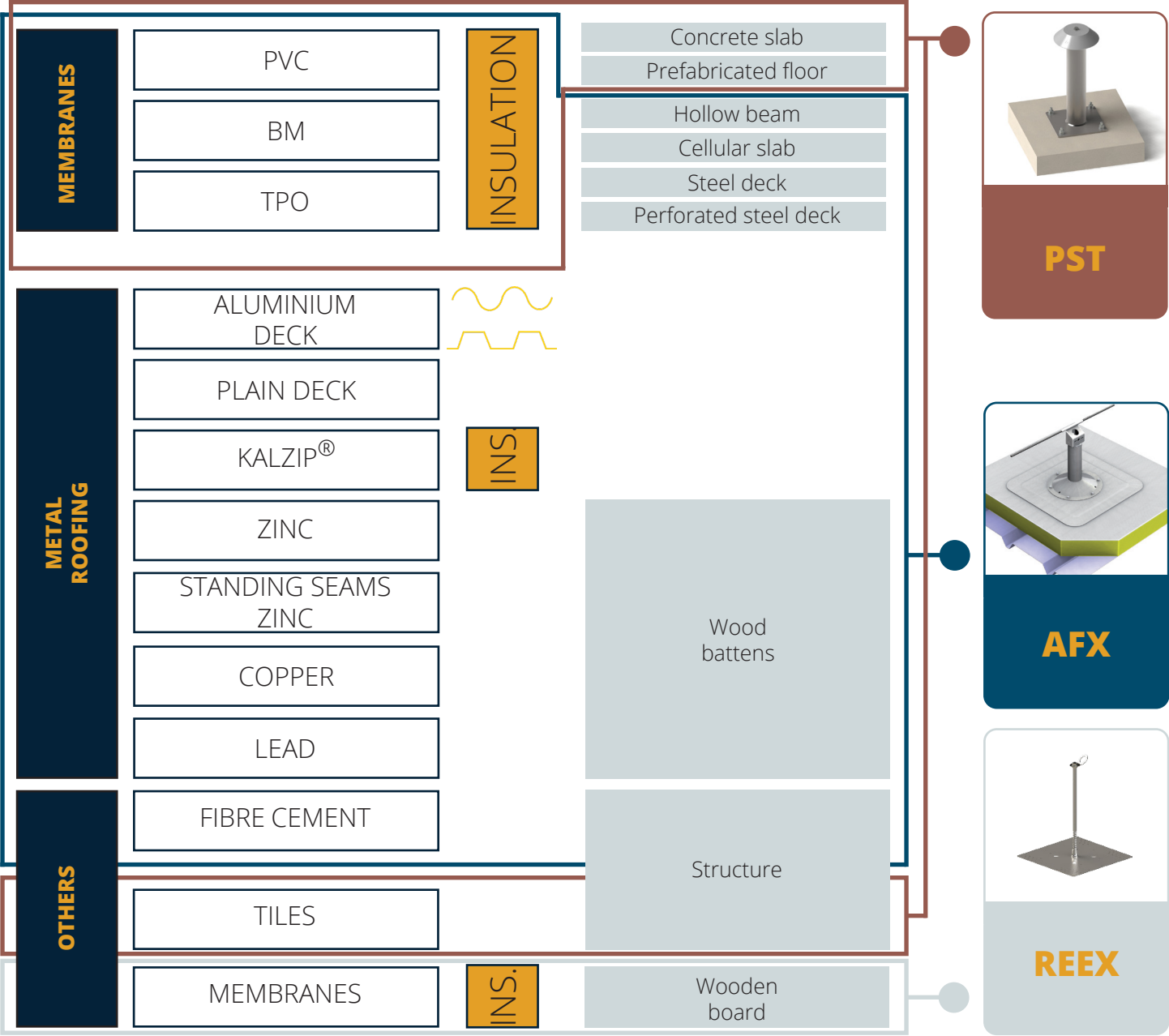
Designing of gantries fitted with fall-protection rails for maintaining special equipment or for loading and unloading vehicles



# Personal protection



## 1 DEFINE YOUR SUBSTRATE



Legend

- 1 Types of structure & waterproofing
- 4 Fastening supports

- 2 Roofing
- 5 Interfaces

- 3 Optional insulation



# Selection guide: systems

## 2 SELECT YOUR SYSTEM



Horizontal  
safety



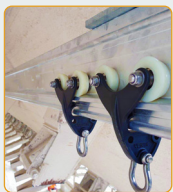
ALTILIGNE



BATILIGNE



ALTIRAIL



ALTIRAIL LR



Angled  
safety



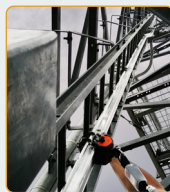
COMBIRAIL



Vertical  
safety



VERTILIGNE

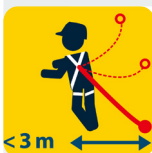


VERTIRAIL



LADDERRAIL

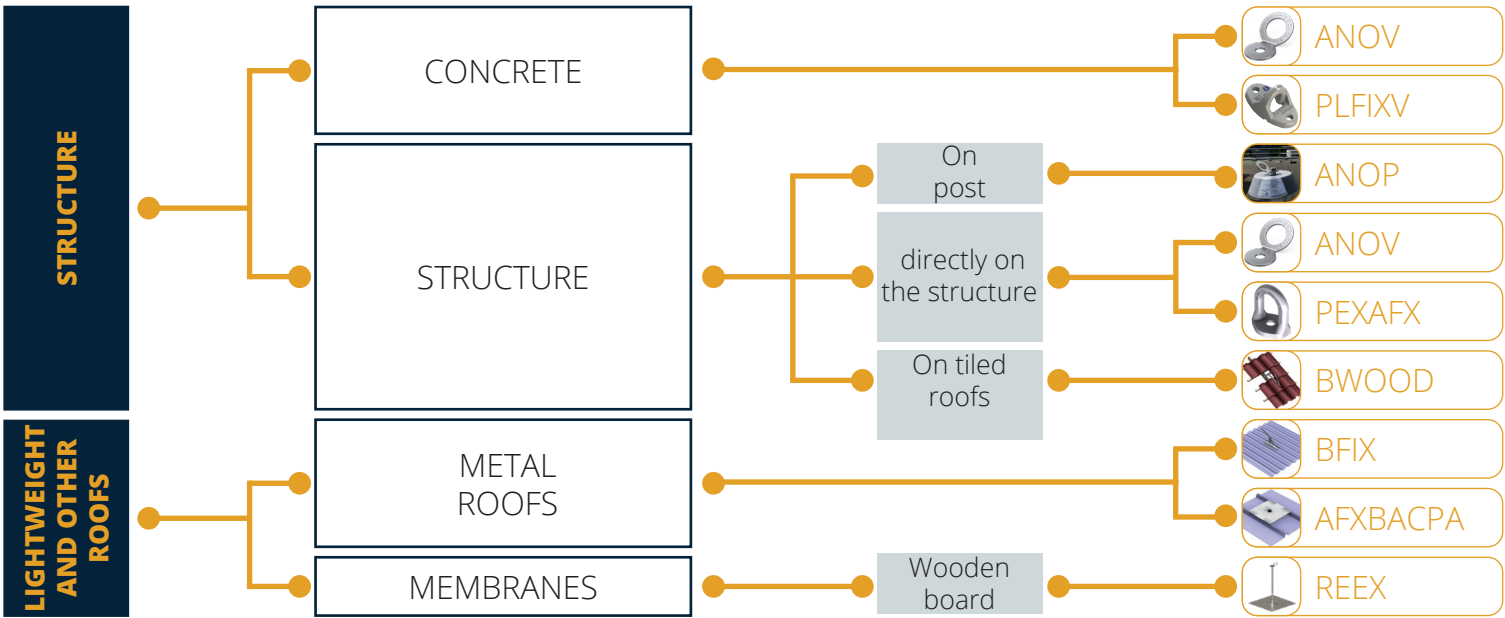
## 3 FOR SAFETY IN A DEMARCATED AREA



Local safety

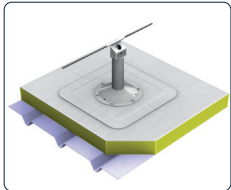


Anchor  
points

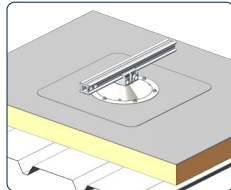




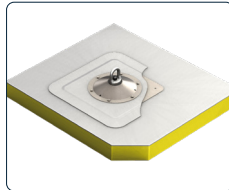
## PVC OR BITUMEN



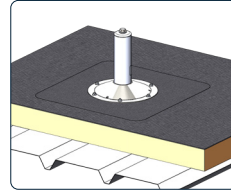
**Lifeline anchor**  
WVAFXPVC



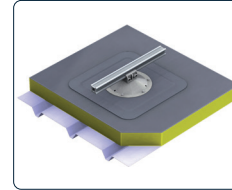
**Rail anchor**  
WVAFXPVC



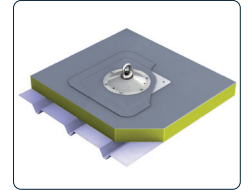
**Anchor point**  
WVAFXPCPA



**Lifeline anchor**  
WVAFXBM



**Rail anchor**  
WVAFXBM



**Anchor point**  
WVAFXBMPA

Hollow  
beam

Cellular  
slab

Solid steel  
deck

Concrete  
slab

Prefabricated wide  
slab

Perforated  
steel deck

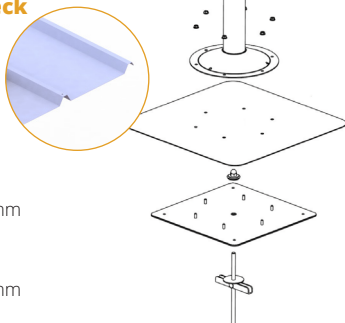
### Fastening kit WVKVBSEx

WVKVBSE1  
0 < thickness of insulation < 130 mm

WVKVBSE230  
100 < thickness of insulation < 230 mm

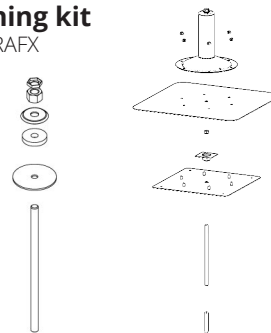
WVKVBSE330  
200 < thickness of insulation < 330 mm

**Solid  
deck**



Important: the reinforcement kit (WVKVRBAC) is required for fastening end and angle anchors for horizontal lifelines

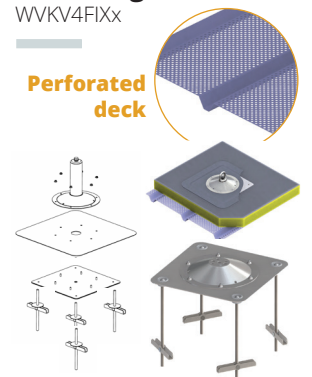
### Fastening kit WVANCRAFX



Important: the reinforcement kit (WVKVRBAC) is required for fastening end and angle anchors for horizontal lifelines

### Fastening kit WVKV4FIXx

**Perforated  
deck**

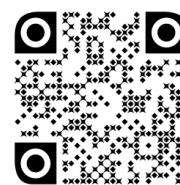


Available in 130, 230 or 330 mm

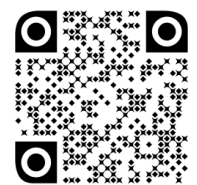
- ▶ Fitted directly on the waterproofing
- ▶ A single central fastener connects to the deck
- ▶ Installation independent of the structure
- ▶ Version available for perforated deck



Scan the QR code to see the installation video

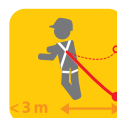
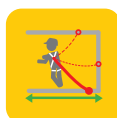


BM

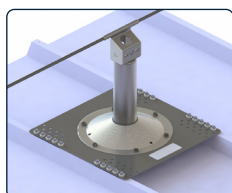


PVC



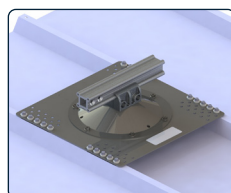


## STEEL DECK



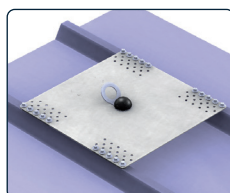
### Lifeline anchor

WVAFX2FR  
Special centre distances:  
WVAFX2ES or WVZOI



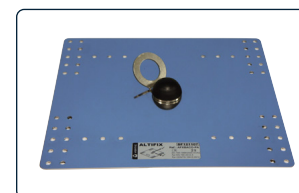
### Rail anchor

WVRAFXT  
Special centre distances:  
WVRAFXTES or WVZOI



### Anchor point

WVAFXBACPA  
Special centre distances:  
WVAFXBACPAES or WVZOIPA



### Anchor point

WVAFXBACOPA  
(dedicated to Ondulit steel roofs)

## Standard steel deck

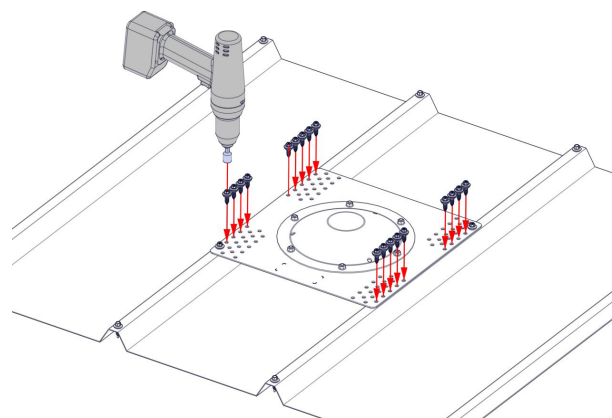
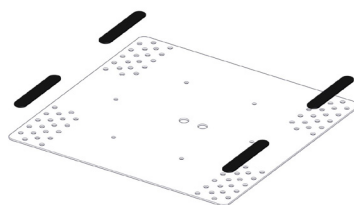
### Fastening kit

WVKVBAC



Thickness  $\geq 0.6\text{mm}$

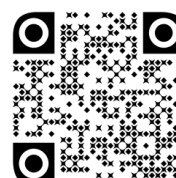
Fastening with self-drilling screws



- Compatible with centre distances 250, 280, 304 & 333 mm  
Special centre distances on request for lifeline or rail anchors and for anchor points (part number WVAFXxSPECIF)
- Centre distances for ES versions: 415 & 440 mm
- Centre distances for ZOI versions: 300, 352, & 386 mm



Scan the QR code to see the installation video



- Compatible with the following centre distances:  
193.25, 264 & 299 mm

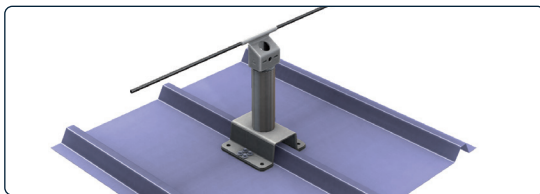


## STEEL & ALUMINIUM DECK



Steel deck

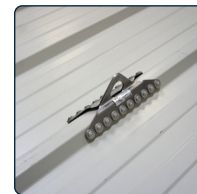
Aluminium



**Lifeline anchor**  
WVAFX1




**Ladder anchors and supports**  
WVBFXT & WVBFXTC



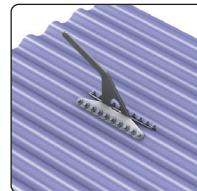
**Ladder anchors and supports**  
WVBFXT & WVBFXTC  
WVBFXS & WVBFXSC



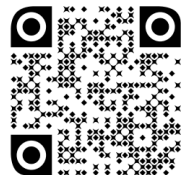
- Compatible with: 
- Metal plates of the cold profile type
- L > 50mm; thickness > 1.5mm
- Min. metal plate: IPN or UPN 80
- L > 50mm; thickness > 1.5mm



**Ladder anchors and supports**  
WVBFXS & WVBFXSC

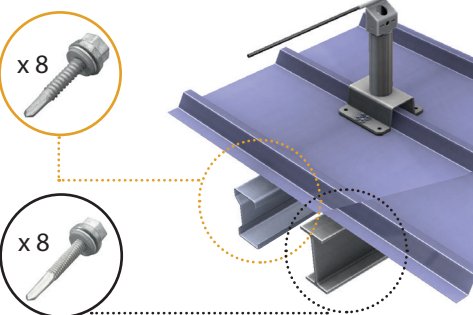


Scan the QR code to  
see the installation  
video



## Cold profile metal plate or IPN/UPN 80

### Fastening kit: cold profile metal plate WVKV1A



### Fastening kit: IPN or UPN 80 WVKV1M

- Anchor point alone or with ladder anchor available on sinusoidal and trapezoidal deck



- Part no WVBFXS (plain)
- Part no WVBFXSC (ladder)



- Part no WVBFXT (plain)
- Part no WVBFXTC (ladder)

- Fastening kit included

- Anchor point alone or with ladder anchor available on sinusoidal and trapezoidal deck:



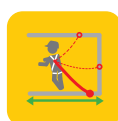
- Part no WVBFXS (plain)
- Part no WVBFXSC (ladder)



- Part no WVBFXT (plain)
- Part no WVBFXATC (ladder)

- Fastening kit included

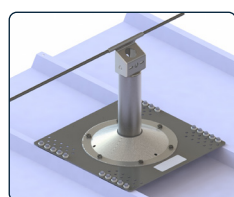




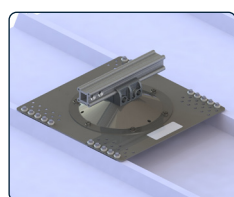
## ALUMINIUM



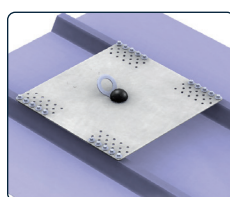
### Aluminium



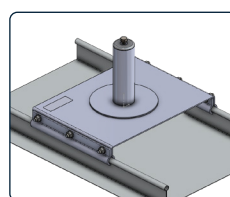
**Lifeline anchor**  
WVAFX2FR



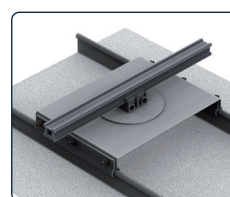
**Rail anchor**  
WVRAFXT



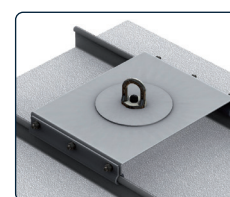
**Anchor point**  
WVAFXBACPA



**Lifeline anchor**  
WVAFXKAL1



**Rail anchor**  
WVRAF XKAL



**Anchor point**  
WVAFXKAL2

#### Sinusoidal

##### Fastening kit WVKVBACALUS



Thickness  $\geq 0.9\text{mm}$

#### Trapezoidal

##### Kit de fixation WVKVBACALU



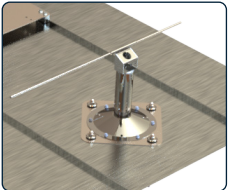
- Compatible with centre distances: 250, 280, 304 & 333 mm
- Special centre distances on request for lifeline or rail anchors and for anchor points (WVAFxSPEFIC)

- Fastened directly on standing seams - diameter 20mm (Kalzip, Bêmo etc.)
- 100% stainless steel
- Standing seam centre distance: 400 mm
- Special centre distance on request
- Thickness of aluminium deck  $> 0.9\text{mm}$
- Fastening: rivets (kit included)

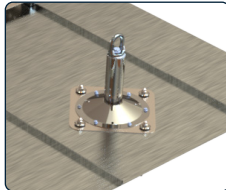




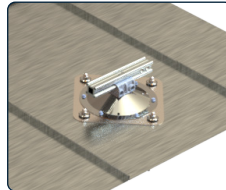
## ZINC & COPPER



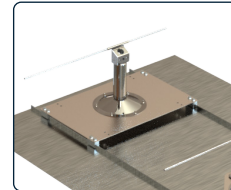
**Lifeline anchor**  
WVAFXZN



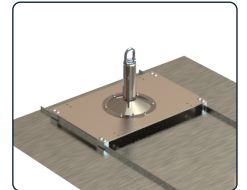
**Anchor point**  
WVAFXZNP



**Rail anchor**  
WVAFXZN



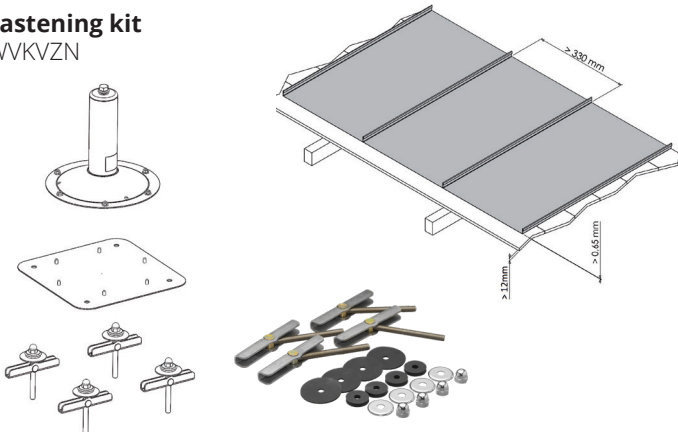
**Lifeline anchor**  
WVAFXZNJD



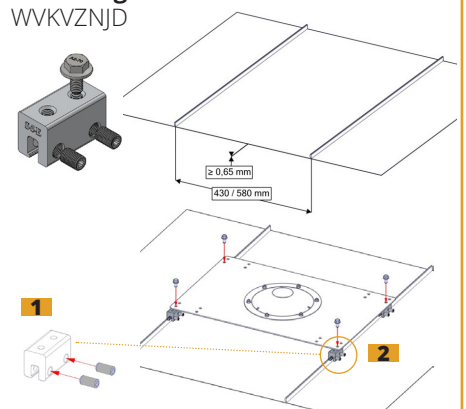
**Anchor point**  
WVAFXZNJDPA

## Wooden roofs

### Fastening kit WVKVZN



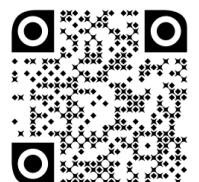
### Fastening kit WVKVZNJD



- ▶ Installation with no work on the underside, no blocking of zinc dilatation
- ▶ Can withstand strain in all directions
- ▶ Certified for wooden battens - 12mm thick
- ▶ Available in clamping version (JD part numbers) for corrugation centre distances of 430 or 580mm
- ▶ Fastening kit included



Scan the QR code to see the  
installation video





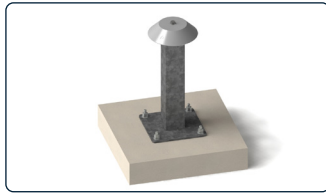


# Other types

## CONCRETE



**Standard post**  
WVPST2



**Square post**  
WVPSTC



**Anchor ring**  
WVANOV



**Anchor points**  
WVPLFIXVI (St. st) & WVPLFIXV

### Fastening kit

WVANCRM12

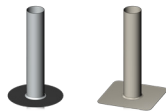
Ø12mm fasteners  
HILTI HVU M12



x 4

Waterproofing connection accessories:

- Aluminium sleeve (WVFALU1)
- PVC sleeve (WVFPVC1)



### Fastening kit

WVANCRM12

Ø12mm fasteners  
HILTI HVU M12



x 1



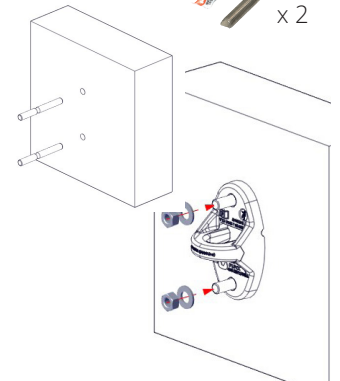
### Fastening kit

WVANCRM12

Ø12mm fasteners  
HILTI HVU M12



x 2



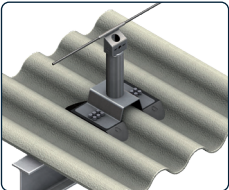
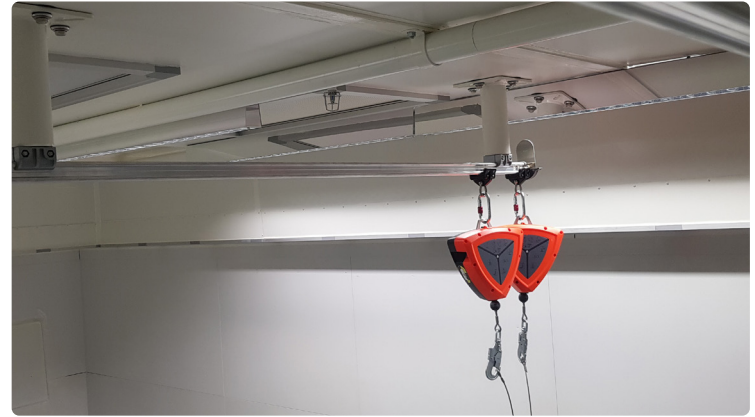
- ▶ Fastening: chemical or metal anchors
- ▶ Available in four different versions: standard, square, insulated & stainless steel

- ▶ Environments:  
indoor & outdoor  
-40°C to +80°C
- ▶ Fastening: chemical or  
metal anchors
- ▶ Facilitates carabiner  
connection  
100% 316L stainless steel  
Quick and easy installation

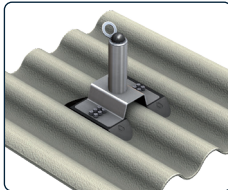
- ▶ Environments:  
indoor & outdoor  
-20°C to +50°C
- ▶ Installation on vertical,  
horizontal or angled  
structures
- ▶ Withstands strain in all  
directions & suitable for  
suspended access



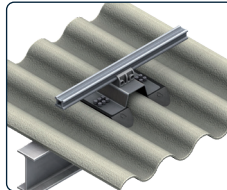
### STRUCTURE



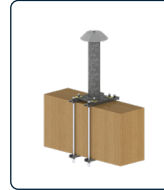
**Lifeline anchor**  
WVAFXFC



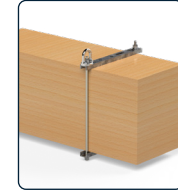
**Rail anchor**  
WVAFXCPA



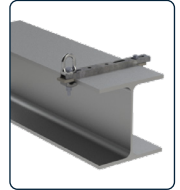
**Anchor point**  
WVAFXFC



**Standard post**  
WVPST1



**Standard anchor point**  
WVPEXAFX

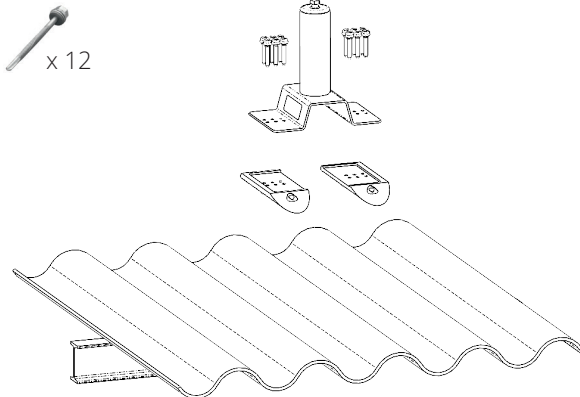


### Structure

### Structure

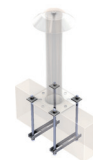
### Structure

#### Fastening kit WVKVFC



#### Fastening kit WVKBx or WVKCx

WVKBx:  
Double  
clamping



WVKB1: 80 - 150 mm  
WVKB2: 150 - 250 mm  
WVKB3: 235 - 330 mm

WVKCx:  
Double  
clipping



WVKC1: 80 - 150 mm  
WVKC2: 150 - 250 mm  
WVKC3: 235 - 330 mm

#### Fastening kit WVKBxP or WVKCxP

WVKBxP:  
Single  
clamping



WVKB1P: 80 - 150 mm  
WVKB2P: 150 - 250 mm  
WVKB3P: 235 - 330 mm

WVKCxP:  
Single clipping



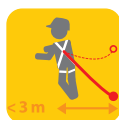
WVKC1P: 80 - 150 mm  
WVKC2P: 150 - 250 mm  
WVKC3P: 235 - 330 mm

- ▶ Easy installation with no work on the underside
- ▶ Fastening on metal structure: minimum IPN 80 or UPN 80
- ▶ Joints adapted to fibre cement plates with 5.5 corrugations for waterproofing

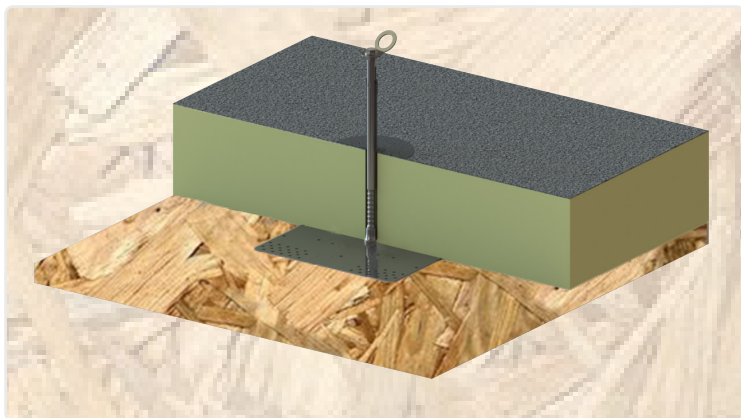
- ▶ Fastening with clamping kit (WVKBxP) or clipping kit (WVKCxP)
- ▶ Available in insulated or square version
- ▶ Sleeves for waterproofing connection: aluminium (WVFALU1), PVC (WVFPVC1) or lead (WVKEFP-TUILE)

- ▶ Fastening with clamping kit (WVKBx) or clipping kit (WVKCx)





## WOODEN BOARD



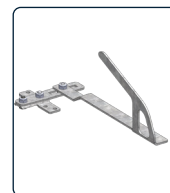
**Anchor point**  
WVPARxx



**Lifeline anchor**  
WVRxx



**Simple anchors**  
WVBWOODS and WVBWOOD



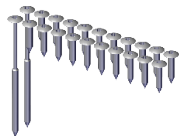
**Anchors + ladder hooks**  
WVBWOODSC and WVBWOODC

Wooden board - OSB or CTBH (22 mm min.)

Wooden rafters

### Fastening kit not included

WVKVBOIS  
St st screw A2 x 21 + Wood  
screw x 2



### Waterproofing connection accessories for post

PVC sleeve (WVRXM010)  
BM sleeve (WVRXM011)

### Reinforcement kit

6 dimensions available:  
WVRXR200 - WVRXR300  
- WVRXR400 - WVRXR600 -  
WVRXR800 - WVRXR1000



### Waterproofing connection accessories for reinforcement kit

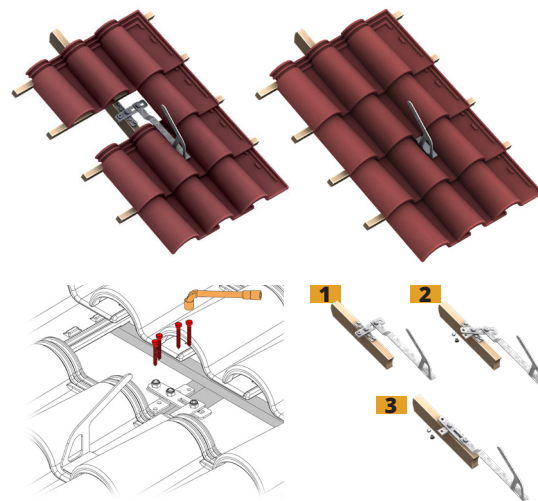
PVC sleeve (WVRXM012)  
BM sleeve (WVRXM013)

### Fastening kit included

Lag screw  
x 4

Screwing of  
bolts without  
pre-drilling

Wooden  
rafter section  
3.6 x 6 cm  
(pre-drilling  
recommend-  
ed)



- ▶ Anchor point certified for 2 workers (item code WVPARxx)
- ▶ Available in different heights to adapt to the waterproofing thickness:  
200, 300, 400, 600, 800 & 1000 mm
- ▶ May be used as a lifeline anchor for heights from 200 to 400 included (item code WVRxx)
- ▶ May be used in all axes

- ▶ 100% stainless steel
- ▶ Adjustable anchor points, with or without ladder hook and allowing use with all types of connector
- ▶ Includes a patented tripping mechanism to keep force in the centre line of the rafter
- ▶ Easy installation: top fastening, without waterproofing connection or cutting
- ▶ May be installed on all rafter types, including small sections



## Benefits

### Ease of use

Its dedicated glider can be connected at any point of the cable for unconstrained movement

### Ease of installation

Distance between anchors certified to 15 metres

### Versatility

Many possibilities of use (at the foot, on façades, overhead etc.) and ideal when the worker is at a distance from the device

### Long life

Made in stainless steel for high corrosion resistance

### Practicality

The post that is used at the start of the line can also be used as the end post, independently from the number of angles or intermediate pieces (Altifix or PST anchor)

### High design

Carefully finished for complete integration into architectural constraints

### Safety

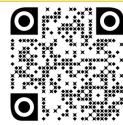
Presence of cable tension indicator and fall indicator

## ACCESSORIES



### WVCMS3 - Glider

For using the system at a distance without disconnection while passing intermediate parts. Used with all types of connector.



### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!



### WVCMS3KR - Roller glider

For use on the underside, inaccessible to the worker. It also makes movement easier when a safety block is used, or with a high-rise connection. Rollers may be added to the glider for heavy loads.

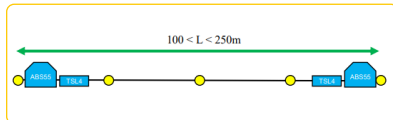
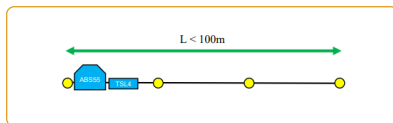
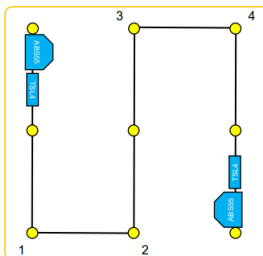
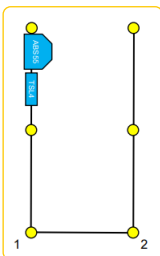


### Design calculations

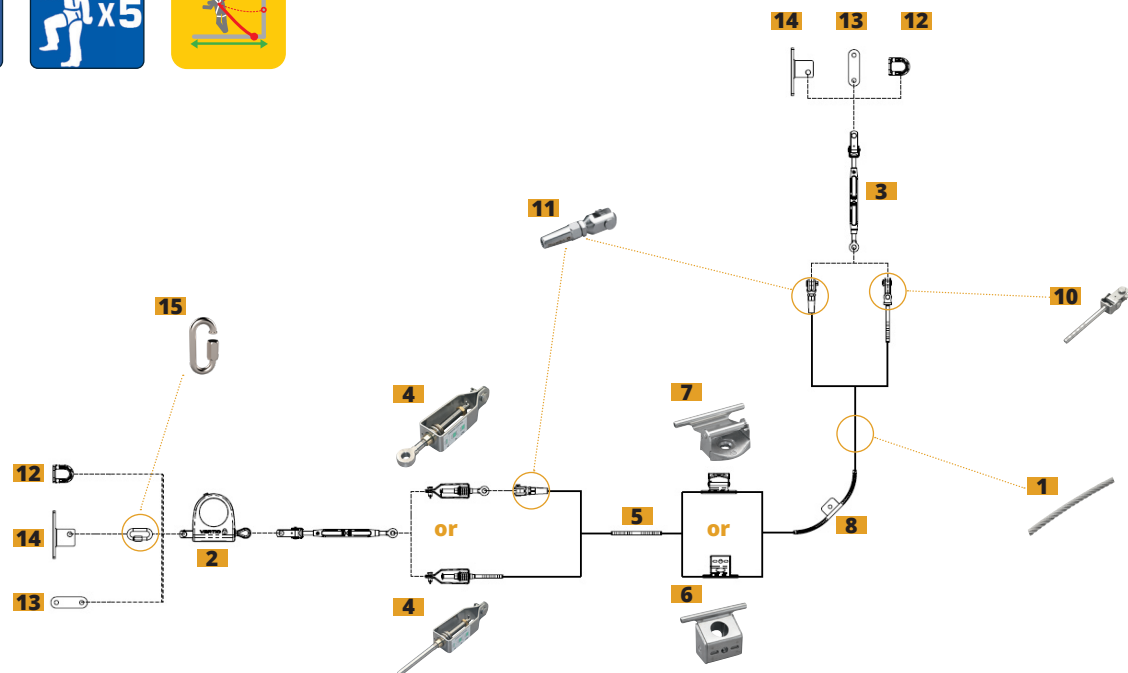
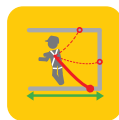
We have a special program for calculating our lifelines. It is available 24/7; please enquire for your identifiers.

## INSTRUCTIONS & EXAMPLES OF INSTALLATION

		ABS55	TSL4
	$0 < n \leq 2$	1	1
	$3 < n \leq 5$	2	2
	$0 < L < 100 \text{ M}$	1	1
	$100 < L < 250 \text{ M}$	2	2







## LIST OF PARTS



**Cable**  
**WVCi8**  
Stainless steel, Ø8mm, 7x7  
Integrated tape for improved traceability,



**Energy absorber**  
**WVABS55**  
Reduces the forces applied to the structure, Available in metal shell version (ABS55M).



**Manual pre-tensioner**  
**WVTSL4**  
Allows tension at the end of the line with no special tools.



**Manual tensioner/for crimping**  
**WVBATSL250/WVBATSL350**  
For adjusting the line tension. Integrated tension indicator.



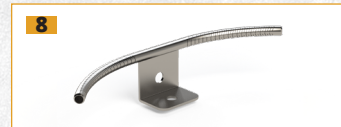
**Crimping sleeve**  
**WVMAC02C8**  
For joining the cable. Crimper required.



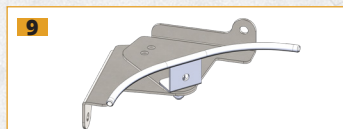
**Fixed intermediate piece**  
**WVIFR90**  
For passing the glider without unhooking.



**Mobile intermediate piece**  
**WVIMR**  
For passing the glider without unhooking.



**Flexible angle piece**  
**WVANGFLEX**



**Flexible angle piece for façade**  
**WVANGFLEX**



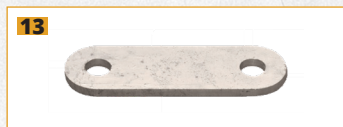
**Articulated clevis crimping end**  
**WVES2**  
Lifeline end with crimping.



**Manual end piece**  
**WVEC**  
Manually mounted on the end of the cable.



**Anchor ring**  
**WVPEXAFX**  
End anchor. May also be used as an anchor point.



**Terminal anchor**  
**WVPEX**  
End anchor.



**T piece**  
**WVT**  
Lifeline end. May be installed on concrete, steel or beam (fastening not included).



**Quick link**  
**WVA0001**  
For connecting the energy absorber and the T piece (optional).



**Safety signboard**  
**WVPS**  
Installation at the system access. For identifying and monitoring the system.



## Benefits

### Comfort

Can be used with just a carabiner  
Distance between anchors certified to 15 metres

### Ease of use

Easy passage of anchors without taking off

### Ease of installation

No special tools required for installing cable ends

### Long life

Made in stainless steel for high corrosion resistance

### Practicality

The post that is used at the start of the line can also be used as the end post, independently from the number of angles or intermediate pieces (Altifix or PST anchor)

### Safety

Presence of a tension indicator for optimum cable adjustment

## ACCESSORIES



### Ready-to-install kits

For more simplicity, Batiligne is also offered as a kit:

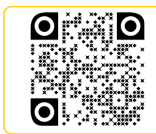
15, 30 or 40 metres  
or with ends alone.



### Continuity and safety

The worker moves along the system without taking it off, even at intermediate pieces.

## SERVICES



### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!

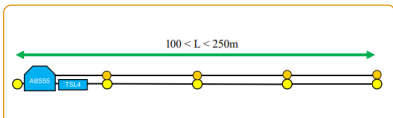
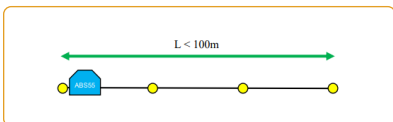
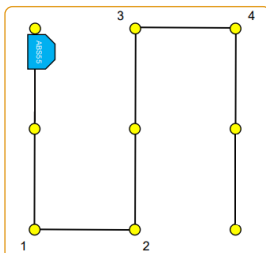
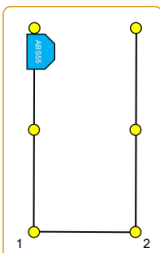


### Design calculations

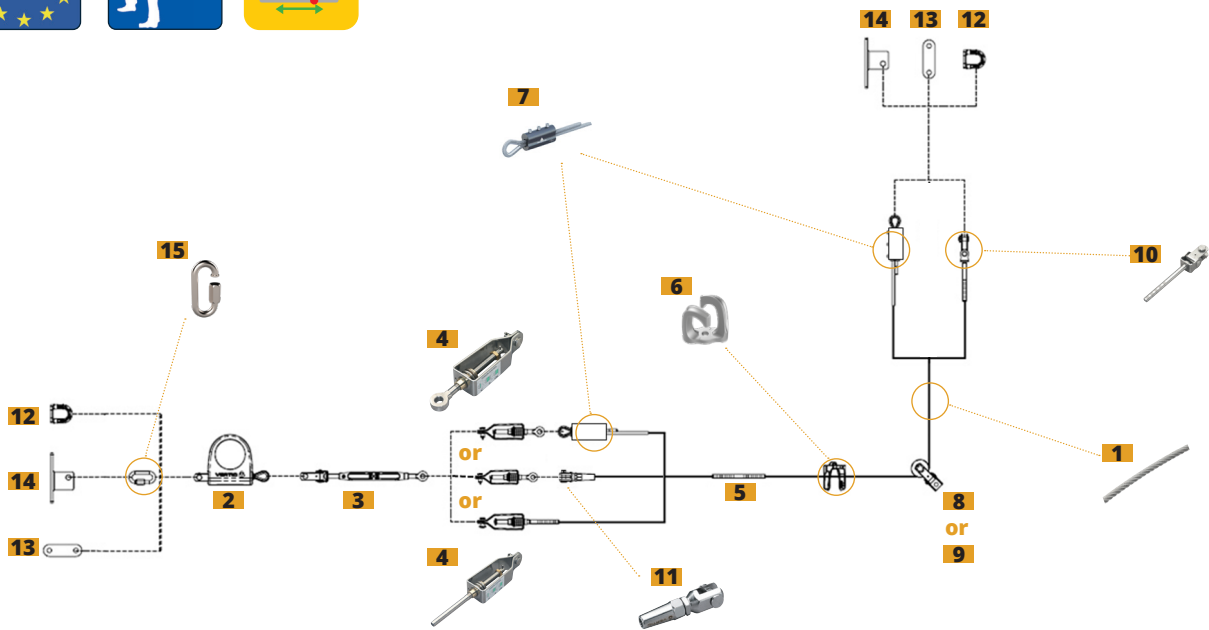
We have a special program for calculating our lifelines. It is available 24/7; please enquire for your identifiers.

## INSTRUCTIONS & EXAMPLES OF INSTALLATION

		ABS55	TSL4
	$0 < n \leq 3$	1	0
	$4 < n \leq 6$	1	0
	$0 < L < 100 \text{ M}$	1	0
	$100 < L < 250 \text{ M}$	1	1 recommended but non mandatory







## LIST OF PARTS

1



### Cable WVC18

Stainless steel, Ø8mm, 7x7  
Integrated tape for improved traceability,

2



### Energy absorber WVABS55

Reduces the forces applied to the structure, Available in metal shell version (ABS55M).

3



### Manual pre-tensioner WVTSL4

Allows tension at the end of the line with no special tools.

4



### Manual tensioner/for crimping WVBATSL250/WVBATSL350

For adjusting the line tension.  
Integrated tension indicator.

5



### Crimping sleeve WVMAC02C8

For joining the cable. Crimper required.

6



### Intermediate piece WVBAINT2

Maximum 15 metres space between each anchor.

7



### Manual end WVSB

Assembled without special tools.

8



### Angle piece WVBAANG2

For making variable angles.

9



### Angle piece for façade WVBAANGSA

For installing the piece on a salient or re-entrant corner on the façade. Adjustable for the degree.

10



### Articulated clevis crimping end WVES2

Lifeline end with crimping.

11



### Manual end piece WVEC

Manually mounted on the end of the cable.

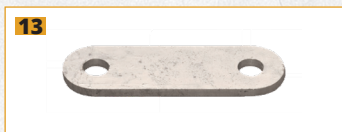
12



### Anchor ring WVPEXAFX

End anchor. May also be used as an anchor point.

13



### Terminal anchor WVPEX

End anchor.

14



### T piece WVT

Lifeline end. May be installed on concrete, steel or beam (fastening not included).

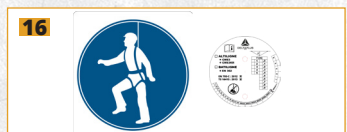
15



### Quick link WVA0001

For connecting the energy absorber and the T piece (optional).

16



### Safety signboard WVPS

Installation at the system access. For identifying and monitoring the system.



## Benefits

Ideal for high installations, on the underside or when the clearance is not compatible with a cable system.

### Versatility

Many possibilities of use: suspended, at a distance or in combination with a heavy fall-arrest connection (safety block)  
Can be installed on all types of structure and roof

### Ease of use

Routing allows an indefinite number of paths and keeps the safety system continuous throughout all movements

### Long life

Made in stainless steel for high corrosion resistance

### High design

Carefully finished for complete integration into architectural constraints. Many RAL colours available.

### Safety

Fall height reduced by the rigidity of the system

## ACCESSORIES



### WVRCF2 Roller glider

Made with several rollers to allow perfect movement regardless of the position used. This glider is ideal for intensive use.



### WVRCF3 Glider for suspended access

Designed for travelling under load, allows great mobility during work when suspended.



**Lateral movement**



**Movement above the rail**

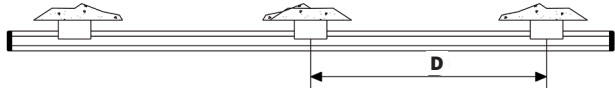


**In ceiling position**

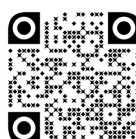
## INSTRUCTIONS FOR USE

Use only in a fall-protection system **D = 4 m**  
Suspended access **D = 2 m**

**Max. 2 workers  
between each anchor**



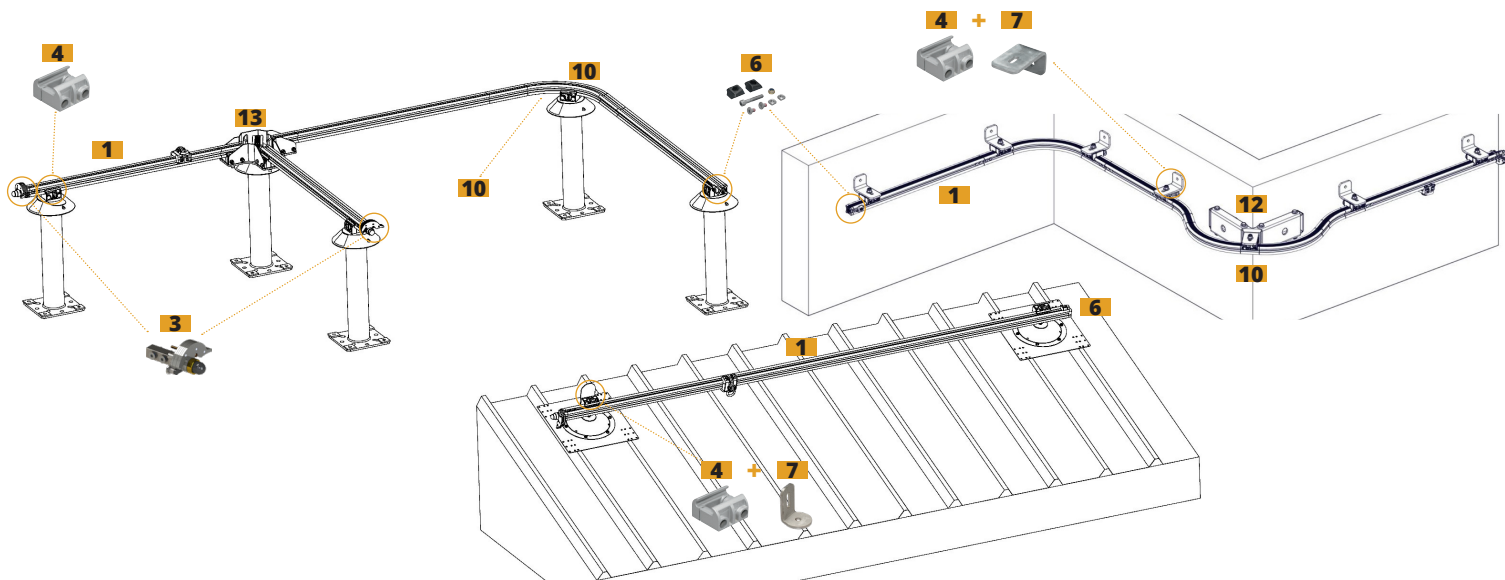
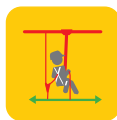
## SERVICES



### Online tutorials

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## LIST OF PARTS



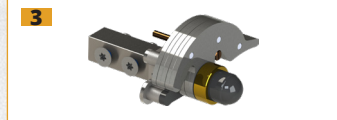
### Aluminium rail WVRRAIL

Delivered drilled and milled.  
Available in lengths of 1, 1.5 and 3m.



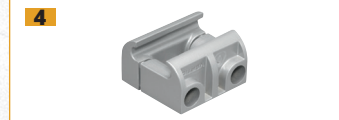
### Glider entry/exit WVRRO

For installation at any point of the rail to  
allow the glider to be put in place.



### Folding stop WVRBE

For inserting the glider on the rail. Auto-  
matic closure.



### Opening anchor WVRSUP

Copper-aluminium rail anchor that  
makes removal easy. Allows free expansion  
of the rail.



### Splice WVRECL

For assembling two rail lengths.



### Fixed stop WVREXTF

Locks the glider at the end and finishes  
the rail perfectly.



### bracket

WVREQG or WVREQI

For mounting the rail on a façade with  
movement on the underside. Available  
in stainless steel.



### Safety signboard WVRPS

Installation at the system access. For  
identifying and monitoring the system.



### 90° angles - lateral move- ment

WVRA90E/WVRA90S

Interior/exterior angle for lateral move-  
ment of glider.



### 90° angles - underside movement

WVRA90E2/WVRA90S2

Interior/exterior angle for movement on  
the underside of the glider.



### Rail angle anchors

WVRIAFS/WVRIAFS2/  
WVRIAFS2SF

Standard angle anchors without offset.



### Rail angle anchors

WVRIAS/WVRIAS2/WVRIAS2SF

Mobile angle anchors with offset.  
For managing rail expansion.

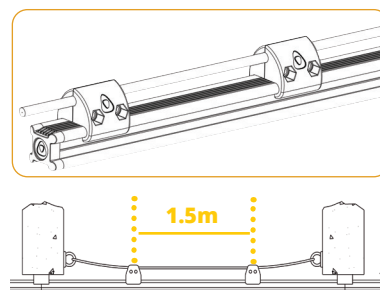


### Routing: manual or powered WVRAIG3D/WVRAIG4D or WVRAIG3DM/WVRAIG4DM

For changing directions. Available in 3/4  
directions. Remote activation using a remote  
control for the powered version.

## GOING FURTHER

For particular uses where the available anchors are spaced by  
more than 5 metres, we suggest **combining our rigid Altirail  
system with a 10mm galvanised cable**. This solution thus  
makes it possible to **cover larger spans**, providing the bearing  
structure to which the slings are fixed is capable of withstanding  
the required force. **Work under tension possible.**







## Benefits

### Innovation

Ideal solution for installations requiring a large fastening centre distance - **8 metre span**

### User comfort

Glider with plastic rollers mounted on bearings for perfectly fluid movement

### Versatility

Fastening anchor adaptable to all structure thicknesses

### Long life

Very strong 316 stainless steel glider and profile, suitable for aggressive and dusty environments

### Safety

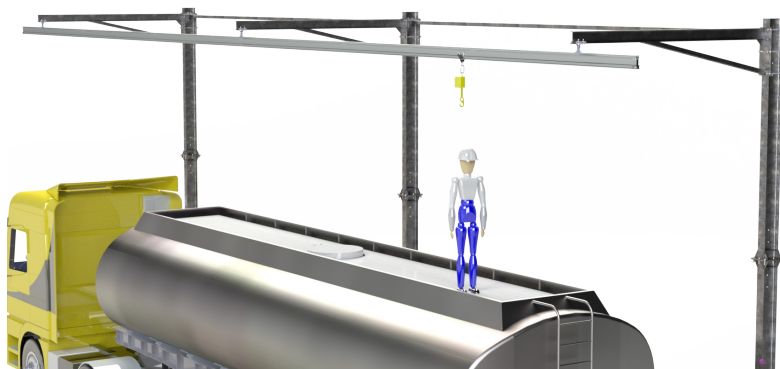
Glider with 2 safety hooks  
Screws pre-coated with thread locker to prevent loosening

## ACCESSORIES



### WVRCLR Glider

The WVRCLR glider is permanently installed on the rail. Because of its peerless movement fluidity, it makes it possible to move unhindered along the whole rail span.

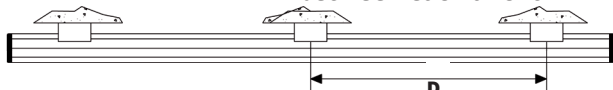


## INSTRUCTIONS FOR USE

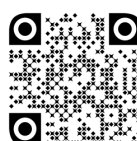
Use only in a fall-protection system  
Suspended access

**D = 8 m**  
**D = 5 m**

**Max. 3 workers  
between each anchor**



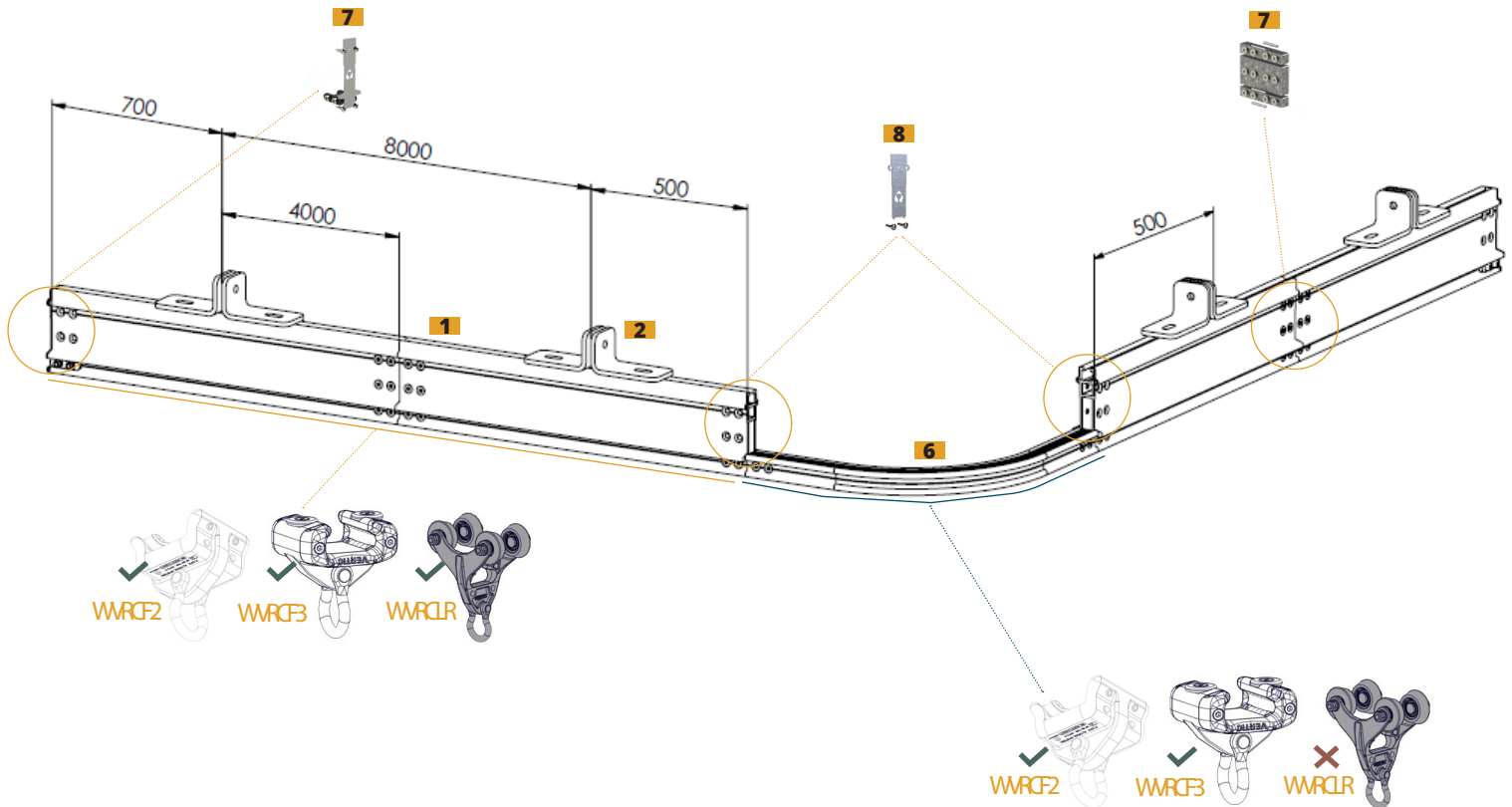
## SERVICES



### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!





## LIST OF PARTS

1



### LR rail WVRRAILLR

May be cut or drilled if needed (ROUTP tool). Compatible with Delta Plus Systems RCLR, RCF2, RCF3. Length 4.40 m.

2



### LR rail anchor WVRSUPLR1

Allows the LR rail to be turned along the line of the fall. Galvanised steel.

3



### LR rail anchor WVRSUPLR2

For fastening the LR rail perpendicular to the structure. Galvanised steel.

4



### LR rail anchor WVRSUPLR3

For fastening the LR rail parallel to the structure. Galvanised steel.

5



### LR rail splice WVRECLLR

For assembling two rail lengths.

6



### 90° angles - underside movement WVRA90E2/RA90S2

Interior/exterior angle for movement on the underside of the glider.

7



### LR rail end WVRRBLR

Locks the glider at the end and finishes the rail perfectly.

8



### LR rail angle end WVRRBLR

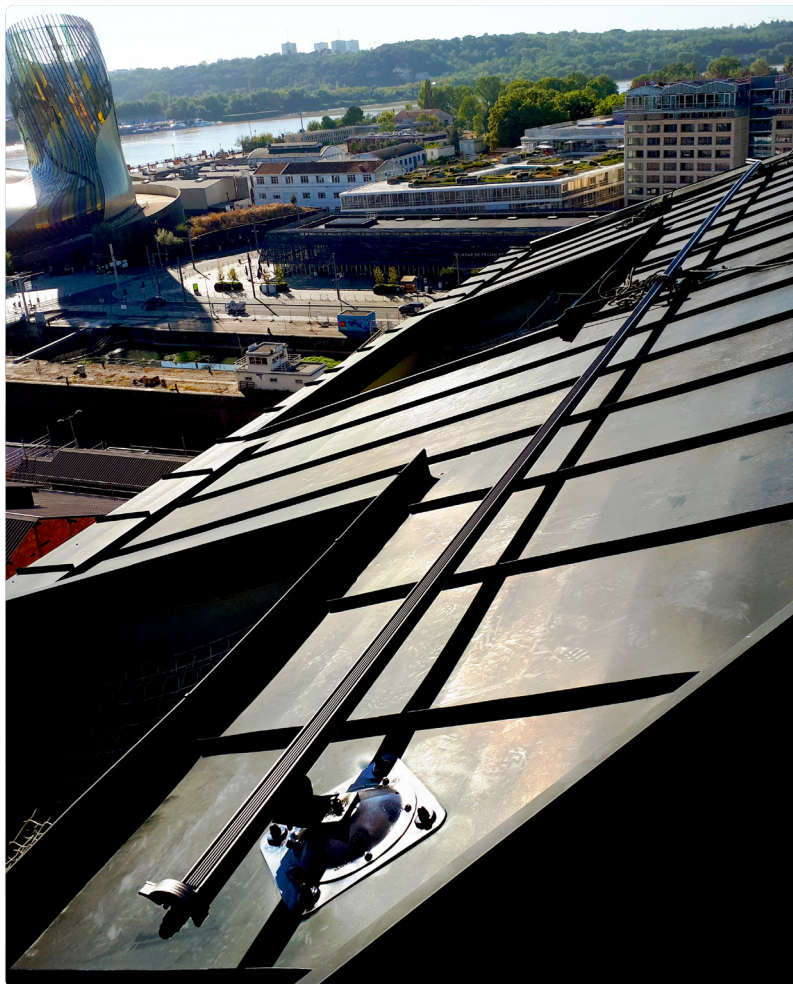
For a perfect rail finish.

9



### IR safety signboard WVRPSLR

Installation at the system access. For identifying and monitoring the system.



## Benefits

### Innovation

Optimum safety for all types of angles from 0° to 180°

### Ease of use

Easy change of angles:

- certified with absorber, connected to the sternal connector, for vertical use
- certified with and without absorber, for horizontal use

### Modular

Allows indefinite paths thanks to routing, which allows safe continuous movement without unhooking

### Versatility

Many possibilities of use (at the foot, on façades, overhead etc.) and ideal when the worker is at a distance from the device

### High design

Carefully finished for complete integration into architectural constraints

### Safety

Load capacity per glider: 150kg maximum (user and tools included). The simultaneous number of users between each anchor varies depending on the installation configuration of the system.

## ACCESSORIES

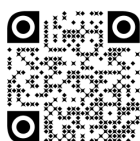


### WVRBC Glider

This glider is fitted with multiple rollers for perfect movement, regardless of the position of use.

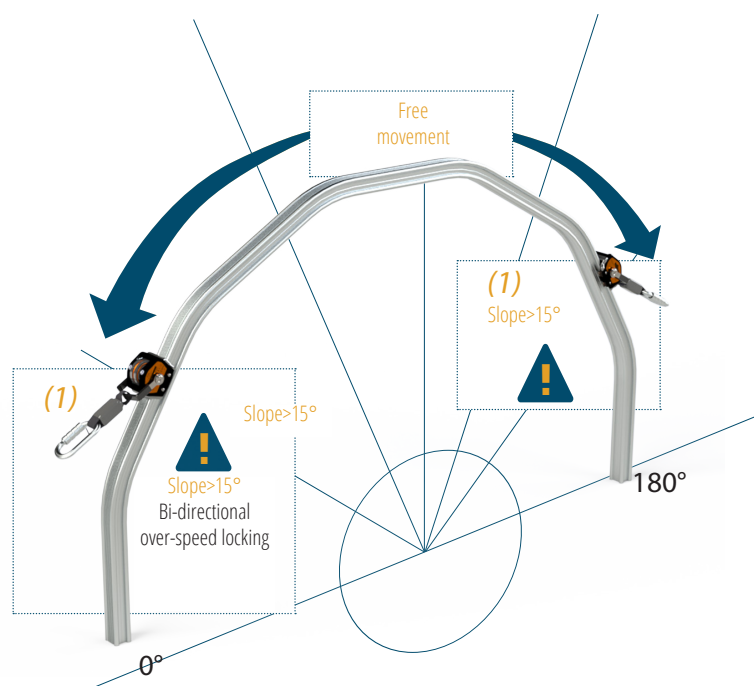
(1) Bidirectional centrifugal lock, which only activates when the operator needs it, by overspeed, regardless of the slope of the anchor.

## SERVICES

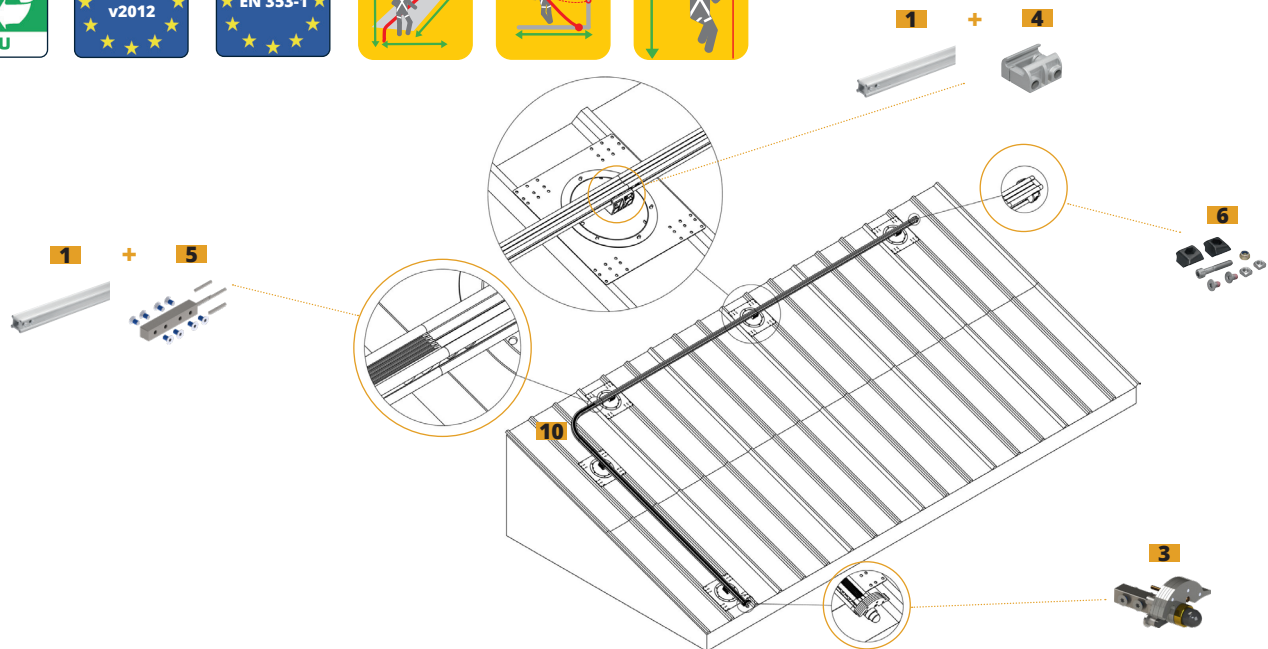


### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!







## LIST OF PARTS

1



### Aluminium rail WVRRAIL

Delivered drilled and milled.  
Available in lengths of 1, 1.5 and 3m.

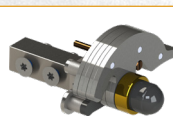
2



### Glider entry/exit WVRRO

For installation at any point of the rail to  
allow the glider to be put in place.

3



### Folding stop WVRBE

For inserting the glider on the rail. Auto-  
matic closure.

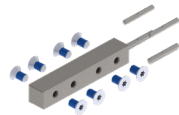
4



### Opening anchor WVRSUP

Copper-aluminium rail anchor that  
makes removal easy. Allows free expansion  
of the rail.

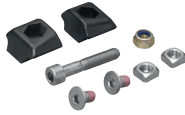
5



### Splice WVRECL

For assembling two rail lengths.

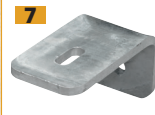
6



### Fixed stop WVREXTF

Locks the glider at the end and finishes  
the rail perfectly.

7



### bracket WVREQG or WVREQI

For mounting the rail on a façade with  
movement on the underside. Available  
in stainless steel.

8



### Safety signboard WVRPS

Installation at the system access. For  
identifying and monitoring the system.

9



### 90° angles - lateral move- ment WVRA90E/WVRA90S

Interior/exterior angle for lateral move-  
ment of glider.

10



### 90° angles - underside movement WVRA90E2/WVRA90S2

Interior/exterior angle for movement on  
the underside of the glider.

11



### Rail angle anchors WVRIAFS/WVRIAFS2/ WVRIAFS2SF

Standard angle anchors without offset.

12



### Rail angle anchors WVRIAS/WVRIAS2/WVRIAS2SF

Mobile angle anchors with offset.  
For managing rail expansion.

13



### Routing: manual or pow- ered WVRAIG3D/WVRAIG4D or WVRAIG3DM/WVRAIG4DM

For changing directions. Available in 3/4  
directions. Remote activation using a  
remote control for the powered version.

14



### Non-return system WVRANTIR

For locking the glider on a given area of  
the rail.



## OPTIONAL

Special bends on request.





### Avantages

#### Practicality

May be used simultaneously by 3 users placed 3 metres apart  
The dedicated glider can be connected at any point of the cable.

#### Ease of use

Easy installation of the glider, including with gloves

#### Versatile

May be installed on the most varied vertical structures

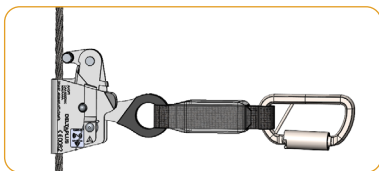
#### Long life

Made in stainless steel for high corrosion resistance

#### Safety

Presence of a tension indicator for optimum cable adjustment  
Load capacity: 125kg maximum (user and tools included)

### ACCESSORIES



#### ASCAB AN071 mobile blocking carriage

The ASCAB AN071 moves remotely through the intermediate pieces, while ensuring unidirectional blocking.

Smart, it can be connected at any point on the cable.

EN-353-1 certified with textile absorber.

### SERVICES



#### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!

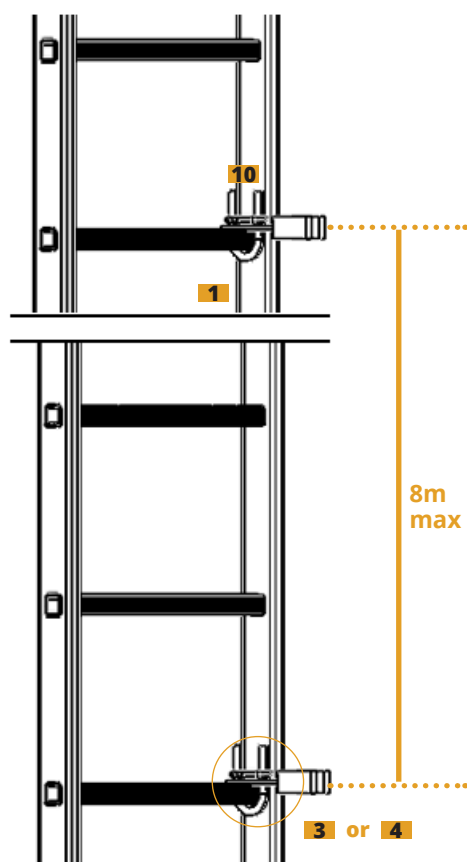
### Ladder extension



#### WVPHR2 ladder extension

To make it easier to extend ladders and go out of them, we have developed the WVPHR2 reference to extend the lifeline.





## NOMENCLATURE

1



### Cable

WVC18

Stainless steel, Ø8mm, 7x7. Integrated tape for improved traceability,

2



### Bracket

WVSBP

For fastening on a concrete wall.

3

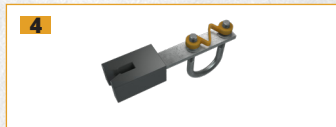


### 90° intermediate piece

WVCG90

Mandatory every 8 metres.

4



### Straight intermediate piece

WVCGS

Mandatory every 8 metres.

5



### Lifeline riser

WVPHR2

Makes it easier for the worker to move from ladder to roof.

6



### Lower end piece

WVEVB3

For pre-tensioning the cable.

7

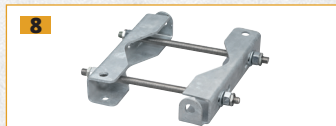


### Lower anchor

WVSHL4

For fastening the lower end of the ladder. Compatible with different types of stile.

8



### Lower and upper anchor

WVSHL1

For fastening the lower or upper end of the ladder. Can be adjusted for the post diameter.

9



### Upper anchor

WVSVH

For fastening the upper end of the ladder. Compatible with different types of stile.

10



### Articulated clevis crimping end

WVES2

Lifeline end with crimping.

11



### Cable locking rings

WVBAG01/WVESC8

For curves and direction changes. Removable or crimped version.

12



### Safety signboard

WVPSV

Installation at the system access. For identifying and monitoring the system.



### Benefits

#### Fluidity

Perfectly fluid movement, both upwards and downwards

#### Ease of use

Simultaneous use of the system by 3 users placed 3 metres apart  
Certified with absorber with sternal connector, for vertical use

#### Practicality

May be installed directly on the ladder rungs

#### High design

Carefully finished for complete integration into architectural constraints

#### Safety

Load capacity: 150kg maximum (user and tools included)



### ACCESSORIES



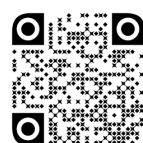
#### WVRCBV

##### Unidirectional locking glider

The versatile WVRCBV glider can be used on structures with angles of up to 15° lateral and 45° frontal.

When any tension is applied downward, the glider locks automatically in its position.

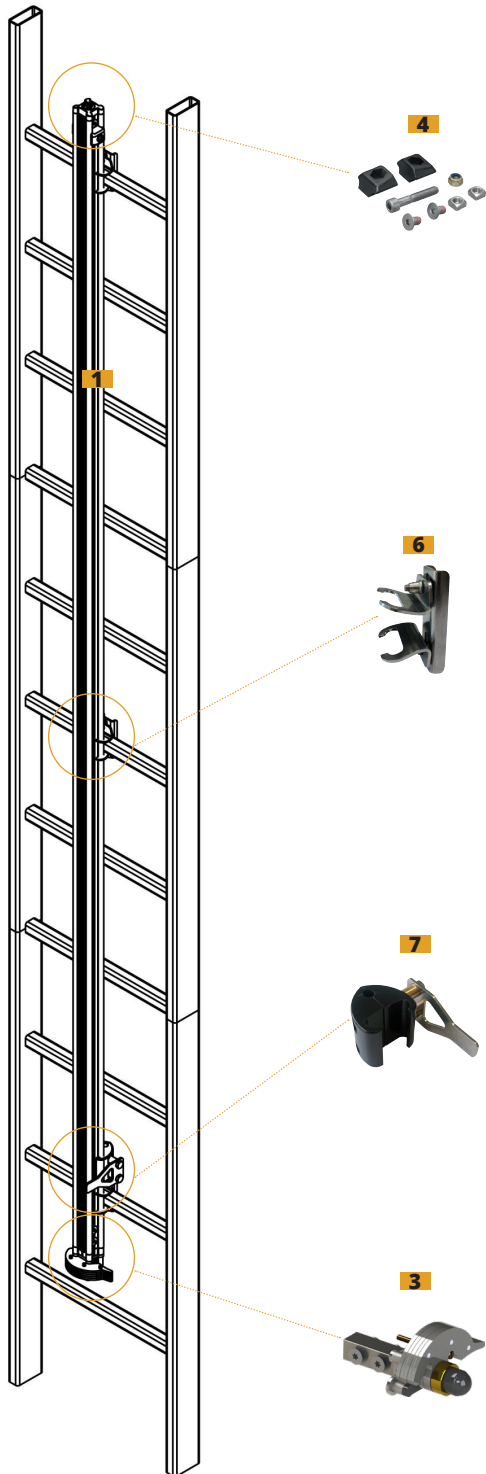
### SERVICES



#### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!





## LIST OF PARTS

1



### Aluminium rail WVRRAIL

Delivered drilled and milled.  
Available in lengths of 1, 1.5 and 3m.

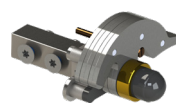
2



### Glider entry/exit WVRRO

For installation at any point of the rail to  
allow the glider to be put in place.

3



### Folding stop WVRBE

For inserting the glider on the rail. Auto-  
matic closure.

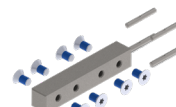
4



### Fixed stop WVREXTF

Locks the glider at the end and finishes  
the rail perfectly.

5



### Splice WVRECL

For assembling two rail lengths.

6



### Mounting bracket WVRSUPECH

Adapts to the dimensions and centre  
distances of ladder rungs.

7



### Foolproofing WVRDET

Prevents errors while putting the glider  
in place.

8



### Safety signboard WVRPS

Installation at the system access. For  
identifying and monitoring the system.

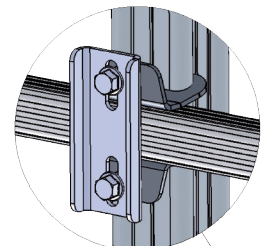
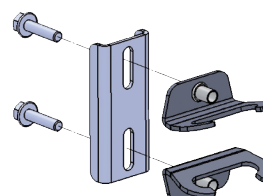
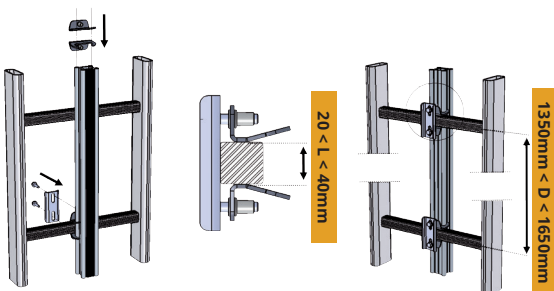
9



### Manual routing WVRAIG3D/WVRAIG4D

For changing directions.  
Available in 3/4 directions.

## PRINCIPLE FOR RAIL ASSEMBLY ON THE LADDER WITH THE WVRSUPECH ANCHOR





## Benefits

### Fluidity

Perfectly fluid movement, both upwards and downwards

### Ease of use

Simultaneous use of the system by 3 users placed 3 metres apart  
Certified with absorber with sternal connector, for vertical use

### Practicality

The glider may be inserted and removed at any point of the system  
Asymmetrical rail profile to allow glider insertion in the correct direction.

### High design

Carefully finished for complete integration into architectural constraints

### Safety

Load capacity: 150kg maximum (user and tools included)

## ORIGINS

Our teams went to meet **telecoms** and **wind farm** workers.

Ladderrail came out of collecting and analysing their requirements and is **THE solution for safe working at very great heights.**



## ACCESSORIES



### WVLDRS

#### Unidirectional locking glider

The versatile WVLDRS glider can be used on structures with angles of up to 15° lateral and 45° frontal.

When any tension is applied downward, the glider locks automatically in its position.

## SERVICES

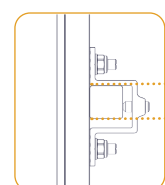
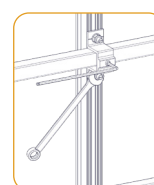
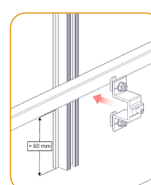


### Online tutorials

Go to our YouTube page to see our tutorials for use and installation!

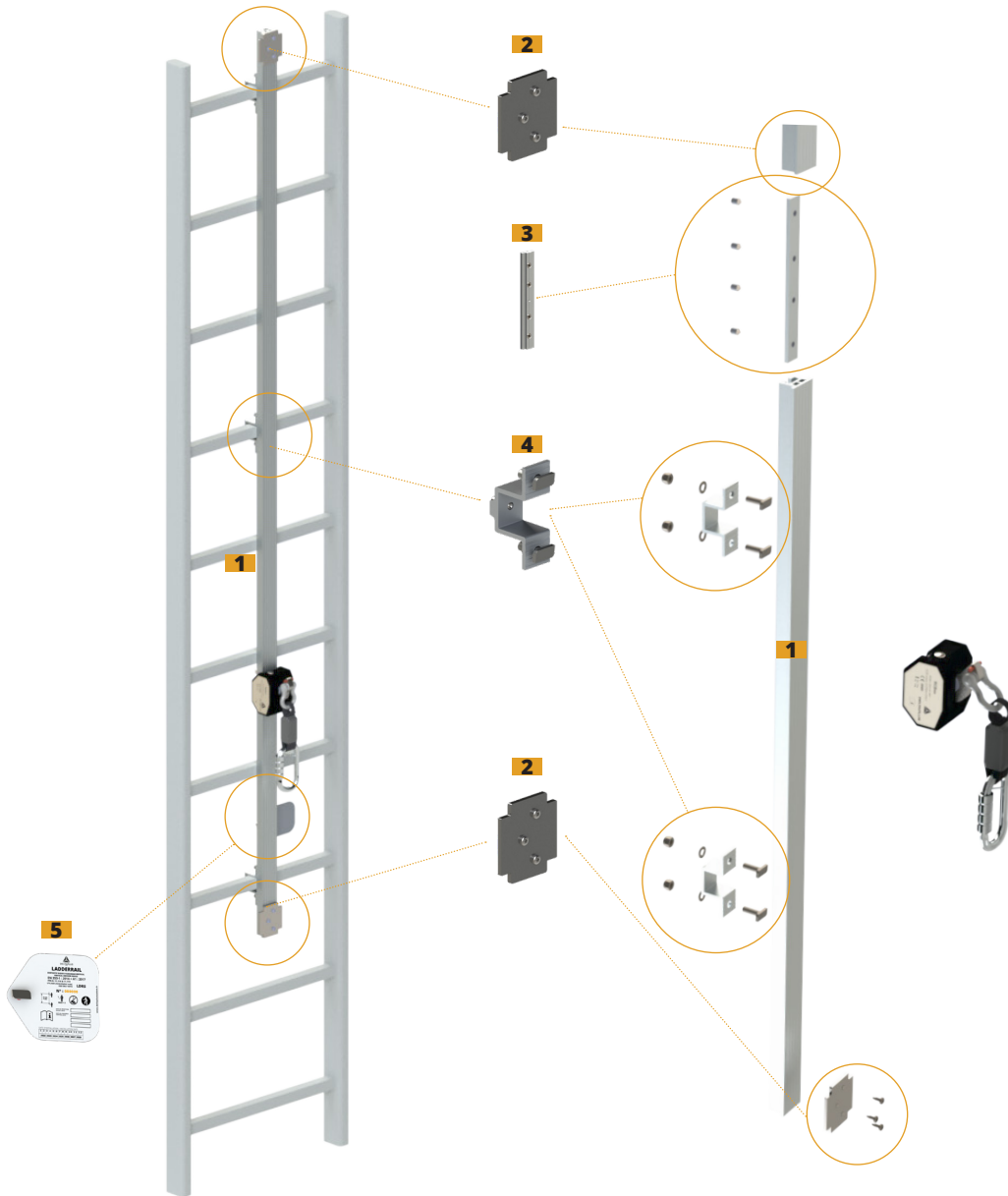
## LADDER COMPATIBILITY

### Compatible with tubular and square rungs

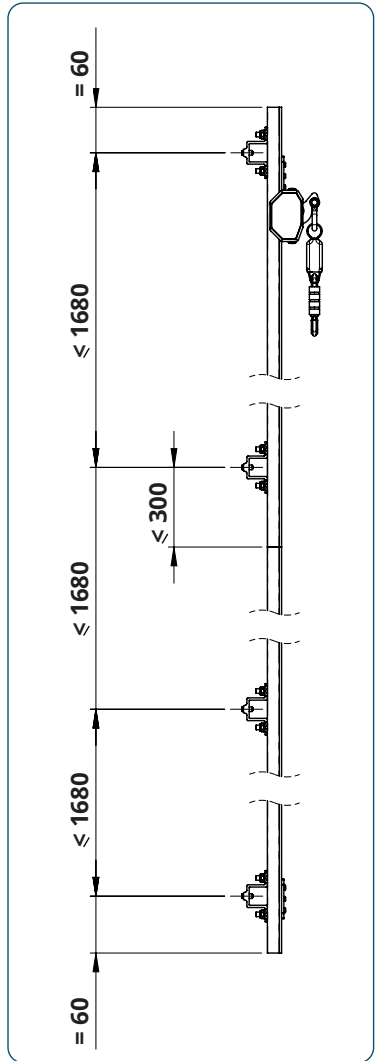


20 < L < 31 mm

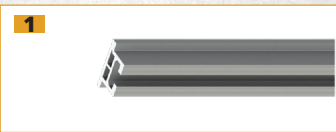




## RAIL ASSEMBLY PRINCIPLE



## LIST OF PARTS



**Aluminium rail**  
WVLDRRAIL  
Length: 3m.



**Fixed stop**  
WVLDREXTF  
Locks the glider at the end and finishes the rail perfectly.



**Splice**  
WVLDRECL  
For assembling two rail lengths.



**Mounting bracket**  
WVLDRSUPECH  
Adapts to the dimensions and centre distances of ladder rungs.



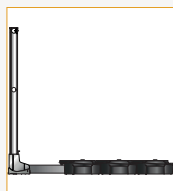
**Safety signboard**  
WVLDRPS  
Installation at the system access. For identifying and monitoring the system.



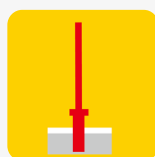
### 1 DEFINE YOUR INTERFACE



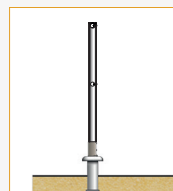
#### Self-supporting



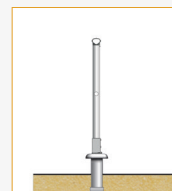
**Self-supporting**  
EVOAPx



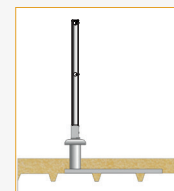
#### Waterproofed substrates



**On slab D shoe with insulation**  
EVODEx



**On slab D shoe without insulation**  
EVODEx



**On deck BE shoe**  
EVOBEx



#### Steel deck



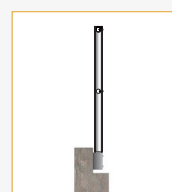
**Steel deck**  
EVOBSx



#### Parapet



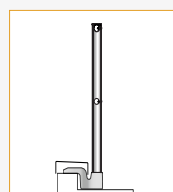
**Flat surface mounting**  
EVOVx



**Offset mounting without offset**  
EVOVx



**Offset mounting with offset**  
EVOVx

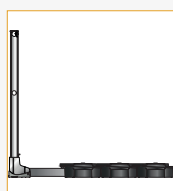


**Uninsulated parapet** EVOZx



**Insulated parapet** EVOZx

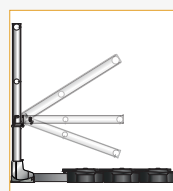
### 2 SELECT YOUR UPRIGHT



**Straight** EVOxD



**Angled** EVOxC

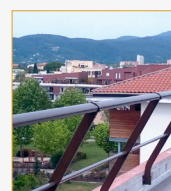


**Folding** EVOxF

### 3 SELECT YOUR FINISH



**No finish**



**Powder coated** EVOxxL





## Benefits

### Versatility & speed of installation

#### The simplest solution to install in the market

Our collective protective equipment has been designed to keep you safe. It has also been conceived to make its installation as intuitive and speedy as possible.

With the help of a number of methods, we have succeeded in dramatically cutting the installation time of our railings.

1

#### Reduced handling operations and ergonomics

Smart weighting blocks

**Lightweight:** weight 12.5 kg

**Ergonomic:** two handles give an easy hold, while taking care of the fitter's spinal column

**Optimised grasp:** the centre of gravity is located very close to the worker's body.



2

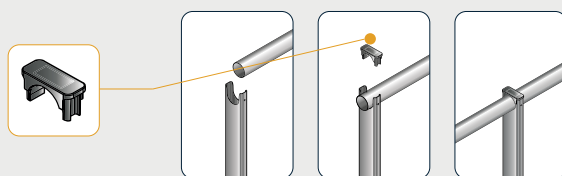
#### Easy and intuitive installation

EVO accessories offer the guarantee of simple and fast assembly

**Ease of installation:** rails and mid rails fit easily

**Extremely lightweight:** thanks to a strategic choice of materials used and smart parts design

**Intuitive:** our EZclip plug makes it easy to install the upper rail. Clip, screw and you're done!



3

#### Versatility & personalisation

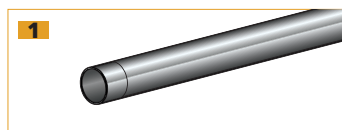
A wide range of railings to adapt to all types of configuration

**Adaptability:** 7 fastening possibilities are available, with a choice of 3 uprights (straight, angled, folding)

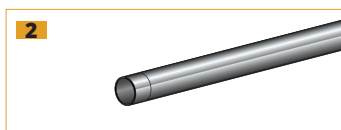
**The design** tones perfectly with the building architecture thanks to the many paint finishes available



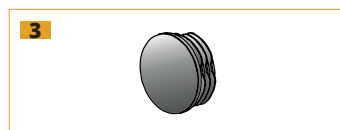
## COMMON PARTS



**Ø45 mm rail with reduction**  
3000 mm long  
WV830450



**Ø35 mm mid rail with reduction**  
3000 mm long  
WV830350



**Ø45 mm rail plug**  
WV830451



**Ø35 mm mid rail plug**  
WV830351



**EZclip plastic plug**  
WV820000



**Ø45 mm rail angle**  
WV830452



**Ø35 mm mid rail angle**  
WV830352



**Ø45 mm rail and Ø35 mm mid rail aluminium angle**  
WV830453



**Ø45 mm rail wall termination**  
WV830454



**Ø35 mm mid rail wall termination**  
WV830354



**Ø45 mm rail and Ø35 mm mid rail aluminium wall termination**  
WV830455



**Straight upright**  
WV8200535 - height 535 mm  
WV8200760 - height 760 mm  
WV8200885 - height 885 mm  
WV8201010 - height 1010 mm  
WV8201105 - height 1105 mm  
WV8201182 - height 1182 mm

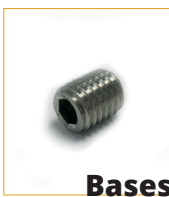


**Angled upright**  
WV8200565C - height 565 mm  
WV8200855C - height 855 mm  
WV8200985C - height 985 mm  
WV8201005C - height 1005 mm  
WV8201165C - height 1165 mm

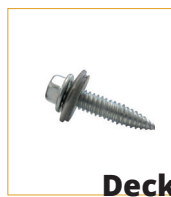


**Folding upright**  
WV8201010F - height 1010 mm - aluminium articulation  
WV8201105F - height 1105 mm - aluminium articulation

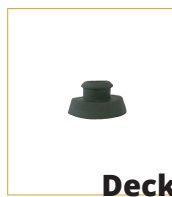
## FASTENERS



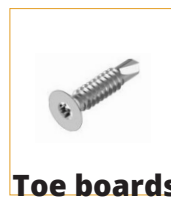
**Hex socket screw**  
M08X10i DINI913  
ZOSYSBVI5ST002



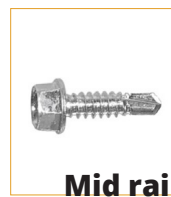
**Self-drilling screw and sealed washer**  
6x25  
ZOSYSBVHF06025



**Neck washer**  
ZOSYSBRC001



**Self-drilling screw**  
Perfix TH st st 4.8 x 16  
ZOSYSBVHF48016



**Self-drilling screw**  
Perfix TH st st 4.8 x 25  
ZOSYSBVHF48025



**Self-drilling screw**  
Perfix TH st st 4.8 x 50  
ZOSYSBVHF48050

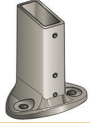




\*NTC 2018  
\*DIN EN 13 374  
please enquire

## BASES

15



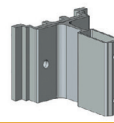
**Flat base**  
WV811001

16



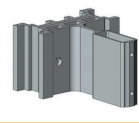
**Surface mounted base with 60 mm offset**  
Aluminium  
WV812002

17



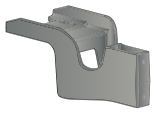
**Surface mounted base with 95 mm offset**  
Aluminium - special part number

18



**Surface mounted base with 116 mm offset**  
Aluminium - special part number

19



**Z shoe for uninsulated parapet**  
Aluminium  
WV813000

20



**Z shoe for insulated parapet ≤ 70 mm**  
Aluminium  
WV813070

21



**Z shoe for insulated parapet ≤ 100 mm**  
Aluminium  
WV813100

22



**Z shoe for insulated parapet ≤ 130 mm**  
Aluminium  
WV813130

23



**Z shoe for insulated parapet ≤ 160 mm**  
Aluminium  
WV813160

24



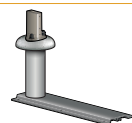
**D shoe post with insulation**  
Height to measure - Special part number

25



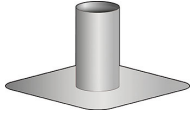
**D shoe post without insulation**  
Height to measure - Special part number

26



**BE shoe post**  
Height to measure - Special part number

27



**D/BE shoe waterproofing sleeve**  
Z2SYS814002

28



**Perpendicular plain deck railing base - 250mm corrugation**  
WV815011

29



**Parallel plain deck railing base - 250mm corrugation**  
WV815010

30



**Perpendicular plain deck railing base - 333mm corrugation**  
WV815021

31



**Parallel plain deck railing base - 333mm corrugation**  
WV815020

32



**Straight brace**  
Self-supporting straight and folding version  
WV817002

33



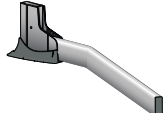
**25° brace**  
Angled self-supporting version  
WV817003

34



**Base + brace, 32° bend to the right**  
WV817010

35



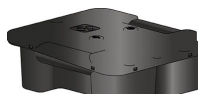
**Base + brace, 32° bend to the left**  
WV817011

36



**Locking wedge**  
WV817001

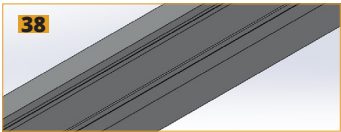
37



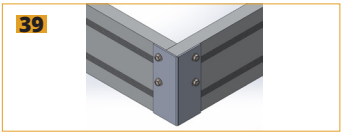
**Plastic pedestal, 12.5 kg**  
3 pedestals per brace (French standard)  
WV817000



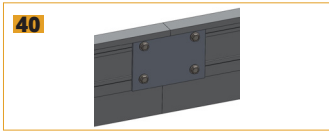
## TOE BOARD



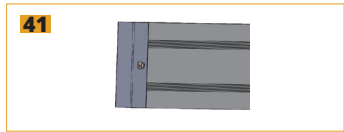
**Toe board**  
Length 3000 x 150 x 9 mm  
WV840000



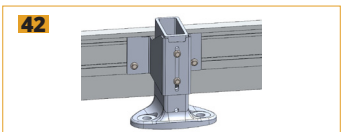
**External toe board angle kit**  
Height 150 mm  
WV840003



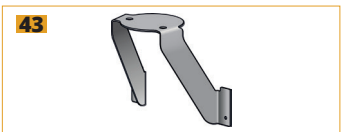
**Straight toe board fitting**  
Height 150 mm  
WV840005



**Toe board cap**  
Height 150 mm  
WV841001



**Toe board anchor for railing, flat and on plain steel deck**  
Height 150 mm  
WV841001



**Toe board anchor for railing with offset plate and water-proofed deck**  
Height 150 mm  
WV844001

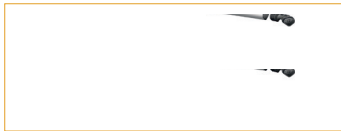
## ACCESSORIES

### 1000 mm railing and ladder joining kits

**Practical:** adapt to all types of railing and ladders in the market



**1000mm railing and ladder joining kit**  
Aluminium - fasteners and companion plates included



**1000mm railing and ladder joining kit**  
Plastic - fasteners and companion plates included

### Gate

**Safety:** the gate closes automatically to keep the users safe



**Gate kit for 25° angled self-supporting railing**  
Height 580mm and 1100 mm (elements available separately)



**Gate kit for straight self-supporting railing**  
Height 580mm and 1100 mm (elements available separately)

## Selection guide: gate

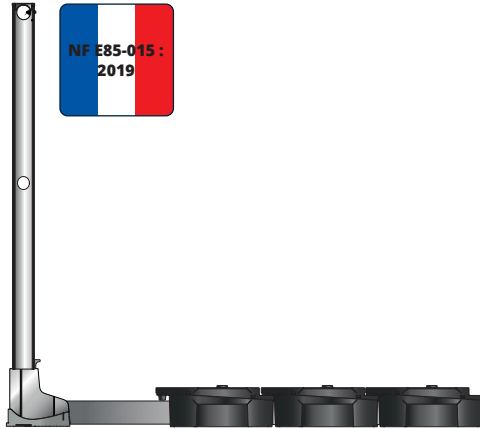
Railing	Upright	Description
580 mm high gate kit		
Self-supporting	Straight	580 mm high gate kit for straight self-supporting railing
	25° angle	580 mm high gate kit for 25° angled self-supporting railing
All but self-supporting	30° angle	580 mm high gate kit for angled EVO® railing
	Straight	580 mm high gate kit for straight EVO® railing
1100 mm high gate kit		
All types	30° angle	1100 mm high gate kit for straight self-supporting railing
	Straight	1100 mm high gate kit for angled self-supporting railing



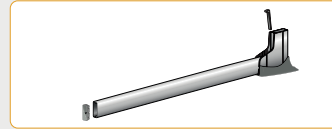


\*NTC 2018  
\*DIN EN 13 374  
please enquire

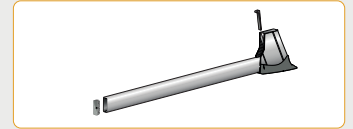
# Self-supporting guardrails



## Bases



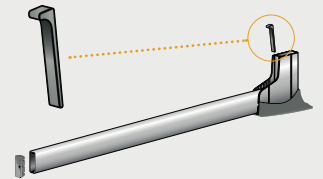
**Straight base**  
For straight railing version



**25° base**  
For angled railing version

## Fasteners

The base is fastened to the upright by means of the locking wedge and concrete blocks, using Perfix TH st. st 4.8 x 50 self-drilling screws.

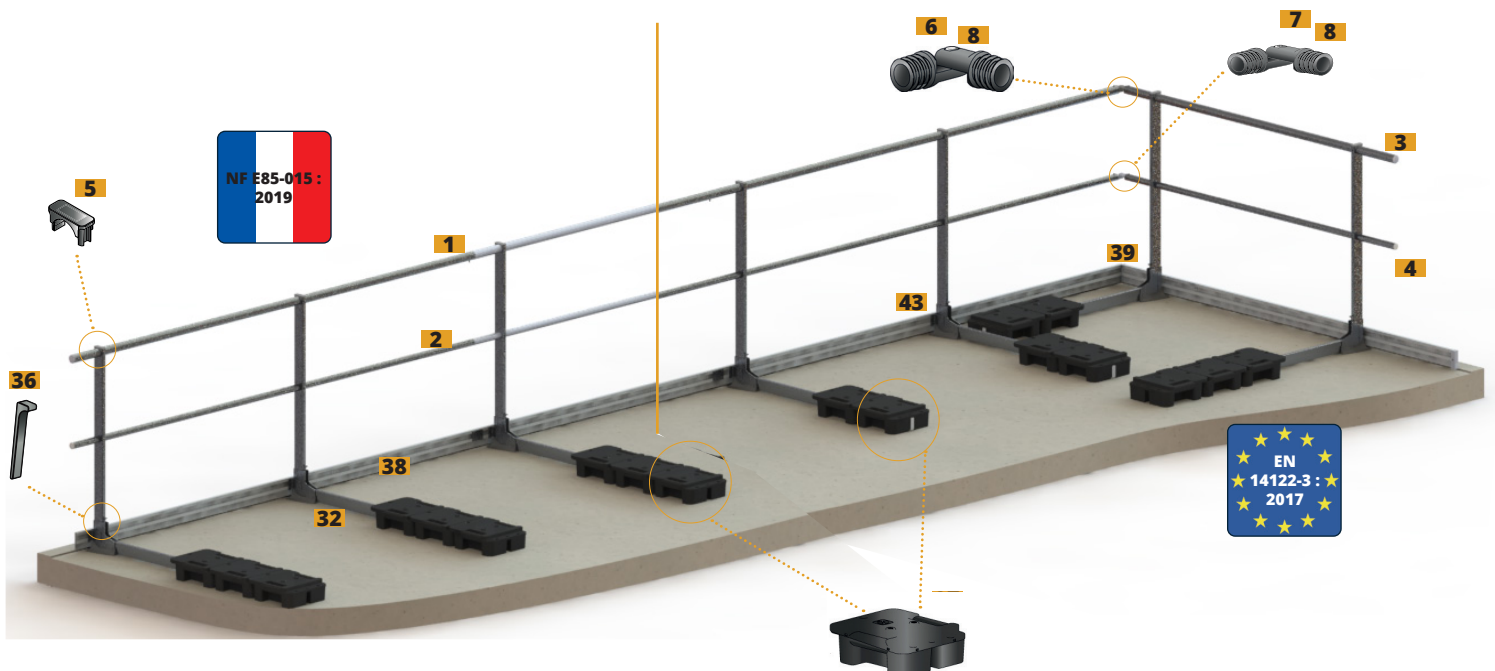


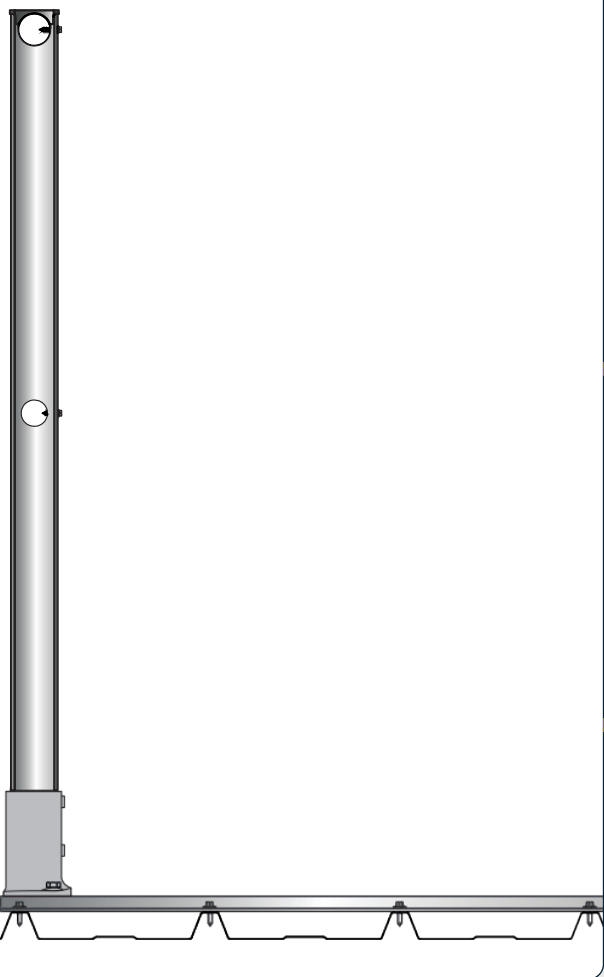
## Installation configurations

Straight upright

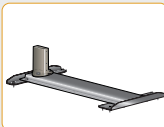
Straight upright angled version

Folding upright





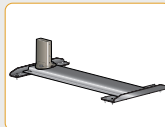
## Bases



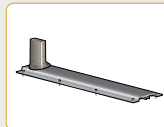
**Perpendicu-  
lar base - 250  
mm corruga-  
tion**  
Fasteners not included



**Parallel  
base - 250  
mm corruga-  
tion**  
Fasteners not included



**Perpendicu-  
lar base - 333  
mm corruga-  
tion**  
Fasteners not included



**Parallel  
base - 333  
mm corruga-  
tion**  
Fasteners not included

## Fasteners

Fastened by 6x25 self-drilling screws and neck washers

Corrugations	Configuration	Quantities
250 mm	Parallel to deck	8 screws
	Perpendicular to deck	
333 mm	Parallel to deck	6 screws
	Perpendicular to deck	

## Configurations



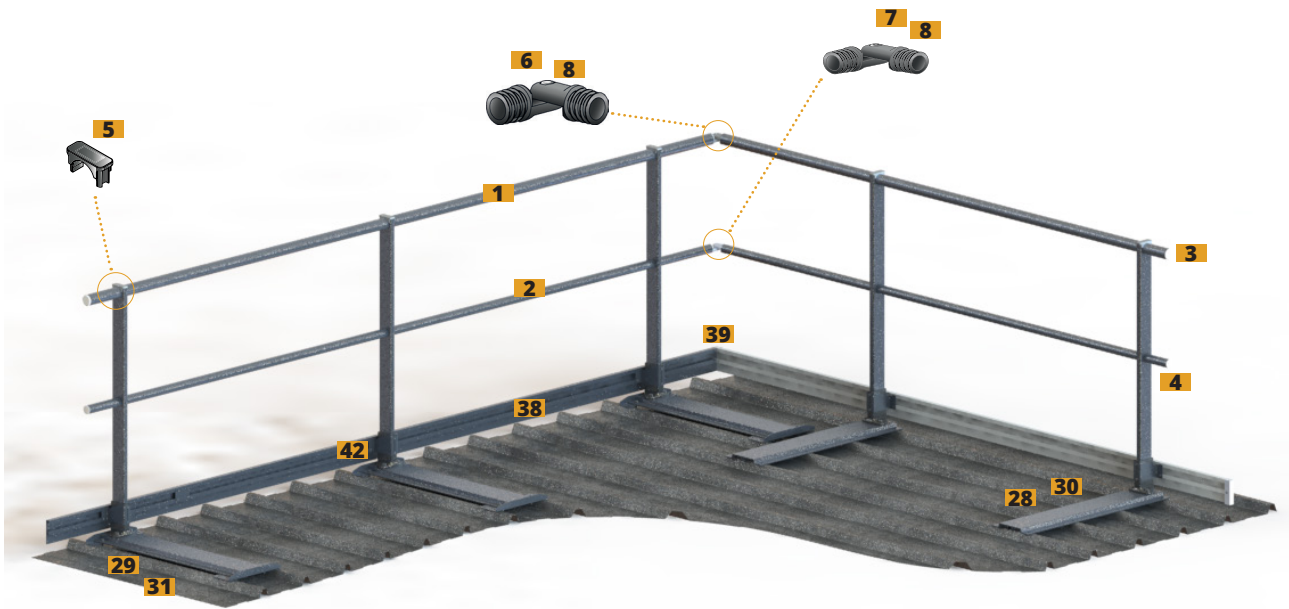
Straight upright



Angled upright



Folding upright

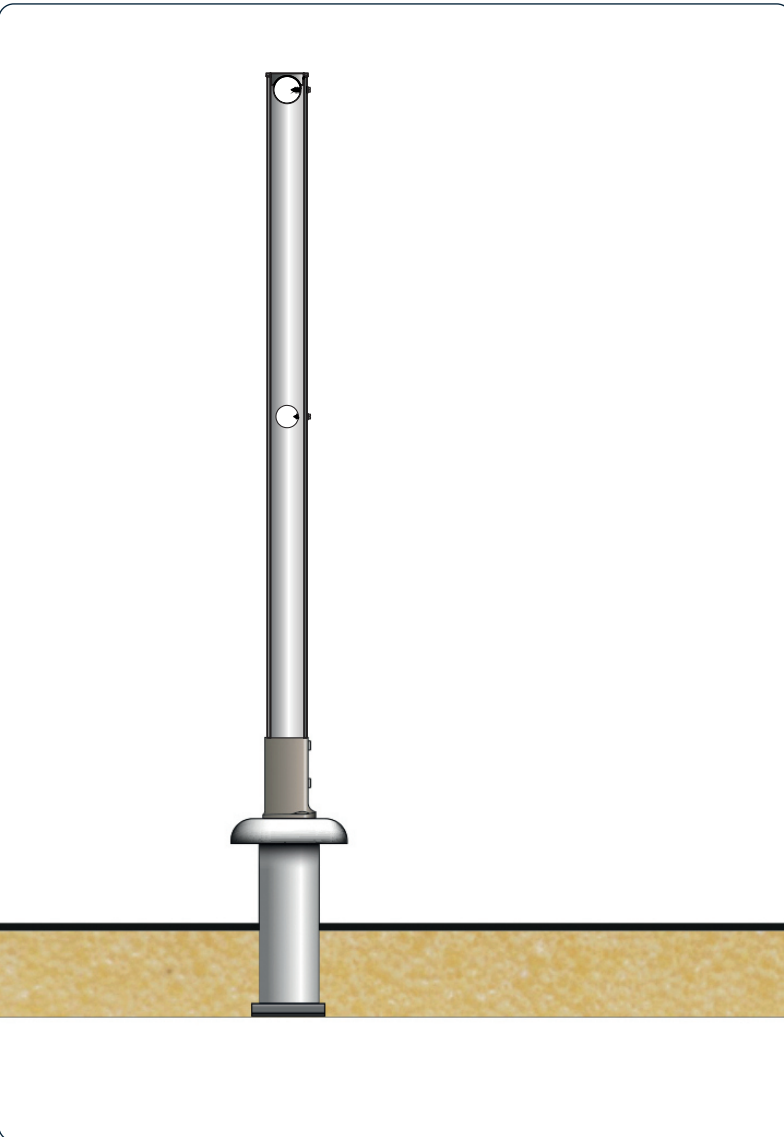




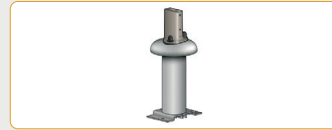


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\*DIN EN 13 374  
please enquire

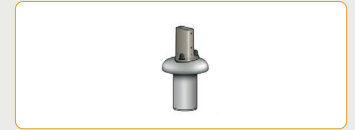
# Guardrail on waterproofed slab



## Bases



D shoe post with insulation



D shoe post without insulation

## Fasteners

The plate is fastened to the slab (uncracked C20/25 concrete) via 2 dowels (not included). Select from:

- chemical solution such as chemical dowels with injection mortar, HIT-HY 200-A
- mechanical solution of the HSA M10x98 35/25/- segment dowels type



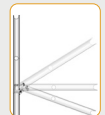
## Installation configurations



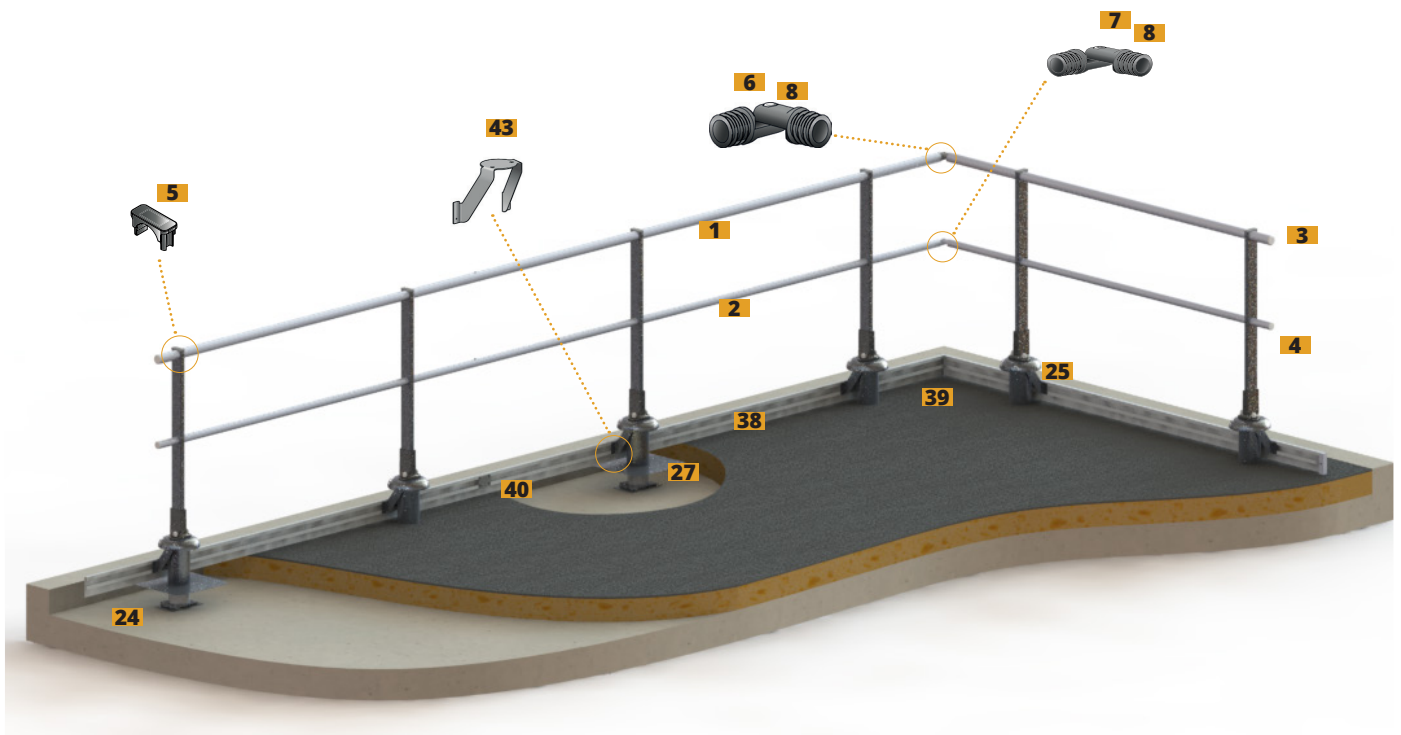
Straight upright

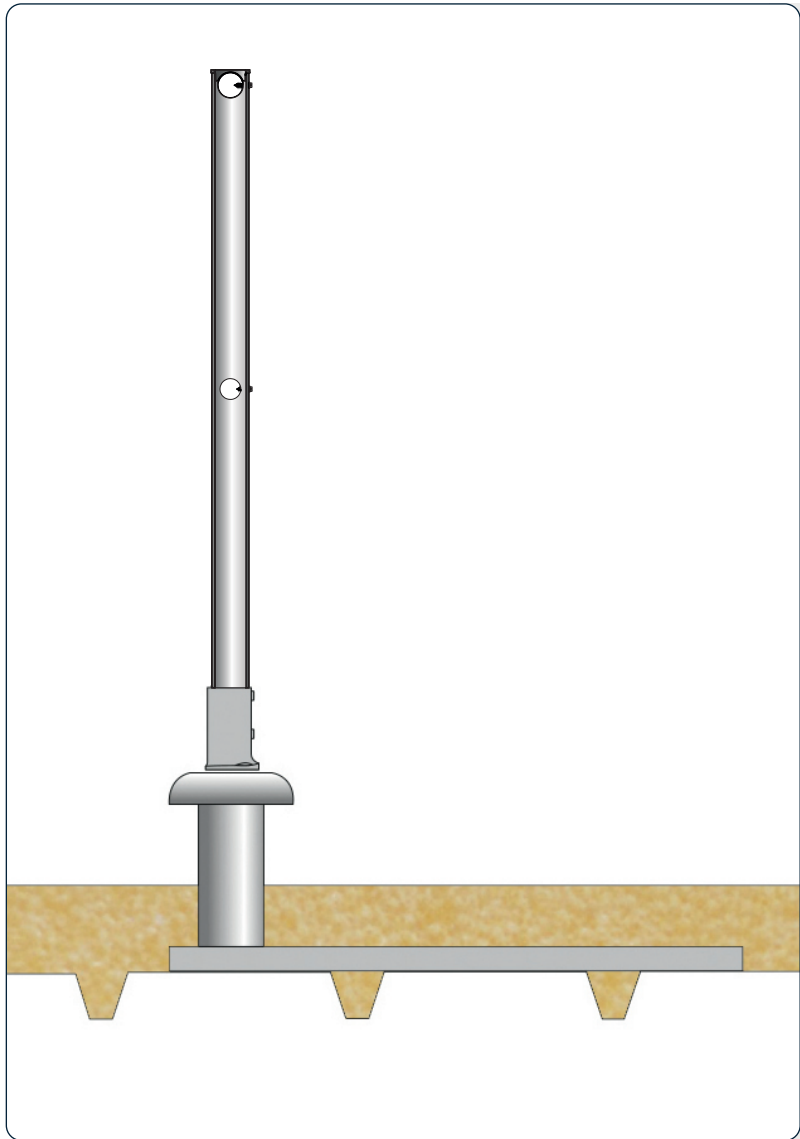


Angled upright

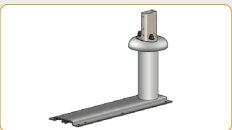


Folding upright





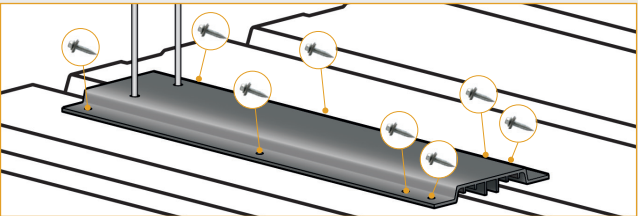
### Bases



**BE shoe post**  
Not including fastening to deck

### Fasteners

Fixation des embases par 8 autoperceuses et rondelles étanches  
6 x 25



### Configurations



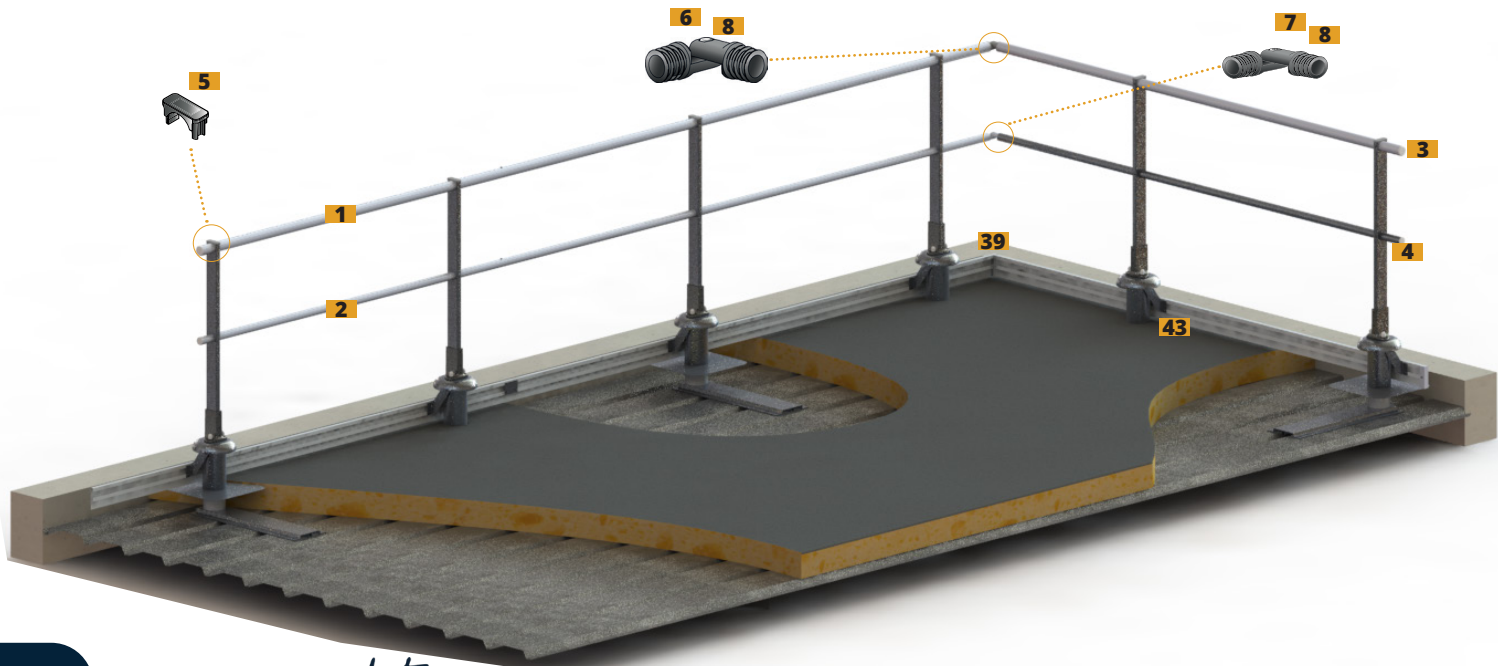
Straight upright



Angled upright



Folding upright

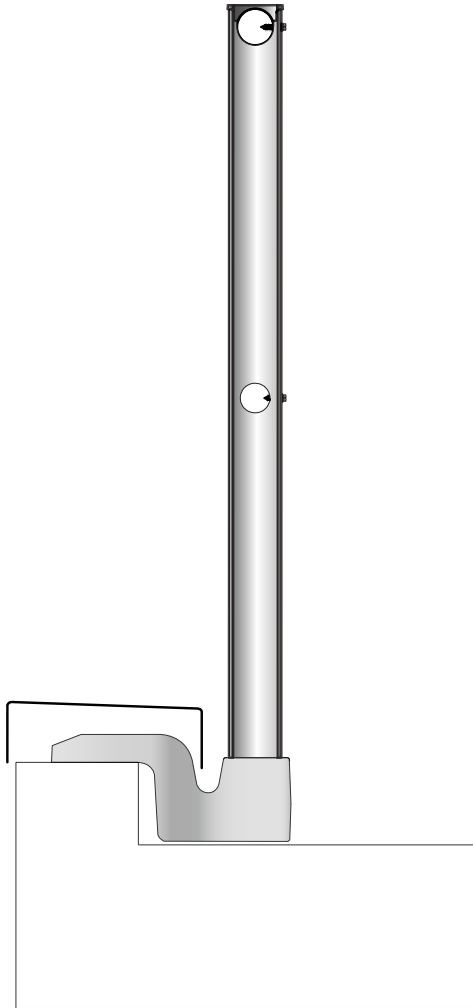




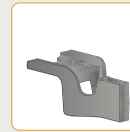


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\*DIN EN 13 374  
please enquire

# Guardrail on parapet



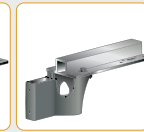
## Bases



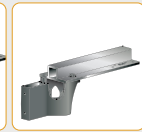
**Uninsulat-  
ed parapet**  
Fasteners not  
included



**Insulated  
parapet,  
up to  
70mm**  
Fasteners not  
included



**Insulated  
parapet,  
up to  
100mm**  
Fasteners not  
included



**Insulated  
parapet,  
up to  
130mm**  
Fasteners not  
included



**Insulated  
parapet,  
up to  
160mm**  
Fasteners not  
included

## Fasteners

Fastening possible on 4 types of substrate:

- on concrete parapet with 1 or 2 dowels
- on concrete parapet with insulation: 3 models up to 160 mm insula-  
tion
- on metal parapet : 6 to 8 self-drilling screws
- on wooden parapet: 2 or 3 M10 lag screws.

## Installation configurations



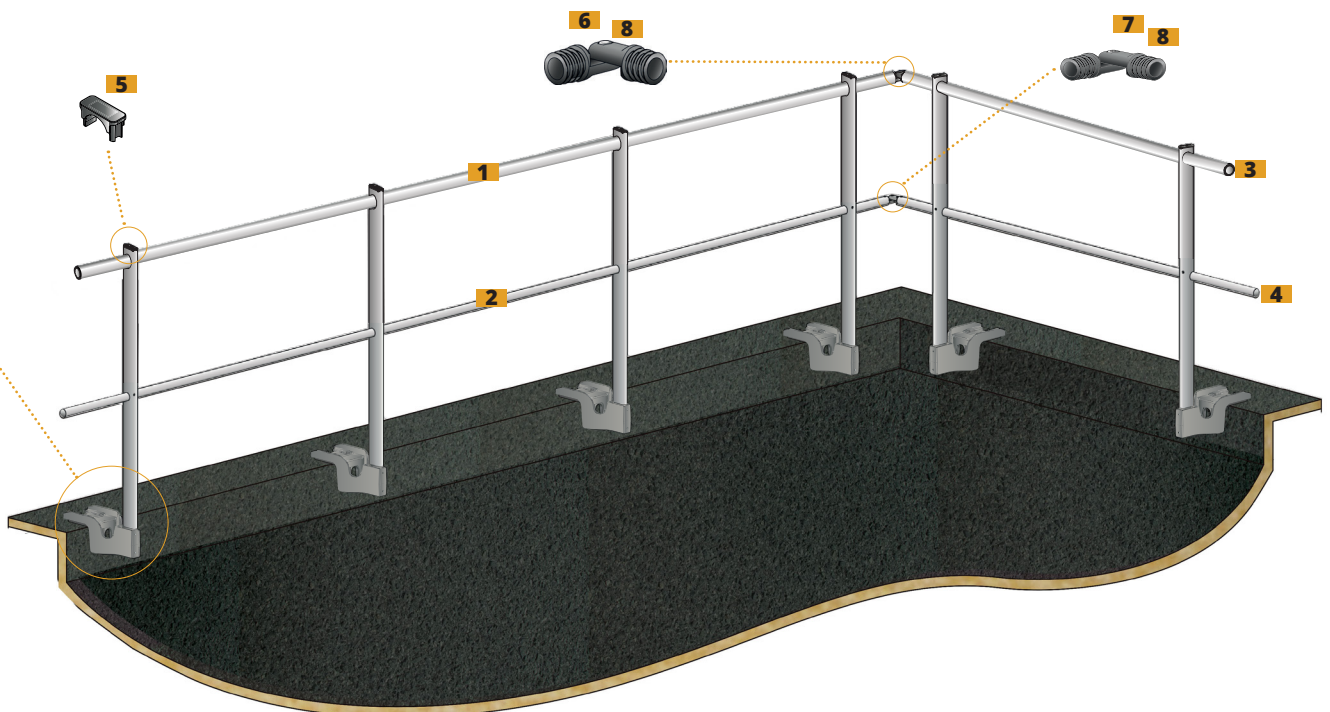
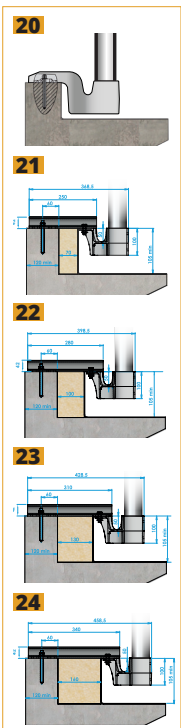
Straight upright

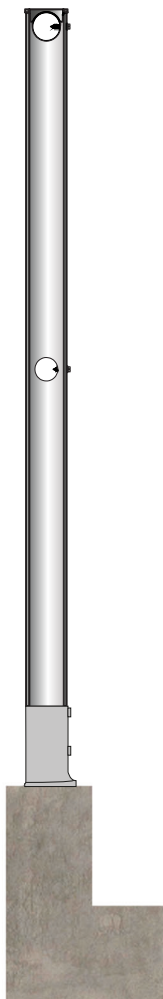


Angled upright



Folding upright





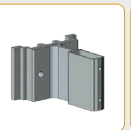
## Bases



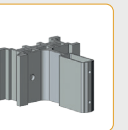
**Flat base**  
Fasteners not included



**Surface mounted base with 60 mm offset**  
Fasteners not included



**Surface mounted base with 95 mm offset**  
Fasteners not included



**Surface mounted base with 116 mm offset**  
Fasteners not included

## Fasteners

The plate is fastened to the slab (uncracked C20/25 concrete) via 2 dowels (not included). Select from:

- chemical solution such as chemical dowels with injection mortar, HIT-HY 200-A
- mechanical solution of the HSA M10x98 35/25/- segment dowels type

## Configurations



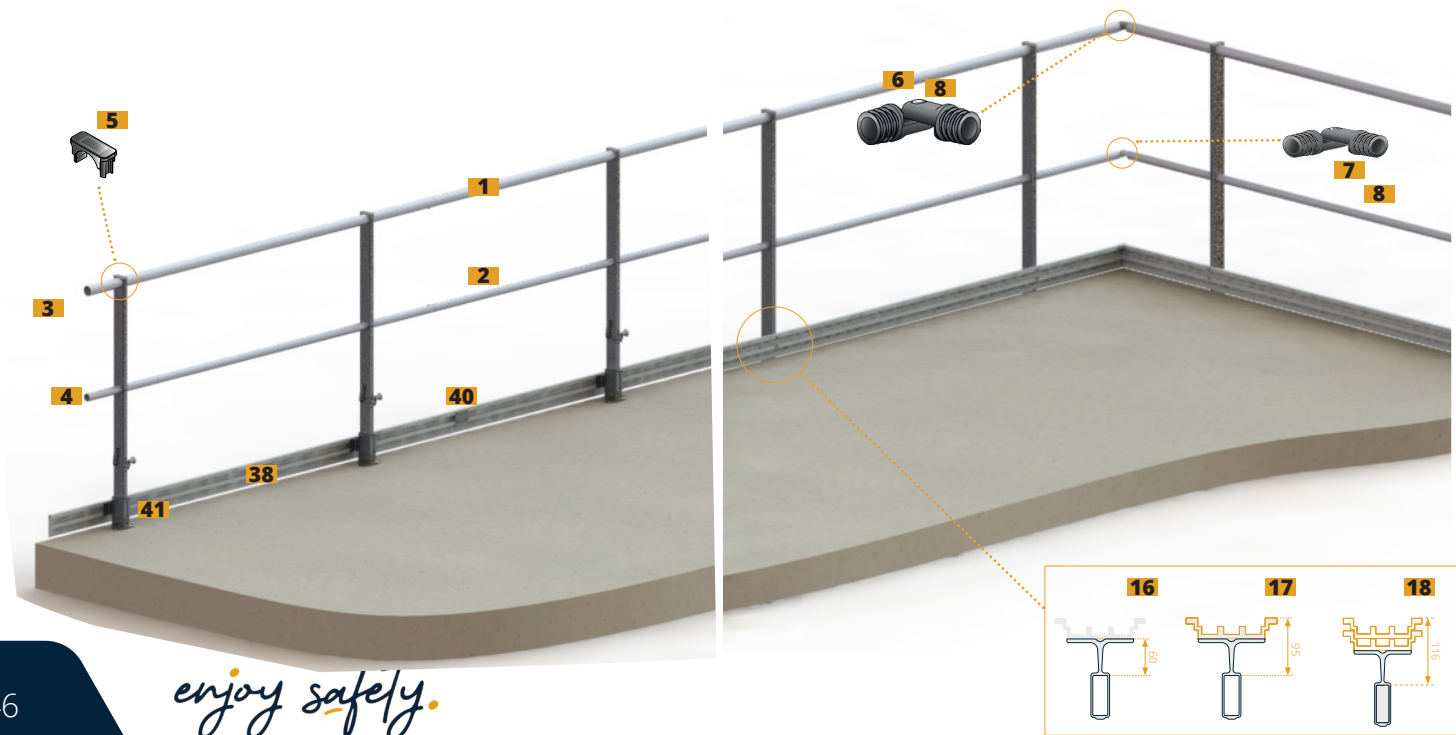
Straight upright



Angled upright



Folding upright

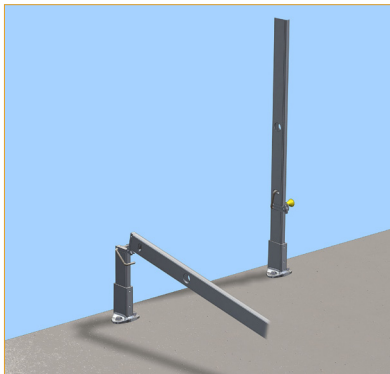
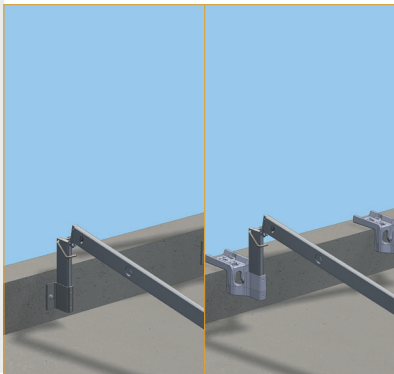
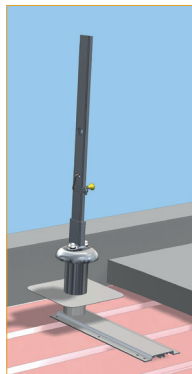
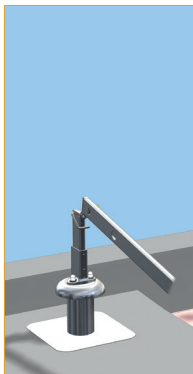
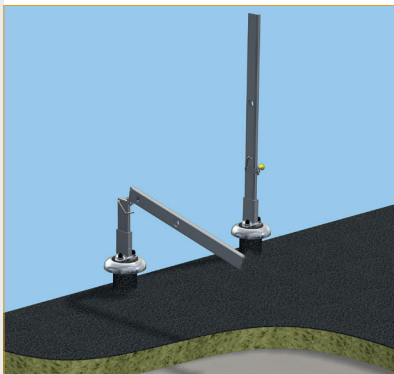
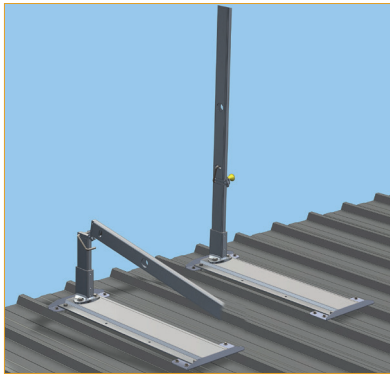
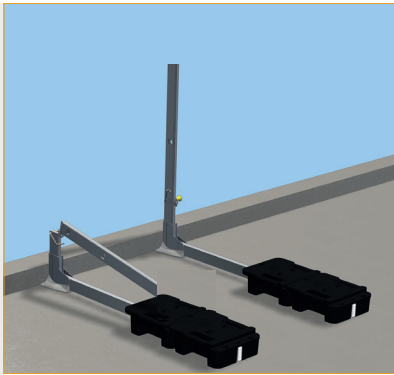






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# Folding guardrail



## Benefits

The folding system for EVO railings can be installed on our entire collective protection range. It protects the appearance of a building by folding down and being invisible when the edifice is seen from the outside. This module can be folded by a single worker up to 12 metres and can thus make the roof safe in no time for workers.

### Versatility

#### One system, three positions

**Folded:** aesthetic and unobtrusive, the railing is no longer visible from the outside

**Intermediate:** the zone to be made safe is visible and demarcated. The risk of tripping is reduced and the railing remains invisible from the outside

**Straight:** operational position, where the system keeps workers safe.

### Easy handling

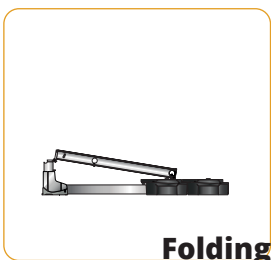
Rails and mid rails in 3 metre lengths supplied in bundles of 7 units

### Practical

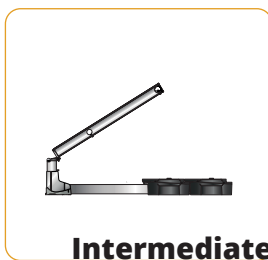
A folding gate system is also available in the corners as an option

## ONE SYSTEM, THREE POSITIONS

## HOW IT WORKS



**Folding**



**Intermediate**



**Straight**

### NB

While putting in place or folding the system, when the railing is in the intermediate position, lifeline safety is mandatory to keep workers' movements safe.



1



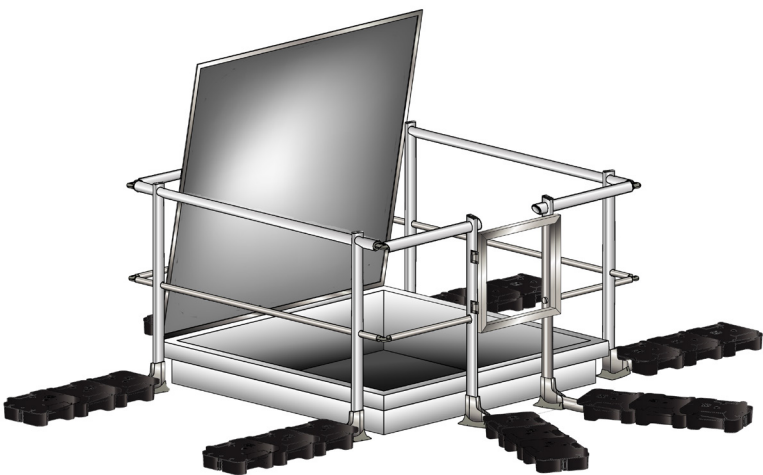
2



3



4



## Benefits

### Protected waterproofing

No need for drilling the roof.

### Safety

Each upright is stabilised by a brace with a sole under the base and two plastic pedestals.

### Practical

A gate system is also available for making opening roof lights safe.

### Design and personalisation

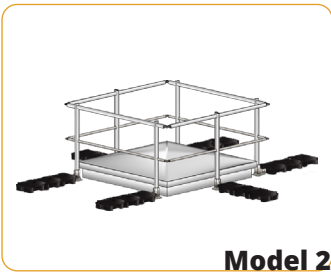
The solution may be coated for perfect integration into the receiving structure.

## DIMENSIONS

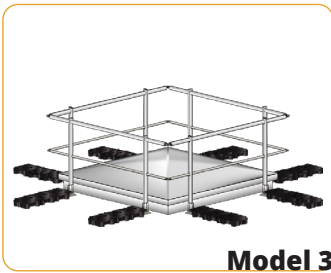
Models	Dimensions of roof light	Dimensions of railing
1	1200 x 1200 mm	4 uprights: 1500 x 1500 x 1180 mm
2	1700 x 1700 mm	6 uprights: 2000 x 2000 x 1180 mm
3	2200 x 2200 mm	8 uprights: 2500 x 2500 x 1180 mm



Model 1



Model 2



Model 3

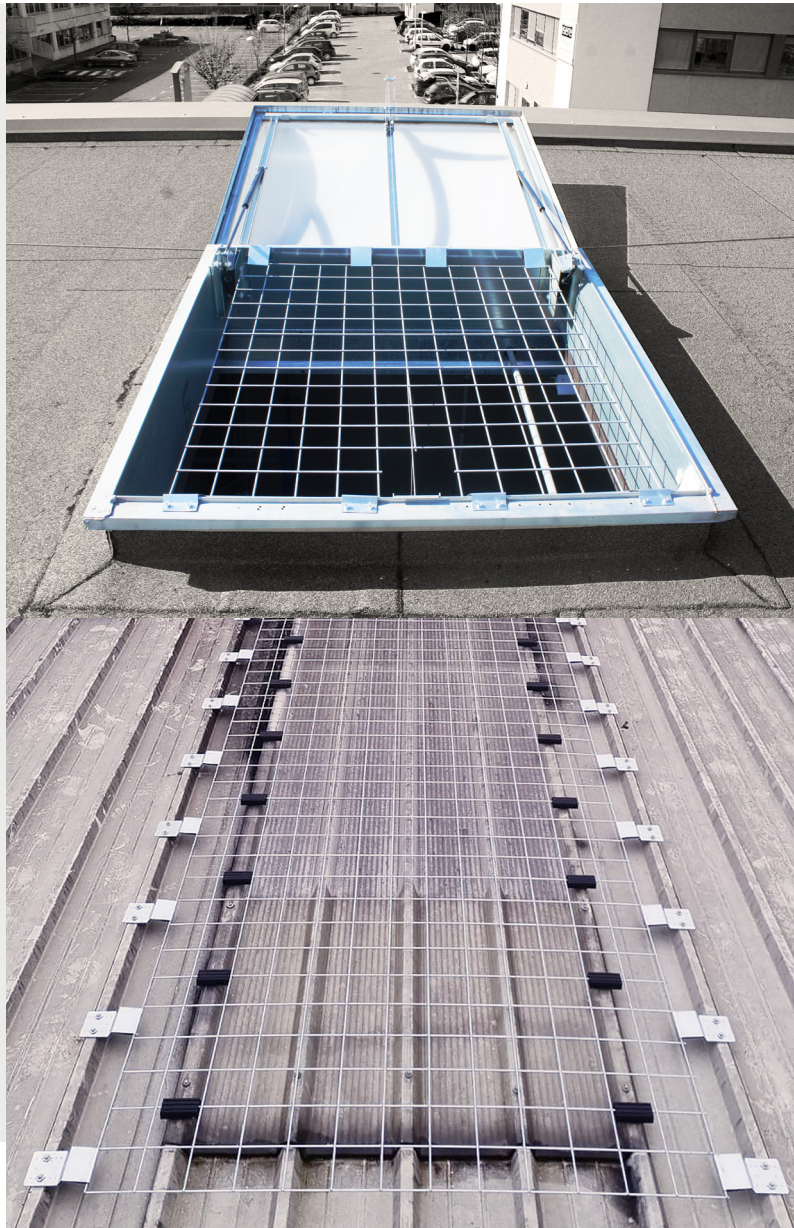


Optional: gate





# Grids for rooflights and translucent elements



## Benefits

### Roof lights

#### Versatility

Adapts to all roof light openings: universal bar system.

#### Practical

Fastened directly to the flat part of the metal frame (min thickness 12/10ths).

#### Ease of installation

After removing or opening the dome, install horizontally from the outside, inside the hopper.

#### Safety

Fixed fall-protection grating and fastening brackets (10/10th thick) in galvanised steel.  
90 x 90 mm mesh.

**WVGRTFIX100:** 904 x 904 mm grids for 1000 mm hoppers

**WVGRTFIX200:** 2074 x 2704 mm grids for 2200 mm hoppers (maximum permissible size).

### Translucent elements

#### Versatility

Adapts to all configurations.

#### Practical

Fastened directly from the outside on the steel deck.

#### Ease of installation

The grating can be cut and adapted directly on the site.

#### Safety

1200 joules resistance.  
Fall-protection grating and fastening brackets in steel.

**WVGRTTRANS:** 3004 x 1504 mm gratings

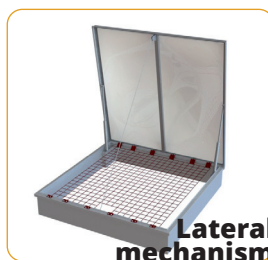
## ROOF LIGHTS: UNIVERSAL BAR SYSTEM



Fixed



Central mechanism



Lateral mechanism

### 1200 joules resistance

Tested according to the recommendations of MR72 of CRAM, and the test protocol of GIF (March 1997).

## TRANSLUCENT ELEMENTS: FASTENING



Fastening on the steel deck corrugation adjacent to the translucent element

The grating dimensions are to be defined by:

**L** = width of translucent element  
**e** = centre distance of corrugations  
**+** length to cover

# Ladder, accessories & PPE



## Benefits

### Long life

Made entirely in aluminium, alloy series 6000: an aesthetic and lightweight material that offers excellent resistance over time, even in aggressive environments

### Enhanced rigidity

Stiles in 65 x 24 mm sections in extruded aluminium

### Ease of installation

Clamp system for rapid fastening of elements with just one hand

### Versatility

Complete range for a number of combinations to adapt perfectly to your site requirements

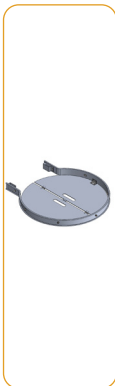
## ACCESSORIES

### Locking of access

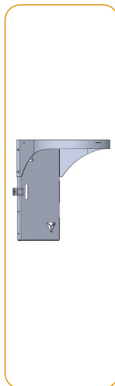
Recommended to protect access to the ladder



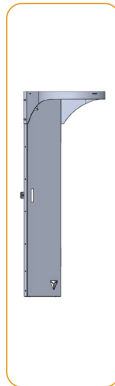
**WV650000**  
Locking door  
Symmetrical  
system, hinges on  
left or right



**WV650001**  
Locking bar  
Intrusion delaying  
system

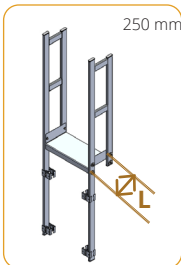


**WV650002**  
Half locking door  
Symmetrical  
system, hinges on  
left or right

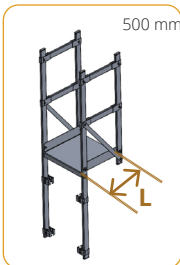


**WV650003**  
Full locking door  
Symmetrical  
system, hinges on  
left or right

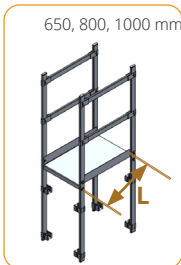
## Parapet passage, gate & exits



**WV6240250**  
250 mm landing step, 600  
mm wide



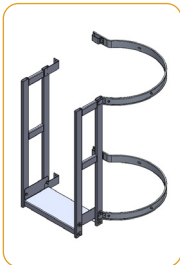
**WV6240500**  
500 mm landing step, 600  
mm wide



**WV6240xxx**  
Widened exit with parapet  
descent, width 650 mm, 800  
mm & 1000 mm



**WV623001**  
Straight exit  
Symmetrical system, left  
or right



**WV620000**  
Lateral exit  
Symmetrical system, left  
or right



**WV6251100**  
Magnetic automatic closing  
gate, height 1100 mm.  
Available in height 580mm





# Ladder with safety cage



Automatic closing gate

9  
Widened bar

9  
Standard bar (inner diameter = 700 mm)

Longitudinal bar 7

Change in flights required if the working height is:  
> 8m (NF E85-016)  
> 10m (NF EN ISO 14122-4)

Working height

Maximum 2.00m

Maximum 1.50m

Maximum 6 m

5 or 6  
Standard adjustable fastening brackets

Position of first bar  
 $2.30\text{m} < h < 3\text{m}$

Access locking door

## LIST OF PARTS

1

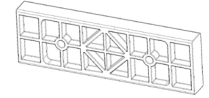


### Ladders

WV6100xxx

Available in: 900 (3 rungs), 2100 (7 rungs), 3000 (10 rungs), 3900 mm (13 rungs)

2

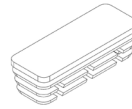


### Ladder connectors

WV611000

Fasteners supplied

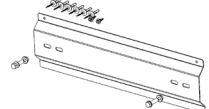
3



### Plug

Z2SYS612000

4

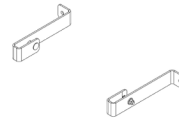


### Fastening on cladding

WV630002

Fasteners supplied

5

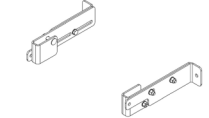


### Standard fastening brackets

WV630001

Length: 2000 mm  
Delivered in pairs

6



### Adjustable fastening brackets

WV630003

Length 237 to 404 mm  
Delivered in pairs

7



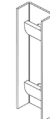
### Longitudinal bar

WV647xxx

WV6482100/Z2SYS6472100

Kits of 5 longitudinal bars: length 2100, 3000, 3900mm - Kits of 8 longitudinal bars: length 2100 mm - Single: length 2100 mm

8

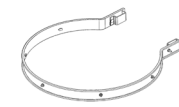


### Longitudinal bar joints

WV641001/Z2SYS641001

Kits of 5 joints or single

9



### Bars

WV646450

Standard bar, 450 mm/Widened bar, 600 mm/Flight change bar/Folding landing bar (fasteners included)

10



### Adjustable foot for parapet descent

WV625001

Up to 300 mm

11

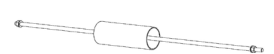


### Folding rod

WV629000

Fastened to the ladder stile

12



### Flight change reinforcement

WV648001

Helps climbing a ladder with a flight change



# Ladder, accessories & PPE



## Benefits

Bases to support all types of technical equipment on roofs and terraces (solar panels, air-conditioning units, extractors, floors etc.).

### Modular concept

Standard heights: 500, 800 and 1000mm + may be made to measure

### Protected waterproofing

The bases are insulated by polyurethane foam and treated against corrosion by hot-dip galvanisation and closed by a flange ring

### Design and personalisation

Other treatments may be added to the bases: powder coating, intumescent coating

## Benefits

Special bases dedicated to the maintenance of lights. Once fastened to the sliding system, they can be reached easily for maintenance.

### Practical

Easy maintenance that keeps workers safe

### Protected waterproofing

Self-supporting base that is independent of the waterproofing complex



## Benefits

Structure designed to hold dishes up to 1200 mm in diameter. Entirely independent, can be installed anywhere.

### Modular concept

Possible structure lengths: 2, 3 or 5 linear metres

### Protected waterproofing

Self-supporting base that is independent of the waterproofing complex

### Ease of installation

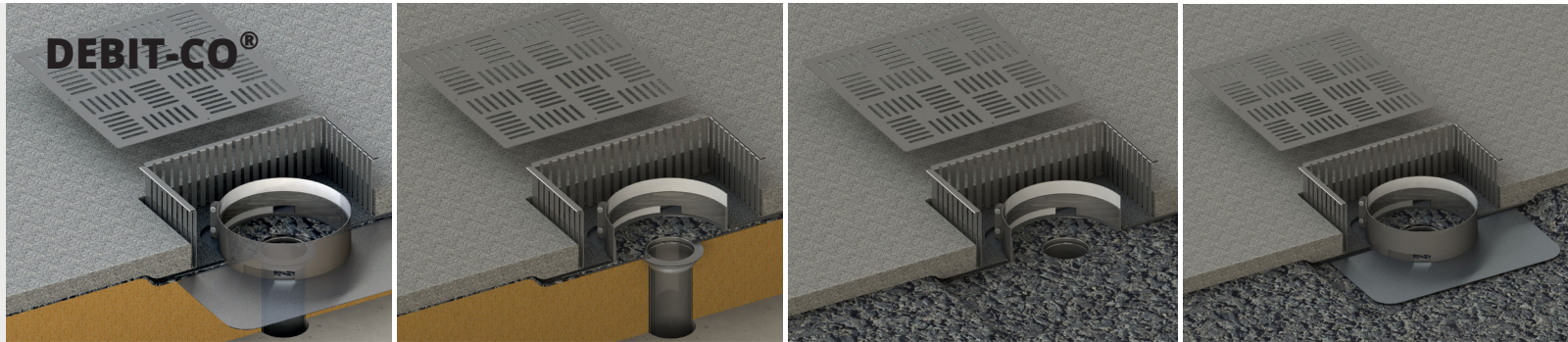
Totally modular to suit the configuration of the structure







# Supports, embellishments & waterproofing accessories



## Benefits

The DEBIT-CO® flow limiter regulates the flow in rain water outlets by ensuring a regular but gradual outflow of water into the sewage system. This accessory is placed directly at the rain water outlet on the roof.

### Versatility

Adapts to all types of rain water outlets on roofs and terraces, with diameters up to 230 mm (larger diameters available to measure)

### Protected waterproofing

Elastomer waterproofing, or with a synthetic membrane (PVC, TPO etc.) or with an aluminium plate (gravel board as an option)



## Benefits

Tailored and independent screen structure dedicated to cladding and protecting roof equipment.

### Versatility

Protects, embellishes and clads

### Protected waterproofing

Self-supporting base that is independent of the waterproofing complex

### Design and personalisation

This personalised screen structure adapts perfectly to your architectural requirements

## Benefits

These ladder hooks are practical, cost-effective and versatile, and can be installed on types of structure without any waterproofing connection.

### Versatility

Allows you to directly hang all types of ladder

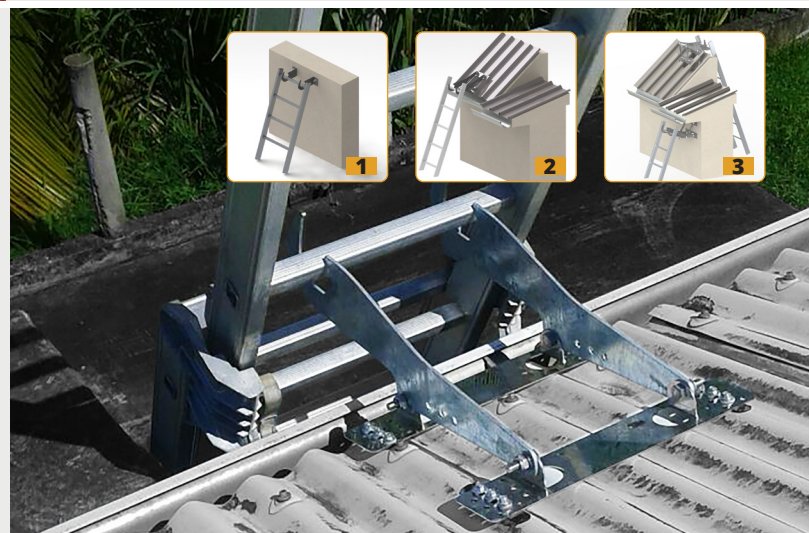
### Modular concept

Fastening on all types of roofing or concrete façades, with or without an offset

**1 WVCRO**

**2 WVCROSTD**

**3 WVCROREG**



# Ladder, accessories & PPE



## 1 HARNESSES

### HAR22HA

#### Freedom of movement & intuitive donning

Harness with two fall-arrest attachment points (dorsal and sternal)

5 adjustment buckles, 3 of which are automatic.

Integrated fall indicator

Tested up to 150kg



### HAR22X

#### The most lightweight harness in the market

Extremely light: the dorsal system is free from metal parts

Adapts to all builds - Two-colour webbing, which shows that the harness has been put in place correctly

Lateral plates and adjustment buckles with no metal parts

Tested up to 150kg



## 2 SELF-RETRACTING FALL ARRESTER

### AN13006C2

#### MEDBLOC 6m

25 mm polyester webbing

Swivel with fall indicator

For horizontal use

Easy to carry and put in place

Tested up to 128kg



### AN106

#### MICROBLOC 1.80m

19.5 mm webbing with energy absorber

Tested on sharp edges

Horizontal use & factor 2

Tested up to 140kg



### AN18020T

#### WIDE PROTECTOR 20m

Galvanised steel cable with integrated energy dissipator

Fall indicator

Inertial locking system

Tested up to 150kg



### AN14006T or 8T

#### PROTECTOR TETRA 6m or 8m

Webbing with energy dissipator and fall indicator

Easy to carry and put in place

Tested up to 100kg, horizontal



## 3 LANYARDS

### AN203200ZD

#### 2m lanyard

2m webbing lanyard fall arrester with energy absorber

1 double-acting connector

1 manucroche connector

Tested up to 140kg



### AN213200ZDD

#### 2m lanyard

2m webbing double lanyard fall arrester with energy absorber

1 double-acting connector

2 manucroche connectors

Tested up to 140kg



## 4 KITS

### ELARA160V2

#### Ready-for-use fall arrester kit

Harness: 1 dorsal attachment point; integrated energy absorber

2m energy absorber lanyard & steel connector

Tested up to 140kg

Storage bag





# Personal protective equipment

## 5 RESCUE

### TC065 & TC066

#### Descender device

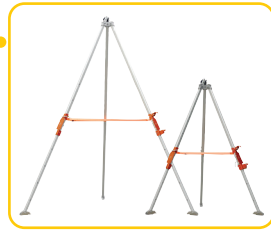
Rescue device with wheel  
Approved for 2 workers  
Automatic braking system  
Length: 300m max  
Tested up to 225kg  
Rope part no: TC066



### TRA22

#### Telescopic tripod

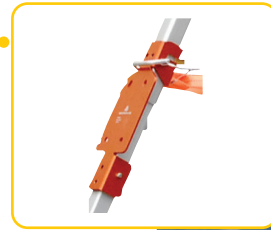
Aluminium tripod adjustable  
from 1.20 m to 1.97 m  
Certified for 3 workers  
Adaptable to all types of surface



### TRA102

#### Fastening plate

Aluminium fastening plate for  
hoist and Protector Elevator



## 6 ACCESSORIES

### GRANITEWIND

#### Safety helmet

Ventilated safety helmet  
Lightweight and compact  
Rotor tightening system  
Integrated chin strap



### HA203FS

#### Pair of femoral anti-compression straps

Adaptable to all types of har-  
ness by placing on the lateral  
straps  
Easy and speedy installation



### TC008

#### Storage bag in PVC 42L

PVC fabric bag for storing  
& protecting equipment  
Possible extension: 10L  
Dimensions: 30x65 cm



