



TECHNICAL FILE

EVO®
Guardrail on slab to be sealed

EN ISO 14122-3 : 2017
NF E85-015 : 2019



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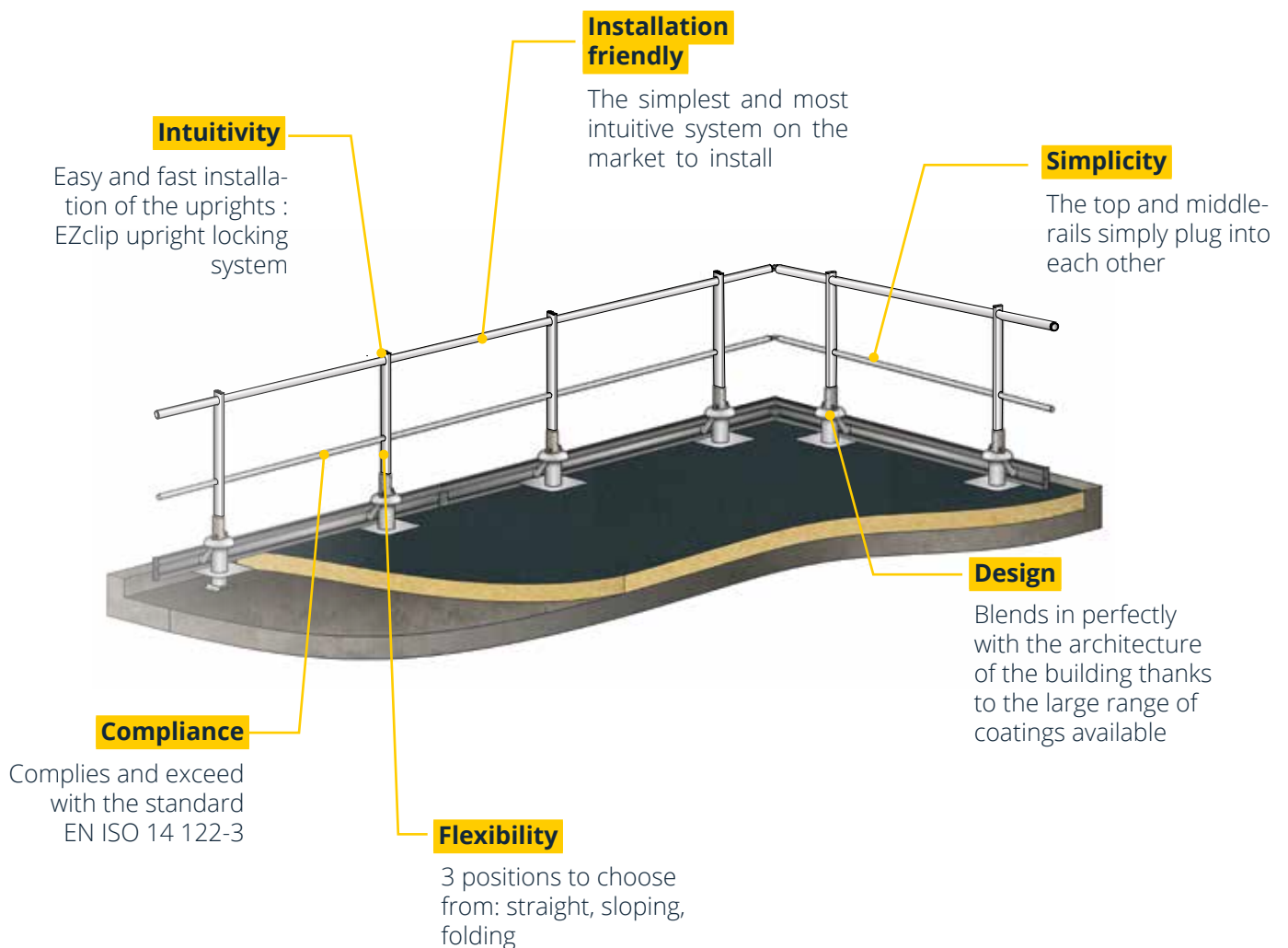
Guardrail on slab to be sealed

EVO®

PRODUCT PRESENTATION

The EVO® guardrail on slab to be sealed is a collective fall protection system designed to protect roof terraces not accessible to the public. It is fixed to an insulated slab through the waterproofing complex by using its D or DS base fixing when there is no possibility of fixing to the acroterion. These interfaces are custom-made.

The optional aluminium sleeve allows the waterproofing to be connected in accordance with DTU 43.1.





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STANDARDS

- A guardrail must be installed as soon as the possible height of fall is higher than 500 mm.
- The guardrail handrail height must be comprising between 1000 and 1100 mm above the walking area.
- The distance between the handrail and kneerail, as well as between the kneerail and the toeboard must be less than or equal to 500 mm.

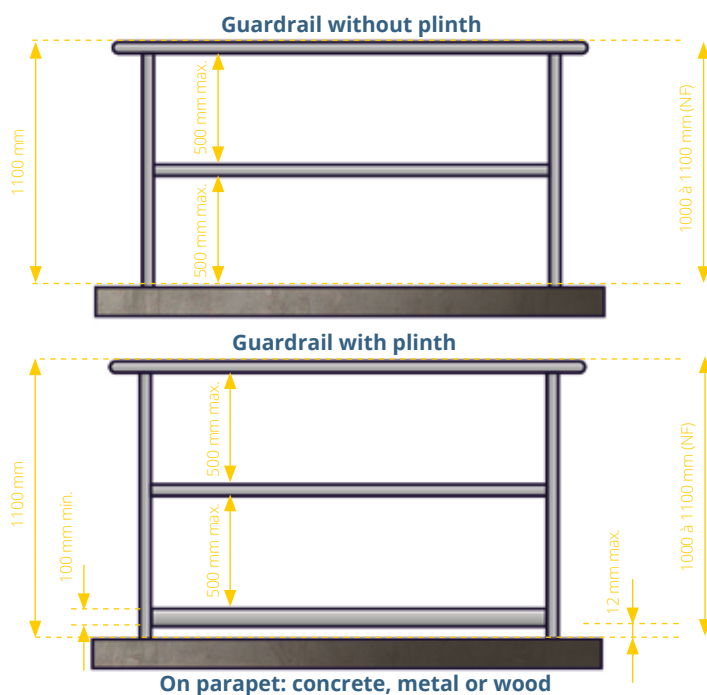
- This space shall be reduced to a maximum of 340 mm between the rail and the middlerail and between the middlerail and the toeboard when the guardrail is installed at the bottom of a slope greater than 15°.

- A toeboard of 100 mm height minimum must be installed at 12 mm maximum from the walking area and the side of the platform.

- The distance between the axes of the uprights should be limited to a maximum of 1500 mm. However, if this distance is greater, particular attention should be paid to the strength of the anchoring of the uprights and fixing devices: consult our design office.

- If the handrail is interrupted, the free space between two segments of the handrail should be between 75 mm and 120 mm. If there is a larger opening, a gate to ensure the continuity of the fall protection of the guardrail must be installed.

- Folding: A lifeline must be installed before the folding guardrail is fitted. This will also be used during installation and handling.

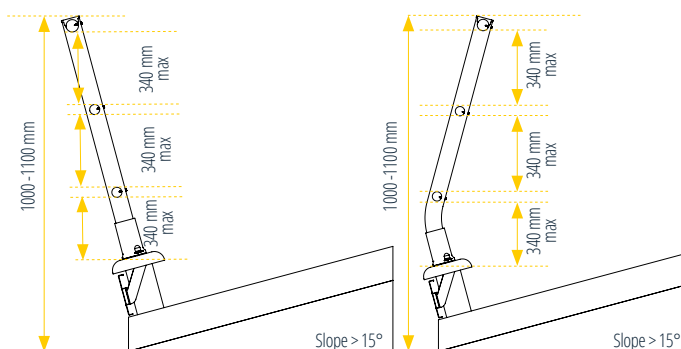


REGULATION

The EVO® guardrail for slab to be sealed complies with the standard EN ISO 14122-3 of March 2017, machines safety - permanent access means to machines – part 3: staircases, step ladders, guardrails – Permanent means of access.

The EVO® guardrail for slab to be sealed passed with success the static and dynamic tests required by the standards EN ISO 14122-3 and NF E85-015.

NF : French Standard NF E85-015 / EN : European Standard EN ISO 14122-3



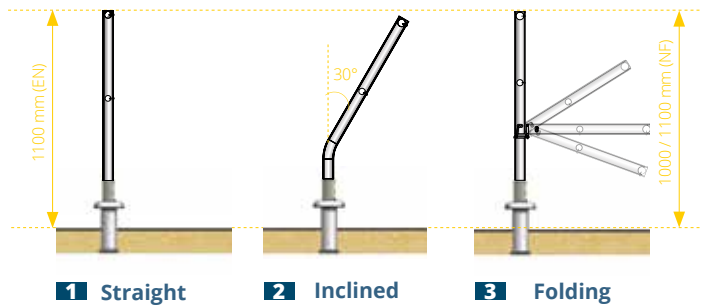


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UPRIGHTS DIMENSIONS

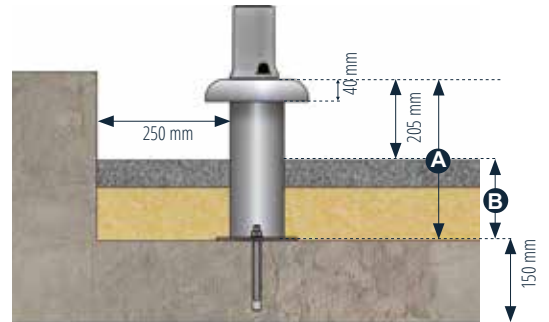


Toeboard option: contact us

NF : French Standard NF E85-015 / EN : European Standard EN ISO 14122-3

HOW DO YOU CALCULATE THE HEIGHT OF THE POST?

$$\text{A Post height} > \text{B Total height of waterproofing complex (including gravel)} + 205 \text{ mm}$$

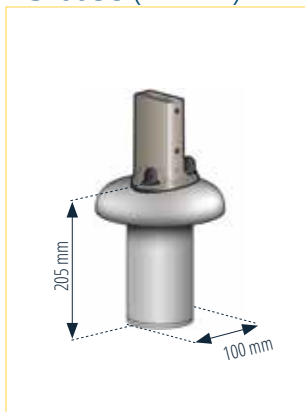


Pour une épaisseur de dalle inférieure à 150 mm, contacter le bureau d'études.

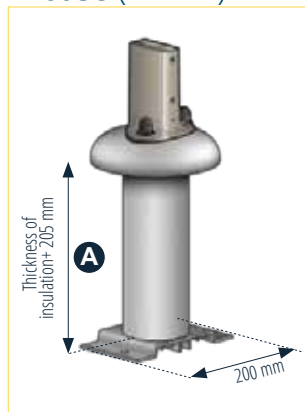
Le sabot D se fixe à travers un complexe d'étanchéité d'épaisseur relativement importante tandis que le sabot DS, version plus petite, est mieux adapté aux complexes d'étanchéité avec faible épaisseur d'isolation (<20 mm). La reprise d'étanchéité est nettement simplifiée grâce à l'absence de fixation apparente.

FIXING BASES DIMENSIONS

DS-base (in mm)



D-base (in mm)



D-base
Single sealing sleeve

The single sleeve provides a watertight seal to the base in compliance with DTU 43.1.



D-base
Breaking the thermal bridge

The thermal break D-base is made up of a washer and a tube filled with expanded foam, all of which optimise thermal insulation.



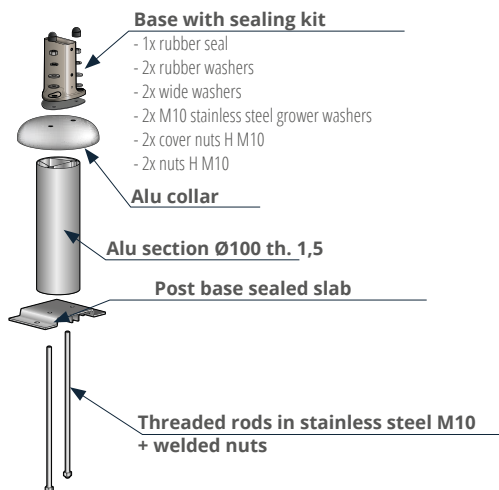
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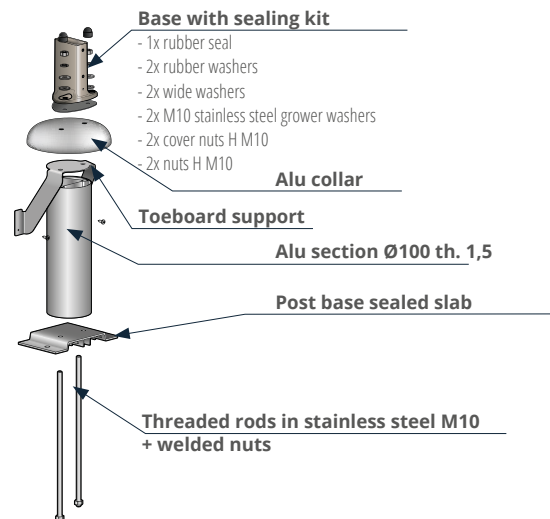
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OPTIONS

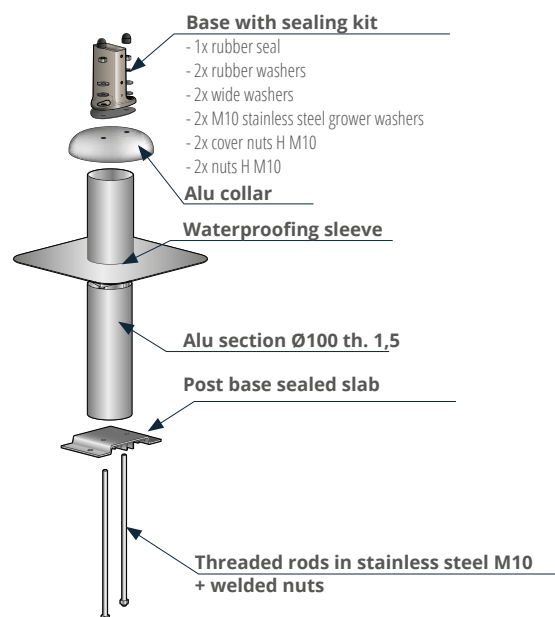
D-base



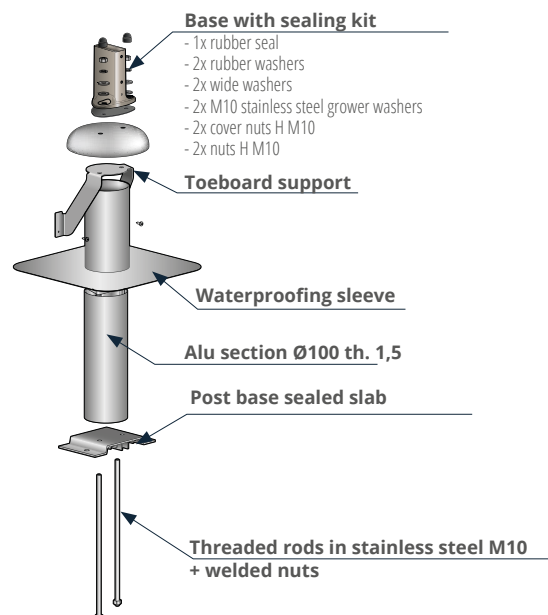
D-base with toeboard support



Single-sleeve D-base



Single-sleeve D-base with toeboard support





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USE & MAINTENANCE INSTRUCTIONS

- The person performing the installation of EVO® guardrail must be a qualified person and must observe the common rules on working at heights. It must thus ensure his own security (use of a temporary lifeline, PPE, aerial lift, etc)
- Before any use, user must ensure by visual inspection that EVO® guardrail shows no anomaly (shock, distortion, etc.)
- The EVO® guardrail does not require any particular maintenance, however, a visual inspection must be carried out at least once a year by a qualified person
- If the guardrail EVO® is improperly installed, damaged or has been used to arrest a fall, its use must be stopped immediately and it must not be used until a qualified person has authorized in writing its reuse after examination and verification
- If the product is sold outside the first country of destination, it is essential for the safety of the user that the reseller provides the instructions of use in the language of the country of the product use. These documents can be provided upon request by contacting the manufacturer
- EVO® guardrail is a mean of permanent collective protection which must be used by professionals on flat roofs not accessible to the public.

- The use of a EVO® toeboard is mandatory if the terrace does not have any parapet or if it is less than 100 mm height.
- If EVO® guardrail is installed in a polluted industrial environment, petrochemical, maritime or on seaside, it is compulsory to make a surface treatment appropriated type powder coating, anodizing, etc.
- Each straight section must have a minimum of 3 uprights
- To ensure compliance, the installation must be carried out according to a layout plan produced by our configurator or our design office.

STORAGE

Raw aluminum components are packaged in contact with each other. The action of the rain on the unopened package will facilitate the oxidation of these components. Surface stains may occur. They do not degrade the quality of aluminum but can spoil the appearance of the railings.

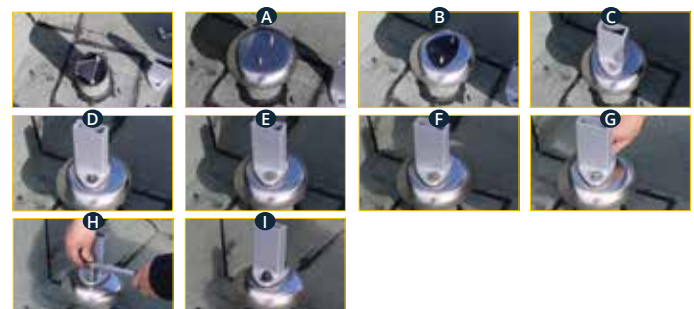
We recommend you to unpack the package and to store the components separated from each other (no contact between them), or to store the packages still packed in a dry place.

FIXING PRINCIPLE

Solution	Model
Chemical	HIT-HY 200-A 330/2 injection mortar with HAS-U 5.8 M10x115 anchor rod
Mechanical	HST3-R M10x90 male plug

FIXING PRINCIPLE OF THE BASE

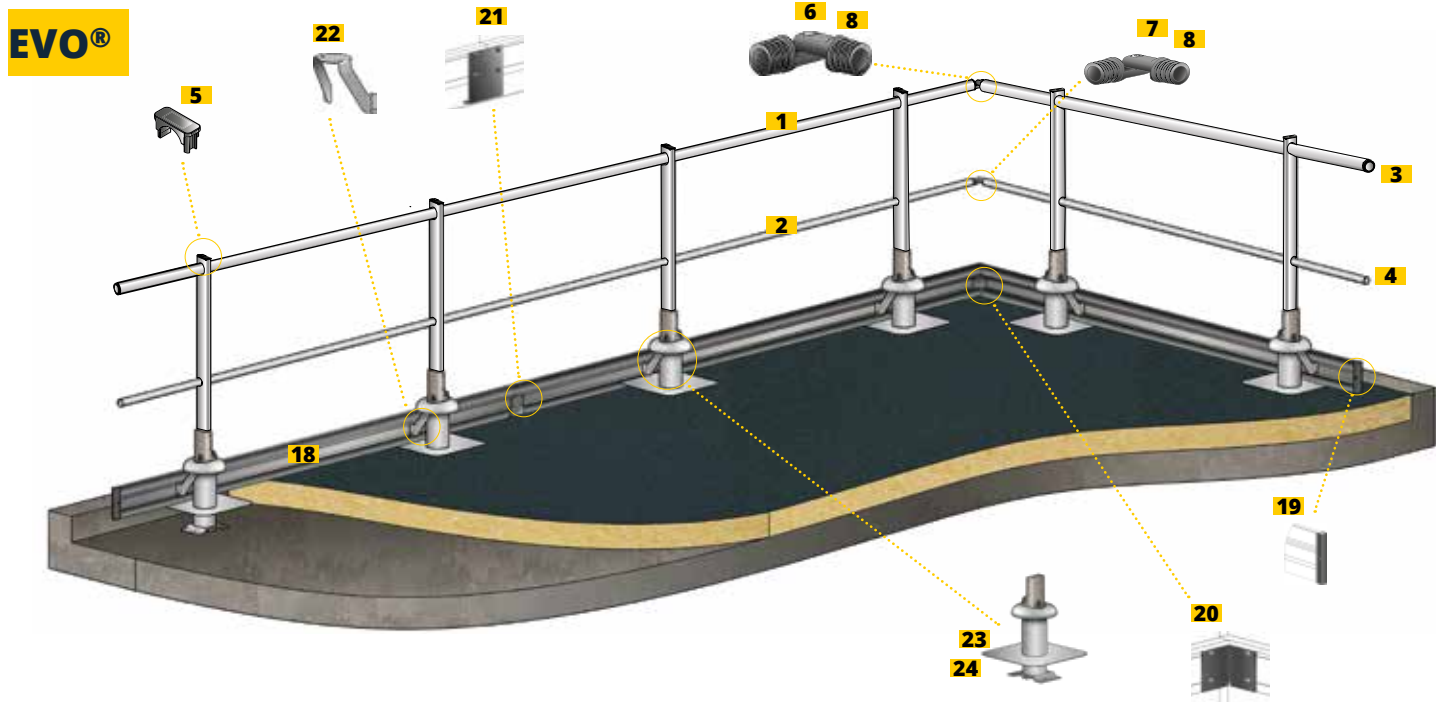
Flat bracket are pre-mounted on the D-post for models without sleeve. For model with sleeve, place the collar **A**. Thread the rubber seal **B** on threaded rods and on the flat bracket **C**. Place the 2 rubber washers **D**, 2 big washers **E**, 2 grower washers M10 in stainless steel **F** and then 2 H M10 in stainless steel **G**. screw in depth and place the 2 nut covers **I**.



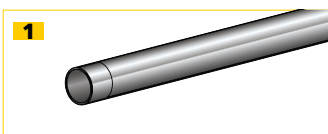


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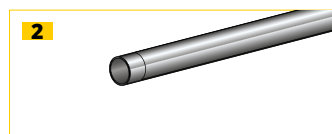
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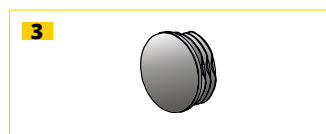
GENERAL COMPONENTS



1
Shrunk rail Ø45 mm
WV830450
Lenght 3000 mm



2
Shrunk middle-rail Ø35 mm
WV830350
Lenght 3000 mm



3
Rail cap Ø45 mm
WV830451



4
Middle-rail cap Ø35 mm
WV830351



5
EZclip plastic cap
WV820000



6
Rail angle Ø45 mm
WV830450



7
Middle-rail angle Ø35 mm
WV830352



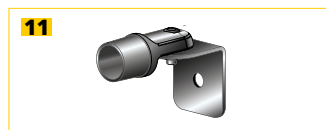
8
Aluminium middle-rail angle Ø35 and 45 mm - WV830453



9
Wall fixing bracket
for rail Ø45 mm - WV830454



10
Wall fixing bracket
for middle-rail Ø35 mm
WV830354



11
Wall fixing aluminium bracket
for rail and middle-rail
WV830455



12
Straight upright



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GENERAL COMPONENTS



13
Straight upright (height upon request)

Installation without plinth



14
Inclined upright

H : 985 mm
WV82009850

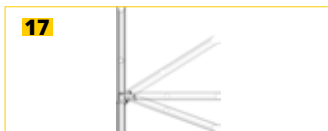


15
Inclined upright (height upon request)



16
Folding upright

H : 885 mm - Installation without plinth -
WV8200885F



17
Folding upright

Installation without plinth



18
Toeboard

L : 3000 x 150 x 9 mm
WV840000



19
Toeboard cap

H : 150 mm
WV840001



20
Angle toeboard kit (inside/
outside)

H : 150 mm
WV840003



21
Toeboard straight connector

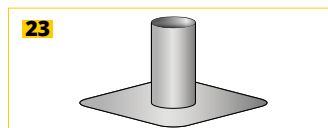
H : 150 mm
WV840005



22
Toeboard bracket support for
guardrail on slab or steel deck
to be sealed

WV844001

NOMENCLATURE: SUPPORTS



23
Waterproofing sleeve for
D-post

Z2SYS814002



24
D-base post with insulation



25
D-base post
without insulation



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NOMENCLATURE: FIXINGS

26



Stainless steel self-drilling
screw 4.8x16 TH - ZOSYSBVHF48016

27



Stainless steel self-drilling
screw 4.8x25 TH - ZOSYSBVHF48025

28



Stainless steel self-drilling
screw 4.8x32 TH - ZOSYSBVHF48032

29



STHC M08x10i DINI913 Screw
ZOSYSBVI5ST002

30



Torque limiter
DB CONTROL 5N.M



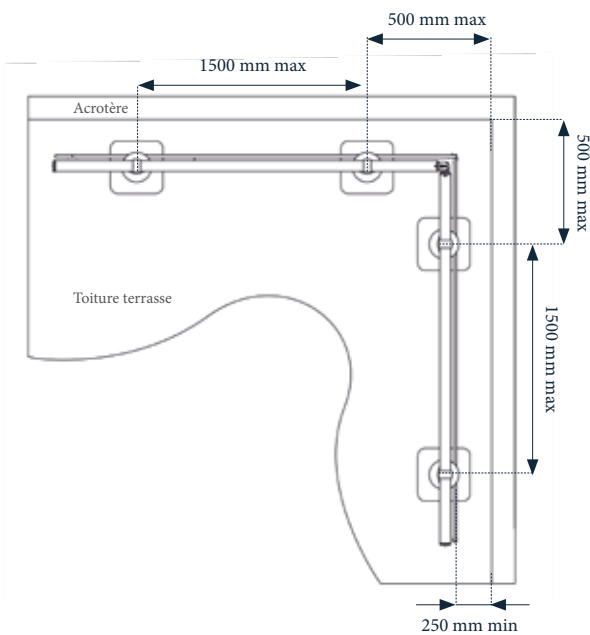
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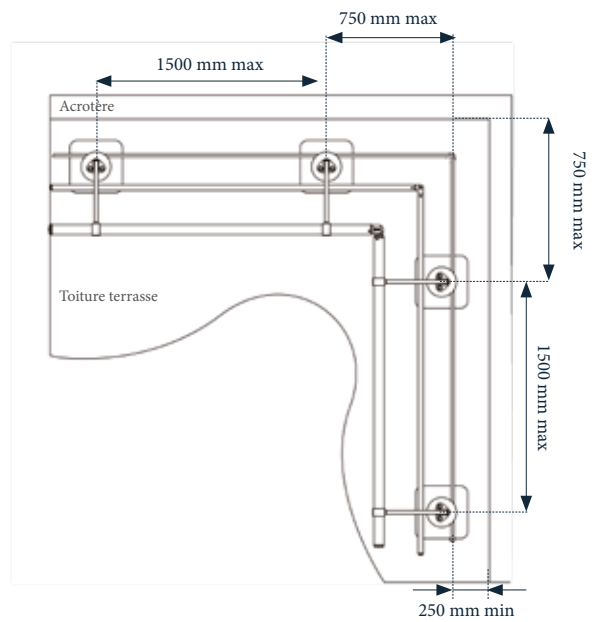
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EXAMPLES OF LAYOUTS

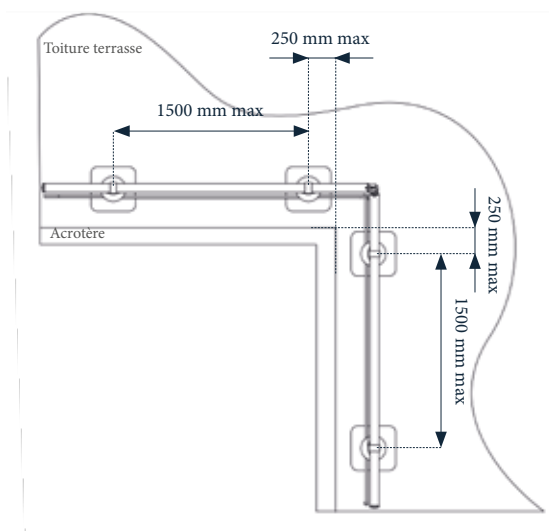
Inside angle: straight guardrail



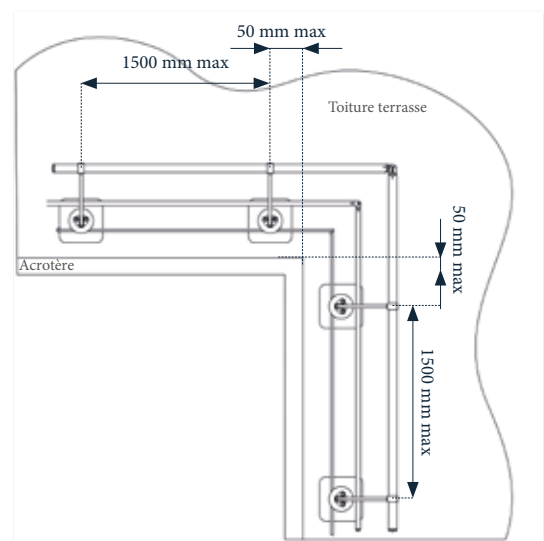
Inside angle: inclined guardrail



Outside angle: straight guardrail



Outside angle: inclined guardrail





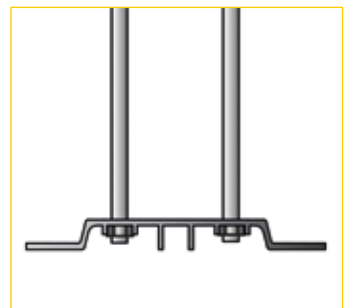
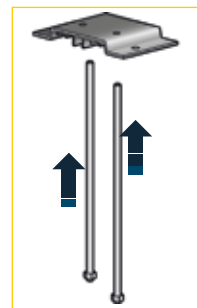
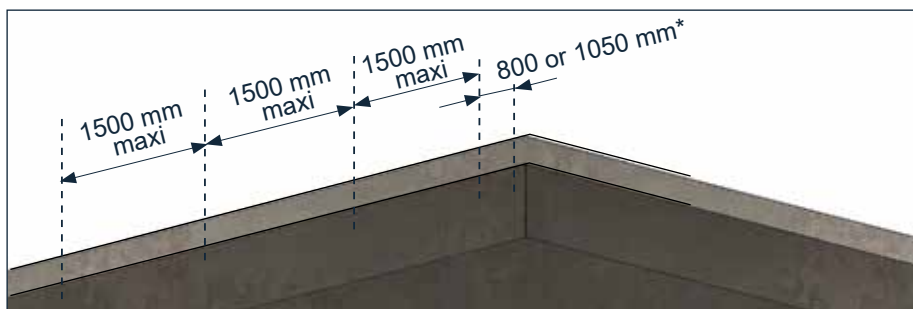
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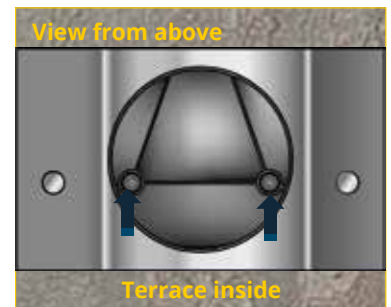
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MONTAGE

The installation of EVO® guardrail must be done by a minimum of two people. It is recommended to start installation in an angle.

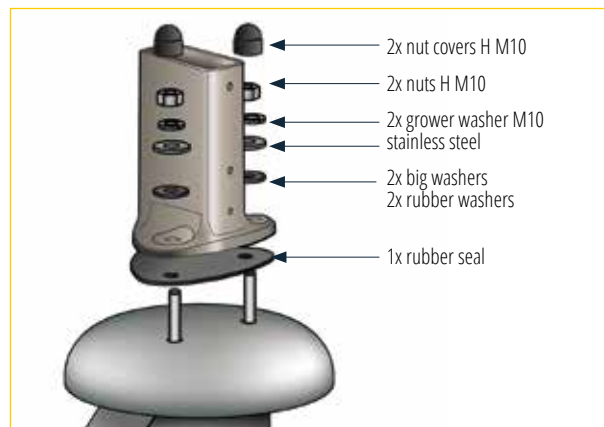
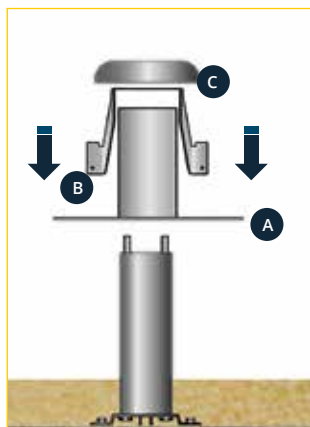


- 1 - Draw a mark every 1500 mm maximum. *For the angle between the upright and the edge of the acrotion, refer to the layout plan on the previous page.
- 2 - Thread the threaded rods on the fixing plate



- 3 - Fix the fixing plates every 1500 mm maximum as recommended using M10 chemical dowels.

- 4 - Before installing your insulating material, thread the tubes with threaded rods into 2 provided circular parts.



- 6 - Finally, thread the rubber seal on the threaded rods and then on the flat base. Fix the base with 2 nuts H M10 by combining the rubber washers correctly, the big washers, the grower washers and the nut covers.

- 5 - Once your insulating material is placed, place the waterproofing sleeve **A**, then the toeboard support **B** (if there is any) and the collar **C**. You may proceed to your watertightness renewal.



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MONTAGE

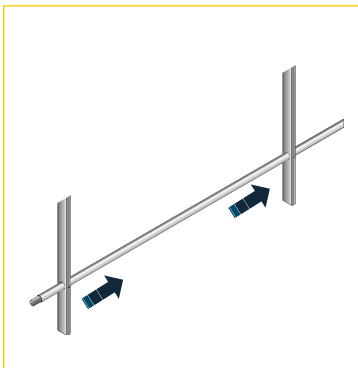
2nd version: without sleeve



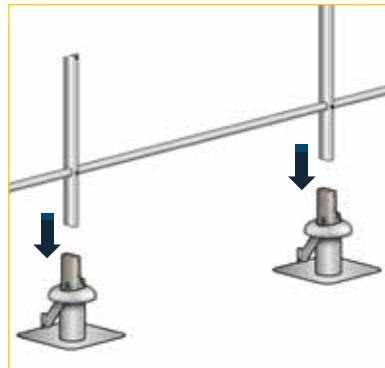
3 - D-base plates without sealing sleeves are supplied pre-assembled. Fix the D-bases to the slab every 1500 mm maximum as recommended using Chimfort KEM H M10 chemical anchors or Baraco crack FM 75 M10 mechanical anchors.



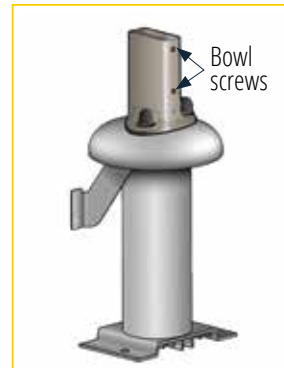
4 - Proceed to your insulation and your watertightness renewal. With the model without sleeve, proceed to your watertightness renewal underneath the collar.



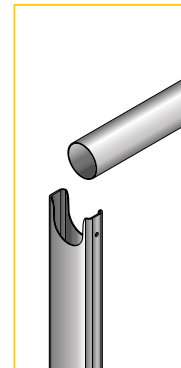
5 - Insert a middlerail through 2 uprights



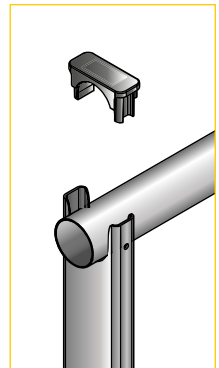
6 - Insert the set into the fixing supports



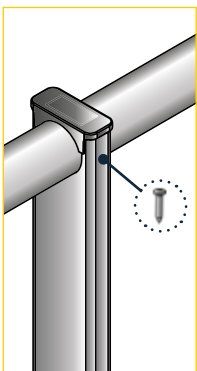
7 - Screw in the bowl screws of the flat bases



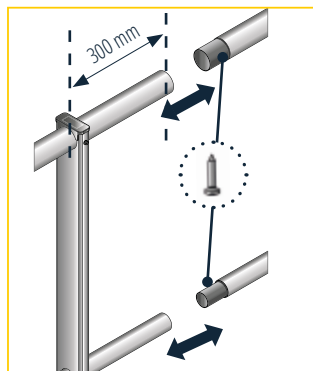
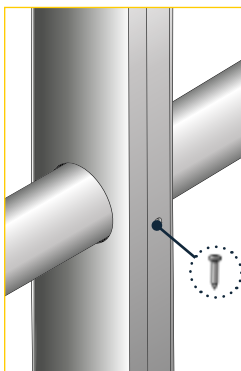
8 - Put the rail on the uprights



9 - Clip EZclip to the top of the upright



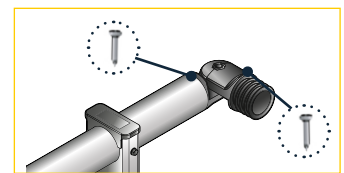
10 - Tighten self-drilling screws 4,8 x 25 on upright, where rail and middlerail are positioned



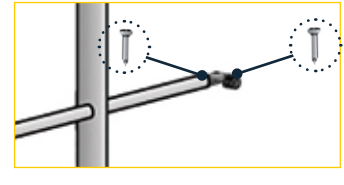
11 - Once the guardrail is mounted, tighten the selfdrilling screws 4,8x16 as stated above.



12 - Clip rail and middlerail angles



13 - Tighten angles with self-drilling screws 4,8 x 25



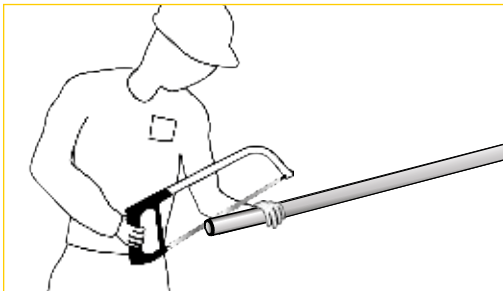


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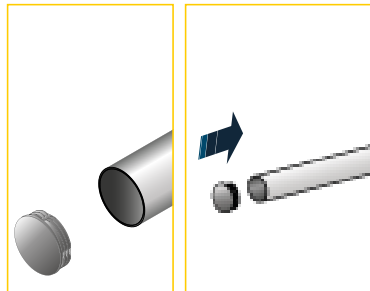
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MONTAGE

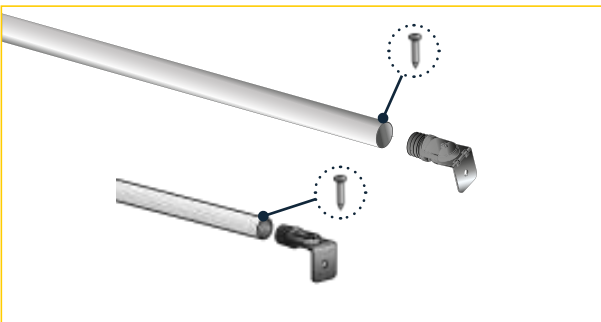


14 - Adjust last section by sawing swagged extra

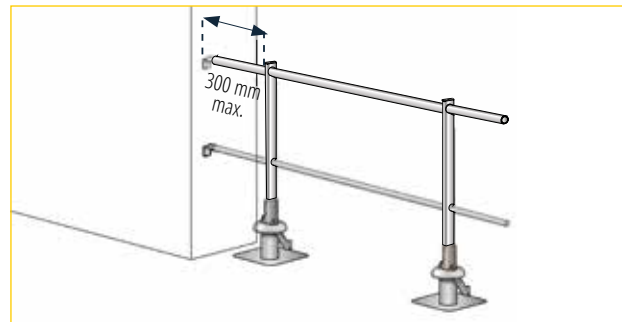


15 - Clip caps and wall brackets to rails and middlerails

MONTAGE DES TERMINAISONS MURALES

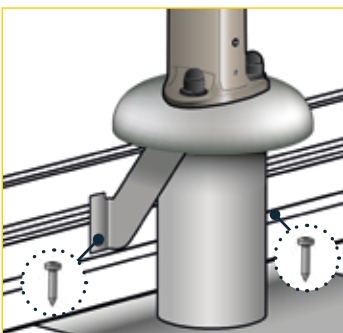


1 - Fix wall brackets using self-drilling 4.8 x 25 screws

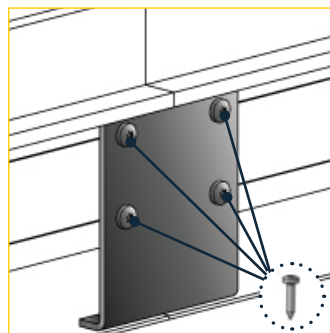


2 - Observe the maximum distance of 300 mm between the upright and the wall

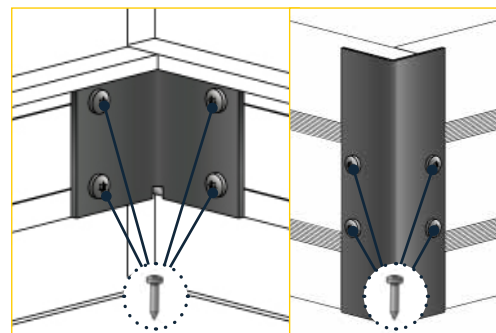
INSTALLATION: TOEBOARD



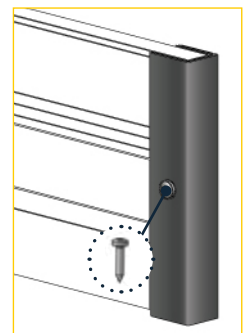
1 - Place the toeboard support on the base and secure it with 4 self-drilling screws TH 4.8 x 16 (1 screw on each side)



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 selfdrilling screws TH 4.8 x 16



3 - For angles, secure the inner and external connectors with 8 self-drilling screws TH 4.8 x 16



4 - Finally, fix the toeboard plugs with one self-drilling screw TH 4.8 x 16