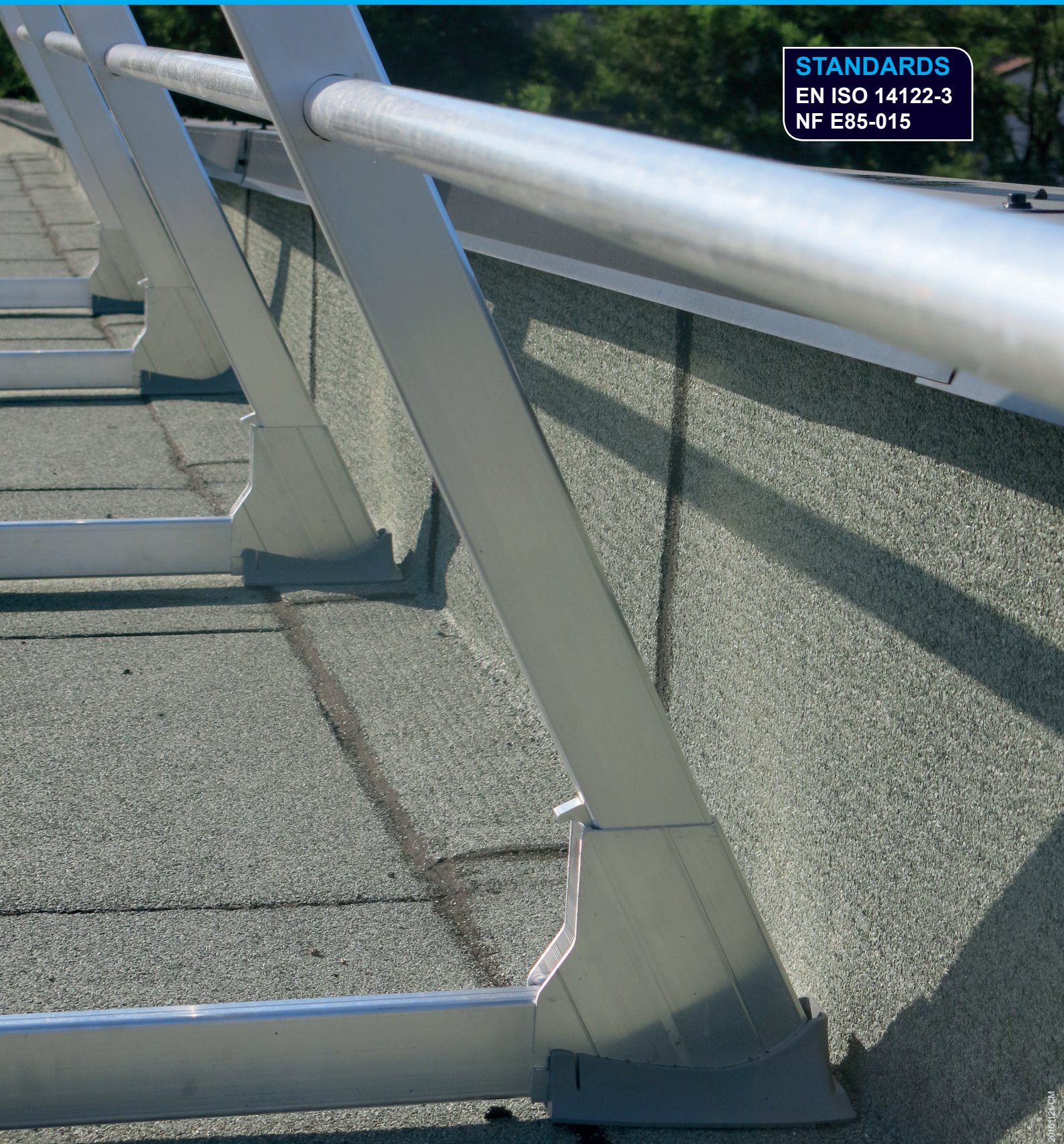


FREESTANDING GUARDRAIL

STANDARDSEN ISO 14122-3
NF E85-015

SUMMARY

| | |
|--------------------------------------|------|
| DEFINITION..... | P.3 |
| REGULATIONS..... | P.3 |
| STANDARDS REMINDER..... | P.3 |
| REFERENCES..... | P.4 |
| DIMENSIONS..... | P.4 |
| STORAGE..... | P.4 |
| USE - MAINTENANCE..... | P.4 |
| STRAIGHT FREESTANDING GUARDRAIL..... | P.5 |
| INCLINED FREESTANDING GUARDRAIL..... | P.6 |
| NOMENCLATURE..... | P.7 |
| IMPLANTATION..... | P.8 |
| INSTALLATION PRINCIPLE..... | P.10 |

FREESTANDING GUARDRAIL

DEFINITION

VECTACO® freestanding guardrail is a collective protection system against fall from height. It is the best solution to secure terraces when it is technically not possible to fix the guardrail to either a parapet wall or concrete slab. The system overcomes the problem of having to drill the roof membrane. It has been designed for a quick and simple installation notably thanks to the swage handrails and middle rails. The plastic counterweights and clipped plastic pads ensure a complete protection of the watertightness complex. VECTACO® freestanding guardrail is also used to secure skylights or to demark working or evacuation areas.



STANDARDS

VECTACO® free standing guardrail complies with the standard EN ISO 14122-3 of December 2007, machines safety - permanent access means to machines – part 3 : staircases, step ladders, guardrails and to the standard NF E 85-015 of April 2008, components of industrial installations – Permanent means of access.

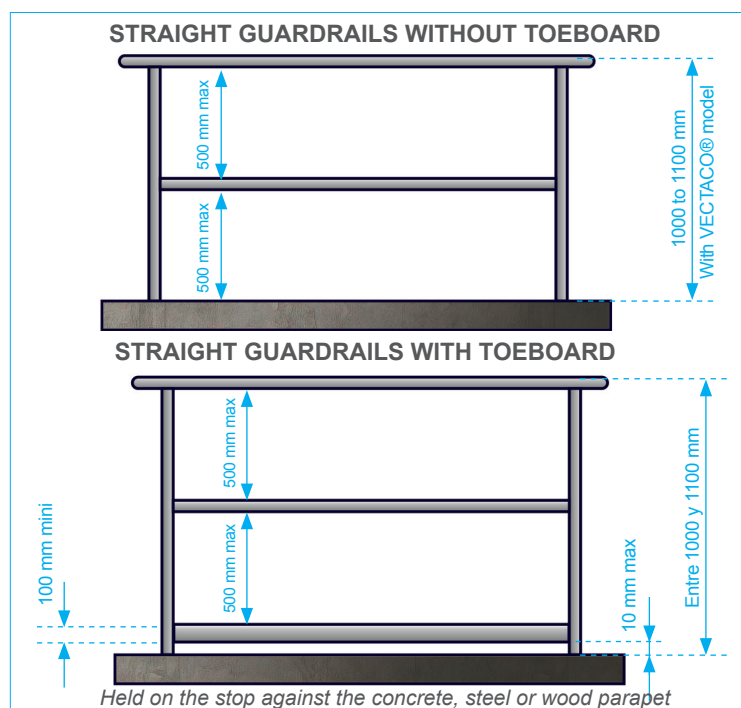
VECTACO® freestanding guardrail passed with success the static and dynamic tests required by the standards EN ISO 14122-3 and NF E 85-015.

Attestation of conformity Vectaco® straight freestanding guardrail, Vectaco® inclined freestanding guardrail, Vectaco® curved freestanding guardrail.

Attestation of conformity DEKRA n° AT51108584 / 9 VECTACO® Freestanding guardrail.

STANDARDS REMINDER

- A guardrail must be installed as soon as the possible height of fall is higher than 500 mm.
- The height of the handrail must be between 1000 mm and 1100 mm over the surface of circulation.
- The distance between the handrail and middle rail, as well as between the middle rail and the toeboard must be less than or equal to 500 mm.
- A toeboard of 100 mm height minimum must be installed at 10 mm maximum from the walking area and the side of the platform.



- WARNING: the implementation of VECTACO® freestanding guardrail necessarily implies the existence of a stop end on the terrace roof. Otherwise, contact our design office.

- The distance between the uprights axles is limited to 1500 mm maxi.

WARNING: Any installation of VECTACO® freestanding which does not respect a maximum center-to-center distance of 1500 mm will lead to non compliance.

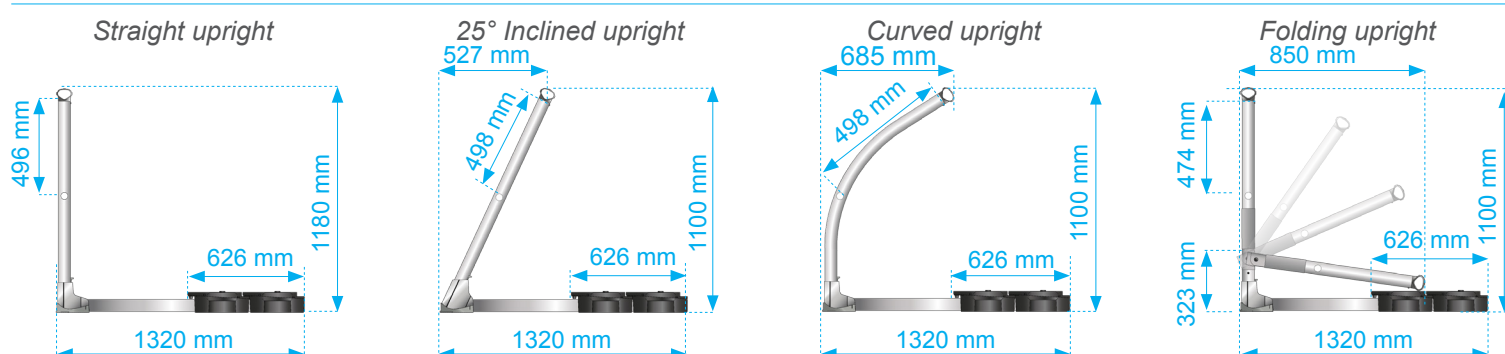
- If the handrail is interrupted, the free space between two segments of the handrail should be between 75 mm and 120 mm. If there is more openness, a security gate must be installed to ensure the continuity of the fall protection of the guardrail.

FREESTANDING GUARDRAIL

REFERENCES

| | Straight upright | 25° Inclined upright (Others inclinations available on request) | 45° curved upright | Folding upright |
|---------------------------------|------------------|--|--------------------|-----------------|
| Handrail + knee rail | VAP-D2 | VAP-I2 | VAP-C2 | VAP-R2 |
| Handrail + knee rail + toeboard | VAP-D3 | VAP-I3 | VAP-C3 | VAP-R3 |

DIMENSIONS



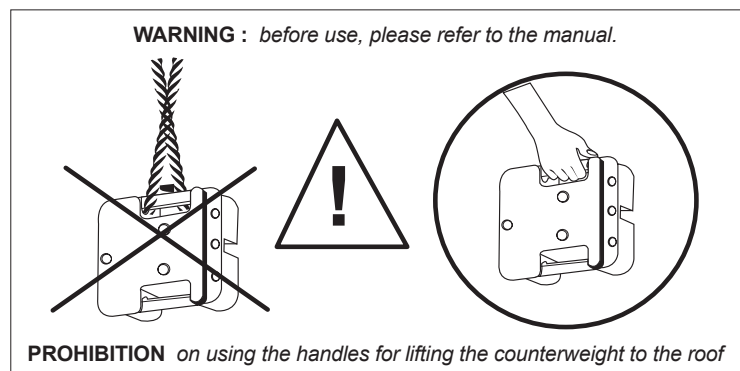
STORAGE

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 tasks may occur. They do not question the quality of aluminum but can degrade 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.

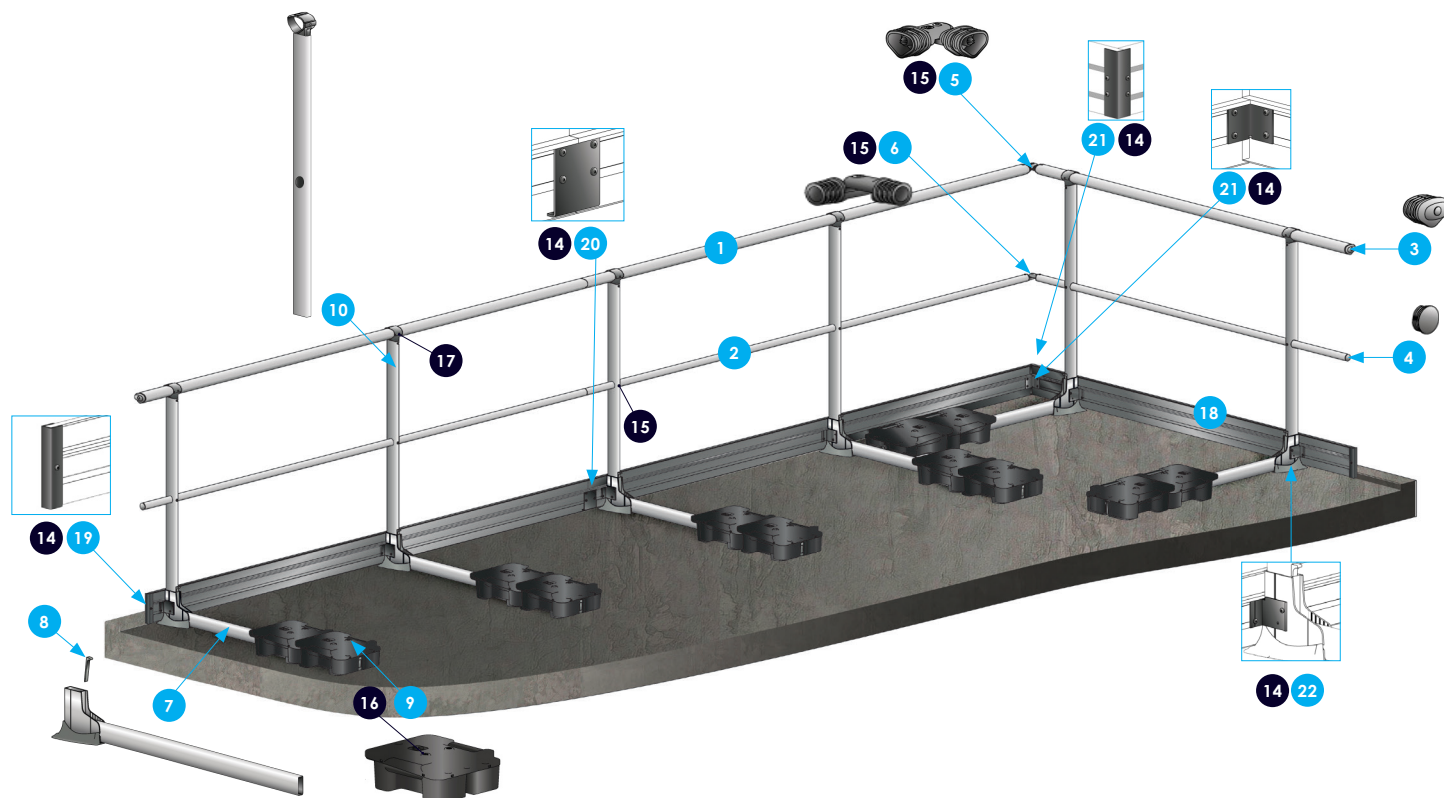
USO - MANTENIMIENTO

- The person performing the installation of VECTACO® 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, EPI, aerial lift, etc.).
- Before any use, the user must ensure by visual inspection that the guardrail VECTACO® shows no abnormality (shock, distortion, etc.).
- VECTACO® guardrail does not need any particular maintenance; however a visual check must be done at least once a year by a qualified person.
- The guardrail VECTACO® does not require special maintenance, however, a visual inspection must be performed at least once a year by a competent person.
- If the guardrail VECTACO® 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.
- VECTACO® 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 VECTACO® toeboard is compulsory if the terrace does not have any parapet or if it is less than 100 mm height.
- If the VECTACO® 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.

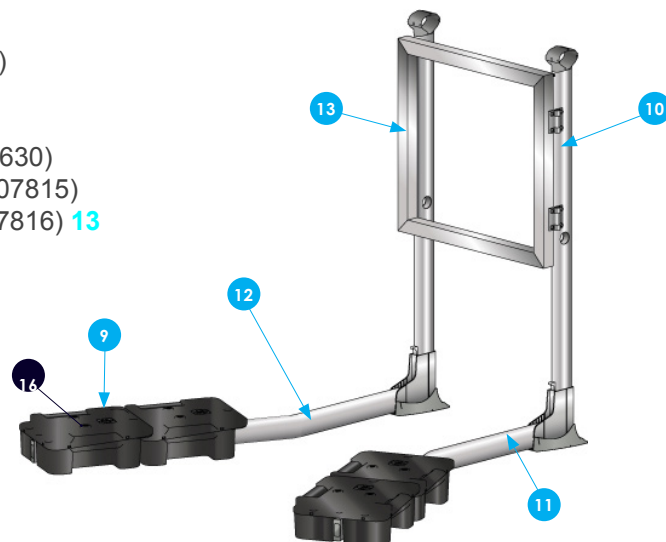
STRAIGHT FREESTANDING GUARDRAIL VECTACO®



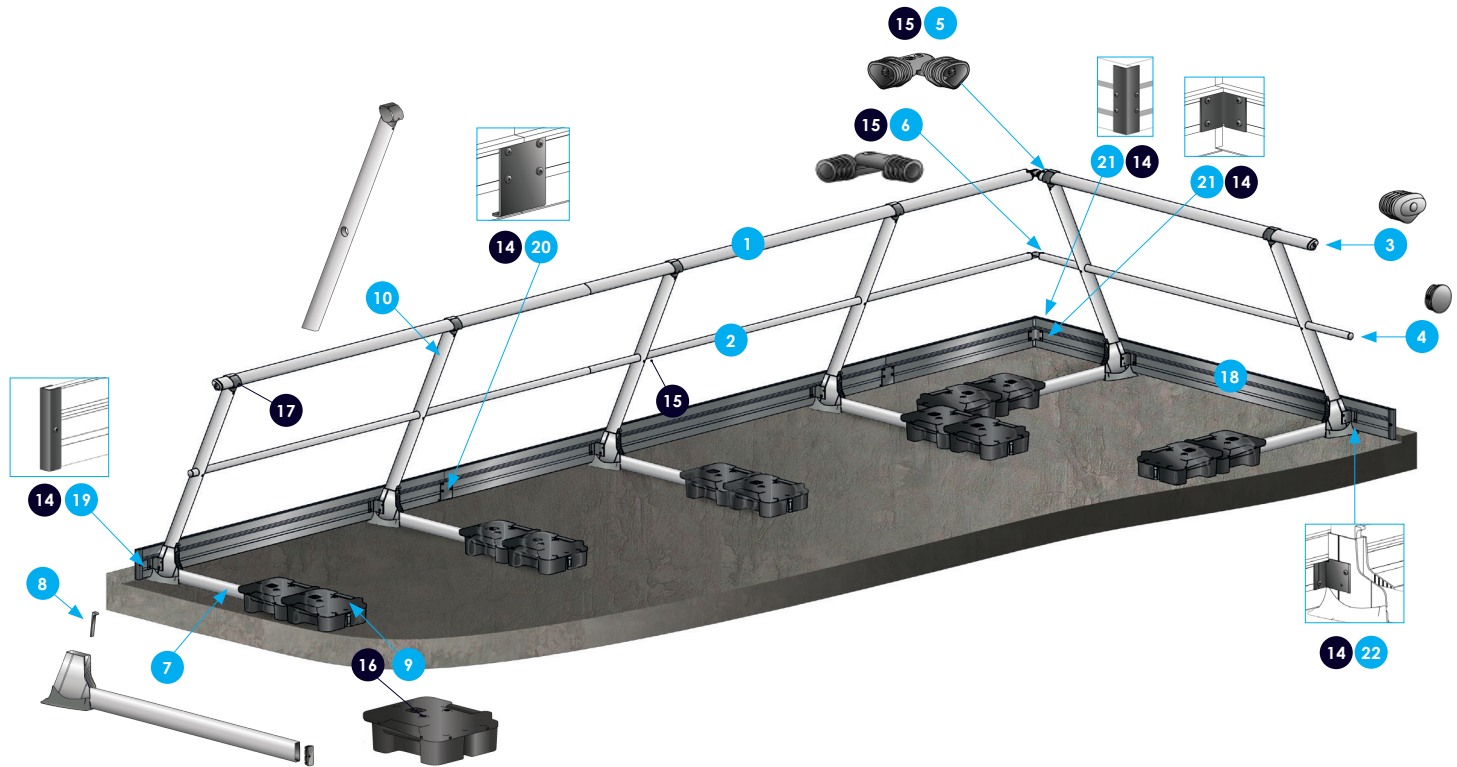
Mounting elements:

- 1 - Handrail 3 m length with narrow end section (Ref: 02601)
- 2 - Knee rail 3 m length and Ø35 mm with narrow end section (Ref: 03931)
- 3 - Plug for handrail (Ref: 02920)
- 4 - Plug for knee rail Ø35 mm (Ref: 09625)
- 5 - Plastic corner angle for handrail (Ref: 02873)
- 6 - Plastic corner angle for knee rail Ø35 (Ref: 08685)
- 7 - Straight base with mechanically welded support leg (Ref: 04763)
- 8 - Blocking wedge (Ref: 04773)
- 9 - Plastic counterweight 12.5 Kg (Ref: 03468)
- 10 - Straight upright with mounted T-connector H 1114 mm (Ref: 08630)
- 11 - Base with right hand 25° curved support leg lg 1310 mm (Ref: 07815)
- 12 - Base with left hand 25° curved support leg lg 1310 mm (Ref: 07816)
- 13 - Safety gate H580 + mounted hinges (Ref: 0733603)
- 14 - Self drilling screws T25 4.8 x16 (Ref: 300832)
- 15 - Self drilling screws T25 4.8 x 25 (Ref: 300834)
- 16 - Self drilling screws T25 4.8 x 50 (Ref: 300836)
- 17 - Socket screw M8 x10 (Ref: 02912)
- 18 - Aluminum toeboard 3000 x 150 x 19 mm (Ref: 08702)
- 19 - Toeboard plug H 150 mm (Ref: 08738)
- 20 - Toeboard straight connector (Ref: 08637)
- 21 - Toeboard corner connector kit H 150 mm (Ref: 08869)
- 22 - Mounting Bracket for toeboard (Ref: 08703)

**Option: safety door kit H 580 mm
for straight freestanding guardrail**



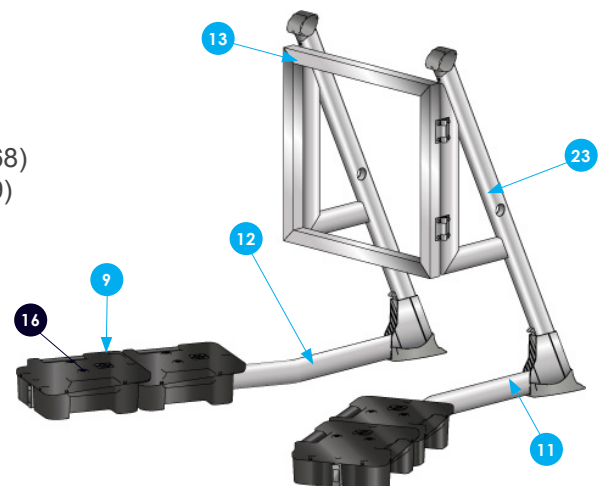
INCLINED FREESTANDING GUARDRAIL VECTACO®



Mounting elements:

- 1 - Handrail 3 m length with narrow end section (Ref: 02601)
- 2 - Knee rail 3 m length and Ø35 mm with narrow end section (Ref: 03931)
- 3 - Plug for handrail (Ref: 02920)
- 4 - Plug for knee rail Ø35 mm (Ref: 09625)
- 5 - Plastic corner angle for handrail (Ref: 02873)
- 6 - Plastic corner angle for knee rail Ø35 (Ref: 08685)
- 7 - 25° inclined base with mechanically welded support leg (Ref: 08631)
- 8 - Blocking wedge (Ref: 04773)
- 9 - Plastic counterweight 12.5 Kg (Ref: 03468)
- 10 - Straight upright with mounted T-connector H 1114 mm (Ref: 08630)
- 11 - 25° Base with right hand 25° curved support leg lg 1310 mm (Ref: 09368)
- 12 - 25° Base with left hand 25° curved support leg lg 1310 mm (Ref: 09369)
- 13 - Safety gate H580 + mounted hinges (Ref: 0733603)
- 14 - Self drilling screws T25 4.8 x16 (Ref: 300832)
- 15 - Self drilling screws T25 4.8 x 25 (Ref: 300834)
- 16 - Self drilling screws T25 4.8 x 50 (Ref: 300836)
- 17 - Grub screw M8 x10 (Ref: 02912)
- 18 - Aluminum toeboard 3000 x 150 x 19 mm (Ref: 08702)
- 19 - Toeboard plug H 150 mm (Ref: 08738)
- 20 - Toeboard straight connector (Ref: 08637)
- 21 - Toeboard corner connector kit H 150 mm (Ref: 08869)
- 22 - Mounting Bracket for toeboard (Ref: 08703)
- 23 - Straight upright with mounted T connector H 1114 mm support for safety gate for inclined guardrail 25°

**Option: safety door kit H 580 mm
for inclined freestanding guardrai**

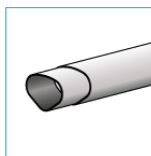


NOMENCLATURE

NOMENCLATURE FOR FREESTANDING GUARDRAIL VECTACO®

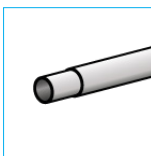
**Handrail
with narrow
end section**

L : 3000 mm
Ref : 02601



**Knee rail Ø35
mm with narrow
end section**

L : 3000 mm
Ref : 03931



Handrail plug

Ref : 02920



**Knee rail plug
Ø35 mm**

Ref : 09625



**Plastic hanrail
corner angle**

Ref : 02873



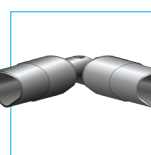
**Knee rail
corner angle
Ø35 mm**

Ref : 08685



**Aluminium
handrail
corner angle**

Ref : 10160



**Aluminium
knee rail
corner angle
Ø35 mm**

Ref : 0710104



**Handrail
wall connector**

Ref : 02995



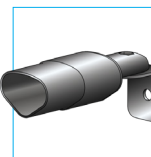
**Knee rail
wall connector**

Ø35 mm
Ref : 08845



**Aluminium
handrail
wall connector**

Ref : 0710122



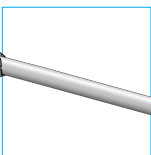
**Aluminium knee
rail wall connector
Ø35 mm**

Ref : 0710123



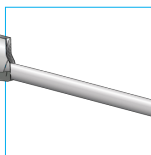
**Base with
mechanically
welded support
leg**

Ref : 04763



**25° Base with
mechanically
welded support
leg**

Ref : 08631



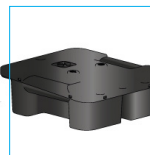
**Blocking
wedge**

Ref : 04773



**Counterweight
12.5 Kg
2 per support leg**

Ref : 03468



**Straight upright
with T
premounted**

H 1114 mm



Ref : 08630

**Curved upright
with mounted
T- connector**

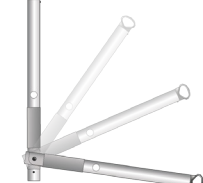
H 1236 mm



Ref : 09439

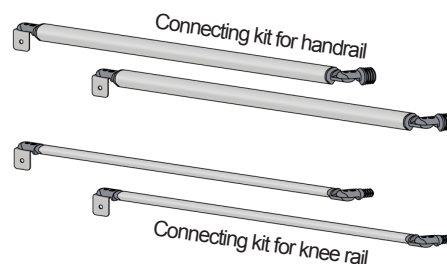
**Folding upright
with mounted
T-connector**

H 1036 mm + deslizador



Ref : 07806

Joint kit ladder/guardrail of 1000mm



Ref : 0733905

**Self-drilling
screw**

T25 4.8 x 25

To fix the knee rails

Ref : 300834



**Self-drilling
screw**

T25 4.8 x 50

To fix the
counterweights

Ref : 300836



**Grub screw
M8x10**

To fix the
T-connectors

Ref : 02912



**Torx Bit
T25**

For the guardrail
assembly

Ref : 0790006



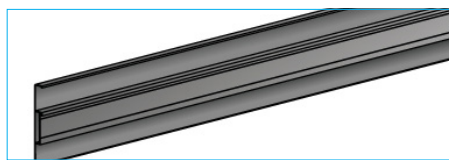
NOMENCLATURE AND IMPLEMENTATION

NOMENCLATURE FOR TOEBOARD

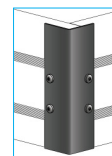
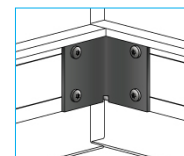
Toe Board

Length
3000 x 150 x 19 mm

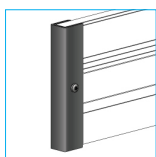
Ref : 08702


**Toeboard corner angle kit
H 150 mm**

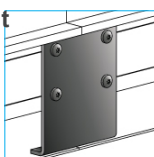
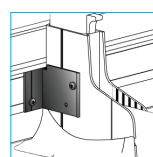
Ref : 08869


**Plug for toeboard
H 150 mm**

Ref : 08738


**Toeboard straight connector
H 150 mm**

Ref : 08637


**Mounting Bracket for toeboard
H 150 mm**
Ref : 08703

**Self-drilling screw
T25 4.8 x 16**

To fix the
toeboard

Ref : 300832



NOMENCLATURE FOR SAFETY DOOR H580 MM FOR STRAIGHT OR INCLINED FREESTANDING GUARDRAIL

**Straight upright mounted
T-connector**

H 1114 mm



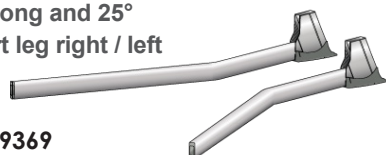
Ref : 08630

**Base with long and 25°
curved support leg right / left**
lg 1310 mm

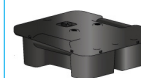
Ref : 07815 / 07816


**25° base with long and 25°
curved support leg right / left**
lg 1310 mm

Ref : 09368 / 09369


**Plastic counterweight
12.5 kg**
2 by support leg

Ref : 03468


**Safety gate H580 mm
for guardrail
mounted hinges**

Ref : 0733603


**Self-drilling screw
T25 4.8 x 25**
To fix the
knee rails

Ref : 300834

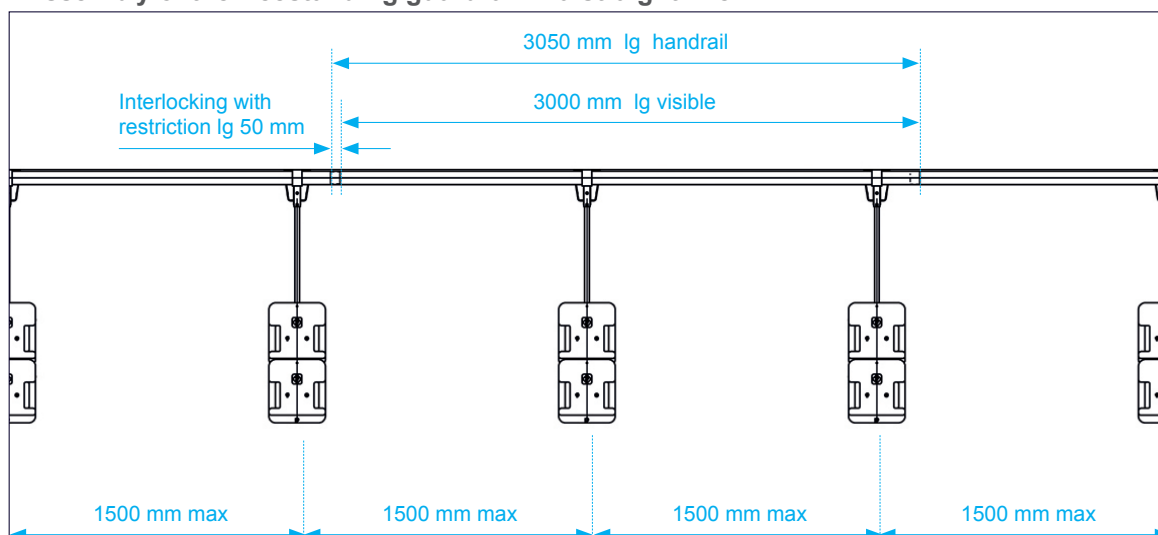

**Drillinox screw
DBS2 6x25**
To fix the hinges

Ref : 377309



IMPLEMENTATION OF VECTACO® FREESTANDING GUARDRAIL

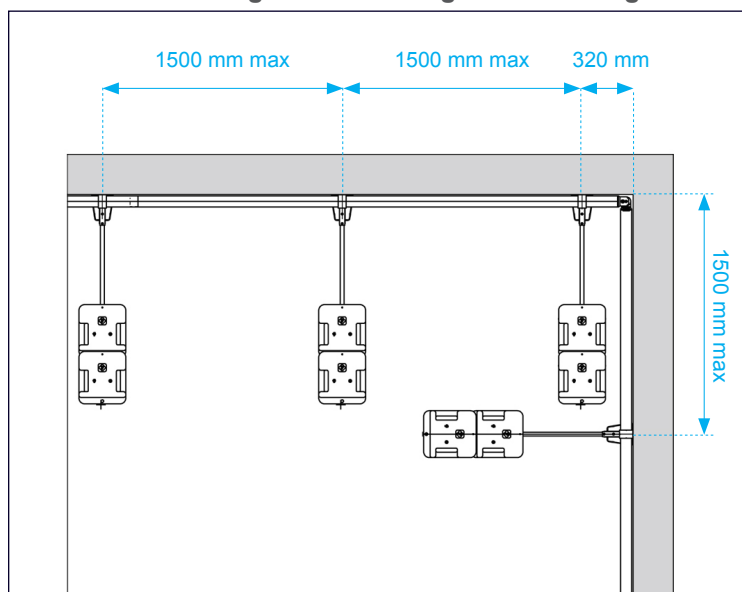
- Assembly of the freestanding guardrail in a straight line



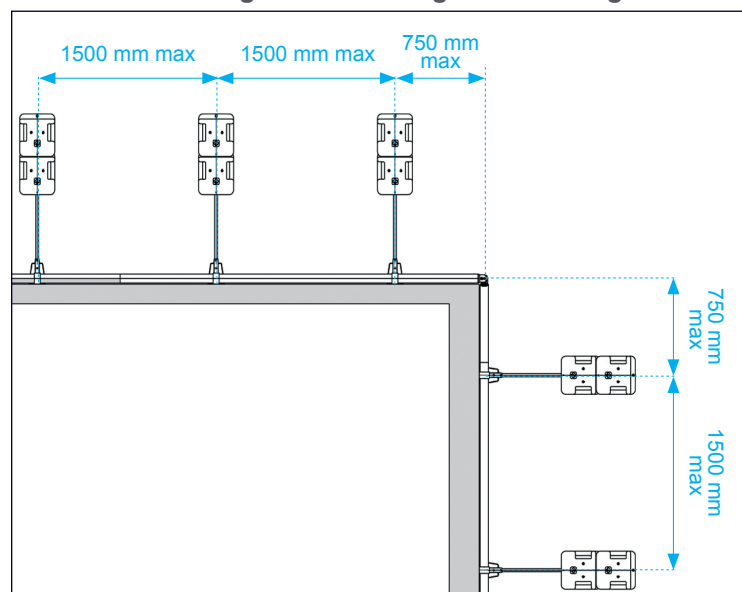
IMPLEMENTATION

IMPLEMENTATION OF VECTACO® FREESTANDING GUARDRAIL

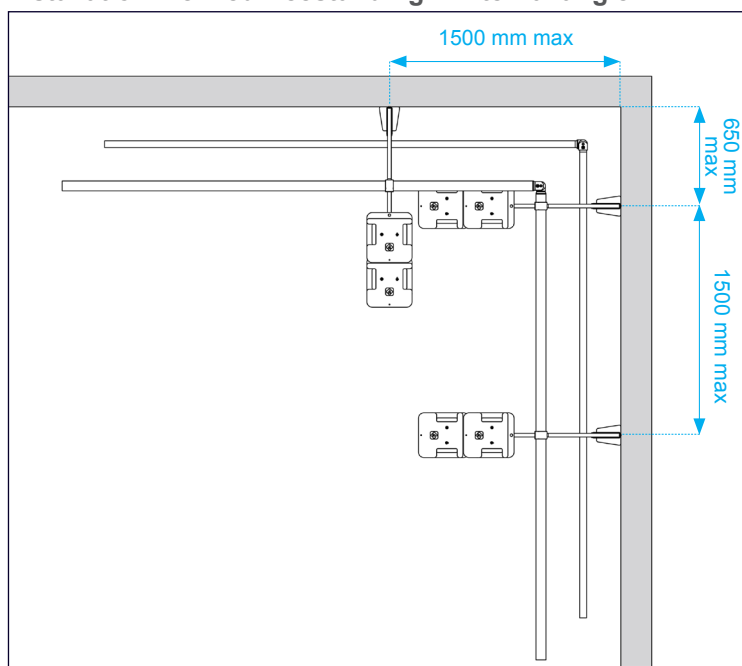
- Installation straight freestanding - External angle



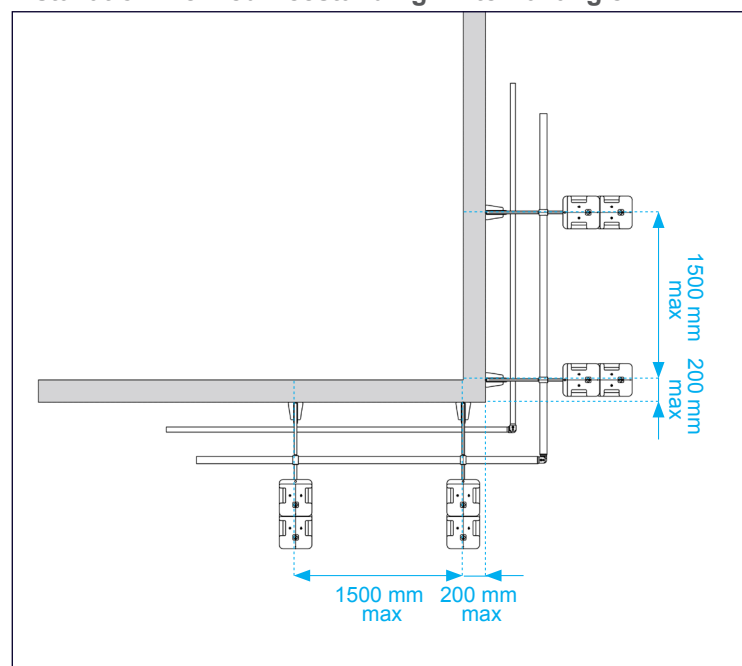
- Installation straight freestanding - Internal angle



Installation inclined freestanding - External angle



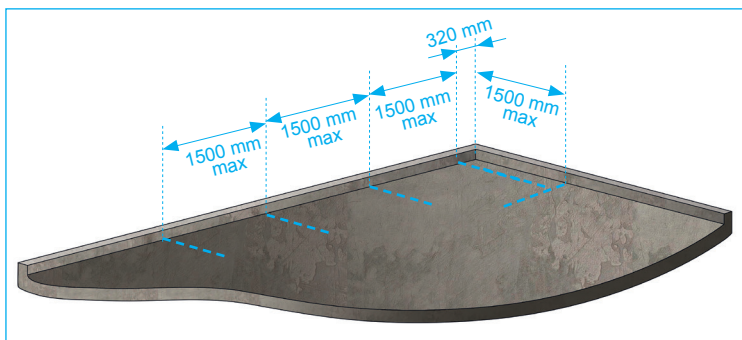
Installation inclined freestanding - Internal angle



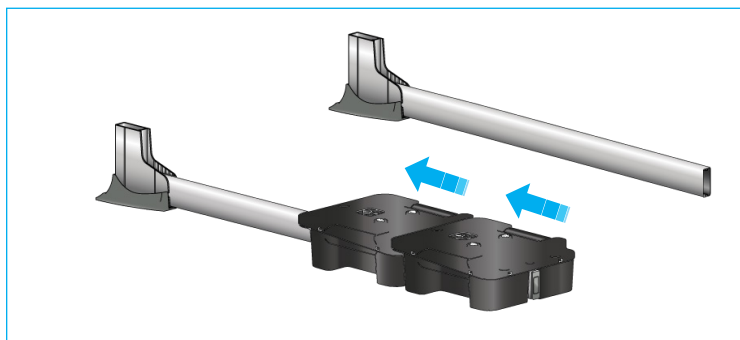
INSTALLATION PRINCIPLE

INSTALLATION OF FREESTANDING VECTACO® GUARDRAIL

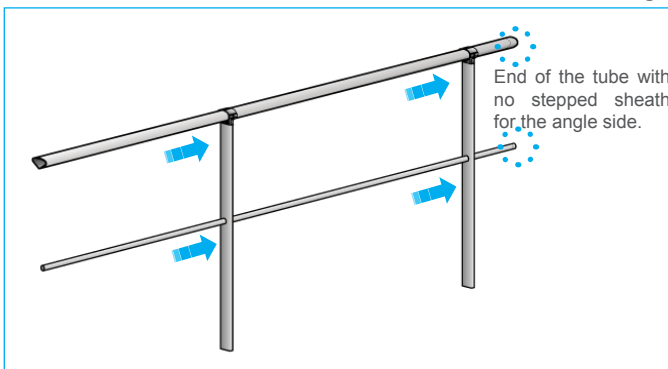
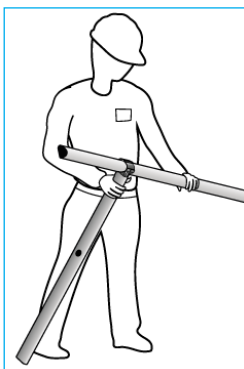
The installation of VECTACO® freestanding guardrail must be done by a minimum of two people. It is recommended to start its installation in an angle.



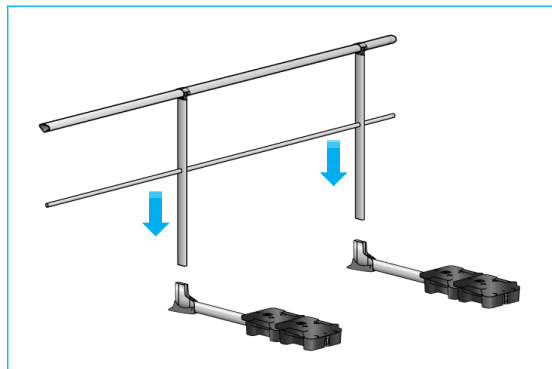
1 - Draw a mark each 1500 mm as a maximum and take out the gravel if necessary in order to set up the guardrail.



2 - Place the support leg in the self-supporting base and place the plastic counterweights on the support legs. The tube of the support leg must be flush with the surface of the plastic counterweight.



3 - Insert a handrails and a middle rail in two uprights.



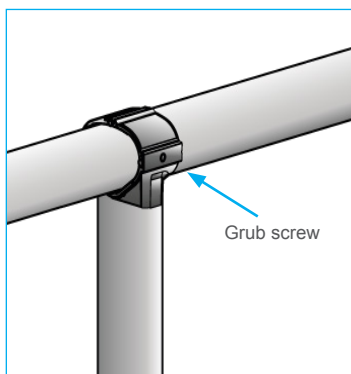
4 - Place the whole in the self-supporting bases.



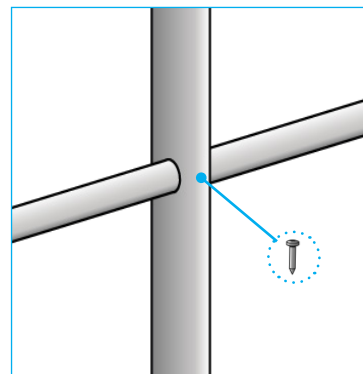
5 - Adjust vertically with a level.



6 - Using a hammer, insert the blocking wedge between the upright and the base.

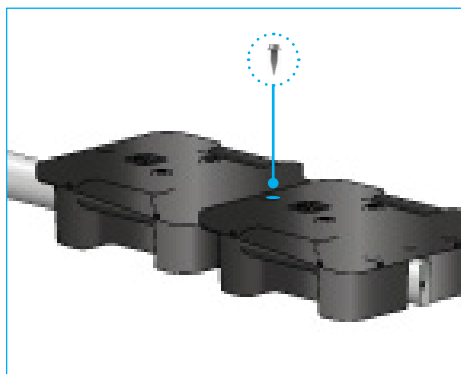


7 - Tighten the grub screws of the T-connector at the transition

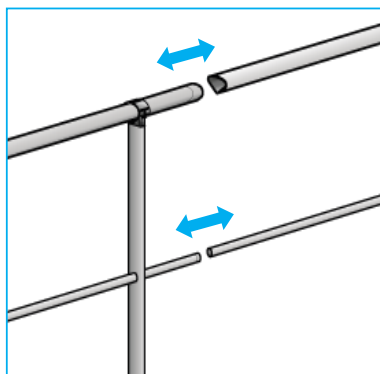


8 - Tighten the self-drilling screws 4.8 x 25 T25 on the points between the handrail and upright to the level of the knee rail.

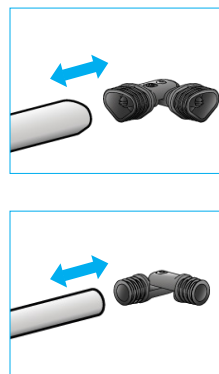
INSTALLATION PRINCIPLE



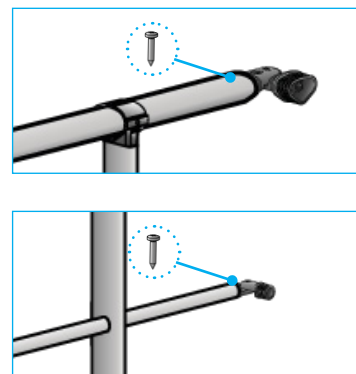
9 - Once mounted the guardrail, tighten the self-drilling screws 4.8 x 50 T25 as stated above.



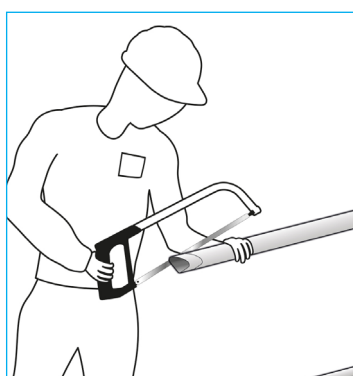
10 - Assemble progressively the handrails and knee rails of the mounted sections.



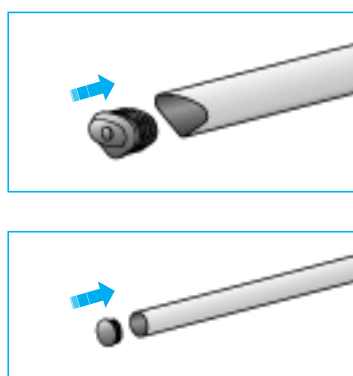
11 - Insert the corner angles in the handrails and knee rails.



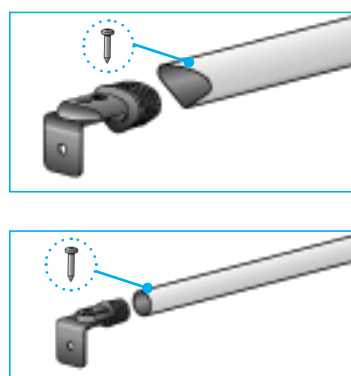
12 - Fix the angles with self-drilling screws 4.8 x 25 T25.



13 - Adjust the last section sawing the shrin surplus.

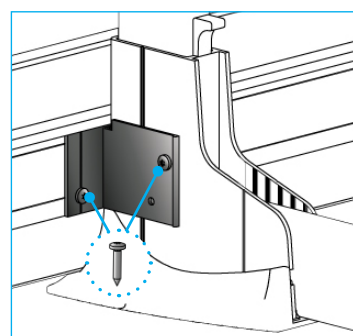


14 - Finally, insert the plugs or handrail wall connectors in the handrails and knee rails.

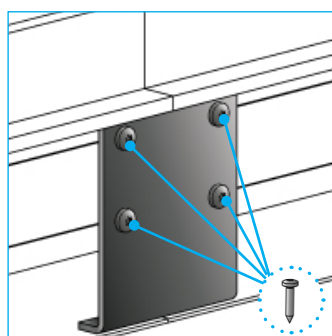


15 - Attach the wall connectors using the self-drilling screws T25 4.8 x 25

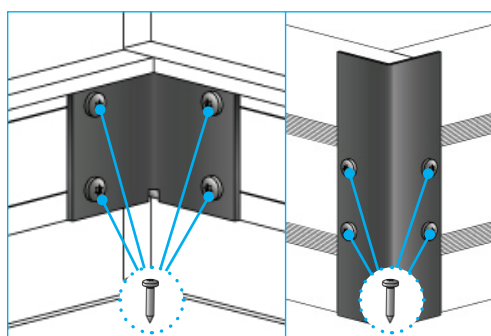
TOEBOARD FIXATION



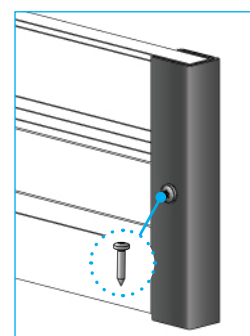
1 - Place the toeboard support on the base and secure it with 4 self-drilling screws 4.8 x 16 T25 (2 screws on each side).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling T25 screws 4.8 x 16.



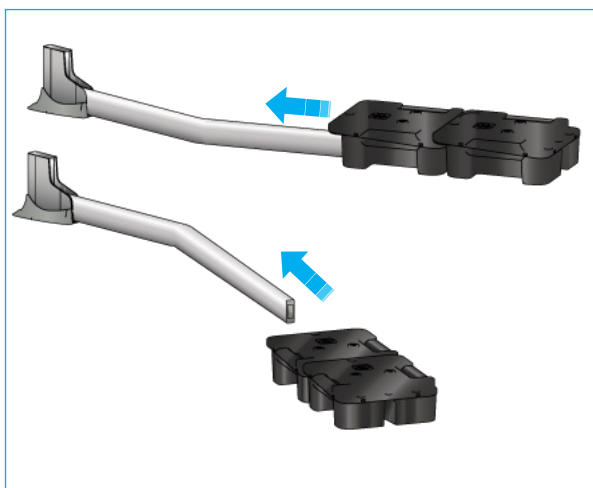
3 - For angles, secure the inner and external connectors with 8 self-drilling screws T25 4.8 x 16.



4 - Finally, fix the toeboard plugs with self-drilling screw T25 4.8 x 16.

INSTALLATION PRINCIPLE

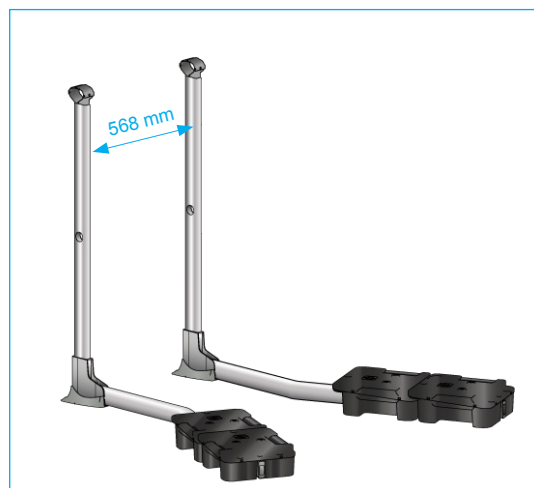
ASSEMBLY OF THE SAFETY DOOR H580 MM FOR THE STRAIGHT FREESTANDING GUARDRAIL



1 - Insert the counterweights on the 2 curved support legs. The tube of the support leg must be flush with the plastic counterweight.



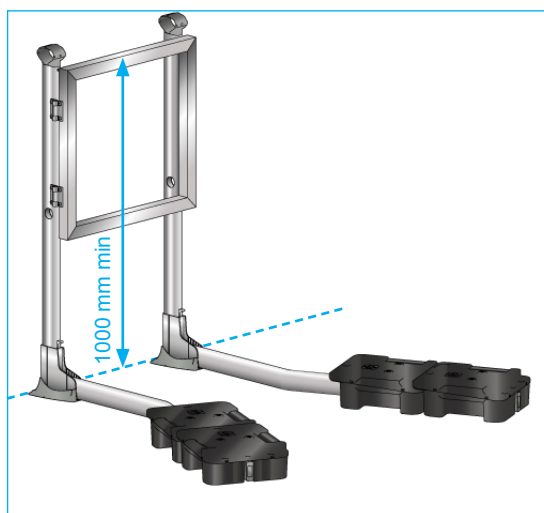
2 - Insert the uprights in the bases.



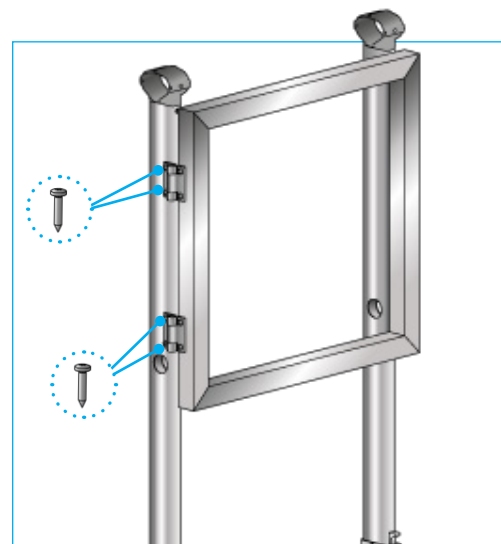
3 - Place the uprights and the support with a center distance of 568 mm.



4 - Using a hammer, insert the blocking wedge between the upright and the base.



5 - Place the safety gate at a minimum height of 1000 mm from the ground.



6 - Attach the hinges of the safety door using the DRILLNOX DBS2 6x25 screws provided in the kit.