

■ Green Up the Roof!



TECHNICAL MANUAL

RoofX[®]-C and RoofX[®]-W/T Fall Protection Anchoring Systems

Anchor devices as per standards EN 795:2012 and CEN/TS 16415:2013



RoofX[®]-C Single / Glide
RoofX[®]-W/T Single / Glide

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1 Description of symbols

Pictograms in the Technical Manual have the following meanings:



System users are obliged to carefully read this manual and the related service book, and shall closely follow all relevant safety regulations and user requirements listed herein.



Number of system users simultaneously. In this case max. 2 users at a time.



Usage of personal protective equipment is required (in accordance with EN 361 and EN 363). Manufacturer's prescriptions of the given equipment shall be observed.



Danger, which could lead to severe injury or death.

2 Introduction – General description

2.1 Single anchor device

2.1.1 RoofX®-C Single

RoofX®-C Single was developed as a permanent anchor device for the personal fall prevention for max. **2 persons** at a time in accordance with standards **EN 795:2012 (Type A)** and **CEN/TS 16415:2013**. Max 10° roof incline fixed on reinforced concrete structure.

The anchoring point is suitable for use as the following fall prevention systems as per EN 363:2008:

- Fall arrest system
- Restraint system

2.1.2 RoofX®-W/T Single

RoofX®-W/T Single was developed as an anchor point for the personal fall prevention for max. **2 persons** at a time in accordance with standards **EN 795:2012 (Type A)** and **CEN/TS 16415:2013**. Max 10° roof incline fixed on OSB, Wood, trapezoidal sheet structure.

Marking: **W**: wood; **T**: trapezoidal sheet.

The anchoring point is suitable for use as the following fall prevention systems as per EN 363:2008:

- Fall arrest system
- Restraint system

2.2 Glide Line system

2.2.1 RoofX®-C Glide

RoofX®-C Glide was developed as horizontal line system with traveller for the personal fall prevention for max. **2 persons** at a time in accordance with standards **EN 795:2012 (Type C)** and **CEN/TS 16415:2013**. Max 10° roof incline fixed on reinforced concrete structure.

The anchoring point is suitable for use as the following fall prevention systems as per EN 363:2008:

- Fall arrest system
- Restraint system

2.2.2 RoofX®-W/T Glide

RoofX®-W/T Glide was developed as horizontal line system with traveller for the personal fall prevention for max. **2 persons** at a time in accordance with standards **EN 795:2012 (Type C)** and **CEN/TS 16415:2013**. Max 10° roof incline fixed on OSB, Wood, trapezoidal sheet structure.

Marking: **W**: wood; **T**: trapezoidal sheet.

The anchoring point is suitable for use as the following fall prevention systems as per EN 363:2008:

- Fall arrest system
- Restraint system

2.2.3 Combination with DiaSafe® permanently secured anchor devices (e.g. roof layer, green-roof, gravel roof)

All types of **RoofX® Glide** and **DiaSafe® Glide** safety systems (**RoofX®-C Glide**, **RoofX®-W/T Glide**, **DiaSafe® Glide**, **Wall-Fix® Glide**) could be combined with each other, making a coherent cable system mounted on different surfaces.

The high standards of the DiaSafe® fall protection anchoring systems are guaranteed by the manufacturer's quality management system which conforms to standards ISO 9001:2009 and ISO 14001:2005 and indicate the highest quality in production, from the initial selection of components through to the final quality control.

3 Safety instructions

3.1 General safety instructions

- The safety system may only be installed and used by appropriately trained, competent persons who are familiar with the safety system in accordance with this Technical Manual and the Installation Guide.
- The system user must be familiar and comply with the local, and labour safety regulations.
- The system may only be used by people who:
 - are trained in the use of PPE (Personal Protective Equipment).
 - are physically and psychologically fit (health restrictions such as heart and circulatory problems, medication, alcohol consumption, etc. reduce user safety).
 - understood and accepted the possibilities, restrictions and risks of using the protective equipment.
- The rescue of anyone who may have fallen down must be provided on site.
- Before works begin, measures must be taken to ensure that no objects can fall down from the workspace. The area under the workspace (pavement, ...etc.) is to be kept clear.
- If after the acceptance of the safety system, renovation work is undertaken in its immediate vicinity, it must be established that this renovation has no impact on the safety of the installed safety system! In case of doubt, the installer or the manufacturer must be consulted.
- After being subjected to the stress of fall, the entire safety system is to be taken out of operation and inspected by a qualified professional.
- The installed safety system must not be altered in any way.
- It is forbidden to use the safety system as a lightning protection system. Components of the lightning protection system statically should not load the safety system. The system is not allowed to be used as an earth cable. Relevant regulations must be complied with.
- Never hang loads on the safety system that are not approved in this manual, and never use it as an alpinist suspension point.
- The system is never to be used as alpinist anchoring points. The system shall not be loaded with any further weight different from its original purpose.
- The fall prevention anchoring systems can be installed and inspected only by specialists in possession of a required certificate authorising them for the given system, and specialists of the competent authorities or inspectorates.
- A basic tenet of the effective operation of the fall protection anchoring system in the long term is regular maintenance - at least every 12 months in the manner prescribed by the manufacturer.
- If the maintenance is not carried out regularly, the system may be used exclusively at the responsibility of the owner/maintainer.
- The timing of inspections recommended by the manufacturer in the instructions of the installed system (in individual cases) may also depend on the local legal requirements, on the frequency of use, and on local conditions (e.g. chemical damage, frequent lightning, etc.).
- The RoofX® system may be extended only through the use of original accessories, developed by the manufacturer of the system. The installation and use of parts or products from other manufacturers, even if their appearance is very similar, is strictly prohibited.
- The RoofX® fall protection anchoring system may be installed and used only according to the manufacturer's guidelines in the Technical Manual.

- If the system has fulfilled its fall arrest function, following a fall, the system must be immediately withdrawn from use. An immediate inspection must be performed before the system is used again. The system must be replaced entirely or partially depending on the findings of the inspection.
- If the Technical Manual is lost, or the Service Manual is completed or seriously damaged, get in touch with your distributor.

3.2 Application

- In order to protect lives the Technical Manual should be read carefully, and the included manufacturer's notices and instructions must be observed, especially before first use of the system. The Service Manual does not replace the Technical Manual. You should thoroughly study the Technical Manual before starting to use the system.
- The minimum free space necessary under the edge is calculated as follows: **Deformation of the anchor device in case of stress + manufacturer's specification of the PPE (Personal Protective Equipment) used, including deflection of the cable + body height + 1m safety margin.**
- For installations higher than 1000 m above sea level, the distance between the posts will decrease by 30%, while the wire-rope sagging will increase by 30%.
- In heavy snowfall, the roof surface in the area of the fall protection system must be kept clear, so that the snow can not affect the undisturbed functioning of this system.
- System checks should be carried out at least once in **every 12 months**. Check interval durations depend on relevant regional regulations, system use frequency, as well as local conditions (e.g. chemical hazards).
- Proper use of the individual components, including the PPE must be ensured, since the effectiveness of the fall prevention system is otherwise not guaranteed.
- Attachment to the fall protection system is completed with a carabiner and must be used with a PPE in accordance with standards EN 361 (safety harness) and EN 363 (fall arrest system).
- If the system will be used with a direct connection (a carabiner) or a traveller made by another manufacturer according to EN 362 as long as the traveller doesn't run through the column head - special care must be taken during the coupling. The required distance for the couplings is max. 15 cm.
- In case of using personal protective equipment according to EN 360 or EN 365-2 special care must be taken, and the properties of the equipment needed to be taken into account in the calculations.
- **ATTENTION!** For horizontal use, only such connecting elements can be used which are designed for this purpose and tested for the respective edge type (sharp edges, trapezoidal sheet, steel grids, concrete, etc.).
- Do not use fall arrest systems if wind speeds exceed normal parameters.
- The fall protection system must not be used by children or pregnant women.

In the EN795 standard an installation documentation has had to be made since 2012 for every anchoring system. This documentation must include detailed information about the following: location, company carrying out the installation, installer responsible, system installed. Also there must be a Delivery/receipt record completed (it is found in the Service Manual), which verifies that the installation has been performed professionally in accordance with standards. Furthermore, there must be drawn up a construction plan, which shows the places of the anchoring points and the steps of installation must be photographed as well. Special care must be taken with elements of the anchoring system which are going to be covered after the installation. If, on a given location, there are separate roof areas and different types of anchoring systems are installed, a distinct documentation must be made for each roof area and each system.

4 Manufacturer's responsibility, guarantee

- Manufacturer's responsibility covers faulty products, unless the fault occurred as a result of inappropriate use. Manufacturer shall only replace faulty or damaged components. No further claims (indirect or property damage) are acknowledged by the manufacturer.
- Because of the unknown site conditions, the manufacturer assumes no responsibility for the warranty about damage caused by diversion from the Technical Manual (improper use, incorrect installation or other reasons).
- A major prerequisite of long-term fall protection system operation is regular maintenance as prescribed by the manufacturer. Should maintenance steps fail to be executed in due time, then the system can only be used for own risk. Should any damage or accident happen on an unchecked system the manufacturer's responsibility shall terminate.
- RoofX® systems can be extended using original accessories developed exclusively by the manufacturer. Should any components or products of any other manufacturer be installed or used in the system, manufacturer's responsibility and guarantee terminate immediately.
- Should the system not be installed or assembled by the manufacturer or a contractor authorised for installation, the manufacturer shall accept no claims, other than for faulty products.
- Should a fall occur, the system must be discarded and it is PROHIBITED to use it any longer! System use can only be resumed after an official interim inspection. In accordance with the inspection, relevant system components or the whole system must be overhauled or replaced. As long as the distraint or the inspection is not carried out, the manufacturer is not liable for the use of the system any longer.
- Manufacturer shall cease to take any further responsibility for the system in the following cases: damage and alterations due to environmental conditions, normal wear and tear, misuse and an aesthetic alteration.

4.1 General conditions of warranty

For the RoofX® fall protection anchoring systems range, we undertake a General Manufacturer's warranty of **60 months**, valid from the day of the sale of the product by Manufacturer.

The warranty does not cover:

- Any loss of time, inconvenience, administrative costs or any other consequential damages suffered by the owner/maintainer as a consequence of a malfunction under warranty.
- Repair or replacement of spare parts, due to the following causes:
 - Wear and tear from normal use.
 - Damage or alteration due to negligence or improper use.
 - Activated fall arrest function, requiring replacement.
- Any modification of the system, or of any part thereof, without the manufacturer's approval.
- Uses not intended or expressly prohibited by the manufacturer.
- Damage caused by the user's physical condition or health (with special regard to the weight limit: 130kg/person) and thus improper use.
- Damage caused by the owner/maintainer's failure to adequately maintain, service or repair any part of the system.
- Other causes, such as: damage due to extreme environmental impact; natural wear and tear, aesthetic alteration, etc.

Loss of warranty rights, including, among others:

- Damage occurring following incorrect installation of the product, or installation not following the guidelines.

- Loss of function and other faults due to improper use.
- Deterioration, structural damage, loss of function of the installed product due to external impact.
- Loss of function or structural damage due to natural causes (lightning strike, etc.).
- Evidence of damage caused by unauthorised and/or non-professional repair, mounting, or impact.

4.2 Expected lifetime

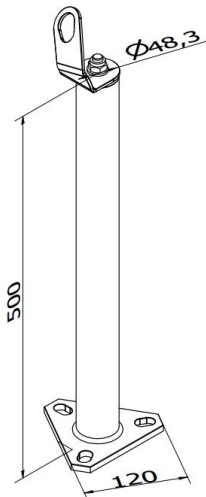
The RoofX® safety systems maximum lifetime is 10 year from the date of correct installation – In case of the intended use, optimal condition, and without any visible damage.

The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works. These provisions are based upon the current state of the art and the available knowledge and experience. The indications given as to the working life of the construction product cannot be interpreted as a guarantee, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

5 System design, and components

5.1 RoofX® Single anchoring points

5.1.1 RoofX®-C Single



Anchor post: RoofX®-C

Properties: Mineral wool thermal insulation
Integrated thermal insulation layer under the foot „Thermostop“

Load direction: 360° (horizontal)

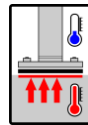
Material: stainless steel 1.4301 (head), 1.4301 (foot, body),
IR/SBR elastomeric base (Thermostop)

Load bearing structure: Reinforced concrete C20/25 - C50/60

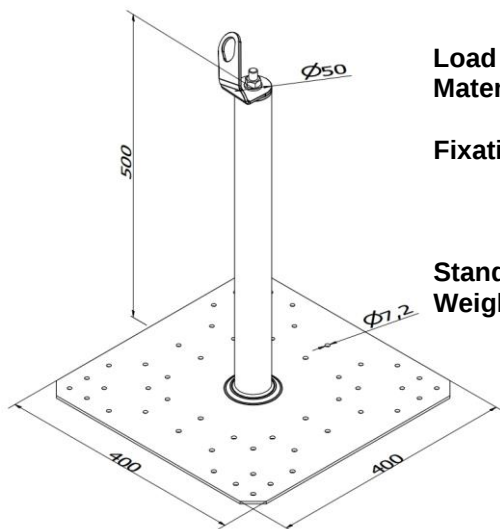
Standard height: 500 mm

Custom sizes can be ordered (200-1000 mm)

Weight: 2,45 kg



5.1.2 RoofX®-W/T Single



Anchor post: RoofX®-W/T

Properties Mineral wool thermal insulation
Integrated thermal insulation layer under the foot „Thermostop“

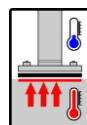
Load direction: 360° (horizontal)

Material: stainless steel 1.4301 (head), 1.4301 (foot, body),
IR/SBR elastomeric base (Thermostop)

Fixation: OSB3 sheet min. 22mm
plywood min. 22mm
structural wood min. 22mm
trapezoidal sheet min. 0,75mm

Standard height: 500 mm

Weight: 6,25 kg



5.1.3 RoofX® Single / Anchor point components



DS Single head Kit

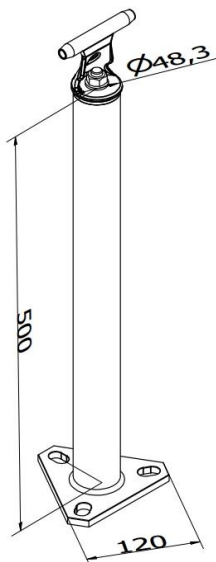
Product No.: 130936

Material: stainless steel 1.4301

Attached: M12 self locking nut, spring washer, spacer

5.2 RoofX® Glide Line system

5.2.1 RoofX®-C Glide



Anchor post: RoofX®-C

Properties Mineral wool thermal insulation
Integrated thermal insulation layer under the foot „Thermostop“

Load direction: 360° (horizontal)

Material: stainless steel 1.4301 (head), 1.4301 (foot, body),
IR/SBR elastomeric base (Thermostop)

Fixation: Reinforced concrete C20/25 - C50/60

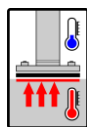
Min. distance of posts: 0,5 m

Optimal distance of posts: 10 m (max. 15 m)

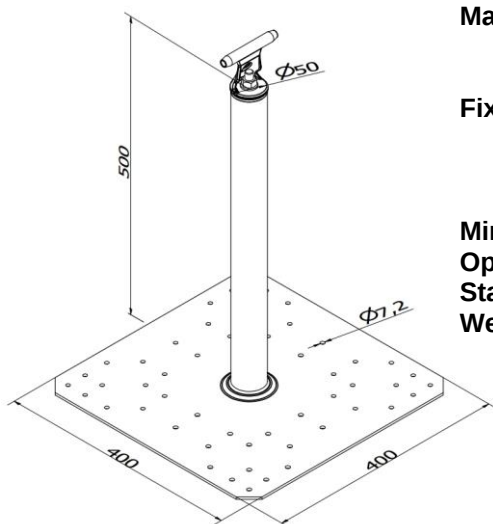
Standard height: 500 mm

Custom sizes can be ordered (200-1000 mm)

Weight: 2,53 kg



5.2.2 RoofX®-W/T Glide



Anchor post: RoofX®-W/T

Properties: Mineral wool thermal insulation
Integrated thermal insulation layer under the foot „Thermostop“

Load direction: 360° (horizontal)

Material: stainless steel 1.4408 (head),
stainless steel 1.4301 (foot, body),
IR/SBR elastomeric base (Thermostop)

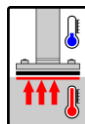
Fixation: OSB3 sheet min. 22mm
plywood min. 22mm
structural wood min. 22mm
trapezoidal sheet min. 0,75mm

Min. distance of posts: 0,5 m

Optimal distance of posts: 8 m (max. 10 m)

Standard height: 500 mm

Weight: 6,33 kg



5.2.3 RoofX® Glide / Line system components:



DS Stainless steel anchoring wire-rope

Product No.: 100268

Material: stainless steel 1.4404

Diameter: Ø 8 mm (7 × 19 threads)

Tensile strength: F = 33,4 kN



DS Glide head Kit

Product No.: 130937

Material: stainless steel 1.4408

Attached: M12 self locking nut, spring washer



DS Swaged square end

Product No.: 100354

Material: stainless steel 1.4404



DS DiaGlider-Fix (without karabiner)

Product No.: 100471

Material: stainless steel

Application: Placed on the wire, not detachable.



DS Holder (optional: for system beginning, ending and T branching)

Product No.: 100513

Material: stainless steel 1.4301



DS Cable Thimble (optional)

Product No.: 100279

Material: stainless steel 1.4404

Size: 58 x 38 mm



DS Multi turn buckle (optional)

Product No.: 100259

Material: stainless steel 1.4404

Adjustable length: 290 - 415 mm



DS Swaged turn buckle (in case of closed system)

Product No.: 100356

Material: stainless steel 1.4404

Adjustable length: 325 - 400 mm



DS Multi clamp (optional)

Product No.: 100470

Material: aluminium (body) stainless steel (screw)



DS DiaGlider with karabiner

Product No.: 100350

Material: stainless steel

5.3 Fastening elements, accessories

5.3.1 RoofX®-C fastening elements



M12x120 12/20 A4 Stud anchor
Product No.: 130911
RoofX® -C Anchor-Kit for concrete (3 pcs.)

5.3.2 RoofX®-W/T fastening elements, for wood



RoofX® -W Screw Kit for OSB sheet / wood / fiber board
Product No.: 130938
JT3-X-2-6,0x36 drilling screw stainless steel, bi-metal
(28 pcs)

5.3.3 RoofX®-W/T fastening elements, trapezoidal sheet



RoofX®-T Screw Kit for trapezoidal sheet fixing
Cikkszám: 130935
B21 / LD3T 4.8x25 drilling screw
(24 pcs)



MNI-10-12 Screw Insulator
 Screw insulators are required for installing on trapezoidal sheets!
(24 pcs)



5.3.4 Insulating collar



Product No.: 130914
RoofX®-C and RoofX®-W/T insulating collar
Types: Bitumen, EPDM



Product No.: 130915
RoofX®-C and RoofX®-W/T insulating collar
Types: PVC

5.3.5 Recommended karabiner to connect our systems



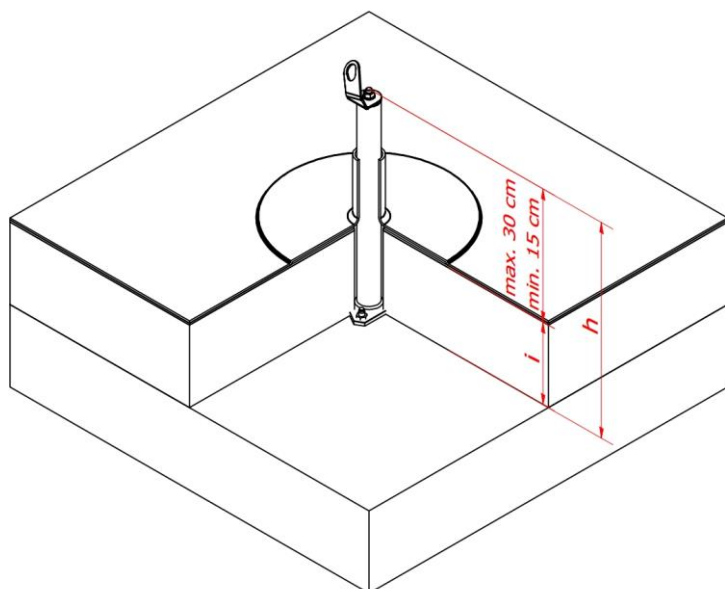
Applied standard: EN362:2013
Max. diameter: Ø 12 mm



6 Load bearing structure

6.1 Anchor height and roof layer build-up

The height of the anchor shall be selected depending on the thickness of the roof layers.



Calculation:
 $h - i = 15 - 30 \text{ cm}$

Example:
Roof layer build-up: $i = 340 \text{ mm}$
(thermal insulation + water insulation)

Minimal distance: 150 mm

$i + 150 = 490 \text{ mm}$

Optimal column height: **500 mm**

6.2 Mounting on the load bearing structure

6.2.1 RoofX®-C

Applied reinforced concrete strength class:

C20/25 - C50/60

Applied standard:

EN 206-1/A2

Minimal roof size:

min. 1,0m x 1,0m

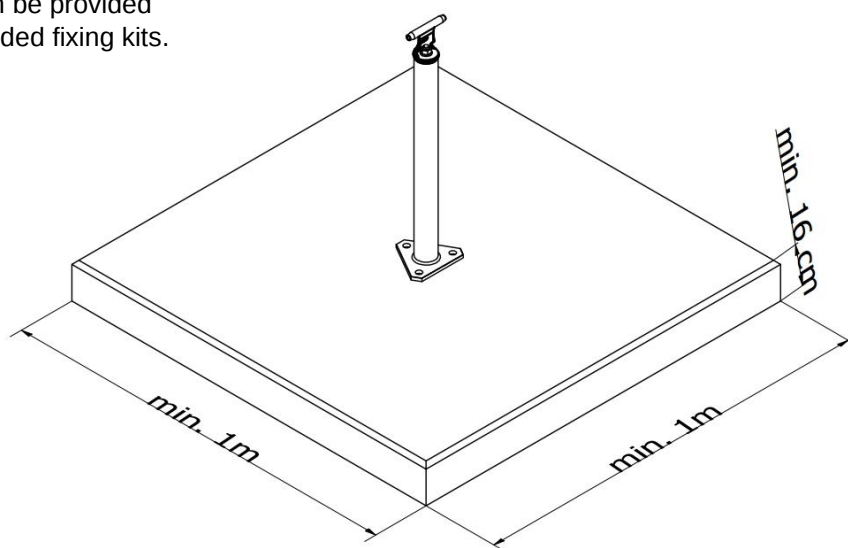
Minimal reinforced concrete structure thickness:

min. 16cm

Fixing type:

mechanical, 3 pcs. anchor bolt

The correct function can be provided only with the recommended fixing kits.



6.2.2 RoofX®-W/T applied to wood

Applied wood quality:

min. OSB3, min. C24

Applied standard:

EN 300, EN 338, EN 14081-1:2016+A1

Minimal roof size:

min. 1,0m x 1,0m

Wood thickness:

min. 22mm

Roof rafter spacing:

max. 1,0m

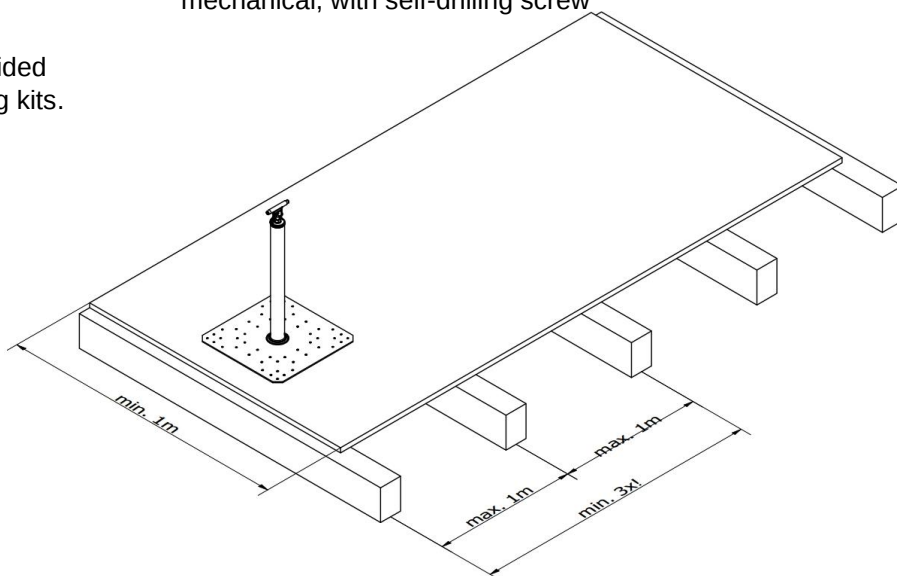
Number of carriers under the sheet:

min. 3 pcs

Fixing type:

mechanical, with self-drilling screw

The correct function can be provided only with the recommended fixing kits.



6.2.3 RoofX®-W/T applied to trapezoidal sheet

Applied trapezoidal sheet strength class:

S280

Applied standard:

EN 10346

Minimal roof size:

min. 3,0 m x 1,0 m

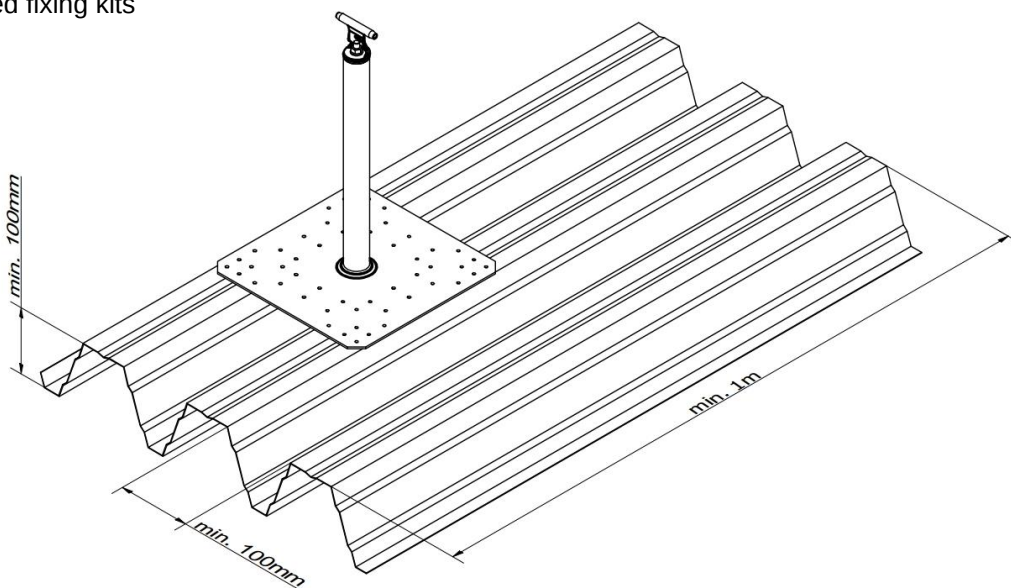
Trapezoidal sheet thickness:

min. 0,75 mm

Fixing type:

mechanical, with self-drilling screw

The correct function can be provided only with the recommended fixing kits



7 Documentation

The manufacturer provides documentation for each **RoofX®** system attached and in digital, downloadable form. The installed falling arrest system can be registered on the **DIADEM® Online** registration interface. The Service Manual is being prepared during registration, and a mandatory annual review of the system can be performed here.

Parts of the documentation:

- Technical Manual
- Installation Guide
- Service Manual (with unique serial number):
 - Handover protocol (incl. photo documentation)
 - Annual inspection protocol
- Copy of the TÜV-Austria GmbH certificate

At the time of the annual inspection, a validation sticker certifying the proper condition of the installed security system shall be affixed to the control label of the system.

Warning!

If the service manual has not been completed or is not up to date or is used incorrectly, then it is not possible to ascertain the current condition of the system and its functionality cannot be validated, and the manufacturer therefore bears no responsibility for subsequent damages. The validating sticker verifying the inspection must be attached onto the control label by the inspector.

8 Technical data

Maximum deflection and forces (Temperature: 20 °C)

System	Type	Test	Deflection [mm]	Max. Force [kN]	System build-up (Type + height)
RoofX®-C	Single	Dynamic	5	12,15	Single 20
RoofX®-C	Single	Dynamic	412	6,66	Single 50
RoofX®-C	Single	Dynamic	900	10,84	Single 100
RoofX®-C	Glide	Dynamic	1725	6,54	Glide 50 + DiaSafe Ballasted (8m LINE)
RoofX®-C	Glide	Dynamic	2287	6,143	Glide 50 (15m LINE)
RoofX®-C	Glide	Dynamic	1486	6,118	Glide 20 (15m LINE)
RoofX®-W/T	Glide	Dynamic	2235	11,58	Glide 50 (10m LINE)
RoofX®-W	Single	Dynamic	458	10,68	Single 50
RoofX®-T	Single	Dynamic	482	10,85	Single 50
RoofX®-C	Single	Static		23,94	Single 20
RoofX®-C	Glide	Static		17,81 / 17,45	Glide 50 (15m LINE)
RoofX®-W	Single	Static		21,00	Single 50
RoofX®-T	Single	Static		21,61	Single 50

The minimum free space necessary under the user is always has to be taken into consideration! The measure of deflection may differ from what is given by the manufacturer depending on the length of the anchoring wire.

9 Installation

See the product specific Installation Guide!

10 Disposal

Do not dispose of the fall protection system in the house waste. Following national requirements, gather the used parts and dispose of them in an environmentally responsible fashion.

11 Manufacturer, certification

The **RoofX**® fall protection systems have been tested and certified by TÜV Austria Services GmbH.



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