

■ Green Up the Roof!



TECHNICAL MANUAL

Product Name

DIADEM® DiaSafe® **Fix Fall Protection Anchoring Systems**

Anchoring points as per standards EN795:2012 and CEN/TS 16415:2013



DiaSafe® Wall-fix Single Duo
DiaSafe® Wall-fix Line Multi
DiaSafe® Wall-fix Glide Duo

TABLE OF CONTENTS

1	Introduction - General description.....	5
2	Regulations - Legal background	6
2.1	Relevant norms and guidelines	6
2.2	Legislations	7
2.3	Manufacturer's responsibility	7
3	DiaSafe® - System - Product description.....	7
3.1	Introduction.....	7
3.2	Components of DiaSafe® Fix Systems	8
3.3	Documentation folder	12
4	DiaSafe® - System - Function	13
4.1	Fall arrest and restraint system, two in one.....	13
4.2	Combination of fall arrest and restraint systems.....	14
4.3	System type combinations	14
4.4	Maximum deflection and forces permitted	15
5	DiaSafe® System - Planning.....	17
5.1	Planning principles	17
5.2	Vertical and horizontal measures and distances.....	17
5.3	Potential fall directions	18
5.4	Hosting wall structure	18
6	DiaSafe® - System - Installation instructions	19
7	DiaSafe® Wall-fix Single Duo - specification.....	20
7.1	Tools needed for the installation	20
7.2	System components.....	20
7.3	Steps of installation	20
8	DiaSafe® Wall-fix Line Multi - specification.....	22

8.1	Tools needed for the installation.....	22
8.2	System components	22
8.3	Steps of installation	23
9	DiaSafe® Wall-fix Glide Duo - specification	26
9.1	Tools needed for the installation.....	26
9.2	System components	26
9.3	Steps of installation	27
10	Completion of the installation.....	31
11	Swaging.....	33
11.1	Press Machine to be used for swaging	33
11.2	Pressing tong and die to be used for swaging	33
11.3	Safety warnings for all swaging in the system.....	33
11.4	Swaging process.....	34
12	DiaSafe® - System - Use	35
12.1	User manual.....	35
12.2	Number of permitted users	35
12.3	General terms of use	36
13	General safety instructions.....	38
13.1	Danger zones on flat and low pitch roofs.....	38
13.2	Basic safety when working on flat roofs.....	38
14	DiaSafe® - System - Maintenance	38
14.1	Introduction	38
14.2	Field inspection before usage – by user	39
14.3	Regular inspection and maintenance of the system – by manufacturer	40
14.4	Manufacturer directions for system inspection	41
14.5	Lifetime of the systems.....	42
15	Certification	43
15.1	Manufacturer research, investigation and testing	43



16	Important notes and safety warnings	44
16.1	Modifications and changes.....	44
16.2	Instructions for the safe use of DiaSafe® systems	44
17	Conclusion and notes	45

1 Introduction - General description

DiaSafe® is a range of elements that perfectly combine into a fall protection system designed to ensure the safety of staff working at heights.

They have been tested by TÜV AUSTRIA, Europe's leading safety validation organization. The systems conform to the most recent standard, EN 795:2012, when used with personal protection equipment that meets standards EN 363 and EN 365.

The DiaSafe® Systems may be used both as fall arrest or fall restraint systems.

This manual is intended to present three members of the DiaSafe® family:

- | | |
|---------------------------------------|---------------------|
| ➤ DiaSafe® Wall-fix Single Duo | Product No.: 130905 |
| ➤ DiaSafe® Wall-fix Line Multi | Product No.: 130906 |
| ➤ DiaSafe® Wall-fix Glide Duo | Product No.: 130907 |

DiaSafe® Wall Anchoring Systems are primordially made to be mechanically fastened to concrete walls, for securing people working on heights.

DiaSafe® Wall-fix Single Duo can be used by **maximum two users**.

DiaSafe® Wall-fix Line Multi can be used by **numerous users** in such a way that maximum two users can be anchored to every other section.

DiaSafe® Wall-fix Glide Duo the system may be used by maximum **two persons** per section at a time. Sectioning of a Line system is allowed only in accordance with the manufacturer's instructions, allowing in this way to attach two users to each section. Please contact the manufacturer with any sectioning request.



DiaSafe® System users are obliged to carefully read this manual prior to using the system, and shall closely follow all relevant safety regulations during use.

2 Regulations - Legal background

2.1 Relevant norms and guidelines

All relevant EU standards and directives must be taken into consideration. These standards are in particular:

- EN361:2002 Personal protective equipment against falls from a height. Full body harness
- EN362:1992 Personal protective equipment against falls from a height. Connectors
- EN363:2008 Personal fall protection equipment. Personal fall protection systems
- EN364:1992 Personal protective equipment against falls from a height. Test methods
- EN365:2004 Personal protective equipment against falls from a height. General requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging
- EN795:2012 Protection against falls from height. Anchoring devices
- PPE Directive 89/686/EEC on personal protective equipment (21 December, 1989) – Hungarian equivalent is SzMM decree 18-2008. (XII. 3)
- 425/2016 Regulation of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC
- 89/656/EEC Council Directive (30 Nov. 1989) on the minimum health and safety requirements for the use by workers of personal protective equipment at the workplace
- PrSV/PrSG product safety regulation; official product safety regulations (Switzerland)
- ISO9001:2008 Quality management systems. Requirements
- CEN/TS 16415:2013 Personal fall protection equipment – Recommendations for anchor devices for use by more than one person
- FLL Guidelines for the Planning, Construction and Maintenance of Green Roofing
- D-A-CH-S. Expert group recommendations

Warning!

Standards and directives cited above apply mainly to the manufacturer of this anchoring system. Owners and facility managers are not obliged to have a detailed knowledge of standard textual content. Owners and facility managers shall keep all regulations related to the use of personal protective equipment, observe local safety and all related regulations!

For further information, please refer to Chapters 13 and 14 of this Manual.

2.2 Legislations

- In accordance with actual labor safety and accident prevention regulations, all personnel participating in the construction, maintenance and other works on roofs, must be secured against fall.
- In all countries where DiaSafe® system is installed, all relevant regulations about commercialisation and application shall be respected.
- When selling the system in a third country, the distributor shall notify relevant parties of regulations and legislation in force.
- If a distributor exports the DiaSafe® fall protection system to a third country, the distributor shall have to make sure that the entire Technical Manual of the system is available in the official language(s) of that country.
- A DiaSafe® fall protection system installed by the manufacturer or its authorised representative shall be received by the owner/facility manager as a part of the official handover process.

2.3 Manufacturer's responsibility

- 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
- 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 or they are not executed by an individual authorised by the manufacturer to do so, the manufacturer's responsibility shall terminate after 12 months of official system handover. This is not the case when the owner/operator has entered a proper maintenance contract with the manufacturer.
- Manufacturer's responsibility shall also terminate after 12 months if any periodic system-check fails to be completed or such checks are not conducted by a certified inspector or trained installer trained by the manufacturer.
- 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).
- DiaSafe® 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, system components designed for energy absorption deform. Manufacturer shall cease to take any further responsibility for these components and related parts and, as such, the system must be discarded – preventing further use.

3 DiaSafe® - System - Product description

3.1 Introduction

All metal DiaSafe® components are made from stainless steel alloy which complies with EN 10020 (high-grade) standard; its material code is: 1.4404 (316) Exception: Self-locking cap nuts are A2, made of 1.4301 (304) steel.

3.2 Components of DiaSafe® Fix Systems



DS wall anchor

Product No.: 100375

High grade 1.4404 stainless steel plate and circular rod bent and welded, ready to accommodate other system components. Supplied with two washers and two M12 self-locking nuts.

Rod diameter: 12.0mm

Head diameter: 20.0mm

Plate width: 74.0mm

Plate height: 185.0mm

Depth: 73.0mm



FGM-1.0 Fixing head

Product No.: 100318

A stainless steel bayonet-mount attaches the wire on the top of the wall anchor. The attachment is fixed with a setscrew that has to be tightened to at least 4Nm and no more than 6Nm.

Material: 1.4404 stainless steel

Size: Ø28×60mm (diameter × height)

Setscrew: M10×25 (A2), DIN 912, 5mm Allen.



Multi-Glide adapter

Product No.: 100376

A stainless steel mount that attaches the wire or the termination elements on the Wall Anchor. The adapter is fixed with two self-locking cap nuts and a threaded rod.

Adapter material: 1.4404 stainless steel

Cap nut material: 1.4301 stainless steel

Length: 110.0mm

Height: 99.5mm

Base diameter: 28.0mm

Threaded rod: M8×45.0mm



FGSH-2.0 Square ring

Product No.: 100317

Used to make terminations, fix wire-ends, connect the wire to the first, the end or the corner wall anchor.

Material: high-grade steel 1.4404

Size: 57.5 x 87.5mm; Ø 8mm

Material thickness: Ø 8mm



FGKa-1.0 Cable thimble

Product No.: 100279

Used in the connection of the wire to the square ring or the turn buckle. The cable thimble helps to keep the required wire loop shape.

Material: 1.4404 stainless steel

Size: 58 x 38mm

Groove width: \varnothing 8mm

FGSR-12-ES Turn buckle

Product No.: 100259

Used during wire installation, at the last Line system wall anchor, to achieve the necessary tension or provide additional tension.

Material: 1.4404 stainless steel

Adjustment length: 290 - 415mm

Thread: M12



The design of turn buckle positions shall take system and section lengths into consideration – especially change in length due to thermal expansion. Manufacturer's plans shall always be followed!

FGBD-ES-08 Nut clamp

Product No.: 100352

Used to form the wire end terminations of the DiaSafe system. Fixes the fold-back end of the wire to the tensioned part, next to the cable thimble. (screws must be tightened by applying a 7Nm torque).

Material: Stainless steel

Wire diameter: \varnothing 8mm



FGL-50 Anchoring wire

Product No.: 100268

Material: high-grade steel WNr. 1.4404

Diameter: \varnothing 8mm (7 x 19 threads)

Tensile strength: F = 33.4kN





Swaged square end

Product No.: 100354

The fastest way to make the termination of the FGL-50 anchoring wire to the end wall anchors, is to swage this square ring to the wire and simply fix it to the head of the DS wall anchor. Made out of stainless steel 1.4404.



Swaged square end with turn buckle

Product No.: 100355

Used during wire installation, at the last Line system wall anchor, to achieve the necessary tension or provide additional tension to the termination. Fixed as well to the DS-Line anchor wall anchor.

Material: high-grade steel 1.4404

Adjustment length: 290 - 415mm

Threaded diameter: Ø 12mm



Swaged turn buckle

Product No.: 100356

Stainless steel turnbuckle for tensioning the wire rope with swaging rings on end.

Material: high-grade steel 1.4404

Adjustment length: 325 - 400mm

Threaded diameter: Ø 9mm



DiaGlider with steel karabiner

Product No.: 100350

Easy to attach at any point of the DiaSafe Line system it provides an anchor point that slides freely along all properly installed wires and wall anchor. It gives to a person working on heights a safe anchoring while it provides free movement, without having to constantly reattach.



Bracing tube

Product No.: 100377 (Length: 3 m)

Product No.: 100378 (Length 16 cm)

Stainless steel tube to be placed between the load bearing wall and the wall anchor in case of being heat insulation on the wall. To be cut to length at the building site.

Material: high-grade steel 1.4404

Outside diameter: 20.0mm

Wall thickness: 3.0mm

Available in lengths of: 16cm and 3m.



Hilti HST or HST-R Stud anchor

We recommend the use of HILTI HST-R stud anchors, commonly available in the market.

Material: 1.4401

Size: M12

Required drill bit: 12mm

Available types:

HST-R M12x115/20 Product No.: 435454

HST-R M12x145/50 Product No.: 435455

HST-R M12x185/90 Product No.: 435456

HST-R M12x215/120 Product No.: 435457

Replaceable with any other M12 fastening were the manufacturer can guarantee a holding dynamic force of 15kN or more.



Shim plate

Product No. stainless steel: 100379

Product No. polypropylene: 100380

Wall anchors mounted over heat insulated walls tend to damage the wall surface due to the movement of the users or wind. By placing this shim plate, these small forces are evenly spread over a bigger surface.

Material stainless steel: 4mm 1.4404

Material polypropylene: 8mm PP-C-UV

Plate width: 400mm

Plate height: 300mm

Custom sizes and shapes available.

3.3 Documentation folder



Documentation folders for the three DiaSafe® systems are similar, and they all contain the following items:

- Technical manual
- Control label (self-adhesive sticker)
- Validating sticker (self-adhesive sticker)
- A copy of the certificate
- Handover protocol
- Declaration of Performance (DoP)

Content of the documentation folder – except for the control label and validating sticker – is available for download at www.diasafe.com

The owner must keep system documentation in a secure place, make documentation available to system users, when necessary, and provide proper classroom and field training. The owner or operator of the system may provide the user with a usage plan after consulting with the manufacturer.

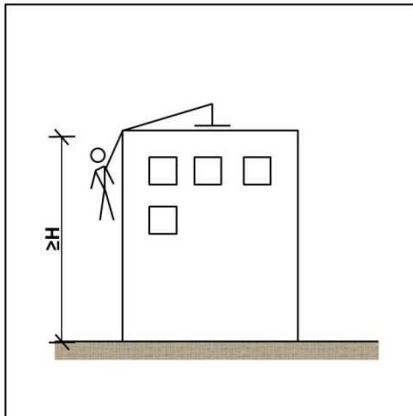
Experts installing the system shall hand over documentation folder to the owner, and ensure that the system has been properly registered.

The sticker shall be affixed to the appropriate location on the control label that is stuck to the control label plate at one of the anchoring points. The manufacturer shall use his project tracking system to notify the owner of the periodic inspections due.

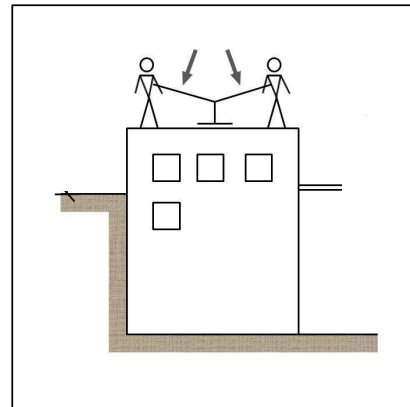
4 DiaSafe® - System - Function

4.1 Fall arrest and restraint system, two in one

DiaSafe® anchoring systems have both **fall- arrest** and **restraint** functions. A system installed at a particular location can be used for a given purpose depending on roof geometry characteristics and the free fall height. System installation is regulated by a commissioning plan approved by the manufacturer.



Fall arrest system



Fall restraint system

H=minimum building height

a) Fall arrest system:

The user has a personal protective equipment to secure himself. Should a fall occur, the system prevents the user from falling onto the ground or a building part, and it effectively decreases fall length. The system thus prevents the user from free-falling to the ground or hitting a building part.

b) Fall restraint system:

When used as a restraint system, it prevents the user from actually reaching a fall danger-zone because rope lengths are configured in such a way that the user cannot possibly get close to free roof edges.

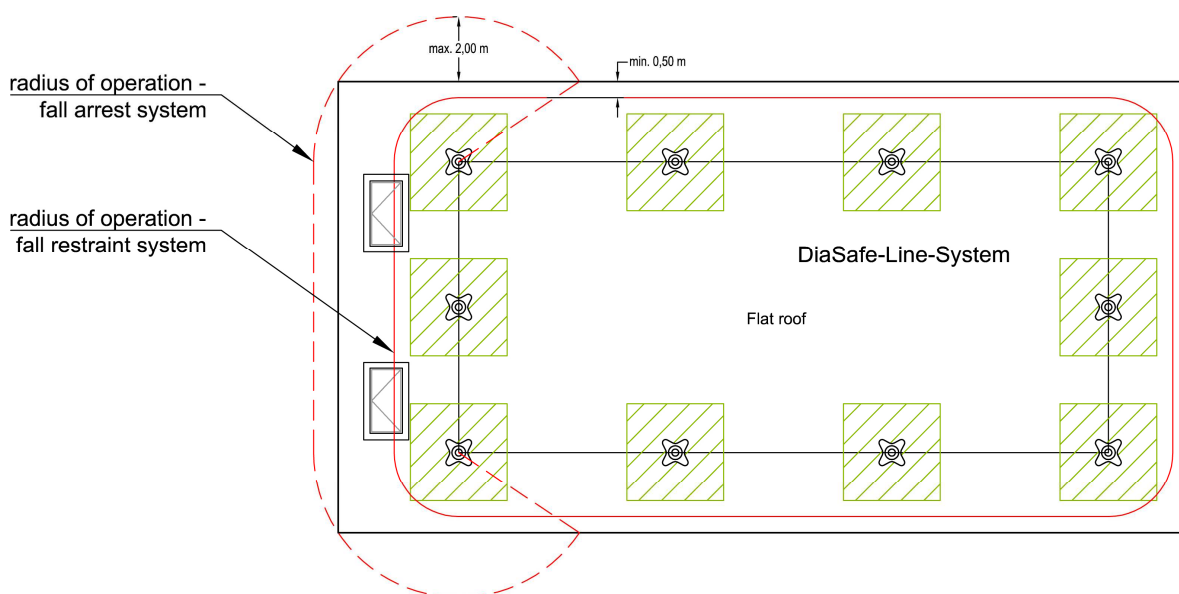
By taking special building characteristics into consideration, the manufacturer carefully designs systems described herein (restraint systems and fall arrest systems). Restraint systems shall always be favored as they prevent users from getting into dangerous position.

4.2 Combination of fall arrest and restraint systems

The figure below shows roof area allocation based on whether the system operates as a fall arrest or a restraint system.

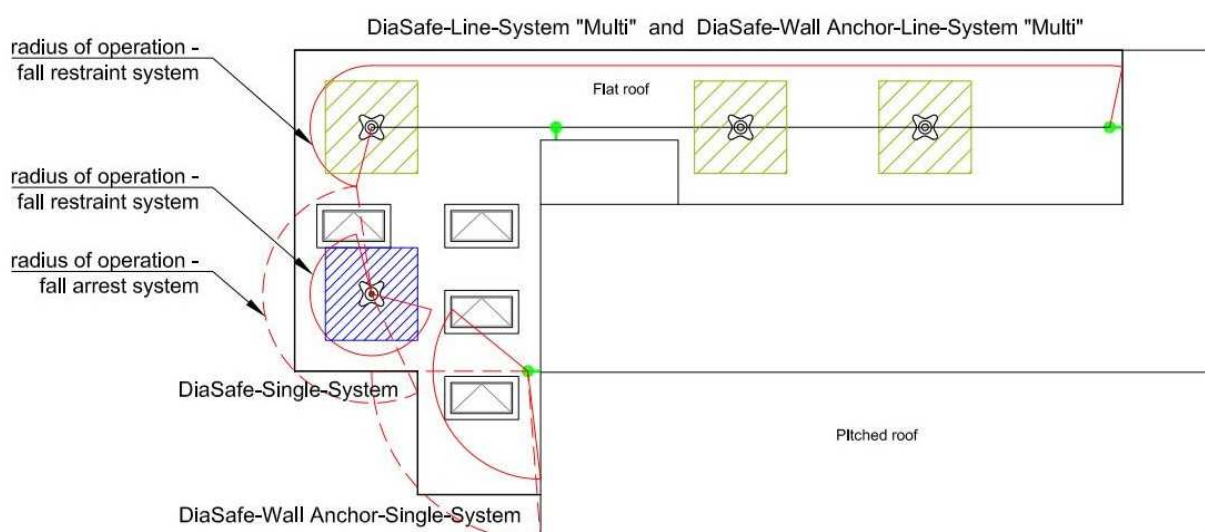
The radius of operation is given by the length of the rope attached to the personal protective equipment. When used as a restraint system, the length of the rope must be at least 0.5 m shorter than the shortest distance between the system and the edge of the roof. When used as a fall arrest system, the rope may not be more than 2.0 m longer than the distance between the system and the edge of the roof.

The system may operate as a fall arrest system only in such cases when the minimum free fall height is given, otherwise the system may be used only as a restraint system.



4.3 System type combinations

The figure below shows the combination of three types of restraint and fall arrest systems; Line System, Single System and Wall Anchor System.



4.4 Maximum deflection and forces permitted

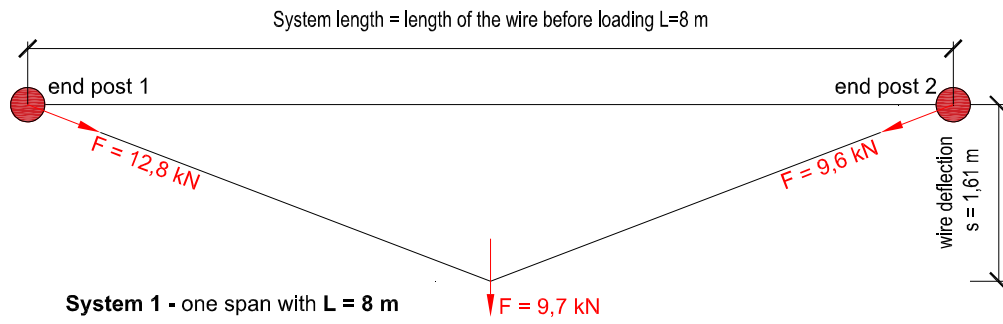
Maximum forces and deflections generated for single wall anchors and system wires - horizontal movement of the anchoring point:

	maximum deflection	max. force at anchoring point	max. force End point 1	max. force End point 2	System structure
	m	kN	kN	kN	(with 200/600 kg load)
1	0,12	12,3	-	-	Square termination as Single "Duo" perpendicularly pulled.
2	0,17	12,1	-	-	Square termination as Single "Duo" parallelly pulled.
3	0,11	12,6	-	-	Wall Anchor "Duo" parallelly pulled
4	0,12	11,9	-	-	Wall Anchor with parallel Multi-Glide adapter, perpendicularly pulled
5	0,32	10,6	-	-	Wall Anchor with perpendicular Multi-Glide adapter with insulation, perpendicularly pulled
6	0,17	12,2	-	-	Wall Anchor with parallel Multi-Glide adapter, parallelly pulled
7	0,38	12,32	-	-	Wall Anchor with square termination attic situation, directly pulled
8	0,39	11,6	-	-	Parallel wall anchor - 1,5m - Perpendicular wall anchor line pulled at the center of the 1.5 m span
9	1,61	9,7	12,8	9,6	Diablock 300-8m-Wall anchor with square ring Line pulled at the center of the 8.0 m span
10	0,73	7,7	12,9	11,3	Parallel wall anchor-4,15m-parallel wall anchor with square termination Line

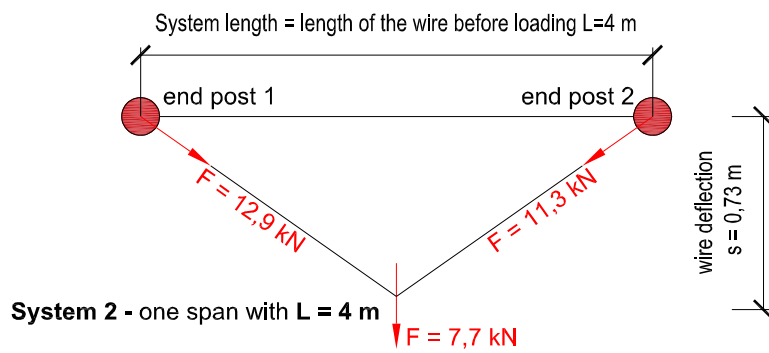
In accordance with EN795:2012 and CEN/TS 16415:2013 all components were tested to withstand the prescribed forces as described in below table:

	Norm	Test	Tested components	Test conditions	Force
1	EN795:2012	Deformation test	Complete single system Complete line system without wire	70 kg test mass 1m sewn test rope	0,7kN
2	EN795:1996 (EN795:2012) CEN/TS 16415:2013	Dynamic strength and integrity test	Complete single and line system (two users)	200 kg test mass 1,2 m dropping height 1m sewn test rope	12kN
				400kg test mass increase	600kg
3	EN795:2012 CEN/TS 16415:2013	Static strength test	Complete single and line system (two users)	19kN pulling force	19kN

Static model for maximum wire forces and deflections, one 8 m span



Static model for maximum wire forces and deflections, one 4 m span



5 DiaSafe® System - Planning

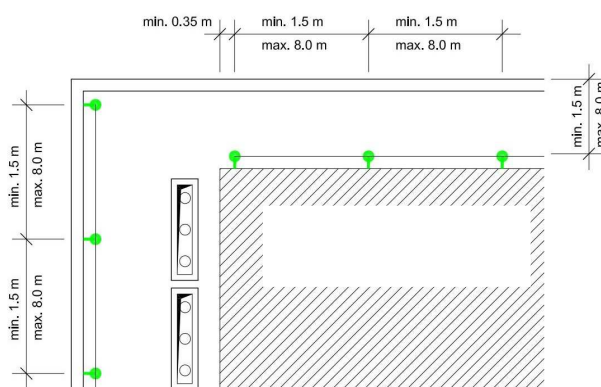
5.1 Planning principles

The fall protection system shall be designed by the manufacturer, taking into consideration building characteristics and local conditions. The system shall operate as a restraint system or as a fall arrest system. Planning should favor restraint systems in all cases because to ensure that the user cannot even reach the danger zone.

Should building plans change during fall protection system design and commissioning, system manufacturer shall approve the change in due time.

5.2 Vertical and horizontal measures and distances

Single and Line wall anchors can be spaced at a maximum 8.00 meters away from each other. Spans shall have to be negotiated with DiaSafe® system manufacturer in all cases. The manufacturer shall take all static requirements into consideration, and incorporate necessary figures into the installation plan. Wall anchors must be at least 1.50 meters away from each other. The max. distance of the wall anchors from the edge of hazard is 8.50 meters.



When installed on the inner side of the parapet wall or otherwise closer than 1.5m from the roof edge, DiaSafe® Wall Anchors can only be used a fall arrest system.

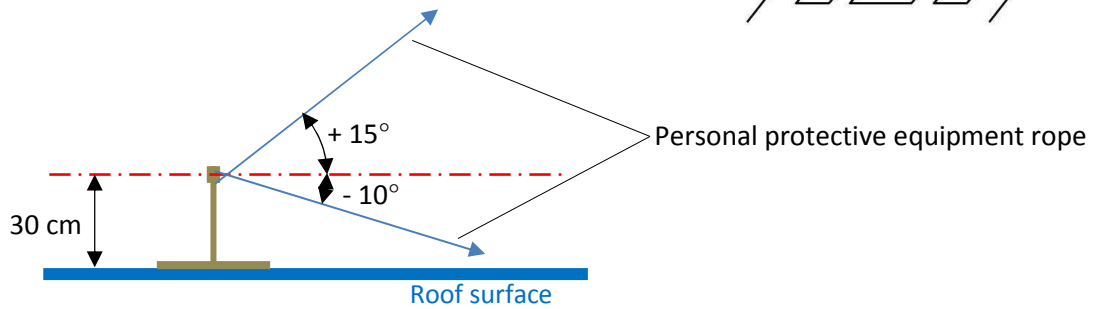
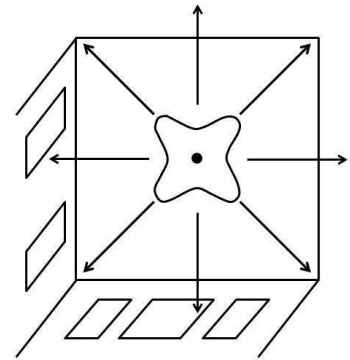
DiaSafe® Wall Anchors must be mounted at least 35cm from the edge of the wall or as indicated by the manufacturer of the chosen fastener. The latching point of the anchors must be min. 0,2m and max. 2,0m high from the roof walking surface.

Warning!

Relevant local regulations must be taken into consideration, as well. Recommendations of AUVA "Planungsgrundlagen von Anschlagseinrichtungen auf Dächern" are to be taken into consideration!

5.3 Potential fall directions

DiaSafe® fall protection systems are designed to protect the user in all fall directions indicated in the manufacturer's plans. This indispensable plan obviously takes location specific characteristics into consideration, should contain all necessary anchoring points (along roof edges or corners) in a way that takes static and geometric system movements into consideration.

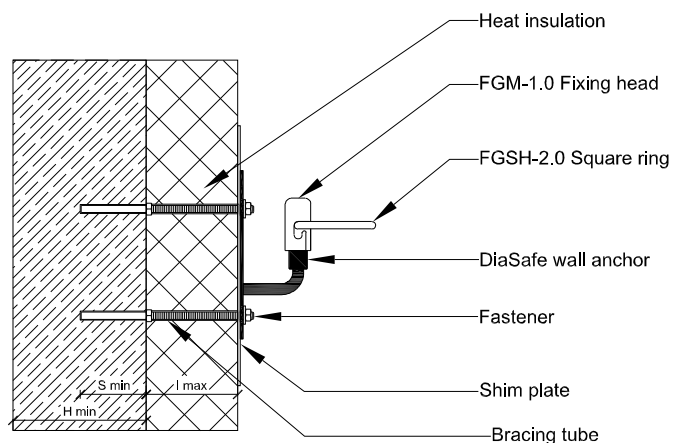


The figure shows the max. permitted positive and negative angle deflection of the personal protective equipment rope. This helps us determine the installation height of the wall anchor, or if it is defined, then the permitted parapet height.

5.4 Hosting wall structure

Fastening of the Wall Anchor System must be executed with two M12 fastening elements (screw, threaded rod, expansion anchor, etc.) Fixing of the Hilti stud anchors has to be carried out according to the manufacturer's instructions. Each one of these fastening elements must hold a dynamic force of 15kN. The bearing wall must also be strong enough to resist a dynamic force of 15kN, concrete grade of the wall must always be checked. There are thousands of different wall structures on the market making it impossible to specify an appropriate fastening element for each one of them. Fastening elements are available from specialized manufacturers like FISHER, HILTI and WÜRTH. All testing and approval were made on concrete walls C20/25 and using HILTI HST stud anchors. The maximum permitted insulation thickness below the DiaSafe® Wall Anchor is 15cm. Deformation of the system while in use is normal and permissible. The minimum wall thickness of the wall in case of using HILTI HST studs is 15cm.

If wall structure is not available, or there are doubts in terms of under-structure compatibility, please contact the manufacturer of the anchoring system!



6 DiaSafe[®] - System - Installation instructions


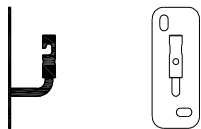

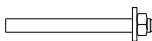




- precondition of starting installation works on a roof is the presence of the following:
 - proper installation plan
 - materials and components of the given system
 - professional installer with certificate
 - adequate tools for installation
- System installation must be carried out by trained staff who has the expertise and responsible approach to install safe systems, preferably trained by the manufacturer. Installation and assembly should follow the manufacturer's plans, or plans approved by the manufacturer, to the letter!
- The installer is not allowed to modify the plans at all, in case of any deviations the installation works may only be continued after the approval of the manufacturer.
- Systems are to be bond to the lightning protection system according to the national standards in force.

7 DiaSafe® Wall-fix Single Duo - specification

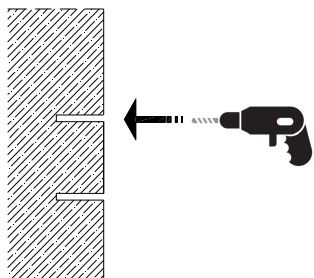
7.1 Tools needed for the installation

Torque wrench
 19mm socket
 5mm allen torque wrench bit
 5mm allen key
 19mm wrench
 8m tape measure
 Drilling machine
 Drill bit
 5mm allen key
 Hammer

7.2 System components

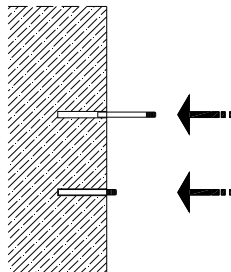
Name	Photo	Pictogram
DiaSafe Wall Anchor		
Hilti HST Stud anchor		
FGM-1.0 Fixing head		
FGSH-2.0 Square ring		

7.3 Steps of installation



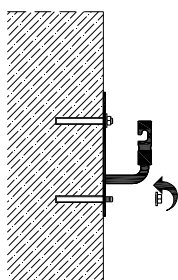
Step 1

Measure and mark the points to drill (you may use the wall anchor as a template) and drill the holes in accordance with the instructions provided by the stud manufacturer.



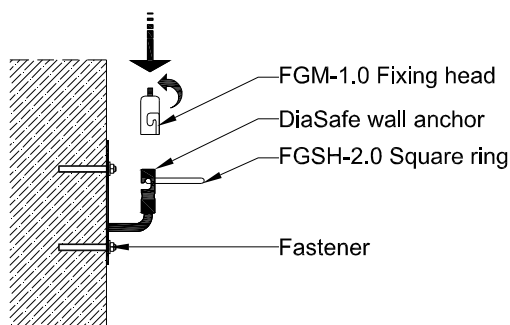
Step 2

Follow the instructions provided by the stud manufacturer to insert the stud in the holes.



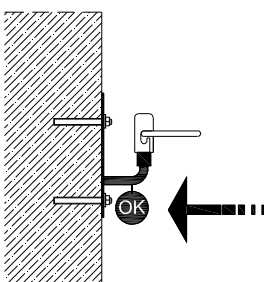
Step 3

Place the shim plate over the studs (optional). Place the DiaSafe® Wall anchor over the studs, collocate the provided washers and the self-locking nuts. Make sure the plate is straight before you tighten the nuts with a force of 15kN.



Step 4

Place the FGHS-2.0 **Square ring** into the wall anchor head slot. Mount the **FGM-1.0 Fixing head**: Unscrew the setscrew on the fixing head until its almost out, place it onto the wall anchor head in such a way that the square ring aligns into the slot. Turn the head clockwise, and lift it up. Tighten the setscrew to 5-6Nm.



Step 5

Finally the certified installer completes and attaches the inspection tag with the self-locking nut and as well as the circular validation sticker to the anchor point.



SINGLE DUO

DiaSafe® Wall-fix Single Duo can be used by maximum **two users** simultaneously.


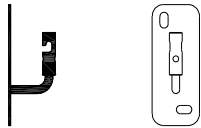

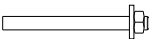









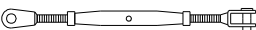


The karabiner of the personal protective equipment has to be attached to the square ring that is fixed to the head of the single wall anchor. It is strictly forbidden to attach the personal protective equipment to the arm of the Wall Anchor.

8 DiaSafe® Wall-fix Line Multi - specification

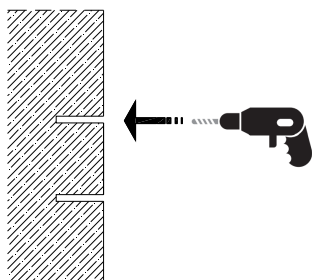
8.1 Tools needed for the installation

19mm wrench
 17mm wrench
 8m tape measure
 Drilling machine
 Drill bit
 Torque wrench
 19mm socket
 5mm allen torque wrench bit
 5mm allen key
 Cable thimble expanding plier
 Wire cutter
 Lighter
 Hammer

8.2 System components

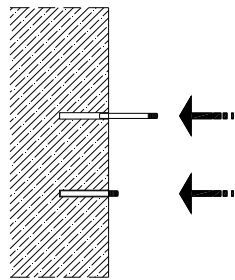
Name	Photo	Pictogram
DiaSafe Wall Anchor		
Hilti HST Stud anchor		
FGM-1.0 Fixing head		
FGSH-2.0 Square ring		
FGKa-1.0 Cable thimble		
FGBD-ES-08 Nut clamp		
FGSR-12-ES Turn buckle		
FGL-50 Anchoring wire		

8.3 Steps of installation



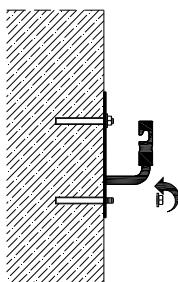
Step 1

Measure and mark the points to drill (you may use the wall anchor as a template) and drill the holes in accordance with the instructions provided by the stud manufacturer.



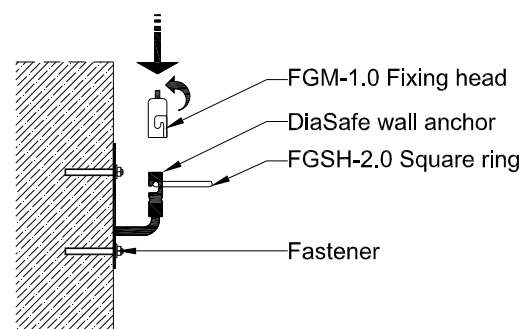
Step 2

Follow the instructions provided by the stud manufacturer to insert the stud in the holes.



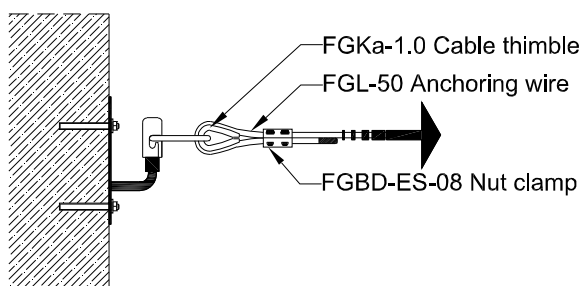
Step 3

Place the shim plate over the studs (optional). Place the DiaSafe® Wall anchor over the studs, collocate the provided washers and the self-locking nuts. Make sure the plate is straight before you tighten the nuts with a force of 15kN.



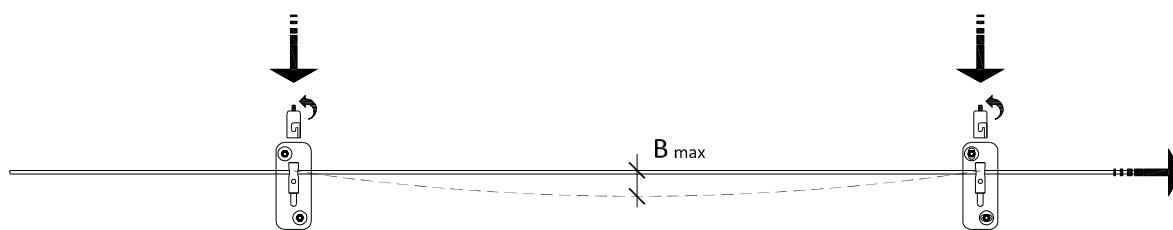
Step 4

Place the FGHS-2.0 **Square ring** into the wall anchor head slot. Mount the **FGM-1.0 Fixing head**: Unscrew the setscrew on the fixing head until its almost out, place it onto the wall anchor head in such a way that the square ring aligns into the slot. Turn the head clockwise, and lift it up. Tighten the setscrew to 5-6Nm.



Step 5

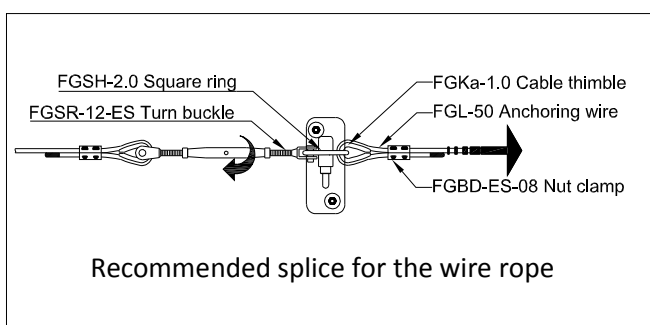
Drive the **Anchoring wire** end through the square ring and a **Cable thimble**, and then fold the end back with at least 150 mm (t) overreach. Threads at the clipped end of the wire must be protected by a shrink tube. Fix the wire end with the **Nut clamp**. It is very important, that the Nut clamp must keep parallel while tightening the screws. Screws must be tightened turn by turn, alternating them. If one screw is over tightened compared to the other one, it will bend and break. Clamp screws should be tightened to 7 Nm.



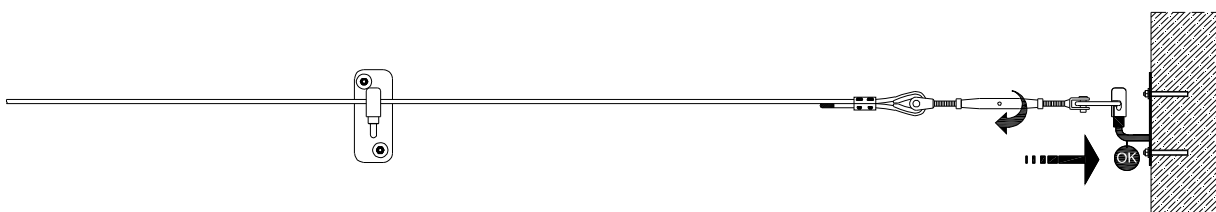
Step 6

Drive the wire through the following wall anchor, tighten it and fix it with FGM-1.0 Fixing head as described in Step 4. This operation can easily be carried out by two individuals; one of them tightens the wire, while the other places the fixing heads onto the wall anchors. These steps should be repeated until you reach a corner wall anchor or the end wall anchor.

When tensioning the wire you should ensure that lagging (B_{max}) shall not exceed 5.0 ± 2 cm. To measure the lagging, you may measure the height of the wire rope at the wall anchor, and the height of the wire rope at the middle of the span must be 5 ± 2 cm below this measure. Elongation of the wire rope due to heat expansion (given by the seasons) and the eventual stretching of the rope throughout the years are considered in above tolerances; however, in case of having an unexpectedly too big elongation in a span, it is necessary to install a turn buckle to ensure necessary tension.



An excessive lagging will result in a longer deflection of the system in case of a fall. Turnbuckles are not essential to the system but help to maintain the tightness of the spans. The wire rope can be tensioned by hand throughout the installation when the length allows to hold the wire; In the very last span, at the end of the wire rope, it is recommended to install a turnbuckle to provide enough tightness to the last span. In the event of having a span considered to be tightened, it is always possible to install a turnbuckle. It is not recommended to install more than one turnbuckle per span.

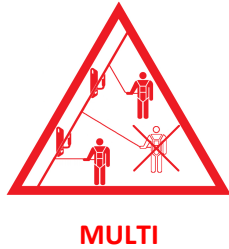


Step 7

At the end wall anchor repeat the process explained in Step 5. Build in the FGSR-12-ES Turn-buckle into the wire line, between the Square ring and Cable thimble. The turn buckle will make possible to tension the wire in the last section, and will provide additional adjustment during the annual inspection.

Step 8

Finally the certified installer completes and attaches the inspection tag with the self-locking nut and as well as the circular validation sticker to one anchor point of the line system.



DiaSafe® Wall-fix Line Multi can be used by **several users** at a time. Maximum 2 users can be attached to one section leaving at least one section free between users.


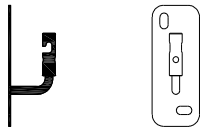

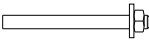

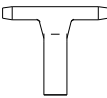

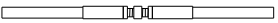






The karabiner has to be attached to the wire rope of the system. It is strictly forbidden to attach the personal protective equipment to the arm of the Wall Anchor.

9 DiaSafe® Wall-fix Glide Duo - specification

9.1 Tools needed for the installation

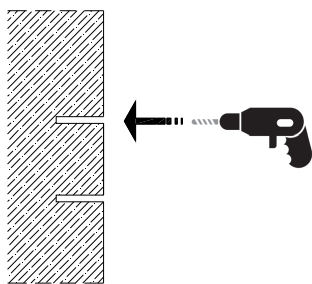
19mm wrench
 17mm wrench
 13mm wrench
 8m tape measure
 Drilling machine
 Drill bit
 19mm socket
 Torque wrench
 5mm torque wrench bit
 5mm allen key
 Wire cutter
 Swaging tool
 Lighter
 Hammer

9.2 System components

Name	Photo	Pictogram
DiaSafe wall anchor		
Hilti HST Stud anchor		
Multi-Glide Adapter		
Swaged turn buckle		
FGM-1.0 Fixing head		
FGBD-ES-08 Nut clamp		
Swaged square end		

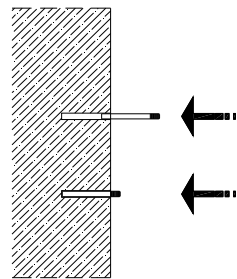
Swaged square end turn buckle		
FGL-50 Anchoring wire		
DiaGlider		

9.3 Steps of installation



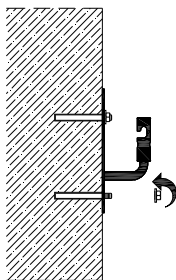
Step 1

Measure and mark the points to drill (you may use the wall anchor as a template) and drill the holes in accordance with the instructions provided by the stud manufacturer.



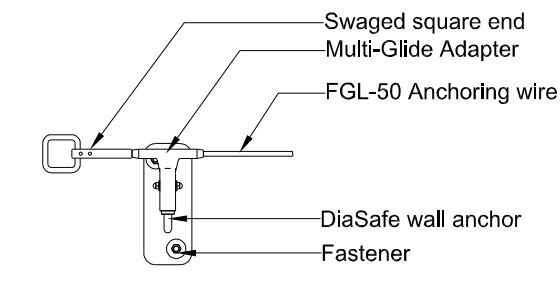
Step 2

Follow the instructions provided by the stud manufacturer to insert the stud in the holes.



Step 3

Place the shim plate over the studs (optional). Place the DiaSafe® Wall anchor over the studs, collocate the provided washers and the self-locking nuts. Make sure the plate is straight before you tighten the nuts with a force of 15kN.

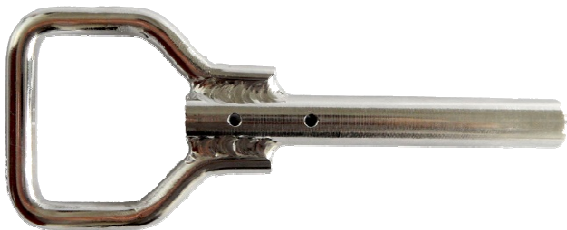

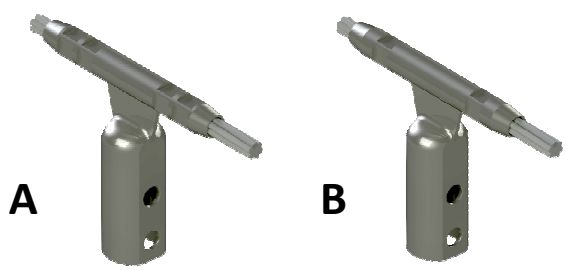


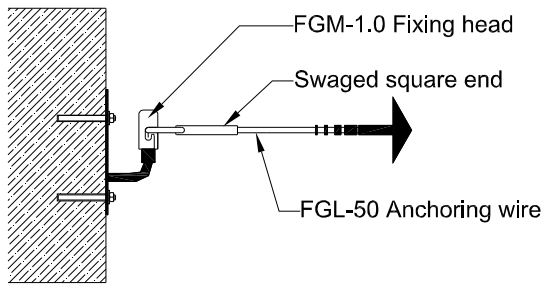
Step 4 – Wire termination type “a”

Push the end of the wire rope through the tube of the wall anchor head. The wire rope end must extend beyond the tube with at least 10 cm. Pull the Swaged square end over the end of the wire rope, make sure you see the wire rope through both holes on the tube and swage the tube in 4 positions along the tube at equal distances from each other. Set the last swaging at a distance of 8-12 mm from the end of the tube.

Safety note! For all swaging in the system:

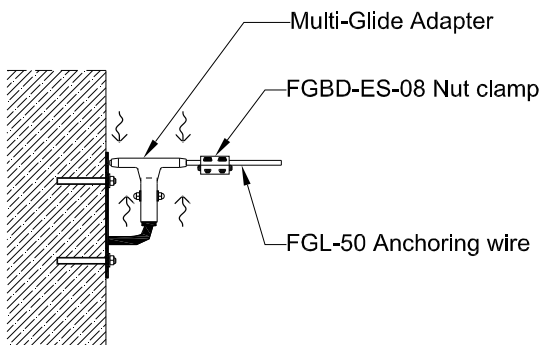
- 1.- Make sure the wire rope is fully inserted into the swaging tube. The wire rope must be well visible at both perforations of the tube to be swaged.
- 2.- Make sure the preset swaging force is delivered by the swaging machine. The swaging machine must click when the preset force is reached. If the battery is low in charge, the failure indication light turns on, or if there is any other doubt, the swaging must be considered as inadequate and must be discarded.

<p>Swaged square end</p> <p>Swaged square ends must always be swaged in 4 positions. Make sure you can see the wire rope through both inspection holes.</p> <p>Set the first swaging as close as possible to the square end. Set the next swaging at a distance of 8-12mm from the end of the tube. Make two additional swaging in between the previous ones evenly distributed over its length.</p>	
<p>Swaged turnbuckle</p> <p>Turnbuckles must always be swaged in 8 positions, 4 on each side.</p> <p>Make sure you can see the wire rope through both inspection holes.</p> <p>On each side: set the first swaging 8-12mm from the thicker center part. Set the next swaging at a distance of 8-12mm from the end of the tube. Make two additional swaging in between the previous ones evenly distributed over its length.</p>	
<p>Multi-Glide adapter</p> <p>When the Multi-Glide adapter is mounted on the end of the line, it must be swaged in 4 positions as shown on image A.</p> <p>Those Multi-Glide adapters mounted on intermediate wall anchors can be swaged in 4 positions, but it is also permissible to swage in 2 positions only, as shown image B.</p>	



Step 4 – Wire termination type “b”

Pull the Swaged square end over the end of the wire rope, make sure you see the wire rope through both inspection holes on the tube and swage the tube in 4 positions along the tube at equal distances from each other. Set the last swaging at a distance of 8-12 mm from the end of the tube. Place the Swaged **Square end into the wall anchor head slot**. Mount the **FGM-1.0 Fixing head**: Unscrew the setscrew on the fixing head until its almost out, place it onto the wall anchor head in such a way that the square ring aligns into the slot. Turn the head clockwise, and lift it up. Tighten the setscrew to 5-6Nm.

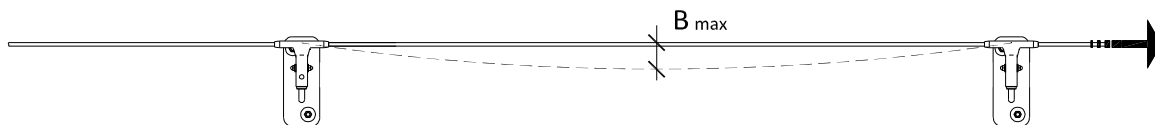


Step 4 – Wire termination type “c”

Push the end of the wire rope through the tube of the Multi-Glide adapter. The wire rope end must extend beyond the tube. Swage the tube in 4 positions as it is described in the safety note.

Fix an FGBD-ES-08 **Nut clamp** on the wire rope next to the Multi-Glide adapter, inserting an additional piece of wire rope with the same length of the nut clamp, to make sure the nut clamp will be fixed to the wire rope.

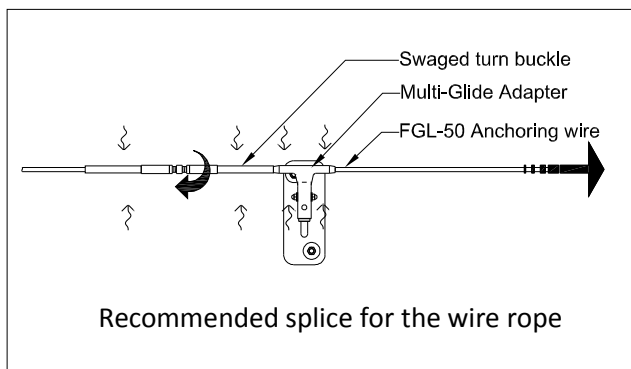
It is very important, that the Nut clamp must keep parallel while tightening the screws. Screws must be tightened turn by turn, alternating them. If one screw is over tightened compared to the other one, it will bend and break. Clamp screws should be tightened to 7 Nm.



Step 5

Place the Multi-Glide Adapter over the intermediate wall anchor heads and fix them. Drive the wire through the tube of the adapters. Swage each tube in 2 positions as it is described in the safety note. Set the last swaging at a distance of 8-12 mm from the ends of the tube.

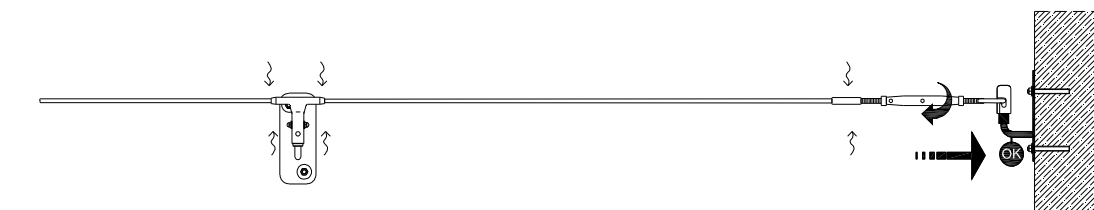
When tensioning the wire you should ensure that lagging (B_{\max}) shall not exceed 5.0 ± 2 cm. To measure the lagging, you may measure the height of the wire rope at the wall anchor, and the height of the wire rope at the middle of the span must be 5 ± 2 cm below this measure. Elongation of the wire rope due to heat expansion (given by the seasons) and the eventual stretching of the rope throughout the years are considered in above tolerances; however, in case of having an unexpectedly too big elongation in a span, it is necessary to install a turn buckle to ensure necessary tension.



An excessive lagging will result in a longer deflection of the system in case of a fall. Turnbuckles are not essential to the system but help to maintain the tightness of the spans. The wire rope can be tensioned by hand throughout the installation when the length allows to hold the wire; In the very last span, at the end of the wire rope, it is recommended to install a turnbuckle to provide enough tightness to the last span. In the event of having a span considered to be tightened, it is always possible to install a turnbuckle. It is not recommended to install more than one turnbuckle per span.



Step 6 – Wire termination with turn buckle, type “a”



Step 6 – Wire termination with turn buckle, type “b”



Step 6 – Wire termination with turn buckle, type “c”

Follow the installation order as shown on any of the figures above (“a”, “b” or “c”) and make the swaging as described in the Safety Note.

Step 7

Finally the certified installer completes and attaches the inspection tag with the self-locking nut and as well as the circular validation sticker to one anchor point of the line system.



Anchoring max. **two users** simultaneously, the users have to attach the karabiner to the glider that allows free movement along the whole line of the system.

It is strictly forbidden to attach the personal protective equipment to the arm of the Wall Anchor.

10 Completion of the installation



Control label for DiaSafe® Wall-fix Single Duo, Line Multi and Glide Duo systems

After system installation, the control label shall be filled out – as per the sample – and the label shall be stuck to the steel control label plate that is fixed to one of the Wall anchors. The control label plate is fixed to the system by inserting it between the hosting wall structure and the base plate of the Wall anchor and screwing them.



validating sticker

Following a successful inspection, the validating sticker shall be attached by the inspector. The validating sticker shall be punched at the suitable date, and the sticker shall be attached onto the control label. The validating sticker shows the date of the next inspection.

Handover protocol	
This handover protocol is part of the DiaSafe® System document folder and has to be handed over to the owner of the investment as soon after the delivery of the building.	
Certificate Number of installer:
Surface weight of ballast: kg/m²
Date sheet of ballast materials have to be attached to the handover protocol and a copy of it shall be sent to the manufacturer. (It is advisable to upload it during the online registration of the systems.)	
This protocol confirms that the installed DiaSafe® Systems – according to the manufacturer's specifications, the building use (see in Handbook) and the current standards and guidelines, and suitable for normal use – have been registered at the manufacturer with the serial numbers listed below. In case of selective lateral systems on the same roof or building also online registration (https://www.diasafe.com/online-reg) of all the different serial numbers of the systems must be done. Serial numbers generated by the manufacturer are indicated with an 'M' in the first four digits and in the last four digits of the system code. A clearly visible photo must be taken of the punched and attached validation label. The photo and the handover protocol have to be uploaded on the website during the online registration of the systems.	
In case of proper use (see DiaSafe® Technical Manual) the listed systems can be used until (date of registration + 1 year).	
After the expiry date of the manufacturer's 12 month guarantee period the owner of the building shall ensure that the system is regularly inspected and that the manufacturer's permission – needed for the proper and safe usage – is prolonged.	
Date	Name (with capital letters, signature of installer)
.....
Handover protocol_04	

handover protocol

System delivery and reception are accurately registered in a comprehensive protocol, based on the template in the document folder. This protocol is to be signed by the installer. It is advisable that all relevant parties are to receive a copy of the protocol.

System installation should be well-documented with photos.

online registration

After the completion of the installation the installer shall undertake the responsibility to register the system at the manufacturer (www.diasafe.com). The aim of the online registration system is the monitoring of the status of the installed systems and to help the owner/facility manager organize the regular technical inspections of those (due within 12 months after system delivery or last inspection). Should this inspection or any of the subsequent inspections fail to be accomplished, permission to use the system shall terminate, and guarantee is also considered void. Regular yearly inspections.

The online registration system sends messages to the installer and to the owner/facility manager in the following cases:

- after the registration of the installed fall protection system (regarding the 12 months operating license)
- 2 months before the termination of the operating license
- 1 month before the termination of the operating license
- at the time of the termination of the operating license
- after the technical inspection of the system (regarding the grant or refusal of the next operating license)

Professionals having the manufacturer's certificate are authorized to use the online registration system. The registration is based on the serial number that is indicated on the inspection tag or the documentation folder. During registration it is required to give the serial numbers and the exact position of the installed systems, the date of the installation and the contact of the constitutor of the installer. It is recommended to give the contact of the owner/facility manager as well in order to supply them with the information about the expiration and result of the technical inspections. It is also suggested to upload plan- and photo documentation relating to the registered system.

11 Swaging

11.1 Press Machine to be used for swaging

DiaSafe® anchoring systems have been tested and approved with swaging made with REMS radial press machines. The following models are considered to be appropriate for swaging:

REMS Power-Press
 REMS Power-Press SE
 REMS Power-Press ACC
 REMS Akku-Press
 REMS Akku-Press ACC



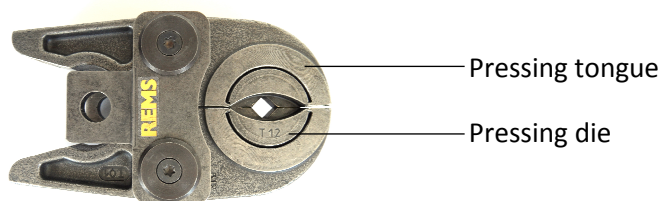
These machines are set to press with a thrust of 36kN originating a pressing power of 100kN.

All radial press machines must be yearly revised by its manufacturer in order to guarantee the appropriate swaging. Make sure the press machine you are using has a certificate that proofs that the yearly check has been done within the last 12 months.

The use of any other press machine must be first approved by the manufacturer of the DiaSafe® system.

11.2 Pressing tong and die to be used for swaging

In all cases the swaging must be done with a T12 die, which will fit the normal pressing tong.

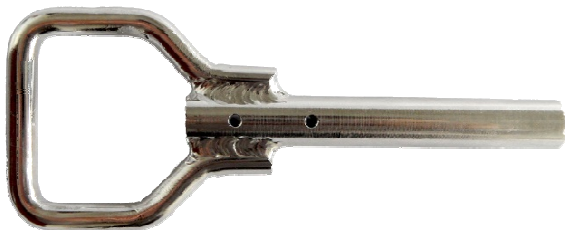


Pressing tongs must be replaced after 10 000 swagings.

Pressing dies must be replaced after 5 000 swagings.

11.3 Safety warnings for all swaging in the system

Make sure the wire rope is fully inserted into the swaging tube. The wire rope must be well visible at both perforations of the tube to be swaged.



Make sure the preset swaging force is delivered by the swaging machine.

The swaging machine must click when the preset force is reached. If the machine does not click, the swaging is not complete and must be considered as inadequate and must be discarded.

If the battery is low in charge, the failure indication light turns on. All swaging made while the low battery charge light is on must be considered as inadequate and must be discarded.

11.4 Swaging process

Once the wire rope is fully inserted into the swaging tube, the wire rope can be seen through the check perforations, or it is completely out at the other end, open the pressing tong and place it over the pressing tube as on the picture below:



Press the rivet of the pressing machine, until the click indicating that the maximal press force of the machine has been reached sounds. The swaging is finished:



12 DiaSafe® - System - Use

12.1 User manual

DiaSafe® Single System and Line System users are obliged to carefully read this manual prior to using the system, and shall closely follow all relevant safety regulations during use.

Should any question arise in terms of a fall protection system, its components, or its use, or an already purchased system is in a condition that its safe use is questionable, or for any general queries, please address the manufacturer directly.

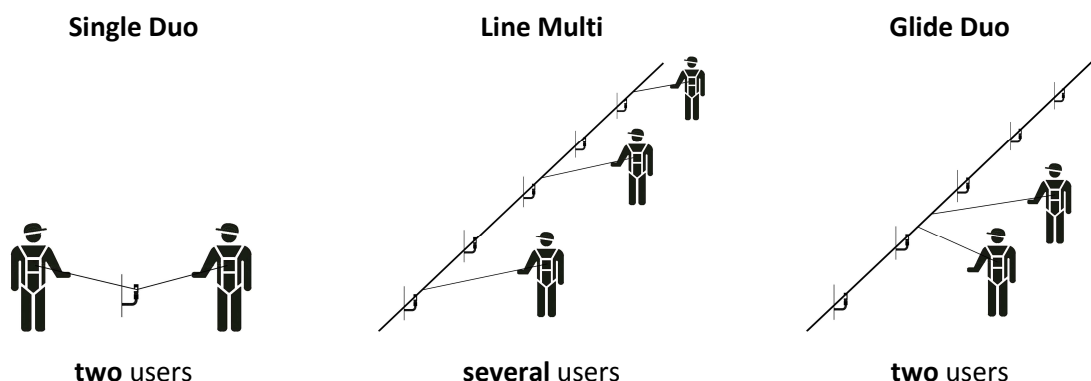
12.2 Number of permitted users

DiaSafe® Wall-fix Single Duo allows anchoring **one or two users** simultaneously. The karabiner of the personal protective equipment has to be attached to the square ring that is fixed to the head of the single wall anchor.

DiaSafe® Wall-fix Line Multi can be used by **numerous users** in such a way that maximum two users can be anchored in every other section (one section should be left free between users). In the special case when the system contains only two sections altogether, then users may attach to the adjacent sections with the condition that the number of users is maximum two. The karabiner has to be attached to the wire rope of the system.

In case of **DiaSafe® Wall-fix Glide Duo** the system may be used by maximum **two persons** at a time and the users have to attach the karabiner to the glider that allows free movement along the whole line of the system. Sectioning the Glide systems is possible, as specifically designed and indicated by the manufacturer. Sectioning is made by inactivating an intermediate span, with the use of two nut clamps. This is called a sectioning span. A sectioning span may never be shorter than 3m.

It is strictly forbidden to attach the personal protective equipment to the arm of the Wall Anchor.



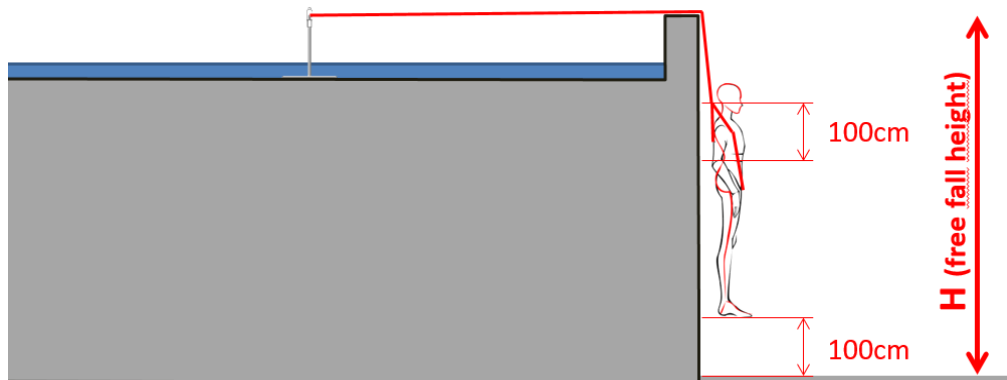
12.3 General terms of use

- DiaSafe® system structure, components and their roles were accurately described with figures and text in previous chapters of this manual. We shall herein highlight these sections again. If measures listed in Chapter 13 or individual inspections listed in Chapter 14 were not conducted, system use should be suspended or limited.
- If maintenance works were omitted or partially completed, and this jeopardizes system safety, it is prohibited to use the system. This rule applies when weather conditions hamper safe use of the fall protection system. You should always contact the manufacturer in such cases.
- Physical and health conditions of the user should allow them to properly utilize the fall-protection system, without risking his/her own personal safety.
- Fall protection systems can only be used by individuals who have received proper training and have learnt to use the system safely.
- Prior to working, all system users shall ensure that an evacuation plan, to be used in all emergency situations, is accessible.
- No modifications or additions can be made to the system without the prior approval of the manufacturer received in writing. Failure to receive such approval shall result in permission to use being rendered null and void. All restoration operations must be carried out in line with manufacturer's regulations.
- The personal protective equipment and the fall protection system can only be used in conditions listed in the manual. The systems can be used solely for their designated purposes.
- System users should make sure to receive – along with personal protective equipment – all instructions for safe system use. During the assembly of a fall-arrest or restraint system, the user should make sure that components fit each other properly and that all components are from the same manufacturer.
- Should components from a different manufacturer have been installed, this can prove to be dangerous for the user as such components can negatively influence safe system operation.
- The user should thoroughly check the operability of the personal protective equipment prior to use. >> see Section 14.2 of this Manual.
- The fall protection system must be installed on a solid and stable foundation, in line with the plan approved by the manufacturer. When in doubt, always contact the manufacturer!
- If the user has any concerns or questions in relation to the applicable anchoring point, personal protective equipment or building structure, the user should immediately contact the manufacturer.
- A fall protection system can only be used with a complete body harness.
- Safety of system user requires that the building is high enough for reliable system operation, and users should make sure that, in case a fall occurs, they will not slam against any projecting parts or building sections, or the ground.
- DiaSafe® systems can be used as a restraint system for all building heights. Where the required building height is available, it can be used as a fall arrest system as well. We recommend the use of DiaSafe® fall protection systems combined with proper personal protective equipment.

Example of required free fall height calculation:

H = elongation of the anchoring system (deflection) + user shoulder height + length of stretched personal protective equipment (PPE) + 100 cm (safety distance)

Elongation of the anchoring system	X cm	
Measure given by the body height	150 cm	
Absorbtion strain (PPE)	100 cm	
Safety distance	100 cm	+
Min. building height	H cm	



- Any disadvantageous conditions which negatively influence system operation must be avoided (extreme temperatures, sharp edges, chemical interaction, electricity, cuts, grinding, weather effect, potential swinging motion when falling, etc.)
- All instructions and drawings in the manual must be strictly adhered to!
- DiaSafe® system documentation contains all important data related to types, year of manufacture and system identification. You must check whether the content of the documentation folder matches those items listed in the table of contents.

13 General safety instructions

13.1 Danger zones on flat and low pitch roofs

The entire surface of walkable flat roofs and roofs which are used for special purposes are considered **potential threats**. Individuals within a **2.00 m wide area measured from the edge of the roof (fall point)** face the highest risk.

All roofs with an inclination lower than 5° are considered flat roofs.

The following locations are extremely dangerous, and as such, they require special safety measures:

- Generally speaking, roof edges, actually all locations from where individuals can fall
- Building sections, e. g. long sides, where swinging motion can develop after a fall
- Roof edges and corners beneath which there are projecting building sections (e.g. balcony, wall corner etc.) and therefore, minimum building height required for safe use of a fall arrest system is not guaranteed
- Roof sections where there is a danger of tripping (roof vents, lightning conductors, low surface lights, projecting structures etc.)
- Roof stairs without safety devices, poorly lit places and places without lighting
- In-built snow removal or other devices
- Non-shockproof roof components (e.g. lights)

13.2 Basic safety when working on flat roofs

Besides on-site safety measures, in order to provide safe working conditions on the roof, it is important that individuals present can use the Diadem® DiaSafe® system, and that they are familiar with all their functions and elements.

It is vital for their own safety, in order to avoid risk of falling when working at heights.

It is therefore necessary to wear fall prevention personal protective equipment (body harness). The personal protective equipment and the fall protection anchoring system are combined into a single unit. It is of utmost importance that the individual working on the roof should receive proper training and should master all relevant knowledge.

Only then, will the worker be able to select, use and maintain the most appropriate personal protective equipment, and to check any disturbances, as well as to gauge embedded risks before use.

14 DiaSafe® - System - Maintenance

14.1 Introduction

A precondition to any work done at heights is a properly designed and tested fall protection system whose elements operate in a well-coordinated way in order to ensure maximum protection for individuals working on roofs.

All key manufacturer's data and regulations which are needed for safe operation can be found in the Diadem® DiaSafe® system document folder.

Long-term and reliable operation of the fall protection system not only requires proper use, but also necessitates adherence to the following rules:

- **System component maintenance and storage**

Safe operation and damage-free condition of personal fall protection equipment and other protective equipment require regular cleaning and suitable storage of system elements.

- **Regular inspections**

The personal fall protection system and other protective systems should be regularly checked for damage, wear and tear.

- **Regular inspections by experts**

These are inspections carried out by experts who have received proper training from the manufacturer. These experts can spot potential system errors or weak points; they can help uncover the reasons behind failures and, if necessary, can rectify the error or take necessary measures for correction.

14.2 Field inspection before usage – by user

Naturally, safety of work made on roofs does not solely depend on the state of the fall protection anchoring system. Nevertheless, it is important to ensure that the entire work area, including driveways and paths leading to it, as well as the personal fall protection system are in safe condition >> see local work safety regulations.

The user should – at a minimum – inspect the following components on-site – as safe operation of these elements is of crucial importance. Obviously, there can be other things to be checked, as these items affect the safety of individuals working on roofs:

- Inspection of all paths and walkways leading to the work site (roof stairs, stairs, ropes, ladders, etc.). Is it safe to walk on/use them?; are the walkways clear of any disturbing objects?; can one trip and fall on/into something?
- Are necessary signs affixed at visible spots?; are the signs easy to read?
- Does the DiaSafe® system documentation contain all items listed in the table of contents?
- Is the roof properly lit?
- Bearing the actual weather conditions in mind (ice, snow, water, moss on constantly wet surfaces), can work be safely done within the effective range of the fall protection system? Independently from norms and local regulations, we do not recommend to do work or remain on any roof when temperatures are below 5°C or freezing is likely.
- A fall protection system used on a roof cannot be combined with different types of fall protection devices (Act on Work Safety).
- Have all the necessary maintenance and preservation operations been completed as per the control schedule?
- Is the relevant inspection tag-filled out, in harmony with actual conditions?
- Has any errors uncovered by the previous check been rectified as necessary?
- Are all components of the fall protection equipment intact and free of damage (especially the anchoring wire, the carabiner, the fall protection device, the energy absorber and screws)?
- The personal protective equipment must be thoroughly checked for errors and malfunction before each and every use.
- Is there a technical manual for the personal protective equipment published in the country's language? Has the user been informed on how to operate the system?
- Is there immediate rescue available after a fall?
- All components of the fall protection system and the personal protective equipment are from the same manufacturer and are not combined with products from other manufacturers?

- Are the fall protection system and the personal protective equipment compatible with each other? Has the DiaSafe® system manufacturer approved the use of the given personal protective equipment?
- Has the maximum length of the restraint system ropes been checked?
- Have the anchoring points been used, are they located in the system in line with the plan?
- Have all the maintenance and preservation operation been completed as per the schedule? please see the inspection tag!
- Is the system's inspection tag filled out as per the current status? Missing or damaged inspection tags and validating stickers should be replaced, and new ones should be ordered from the manufacturer. Remarks and data from previous tests should be checked.
- Can all anchoring points and related wire sections be used freely? (are the points in high-growing plants or flowers) Can the personal protective equipment carabiner move freely in all sections?
- Is the Line System wire properly tightened?; is it not damaged (some threads torn, broken, etc.)? Are fixing heads tightly fitted to the top of wall anchors with setscrews?
- Are the fixing square rings properly built into DiaSafe® system wall anchors?
- Are turn buckles and wire nut clamps properly tightened?

14.3 Regular inspection and maintenance of the system – by manufacturer

DiaSafe® fall protection systems, described herein, consist of fixed anchoring points which were constructed to be used with personal protective equipment manufactured as per standard EN363.

Standards EN795 and EN365 and work safety regulations require periodic inspections to be carried out on anchoring points every 12 months.

In order to obtain skills necessary for the completion of periodic inspections, the manufacturer offers technical training. Annual technical inspections can only be carried out by an expert or a professional service technician.

Important warnings:

- Regular technical inspections are indispensable as such tests can ensure the proper operation and durability of anchoring points, and guarantee safe and secure system operation.
- If regular technical inspections are not carried out at least every 12 months, permission to use expires and the system must not be used. If a country has other regulations in force, the system is used frequently, or the system is exposed to extreme environmental conditions, technical inspections can be carried out more frequently than 12 months.
- Service technicians executing such inspections shall always refer to the manufacturer's instructions.
- Maintenance and care of personal protective equipment shall strictly follow manufacturer's instructions. Should the personal protective equipment become wet during use, it can only be dried naturally; it must not be exposed to a direct heat source.
- It must be ensured that the system is not exposed to harmful or extreme weather conditions (constantly wet environment, sharp edges, intensive vibrations, etc.) for a long period(s).

14.4 Manufacturer directions for system inspection

Periodic technical inspections, carried out by the authorized service representative, shall be properly documented, and reports shall be kept until at least the following technical inspection.

It falls into the scope of the building owner or building operator to carry out annual checks of the fall protection anchoring system in due time. A completed test shall be marked on the control label as well.

A copy of the inspection report duly signed by the field service engineer shall be given to property owner/operator – together with photos or videos documenting system status before and after inspection. The video should introduce the DiaSafe® system in its entirety.

Periodical technical inspections should check the following items:

- **Checking wire condition and tension:**
Maximum wire lag cannot exceed 5 centimeters; fixing heads should close tightly, setscrews should be properly tightened, the wire and its threads should be free of any damage – otherwise the affected wire section must be replaced in line with manufacturer's instructions.
- **Fixing heads on DiaSafe® wall anchor heads**
Line System wire must be routed along the planned path, driven through fixing head slots and fixed tightly into the heads with setscrews. All components must be in working order, at their proposed position; there can be absolutely no corrosion on Single System anchoring lugs, nor on Line System components. Should corrosion be observed, the affected component must be replaced.
- **Closing and mounting wire terminations at-end anchors**
It needs to be checked whether wire mountings at end wall anchors are in line with manufacturer's regulations (Installation Guide). Are anchoring rings free of corrosion? Do they hold the wire properly? Is a turn buckle installed at required locations? Does turn buckle work as needed or does it need to be adjusted?
- **Wall structure / Fastening studs**
The wall structure must be verified to make sure it's suitable to hold the necessary force of 15kN. Fastening studs, screws and nuts must be in suitable condition, with no damage and no corrosion.
- **inspection tag and inspection report (downloadable from www.diasafe.com before inspection)**
During post-installation technical inspection, one shall register the date, the serial number and the system type onto the inspection tag, and the inspection tag shall be affixed to a visible location on the system.
Besides system data (type, model, manufacturer, serial number, installation date, installation location, owner's representative), the inspection report should incorporate all other relevant data, such as the basis for inspection report; what damage or issues were identified; all completed operations and tasks; name of the person carry out the inspection and due date of the following technical inspection.
- **Handing over technical inspection documentation to the relevant staff members**
Owner/operator of a building equipped with a DiaSafe® system shall receive a copy of the technical inspection report and related annexes. These documents are to be retained (see above).

Warning!

Should any concern arise concerning system safety or error free operation, IT IS PROHIBITED TO USE THE SYSTEM ANY LONGER. System use can only be resumed once errors have been rectified or an official inspection confirms that the system is free of any errors.

Any system malfunction or inadequacy must immediately be reported to the manufacturer, or the authorised company, in writing.

After a fall, the DiaSafe® fall protection system and related personal protective equipment cannot be used unless the manufacturer or a person authorised by the manufacturer examines the system, and issues a permission in writing.

In such a case, used system components are likely to be replaced.

14.5 Lifetime of the systems

The maximum lifetime of the DiaSafe systems – in case of adequate and professional use, without visible deterioration and under optimal conditions – is 20 years from the date of the professional installation.

The lifetime significantly depends on the way of use and the regular inspections. Periodic inspections are to be accomplished in every 12 months at least.

If a DiaSafe® system has been used to arrest a fall, it is prohibited to use the system again.

Under extreme (like weather) conditions, the system may be damaged in the period between the regular inspections. If such a case occurs the use of the DiaSafe system is prohibited. For this reason the inspection of the system is necessary before and after every use.

15 Certification

15.1 Manufacturer research, investigation and testing

Before the Diadem® DiaSafe® system was commercialised, we had conducted several tests with our test equipment which is set up in accordance with the relevant EN795 and CEN/TS 16415:2013 standards. These tests confirmed that the system operates flawlessly and safely, providing the installation has been accomplished in line with the relevant instructions.

These tests have been documented with reports, photos and videos. Relevant expert summaries have also been attached.

DiaSafe® system was tested and certified by TÜV-Austria.

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16 Important notes and safety warnings

16.1 Modifications and changes

In order to ensure continuous product development, technical characteristics of DiaSafe® components are subject to change by the manufacturer. If such changes affect system safety, the registered inspecting institution which completed system checks and issued the type certificate shall examine the modified product as well.

16.2 Instructions for the safe use of DiaSafe® systems



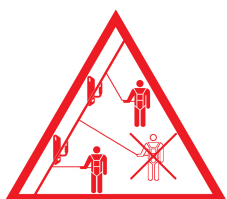
The Manual must be read thoroughly



Can only be used with personal protective equipment and built-in fall decelerating device



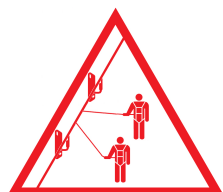
Anchoring max. 2 users simultaneously (**Single Duo**)



For simultaneous fixing of several users

Maximum 2 users in every other span/section (**Line Multi**)

At least one section should be kept free between two users



Anchoring max. 2 users simultaneously (**Glide Duo**)

The 2 users can be attached in the same span/section

17 Conclusion and notes

DiaSafe® Wall-fix Single and **DiaSafe® Wall-fix Line and Glide** systems are anchoring installations tested and approved by the standard EN795:2012. These systems are adequate for attaching approved personal protective equipment compliant with EN363 and EN365 and use as safety device against fall from heights.

Warning!

If a DiaSafe® system has been used to arrest a fall, it is prohibited to use the system again. In such a case, relevant system components must be overhauled!

The original documentation was prepared in English. In the event of any discrepancies between the other language versions the English language description should be regarded as authoritative. We assume no responsibility for any discrepancies resulting from the translation.

DIADEM® is a registered trademark! This technical manual is the intellectual property of the manufacturer, the use of its content in any form, without the previous authorization of the manufacturer is strictly forbidden.

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