

**Instruction manual for anchor slings / connecting lanyards, type
LISKO, ANILLO, VANGUARD, FLEX and HARDY, certified according to EN 354:2010, EN 566:2017 and EN 795:2012/B**

VANGUARD	VANGUARD X	LISKO	LISKO X	ANILLO	ANILLO X	FLEX (DR / LR / RR)	HARDY	HARDY-R
								
16mm, Dyneema® BL > 25 kN		26mm, PES BL > 30 kN		35mm, PES BL > 40 kN		45mm, PES BL > 25 kN		Ø 8mm, steel wire rope BL > 35 kN

***BL = Breaking Load [kN]**

Thank you for choosing VERTIQUAL®! You have purchased a high quality product that will reliably protect you and will be your companion for a long time when working at heights and depths.

This manual must be read and understood before using the product! This product will be used with other equipment (components) thus forming a system for working at heights. Please refer to the instruction manual of each component in your system for compatibility and correct use! Following these instructions accordingly is essential for your safety. Failure to do so can result in serious or even fatal accidents! Keep these instructions together with the product, accessible to all users, so they can consult them whenever is needed!

WARNING! These instructions are a basic comprehensive guide to the safe use of the purchased equipment. They contain general information about the product, intended to help the user, but cannot cover all the situations that may occur in the daily activities and cannot in any case replace the specialized training courses for safety at heights. This PPE against falls from heights can only be used by well-trained users, who are familiar with the relevant legislation and who have successfully completed a special safety training course for working at heights.

WARNING! For works with risk of falling from heights or in depths, a risk assessment must be carried out in advance in accordance with current regulations and legal provisions (EN standards or specific national rules) that will provide adequate measures for safety and rescue!

WARNING! Instructions for use are updated when technical or legislative changes occur. The latest version of the instructions overwrites previous versions and is the only valid version. Please make sure you follow the instructions of the most recent version.

You can download the most recent instructions from our website www.vertiqualsafety.com by accessing the section of each product.

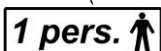
For help or additional questions, please contact us at office@vertiqualsafety.com or Tel. (+40) 0365/882143.

WARNING! The user must be medically fit and capable to ensure his own safety and act accordingly in possible emergency situations! Seek medical approval according to the national legislation in force!

WARNING! If the product is re-sold outside the original country of destination, the reseller must provide these instructions manual in the language of the country where the product will be used.

FIELD OF USE: Anchor slings are used to create temporary anchor points, in situations where the size and geometry of an anchor structure is not suitable for attaching a carabiner directly to it. These can be used also to create a secure access path when climbing structures and different types of ladders. Another application of the anchor slings is the creation of multiple anchor points when building complex systems for working at heights and rescue. Along with other tested and certified components, the anchor slings are used to create fall arrest systems. The purpose of this systems is to stop the free fall of the user, absorbing most of the shock and distributing the remaining force evenly, while holding the users body in a proper position until he or she is rescued. The product must be used exclusively as a PPEaF (Personal Protective Equipment against Fall), in usual environments with temperatures between -30°C and +50°C, without potentially explosive atmospheres, far away from flames, sparks or hot metal splash. Avoid contact with sharp edges, electricity, chemicals, corrosive solutions and substances, excessive heat, oils, paints or any other contaminants. The structures used for anchoring have to meet the requirements of EN 795-2012, must have NO sharp edges and must be capable to withstand minimum 12 kN. The anchor point must be located as high as possible above the user and as close as possible to the vertical axis of the user's position, thus reducing the fall distance and prevent pendulum accidents. The minimum free space below the user (fall clearance) must be ensured to prevent hitting the ground or any obstacles while the fall is arrested.

These products are approved for single person use!



DESCRIPTION

The anchor slings / connecting lanyards are manufactured using textile webbings or steel wire rope.

•Anchor slings type LISKO and ANILLO (acc. to EN 354, EN 566 and EN 795/B) are closed loops made from tubular PES webbing.

•Anchor slings type VANGUARD (acc. to EN 354, EN 566 and EN 795/B) are closed loops made from flat DYNEEMA® webbing.

LISKO, ANILLO and VANGUARD type slings are available in various lengths: 60cm, 80 cm, 100 cm, 120 cm, 140 cm, 180 cm and 200 cm.

•FLEX (acc. to EN 354 and EN 795/B) is manufactured using flat webbing, sewn in a double layer. The inner side of the strap is protected by an additional layer of abrasion resistant material and the end loops are fitted with metal rings/connectors. FLEX is available in the following lengths: 50cm, 100cm, 150cm or 200 cm.

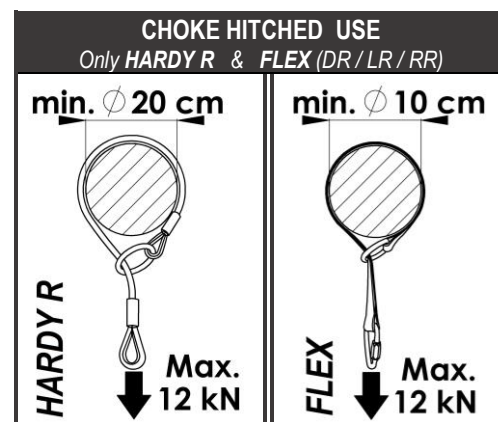
•HARDY (acc. to EN 354 and EN 795/B) is manufactured using Ø 8 mm steel wire rope (galvanized) and has two swaged end loops. The HARDY-R model has an additional metal ring fitted on one end, which can be used as a multidirectional rigging point. HARDY and HARDY-R are manufactured in lengths of: 50cm, 100cm, 150cm or 200cm (EN 354 and EN 795/B). Lengths over 2m can be manufactured for use as anchor slings only (EN 795/B). In this case HARDY / HARDY-R can be used only to create a temporary anchor point, because its length already exceeds 2m.

To create **an anchor point** the anchor sling will be placed around a suitable structure (with no sharp edges and a minimum breaking load of 12kN) then the connector fitted on the next component will be used to close the loop (passing it through both ends of the sling).

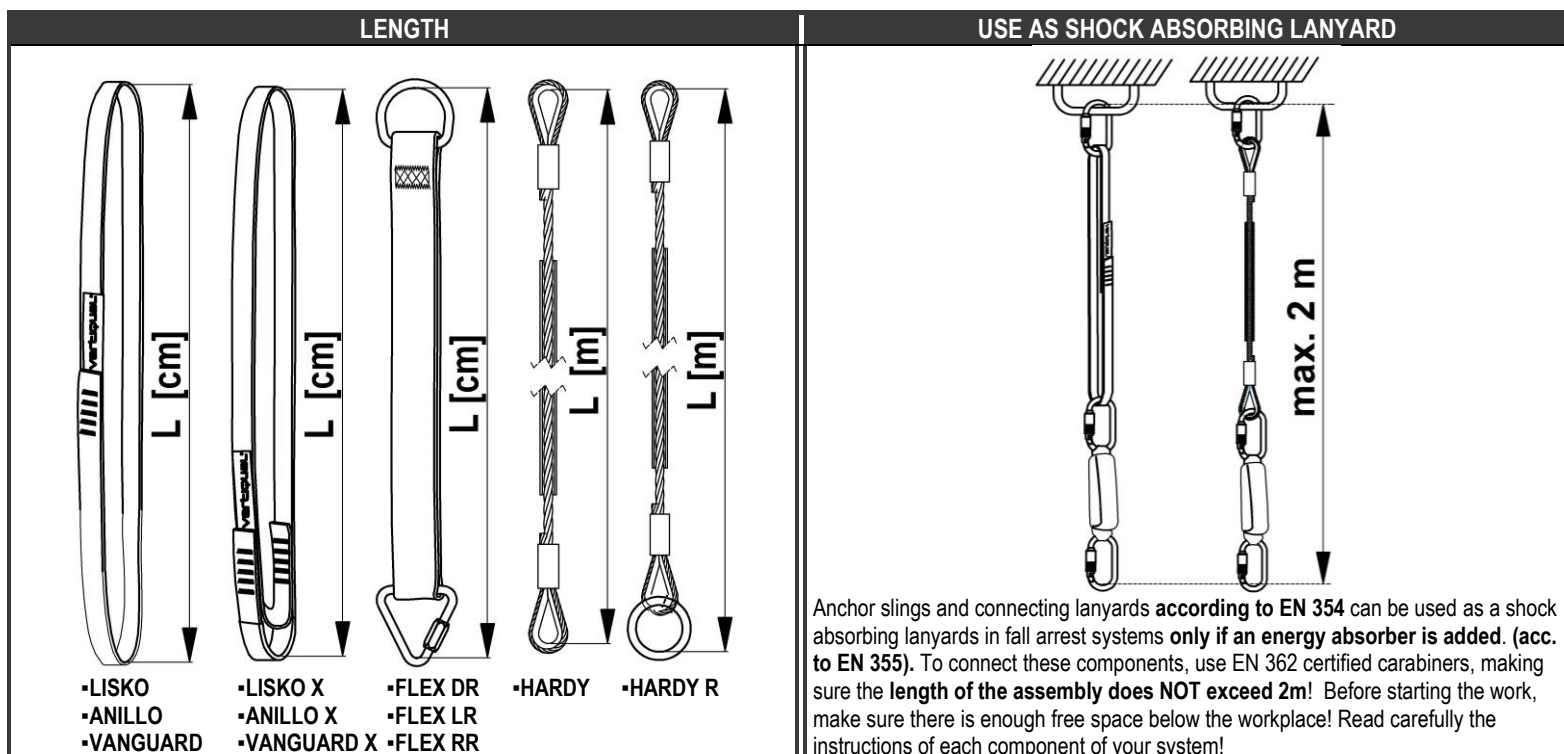
The next component of the fall arrest system which will attach to the anchor sling can be:

- Shock absorbing lanyard (EN 354 and EN 355)
- Guided type fall arrester including a flexible anchor line (EN353-2)
- Retractable type fall arresters (EN 360)
- Semi-static and Dynamic ropes of various systems for working at heights

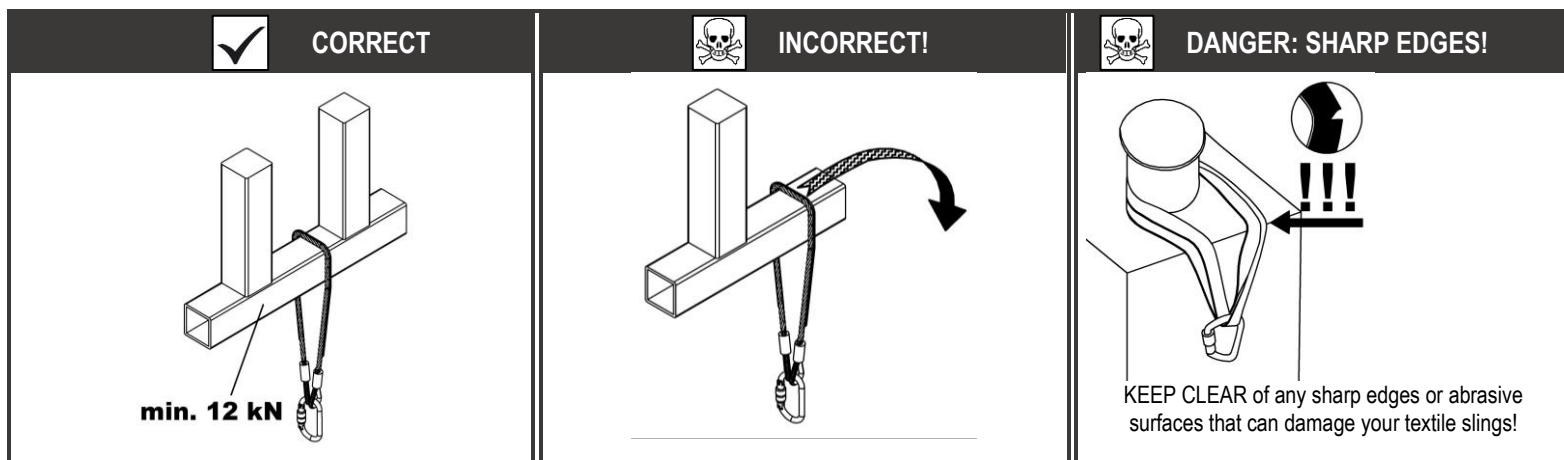
WARNING! The anchor slings can transmit loads of around 9kN to the anchor structure in use, but it is necessary to make sure that the structure has a proven load bearing capacity of **minimum 12kN in all directions!** Always make sure that the anchor sling is wound firmly around the anchor structure and the free ends are not too long to add additional length in your system! **HARDY R** and **FLEX** type slings (FLEX DR; FLEX LR; FLEX RR) can be used choke hitched on suitable anchor structures!



The anchor slings / connecting lanyards shall be installed according to these instructions, by choosing the type of installation which provides the highest strength (highest breaking load) and by reducing as much as possible the distance between the anchor structure and the connector of the next component. It is strongly recommended that all slings and lanyards are protected from contact with sharp edges, heat, hot metal splash, chemicals, corrosive agents, acids and bases, electricity, mechanical and thermal shocks or any other factor that can inflict damage to them!

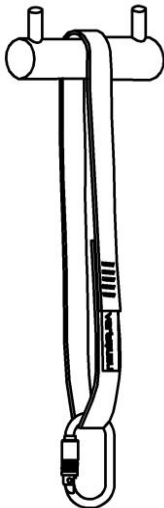


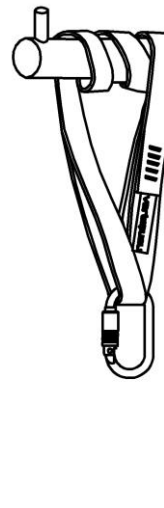
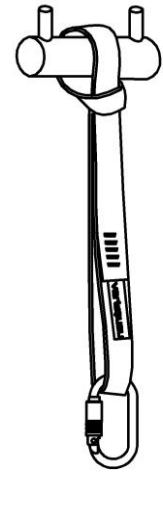
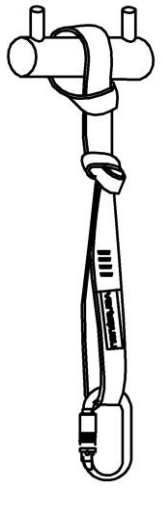








Some examples of correct and incorrect ways of anchorage are presented below. These are amongst the most common situations, but do not represent a complete list of correct and incorrect anchorage scenarios.

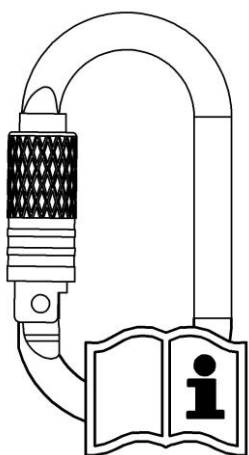


INSTALLATION WAYS OF THE ANCHOR SLINGS

BL = Breaking Load [kN]

					
BL 	approx. 200% BL 	approx. 400% BL 	approx. 200% BL 	approx. 50% BL  !!! DANGER !!!	approx. 35% BL  !!! DANGER !!!

WARNING!



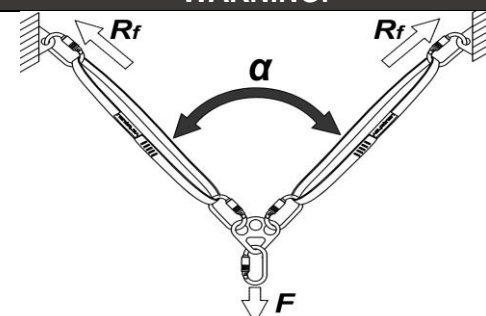
WARNING! Only certified connectors (EN 362) will be used for rigging the anchor slings / connecting lanyards. Carefully read the instructions of the connectors you intend to use and of the other components of the system!

WARNING!



It is **STRICTLY FORBIDDEN** to use these anchor slings / connecting lanyards for lifting or handling materials! Personal Protective Equipment against Falls should never be used as lifting equipment!









WARNING!



When building complex, multi-anchor rigging systems using triangle layouts, keep the angle between the slings (α) as acute as possible! Wide angles multiply load (R_r) transmitted to each anchor! We recommend to always use slings of appropriate length, to keep the angle below 60°

For $\alpha \leq 60^\circ \rightarrow R_r \approx 60\% F$ OK
 For $\alpha \geq 90^\circ \rightarrow R_r \approx 70\% F$ OK
 For $\alpha \geq 120^\circ \rightarrow R_r \approx 100\% F$ WARNING!!!
 For $\alpha \geq 150^\circ \rightarrow R_r \approx 200\% F$ DANGER!!!

WARNING! Depending on the length of these product it is allowed to use them in certain applications:

	Restraint system (EN 354)	Positioning system (EN 354)	Fall arrest system (EN 354)	Use as a temporary anchor device (EN 795 type B)
Length: 0,6 ... 2 m			 !!! check section „USE A SHOCK ABSORBING LANYARD“	
Length: ≥ 2 m		 FORBIDDEN !	 FORBIDDEN !	

VISUAL CHECKS!

Warning: Before each use, the integrity and compatibility of the equipment must be checked! If damage is identified, the equipment must be immediately withdrawn from use! If there is any doubt regarding the condition of the equipment DO NOT USE IT, instead send it to the manufacturer or to an authorized representative of the manufacturer for a professional evaluation.

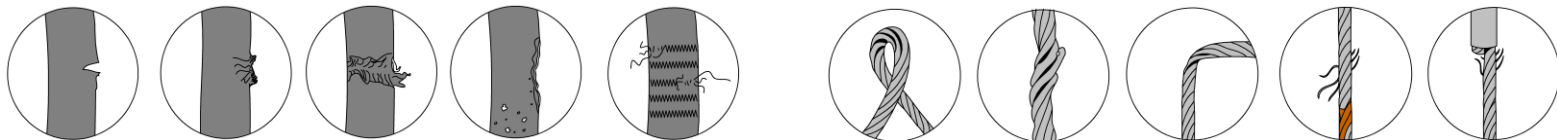
WARNING! This product is designed as a Personal Protective Equipment against Fall (PPEaF). Modifying it or assigning other uses are strictly forbidden! Each user shall use his own PPEaF as well as his own rescue equipment. The user must know the performances and also the limitations of his equipment! In case of uncertainty regarding the equipment or its safe use, seek advice from the manufacturer or your qualified distributor

The equipment must be immediately removed from service if:

1. The marking/label is missing or is unreadable.
2. **DAMAGE** has been identified (incisions, cuts, tearing, worn seams, discoloration, hardened or thinned areas, burns, melted areas, rust, plastic deformation).

mations) if any other abnormalities of the parts or structure have been found or if the product had suffered any changes compared to its original condition!

Below some examples of damage are illustrated:



3. Contact with paints or unknown chemicals had occurred (irreversible contaminations).
4. The equipment was involved in a fall arrest or had been subjected to heavy loading.
5. The integrity of the equipment is questionable and the inspection log is incomplete or missing.
6. The equipment was in service longer than: **10 years – VANGUARD, LSKO, ANILLO and FLEX**

RESCUE! A rescue plan must be made before starting the work at heights or depths! It is mandatory to set up and know the specific rescue plan for every situation and to have designated personnel and appropriate means of intervention!

SERVICE LIFE:

• For the steel wire-rope products (HARDY and HARDY-R) the service life is **UNLIMITED**, as long as their condition is proven to be **SAFE** before using them! Please note that **VISUAL CHECKS** before each use and **PERIODIC INSPECTIONS** are mandatory! (*check these sections for more details).

• The SERVICE LIFE * of PPE against falls, made of textile materials (VANGUARD, LSKO, ANILLO and FLEX) is 6-8 years under normal conditions, but a **maximum of 10 years*** from the date of first use.

The date of the first use must be noted in the logbook, otherwise the date of manufacture is considered as the date of the first use. The storage of new, unused products under optimal conditions (darkness, dryness, original packaging, constant temperature, without chemical vapors, etc.) should not exceed **2 years**. * PPE that belongs to a single user, has not been used excessively and not often, has been subjected to regular checks by experts, has been found to be "safe" and recorded in the test book, has a complete product history, has not been involved in a fall, is carefully treated and cared for, have been stored in accordance with regulations, have not come into contact with oils, fats or aggressive chemicals, (attention - incomplete list) can remain in use for up to 10 years. Intensive use, heavy and demanding working conditions, incorrect application, incorrect maintenance and care can greatly reduce the service life of the equipment. Certain events, such as falls, high exposure to heat, exposure to corrosive chemicals, can limit the use of your equipment to a single time. A generally valid, binding statement about the duration of use of textile PPE cannot be made, as this depends on a large number of factors such as UV light exposure, working conditions, contact with various substances, etc. The service life of the equipment ends when one of the cases mentioned in the previous chapter occurs or when the inspector / certified expert decides this on the basis of other facts. The theoretical total service life of textile PPE against falls (Storage time + Service life) is limited to a maximum of 12 years from the date of manufacture.

STORAGE, MAINTENANCE, TRANSPORT! The equipment should be stored in a dry, cool and well-ventilated room, if possible, in its original packaging. While in storage, this PPEaF must be protected from UV radiation, solar radiation, heat, sparks, incandescent metal splash, electricity, chemicals, sharp objects, heat sources, dust, cement, oils and greases or any kind of contaminants. Buckles and metal parts can be cleaned using a soft cloth or using compressed air. If necessary, the textile parts can be cleaned using warm water (30°C) then rinsed. Drying the wet equipment will be made by hanging it in well-ventilated room away from any heat source. When fully dried, the equipment can be stored accordingly in its packaging (bag or box). Transport of the equipment must be made in its protective bag or box, away from any factor that could contaminate or inflict damage.

PERIODIC INSPECTIONS AND CHECKS! The user must perform a visual inspection of his equipment before and after each use! During use, it is important to monitor your equipment in order to identify possible damages inflicted in use, without being aware of it. The equipment must be inspected **at least once every 12 months** or more often if required, depending on the working conditions and compulsory after every incident it has been involved in. Inspections can be carried out only by the manufacturer or by an authorized inspections center. **If the periodic inspections were not performed at least once every 12 months, were carried out by unqualified persons, or without strictly respecting the manufacturer's instructions, the warranty is lost and the manufacturer declines any responsibility related to the equipment!** It is recommended to mark the anchor slings with the date of the next inspection!

MARKING! All VERTIQUAL® PPEaF are fitted with a label which contains the following elements and essential information: name of the manufacturer, name of the model, manufacturing date (month and year), length [cm] / [m], minimum breaking load [kN], standards/norms the product complies to, European CE marking with identification number of the notified body, international symbol for reading the instructions before use, the product's serial number and the allowed number of users (Max. ... users). The label must be always present and readable!

Inspection Log! Every PPEaF is delivered with an Inspection Log. This document must be kept safely and sent along with the product for every inspection.

The Log (table) contains important data regarding your equipment. The date, signature of the inspector and the results are also recorded. The **date of first use** must be written in the Inspection Log by the user!

Repairs or any other modifications can be performed only by the manufacturer! Any repairs, modifications or additions (even minor ones) performed by anyone else are strictly forbidden, lead to the loss of the manufacturers guarantee and any responsibility related to this product!

WARRANTY AND LIABILITY! The manufacturer offers a **24 month** warranty for this PPEaF from the date of first use. The user has the obligation to write the date of first use in the Inspection Log. If the date of first use was not filled in, the warranty period will be calculated from the manufacturing date. The warranty is applicable only for material or manufacturing defects! Damage resulting from normal wear and tear, corrosion, poor maintenance (or no maintenance at all), those resulted from carelessness, accidents, fall arrest, unauthorized repairs or modifications, wrong use of this PPEaF or any other reasons are NOT covered by the warranty!

Warranty claims only apply to the product. All claims by the user or any other party for the direct, indirect or any consequential damages resulting from the use of this PPEaF are excluded from guarantee and liability assumptions. Any claims in this regard are hereby expressly rejected.

The user must be informed regarding the dangers of work at heights and depths. He should be aware of the risks and he has to be aware that he is the only responsible for eventual damage, accidents or even death which may result from the use of this equipment. If the user is unable to do so or if he does not have the competence to do so, he cannot use this PPEaF. VERTIQUAL Engineering SRL herewith rejects any liability claims for direct, indirect, accidental or consequential damages resulting from the use of this PPEaF (Personal Protective Equipment against Fall).

These products comply with the **European PPE Regulation 425/2016** and with the EN harmonised standards. Conformity assessment and production control is carried out by Eurpean Notified Body **NB 2756** (INCDPM: Adress, 35 A, Ghencea Blv, Sector 6, Postal code: 061 692, Bucharest).

The **EU Declaration of Conformity** can be downloaded from our website www.vertiqualsafety.com by accessing the product's dedicated section.