"LIFELINE POLE" FALL ARREST SYSTEM



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TECHNICAL DOCUMENTATION





WARNING!!!

BEFORE EVERY USE OF THE FALL ARREST SYSTEM, THE USER SHALL READ THIS TECHNICAL DOCUMENTATION AND ALWAYS STRICTLY FOLLOW THE RULES DESCRIBED HEREIN. THESE INSTRUCTIONS WERE PREPARED FOR ALL WORKERS AND PEOPLE THAT WILL WORK ON TRANSPORTING, UNLOADING, ASSEMBLING, DISASSEMBLING, STORING, CHECKING AND ANY OTHER WORKS CONNECTED TO THE FALL ARREST SYSTEM. EVERY USER IS OBLIGED TO READ AND GET FAMILIAR WITH THE SYSTEM'S TECHNICAL DOCUMENTATION!

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INTRODUCTION

INTRODUCTION This technical documentation contains the guidelines concerning the proper use of THE FALL ARREST SYSTEM. Workers and other people using the system shall always observe the guidelines contained herein. In case of any events not described in this document, the occupational safety and health regulations and other regulations, appropriate to the specific situation, shall be observed. It is forbidden to modify the system in any other way than described in the technical documentation. The manufacturer is not liable for any modifications in the system in a way that is not described in the technical documentation.

1.0 MANUFACTURING BASIS

The system is aimed at increasing the safety of works performed at heights. The design of the FALL ARREST SYSTEM was drawn in accordance with the applicable laws and technical norms:

EN-795:2012 — Personal fall protection equipment

EN-360 2005P — Personal protective equipment, securing the workers from

falling – self-locking devices.

EN-362_2006P — Personal protective equipment, securing the workers from

falling – connectors

EN-354_2012P — Personal protective equipment, securing the workers from

falling – connectors, safety lines

EN-361:2003 — Personal protective equipment, securing the workers from

falling – safety harnesses

1.1 COMPLIANCE ASSESSMENT PROCEDURE WITH A NOTIFIED BODY

The compliance test of the "Lifeline Pole" fall arrest system was performed in accordance with the guidelines of the 3rd risk category (fall from heights).

The EU-type (module B) test was performed, as well as compliance test, on the basis of an internal production control and product controls in random time intervals (module C2).

The notified body performing the compliance tests:

DEKRA Testing and Certification GmbH Dinnendahlstr. 9 * 44809 Bochum * Germany, registered: Stuttgart, HRB-Nr. 759624





2.0 USER MANUAL

2.1 TERMINOLOGY AND DEFINITIONS

Anchoring device:

an element or set of elements that are equipped with anchoring points

Element:

lines, tapes and hooks – these are examples of e.g. the fall arrest system

Anchoring points:

an element to which the personal protective equipment can be attached,

Anchoring line:

a flexible line attached between structural anchoring points,

Safety line:

an element – e.g. The tape of a self-locking device - to which the PPE equipment (e.g. a safety harness) can be attached – with the use of a an anchoring element (e.g. A snap ring),

A fall-arrest device:

a set of elements, anchoring devices or other combination of constructional elements which are protecting the user from falling from height / through the edge – it is for example "a gallows",

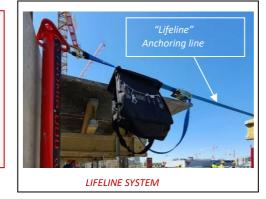
A self-locking device:

a fall arrest device with the self-locking function and automatic stretching and rolling the safety line back.

ATTENTION:

Two terms: "Lifeline system" and "Lifeline" shall be distinguished, as they are often mistakenly used.

The lifeline system – is a set of elements that makes the whole solution which is used to fasten the PPE equipment. Lifeline – is the anchoring line which is the part of the lifeline system (see the figure).



2.2 PURPOSE AND SCOPE OF USAGE

The "lifeline poles" fall arrest system together with the PPE (an anchoring line, a harness, a self-locking device) is used to provide safety while working at heights. The system protects its user from falling from height while performing assembly works (shuttering assembly, floor boarding, steel reinforcement works, assembly of collective protection elements etc.).

The use of the FALL ARREST SYSTEM is allowed only on condition of adhering to the Technical Documentation and proper occupational safety and health regulations.





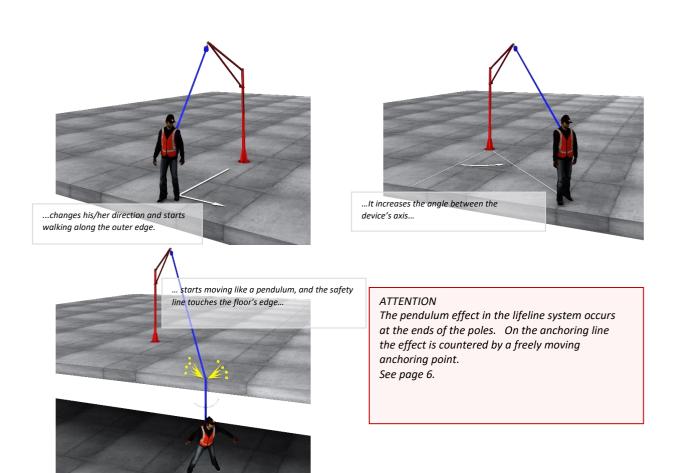
2.3 ALLOWED WORKING PARAMETERS

The lifeline poles system with the anchoring line, the self-locking device and the safety harness is a set of elements working together to protect users from falling. For that reason and in order to use it in a safe manner, it is necessary to get familiar with the rules of the system's operation and its limitations. The safety harness is the only element of the PPE which works with the self-locking device.

2.3.1 PENDULUM EFFECT

One of the most significant, potentially dangerous situations while working with the "gallows" device and the lifeline system is the so called "Pendulum effect". It occurs when a user walking perpendicularly to the edge changes his/her direction and starts walking along the outer edge. It increases the angle between the device's axis and the axis perpendicular to the edge (see the figure below). In case of a fall through the edge, the user attached to the device starts moving like a pendulum, and the safety line touches the floor's edge.

Such situation poses a direct threat to the user's life and health. Such type of a fall is not allowed by the manufacturer of standard self-locking devices and requires using other type of safety devices, not offered in this safety system.



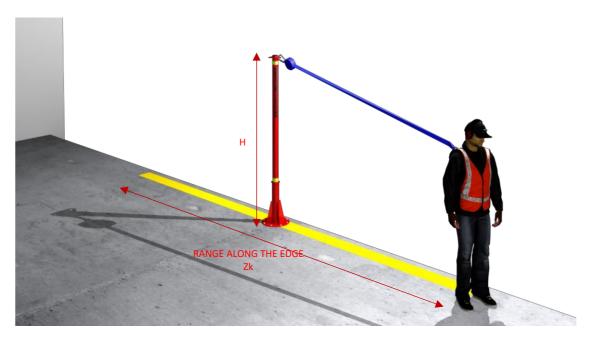




2.3.2 WORKING RANGE OF THE SAFETY DEVICE

RANGE ALONG THE EDGE

Because of the pendulum effect, there is a limitation in the working range of the self-locking device which in the most common models equals the maximum deviation from the vertical position (40°). The figure below shows the working range of the lifeline system within the outer edge of the working area.



The range of the lifeline pole (along the working edge) comes directly from the maximum deviation angle 40° (of the self-locking device) and the height of the anchoring point H. That range is described with the following formula:

The table below presents working ranges along the edges of different types of safety devices.

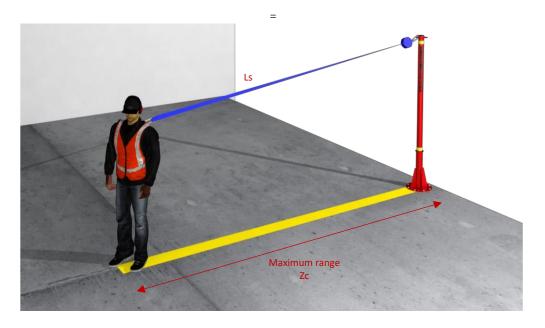
device	H [m]	Zk [m]
LIFELINE POLE (concrete swamped socket)	1.6	1.2
LIFELINE POLE (socket anchored to the floor)	2.08	1.7
LIFELINE POLE (side socket h=1 m)	2.6	1.7





MAXIMUM RANGE

The maximum range Zc of the lifeline pole within the floor (in the opposite direction to the floor's edge) roughly equals the length of the safety line of the self-locking device Ls.



The maximum range equals the length of the safety line of the self-locking device: $3.5\ m$ or $6\ m$.





2.3.3 SAFE HEIGHT OVER AN OBSTACLE

The total height of the fall is the result of two variables:

a) The length of the self-locking device's line Lsh,

The safe distance from an obstacle is calculated for the maximum extension of the self-locking device's line (e.g. 6 m, 3.3 m etc.).

The safe distance from an obstacle can be assessed on the basis of the below dependency:

h - < 2.1

Lsh [m] The length of the self-locking device's tape.

H [m] – The distance from the nearest obstacle placed below the working area of the SELS-LOCKING DEVICE.

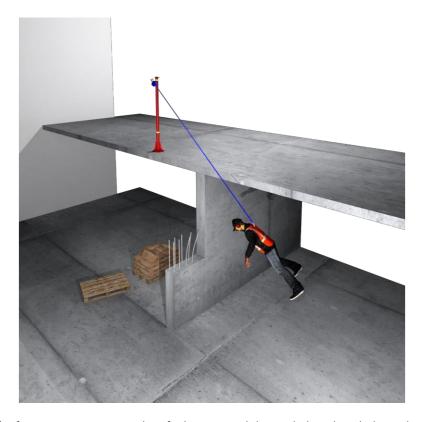
If the length difference between the self-locking device and the height of the working surface over an obstacle is smaller than 2.1, it means that it is a safe distance from the user's obstacle in case of a fall (with the maximum extension of the safety line).





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2.3.4 SAFE SPACE UNDER THE WORKING AREA.



In terms of safety, it is important to identify the potential threats below the whole working area. It should be checked if there are any potentially dangerous areas below the working area, as well as areas beyond the set working range which the user has access to.

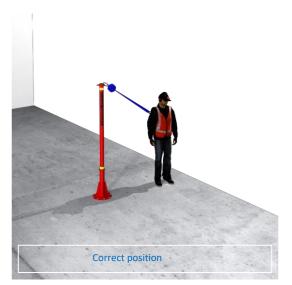


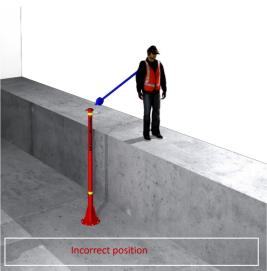


2.3.5 THE POSITION OF THE ANCHORING POINT TOWARDS THE USER

The position of the anchoring point comes directly from the requirements of the self-locking device and dependencies described in points 2.3.1 and 2.3.2. If the accepted deviation angle of the anchoring line is 40°, the height of the anchoring point shall be adjusted accordingly in order to meet that requirement.

The anchoring point cannot be below the user's head.





The anchoring point shall be placed as high as possible what increases the working range of the gallows.

Low placement of the anchoring point increases the risk of the pendulum effect and fall through the edge. It poses a direct danger to health or life.





2.4 RULES FOR SAFE OPERATION

During the operation of the FALL-ARREST DEVICE, workers shall bear in mind the safety of the users, any personnel or people that may be affected by the operation of the device.

The Fall arrest system is intended solely for the purposes described in this manual. Any operation not in compliance with the manual is forbidden by the producer.

The FALL ARREST DEVICE protects users working at heights from falling.

Before using the device, the worker shall read this manual.

Improper use of the system increases the risk of an accident for the user, as well as other people standing close to the user.

Before using the Fall Arrest System, the users shall read the technical documentation of the system.

- Shall not stand within the range of the FALL ARREST DEVICE during transport
- Shall wear proper personal protective equipment,
- Shall remove any elements not connected to the given work which may pose a threat (cables, hoses, unnecessary material).
- Three people can be attached to the device. Attaching more people requires consultation with the STRUMIN'S technical department.
- The device shall not be used as a provisional crane and was not designed to lift and lower materials, e.g. constructional materials.
- No elements not provided with the complete device shall be attached to the fall arrest system (excluding the self-locking device). It may have a negative impact on mechanical parameters and affect the operational safety.
- During the transport, workers shall act carefully in order to avoid possible impact to the constructional elements.
- In case of damaging any elements of the device, it shall be immediately withdrawn from further operation.
- The assembly shall be performed with caution and in the case of damaging any part it shall be immediately replaced or checked by a trained person.
- The place where the fall arrest device is to be used shall have a rescue plan implemented, in case of an event that could lead to securing from a fall.
- The "Lifeline pole" fall arrest device was designed in order to withhold the weight of three people.
- - If the device is transported with a crane, workers shall pay special attention to any movements of a crane and keep safe distance from it.
- The fall arrest device is intended to be used as a part of a fall arrest system with zero falling rate. The user shall pay attention to placing the anchor above the worker. The self-locking device shall be stretched between the anchoring point and the worker.





- - The maximum vertical deviation from the anchoring point while working shall not exceed 1 m.
- If a self-locking device is to be used, it has to be checked for holding appropriate certification
- Personal protective equipment that protects from falling used in connection with the fall arrest system must be marked with the CE mark and certified in the country in which it is intended to be used
- Personal protective equipment used as a part of the system protecting form falling shall be equipped with a device that limits the strength impacting the operator to no more than 6 kN.
- It is not advised to use the fall-arrest device in case of people suffering from cardiovascular diseases, under the influence of alcohol or drugs or in any other health condition that may impact the worker's mental or physical capabilities.
- Introducing any changes and complementing the equipment/system demands a written consent from the manufacturer.
- Any repairs of the system's elements must be performed in accordance with the procedures declared by the system's manufacturer.
- While assembly of the sockets (floor and side), the minimum strength of the anchoring point shall be 10 kN. Detailed information concerning this topic can be found in the "ASSEMBLY MANUAL".
- In case of selling the fall arrest device abroad (to a different country than the country where it was intended to be used in), the seller shall provide the operation, maintenance and periodical inspection instructions in the language of a country where the equipment is to be used.

2.5 SYSTEM'S CHECK

QUICK CHECK

Before each use of the device, its technical condition shall be checked in terms of:

- completeness of the system's elements,
- completeness of screws, connectors,
- no damages to any welds,
- check if there are any bent, broken, cut or otherwise damaged elements (e.g. the central pole of the gallows is scraped within the edges of the assembly sockets nominal Ø of the pole is 76.1 mm / allowed wear: min. Ø 75.1 mm),
- check if all assembly holes are unobstructed and do not hamper the proper assembly,
- Check the product's markings, its readability, lack of damages (i.e. they are not wiped, broken etc.). they are not scraped, broken etc.).

If any of these requirements are not met, the user shall stop using the system and inform the manufacturer about the need to perform a detailed inspection.





DETAILED CHECK

The detailed check of the fall arrest system shall be performed by the manufacturer or any appropriate entity:

- always before delivering the device to a construction site,
- after 12 months of using the system,
- always when the device has not been used for longer than 3 months,
- after every information from the user about the need to perform the detailed check. For the detailed check, performed at the request of the user, shall be charged a fee.

PERIODICAL CHECK CHECK AFTER A FALL FROM HEIGHT

In order to provide proper operation and safety of the fall arrest system, the periodical check of the system shall be performed at least once every 12 months (each element that is included in the device). The check must be performed by a competent person holding proper authorizations.

In any situation when the FALL ARREST DEVICE was used -i.e. in case of a fall - the used elements of the device shall be immediately withdrawn from further operation and handed over for a check. The check shall be performed by the manufacturer or a person who was trained by STRUMIN.

PERIODICAL CHECK EXPIRATION DATE

The periodical check expiration date is clearly marked on the outer edge of the check label [term (year and month) of the next check]







2.6 MAINTENANCE

The elements of the FALL ARREST SYSTEM are protected with lacquer.

While cleaning and performing the maintenance of the elements there shall always be used substances that do not react with lacquer.

In case of any chips, they shall be filled with proper lacquer coating.

2.7 QUALIFICATIONS OF THE SYSTEM'S USERS. Workers operating the system

should:

- read the complete TECHNICAL DOCUMENTATION OF THE FALL ARREST SYSTEM the training shall be confirmed in writing,
- finish a training on the occupational safety and health,
- undergo a training about using the personal and collective protective equipment.





2.8 CONNECTING THE FALL ARREST SYSTEM WITH A SLING

- Connection of the FALL ARREST DEVICE with a crane's sling shall be performed only by a person holding qualifications described in 2.9 and the permissions for a hook operator.
- The crane's sling can only be attached to indicated places, i.e. Transport brackets.

The workers shall check if:

- the slings are certified, do not contain any visible defects and are proper for transporting the system's elements,
- flexible connectors are not twisted or tied up,
- the bond between the slings and a transport bracket is firm,
- the crane's hook is complete.

2.9 INSTALATION OF THE FALL ARREST SYSTEM

Installation of the FALL ARREST DEVICE can only be performed by a person who has read the technical documentation. The site manager or another authorized person is responsible for the deployment and the choice of working places.

Before the assembly, it shall be checked if the device is complete and has no visible signs of damages.

The assembly of the device shall be performed with caution. In case of damaging any elements of the system, it shall be immediately replaced or checked by a trained person.

The vertical transport shall be performed with a crane, in accordance with the guidelines described in 2.8.

2.10 DISASSEMBLING AND MOVING THE DEVICE BETWEEN WORKPLACES

During the disassembly of the Fall Arrest Device workers shall keep all security measures and comply with the same regulations as during the assembly process.

During the disassembly of the FALL ARREST DEVICE all elements not belonging to the system shall be disconnected. It is forbidden to put on the harness during the transport.

2.11 USE OF THE FALL ARREST SYSTEM

During the use of the fall arrest system, the workers shall meet all the requirements described in the Technical Documentation and in any laws and regulations that apply.





3.0 DEVICE'S REGISTER

DEVICE'S REGISTER				
Name of the product:				
Model and type / identificatio	n:	Trade name:		ID No.:
Producer:		Address:		Phone No., e-mail,
				web page:
Date of production / Date of e	xpiry	Date of purchase:		The date of the first use:
Other important information (e.g. document No.):			
	,			
	PERIODICAL CHEC	CKS AND THE HISTORY	OF REPAIRS	
Date:	Reason (periodical check or repair):	Defects found, repairs performed and other relevant information:	Name and signature of a competent person:	Periodical check – next term:





	PERIODICAL CHEC	CKS AND THE HISTORY	OF REPAIRS	
Date:	Reason (periodical check or repair):	Defects found, repairs performed and other relevant information:	Name and signature of a competent person:	Periodical check — next term:

\$ STRUMIN

4.0 RATING PLATE

\$ STRUMIN

FALL-ARREST DEVICE

Name / Type:

Lifeline pole

Serial number:

105

Year of production:

2021

Weight:

15 kg

EN-795:2012, Type B



P.P.H.U STRUMIN 32-084 MORAWICA 191



Anchoring point, max. 3 people



Read the safety instruction / User manual



Use personal protective equipment (PPE)



Use personal protective equipment (PPE)

- The information contained on a rating plate allow to precisely identify each device based on its ID/Serial number.
- All documents attached to the device, such as the device's register after check or the user manual, are related to the ID / serial No. on the device in order to avoid any mistakes.
- The warning field on the rating plate informs, with the use of text and symbols, about possible dangers when the device is working.

Dangers

 Act accordingly to the safety instructions and use personal protective equipment (PPE)





5.0 TABLE: DANGER \rightarrow RISK \rightarrow PROTECTION

No.	Danger	Risk	RISK ASSESSMENT	Protection measures
1	Not sufficient mechanical Durability.	Using of a damaged concrete foot.	Fall of the construction (the pole with the arm) Danger to health and life.	Check, control and properly store the concrete feet.
		Damaging or destroying the pole due to overloading.	Fall of the construction (the pole with the arm) Danger to health and life.	Do not exceed max. allowed load capacity. Use in accordance with the Technical Documentation.
		Damaging or destroying the catching arm due to overloading.	Fall of the construction (catching arm). Danger to health and life.	Do not exceed max. allowed load capacity. Use in accordance with the Technical Documentation.
		Damaging or destroying the device due to not sufficient lifting power of a crane.	Fall of the device from height. Danger to health and life.	Transport only with a crane of sufficient lifting power.
	Smashing, squashing	Placing a foot, hand or other body part under the concrete foot while its lowering and assembly.	Cutting off, smashing, cutting, injuring or scraping any part of the body. Danger to health and life.	Stand in a safe distance from the concrete foot while its lowering or assembly. Wear proper personal protective equipment.
2		Moving the device through holes and gates.	Crushing or blocking the concrete foot. Danger to health and life.	Perform proper measurements before transporting through narrow holes.
		Overturn of the wrongly placed concrete foot on the surface.	Smashing, squeezing, injuring. Danger to health and life.	Place it on an even and stable surface or assembly to the support structure.
3	Hitting	Standing on, working on the pole or concrete foot while lifting, placing, lowering and setting [SA'A].	Hitting the construction or other working surface with one's head / other body parts. Danger to health and life.	Use the device only in accordance with its purpose, read the Technical Documentation of the system. Apply proper personal protective equipment.
		Improper entering or getting off the concrete foot or the pole.	Hitting the construction with one's head / other body parts. Falling on dangerous objects. Danger to health and life	Workers shall always enter and get off the constructional elements on a floor or any other hard surfaces.





3	HITING	Too high lifting speed and the speed of moving the device by a crane. Shakes or vibrations. Dynamic loads of the platform.	Hitting the load with one's head / other body parts. Danger to health and life. Hitting the construction with one's head / other body parts. Danger to health and life.	Automatic crane's speed limiter while moving the platform (speed shall not exceed 1.0 m/s) and performing operations in a smooth manner by a crane's operator. Apply proper personal protective equipment. Proper, smooth control of a crane's movement by its operator. Checking flexible connectors of a sling. Proper stretch of flexible connectors. Wear proper personal protective equipment.
4	Contact with moving parts	Loading unnecessary load on the device, concrete foot.	Overloading and fall of the device. Danger to health and life.	Use in accordance with the technical documentation.
5	IMPROPER POSTURE, WEARING A SAFETY HARNESS	Improper wearing of a safety harness or a self-locking device. Detachment from the device, falling or slipping on the surface.	Musculoskeletal disorders. Hitting, breaking or injuring any part of the body. Danger to health and life.	Wear proper personal protective equipment, in accordance with the user manual.
6	NOT USING THE PERSONAL PROTECTIVE EQUIPMENT	Not attaching to anchoring points, not using personal Protective equipment which protects from falling. Wear personal protective equipment proper for a given work.	Falling from the floor or the scaffolding. Danger to health and life. Hitting, injuring, slipping, burning, electrocuting, poor visibility. Danger to health and life.	Anchoring points. Attaching to anchoring points proper PPE protecting form fall. Wear personal protective equipment, proper for a given work. Define the safe work's system.
7	FALLING OR THROWN AWAY OBJECTS	Improper securing of the objects at the working place.	Hitting, breaking, injuring or burning any part of the body. Danger to health and life.	Wear proper personal protective equipment. Define the safe work's system.
	Conditions	Hitting by a lightning. Wind	Electrocuting, burning. Danger to health and life. Tripping, uncontrolled	Do not use [SA'S] during storms. Do not use [SA'S] when the speed





	Conditions	Icing, rainfall, snow or other adverse weather conditions.	Limitation of visibility. Slip, Danger to health and life.	Do not use the device during adverse weather conditions.
	ENVIRONMENTAL	Temperature	Possible discomfort while moving. Danger to health and life.	Use in temperatures from -10 to +40°C. Wear proper personal protective equipment.
9	Welding Works	Electrical breakdown	Electrocuting, burning. Danger to health and life.	Provide earthing of the device, protect brackets of the electrodes from contact with the construction and other metal elements. Apply proper personal protective equipment.
10	CHEMICAL	Using aggressive cleaning agents for the cleaning and maintenance of the device.	Possibility to burn any part of the body and pollute the environment.	Do not use aggressive cleaning agents that may cause: burning, destroying lacquered layers, steel corrosion and pollution of the environment.





6.0 DESIGNER'S STATEMENT

According to art. 20(4) of the "Building Code" I hereby declare that this project documentation of the constructional part for the fall-arrest system

was drawn in accordance with the provisions of the code, rules and guidelines of technical knowledge (art. 20 point 4 of the 16 April 2004 Act, amending the 7 July 1994 Act – "Building Code" Journal of Laws no. 6, pos. 41/2004), binding technical and building provisions, as well as the Polish and European Standards, and was handed in full to serve its purpose.

i kierowania robotami py projektawania
i kierowania robotami pudowianymi
bez oprani Zeń w specjalności
konstrukcyjno-budowianej
elny padajswapiosacy w pagapitanta

egrinz, Jan Baba

Projektant

designer's readable signature and seal





	EU DECLARATION OF CONFORMITY NO.:
1.	"Lifeline pole" fall arrest system device (Serial No),
2.	Name and address of the manufacturer: PPHU STRUMIN, Kamil Strumiński, 32084 MORAWICA Morawica 191, TIN: 944 21 77 757,
3.	This declaration was issued for the sole responsibility of the manufacturer: PPHU STRUMIN, Kamil Strumiński,
4.	Object of the declaration: "Lifeline pole" fall arrest system device as described in the Technical Documentation in the appendices No. 1 and 2 to this declaration: "LIFELINE POLE - OPERATING MANUAL.pdf" "LIFELINE POLE - ASSEMBLY MANUAL.pdf"
5.	The object of this declaration described in 4 herein complies with the provisions of the EU's standards.
	REGULATION (EC) NO 2016/425 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
6.	References to the standards describing the declared compliance:
	The project of the fall-arrest system was drawn in accordance with the applicable laws and technical norms:
	EN-795:2012 - protection from falling - anchoring devices.
	CEN/TS 16415:2013 - personal protective equipment Securing from falling.
7.	Notified body:
	DEKRA Testing and Certification GmbH Dinnendahlstr. 9 * 44809 Bochum * Germany, registered: Stuttgart, HRB-Nr. 759624 performed an EU-type examination (module B) and issued an EU-type examination certificate: (reference
	to the certificate). CE 0158
8.	The object of this declaration, described in Point 4. herein complies with the type, in accordance with the Company's production inspection system No. ZKP/STRUMIN/01 and the rules of the supervised product

Signing on behalf of: Kamil Strumiński, PPHU STRUMIN

Przedsiębiorstwo Produkcyjno Handlowo
Usługowe STRUMIN
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32-084 Morawica
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tel. 515 488 585 STRUMIN.PL

(place and date of issuing): MORAWICA 03-12-2021



inspections in random time intervals).