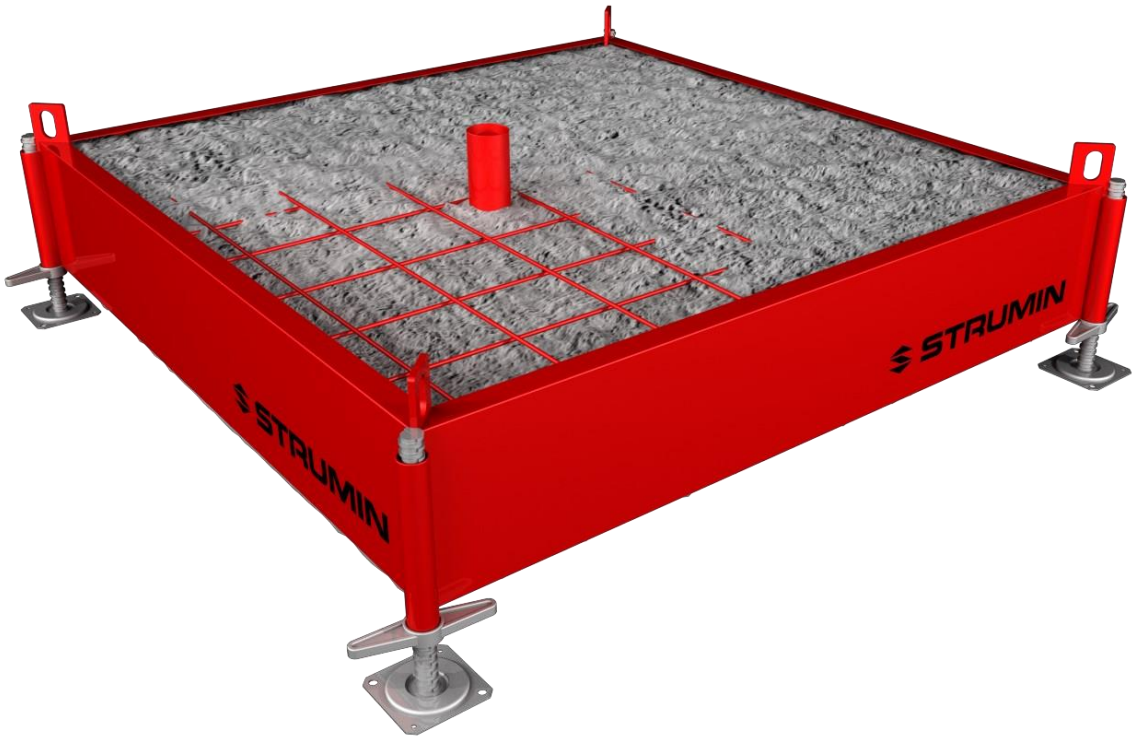
# FALL ARREST SYSTEMS – BALLAST SOCKETS

SAFE WORK AT HEIGHTS







+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

# TECHNICAL DOCUMENTATION

ATTENTION!

BEFORE USING THE FALL ARREST SYSTEM ALWAYS READ CAREFULLY THIS TECHNICAL DOCUMENTATION AND ACT IN ACCORDANCE WITH THE GUIDELINES SET FORTH HEREIN. THE INSTRUCTIONS ARE INTENDED FOR ALL WORKERS AND PEOPLE THAT WILL TAKE AN ACTIVE PART IN TRANSPORTING, UNLOADING, ASSEMBLY, DISASSEMBLY, STORAGE, INSPECTION AND ALL ACTIONS CONCERNING THE FALL ARREST SYSTEM.
READING THE TECHNICAL DOCUMENTATION IS THE RESPONSIBILITY OF EACH USER!

CONTENTS:





+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

INTRODUCTION

This TECHNICAL DOCUMENTATION contains guidelines concerning the proper operation of the FALL ARREST SYSTEM. Workers and other people performing any actions connected to the operation of the system must adhere to the guidelines. In case of any situations not set forth herein, the user shall act in accordance with health and safety regulations and other regulations applicable to a given situation. The user cannot modify the system in other ways than described in the Technical Documentation. The producer is not responsible for any modifications to the system performed in a way that was not described herein.

1. MANUFACTURING BASIS

The main purpose of the FALL ARREST SYSTEM is to increase the safety of works at heights.
The project of the FALL ARREST SYSTEM was prepared in accordance with the applicable laws and technical norms:

| | |
|---|---|
| EN-795:2012 | – Fall protection – anchor devices |
| EN-360_2005P | – Personal protective equipment to prevent falls from heights – self-locking devices |
| EN-362_2006P | – Personal protective equipment to prevent falls from heights – connectors |
| EN-354_2012P | – Personal protective equipment to prevent falls from heights – safety lines |
| EN-361:2003 | – Personal protective equipment to prevent falls from heights – safety harnesses |



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 2.0 OPERATING INSTRUCTIONS

### 2.1 TERMINOLOGY AND DEFINITIONS

Anchoring devices:
an element or a set of elements that were equipped with anchoring point/points.

Element:
lines, tapes and anchoring elements – these are example elements of the fall arrest system.

Anchoring point:
an element to which personal protection equipment can be added.

Anchoring line:
a flexible line mounted between structural anchoring points.

Safety line:
an element – e.g. tape of a self-locking device – to witch personal protection equipment can be added (e.g. safety harness) – through an anchoring element (e.g. a snap ring).

Fall-arrest device:
a set of elements, anchoring devices or other combination of constructional elements that protect the user from falling from height / through the edge – the fall arrest device is for example a "gallows".

Self-locking device:
a device that protects from falling with the function of self-locking and automatic stretching and rolling the safety line.

### 2.2 INTENDED USE AND SCOPE OF OPERATION

FALL ARREST SYSTEM – Ballast sockets are intended to provide safety during working at height. The system's aim is to protect its user from falling from height while performing construction works (shuttering assembly, boarding, reinforcement, joint protection elements assembly etc.).

The operation of the FALL ARREST SYSTEM is permitted on condition that the user adheres to the Technical Documentation and applicable local regulations concerning occupational safety and health.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 2.3 RULES OF SAFE OPERATION

| |
|---|
| During the operation of the FALL ARREST SYSTEM, the safety of workers and other people that may be affected by the device should be of paramount importance. |

THE FALL ARREST SYSTEM is dedicated only to the purposes described herein. Using it not in accordance with the instructions is forbidden by the manufacturer.
THE FALL ARREST DEVICE protects its users against fall from heights.
Read the instructions before using the device.
Improper operation of the system may cause the risk of an accident for the user and other people in the nearest proximity.

Before operating the FALL ARREST SYSTEM, the staff should read the Technical Documentation of the system.

- The staff shall not stay near the FALL ARREST DEVICE during transport.
- The staff shall wear proper personal protective equipment.
- The staff shall remove all elements not connected to operating the device that may cause risk to the user's safety (cables, hoses, excessive material etc.).
- Only one person can be attached to one device (concerns the gallows assembled in a ballast socket). The lifeline system in ballast sockets is aimed to be operated by three people (using it by more people should be consulted with the STRUMIN'S technical department).
- No elements that weren't provided with the complete device shall be attached to the system. It may have a negative impact on mechanical parameters and cause risk while operation.
- During transport, the staff shall be careful in order to avoid potential damages to the construction elements. In case of damaging any element, it shall be immediately removed from operation.
- During assembly, the staff should act carefully and in case of damaging any part, it should be immediately removed from operation and checked by a properly trained person.
- The place of operation of the device should have an emergency plan in case of an event that led to saving the user from a fall.
- The "gallows" fall arrest system assembled in a concrete ballast socket was designed in order to withstand the weight of one person. In no case the device may be used to secure a few workers simultaneously. It does not concern the lifeline system that may hold up to three workers.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

- It should be verified if the concrete ballast socket was properly installed, placed (or anchored mechanically in case in mounting to the surface).
- If a crane was used to transport, please pay attention to the movements of the crane and keep the safe distance from the workers.
- Personal protective equipment, protecting from a fall and used in connection with the fall arrest system must be marked with a CE mark and approved to use in a given country.
- Personal protective equipment used as a part of the fall arrest system must be equipped with a device limiting the force to max. 6 kN.
- It is not recommended to use the fall arrest device by people suffering from cardiovascular disease, under the influence of alcohol or drugs and suffering from any other health conditions that may affect the mental and physical performance of the user.
- Introducing any changes or additions to 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 described by the system's manufacturer.
- In case of reselling the fall arrest system abroad, to a different country than the country of its first use, the reseller shall provide the user's manual, conversations and periodical inspections' documents in the language of a country where the device is to be used.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 2.4 SYSTEM'S CONTROL

### ONGOING CONTROL

Before each use of the device, check its general technical conditions within the scope of:

- completeness of the system's elements;
- completeness of screws and connectors;
- no damage to the welds;
- verification if any of the elements is not bent, broken, cut or damaged in any other way;
- verification if all assembly holes are unobstructed and allow to properly assemble the system;
- verification of the product's markings, checking their legibility and the lack of damages, i.e. wipe-down, tear etc.;

If any of the above conditions isn't met, the user shall stop using the system and inform the manufacturer about the necessity of performing a more detailed inspection.

### DETAILED INSPECTION

A detailed inspection of the fall arrest system is performed by the manufacturer or another appropriate party:

- each time before transporting the device to a construction site,
- every 12 months of operation,
- each time after a period longer than 3 months of not operating the device,
- always, when the user informs about the necessity for a detailed inspection. Every detailed inspection is subject to a fee.

### PERIODICAL INSPECTION
### INSPECTION AFTER A FALL

In order to provide the proper operation and safety of the FALL ARREST SYSTEM, at least once every 12 months the whole system should be inspected (each and every of its elements).
The inspection must be performed by a competent person, holding required permissions.

If the FALL ARREST DEVICE turns on and saves a falling user – elements consisting parts of the device should be withdrawn from use and handed over for inspection.
The inspection shall be performed by the manufacturer or by a competent person trained by STRUMIN.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

PERIDICAL INSPECTION EXPIRY DATE

The expiry date of the periodical inspection is clearly stated on the external edge of the inspections' label [term (year and month) of the next inspection]


## 2.5 MAINTENANCE

The elements of the FALL ARREST SYSTEM are protected by a paint system.
Cleaning and maintenance of the elements shall be performed with the use of products that not react with lacquer.
In case of any chips, they should be covered with correct coating.

## 2.6 QUALIFICATIONS OF THE OPERATORS

Users of the system shall:

- read the Technical Documentation of the fall arrest system – the training should by confirmed in writing,
- hold a valid OHS training,
  be trained in the scope of using individual and group protective equipment.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 2.7 CONNECTING THE FALL ARREST SYSTEM WITH A SLING

- Connecting the FALL ARREST SYSTEM with a sling of a crane shall be performed only by a person holding qualifications described in 2.7 herein and crane authorizations.
- Four transport brackets were installed in the ballast socket. Lifting the BALLAST SOCKET is allowed only when slings on all four brackets are closed,
- the sling may only be attached to designated places, i.e. transport bracket.

It is obligatory to check if:

- the slings were attested, contain no visible faults and are proper for the system's elements transport purposes,
- flexible connectors are not twisted or tied,
- sling connection with the transport bracket seems to be strong,
- the crane's hook is complete.

## 2.8 ASSEMBLY OF THE FALL ARREST SYSTEM

The assembly of the fall arrest device may be performed by a user who has read the Technical Documentation of the device. Construction manager or any other permitted person is responsible for the positioning and choosing the workplaces.
Before starting the assembly procedure, the user shall check if the device is complete and has no visible signs of damage.

During the assembly of the device, the user shall act carefully and if any element is damaged, it should be immediately replaced or handed over for inspection by a trained person.
Before assembling the FALL ARREST SYSTEM, the BALLAST SOCKET must be placed on a solid, stable surface.
Level it with regulated, steel feet.
Depending on the configuration, A HIGH ADAPTER or AN 150 CM ADAPTER should be used. Lift THE FALL ARREST DEVICE with a crane (sling) and install in the adapter.
The correct positioning of the pole in the adapter can be checked by observing the position of the marker on the pole.

Vertical transport shall be performed with a crane in accordance with the rules described in 2.8.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 2.9 DISASSEMBLY AND TRANSPORT BETWEEN WORKPLACES

During the disassembly of the FALL ARREST DEVICE, the user shall keep all safety measures and act in accordance with the instructions.

During disassembly of the FALL ARREST DEVICE, the user shall remove all elements not belonging to the system. During transport, it is forbidden to put on the safety harness.

## 2.10 OPERATION OF THE FALL ARREST DEVICE

During operation of the fall arrest system, the user shall keep all safety measures described in the Technical Documentation and in binding legal provisions and directives.



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 3.0 DEVICE REGISTER

| DEVICE REGISTER | | | | |
|---|---|---|---|---|
| Product name: | | | | |
| Model and type / ID: | | Trade name: | | ID number: |
| Producer: | | Address: | | Phone no., Email, website: |
| Year of production / expiry date | | Purchase date: | | Date of the first use: |
| Other important information (e.g. document no.) | | | | |
| PERIODICAL INSPECTION AND REPAIR HISTORY | | | | |
| Date: | Reason (periodical inspection or repair): | Faults, repairs and other relevant information: | Name and signature of a competent person: | Periodical inspection – next term: |
| | | | | |
| | | | | |



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

| PERIODICAL INSPECTION AND REPAIR HISTORY | | | | |
|---|---|---|---|---|
| Date: | Reason (periodical inspection or repair): | Faults, repairs and other relevant information: | Name and signature of a competent person: | Periodical inspection – next term: |
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+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

4.0 DATA PLATE

STRUMIN

FALL ARREST DEVICE

| | |
|---|---|
| Name / Type: | BALLAST SOCKET |
| Serial number: | |
| Year of manufacture: | 2021 |
| Weight: | 90 kg / 2100 kg |

EN-795:2012,

CE

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*Read the safety instructions / Operation manual*

*Use personal protective equipment (PPE)*

*Use personal protective equipment (PPE)*

- Information written on a data plate allow to clearly identify each device based on its ID/serial number.
- All the documents attached to the device, such as the device's register from inspection and operating manual contain an ID/serial number written on the device in order to avoid any mistakes.
- Data plate warning field, containing text and symbols, warns and informs about possible threats while operation.

Threats

- The user shall act according to the safety instructions and wear personal protective equipment (PPE)



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

5.0 TABLE: DANGER → RISK → PROTECTION

| No. | Threat | Risk | Risk assesment | Protection measures |
|---|---|---|---|---|
| 1. | INSUFFICIENT MECHANICAL DURABILITY | Using damaged or destroyed ballast socket. | Fall of the whole construction (the pole with the arm). Threat to health and life. | Check, control and properly store concrete feet. |
| | | Damaging or destroying the pole due to an overload. | Fall of the whole construction (the pole with the arm) Threat to health and life | Don't exceed the max. load. Use in accordance with the Technical Documentation. |
| | | Damaging or destroying the catching arm due to an overload. | Fall of the construction (catching arm). Threat to health and life. | Don't exceed the max. load Use in accordance with the Technical Documentation. |
| | | Damaging of destroying the device due to insufficient strength. | Fall from heights. Threat to health and life. | Transport only with a crane of sufficient strength. |
| 2. | SMASHING, CRUSHING | Placing foot, hand or any other part of the body under the concrete foot while lowering and assembling the device. | Cutting of, smashing or injuring any part of the body. Threat to health and life. | Stay in a safe distance from the concrete foot during its lowering and assembly. Use proper personal protective equipment. |
| | | Moving the device through holes and gates. | Smashing or bunging the concrete foot. Threat to health and life. | Take measurements before moving through narrow hollows. |
| | | Falling down of a wrongly placed concrete foot on a surface. | Smashing, pressing, or injuring any part of the body. Threat to health and life. | Place on a stable and level surface or mount to the structure. |
| 3. | HIT | Assembly, working on a pole and concrete foot during moving, positioning and lowering and setting [SA'S]. | Hitting the construction pr working surface with a head or other part of the body. Threat to health and life. | Use the device in accordance with its purpose, read the Technical Documentation. Use proper personal protective equipment. |
| | | Improper entering or leaving the concrete foot or the pole. | Hitting the construction with a head or other part of the body. Fall on dangerous elements. Threat to health and life. | Enter or leave the constructional elements directly to a ceiling or other solid surface. |
| | | Too fast lifting or moving of the device by a crane. | Hitting the load with a head or any other part of the body. Health and life hazard. | Automatic limiter of the crane's speed while moving (the speed should not exceed 1,0 m/s) and skilful operation of the crane. Use proper personal protective equipment. |
| | | Shakes or vibrations. Dynamic load. | Hitting the construction with a head or other part of the body. Threat to health and life. | Skilful operation of the crane. Checking flexible connectors of a sling. Proper stretching of slings. Use proper personal protective equipment. |



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

| | | | | |
|---|---|---|---|---|
| 4. | CONTACT WITH PARTS THAT ARE MOVING | Putting excessive load on the device, concrete foot. | Overloading and fall of the device from height. Threat to health and life. | Use in accordance with the Technical Documentation. |
| 5. | IMPROPER POSTURE, ATTACHMENT INTO HARNESS THAT PROVIDE SAFETY | Improper attachment of the safety harness or self-locking device. Detaching from the device, falling down or slipping on the surface | Musculoskeletal disorders. Hitting, breaking or injuring any part of the body. Threat to health and life. | Use proper personal protective equipment in accordance with the user manual. |
| 6. | NOT USING PERSONAL PROTECTIVE EQUIPMENT | Not attaching the anchoring points, not using the personal protective equipment before a fall from height. | Falling from the ceiling scaffolding. Threat to health and life. | Anchoring points. Assembly proper equipment protecting from fall to anchoring points. |
| | | Not using the personal protective equipment right for a given task. | Hitting, injuring, slipping, burning, electrocuting or poor visibility. Threat to health and life. | Use proper personal protective equipment for a given work. Set the safe work's system. |
| 7. | FALLING OR THROWN AWAY OBJECTS | Improper securing of the elements surrounding the workspace. | Hitting, breaking, injuring or burning any part of the body. Threat to health and life. | Use proper personal protective equipment. Set the safe work's system. |
| 8. | ENVIRONMENTAL CONDITIONS | Striking by a lightning. | Electrocuting, burning. Threat to health and life. | Don't use [SA'S] during storms. |
| | | Wind | Tripping, uncontrolled twisting of the catching arm. Threat to health and life. | Don't use [SA'S] when the speed of wind is over 7 m/s. |
| | | Icing, rain, snow or other unfavourable conditions. | Visibility limitation, slip. Threat to health and life. | Don't use during unfavourable conditions. |
| | | Temperature. | Discomfort while moving. Threat to health and life. | Use in temperatures from -10 to +40°C. Use proper personal protective equipment. |



+48 515 515 445
biuro@strumin.pl
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P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

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|---|---|---|---|---|
| 9. | WELDING WORKS | Avalanche breakdown. | Electrocuting, burning. Threat to health and life. | Provide earthing of the device, protect electrodes' brackets from contacting the construction [SA'S] and other metal elements. Use proper personal protective equipment. |
| 10. | CHEMICAL | Use of aggressive chemicals for cleaning and maintenance of the device. | The risk of burning the body and polluting the atmosphere. | Don't use caustic substances that may burn the body, destroy the painted and zincic coating or corrode the steel and pollute the atmosphere. |



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

## 6.1 DESIGNER'S STATEMENT

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

was drawn in accordance with the provisions of the code, rules and guidelines of the 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 and Polish Standards and was handed in full to serve its purpose.


***Projektant***

*designer's readable signature and seal*



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica

EU DECLARATION OF CONFORMITY NO.: …….

1. Fall arrest system "Ballast socket…… "

   (Serial No.: ……..),

2. Name and address of the manufacturer:
   PPHU STRUMIN, Kamil Strumiński, 32-084 MORAWICA
   Morawica 191, NIP: 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: Fall arrest system device "Concrete ballast socket……" as described in the Technical Documentation in the appendix no. 1 and no. 2 to this declaration:
   "CONCRETE BALLAST SOCKET – USER MANUAL – EN.pdf"
   "CONCRETE BALLAST SOCKET – OPERATING MANUAL – EN.pdf"

5. The object of this declaration 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 prepared in accordance with the binding laws and technical norms:

   EN-795:2012 – fall protection – anchoring devices

7. The object of this declaration, described in Point 4., complies with the type, in accordance with the Company's production inspection system no. ZKP/STRUMIN/01 and the rules of the supervised product inspections in random time intervals).

Signing on behalf of: Kamil Strumiński, PPHU STRUMIN

Przedsiębiorstwo Produkcyjno Handlowo Usługowe STRUMIN
Kamil Strumiński Morawica 191
32-084 Morawica
NIP 944-21-77-757 REGON 120827987
tel 515 488 585 STRUMIN.PL

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



+48 515 515 445
biuro@strumin.pl
www.strumin.pl

P.P.H.U STRUMIN
Kamil Strumiński
Morawica 191, 32-084 Morawica