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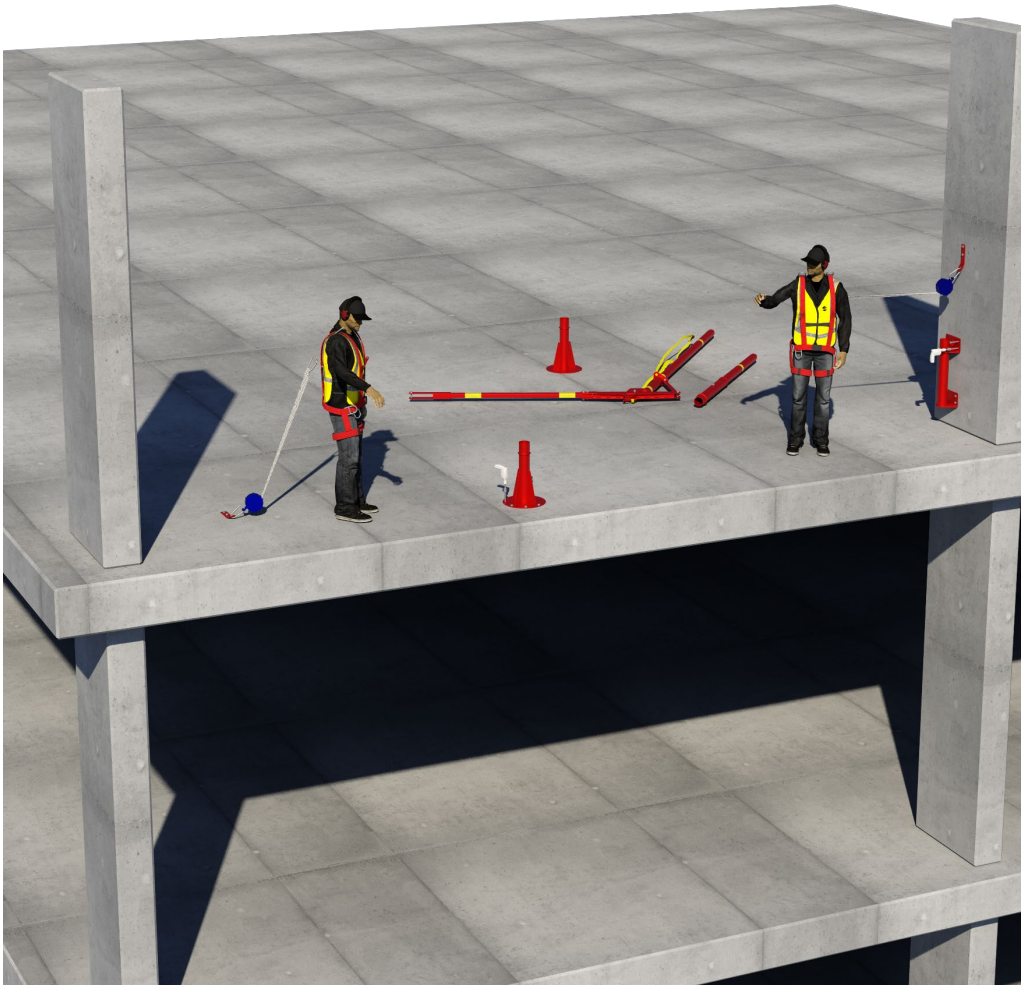
STRUMIN

THE „HINGED GALLOWS [130]" ANCHORING DEVICE

TECHNICAL CHARACTERISTICS AND ASSEMBLY INSTRUCTIONS

TWO USERS



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1.0 TECHNICAL CHARACTERISTICS, GENERAL DESCRIPTION OF THE ANCHORING DEVICE.

The “HINGED GALLOWS [130]” Anchoring Device is a steel structure, consisting of several basic parts:

- THE ANCHOR DEVICE "HINGED GALLOWS"
- ADAPTER 130 CM
- LOST SOCKET
- CEILING SOCKET
- SIDE SOCKET
- HEB SOCKET
- A DEVICE FOR SOCKET POSITIONING

The Anchoring Device can come in several configurations, as shown below.
The HINGED GALLOWS [130] can cooperate with the individual elements of the system, ie Adapter [130], SOCKETS.
The use of a specific solution depends on the individual conditions on the construction site.

Anticorrosive protection of the elements is ensured by a system of varnish coatings..

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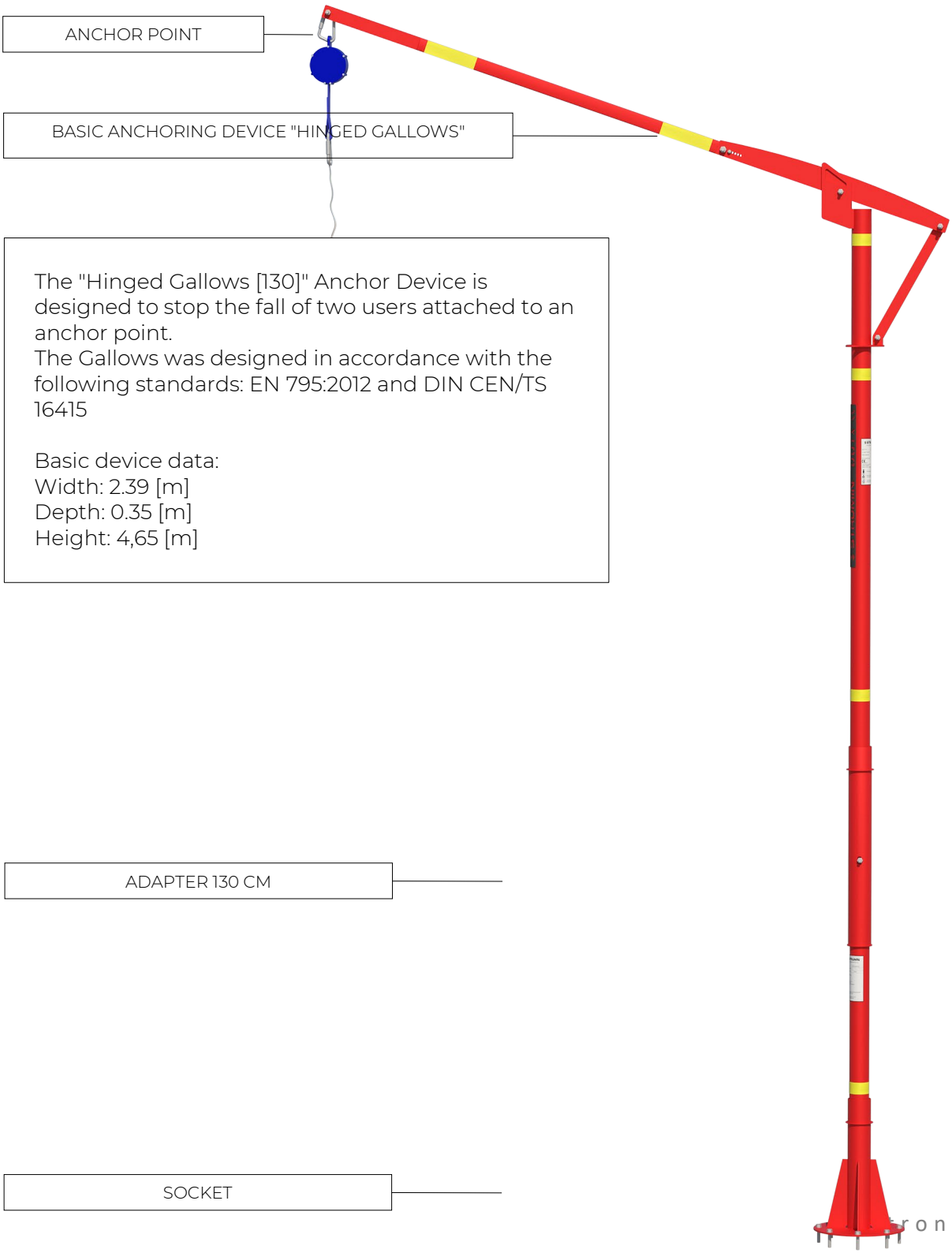
1.1 CONSTRUCTION OF ANCHORING DEVICE –HINGED GALLOWS [130]



The "Hinged Gallows [130]" Anchor Device is designed to stop the fall of two users attached to an anchor point.
The Gallows was designed in accordance with the following standards: EN 795:2012 and DIN CEN/TS 16415

Basic device data:
Width: 2.39 [m]
Depth: 0.35 [m]
Height: 4,65 [m]

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1.2 CONSTRUCTION OF BASIC ANCHORING DEVICE "HINGED GALLOWS"

The structure of the basic "Hinged Gallows" anchoring device consists of three elements:

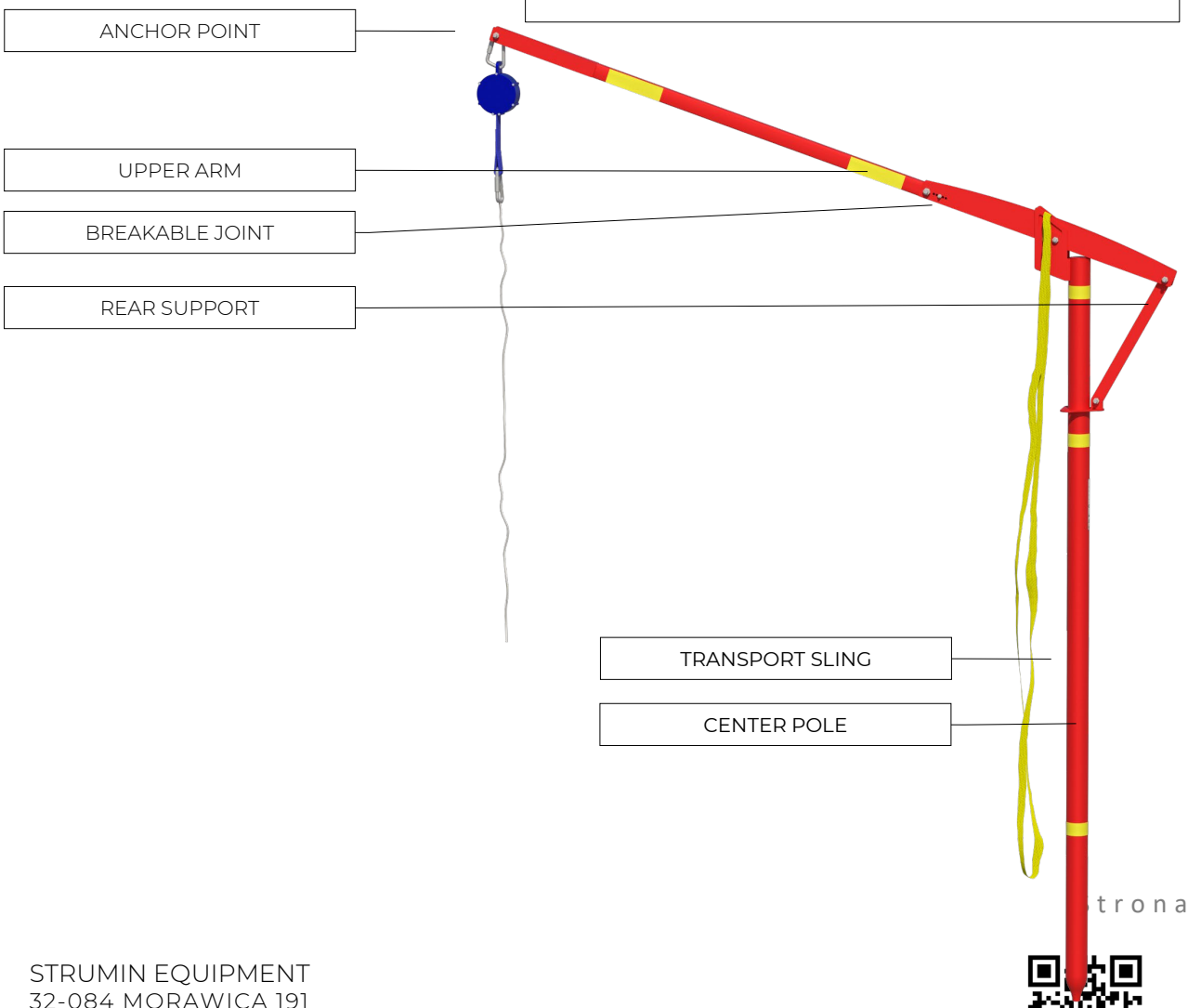
- Center pole,
- Upper tilting arm,
- Rear support.

The Upper catching arm has been equipped with a new solution - a breakable joint (hinged joint), which protects the device from tearing as a result of the action of forces with higher values that may occur during a rescue operation.
The technical parameters of individual elements have been selected to ensure the appropriate type of operation for subsequent test load states, which are described in the EN 795:2012 standard.

Basic device data:
Width: 2,15 [m]
Height: 3,33 [m]
Center Pole length: 2,59 [m]
Upper arm length: 2,5 [m]
Total weight: 36,5 [kg]

Technical data:

Center pole: Ø76.1 x 3.6, S355 steel, lacker
Upper arm: 2*#4 & RP 40x50x3, S235 steel, lacker



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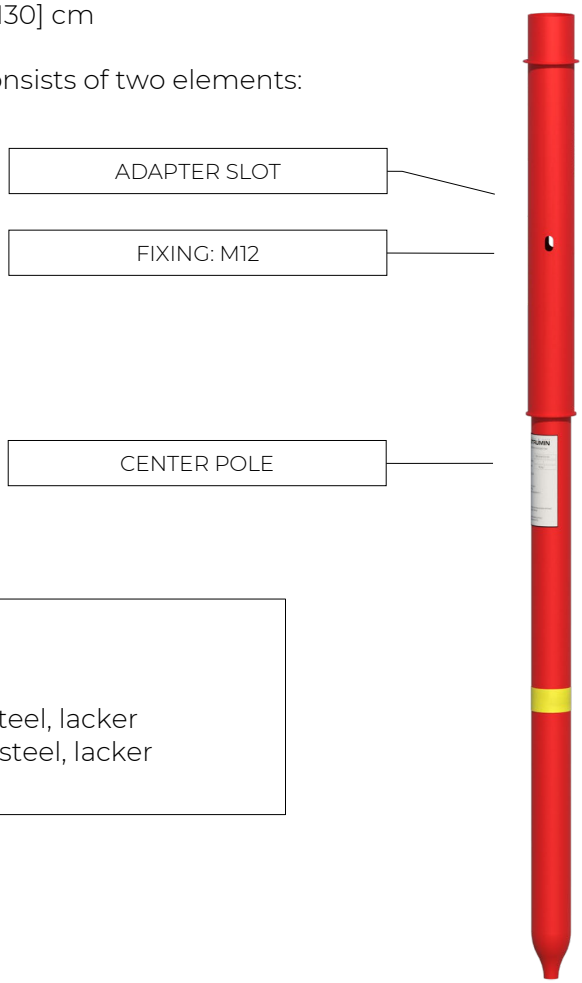
1.3 CONSTRUCTION OF ADAPTER [130] cm

The design of the Adapter [130] consists of two elements:

- Adapter slot,
- Center pole,

Basic device data:
Width: 0,11 [m]
Height: 1,85 [m]
Total weight: 13,5 [kg]



Technical data:

Center pole: Ø76.1x3.6, S355 steel, lacker
Adapter slot: Ø88.9x3.2, S235 steel, lacker

1.4 CONSTRUCTION OF CEILING SOCKET

The Ceiling Socket consists of a horizontal round sheet (foot) equipped with eight holes for fastening to concrete.
A vertical socket reinforced with four side plates #4 is attached to the foot.

Basic device data:

Width: Ø 0,35 [m]
Height: 0,51 [m]
Total weight: 12,5 [kg]

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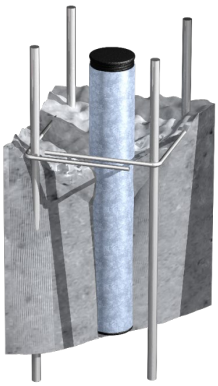
1.5 CONSTRUCTION OF SIDE SOCKET

The side socket consists of two handles (upper and lower) connected to the central pipe to which the gallows is attached - i.e.: Basic Anchor Device.
The steel brackets are equipped with eight holes through which the socket is attached to the wall or other vertical concrete elements.

Basic device data:

Width: 0,22 x 0,15 [m]
Height: 0,60 [m]
Total weight: 8,5 [kg]

1.6 CONSTRUCTION OF LOST SOCKET

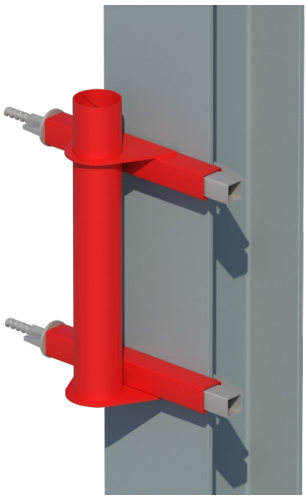


The Lost Socket is made of a steel pipe with embossments that act as sliding bearings to minimize the friction of the rotating pole mounted in the socket. It ensures easy assembly and disassembly of the device mounted in the socket, even when the socket is significantly dirty with dust, sand and mortar residues.

Basic device data:

Width: Ø 89 [mm]
Height: 0,50 [m]
Total weight: 1,2 [kg]

1.7 CONSTRUCTION OF HEB SOCKET



The socket for structural beams is intended for making connections between the building structure and the safety device. The socket is intended mainly for steel I-section profiles of various dimensions.
Using adjustable clamping jaws, you can connect any beam cross-section.

Basic device data:

Width: 0,55 x 0,22 [m]
Height: 0,60 [m]
Total weight: 14 [kg]

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1.8 SOCKET POSITIONER.

It is used as an auxiliary tool when attaching LOST SOCKETS, CEILING SOCKETS, SIDE SOCKETS.

When embedding sockets in concrete, it helps to put them in a vertical position and at the same time facilitates the assembly itself.

Material: ..... Varnished steel
Weight: ..... 6 kg
Height: ..... 0,9 m
Width: ..... 0,08 m

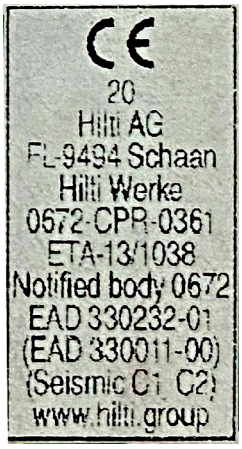
Cooperates with:
Lost socket,

1.9 CONCRETE SCREWS.

Characteristic:

- concrete self-tapping screw,
- Ø12 thread diameter,
- Ø10 diameter of the rod,
- Ø10 diameter of the drilled hole in beton,
- galvanized,
- 100mm length,
- fastened with an impact wrench (key number 15),

Cooperates with:
Ceiling socket,
Side socket,



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2.0 ASSEMBLY INSTRUCTIONS

2.1 INSTRUCTIONS FOR ASSEMBLY OF FIXING SOCKETS

2.1.1 INSTRUCTIONS FOR ASSEMBLY OF THE CEILING SOCKET

The ceiling socket is installed using eight HUS 10x100 concrete screws.
In the substrate, drill holes Ø10 to a depth of ~ 16 cm.
The substrate in which the drillings are performed should ensure the pull-out strength with a force of Q = 10 kN, and the minimum anchorage depth should be 10 cm.
Using an impact driver, attach the screws to the concrete, securing the socket to the ground.
The required minimum anchoring force is: Q = 10 kN and the minimum recommended anchoring depth is 10 cm.

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2.1.2 INSTRUCTIONS FOR ASSEMBLY OF THE SIDE SOCKET

The assembly of the Side Socket is carried out using eight HUS 10x100 concrete screws.
In the substrate, drill holes Ø10 to a depth of ~ 16 cm.
The substrate in which the drillings are performed should ensure the pull-out strength with a force of Q = 10 kN, and the minimum anchorage depth should be 10 cm.
Using an impact driver, attach the screws to the concrete, securing the socket to the ground.
The number of screws on the bottom of the side socket is optional, the required number of screws here is 2.
Additional holes are provided as optional in case of problems with fastening in the adjacent hole (e.g. rebar, etc.)

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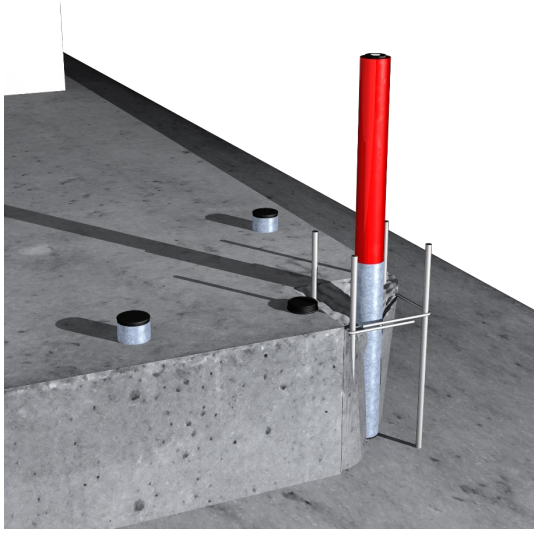
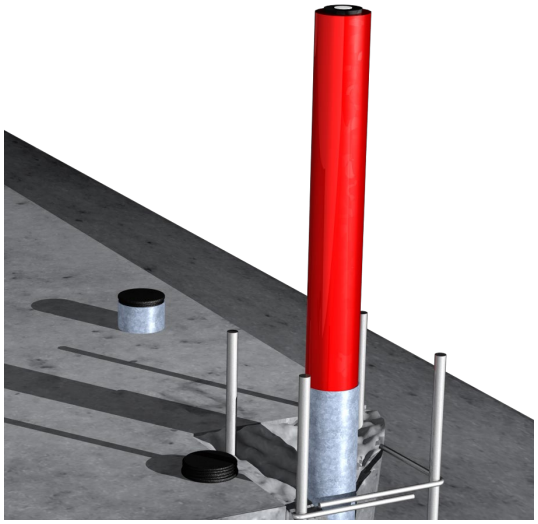
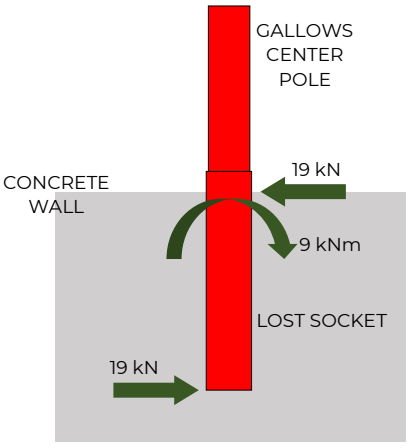
2.1.3 INSTRUCTIONS FOR ASSEMBLY OF THE LOST SOCKET





The Lost Socket is assembled using a Plumbing Device.
The socket is embedded in concrete during works related to pouring columns, ceilings, etc.
Set the socket vertically, to a depth of about 46 cm (the total height of the socket is 50 cm. After completing this operation, plug the socket with the plug provided in the set).
The plug ensures cleanliness inside the socket and prevents liquid mortar (and other contaminants) from getting inside, which could prevent the socket from being used after it solidifies.

"Load in service 200 kg" → the weight of two users, attached to the Anchor Point, hanged after a fall.
The maximum force that could be transmitted "in service" from the anchor device (Anchor Point) to the structure is ~19 kN.
A pair of forces with the magnitude of ~19 kN.
The lost socket is subjected to a torque of the value ~9 kNm.



Determining the strength of a wall in relation to the above values is the responsibility of the user.

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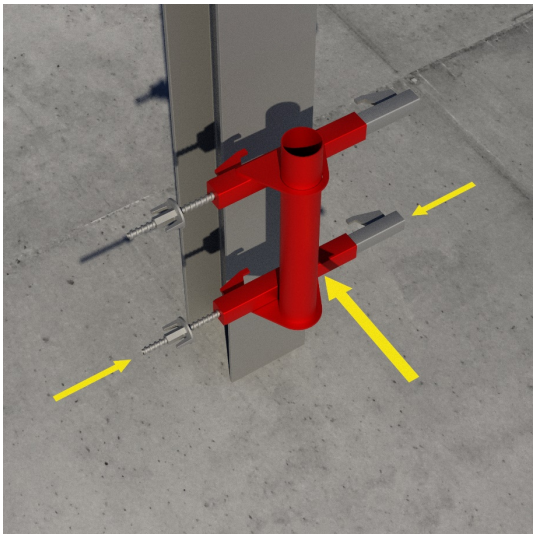
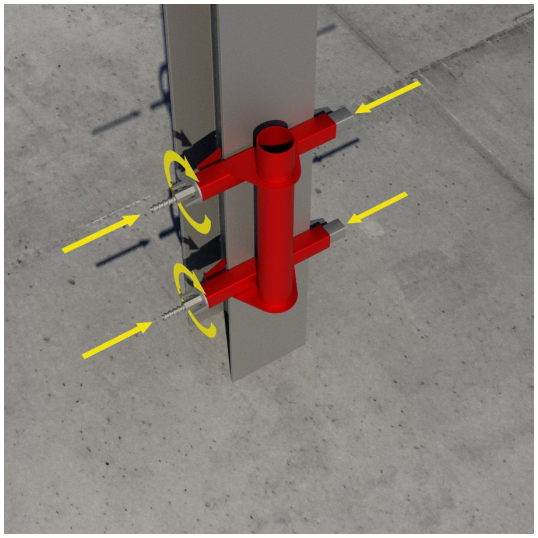
2.1.4 INSTRUCTIONS FOR ASSEMBLY OF THE LOST SOCKET





The HEB socket is attached to steel beams using movable jaws, which are clamped using formwork screws and a knob.
The HEB socket is attached by spreading the adjustable jaws so that the entire device can be placed on the wall of the steel profile.
The jaws should then be clamped with your hands on the steel profile and the fit of the connection should be checked.
Then the whole thing should be tightened using the knobs of the formwork screws.
Finally, a few blows should be made with a hammer to ensure a strong connection.
The knobs should be tightened until they are clearly locked.

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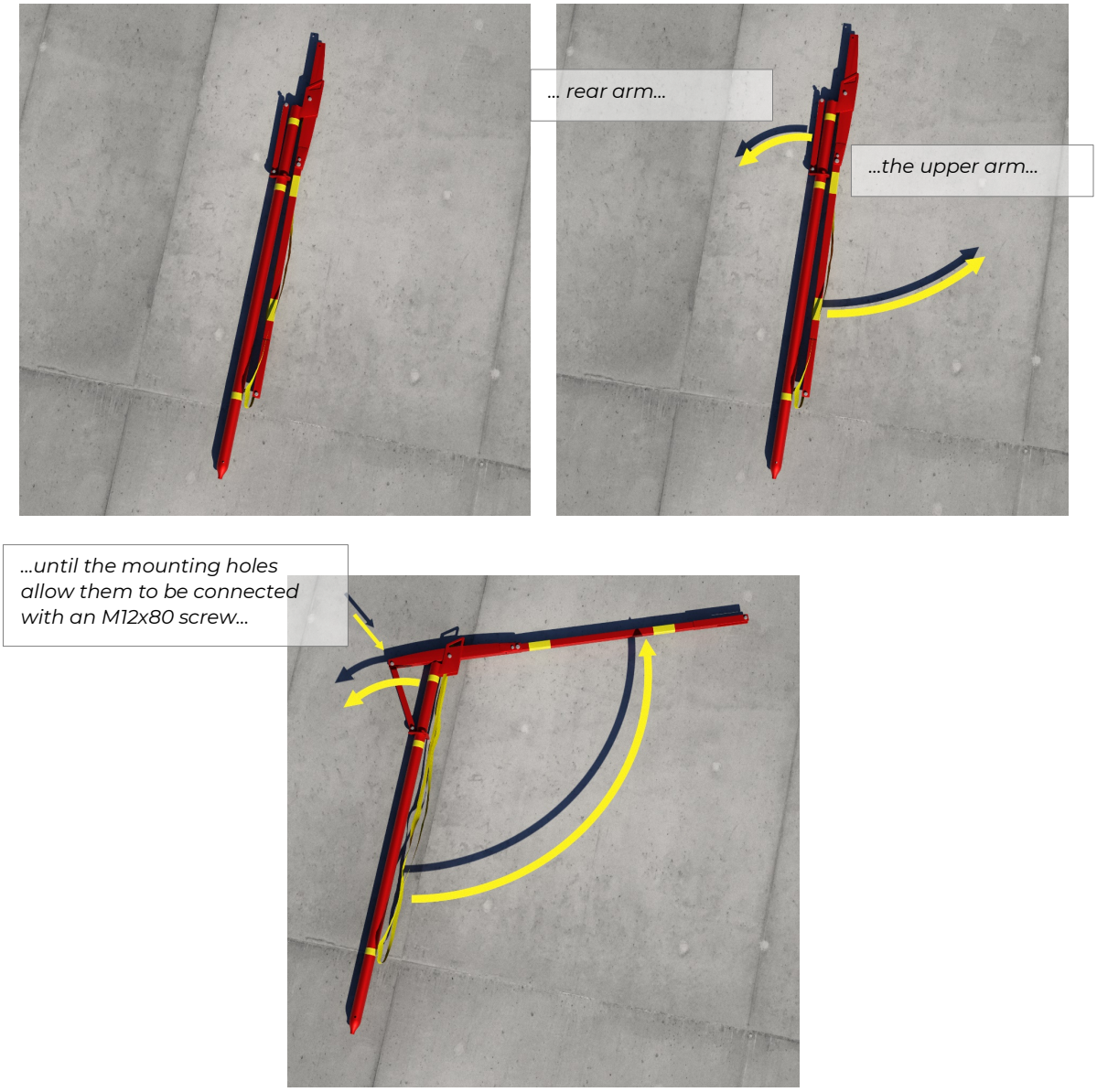
2.2 INSTRUCTIONS FOR ASSEMBLY OF THE GALLOWS

GALLOWS FOLDED OUT



The gallows should be folded out according to the diagram above.
Spread the upper arm and the rear arm until the mounting holes allow them to be connected with an M12x80 partial thread screw (marked with an arrow).

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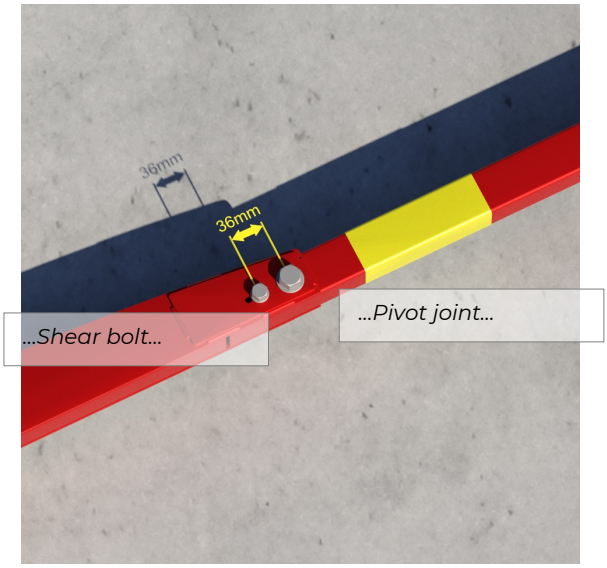
PIVOT JOINT



Checking the correct attachment of the pivot joint.
Pivot joint → M14x80 partial thread, stainless steel A2-70,
Shear bolt → M10x80 partial thread, stainless steel A2-70,
The distance between the bolt axes should be 36mm.
The shear bolt should be in the Ø10 hole (next to the Ø8 hole).
The swivel joint bolt should be tightened by half a turn of the wrench, relative to the point at which the play in the joint disappears.

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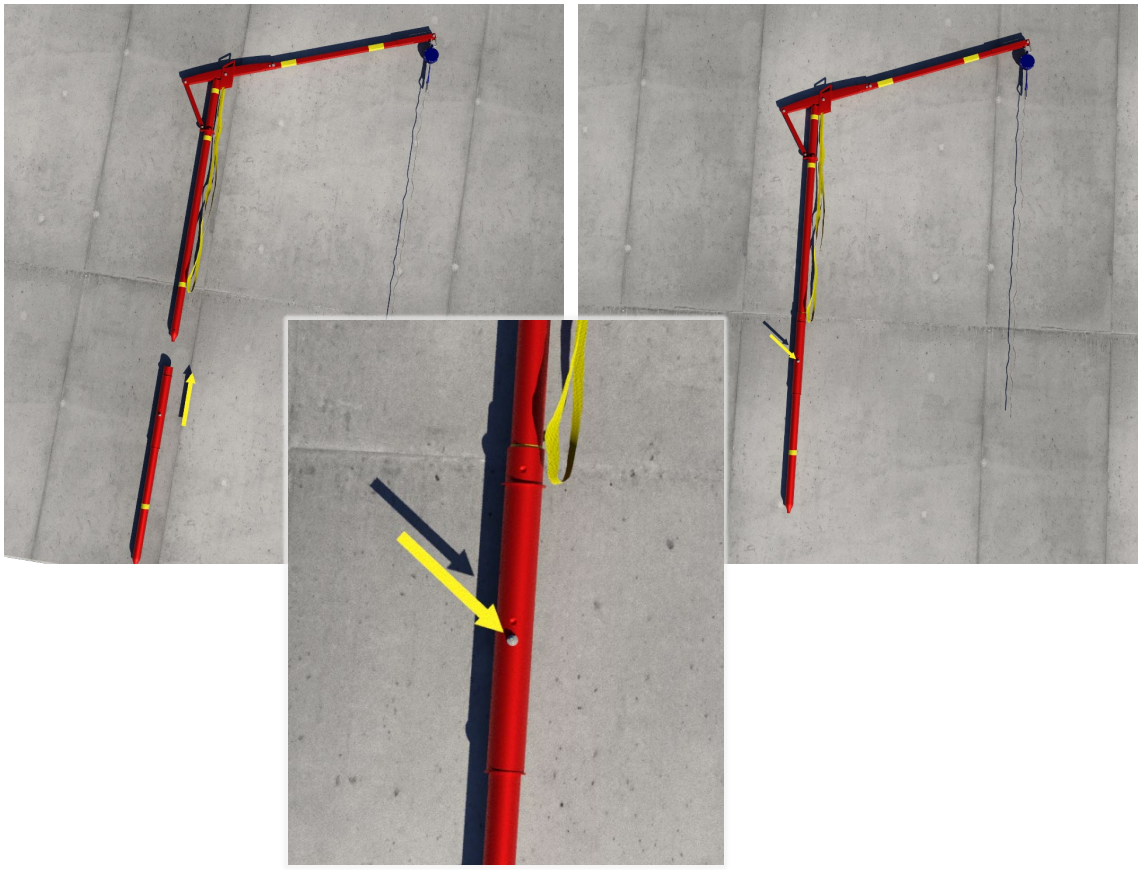
ATTACHING THE ADAPTER [130]



Attaching the Adapter 130mm to the Center Pole of the Gallows involves sliding it onto the central pole and then locking it using an M12x110 screw with a partial thread.

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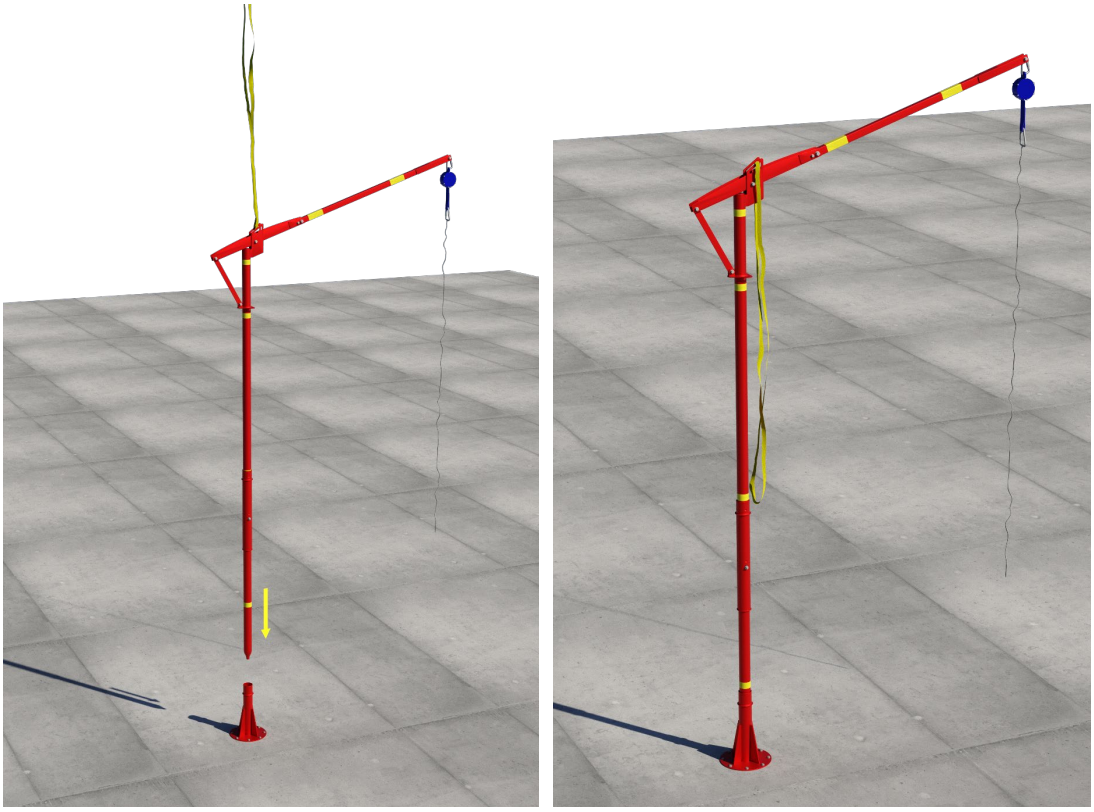
ATTACHING THE GALLOWS [130] TO THE SOCKET



Attaching the Gallows with Adapter [130] to the Socket can be done using a crane. For this purpose, the gallows is equipped with a sling that allows it to be easily attached to the crane hook and then detached.

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