Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-13/0550 of 3 September 2021

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	PediX post base
Product family to which the construction product belongs	Post base as fastener in timber constructions
Manufacturer	E.u.r.o. Tec GmbH Unter dem Hofe 5 58099 Hagen DEUTSCHLAND
Manufacturing plant	HSW 34, HSW 12, HSW 48
This European Technical Assessment contains	42 pages including 3 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 130186-00-0603
This version replaces	ETA-13/0550 issued on 16 July 2019

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Specific part

1 Technical description of the product

PediX post bases are single- or multi-component timber fasteners made of S235 galvanized steel sheet in accordance with EN 10346[1], which are usually fastened to timber members (see Annex 2) with screws and to concrete members with anchor bolts or by embedding.

Connection to concrete members is achieved for the PediX HV B500 and PediX V B500+50 post bases through embedding in concrete and for the height-adjustable post bases PediX V 140+50, PediX V+ 140+50, PediX V 300+150, PediX HV 140+50, PediX HV+ 140+50, PediX V 190+100, PediX V+ 190+100, PediX HV 190+100 and PediX HV+ 190+100 and PediX HV+S 300+150 post bases using anchor bolts. For connection to the timber members PediX-VGS 5x80 mm or PediX-VGS 5x80 mm-A2 fully threaded screws are used.

Dimensions, hole pattern and steel grades are given in Annex 1.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if PediX post bases are used in compliance with the specifications and conditions given in Annex 1 to 3.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of PediX post bases of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Load-carrying capacity	See Annex 3
Stiffness	No performance assessed
Ductility in cyclic testing	No performance assessed
Durability	See Annex 2

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	No performance assessed

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Release of dangerous substances	No performance assessed

[1] EN 10346:2015-10 Continuously hot-dip coated steel flat products – Technical delivery conditions

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 130186-00-0603 the applicable European legal act is: [97/638/EC (EU)].

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 3 September 2021 by Deutsches Institut für Bautechnik

Anja Dewitt
Head of Section

beglaubigt:
Blümel

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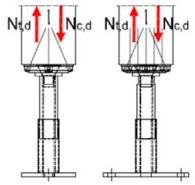
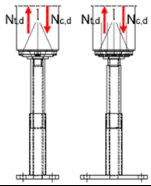
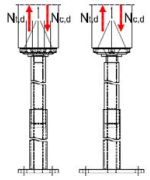
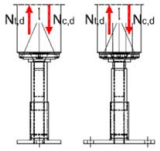
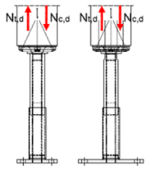
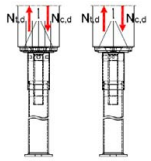
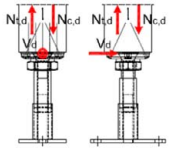
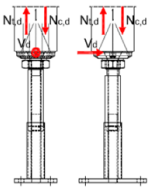
Annex 1 Technical description of the product

No	Post bases / Screws	Description		Annex 1 Page	Annex 3 Page
1	PediX V 140+50	Height adjustable post base for assembly on concrete		7-8	35
2	PediX V 190+100	Height adjustable post base for assembly on concrete		9-10	35
3	PediX V 300+150	Height adjustable post base for assembly on concrete		11-12	35
4	PediX V+ 140+50	Height adjustable post base for assembly on concrete		13-14	36
5	PediX V+ 190+100	Height adjustable post base for assembly on concrete		15-16	36
6	PediX V B500+50	Height-adjustable post base for anchoring in concrete		17-18	36
7	PediX HV 140+50	Height adjustable post base for assembly on concrete		19-20	37
8	PediX HV 190+100	Height adjustable post base for assembly on concrete		21-22	38

PediX post base	Annex 1.1
Overview of the different post bases and screws in annex 1	

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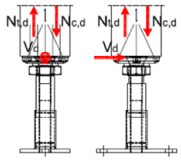
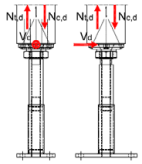
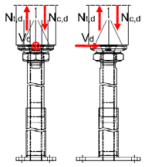
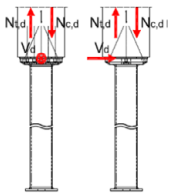
No	Post bases / Screws	Description		Annex 1 Page	Annex 3 Page
9	PediX HV+ 140+50	Height adjustable post base for assembly on concrete		23-24	39
10	PediX HV+ 190+100	Height adjustable post base for assembly on concrete		25-26	40
11	PediX HV+S 300+150	Height adjustable post base for assembly on concrete		27-28	41
12	PediX HV B500	Post base for anchoring in concrete		29-30	42
13	-PediX VGS Ø5x80 mm -PediX VGS Ø5x80 mm-A2	Fasteners for PediX post bases		31	-

PediX post base	Annex 1.2
Overview of the different post bases and screws in annex 1	

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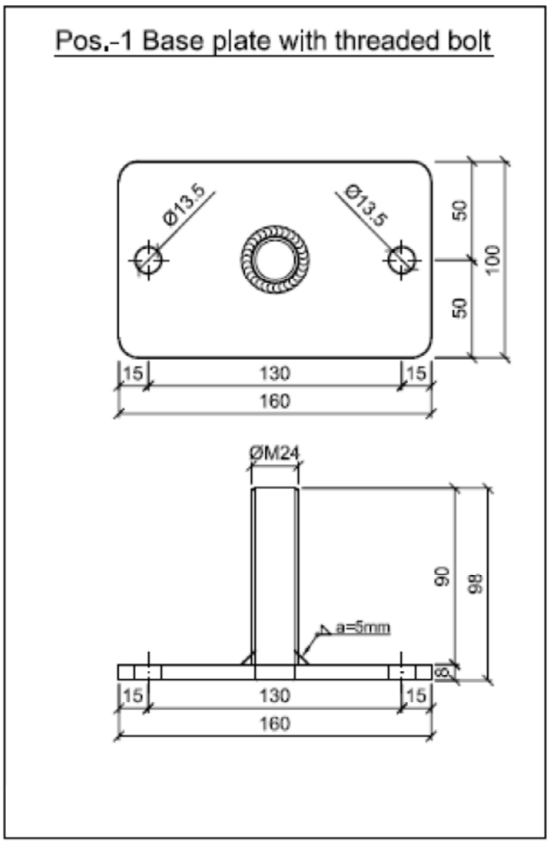

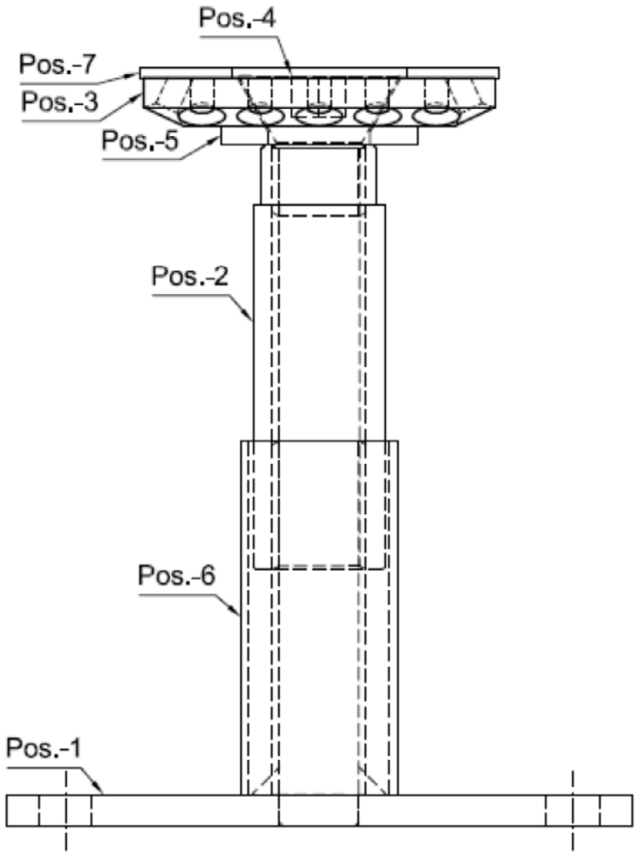

Post base PediX V 140+50, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, S235; and threaded bolt M24, H= 90 mm, 5.6;
2	Threaded sleeve Ø34 mm, Inner thread M24, H= 108 mm, Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35 mm, S235;
5	Steel plate 50/26/5 mm, S235;
6	Protection sleeve Ø40 mm, T= 2 mm, H= 90 mm, S235;
7	EPDM- seal (not subject to this ETA)
8	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.3
Adjustable post base for assembly on concrete PediX V 140+50	

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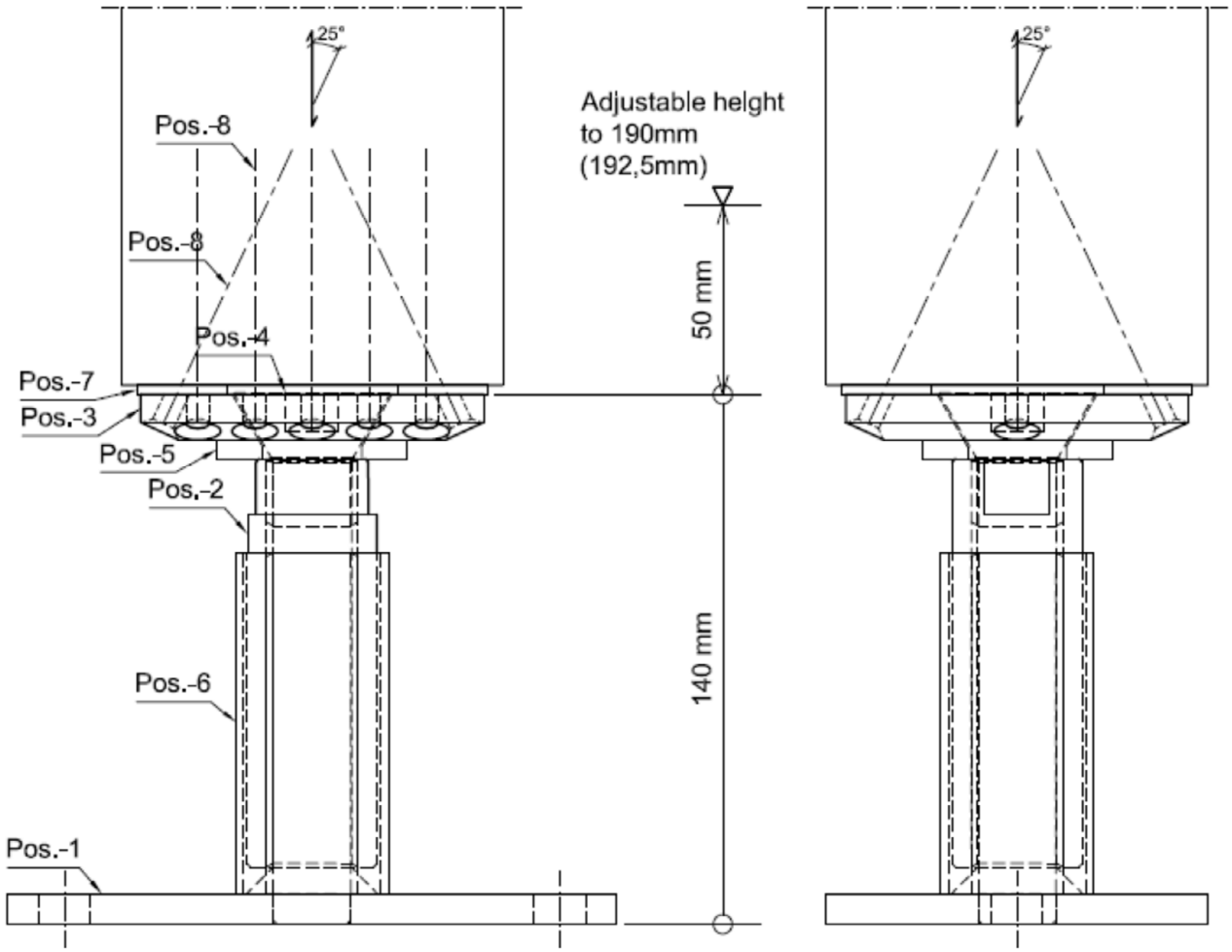

PediX post base	Annex 1.4
Adjustable post base for assembly on concrete PediX V 140+50	

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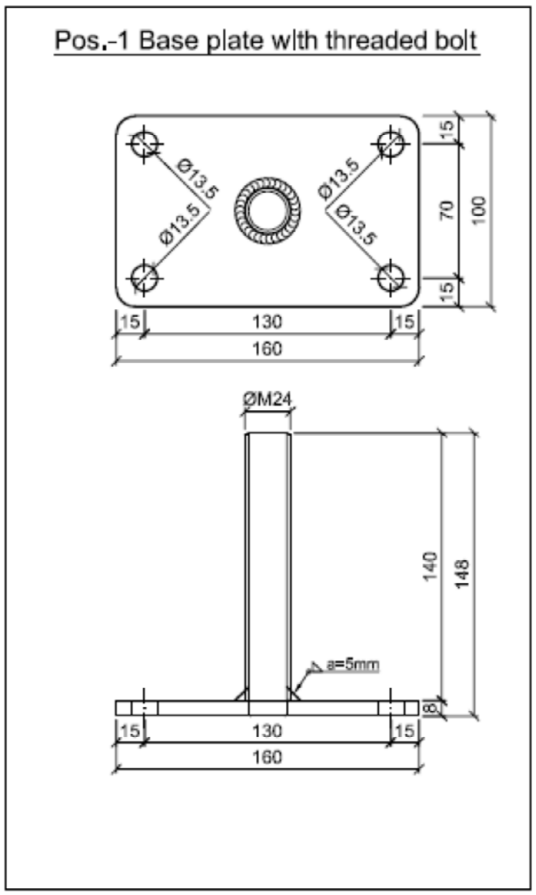

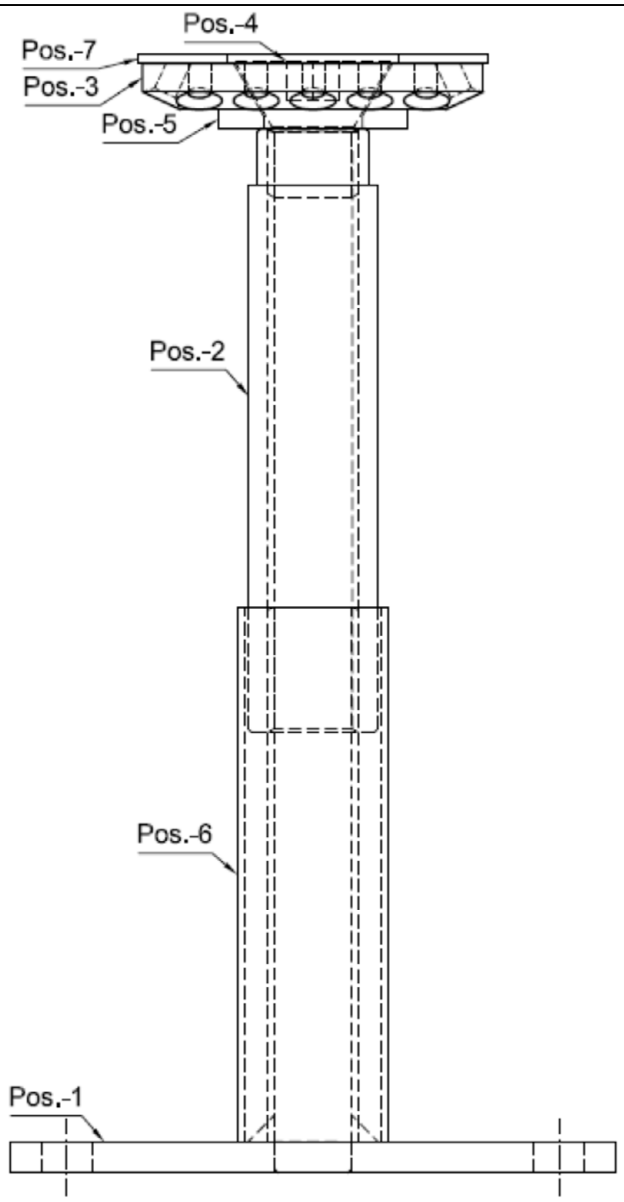

Post base PediX V 190+100, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, S235; and threaded bolt M24, H= 140 mm, 5.6;
2	Threaded sleeve Ø34 mm, Inner thread M24, H= 158 mm, Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/26/5 mm, S235;
6	Protection sleeve Ø40 mm, T= 2 mm, H= 140 mm, S235
7	EPDM- seal (not subject to this ETA)
8	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.5
Adjustable post base for assembly on concrete PediX V 190+100	

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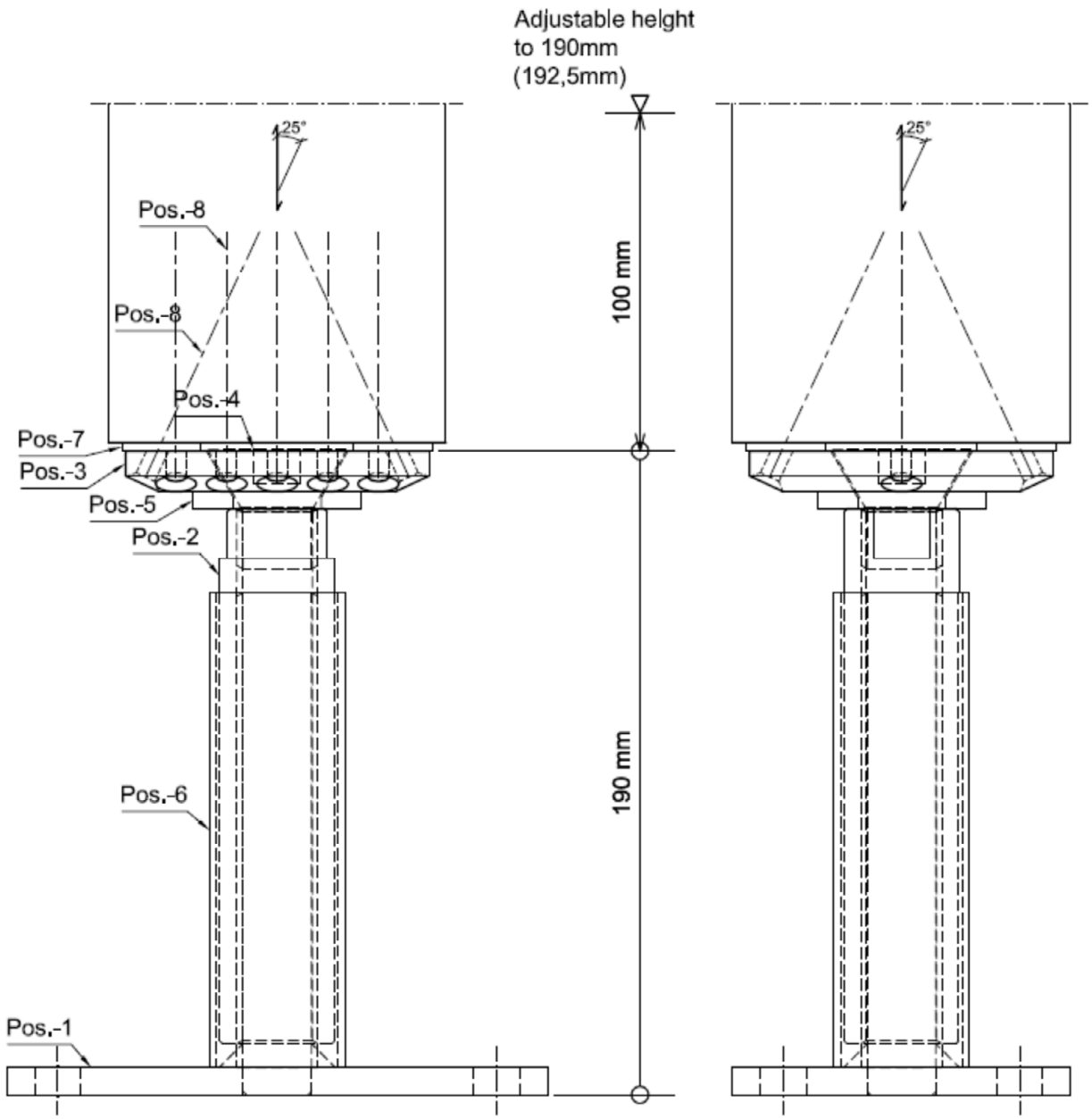

PediX post base	Annex 1.6
Adjustable post base for assembly on concrete PediX V 190+100	

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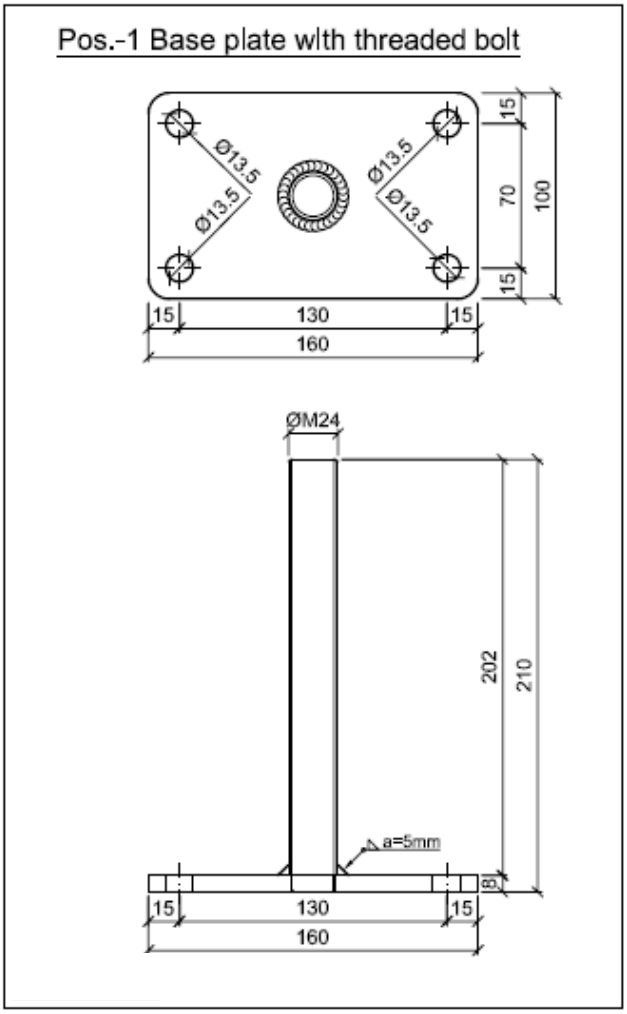

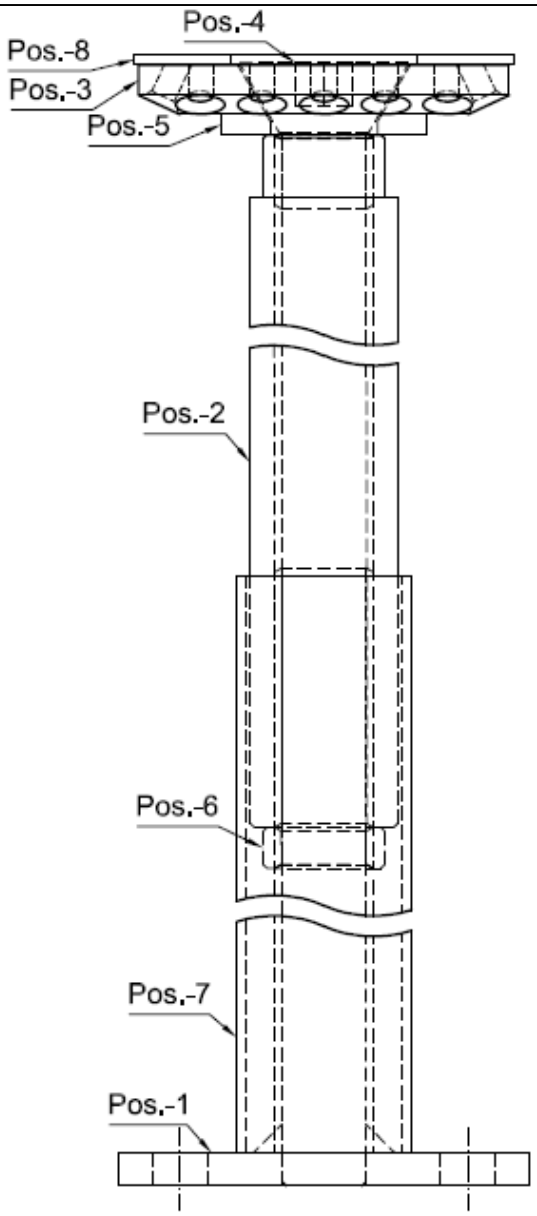

Post base PediX V 300+150, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, S235; and threaded bolt M24, H= 202 mm, 5.6;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 258 mm, Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/26/5 mm, S235;
6	Threaded sleeve lock nut M24, H= 10 mm; Wrench size 30, S235;
7	Protection sleeve Ø40 mm, T= 2,3 mm, H= 200 mm, S235
8	EPDM- seal (not subject to this ETA)
9	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.7
Adjustable post base for assembly on concrete PediX V 300+150	

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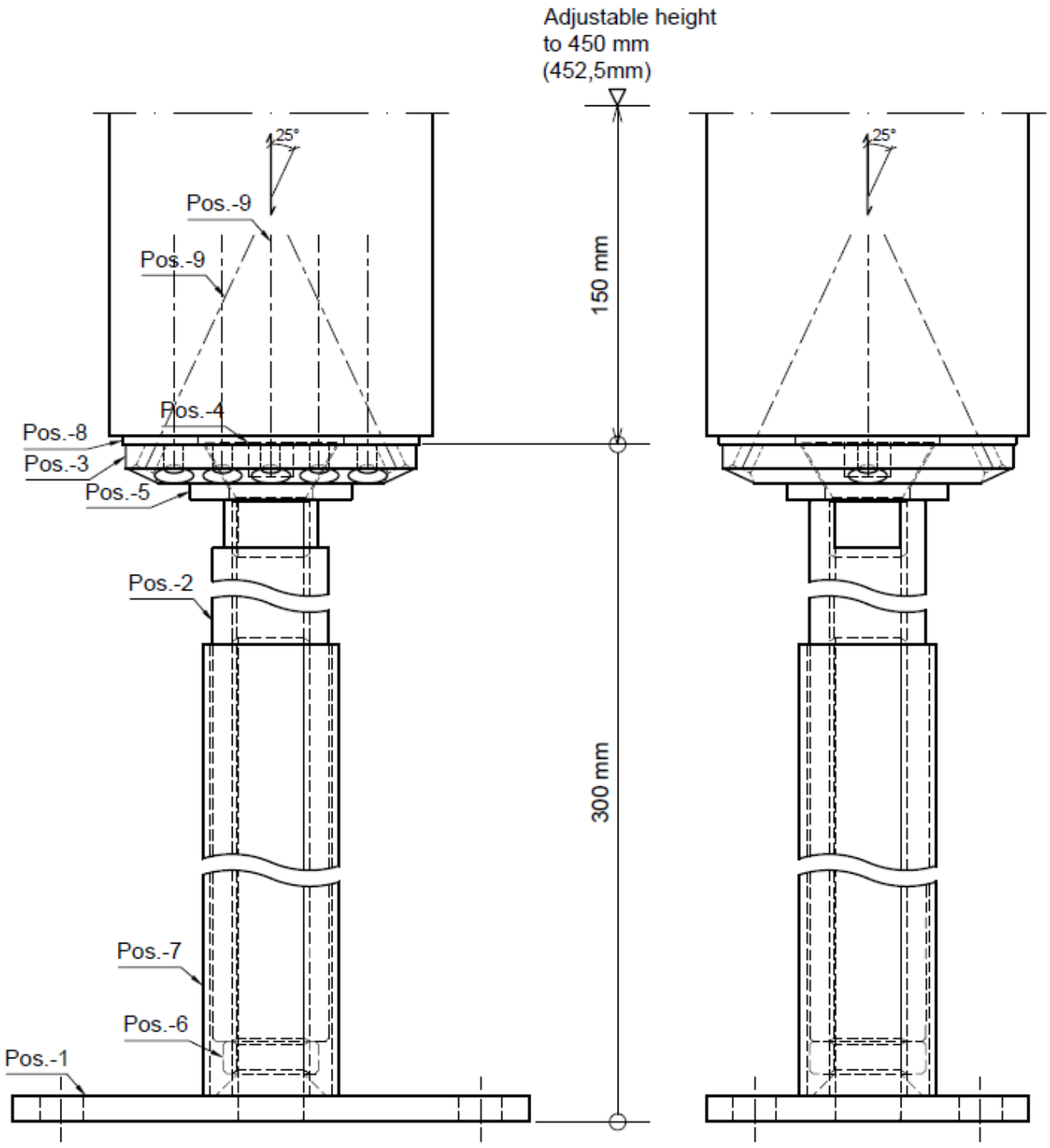

PediX post base	Annex 1.8
Adjustable post base for assembly on concrete PediX V 300+150	

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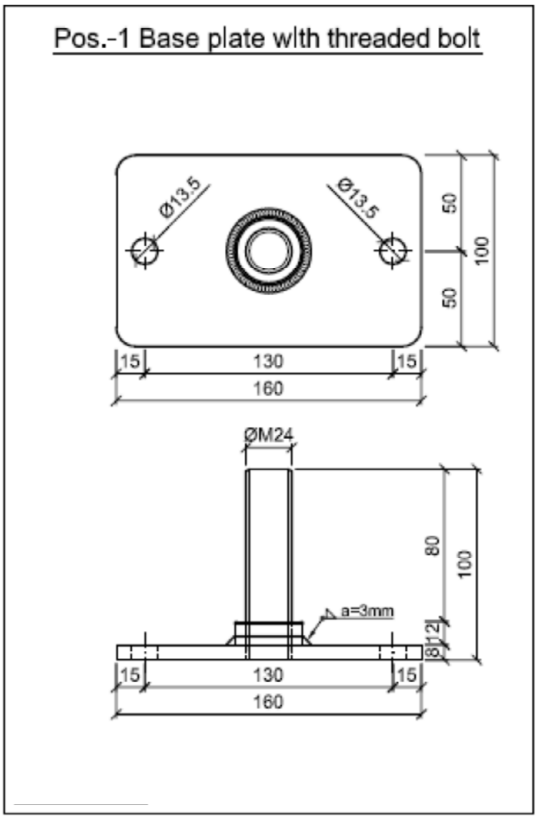

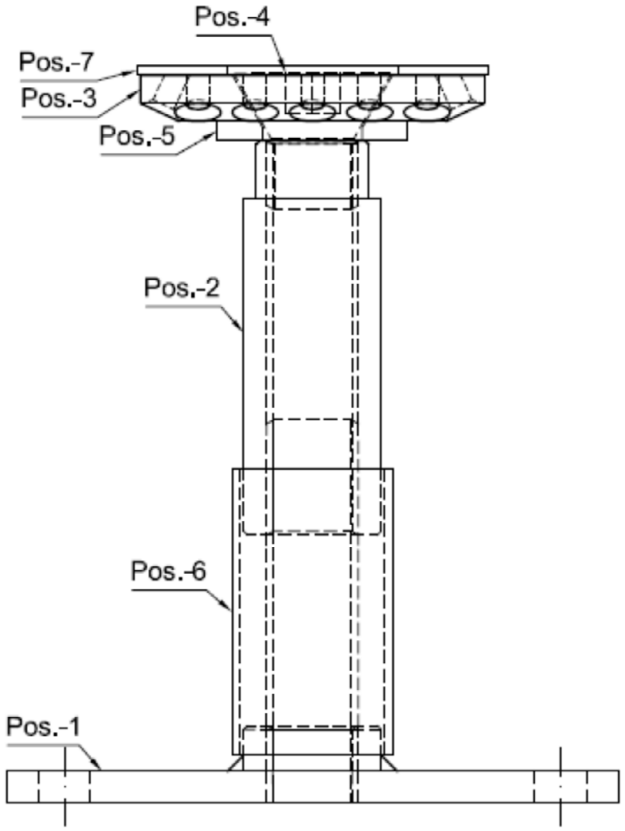

Post base PediX V+ 140+50, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, Threaded ring M24 Ø36x12 mm, S235; Threaded bolt M24, H= 80 mm, 8.8;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 103 mm, Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/26/5 mm, S235;
6	Protection sleeve Ø42,4 mm, T= 2,3 mm, H= 75 mm, S235;
7	EPDM- seal (not subject to this ETA)
8	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.9
Adjustable post base for assembly on concrete PediX V+ 140+50	

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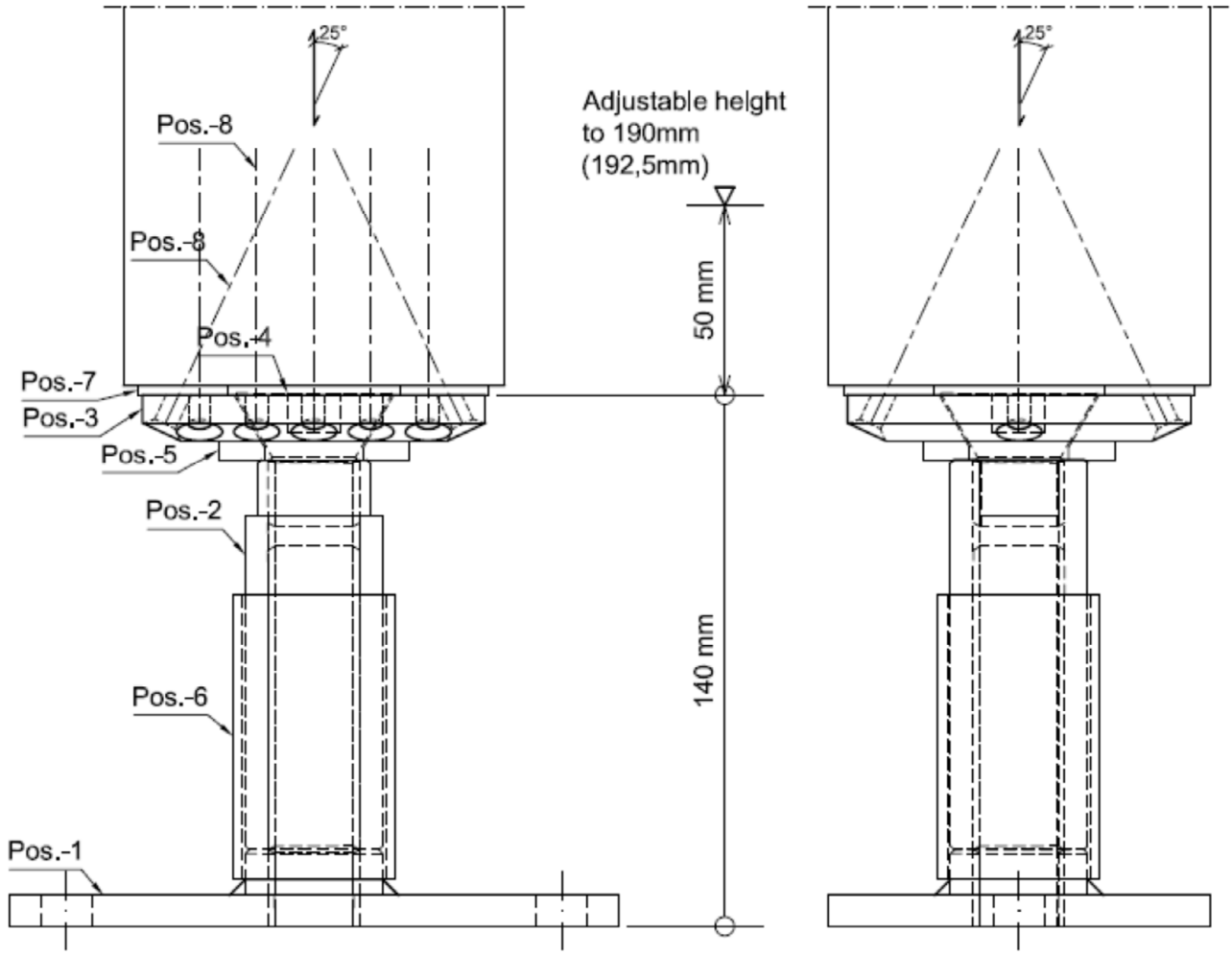

PediX post base	Annex 1.10
Adjustable post base for assembly on concrete PediX V+ 140+50	

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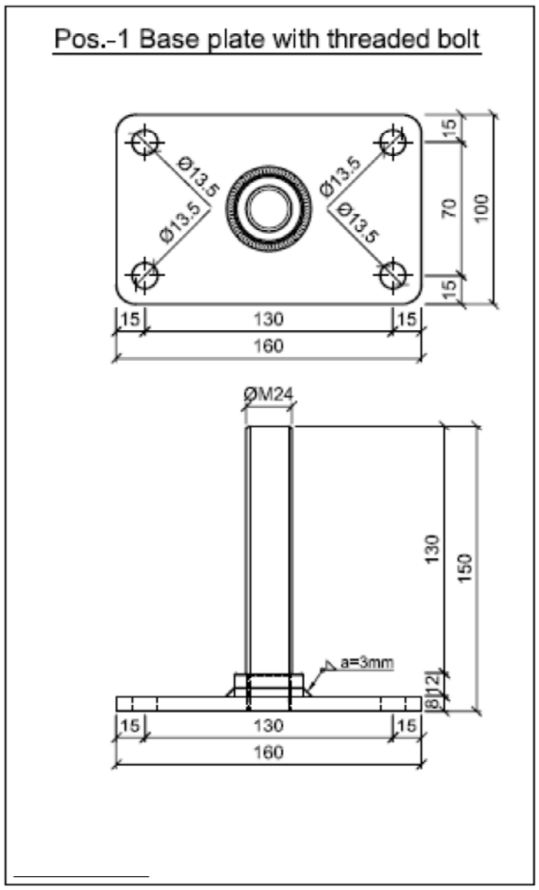

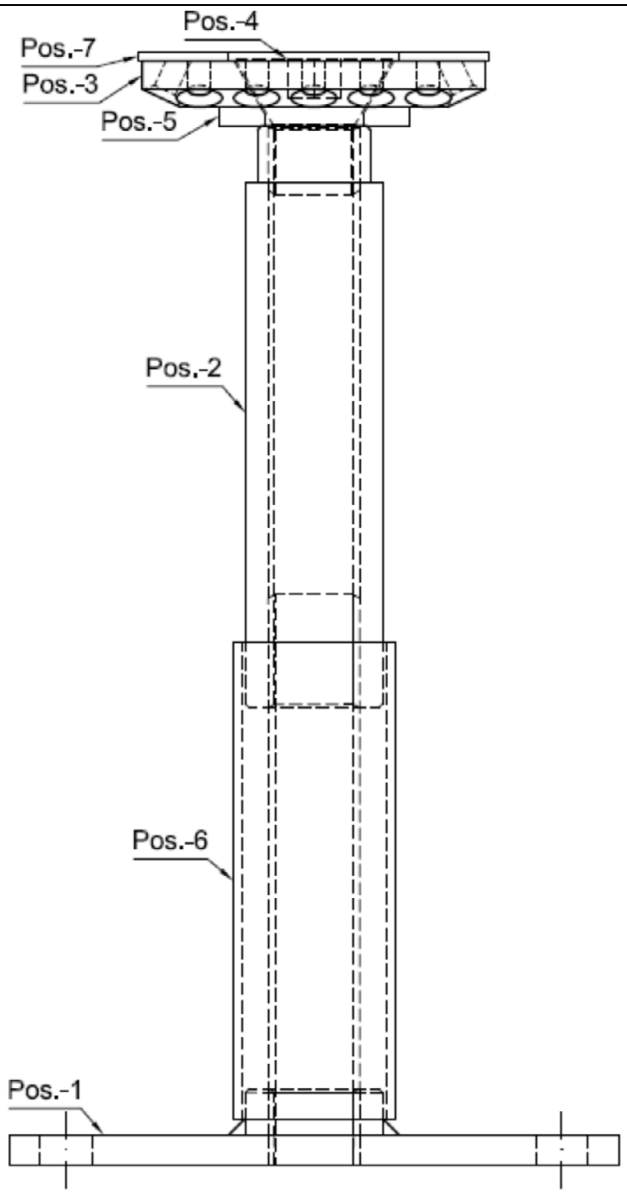

Post base PediX V+ 190+100, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, Threaded ring M24 Ø36x12 mm, S235; Threaded bolt M24, H= 130 mm, 8.8;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 153 mm, Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/26/5 mm, S235;
6	Protection sleeve Ø42,4 mm, T= 2,3 mm, H= 125 mm, S235;
7	EPDM- seal (not subject to this ETA)
8	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.11
Adjustable post base for assembly on concrete PediX V+ 190+100	

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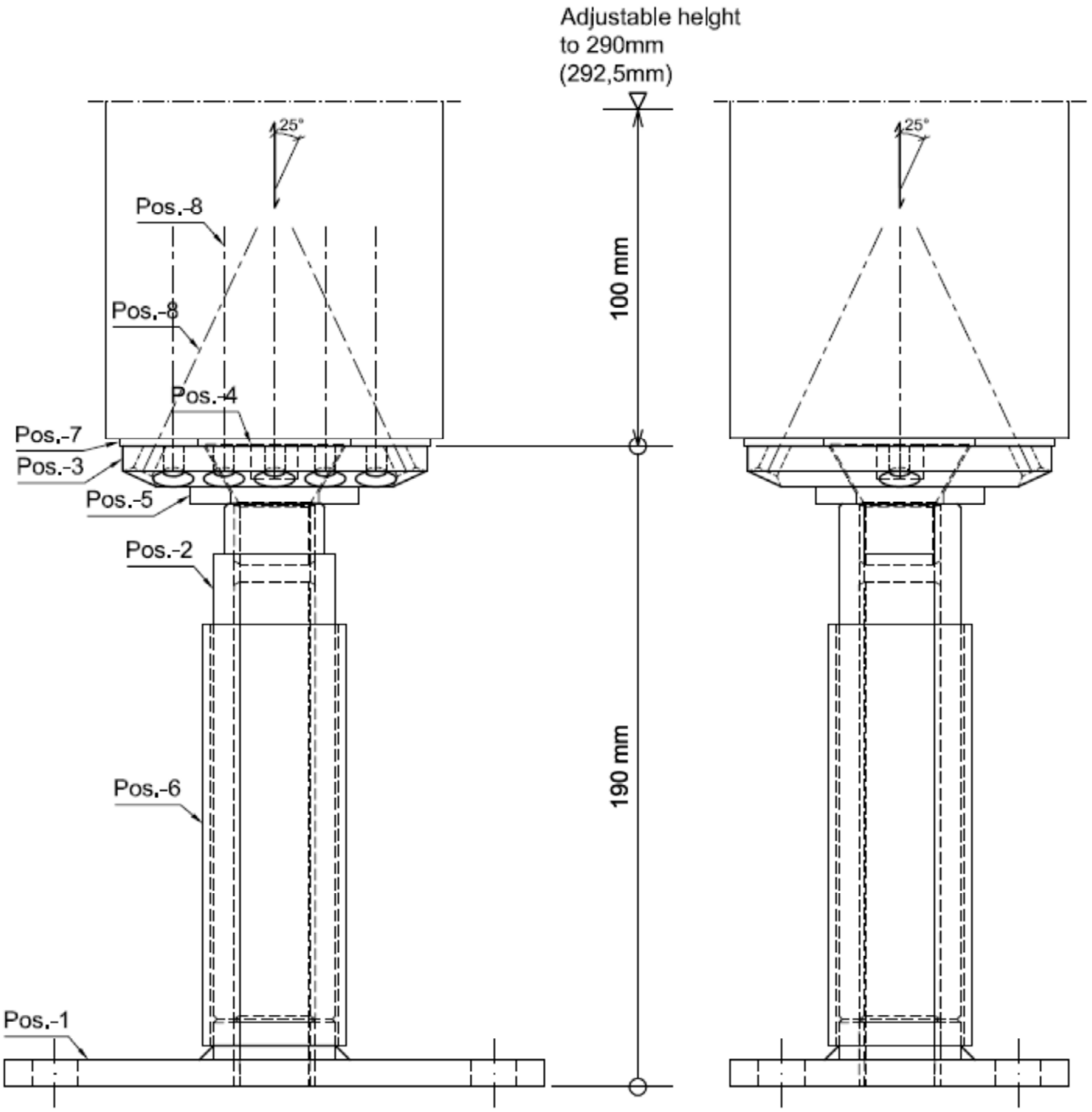
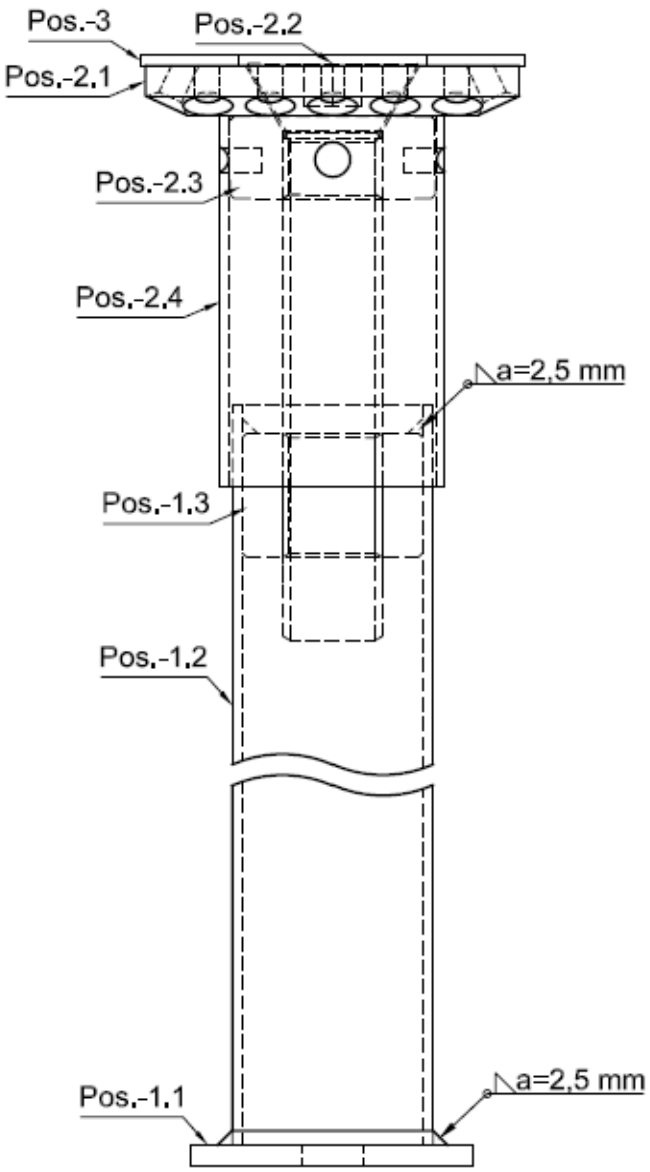


PediX post base	Annex 1.12
Adjustable post base for assembly on concrete PediX V+ 190+100	



Post base PediX V B500+50, hot-dip galvanized	
Pos.-Nr.	**Designation**
1.1	Steel plate Ø68x15x5 mm, S235;
1.2	Steel tube Ø48, T= 2,5 mm, H= 463 mm, S235;
1.3	Threaded sleeve Ø43x30 mm, S235;
2.1	Head plate 90x90x12 mm, S235;
2.2	Countersunk head screw M24x140, S235;
2.3	Threaded sleeve Ø49,5x20 mm, M24, S235;
2.4	Protection sleeve Ø54x90x2
3	EPDM- seal (not subject to this ETA)
4	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.13
Height adjustable post base for anchoring in concrete PediX V B500+50	

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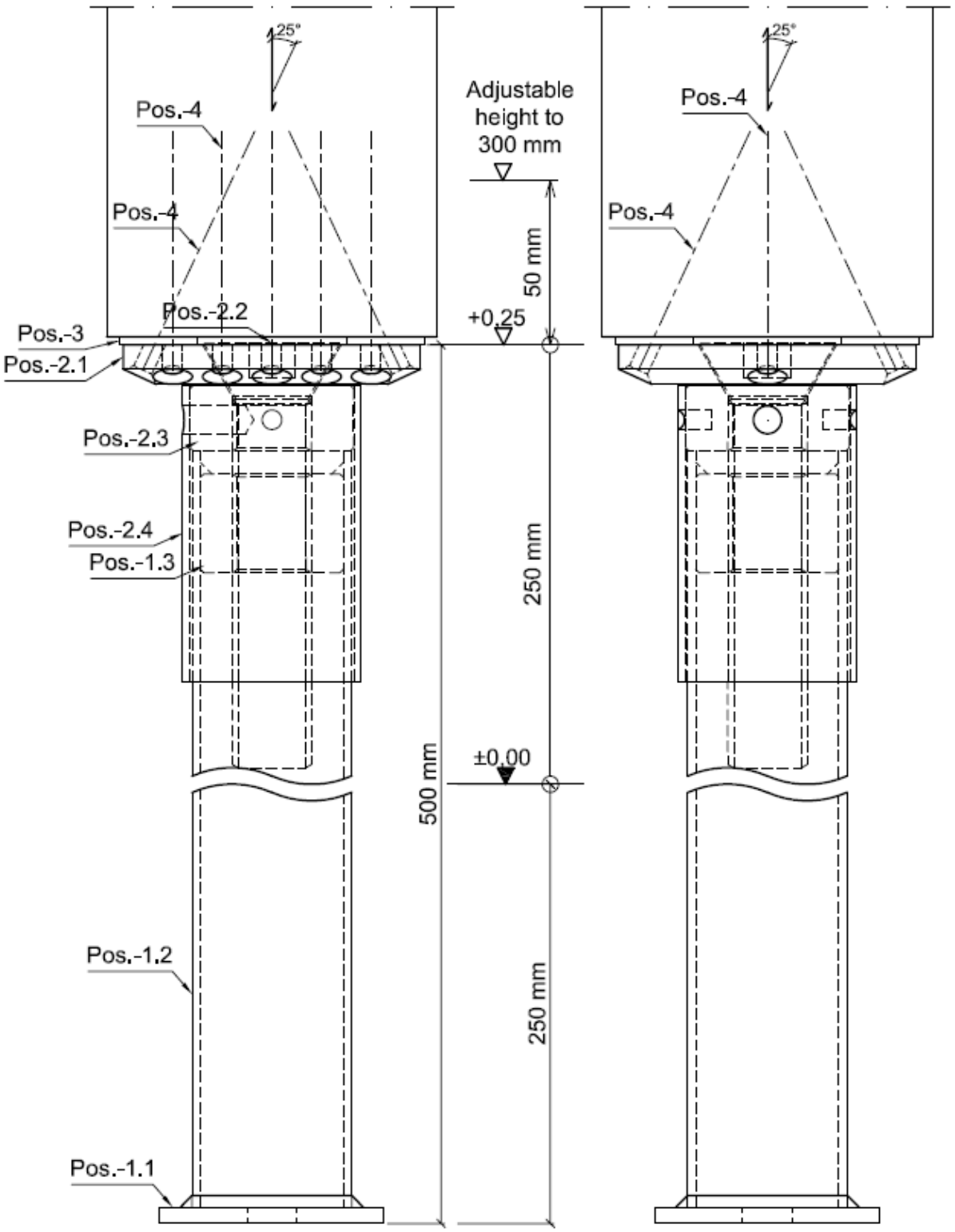

PediX post base	Annex 1.14
Height adjustable post base for anchoring in concrete PediX V B500+50	

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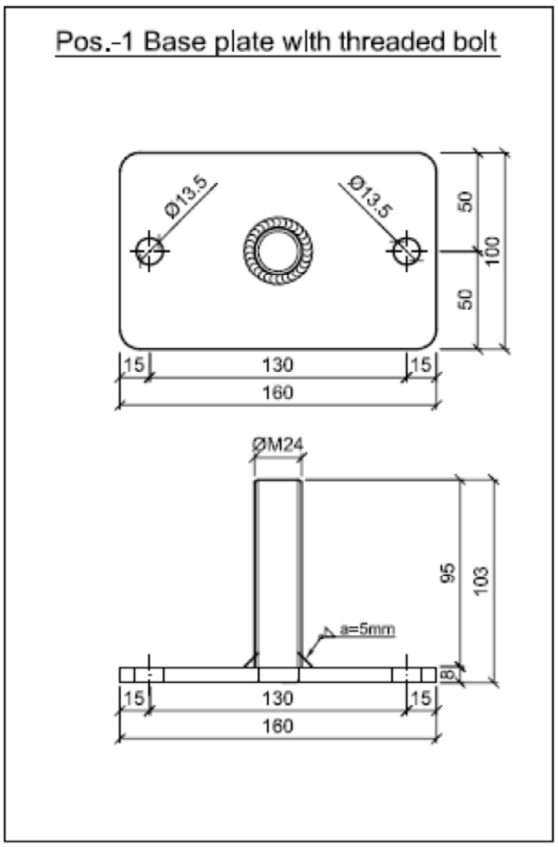

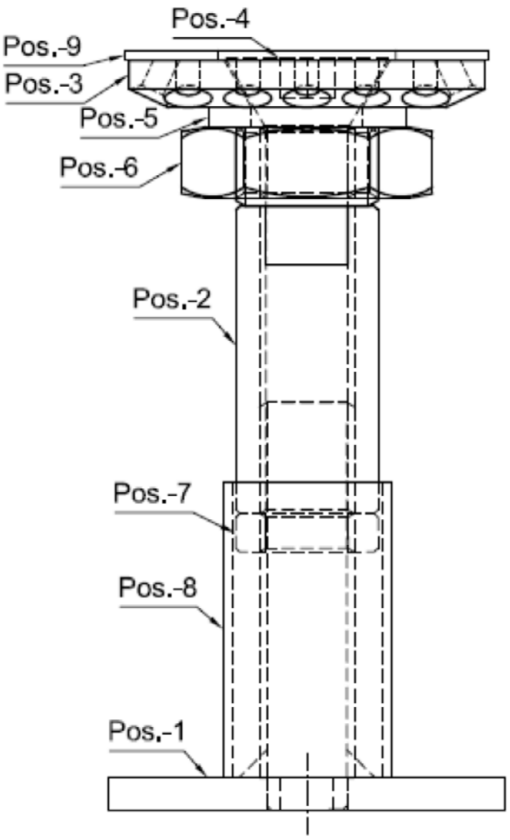

Post base PediX HV 140+50, hot-dip galvanized	
Pos.-Nr.	**Designation**
1	Base plate 160x100x8 mm, S235; and threaded bolt M24; H= 95 mm, 5.6;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 98 mm; Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/28/5 mm, S235;
6	Lock nut M36, 4.6;
7	Threaded sleeve lock nut M24, H= 10 mm; Wrench size 30, S235;
8	Protection sleeve Ø42,4 mm, T= 2,3 mm, H= 75 mm, S235;
9	EPDM- seal (not subject to this ETA)
10	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.15
Height adjustable post base for assembly on concrete PediX HV 140+50	

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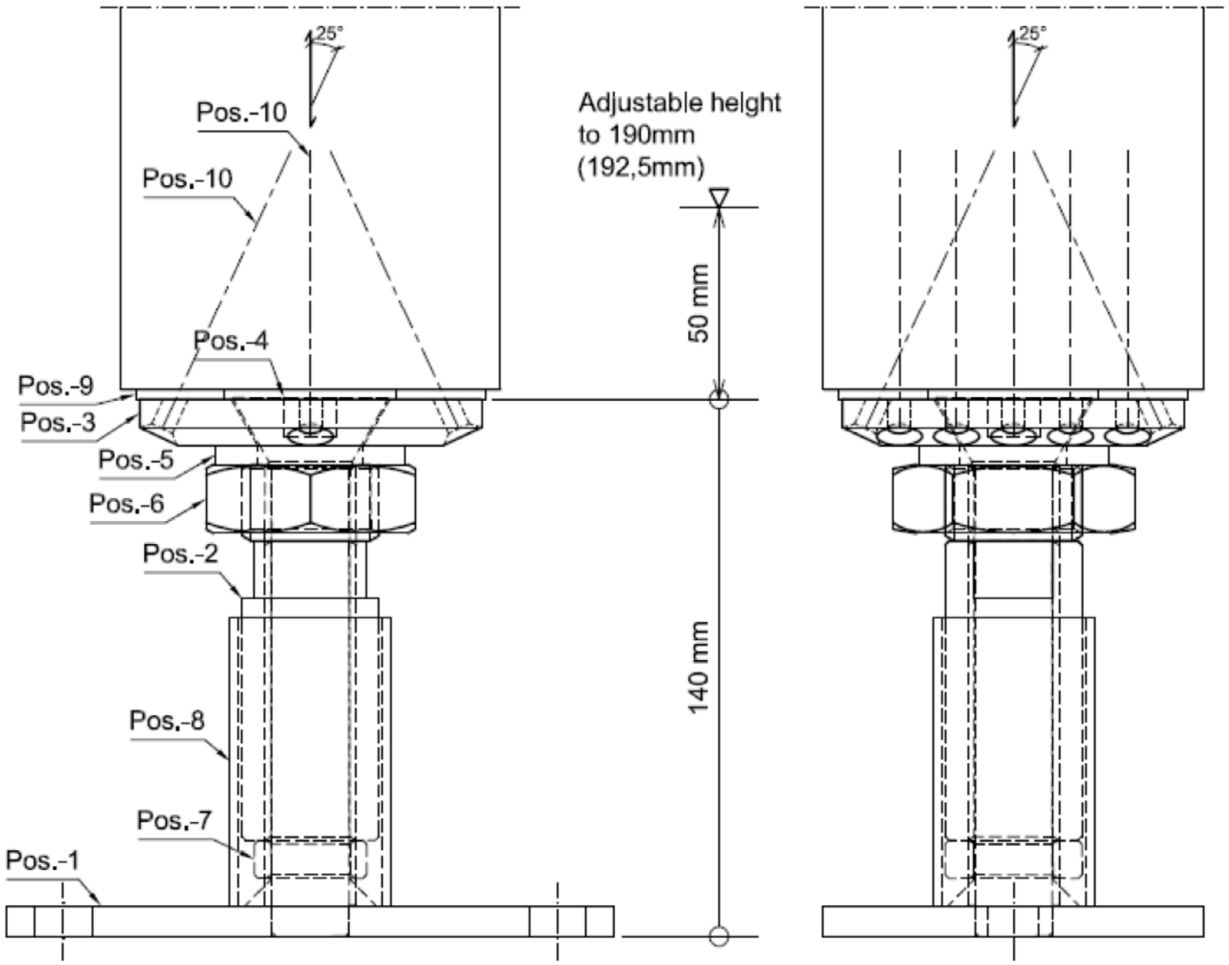

PediX post base	Annex 1.16
Height adjustable post base for assembly on concrete PediX HV 140+50	

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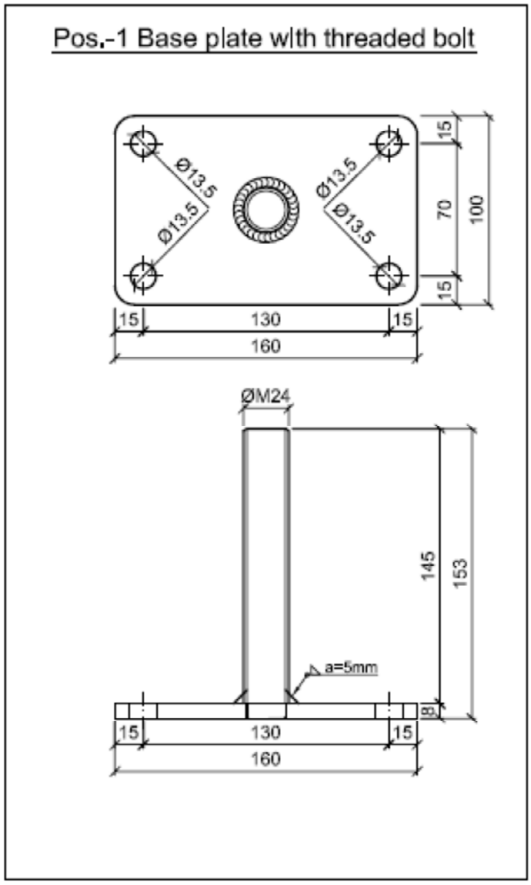

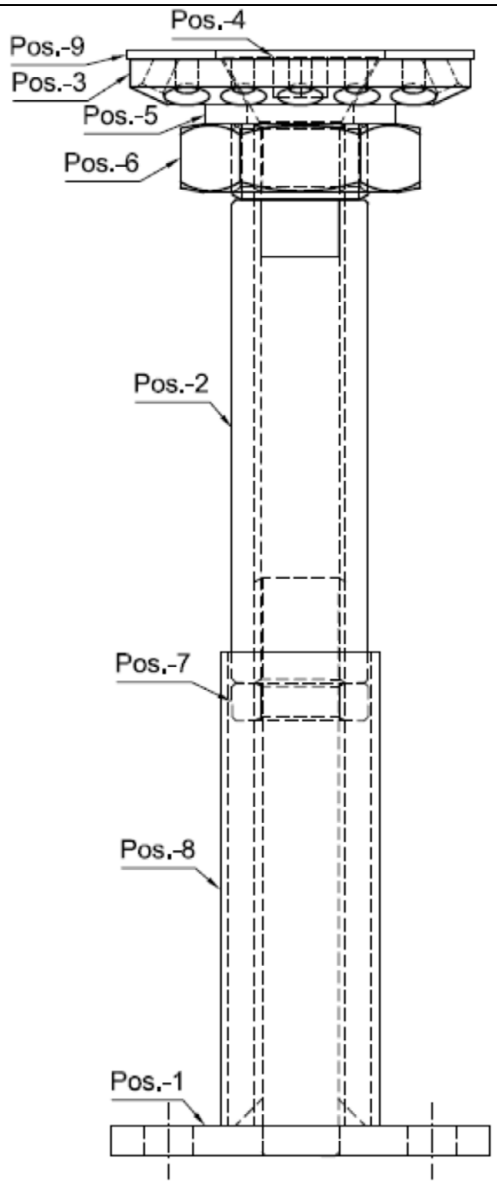

Post base PediX HV 190+100, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, S235; and threaded bolt M24; H= 148 mm, 5.6;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 98 mm; Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/28/5 mm, S235;
6	Lock nut M36, 4.6;
7	Threaded sleeve lock nut M24, H= 10 mm; Wrench size 30, S235;
8	Protection sleeve Ø42,4, T= 2,3 mm, H= 125 mm, S235;
9	EPDM- seal (not subject to this ETA)
10	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.17
Height adjustable post base for assembly on concrete PediX HV 190+100	

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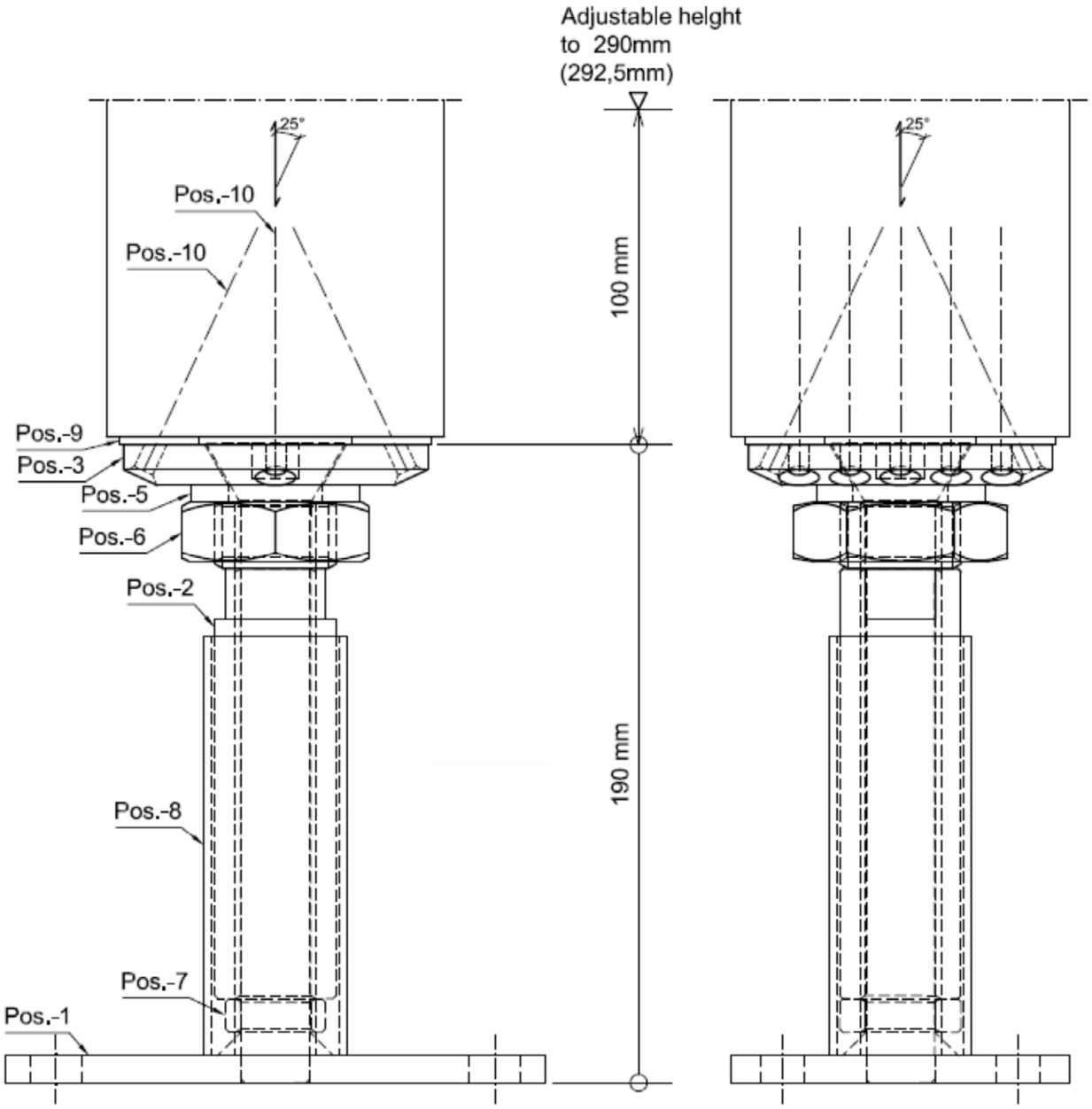

PediX post base	Annex 1.18
Adjustable post base for assembly on concrete PediX HV 190+100	

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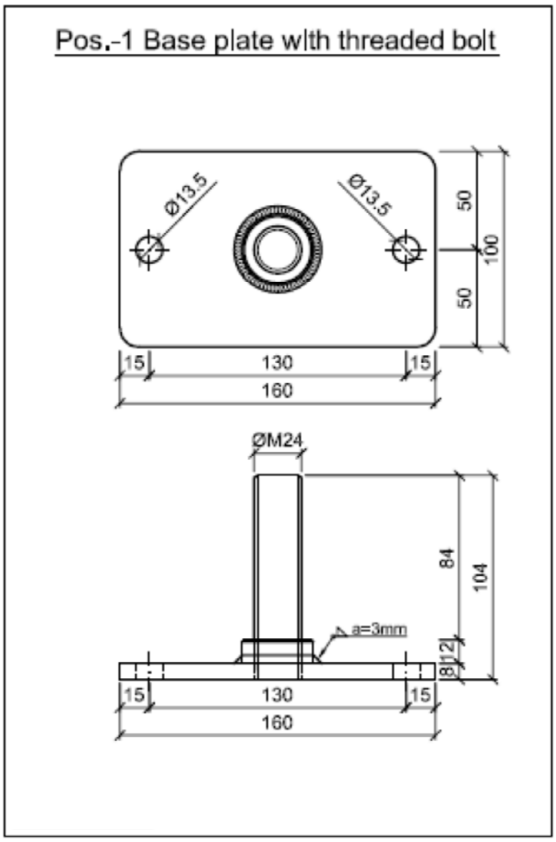

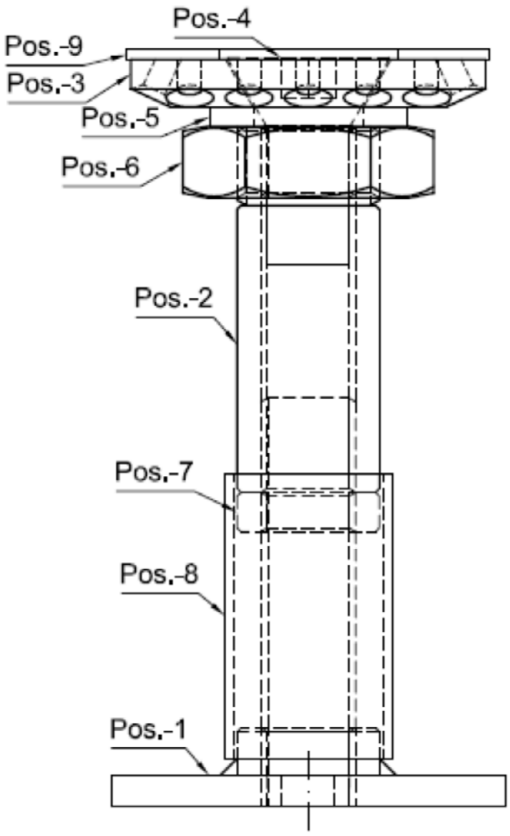

Post base PediX HV+ 140+50, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, Threaded ring M24 Ø36x12 mm, S235; Threaded bolt M24, H= 84 mm, 8.8;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 93 mm; Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/28/5 mm, S235;
6	Lock nut M36, 4.6;
7	Threaded sleeve lock nut M24, H= 10 mm; Wrench size 30, S235;
8	Protection sleeve Ø42,4 mm, T= 2,3 mm, H= 72,5 mm, S235;
9	EPDM- seal (not subject to this ETA)
10	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.19
Height adjustable post base for assembly on concrete PediX HV+ 140+50	

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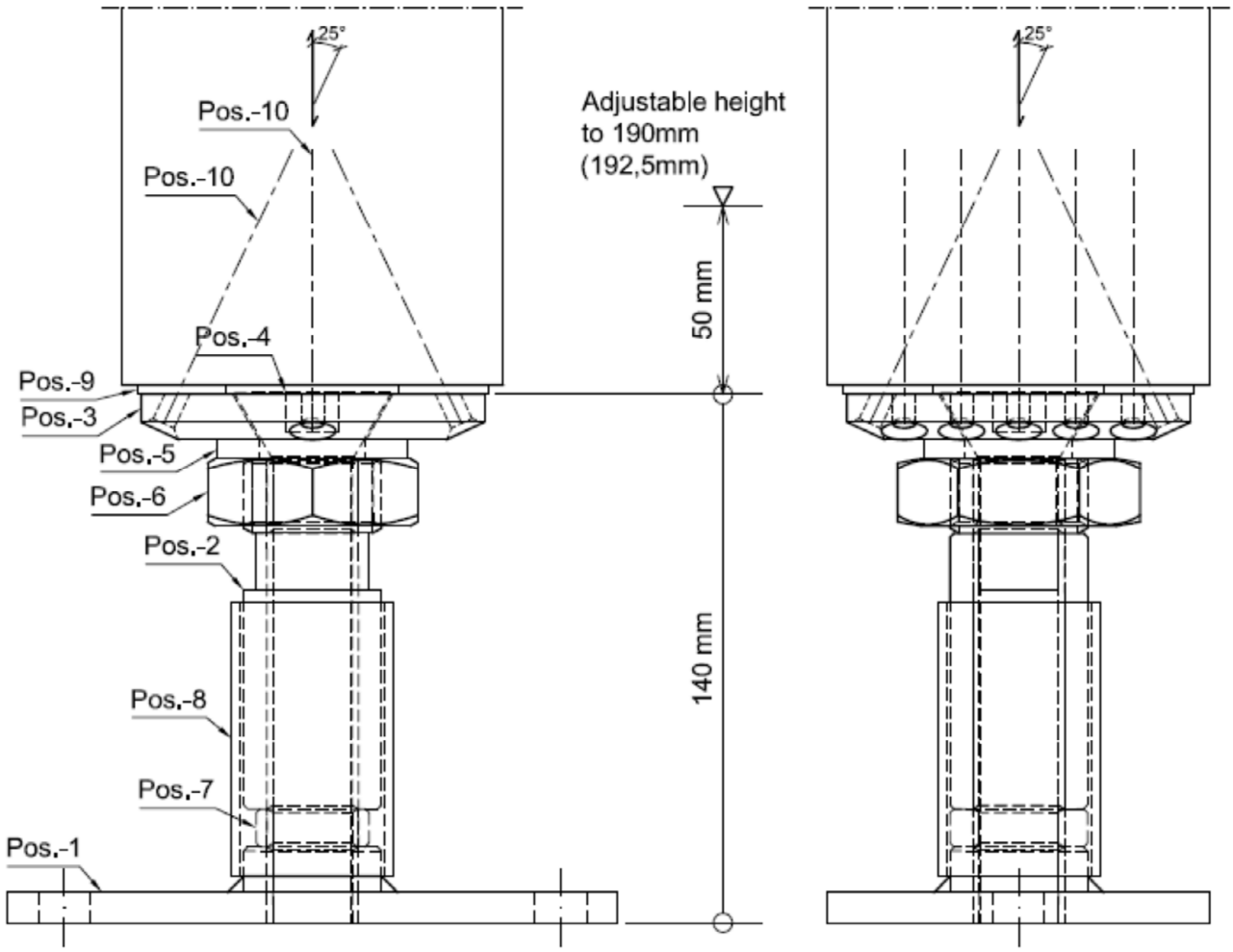

PediX post base	Annex 1.20
Height adjustable post base for assembly on concrete PediX HV+ 140+50	

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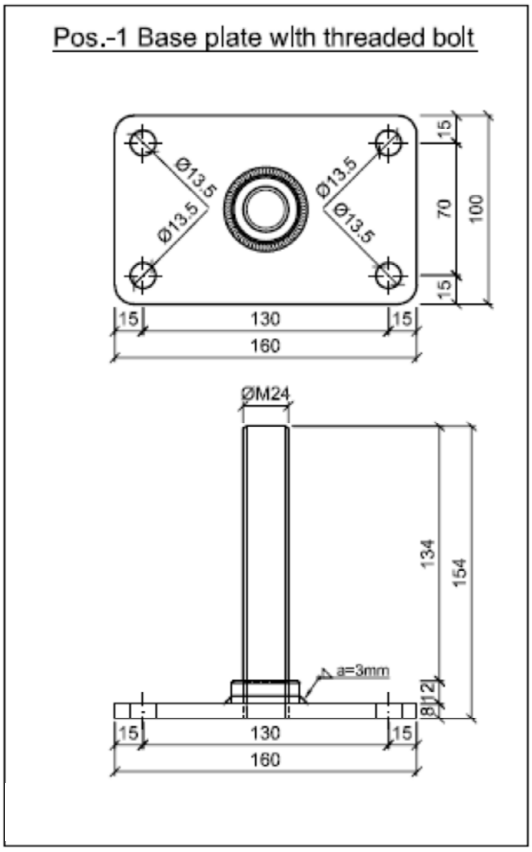

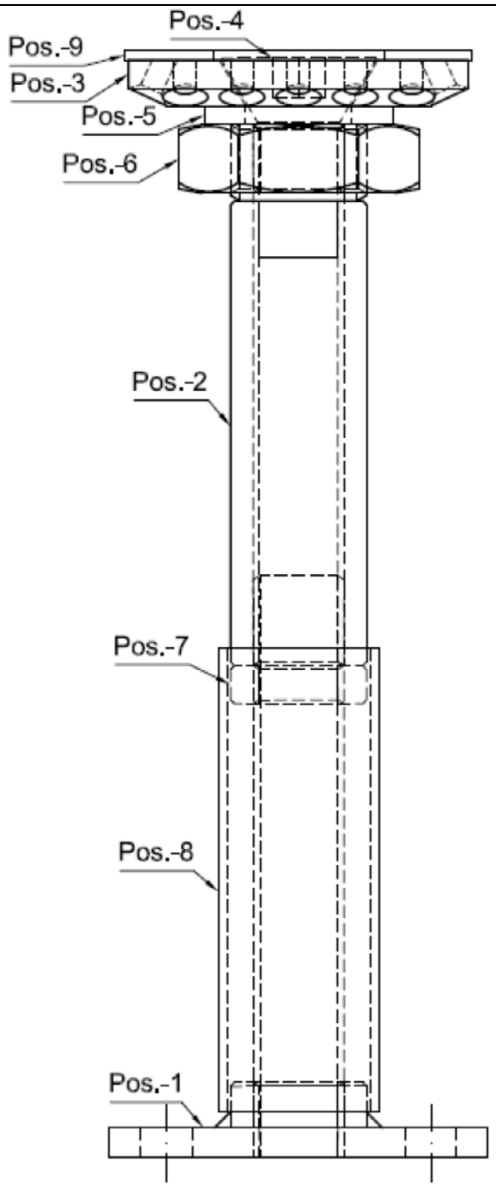

Post base PediX HV+ 190+100, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, Threaded ring M24 Ø36x12 mm, S235; Threaded bolt M24, H= 134 mm, 8.8;
2	Threaded sleeve Ø36 mm, Inner thread M24, H= 143 mm; Wrench size 30, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M24x35, S235;
5	Steel plate 50/28/5 mm, S235;
6	Lock nut M36, 4.6;
7	Threaded sleeve lock nut M24, H= 10 mm; Wrench size 30, S235;
8	Protection sleeve Ø42,4 mm, T= 2,3 mm, H= 122,5 mm, S235;
9	EPDM- seal (not subject to this ETA)
10	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.21
Height adjustable post base for assembly on concrete PediX HV+ 190+100	

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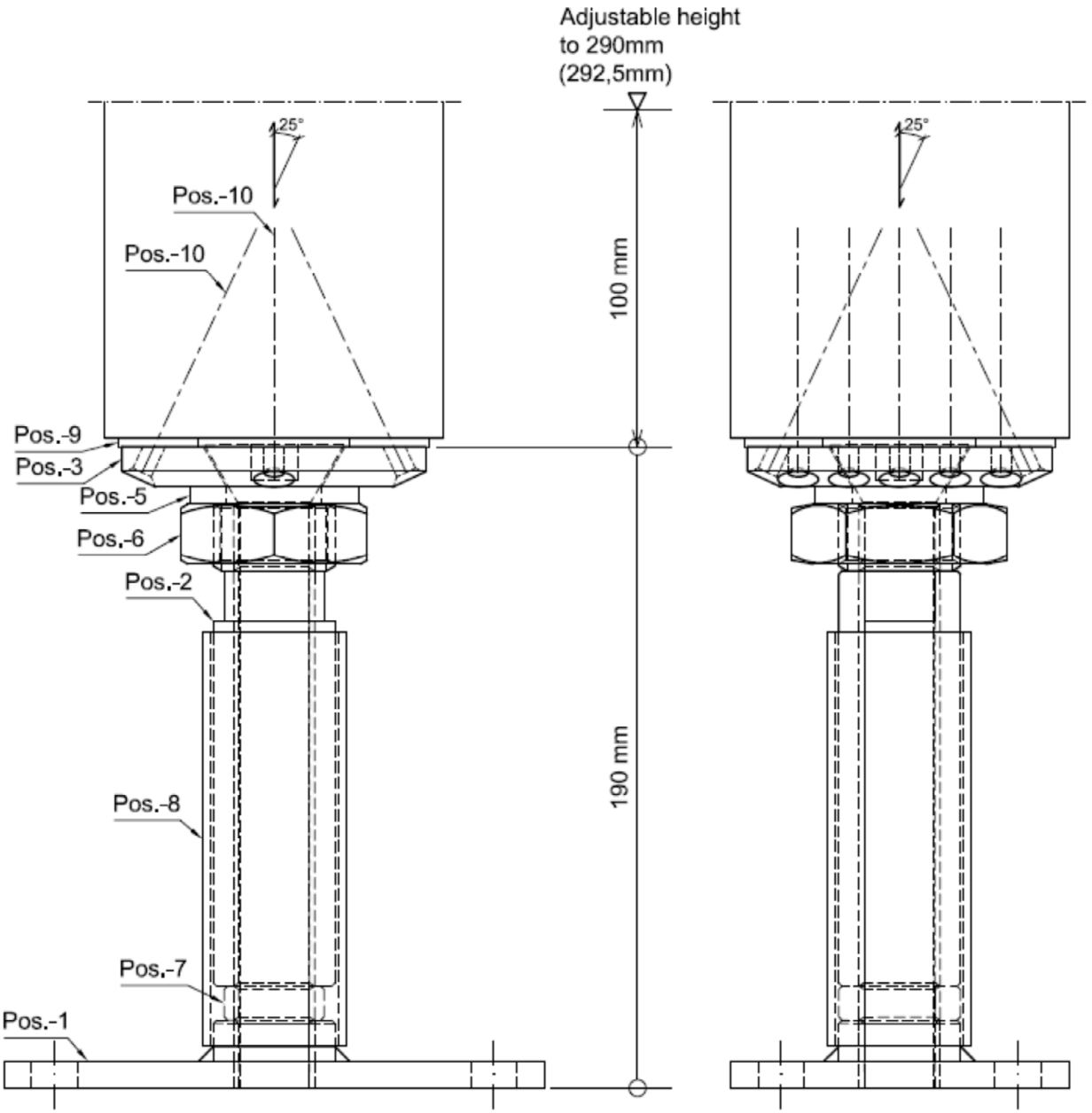
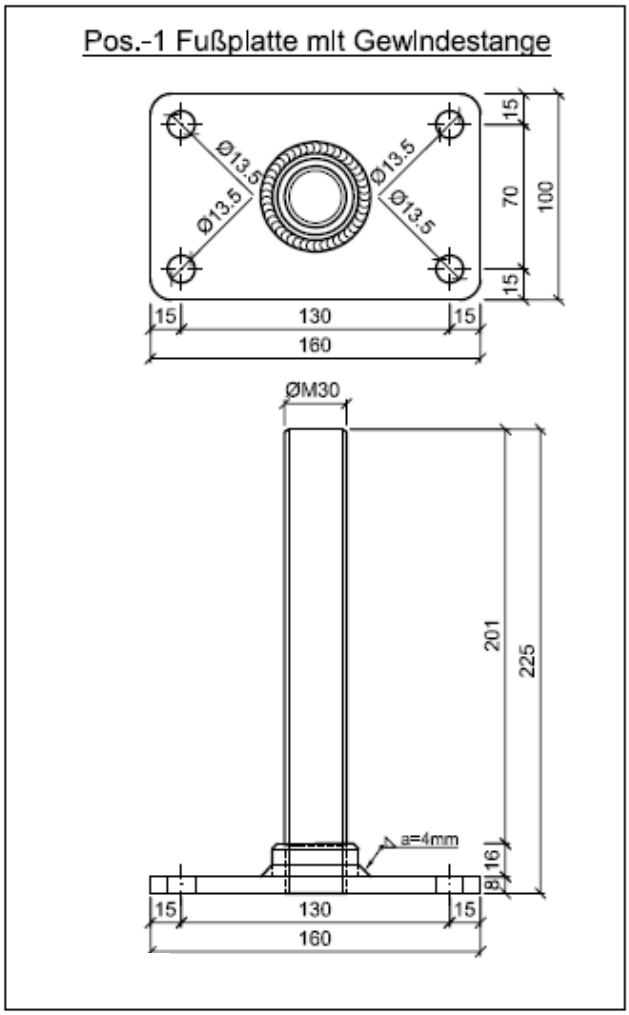
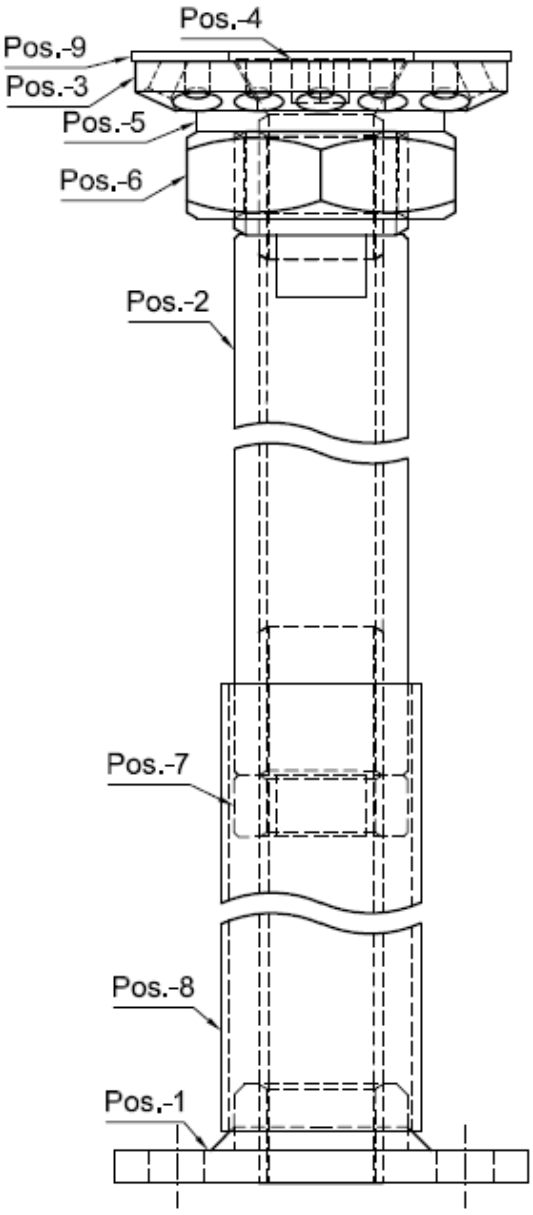


PediX post base	Annex 1.22
Height adjustable post base for assembly on concrete PediX HV+ 190+100	

Deutsches Institut für Bautechnik DIBt





Post base PediX HV+S 300+150, hot-dip galvanized	
Pos.-No.	**Designation**
1	Base plate 160x100x8 mm, Threaded ring M30 Ø42x16 mm, S235; Threaded bolt M30, H= 201 mm, 8.8;
2	Threaded sleeve Ø42 mm, Inner thread M30, H= 244 mm; Wrench size 36, S235;
3	Head plate 90x90x12 mm, S235;
4	Countersunk head screw M30x48, S235;
5	Steel plate 60/31/5 mm, S235;
6	Lock nut M42, 4.6;
7	Threaded sleeve lock nut M30, H= 15 mm; Wrench size 36, S235;
8	Protection sleeve Ø48,3 mm, T= 2,3 mm, H= 200 mm, S235;
9	EPDM- seal (not subject to this ETA)
10	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.23
Height adjustable post base for assembly on concrete PediX HV+S 300+150	

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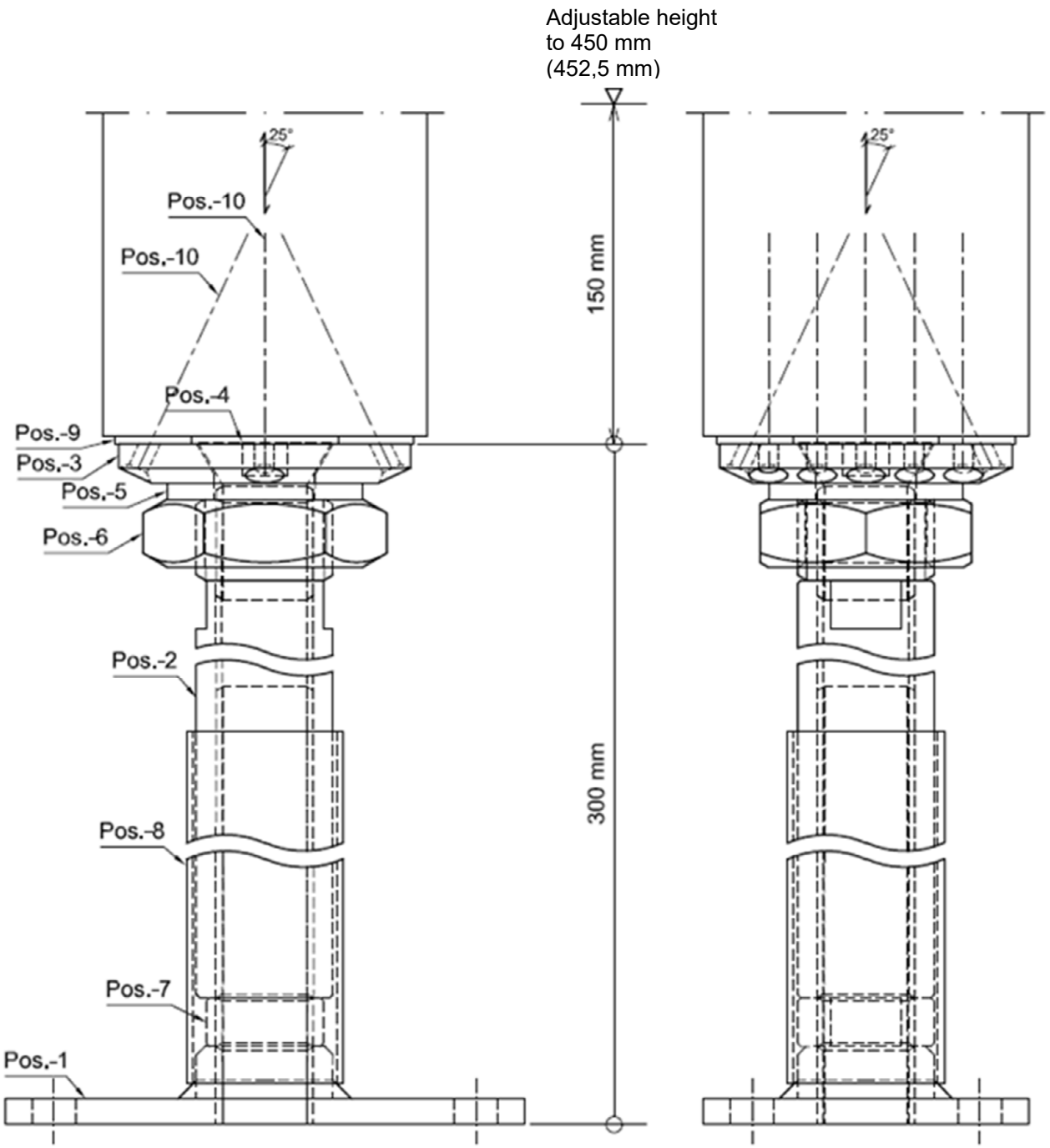
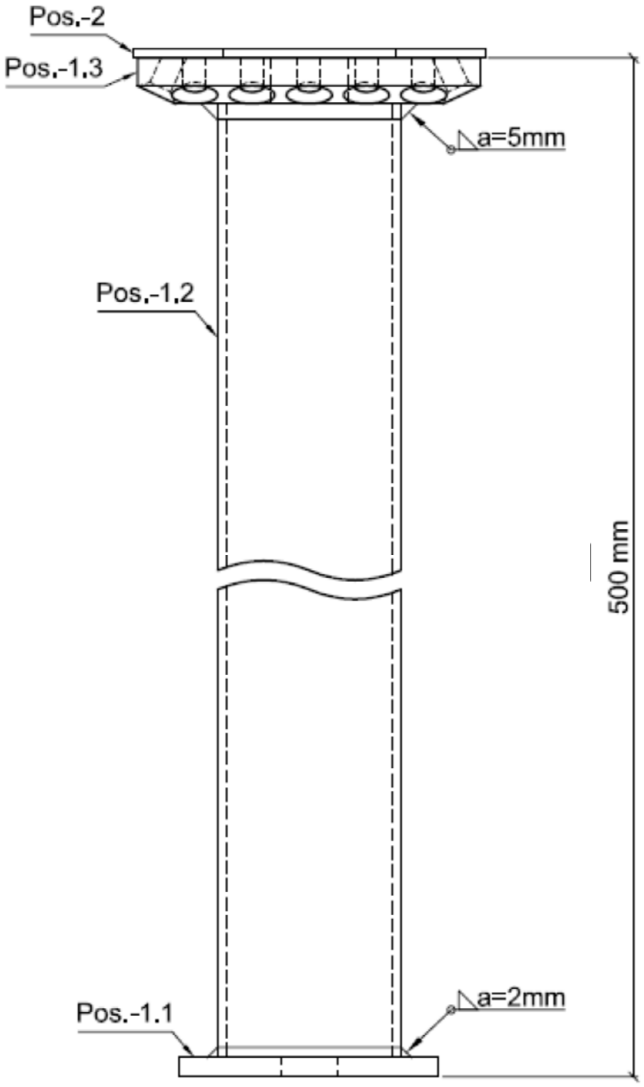


PediX post base	Annex 1.24
Height adjustable post base for assembly on concrete PediX HV+S 300+150	



Post base PediX HV B500, hot-dip galvanized	
Pos.-No.	**Designation**
1.1	Steel plate Ø68x15x5 mm, S235;
1.2	Steel tube Ø48 mm, T= 2,5 mm, H= 483 mm, S235;
1.3	Head plate 90x90x12 mm, S235;
2	EPDM- seal (not subject to this ETA)
3	PediX- fully threaded screw Ø5x80 mm Carbon Steel-Special coated/ Stainless Steel A2-Special coated

PediX post base	Annex 1.25
Post base for anchoring in concrete PediX HV B500	

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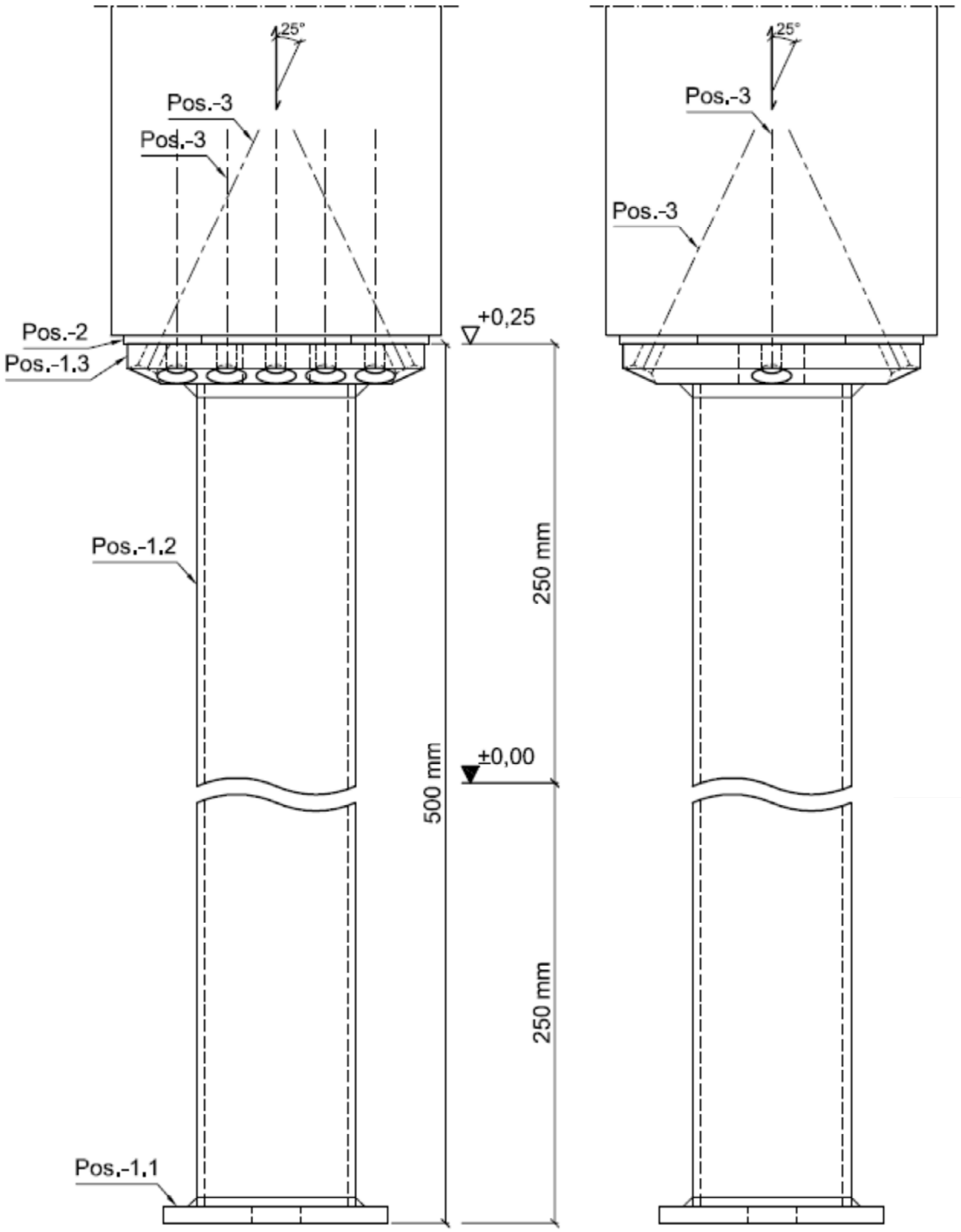

PediX post base	Annex 1.26
Post base for anchoring in concrete PediX HV B500	

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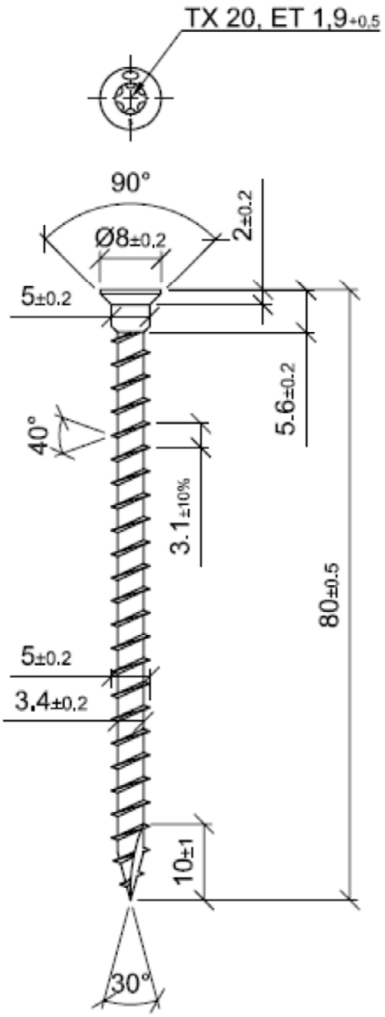
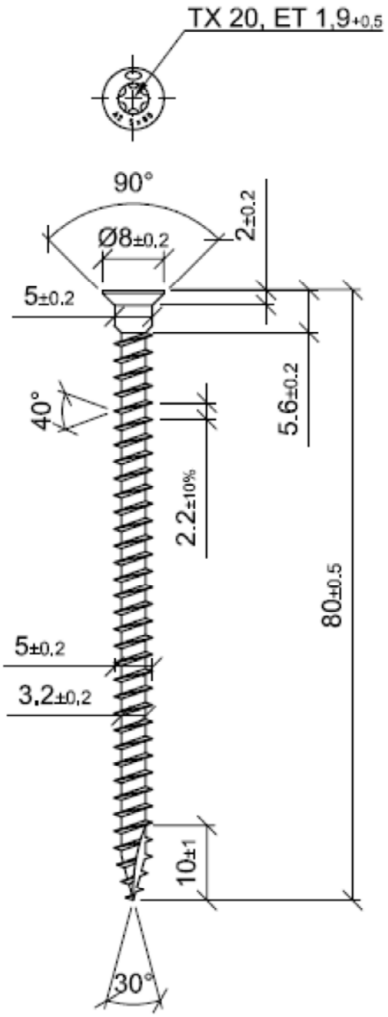
PediX- VGS Ø5x80mm

Carbon steel: SAE 1018, SAE 1022, SAE 10B21;
Special coated



PediX- VGS Ø5x80mm-A2

Austenitic stainless steel: 1.4301 (SAE 304);
Special coated



PediX post base	Annex 1.27
Fasteners for PediX post base PediX VSG Ø5x80 mm PediX VSG Ø5x80 mm-A2	

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Annex 2 Specifications of intended use

A.2.1 Intended use

The post bases are intended to be used for structural timber-to-concrete connections in timber constructions.

The structural behaviour of the construction elements and the support conditions correspond to the indications given in Annex 3. The post bases may be used in service classes 1, 2 and 3 in accordance with EN 1995-1-1[1]. Fasteners with the designation 'V' are only intended to be loaded vertically (V) and those with the designation "HV" are to be loaded horizontally (H) and vertically (V).

A.2.2 Loading

- Non-fatigue-relevant static and quasi-static actions

A.2.3 Connection materials

A.2.3.1 Timber

The timber members are made of solid timber, glued laminated timber or similarly glued wood-based members. The following softwood materials are suitable for connections with PediX post bases:

- solid timber (softwood) of strength class ≥ C24 in accordance with EN 338[2] / EN 14081-1[3], with a characteristic density $\rho_k \geq 350$ kg/m³,
- glued laminated timber in accordance with EN 14080[4] as well as
- similarly glued members with minimum dimensions of w x h = 10 cm x 10 cm.

Characteristic values of load-carrying capacities for connections with post bases (see Annex 3) have been determined for a characteristic density of timber components of 350 kg/m³. For load-carrying capacities the density higher than 350 kg/m³ must not be taken into account when determining the load capacities.

A.2.3.2 Concrete

- strength class ≥ C20/25.

A.2.4 Use conditions (Environmental conditions)

A.2.4.1 Durability against corrosion

The steel components of the post base and their connections are hot-dip galvanised with a minimum contact length of 25 µm according to Z350 of EN 10346[5].

The allowable ambient atmospheric conditions in accordance with EN ISO 12944-2[6] are to be observed.

Coated fully threaded screws made of carbon steel are used for connecting the top plate to the timber member in service classes 1 and 2. Corrosion protection through use of a metallic coating is foreseen.

Fully threaded screws made of stainless steel 1.4301 are used in service class 3 conditions. The allowable ambient atmospheric conditions in accordance with EN ISO 12944-2 have been considered. Coating of the fully threaded screws is foreseen to prevent bimetallic corrosion.

1	EN 1995-1-1:2010-12 + A2:2014-07	Eurocode 5: Design of timber structures – Part 1-1: Common rules and rules for buildings
2	EN 338:2006-11	Structural timber – Strength classes
3	EN 14081-1:2011-05	Timber structures – Strength graded structural timber with rectangular cross section – Part 1: General requirements
4	EN 14080:2013-09	Timber structures – Glued laminated timber – Requirements
5	EN 10346:2015-10	Continuously hot-dip coated steel flat products for cold forming – Technical delivery conditions
6	EN ISO 12944-2:2018-04	Paint and varnishes – Corrosion protection of steel structures by protective paint systems – Part 2: Classification of environments

PediX post base	Annex 2.1
Specifications of intended use Intended use, loading, connection materials, use conditions (corrosion)	

A.2.4.2 Wood preservative

It is assumed that a possible wood preservative treatment is taken into account and that effects of wood preservative on corrosion resistance are taken into consideration.

A.2.5 Installation

General

The connection of timber and concrete members using post bases is considered to be suitable for the intended purpose provided that the following conditions are met:

- Screws, screw arrangement, alignment of post base
  all holes in the top plate of the post base are supplied with screws. Only screws (with a coating if applicable) with the following properties are used:
  - geometry according to Annex 1.27,
  - mechanical strengths: characteristic tensile capacity $f_{tens,k}$ = 4.3 kN; characteristic yield moment $M_{y,k}$ = 3.2 Nm; characteristic torsional strength $F_{tor,k}$ = 3.4 Nm; ratio torsional strength to insertion moment $f_{tor,k}$/ $R_{tor,mean}$ ≥ 1.5.

Corresponding to the shear resistance the experimentally determined bending capacity applies under the condition that the horizontal force acts perpendicularly to the two screw rows of the connection, resulting in bending about the major axis of the connection such that 5 screws are subjected to tensile stress in the axial direction.
As shown in the free-body diagrams (see Annex 1.1/1.2 page 5/6) the longitudinal direction of the base plate of the post base on the concrete is parallel to the horizontal load. Horizontal loading of the post bases parallel to the screw rows is not allowed. In addition during assembly it is ensured that the M36 hex nut under the top plate is tightened to at least $M_{preload}$ ≥ 250 Nm. To ensure a permanent preload the product manufacturer supplements the connection or the joint with suitable thread locking measures.

Wane

Only timber without wane is used. The timber post's end face fully contacts the top plate of the post base.

Storage conditions

The construction elements connected by post bases are secured against rotation.

Base plates

The base plates are connected to the supporting substructure by means of anchor bolts or through embedding into concrete. For the anchorage of the base plates of post base PediX HV and HV+ the minimum load-bearing capacity for tension (equations B5 / B7 Annex 3.1, page 34) is taken into account depending on vertical and horizontal loads. The connection is not subject to this European Technical Assessment.

The members have a thickness exceeding the penetration depth of the screws into the member.

PediX post base	Annex 2.2
Specifications of intended use Use conditions (wood preservative), Installation	

Annex 3 Load-bearing capacity of post bases

The load bearing capacities for tension, compression and lateral force shall be calculated in accordance with the national regulations with the partial safety factors according to equations B1, B2 and B3.

For Germany the following partial safety factors apply:

Timber $\gamma_M = 1.30$

Steel $\gamma_{M0} = 1.00$, $\gamma_{M1} = 1.10$, $\gamma_{M2} = 1.25$

Concrete $\gamma_C = 1.50$

Tensile stress

$$N_{t,d} = \min\left\{\frac{k_{mod} \times N_{t,k,Timber}}{\gamma_M}; \frac{N_{t,k,Steel}}{\gamma_{M0}}; \frac{N_{t,k,Steel}}{\gamma_{M1}}; \frac{N_{t,k,Steel}}{\gamma_{M2}}; \frac{N_{t,k,Concret}}{\gamma_C}\right. \quad \text{(B1)}$$

Compressive stress

$$N_{c,d} = \min\left\{\frac{k_{mod} \times N_{c,k,Timber}}{\gamma_M}; \frac{N_{c,k,Steel}}{\gamma_{M0}}; \frac{N_{c,k,Steel}}{\gamma_{M1}}; \frac{N_{c,k,Steel}}{\gamma_{M2}}; \frac{N_{c,k,Concret}}{\gamma_C}\right. \quad \text{(B2)}$$

Lateral force stress

$$V_d = \min\left\{\frac{k_{mod} \times V_{k,Timber}}{\gamma_M}; \frac{V_{k,Steel}}{\gamma_{M0}}; \frac{V_{k,Steel}}{\gamma_{M1}}; \frac{V_{k,Steel}}{\gamma_{M2}}\right. \quad \text{(B3)}$$

In case of simultaneous loading by a vertical load N_d and a horizontal load V_d for the components threaded bolt, steel tube, head and foot plate and the connection steel-timber shall be proven, that

$$\frac{N_d}{N_{Rd}} + \frac{V_d}{V_{Rd}} \le 1 \quad \text{(B4)}$$

For the connection of the post bases to the concrete in case of the foot plate being aligned lengthwise to the horizontal load it shall be verified, that the load bearing capacity of an anchor bolt on tensile force is at least:

for post bases PediX HV 140+50 and PediX HV+ 140+50:

$$F_{B,Rd} = 0{,}76 \times V_d + 0{,}50 \times N_d \quad \text{(B5)}$$

for post bases PediX HV 190+100 and PediX HV+ 190+100:

$$F_{B,Rd} = 0{,}58 \times V_d + 0{,}25 \times N_d \quad \text{(B6)}$$

for post base PediX HV+S 300+150:

$$F_{B,Rd} = 0{,}90 \times V_d + 0{,}25 \times N_d \quad \text{(B7)}$$

To calculate the design values, the characteristic load-carrying capacities given in Annex 3 shall be divided by partial safety factors for the material property and multiplied by the coefficient k_{mod} for the screw connection and the timber components with regard to the load duration and the service class defined in EN 1995-1-1.

In accordance with the standard EN 1990:2002 paragraph 6.3.5 the design value of the load-carrying capacity can be determined by reducing the values of the load-carrying capacity with the material-specific partial safety factors.

The characteristic values of the load-carrying capacity were determined for the failure of timber or wood-based material $F_{Rk,H}$ (reaching the load-carrying capacity of screws subjected to shear) as well as for the steel sheet failure $F_{Rk,S}$ (reaching the tensile or bending strength of the sheet metal or the bending strength of the base plate) and also for the failure of concrete $F_{Rk,C}$. The design value of the load-carrying capacity F_{Rd} is the minimum value as determined by formula (B1) up to (B3).

Therefore, for timber or wood-based material failure the load duration class and the service class are taken into account. The various partial safety factors γ_M for steel and timber or wood-based material as well as γ_C for concrete are also taken into account.

PediX post base	Annex 3.1
Calculation of load-carrying capacity	

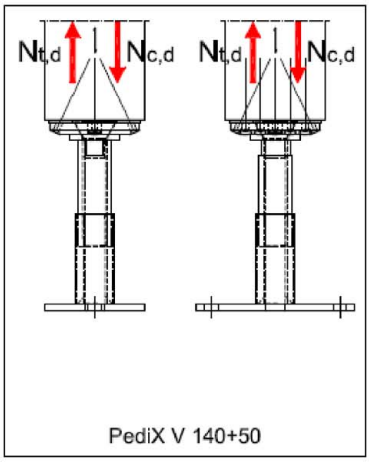


Table B-1: Characteristic values and corresponding partial safety factors (γ) for post base PediX V 140+50

Post base	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]
PediX V 140+50	9.2 (γ_{M0})	48 (γ_{M0})

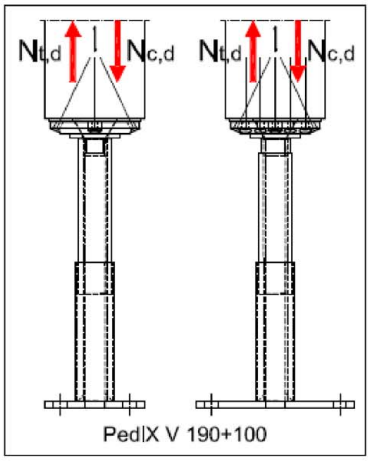


Table B-2: Characteristic values and corresponding partial safety factors (γ) for post base PediX V 190+100

Post base	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]
PediX V 190+100	9.2 (γ_{M0})	34 (γ_{M1})

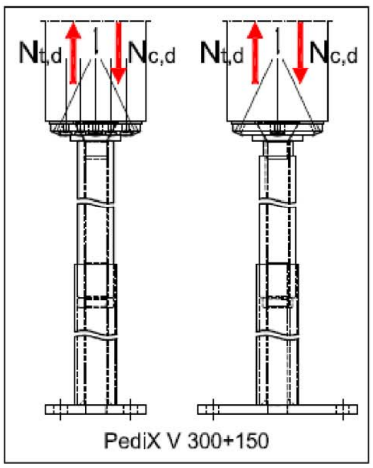


Table B-3: Characteristic values and corresponding partial safety factors (γ) for post base PediX V 300+150

Post base	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]
PediX V 300+150	9.2 (γ_{M0})	17.8 (γ_{M1})

PediX post base	Annex 3.2
Characteristic values and corresponding partial safety factors of PediX V 140+50, PediX V 190+100, PediX V 300+150	

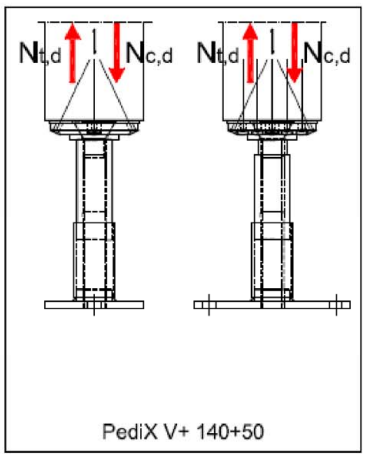


Table B-4: Characteristic values and corresponding partial safety factors (γ) for post base PediX V+ 140+50

Post base	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]
PediX V+ 140+50	9,2 (γ_{M0})	48 (γ_{M0})

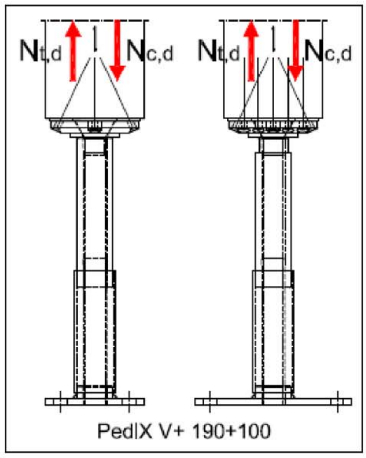


Table B-5: Characteristic values and corresponding partial safety factors (γ) for post base PediX V+ 190+100

Post base	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]
PediX V+ 190+100	9,2 (γ_{M0})	39 (γ_{M1})

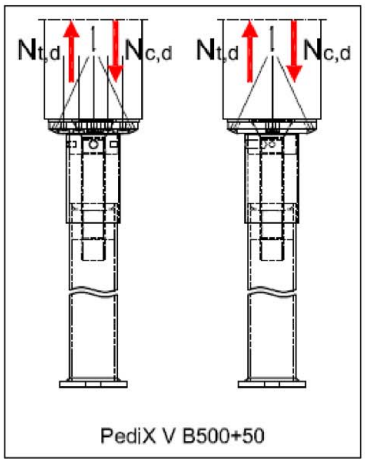


Table B-6: Characteristic values and corresponding partial safety factors (γ) for post base PediX V B500+50

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]
PediX V B500+50	Connection steel-timber	46 (γ_M)	141 (γ_M)
	Connection head plate - Countersunk head screw	23 (γ_{M0})	86 (γ_{M2})
	Countersunk head screw	78 (γ_{M0})	56.7 (γ_{M1})
	Connection Steel tube - Concret	36 (γ_C)	67.4 (γ_C)

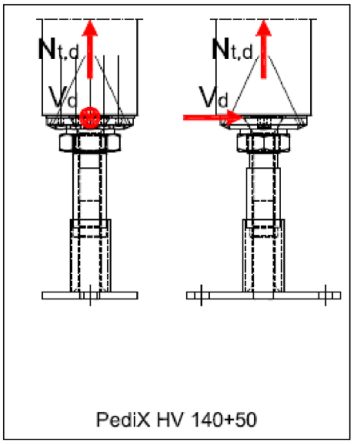
PediX post base	Annex 3.3
Characteristic values and corresponding partial safety factors of PediX V+ 140+50, PediX V+ 190+100, PediX V B500+50	

Table B-7: Characteristic values and corresponding partial safety factors (γ) for post base PediX HV 140+50

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]	Lateral Force V_k [kN]
PediX HV 140+50	Connection steel-timber	46 (γ_M)	141 (γ_M)	5.7 (γ_M)
	Head plate	23 (γ_{M0})	48 (γ_{M0})	8.5 (γ_{M0})
	Threaded bolt	97 (γ_{M0})	57 (γ_{M1})	3.2 (γ_{M2})
	Base plate	9.2 (γ_{M0})	-	6.3 (γ_{M0})

The interaction condition according to equation B4 shall be observed.

Illustration B-1: Load-bearing capacities of the post base PediX HV 140+50 in interaction with tension and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.



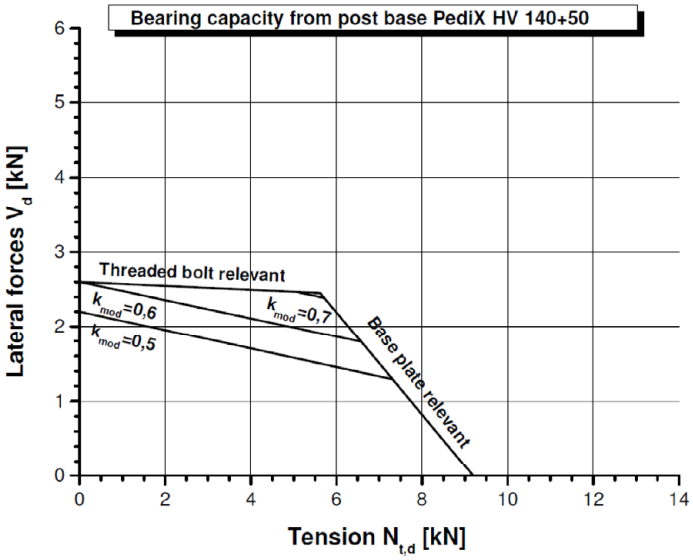
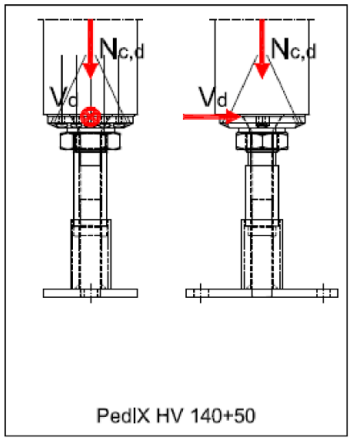
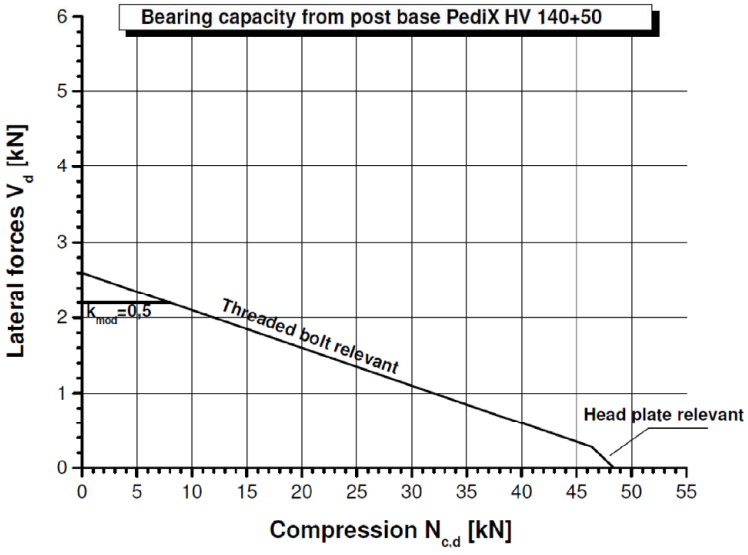


Illustration B-2: Bearing capacity from post base PediX HV 140+50 in interaction with compression and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.





PediX post base	Annex 3.4
Characteristic values and corresponding partial safety factors of PediX HV 140+50	

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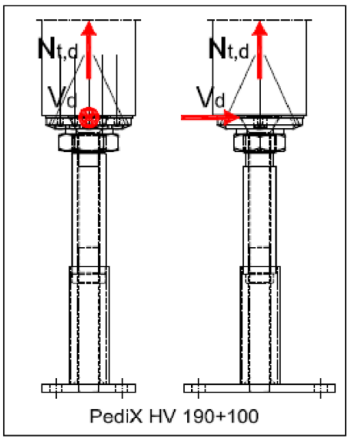
Table B-8: Characteristic values and corresponding partial safety factors (γ) for post base PediX HV 190+100

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]	Lateral Force V_k [kN]
PediX HV 190+100	Connection steel-timber	46 (γ_M)	141 (γ_M)	4.8 (γ_M)
	Head plate	23 (γ_{M0})	48 (γ_{M0})	5.6 (γ_{M0})
	Threaded bolt	97 (γ_{M0})	34 (γ_{M1})	2.1 (γ_{M2})
	Base plate	9.2 (γ_{M0})	-	4.1 (γ_{M0})

The interaction condition according to equation B4 shall be observed.

Illustration B-3: Load-bearing capacities of the post base PediX HV 190+100 in interaction with tension and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.



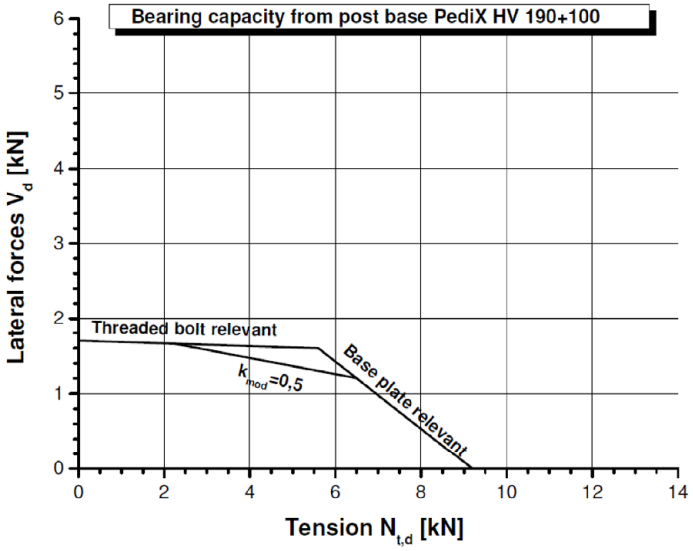
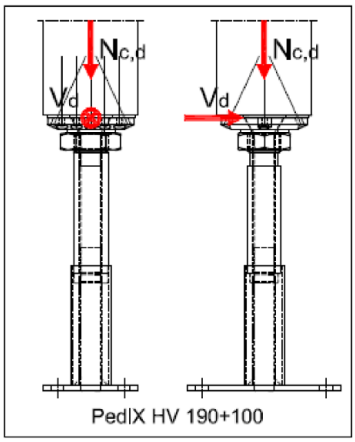
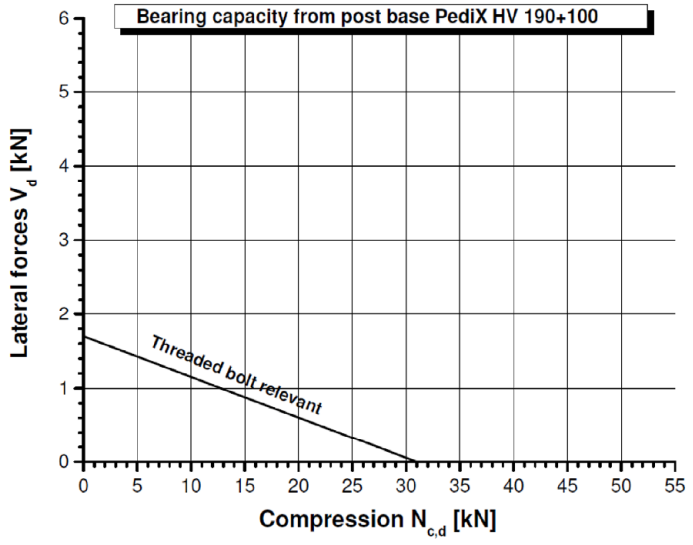


Illustration B-4: Load-bearing capacities of the post base PediX HV 190+100 in interaction with compression and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.





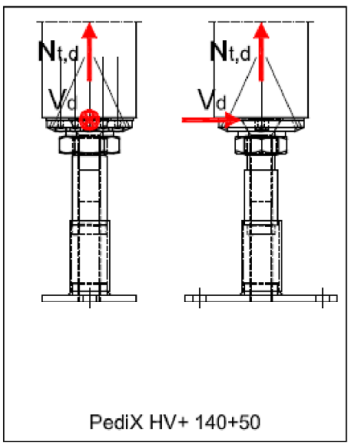
PediX post base	Annex 3.5
Characteristic values and corresponding partial safety factors PediX HV 190+100	

Table B-9: Characteristic values and corresponding partial safety factors (γ) for post base PediX HV+ 140+50

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]	Lateral Force V_k [kN]
PediX HV+ 140+50	Connection steel-timber	46 (γ_M)	141 (γ_M)	5.7 (γ_M)
	Head plate	23 (γ_{M0})	48 (γ_{M0})	8.5 (γ_{M0})
	Threaded bolt	207 (γ_{M0})	77 (γ_{M1})	6.9 (γ_{M2})
	Base plate	9.2 (γ_{M0})	-	6.0 (γ_{M0})

The interaction condition according to equation B4 shall be observed.

Illustration B-5: Load-bearing capacities of the post base PediX HV+ 140+50 in interaction with tension and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.



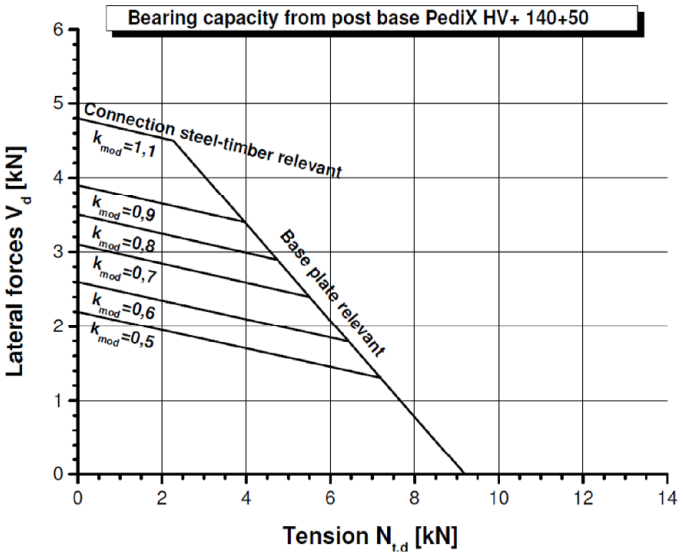
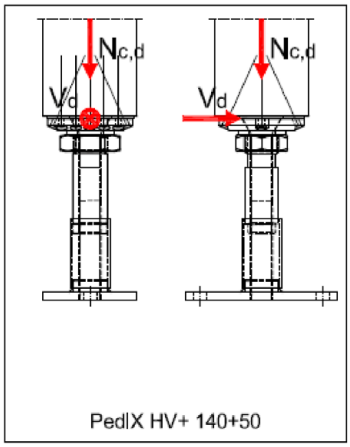
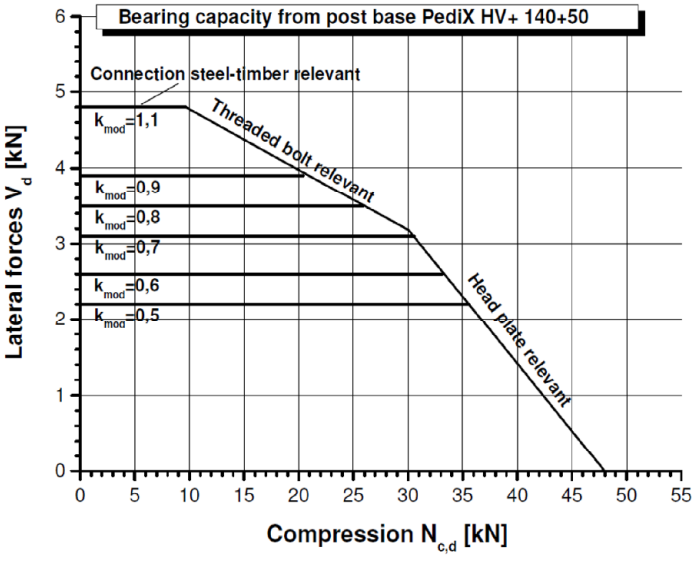


Illustration B-6: Bearing capacity from post base PediX HV+ 140+50 in interaction with compression and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.





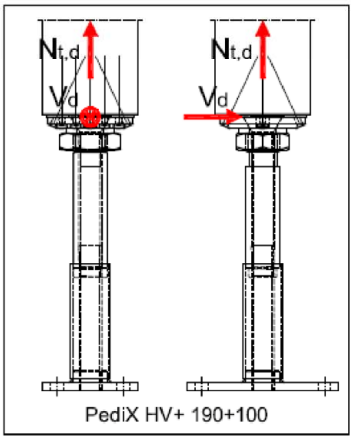
PediX post base	Annex 3.6
Characteristic values and corresponding partial safety PediX HV+ 140+50	

Table B-10: Characteristic values and corresponding partial safety factors (γ) for post base PediX HV+ 190+100

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]	Lateral Force V_k [kN]
PediX HV+ 190+100	Connection steel-timber	46 (γ_M)	141 (γ_M)	4.8 (γ_M)
	Head plate	23 (γ_{M0})	48 (γ_{M0})	5.6 (γ_{M0})
	Threaded bolt	207 (γ_{M0})	39 (γ_{M1})	4.5 (γ_{M2})
	Base plate	9.2 (γ_{M0})	-	3.9 (γ_{M0})

The interaction condition according to equation B4 shall be observed.

Illustration B-7: Load-bearing capacities of the post base PediX HV+ 190+100 in interaction with tension and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.



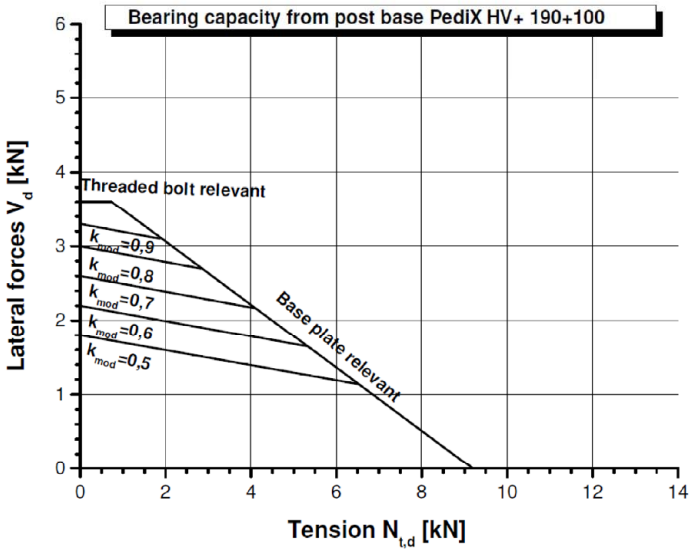
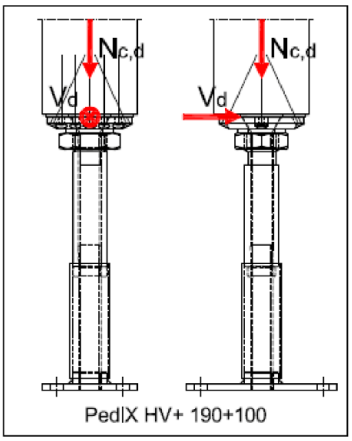
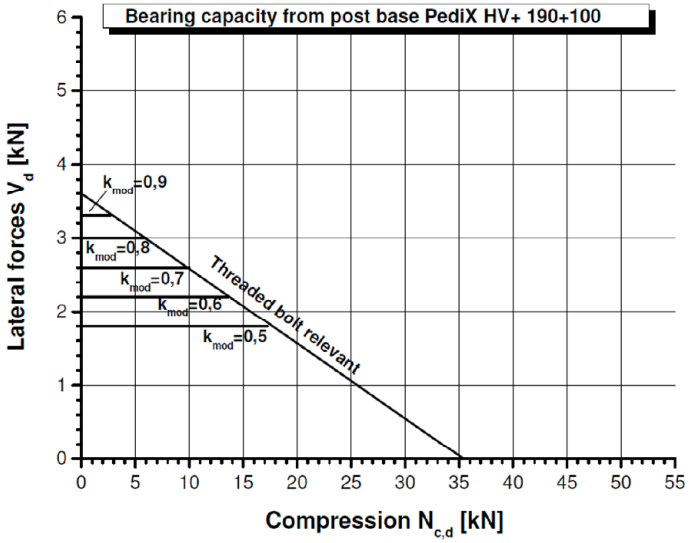


Illustration B-8: Load-bearing capacities of the post base PediX HV+ 190+100 in interaction with compression and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.





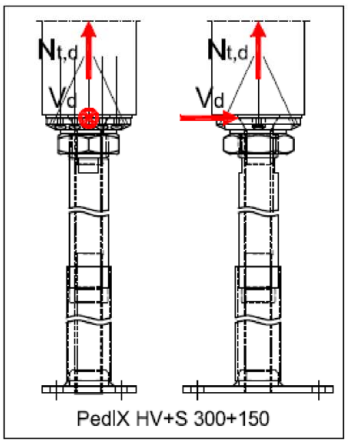
PediX post base	Annex 3.7
Characteristic values and corresponding partial safety factors PediX HV+ 190+100	

Table B-11: Characteristic values and corresponding partial safety factors (γ) for post base PediX HV+S 300+150

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]	Lateral Force V_k [kN]
PediX HV+S 300+150	Connection steel-timber	46 (γ_M)	141 (γ_M)	3.7 (γ_M)
	Head plate	23 (γ_{M0})	70 (γ_{M0})	3.6 (γ_{M0})
	Threaded bolt	332 (γ_{M0})	38 (γ_{M1})	5.9 (γ_{M2})
	Base plate	8.6 (γ_{M0})	-	2.3 (γ_{M0})

The interaction condition according to equation B4 shall be observed.

Illustration B-9: Load-bearing capacities of the post base PediX HV+S 300+150 in interaction with tension and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.



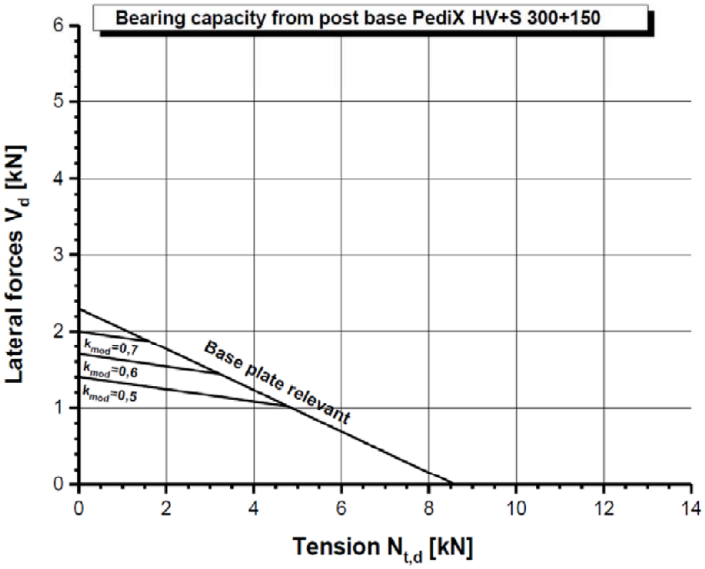
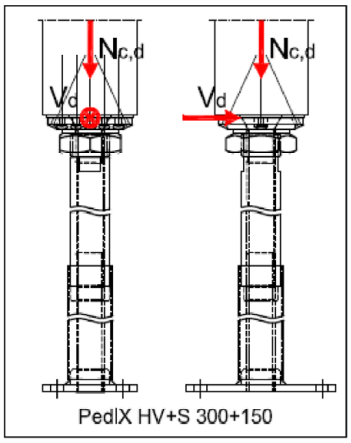
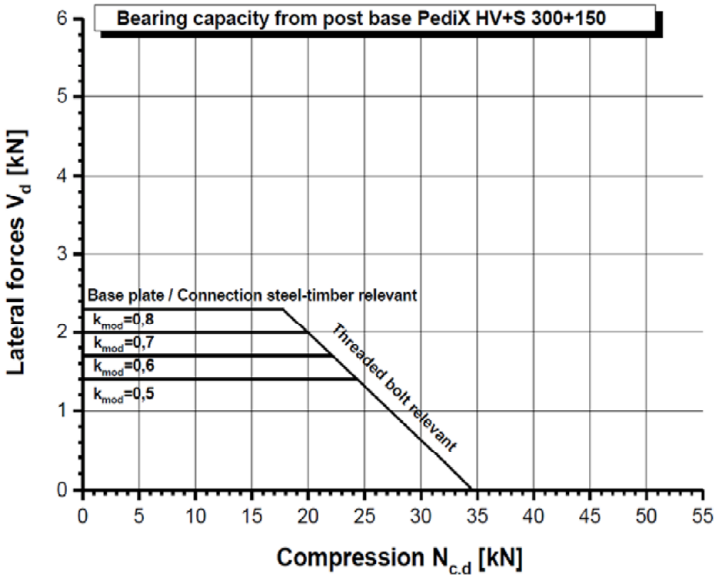


Illustration B-10: Load-bearing capacities of the post base PediX HV+S 300+150 in interaction with compression and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.25.





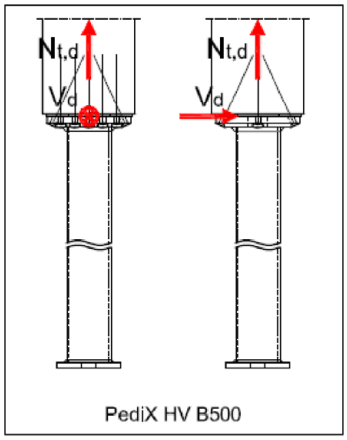
PediX post base	Annex 3.8
Characteristic values and corresponding partial safety factors PediX HV+S 300+150	

Table B-12: Characteristic values and corresponding partial safety factors (γ) for post base PediX HV B500

Post base	Component / Connection	Tension $N_{t,k}$ [kN]	Compression $N_{c,k}$ [kN]	Lateral Force V_k [kN]
PediX HV B500	Connection steel-timber	46 (γ_M)	170 (γ_M)	8.4 (γ_M)
	Steel tube	84 (γ_{M0})	81 (γ_{M1})	4.6 (γ_{M0})
	Concrete	36 (γ_C)	67.4 (γ_C)	-

The interaction condition according to equation B4 shall be observed.

Illustration B-11: Load-bearing capacities of the post base PediX HV B500 in interaction with tension and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.50



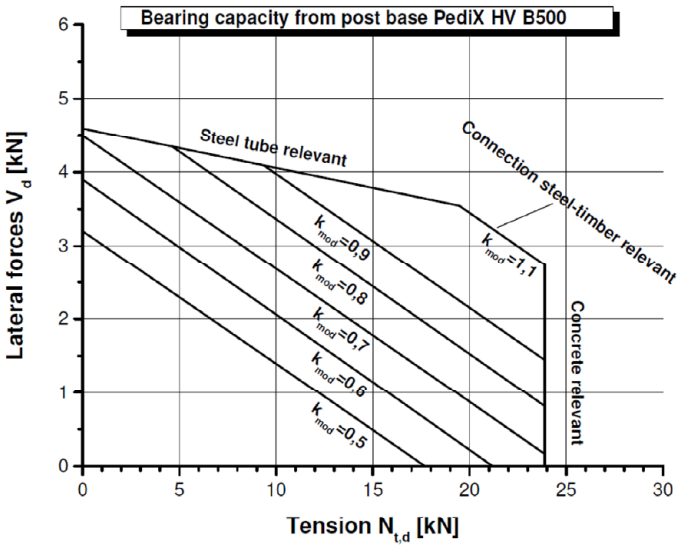
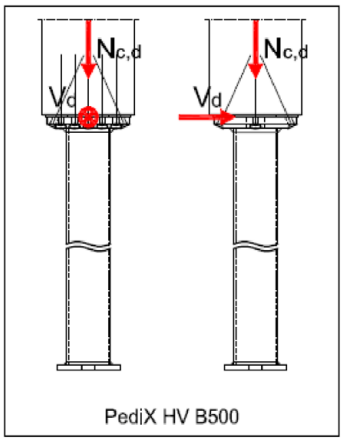
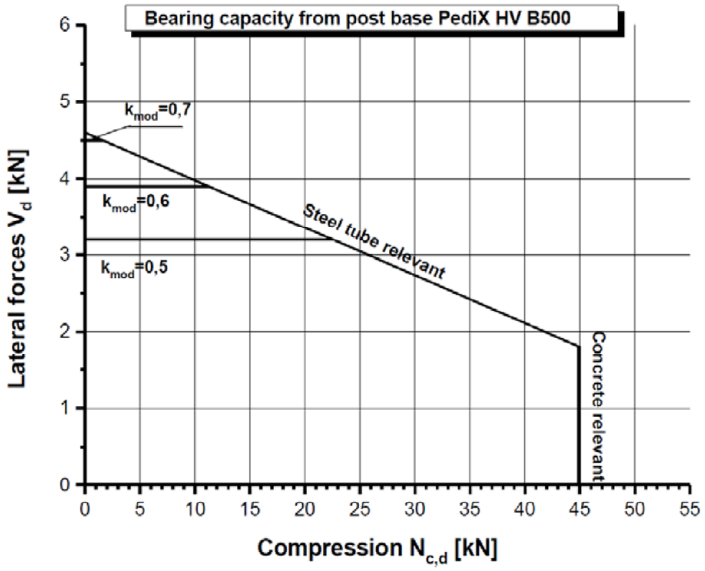


Illustration B-12: Load-bearing capacities of the post base PediX HV B500 in interaction with compression and lateral forces with the adopted partial safety factors γ_M =1.3, γ_{M0}=1.0, γ_{M1}=1.1 and γ_{M2}=1.50





PediX post base	Annex 3.9
Characteristic values and corresponding partial safety factors PediX HV B500	