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# European Technical Assessment

**ETA-15/0540**  
of 26.02.2021

General part

**Technical Assessment Body issuing the European Technical Assessment**

Österreichisches Institut für Bautechnik (OIB)  
Austrian Institute of Construction Engineering

**Trade name of the construction product**

SHERPA Power Base C, S and F

**Product family to which the construction product belongs**

Three-dimensional nailing plate (Load-bearing connections between timber columns and basement)

**Manufacturer**

Vinzenz Harrer GmbH  
Badl 31  
8130 Frohnleiten  
Austria

**Manufacturing plant**

Manufacturing plant 1

**This European Technical Assessment contains**

24 pages including 6 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**

European Assessment Document (EAD) 130186-00-0603 "Three-dimensional nailing plates".

**This European Technical Assessment replaces**

European Technical Assessment ETA-15/0540 of 07.10.2015.



- Hollow tube (outer  $\varnothing$  30 mm) with a thread (M24) inside mounted on the threaded rod for adjustment of the height
- Hat-shaped flange mounted to the end plate by 3 hexagon socket head cap screws (M6 x 12 mm) and a metal disc ( $\varnothing$  67 mm x 10 mm)
- End plate Type A, Type B, Type C, Type D or Type E, thickness 10 mm, installed at the timber column with screws of diameter 8 mm

According to the composition of the SHERPA Power Base, a separate assembly of the end plate to the timber column and the base plate with threaded rod and hollow tube to the basement is possible.

The anchorage of the sub construction (base plate or threaded rod) to the basement is not part of this ETA. Installation of the base plate is carried out with suitable fasteners. Installation of the threaded rod is carried out according to standards and regulations in force at the place of use.

SHERPA Power Base and the components for its manufacturing correspond to the specifications given in the Annexes 1 to 3. The material characteristics, dimensions and tolerances of SHERPA Power Base, not indicated in these Annexes, are given in the technical file<sup>2</sup> of the European Technical Assessment.

## 1.2 SHERPA Power Base

Base plate, threaded rod, hollow tube, hat shaped flange and conical counterpart or locking screw or metal disc, clamping nut and end plate of SHERPA Power Base are produced of structural steel S235 according to EN 10025-2<sup>3</sup> or better with a minimum characteristic yield strength of  $R_{eH} = 235$  MPa and a minimum characteristic tensile strength of  $R_m = 360$  MPa.

The distance between the basement and the end plate of the SHERPA Power Base is given in Annex 2.

The timber column bases together with their most important dimensions are shown in Annex 3.

## 1.3 Fasteners

The screws for installation of the end plate of SHERPA Power Base into the timber are described in Annex 1. They are made of carbon steel.

The hexagon socket head cap screws for mounting of the hat-shaped flange and a metal disc to the end plate of **SHERPA Power Base F** are produced according to EN ISO 4762. They are made of carbon steel.

## 2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (thereafter EAD)

### 2.1 Intended use

SHERPA Power Base is used in load-bearing connections between timber columns and basement.

The timber columns may be of solid timber of strength class C24 or better according to EN 338 or glued laminated timber of strength class GL 24c or better according to EN 14080 with minimum dimensions 120 x 120 mm for fasteners  $\varnothing$  8 x 160 mm and 140 x 140 mm for fasteners  $\varnothing$  8 x 180 mm.

SHERPA Power Base shall be subjected to static and quasi static actions only.

<sup>2</sup> The technical file of the European Technical Assessment is deposited at Österreichisches Institut für Bautechnik and, in so far as is relevant to the tasks of the notified factory production control certification body involved in the assessment and verification of constancy of performance procedure, is handed over to the notified factory production control certification body.

<sup>3</sup> Reference documents are listed in Annex 6.

SHERPA Power Base is intended to be used in service classes 1 and 2 according to EN 1995-1-1. Ingress of moisture from outside and condensation must be excluded.

## 2.2 General assumptions

SHERPA Power Base is manufactured in accordance with the provisions of the European Technical Assessment using the manufacturing process as identified in the inspection of the manufacturing plant by Österreichisches Institut für Bautechnik and laid down in the technical file.

The manufacturer shall ensure that the requirements in accordance with the Clauses 1, 2 and 3 as well as with the Annexes of the European Technical Assessment are made known to those who are concerned with design and execution of the works.

### Design

The European Technical Assessment only applies to the manufacture and use of SHERPA Power Base. Verification of stability of the works including application of loads on the column bases is not subject of the European Technical Assessment.

The following conditions shall be observed:

- Design of connections with SHERPA Power Base is carried out under the responsibility of an engineer experienced in such structures.
- Design of the works shall account for the protection of the connections to maintain service class 1 and 2 according to EN 1995-1-1.
- SHERPA Power Base is installed correctly.
- It shall be checked in accordance with EN 1995-1-1 that splitting will not occur.
- SHERPA Power Base shall only be subjected to vertical tension loads,  $F_1$ , in short-term and instantaneous load-duration classes.

Design of connections with SHERPA Power Base may be according to Eurocode 3 and Eurocode 5 taking into account the Annexes of the European Technical Assessment. Standards and regulations in force at the place of use shall be considered.

### Packaging, transport, storage, maintenance, replacement and repair

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

### Installation

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

SHERPA Power Base shall be screwed as specified in Annex 3.

For the timber columns the following shall be observed:

- Solid timber of strength class C24 or better according to EN 338 or glued laminated timber of strength class GL 24c or better according to EN 14080;
- SHERPA Power Base shall be installed centrally in the cross-section of the timber column;
- The end grain of the timber column must be plane on the end plate of the SHERPA Power Base;
- The timber column shall be free from wane in areas in contact with the SHERPA Power Base;
- SHERPA Power Base shall be restrained against rotation;
- Minimum spacing and edge distances are in accordance with EN 1995-1-1.

## 2.3 Assumed working life

The provisions made in the European Technical Assessment (ETA) are based on an assumed intended working life of the construction product of 50 years, when installed in the works, provided that the product is subject to appropriate installation, use and maintenance (see clause 2.2). These provisions are based upon the current state of the art and the available knowledge and experience<sup>4</sup>.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA nor by the Technical Assessment Body, but are regarded only as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

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

### 3.1 Essential characteristics of the product

**Table 1: Essential characteristics and performances of the product**

No	Essential characteristic	Product performance
Basic requirement for construction works 1: Mechanical resistance and stability		
1	Joint strength	3.1.1
2	Joint stiffness	No performance assessed
3	Joint ductility	No performance assessed
4	Resistance to seismic actions	No performance assessed
5	Resistance to corrosion and deterioration	3.1.2
Basic requirement for construction works 2: Safety in case of fire		
6	Reaction to fire	3.1.3
7	Resistance to fire	No performance assessed

#### 3.1.1 Joint strength

The joint strength of SHERPA Power Base is determined by calculation assisted by testing. The end plate of SHERPA Power Base is installed with the defined number of screws with respective nominal diameter as specified in Annex 1 to Annex 3. Installation of the base plate to the basement is carried out with suitable fasteners.

The values of the characteristic load bearing capacities for the specified loading directions according to Annex 4 are given in Annex 5.

Imperfections of the timber columns are not included in the load-bearing capacities of the SHERPA Power Base.

#### 3.1.2 Resistance to corrosion and deterioration

The product is intended to be used in service classes 1 and 2 according to EN 1995-1-1 in low corrosive category according to EN ISO 12944-2.

<sup>4</sup> The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, and the particular conditions of the design, execution, use and maintenance of that works may be outside this ETA. Therefore, it cannot be excluded that in these cases the real working life of the product may also be shorter than the assumed working life.

SHERPA Power Base is made of structural steel S235 according to EN 10025-2 or better and galvanised with Z275 or equivalent. The screws for installation as well as the hexagon socket head cap screws are made of carbon steel and galvanised, too.

### 3.1.3 Reaction to fire

SHERPA Power Base is made of structural steel S235 and the screws are made of carbon steel, both classified as Euroclass A1 in accordance with Commission Decision 96/603/EC as amended.

## 3.2 Assessment methods

### 3.2.1 General

The assessment of the essential characteristics in Clause 3.1 of SHERPA Power Base for the intended use, and in relation to the requirements for mechanical resistance and stability and for safety in case of fire in the sense of the basic requirements for construction works № 1 and 2 of Regulation (EU) № 305/2011 has been made in accordance with the European Assessment Document EAD 130186-00-0603 “Three-dimensional nailing plates”.

### 3.2.2 Identification

The European Technical Assessment for SHERPA Power Base is issued on the basis of agreed data that identify the assessed product. Changes to materials, to composition, to characteristics of the product, or to the production process could result in these deposited data being incorrect. Österreichisches Institut für Bautechnik should be notified before the changes are implemented, as an amendment of the European Technical Assessment is possibly necessary.

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

### 4.1 System of assessment and verification of constancy of performance

According to Commission Decision 97/638/EC the system of assessment and verification of constancy of performance to be applied to SHERPA Power Base is System 2+. System 2+ is detailed in Commission Delegated Regulation (EU) № 568/2014 of 18 February 2014, Annex, 1.3., and provides for the following items

- (a) The manufacturer shall carry out:
  - (i) an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of that product;
  - (ii) factory production control;
  - (iii) testing of samples taken at the manufacturing plant by the manufacturer in accordance with a prescribed test plan<sup>5</sup>.
- (b) The notified factory production control certification body shall decide on the issuing, restriction, suspension or withdrawal of the certificate of conformity of the factory production control on the basis of the outcome of the following assessments and verifications carried out by that body:
  - (i) initial inspection of the manufacturing plant and of factory production control;
  - (ii) continuing surveillance, assessment and evaluation of factory production control.

<sup>5</sup> The prescribed test plan has been deposited with Österreichisches Institut für Bautechnik and is handed over only to the notified factory production control certification body involved in the procedure for the assessment and verification of constancy of performance. The prescribed test plan is also referred to as control plan.

## **4.2 AVCP for construction products for which a European Technical Assessment has been issued**

Manufacturers undertaking tasks under System 2+ shall consider the European Technical Assessment issued for the construction product in question as the assessment of the performance of that product. Manufacturers shall therefore not undertake the tasks referred to in point 4.1 (a)(i).

## **5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document**

### **5.1 Tasks for the manufacturer**

#### **5.1.1 Factory production control**

In the manufacturing plant the manufacturer shall establish and continuously maintain a factory production control. All procedures and specification adopted by the manufacturer shall be documented in a systematic manner. The factory production control shall ensure the constancy of performances of SHERPA Power Base with regard to the essential characteristics.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the control plan. The incoming raw materials shall be subject to controls by the manufacturer before acceptance. Check of incoming materials shall include control of inspection documents presented by the manufacturer of the raw materials.

The frequencies of controls conducted during manufacturing and on the assembled product are defined by taking account of the manufacturing process of the product and are laid down in the test plan.

The results of factory production control are recorded and evaluated. The records include at least the following data:

- Designation of the product, basic materials and components
- Type of control or test
- Date of manufacture of the product and date of testing of the product or basic materials or components
- Results of controls and tests and, if appropriate, comparison with requirements
- Name and signature of person responsible for factory production control

The records shall be kept at least for ten years time after the construction product has been placed on the market and shall be presented to the notified factory production control certification body involved in continuous surveillance. On request they shall be presented to Österreichisches Institut für Bautechnik.

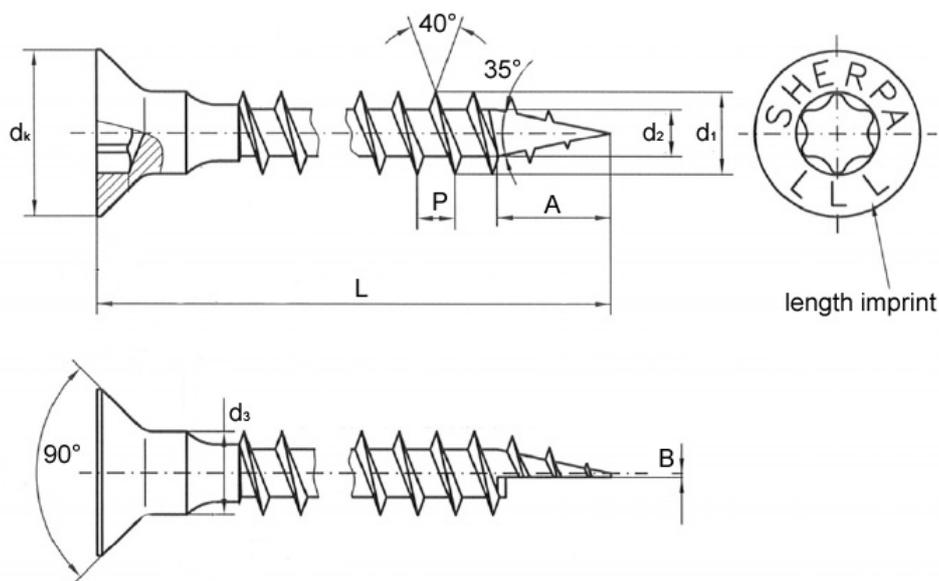
#### **5.1.2 Declaration of performance**

The manufacturer is responsible for preparing the declaration of performance. When all the criteria of the assessment and verification of constancy of performance are met, including the certificate of conformity of the factory production control issued by the notified factory production control certification body, the manufacturer shall draw up a declaration of performance.



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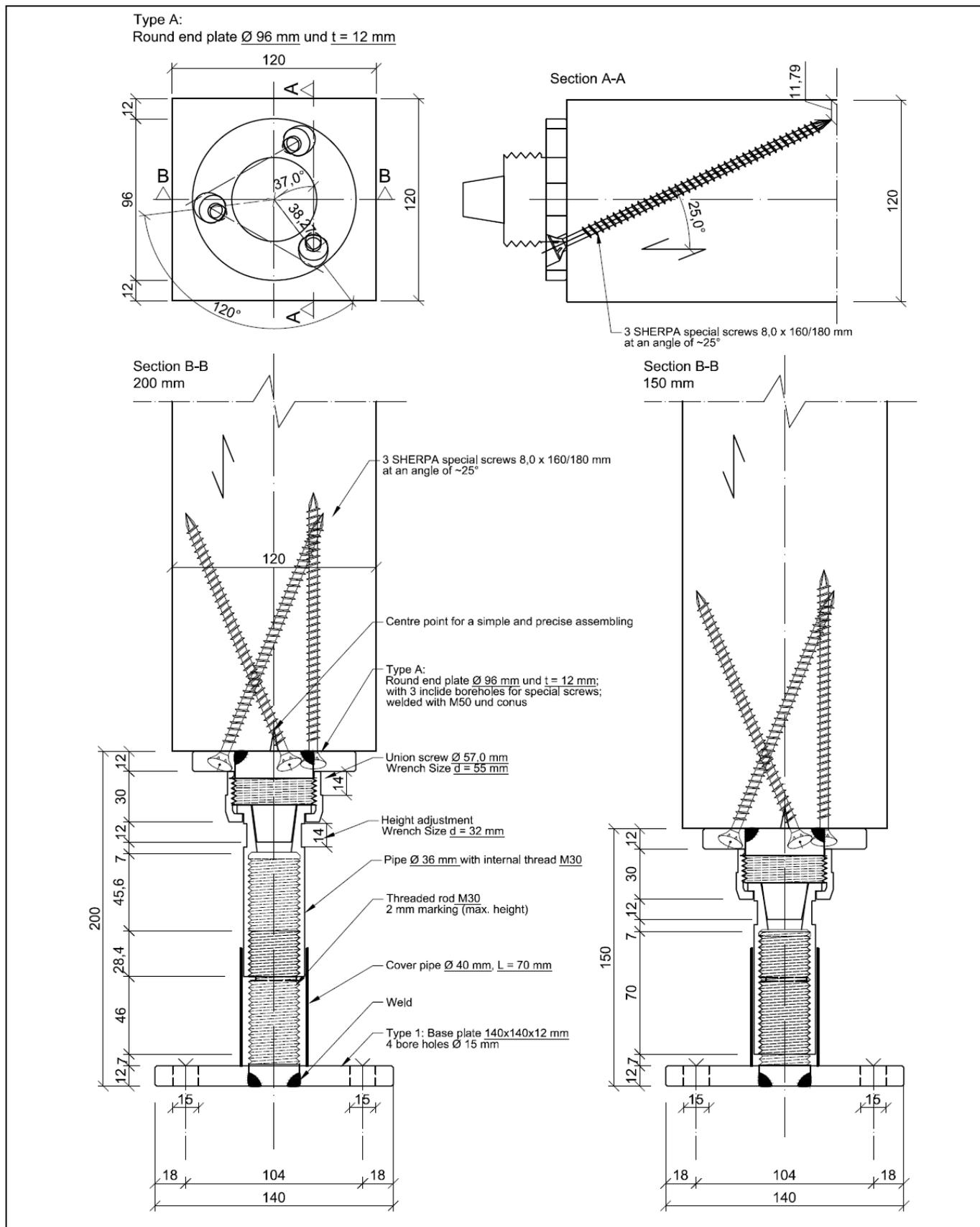
SHERPA special screw 8 x 160/180 mm	
Tensile strength	$\geq 600 \text{ N/mm}^2$
E-Modulus	$210\,000 \text{ N/mm}^2$
Head diameter $d_k$	15 mm
Outer thread diameter $d_1$	8 mm
Inner thread diameter $d_2$	5.3 mm
Flange diameter $d_3$	7.8 mm
Length L	160 or 180
Pitch P	3.6 mm
Milling length A	11 mm
Center distance B	0.1 mm



<b>SHERPA Power Base</b>	Annex 1 of European Technical Assessment ETA-15/0540 of 26.02.2021
Fastener specification – special screws	

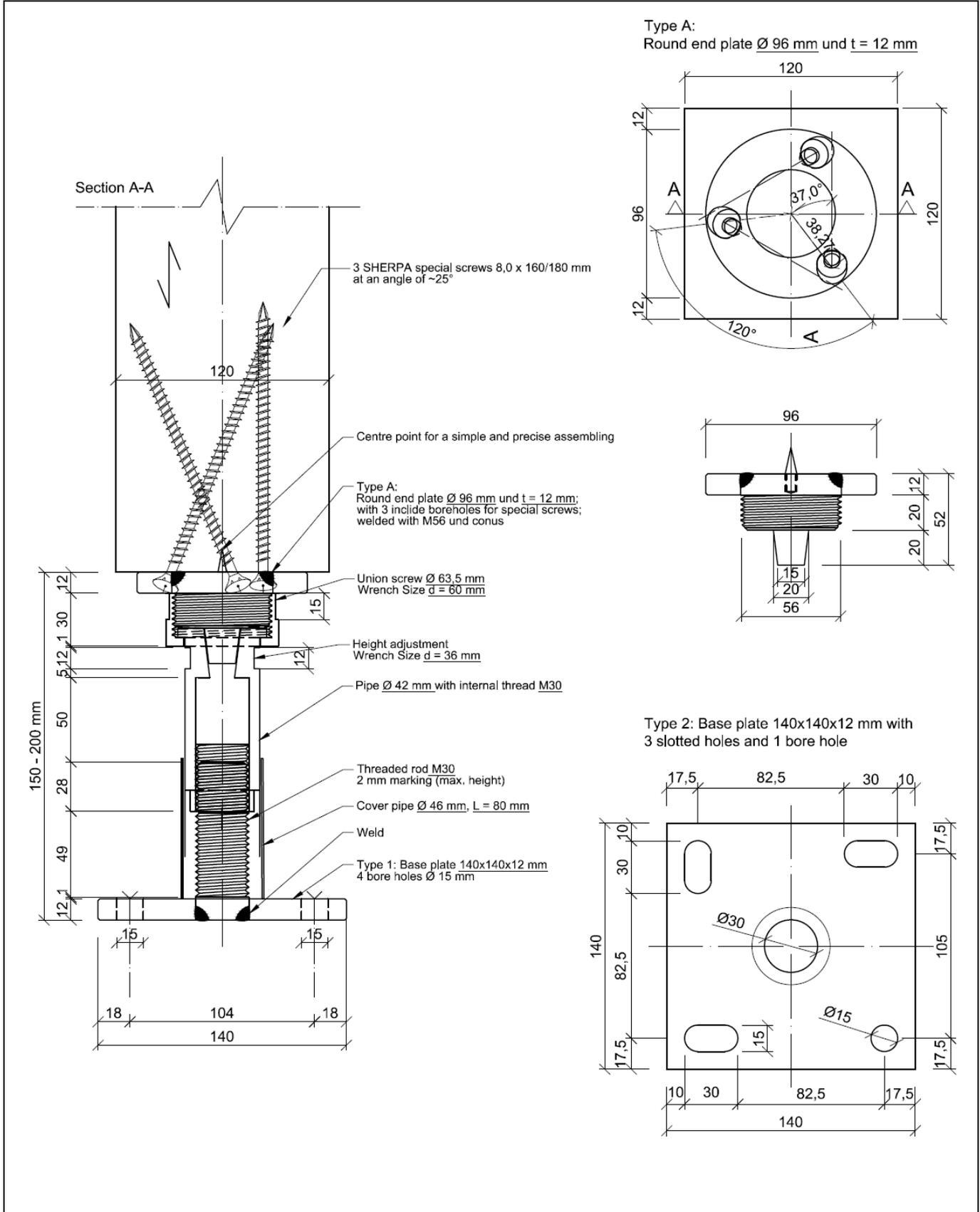


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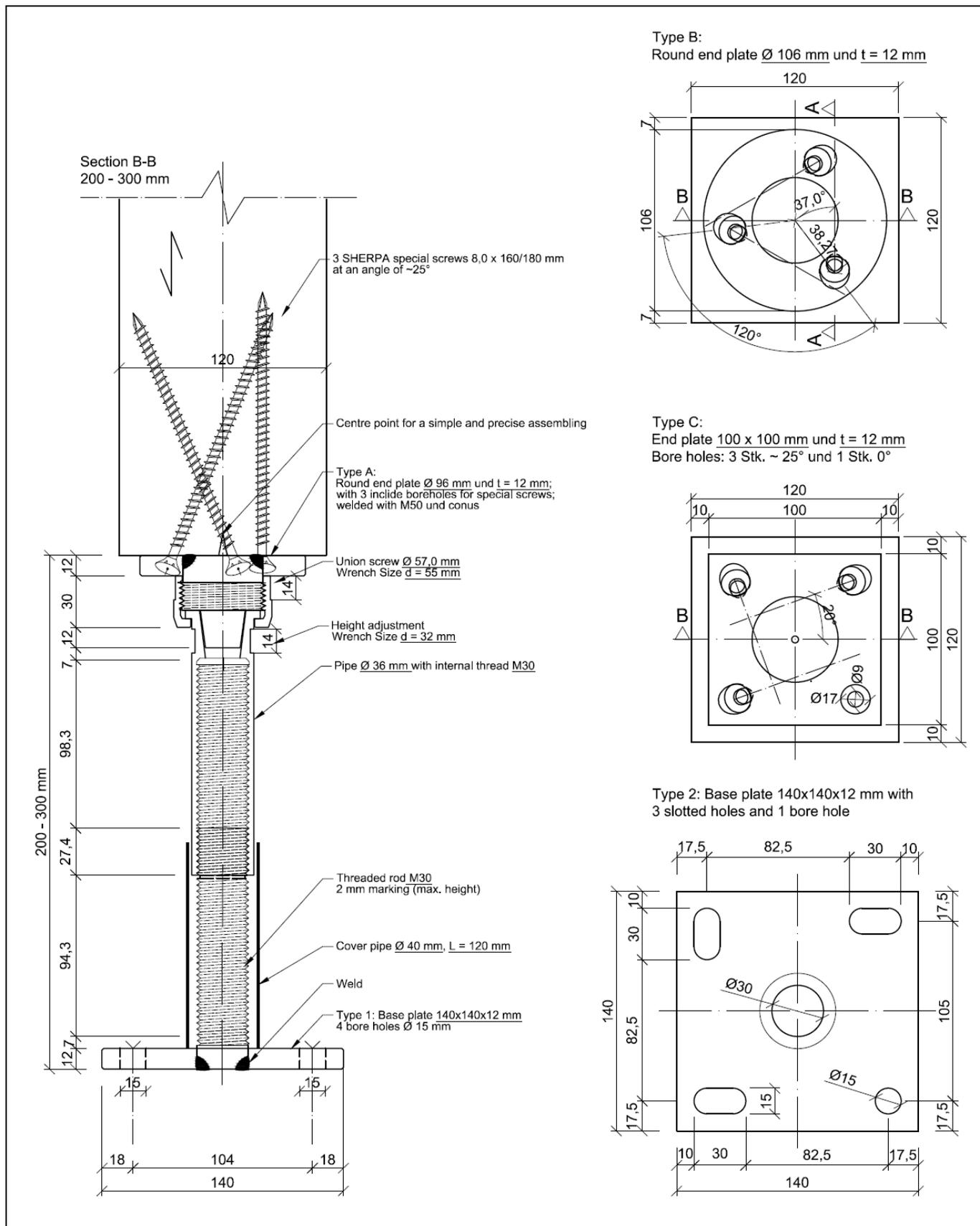
<b>SHERPA Power Base</b>	Annex 3
Product details definitions: <u>Power Base L 130 C</u>	of European Technical Assessment ETA-15/0540 of 26.02.2021

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<b>SHERPA Power Base</b>	Annex 3 of European Technical Assessment ETA-15/0540 of 26.02.2021
Product details definitions: <u>Power Base L 140 C</u>	



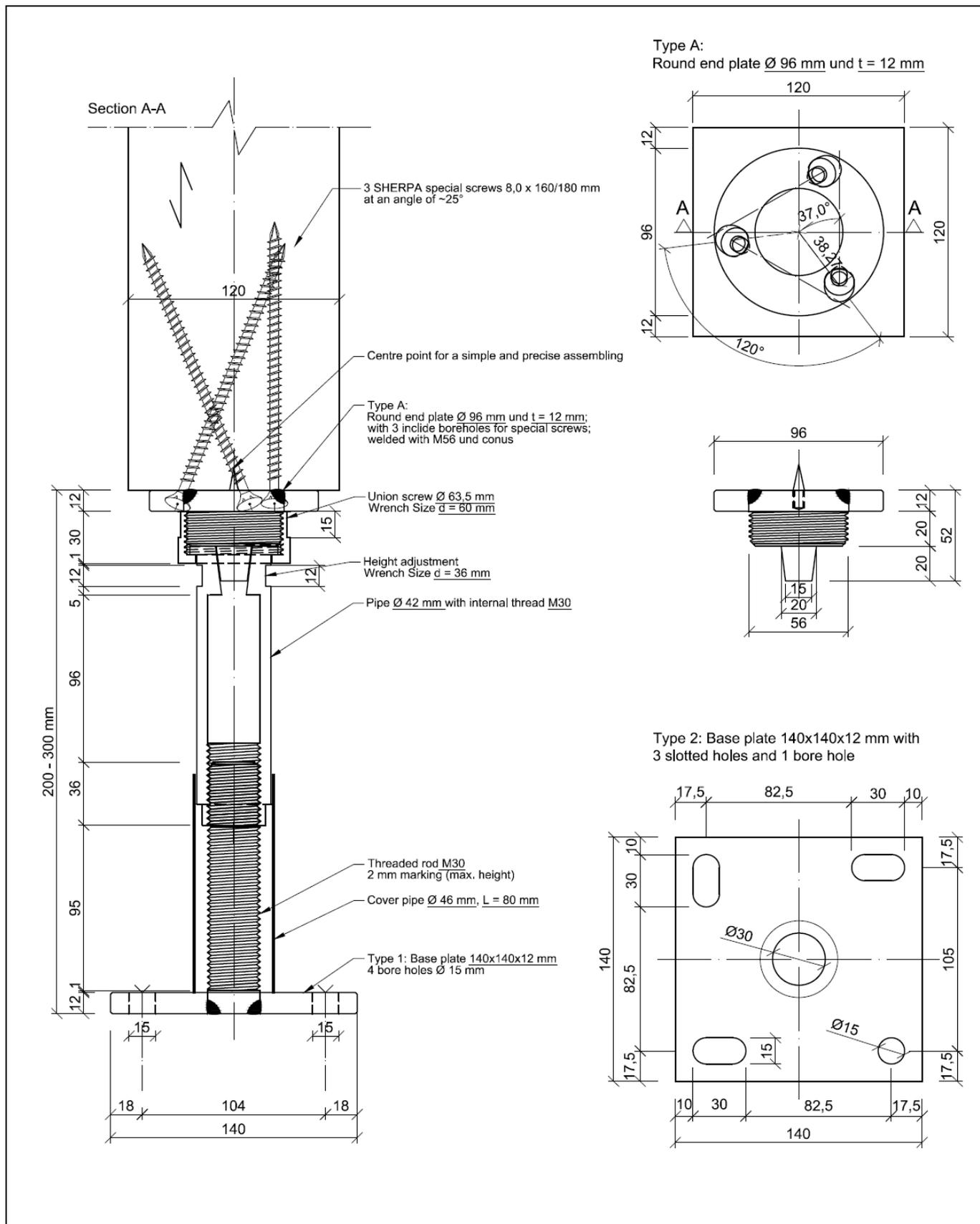


**SHERPA Power Base**

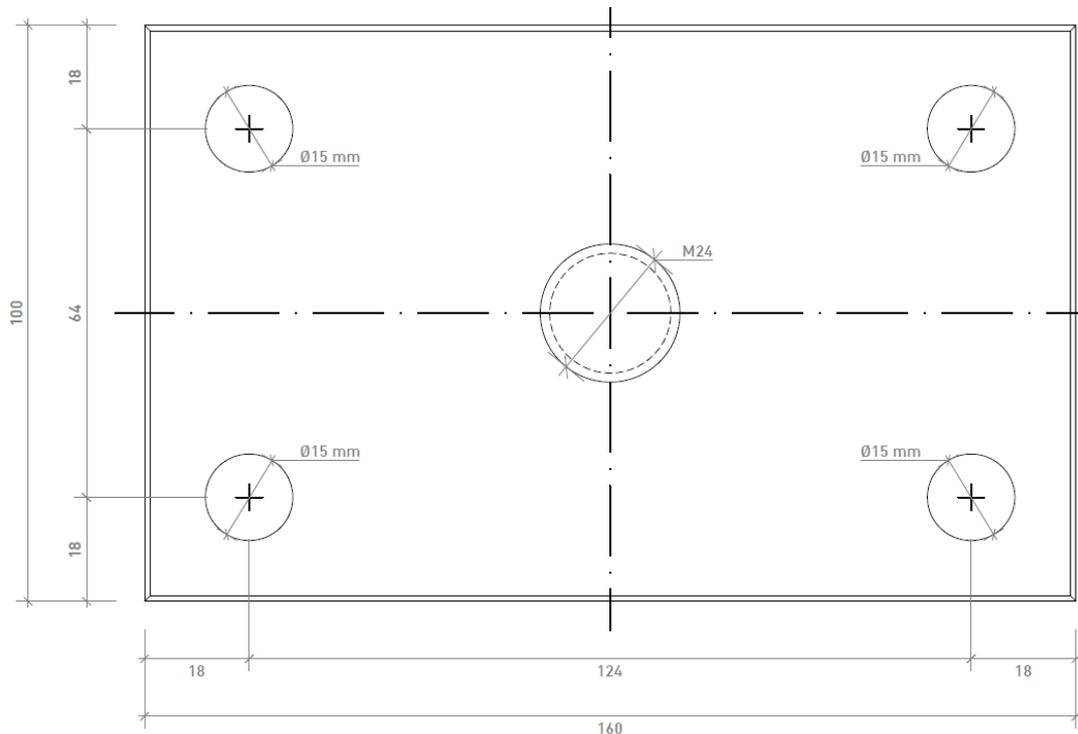
**Annex 3**

Product details definitions: Power Base XL 120 C

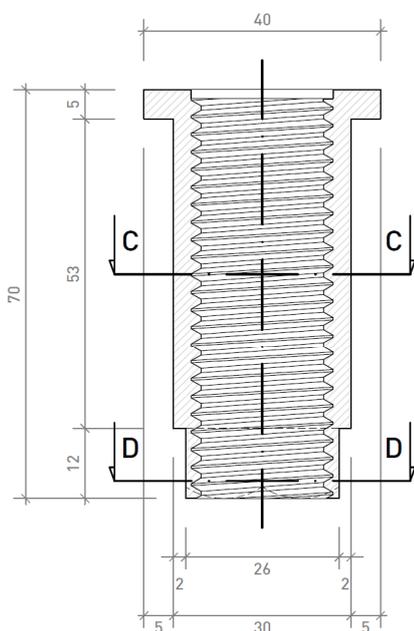
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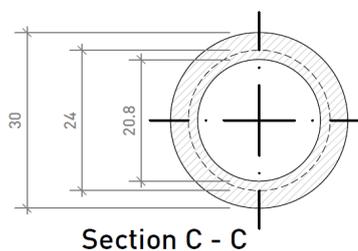
<b>SHERPA Power Base</b>	Annex 3 of European Technical Assessment ETA-15/0540 of 26.02.2021
Product details definitions: <u>Power Base XL 140 C</u>	



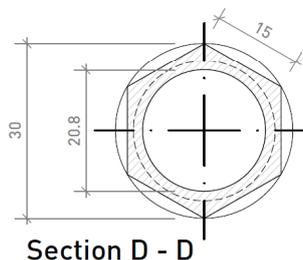
Part 1 / Lower unit M 1:1



Part 3 / M 125 F / Pipe with internal thread M24 and flange M 1:1



Section C - C



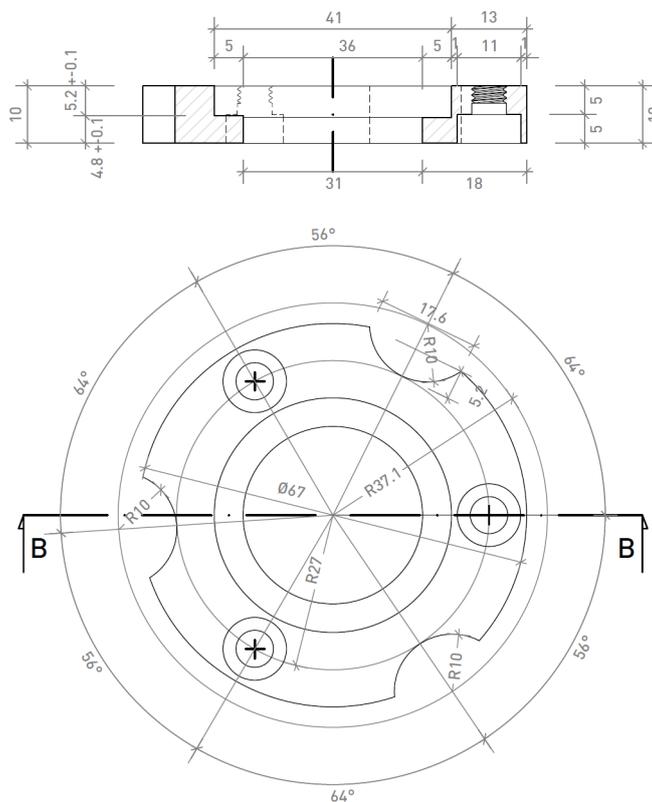
Section D - D

**SHERPA Power Base**

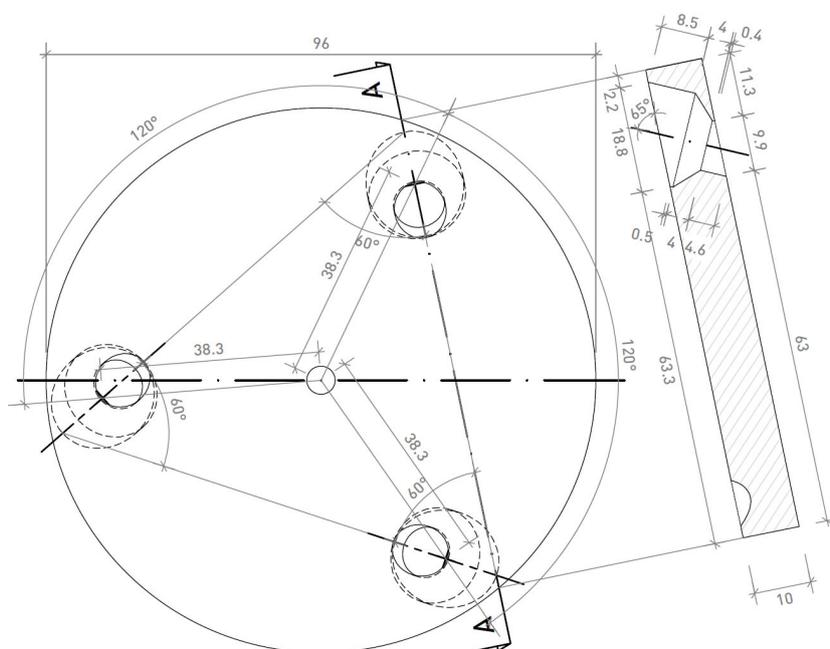
Product details definitions: General parts for  
Power Base M 125 F, L 125 F and XL 95 F

**Annex 3**

of European Technical Assessment  
 ETA-15/0540 of 26.02.2021



Part 4 / Flange ring M 1:1



Part 5 / Round end plate Ø 96 mm M 1:1

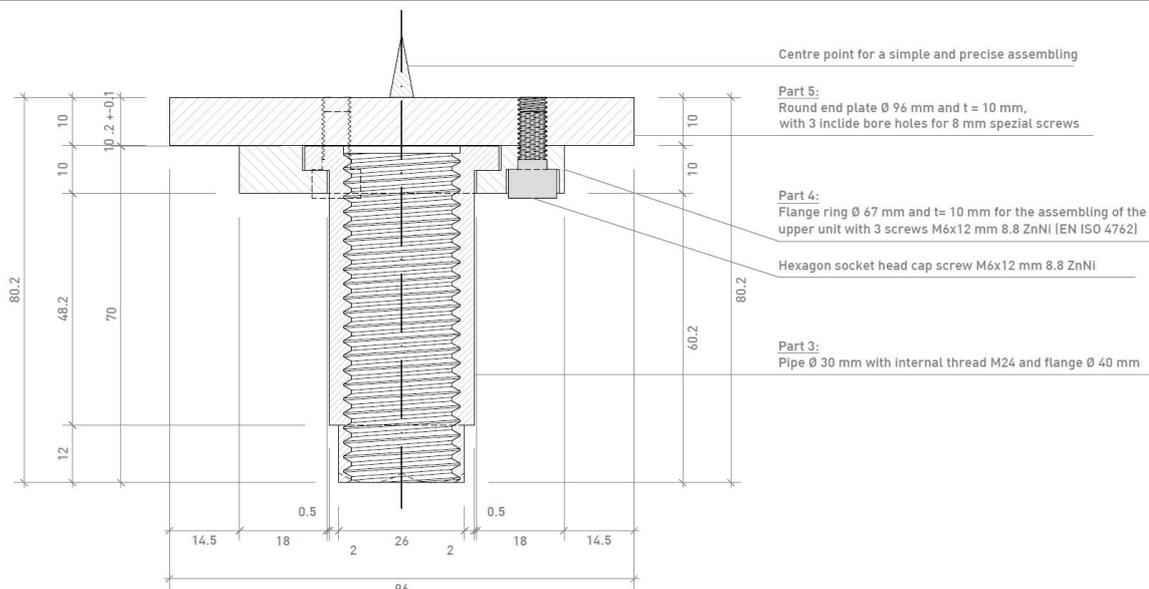
**SHERPA Power Base**

Annex 3

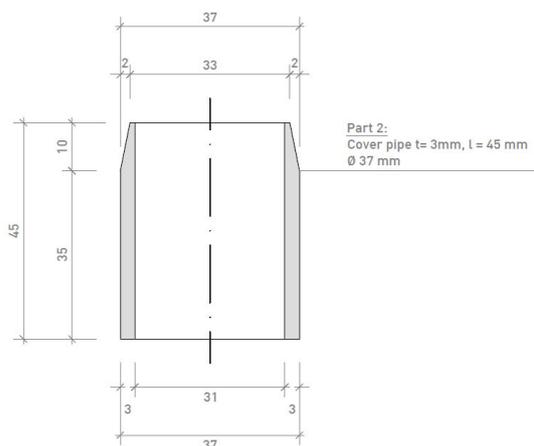
Product details definitions: Power Base  
M 125 F, L 125 F and XL 95 F

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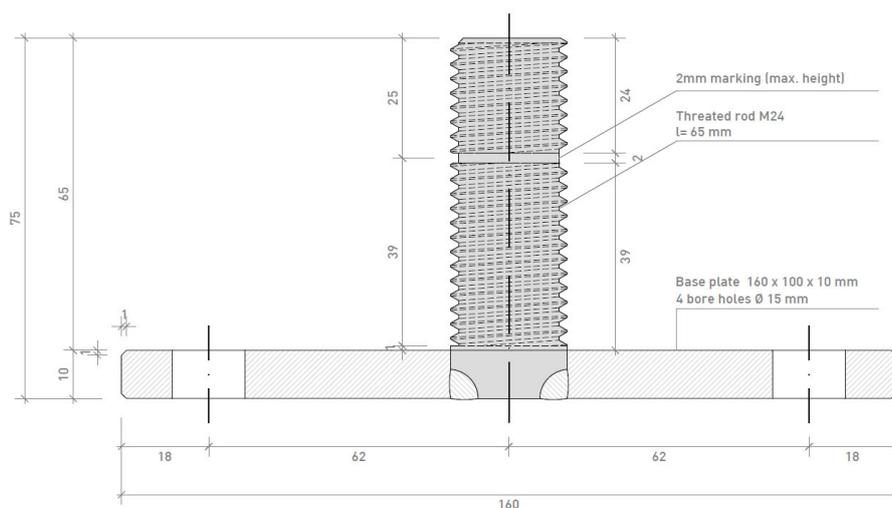
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Part 3, 4 and 5 / Upper unit M 1:1



Part 2 / Cover pipe M 1:1



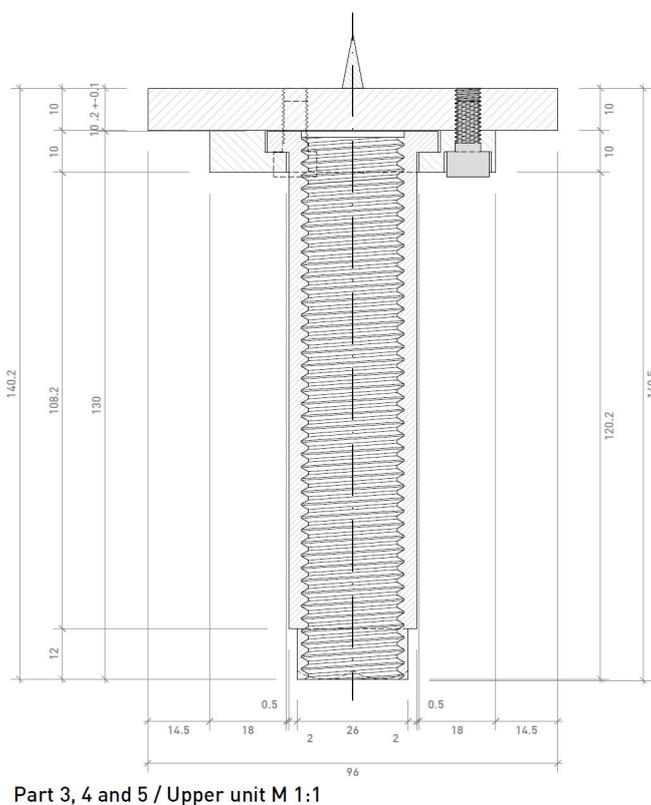
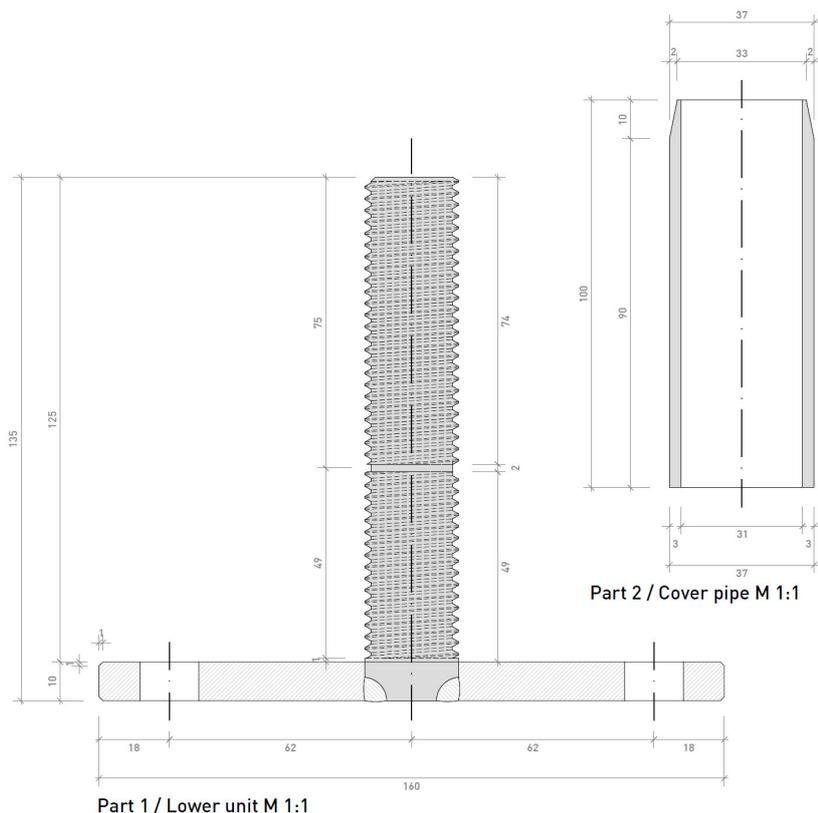
Part 1 / Lower unit M 1:1

**SHERPA Power Base**

**Annex 3**

Product details definitions: Power Base M 125 E

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**SHERPA Power Base**

**Annex 3**

Product details definitions: Power Base L 125 F

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 ETA-15/0540 of 26.02.2021









