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Authorised and notified according  
to Article 29 of the Regulation (EU)  
No 305/2011 of the European  
Parliament and of the Council of 9  
March 2011

MEMBER OF EOTA



## European Technical Assessment ETA-14/0114 of 2026/03/11

### General Part

#### Technical Assessment Body issuing the European Technical Assessment: ETA-Danmark A/S

Trade name of the  
construction product:

ZÜBLIN Timber post bases

Product family to which the  
above construction product  
belongs:

Three-dimensional nailing plate (Post bases for the  
support of timber columns and posts as load-bearing  
elements)

Manufacturer:

ZÜBLIN Timber GmbH  
Industriestraße 2  
D – 86551 Aichach  
Tel. +49 8251 908-0  
Fax +49 8251 908-999  
Internet [www.zueblin-timber.com](http://www.zueblin-timber.com)

Manufacturing plant:

ZÜBLIN Timber GmbH  
Industriestraße 2  
D – 86551 Aichach

This European Technical  
Assessment contains:

31 pages including 4 annexes which form an integral  
part of the document

This European Technical  
Assessment is issued in  
accordance with Article  
95(4) of Regulation (EU)  
2024/3110, on the basis of:

EAD 130186-00-0603, Three Dimensional Nailing  
Plates

This version replaces:

The ETA with the same number issued on 2014-06-02

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## **II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT**

### **1 Technical description the product**

The post bases are made of 8 to 12 mm thick steel plates in combination with steel tubes, threaded rods, dowels and/or self-tapping screws. The post bases are produced from steel grade S235JR according to EN 10025-2 with minimum characteristic yield strength of  $R_{eH} = 235 \text{ N/mm}^2$  and a minimum characteristic tensile strength of  $R_m = 360 \text{ N/mm}^2$ . The threaded rods correspond to property class 4.6 according to EN 1993-1-8.

For the connections with metal fasteners dowels  $\varnothing 10 \text{ mm}$  (S235) and self-tapping screws  $\varnothing 5 \times 70 \text{ mm}$  and  $\varnothing 8 \times 160 \text{ mm}$  according to ETA 12/0114 are used.

All steel elements are zinc coated by hot-dip galvanizing with minimum thickness of  $25 \mu\text{m}$  which is in agreement with the required classes Fe/Zn 25c and Z350 (according to EN 10346) in Eurocode 5.

The wood screws shall be in accordance with ETA for self-tapping screws no. ETA-12/0114.

Dimensions and product specifications are given in Annex A and Annex B.

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

The intended use of the post bases is the support of timber columns and posts as load-bearing elements, where requirements for mechanical resistance and stability and safety in use in the sense of the Basic Work Requirements 1 of the Regulation 305/2011 (EU) shall be fulfilled.

The timber posts may be of solid timber of minimum strength class C24 according to EN 338 or of glued laminated timber of minimum strength class GL24h according to EN 14080. Minimum dimensions for the post have to be considered (Annex B).

The post base shall be installed as pictured in the drawings. The cross-section of the timber column shall be positioned centrally and with the end grain plane on the base plate.

The maximum distance between the foundation and the base plate of the post base is given in Annex B.

Annex D states the load-carrying capacities of the post bases. The design of the connections shall be in accordance with Eurocode 3 and Eurocode 5 or a similar national code. The anchorage of the post base in the foundation and

imperfections exceeding the assumptions in Eurocode 5, 5.4.4 are not part of this ETA.

For the clamped (fixed) types of post bases the anchorage in the concrete foundation are included in Annex D. The concrete shall be in accordance with strength class C20/25 according to Eurocode 2-1-1 or better.

For the anchorage of the other post bases in the concrete basement the anchor bolts must have a design tension capacity  $F_{b,t,Rd}$  given in Annex C.

The post bases are for use in timber structures subject to the service classes 1, 2 and 3 of Eurocode 5 and for connections subject to static or quasi-static loading.

Screws made from carbon steel are used in service classes 1 and 2. For use in service class 3 screws made from stainless steel are required.

The scope of the post bases regarding resistance to corrosion shall be defined according to national provisions that apply at the installation site considering environmental conditions and in conjunction with the admissible service conditions according to EN 1995-1-1 and the admissible corrosivity category as described and defined in EN ISO 12944-2

#### **Assumed working life**

The assumed intended working life of the connectors for the intended use is 50 years, provided that they are subject to appropriate use and maintenance.

The information on the working life should not be regarded as a guarantee provided by the manufacturer or ETA Danmark. An "assumed intended working life" means that it is expected that, when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the essential requirements.

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

| Characteristic   | Assessment of characteristic  |
|--|---|
| <b>3.1 Mechanical resistance and stability (BWR 1)*)</b> |   |
| Joint Strength - Characteristic load-carrying capacity   | See Annex D   |
| Joint Stiffness  | No performance assessed   |
| Joint ductility  | No performance assessed   |
| Resistance to seismic actions                            | No performance assessed   |
| Resistance to corrosion and deterioration                | See section 3.5   |
| <b>3.2 Safety in case of fire (BWR2)</b>                 |   |
| Reaction to fire   | The brackets are made from steel classified as <b>Euroclass A1</b> in accordance with EN 13501-1 and Commission Delegated Regulation 2016/364 |
| Resistance to fire                                       | No performance assessed   |

\*) See additional information in section 3.3 – 3.6.

### 3.3 Methods of verification

#### Safety principles and partial factors

The characteristic load-carrying capacities are based on the characteristic values of the connections with metal fasteners, the steel plates and the timber post.

In the case of timber failure or failure of the metal fasteners, the design values shall be calculated according to EN 1995-1-1 by dividing the characteristic values of the load-carrying capacities by different partial factors for the strength properties, and in addition multiplied with the coefficient  $k_{mod}$ .

In the case of steel failure, the design value shall be calculated according to EN 1993-1-1 by reducing the characteristic values of the load-carrying capacity with different partial factors.

The design value of the load-carrying capacity is the smaller value of all load-carrying capacities:

$$F_{Rd} = \min \left\{ \frac{k_{mod} \cdot F_{Rk,T}}{\gamma_{M,T}}; \frac{F_{Rk,S}}{\gamma_{Mi,S}} \right\}$$

Therefore, for timber failure or failure of the metal fasteners the load duration class and the service class are included. The different partial factors  $\gamma_M$  for steel or timber failure, respectively, are also correctly taken into account.

#### 3.4 Mechanical resistance and stability

See Annex D for the characteristic load-carrying capacity in the different directions: tension load  $N_t$ , compression load  $N_c$  and lateral load  $V$ . No distinction between the directions of  $V_1$  and  $V_2$  is necessary. Using the load-carrying capacities of the post bases, the specifications in Annex B must be fulfilled. The end grain of the timber post must in general be plane on the base plate of the post base.

The characteristic capacities of the brackets are determined by calculation assisted by testing as described in EAD 130186-00-0603 clause 2.2.1. They should be used for designs in accordance with Eurocode 5 or a similar national Timber Code.

No performance has been determined in relation to ductility of a joint under cyclic testing. The contribution to the performance of structures in seismic zones, therefore, has not been assessed.

No performance has been determined in relation to the joint's stiffness properties - to be used for the analysis of the serviceability limit state.

For the clamped post bases Vario B 450, Vario K1 B 450, Vario PS B 450 and Royal PS B 600 the anchorage capacities of the post bases in the concrete foundation of minimum strength class C20/25 have been determined and are included in Annex D.

For the other types of post bases no performance has been determined in relation to the anchorage of the post bases in the foundation. It must be checked by the designer of the structure to ensure it is not less than the post base capacity and, if necessary, the post base capacity reduced accordingly.

The lever arms  $e$  for the lateral loads  $V$  are given in Annex B. Taking into account these lever arms the anchor bolts must have a design tension capacity  $F_{b,t,Rd}$  given in Annex C.

#### 3.5 Aspects related to the performance of the product

Corrosion protection in service class 1, 2 and 3.

the post bases are produced of steel grade S235JR according to EN 10025-2 with minimum characteristic yield strength of  $R_{eH} = 235 \text{ N/mm}^2$  and a minimum characteristic tensile strength of  $R_m = 360 \text{ N/mm}^2$ . The threaded rods correspond to property class 4.6 according to EN 1993-1-8

#### 3.6 General aspects related to the use of the product

ZÜBLIN Timber post bases are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

The following provisions concerning product performance apply:

The timber post

- shall be restrained against rotation, and supported at the lower and upper end
- shall be of solid timber of minimum strength class C24 according to EN 338:2003-09 or glued laminated timber of minimum strength class GL24h according to EN 14080,
- shall be free from wane in the post base,
- must fulfil the requirements regarding minimum dimensions (see Annex B),
- end grain must in general be plane on the base plate of the post base.

The post base shall be installed centrally in the cross-section of the timber column.

The actual end bearing capacity of the timber member to be used in conjunction with the post base is checked by the designer of the structure to ensure it is not less than the post base capacity and, if necessary, the post base capacity reduced accordingly.

There are no specific requirements relating to preparation of the timber members.

The anchorage of the clamped post bases (types with supplement "B") in the foundation is covered by this

ETA. The concrete shall be in accordance with strength class C20/25 according to Eurocode 2-1-1 or better.

The anchorage of all the other types of post bases in the foundation is not part of this ETA. It must be checked by the designer of the structure to ensure it is not less than the post base capacity and, if necessary, the post base capacity reduced accordingly. The minimum anchorage capacities are given in Annex C.

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

##### **4.1 AVCP system**

According to the decision 97/638/EC of the European Commission<sup>1</sup>, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) 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 at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2026-03-11 by



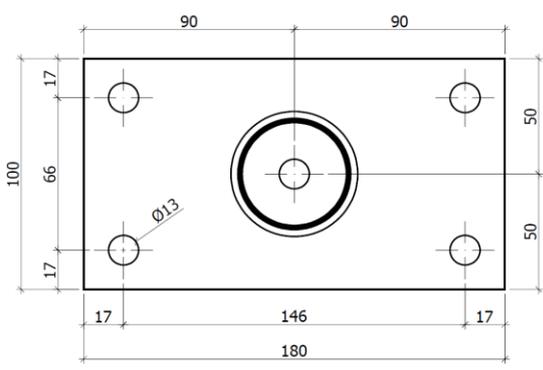
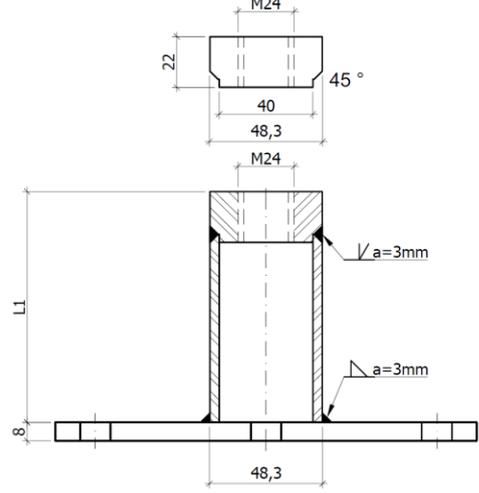
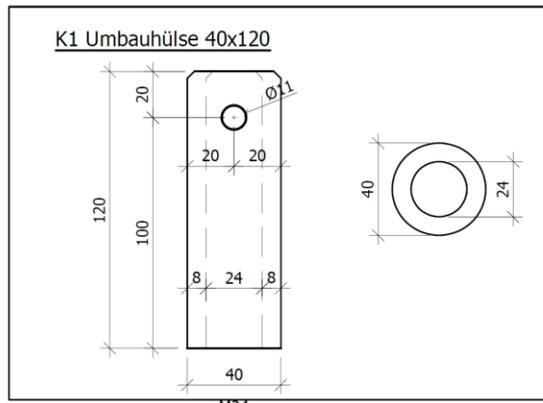
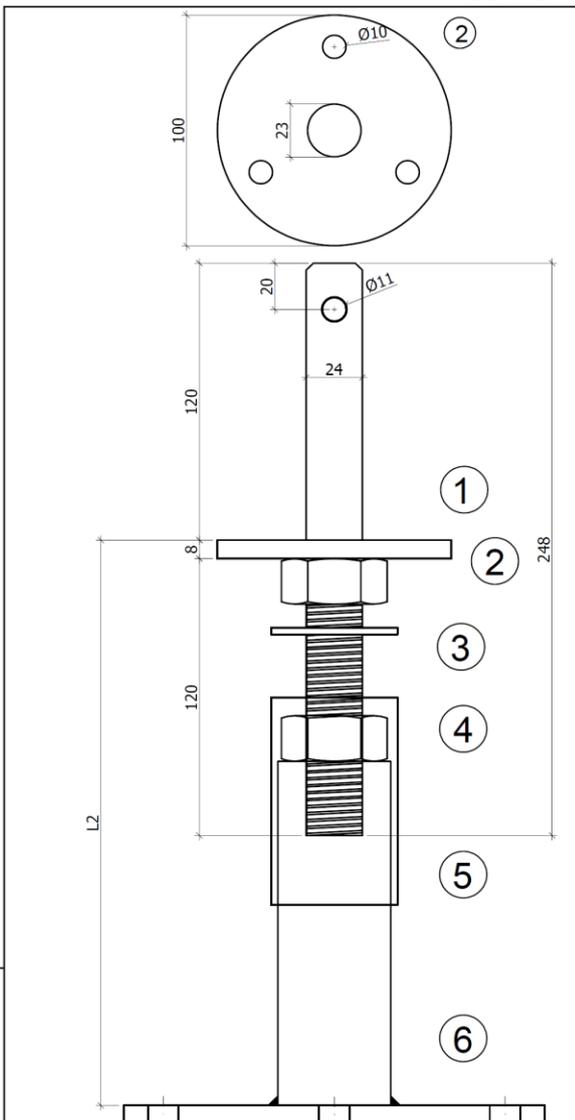
Thomas Bruun  
Managing Director, ETA-Danmark

**Annex A**

**Product details and definitions**

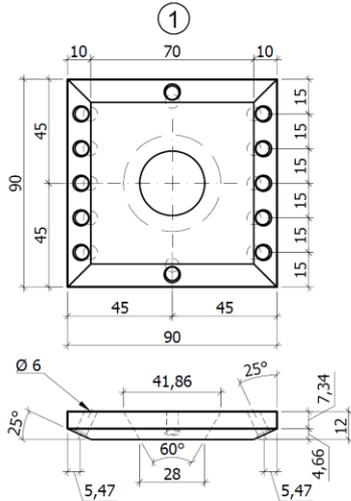
**Stahl S235JR nach EN 10025-2:**

- ① Dorn 24x120, M24x128
- ② Druckplatte 8x100 mit Mutter M24
- ③ Neopren-Ring (hält die Abdeckhülse oben)
- ④ Kontermutter M24
- ⑤ Verschiebbare Abdeckhülse 54x2,6
- ⑥ Grundplatte 8x100x180 mit aufgeschweisstem Rohr 48,3x3,6 vz



| Typ          | Länge L1 | Länge L2 (verstellbare Höhe) |
|--------------|----------|------------------------------|
| Vario 150    | 100mm    | 160 - 210mm                  |
| Vario K1 150 | 100mm    | 160 - 210mm                  |
| Vario 250    | 180mm    | 240 - 290mm                  |
| Vario K1 250 | 180mm    | 240 - 290mm                  |
| Vario 300    | 260mm    | 320 - 370mm                  |
| Vario K1 300 | 260mm    | 320 - 370mm                  |

|              |  |  |  |  |  |        |  |                     |  |         |  |                       |  |            |  |         |  |        |  |       |  |  |  |
|--------------|--|--|--|--|--|--------|--|---------------------|--|---------|--|-----------------------|--|------------|--|---------|--|--------|--|-------|--|--|--|
|              |  |  |  | PROJEKT                                  |  |        |  |                     |  |         |  |                       |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  | Verbindungstechnik<br>ZÜBLIN Timber GmbH |  |        |  |                     |  |         |  |                       |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  | LEISTUNGSPHASE                           |  | GEWERK |  | PLANTYP             |  | BAUTEIL |  | ESBENE                |  | PLANNUMMER |  | INDEX   |  | STATUS |  |       |  |  |  |
|              |  |  |  |  |  |        |  |                     |  |         |  |                       |  |            |  |         |  |        |  |       |  |  |  |
| INDEXTAGUM   |  |  |  | INDEX                                    |  |        |  | NAME                |  |         |  | BESCHREIBUNG-ÄNDERUNG |  |            |  |         |  |        |  |       |  |  |  |
| OBJEKTPLANER |  |  |  |  |  |        |  |                     |  |         |  |                       |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  |  |  |        |  | PLANNINHALT         |  |         |  | MASSSTAB              |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  |  |  |        |  | Stützenfuß Vario    |  |         |  | 12                    |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  |  |  |        |  | Stützenfuß Vario K1 |  |         |  | BLATTGRÖSSE           |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  |  |  |        |  |                     |  |         |  | PROJEKTNUMMER         |  |            |  |         |  |        |  |       |  |  |  |
|              |  |  |  | BASISPLANE                               |  |        |  | GEZEICHNET          |  |         |  | DATUM                 |  |            |  | GEPRÜFT |  |        |  | DATUM |  |  |  |
|              |  |  |  | BN                                       |  |        |  | 04.02.2025          |  |         |  | AB (BPN/AB)           |  |            |  |         |  |        |  |       |  |  |  |

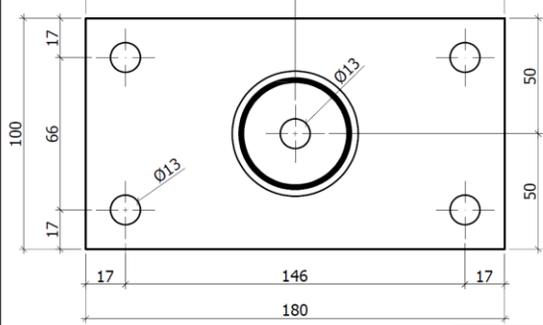
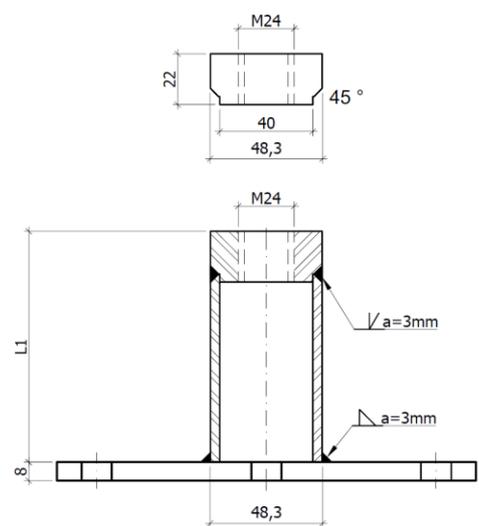
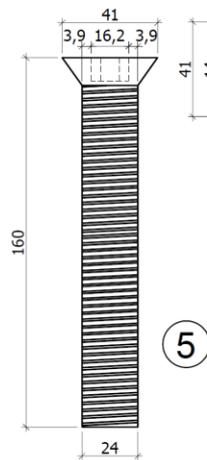
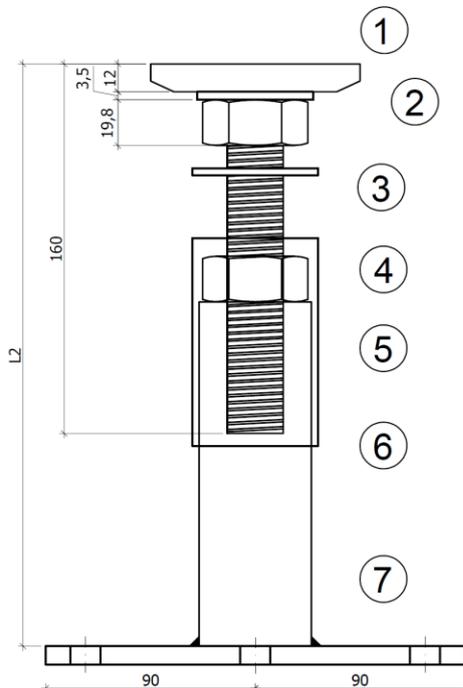


### Stahl S235JR nach EN 10025-2:

- ① Drehbare Druckplatte 90x90x12 mit Schrägbohrungen
- ② Mutter M24 mit Scheibe Ø 50x3,5
- ③ Neopren-Ring (hält die Abdeckhülse oben)
- ④ Kontermutter M24
- ⑤ Gewindebolzen mit Senkkopf M24x160 4.6 nach EN 1993-1-8
- ⑥ Verschiebbare Abdeckhülse 54x2,6
- ⑦ Grundplatte 8x100x180 mit aufgeschweisstem Rohr 48,3x3,6 vz Grundplatte bei Vario B 450 ist 5x60x60

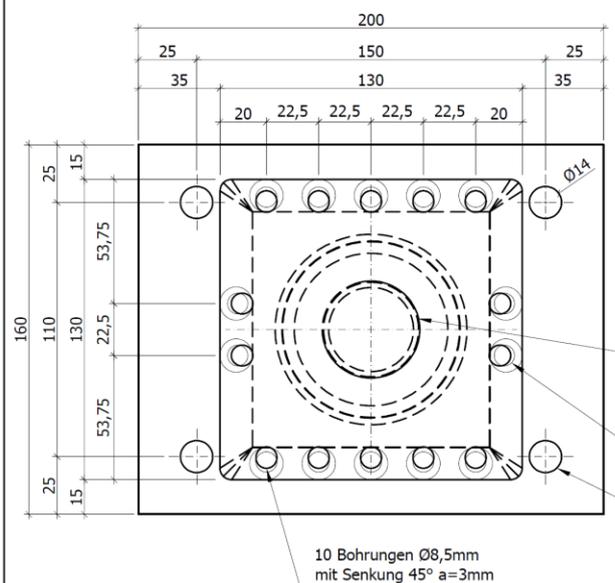
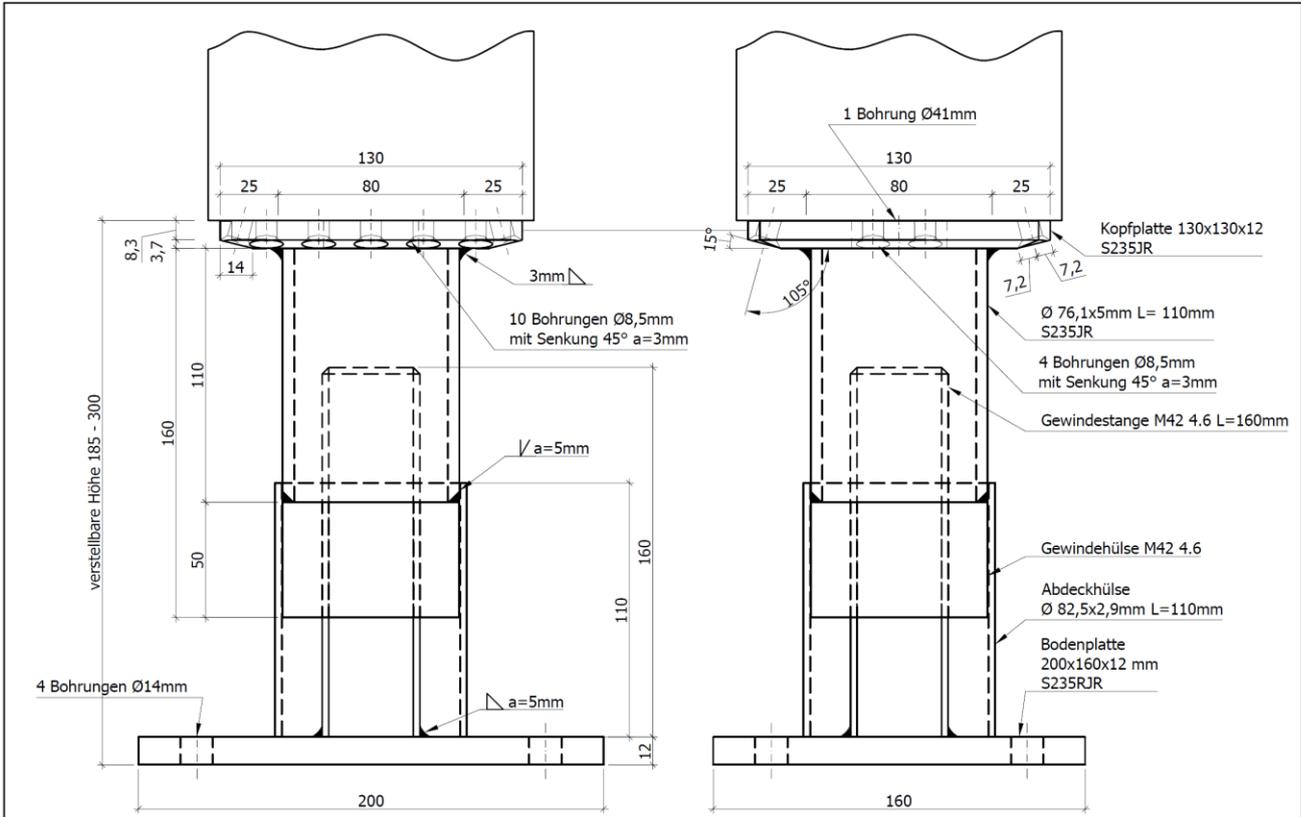
### Montagematerial:

12 Stück Holzbauschrauben 5 x 70mm Vollgewinde bauaufsichtlich zugelassen nach ETA 12-0114



| Typ          | Länge L1 | Länge L2 (verstellbare Höhe) |
|--------------|----------|------------------------------|
| Vario PS 150 | 100mm    | 160 - 210mm                  |
| Vario PS 250 | 180mm    | 240 - 290mm                  |
| Vario PS 300 | 260mm    | 320 - 370mm                  |

|              |       |      |   |                    |        |         |         |       |            |            |            |               |       |
|--------------|-------|------|---|--------------------|--------|---------|---------|-------|------------|------------|------------|---------------|-------|
|              |       |      |   | PROJEKT            |        |         |         |       |            |            |            |               |       |
|              |       |      |   | Verbindungstechnik |        |         |         |       |            |            |            |               |       |
|              |       |      |   | ZÜBLIN Timber GmbH |        |         |         |       |            |            |            |               |       |
|              |       |      |   | LEISTUNGSPHASE     | GEWERK | PLANTYP | BAUTEIL | EBENE | PLANNUMMER | INDEX      | STATUS     |               |       |
| INDEXDATUM   | INDEX | NAME | BESCHREIBUNG-ÄNDERUNG   | PLANNUMMER         |        |         |         |       |            |            | MASSTAB    |               |       |
| OBJEKTPLANER |       |      | Stützenfuß Vario PS   |                    |        |         |         |       |            | 12         |            |               |       |
|              |       |      | BASISPLÄNE  |                    |        |         |         |       |            | GEZEICHNET | DATUM      | GEPROFT       | DATUM |
|              |       |      | ZÜBLIN Timber Altech GmbH<br>Industriestraße 2, 88591 Altech Deutschland<br>TEL.: +49 08251-908-0 |                    |        |         |         |       |            | B/N        | 04.02.2026 | A9 (08/14/01) |       |



**Stahl S235JR nach EN 10025-2:**

- Flachstahl 130 x 130mm t=12mm
- Rundrohr Ø76,1x5mm L=110mm
- Gewindehülse M42 4.6 L=50mm
- Gewindestange M42 4.6 L=160mm
- Abdeckhülse Ø82,5x2,9mm L=110mm
- Flachstahl S235JR 200 x 160mm t=12mm

**Montagematerial:**

14 Stück Holzbauschrauben 8 x 160mm Vollgewinde bauaufsichtlich zugelassen nach ETA 12-0114

**Royal PS**  
Höhenverstellbar 185-300mm

|   |       |      |                       |                     |            |         |        |              |             |       |          |
|---|-------|------|-----------------------|---------------------|------------|---------|--------|--------------|-------------|-------|----------|
|   |       |      |                       | PROJEKT             |            |         |        |              |             |       |          |
|   |       |      |                       | Verbindungstechnik  |            |         |        |              |             |       |          |
|   |       |      |                       | ZÜBLIN Timber GmbH  |            |         |        |              |             |       |          |
|   |       |      |                       | LEISTUNGSSTADIUM    | GENERE     | PLANTYP | BAUTEL | BOISE        | PLANNUMMER  | INDEX | STATUS   |
|   |       |      |                       |                     |            |         |        |              |             | -     | -        |
| INDEXDATUM  | INDEX | NAME | BESCHREIBUNG/ÄNDERUNG | PLANNHALT           |            |         |        |              |             |       | MASSSTAB |
|   |       |      |                       | Stützenfuß Royal PS |            |         |        |              |             |       | 1:2      |
| <p>ZÜBLIN Timber GmbH<br/>Industriestraße 2<br/>D-98551 Albstadt<br/>T: +49 (0)9251/989-0<br/>F: +49 (0)9251/909-999<br/>E-Mail: timber@zueblin.de<br/>www.zueblin-timber.com</p> |       |      |                       | GEZEIGNET           | DATUM      | GEPRÜFT | DATUM  | BLATTNR.     | PROJEKTNAME |       |          |
|   |       |      |                       | BH                  | 04.02.2028 |         |        | A3 (297x430) |             |       |          |

Post base Type Royal PS

Technical drawing showing side and top views of the post base assembly. Dimensions include 100, 23, 20, 120, 24, 8, 248, 120, 8, L2, 6, 48,3, 30, 30, 60, 60, and Ø10. Callouts 1-6 identify components: 1 (rod), 2 (plate), 3 (ring), 4 (nut), 5 (sleeve), 6 (base plate).

### Stahl S235JR nach EN 10025-2:

- ① Dorn 24x120, M24x128
- ② Druckplatte 8x100 mit Mutter M24
- ③ Neopren-Ring (hält die Abdekhülse oben)
- ④ Kontermutter M24
- ⑤ Verschiebbare Abdekhülse 54x2,6
- ⑥ Grundplatte 6x60x60 mit aufgeschweisem Rohr 48,3x3,6 vz

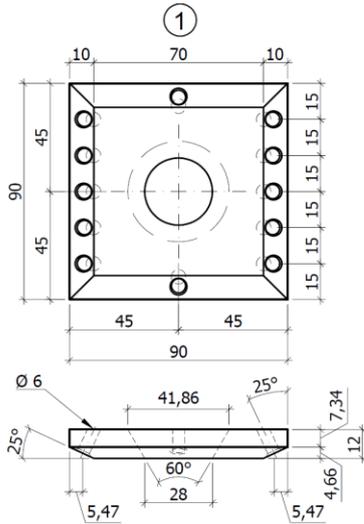
K1 Umbauhülse 40x120

Technical drawing of the sleeve detail showing chamfered edges with dimensions 22, 40, 48,3, 45°, and chamfer angle  $a=3\text{mm}$ .

| Typ          | Länge L1 | Länge L2 (verstellbare Höhe) |
|--------------|----------|------------------------------|
| Vario B 450  | 400mm    | 460 - 510mm                  |
| Vario K1 450 | 400mm    | 460 - 510mm                  |

|   |        |         |                          |  |            |            |   |         |       |
|---|--------|---------|--------------------------|--|------------|------------|---|---------|-------|
| PROJEKT   |        |         |                          | Verbindungstechnik<br>ZÜBLIN Timber GmbH |            |            |   |         |       |
| LEISTUNGSPHASE  | GEWERK | PLANTYP | BAUTEIL                  | EBENE                                    | PLANNUMMER | INDEX      | STATUS  |         |       |
|   |        |         |                          |  |            |            |   |         |       |
| INDEXDATUM  | INDEX  | NAME    | BESCHREIBUNG-GERÄNDERUNG |  |            |            | PLANNUMMER                                      | STATUS  |       |
|   |        |         |                          |  |            |            |   |         |       |
| OBJEKTPLANER  |        |         |                          |  |            |            | MASSSTAB<br>1:2<br>PLATTGRÖSSE<br>PROJEKTNUMMER |         |       |
| ZÜBLIN Timber Alchsch GmbH<br>Industriestraße 2, 85551 Alchsch Deutschland<br>TEL.: +49 08251-908-0 |        |         |                          | BASISPLANE                               |            | GEZEICHNET | DATUM   | GEPRÜFT | DATUM |
|   |        |         |                          | BN                                       |            | 04.02.2025 |   |         |       |
|   |        |         |                          |  |            | 49(DBN480) |   |         |       |

Post base Type Vario B 450 and Vario K1 B 450

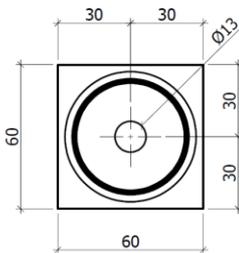
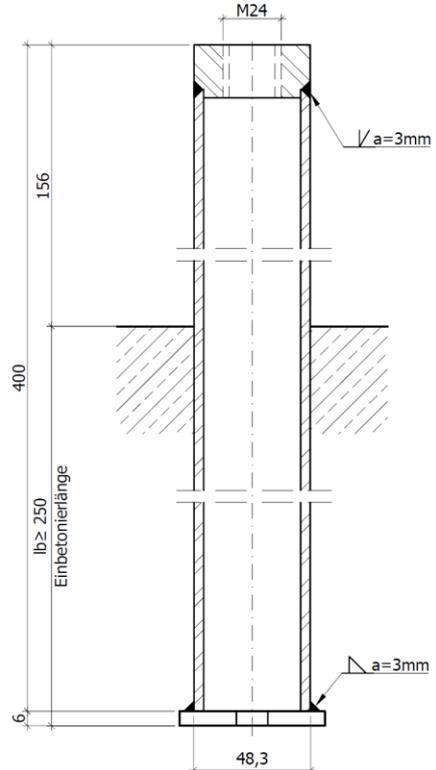
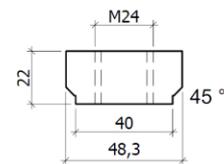
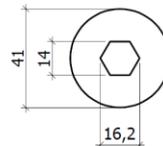
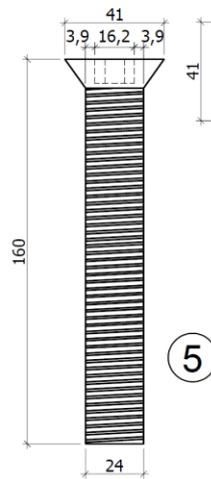
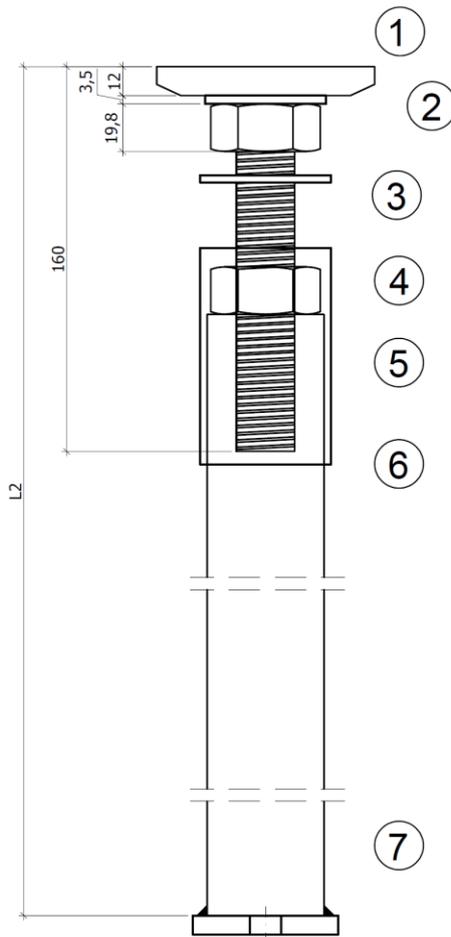


### Stahl S235JR nach EN 10025-2:

- ① Drehbare Druckplatte 90x90x12 mit Schrägbohrungen
- ② Mutter M24 mit Scheibe Ø 50x3,5
- ③ Neopren-Ring (hält die Abdeckhülse oben)
- ④ Kontermutter M24
- ⑤ Gewindebolzen mit Senkkopf M24x160 4.6 nach EN 1993-1-8
- ⑥ Verschiebbare Abdeckhülse 54x2,6
- ⑦ Grundplatte 6x60x60 mit aufgeschweisstem Rohr 48,3x3,6 vz

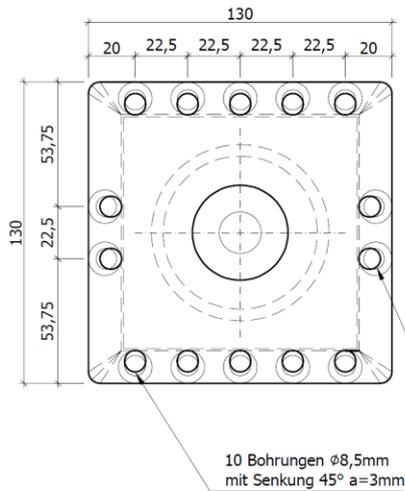
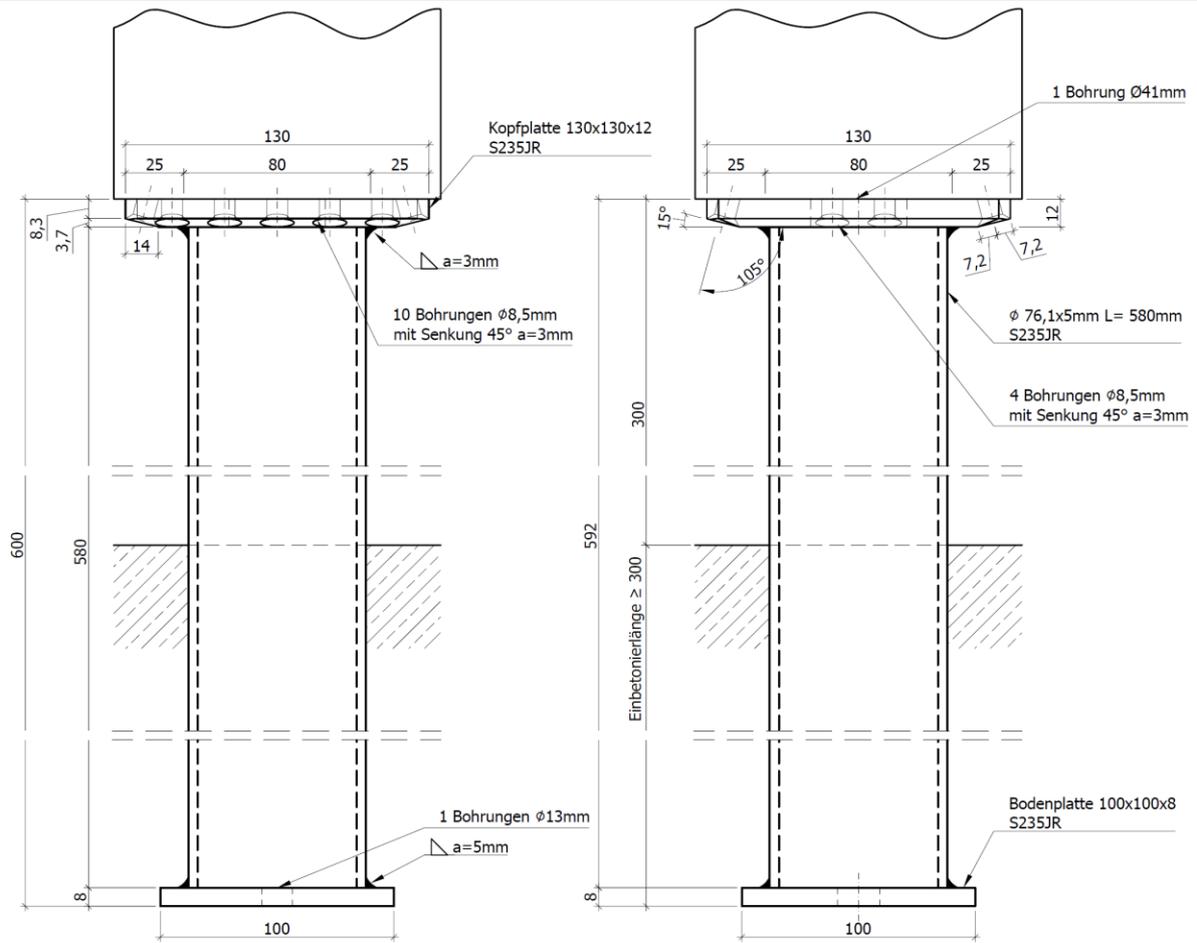
### Montagematerial:

12 Stück Holzbauschrauben 5 x 70mm Vollgewinde bauaufsichtlich zugelassen nach ETA 12-0114



|                |          |                              |
|----------------|----------|------------------------------|
| Typ            | Länge L1 | Länge L2 (verstellbare Höhe) |
| Vario PS B 450 | 400mm    | 460 - 510mm                  |

|  |       |  |                           |   |        |          |          |       |            |                 |        |              |  |
|--|-------|--|---------------------------|---|--------|----------|----------|-------|------------|-----------------|--------|--------------|--|
| PROJEKT  |       | Verbindungstechnik<br>ZÜBLIN Timber GmbH |                           |   |        |          |          |       |            |                 |        |              |  |
| INDEX  | INDEX | NAME                                     | BESCHREIBUNG DER ÄNDERUNG | LEISTUNGSPHASE                          | GEWERK | PLAN-TYP | BAU-TEIL | EBENE | PLANNUMMER | INDEX           | STATUS |              |  |
|  |       |  |                           |   |        |          |          |       |            | -               | -      |              |  |
| OBJEKTPLANER   |       |  |                           | PLANINHALT<br>Stützenfuß Vario PS B 450 |        |          |          |       |            | MASSSTAB<br>1:2 |        |              |  |
| <br>ZÜBLIN Timber Altech GmbH<br>Industriestraße 2, 86551 Altech Deutschland<br>TEL: +49 08251-908-0 |       |  |                           | BASISPLANE                              |        |          |          |       |            | GEZEICHNET      |        | DATUM        |  |
|  |       |  |                           | BIN                                     |        |          |          |       |            | 04.02.2028      |        | AB (08/1408) |  |
|  |       |  |                           |   |        |          |          |       |            |                 |        |              |  |



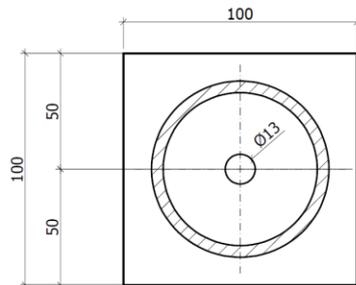
### Stahl S235JR nach EN 10025-2:

Flachstahl 130 x 130mm t= 12mm  
 Rundrohr Ø 76,1 x 5mm L= 580mm  
 Flachstahl 100 x 100mm t= 8mm

### Montagematerial:

14 Stück Holzbauschrauben 8 x 160mm Vollgewinde bauaufsichtlich zugelassen nach ETA-12/0114

## Royal PS B 600



| PROJEKT                   |            |         |                            | Verbindungstechnik |            |       |          |
|---------------------------|------------|---------|----------------------------|--------------------|------------|-------|----------|
|                           |            |         |                            | ZÜBLIN Timber GmbH |            |       |          |
| LEISTUNGSPHASE            | GEWIS      | PLANTYP | BAUTEL                     | BIBID              | PLANNRHEIN | SEITE | STATUS   |
|                           |            |         |                            |                    |            |       |          |
| INDEXDATUM                | INDEX      | NAM     | BESCHREIBUNG-ODER-ÄNDERUNG |                    |            |       |          |
|                           |            |         |                            |                    |            |       |          |
| PLANNINHALT               |            |         |                            |                    |            |       | MASSSTAB |
| Stützenfuß Royal PS B 600 |            |         |                            |                    |            |       | 1:2      |
| GEZEICHNET                | DATUM      | GEPRÜFT | DATUM                      | BLATTNR            | FOLIENNR   |       |          |
| BHN                       | 04.02.2026 |         |                            | A3 (257x420)       | 00000000   |       |          |

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 E-Mail: info@zueblin.de  
 www.zueblin-timber.com

**Annex B**  
**Product specification**

| post base      | steel – timber joint                       | bore hole in end grain of post [mm] | minimum post dimensions b/h [mm] | maximum distance between foundation and base plate of post [mm] | lever arm for lateral loads V [mm] |
|----------------|--|-------------------------------------|----------------------------------|---|------------------------------------|
| Vario 150      | 1 dowel<br>Ø 10 mm                         | 24                                  | 120/120                          | 218   | 100                                |
| Vario 250      |  |                                     |                                  | 298   | 180                                |
| Vario 300      |  |                                     |                                  | 378   | 260                                |
| Vario B 450    |  |                                     |                                  | 266   | -                                  |
| Vario K1 150   | 1 dowel<br>Ø 10 mm<br>with 40<br>mm casing | 40                                  | 120/120                          | 218   | 100                                |
| Vario K1 250   |  |                                     |                                  | 298   | 180                                |
| Vario K1 300   |  |                                     |                                  | 378   | 260                                |
| Vario K1 B 450 |  |                                     |                                  | 266   | -                                  |
| Vario PS 150   | 12 screws<br>5x70 mm                       | -                                   | 120/120                          | 218   | 100                                |
| Vario PS 250   |  |                                     |                                  | 298   | 180                                |
| Vario PS 300   |  |                                     |                                  | 378   | 260                                |
| Vario PS B 450 |  |                                     |                                  | 266   | -                                  |
| Royal PS       | 14 screws<br>8x160 mm                      | -                                   | 140/140                          | 300   | 160                                |
| Royal PS B 600 |  |                                     |                                  | 300   | -                                  |

**Annex C**  
**Minimum tension capacities of anchor bolts**

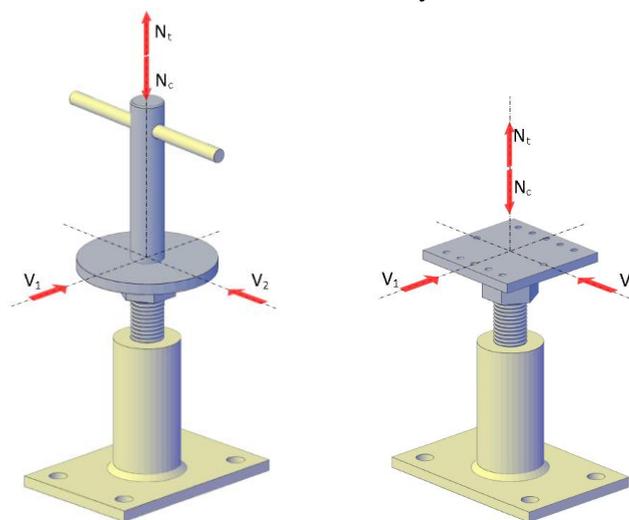
| post base      | Minimum tension capacity $F_{t,bRd}$ of anchor bolts depending on the tension load $N_{t,d}$ and the shear load $V_d$ |
|----------------|---|
| Vario 150      | $F_{t,bRd} \geq 1,52 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario 250      | $F_{t,bRd} \geq 2,73 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario 300      | $F_{t,bRd} \geq 3,94 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario B 450    | -   |
| Vario K1 150   | $F_{t,bRd} \geq 1,52 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario K1 250   | $F_{t,bRd} \geq 2,73 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario K1 300   | $F_{t,bRd} \geq 3,94 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario K1 B 450 | -   |
| Vario PS 150   | $F_{t,bRd} \geq 1,52 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario PS 250   | $F_{t,bRd} \geq 2,73 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario PS 300   | $F_{t,bRd} \geq 3,94 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Vario PS B 450 | -   |
| Royal PS       | $F_{t,bRd} \geq 1,45 \cdot V_d + 0,25 \cdot N_{t,d}$  |
| Royal PS B 600 | -   |

## Annex D Load-carrying capacities

### Definitions of forces and their directions

- $N_t$ : Tension force
- $N_c$ : Compression force
- $V_1$ : Shear force in direction 1 (perpendicular to the direction of the dowel or main line of screws resp.)
- $V_2$ : Shear force in direction 2 (parallel to the direction of the dowel or main line of screws resp.)

Note: No distinction between directions of  $V_1$  and  $V_2$  is necessary.



The load-carrying capacities for tensile loads ( $F_{t,Rd}$ ), compression loads ( $F_{c,Rd}$ ) and lateral loads ( $F_{v,Rd}$ ) are given in the following tables.

If vertical forces ( $N_t$ ,  $N_c$ ) and lateral forces ( $V$ ) are acting at the same time, the following inequality shall be fulfilled for each element with combined stressing:

$$\frac{N_{i,d}}{F_{i,Rd}} + \frac{V_d}{F_{v,Rd}} \leq 1$$

The results of this inequation are shown in the following diagrams.

**Design load-carrying capacities**

| Type         | Element    | strength class | b/h [mm]       | Tension $F_{t,Rd}$ in [kN] | Compression $F_{c,Rd}$ in [kN] | Shear $F_{v,Rd}$ in [kN] |
|--------------|------------|----------------|----------------|----------------------------|--------------------------------|--------------------------|
| <b>Vario</b> | dowel      | C 24           | 120/120        | $k_{mod} \cdot 4,9$        | -                              | $k_{mod} \cdot 1,95$     |
|              |            |                | $\geq 160/160$ | $k_{mod} \cdot 5,9$        | -                              | $k_{mod} \cdot 2,35$     |
|              |            | GL 24h         | 120/120        | $k_{mod} \cdot 5,2$        | -                              | $k_{mod} \cdot 2,10$     |
|              |            |                | $\geq 160/160$ | $k_{mod} \cdot 6,1$        | -                              | $k_{mod} \cdot 2,45$     |
|              | head plate |                |                | -                          | 20,7                           | 2,6                      |

| Type            | Element    | strength class | b/h [mm]       | Tension $F_{t,Rd}$ in [kN] | Compression $F_{c,Rd}$ in [kN] | Shear $F_{v,Rd}$ in [kN] |
|-----------------|------------|----------------|----------------|----------------------------|--------------------------------|--------------------------|
| <b>Vario K1</b> | dowel      | C 24           | 120/120        | $k_{mod} \cdot 4,4$        | -                              | $k_{mod} \cdot 1,75$     |
|                 |            |                | $\geq 160/160$ | $k_{mod} \cdot 5,7$        | -                              | $k_{mod} \cdot 2,25$     |
|                 |            | GL 24h         | 120/120        | $k_{mod} \cdot 4,7$        | -                              | $k_{mod} \cdot 1,85$     |
|                 |            |                | $\geq 160/160$ | $k_{mod} \cdot 6,1$        | -                              | $k_{mod} \cdot 2,45$     |
|                 | head plate |                |                | -                          | 20,7                           | 2,6                      |

| Type            | Element  |        | b/h [mm]       | Tension $F_{t,Rd}$ in [kN] | Compression $F_{c,Rd}$ in [kN] | Shear $F_{v,Rd}$ in [kN]                                 |     |
|-----------------|--|--------|----------------|----------------------------|--------------------------------|--|-----|
| <b>Vario PS</b> | timber tension perp.                             | C 24   | 120/120        | $k_{mod} \cdot 7,5$        | -                              | -  |     |
|                 |  |        | $\geq 160/160$ | $k_{mod} \cdot 9,5$        | -                              | -  |     |
|                 |  | GL 24h | 120/120        | $k_{mod} \cdot 12,5$       | -                              | -  |     |
|                 |  |        | $\geq 160/160$ | $k_{mod} \cdot 15,8$       | -                              | -  |     |
|                 | screws   | C 24   |                | $k_{mod} \cdot 22,3$       | -                              | $k_{mod} \cdot 6,1$<br>$k_{mod} \cdot 5,8$ <sup>1)</sup> |     |
|                 |  | GL 24h |                | $k_{mod} \cdot 23,8$       |                                | $k_{mod} \cdot 6,4$<br>$k_{mod} \cdot 6,1$ <sup>1)</sup> |     |
|                 | compression timber - head plate                  |        |                |                            | -                              | $k_{mod} \cdot 103,0$                                    | -   |
|                 | base plate                                       |        |                |                            | 10,3                           | -  | 2,9 |
|                 | countersunk rod                                  |        |                |                            | 60,5                           | 44,7   | 3,0 |
|                 | <sup>1)</sup> for screws made of stainless steel |        |                |                            |                                |  |     |

| Type   | Element                        |        | b/h<br>[mm]    | Tension<br>$F_{t,Rd}$ in [kN] | Compression<br>$F_{c,Rd}$ in [kN] | Shear<br>$F_{v,Rd}$ in [kN]                                |
|--|--------------------------------|--------|----------------|-------------------------------|-----------------------------------|--|
| <b>Royal PS</b>                                  | timber<br>tension<br>perp.     | C 24   | 140/140        | $k_{mod} \cdot 34,7$          | -                                 | -  |
|  |                                |        | $\geq 160/160$ | $k_{mod} \cdot 38,6$          | -                                 | -  |
|  |                                | GL 24h | $\geq 140/140$ | $k_{mod} \cdot 57,7$          | -                                 | -  |
|  | screws                         | C 24   |                | $k_{mod} \cdot 77,6$          | -                                 | $k_{mod} \cdot 18,5$<br>$k_{mod} \cdot 17,4$ <sup>1)</sup> |
|  |                                | GL 24h |                | $k_{mod} \cdot 82,8$          | -                                 | $k_{mod} \cdot 19,3$<br>$k_{mod} \cdot 18,3$ <sup>1)</sup> |
|  | contact timber – head<br>plate | C 24   |                | -                             | $k_{mod} \cdot 238,8$             | -  |
|  |                                | GL 24h |                | -                             | $k_{mod} \cdot 272,9$             | -  |
|  | contact base plate - concrete  |        |                | -                             | 128,1                             | -  |
|  | base plate                     |        |                | 36,1                          | -                                 | 16,9   |
|  | head plate                     |        |                | 53,7                          | 149,9                             | 13,8   |
| threaded rod                                     |                                |        | 322,9          | 168,8                         | 12,1                              |  |
| <sup>1)</sup> for screws made of stainless steel |                                |        |                |                               |                                   |  |

**Design load-carrying capacities for clamped (fixed) post bases**

| Type                 | Element    | strength<br>class | b/h<br>[mm]    | Tension<br>$F_{t,Rd}$ in [kN] | Compression<br>$F_{c,Rd}$ in [kN] | Shear<br>$F_{v,Rd}$ in [kN] |
|----------------------|------------|-------------------|----------------|-------------------------------|-----------------------------------|-----------------------------|
| <b>Vario – B 450</b> | dowel      | C 24              | 120/120        | $k_{mod} \cdot 4,9$           | -                                 | $k_{mod} \cdot 1,95$        |
|                      |            |                   | $\geq 160/160$ | $k_{mod} \cdot 5,9$           | -                                 | $k_{mod} \cdot 2,35$        |
|                      |            | GL 24h            | 120/120        | $k_{mod} \cdot 5,2$           | -                                 | $k_{mod} \cdot 2,10$        |
|                      |            |                   | $\geq 160/160$ | $k_{mod} \cdot 6,1$           | -                                 | $k_{mod} \cdot 2,45$        |
|                      | head plate |                   |                | -                             | 20,7                              | 2,6                         |

| Type                  | Element    | strength<br>class | b/h<br>[mm]    | Tension<br>$F_{t,Rd}$ in [kN] | Compression<br>$F_{c,Rd}$ in [kN] | Shear<br>$F_{v,Rd}$ in [kN] |
|-----------------------|------------|-------------------|----------------|-------------------------------|-----------------------------------|-----------------------------|
| <b>Vario K1 B 450</b> | dowel      | C 24              | 120/120        | $k_{mod} \cdot 4,4$           | -                                 | $k_{mod} \cdot 1,75$        |
|                       |            |                   | $\geq 160/160$ | $k_{mod} \cdot 5,7$           | -                                 | $k_{mod} \cdot 2,25$        |
|                       |            | GL 24h            | 120/120        | $k_{mod} \cdot 4,7$           | -                                 | $k_{mod} \cdot 1,85$        |
|                       |            |                   | $\geq 160/160$ | $k_{mod} \cdot 6,1$           | -                                 | $k_{mod} \cdot 2,45$        |
|                       | head plate |                   |                | -                             | 20,7                              | -                           |

| Type                  | Element                    |        | b/h<br>[mm]    | Tension<br>$F_{t,Rd}$ in [kN] | Compression<br>$F_{c,Rd}$ in [kN] | Shear<br>$F_{v,Rd}$ in<br>[kN]                           |
|-----------------------|----------------------------|--------|----------------|-------------------------------|-----------------------------------|--|
| <b>Vario PS B 450</b> | timber<br>tension<br>perp. | C 24   | 120/120        | $k_{mod} \cdot 7,5$           | -                                 | -  |
|                       |                            |        | $\geq 160/160$ | $k_{mod} \cdot 9,5$           | -                                 | -  |
|                       |                            | GL 24h | 120/120        | $k_{mod} \cdot 12,5$          | -                                 | -  |
|                       |                            |        | $\geq 160/160$ | $k_{mod} \cdot 15,8$          | -                                 | -  |
|                       | screws                     | C 24   |                | $k_{mod} \cdot 22,3$          | -                                 | $k_{mod} \cdot 6,1$<br>$k_{mod} \cdot 5,8$ <sup>1)</sup> |
|                       |                            | GL 24h |                | $k_{mod} \cdot 23,8$          | -                                 | $k_{mod} \cdot 6,4$<br>$k_{mod} \cdot 6,1$ <sup>1)</sup> |
|                       | countersunk                |        |                | 60,5                          | 44,7                              | 3,0  |

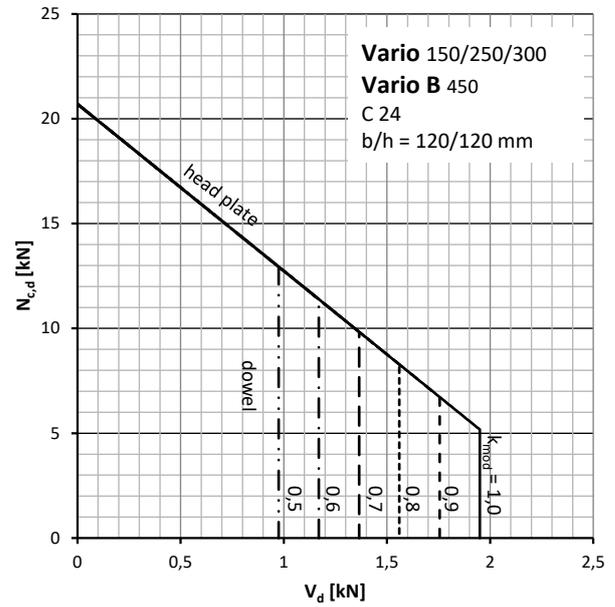
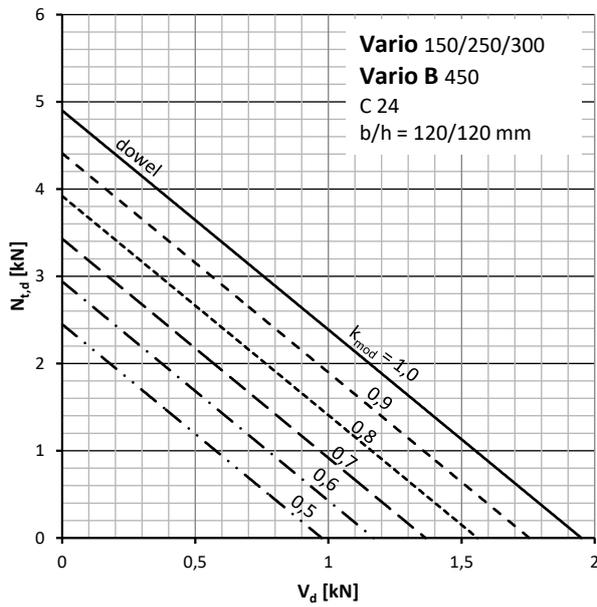
<sup>1)</sup> for screws made of stainless steel

| Type                  | Element                        |        | b/h<br>[mm]    | Tension<br>$F_{t,Rd}$ in [kN] | Compression<br>$F_{c,Rd}$ in [kN] | Shear<br>$F_{v,Rd}$ in [kN]                                |
|-----------------------|--------------------------------|--------|----------------|-------------------------------|-----------------------------------|--|
| <b>Royal PS B 600</b> | timber<br>tension<br>perp.     | C 24   | 140/140        | $k_{mod} \cdot 34,7$          | -                                 | -  |
|                       |                                |        | $\geq 160/160$ | $k_{mod} \cdot 38,6$          | -                                 | -  |
|                       |                                | GL 24h | $\geq 140/140$ | $k_{mod} \cdot 57,7$          | -                                 | -  |
|                       | screws                         | C 24   |                | $k_{mod} \cdot 77,6$          | -                                 | $k_{mod} \cdot 32,9$<br>$k_{mod} \cdot 28,1$ <sup>1)</sup> |
|                       |                                | GL 24h |                | $k_{mod} \cdot 82,8$          | -                                 | $k_{mod} \cdot 33,4$<br>$k_{mod} \cdot 28,5$ <sup>1)</sup> |
|                       | contact timber –<br>head plate | C 24   |                | -                             | $k_{mod} \cdot 238,8$             | -  |
|                       |                                | GL 24h |                | -                             | $k_{mod} \cdot 272,9$             | -  |
|                       | steel tube                     |        |                | 262,3                         | 222,4                             | 17,4   |
|                       | contact base plate - concrete  |        |                | -                             | 129,6                             | -  |
|                       | clamping concrete basement     |        |                | -                             | -                                 | 17,4   |

<sup>1)</sup> for screws made of stainless steel

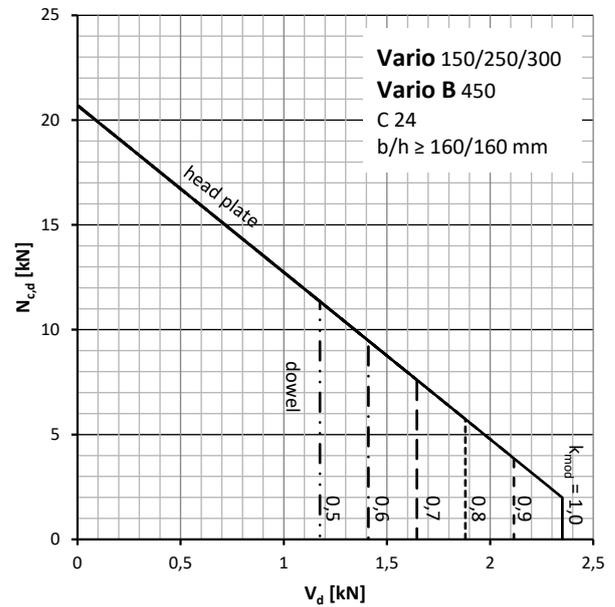
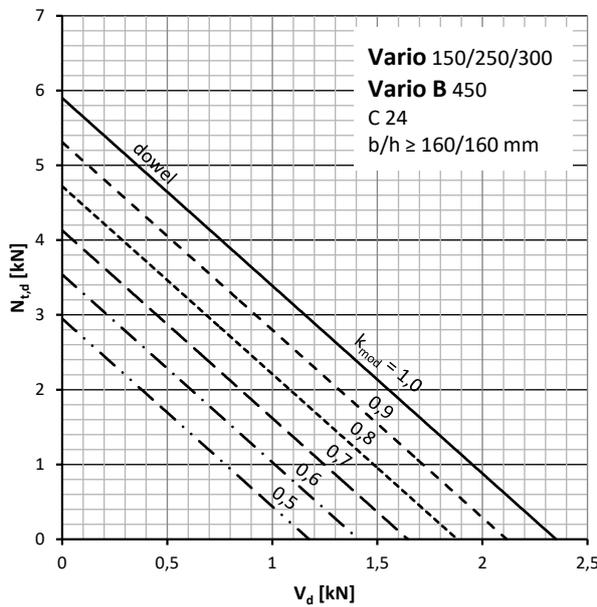
**Design load-carrying capacities**

**Types Vario 150/250/300 and Vario B 450**



design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

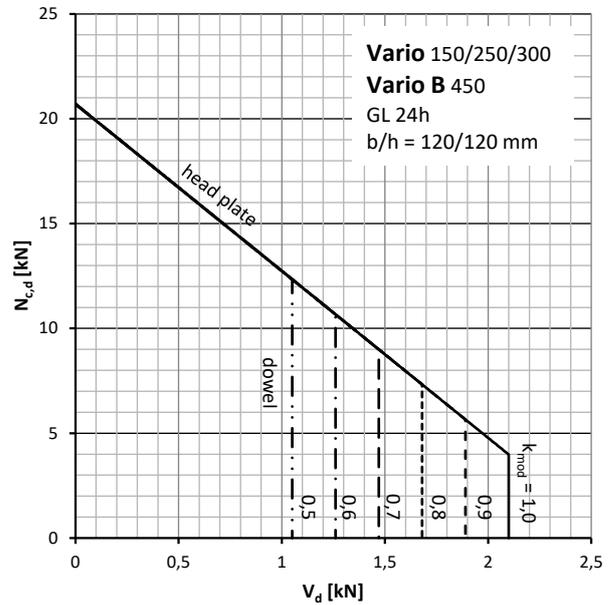
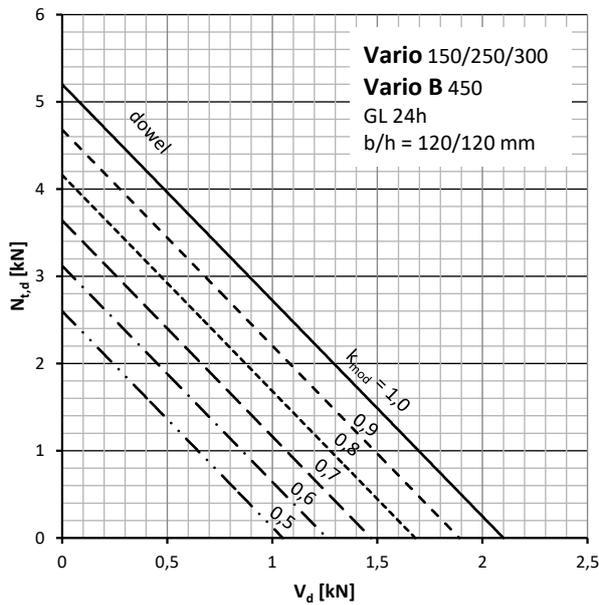


design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

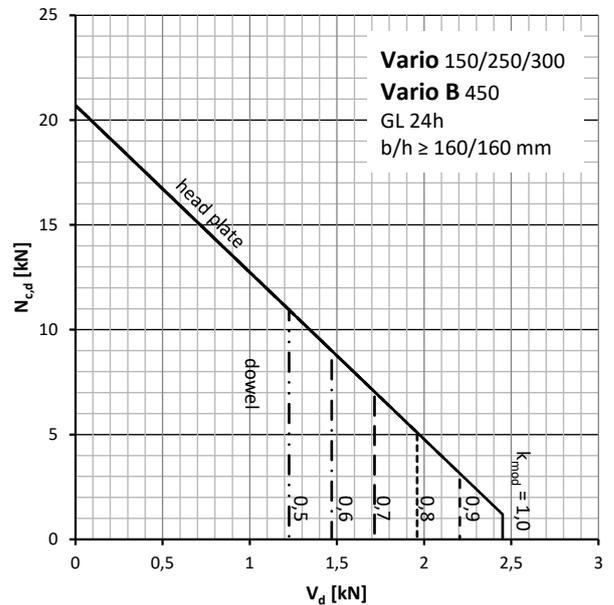
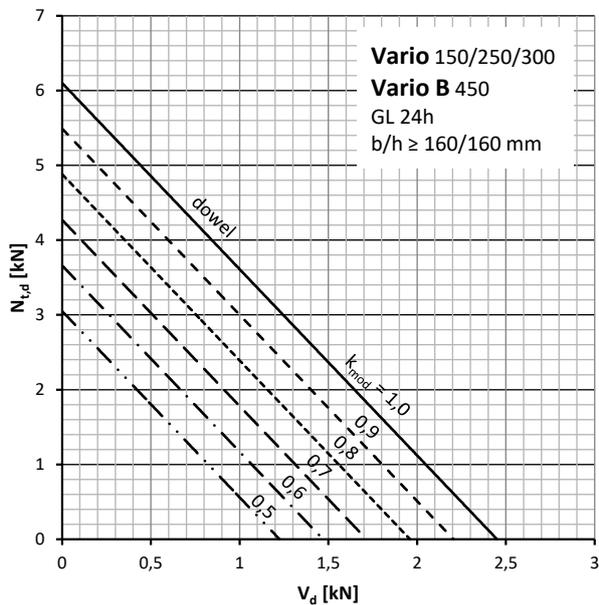
**Design load-carrying capacities**

**Types Vario 150/250/300 and Vario B 450**



design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

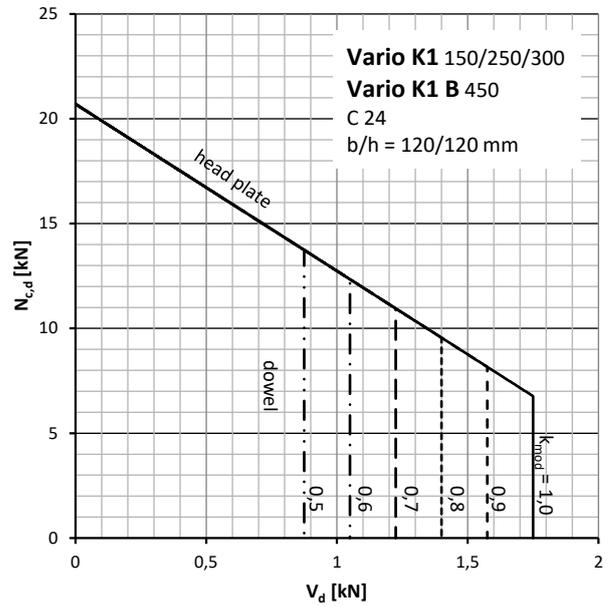
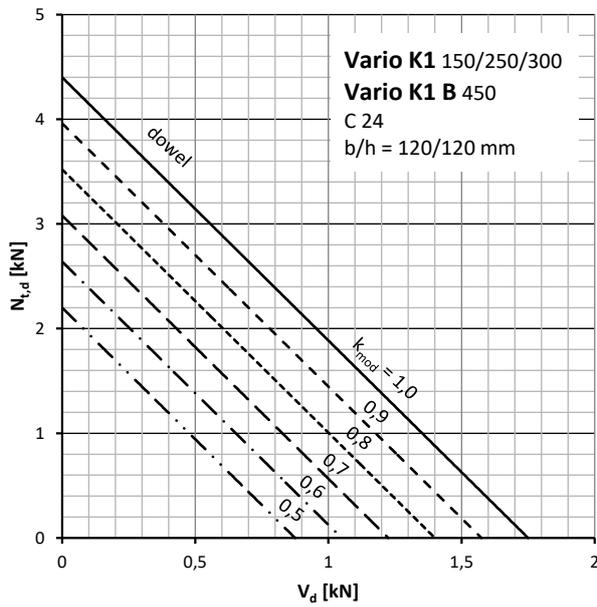


design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

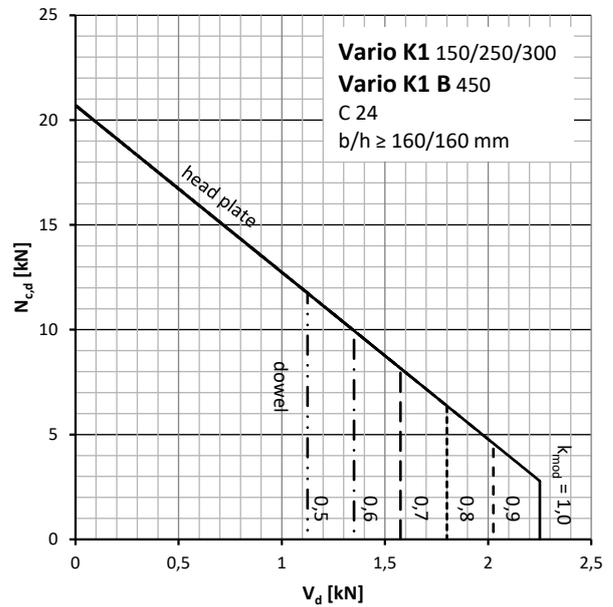
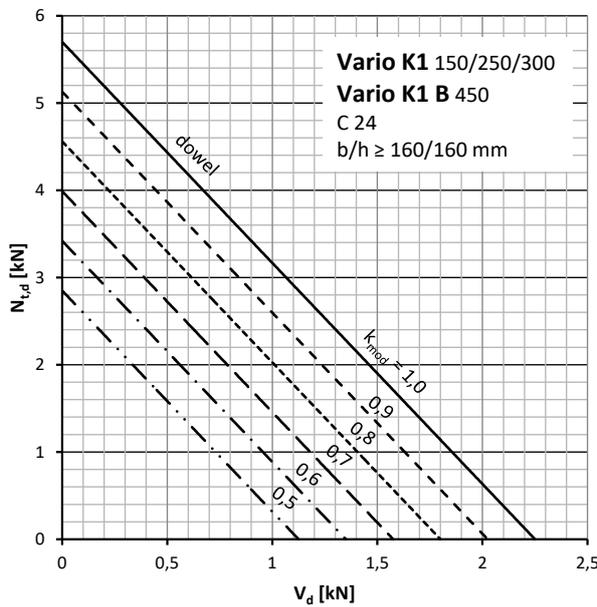
**Design load-carrying capacities**

**Types Vario K1 150/250/300 and Vario K1 B 450**



design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

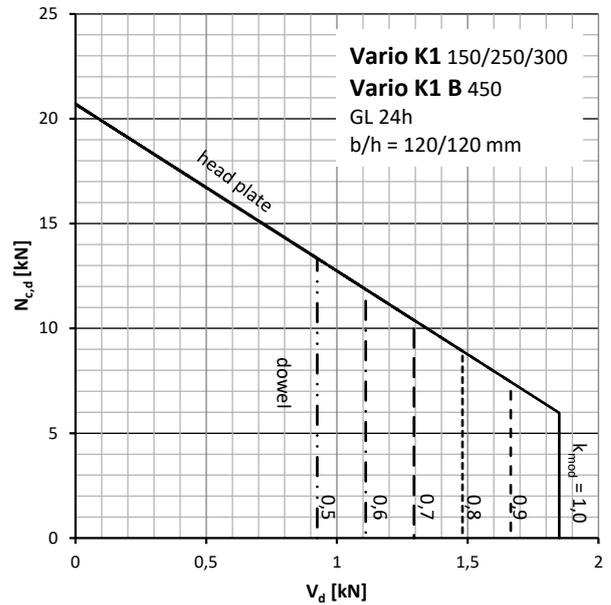
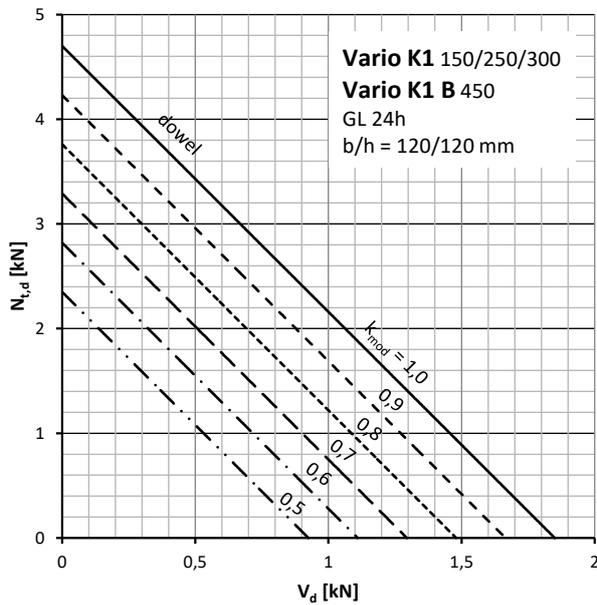


design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

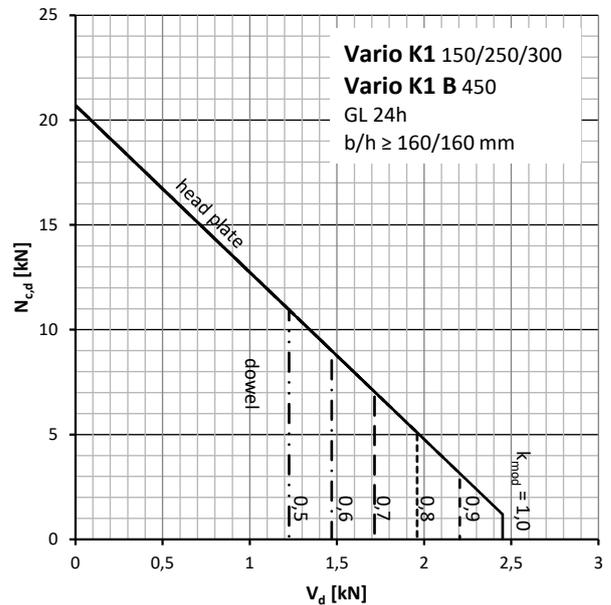
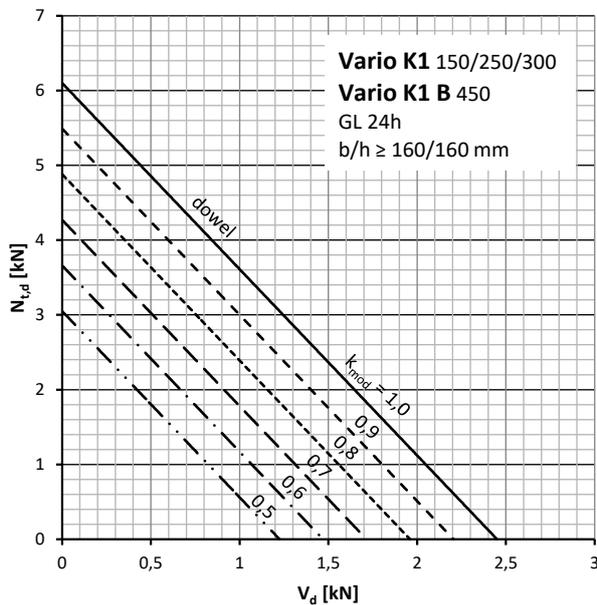
**Design load-carrying capacities**

**Types Vario K1 150/250/300 and Vario K1 B 450**



design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

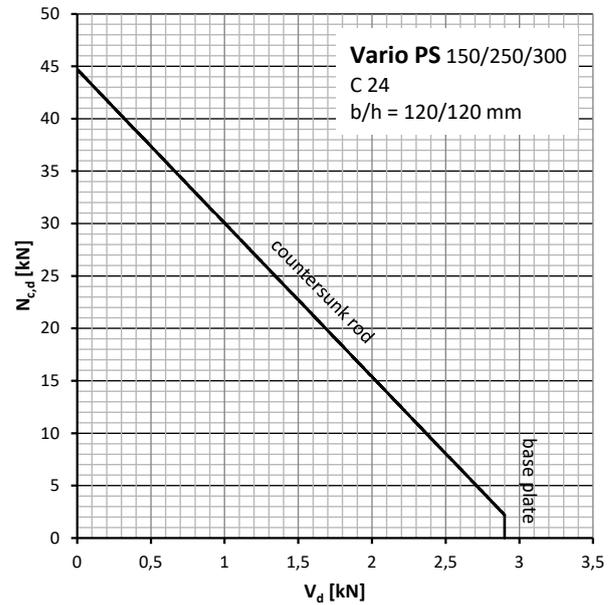
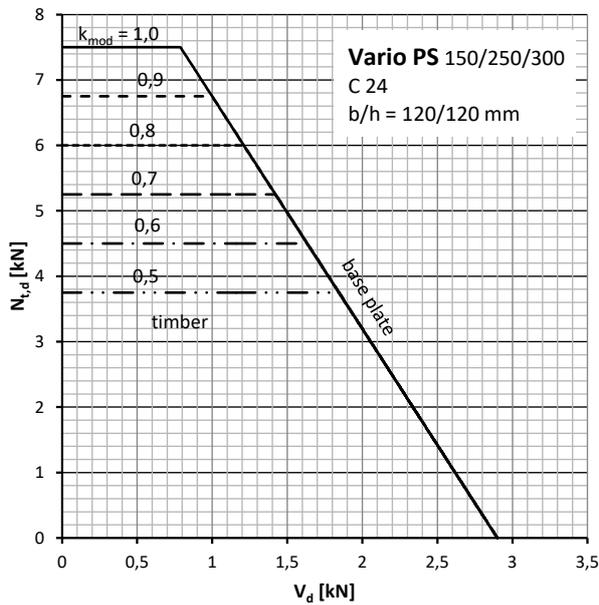


design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

- left: with tension load  $N_{t,d}$
- right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

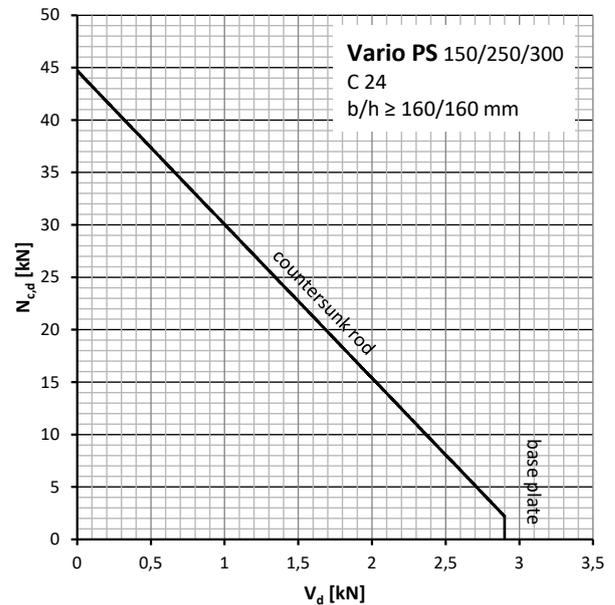
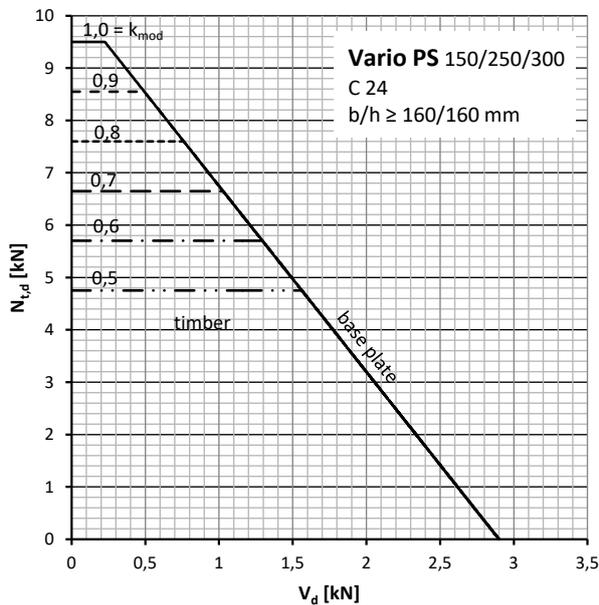
**Type Vario PS 150/250/300**



design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$



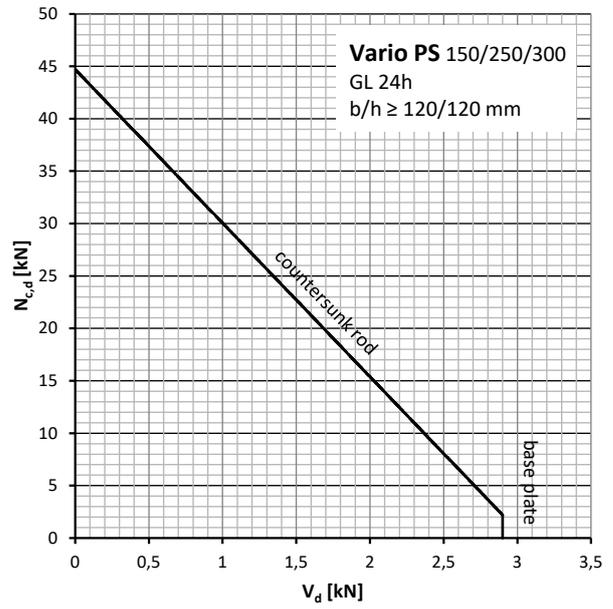
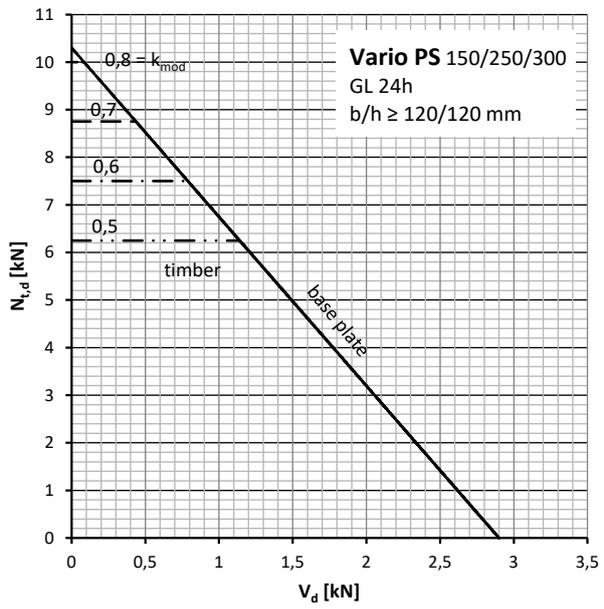
design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

**Type Vario PS 150/250/300**



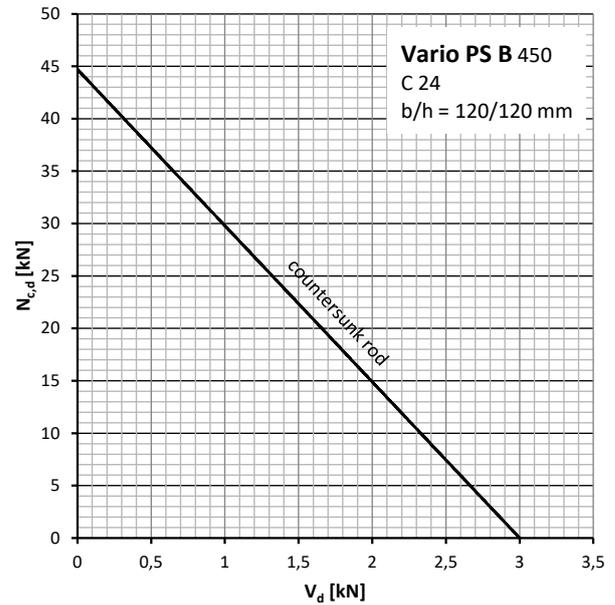
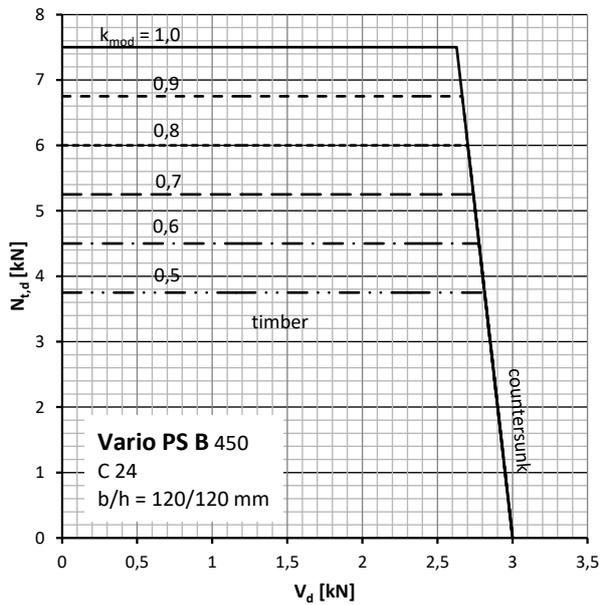
design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

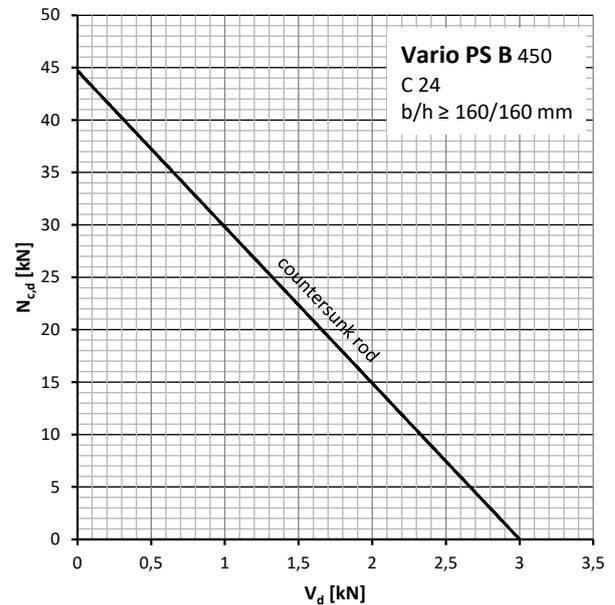
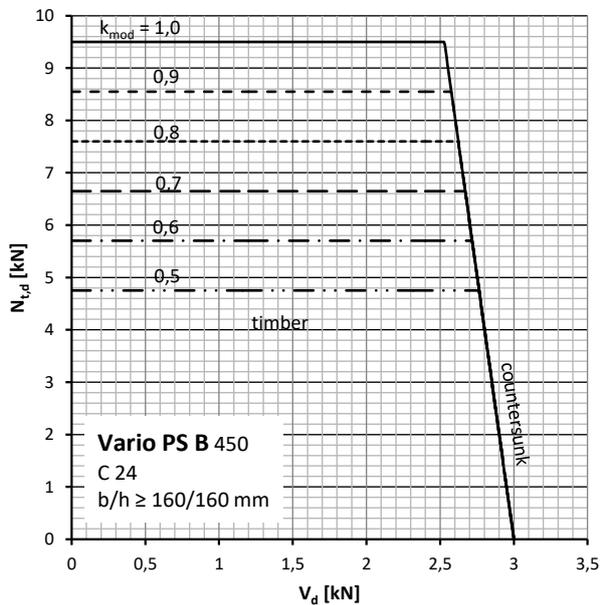
**Type Vario PS B 450**



design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$



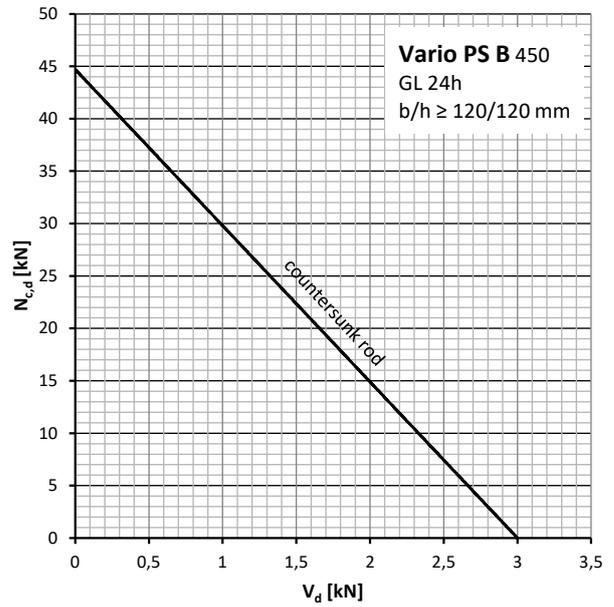
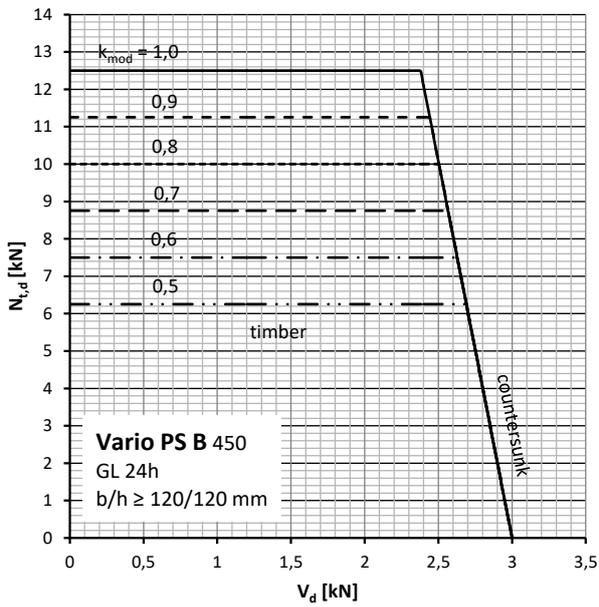
design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

**Type Vario PS B 450**



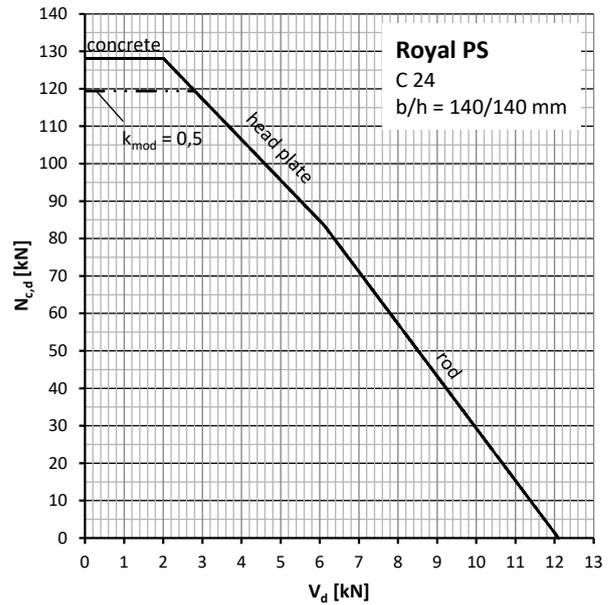
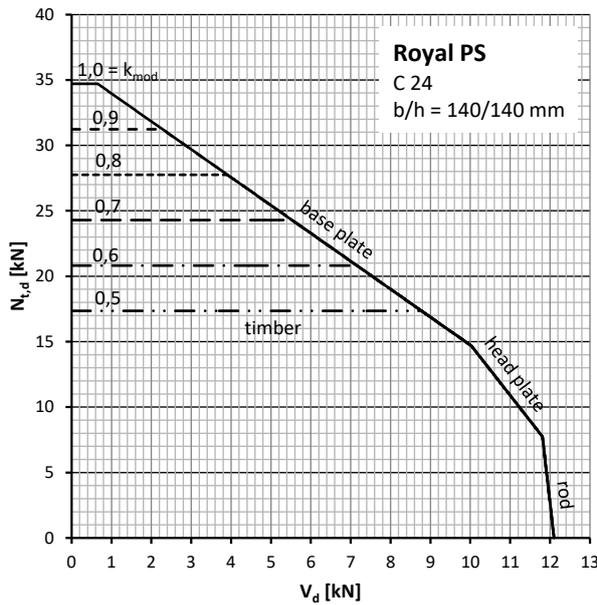
design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

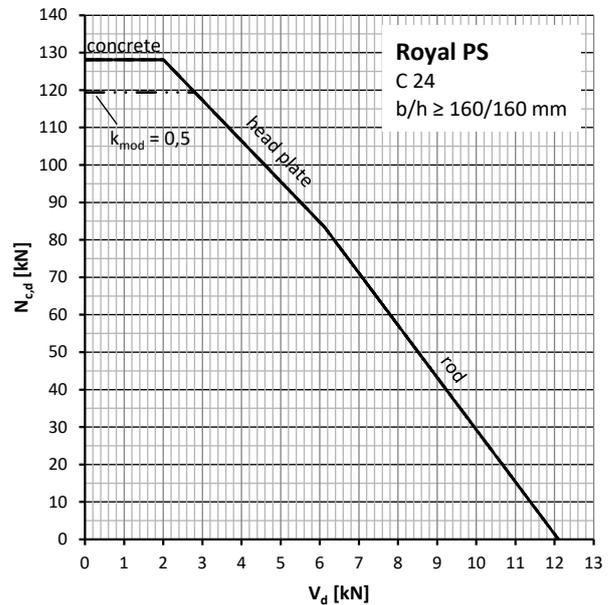
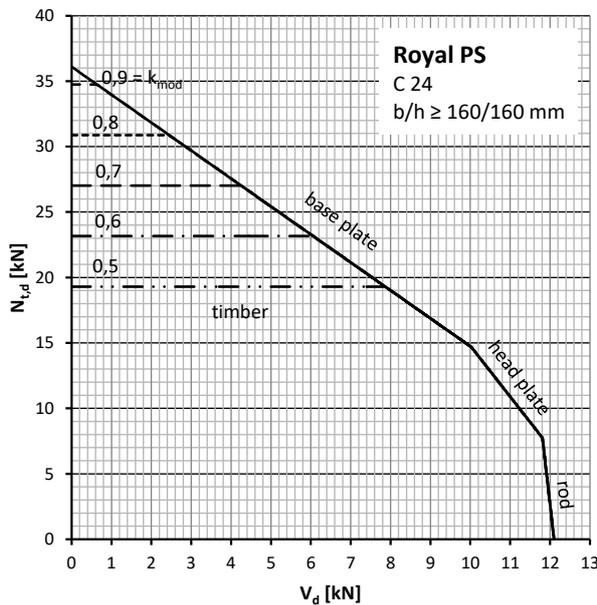
**Type Royal PS**



design capacities for combined loading with axial loads and shear load V<sub>d</sub> with C 24

left: with tension load N<sub>t,d</sub>

right: with compression loads N<sub>c,d</sub>



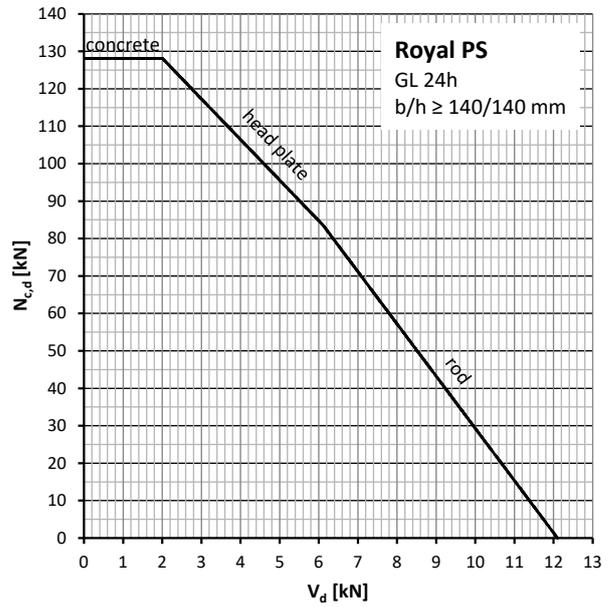
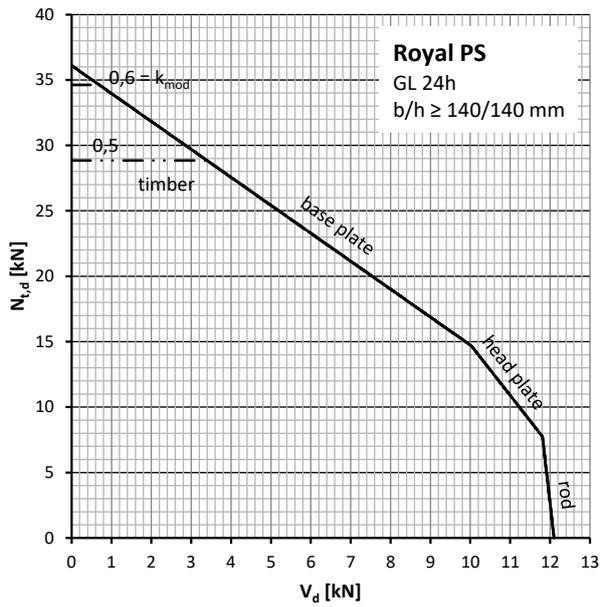
design capacities for combined loading with axial loads and shear load V<sub>d</sub> with C 24

left: with tension load N<sub>t,d</sub>

right: with compression loads N<sub>c,d</sub>

**Design load-carrying capacities**

**Type Royal PS**



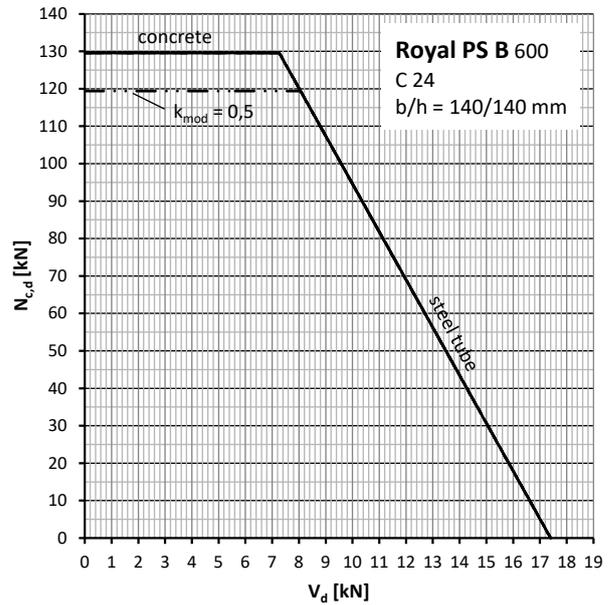
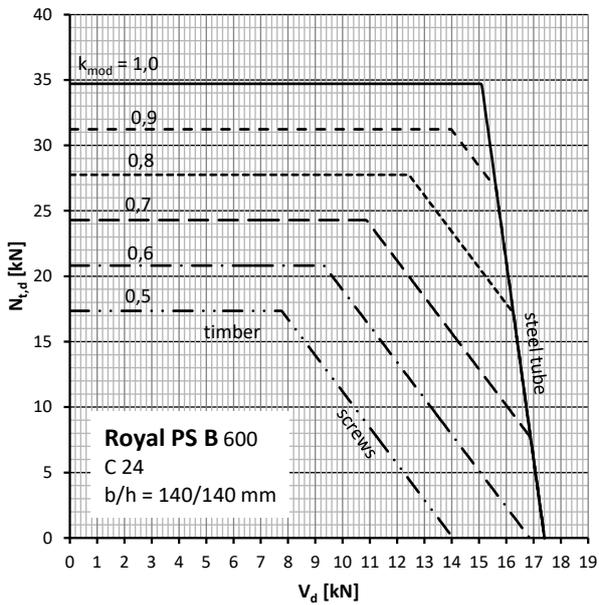
design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

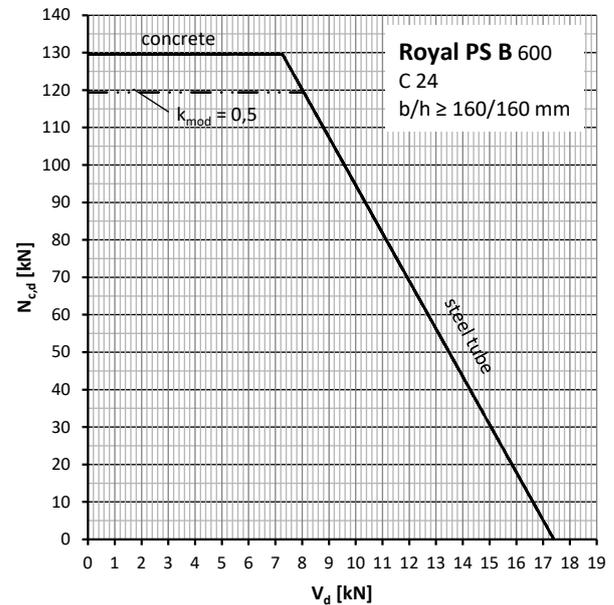
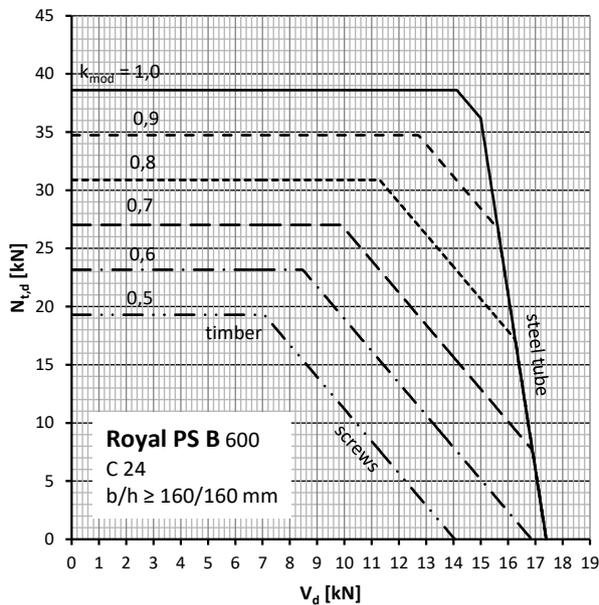
**Type Royal PS B 600**



design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$



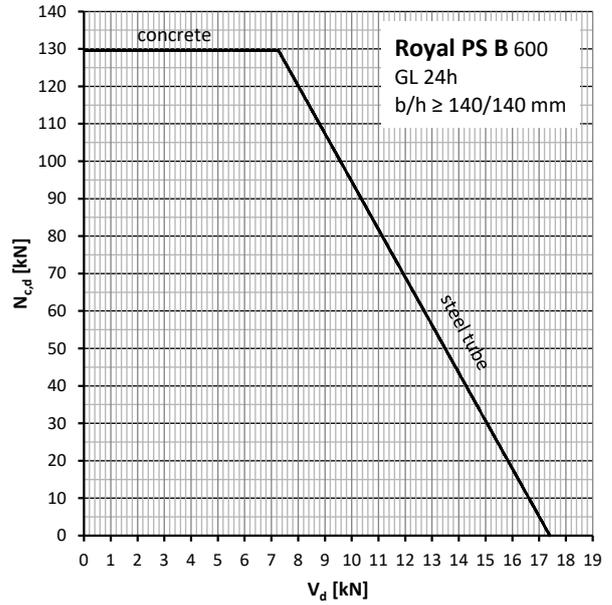
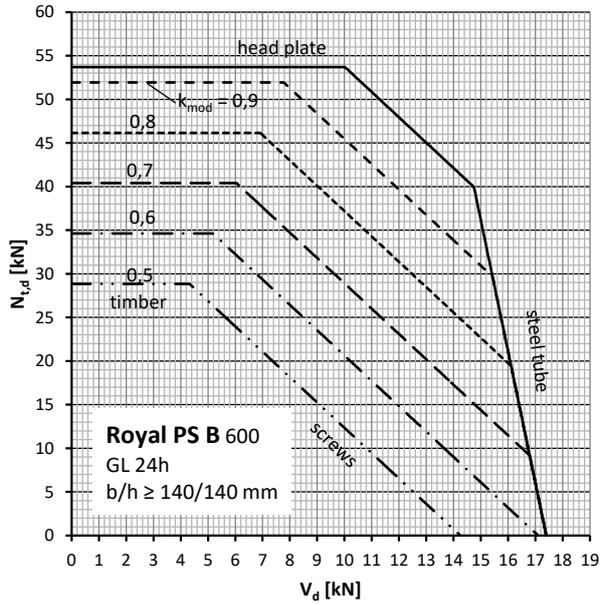
design capacities for combined loading with axial loads and shear load  $V_d$  with C 24

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$

**Design load-carrying capacities**

**Type Royal PS B 600**



design capacities for combined loading with axial loads and shear load  $V_d$  with **GL 24h**

left: with tension load  $N_{t,d}$

right: with compression loads  $N_{c,d}$