



ETA-Danmark A/S
Göteborg Plads 1
DK-2150 Nordhavn
Tel. +45 72 24 59 00
Fax +45 72 24 59 04
Internet www.etadanmark.dk

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I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

BB Stanz- und Umformtechnik GmbH post bases

Product family to which the above construction product belongs:

Three-dimensional nailing plate (Post bases)

Manufacturer:

BB Stanz- und Umformtechnik
Nordhäuser Str. 44
D-06536 Berga
Tel. +49 34651 2988 0
Fax +49 34651 2988 20
Internet www.bb-berga.de

Manufacturing plant:

BB Stanz- und Umformtechnik

This European Technical Assessment contains:

64 pages including 2 annexes which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

Guideline for European Technical Approval (ETAG) No. 015 Three Dimensional Nailing Plates, April 2013, used as European Assessment Document (EAD).

This version replaces:

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

The BB Stanz- und Umformtechnik post bases are made from 2.0 mm to 8.0 mm thick steel plates in combination with steel tubes and rods. The post bases are produced of steel grade S235JR according to EN 10025-2 with a minimum characteristic yield strength of $R_{eH} = 235 \text{ N/mm}^2$ and a minimum characteristic tensile strength of $R_m = 360 \text{ N/mm}^2$ and steel grade DD11 according to EN 10111-2 with a minimum characteristic yield strength of $R_{eL} = 170 \text{ N/mm}^2$. The steel tubes are produced of steel grade S195T according to DIN EN 10255 with a minimum characteristic yield strength of $R_{eH} = 195 \text{ N/mm}^2$ and a minimum characteristic tensile strength of $R_m = 320 \text{ N/mm}^2$. The steel rods are produced of steel grade S235JRC+C according to EN 10277-2 with a minimum characteristic yield strength of $R_{p0.2} = 260 \text{ N/mm}^2$ and a minimum characteristic tensile strength of $R_m = 390 \text{ N/mm}^2$. The threaded rods correspond to property class 4.8 according to DIN EN ISO 898-1.

For the connections with metal fasteners dowels $\varnothing 10 \text{ mm}$ (S235) or bolts $\varnothing 10 \text{ mm}$ (4.6) and screws $\varnothing 12 \times 120 \text{ mm}$, $\varnothing 10 \times 100 \text{ mm}$, $\varnothing 10 \times 80 \text{ mm}$; $\varnothing 10 \times 50 \text{ mm}$ or $\varnothing 6 \times 80 \text{ mm}$ according to EN 14592 (DIN 571 and thread according to DIN 7998) with a minimum characteristic tensile strength of $R_m = 360 \text{ N/mm}^2$ or according to an ETA are used. The screws shall be driven into pre-drilled holes according to EN 1995-1-1, 10.4.5 or respectively according to the ETA of the screws.

Dimensions are shown in Annex A and B.

2 Specification of the intended use in accordance with the applicable 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 Works Requirements 1 and 4 of Regulation (EU) 305/2011 shall be fulfilled.

The static and kinematical behaviour of the timber members or the supports shall be as described in Annex B.

The timber posts may be of solid timber of strength class C24 or better according to EN 338:2016 or of glued laminated timber according to EN 14080:2013.

Minimum dimensions for the post have to be considered (Annex A).

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 end grain of the timber post must in general be plane on the base plate of the post base. Post bases types H have a distance between the end grain of the timber post and the base plate of the post base up to 10 mm due to constructive wood preservation.

The maximum distance between the foundation and the base plate of the post base is given in Annex A, table A.1.

Annex B states the load-carrying capacities of the post bases for solid timber of strength class C24 according to EN 338:2016. 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.

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. In service class 1 and 2 the corrosion protection is given by hot-dip zinc coating Z275 according to EN 10147 or zinc coating according to EN1461 with a minimum thickness of $8 \mu\text{m}$. In service class 3 the corrosion protection is given by hot-dip zinc coating Z350 according to EN 10147 or zinc coating according to EN1461 with a minimum thickness of $55 \mu\text{m}$.

The metal fasteners must also have a zinc coating according to EN ISO 2081 corresponding to the relevant service class 1, 2 or 3 of EN 1995-1-1. Galvanic zinc coating of the post bases is only suitable for service classes 1 and 2.

The scope of the hangers regarding resistance to corrosion shall be defined according to national provisions that apply at the installation site considering environmental conditions.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the post bases of 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, 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

| Characteristic | Assessment of characteristic |
|--|---|
| 3.1 Mechanical resistance and stability*) (BWR1) | |
| Characteristic load-carrying capacity | See Annex B |
| Stiffness | No performance determined |
| Ductility in cyclic testing | No performance determined |
| 3.2 Safety in case of fire (BWR2) | |
| Reaction to fire | The post bases are made from steel classified as Euroclass A1 in accordance with EN 13501-1 and Commission Delegated Regulation 2016/364 |
| 3.3 Hygiene, health and the environment (BWR3) | |
| Influence on air quality | The product does not contain/release dangerous substances specified in TR 034, dated March 2012 0**) |
| 3.7 Sustainable use of natural resources (BWR7) | |
| No Performance Determined | |
| 3.8 General aspects related to the performance of the product | |
| The post bases have been assessed as having satisfactory durability and serviceability when used in timber structures using the timber species described in Eurocode 5 and subject to the conditions defined by service class 1, 2 and 3 | |
| Identification | See Annex A |

*) See additional information in section 3.9 – 3.11.

**) In addition to the specific clauses relating to dangerous substances contained in this European technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.9 Mechanical resistance and stability

Safety principles and partial factors

The characteristic load-carrying capacities are based on the characteristic values of the connections with metal fasteners, the steel components 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 γ_M for steel or timber failure, respectively, are also correctly taken into account

Mechanical resistance and stability

See Annex B for the characteristic load-carrying capacity in the different directions F_1 to F_5 for solid timber of strength class C24 according to EN 338:2016. Using the load-carrying capacities of the post bases, the specifications in Annex A must be fulfilled.

The characteristic capacities of the post bases are determined by a combination of calculation according to Eurocode 3 and Eurocode 5 and testing. They should be used for designs in accordance with Eurocode 3 and Eurocode 5 or a similar national 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.

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. Therefore the specifications for the lever arms $e_{F2/F3}$ (for load case F_2 / F_3) and $e_{F4/F5}$ (for load case F_4 / F_5) in annex A have to be considered. The lever arm is the distance between the top edge of the foundation and the load.

3.10 Aspects related to the performance of the product

2.7.1 Corrosion protection in service class 1 and 2.

In accordance with ETAG 015 the post bases are produced from steel grade S235JR according to EN 10025-2:2005-04 with a minimum characteristic yield strength of $R_{eH} = 235 \text{ N/mm}^2$ and a minimum characteristic tensile strength of $R_m = 360 \text{ N/mm}^2$ and steel grade DD11 according to EN 10111-2:2008 with a minimum characteristic yield strength of $R_{eL} = 170 \text{ N/mm}^2$. The steel tubes are produced of steel grade S195T according to DIN EN 10255:2007 with a minimum characteristic yield strength of $R_{eH} = 195 \text{ N/mm}^2$ and a minimum characteristic tensile strength of $R_m = 320 \text{ N/mm}^2$. The steel rods are produced of steel grade S235JRC+C according to EN 10277-2:2008-06 with a minimum characteristic yield strength of $R_{p0,2} = 260 \text{ N/mm}^2$ and a minimum characteristic tensile strength of $R_m = 390 \text{ N/mm}^2$. The threaded rods correspond to property class 4.8 according to DIN EN ISO 898-1:2009-08

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. In service class 1 and 2 the corrosion protection is given by hot-dip zinc coating Z275 according to EN 10147 or zinc coating according to EN1461 with a minimum thickness of $8 \mu\text{m}$. In service class 3 the corrosion protection is given by hot-dip zinc coating Z350 according to EN 10147 or zinc coating according to EN1461 with a minimum thickness of $55 \mu\text{m}$.

The metal fasteners must also have a zinc coating according to EN ISO 2081 corresponding to the relevant service class 1, 2 or 3 of EN 1995-1-1.

3.11 General aspects related to the fitness for use of the product

The performances given in this ETA are based on the following:

- The timber post
 - shall be restrained against rotation, and supported at the lower and upper end
 - shall be strength class C24 or better according

to EN 338:2016

- shall be free from wane in the post base
 - must fulfil the requirements regarding minimum dimensions (see Annex A)
 - end grain must in general be plane on the base plate or spacer of the post base or at a maximum distance given in Annex A.
- 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 minimum insertion depth in the turnbuckles should be the diameter of the rod.
 - The base plates of the post bases with steel tubes as support must in general be plane on the tube's end.
 - The anchorage of the post base 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. Therefore, the specifications for the lever arms e_{F_2/F_3} (for load case F_2 / F_3) and e_{F_4/F_5} (for load case F_4 / F_5) in Annex A have to be considered. The lever arm is the distance between the top edge of the foundation and the load.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 97/638/EC of the European Commission¹, 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 foreseen 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 2018-08-23 by



Thomas Bruun
Managing Director, ETA-Danmark

Annex A
Product details and definitions

Table A.1 Specifications of the post bases

| Post base | | Metal Fasteners** | | Post [mm] | Distances [mm] | | |
|---------------|----------------|-------------------|-------------------------------|-------------------|----------------|---------|-----------|
| Type | Drawing number | Nails/Screws* | Dowels/Bolts | min b/h | max. a | e F2/F3 | e F4/F5 |
| A001 | BB00 0003001 A | 4 x F 12x120mm | - | 140/140 | 110 | 110 | 110 |
| A002 | 540 23 0001 | 2 x P 10x80mm | - | 80 to 160 /140 | 163 | - | - |
| | | 4 x P 6x80mm | - | 80 to 160 /140 | 163 | - | - |
| A003 | 540 23 0002 | - | 2 x D Ø10 or 2 x Bo Ø10 | 100/130 | 163 | 251 | 176 |
| A004 | 541 23 0001 | - | 1 x Bo M10 | 120/120 | 163 | - | 263 |
| H001 | 555 23 0000 | 4 x F 12x120mm | - | 130/130 | 135 to 200 | a | a |
| H002 | 555 23 0001 | 4 Nails 4x40mm | - | 70 to 170 /116 | 139 to 204 | - | - |
| H003 | 555 23 0002 | 4x F 12x120mm | 1 x D Ø10 or 1 x Bo M10 | 130/130 | 135 to 200 | a + 60 | a |
| H004 | 555 23 0003 | - | 2 x D Ø10 or 2 x Bo Ø10 | 100/130 | 135 to 200 | a + 13 | a +100 |
| H100 | 550 13 0004 | 4x F 12x120mm | - | 130/130 | 140 to 205 | a | a |
| BRN M20 | BB00 0004001 A | 4x F 10x100mm | - | 120/120 | 40 to 146 | a | a |
| ASH 2,5 mm | BB00-0023-003 | 2 x F 10x50mm | - | 71/71 | 10 | 103 | 70 |
| | BB00-0023-004 | | | 81/81 | | | |
| | BB00-0023-005 | | | 91/91 | | | |
| | BB00-0023-006 | | | 101/101 | | | |
| | BB00-0023-007 | | | 121/121 | | | |
| | BB00-0023-008 | | | 141/141 | | | |
| | BB00-0023-009 | | | 161/161 | | | |
| BB00-0023-010 | 201/201 | | | | | | |
| ASH 2,0 mm | 59510120 | 2 x F 10x50mm | - | 101/101 | 10 | 103 | 70 |
| | 59512120 | | | 121/121 | | | |
| | 59514120 | | | 141/141 | | | |
| | 59516120 | | | 161/161 | | | |
| | 59520120 | | | 201/201 | | | |
| ASH r | BB00-0023-011 | 2 x F 10x50mm | - | Ø80 | 10 | 113 | 60 |
| | BB00-0023-012 | | | Ø100 | | | |
| | BB00-0023-013 | | | Ø120 | | | |
| | BB00-0023-014 | | | Ø140 | | | |
| ASH g | BB00-0049-001 | 4 x F 10x50mm | - | 85/85 | 10 | 122 | 122 |
| | BB00-0049-002 | 8 x F 10x50mm | - | 105/105 | | 139 | 139 |
| ASH z | BB00-0045-001 | 2 x F 10x50mm | - | 101/85 | 12 | 163 | 65 |
| | BB00-0045-002 | | | 121/114 | 12 | 163 | 71 |
| | BB00-0045-003 | | | 141/114 | 12 | 163 | 85 |
| | BB00-0045-004 | | | 161/114 | 14 | 147 | 88 |
| | BB00-0045-005 | | | 201/140 | 14 | 137 | 88 |

* P = partial thread; F = full thread

** The position of the fasteners shall always be at maximum distance to the end grain of the post.

Continuation of Table A.1 Specifications of the post bases

| Post base | | Metal Fasteners** | | Post [mm] | Distances [mm] | | |
|---------------|----------------|-------------------|--------------|-----------|----------------|--------------------|--------------------|
| Type | Drawing number | Screws* | Dowels/Bolts | min b/h | max. a | e _{F2/F3} | e _{F4/F5} |
| PFTR S | 525 32 0000 | 2 x F 10x50mm | - | 71/112 | 58 | 130 | 58 |
| | 525 32 0001 | | | 81/112 | | | |
| | 525 32 0002 | | | 91/112 | | | |
| | 525 32 0003 | | | 101/112 | | | |
| | 525 32 0004 | | | 121/112 | | | |
| | 525 32 0005 | | | 141/112 | | | |
| PFTR a | 520 32 0000 | 4 x F 10x50mm | - | 71/80 | 16 | 386 | 51 |
| | 520 32 0001 | | | 81/80 | | | |
| | 520 32 0002 | | | 91/80 | | | |
| | 520 32 0003 | | | 101/80 | | | |
| | 520 32 0004 | | | 121/80 | | | |
| | 520 32 0005 | | | 141/80 | | | |
| PFTR 200 U | BB00-0048-001 | 2 x F 10x50mm | - | 71/115 | 50 | 140 | 73 |
| | BB00-0048-002 | | | 81/115 | | | |
| | BB00-0048-003 | | | 91/115 | | | |
| | BB00-0048-004 | | | 101/115 | | | |
| | BB00-0048-005 | | | 121/115 | | | |
| | BB00-0048-006 | | | 141/115 | | | |
| PFTR 250 U | BB00-0048-007 | 2 x F 10x50mm | - | 71/115 | 100 | 190 | 114 |
| | BB00-0048-008 | | | 81/115 | | | |
| | BB00-0048-009 | | | 91/115 | | | |
| | BB00-0048-010 | | | 101/115 | | | |
| | BB00-0048-011 | | | 121/115 | | | |
| | BB00-0048-012 | | | 141/115 | | | |
| PFTR hv | BB00-0035-009 | 2 x F 12x120mm | - | 140/140 | 122 to 180 | a | a |
| | BB00-0035-013 | | | 130/130 | | | |

* P = partial thread; F = full thread

** The position of the fasteners shall always be at maximum distance to the end grain of the post.

Table A.2 Specifications of the metal fasteners according to EN 14592

| Fastener type | Size (mm) | | | Material | Finish |
|---------------|-----------|------------|-----------------|-----------------------------------|-----------------------|
| | Diameter | Length | Threaded length | | |
| Dowels | 10 mm | | | S235 | Galvanic zinc coating |
| Bolts | 10 mm | | | 4.6 | Galvanic zinc coating |
| Nails | 4 mm | min 40 mm | - | $f_{u,k} \geq 600 \text{ N/mm}^2$ | Galvanic zinc coating |
| Screws | 6 mm | min 80 mm | min 48 mm | $f_{u,k} \geq 360 \text{ N/mm}^2$ | Galvanic zinc coating |
| Screws | 10 mm | min 50 mm | min 35 mm | $f_{u,k} \geq 360 \text{ N/mm}^2$ | Galvanic zinc coating |
| Screws | 10 mm | min 80 mm | min 48 mm | $f_{u,k} \geq 360 \text{ N/mm}^2$ | Galvanic zinc coating |
| Screws | 10 mm | min 100 mm | min 88 mm | $f_{u,k} \geq 360 \text{ N/mm}^2$ | Galvanic zinc coating |
| Screws | 12 mm | min 120 mm | min 105 mm | $f_{u,k} \geq 360 \text{ N/mm}^2$ | Galvanic zinc coating |

The load-carrying-capacities of the metal fasteners were calculated according to Eurocode 5 for lateral loads. The contribution to the load-carrying capacity due to the rope effect was considered according to Eurocode 5.

Annex B
Characteristic load-carrying capacities

Table B.1 Characteristic load-carrying capacities for post bases in kN

| Post Base | | F ₁ (Compression) | | | F ₁ (Tension) | | F ₂ /F ₃ | | F ₄ /F ₅ | |
|------------|----------------------------|------------------------------|----------------|----------------|--------------------------|----------------|--------------------------------|----------------|--------------------------------|----------------|
| Type | Metal Fasteners | Timber | Steel | | Timber | Steel | Timber | Steel | Timber | Steel |
| A001 | 4 x F 12x120 mm | 100,0 | 100,0 | 87,8 | 18,7 | 8,5 | 12,0 | 3,0 | 12,0 | 3,0 |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ |
| A002 | 2 x P 10x80 mm | 26,3 | 32,5 | - | 9,2 | 2,0 | - | - | - | - |
| | 4 x P 6x80 mm | 26,3 | 32,5 | - | 9,2 | 2,0 | - | - | - | - |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | - | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | - | - | - | - |
| A003 | 2 x D Ø10 or 2 x Bo M10 | 100,7 | - | 87,8 | 25,1 | 7,3 | 13,1 | 0,9 | 2,5 | 1,7 |
| | | $\gamma_{M(T)}$ | - | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ |
| A004 | 1 x D Ø10 | 91,5 | 91,5 | 87,8 | 6,4 | 7,3 | - | - | 5,1 | 0,9 |
| | 1 x Bo M10 | 91,5 | 91,5 | 87,8 | 7,6 | 7,3 | - | - | 6,4 | 0,9 |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M,1}$ | $\gamma_{M(J)}$ | $\gamma_{M,0}$ | - | - | $\gamma_{M(C)}$ | $\gamma_{M,0}$ |
| H001 | 4 x F 12x120 mm | 55,9 | 55,9 | 57,9 | 18,7 | 6,1 | 12,0 | 0,8 | 6,0 | 1,3 |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ |
| H002 | 4 x N 4x40mm | 32,6 | 30,6 | - | 5,5 | 0,9 | - | - | - | - |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | - | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | - | - | - | - |
| H003 | 4 x F 12x120 mm | 44,8 | 44,8 | 57,9 | 18,7 | 6,1 | 12,0 | 0,8 | 6,0 | 1,3 |
| | 1 x D Ø10 | 44,8 | 44,8 | 57,9 | 6,4 | 6,1 | 5,1 | 0,5 | - | - |
| | 1 x Bo M10 | 44,8 | 44,8 | 57,9 | 7,6 | 6,1 | 6,4 | 0,5 | - | - |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | - | - |
| H004 | 2 x D Ø10 or 2 x Bo M10 | 61,6 | 61,6 | 57,9 | 25,1 | 6,1 | 2,5 | 0,7 | 13,1 | 0,9 |
| | | $\gamma_{M(T)}$ | $\gamma_{M,1}$ | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ | $\gamma_{M,0}$ |
| H100 | 4 x F 12x120 mm | 55,9 | 55,9 | 57,3 | 18,7 | 6,1 | 12,0 | 0,8 | 12,0 | 1,3 |
| | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ |
| BRN M20 | 4 x F 10x100 mm | 84,5 | - | 64,2 | 14,8 | 10,0 | 9,5 | 1,7 | 9,5 | 1,7 |
| | | $\gamma_{M(T)}$ | - | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ |

$\gamma_{M(T)}$ = partial factor for solid timber according to EN 1995-1-1 and national annex

$\gamma_{M(C)}$ = partial factor for connections according to EN 1995-1-1 and national annex

$\gamma_{M,0}$; $\gamma_{M,1}$ = partial factor according to EN 1993-1-1 and national annex

Continuation of Table B.1 Characteristic load-carrying capacities for post bases in kN

| Post Base | | F ₁ (Compression) | | F ₁ (Tension) | | F ₂ /F ₃ | | F ₄ /F ₅ | |
|---------------|-------|------------------------------|-----------------|--------------------------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|
| Type | Size | Timber | Steel | Timber | Steel | Timber | Steel | Timber | Steel |
| ASH 2,5 mm | 71 | 7,56 | 37,5 | 7,56 | 7,03 | 7,61 | 6,77 | 7,61 | 6,77 |
| | 81 | 7,56 | 37,5 | 7,56 | 8,81 | 10,1 | 10,3 | 10,1 | 10,3 |
| | 91 | 7,56 | 37,5 | 7,56 | 13,3 | 13,0 | 10,3 | 13,0 | 10,3 |
| | 101 | 7,56 | 37,5 | 7,56 | 13,3 | 15,5 | 10,3 | 15,5 | 10,3 |
| | 121 | 7,56 | 37,5 | 7,56 | 13,3 | 15,5 | 10,3 | 15,5 | 10,3 |
| | 141 | 7,56 | 37,5 | 7,56 | 13,3 | 15,5 | 10,3 | 15,5 | 10,3 |
| | 161 | 7,56 | 37,5 | 7,56 | 13,3 | 15,5 | 10,3 | 15,5 | 10,3 |
| | 201 | 7,56 | 37,5 | 7,56 | 13,3 | 18,7 | 12,5 | 18,7 | 12,5 |
| | | | $\gamma_{M(C)}$ | $\gamma_{M,2}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ |
| ASH 2,0 mm | 101 | 7,64 | 30,0 | 7,64 | 8,53 | 12,4 | 8,28 | 12,4 | 8,28 |
| | 121 | 7,64 | 30,0 | 7,64 | 8,53 | 12,4 | 8,28 | 12,4 | 8,28 |
| | 141 | 7,64 | 30,0 | 7,64 | 8,53 | 12,4 | 8,28 | 12,4 | 8,28 |
| | 161 | 7,64 | 30,0 | 7,64 | 8,53 | 12,4 | 8,28 | 12,4 | 8,28 |
| | 201 | 7,64 | 30,0 | 7,64 | 8,53 | 15,0 | 6,63 | 15,0 | 6,63 |
| | | | $\gamma_{M(C)}$ | $\gamma_{M,2}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ |
| ASH r | Ø 80 | 7,56 | 37,5 | 7,56 | 4,54 | 7,59 | 3,20 | 7,59 | 3,20 |
| | Ø 100 | 7,56 | 37,5 | 7,56 | 6,40 | 12,3 | 5,64 | 12,3 | 5,64 |
| | Ø 120 | 7,56 | 37,5 | 7,56 | 5,26 | 18,1 | 5,56 | 18,1 | 5,56 |
| | Ø 140 | 7,56 | 37,5 | 7,56 | 6,29 | 24,9 | 7,78 | 24,9 | 7,78 |
| | | | $\gamma_{M(C)}$ | $\gamma_{M,2}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ |
| ASH g | 85 | 15,1 | 38,9 | 15,1 | 12,4 | 5,04 | 4,23 | 5,04 | 4,23 |
| | 105 | 22,8 | 59,0 | 22,8 | 10,0 | 10,1 | 4,74 | 10,1 | 4,74 |
| | | | $\gamma_{M(C)}$ | $\gamma_{M,2}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ |
| ASH z | 101 | 21,0 | 32,2 | 7,56 | 5,97 | 10,8 | 3,32 | 6,74 | 3,89 |
| | 121 | 29,4 | 45,0 | 7,56 | 6,93 | 10,8 | 4,61 | 7,01 | 3,73 |
| | 141 | 37,8 | 57,9 | 7,56 | 3,85 | 10,8 | 2,98 | 7,31 | 4,74 |
| | 161 | 50,4 | 77,2 | 7,32 | 18,6 | 17,3 | 16,4 | 11,3 | 8,69 |
| | 201 | 63,0 | 96,5 | 7,32 | 18,6 | 17,3 | 20,5 | 11,7 | 9,85 |
| | | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ |

$\gamma_{M(T)}$: partial factor for solid timber according to EN 1995-1-1 and national annex

$\gamma_{M(C)}$: partial factor for connections according to EN 1995-1-1 and national annex

$\gamma_{M,0}$; $\gamma_{M,1}$; $\gamma_{M,2}$: partial factor according to EN 1993-1-1 and national annex

Continuation of Table B.1 Characteristic load-carrying capacities for post bases in kN

| Post Base | | F ₁ (Compression) | | F ₁ (Tension) | | F ₂ /F ₃ | | F ₄ /F ₅ | |
|------------|------|------------------------------|-----------------|--------------------------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|
| Type | Size | Timber | Steel | Timber | Steel | Timber | Steel | Timber | Steel |
| PFTR S | 71 | 7,76 | 13,3 | 7,36 | 7,99 | 5,41 | 2,96 | 3,38 | 3,26 |
| | 81 | 7,76 | 13,3 | 7,36 | 6,74 | 5,41 | 2,71 | 3,38 | 3,26 |
| | 91 | 7,76 | 13,3 | 7,36 | 5,83 | 5,41 | 2,35 | 3,38 | 3,26 |
| | 101 | 7,76 | 13,3 | 7,36 | 5,13 | 5,41 | 2,07 | 3,38 | 3,26 |
| | 121 | 7,76 | 13,3 | 7,36 | 4,15 | 5,41 | 1,67 | 3,38 | 3,26 |
| | 141 | 7,76 | 13,3 | 7,36 | 3,48 | 5,41 | 1,40 | 3,38 | 3,26 |
| | | | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ |
| PFTR a | 71 | 14,6 | 51,4 | 7,32 | 82,9 | 4,88 | 6,32 | 3,55 | 7,10 |
| | 81 | 14,6 | 51,4 | 7,32 | 82,9 | 4,88 | 6,32 | 3,55 | 7,10 |
| | 91 | 14,6 | 51,4 | 7,32 | 82,9 | 4,88 | 6,32 | 3,55 | 7,10 |
| | 101 | 14,6 | 51,4 | 7,32 | 82,9 | 4,88 | 6,32 | 3,55 | 7,10 |
| | 121 | 14,6 | 51,4 | 7,32 | 82,9 | 4,88 | 6,32 | 3,55 | 7,10 |
| | 141 | 14,6 | 51,4 | 7,32 | 82,9 | 4,88 | 6,32 | 3,55 | 7,10 |
| | | | $\gamma_{M(C)}$ | $\gamma_{M,1}$ | $\gamma_{M(C)}$ | $\gamma_{M,2}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(T)}$ |
| PFTR 200 U | 71 | 45,9 | 45,9 | 7,32 | 5,59 | 4,88 | 2,85 | 4,70 | 6,33 |
| | 81 | 45,9 | 45,9 | 7,32 | 4,57 | 4,88 | 2,85 | 4,70 | 6,33 |
| | 91 | 45,9 | 45,9 | 7,32 | 3,86 | 4,88 | 2,85 | 4,70 | 6,33 |
| | 101 | 45,9 | 45,9 | 7,32 | 3,35 | 4,88 | 2,85 | 4,70 | 6,33 |
| | 121 | 45,9 | 45,9 | 7,32 | 2,64 | 4,88 | 2,85 | 4,70 | 6,33 |
| | 141 | 45,9 | 45,9 | 7,32 | 2,18 | 4,88 | 2,85 | 4,70 | 6,33 |
| | | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ |
| PFTR 250 U | 71 | 45,9 | 45,9 | 7,32 | 5,59 | 4,88 | 2,18 | 4,56 | 4,04 |
| | 81 | 45,9 | 45,9 | 7,32 | 4,57 | 4,88 | 2,18 | 4,56 | 4,04 |
| | 91 | 45,9 | 45,9 | 7,32 | 3,86 | 4,88 | 2,18 | 4,56 | 4,04 |
| | 101 | 45,9 | 45,9 | 7,32 | 3,35 | 4,88 | 2,18 | 4,56 | 4,04 |
| | 121 | 45,9 | 45,9 | 7,32 | 2,64 | 4,88 | 2,18 | 4,56 | 4,04 |
| | 141 | 45,9 | 45,9 | 7,32 | 2,18 | 4,88 | 2,18 | 4,56 | 4,04 |
| | | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ |
| PFTR hv | 80 | 53,5 | 53,5 | 18,7 | 21,1 | 12,0 | 0,92 | 12,0 | 0,92 |
| | 100 | 53,5 | 53,5 | 18,7 | 7,53 | 12,0 | 0,92 | 12,0 | 0,92 |
| | | | $\gamma_{M(T)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ | $\gamma_{M,0}$ | $\gamma_{M(C)}$ |

$\gamma_{M(T)}$: partial factor for solid timber according to EN 1995-1-1 and national annex

$\gamma_{M(C)}$: partial factor for connections according to EN 1995-1-1 and national annex

$\gamma_{M,0}$; $\gamma_{M,1}$; $\gamma_{M,2}$: partial factors according to EN 1993-1-1 and national annex

F_1

F_1

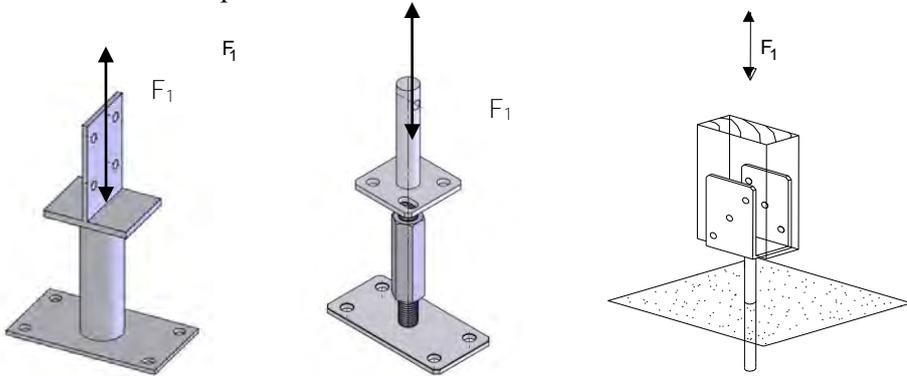
F_1

e

a

Definitions of forces, their directions and eccentricity

- Force F_1 : tensile or compression load



F_1

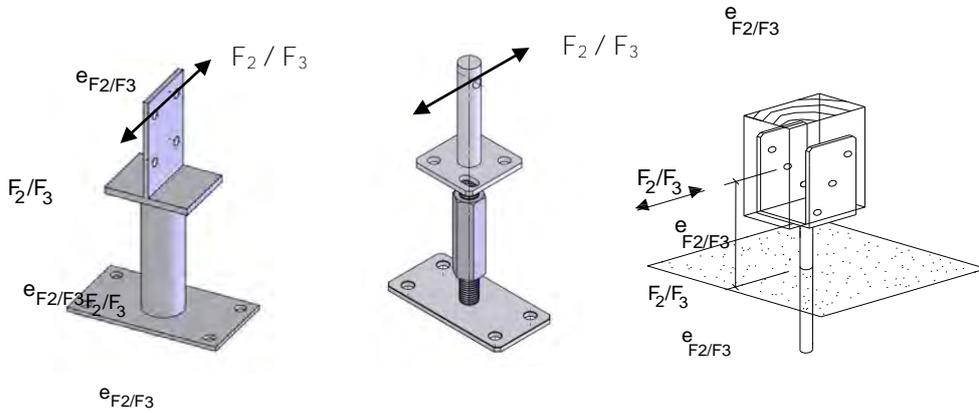
e

a

e

a

- Force F_2 / F_3 : horizontal parallel to the ground plate of the post base and perpendicular to the bolts or dowels



e

a

e

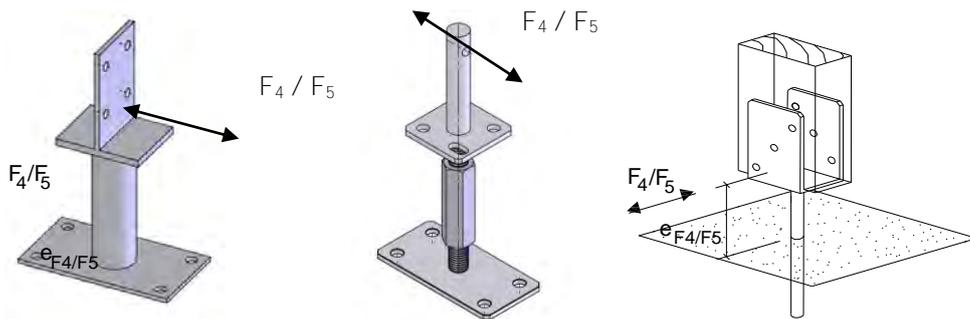
a

$e_{F2/F3}$

e

a

- Force F_4 / F_5 : horizontal load parallel to the ground plate of the post base and parallel to the bolts or dowels



F_4/F_5

$e_{F4/F5}$

e

a

Acting forces

- F_1 axial force (tension or compression) acting along the central axis of the joint
- F_2 and F_3 horizontal force perpendicular to the ground plate of the post base acting with the lever arm $e_{F2/F3}$ above the foundation
- F_4 and F_5 horizontal force parallel to the ground plate of the post base acting with the lever arm $e_{F4/F5}$ above the foundation

e

a

e

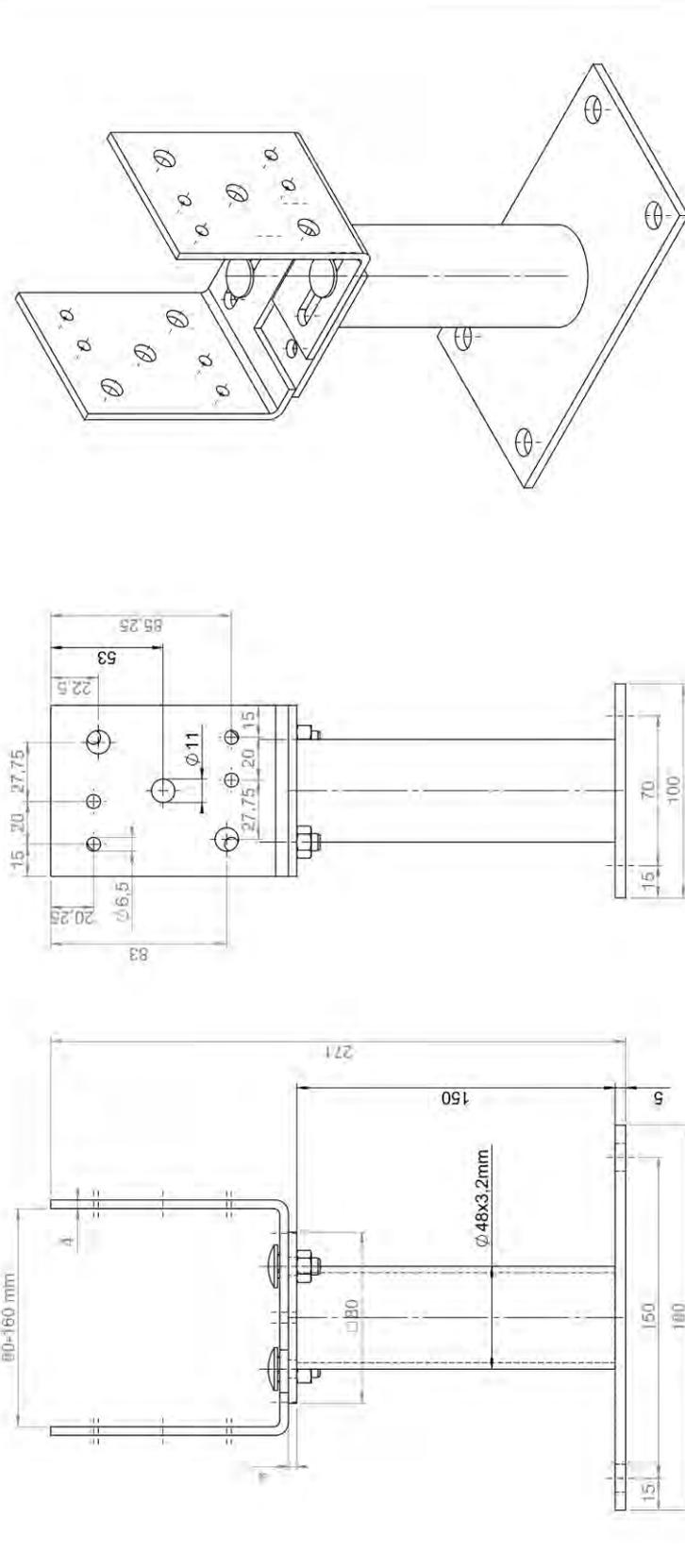
a

Combined forces

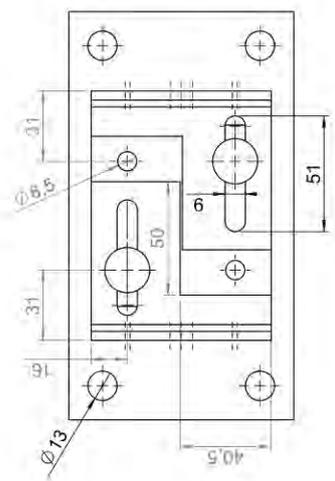
If the forces F_1 and F_2/F_3 or F_4/F_5 act at the same time, the following inequality shall be fulfilled:

$$\sum \frac{F_{i,Ed}}{F_{i,Rd}} \leq 1$$

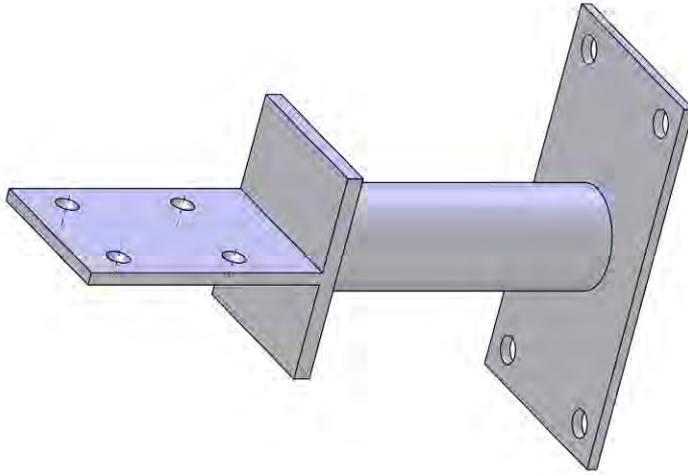
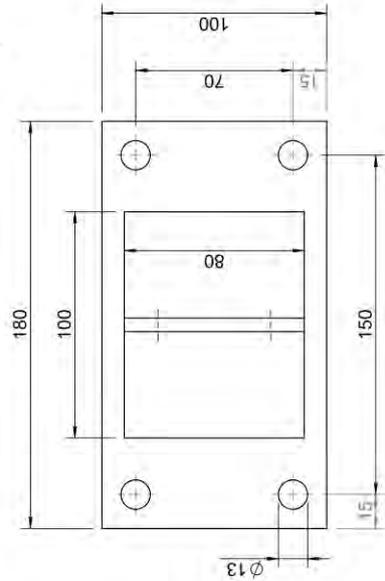
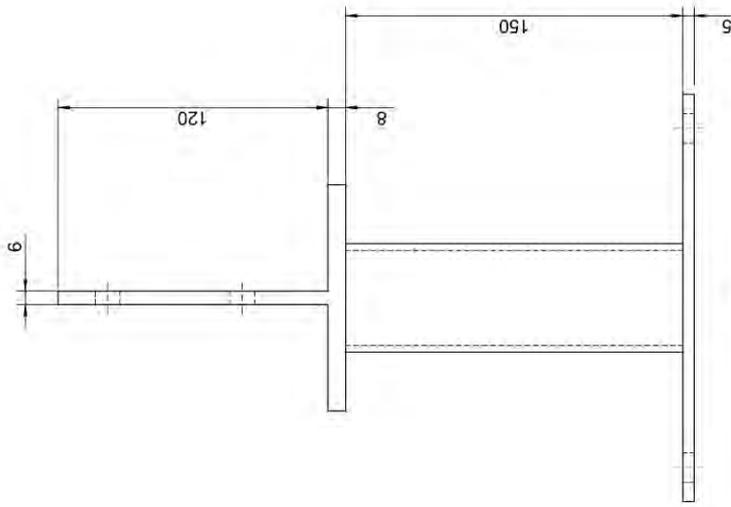
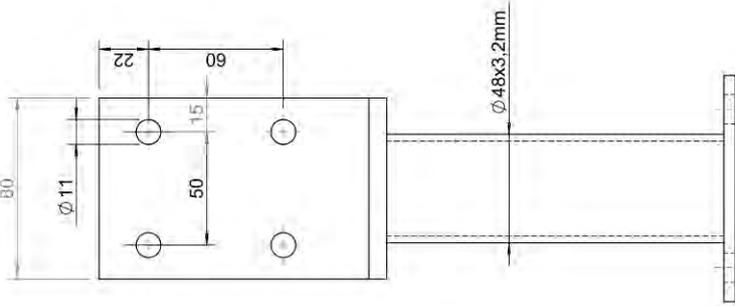
The forces F_2 and F_3 or F_4 and F_5 are forces with opposite direction. Therefore only one force F_2 or F_3 , and F_4 or F_5 , respectively, is able to act simultaneously with F_1 .



Art.-Nr.: 54000200 PFTR A002 seitenver.



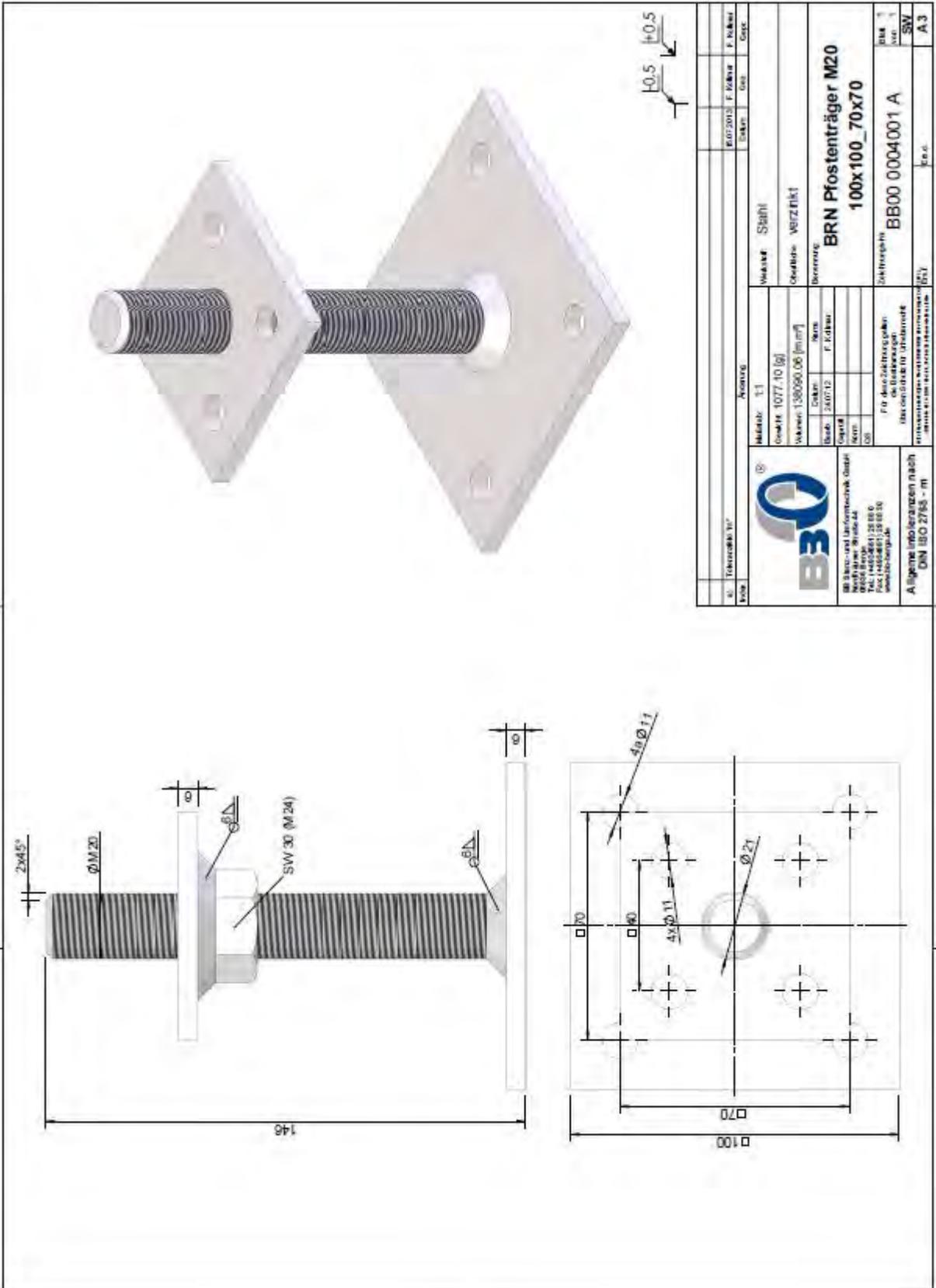
| | | | | | |
|-----------------------------------|----------|--------------------------------------|-----------------|-------------|-------|
| Index | Änderung | Material | Werkstoff | Material | Gepr. |
| 01 | S 235 JR | | Stahl | S 235 JR | |
| Müllstb.: 1,5 | | Oberfläche: verzinkt | | | |
| Gewicht: 1477,91 [g] | | Benennung: Pfostenträger A002 | | | |
| Volumen: 271163,95 [mm³] | | aufschraubbar | | | |
| Beib. | 15.09.06 | Name | 180x100x150x5,0 | | |
| Geprüft | | E. Neuwoth | | | |
| Norm | | | | | |
| CS | | | | | |
| Für diese Zeichnung gelten | | Zeichnungs-Nr. | | Blatt | |
| über den Schutz für Urheberrecht! | | 540 23 0001 | | 540 23 0001 | |
| www.b3o.de | | Ere f. | | SW | |
| Allgemeintoleranzen nach | | 540 002 00 | | A3 | |
| DIN ISO 2768 - m | | | | | |

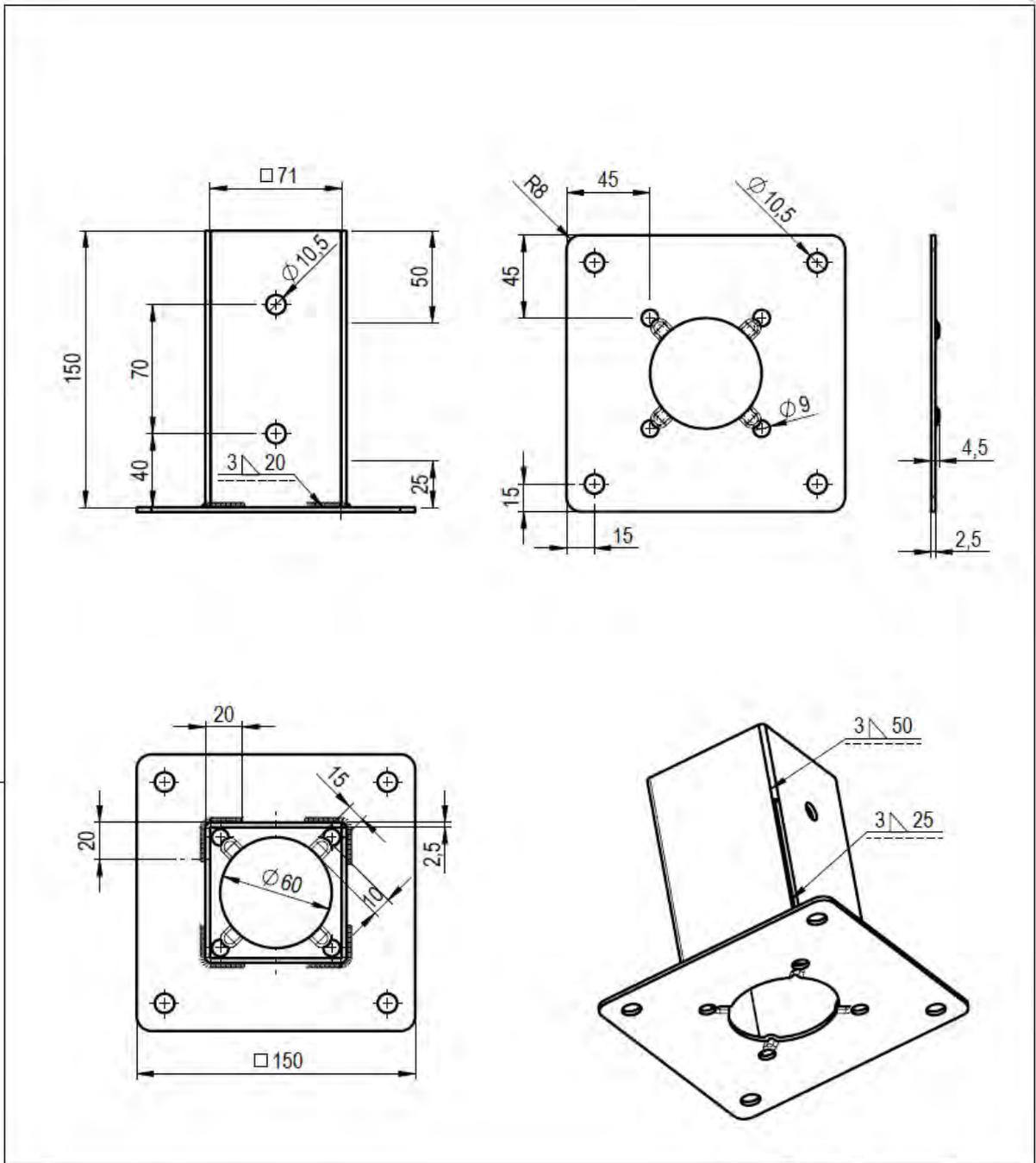


-0.5
+0.5

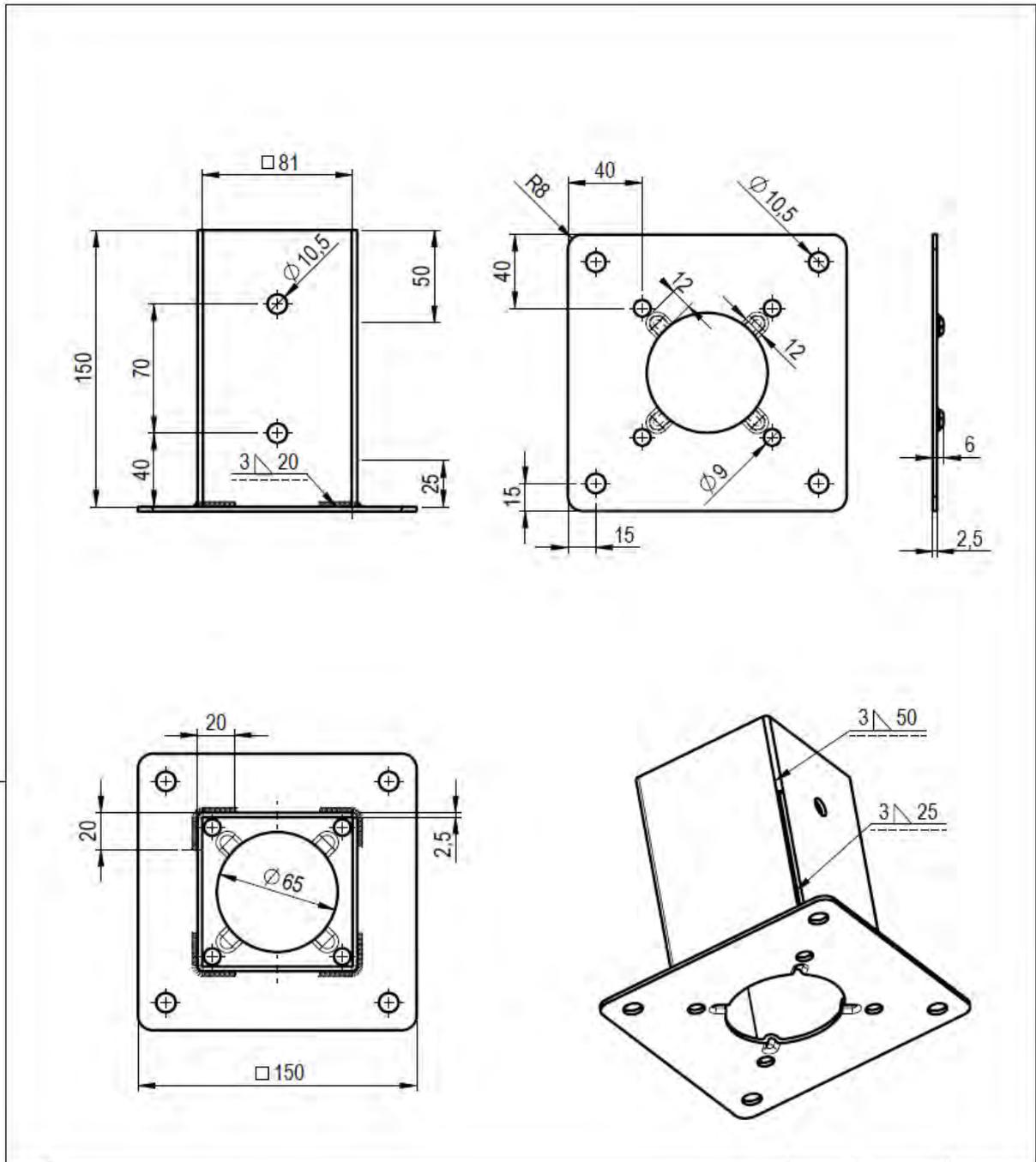
Art.-Nr.: 55000300 PFTR A003 Schwert

| | | | | |
|---|---|------------------|---|------------------|
| Änderung | S 235 JR | | S 235 JR | |
| Material | Werkstoff: Stahl | Werkstoff: Stahl | Werkstoff: Stahl | Werkstoff: Stahl |
| Maßstab: 1:2 | Oberfläche: verzinkt | | Oberfläche: verzinkt | |
| Gewicht: 2127.12 [g] | Benennung: Pfofentträger A003 mit Schwert | | Benennung: Pfofentträger A003 mit Schwert | |
| Volumen: 270281.81 [mm³] | 180x100x150x5,0 | | 180x100x150x5,0 | |
| Datum: 12.06.06 | Nr. | E. Neuwirth | Zeichnungs-Nr. 540 23 0002 | |
| Bearb. 12.06.06 | Geprüft | | Blatt 1 | |
| Norm | OS | | von 1 | |
| Für diese Zeichnung gelten über den Schutz für Urheberrecht | | | SW | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | | A3 | |
| © B30 | | | Ers.d. 540 003 00 | |
| BS Stanz- und Umformtechnik Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 28 88 0 Fax: (+4934651) 28 88 20 www.bs-bjerga.de | | | Ers.f. 540 003 00 | |

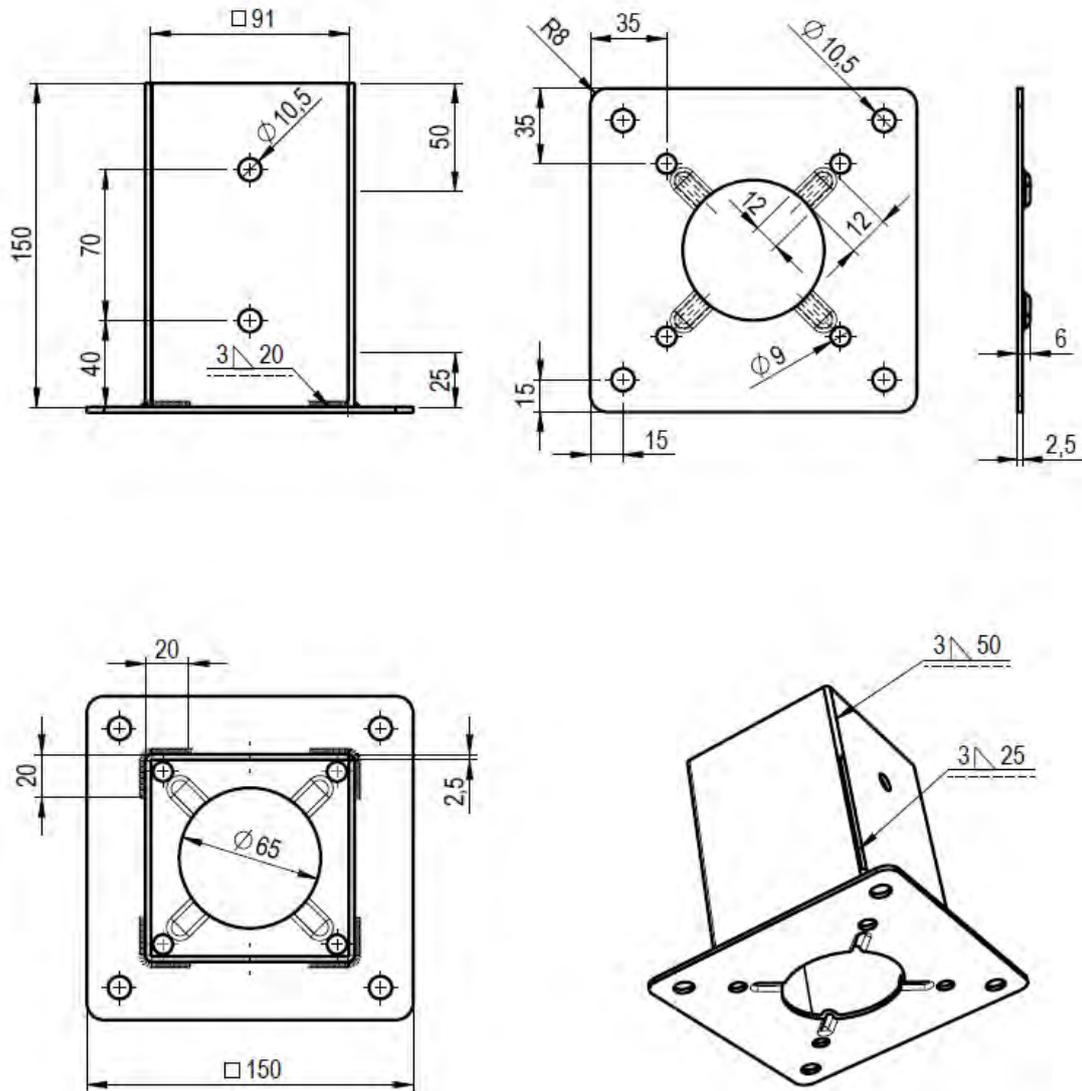




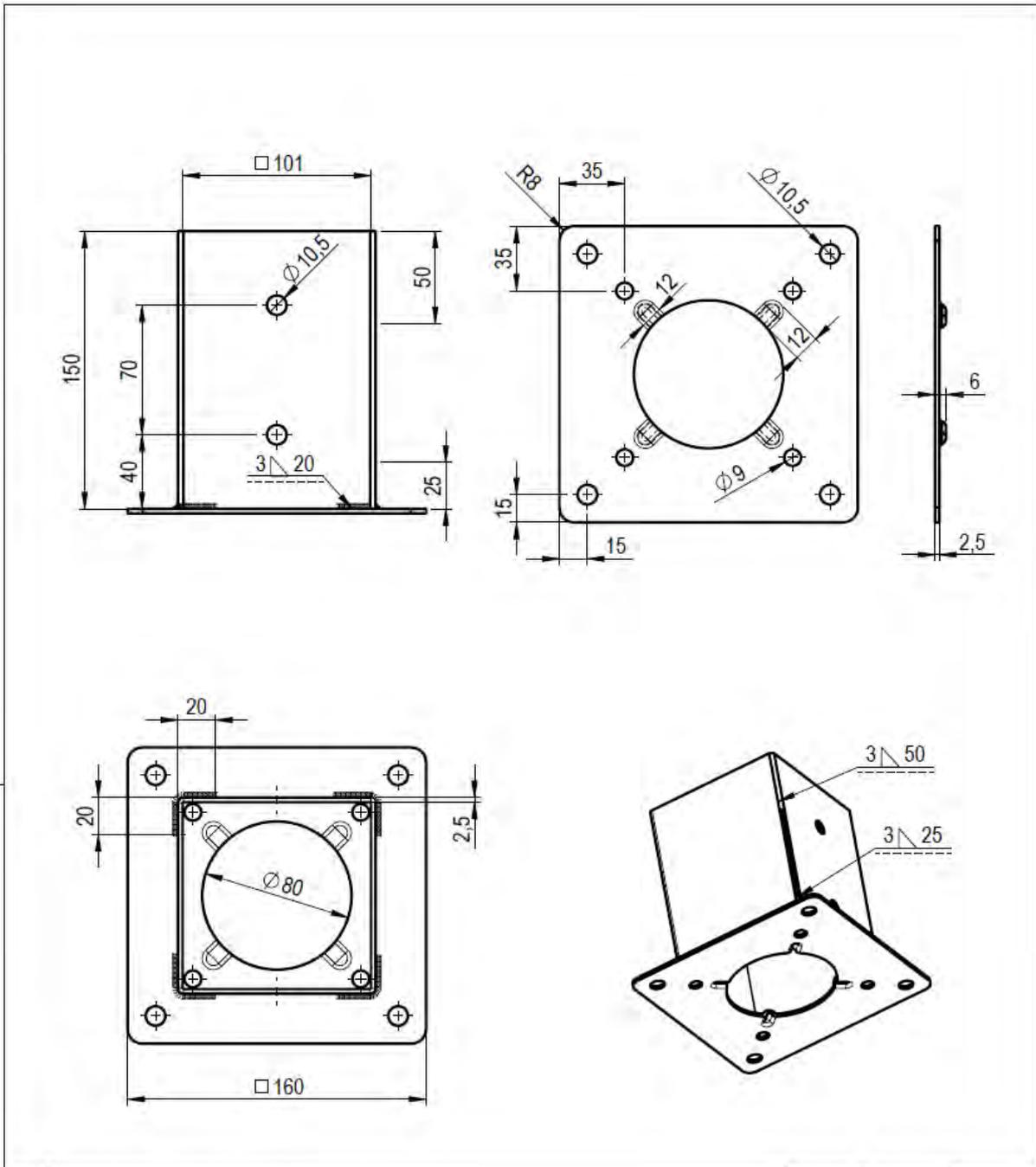
| A | Toleranz bei Maß 71 entfernt | 13.12.16 | E. Neuwirth | S. Donat | | | | | | | |
|--|---|--|-------------|----------|-------------|----------|-----------|------------------------------|--|------------------|--|
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | | | | | | | | | |
| | Gewicht: 1224.49 g | Oberfläche: verzinkt | | | | | | | | | |
| | Volumen: 155589.71 mm ³ | Benennung: Aufsraubhülse 71x71x150x150x2,5 | | | | | | | | | |
| | <table border="1"> <tr> <th>Datum</th> <th>Name</th> </tr> <tr> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>02.03.16</td> <td>A. Krause</td> </tr> </table> | Datum | Name | 02.03.16 | E. Neuwirth | 02.03.16 | A. Krause | Zeichnungs-Nr. BB00-0023-003 | | Blatt 1 von 1 | |
| | Datum | Name | | | | | | | | | |
| 02.03.16 | E. Neuwirth | | | | | | | | | | |
| 02.03.16 | A. Krause | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Ers.f 59507125 | Ers.d | SW A4 | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | <small>© 1987 DwgV/B30/BB00-0023-003 (BRD-0025-005-A) 1/11/150x150x2,5 mm</small> | | | | | | | | | |



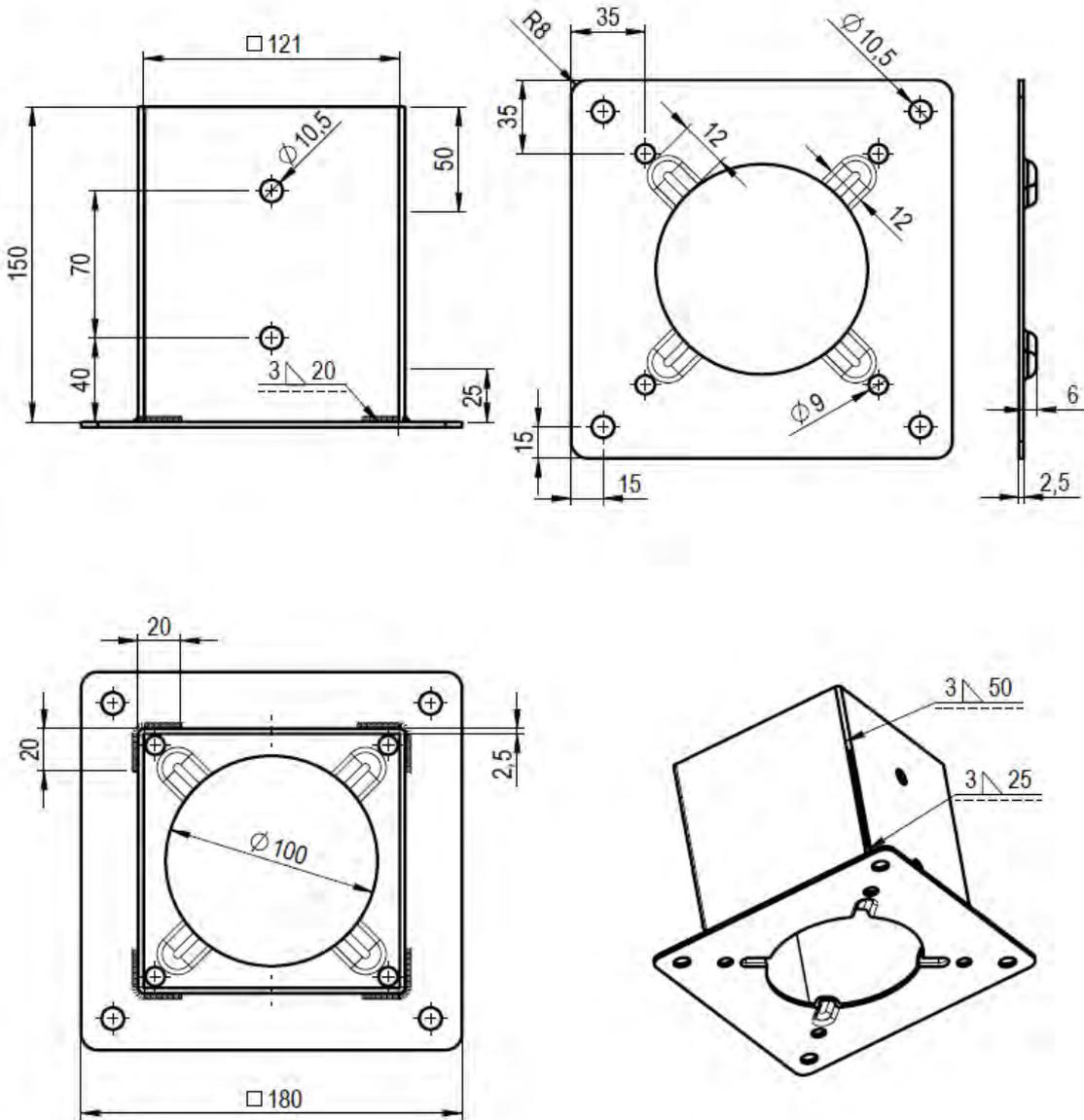
| | | | | | | | | | |
|--|---|---|-------------|---------------|--|----------|-------------|------|--|
| | | | | | | | | | |
| A | Bemaßung der Sicke nachgetragen, Toleranz bei Maß 81 entfernt | 13.12.16 | E. Neuwirth | S. Donat | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | |
|  <p>Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | | | | | | | |
| | Gewicht: 1334.85 g | Oberfläche: verzinkt | | | | | | | |
| | Volumen: 169612.64 mm ³ | Benennung: Aufschraubhülse 81x81x150x150x2,5 | | | | | | | |
| | | | | | | Datum | | Name | |
| | Bearb. | | | | | 02.03.16 | E. Neuwirth | | |
| Geprüft | 02.03.16 | A. Krause | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr.: BB00-0023-004 | | Blatt 1 von 1 | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.f. 59506125 | | SW | | | | | |
| <small>© BB Berga 8183/89904-0023-004 /BB00-0023-004 Aufschraubhülse ABH 81x81x150x150x2,5 Stahl</small> | | Ers.d. | | A4 | | | | | |



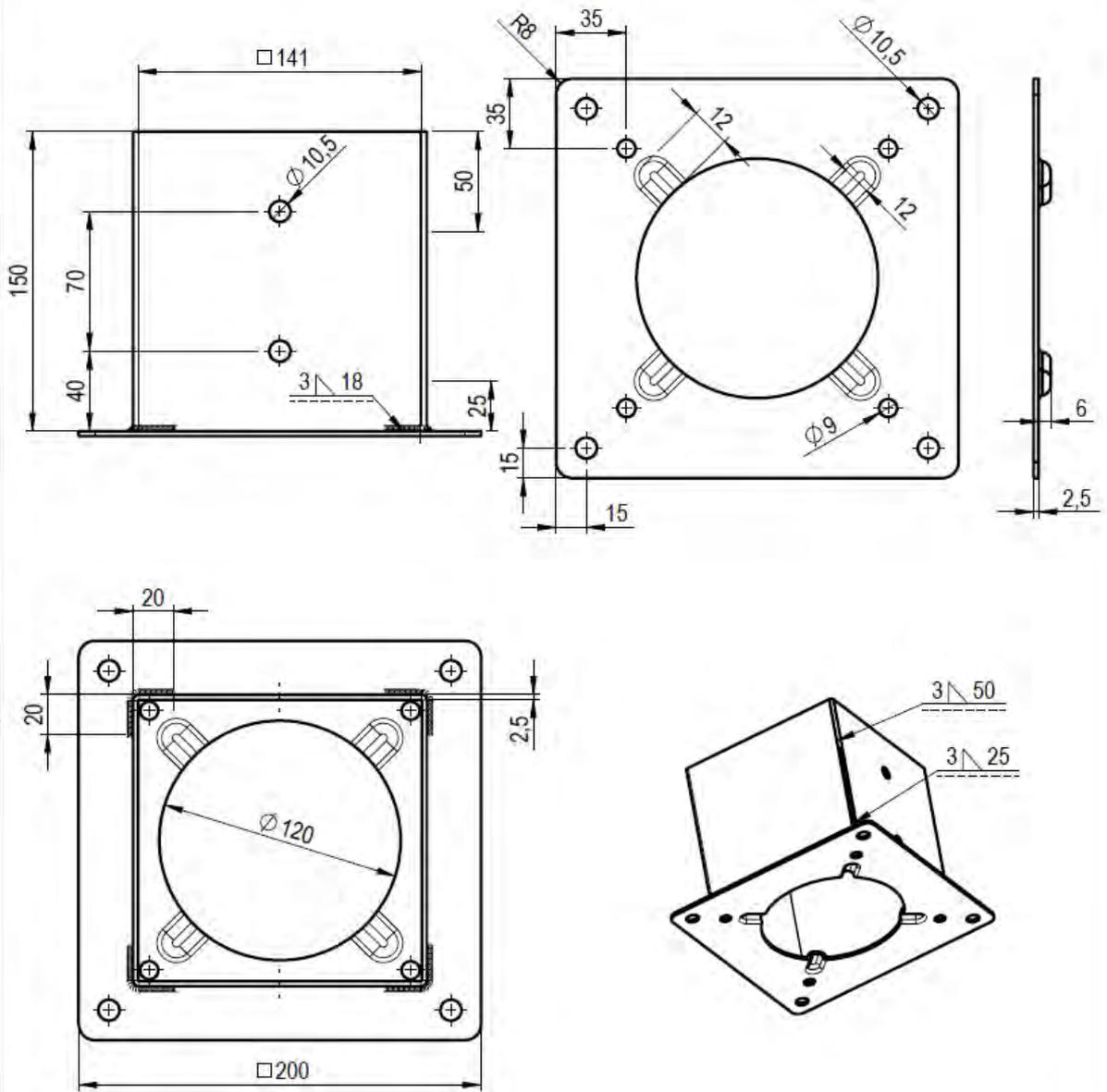
| A | | Bemaßung der Sicke nachgetragen, Toleranz bei Maß 91 entfernt | | 13.12.16 | E. Neuwirth | S. Donat | | | | | | |
|---|--|---|----------------------|---------------|-----------------|-------------|------------------|-----------|-------------------|--|--|--|
| Index | Änderung | | | Datum | Gez. | Gepr. | | | | | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | | Werkstoff: Stahl | | | | | | | | | |
| | Gewicht: 1455,08 g | | Oberfläche: verzinkt | | | | | | | | | |
| | Volumen: 184889,48 mm ³ | | Benennung: | | Aufschraubhülse | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb. 02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>Geprüft 02.03.16</td> <td>A. Krause</td> </tr> </tbody> </table> | | Datum | Name | Bearb. 02.03.16 | E. Neuwirth | Geprüft 02.03.16 | A. Krause | 91x91x150x150x2,5 | | | |
| | Datum | Name | | | | | | | | | | |
| Bearb. 02.03.16 | E. Neuwirth | | | | | | | | | | | |
| Geprüft 02.03.16 | A. Krause | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. | | BB00-0023-005 | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.f. 59509125 | | Ers.d. | | | | | | | | |
| | | | | Blatt 1 von 1 | | | | | | | | |
| | | | | SW | | | | | | | | |
| | | | | A4 | | | | | | | | |



| A | | Bemaßung der Sicke nachgetragen, Toleranz bei Maß 101 entfernt | | 13.12.16 | E. Neuwirth | | | | | | |
|--|-------------|---|--------|--------------------------|-------------|----------|-------------|----------|-----------|---------------------|--|
| Index | Änderung | | | Datum | Gez. | | | | | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | | Maßstab: 1:3 | | Werkstoff: Stahl | | | | | | | |
| | | Gewicht: 1599.05 g | | Oberfläche: verzinkt | | | | | | | |
| | | Volumen: 203183.29 mm ³ | | Benennung: Aufsraubhülse | | | | | | | |
| | | <table border="1"> <tr> <th>Datum</th> <th>Name</th> </tr> <tr> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>02.03.16</td> <td>A. Krause</td> </tr> </table> | | Datum | Name | 02.03.16 | E. Neuwirth | 02.03.16 | A. Krause | 101x101x150x160x2,5 | |
| | | Datum | Name | | | | | | | | |
| 02.03.16 | E. Neuwirth | | | | | | | | | | |
| 02.03.16 | A. Krause | | | | | | | | | | |
| <p>Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht!</p> <p><small>© BB Berga 06536/0600-0023-A01H © BB00-0023-006 Aufschraubhülse ASH 10 1x101x150x160x2,5 mm</small></p> | | Zeichnungs-Nr. BB00-0023-006 | | | | | | | | | |
| <p>Allgemeintoleranzen nach DIN ISO 2768 - m</p> | | Ers.f. 59510125 | Ers.d. | Blatt 1 von 1 | | | | | | | |
| | | | | SW | A4 | | | | | | |

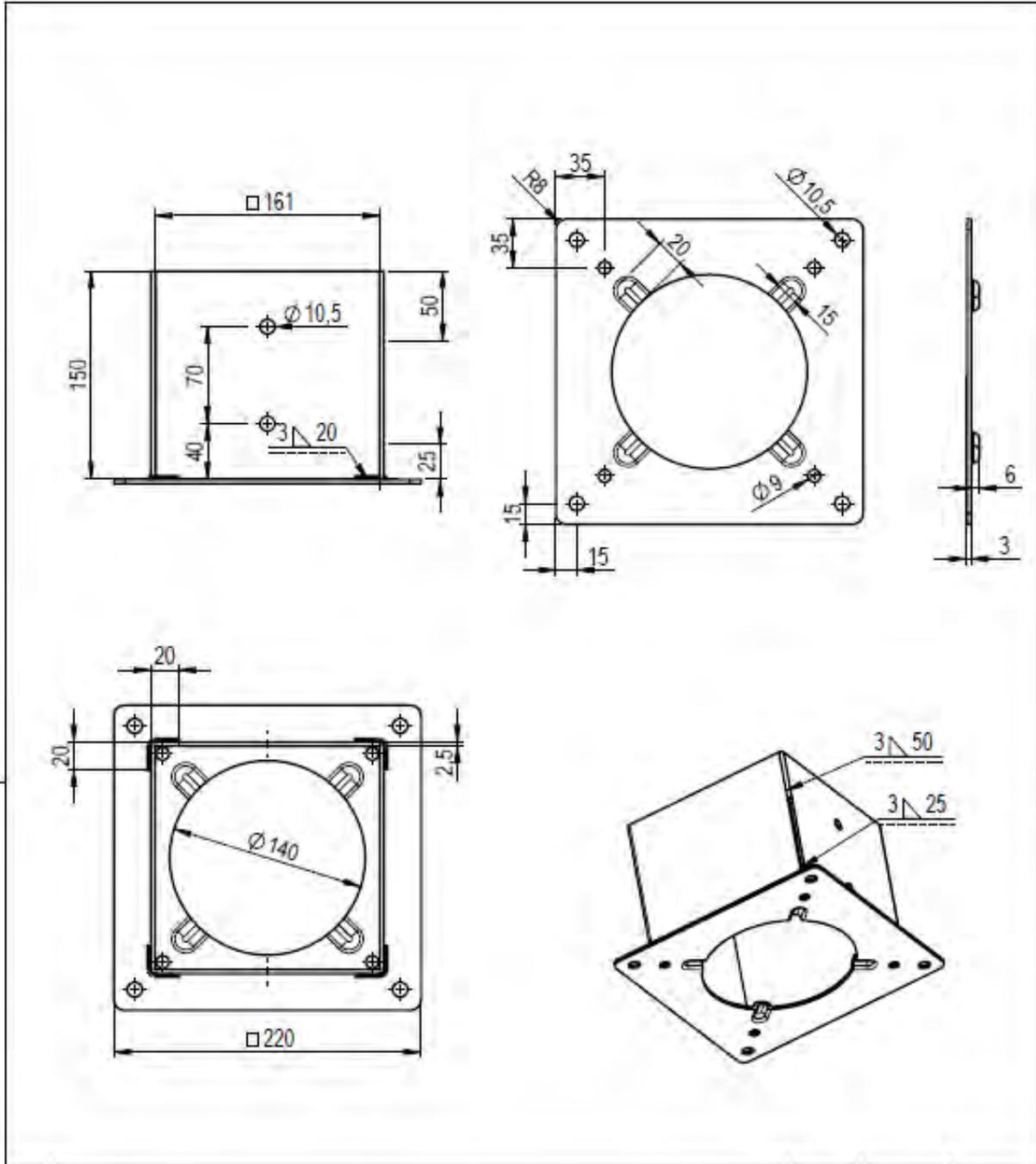


| A | | Bemaßung der Sicke berichtigt, Maß 20 in 12 und Maß 15 in 12. Toleranz bei Maß 121 entfernt | | 13.12.16 | E. Neuwirth | S. Donat | | | | | |
|--|---|---|----------------------|----------|--|----------|----------|-------------|----------|-----------|----------------|
| Index | Änderung | | | Datum | Gez. | Gepr. | | | | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | | Werkstoff: Stahl | | | | | | | | |
| | Gewicht: 1924.82 g | | Oberfläche: verzinkt | | | | | | | | |
| | Volumen: 244576.86 mm ³ | | Benennung: | | Aufschraubhülse 121x121x150x180x2,5 | | | | | | |
| | <table border="1"> <thead> <tr> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>02.03.16</td> <td>A. Krause</td> </tr> </tbody> </table> | | Datum | Name | | | 02.03.16 | E. Neuwirth | 02.03.16 | A. Krause | Zeichnungs-Nr. |
| | Datum | Name | | | | | | | | | |
| 02.03.16 | E. Neuwirth | | | | | | | | | | |
| 02.03.16 | A. Krause | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! <small>D:\BB_Berga\090026\090026-007-01.dwg \BB00\0023-007_Aufschraubhülse ASH 121x121x150x180x2,5.dwg</small> | | Ers.f. 59512125 | | Ers.d. | SW | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | | | | A4 | | | | | | |

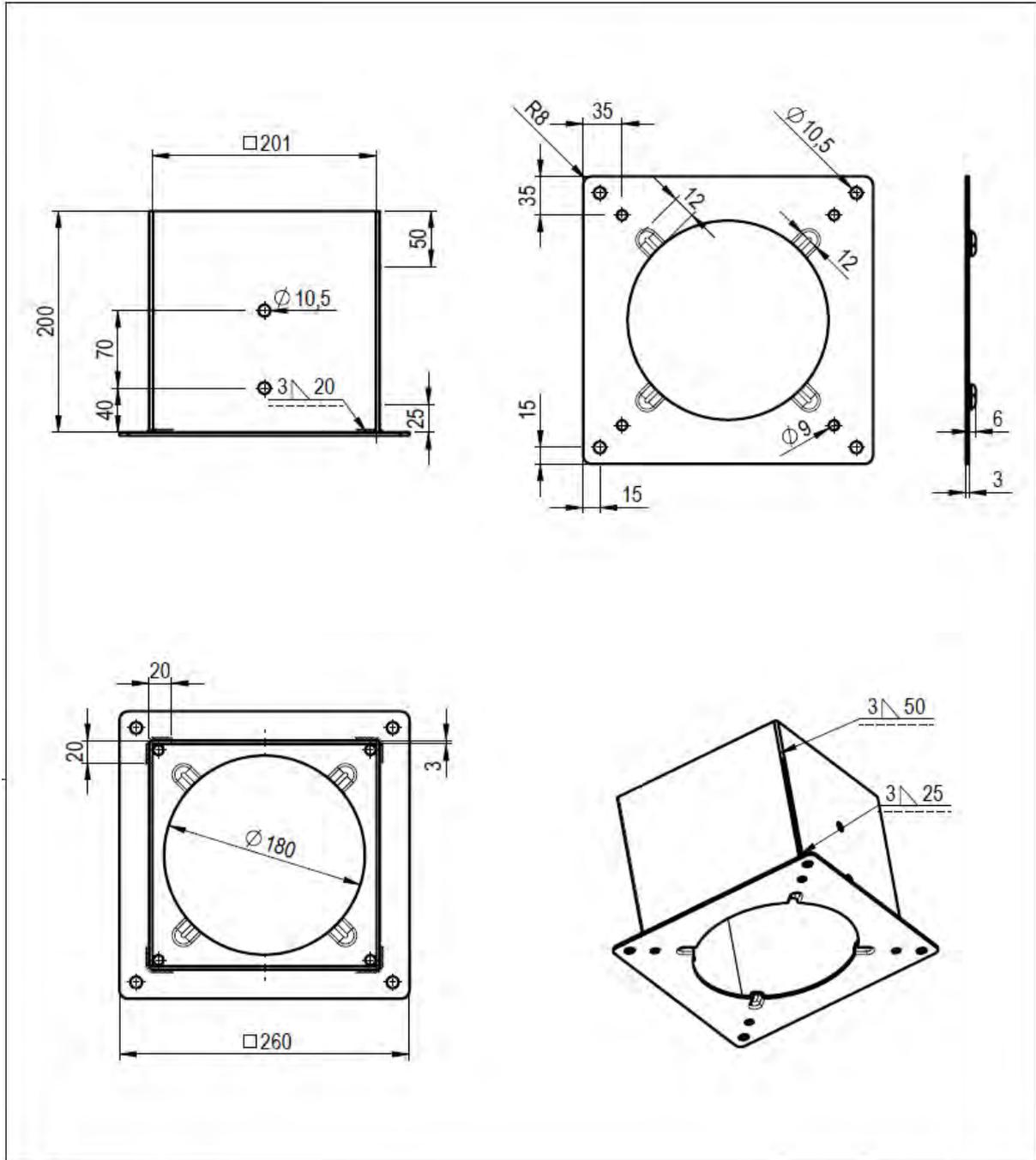


| | | | | |
|-------|---|----------|-------------|----------|
| | | | | |
| A | Bemalung der Sicke korrigiert, Maß 20 in 12, Maß 15 in 12 geändert, Toleranz bei Maß 141 entfernt | 13.12.16 | E. Neuwirth | S. Donat |
| Index | Änderung | Datum | Gez. | Gepr. |

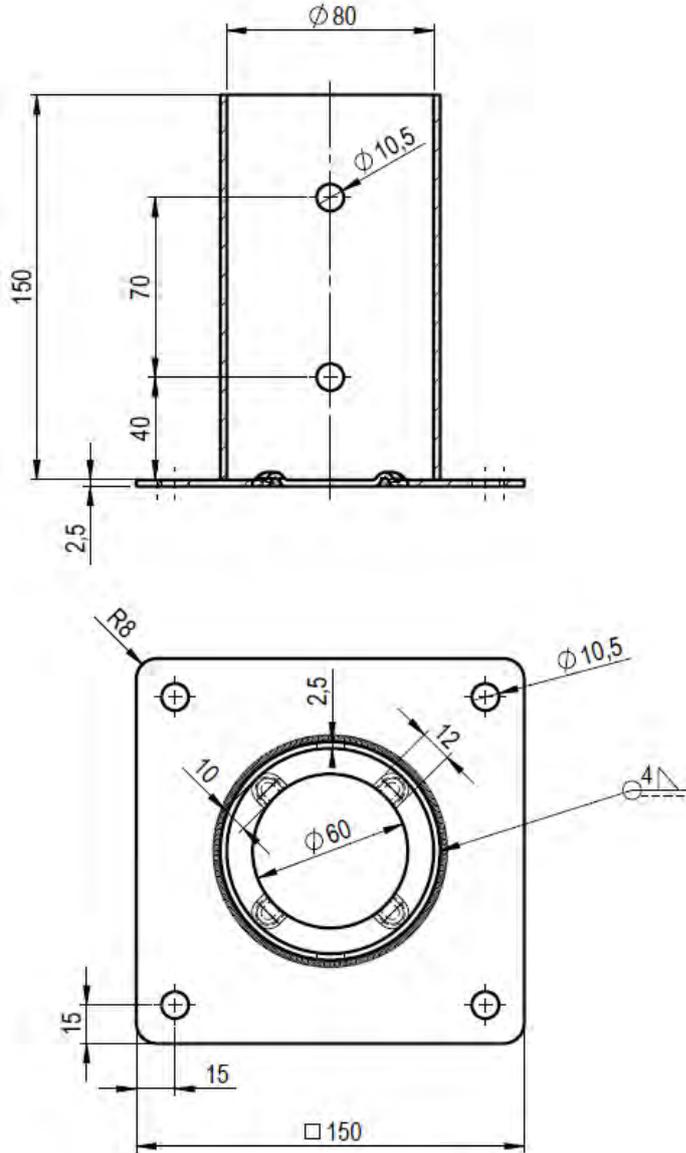
|  <p>B30 Stanz- und Umformtechnik</p> <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | Benennung: Aufschraubhülse 141x141x150x200x2,5 | Blatt 1 von 1 | | | | | | | | | | | | | | | |
|--|--|--------------------------------------|--|------------------|--------|----------|-------------|---------|----------|-----------|--|--|--|--|--|--|---|--|----|
| | Gewicht: 2241.50 g | Oberfläche: verzinkt | | | | | | | | | | | | | | | | | |
| | Volumen: 284815.65 mm ³ | Zeilungs-Nr. BB00-0023-008 | | SW | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>Geprüft</td> <td>02.03.16</td> <td>A. Krause</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 02.03.16 | E. Neuwirth | Geprüft | 02.03.16 | A. Krause | | | | | | | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | A4 |
| | | Datum | Name | | | | | | | | | | | | | | | | |
| Bearb. | 02.03.16 | E. Neuwirth | | | | | | | | | | | | | | | | | |
| Geprüft | 02.03.16 | A. Krause | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Allgmeintoleranzen nach DIN ISO 2768 - m | Ers.f. 59514125 Ers.d. | | | | | | | | | | | | | | | | | | |



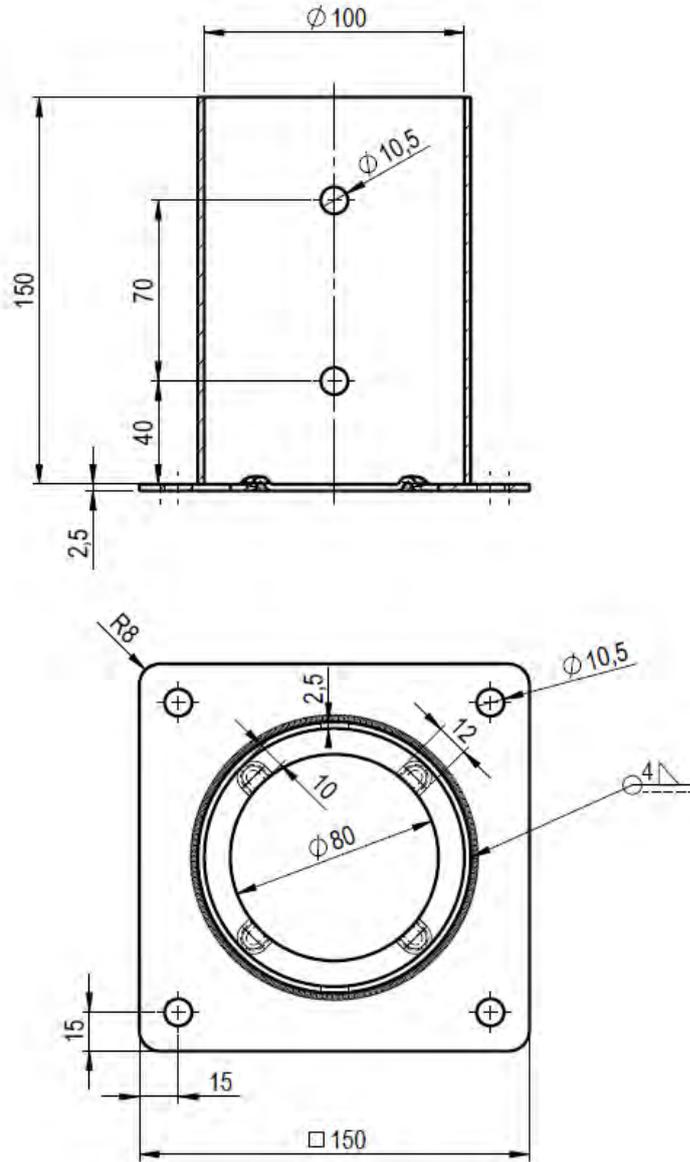
| | | | | | | |
|--|----------|--|---------------------------|---------------|---------------------|-----------------|
| | | | | | | |
| A | | Bemaßung der Sichte komplett, Maß 20 in 12 und Maß 15 in 12, Toleranz bei Maß 161 entfernt | | 13.12.18 | E. Neuwirth | |
| Index | Änderung | | | Datum | Gez. | |
| <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | | Maßstab: | 1:4 | Werkstoff: | S235JR | |
| | | Gewicht: | 3079,51 g | Oberfläche: | verzinkt 55 µm | |
| | | Volumen: | 391297,87 mm ³ | Benennung: | | Aufschraubhülse |
| | | | Datum | Name | 161x161x150x220x3,0 | |
| | | Bearb. | 02.03.18 | E. Neuwirth | | |
| Geprüft | 02.03.18 | A. Klauke | Zeichnungs-Nr. | | BB00-0023-009 | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrechte | | Blatt 1 von 1 | SW | |
| | | Erst. | 59516125 | Erst. | A4 | |



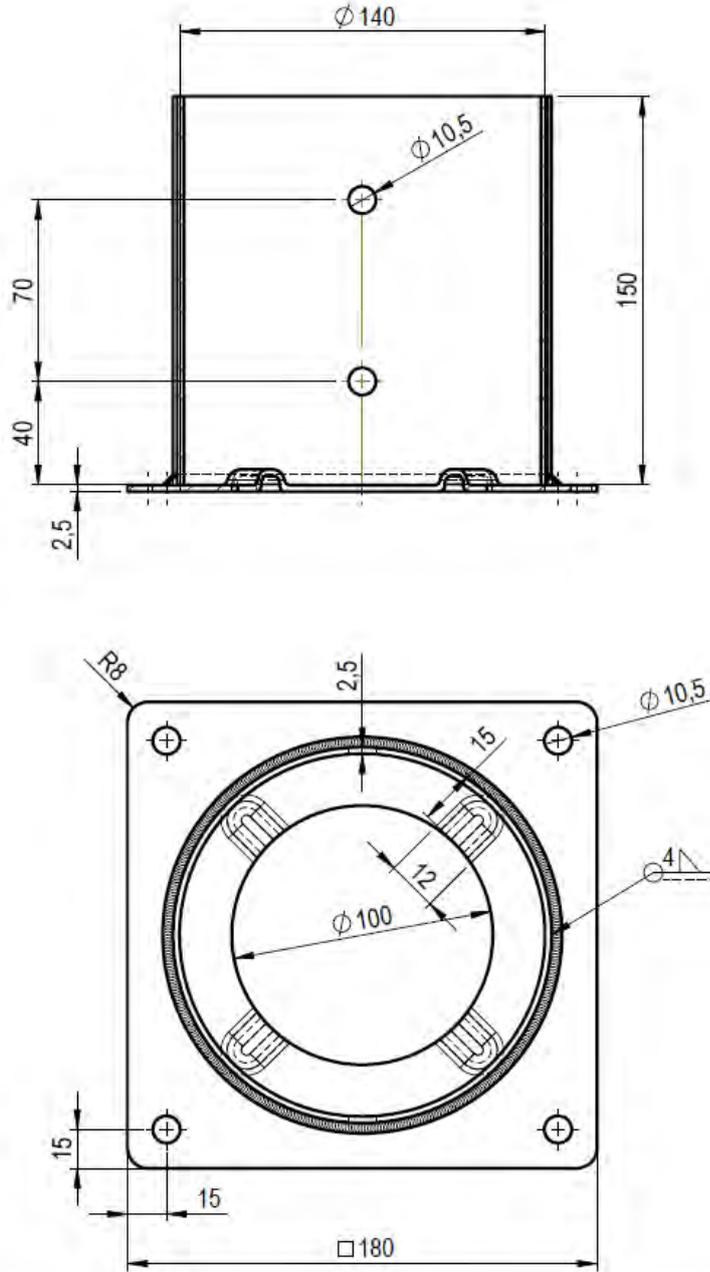
| | | | | | | |
|--|--|----------------------|-------------|---|-------------------------------|--|
| | | | | | | |
| A | Maße für Stöcke von 20 in 12 und von 15 in 12 geändert | 13.12.16 | E. Neuwirth | S. Donat | | |
| Index | Änderung | Datum | Gez. | Gepr. | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:5 | Werkstoff: Stahl | | Benennung: Aufschraubhülse 201x201x200x260x3,0 | | |
| | Gewicht: 4818,54 g | Oberfläche: verzinkt | | | | |
| | Volumen: 612266,22 mm ³ | | | | | |
| | | Datum | Name | | Zeichnungs-Nr.: BB00-0023-010 | |
| | Bearb. | 02.03.16 | E. Neuwirth | | | |
| Geprüft | 02.03.16 | A. Krause | | Blatt 1 von 1 | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Ers.f 59520130 | | SW A4 | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.d. | | | | |



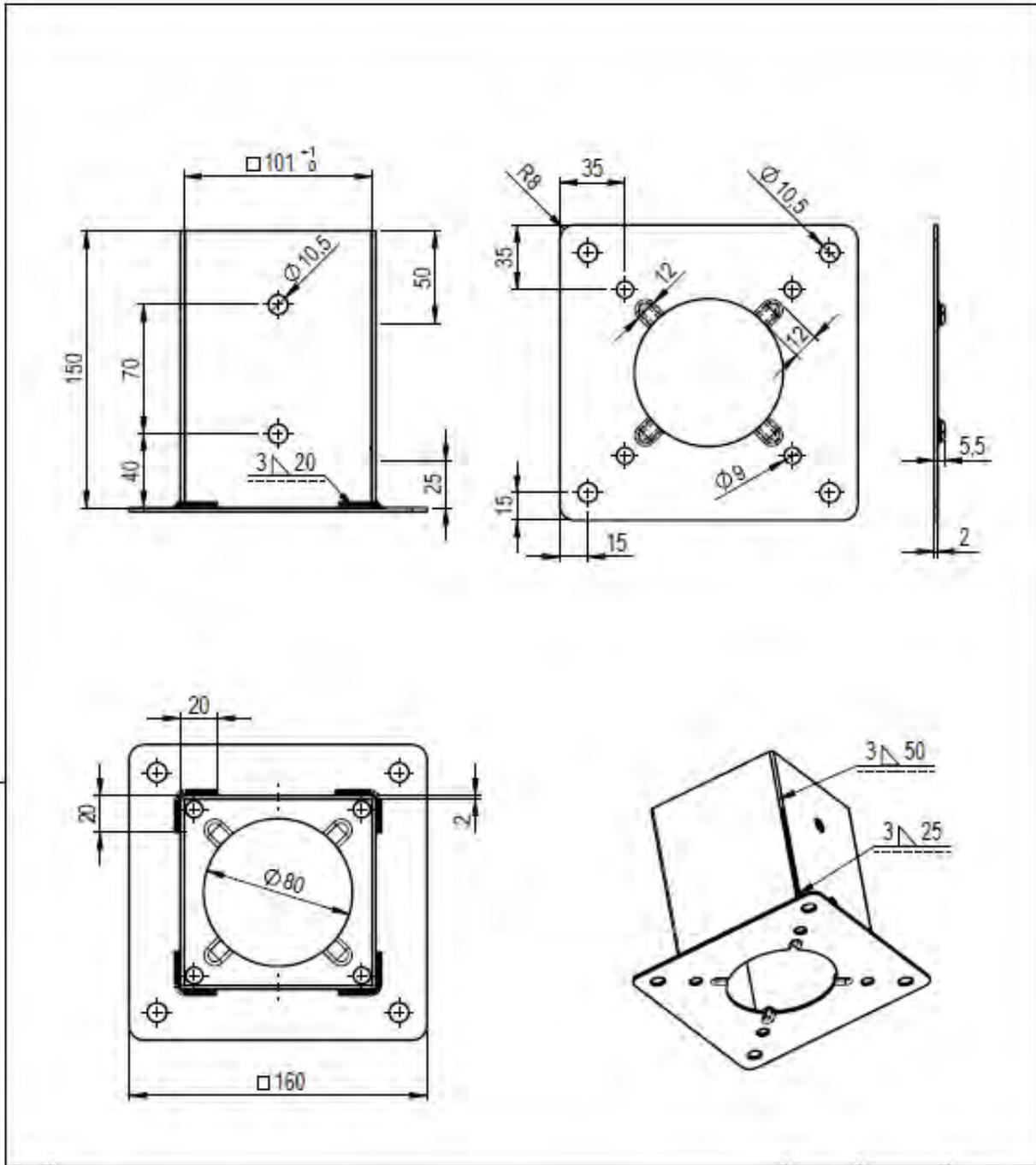
| A | Maß 12 und Maß 10 für Sicke hinzugefügt, Innen-ø von 50 in 60 berichtigt, Toleranz bei ø 80 entfernt | 13.12.16 | E. Neuwirth | S. Donat | | | | | | |
|--|---|----------------------------|--|----------|-------------|----------|-----------|---|--|-------|
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | |
|  <p>Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2.5 | Werkstoff: Stahl | Benennung: Aufschraubhülse ø 80x150x150x2,5 | | | | | | | |
| | Gewicht: 1139.12 g | Oberfläche: verzinkt | | | | | | | | |
| | Volumen: 144741.58 mm ³ | Ziehungs-Nr. BB00-0023-011 | | Blatt 1 | | | | | | |
| | <table border="1"> <tr> <th>Datum</th> <th>Name</th> </tr> <tr> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>02.03.16</td> <td>A. Krause</td> </tr> </table> | Datum | Name | 02.03.16 | E. Neuwirth | 02.03.16 | A. Krause | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | von 1 |
| | Datum | Name | | | | | | | | |
| 02.03.16 | E. Neuwirth | | | | | | | | | |
| 02.03.16 | A. Krause | | | | | | | | | |
| Blatt 1 von 1 SW | Blatt 1 von 1 SW | | A4 | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | Ers.f. 59508025 | Ers.d. | | | | | | | | |



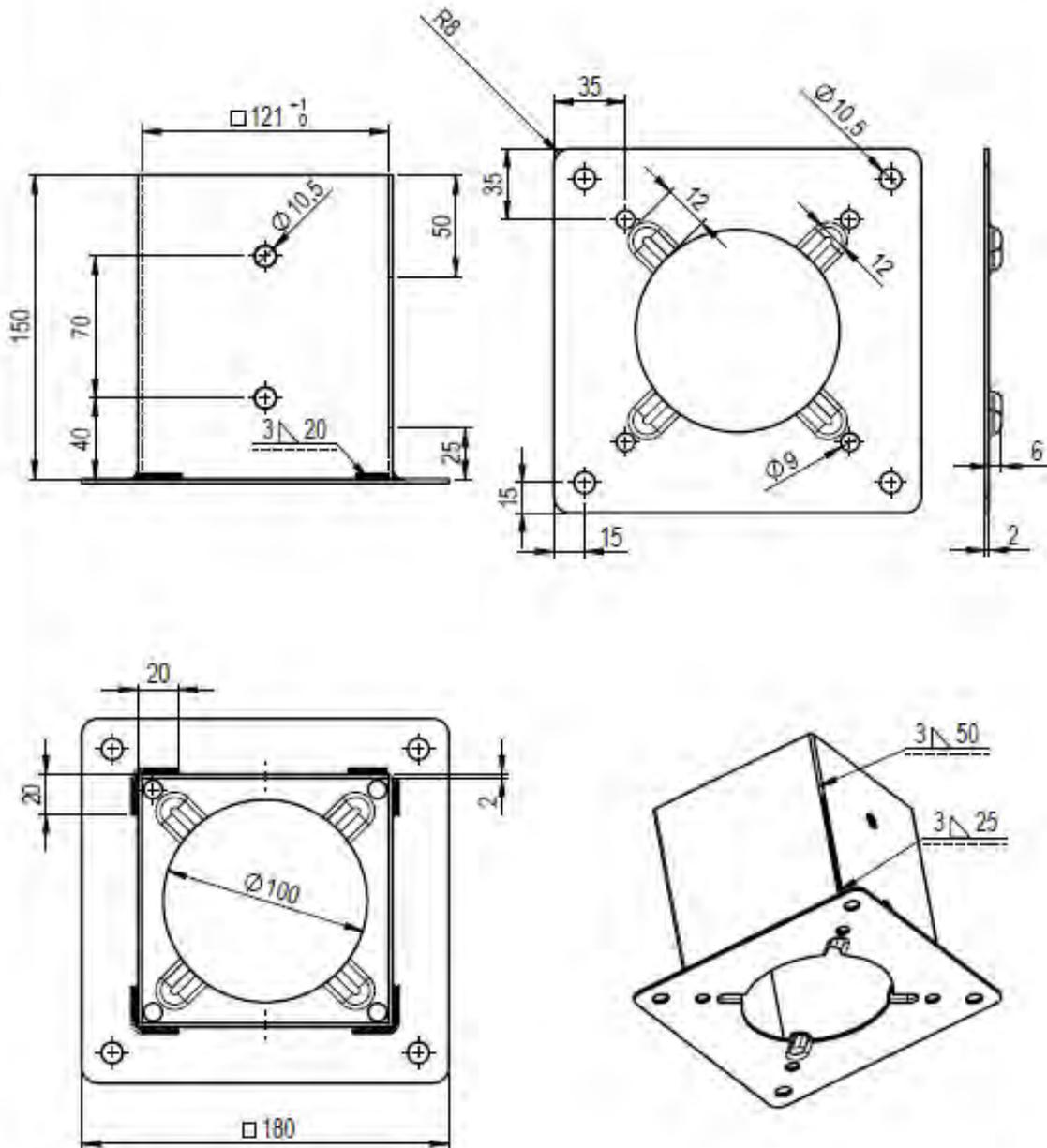
| A | Hülsen- ϕ von Außen- ϕ 80 in ϕ 100 berichtigt, Innenloch- ϕ von 50 in ϕ 80 berichtigt, Toleranz bei ϕ 100 entfernt | 13.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | | |
|---|---|--|-------------|----------|--------|----------|-------------|---------|----------|-----------|--|--|--|------------------------------|--|---------------|--|
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | | |
|  <p>B3 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2.5 | Werkstoff: Stahl | | | | | | | | | | | | | | | |
| | Gewicht: 1281.28 g | Oberfläche: verzinkt | | | | | | | | | | | | | | | |
| | Volumen: 162805.19 mm ³ | Benennung: Aufsraubhülse ϕ 100x150x150x2,5 | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>Geprüft</td> <td>02.03.16</td> <td>A. Krause</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 02.03.16 | E. Neuwirth | Geprüft | 02.03.16 | A. Krause | | | | Zeichnungs-Nr. BB00-0023-012 | | Blatt 1 von 1 | |
| | | Datum | Name | | | | | | | | | | | | | | |
| Bearb. | 02.03.16 | E. Neuwirth | | | | | | | | | | | | | | | |
| Geprüft | 02.03.16 | A. Krause | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! <small>D:\B3 Berga\BB00\BB00-0023-ASH... -BB00-0023-012 Aufsraubhülse ASH 100x150x150x2,5 rund stbhw</small> | Ers.f. 59510025 | Ers.d. | SW A4 | | | | | | | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | | | | | | | | | | | | | | | | |



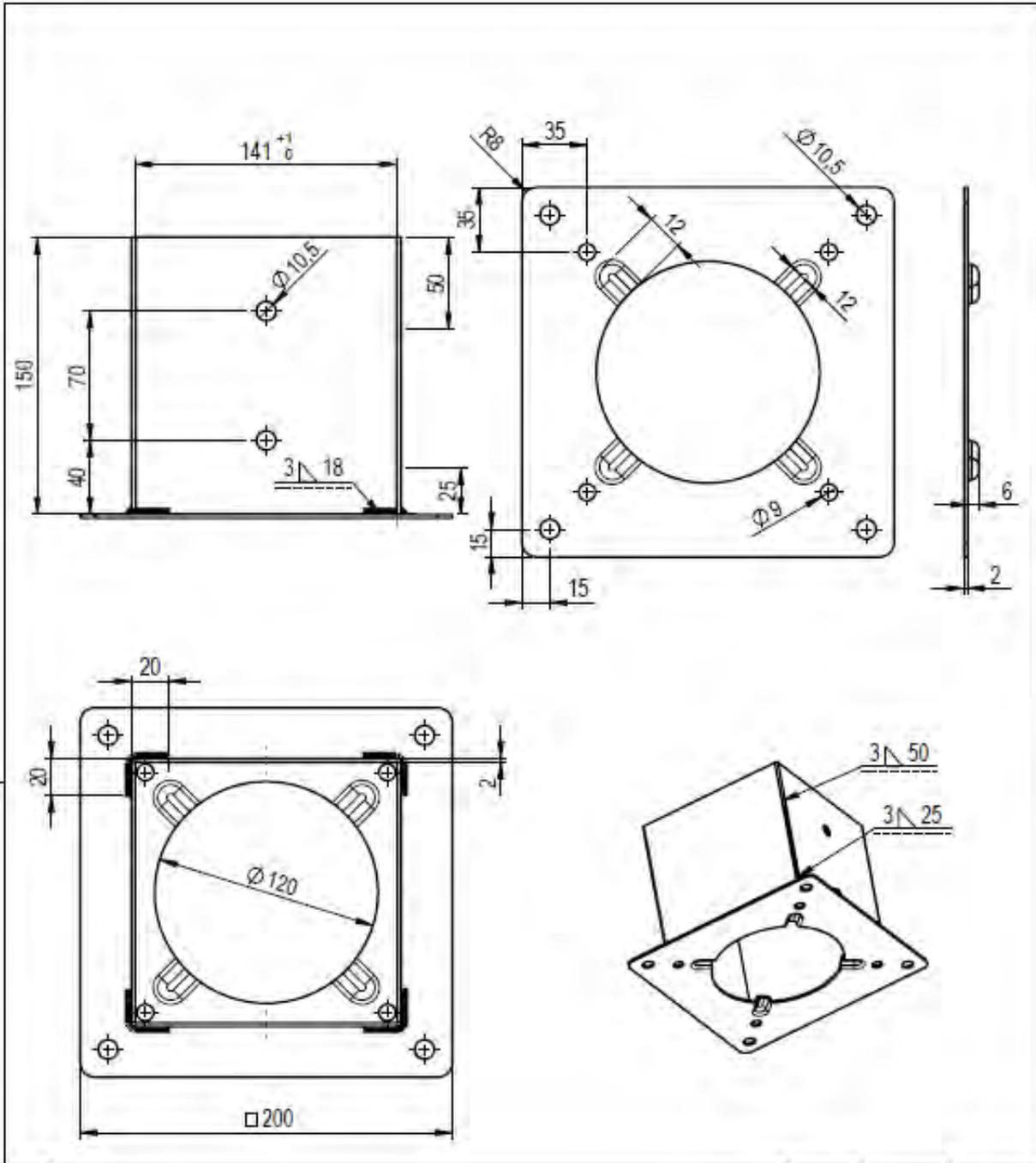
| A | Bemaßung der Sicke nachgetragen Maß 15 und Maß 12, Toleranz bei $\varnothing 140$ entfernt | 13.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | | | | | |
|--|--|--|-------------|----------|--------|----------|-------------|---------|----------|-----------|--|--|--|--|--|--|------------------------------|--|------------------|--|
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | | | | | |
|  <p>B30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2.5 | Werkstoff: Stahl | | | | | | | | | | | | | | | | | | |
| | Gewicht: 1832.98 g | Oberfläche: verzinkt | | | | | | | | | | | | | | | | | | |
| | Volumen: 232906.69 mm ³ | Benennung: Aufsraubhülse $\varnothing 140 \times 150 \times 180 \times 2,5$ | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>02.03.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>Geprüft</td> <td>02.03.16</td> <td>A. Krause</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 02.03.16 | E. Neuwirth | Geprüft | 02.03.16 | A. Krause | | | | | | | Zeichnungs-Nr. BB00-0023-014 | | Blatt 1 von 1 | |
| | | Datum | Name | | | | | | | | | | | | | | | | | |
| Bearb. | 02.03.16 | E. Neuwirth | | | | | | | | | | | | | | | | | | |
| Geprüft | 02.03.16 | A. Krause | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Ers.f. 59514025 | | Ers.d. | | | | | | | | | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.d. | | A4 | | | | | | | | | | | | | | | | |



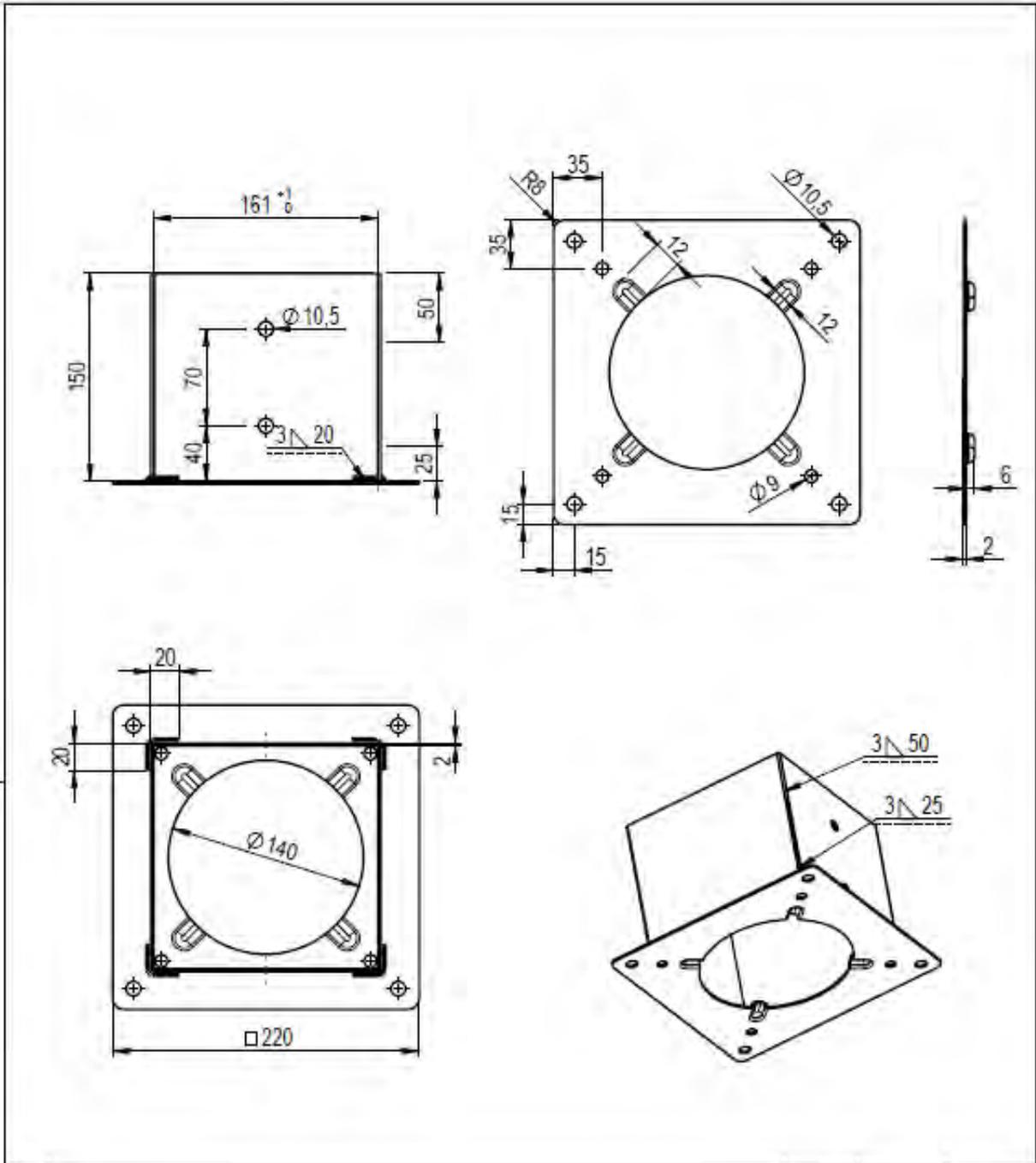
| | | | | | | |
|--|------------------------------------|----------------------|-------------|--|---|--|
| | | | | | | |
| .A Rahmen abgeändert | | 22.05.16 | S. Donat | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | |
|  <p>Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 44 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | | Benennung: Aufschraubhülse 101x101x150x160x2,0 | | |
| | Gewicht: 1275,96 g | Oberfläche: Verzinkt | | | | |
| | Volumen: 162130,10 mm ³ | | | | | |
| | | Datum | Name | | Zeichnungs-Nr. Blatt 1 von 1 SW A4 | |
| | | 27.05.16 | E. Neuwirth | | | |
| | 27.05.16 | A. Kreude | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht. | | Ent.f. 59510120 | Ent.d. | | | |



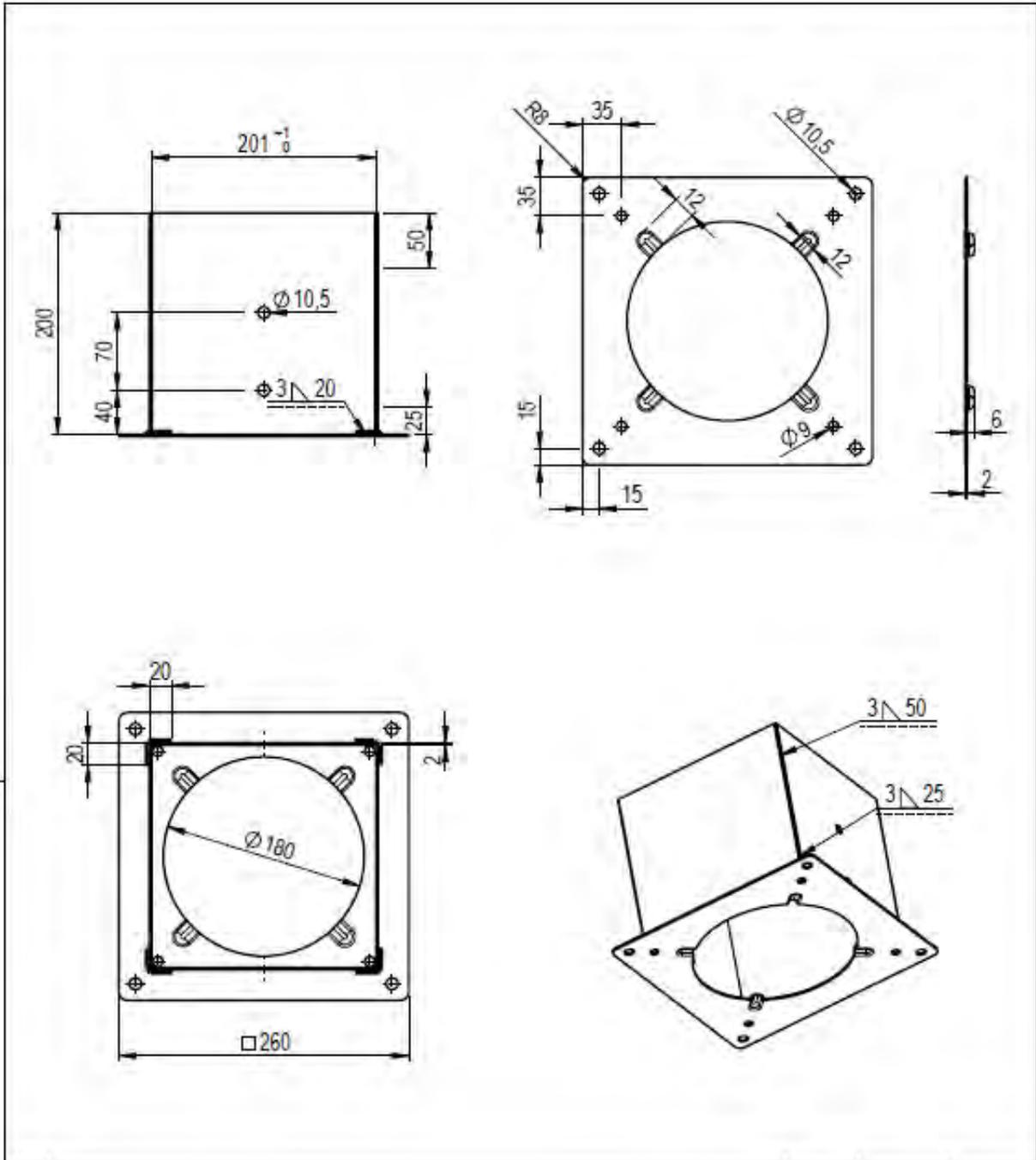
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|--|------------------------------------|--|-----------|---------------|-------|----------|--|-------------|--|
| | | | | | | | | | |
| A. Rahmen abgeändert | | 22.05.18 | S. Donat | | | | | | |
| Index | Änderung | | Datum | Gez. | Gepr. | | | | |
|  B30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 44 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de | Maßstab: 1:3 | Werkstoff: St12f | | | | | | | |
| | Gewicht: 1536,94 g | Oberfläche: Verzinkt | | | | | | | |
| | Volumen: 195291,03 mm ³ | Bemerkung: Aufsraubhülse 121x121x150x180x2,0 | | | | | | | |
| | | | | | | Datum | | Name | |
| | | | | | | 27.05.18 | | E. Neuwirth | |
| | 27.05.18 | | A. Kreuze | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. | | Blatt 1 von 1 | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.f. 59512120 | | Ers.d. | | | | | |
| | | | | SW | | | | | |
| | | | | A4 | | | | | |



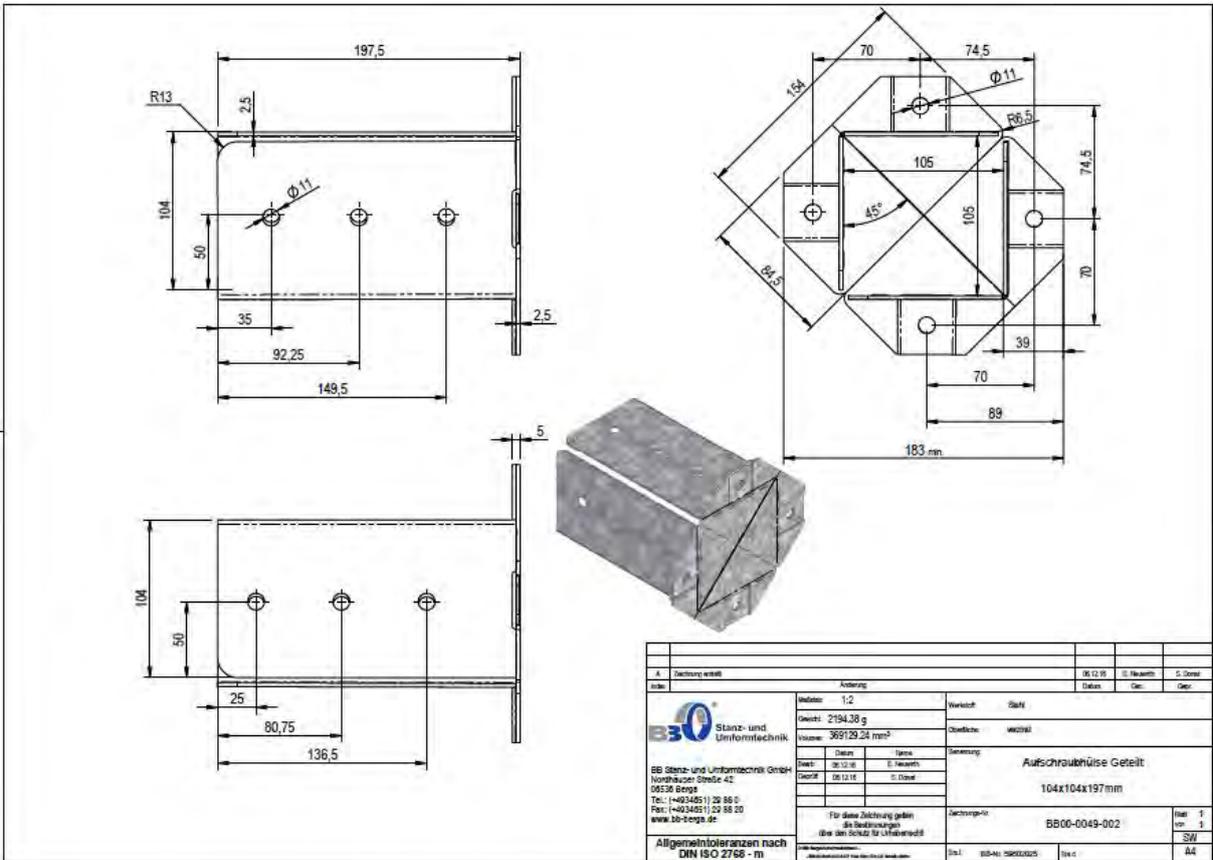
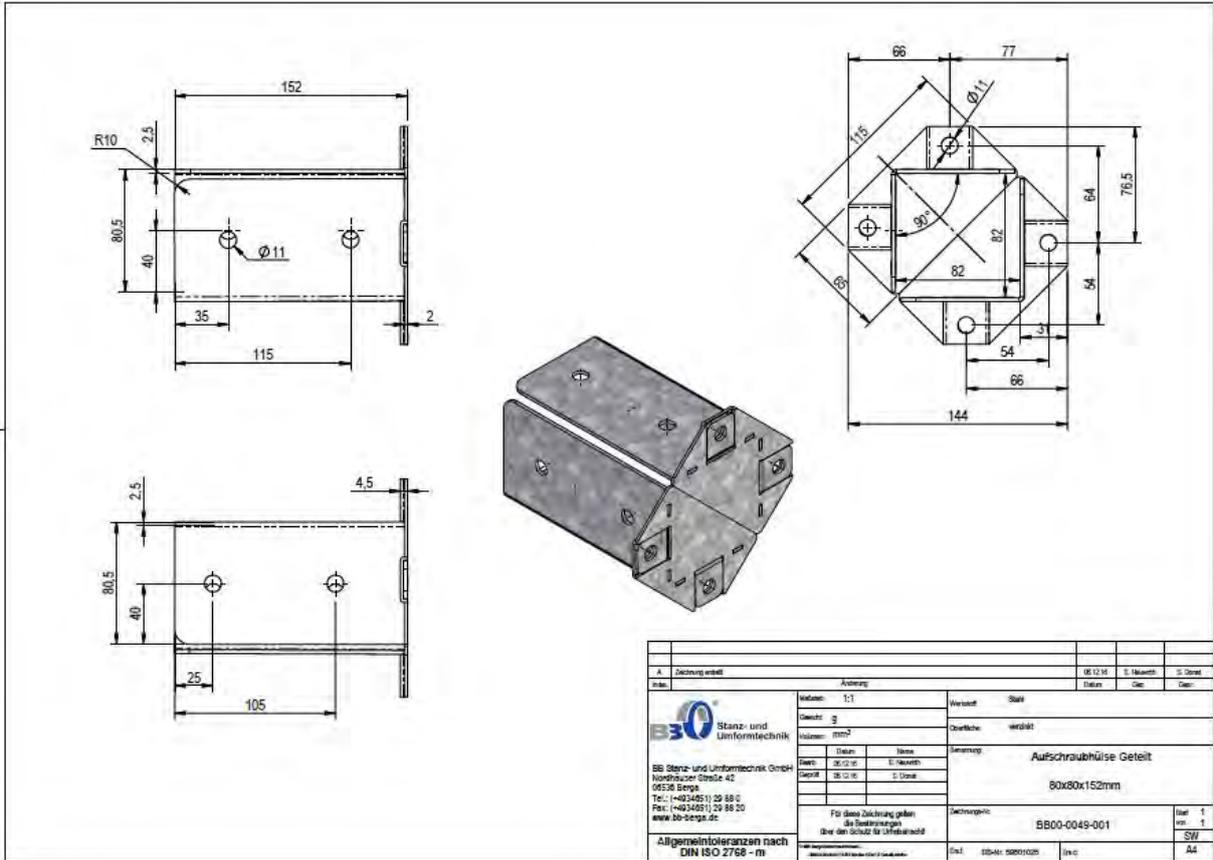
| | | | | | | |
|---|-------------------|---------------------------|-------------|---|----------|--------|
| | | | | | | |
| A | Rahmen abgeändert | 22.05.18 | 3. Dönitz | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | |
|  BB Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 44 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de | Maßstab: | 1:3 | | Werkstoff: | Stahl | |
| | Gewicht: | 1790.10 g | | Oberfläche: | verzinkt | |
| | Volumen: | 227458.64 mm ³ | | Benennung: Aufschraubhülse 141x141x150x200x2,0 | | |
| | | Datum | Name | | | |
| | Beerb. | 27.05.18 | E. Neuwirth | | | |
| | Geprüft | 27.05.18 A. Kreuze | | Zeichnungs-Nr.: Blatt 1 von 1 SW A4 | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | | | | | Ein.f. |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.d. | | | | |

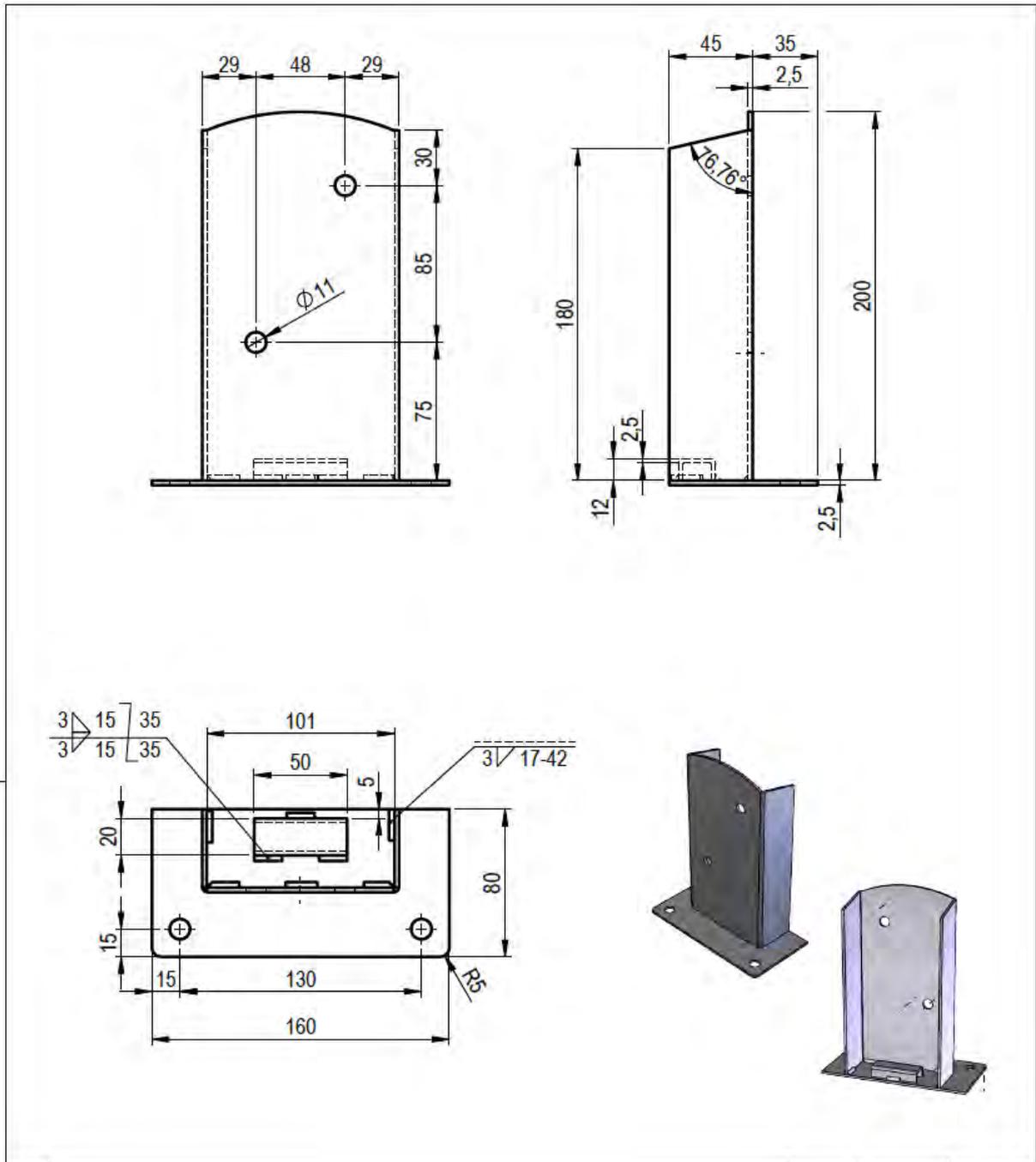


| | | | | | | | |
|---|------------------------------------|--|----------|---------|-------|-------------|------|
| A Rahmen abgeändert | | 27.04.18 | S. Donat | | | | |
| index | Änderung | Datum | Gez. | Gepr. | | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 44 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berg.de</p> | Maßstab: 1:4 | Werkstoff: Stahl | | | | | |
| | Bewicht: 2047,05 g | Oberfläche: Verzinkt | | | | | |
| | Volumen: 260108,40 mm ³ | Bemerkung: Aufschraubhülse 161x161x150x220x2,0 | | | | | |
| | | | | | | Datum | Name |
| | Bezt.: 27.05.18 | | | | | E. Neuwirth | |
| Geprüft: 27.05.18 | A. Krause | Zeichnungs-nr. | | Blatt 1 | von 1 | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Ers.f. 59516/20 | | Ers.d. | SW | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | | | AA | | | |

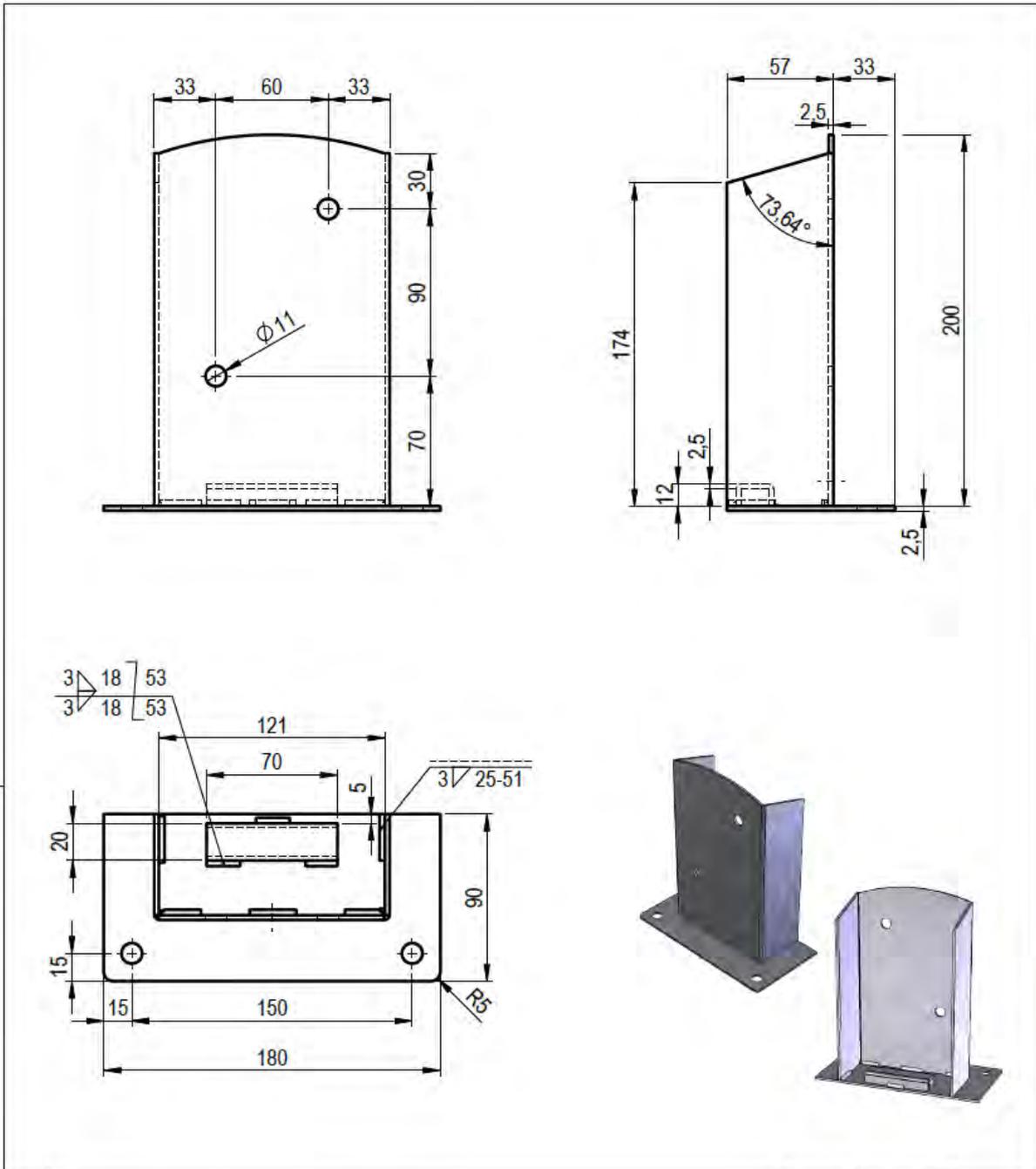


| | | | | | | | |
|---|------------------------------------|-----------------|---|------|-------|--|-------------|
| | | | | | | | |
| A Rahmen abgeändert | | 22.05.18 | g. Donat | | | | |
| Index | Änderung | | Datum | Gez. | Gepr. | | |
|  <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 44 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.klb-berga.de</p> | Maßstab: 1:5 | | Werkstoff: Stahl | | | | |
| | Gewicht: 3204,67 g | | Oberfläche: Verzinkt | | | | |
| | Volumen: 407201,25 mm ³ | | Benennung: Aufschraubhülse 201x201x200x260x2,0 | | | | |
| | | Datum | | | | | Name |
| | Bearb. | 27.05.18 | | | | | E. Neuwirth |
| Geprüft | 27.05.18 | A. Krause | Zeichnungskrit. Blatt 1 von 1 SW A4 | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | Ers.f. 59520120 | Ers.d. | | | | |

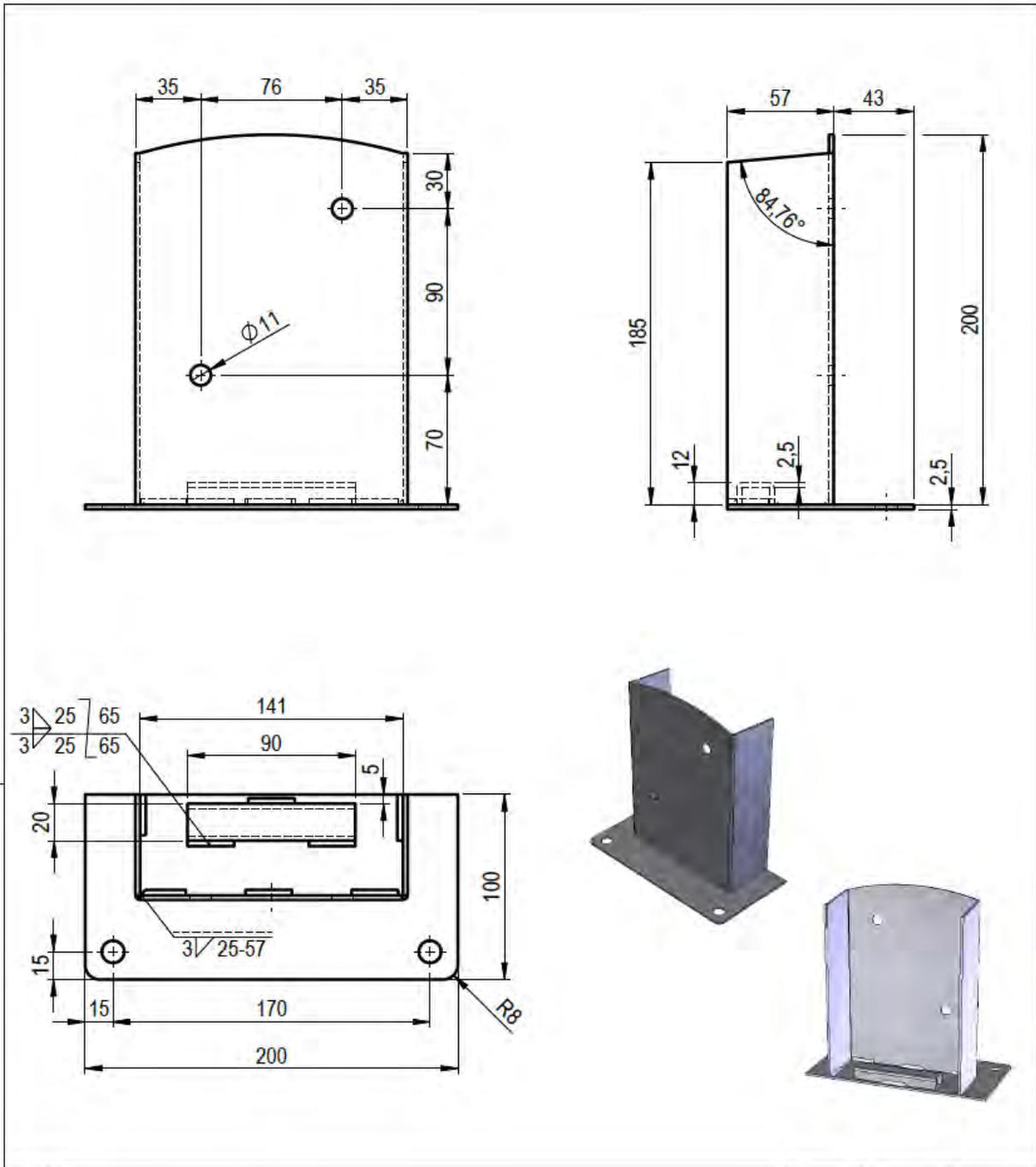




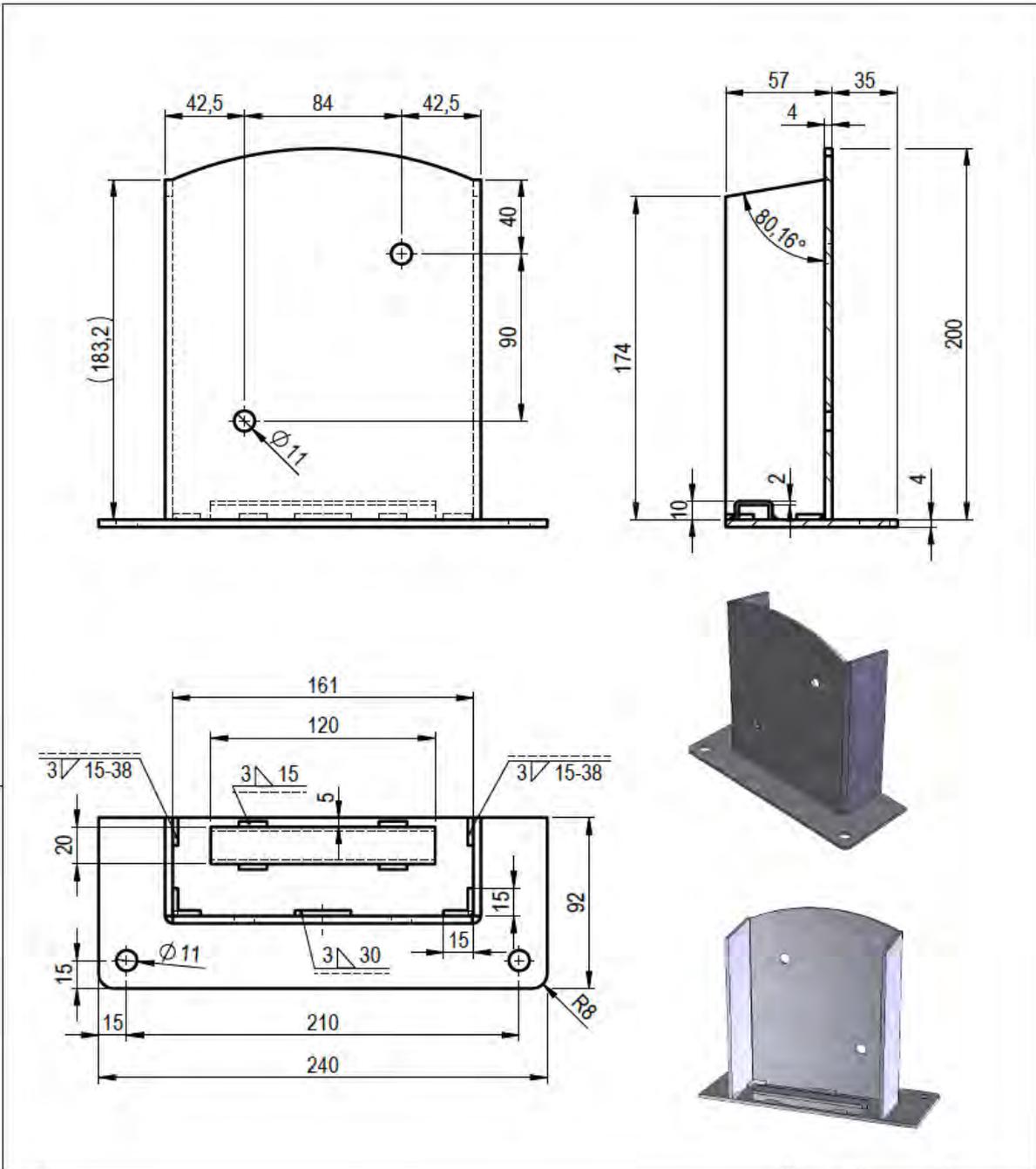
| | | | | | | | |
|--|---|--|-------------|---------------|-----------|-------------|------|
| | | | | | | | |
| A | Position und Bemaßung der Schweißnähte berichtigt | 08.12.16 | E. Neuwirth | S. Donat | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | |
|  <p>B30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | | | | | |
| | Gewicht: 998.89 g | Oberfläche: verzinkt | | | | | |
| | Volumen: 126923.20 mm ³ | Benennung: Aufschraubhülse zweiteilig 101x45x2,5 | | | | | |
| | | | | | | Datum | Name |
| | Bearb. 06.12.16 | | | | | E. Neuwirth | |
| Geprüft 06.12.16 | S. Donat | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. BB00-0045-001 | | Blatt 1 von 1 | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | BB-Nr 596 101 25 | | Ers.d. | A4 | | |
| <small>D:\BB Berga\ISO\BB00-0045-001-001.dwg ...BB00-0045-001 A3H-zweilig 101x45x2,5.dwg</small> | | | | | | | |



| A | Position und Bemessung der Schweißnähte berichtigt | 08.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | |
|---|--|--|--|----------|--|-------|------|--------|----------|-------------|---------|----------|----------|--|--|
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | |
|  Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de | Maßstab: 1:3 Gewicht: 1240.46 g Volumen: 157618.78 mm ³ | Werkstoff: Stahl Oberfläche: verzinkt | Benennung: Aufschräuhülse zweiteilig 121x57x2,5 | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>06.12.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>Geprüft</td> <td>06.12.16</td> <td>S. Donat</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | Datum | Name | Bearb. | 06.12.16 | E. Neuwirth | Geprüft | 06.12.16 | S. Donat | | |
| | | Datum | Name | | | | | | | | | | | | |
| | Bearb. | 06.12.16 | E. Neuwirth | | | | | | | | | | | | |
| Geprüft | 06.12.16 | S. Donat | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | Zeichnungs-Nr. BB00-0045-0002 | SW A4 | | | | | | | | | | | | |
| <small>D:\BB Berga\BB00\BB00-0045-ASH 2-jul16h... ...BB00-0045-002 ASH-zweiteilig 121x57x2,5.widh</small> | | BB-Nr. 596 121 25 | Ers d. | | | | | | | | | | | | |

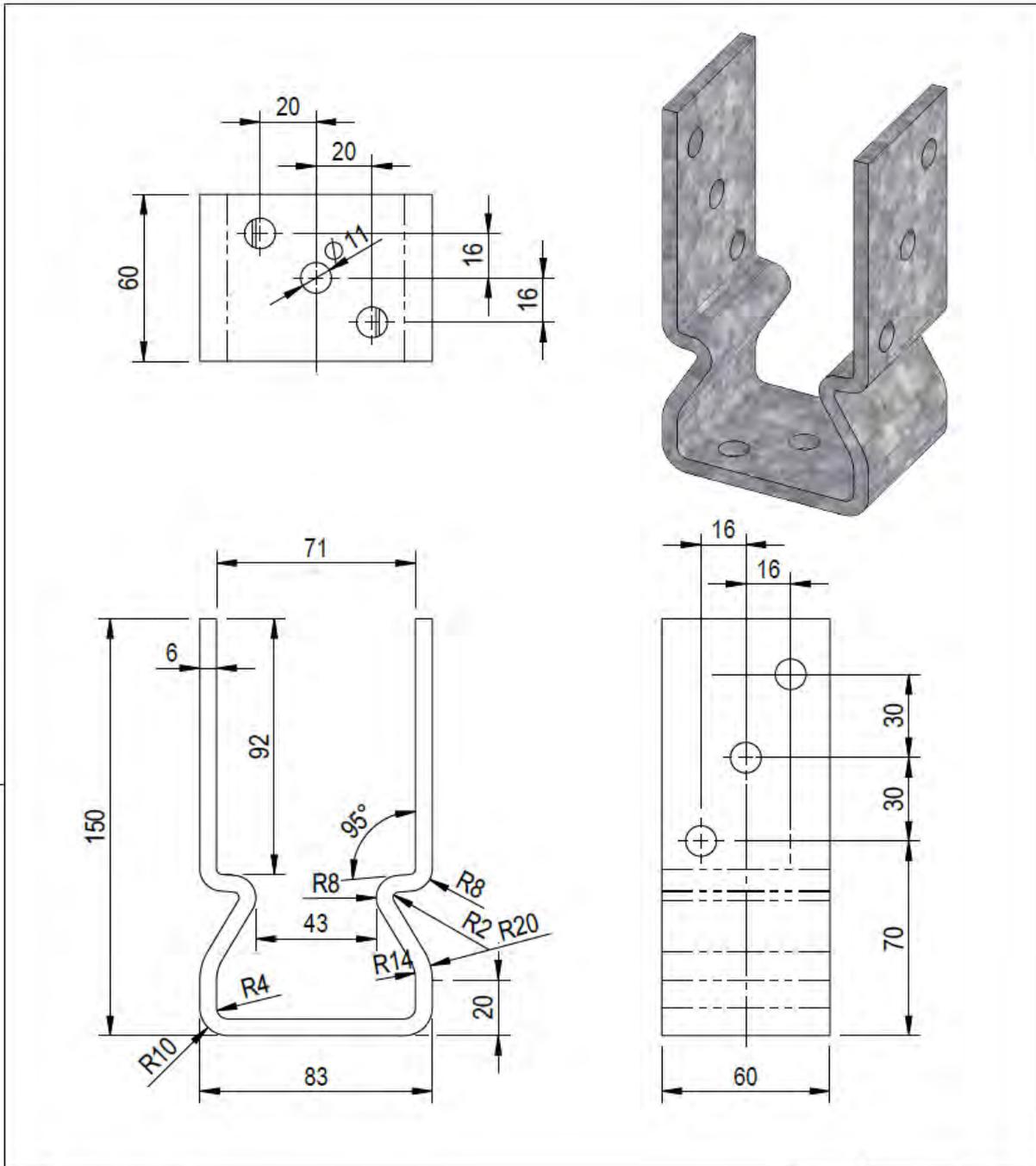


| | | | | | | | |
|---|--------------------------------------|--|-------------------------------------|--------------------------------------|------------------|----------|-------------|
| | | | | | | | |
| A | Bemaßung der Schweißnähte berichtigt | 08.12.16 | E. Neuwirth | S. Donat | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | |
|  <p>BB30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | | | | | |
| | Gewicht: 1418.88 g | Oberfläche: verzinkt | | | | | |
| | Volumen: 180289.09 mm ³ | Benennung: Aufschraubhülse zweiteilig 141x57x2,5 | | | | | |
| | | | | | | Datum | Name |
| | Bearb. | | | | | 06.12.16 | E. Neuwirth |
| Geprüft | 06.12.16 | S. Donat | Zeichnungs-Nr. BB00-0045-003 | | Blatt 1 von 1 | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. BB00-0045-003 | | Blatt 1 von 1 SW | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | BB-Nr. 596 141 25 | Ers.d. | A4 | | | |

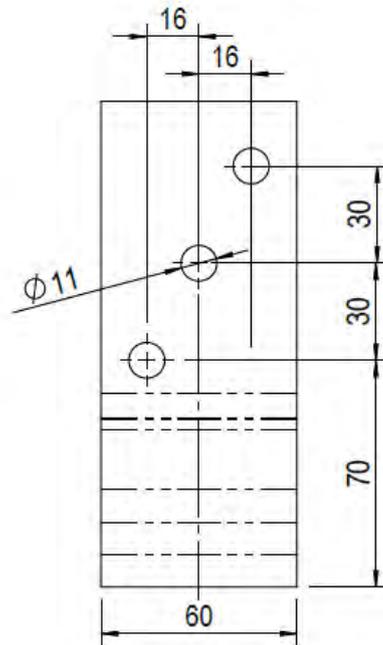
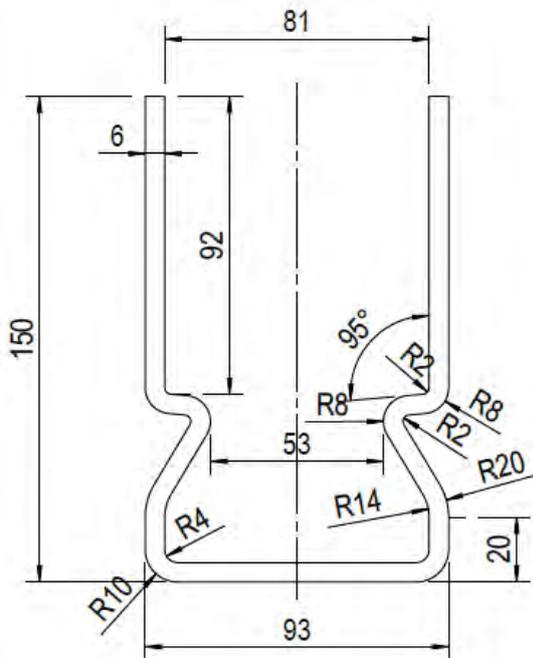
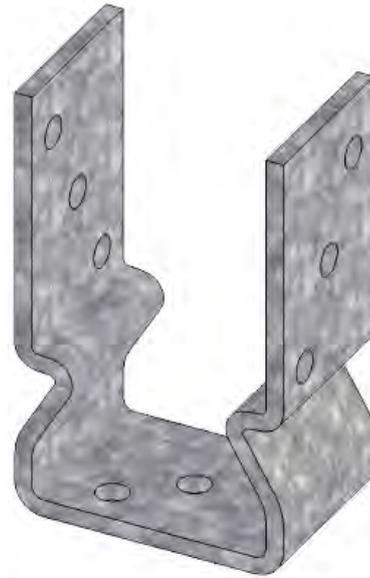
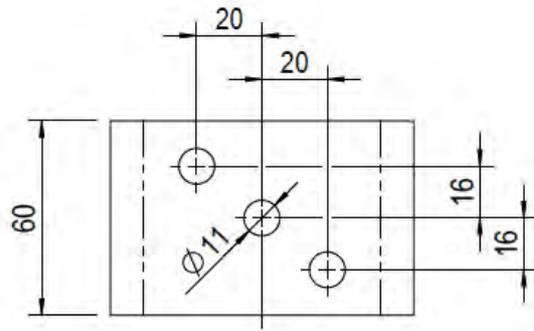


| | | | | |
|-------|----------|-------|------|-------|
| Index | Änderung | Datum | Gez. | Gepr. |
| | | | | |

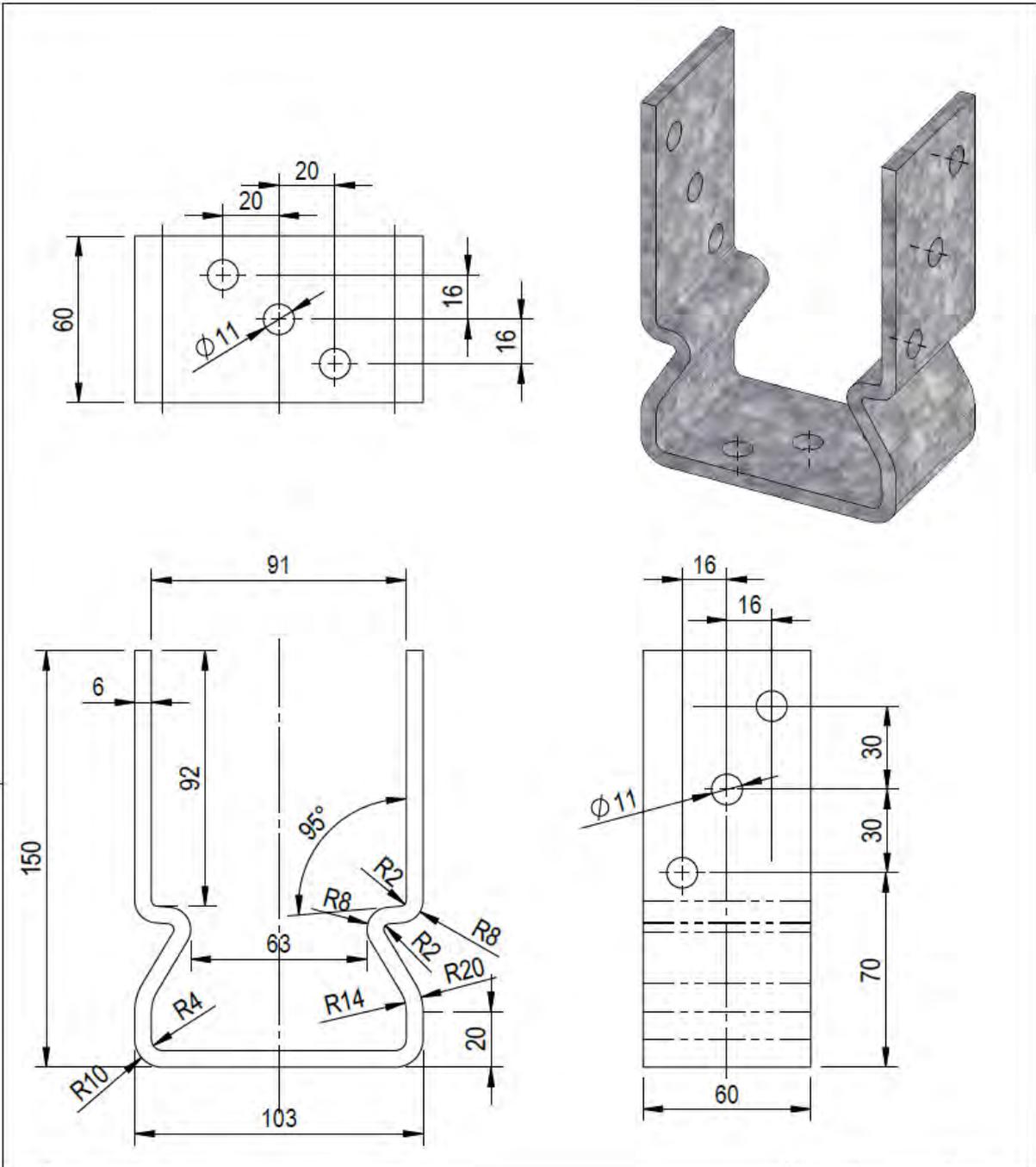
|  <p>B30 Stanz- und Umformtechnik</p> <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:3 | Werkstoff: Stahl | Benennung: Aufschraubhülse zweiteilig 161x57x4,0 | Blatt 1 von 1 | | | | | | |
|--|--|---|--|--|----------|-------------|----------|----------|-------------------|--------|
| | Gewicht: 2369.48 g | Oberfläche: verzinkt | | | | | | | | |
| | Volumen: 301077.83 mm ³ | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. BB00-0045-004 | | | | | | |
| | <table border="1"> <thead> <tr> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>06.12.16</td> <td>E. Neuwirth</td> </tr> <tr> <td>06.12.16</td> <td>S. Donat</td> </tr> </tbody> </table> | Datum | Name | | 06.12.16 | E. Neuwirth | 06.12.16 | S. Donat | BB-Nr. 596 161 40 | Ers.d. |
| | Datum | Name | | | | | | | | |
| 06.12.16 | E. Neuwirth | | | | | | | | | |
| 06.12.16 | S. Donat | | | | | | | | | |
| <p>Allgemeintoleranzen nach DIN ISO 2768 - m</p> <p><small>© BB Berga BB00000000-0045-ASH 2-teilig... ...BB00-0045-004 ASH-zweitig 161x57x4,0.sldprt</small></p> | <p>A4</p> | | | | | | | | | |



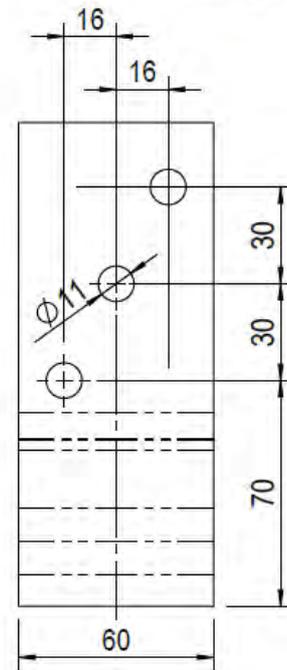
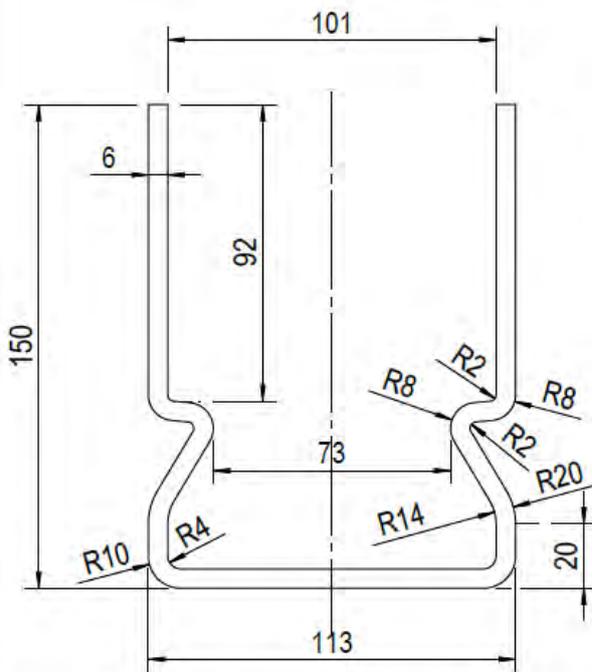
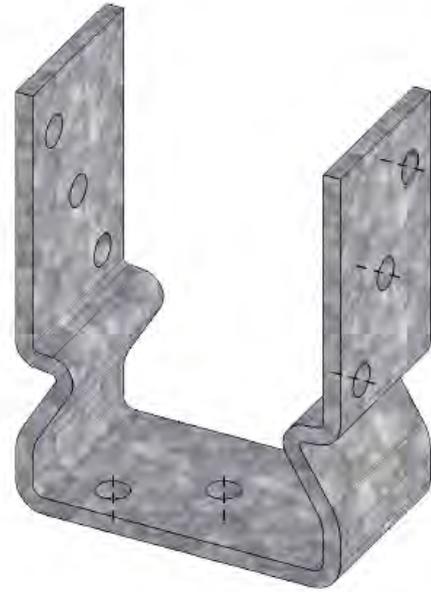
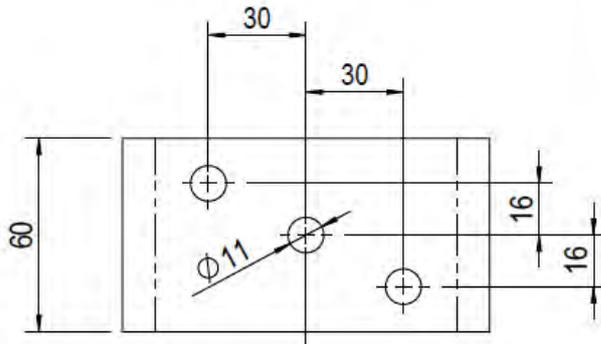
| B | Berichtigung: Maß 43 war 39 | 22.02.17 | E. Neuwirth | S. Donat | | | | | | | | | | | | |
|--|---|----------------------------|---|---------------|--------|----------|------------|---------|--|--|--|--|--|---|--|----|
| A | überarbeitet | 06.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | |
|  <p>B30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | Werkstoff: Stahl | Benennung: Pfostenträger mit Sicke aufdübelbar 71x150x60 | | | | | | | | | | | | | |
| | Gewicht: 1066.76 g | Oberfläche: verzinkt | | | | | | | | | | | | | | |
| | Volumen: 135547.23 mm ³ | Zeichnungs-Nr. 525 32 0000 | | Blatt 1 von 1 | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>05.07.05</td> <td>F. Kollmar</td> </tr> <tr> <td>Geprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 05.07.05 | F. Kollmar | Geprüft | | | | | | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | SW |
| | | Datum | Name | | | | | | | | | | | | | |
| Bearb. | 05.07.05 | F. Kollmar | | | | | | | | | | | | | | |
| Geprüft | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| D:\BB Berga\Pfostenträge\Pfostenträger mit Sicke... \PFTR 71x150x60.sldprt | BB-Nr. 52507160 | Ers.d. | A4 | | | | | | | | | | | | | |



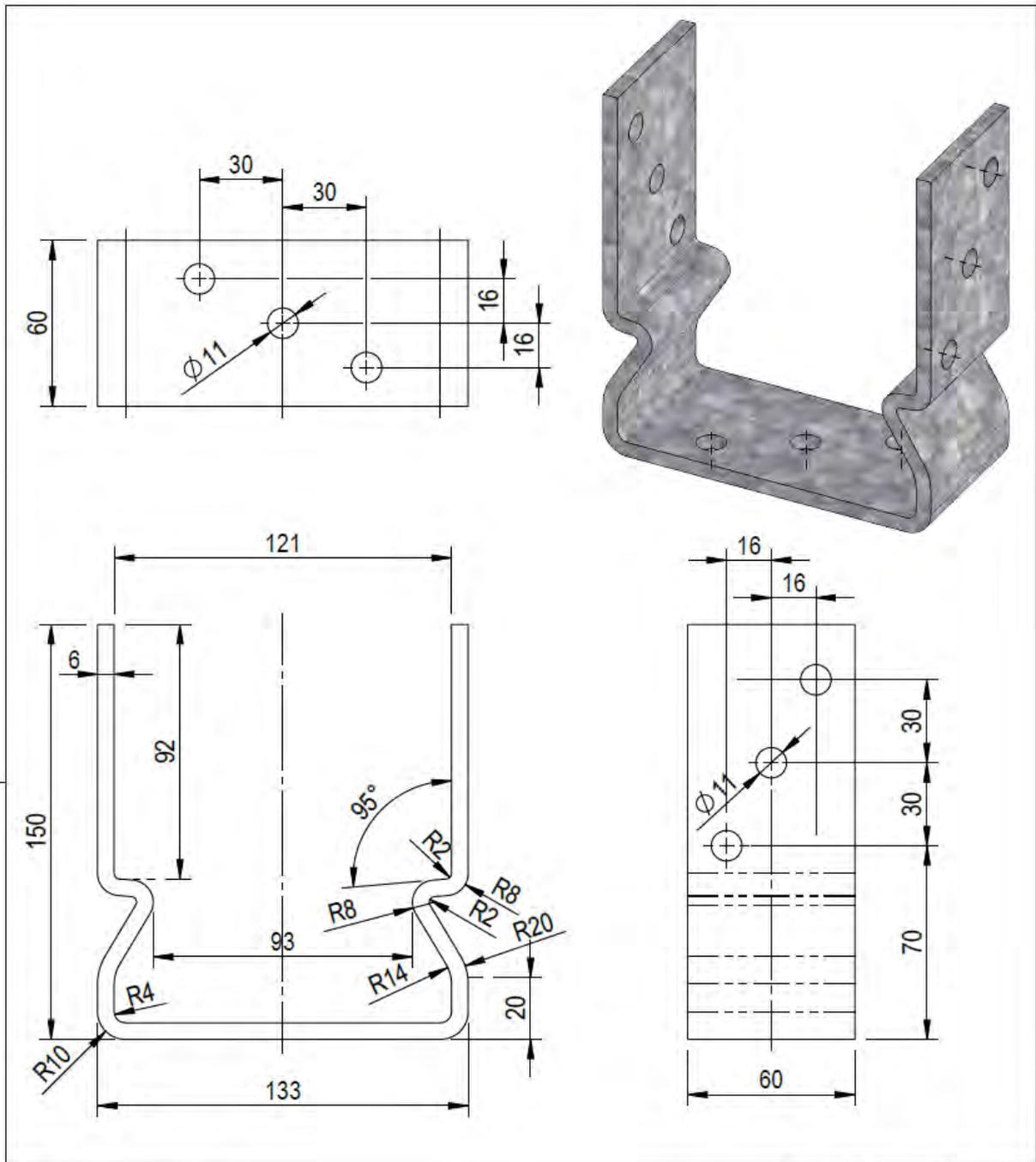
| C | Berichtigung: Maß 53 hinzugefügt | 22.02.17 | E. Neuwirth | S. Donat | | | | | | | | | | | | | | | |
|--|--|--|-------------|-----------|--------|----------|------------|---------|--|--|--|--|--|--|--|--|----------------------------|--|--|
| B | überarbeitet | 06.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | | | | |
| A | Abstand der Löcher mit 16mm war 19 mm bzw. 16,5mm | 04.11.15 | E. Neuwirth | A. Krause | | | | | | | | | | | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | | | | |
|  <p>B30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | Werkstoff: Stahl | | | | | | | | | | | | | | | | | |
| | Gewicht: 1095.09 g | Oberfläche: verzinkt | | | | | | | | | | | | | | | | | |
| | Volumen: 139147.23 mm ³ | Benennung: Pfostenträger mit Sicke aufdübelbar 81x150x60 | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>05.07.05</td> <td>F. Kollmar</td> </tr> <tr> <td>Geprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 05.07.05 | F. Kollmar | Geprüft | | | | | | | | | Zeichnungs-Nr. 525 32 0001 | | |
| | | Datum | Name | | | | | | | | | | | | | | | | |
| Bearb. | 05.07.05 | F. Kollmar | | | | | | | | | | | | | | | | | |
| Geprüft | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Blatt 1 von 1 | | SW | | | | | | | | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | BB-Nr. 52508160 | Ers.d. | A4 | | | | | | | | | | | | | | | |



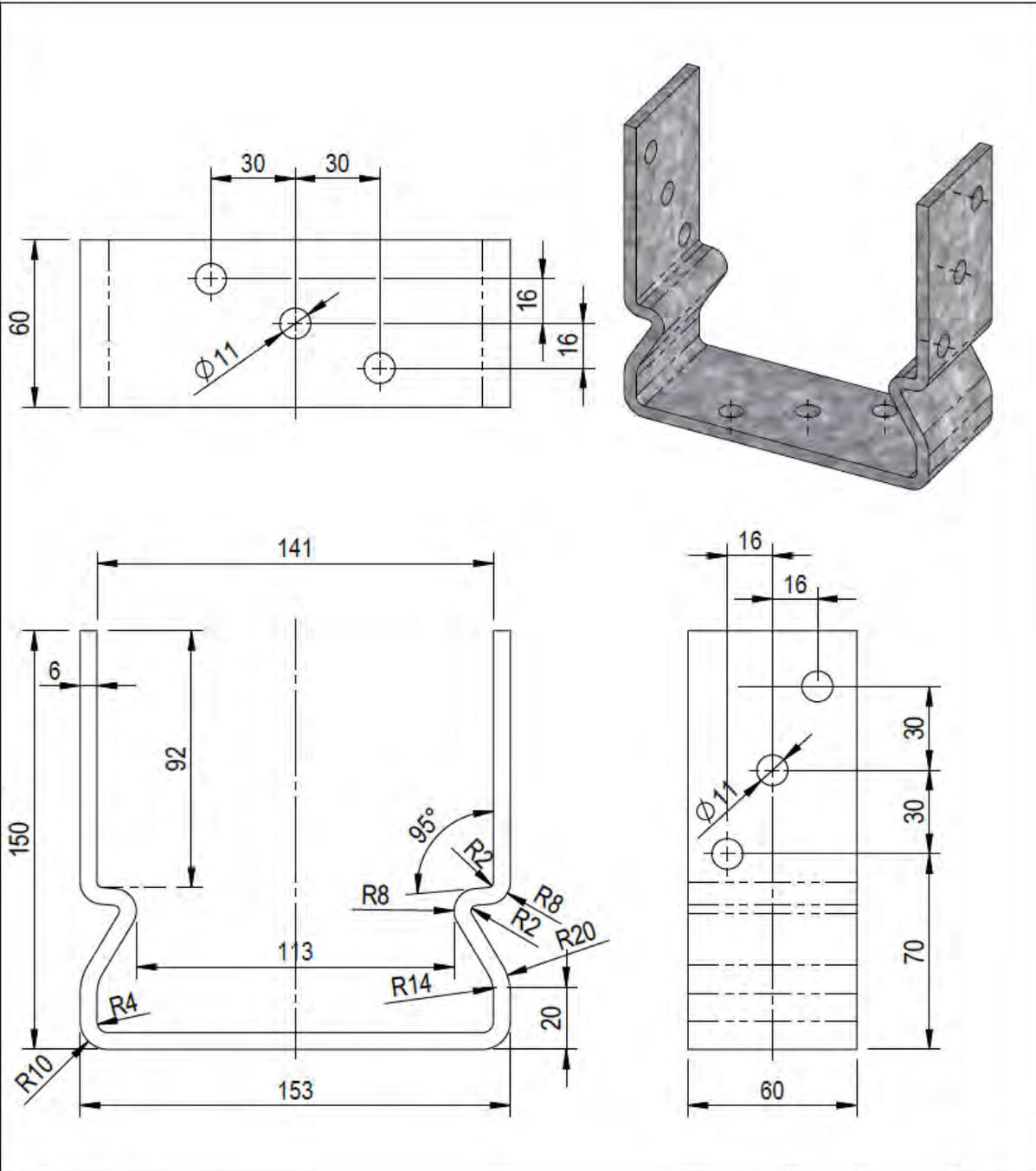
| B | berichtigung: Maß 63 hinzugefügt | 22.02.17 | E. Neuwirth | S. Neuwirth | | | | | | | | | | | | |
|--|--|--|-------------|-------------|--------|----------|------------|----------|--|--|--|--|--|-----------|--|--|
| A | überarbeitet | 06.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | |
|  <p>Stanz- und Umformtechnik</p> <p>BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | Werkstoff: Stahl | | | | | | | | | | | | | | |
| | Gewicht: 1123.42 g | Oberfläche: verzinkt | | | | | | | | | | | | | | |
| | Volumen: 142747.23 mm ³ | Benennung: Pfostenträger mit Sicke aufdübelbar | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>05.07.05</td> <td>F. Kollmar</td> </tr> <tr> <td>Gepprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 05.07.05 | F. Kollmar | Gepprüft | | | | | | 91x150x60 | | |
| | | Datum | Name | | | | | | | | | | | | | |
| Bearb. | 05.07.05 | F. Kollmar | | | | | | | | | | | | | | |
| Gepprüft | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | Zeichnungs-Nr.: 525 32 0002 | Blatt von: 1/1 | | | | | | | | | | | | | | |
| Allgmeintoleranzen nach DIN ISO 2768 - m <small>D:\BB Berga\Pfostenlänge\Pfostenträger mit Sicke... ...VFTR 01x150x60 akkdw</small> | BB-Nr. | Ers.d. | SW | | | | | | | | | | | | | |
| | | | A4 | | | | | | | | | | | | | |



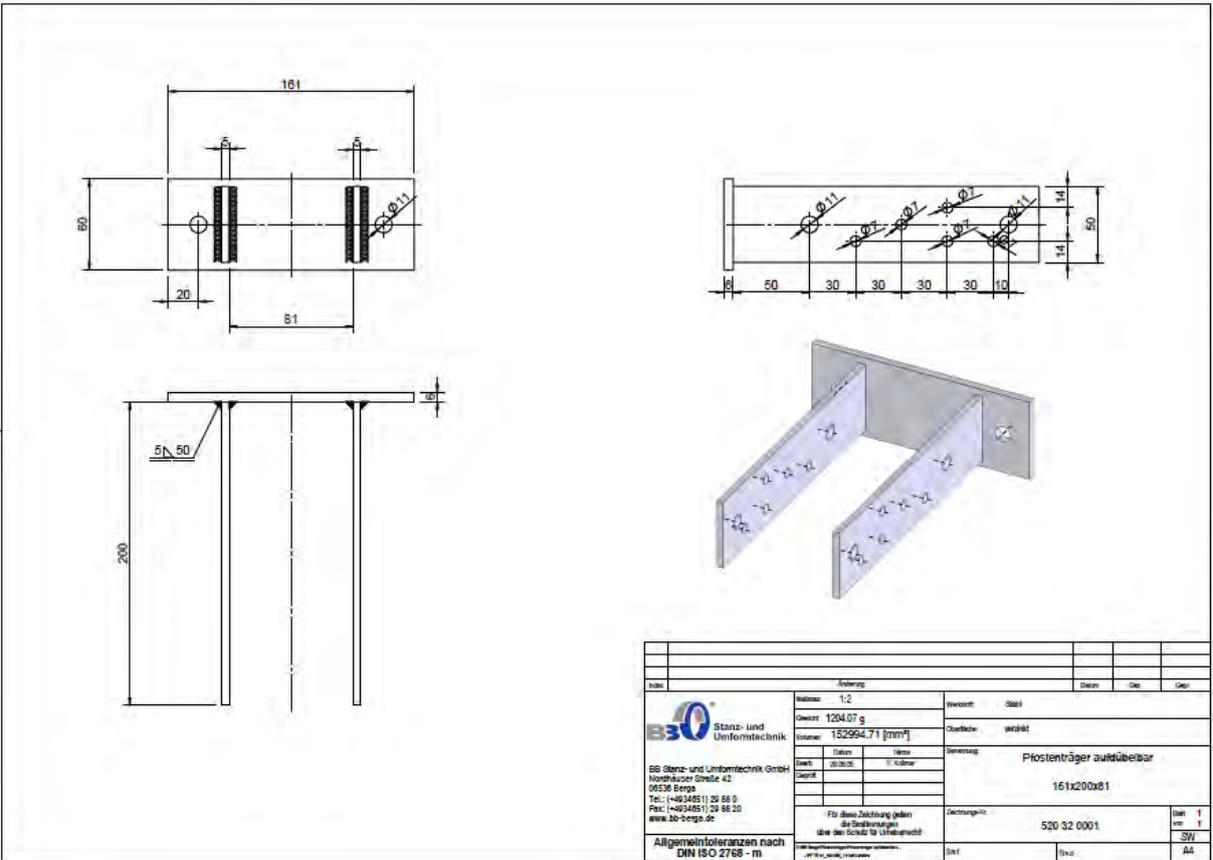
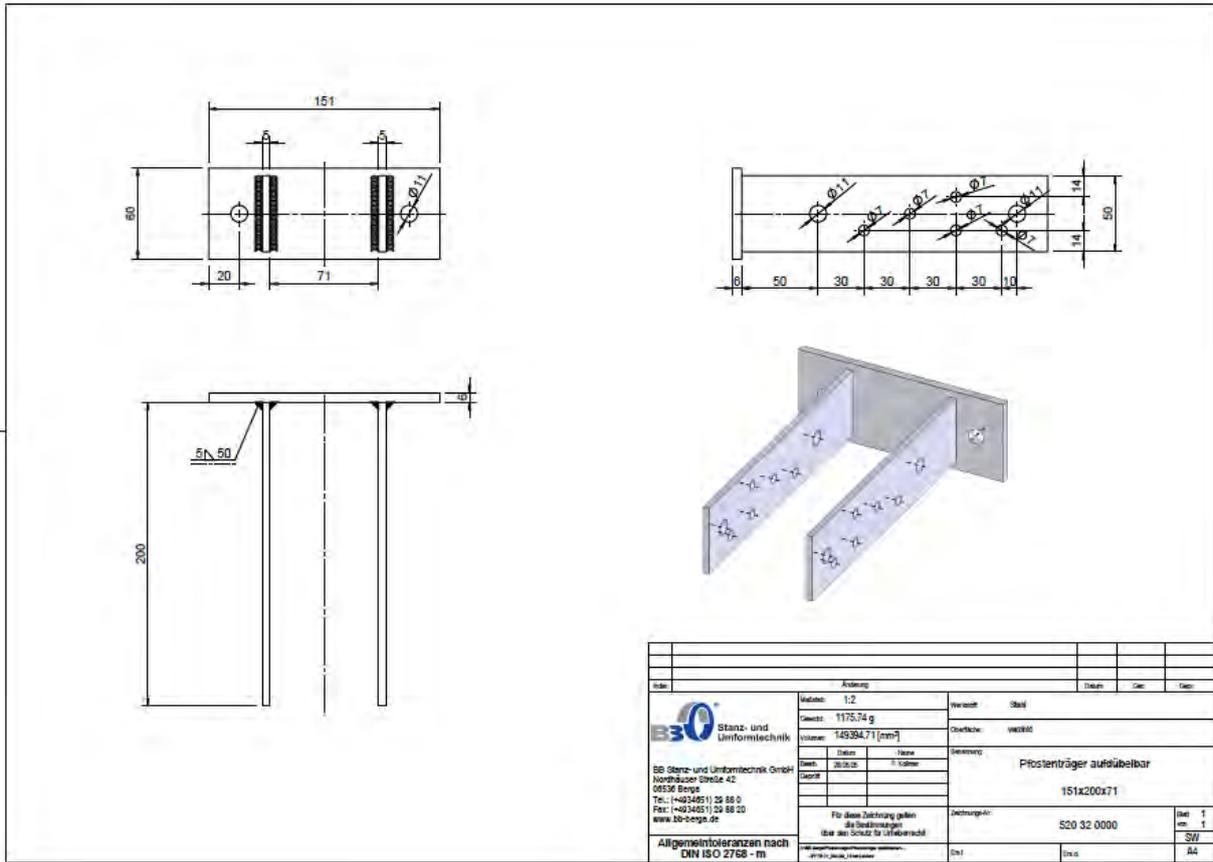
| B | Berichtigung: Maß 73 hinzugefügt | 22.02.17 | E. Neuwirth | S. Donat | | | | | | | | | | | | | |
|---|---|--|------------------|----------|--|-------|-------|------|--------|----------|------------|---------|--|--|--|--|--|
| A | überarbeitet | 06.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | | |
|  <p>B3 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | Werkstoff: Stahl | | | | | | | | | | | | | | | |
| | Gewicht: 1151.75 g | Oberfläche: verzinkt | | | | | | | | | | | | | | | |
| | Volumen: 146347.23 mm ³ | Benennung: Pfostenträger mit Sicke aufdübelbar 101x150x60 | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>05.07.05</td> <td>F. Kollmar</td> </tr> <tr> <td>Geprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | Datum | Name | Bearb. | 05.07.05 | F. Kollmar | Geprüft | | | | | |
| | | | | | | Datum | Name | | | | | | | | | | |
| Bearb. | 05.07.05 | F. Kollmar | | | | | | | | | | | | | | | |
| Geprüft | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. 525 32 0003 | Blatt 1 von 1 | | | | | | | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | © BB Berga/Pfostenträge/Pfostenträger mit Sicke... .../PFTR 101x150x60.sldwtw | BB-Nr. 52510160 | Ers.d. | SW A4 | | | | | | | | | | | | | |



| B | Berichtigung: Maß 93 hinzugefügt | 22.02.17 | E. Neuwirth | S. Donat | | | | | | | | | | | | |
|--|---|--|---------------|----------|--------|----------|------------|---------|--|--|--|--|--|------------|--|--|
| A | überarbeitet | 06.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | | |
|  <p>B30 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | Werkstoff: Stahl | | | | | | | | | | | | | | |
| | Gewicht: 1208.42 g | Oberfläche: verzinkt | | | | | | | | | | | | | | |
| | Volumen: 153547.23 mm ³ | Benennung: Pfostenträger mit Sicke aufdübelbar | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>05.07.05</td> <td>F. Kollmar</td> </tr> <tr> <td>Geprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 05.07.05 | F. Kollmar | Geprüft | | | | | | 121x150x60 | | |
| | | Datum | Name | | | | | | | | | | | | | |
| Bearb. | 05.07.05 | F. Kollmar | | | | | | | | | | | | | | |
| Geprüft | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht | | Zeichnungs-Nr. 525 32 0004 | Blatt 1 von 1 | | | | | | | | | | | | | |
| Allgemeintoleranzen nach DIN ISO 2768 - m | | BB-Nr. 52512160 | SW A4 | | | | | | | | | | | | | |



| B | Berichtigung: Maß 113 hinzugefügt | 22.02.17 | E. Neuwirth | S. Donat | | | | | | | | | | | |
|---|---|-------------------------------|-------------|--|--------|----------|------------|---------|--|--|--|--|--|---|--|
| A | überarbeitet | 06.12.16 | E. Neuwirth | S. Donat | | | | | | | | | | | |
| Index | Änderung | Datum | Gez. | Gepr. | | | | | | | | | | | |
|  <p>B3 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | Werkstoff: Stahl | | Benennung: Pfostenträger mit Sicke aufdübelbar 141x150x60 | | | | | | | | | | | |
| | Gewicht: 1265.08 g | Oberfläche: verzinkt | | | | | | | | | | | | | |
| | Volumen: 160746.59 mm ³ | Zeichnungs-Nr. 525 32 0005 | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Datum</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>Bearb.</td> <td>05.07.05</td> <td>F. Kollmar</td> </tr> <tr> <td>Geprüft</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Datum | Name | Bearb. | 05.07.05 | F. Kollmar | Geprüft | | | | | | Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! <small>D:\BB Berga\Pfostenträge\Pfostenträger mit Sicke... ...UFTR 141x150x60.skkdw</small> | |
| | Datum | Name | | | | | | | | | | | | | |
| Bearb. | 05.07.05 | F. Kollmar | | | | | | | | | | | | | |
| Geprüft | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Allgmeintoleranzen nach DIN ISO 2768 - m | BB-Nr. 52512160 | Ers. d. | | | | | | | | | | | | | |



Technical drawing of a profile with a width of 171 mm and a height of 200 mm. The top flange is 50 mm thick. The drawing shows a front view with dimensions 171, 60, 20, 91, and 5. A side view shows a 5N 50 chamfer. A 3D perspective view shows the profile with a 14 mm thickness and a 50 mm height. The drawing includes a table with the following data:

| Anmerkung | | Datum | Gez. | Gepr. |
|---------------|------------------------------|-------|------|-------|
| Index | | | | |
| Skizze | 1:2 | | | |
| Gewicht | 1232,40 g | | | |
| Flächeninhalt | 156594,71 [mm ²] | | | |
| Material | St 50 | | | |
| Form | 1-Kaliber | | | |
| Produktname | Profilenbräger aufdübelfähig | | | |
| Produktcode | 171x200x51 | | | |
| Zustellung | 520 32 0002 | | | |
| Blatt | 1 | | | |
| von | 1 | | | |
| SW | | | | |
| AW | | | | |

BB Stanz- und Umformtechnik GmbH
Nordhäuser Straße 42
06536 Berge
Tel.: (+4934951) 29 88 0
Fax: (+4934951) 29 88 20
www.bb-seng.de

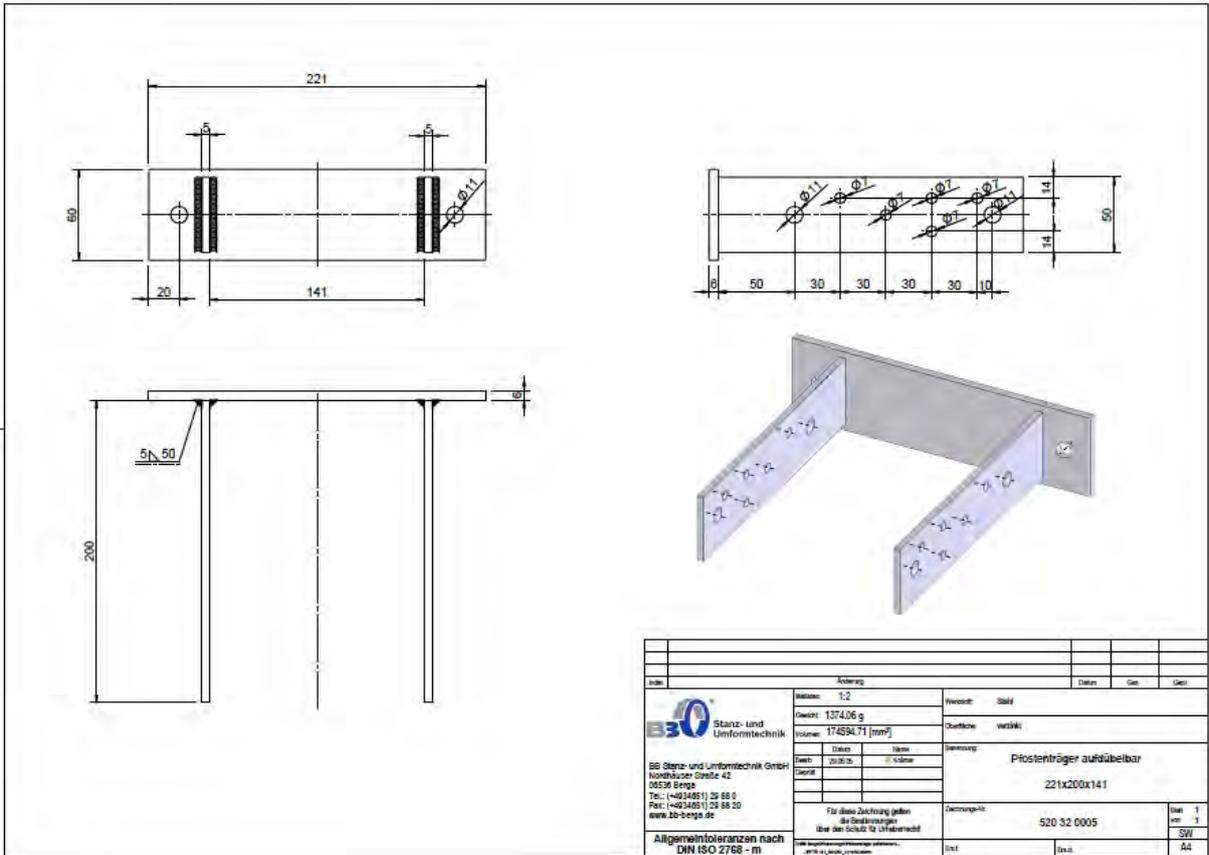
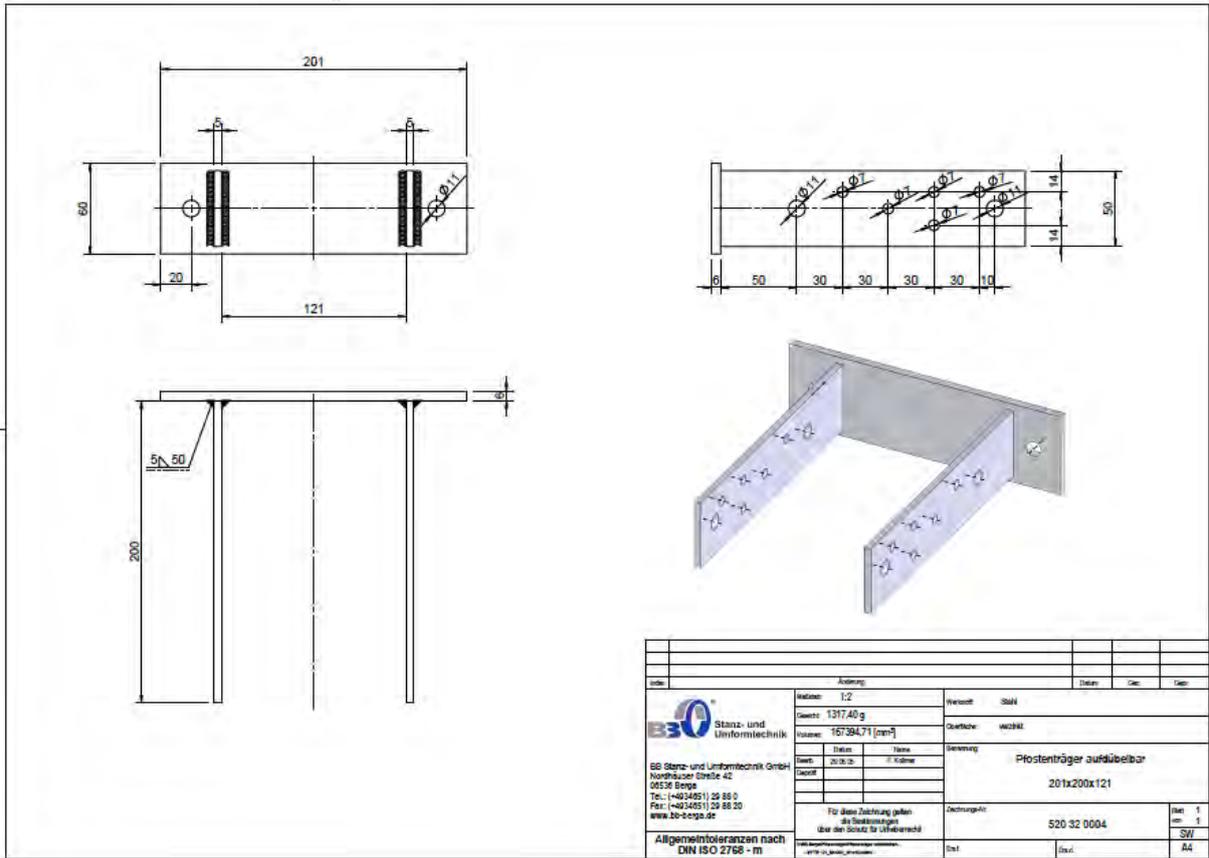
Allgemeintoleranzen nach
DIN ISO 2768 - m

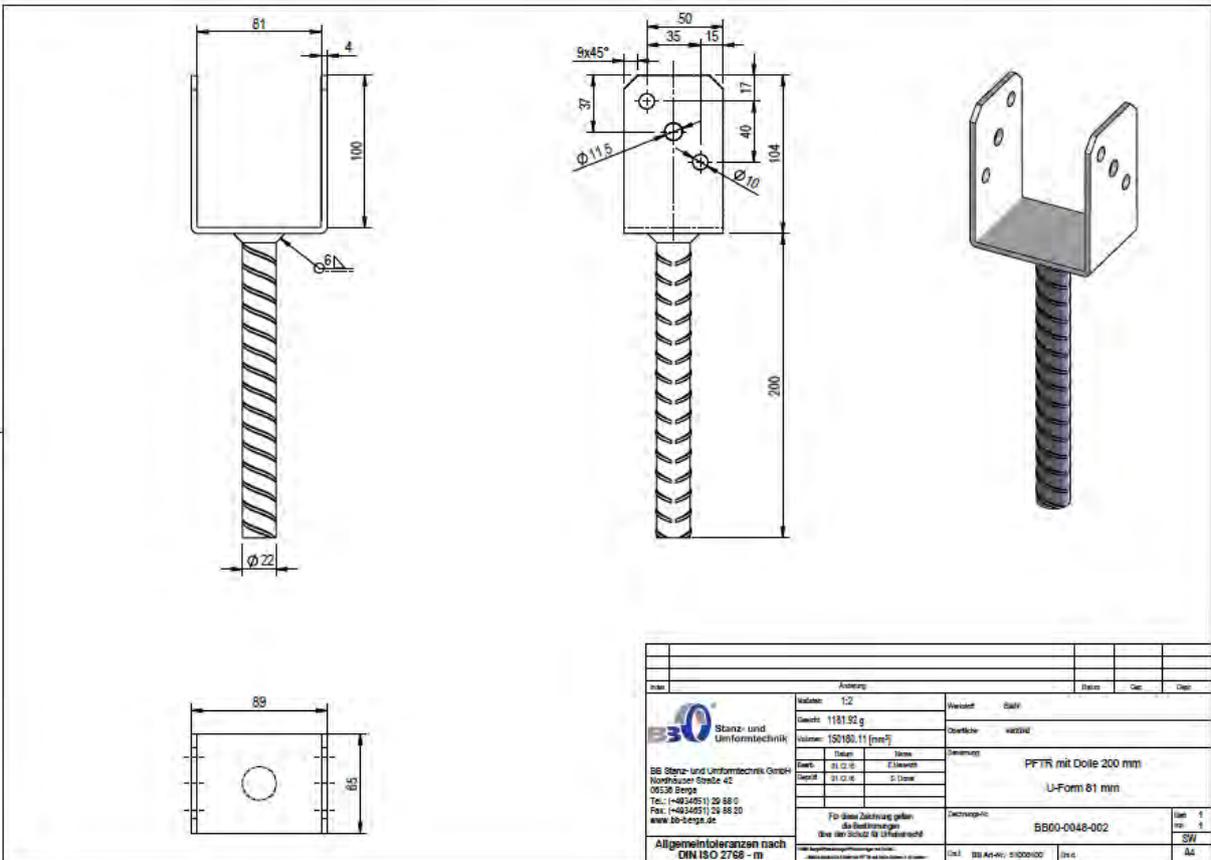
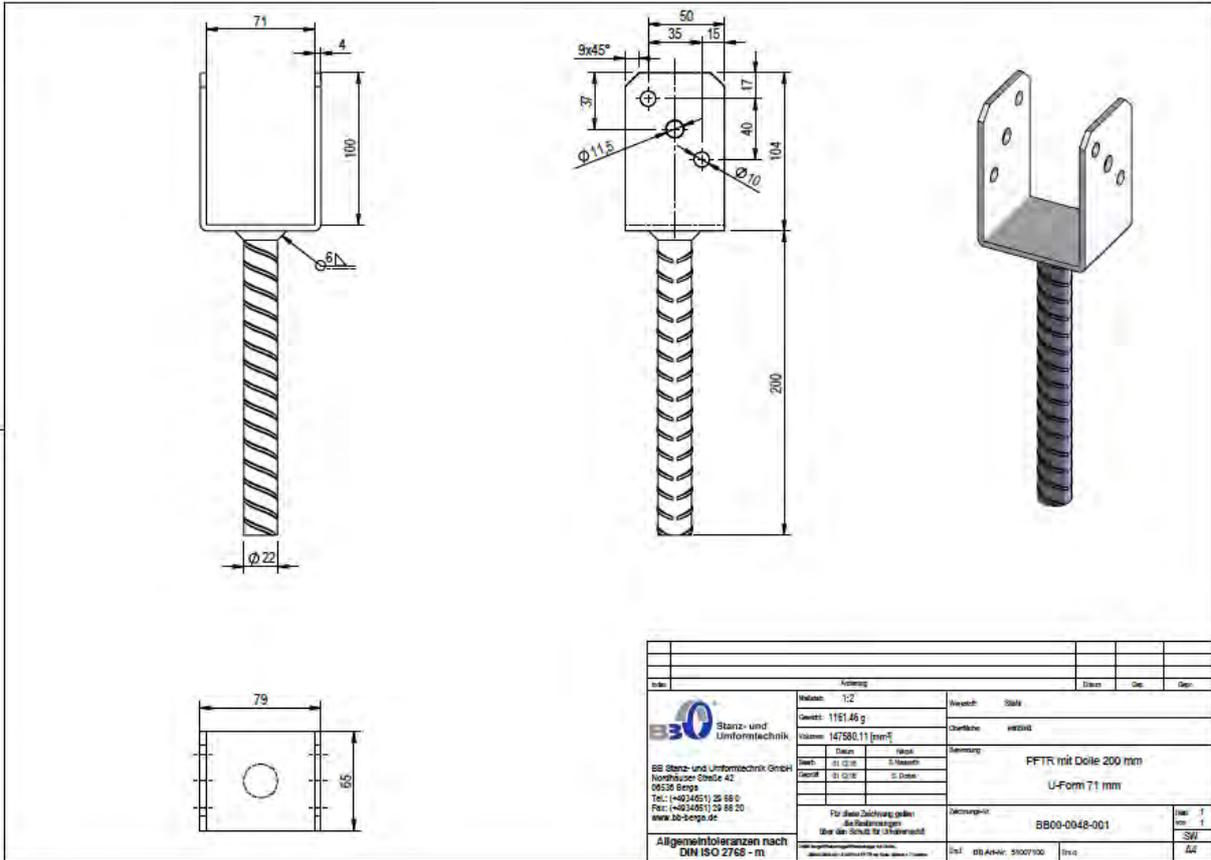
Technical drawing of a profile with a width of 181 mm and a height of 200 mm. The top flange is 50 mm thick. The drawing shows a front view with dimensions 181, 60, 20, 101, and 5. A side view shows a 5N 50 chamfer. A 3D perspective view shows the profile with a 14 mm thickness and a 50 mm height. The drawing includes a table with the following data:

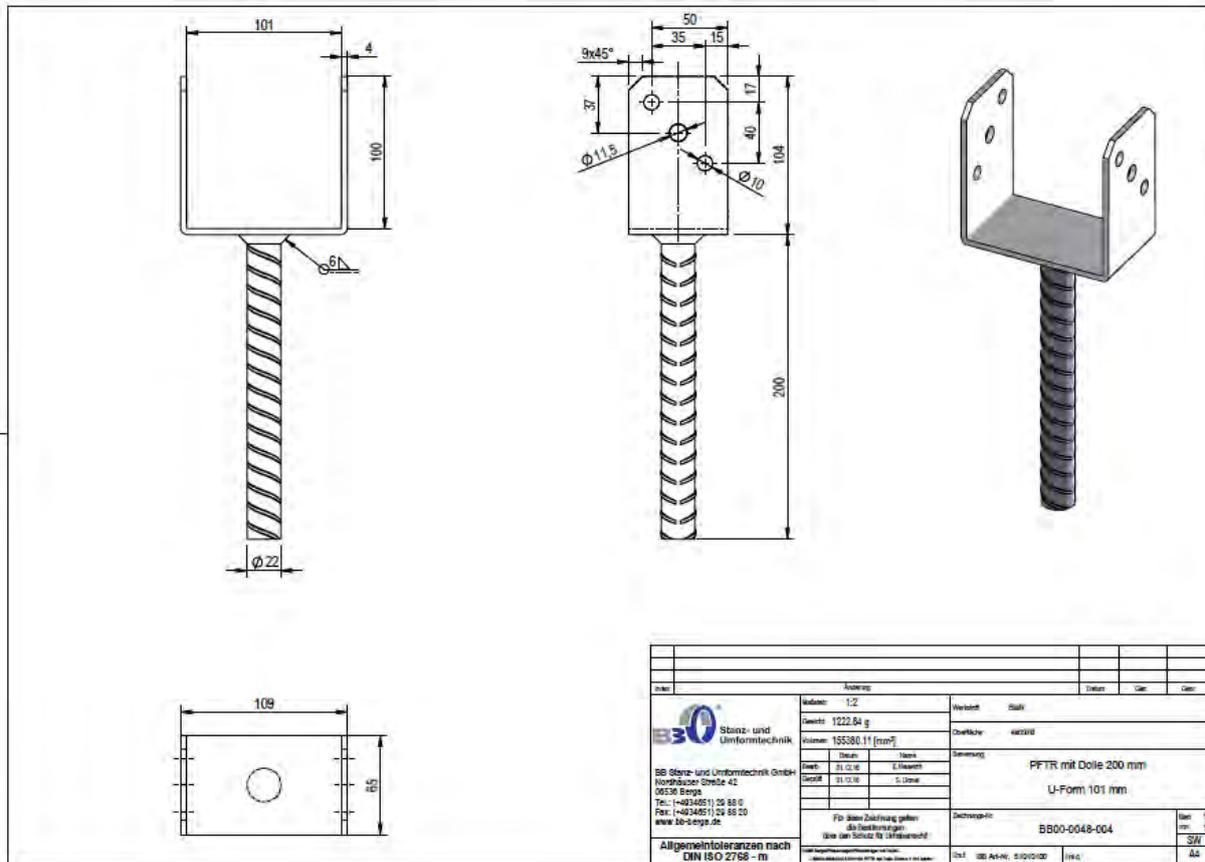
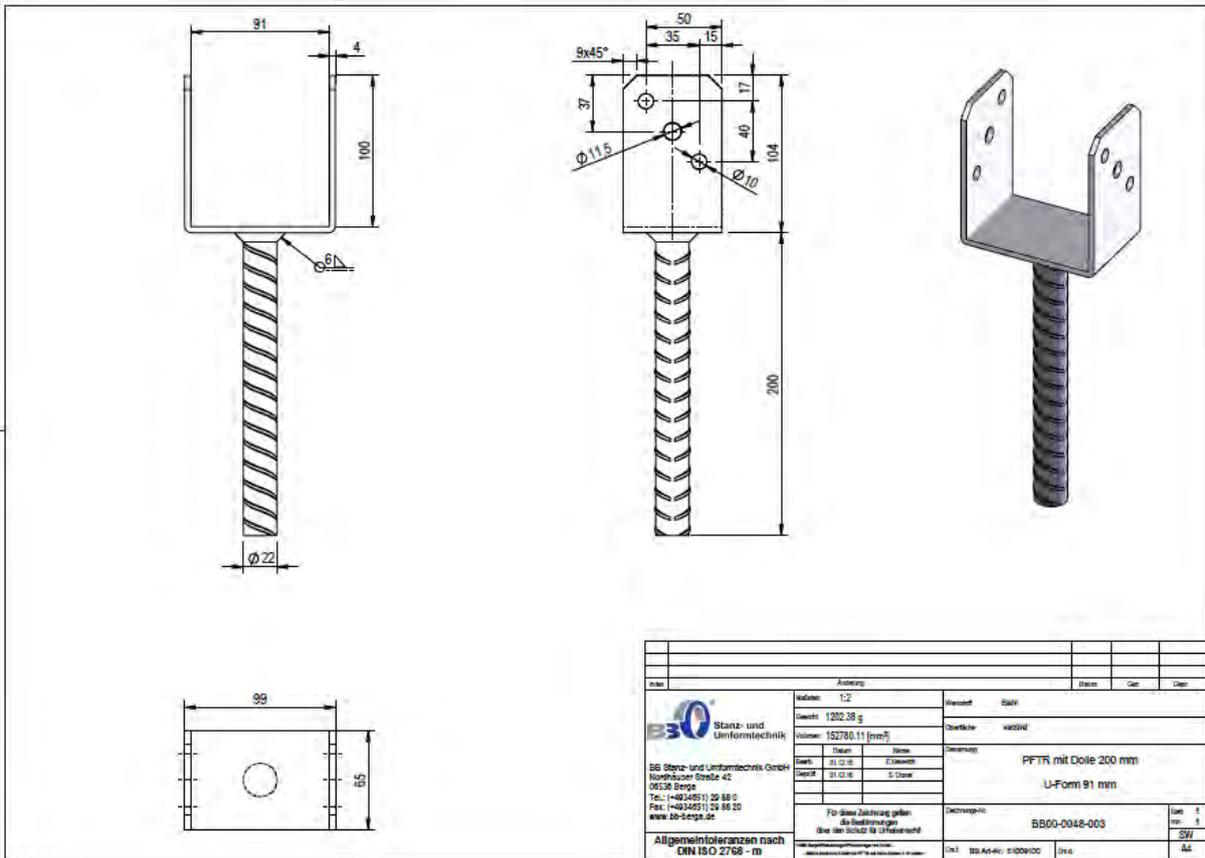
| Anmerkung | | Datum | Gez. | Gepr. |
|---------------|------------------------------|-------|------|-------|
| Index | | | | |
| Skizze | 1:2 | | | |
| Gewicht | 1260,73 g | | | |
| Flächeninhalt | 160194,71 [mm ²] | | | |
| Material | St 50 | | | |
| Form | 1-Kaliber | | | |
| Produktname | Profilenbräger aufdübelfähig | | | |
| Produktcode | 181x200x101 | | | |
| Zustellung | 520 32 0003 | | | |
| Blatt | 1 | | | |
| von | 1 | | | |
| SW | | | | |
| AW | | | | |

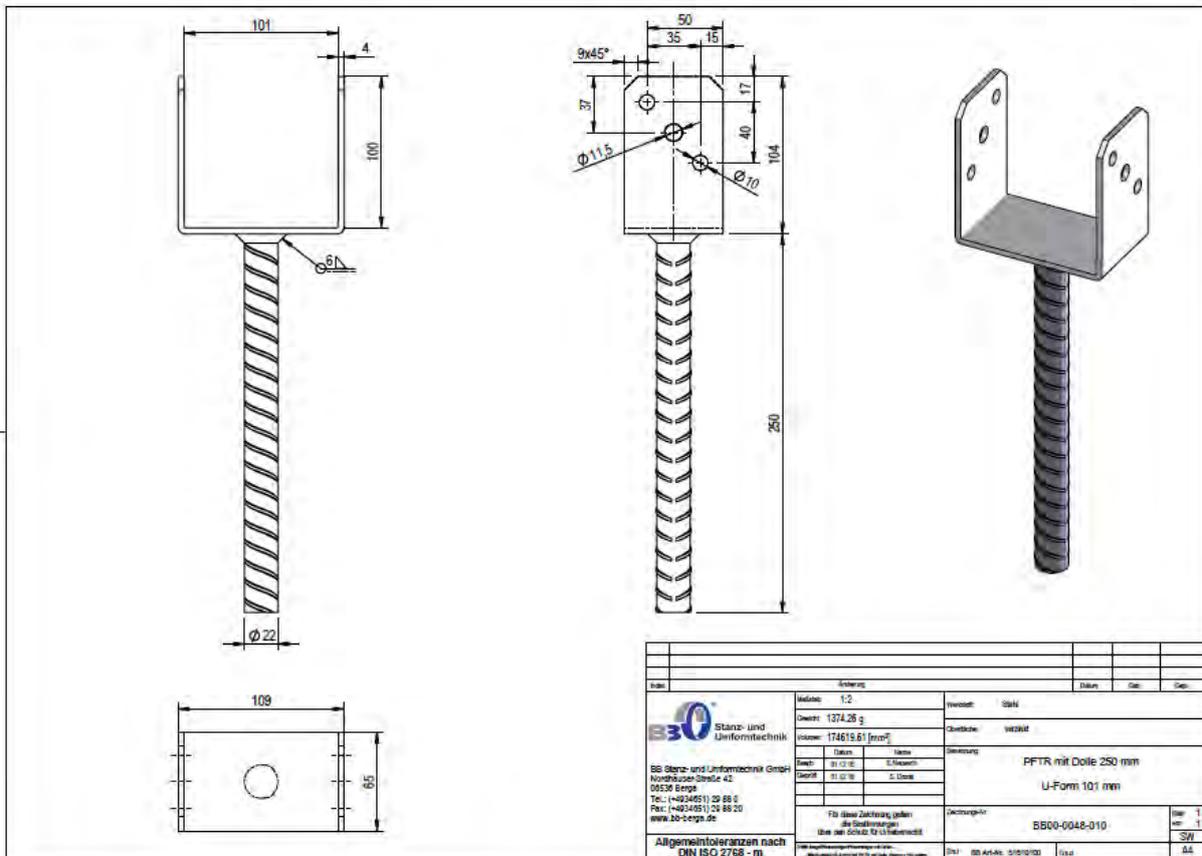
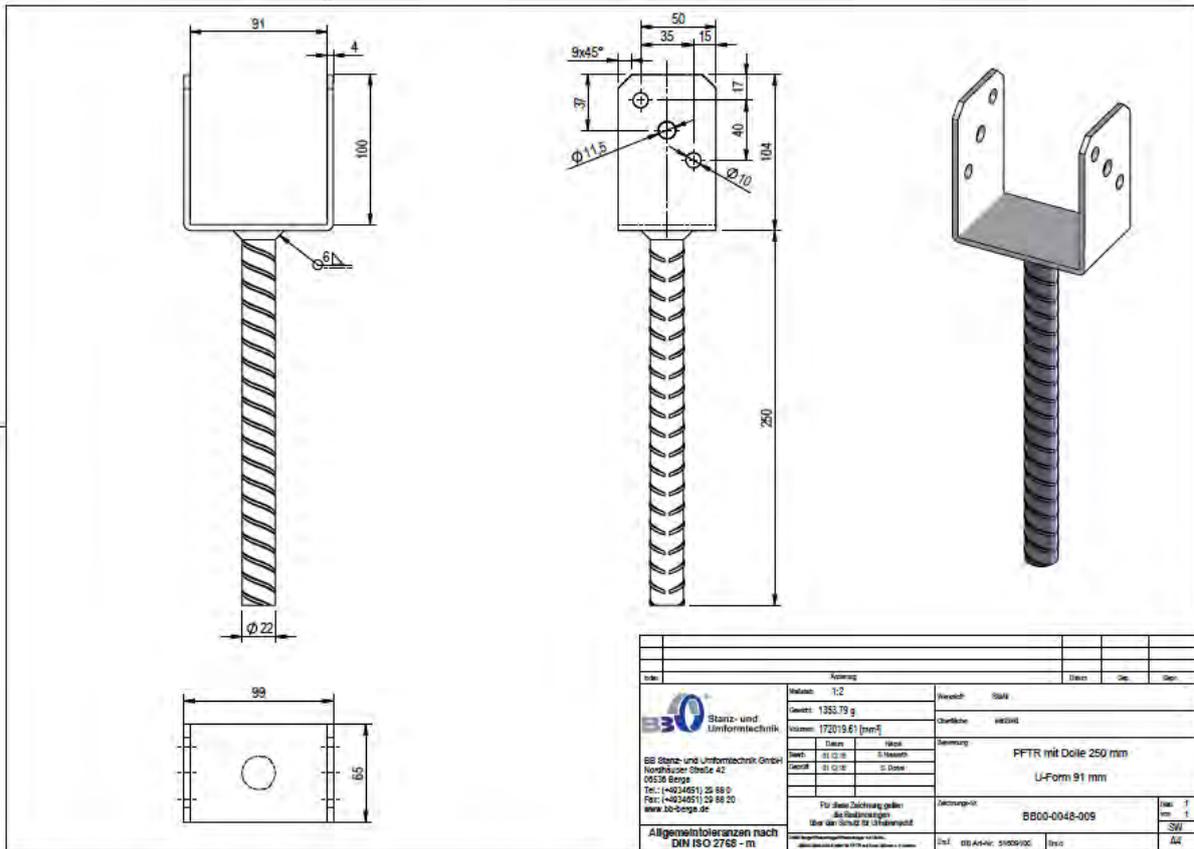
BB Stanz- und Umformtechnik GmbH
Nordhäuser Straße 42
06536 Berge
Tel.: (+4934951) 29 88 0
Fax: (+4934951) 29 88 20
www.bb-seng.de

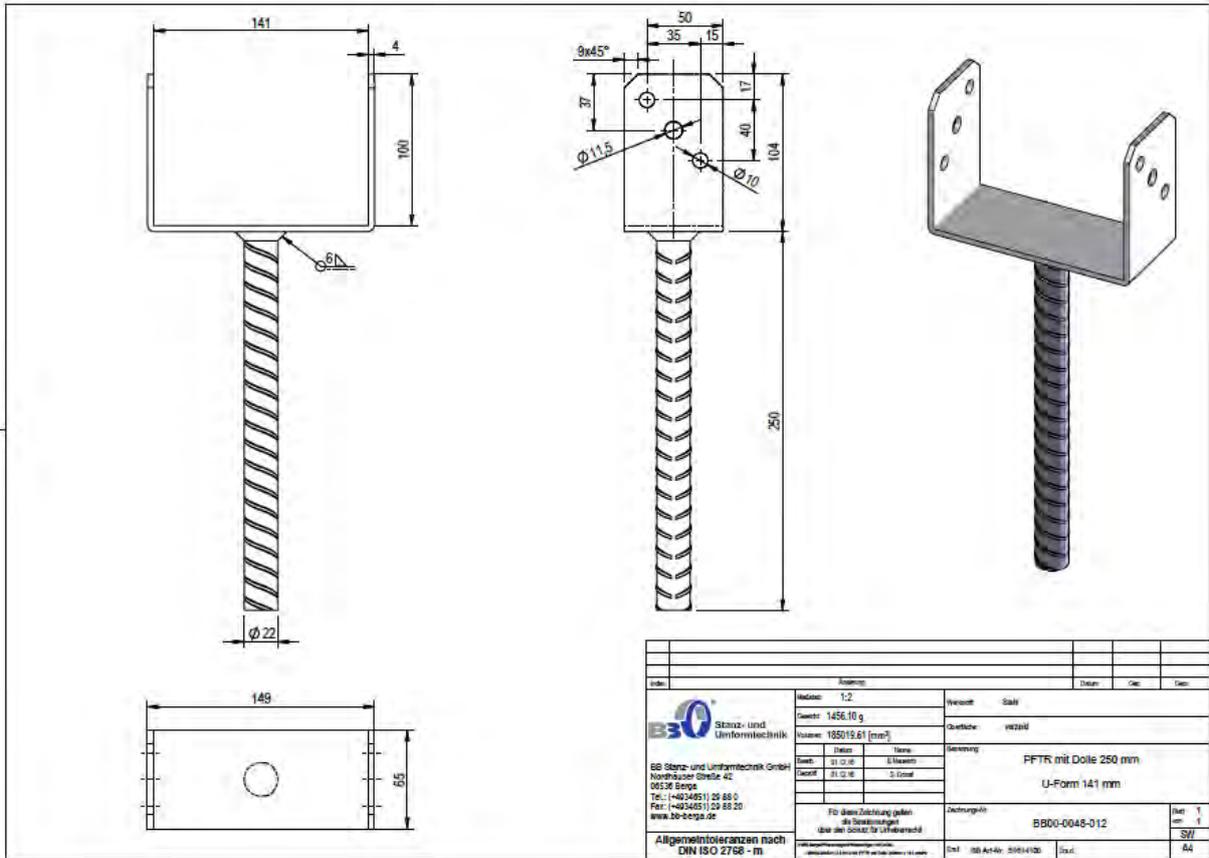
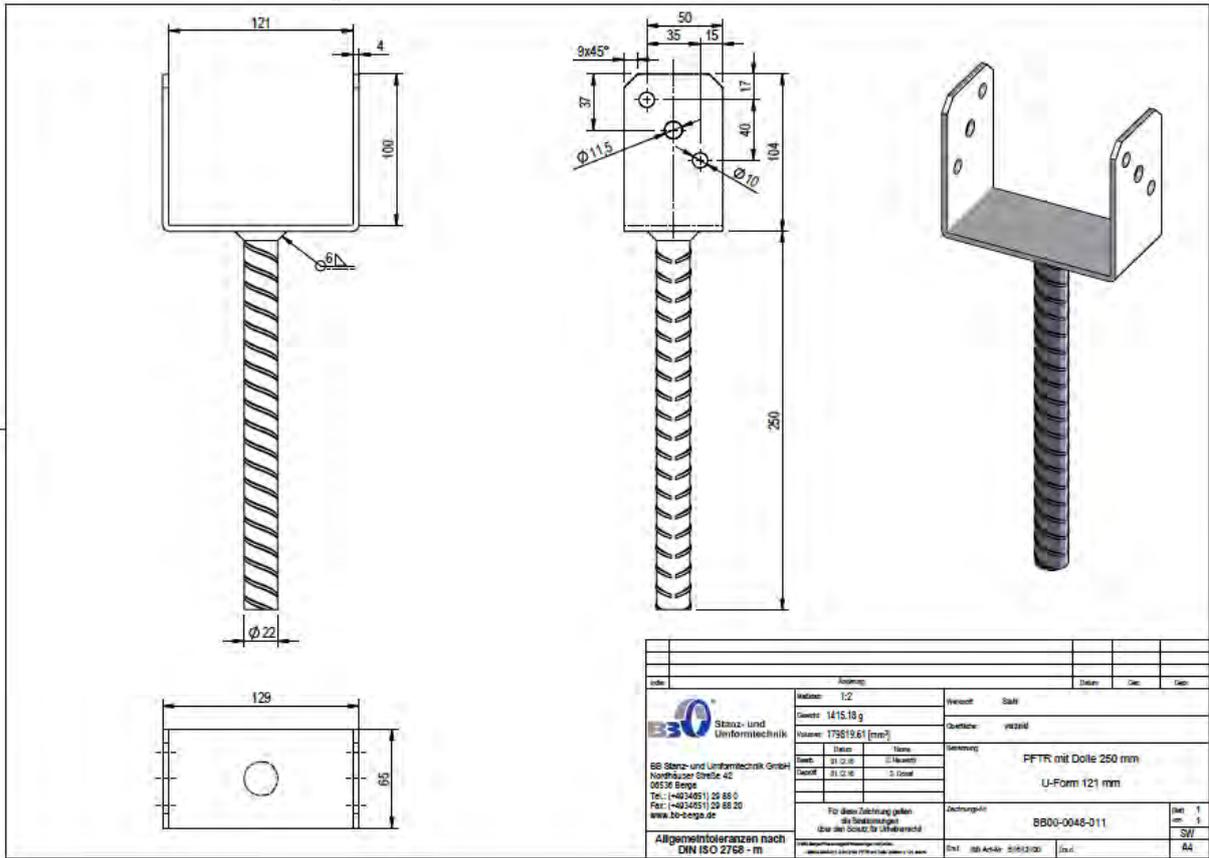
Allgemeintoleranzen nach
DIN ISO 2768 - m

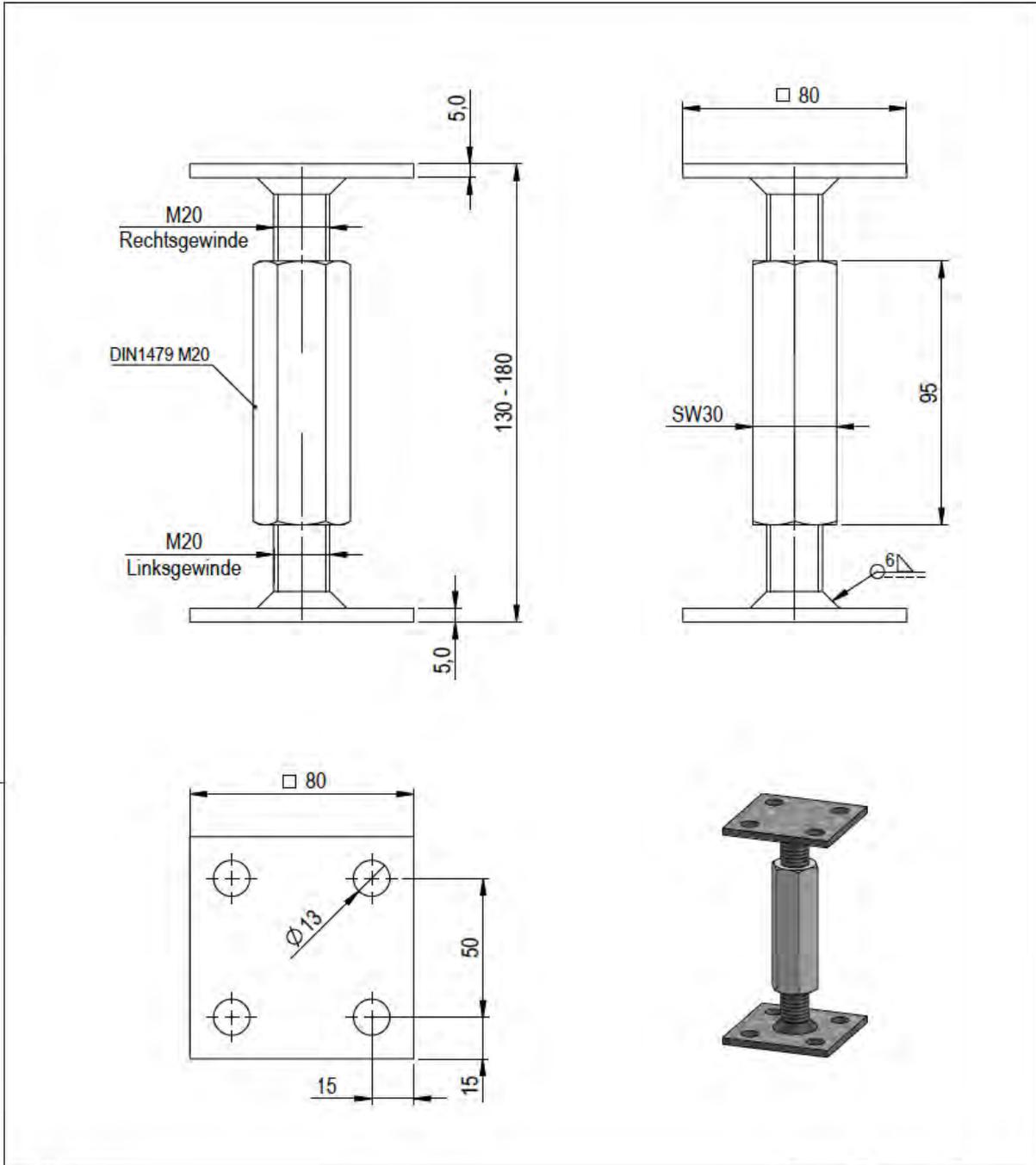




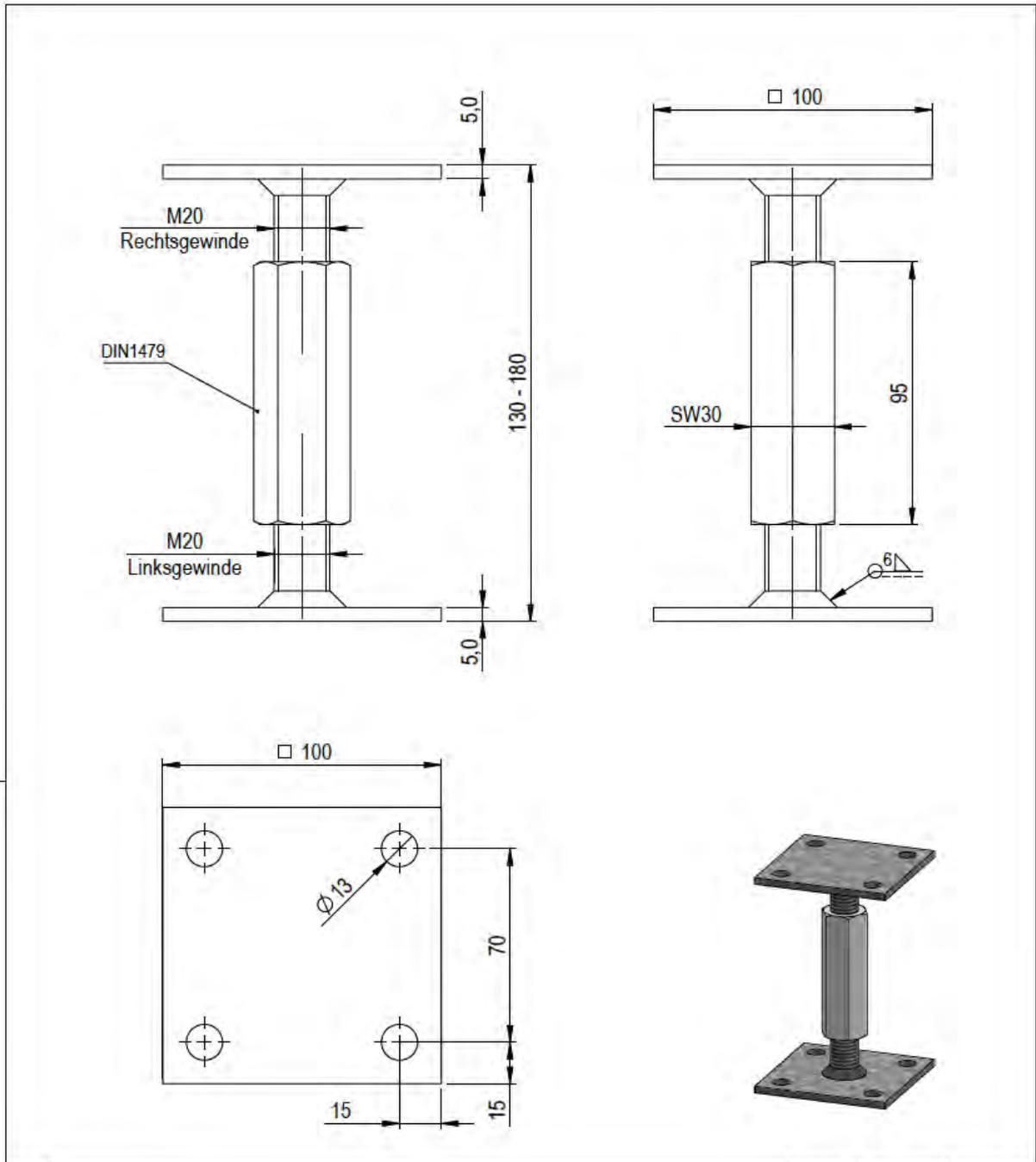








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|---|-----------------------------------|-------------|---|-------------|---------------|--|-------------|
| | | | | | | | |
| A | Toleranzen entfernt | | 13.12.16 | E. Neuwirth | S. Donat | | |
| Index | Änderung | | Datum | Gez. | Gepr. | | |
|  <p>B3 Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de</p> | Maßstab: 1:2 | | Werkstoff: Stahl | | | | |
| | Gewicht: 1159,63 g | | Oberfläche: verzinkt | | | | |
| | Volumen: 147781,53mm ³ | | Benennung: Pfosträger höhenverstellbar Art.Nr. 162462 80x80x5x130/180 | | | | |
| | | Datum | | | | | Name |
| | Bearb. | 28.09.16 | | | | | E. Neuwirth |
| Geprüft | 14.10.16 | A. Schröder | Zeichnungs-Nr. BB00-0035-009 | | Blatt 1 von 1 | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! <small>© VBB Berga BB00/BB00-0035-PFTR höhenverstellbar/... ...BB00-0035-009-PFT 80x80x5 162462.sdw</small> | | Ers.f. | Ers.d. | SW A4 | | | |



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|---|---------------------|---------------------------------|-------------|--|----------|----|--|
| | | | | | | | |
| A | Toleranzen entfernt | | 13.12.16 | E. Neuwirth | S. Donat | | |
| Index | Änderung | | Datum | Gez. | Gepr. | | |
|  Stanz- und Umformtechnik BB Stanz- und Umformtechnik GmbH Nordhäuser Straße 42 06536 Berga Tel.: (+4934651) 29 88 0 Fax: (+4934651) 29 88 20 www.bb-berga.de | Maßstab: | 1:2 | | Werkstoff: | Stahl | | |
| | Gewicht: | 1442,92 g | | Oberfläche: | verzinkt | | |
| | Volumen: | 183781,53 mm ³ | | Benennung: Pfosträger höhenverstellbar Art Nr. 33640 100x100x5x130/180 | | | |
| | Bearb.: | Datum | Name | | | | |
| | Geprüft: | 14.10.16 | A. Schröder | | | | |
| Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht! | | Zeichnungs-Nr. BB00-0035-013 | | Blatt 1 von 1 SW | | | |
| Allgmeintoleranzen nach DIN ISO 2768 - m | | Ers.f. | | Ers.d. | | A4 | |