ETA-Danmark A/S
Kollegievej 6
DK-2920 Charlottenlund
Tel. +45 72 24 59 00
Fax +45 72 24 59 04
Internet www.etadanmark.dk

Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

MEMBER OF EOTA

European Technical Approval ETA-13/0026

Trade name:	BB Stanz- und Umformtechnik GmbH post bases type A001, A002, A003, A004, H001, H002, H003, H004, H100 and BRN M20
Holder of approval:	BB Stanz- und Umformtechnik Nordhäuser Str. 42 D-06536 Berga Tel. +49 34651 2988 0 Fax +49 34651 2988 20 Internet www.bb-berga.de
Generic type and use of construction product:	Three-dimensional nailing plate (Post bases for the support of timber columns and posts as load-bearing elements)
Valid from: to:	2013-02-01 2018-02-+01
Manufacturing plant:	BB Stanz- und Umformtechnik Nordhäuser Str. 42 D-06536 Berga
This European Technical Approval contains:	22 pages including 2 annexes which form an integral part of the document

I LEGAL BASIS AND GENERAL CONDITIONS

1 This European Technical Approval is issued by ETA-Danmark A/S in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1)], as amended by Council Directive 93/68/EEC of 22 July 1993[2)].

- Bekendtgørelse 559 af 27-06-1994 (afløser bekendtgørelse 480 af 25-06-1991) om ikrafttræden af EF direktiv af 21. december 1988 om indbyrdes tilnærmelse af medlemsstaternes love og administrative bestemmelser om byggevarer.

- Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC[3)].

- EOTA Guideline ETAG 015 *Three-dimensional nailing plates,* September 2002 edition.

2 ETA-Danmark A/S is authorized to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.

3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European Technical Approval.

4 This European Technical Approval may be withdrawn by ETA-Danmark A/S pursuant to Article 5(1) of Council Directive89/106/EEC.

5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of ETA-Danmark A/S. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.

6 This European Technical Approval is issued by ETA-Danmark A/S in English.
This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

1) Official Journal of the European Communities N° L40, 11 Feb 1989, p 12.
2) Official Journal of the European Communities N° L220, 30 Aug 1993, p 1.
3) Official Journal of the European Communities N° L 17, 20 Jan 1994, p 34.

II SPECIAL CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

Definition of the product
The post bases are made of 4.0 mm to 8.0 mm thick steel plates in combination with steel tubes or threaded rods. The post bases are produced of steel grade S235JR according to EN 10025-2:2005-04 with minimum characteristic yield strength of R_{eH} = 235 N/mm² and a minimum characteristic tensile strength of R_m = 360 N/mm². The steel tubes are produced of steel grade S195T according to EN 10255:2007 with a minimum characteristic yield strength of R_{eH} = 195 N/mm² and a minimum characteristic tensile strength of R_m = 320 N/mm². The threaded rods correspond to property class 4.8 according to EN ISO 898-1:2009-08.

For the connections with metal fasteners dowels ø10 mm (S235) or bolts ø10 mm (4.6) and screws ø12x120 mm, ø10x100 mm, ø10x80 mm or ø6x80 mm according to EN 14592 with minimum characteristic tensile strength of R_m = 360 N/mm² or according to an European technical approval 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.

Intended use
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 Essential Requirements 1 and 4 of Council Directive 89/106/EEC 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 338:2003-09. 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 centrically 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 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 338:2003-09. 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 3 the corrosion protection is given by hot-dip zinc coating Z350 according to EN 10147. The metal fasteners must also have a zinc coating for the intended use in service class 3 of EN 1995-1-1 (zinc coating Fe/Zn 25c according to EN ISO 2081). Galvanic zinc coating of the post bases is only suitable for service classes 1 and 2.

The scope of the brackets 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 according to EN ISO 12944-2.

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 roof brackets 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.

2 Characteristics of product and assessment

ETAG paragraph	Characteristic		Assessment of characteristic
	2.1	**Mechanical resistance and stability*)**	
6.1.1		Characteristic load-carrying capacity	See Annex B
6.1.2		Stiffness	No performance determined
6.1.3		Ductility in cyclic testing	No performance determined
	2.2	**Safety in case of fire**	
6.2.1		Reaction to fire	The roof brackets are made from steel classified as **Euroclass A1** in accordance with EN 1350-1 and EC decision 96/603/EC, amended by EC Decision 2000/605/EC
	2.3	**Hygiene, health and the environment**	
6.3.1		Influence on air quality	No dangerous materials **)
	2.4	**Safety in use**	Not relevant
	2.5	**Protection against noise**	Not relevant
	2.6	**Energy economy and heat retention**	Not relevant
	2.7	**Related aspects of serviceability**	
6.7.1		Durability	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
6.7.2		Serviceability	
6.7.3		Identification	See Annex A

*) See page 5 of this ETA

**) In accordance with http://europa.eu.int-/comm/enterprise/construction/internal/dangsub/dangmain.htm In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, 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 EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

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:

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

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.

2.1 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 338:2003-09. Using the load-carrying capacities of the post bases, the specifications in Annex A 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 post bases are determined by calculation according to Eurocode 3 and Eurocode 5. 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.

2.7 Related aspects of serviceability

2.7.1 Corrosion protection in service class 1, 2 and 3.
In accordance with ETAG 015 the roof brackets are produced of steel grade S235JR according to EN 10025-2:2005-04 with minimum characteristic yield strength of R_{eH} = 235 N/mm² and a minimum characteristic tensile strength of R_m = 360 N/mm². The steel tubes are produced of steel grade S195T according to EN 10255:2007 with a minimum characteristic yield strength of R_{eH} = 195 N/mm² and a minimum characteristic tensile strength of R_m = 320 N/mm². The threaded rods correspond to property class 4.8 according to EN ISO 898-1:2009-08

3 Attestation of Conformity and CE marking

3.1 Attestation of Conformity system

The system of attestation of conformity is 2+ described in Council Directive 89/106/EEC (Construction Products Directive) Annex III.

a) Tasks for the manufacturer:

(1) Factory production control,
(2) Initial type testing of the product,

b) Tasks for the notified body:

(1) Initial inspection of the factory and the factory production control,
(2) Continuous surveillance

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer has a factory production control system in the plant and exercises permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. This production control system ensures that the product is in conformity with the European Technical Approval.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the control plan[4]. The incoming raw materials shall be subject to controls and tests by the manufacturer before acceptance. Check of materials, such as sheet metal, shall include control of the inspection documents presented by suppliers (comparison with nominal values) by verifying dimension and determining material properties, e.g. chemical composition, mechanical properties and zinc coating thickness.

The manufactured components are checked visually and for dimensions.

The control plan, which is part of the technical documentation of this European Technical Approval, includes details of the extent, nature and frequency of testing and controls to be performed within the factory production control and has been agreed between the approval holder and ETA Danmark.

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

- Designation of the product, basic material and components;
- Type of control or testing;
- Date of manufacture of the product and date of testing of the product or basic material and components;
- Result of control and testing and, if appropriate, comparison with requirements;
- Signature of person responsible for factory production control.

The records shall be presented to ETA Danmark on request.

3.2.1.1 Initial type testing of the product

For initial type-testing the results of the tests performed as part of the assessment for the European Technical Approval shall be used unless there are changes in the production line or plant. In such cases the necessary initial type testing has to be agreed between ETA Danmark and the notified body.

3.2.2. Tasks of notified bodies

3.2.2.1 Initial inspection of the factory and the factory production control

The approved body should ascertain that, in accordance with the control plan, the factory, in particular the staff and equipment, and the factory production control, are suitable to ensure a continuous and orderly manufacturing of the post bases with the specifications given in part 2.

3.2.2.2 Continuous surveillance

The approved body shall visit the factory at least twice a year for routine inspections. It shall be verified that the system of factory production control and the specified manufacturing processes are maintained, taking account of the control plan.

The results of product certification and continuous surveillance shall be made available on demand by the certification body to ETA Danmark. Where the provisions of the European Technical Approval and the control plan are no longer fulfilled, the certificate

4 The control plan has been deposited at ETA-Danmark and is only made available to the approved bodies involved in the conformity attestation procedure.

of conformity shall be withdrawn by the approved body.

3.3 CE marking

The CE marking shall be affixed on each packaging of post bases. The initials "CE" shall be followed by the identification number of the notified body and shall be accompanied by the following information:

- Name or identifying mark of the manufacturer
- The last two digits of the year in which the marking was affixed
- Number of the European Technical Approval
- Name and size of product
- Number of the ETA Guideline (ETAG no. 015)
- Number of the EC Certificate of Conformity

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

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

4.2 Installation

The nailing pattern used shall be the maximum as defined in Annex B.

The following provisions concerning installation apply:

The structural members to which the brackets are fixed shall be:

- The timber post
  - shall be restrained against rotation, and supported at the lower and upper end
  - shall be strength class C24 according to EN 338:2003-09 or better, see section 3 of this evaluation report
  - 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 of the post base.

- The post base shall be installed centrically 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 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 $e_{F2/F3}$ (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.

4.3 Maintenance and repair

Maintenance is not required during the assumed intended working life. Should repair prove necessary, it is normal to replace the post base.

Thomas Bruun
Manager, 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	Screws*	Dowels/Bolts	min b/h	max. a	$e_{F2/F3}$	$e_{F4/F5}$
A001	4x F 12 x120mm	-	140/140	110	110	110
A002	2x P 10,0x80mm	-	80 to 160 /140	163	-	-
	4x P 6,0x80mm	-	80 to 160 /140	163	-	-
A003	-	2 x D Ø10 or 2 x Bo Ø10 in upper holes	100/130	163	251	176
A004	-	1 x Bo M10	120/120	163	-	263
H001	4x F 12 x120mm	-	130/130	135 to 200	a	a
H002	2x P 10,0x80mm	-	80 to 160 /140	145 to 210	-	-
	4x P 6,0x80mm	-	80 to 160 /140	145 to 210	-	-
H003	-	2 x D Ø10 or 2 x Bo Ø10 in upper holes	100/130	135 to 200	a +13	a +100
H004	4x F 12 x120mm	1 x D Ø10 or 1 x Bo M10	130/130	135 to 200	a + 60	a
H100	4x F 12 x120mm	-	130/130	140 to 205	a	a
BRN M20	4x F 10 x100mm	-	120/120	40 to 146	a	a

* P = partial thread; F = full thread

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
Screws	6 mm	min 80 mm	min 48 mm	$f_{u,k} \geq 360$ N/mm^2	Galvanic zinc coating
Screws	10 mm	min 80 mm	min 48 mm	$f_{u,k} \geq 360$ N/mm^2	Galvanic zinc coating
Screws	10 mm	min 100 mm	min 88 mm	$f_{u,k} \geq 360$ N/mm^2	Galvanic zinc coating
Screws	12 mm	min 120 mm	min 105 mm	$f_{u,k} \geq 360$ 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

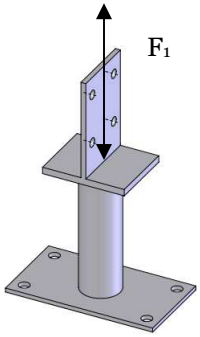
Table B.1 Characteristic load-carrying capacities for post bases in kN

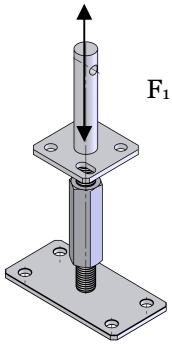
Post Base		F_1 (Compression)			F_1 (Tension)			F_2 /F_3			F_4/F_5		
Type	Metal Fasteners	Timber	Steel		Timber	Steel		Timber	Steel		Timber	Steel	
A001	4 x F 12 x 120 mm	100,0	100,0	87,8	18,7	8,5	-	12,0	3,0	-	12,0	3,0	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-
A002	2 x P 10 x 80 mm	26,3	32,5	-	9,2	2,0	-	-	-	-	-	-	-
	4 x P 6 x 80 mm	26,3	32,5	-	9,2	2,0	-	-	-	-	-	-	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	-	-	-	-	-	-
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	-
		$\gamma_{M\,(T)}$	-	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(T)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-
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	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	$\gamma_{M,1}$	$\gamma_{M\,(J)}$	$\gamma_{M,o}$	-	-	-	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-
H001	4 x F 12 x 120 mm	55,9	55,9	57,9	18,7	6,1	-	12,0	0,8	-	6,0	1,3	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-
H002	2 x P 10 x 80mm	26,3	32,5	-	9,2	2,0	-	-	-	-	-	-	-
	4 x P 6 x 80mm	26,3	32,5	-	9,2	2,0	-	-	-	-	-	-	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	-	-	-	-	-	-
H003	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	-
		$\gamma_{M\,(T)}$	$\gamma_{M,1}$	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(T)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(T)}$	$\gamma_{M,o}$	-
H004	4 x F 12 x 120 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	-	-	-	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	-	-	-
H100	4 x F 12 x 120 mm	55,9	55,9	57,3	18,7	6,1	-	12,0	0,8	-	12,0	1,3	-
		$\gamma_{M\,(T)}$	$\gamma_{M,o}$	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	–
BRN M20	4 x F 10 x 100 mm	84,5	-	64,2	14,8	10,0	-	9,5	1,7	-	9,5	1,7	-
		$\gamma_{M\,(T)}$	-	$\gamma_{M,1}$	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-	$\gamma_{M\,(C)}$	$\gamma_{M,o}$	-

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

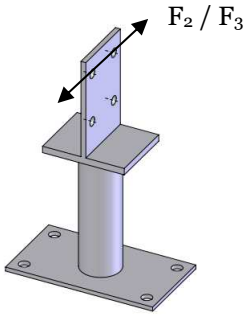
Definitions of forces, their directions and eccentricity

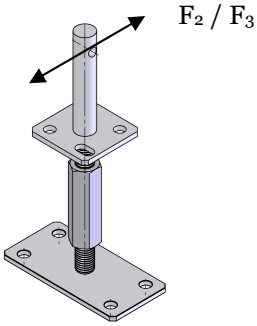
- Force F_1: tensile or compression load



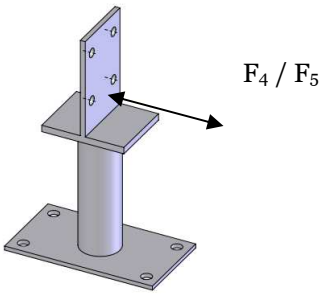


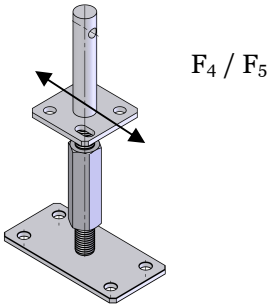
- Force F_2 / F_3: horizontal parallel to the ground plate of the post base and perpendicular to the bolts or dowels





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





Acting forces

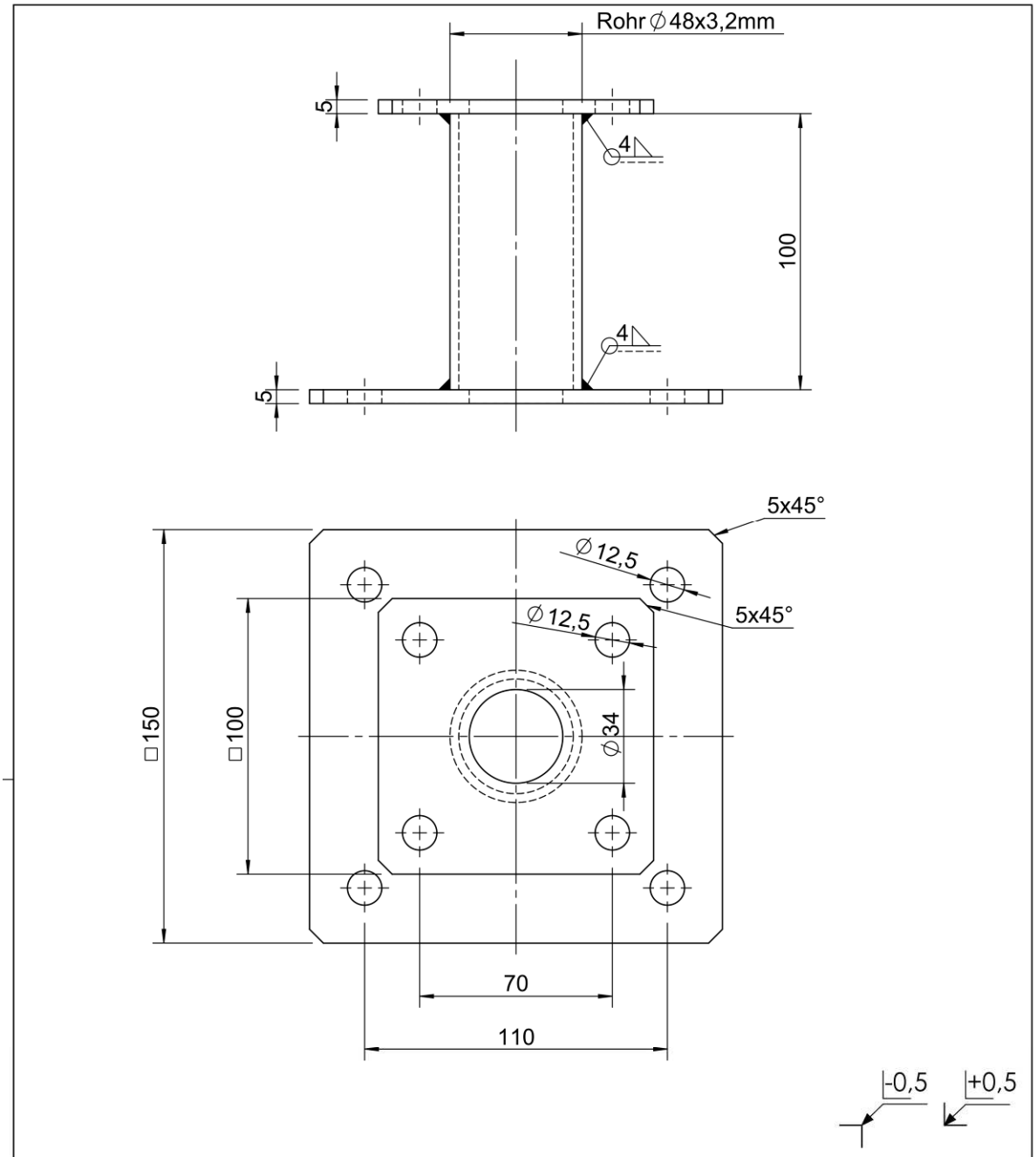
F_1	axial force (tension or compression) acting along the central axis of the joint
F_2 and F_3	horizontal force perpendicular to the ground plate of the post base acting with the lever arm $e_{F2/F3}$ above the foundation
F_4 and F_5	horizontal force parallel to the ground plate of the post base acting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

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:

$$\sum \frac{F_{i,d}}{R_{i,d}} \leq 1$$

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.



Index	Änderung	Datum	Gez.	Gepr.

BB Stanz- und Umformtechnik
Nordhäuser Straße 42
06536 Berga
Tel.: (+4934651) 29 88 0
Fax: (+4934651) 29 88 20
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Allgemeintoleranzen nach DIN ISO 2768 - m

Maßstab:	1:2	
Gewicht:	1519.30 [g]	
Volumen:	193049.93 [mm³]	
	Datum	Name
Bearb.	19.04.05	F. Kollmar
Geprüft		
Norm		
QS		

N:\SolidWorks\AUFTRÄGE Extern\BB Berga\Consolen\...\Console 150x150x5_70x70x5_d48x100.slddrw

Werkstoff: Stahl S 235 JR

Oberfläche: verzinkt

Benennung:

PFTR A001 Platte

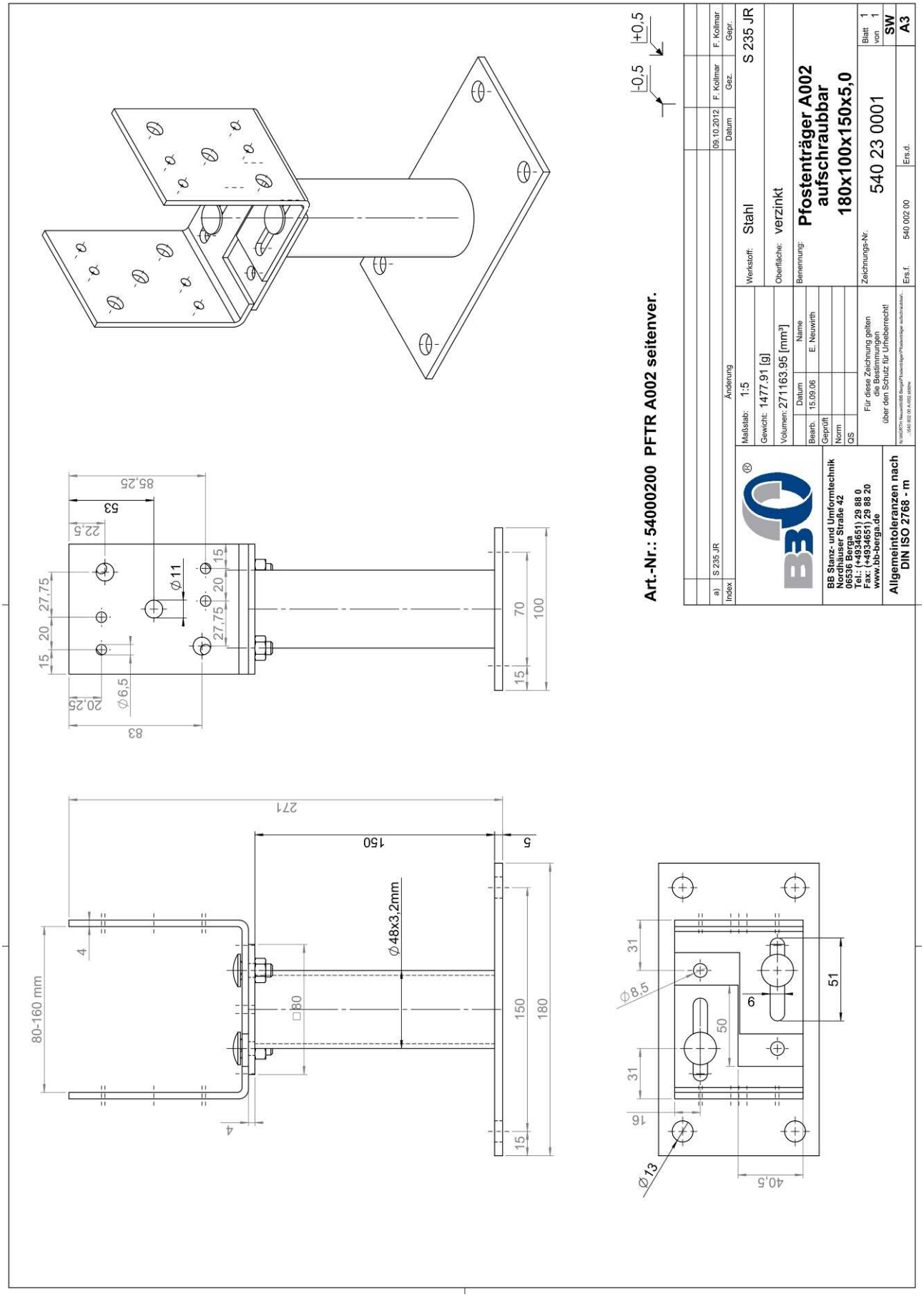
Art.-Nr.: 54000100

Zeichnungs-Nr. BB00 0003001 A

Blatt 1 von 1

SW

Ers.f. | Ers.d. | A4


Art.-Nr.: 54000200 PFTR A002 seitenver.
Pfostenträger A002 aufschraubbar 180x100x150x5,0
540 23 0001
Stahl
S 235 JR
verzinkt
1:5
1477,91 [g]
271163,95 [mm³]
BB Stanz- und Umformtechnik
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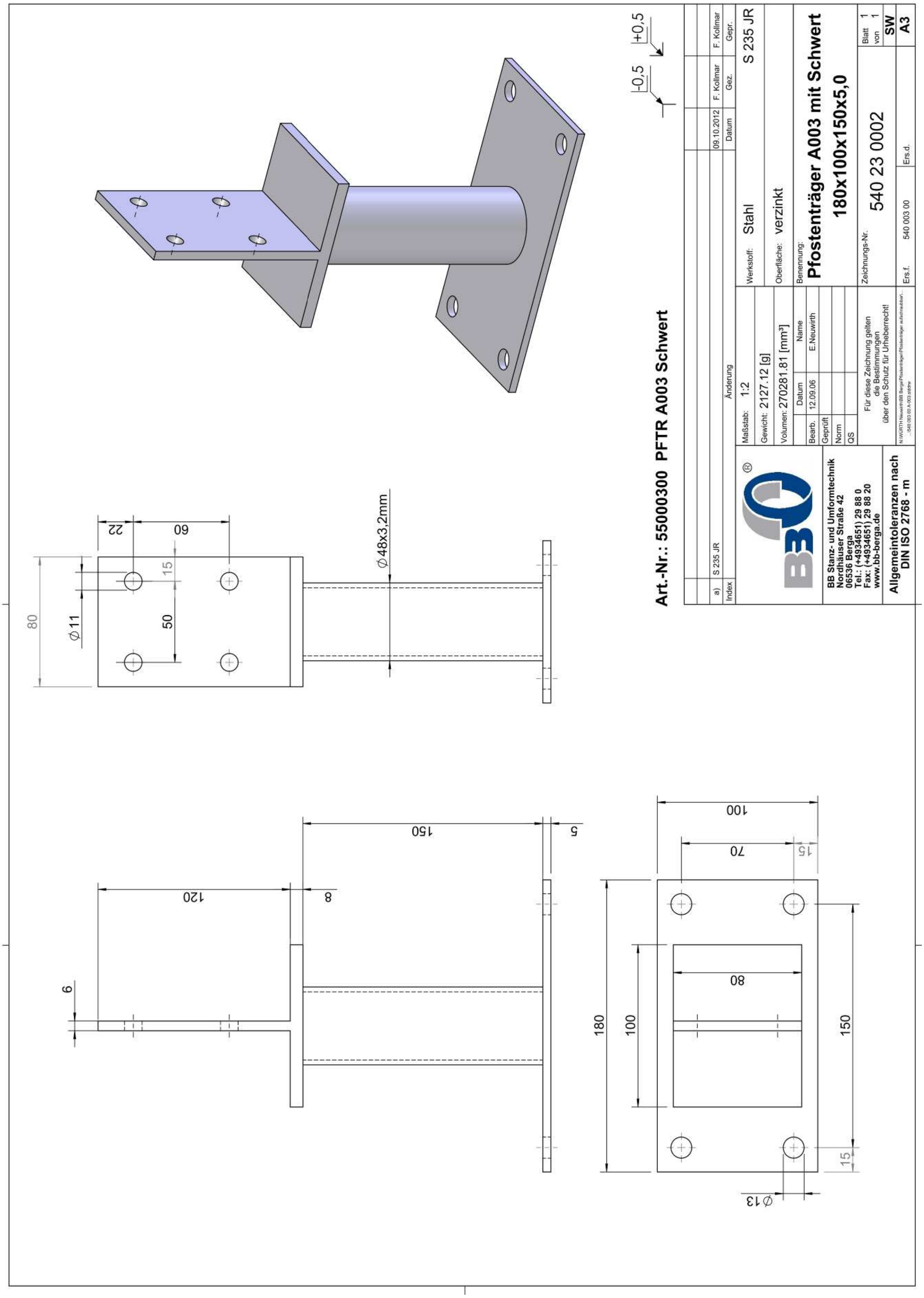
Allgemeintoleranzen nach DIN ISO 2768 - m
Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht!
80-160 mm
Ø48x3,2mm
□80
Ø8,5
Ø13


Art.-Nr.: 55000300 PFTR A003 Schwert
Pfostenträger A003 mit Schwert
180x100x150x5,0
Werkstoff: Stahl
S 235 JR
Oberfläche: verzinkt
Maßstab: 1:2
Gewicht: 2127.12 [g]
Volumen: 270281.81 [mm³]
Zeichnungs-Nr.
540 23 0002
Ers.f. 540 003 00
Ers.d.
Bearb. 12.09.06 E.Neuwirth
Geprüft
Norm
QS
Datum
Name
Index
Änderung
a) S 235 JR
09.10.2012 F. Kollmar F. Kollmar
Datum Gez. Gepr.
Blatt 1 von 1
SW
A3
Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht!
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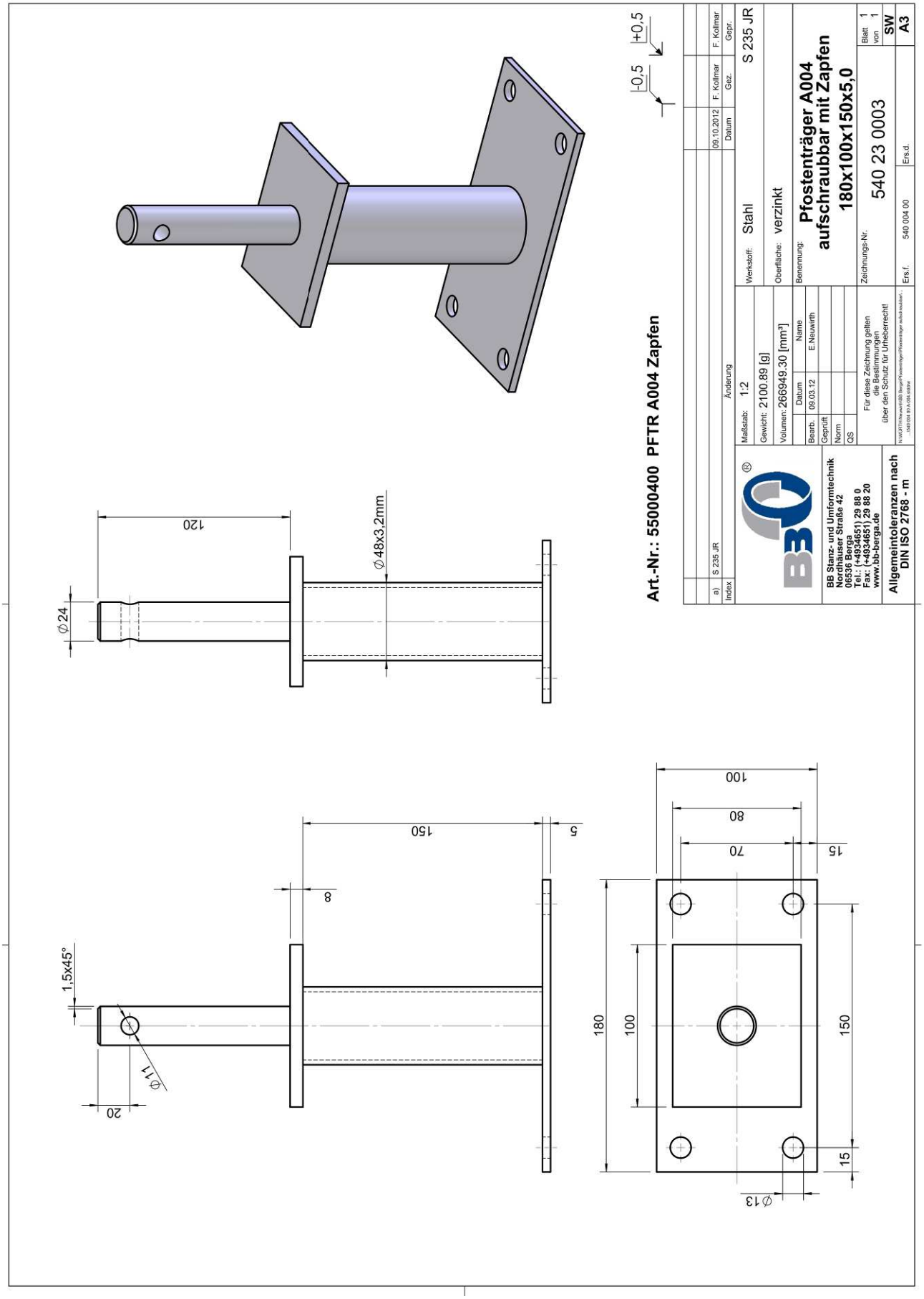
Fax: (+4934651) 29 88 20
www.bb-berga.de
Allgemeintoleranzen nach DIN ISO 2768 - m
-0,5
+0,5
Ø48x3,2mm
Ø11
Ø13
22
60
15
50
80
120
8
150
5
6
180
100
150
70
15
100
80


Art.-Nr.: 55000400 PFTR A004 Zapfen
+0,5
-0,5
120
Ø48x3,2mm
Ø24
150
5
8
1,5x45°
Ø11
20
100
80
70
15
180
100
150
15
Ø13
Pfostenträger A004
aufschraubbar mit Zapfen
180x100x150x5,0
540 23 0003
S 235 JR
Stahl
verzinkt
1:2
2100.89 [g]
266949.30 [mm³]
09.10.2012
F. Kollmar
09.03.12
E.Neuwirth
BB Stanz- und Umformtechnik
Nordhäuser Straße 42
06567 Bad Sachsa
Tel.: (+49)34651) 29 88 0
Fax: (+49)34651) 29 88 20
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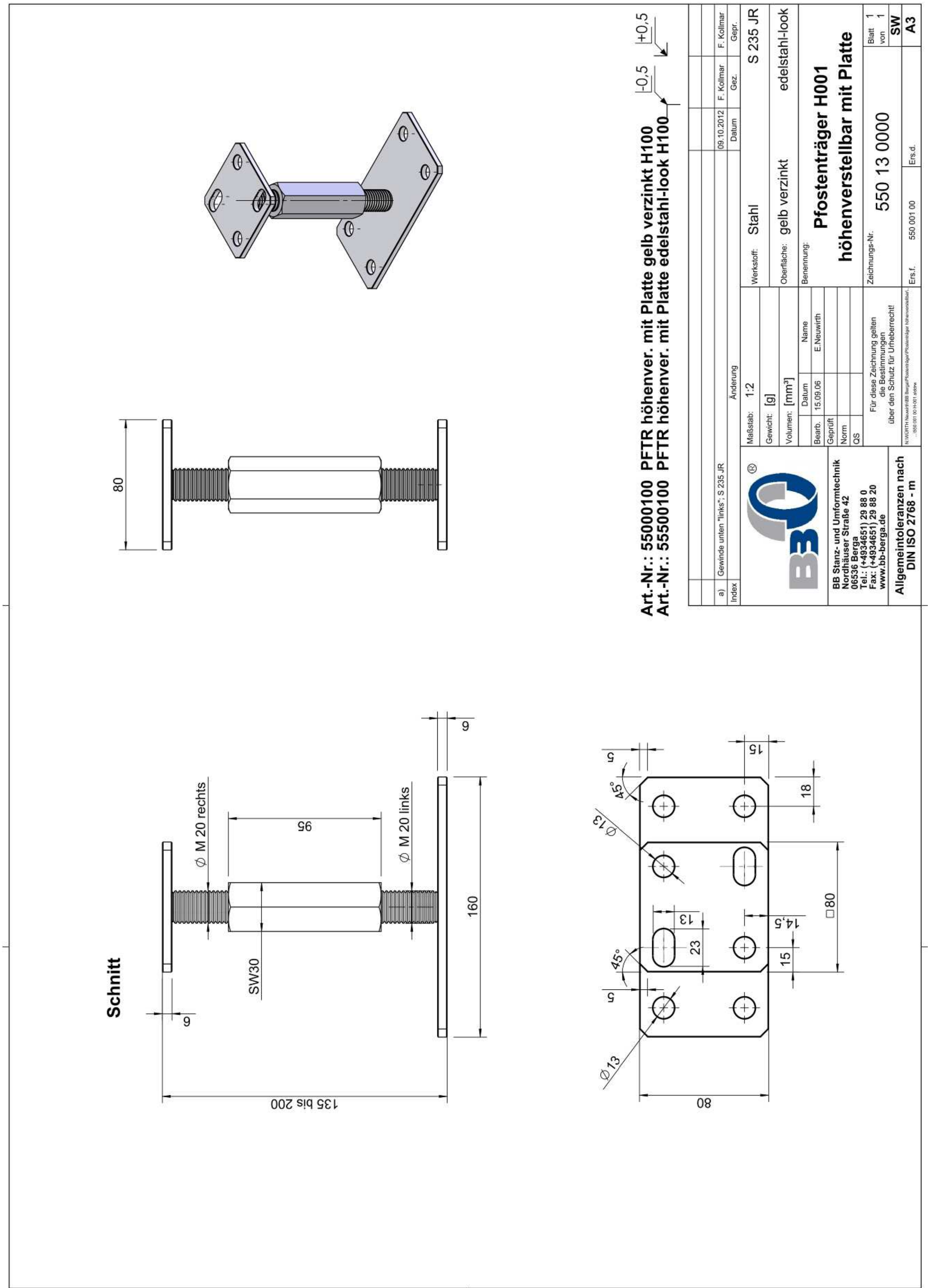
Allgemeintoleranzen nach
DIN ISO 2768 - m
Für diese Zeichnung gelten
die Bestimmungen
über den Schutz für Urheberrecht!
SW
A3


Art.-Nr.: 55000100 PFTR höhenver. mit Platte gelb verzinkt H100
Art.-Nr.: 55500100 PFTR höhenver. mit Platte edelstahl-look H100
-0,5
+0,5
a) Gewinde unten "links"; S 235 JR
09.10.2012 F. Kollmar F. Kollmar
Index Änderung Datum Gez. Gepr.
Maßstab: 1:2
Gewicht: [g]
Volumen: [mm³]
Werkstoff: Stahl S 235 JR
Oberfläche: gelb verzinkt edelstahl-look
Benennung:
Pfostenträger H001
höhenverstellbar mit Platte
Datum Name
Bearb. 15.09.06 E.Neuwirth
Geprüft
Norm
QS
Zeichnungs-Nr.
550 13 0000
Blatt 1 von 1
SW
A3
Ers.f. 550 001 00
Ers.d.
BB Stanz- und Umformtechnik
Nordhäuser Straße 42
06536 Berga
Tel.: (+4934651) 29 88 0
Fax: (+4934651) 29 88 20
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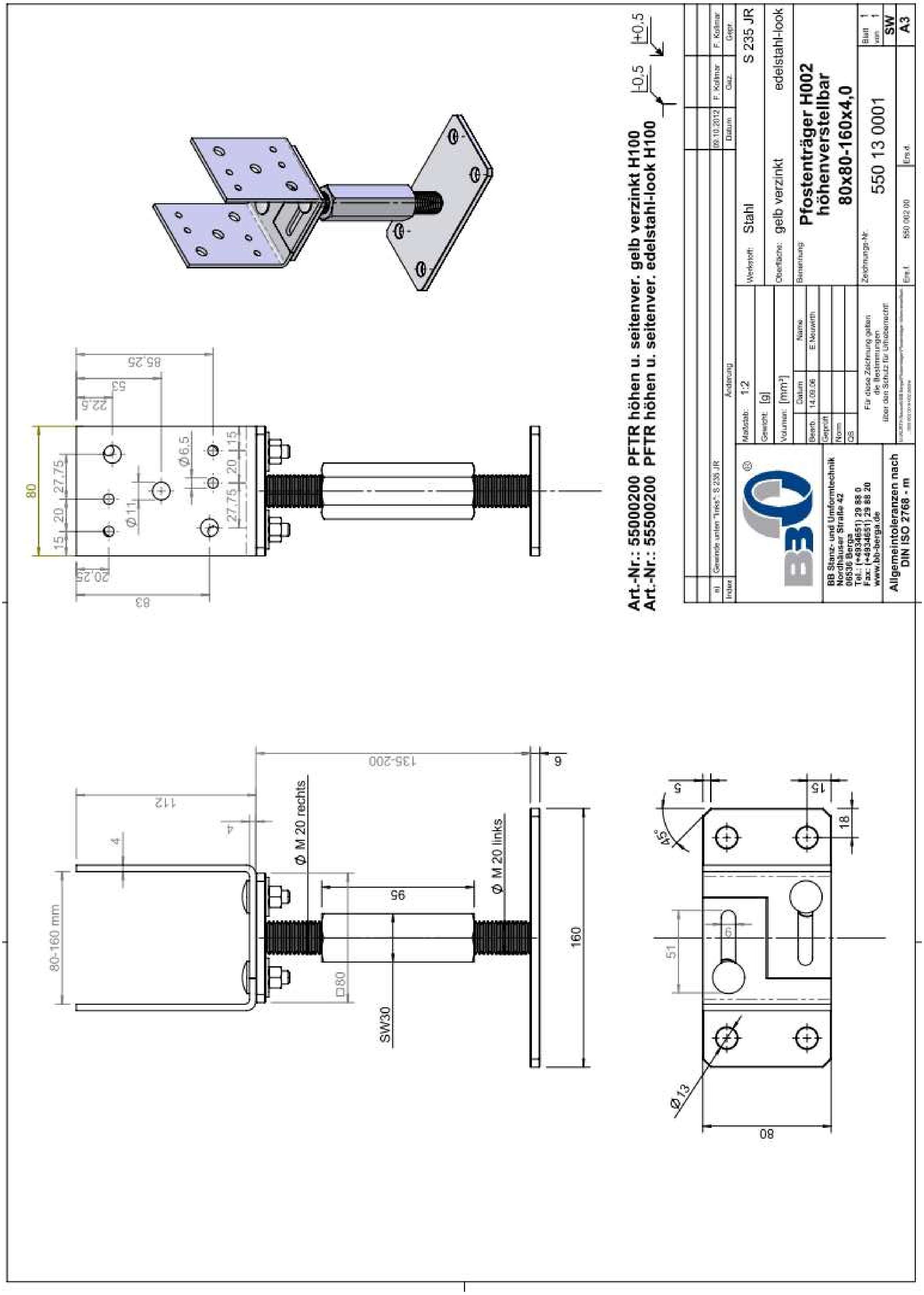
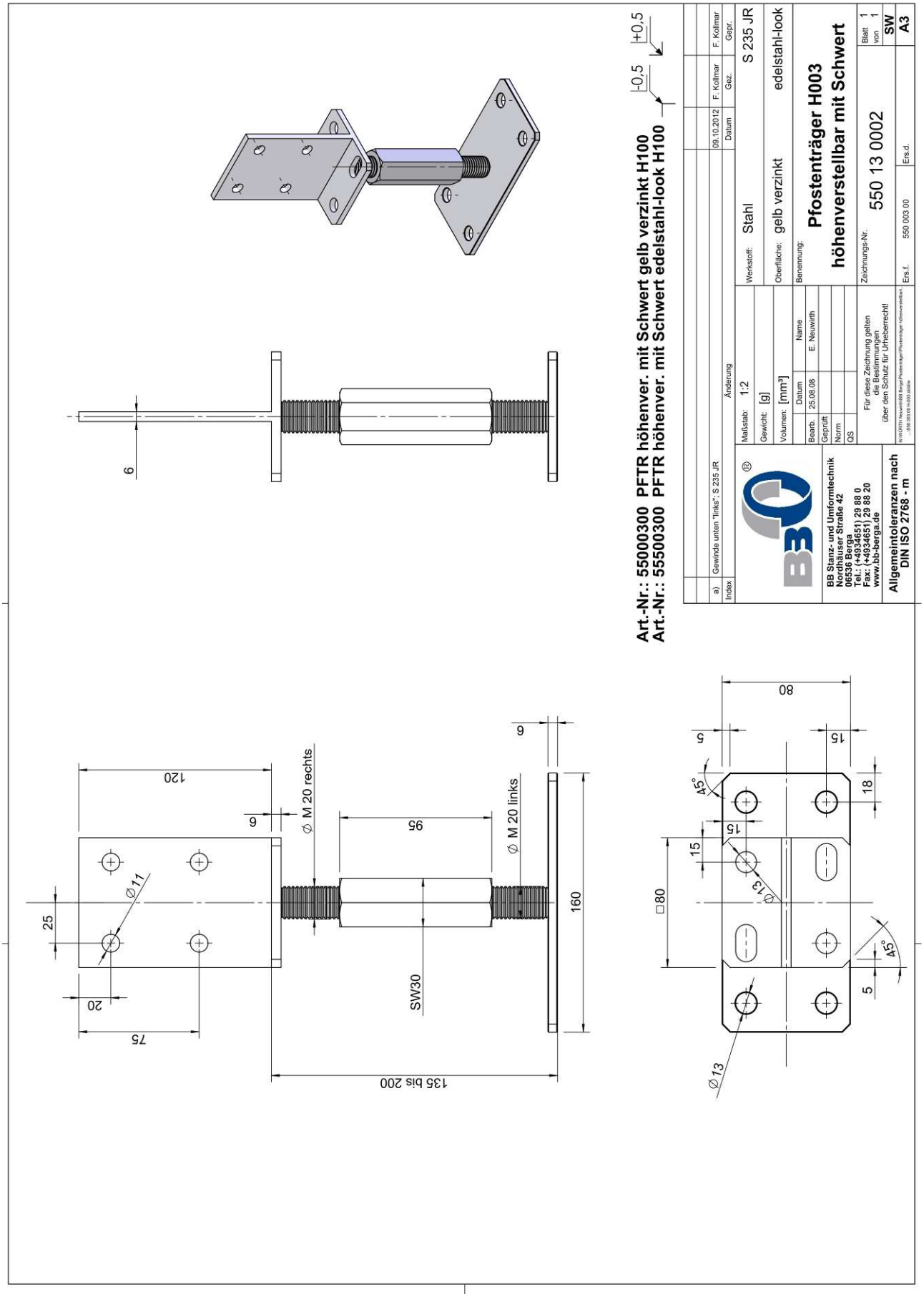
Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht!
Allgemeintoleranzen nach DIN ISO 2768 - m
80
Schnitt
Ø M 20 rechts
Ø M 20 links
95
SW30
160
6
135 bis 200
Ø 13
45°
5
15
18
23
13
14,5
□80
80


Art.-Nr.: 55000200 PFTR höhen u. seitenver. gelb verzinkt H100
Art.-Nr.: 55500200 PFTR höhen u. seitenver. edelstahl-look H100
Ø M 20 rechts
Ø M 20 links
80-160 mm
135-200
SW30
Werkstoff: Stahl
S 235 JR
Oberfläche: gelb verzinkt
edelstahl-look
Pfostenträger H002
höhenverstellbar
80x80-160x4,0
550 13 0001
Maßstab: 1:2
BB Stanz- und Umformtechnik
Nordhäuser Straße 42
06536 Berga
www.bb-berga.de
Allgemeintoleranzen nach
DIN ISO 2768 - m
SW
A3


Art.-Nr.: 55000300 PFTR höhenver. mit Schwert gelb verzinkt H100
Art.-Nr.: 55500300 PFTR höhenver. mit Schwert edelstahl-look H100
+0,5
-0,5
a) Gewinde unten "links": S 235 JR
Index
Änderung
09.10.2012
F. Kollmar
Datum
Gez.
Gepr.
Maßstab: 1:2
Gewicht: [g]
Volumen: [mm³]
Werkstoff: Stahl
S 235 JR
Oberfläche: gelb verzinkt
edelstahl-look
Benennung:
Pfostenträger H003
höhenverstellbar mit Schwert
Datum
Name
Bearb. 25.08.08
E. Neuwirth
Geprüft
Norm
QS
Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht!
Zeichnungs-Nr.
550 13 0002
Blatt 1 von 1
SW
A3
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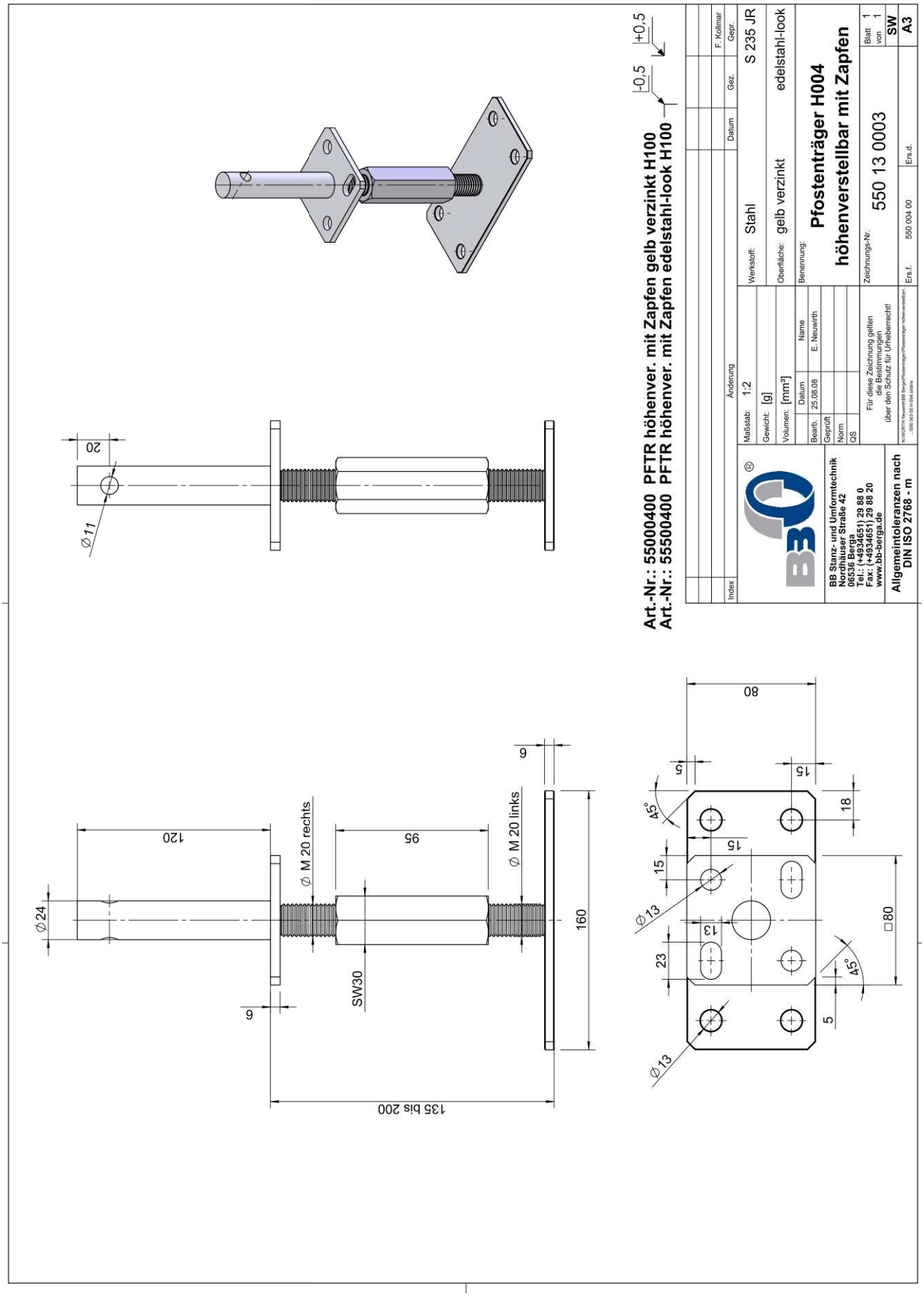
Allgemeintoleranzen nach
DIN ISO 2768 - m
Ers.f. 550 003 00
Ers.d.
6
120
6
Ø M 20 rechts
95
Ø M 20 links
160
Ø11
25
20
75
SW30
135 bis 200
80
5
15
45°
18
15
15
□80
Ø13
45°
5


Art.-Nr.: 55000400 PFTR höhenver. mit Zapfen gelb verzinkt H100
Art.-Nr.: 55500400 PFTR höhenver. mit Zapfen edelstahl-look H100
+0,5
-0,5
Index
Änderung
Datum
Gez.
F. Kollmar
Gepr.
Maßstab: 1:2
Werkstoff: Stahl
S 235 JR
Gewicht: [g]
Oberfläche: gelb verzinkt
edelstahl-look
Volumen: [mm³]
Benennung:
Pfostenträger H004
höhenverstellbar mit Zapfen
Datum
Name
Bearb. 25.08.08
E. Neuwirth
Geprüft
Norm
QS
BB Stanz- und Umformtechnik
Nordhäuser Straße 42
06536 Berga
Tel.: (+4934651) 29 88 0
Fax: (+4934651) 29 88 20
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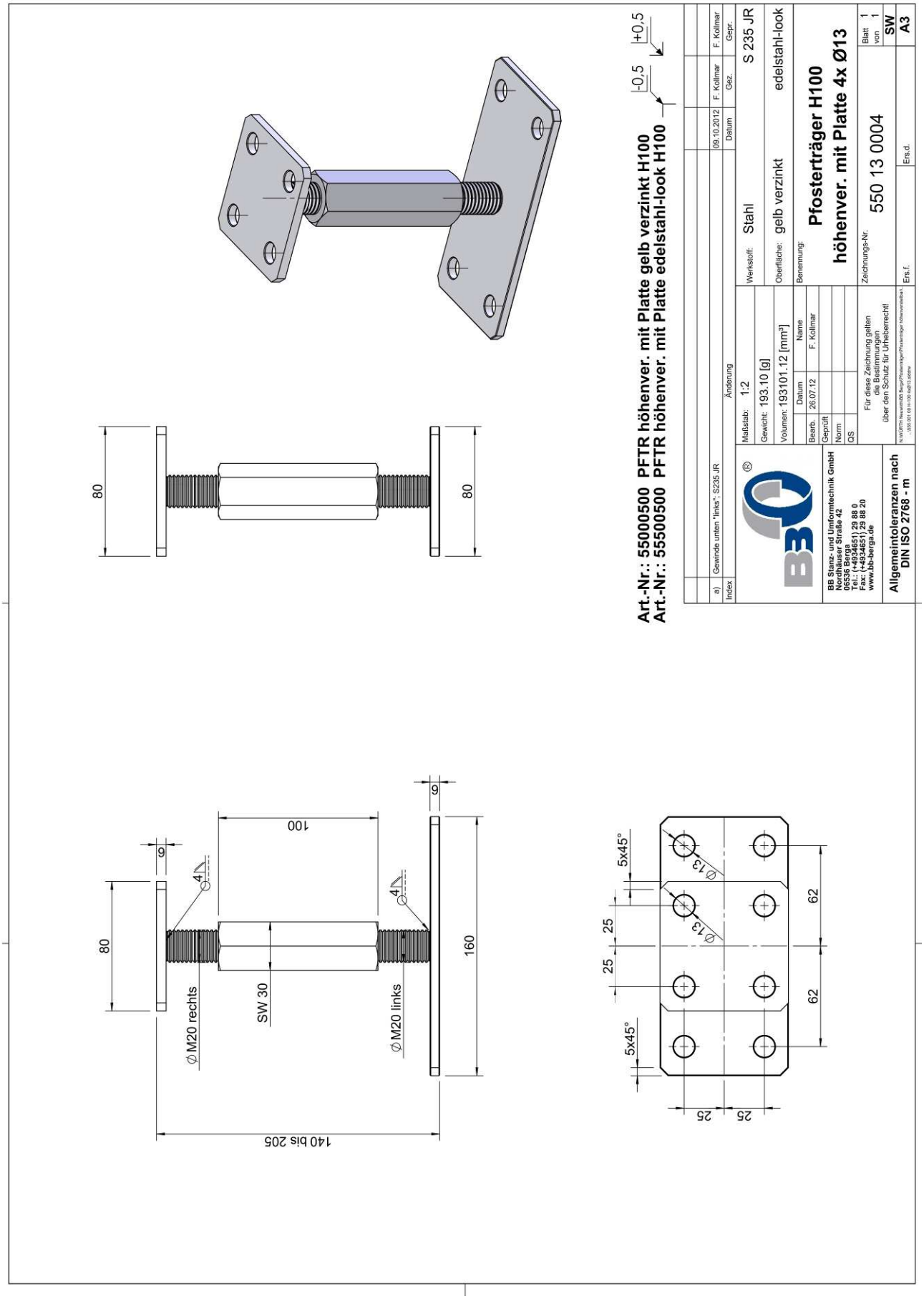
Zeichnungs-Nr.: 550 13 0003
Blatt 1
von 1
SW
A3
Allgemeintoleranzen nach DIN ISO 2768 - m
Ers.f.: 550 004 00
Ers.d.
20
Ø11
Ø24
120
95
Ø M 20 rechts
Ø M 20 links
SW30
6
6
160
135 bis 200
80
5
15
45°
15
18
Ø13
15
13
23
45°
□80
5
Ø13


Art.-Nr.: 55000500 PFTR höhenver. mit Platte gelb verzinkt H100
Art.-Nr.: 55500500 PFTR höhenver. mit Platte edelstahl-look H100
+0,5
-0,5
a) Gewinde unten "links", S235 JR
Index
Änderung
09.10.2012
F. Kollmar
Datum
Gez.
Gepr.
Maßstab: 1:2
Gewicht: 193.10 [g]
Volumen: 193101.12 [mm³]
Werkstoff: Stahl
S 235 JR
Oberfläche: gelb verzinkt
edelstahl-look
Benennung:
Pfosterträger H100
höhenver. mit Platte 4x Ø13
Datum
Name
Bearb. 26.07.12 F. Kollmar
Geprüft
Norm
OS
BB Stanz- und Umformtechnik GmbH
Hochofenstraße 42
06538 Bergra
Tel.: (+4934651) 29 88 0
Fax: (+4934651) 29 88 20
www.bb-bergra.de
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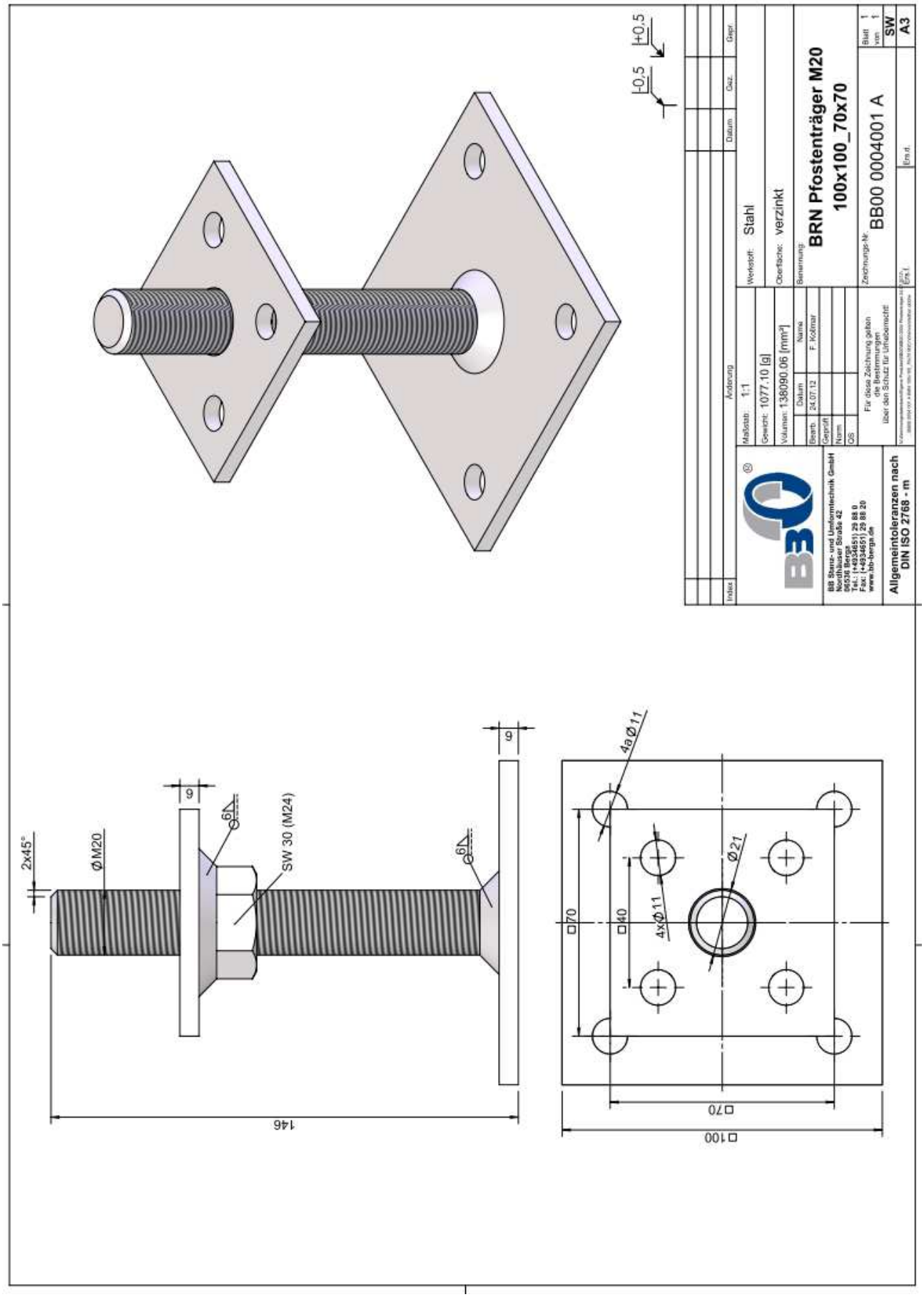
Zeichnungs-Nr.
550 13 0004
Blatt 1
von 1
SW
A3
Allgemeintoleranzen nach DIN ISO 2768 - m
Ers.f.
Ers.d.
80
80
100
6
6
4
4
80
160
140 bis 205
SW 30
Ø M20 rechts
Ø M20 links
5x45°
5x45°
25
25
62
62
Ø13
Ø13
25
25


+0,5
-0,5
BRN Pfostenträger M20
100x100_70x70
Werkstoff: Stahl
Oberfläche: verzinkt
Gewicht: 1077.10 [g]
Volumen: 138090.06 [mm³]
Maßstab: 1:1
BB00 0004001 A
SW
A3
BB Stanz- und Umformtechnik GmbH
Nordhäuser Straße 42
Allgemeintoleranzen nach
DIN ISO 2768 - m
2x45°
ØM20
SW 30 (M24)
146
4xØ11
Ø21
□70
□40
□100