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

European Technical Assessment ETA-09/0134 of 2021/06/07

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:	Gutzeit Angle Brackets (type 89540, 89541, 89550, 89551, 89552, 89553, 890095, 8900135, 8900285)
Product family to which the above construction product belongs:	Three-dimensional nailing plate (Angle Bracket for timber-to-timber connections and timber-to-concrete/steel connections)
Manufacturer:	Gutzeit Verbindungssysteme GmbH & Co. Rudolf-Diesel-Straße 1 D-58730 Fröndenberg, Industriegebiet Tel. +49 2373 - 979261 Fax +49 2373 - 979266 Internet www.gutzeit-holzverbinder.de
Manufacturing plant:	Gutzeit Verbindungssysteme GmbH & Co. Rudolf-Diesel-Straße 1 D-58730 Fröndenberg, Industriegebiet
This European Technical Assessment contains:	18 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:	EAD 130186-00-0603 for Three-dimensional nailing plates
This version replaces:	The previous ETA with the same number issued on 2021-01-11

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product andintended use

Technical description of the product
Gutzeit angle brackets with and without rib and Gutzeit KR angle brackets are one-piece non-welded, face-fixed angle brackets to be used in timber to timber connections or in timber to concrete/steel connections. They are connected to construction members made of timber or wood-based products with profiled (ringed shank) nails according to EN 14592 and to concrete or steel members with bolts or metal anchors.

The angle brackets are made from pre-galvanized steel DX 51 D + Z275 according to EN 10346 with $R_e \geq 295$ N/mm², $R_m \geq 360$ N/mm² and $A_{80} \geq 22\%$ and are available with or without an embossed rib. KR angle brackets are made from steel S250 GD + Z 275 according to EN 10346 with $R_e \geq 250$ N/mm², $R_m \geq 330$ N/mm² and $A_{80} \geq 19\%$. Dimensions, hole positions and typical installations are shown in Annex A. Gutzeit angle brackets are made from steel with tolerances according to EN 10143.

The angle brackets can also be produced from stainless steel according to EN 10088-4 with similar or better characteristic yield and ultimate strength. Hardened stainless steel number 1.4301, 1.4401, 1.4541 and 1.4571 in strength class CP350 according to EN 10088-4 comply with these requirements. Tolerances are according to EN ISO 9445.

2 Specification of the intended use inaccordance with the applicable EAD

The angle brackets are intended for use in making connections in load bearing timber structures, 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 connection may be with a single angle bracket or with an angle bracket on each side of the fastened timber member (see Annex A).

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

The wood members may be of solid timber, glued laminated timber and similar glued members, or wood-based structural members with a characteristic density from 290 kg/m^3 to 420 kg/m^3. This requirement to the material of the wood members can be fulfilled by using the following materials:

- Structural solid timber classified according to EN 14081,
- Glulam according to EN 14080,
- Glued solid timber according to EN 14080,
- LVL according to EN 14374
- Cross laminated timber according to ETA.

Annex B states the load-carrying capacities of the angle bracket connections for a characteristic density of 350 kg/m^3. For timber or wood-based material with a lower characteristic density than 350 kg/m^3 the load-carrying capacities shall be reduced by the k_{dens} factor:

$$k_{dens} = \left(\frac{\rho_k}{350} \right)^2$$

Where ρ_k is he characteristic density of the timber in kg/m^3.

The design of the connections shall be in accordance with Eurocode 5 or a similar national Timber Code. The wood members shall have a thickness which is larger than the penetration depth of the nails into the members.

The angle brackets are primarily for use in timber structures subject to the dry, internal conditions defined by service classes 1 and 2 of Eurocode 5 and for connections subject to static or quasi-static loading.

The angle brackets can also be used in outdoor timber structures, service class 3, when a corrosion protection in accordance with Eurocode 5 is applied, or when stainless steel is employed.

To avoid contact corrosion, stainless steel angle brackets shall be used with nails made from stainless steel.

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.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the hold downs 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 assessed
	Ductility in cyclic testing	No performance assessed
3.2	**Safety in case of fire (BWR2)**	
	Reaction to fire	The angle brackets are made from steel classified as Euroclass A1 in accordance with EN 13501-1 and EC decision 96/603/EC, amended by EC Decision 2000/605/EC
3.3	**General aspects related to the performance of the product**	The angle brackets 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 and 2
	Identification	See Annex A

*) See additional information in section 3.4 – 3.7.

3.4 Methods of verification

Safety principles and partial factors

The characteristic load-carrying capacities are based on the characteristic values of the nail connections and the angle brackets. To obtain design values the capacities have to be divided by different partial factors for the material properties, the nail connection in addition multiplied with the coefficient k_{mod}.

According to EN 1990 (Eurocode – Basis of design) paragraph 6.3.5 the design value of load-carrying capacity may be determined by reducing the characteristic values of the load-carrying capacity with different partial factors.

Thus, the characteristic values of the load–carrying capacity are determined also for timber failure $F_{Rk,T}$ (obtaining the embedment strength of nails subjected to shear or the withdrawal capacity of the most loaded nail, respectively) as well as for steel plate failure $F_{Rk,S}$. The design value of the load–carrying capacity is the smaller value of both load–carrying capacities.

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

Therefore, for timber failure the load duration class and the service class are included. The different partial factors γ_M for steel or timber, respectively, are also correctly taken into account.

3.5 Mechanical resistance and stability

See annex B for the characteristic load-carrying capacity in the different directions F_1 to F_5.

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

The angle brackets in part were calculated for the different load cases with different nail patterns. (see Annex A). If a connection is subjected to combined loading the nail patterns shall be the combination of all nail positions of the load cases involved.

In the formulas in Annex B the capacities for threaded nails calculated from the formulas of Eurocode 5 are used assuming a thick steel plate when calculating the lateral nail load-carrying-capacity.

The shape of the nail directly under the head shall be in the form of a truncated cone with a diameter under the nail head which exceeds the hole diameter.

The design models allow the use of fasteners described in the table on page 9 in Annex A

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.

3.6 Aspects related to the performance of the product

Corrosion protection in service class 1 and 2.
The angle brackets are made from pre-galvanized steel DX 51 D + Z 275 according to EN 10346. KR angle brackets are made from pre-galvanized steelS250 GD + Z 275 according to EN 10346.

Corrosion protection in service class 3.
In accordance with Eurocode 5 connectors with a thickness up to 3 mm shall be made from stainless steel.

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

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

The following provisions concerning installation apply:

The nailing pattern shall be as defined in Annex B.
The minimum edge and end distances of the nails in the timber member shall be complied with in accordance with Eurocode 5 or an appropriate national code.

The structural members – the components 1 and 2 shown in the figure on page 13 - to which the brackets are fixed shall be:

- Restrained against rotation. At a load F_4/F_5, the component 2 is allowed to be restrained against rotation by the Angle brackets.
- Strength class C14 or better, see section 2 of this ETA
- Free from wane under the bracket.

The actual end bearing capacity of the timber member to be used in conjunction with the bracket is checked

by the designer of the structure to ensure it is not less than the bracket capacity and, if necessary, the bracket capacity reduced accordingly.

The gap between the timber members does not exceed 3 mm.

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

The execution of the connection shall be in accordance with the approval holder’s technical literature.

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 2021-06-07 by

Thomas Bruun
Managing Director, ETA-Danmark

Annex A
Product details definitions

Table A.1 Materials specification

Bracket number	Bracket type	Thickness (mm)	Steel specification	Coating specification
89 540	70x70x55	2,5	DX 51 D or stainless steel	Z 275
89 541	70x70x55 with rib	2,5	DX 51 D or stainless steel	Z 275
89 550	90x90x65	2,5	DX 51 D or stainless steel	Z 275
89 551	90x90x65 with rib	2,5	DX 51 D or stainless steel	Z 275
89 552	105x105x90	3,0	DX 51 D or stainless steel	Z 275
89 553	105x105x90 with rib	3,0	DX 51 D or stainless steel	Z 275
8900 95	KR 95 mm	4,0	S250 GD	Z 275
8900 135	KR 135 mm	4,0	S250 GD	Z 275
8900 285	KR 285 mm	4,0	S250 GD	Z 275

Table A.2 Range of sizes

Bracket number	Bracket type	Height (mm) vertical		Height (mm) horizontal		Width (mm)	
89 540	70x70x55	69	71	69	71	54	56
89 541	70x70x55 with rib	69	71	69	71	51,5	56
89 550	90x90x65	89	91	89	91	64	66
89 551	90x90x65 with rib	89	91	89	91	60	66
89 552	105x105x90	104	106	104	106	89	91
89 553	105x105x90 with rib	104	106	104	106	87	91
8900 95	KR 95 mm	94	96	84	86	64	66
8900 135	KR 135 mm	134	136	84	86	64	66
8900 285	KR 285 mm	284	286	84	86	64	66

Table A.3 Fastener specification

Nail diameter [mm]	**Length [mm]**	**Profiled Length [mm]**	**Withdrawal resistance**	**Nail type**
4.0	40	30	$f_{ax,k} \geq 6{,}13$ N/mm^2	Ringed shank nails according to EN 14592
The shape of the nail directly under the head shall be in the form of a truncated cone with a diameter under the nail head which exceeds the hole diameter.				

Metal anchor diameter [mm]	**Correspondent hole diameter [mm]**	**Anchor type**
12.0	Max 2 mm larger than the anchor diameter	See specification of the manufacturer

Annex B
Characteristic load-carrying capacities

Table B.1: Force F_1 Column, 1 angle bracket per connection, timber-to-timber

Bracket number	Bracket type	Nail number n_V	Nail number n_H	$F_{1,Rk}$ [kN] (column)	
				Timber	Steel
89 540	70x70x55	1,2,3	12,13,14,15,16,20,21,22	1,58	0,92
89 541	70x70x55 with rib	1,2	8,9,10,11,13,14	1,17	3,37
89 550	90x90x65	1,2	10,11,12,13,17,18,19,23,24	2,50	1,38
89 551	90x90x65 with rib	1,2	12,13,16,17,21,22	2,50	5,98
89 552	105x105x90	1,2,4,5,6,8,10	18,19,20,21,22,23,26,27,28,30, 35,36	3,76	2,28
89 553	105x105x90 with rib	1,2,4,5,6,7	14,15,16,17,20,21,27,28	2,51	10,1

Table B.2: Force F_1 Purlin, 1 angle bracket per connection, timber-to-timber

Bracket number	Bracket type	Nail number n_V	Nail number n_H	$F_{1,Rk}$ [kN] (purlin)	
				Timber	Steel
89 540	70x70x55	1,2,3,7,8	12,13,14,15,16,20,21,22	1,58	0,92
89 541	70x70x55 with rib	1,2,4,5	8,9,10,11,13,14	1,17	3,37
89 550	90x90x65	1,2,4,5,6,7	10,11,12,13,17,18,19,23,24	2,50	1,38
89 551	90x90x65 with rib	1,2,4,5,6,7,8,9	12,13,16,17,21,22	2,50	5,98
89 552	105x105x90	1,2,4,5,6,8,10, 11,12,13,14,15	18,19,20,21,22,23,26,27, 28,30,35,36	3,76	2,28
89 553	105x105x90 with rib	1,2,4,5,6,7,8,9, 10,11	14,15,16,17,20,21,27,28	2,51	10,1

Table B.3: Forces $F_{2/3}$, 1 angle bracket per connection, timber-to-timber

Bracket number	Bracket type	Nail number n_V	Nail number n_H	$F_{2/3,Rk}$ [kN]
				Timber
89 540	70x70x55	1,2,3,7,8	12,13,14,15,16,20,21,22	1,80
89 541	70x70x55 with rib	1,2,4,5	8,9,10,11,13,14	2,77
89 550	90x90x65	1,2,4,5,6,7	10,11,12,13,17,18,19,23,24	3,25
89 551	90x90x65 with rib	1,2,4,5,6,7,8,9	12,13,16,17,21,22	3,72
89 552	105x105x90	1,2,4,5,6,8,10,11, 12,13,14,15	18,19,20,21,22,23,26,27,28, 30,35,36	6,22
89 553	105x105x90 with rib	1,2,4,5,6,7,8,9, 10,11	14,15,16,17,20,21,27,28	5,05

Table B.4: Force F_1 Column, 1 angle bracket per connection, timber-to-concrete/steel

KR Bracket number	Nail position	Number of nails	Bolt position	$F_{1,Rk}$ (column) [kN]		Bolt factor
				Timber	Steel	$k_{t,\|\|}$
890095	No. 8,9,10,11,12,13	6	No. 4	5,90	7,72	1,29
8900135	No. 8,9,10,11,12,13,15,16,18,19	10	No. 4	7,11	7,09	1,10
8900285	No. 15,16,17,18,20,21,22,23,24, 25,26,27,28,29,31,32	16	No. 4	13,2	5,01	1,31

Table B.5: Force F_1 Purlin, 1 angle bracket per connection, timber-to-concrete/steel

KR Bracket number	Nail position	Number of nails	Bolt position	$F_{1,Rk}$ (purlin) [kN]		Bolt factor
				Timber	Steel	$k_{t,\|\|}$
890095	No. 5,6,7,8,9,10,11,12,13	9	No. 4	6,82	7,67	1,28
8900135	No. 5,6,7,8,9,10,11,12,13,15, 16,18,19	13	No. 4	7,09	6,69	1,09
8900285	No. 8,9,10,11,12,13,15,16,17, 18,20,21,22,23,24,25,26,27,28, 29, 31,32	22	No. 4	13,00	6,99	1,18

Table B.6: Forces $F_{2/3}$, 1 angle bracket per connection, timber-to-concrete/steel

KR Bracket number	Nail position	Number of nails	Bolt position	$F_{2/3,Rk}$ [kN]	Bolt factor
				Timber	$k_{t,\perp}$
890095	No. 5,6,7,8,9,10,11,12,13	9	No. 4	1,61	1,0
8900135	No. 5,6,7,8,9,10,11,12,13,15,16,18,19	13	No.4	2,60	1,0
8900285	No. 5,6,7,8,9,10,11,12,13,15,16,17, 18,20,21,22,23,24,25,26,27,28,29,31,32	25	No.4	4,46	1,0

Table B.7: Basic Forces $F_{4/5}$, 2 angle brackets per connection, timber-to-timber

Bracket number	Bracket type	Nail number n_V	Nail number n_H	$F_{4/5,Rk}$ [kN]	
				Timber	Steel
89 540	70x70x55	1,2,3,7,8	12,13,14,15,16,20,21,22	5,83	4,24
89 541	70x70x55 with rib	1,2,4,5	8,9,10,11,13,14	6,13	6,10
89 550	90x90x65	1,2,4,5,6,7	10,11,12,13,17,18,19,23,24	9,30	4,32
89 551	90x90x65 with rib	1,2,4,5,6,7,8,9	12,13,16,17,21,22	7,09	8,51
89 552	105x105x90	1,2,4,5,6,8,10,11, 12,13,14,15	18,19,20,21,22,23,26,27,28, 30,35,36	9,30	8,92
89 553	105x105x90 with rib	1,2,4,5,6,7,8,9, 10,11	14,15,16,17,20,21,27,28	9,87	15,5

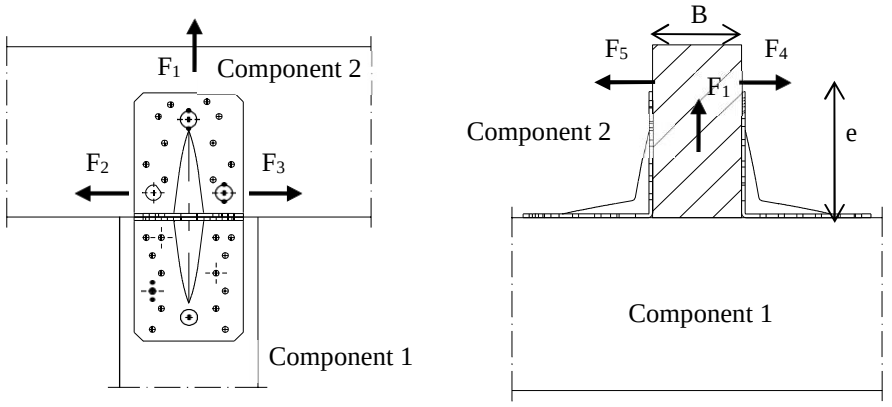
Table B.8: Basic Force F_4, 1 angle bracket per connection, timber-to-timber

Bracket number	Bracket type	Nail number n_V	Nail number n_H	$F_{4,Rk}$ [kN]	
				Timber	Steel
89 541	70x70x55 with rib	1,2,4,5	8,9,10,11,13,14	6,13	4,52
89 551	90x90x65 with rib	1,2,4,5,6,7,8,9	12,13,16,17,21,22	7,09	6,28
89 553	105x105x90 with rib	1,2,4,5,6,7,8,9,10,11	14,15,16,17,20,21,27,28	9,87	10,7

Table B.9: Basic Force F_5, 1 angle bracket per connection, timber-to-timber

Bracket number	Bracket type	Nail number n_V	Nail number n_H	$F_{5,Rk}$ [kN]	
				Timber	Steel
89 541	70x70x55 with rib	1,2,4,5	8,9,10,11,13,14	1,59	1,76
89 551	90x90x65 with rib	1,2,4,5,6,7,8,9	12,13,16,17,21,22	2,30	2,75
89 553	105x105x90 with rib	1,2,4,5,6,7,8,9,10,11	14,15,16,17,20,21,27,28	2,97	5,42

Definitions of forces, their directions and eccentricity



Fastener specification
Holes are marked with numbers referring to the nailing pattern in Annex A.

Single angle bracket per connection
Acting forces

F_1	Lifting force acting in component 2 (Column or purlin). Component 2 shall be prevented from rotation.
F_2 / F_3	Lateral force acting in component 2 in axial direction of component 2. Component 2 shall be prevented from rotation.
F_4	Lateral force acting in component 2 in axial direction of component 1 towards the angle bracket. Component 2 shall be prevented from rotation.
F_5	Lateral force acting in component 2 in axial direction of component 1 away from the angle bracket. Component 2 shall be prevented from rotation.

Double angle brackets per connection
The angle brackets must be placed at each side opposite to each other, symmetrically to the component axis.

Acting forces

F_4 / F_5	Lateral force acting in the component 1 direction along the central axis of the joint. If the load is applied with an eccentricity e, a design for combined loading is required.

Wane
Wane is not allowed, the timber has to be sharp-edged in the area of the angle brackets.

Timber splitting
For the lifting force F_1 it must be checked in accordance with Eurocode 5 or a similar national Timber Code that splitting will not occur.

Connection to concrete or steel with a bolt or metal anchor
The load $F_{B,Ed}$ for the design of the bolt or metal anchor shall be calculated as:

$$F_{B,t,Ed} = k_{t,\parallel} \cdot F_{Ed} \quad \text{for tensile load}$$
$$F_{B,v,Ed} = k_{t,\perp} \cdot F_{Ed} \quad \text{for shear load}$$

Where:

$F_{B,t,Ed}$	Bolt tensile load in N
$F_{B,v,Ed}$	Bolt shear load in N
$k_{t,\perp}$	Coefficient for shear load
$k_{t,\parallel}$	Coefficient for tensile load
F_{Ed}	Load on vertical flap of the angle bracket in N

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:

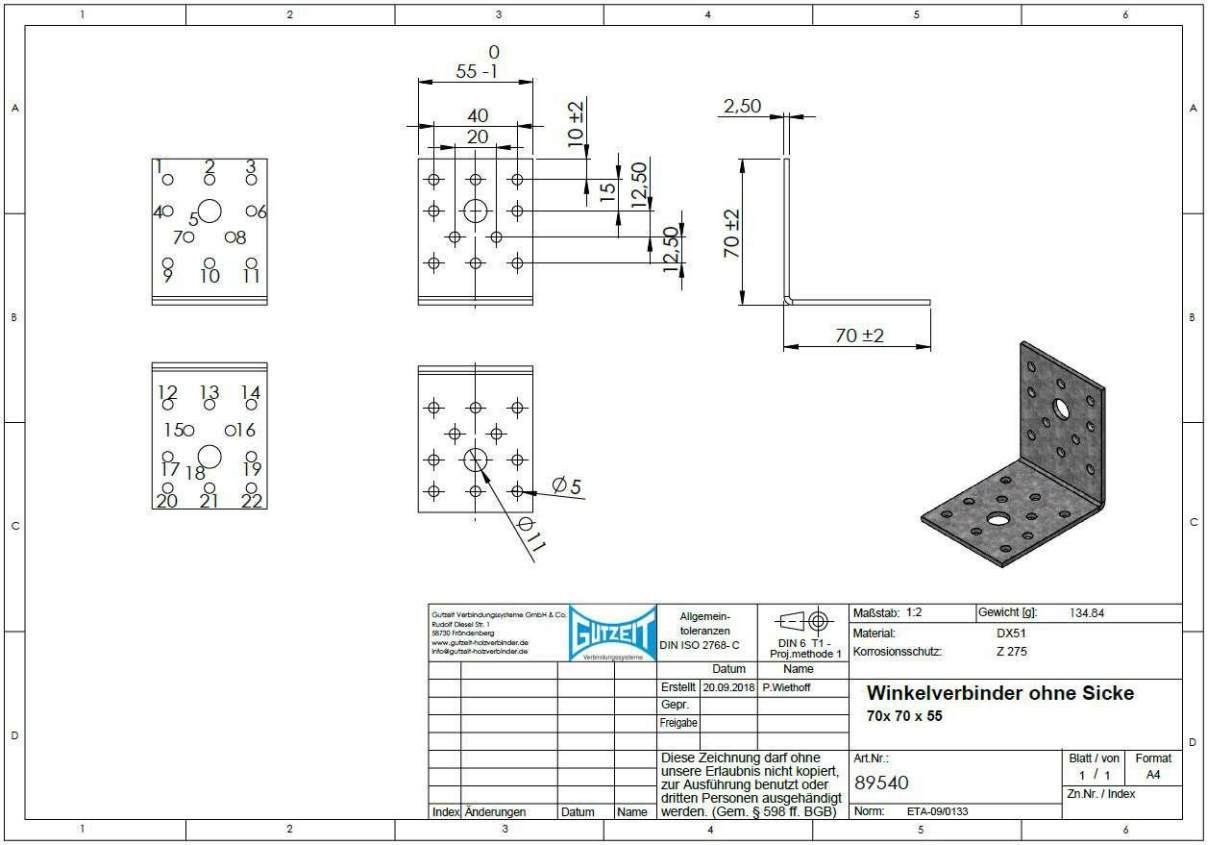
$$\left(\frac{F_{1,Ed}}{F_{1,Rd}}\right)^2 + \left(\frac{F_{2,Ed}}{F_{2,Rd}}\right)^2 + \left(\frac{F_{3,Ed}}{F_{3,Rd}}\right)^2 + \left(\frac{F_{4,Ed}}{F_{4,Rd}}\right)^2 + \left(\frac{F_{5,Ed}}{F_{5,Rd}}\right)^2 \leq 1$$

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, while the other shall be set to zero.

If the load F_4/F_5 is applied with an eccentricity e, a design for combined loading **for connections with double angle brackets** is required. Here, an additional force ΔF_1 has to be added to the existing force F_1.

$$\Delta F_{1,Ed} = F_{4,Ed} / F_{5,Ed} \cdot \frac{e}{B}$$

B is the width of component 2.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Rudolf Diesel Str. 1
88730 Hohentengen
www.gutzeit-holzverbinder.de
info@gutzeit-holzverbinder.de
Allgemeintoleranzen DIN ISO 2768- C
DIN 6 T1 - Proj.methode 1
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Korrosionsschutz: Z 275
Datum
Name
Erstellt 20.09.2018 P.Wiethoff
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Freigabe
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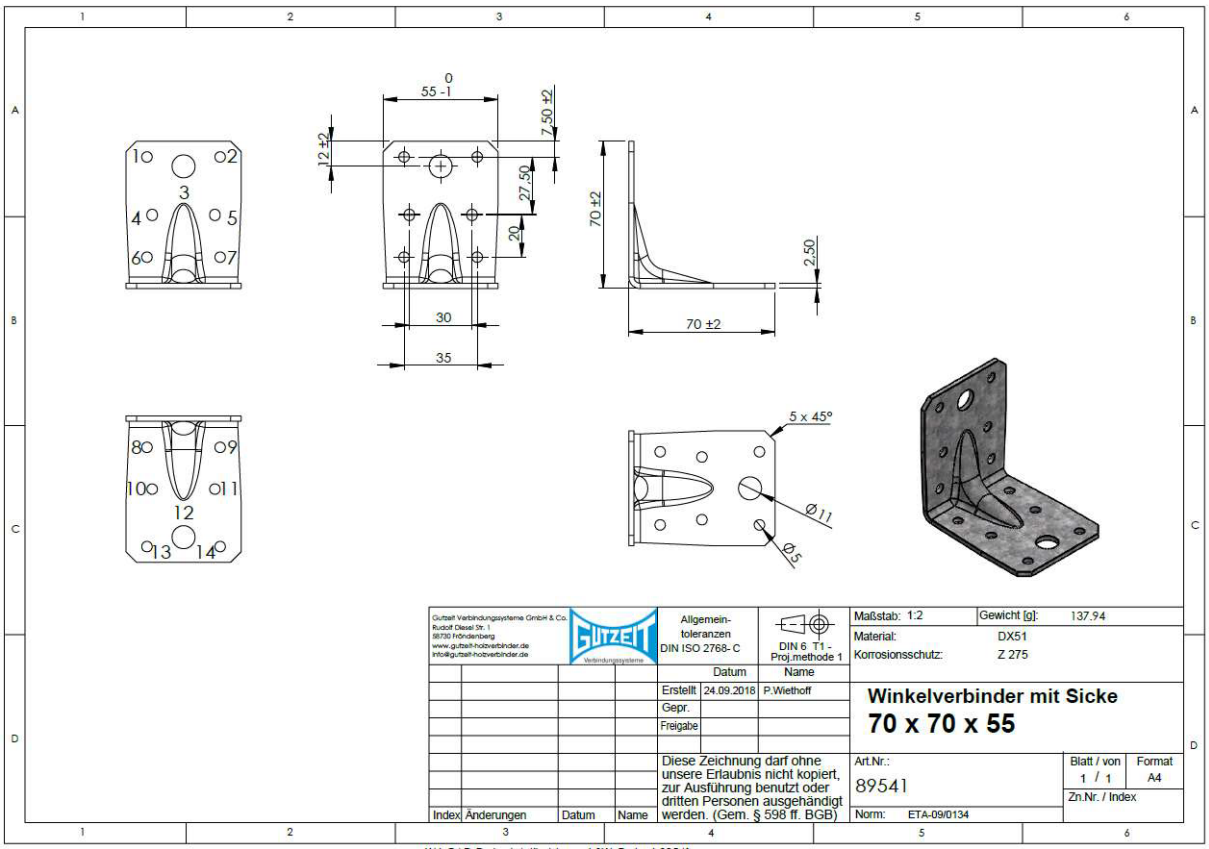
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Gutzeit Verbindungssysteme GmbH & Co.
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88730 Hohentengen
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info@gutzeit-holzverbinder.de
Allgemeintoleranzen DIN ISO 2768- C
DIN 6 T1 - Proj.methode 1
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Gewicht [g]: 137,94
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Korrosionsschutz: Z 275
Datum
Name
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Gepr.
Freigabe
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70 x 70 x 55
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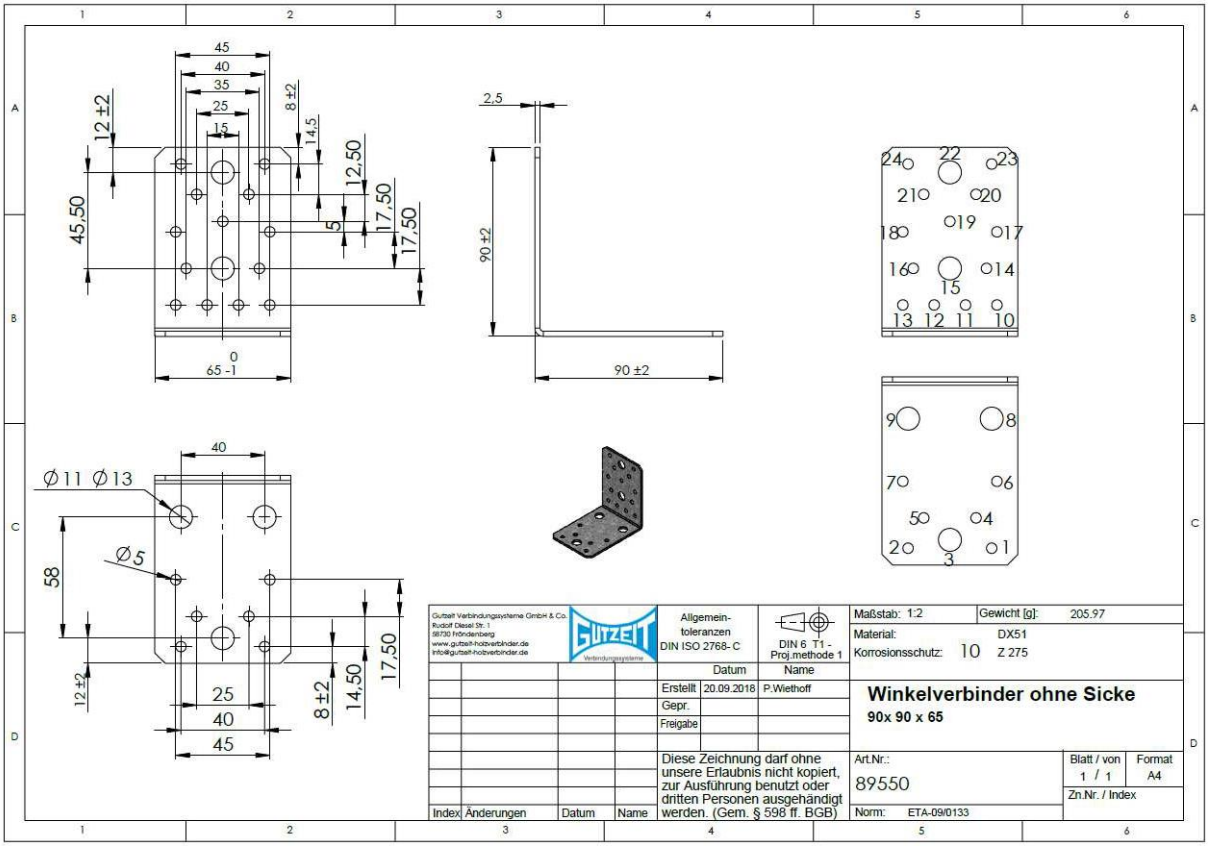
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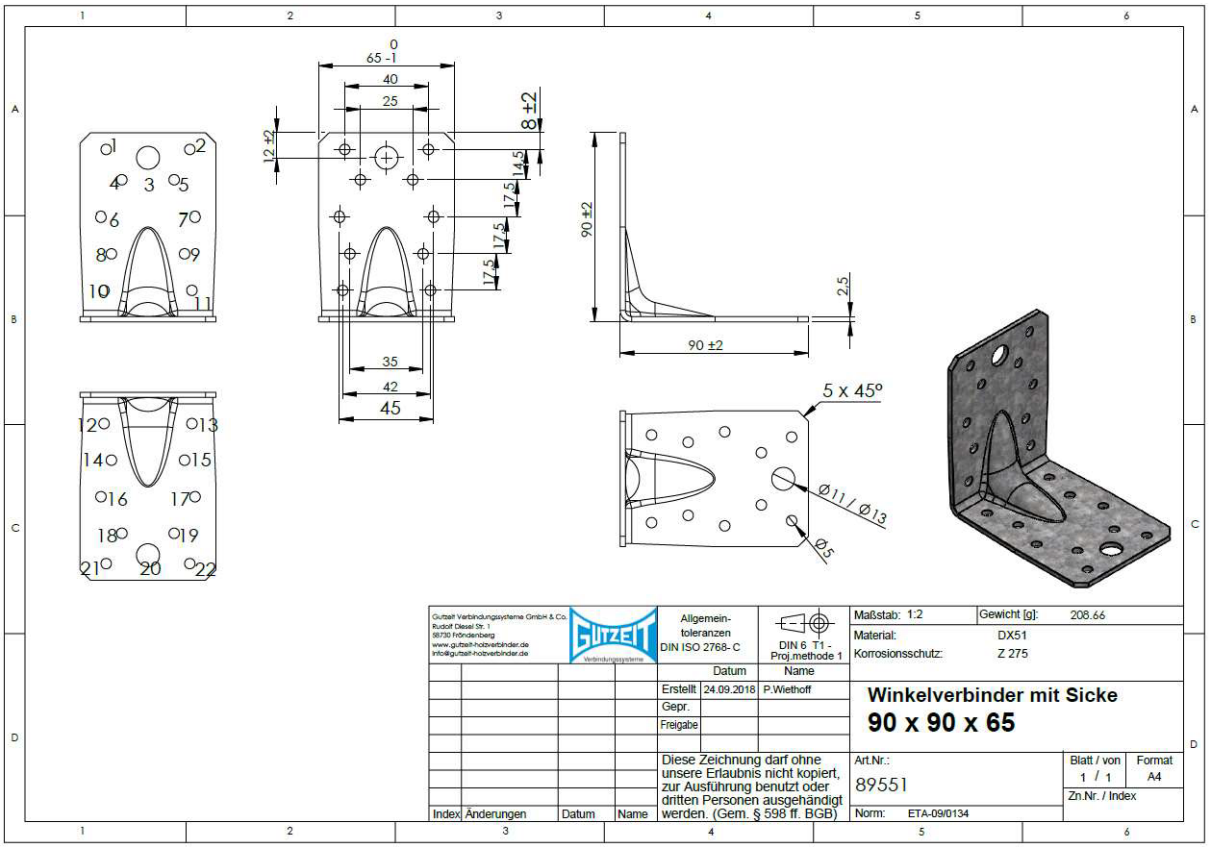
5
0
65 -1
2,5
90 ±2
90 ±2
24 22 23
21 20
19
18 17
16 14
15
13 12 11 10
9 8
7 6
5 4
2 1
3
40
Ø11 Ø13
Ø5
58
12 ±2
25
40
45
8 ±2
14,50
17,50
Gutzeit Verbindungssysteme GmbH & Co.
Rudolf Diesel Str. 1
88730 Hohnenberg
www.gutzeit-holzverbinder.de
info@gutzeit-holzverbinder.de
Allgemeintoleranzen
DIN ISO 2768- C
DIN 6 T1 - Proj.methode 1
Maßstab: 1:2
Gewicht [g]: 205.97
Material: DX51
Korrosionsschutz: 10 Z 275
Datum
Name
Erstellt 20.09.2018 P.Wiethoff
Gepr.
Freigabe
Winkelverbinder ohne Sicke
90x 90 x 65
Diese Zeichnung darf ohne unsere Erlaubnis nicht kopiert, zur Ausführung benutzt oder dritten Personen ausgehändigt werden. (Gem. § 598 ff. BGB)
Art.Nr.: 89550
Blatt / von 1 / 1
Format A4
Zn.Nr. / Index
Norm: ETA-09/0133
Index Änderungen Datum Name


0
65 -1
40
25
12 ±2
8 ±2
14,5
17,5
17,5
17,5
35
42
45
1 2
4 3 5
6 7
8 9
10 11
12 13
14 15
16 17
18 19
21 20 22
90 ±2
2,5
5 x 45°
Ø11 / Ø13
Ø5
Gutzeit Verbindungssysteme GmbH & Co.
Rudolf Diesel Str. 1
88730 Hohnenberg
www.gutzeit-holzverbinder.de
info@gutzeit-holzverbinder.de
Allgemeintoleranzen
DIN ISO 2768- C
DIN 6 T1 - Proj.methode 1
Maßstab: 1:2
Gewicht [g]: 208.66
Material: DX51
Korrosionsschutz: Z 275
Datum
Name
Erstellt 24.09.2018 P.Wiethoff
Gepr.
Freigabe
Winkelverbinder mit Sicke
90 x 90 x 65
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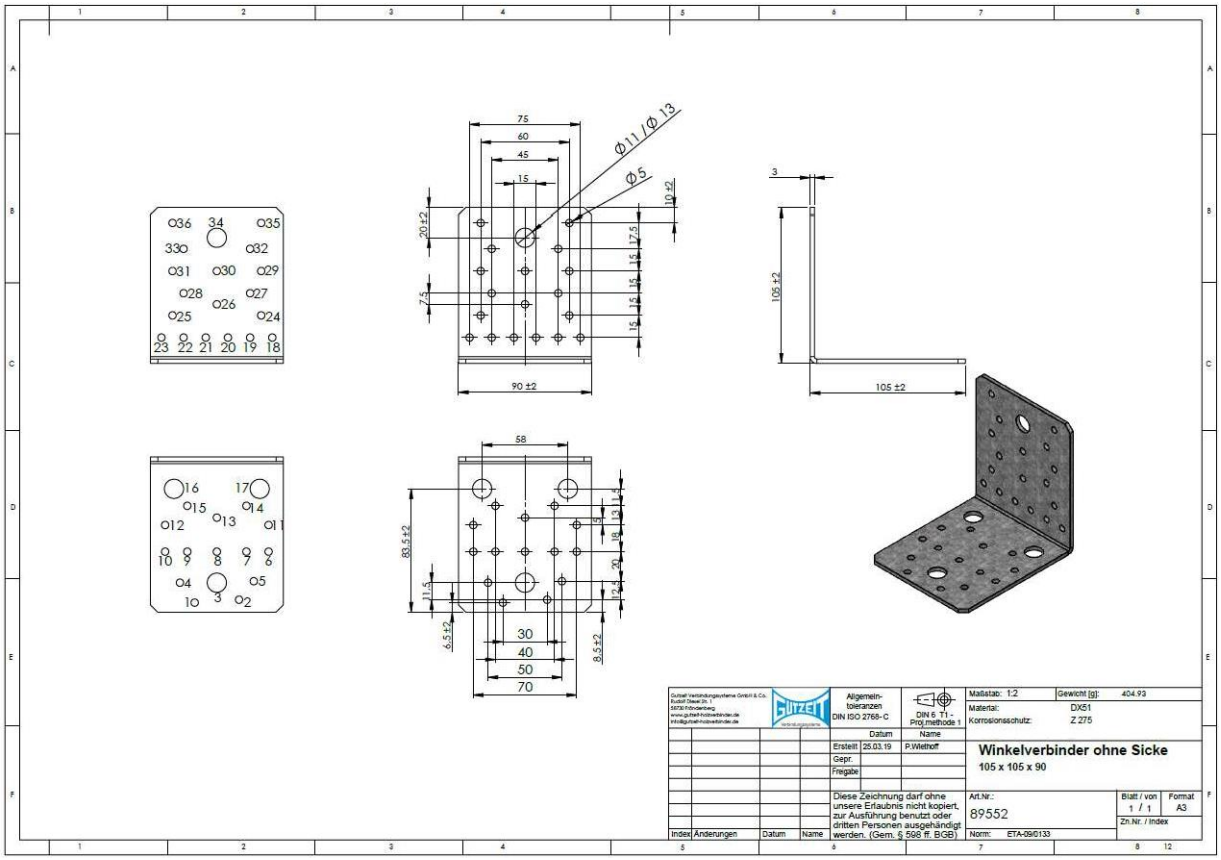
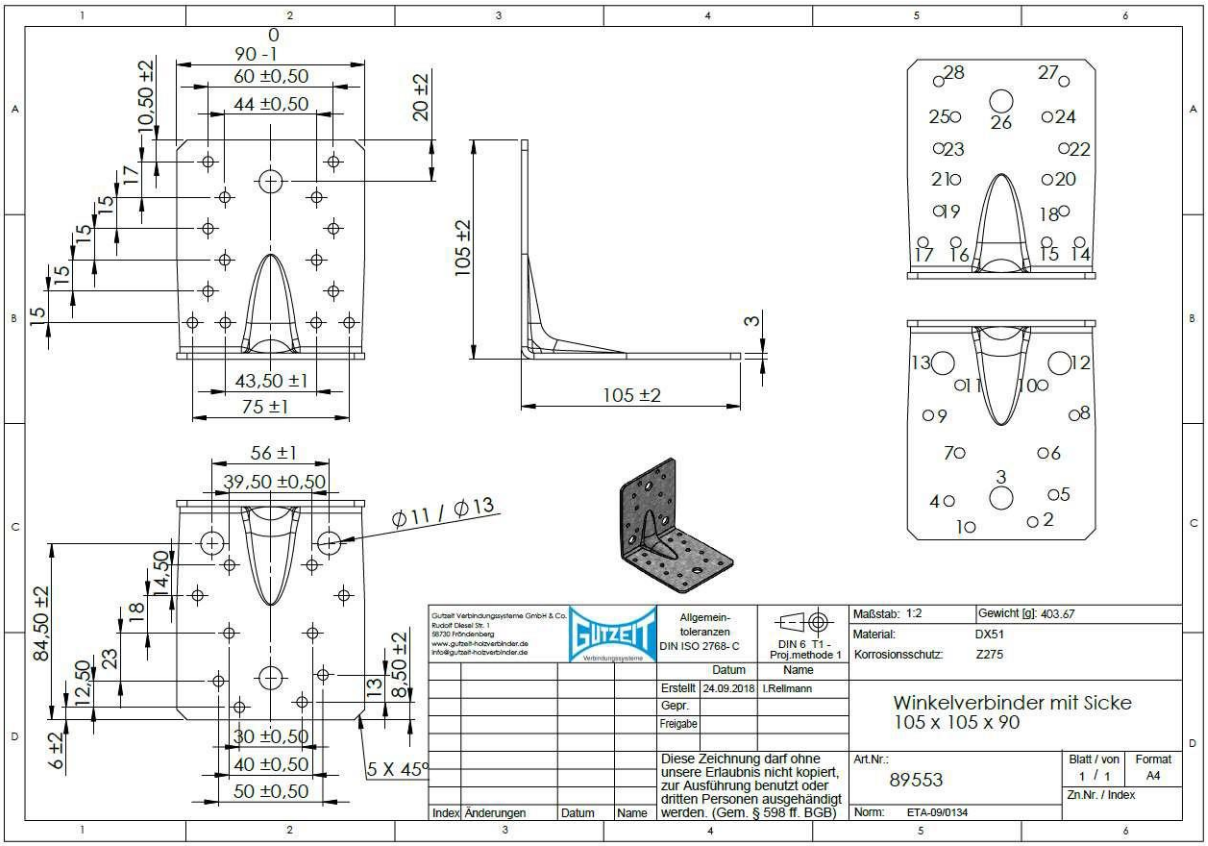
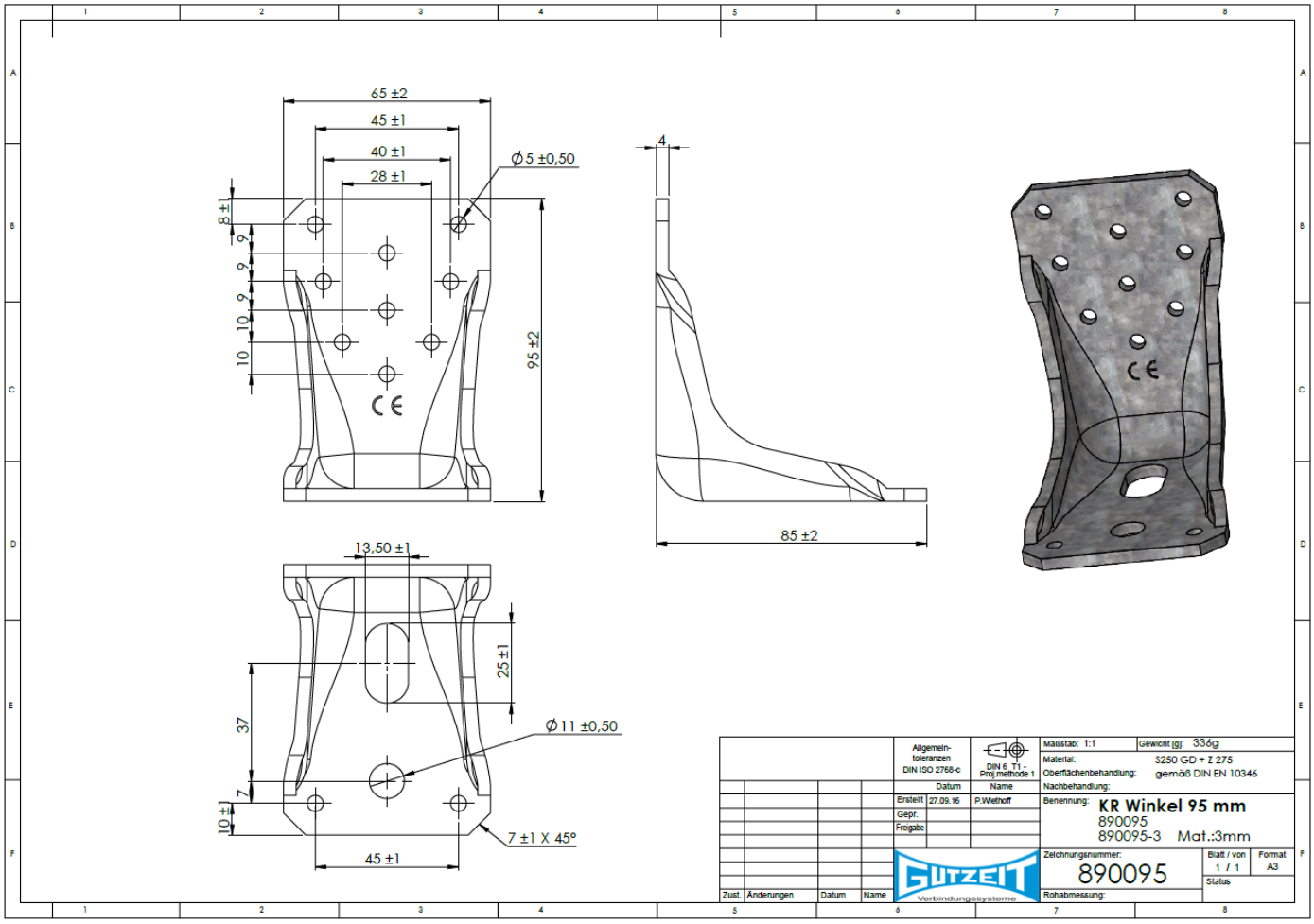
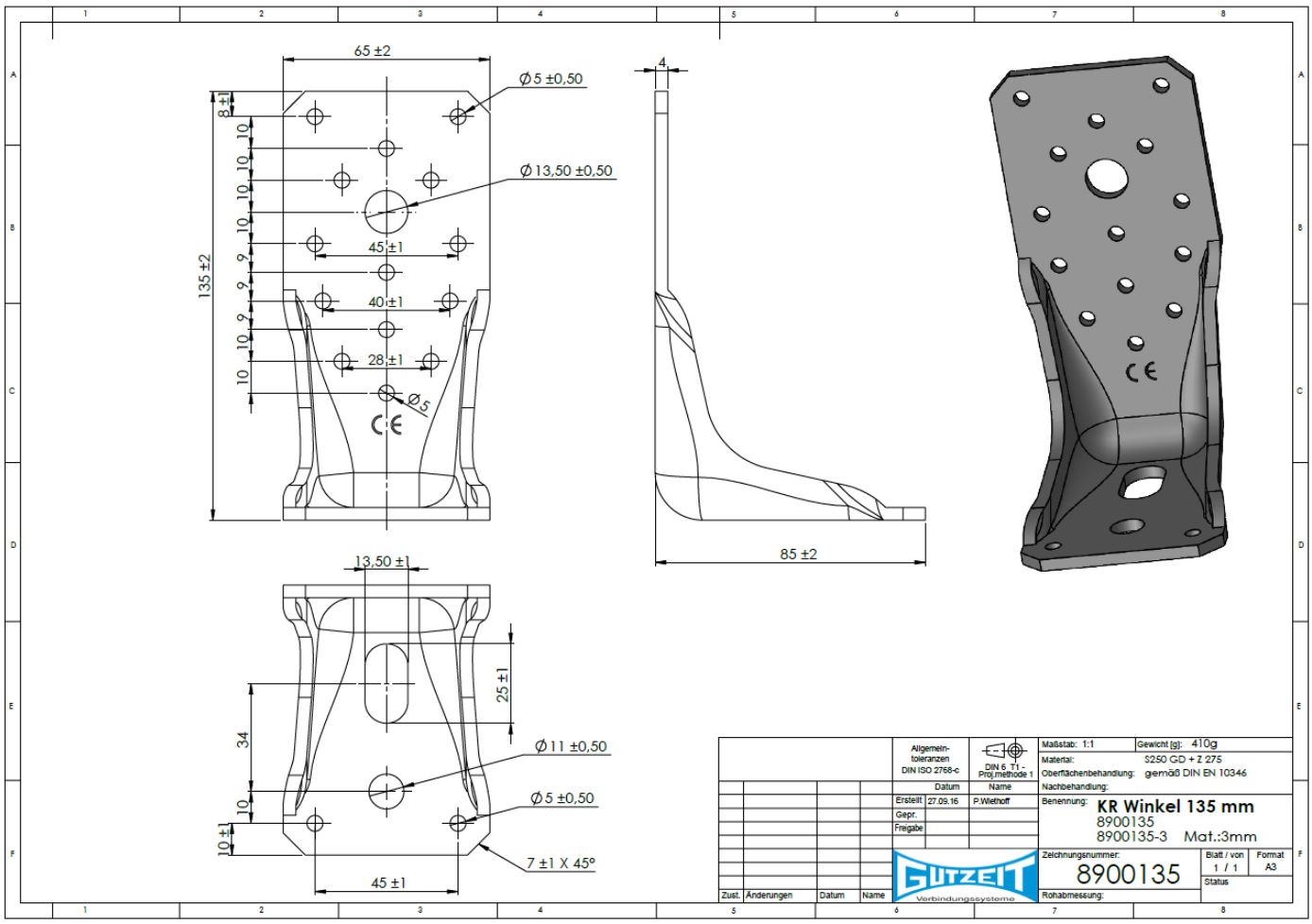
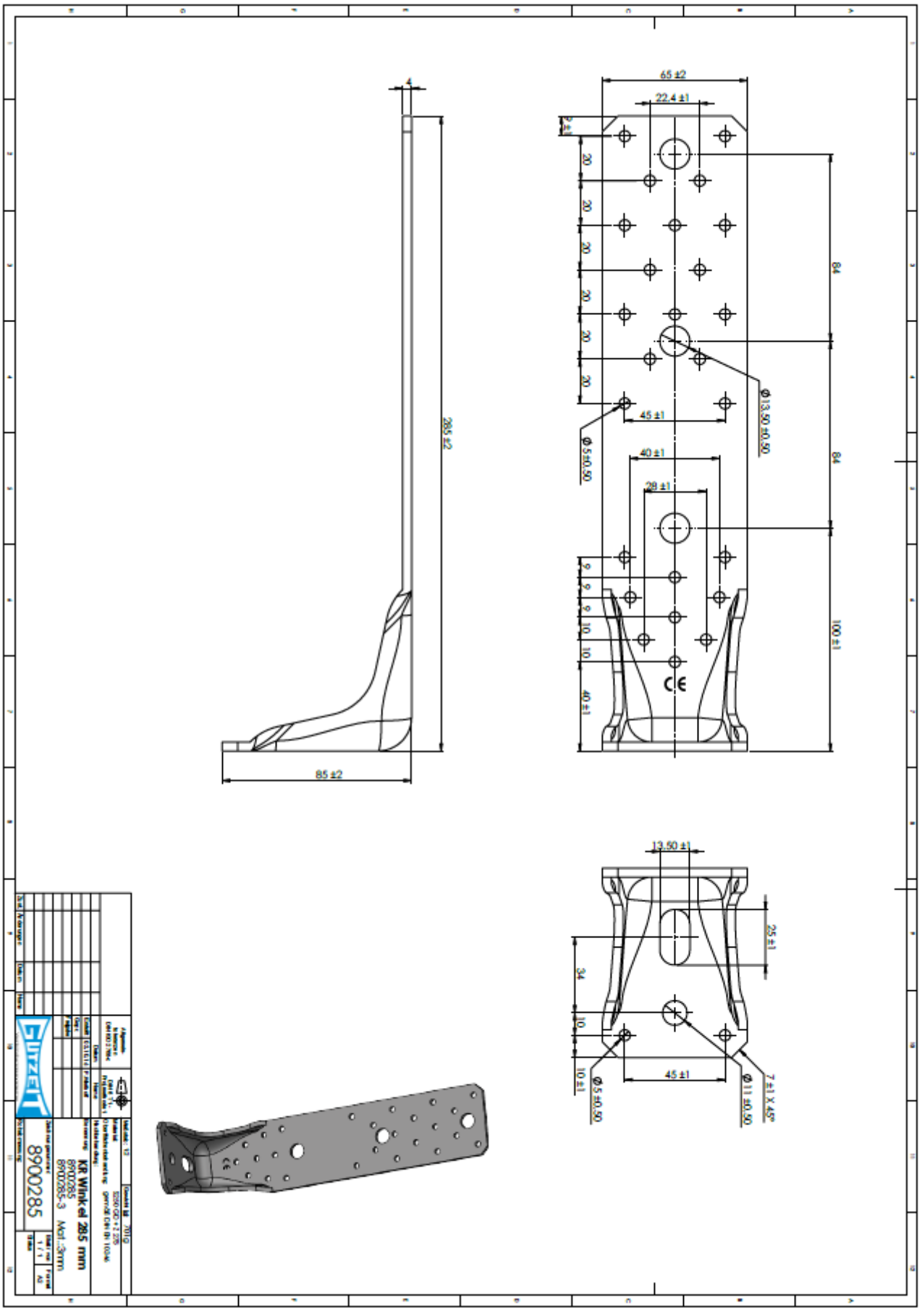
Art.Nr.: 89551
Blatt / von 1 / 1
Format A4
Zn.Nr. / Index
Norm: ETA-09/0134
Index Änderungen Datum Name


Winkelverbinder ohne Sicke
105 x 105 x 90
89552
DX51
Z 275
404.93
Maßstab: 1:2
Allgemeintoleranzen DIN ISO 2768-C
DIN 6 T1 - Proj.methode 1
Diese Zeichnung darf ohne unsere Erlaubnis nicht kopiert, zur Ausführung benutzt oder dritten Personen ausgehändigt werden. (Gem. § 598 ff. BGB)
ETA-09/0133


Winkelverbinder mit Sicke
105 x 105 x 90
89553
DX51
Z275
403.67
Maßstab: 1:2
Allgemeintoleranzen DIN ISO 2768-C
DIN 6 T1 - Proj.methode 1
Diese Zeichnung darf ohne unsere Erlaubnis nicht kopiert, zur Ausführung benutzt oder dritten Personen ausgehändigt werden. (Gem. § 598 ff. BGB)
ETA-09/0134


65 ±2
45 ±1
40 ±1
28 ±1
Ø 5 ±0,50
8 ±1
9
9
9
10
10
95 ±2
4
85 ±2
13,50 ±1
25 ±1
37
Ø 11 ±0,50
7
10 ±1
7 ±1 X 45°
45 ±1
Allgemeintoleranzen DIN ISO 2768-c
DIN 6 T1 - Proj.methode 1
Maßstab: 1:1
Gewicht [g]: 336g
Material: S250 GD + Z 275
Oberflächenbehandlung: gemäß DIN EN 10346
Nachbehandlung:
Datum
Name
Erstellt 27.09.16 P.Wiethoff
Gepr.
Freigabe
Benennung: KR Winkel 95 mm
890095
890095-3 Mat.:3mm
Zeichnungsnummer: 890095
Blatt / von 1 / 1
Format A3
Status
Rohabmessung:
Zust. Änderungen Datum Name
GUTZEIT Verbindungssysteme


65 ±2
Ø 5 ±0,50
8 ±1
10
10
10
10
9
9
9
10
10
135 ±2
Ø 13,50 ±0,50
45 ±1
40 ±1
28 ±1
Ø 5
4
85 ±2
13,50 ±1
25 ±1
34
Ø 11 ±0,50
Ø 5 ±0,50
10
10 ±1
7 ±1 X 45°
45 ±1
Allgemeintoleranzen DIN ISO 2768-c
DIN 6 T1 - Proj.methode 1
Maßstab: 1:1
Gewicht [g]: 410g
Material: S250 GD + Z 275
Oberflächenbehandlung: gemäß DIN EN 10346
Nachbehandlung:
Datum
Name
Erstellt 27.09.16 P.Wiethoff
Gepr.
Freigabe
Benennung: KR Winkel 135 mm
8900135
8900135-3 Mat.:3mm
Zeichnungsnummer: 8900135
Blatt / von 1 / 1
Format A3
Status
Rohabmessung:
Zust. Änderungen Datum Name
GUTZEIT Verbindungssysteme


4
285 ±2
85 ±2
65 ±2
22,4 ±1
84
45 ±1
Ø13,50 ±0,50
Ø5 ±0,50
40 ±1
28 ±1
100 ±1
CE
13,50 ±1
25 ±1
34
10
10 ±1
45 ±1
Ø5 ±0,50
Ø11 ±0,50
7 ±1 X 45°
KR Winkel 285 mm
8900285
8900285-3 Mat.:3mm
8900285