

Declaration of Performance No 1020-CPR-01035249

According to the Regulation EU No 305/2011

KS02 - KS21 - KZ02 - KZ21

Manufacturer: Tecfi S.p.A. - S.S. Appia, km 193 - 81050 Pastorano (CE), Italia



1 - Intended use

Product-type:	Three-dimensional nailing plates
Anchor type:	Angle brackets
Technical description of the product:	see Table 2.a
Specification of the intended use in accordance with the applicable EAD:	The angle brackets are intended for use in making connections in load bearing timber structures, as a connection between a beam and a purlin, 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.
Base material:	<p>The joist hangers can be installed as connections between wood based members such as:</p> <ul style="list-style-type: none"> · Structural solid timber classified to C14-C40 according to EN 338 / EN 14081 · Glulam classified to GL24-GL36 according to EN 1194 / EN 14080 · LVL according to EN 14374 · Parallam PSL · Intrallam LSL · Duo- and Triobalken · Cross laminated timber · Kreuzbalken with minimum thickness of 80 mm · Plywood according to EN 636 <p>However, the calculation methods are only allowed for a characteristic wood density of up to 350 kg/m³. Even though the wood based material may have a larger density, this must not be used in the formulas for the load-carrying capacities of the fasteners. For timber or wood based material with a lower characteristic density than 350 kg/m³ the load carrying capacities shall be reduced by the k_{dens} factor, given by</p> $k_{dens} = \left(\frac{\rho_k}{350} \right)^{0,5}$ <p>Where ρ_k is the characteristic density of the timber in kg/m³.</p>
Installation:	<p>The structural members to which the brackets are fixed shall be:</p> <ul style="list-style-type: none"> • Restrained against rotation. • Strength class C14 or better. • Free from wane under the bracket. • 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 assessment holder's technical literature.
Loading:	The characteristic capacities of the angle brackets are determined by calculation assisted by testing as described in the EOTA Guideline 015 clause 5.1.2. They should be used for designs in accordance with Eurocode 5 or a similar national Timber Code. No performance has been determined in relation to ductility of a joint under cyclic testing. The contribution to the performance of structures in seismic zones, therefore, has not been assessed. No performance has been determined in relation to the joint's stiffness properties - to be used for the analysis of the serviceability limit state.
Durability:	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 with similar or better characteristic yield strength and ultimate strength is employed. The provisions made in this Declaration of Performance are based on an assumed intended working life of the angle brackets 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.

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1 - Intended use

Service temperature:	NPD
Resistance to fire:	The anchor is classified A1 according to EC Decision 96/603/EC
European Assessment Document:	ETAG 015 used as EAD according to Article 66(3) of the Regulation (EU) No 305/2011
European Technical Assessment:	ETA 14/0392
Technical Assessment Body:	ETA-Danmark A/S, Kollegievej 6, DK-2920 Charlottenlund, Danmark
Design methods:	The design of the connections shall be in accordance with Eurocode 5 or a similar national Timber Code
Valutazione e Verifica della Costanza della Prestazione:	EC 1020-CPR-01035249
Notified Body:	Technický A Zkušební Ústav Stavební Praha, S.p. Prosecká 76/32, 180 00 Praha Czech Republic
Under the system:	2+

2 - 2. Components

Table 2.a - KS02 and KZ02

Component	Description
Angle bracket with rib (KS02)	In accordance with ETAG 015 the angle brackets are produced from pre-galvanized steel class DX51D+Z275 or S250GD+Z275 according to EN 10346:2009 with a yield strength in the range of 250 MPa – 320 MPa; or from stainless steel grade 1.4306, 1.4307, 1.4301, 1.4948 according to EN 10088-2 with a yield strength in the range of 250 – 320 MPa.
Angle bracket (KZ02)	

Table 2.b – Tecfi TM screws

Fastener	Length	Profiled Length	Fastener type
Tecfi TM 5.0 x 40 mm	40 mm	40 mm	Self-tapping screws according to EN 14592

In the load-carrying-capacities of the nailed or with 5.0 mm screwed connection the capacities calculated from the formulas of Eurocode 5 are used assuming a thick steel plate when calculating the lateral fastener load-carrying-capacity. The screws shall have a minimum characteristic withdrawal strength of 12,5 N/mm² and minimum yield moment of the shank of 5500 Nmm. For stainless steel screws the minimum requirements are a minimum characteristic withdrawal strength of 12,5 N/mm² and minimum yield moment of the shank of 2600 Nmm

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

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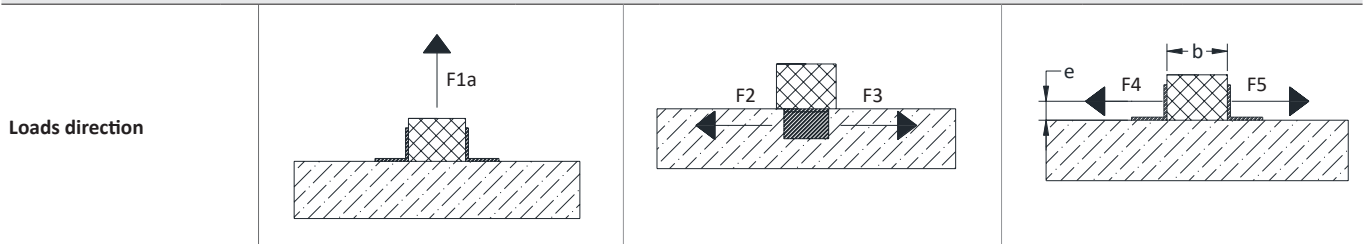
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3 - Declared performances according to ETAG015



Only one force F2 or F3, F4 or F5, respectively, can act simultaneously to F1a.

Item Code	Force direction – screw pattern	e/b	F _{Rk} [kN]	Horizontal flap	Vertical flap
KS 02 05 020	F1a - P	-	3,36	 ● P - Partial screw pattern ● ⊗ F - Full screw pattern	
	F1a - F	-	4,84		
	F23 - P	-	1,72		
	F23 - F	-	2,16		
	F45 - P	0,5	1,51		
	F45 - F	0,5	3,63		
	F45 - P	1,0	1,19		
	F45 - F	1,0	2,21		
	F45 - P	2,0	0,75		
KS 02 05 025	F1a - P	-	3,34	 ● P - Partial screw pattern ● ⊗ F - Full screw pattern	
	F1a - F	-	4,82		
	F23 - P	-	1,68		
	F23 - F	-	2,18		
	F45 - P	0,5	1,51		
	F45 - F	0,5	3,62		
	F45 - P	1,0	1,19		
	F45 - F	1,0	2,20		
	F45 - P	2,0	0,74		
KS 02 07 020	F1a - P	-	6,62	 ● P - Partial screw pattern ● ⊗ F - Full screw pattern	
	F1a - F	-	9,14		
	F23 - P	-	2,78		
	F23 - F	-	3,48		
	F45 - P	0,5	4,74		
	F45 - F	0,5	5,45		
	F45 - P	1,0	2,97		
	F45 - F	1,0	3,79		
	F45 - P	2,0	1,60		
F45 - F	2,0	2,16			

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Item Code	Force direction – screw pattern	e/b	F _{Rk} [kN]	Horizontal flap	Vertical flap
KS 02 07 025	F1a - P	-	6,62		
	F1a - F	-	8,20		
	F23 - P	-	2,76		
	F23 - F	-	3,46		
	F45 - P	0,5	4,74		
	F45 - F	0,5	6,39		
	F45 - P	1,0	2,97		
	F45 - F	1,0	3,80		
	F45 - P	2,0	1,60		
	F45 - F	2,0	2,00		
KS 02 09 020	F1a - P	-	7,52		
	F1a - F	-	11,70		
	F23 - P	-	3,20		
	F23 - F	-	4,50		
	F45 - P	0,5	4,44		
	F45 - F	0,5	7,43		
	F45 - P	1,0	3,10		
	F45 - F	1,0	5,00		
	F45 - P	2,0	1,77		
	F45 - F	2,0	2,79		
KS 02 09 025	F1a - P	-	7,30		
	F1a - F	-	11,70		
	F23 - P	-	3,18		
	F23 - F	-	4,48		
	F45 - P	0,5	5,47		
	F45 - F	0,5	7,43		
	F45 - P	1,0	3,33		
	F45 - F	1,0	5,00		
	F45 - P	2,0	1,78		
	F45 - F	2,0	2,79		
KS 02 10 520	F1a - P	-	7,62		
	F1a - F	-	15,56		
	F23 - P	-	3,06		
	F23 - F	-	6,42		
	F45 - P	0,5	4,11		
	F45 - F	0,5	7,50		
	F45 - P	1,0	3,00		
	F45 - F	1,0	5,75		
	F45 - P	2,0	1,77		
	F45 - F	2,0	3,54		

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Item Code	Force direction – screw pattern	e/b	F _{Rk} [kN]	Horizontal flap	Vertical flap
KS 02 10 525	F1a - P	-	7,94		
	F1a - F	-	15,16		
	F23 - P	-	3,04		
	F23 - F	-	6,38		
	F45 - P	0,5	5,39		
	F45 - F	0,5	7,45		
	F45 - P	1,0	3,49		
	F45 - F	1,0	5,67		
	F45 - P	2,0	1,91		
F45 - F	2,0	3,46	<ul style="list-style-type: none"> P - Partial screw pattern F - Full screw pattern 		
KS 02 10 530	F1a - P	-	7,94		
	F1a - F	-	15,16		
	F23 - P	-	3,02		
	F23 - F	-	6,34		
	F45 - P	0,5	5,39		
	F45 - F	0,5	10,54		
	F45 - P	1,0	3,49		
	F45 - F	1,0	6,73		
	F45 - P	2,0	1,91		
F45 - F	2,0	3,66	<ul style="list-style-type: none"> P - Partial screw pattern F - Full screw pattern 		
KZ 02 05 020	F1a - P	-	1,60		
	F1a - F	-	4,84		
	F23 - P	-	1,72		
	F23 - F	-	2,16		
	F45 - P	0,5	1,44		
	F45 - F	0,5	3,14		
	F45 - P	1,0	0,77		
	F45 - F	1,0	2,08		
	F45 - P	2,0	0,39		
F45 - F	2,0	1,16	<ul style="list-style-type: none"> P - Partial screw pattern F - Full screw pattern 		
KZ 02 05 025	F1a - P	-	2,40		
	F1a - F	-	5,34		
	F23 - P	-	1,68		
	F23 - F	-	2,18		
	F45 - P	0,5	1,38		
	F45 - F	0,5	3,26		
	F45 - P	1,0	0,98		
	F45 - F	1,0	2,24		
	F45 - P	2,0	0,56		
F45 - F	2,0	1,27	<ul style="list-style-type: none"> P - Partial screw pattern F - Full screw pattern 		

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Item Code	Force direction – screw pattern	e/b	F _{Rk} [kN]	Horizontal flap	Vertical flap
KZ 02 07 020	F1a - P	-	6,62	 P - Partial screw pattern F - Full screw pattern	
	F1a - F	-	9,14		
	F23 - P	-	2,78		
	F23 - F	-	3,48		
	F45 - P	0,5	4,04		
	F45 - F	0,5	5,45		
	F45 - P	1,0	2,77		
	F45 - F	1,0	3,79		
	F45 - P	2,0	1,57		
F45 - F	2,0	2,16			
KZ 02 07 025	F1a - P	-	6,62	 P - Partial screw pattern F - Full screw pattern	
	F1a - F	-	9,12		
	F23 - P	-	2,76		
	F23 - F	-	3,46		
	F45 - P	0,5	4,04		
	F45 - F	0,5	5,45		
	F45 - P	1,0	2,77		
	F45 - F	1,0	3,78		
	F45 - P	2,0	1,57		
F45 - F	2,0	2,16			
KZ 02 09 020	F1a - P	-	7,24	 P - Partial screw pattern F - Full screw pattern	
	F1a - F	-	10,04		
	F23 - P	-	3,20		
	F23 - F	-	4,50		
	F45 - P	0,5	4,98		
	F45 - F	0,5	7,42		
	F45 - P	1,0	3,20		
	F45 - F	1,0	4,56		
	F45 - P	2,0	1,75		
F45 - F	2,0	2,44			
KZ 02 09 025	F1a - P	-	7,80	 P - Partial screw pattern F - Full screw pattern	
	F1a - F	-	10,56		
	F23 - P	-	3,18		
	F23 - F	-	4,48		
	F45 - P	0,5	5,16		
	F45 - F	0,5	7,62		
	F45 - P	1,0	3,39		
	F45 - F	1,0	4,76		
	F45 - P	2,0	1,87		
F45 - F	2,0	2,56			

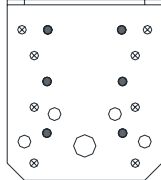
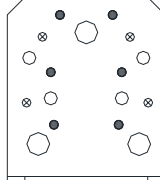
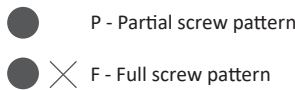
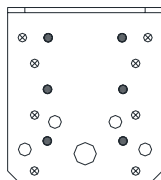
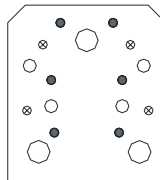
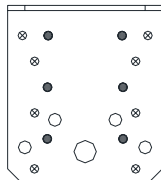
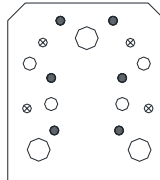
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KZ 02 10 520	F1a - P	-	7,94		
	F1a - F	-	10,30		
	F23 - P	-	3,06		
	F23 - F	-	6,42		
	F45 - P	0,5	4,16		
	F45 - F	0,5	7,88		
	F45 - P	1,0	3,08		
	F45 - F	1,0	4,74		
	F45 - P	2,0	1,83		
F45 - F	2,0	2,51			
KZ 02 10 525	F1a - P	-	7,94		
	F1a - F	-	11,98		
	F23 - P	-	3,04		
	F23 - F	-	6,38		
	F45 - P	0,5	4,16		
	F45 - F	0,5	8,56		
	F45 - P	1,0	3,08		
	F45 - F	1,0	5,38		
	F45 - P	2,0	1,83		
F45 - F	2,0	2,90			
KZ 02 10 530	F1a - P	-	7,94		
	F1a - F	-	13,06		
	F23 - P	-	3,02		
	F23 - F	-	6,34		
	F45 - P	0,5	4,16		
	F45 - F	0,5	8,93		
	F45 - P	1,0	3,08		
	F45 - F	1,0	5,76		
	F45 - P	2,0	1,83		
F45 - F	2,0	3,15			

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12 - Item codes

Item Code	Vertical flap length [mm]	Horizontal flap length [mm]	Width [mm]
KS 02 05 020 – KS 21 05 020	50	50	40
KS 02 05 025	50	50	40
KS 02 07 020 – KS 21 07 020	70	70	55
KS 02 07 025	70	70	55
KS 02 09 020 – KS 21 09 020	90	90	65
KS 02 09 025	90	90	65
KS 02 10 520 – KS 21 10 520	105	105	90
KS 02 10 525	105	105	90
KS 02 10 530	105	105	90
KZ 02 05 020 – KZ 21 05 020	50	50	40
KZ 02 05 025	50	50	40
KZ 02 07 020 – KZ 21 07 020	70	70	55
KZ 02 07 025	70	70	55
KZ 02 09 020 – KZ 21 09 020	90	90	65
KZ 02 09 025	90	90	65
KZ 02 10 520 – KZ 21 10 520	105	105	90
KZ 02 10 525	105	105	90
KZ 02 10 530	105	105	90

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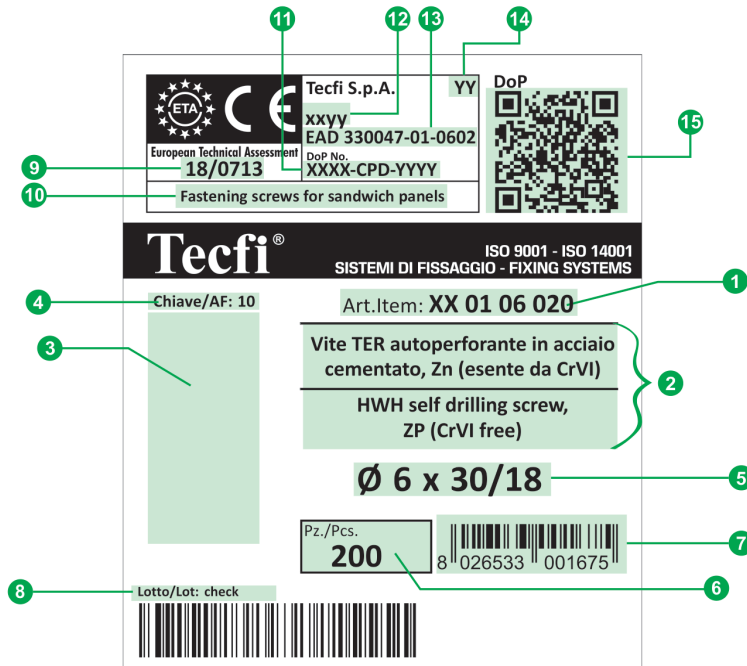
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13 - 4. Label



- | | |
|--|--|
| <ul style="list-style-type: none"> 1 Codice articolo / Item Code 2 Descrizioni / Descriptions 3 Immagine / Picture 4 Informazione extra / extra information 5 Misura / Size 6 Numero di pezzi per scatola / Number of Pieces per Box 7 Codice EAN 13 / EAN 13 barcode 8 Lotto / Lot Number 9 Numero di ETA / ETA Number | <ul style="list-style-type: none"> 10 Uso del prodotto previsto dallo standard Europeo applicato, livello di prestazione dichiarato / Intended use of the product as laid down in the European standard applied, level of performance declared 11 Numero di DoP / DoP Number 12 Gamma di prodotto / Product range 13 Specifica tecnica armonizzata / European Technical Specification 14 Le ultime due cifre dell'anno in cui il marchio è stato affisso per la prima volta / Last two digits of the year in which the marking was first affixed 15 Link al DoP (tramite QR code) / Link to DoP (by QR code) |
|--|--|

The performance of the product identified above is in conformity with the set of declared performances. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Name and function	Place and date of issue	Signature
President Antonio Guarino	Pastorano, April 27 th 2015	