

KKT COLOR A4 | AISI316

CONE-SHAPED CONCEALED HEAD SCREW



COLOURED HEAD

Version in A4 | AISI316 stainless steel with brown, grey or black coloured head. Excellent camouflaging with wood. Ideal for very aggressive environments, for acidic, chemically treated wood and very high internal moisture (T5).

COUNTER THREAD

The inverse (left-hand) under-head thread guarantees excellent grip. Small conical head to ensure it is hidden in the timber.

TRIANGULAR BODY

The three-lobed thread makes it possible to cut the wood grain during screwing. Exceptional pull-through capacity.



DIAMETER [mm]

3,5 8

LENGTH [mm]

20 320

SERVICE CLASS

☒ SC1 ☒ SC2 ☒ SC3 ☒ SC4

ATMOSPHERIC CORROSIVITY

☒ C1 ☒ C2 ☒ C3 ☒ C4 ☒ C5

WOOD CORROSIVITY

☒ T1 ☒ T2 ☒ T3 ☒ T4 ☒ T5

MATERIAL

A4
AISI 316
A4 austenitic stainless steel | AISI316 (CRC III) with organic coloured head coating




FIELDS OF USE

Outdoor use in highly aggressive environments. Wooden boards with density of < 550 kg/m³ (without pre-drill) and < 880 kg/m³ (with pre-drill). WPC boards (with pre-drill).


CODES AND DIMENSIONS

BROWN COLOUR HEAD




d_1 [mm]	CODE	L [mm]	b [mm]	A [mm]	pcs
5 TX 20	KKT540A4M	43	25	16	200
	KKT550A4M	53	35	18	200
	KKT560A4M	60	40	20	200
	KKT570A4M	70	50	25	100

BLACK COLOUR HEAD



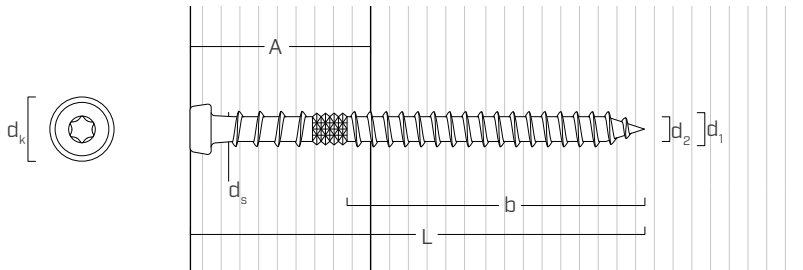
d_1 [mm]	CODE	L [mm]	b [mm]	A [mm]	pcs
5 TX 20	KKT550A4N	53	35	18	200
	KKT560A4N	60	40	20	200

GREY COLOUR HEAD



d_1 [mm]	CODE	L [mm]	b [mm]	A [mm]	pcs
5 TX 20	KKT550A4G	53	35	18	200
	KKT560A4G	60	40	20	200

GEOMETRY AND MECHANICAL CHARACTERISTICS



GEOMETRY

Nominal diameter	d_1	[mm]	5,1
Head diameter	d_k	[mm]	6,75
Thread diameter	d_2	[mm]	3,40
Shank diameter	d_s	[mm]	4,05
Pre-drilling hole diameter ⁽¹⁾	d_v	[mm]	3,0 - 4,0

⁽¹⁾ For high density materials, pre-drilled holes are recommended based on the wood specie.

CHARACTERISTIC MECHANICAL PARAMETERS

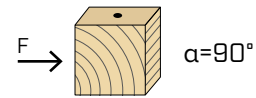
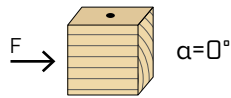
Nominal diameter	d_1	[mm]	5,1
Tensile strength	$f_{tens,k}$	[kN]	7,8
Yield moment	$M_{y,k}$	[Nm]	5,8
Withdrawal resistance parameter	$f_{ax,k}$	[N/mm ²]	13,7
Associated density	ρ_a	[kg/m ³]	350
Head-pull-through parameter	$f_{head,k}$	[N/mm ²]	23,8
Associated density	ρ_a	[kg/m ³]	350

CARBONIZED WOOD

Ideal for fastening wooden planks with a burnt effect. Can also be used with acetylate-treated woods.

MINIMUM DISTANCES FOR SHEAR LOADS


 screws inserted **WITHOUT** pre-drilled hole $\rho_k \leq 420 \text{ kg/m}^3$

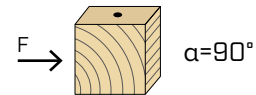
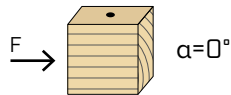


d	[mm]	5
a_1	[mm]	$12 \cdot d$ 60
a_2	[mm]	$5 \cdot d$ 25
$a_{3,t}$	[mm]	$15 \cdot d$ 75
$a_{3,c}$	[mm]	$10 \cdot d$ 50
$a_{4,t}$	[mm]	$5 \cdot d$ 25
$a_{4,c}$	[mm]	$5 \cdot d$ 25

d	[mm]	5
a_1	[mm]	$5 \cdot d$ 25
a_2	[mm]	$5 \cdot d$ 25
$a_{3,t}$	[mm]	$10 \cdot d$ 50
$a_{3,c}$	[mm]	$10 \cdot d$ 50
$a_{4,t}$	[mm]	$10 \cdot d$ 50
$a_{4,c}$	[mm]	$5 \cdot d$ 25

α = load-to-grain angle
d = screw diameter

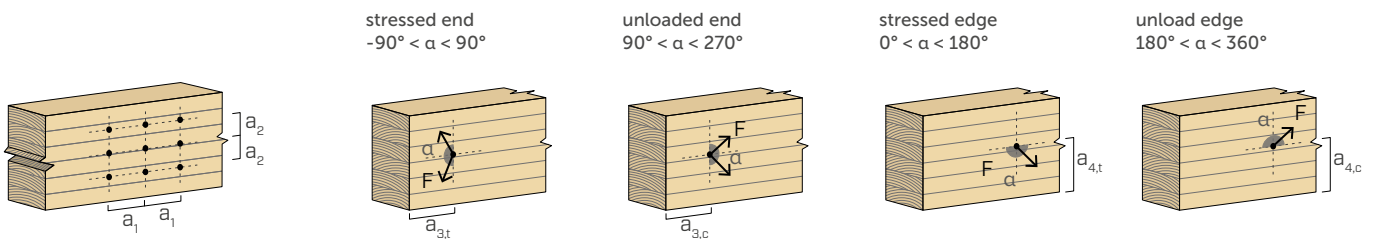
 screws inserted **WITH** pre-drilled hole



d	[mm]	5
a_1	[mm]	$5 \cdot d$ 25
a_2	[mm]	$3 \cdot d$ 15
$a_{3,t}$	[mm]	$12 \cdot d$ 60
$a_{3,c}$	[mm]	$7 \cdot d$ 35
$a_{4,t}$	[mm]	$3 \cdot d$ 15
$a_{4,c}$	[mm]	$3 \cdot d$ 15

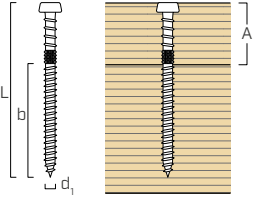
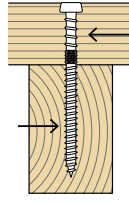
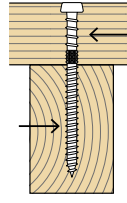
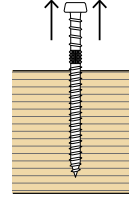
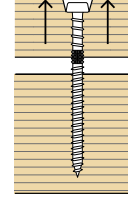
d	[mm]	5
a_1	[mm]	$4 \cdot d$ 20
a_2	[mm]	$4 \cdot d$ 20
$a_{3,t}$	[mm]	$7 \cdot d$ 35
$a_{3,c}$	[mm]	$7 \cdot d$ 35
$a_{4,t}$	[mm]	$7 \cdot d$ 35
$a_{4,c}$	[mm]	$3 \cdot d$ 15

α = load-to-grain angle
d = screw diameter



NOTES

- The minimum distances are according to EN 1995:2014 considering a calculation diameter of d = screw diameter.
- The minimum spacing for all steel-to-timber connections (a_1 , a_2) can be multiplied by a coefficient of 0,7.
- The minimum spacing for all panel-to-timber connections (a_1 , a_2) can be multiplied by a coefficient of 0,85.

				SHEAR		TENSION	
geometry				timber-to-timber without pre-drilling hole	timber-to-timber with pre-drilling hole	thread withdrawal	head pull-through including upper thread withdrawal
							
d_1	L	b	A	$R_{V,k}$	$R_{V,k}$	$R_{ax,k}$	$R_{head,k}$
[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]
5	43	25	16	1,13	1,35	1,98	1,25
	53	35	18	1,16	1,40	2,77	1,25
	60	40	22	1,19	1,46	3,17	1,25
	70	50	27	1,30	1,63	3,96	1,25

GENERAL PRINCIPLES

- Characteristic values according to EN 1995:2014.
- Design values can be obtained from characteristic values as follows:

$$R_d = \frac{R_k \cdot k_{mod}}{\gamma_M}$$

The coefficients γ_M and k_{mod} should be taken according to the current regulations used for the calculation.

- Mechanical strength values and screw geometry comply with CE marking according to EN 14592.
- Dimensioning and verification of the timber elements must be carried out separately.
- The screws must be positioned in accordance with the minimum distances.

NOTES

- The axial thread withdrawal resistance was calculated considering a 90° angle between the grain and the connector and for a fixing length of b.
- The axial resistance to head pull-through was calculated using timber elements also considering the underhead thread.
- For the calculation process a timber characteristic density $\rho_k = 420 \text{ kg/m}^3$ has been considered.