KKT

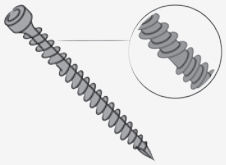
ETA 11/0030

Exterior screws, conical head

Available in carbon steel with organic coating and in A4 stainless steel

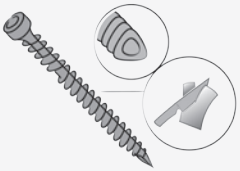
UNDERHEAD COUNTER-THREAD

Inverse underhead thread (left-handed) for excellent grip



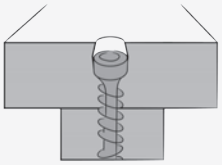
TRIANGULAR THREAD

Front triangular thread for excellent grip and wood penetration



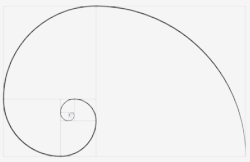
CONICAL HEAD

Small conical head to ensure it is hidden in the wood



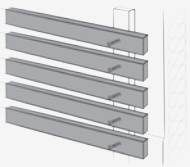
COLOURS AND MATERIALS

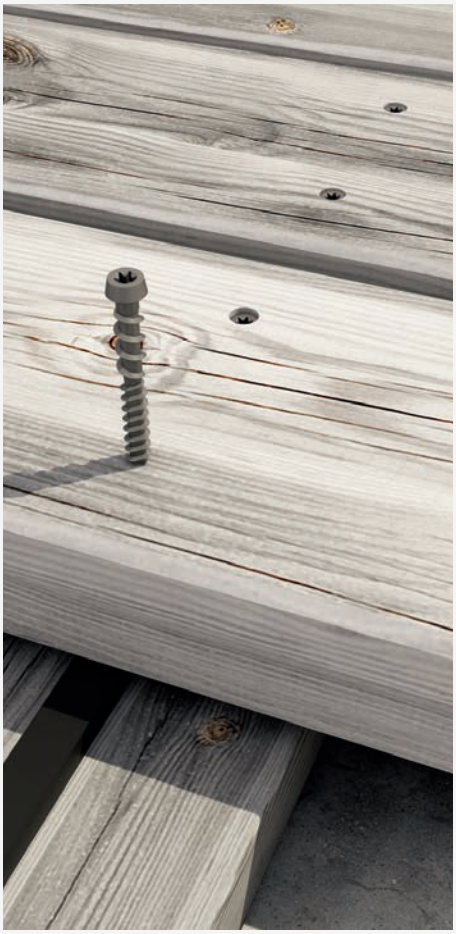
Available in carbon steel with special coating and in A4 stainless steel



FIELDS OF USE

Exterior use; appropriate for service classes 1-2-3





INVISIBLE HEAD

Aesthetically pleasing and long-lasting fastening, thanks to the extremely small conical head that becomes ever less visible in the wood as time goes on

TIGHTENING FORCE

The inverse underhead thread generates excellent grip capacity for the screw, which allows for perfect closure of the joint as well as stable fastening. The double-notched tip increases this effect.

AGGRESSIVE ENVIRONMENTS

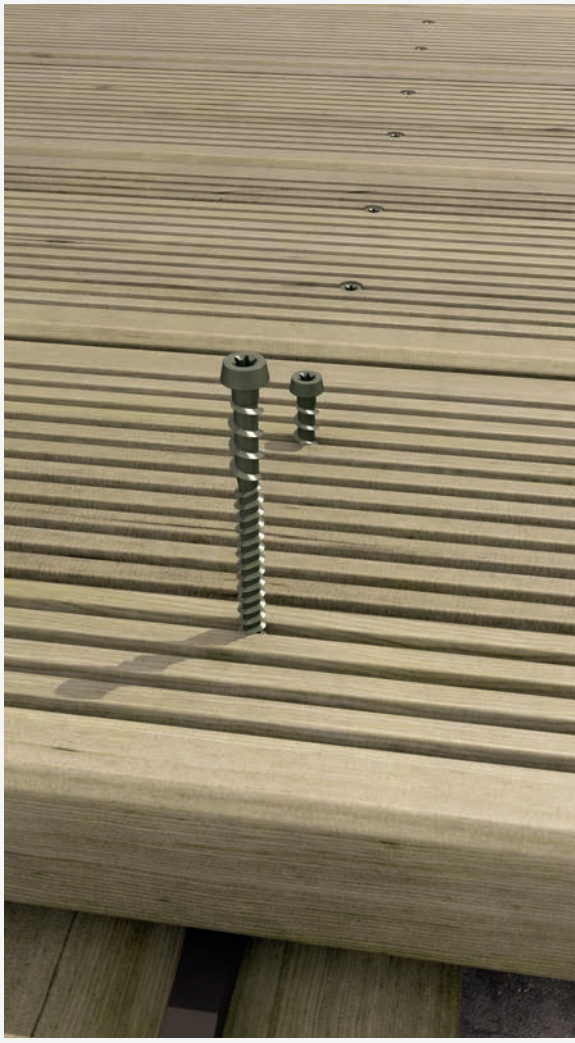
A4 stainless steel screws guarantee excellent resistance to corrosion even in very aggressive environments. The A4 version with a coloured head is ideal for invisible fastening.

Applications

Façade fastening with the stainless steel version

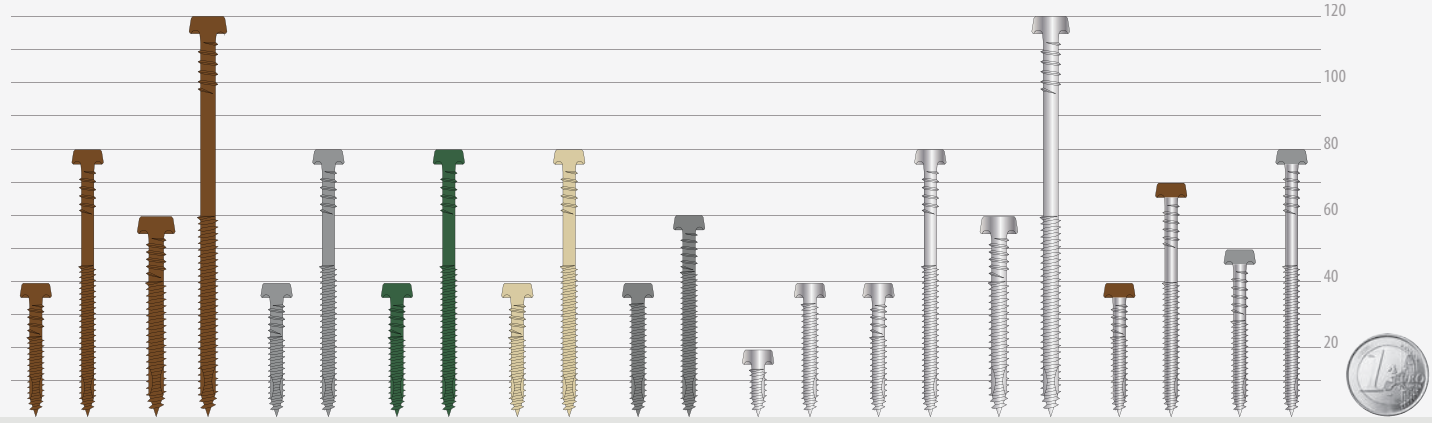
Patio fastening with the carbon steel version

Façade with horizontal battens fastening with the stainless steel version

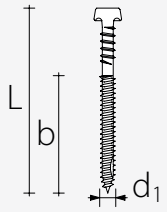


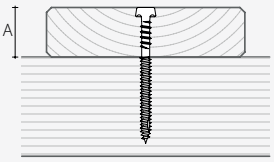
Range

The carbon steel version with organic coating is available in five different colours and includes a self-perforating tip with a double notch that increases the capacity to cut the fibres during tightening. The A4 stainless steel version includes a self-perforating tip with a single notch and is also available with a brown or grey coloured head. The total thread version is recommended for fastenings coupled with connectors for patios and façades. For all versions, the bit is included in each box.



Codes and dimensions





KKT GALVANIZED COLOURED CARBON STEEL

d_1 [mm]	code	L [mm]	colour	material	b [mm]	A [mm]	pcs/pckg
5 TX20	KKTM540	40		T	24	16	200
	KKTM545	45		T	27	18	
	KKTM550	50		T	30	20	
	KKTM555	55		T	33	22	
	KKTM560	60		T	35	25	
	KKTM565	65		T	37	28	
	KKTM570	70		T	40	30	100
	KKTM580	80		T	45	35	
6 TX25	KKTM660	60		T	42	18	100
	KKTM680	80		T	50	30	
	KKTM6100	100		T	50	50	
	KKTM6120	120		T	60	60	
5 TX20	KKTG540	40		T	24	16	200
	KKTG545	45		T	27	18	
	KKTG550	50		T	30	20	
	KKTG555	55		T	33	22	
	KKTG560	60		T	35	25	
	KKTG565	65		T	37	28	
	KKTG570	70		T	40	30	100
	KKTG580	80		T	45	35	
5 TX20	KKTV540	40		T	24	16	200
	KKTV550	50		T	30	20	
	KKTV560	60		T	35	25	
	KKTV570	70		T	40	30	100
	KKTV580	80		T	45	35	
5 TX20	KKTS540	40		T	24	16	200
	KKTS550	50		T	30	20	
	KKTS560	60		T	35	25	
	KKTS570	70		T	40	30	100
	KKTS580	80		T	45	35	
5 TX20	KKTN540*	40		T	36	4	200
	KKTN550	50		T	30	20	
	KKTN560	60		T	35	25	

* Screw with total thread (KKTX type)

KKT STAINLESS STEEL A4

d_1 [mm]	code	L [mm]	colour	material	b [mm]	A [mm]	pcs/pckg
5 TX20	KKTX520A4*	20		S	16	4	100
	KKTX525A4*	25		S	21	4	250
	KKTX530A4*	30		S	26	4	100
	KKTX540A4*	40		S	36	4	100
5 TX20	KKT540A4	40		S	24	16	200
	KKT545A4	45		S	27	18	
	KKT550A4	50		S	30	20	
	KKT555A4	55		S	33	22	
	KKT560A4	60		S	35	25	
	KKT565A4	65		S	37	28	
	KKT570A4	70		S	40	30	100
	KKT580A4	80		S	45	35	
6 TX25	KKT660A4	60		S	42	18	100
	KKT680A4	80		S	50	30	
	KKT6100A4	100		S	50	50	
	KKT6120A4	120		S	60	60	

* Screw with total thread (KKTX type)

KKT STAINLESS STEEL A4 WITH COLOURED HEAD

d_1 [mm]	code	L [mm]	colour	material	b [mm]	A [mm]	pcs/pckg
5 TX20	KKT540A4M	40		S	24	16	200
	KKT550A4M	50		S	30	20	
	KKT560A4M	60		S	35	25	
	KKT570A4M	70		S	40	30	100
5 TX20	KKT550A4G	50		S	30	20	200
	KKT560A4G	60		S	35	25	
	KKT570A4G	70		S	40	30	100
	KKT580A4G	80		S	45	35	

T = Galvanized carbon steel with coloured organic coating
S = Stainless steel A4

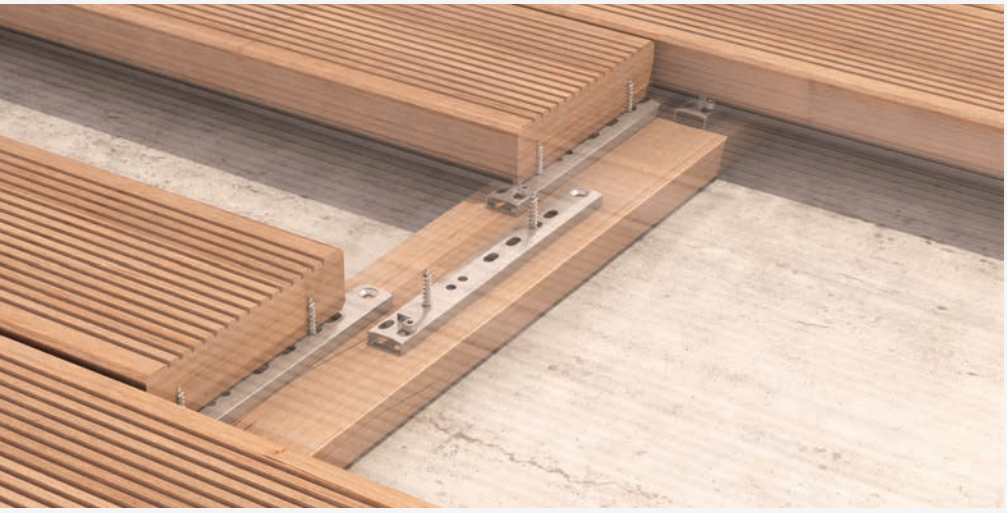
The 5x45, 5x55 and 5x65 measures are available while stock lasts

Applications

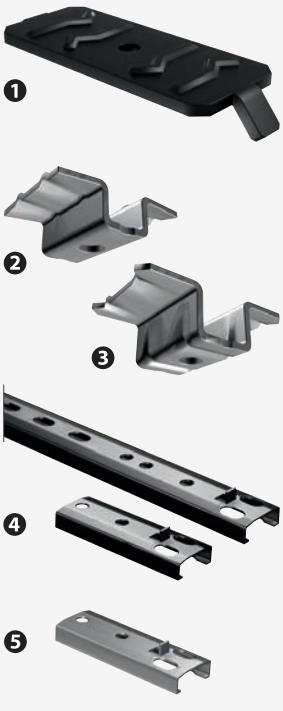
Fastening, FLAT connector with KKTN screws

Fastening, TVM connectors with KKTX screws

Fastening, TERRALOCK and VERTILOCK connectors with KKTX, KKT A4 and KKTN screws



Hidden connectors for patios and façades

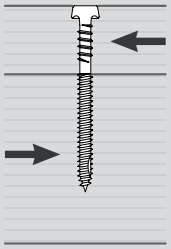


connector	code	L x B x H [mm]	description	pcs /pckg.
1 FLAT	**FLT6427N**	64 x 27 x 4	black aluminium metal connector for grooved wooden planks	100
2 TVM1	**FE010405**	32 x 22 x 3	A2 stainless steel connector for asymmetrically grooved wooden planks	250
3 TVM2	**FE010400**	34 x 23 x 2,5		
4 TERRALOCK	**TER60A2**	60 x 20 x 8	metal connector in stainless steel A2 for wooden patios (short version)	100
	TER180A2	180 x 20 x 8	metal connector in stainless steel A2 for wooden patios (long version)	50
	TER60ALU	60 x 20 x 8	aluminium connector for wooden patios (short version)	100
	TER180ALU	180 x 20 x 8	aluminium connector for wooden patios (long version)	50
	TER60ALUN	60 x 20 x 8	black aluminium connector for wooden patios (short version)	100
	TER180ALUN	180 x 20 x 8	black aluminium connector for wooden patios (long version)	50
5 VERTILOCK	**VRT60A2**	60 x 20 x 8	A2 stainless steel connector for wooden façades	100
	VRT60ALU	60 x 20 x 8	aluminium connector for wooden façades	50
	VRT60ALUN	60 x 20 x 8	black aluminium connector for wooden façades	100

Carpenter statics

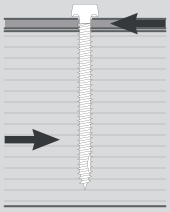
ALLOWABLE VALUES
DIN 1052:1988

SHEAR V_{adm}



WOOD-WOOD

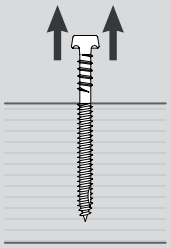
d_1 [mm]	L [mm]	V_{adm}
KKT 5	≥ 50	43 kg
KKT 6	≥ 80	61 kg



STEEL-WOOD

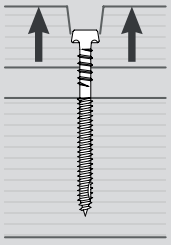
d_1 [mm]	L [mm]	V_{adm}
KKTX 5	≥ 40	53 kg

THREAD WITHDRAWAL N_{adm}



d_1 [mm]	**Length** L [mm]								
	25	**30**	**40**	**50**	**60**	**70**	**80**	**100**	**120**
KKT 5	-	-	60 kg	75 kg	88 kg	100 kg	113 kg	-	-
KKT 6	-	-	-	-	126 kg	-	150 kg	150 kg	180 kg
KKTX 5	53 kg	65 kg	90 kg	-	-	-	-	-	-

HEAD PENETRATION including UPPER THREAD WITHDRAWAL N_{adm}



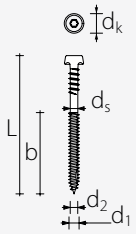
d_1 [mm]	N_{adm}
KKT 5	36 kg
KKT 6	47 kg

NOTE

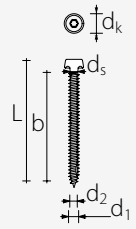
- Allowable values in accordance with DIN 1052:1988.
- The KKT screws with twin thread are mainly used for wood-wood joints.
- The KKTX total thread screws are mainly used for steel plates (e.g. Terralock patio system).
- The allowable extraction values are calculated considering the threaded part as being completely inserted into the wood.
- The allowable penetration values are calculated also considering the underhead thread, in accordance with "Prüfbericht Nr.116108" of Karlsruher Institut für Technologie (KIT).

Geometry and minimum distances

GEOMETRY AND MECHANICAL CHARACTERISTICS



KKT

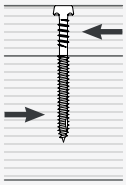


KKTX

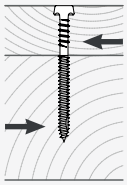
KKT/KKTX SCREWS					
Material		**Carbon steel**		**Stainless steel**	
Screw diameter	**Ø [mm]**	**5**	**6**	**5**	**6**
Nominal diameter	**d_1 [mm]**	**5,25**	**6,00**	**5,25**	**6,00**
Head diameter	d_k [mm]	6,75	7,75	6,75	7,75
Tip diameter	d_2 [mm]	3,40	3,90	3,40	3,90
Shank diameter	d_s [mm]	4,05	4,50	4,05	4,50
Pre-bored hole diameter *	d_v [mm]	3,0 - 4,0	4,0 - 5,0	3,0 - 4,0	4,0 - 5,0
Notched tip		double		single	
Characteristic yield moment	$M_{y,k}$ [Nmm]	5417,2	9493,7	5417,2	9493,7
Characteristic extraction-resistance parameter	$f_{ax,k}$ [N/mm^2]	11,7	11,7	11,7	11,7
Characteristic head-penetration parameter	$f_{head,k}$ [N/mm^2]	16,5	16,5	16,5	16,5
Characteristic tensile strength	$f_{tens,k}$ [kN]	7,9	11,3	7,9	11,3

* For high density materials, pre-bored holes are recommended based on the wood species.

MINIMUM DISTANCES FOR SHEAR LOADS

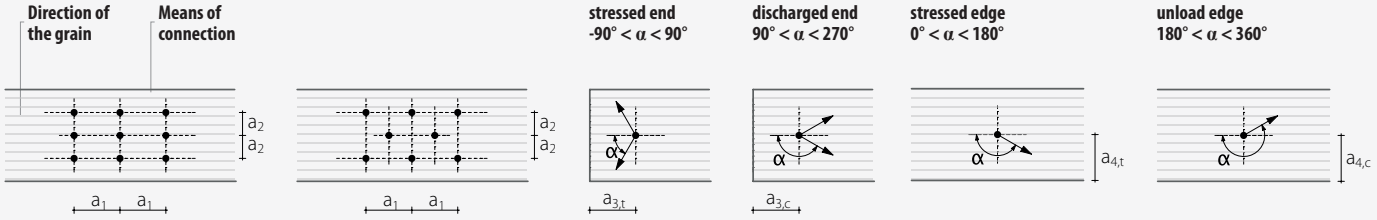


Angle between strength and grain α = 0°



Angle between strength and grain α = 90°

SCREWS INSERTED WITH PRE-BORED HOLES [1]					
		5	**6**	**5**	**6**
a_1	[mm]	25	30	20	24
a_2	[mm]	15	18	20	24
$a_{3,t}$	[mm]	60	72	35	42
$a_{3,c}$	[mm]	35	42	35	42
$a_{4,t}$	[mm]	15	18	35	42
$a_{4,c}$	[mm]	15	18	15	18



SCREWS INSERTED WITHOUT PRE-BORED HOLES [2]			
		5	**6**
a_1	[mm]	40	48
a_2	[mm]	20	24
$a_{3,t}$	[mm]	60	72
$a_{3,c}$	[mm]	25	30
$a_{4,t}$	[mm]	25	30
$a_{4,c}$	[mm]	20	24

NOTE

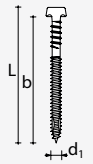
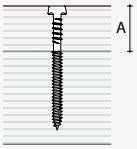
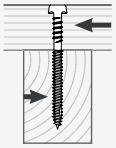
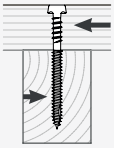
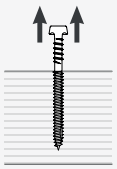
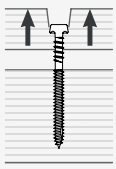
[1] The minimum distances comply with the EN 1995:2008 standard in accordance with ETA-11/0030.

[2] The minimum distances are in accordance with ETA-11/0030 considering wood elements with a minimum width of 12 ·d and a minimum thickness of 4 · d. In the case in which these conditions are not respected, please see the KKF screw (pg 227) for the minimum distances.

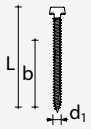
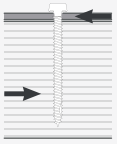
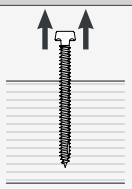
- In the case of Douglas fir elements (Pseudotsuga menziesii), the minimum distances parallel to the grain (a_1, $a_{3,t}$, $a_{3,c}$) must be multiplied by a coefficient of 1.5.

Designer statics

KKT

geometry				SHEAR		TRACTION	
				wood-wood without pre-bored hole	wood-wood with pre-bored hole	thread withdrawal [1]	head penetration including upper thread withdrawal [2]
							
d_1 [mm]	L [mm]	b [mm]	A [mm]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{ax,k}$ [kN]	$R_{head,k}$ [kN]
5	40	24	16	1,13	1,46	1,62	0,87
	45	27	18	1,17	1,54	1,83	0,87
	50	30	20	1,22	1,63	2,03	0,87
	55	33	22	1,28	1,72	2,23	0,87
	60	35	25	1,36	1,75	2,37	0,87
	65	37	28	1,45	1,75	2,50	0,87
	70	40	30	1,45	1,75	2,71	0,87
	80	45	35	1,45	1,75	3,05	0,87
6	60	42	18	1,53	2,01	3,41	1,15
	80	50	30	1,87	2,50	4,06	1,15
	100	50	50	2,03	2,50	4,06	1,15
	120	60	60	2,03	2,50	4,87	1,15

KKTX

geometry			SHEAR		TRACTION
			intermediate steel-wood plate [3]		thread withdrawal [1]
					
d_1 [mm]	L [mm]	b [mm]	$R_{V,k}$ [kN]		$R_{ax,k}$ [kN]
5	20 [4]	16	$S_{PLATE} = 3,0$ mm	0,87	1,08
	25 [4]	21		1,08	1,42
	30 [4]	26		1,30	1,76
	40	36		1,73	2,44

GENERAL PRINCIPLES

- Characteristic values comply with the EN 1995:2008 standard in accordance with ETA-11/0030.
- Design values are obtained from the following characteristic values:

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

  The coefficients γ_m and k_{mod} should be taken according to the current regulations used for the calculation.
- For the mechanical resistance values and the geometry of the screws, reference was made to ETA-11/0030.
- In the calculations, the density of the wood elements was considered equal to $\rho_k = 420$ kg/m^3.
- Values were calculated considering the threaded part as being completely inserted into the wood.
- Sizing and verification of the wooden elements and steel plates must be done separately.
- The KKT screws with twin thread are mainly used for wood-wood joints.
- The KKTX total thread screws are mainly used for steel plates (e.g. Terralock patio system).

NOTE

(1) The axial thread-extraction resistance was calculated considering a 90° angle between the grain and the connector and for a fixing length of b.

(2) The axial resistance to head penetration was assessed for the wood element also considering the underhead thread, in accordance with "Prüfbericht Nr.116108" of Karlsruher Institut für Technologie (KIT) and ETA-11/0030.

(3) The shear resistance characteristics are calculated considering the case of an intermediate plate ($0.5\ d_1 \le S_{PLATE} \le d_1$).

(4) This screw has not been granted the CE marking.