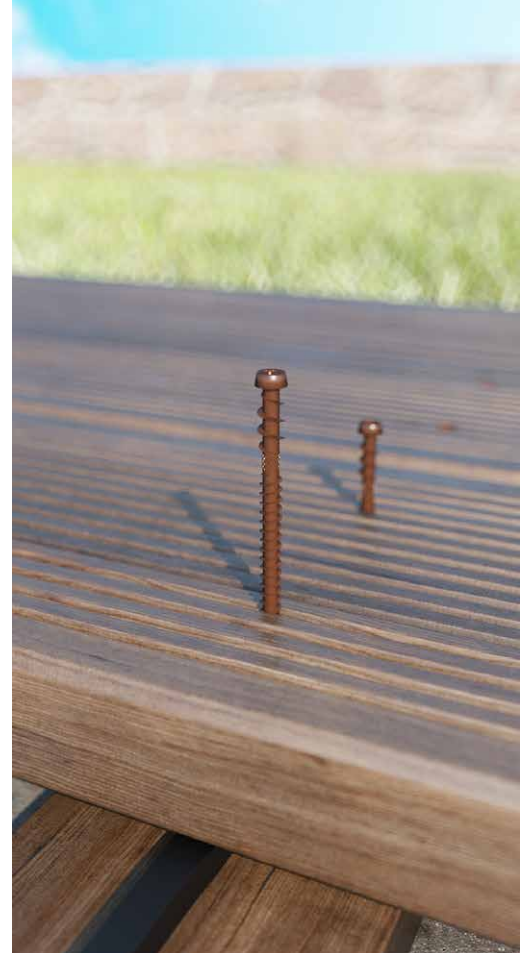


MINI



DOUBLE THREAD SCREW WITH CONCEALED HEAD

- Carbon steel version with coloured anti-rust coating for outdoor use in service class 3
- The inverse under-head thread guarantees excellent grip. Small inverted conical head for excellent concealed effect
- The three-lobed body makes it possible to cut the timber grain during screwing. Exceptional timber pull-through
- Application on timber boards with density of < 780 kg/m³ (without pre-drilling hole) and < 880 kg/m³ (with pre-drilling hole). It can be applied to WPC boards (with pre-drilling hole).
- Ideal for fastening standard Rothoblaas clips (FLAT, FLIP, TVM) in outdoor environments.



MATERIAL: austenitic stainless steel A4 | AISI316 (MINI A4) and carbon steel with coloured organic anti-corrosion coating.



MINI A4 STAINLESS STEEL

d ₁ [mm]	d _k [mm]	CODE	L [mm]	b [mm]	A [mm]	pcs
5 TX 20	6,75	MNA550	53	35	18	200
		MNA560	60	40	22	200
		MNA570	70	50	27	100

MINI STEEL WITH ANTI-CORROSION COATING

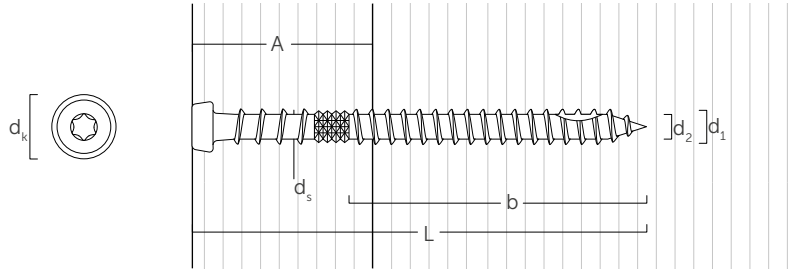
d ₁ [mm]	d _k [mm]	CODE	L [mm]	b [mm]	A [mm]	colour	pcs
5 TX 20	6,75	MNB550	53	35	18	●	200
		MNB560	60	40	22	●	200
		MNB570	70	50	27	●	100
		KKTN540 ^(*)	40	36	16	●	200
		KKTN550	53	35	18	●	200
		KKTN560	60	40	22	●	200
		KKTV550	53	35	18	●	200
		KKTV560	60	40	22	●	200
		KKTV570	70	50	27	●	100

^(*) Full threaded screw.

RANGE OF COLOURS AVAILABLE:

- mouse grey
- brown
- black
- green
- sand

GEOMETRY AND MECHANICAL CHARACTERISTICS



			MINI A4	MINI WITH ANTI-CORROSION COATING
nominal diameter	d_1	[mm]	5,1	5,1
head diameter	d_k	[mm]	6,75	6,75
thread diameter	d_2	[mm]	3,40	3,40
shank diameter	d_s	[mm]	4,05	4,05
notched tip			single	double
pre-drilling hole diameter ⁽¹⁾	d_v	[mm]	3,0 - 4,0	3,0 - 4,0
characteristic yield moment	$M_{y,k}$	[Nm]	5,84	8,42
characteristic withdrawal-resistance parameter	$f_{ax,k}$	[N/mm ²]	13,7	14,7
associated density	ρ_a	[kg/m ³]	350	400
characteristic head-pull-through parameter	$f_{head,k}$	[N/mm ²]	23,8	68,8
associated density	ρ_a	[kg/m ³]	350	730
characteristic tensile strength	$f_{tens,k}$	[kN]	7,8	9,6

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

STRUCTURAL VALUES | MINI A4

geometry	SHEAR		TENSION	
	timber-to-timber without pre-drilling hole	timber-to-timber with pre-drilling hole	thread withdrawal ⁽¹⁾	head pull-through ⁽²⁾
d_1 [mm]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{ax,k}$ [kN]	$R_{head,k}$ [kN]
L [mm]	1,16	1,40	2,77	1,25
b [mm]	1,24	1,53	3,17	1,25
A [mm]	1,35	1,70	3,96	1,25

NOTES

- ⁽¹⁾ The axial thread withdrawal 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 pull-through was calculated using timber elements also considering the underhead thread.

STRUCTURAL VALUES | MINI WITH ANTI-CORROSION COATING

geometry				SHEAR		TENSION	
				timber-to-timber without pre-drilling hole	timber-to-timber with pre-drilling hole	thread withdrawal ⁽¹⁾	head pull-through ⁽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	53	35	18	1,13	1,47	2,67	1,05
	60	40	22	1,20	1,57	3,06	1,05
	70	50	27	1,31	1,73	3,82	1,05

STRUCTURAL VALUES | KKTN540

geometry			SHEAR		TENSION
			intermediate steel-to-timber plate ⁽³⁾		thread withdrawal ⁽¹⁾
d_1 [mm]	L [mm]	b [mm]	$R_{V,k}$ [kN]		$R_{ax,k}$ [kN]
5	40	36	$S_{PLATE} = 3,0 \text{ mm}$	1,49	2,75

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. A characteristic head-pull-through parameter equal to 20 N/mm² with associated density $\rho_a = 350 \text{ kg/m}^3$ is considered in the calculation phase.
- The shear resistance characteristics are calculated considering the case of an intermediate plate ($0,5 d^1 \leq S_{PLATE} \leq d^1$).

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 according to CE marking according to EN 14592.
- For the calculation process a timber characteristic density $\rho_k = 420 \text{ kg/m}^3$ has been considered.
- Values were calculated considering the threaded part as being completely inserted into the wood.
- Dimensioning and verification of timber elements and steel plates must be carried out separately.
- The screws with double thread are mainly used for timber to timber joints.
- The KKTN540 total thread screw is mainly used for steel plates (e.g. FLAT patio system).