

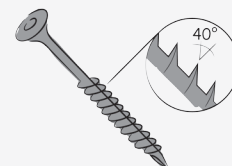
Exterior screws, countersunk head

A2 and A4 stainless steel versions



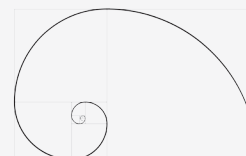
SPECIAL GEOMETRY

Self-perforating tip with setback notch, asymmetric "umbrella" thread, elongated cutter, underhead ribs



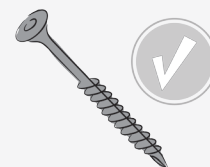
FULL RANGE

Wide selection of diameters and lengths



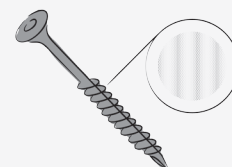
HIGH TECH

Special geometries and treatments provide mechanical resistance that is greater than stainless steel in the same class



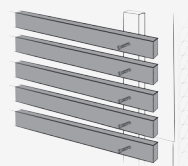
STAINLESS STEEL A2 AND A4

AISI304 (A2) and AISI316 (A4) stainless steel for high corrosion resistance



FIELDS OF USE

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

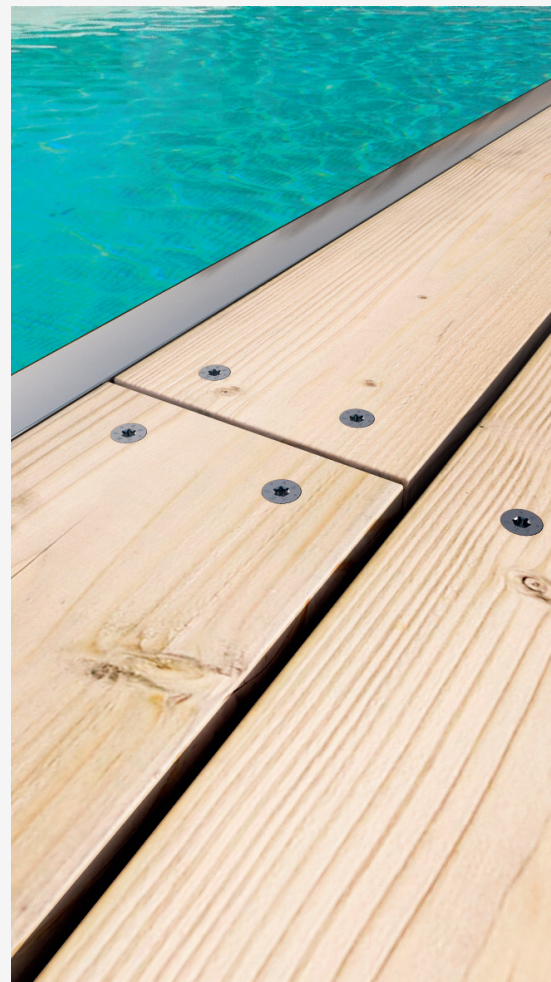


AGGRESSIVE ENVIRONMENTS

The high corrosion resistance stainless steel allows efficient fastening even in very aggressive environments

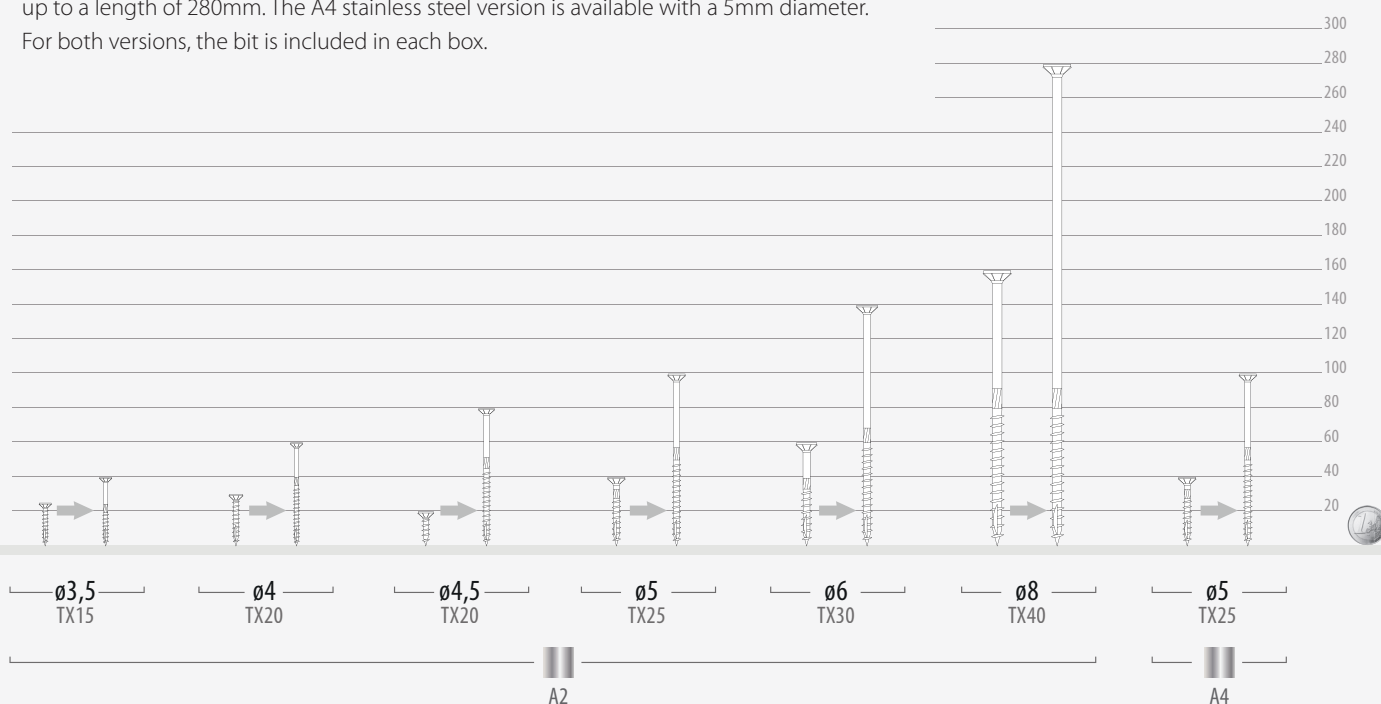
FULL RANGE

Extensive range of stainless steel options with high performing geometry (self-perforating tip, notch, cutter, underhead ribs) and mechanical resistance better than common stainless steel in the same class

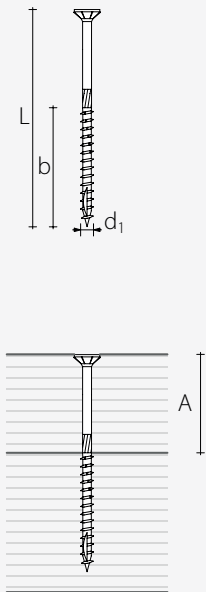


Range

The A2 stainless steel version is available with diameters ranging from 3.5mm to 8mm, up to a length of 280mm. The A4 stainless steel version is available with a 5mm diameter. For both versions, the bit is included in each box.



Codes and dimensions



SCI A2

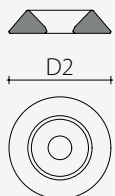
d ₁ [mm]	code	L [mm]	b [mm]	A [mm]	d _v ** pre-bored hole [mm]	pcs/pkg
3,5 TX10	SCI3525*	25	18	7	2	500
	SCI3530*	30	18	12		
	SCI3535*	35	18	17		
	SCI3540*	40	18	22		
4 TX20	SCI4030*	30	18	12	2,5	200
	SCI4035*	35	18	17		
	SCI4040	40	24	16		
	SCI4045	45	30	15		
	SCI4050	50	30	20		
	SCI4060	60	35	25		
4,5 TX20	SCI4520*	20	15	5	3	200
	SCI4535*	35	24	11		
	SCI4540*	40	24	16		
	SCI4545	45	30	15		
	SCI4550	50	30	20		
	SCI4560	60	35	25		
	SCI4570	70	40	30		
	SCI4580	80	40	40		
5 TX25	SCI5040*	40	20	20	3,5	200
	SCI5045*	45	24	21		
	SCI5050*	50	24	26		
	SCI5060	60	30	30		
	SCI5070	70	35	35		100
	SCI5080	80	40	40		
	SCI5090	90	45	45		
	SCI50100	100	50	50		
6 TX30	SCI6050*	50	30	20	4	100
	SCI6060*	60	30	30		
	SCI6080	80	40	40		
	SCI60100	100	50	50		
	SCI60120	120	60	60		
	SCI60140	140	75	65		
8 TX40	SCI80160	160	80	80	5	100
	SCI80200	200	80	120		
	SCI80240	240	80	160		
	SCI80280	280	80	200		

SCI A4

d ₁ [mm]	code	L [mm]	b [mm]	A [mm]	d _v ** pre-bored hole [mm]	pcs/pkg
5 TX20	SCI5050A4*	50	24	26	3,5	200
	SCI5060A4*	60	30	30		100
	SCI5070A4*	70	35	35		
	SCI5080A4*	80	40	40		
	SCI5090A4*	90	45	45		
	SCI50100A4*	100	50	50		

* screws have not been granted the CE mark.

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

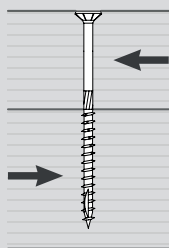


TURNED WASHER A2

code	d ₁ SCI	D2 [mm]	pcs/pkg
SCB6	6	20	100
SCB8	8	25	

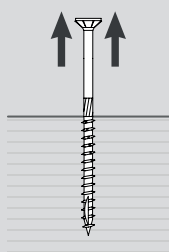
ALLOWABLE VALUES V_{adm}

WOOD-WOOD



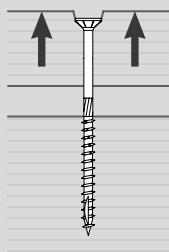
d_1 [mm]	L [mm]	V_{adm}
3,5	≥ 35	21 kg
4	≥ 35	27 kg
4,5	≥ 50	34 kg
5	≥ 50	43 kg
6	≥ 60	61 kg
8	≥ 160	109 kg

THREAD WITHDRAWAL N_{adm}



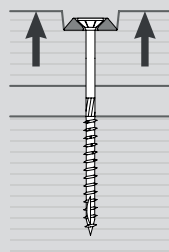
d_1 [mm]	Length L [mm]											
	25	30-35	40	45-50	60	70	80	90	100	120	140	160-280
3,5	32 kg	32 kg	32 kg	-	-	-	-	-	-	-	-	-
4	-	36 kg	48 kg	60 kg	70 kg	-	-	-	-	-	-	-
4,5	-	-	54 kg	68 kg	79 kg	90 kg	90 kg	-	-	-	-	-
5	-	-	50 kg	60 kg	75 kg	88 kg	100 kg	113 kg	125 kg	-	-	-
6	-	-	-	90 kg	90 kg	-	120 kg	-	150 kg	180 kg	225 kg	-
8	-	-	-	-	-	-	-	-	-	-	-	320 kg

HEAD PENETRATION N_{adm}



SCREW

d_1 [mm]	N_{adm}
3,5	20 kg
4	26 kg
4,5	41 kg
5	50 kg
6	72 kg
8	105 kg



SCREW WITH WASHER

d_1 [mm]	N_{adm}
3,5	-
4	-
4,5	-
5	-
6	200 kg
8	313 kg

CALCULATION FORMULAS - SHEAR DIN 1052-2:1988

WOOD-WOOD

$$V_{adm} = \min \{ 0,4 \cdot A \cdot d_1; 1,7 \cdot d_1^2 \}$$

d_1 [mm]
A [mm]
 V_{adm} [kg]

EXAMPLE WOOD-WOOD

SCI 6 x 100 mm

$d_1 = 6$ mm
A = 50 mm

$$V_{adm} = \min \{ 0,4 \cdot A \cdot d_1; 1,7 \cdot d_1^2 \}$$

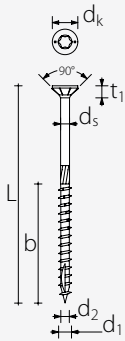
$$V_{adm} = \min \{ 0,4 \cdot 50 \cdot 6; 1,7 \cdot 6^2 \} = \min \{ 120; 61 \} = 61 \text{ kg}$$

NOTE

- Allowable values in accordance with DIN 1052:1988.
- The allowable extraction values are calculated considering the threaded part as being completely inserted into the wood.

Geometry and minimum distances

GEOMETRY AND MECHANICAL CHARACTERISTICS



SCI SCREW

Material	Stainless steel	A2*	A2*	A2*	A2*	A2*	A2*	A4**
Nominal diameter	d_f [mm]	3,5	4	4,5	5	6	8	5
Head diameter	d _k [mm]	7,00	8,00	9,00	10,00	12,00	14,50	10,00
Tip diameter	d ₂ [mm]	2,25	2,55	2,80	3,40	3,95	5,40	3,40
Shank diameter	d _s [mm]	2,55	2,80	3,25	3,70	4,45	5,85	3,70
Head thickness	t ₁ [mm]	3,50	3,80	4,25	4,65	5,30	6,00	4,65
Pre-bored hole diameter	d _v [mm]	2,0	2,5	3,0	3,0	4,0	5,0	3,0
Characteristic yield moment	M _{y,k} [Nmm]	1260,0	1960,0	2770,0	4370,0	8220,0	17600,0	3939,8
Characteristic extraction-resistance parameter	f _{ax,k} [N/mm ²]	19,1	17,1	17,2	17,9	11,6	14,8	17,9
Associated density	ρ _a [kg/m ³]	440	410	410	440	420	410	440
Characteristic head-penetration parameter	f _{head,k} [N/mm ²]	16,0	13,4	18,0	17,6	12,0	12,5	17,6
Associated density	ρ _a [kg/m ³]	380	390	440	440	440	440	440
Characteristic tensile strength	f _{tens,k} [kN]	2,21	3,23	4,40	5,01	6,81	14,10	4,30

* Mechanical parameters comply with CE marking, according to EN 14592

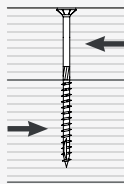
** Mechanical parameters from experimental tests



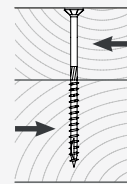
SCB TURNED WASHER

Material	Stainless steel	A2	A2
Washer		SCB6	SCB8
Screw		SCI Ø6	SCI Ø8
Internal diameter	D1 [mm]	7,5	8,5
External diameter	D2 [mm]	20,0	25,0
Thickness	S [mm]	4,0	5,0

MINIMUM DISTANCES FOR SHEAR LOADS



Angle between strength and grain $\alpha = 0^\circ$



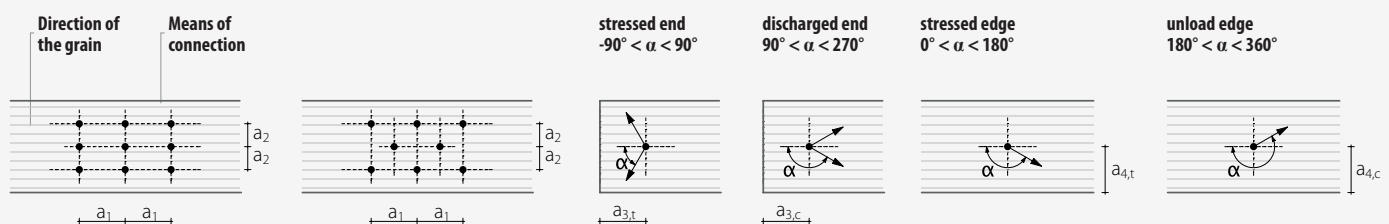
Angle between strength and grain $\alpha = 90^\circ$

SCREWS INSERTED WITH PRE-BORED HOLES

	3,5	4	4,5	5	6	8	3,5	4	4,5	5	6	8
a ₁ [mm]	18	20	23	25	30	40	14	16	18	20	24	32
a ₂ [mm]	11	12	14	15	18	24	14	16	18	20	24	32
a _{3,t} [mm]	42	48	54	60	72	96	25	28	32	35	42	56
a _{3,c} [mm]	25	28	32	35	42	56	25	28	32	35	42	56
a _{4,t} [mm]	11	12	14	15	18	24	18	20	23	35	42	56
a _{4,c} [mm]	11	12	14	15	18	24	11	12	14	15	18	24

SCREWS INSERTED WITHOUT PRE-BORED HOLES

	3,5	4	4,5	5	6	8	3,5	4	4,5	5	6	8
a ₁ [mm]	35	40	45	60	72	96	18	20	23	25	30	40
a ₂ [mm]	18	20	23	25	30	40	18	20	23	25	30	40
a _{3,t} [mm]	53	60	68	75	90	120	35	40	45	50	60	80
a _{3,c} [mm]	35	40	45	50	60	80	35	40	45	50	60	80
a _{4,t} [mm]	18	20	23	25	30	40	25	28	32	50	60	80
a _{4,c} [mm]	18	20	23	25	30	40	18	20	23	25	30	40

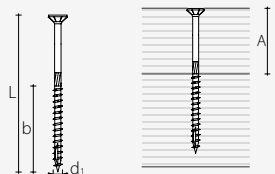
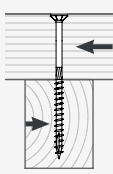
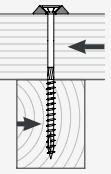
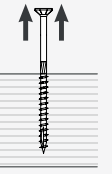
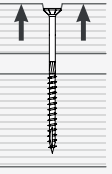
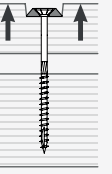


NOTE

- The minimum distances are in accordance with EN 1995:2008 considering a mass density of the wooden elements of $\rho_k \leq 420 \text{ kg/m}^3$.

SHEAR

TRACTION

geometry				wood-wood	wood-wood with washer	thread withdrawal ⁽¹⁾	head penetration ⁽²⁾	head penetration with washer ⁽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]	R _{head,k} [kN]
3,5	25	18	7	0,43	-	0,79	0,55	-
	30	18	12	0,52	-	0,79	0,55	-
	35	18	17	0,55	-	0,79	0,55	-
	40	18	22	0,55	-	0,79	0,55	-
4	30	18	12	0,62	-	0,90	0,72	-
	35	18	17	0,69	-	0,90	0,72	-
	40	24	16	0,69	-	1,20	0,72	-
	45	30	15	0,69	-	1,50	0,72	-
	50	30	20	0,69	-	1,50	0,72	-
	60	35	25	0,69	-	1,75	0,72	-
4,5	20	15	5	0,45	-	0,84	0,91	-
	35	24	11	0,71	-	1,35	0,91	-
	40	24	16	0,83	-	1,35	0,91	-
	45	30	15	0,80	-	1,69	0,91	-
	50	30	20	0,85	-	1,69	0,91	-
	60	35	25	0,85	-	1,97	0,91	-
	70	40	30	0,85	-	2,25	0,91	-
5	80	40	40	0,85	-	2,25	0,91	-
	40	20	20	1,02	-	1,25	1,12	-
	45	24	21	1,02	-	1,50	1,12	-
	50 ⁽³⁾	24	26	1,02	-	1,50	1,12	-
	60 ⁽³⁾	30	30	1,02	-	1,87	1,12	-
	70 ⁽³⁾	35	35	1,02	-	2,19	1,12	-
	80 ⁽³⁾	40	40	1,02	-	2,50	1,12	-
	90 ⁽³⁾	45	45	1,02	-	2,81	1,12	-
6	100 ⁽³⁾	50	50	1,02	-	3,12	1,12	-
	50	30	20	1,34	1,50	2,25	1,61	4,49
	60	30	30	1,41	1,57	2,25	1,61	4,49
	80	40	40	1,41	1,75	3,00	1,61	4,49
	100	50	50	1,41	1,94	3,75	1,61	4,49
	120	60	60	1,41	2,01	4,50	1,61	4,49
8	140	75	65	1,41	2,01	5,62	1,61	4,49
	160	80	80	2,20	3,22	8,00	2,36	7,01
	200	80	120	2,20	3,22	8,00	2,36	7,01
	240	80	160	2,20	3,22	8,00	2,36	7,01
	280	80	200	2,20	3,22	8,00	2,36	7,01

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.
- The shear characteristic resistances are calculated for screws inserted without pre-bored holes. In the case of screws inserted with pre-bored holes, greater resistance values can be obtained.
- In the calculations, the density of the wood elements was considered equal to $\rho_k = 380 \text{ kg/m}^3$.
- Values were calculated considering the threaded part as being completely inserted into the wood.
- Sizing and verification of the wooden elements must be done separately.
- The shear characteristic resistances are calculated for screws inserted without pre-bored holes. In the case of screws inserted with pre-bored holes, greater resistance values can be obtained.

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, with and without a washer, was calculated using wood elements.

In the case of steel-wood connections, generally the steel tensile strength is binding with respect to head separation or penetration.

⁽³⁾ Screw available in both A2 and A4 versions.