SCI A2 | AISI305

COUNTERSUNK SCREW

BIT INCLUDED

A2 AISI 305

CE EN 14592

SPECIAL GEOMETRY

Self-perforating tip with setback notch, asymmetric "umbrella" thread, elongated cutter and sharp under-head ribs.

SUPERIOR STRENGTH

Geometric details provide the screw with greater torsional strength for more secure screwing. Very broad range of measurements.

A2 | AISI305

Austenitic stainless steel A2 | AISI305 for high corrosion resistance. Ideal for aggressive environments.

CHARACTERISTICS

FOCUS	details designed for high performance
HEAD	countersunk with ribs
DIAMETER	from 3,5 to 8,0 mm
LENGTH	from 25 to 320 mm

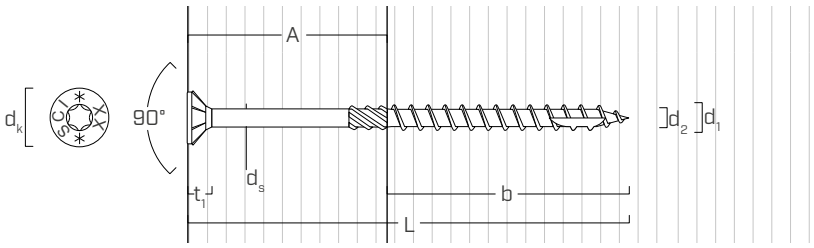
MATERIAL

A2 | AISI305 austenitic stainless steel.

FIELDS OF USE

Use in aggressive outdoor environments. Wooden boards with density of < 470 kg/m^3 (without pre-drill) and < 620 kg/m^3 (with pre-drill). Suitable for service classes 1-2-3.

GEOMETRY AND MECHANICAL CHARACTERISTICS



Nominal diameter	d_1	[mm]	3,5	4	4,5	5	6	8
Head diameter	d_K	[mm]	7,00	8,00	9,00	10,00	12,00	14,50
Tip diameter	d_2	[mm]	2,25	2,55	2,80	3,40	3,95	5,40
Shank diameter	d_S	[mm]	2,45	2,75	3,15	3,65	4,30	5,80
Head thickness	t_1	[mm]	3,50	3,80	4,25	4,65	5,30	6,00
Pre-drilling hole diameter	d_V	[mm]	2,0	2,5	3,0	3,0	4,0	5,0
Characteristic yield moment	$M_{y,k}$	[Nm]	1,26	1,96	2,77	4,37	8,22	17,60
Characteristic withdrawal-resistance parameter	$f_{ax,k}$	[N/mm^2]	19,1	17,1	17,2	17,9	11,6	14,8
Associated density	ρ_a	[kg/m^3]	440	410	410	440	420	410
Characteristic head-pull-through parameter	$f_{head,k}$	[N/mm^2]	16,0	13,4	18,0	17,6	12,0	12,5
Associated density	ρ_a	[kg/m^3]	380	390	440	440	440	440
Characteristic tensile strength	$f_{tens,k}$	[kN]	2,21	3,23	4,40	5,01	6,81	14,10

CODES AND DIMENSIONS

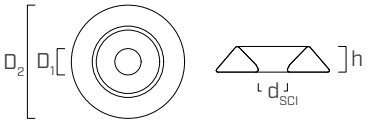
d_1 [mm]	CODE	L [mm]	b [mm]	A [mm]	pcs
3,5 TX 15	SCI3525(*)	25	18	7	500
	SCI3530(*)	30	18	12	500
	SCI3535(*)	35	18	17	500
	SCI3540(*)	40	18	22	500
4 TX 20	SCI4030	30	18	12	500
	SCI4035	35	18	17	500
	SCI4040	40	24	16	500
	SCI4045	45	30	15	400
	SCI4050	50	30	20	400
	SCI4060	60	35	25	200
4,5 TX 20	SCI4535	35	24	11	400
	SCI4540	40	24	16	400
	SCI4545	45	30	15	400
	SCI4550	50	30	20	200
	SCI4560	60	35	25	200
	SCI4570	70	40	30	200
	SCI4580	80	40	40	200

(*) Not holding CE marking.

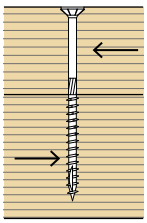
d_1 [mm]	CODE	L [mm]	b [mm]	A [mm]	pcs
5 TX 25	SCI5040	40	20	20	200
	SCI5045	45	24	21	200
	SCI5050	50	24	26	200
	SCI5060	60	30	30	200
	SCI5070	70	35	35	100
	SCI5080	80	40	40	100
	SCI5090	90	45	45	100
	SCI50100	100	50	50	100
6 TX 30	SCI6060	60	30	30	100
	SCI6080	80	40	40	100
	SCI60100	100	50	50	100
	SCI60120	120	60	60	100
	SCI60140	140	75	65	100
	SCI60160	160	75	85	100
8 TX 40	SCI80120	120	60	60	100
	SCI80160	160	80	80	100
	SCI80200	200	80	120	100
	SCI80240	240	80	160	100
	SCI80280	280	80	200	100
	SCI80320	320	80	240	100

TURNED WASHER SCB A4 | AISI316

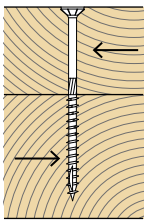
d_{SCI} [mm]	CODE	D_1 [mm]	D_2 [mm]	h [mm]	pcs
6	SCB6	7,5	20,0	4,0	100
8	SCB8	8,5	25,0	5,0	100



MINIMUM DISTANCES FOR SHEAR LOADS



Load-to-grain angle α = 0°

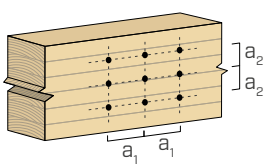


Load-to-grain angle α = 90°

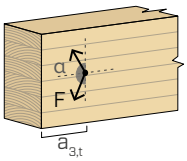
		SCREWS INSERTED WITH PRE-DRILLING HOLE								SCREWS INSERTED WITH PRE-DRILLING HOLE							
d_1	[mm]		3,5	4	4,5		5	6	8		3,5	4	4,5		5	6	8
a_1	[mm]	5·d	18	20	23	5·d	25	30	40	4·d	14	16	18	4·d	20	24	32
a_2	[mm]	3·d	11	12	14	3·d	15	18	24	4·d	14	16	18	4·d	20	24	32
$a_{3,t}$	[mm]	12·d	42	48	54	12·d	60	72	96	7·d	25	28	32	7·d	35	42	56
$a_{3,c}$	[mm]	7·d	25	28	32	7·d	35	42	56	7·d	25	28	32	7·d	35	42	56
$a_{4,t}$	[mm]	3·d	11	12	14	3·d	15	18	24	5·d	18	20	23	7·d	35	42	56
$a_{4,c}$	[mm]	3·d	11	12	14	3·d	15	18	24	3·d	11	12	14	3·d	15	18	24

		SCREWS INSERTED WITHOUT PRE-DRILLING HOLE								SCREWS INSERTED WITHOUT PRE-DRILLING HOLE							
d_1	[mm]		3,5	4	4,5		5	6	8		3,5	4	4,5		5	6	8
a_1	[mm]	10·d	35	40	45	12·d	60	72	96	5·d	18	20	23	5·d	25	30	40
a_2	[mm]	5·d	18	20	23	5·d	25	30	40	5·d	18	20	23	5·d	25	30	40
$a_{3,t}$	[mm]	15·d	53	60	68	15·d	75	90	120	10·d	35	40	45	10·d	50	60	80
$a_{3,c}$	[mm]	10·d	35	40	45	10·d	50	60	80	10·d	35	40	45	10·d	50	60	80
$a_{4,t}$	[mm]	5·d	18	20	23	5·d	25	30	40	7·d	25	28	32	10·d	50	60	80
$a_{4,c}$	[mm]	5·d	18	20	23	5·d	25	30	40	5·d	18	20	23	5·d	25	30	40

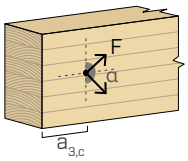
d = nominal screw diameter



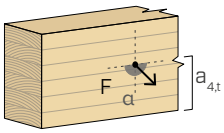
stressed end
-90° < α < 90°



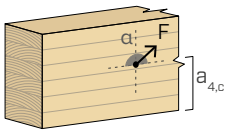
unloaded end
90° < α < 270°



stressed edge
0° < α < 180°



unload edge
180° < α < 360°

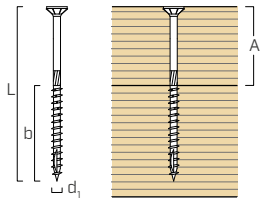
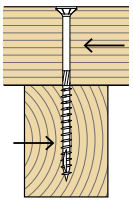
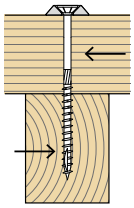
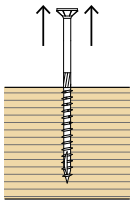
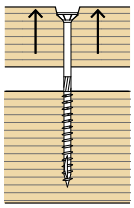
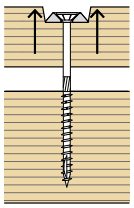


NOTES:

- The minimum distances are compliant with EN 1995:2014 considering a timber characteristic density of $\rho_k \leq 420$ kg/m^3 and calculation diameter of d = nominal 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.

STATIC VALUES

CHARACTERISTIC VALUES
EN 1995:2014

geometry				SHEAR		TENSION		
				timber-to-timber	timber-to-timber with washer	thread withdrawal(1)	head pull-through(2)	head pull-through 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	0,41	-	1,08	0,79	-
	30	18	12	0,55	-	1,08	0,79	-
	35	18	17	0,62	-	1,08	0,79	-
	40	18	22	0,64	-	1,08	0,79	-
4	30	18	12	0,62	-	1,17	0,85	-
	35	18	17	0,68	-	1,17	0,85	-
	40	24	16	0,69	-	1,56	0,85	-
	45	30	15	0,67	-	1,95	0,85	-
	50	30	20	0,76	-	1,95	0,85	-
	60	35	25	0,79	-	2,28	0,85	-
4,5	35	24	11	0,76	-	1,77	1,31	-
	40	24	16	0,88	-	1,77	1,31	-
	45	30	15	0,87	-	2,21	1,31	-
	50	30	20	0,95	-	2,21	1,31	-
	60	35	25	1,04	-	2,58	1,31	-
	70	40	30	1,04	-	2,94	1,31	-
	80	40	40	1,04	-	2,94	1,31	-
5	40	20	20	1,04	-	1,61	1,58	-
	45	24	21	1,13	-	1,93	1,58	-
	50	24	26	1,21	-	1,93	1,58	-
	60	30	30	1,35	-	2,41	1,58	-
	70	35	35	1,35	-	2,82	1,58	-
	80	40	40	1,35	-	3,22	1,58	-
	90	45	45	1,35	-	3,62	1,58	-
	100	50	50	1,35	-	4,02	1,58	-
6	60	30	30	1,48	1,58	1,95	1,55	4,31
	80	40	40	1,77	2,03	2,60	1,55	4,31
	100	50	50	1,77	2,19	3,25	1,55	4,31
	120	60	60	1,77	2,35	3,90	1,55	4,31
	140	75	65	1,77	2,46	4,87	1,55	4,31
	160	75	85	1,77	2,46	4,87	1,55	4,31
8	120	60	60	2,84	3,93	6,76	2,38	7,02
	160	80	80	2,84	4,00	9,01	2,38	7,02
	200	80	120	2,84	4,00	9,01	2,38	7,02
	240	80	160	2,84	4,00	9,01	2,38	7,02
	280	80	200	2,84	4,00	9,01	2,38	7,02
	320	80	240	3,19	4,35	9,01	2,38	7,02

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, with and without a washer, was calculated using timber elements. In the case of steel-to-timber connections, generally the steel tensile strength is binding with respect to head separation or pull-through.

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 ρ_k = 385 kg/m^3 has been considered.
- Values were calculated considering the threaded part as being completely inserted into the wood.
- Dimensioning and verification of the timber elements must be carried out separately.
- The characteristic shear resistances are calculated for screws inserted without pre-drilling hole. In the case of screws inserted with pre-drilling hole, greater resistance values can be obtained.