SPP

SELF-DRILLING TIMBER-TO-METAL SCREW

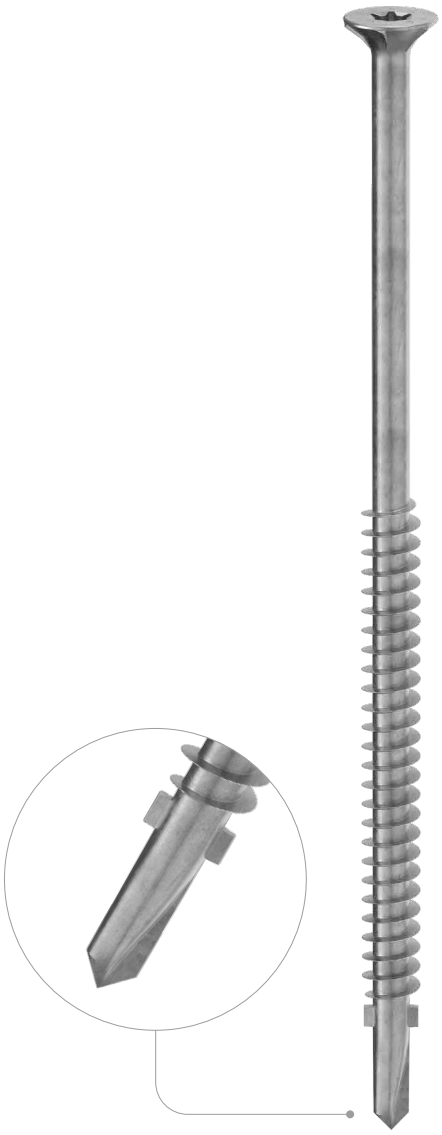
CE
EN 14592

CERTIFIED
The SPP self-drilling screw is CE marked according to EN 14592. It is the ideal choice for professionals who demand quality, safety and reliable performance in structural timber-to-metal applications.

TIMBER-TO-METAL TIP
Special self-perforating tip with bleeder geometry for excellent drilling capacity both in aluminium (thickness: up to 3/8") and steel (thickness: up to 1/4").

CUTTING FINS
The fins protect the screw thread during timber pull-through. They guarantee maximum threading efficiency in metal and perfect adhesion between the thickness of the wood and the metal.

WIDE RANGE
Being partially threaded, it's ideal for fastening sandwich panels, even thick ones, to steel. Very sharp under-head ribs for a perfect surface finish on the wooden element.



BIT INCLUDED

DIAMETER [in]	0.14 — **0.25** — 0.32
LENGTH [in]	1 — **4 15/16** — **9 1/2**
EXPOSURE CONDITION	EC1 DRY
ATMOSPHERIC CORROSIVITY	C1 C2
WOOD CORROSIVITY	T1 T2
MATERIAL	Zn ELECTRO PLATED — electrogalvanized carbon steel

FIELDS OF USE

Direct fastening, without pre-drilling hole, of timber elements to metallic substructures:

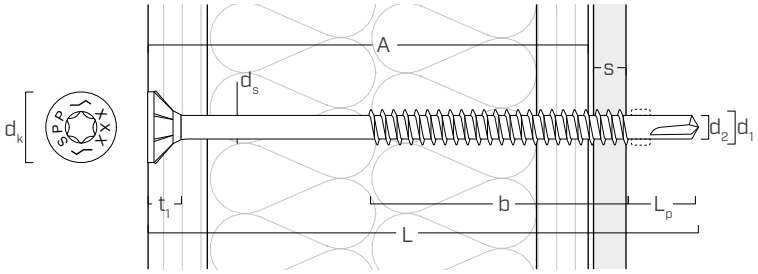
- in S235 steel with a maximum thickness of 1/4"
- in aluminium with a maximum thickness of 3/8"

CODES AND DIMENSIONS

d_1 [mm] [in]	CODE	L [in]	b [in]	A [in]	s_S [in]	s_A [in]	pcs
6,3 **0.25** **#14** **TX 30**	**SPP63125**	4 15/16	2 3/8	3 3/4	1/4 - 5/16	5/16 - 3/8	100
	SPP63145	5 11/16	2 3/8	4 9/16	1/4 - 5/16	5/16 - 3/8	100
	SPP63165	6 1/2	2 3/8	5 3/8	1/4 - 5/16	5/16 - 3/8	100
	SPP63180	7 1/8	2 3/8	5 15/16	1/4 - 5/16	5/16 - 3/8	100
	SPP63200	8	2 3/8	6 3/4	1/4 - 5/16	5/16 - 3/8	100
	SPP63220	8 5/8	2 3/8	7 1/2	1/4 - 5/16	5/16 - 3/8	100
	SPP63240	9 1/2	2 3/8	8 5/16	1/4 - 5/16	5/16 - 3/8	100

s_S thickness that can be drilled, steel plate S235/St37
s_A thickness that can be drilled, aluminium plate

GEOMETRY AND MECHANICAL CHARACTERISTICS



GEOMETRY

Nominal diameter	d_1	**[in]**[(1)]	**0.25**
Outer thread diameter	d_1	[mm]	6,3
		[in]	**0.248**
Head diameter	d_K	**[in]**	0.492
Root diameter	d_2	**[in]**	0.191
Shank diameter	d_S	**[in]**	0.205
Head thickness	t_1	**[in]**	0.209
Tip length	L_P	**[in]**	0.787

(1)The nominal diameter of the screw is converted into imperial units and rounded up to the nearest decimal point.

MECHANICAL PARAMETERS

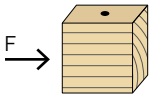
Nominal diameter	d_1	[in]	**0.25**
Bending yield strength (specified)	$F_{y,b}$	**[psi]**	180000
Tensile strength (allowable)	f_{tens}	**[lbf]**	1600

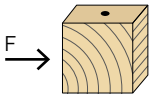
SIP PANELS

The SPP is ideal for fastening SIP panels and sandwich panels thanks to the complete range of lengths (up to 9 1/2").

MINIMUM DISTANCES FOR SHEAR LOADS | TIMBER-TO-STEEL

screws inserted **WITHOUT pre-drilled hole** — **G < 0.50**

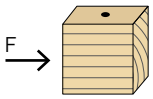


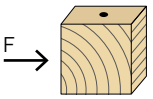


d_1	[in]		0.25
	[mm]		6,3
a_1	[in]	**15·d**	3 3/4
a_2	[in]	**5·d**	1 1/4
$a_{3,t}$	[in]	**15·d**	3 3/4
$a_{3,c}$	[in]	**10·d**	2 1/2
$a_{4,t}$	[in]	**10·d**	2 1/2
$a_{4,c}$	[in]	**5·d**	1 1/4

d_1	[in]		0.25
	[mm]		6,3
a_1	[in]	**15·d**	3 3/4
a_2	[in]	**5·d**	1 1/4
$a_{3,t}$	[in]	**15·d**	3 3/4
$a_{3,c}$	[in]	**10·d**	2 1/2
$a_{4,t}$	[in]	**10·d**	2 1/2
$a_{4,c}$	[in]	**5·d**	1 1/4

screws inserted **WITHOUT pre-drilled hole** — **G ≥ 0.5**

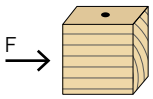


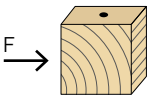


d_1	[in]		0.25
	[mm]		6,3
a_1	[in]	**15·d**	3 3/4
a_2	[in]	**7·d**	1 3/4
$a_{3,t}$	[in]	**20·d**	4 15/16
$a_{3,c}$	[in]	**15·d**	3 3/4
$a_{4,t}$	[in]	**12·d**	3
$a_{4,c}$	[in]	**7·d**	1 3/4

d_1	[in]		0.25
	[mm]		6,3
a_1	[in]	**10·d**	2 1/2
a_2	[in]	**7·d**	1 3/4
$a_{3,t}$	[in]	**20·d**	4 15/16
$a_{3,c}$	[in]	**15·d**	3 3/4
$a_{4,t}$	[in]	**12·d**	3
$a_{4,c}$	[in]	**7·d**	1 3/4

screws inserted **WITHOUT pre-drilled hole**

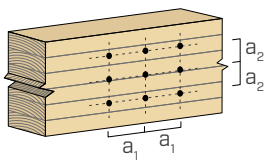




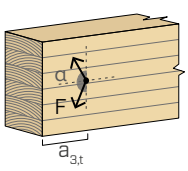
d_1	[in]		0.25
	[mm]		6,3
a_1	[in]	**10·d**	3 3/4
a_2	[in]	**4·d**	1 3/4
$a_{3,t}$	[in]	**12·d**	4 15/16
$a_{3,c}$	[in]	**7·d**	1 3/4
$a_{4,t}$	[in]	**7·d**	1 3/4
$a_{4,c}$	[in]	**3·d**	3/4

d_1	[in]		0.25
	[mm]		6,3
a_1	[in]	**5·d**	1 1/4
a_2	[in]	**4·d**	1 1/32
$a_{3,t}$	[in]	**12·d**	3
$a_{3,c}$	[in]	**7·d**	1 3/4
$a_{4,t}$	[in]	**7·d**	1 3/4
$a_{4,c}$	[in]	**3·d**	3/4

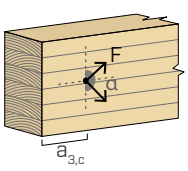
α = load-to-grain angle
d = d_1 = nominal diameter of the screw



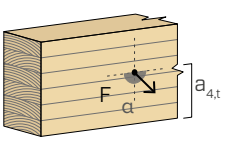
stressed end
-90° < α < 90°



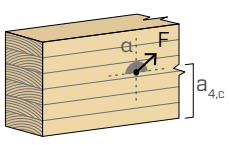
unloaded end
90° < α < 270°



stressed edge
0° < α < 180°



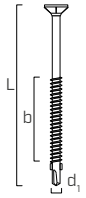
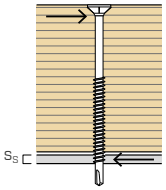
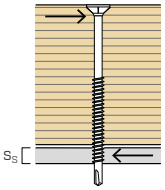
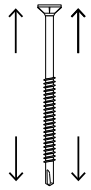
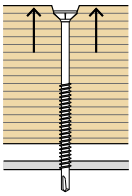
unload edge
180° < α < 360°



NOTES

- The minimum spacing and distances comply with Table 8 of ESR-4645, where d refers to the nominal diameter of the screw.

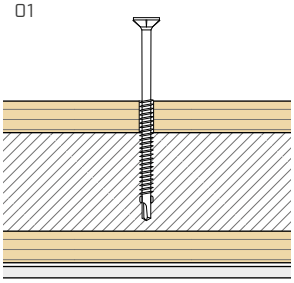
STRUCTURAL VALUES | STEEL-TO-TIMBER

				SHEAR								TENSION					
geometry				timber-to-steel min plate				timber-to-steel max plate				steel tension		head pull-through			
																	
d_1	L		b	S_{PLATE}	V_{ASD} [lbf]			S_{PLATE}	V_{ASD} [lbf]			T_{ASD}	A_{min}	W_{head}(*) [lbf]			
					G				G					G			
[mm] [in]	[mm]	[in]	[in]	[in]	0.35	0.42	0.49	0.55	[in]	0.35	0.42	0.49	0.55	[lbf]	[in]	0.35	0.42	0.49	0.55
	125	4 15/16	2 3/8		241	280	317	347		254	298	342	378						
	145	5 11/16	2 3/8		254	298	342	378		254	298	342	378						
	165	6 1/2	2 3/8		254	298	342	378		254	298	342	378						
6,3 **0.25**	180	7 1/8	2 3/8	1/4	254	298	342	378	5/16	254	298	342	378	1600	1 1/2	107	124	140	153
	200	8	2 3/8		254	298	342	378		254	298	342	378						
	220	8 5/8	2 3/8		254	298	342	378		254	298	342	378						
	240	9 1/2	2 3/8		254	298	342	378		254	298	342	378						

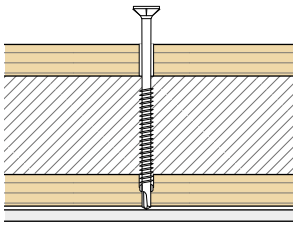
(*)Head pull-through values are calculated from HBS 6 W_{head} values using a 0.75 reduction factor to account for slight differences in head geometry.

INSTALLATION

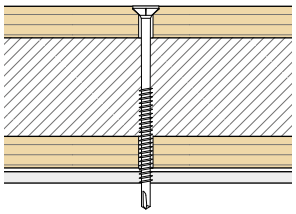
01



02



03



RECOMMENDATIONS FOR SCREWING:
steel: $v_S \approx 1000 - 1500$ rpm
aluminium: $v_A \approx 600$-1000 rpm

STRUCTURAL VALUES

GENERAL PRINCIPLES

- The structural shear capacities shown in this document were calculated using equations provided in ANSI/AWC NDS-2024, National Design Specification® for Wood Construction.
- Head pull-through values are calculated from HBS 6 head pull through values using a 0.75 reduction factor to account for slight differences in head geometry.