MINIMUM DISTANCES FOR AXIAL STRESSES | TIMBER

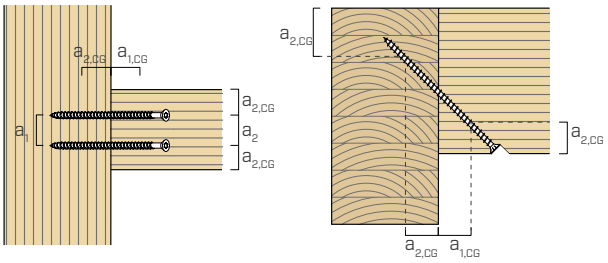
screws inserted **WITHOUT pre-drilled hole**

d_1	[in]		0.36		0.44	0.52
	[mm]		9		11	13
a_1	[in]	**7·d**	2 1/2	**7·d**	3 1/16	3 9/16
a_2	[in]	**4·d**	1 7/16	**5·d**	2 3/16	2 9/16
$a_{1,CG}$	[in]	**10·d**	3 1/2	**10·d**	4 3/8	5 1/8
$a_{2,CG}$	[in]	**4·d**	1 7/16	**4·d**	1 3/4	2 1/16
a_{CROSS}	[in]	**1,5·d**	9/16	**1,5·d**	11/16	13/16

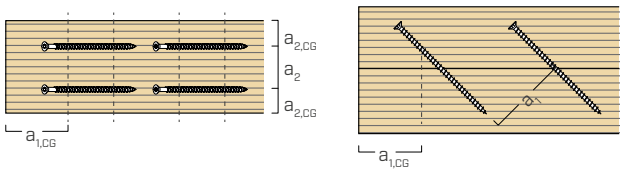
screws inserted **WITH pre-drilled hole**

d_1	[in]		0.36		0.44	0.52
	[mm]		9		11	13
a_1	[in]	**7·d**	2 1/2	**5·d**	2 3/16	2 9/16
a_2	[in]	**3·d**	1 1/16	**5·d**	2 3/16	2 9/16
$a_{1,CG}$	[in]	**7·d**	2 1/2	**4·d**	1 3/4	2 1/16
$a_{2,CG}$	[in]	**3·d**	1 1/16	**3·d**	1 5/16	1 9/16
a_{CROSS}	[in]	**1,5·d**	9/16	**1,5·d**	11/16	13/16

SCREWS UNDER TENSION INSERTED WITH AN ANGLE α WITH RESPECT TO THE GRAIN

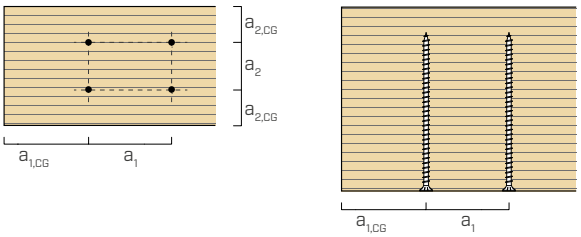


plan front



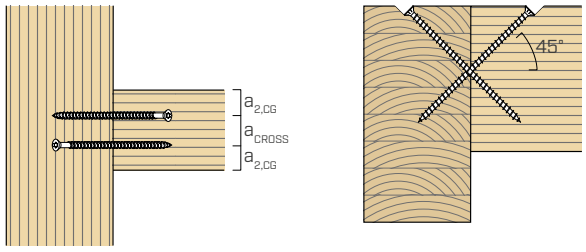
plan front

SCREWS INSERTED WITH α = 90° ANGLE WITH RESPECT TO THE GRAIN



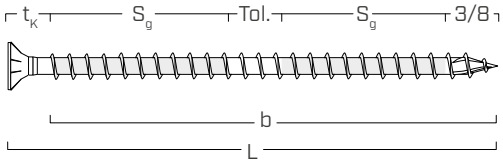
plan front

CROSS SCREWS INSERTED WITH AN ANGLE α WITH RESPECT TO THE GRAIN



plan front

EFFECTIVE THREAD USED IN CALCULATION



b = $S_{g,tot}$ = L - t_K represents the entire length of the threaded part

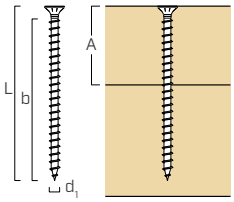
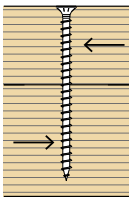
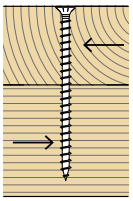
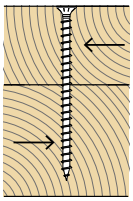
S_g = (L - t_K - 3/8" - Tol.)/2 represents the partial length of the threaded part net of a laying tolerance (Tol.) of 3/8"

t_K = 3/8" (countersunk head)
t_K = 3/4" (hexagonal head)

NOTES

- The minimum spacing and distances comply with Table 8 of ESR-4645, where d refers to the nominal diameter of the screw;
- Wood member stresses must be checked in accordance with the corresponding Sections of the NDS; end distances, edge distances and fastener spacing may need to be increased accordingly.

REFERENCE LATERAL DESIGN VALUES (Z) | WOOD-TO-WOOD

geometry					$Z_{\parallel}$				$Z_{\perp/\parallel}$				$Z_{\perp}$			
																
d_1	L		b	A	G				G				G			
					0.35	0.42	0.49	0.55	0.35	0.42	0.49	0.55	0.35	0.42	0.49	0.55
[mm] [in]	[mm]	[in]	[in]	[in]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf]
9 **0.36**	120	4 3/4	4 3/8	2 3/8	187	258	313	348	149	206	250	278	149	206	250	278
	160	6 1/4	6	3 1/8	230	272	313	348	184	217	250	278	184	217	250	278
	200	8	7 1/2	4	230	272	313	348	184	217	250	278	184	217	250	278
	240	9 1/2	9 1/16	4 3/4	230	272	313	348	184	217	250	278	184	217	250	278
	280	11	10 5/8	5 1/2	230	272	313	348	184	217	250	278	184	217	250	278
	320	12 5/8	12 3/16	6 1/4	230	272	313	348	184	217	250	278	184	217	250	278
	360	14 1/4	13 3/4	7 1/8	230	272	313	348	184	217	250	278	184	217	250	278
11 **0.44**	100	4	3 1/2	1 15/16	218	262	306	343	143	178	215	247	116	152	190	224
	150	6	5 1/2	2 15/16	314	344	372	394	219	252	278	299	178	232	262	285
	200	8	7 1/2	4	314	344	372	394	225	252	278	299	205	234	262	285
	250	10	9 1/2	4 15/16	314	344	372	394	225	252	278	299	205	234	262	285
	300	11 3/4	11 7/16	6	314	344	372	394	225	252	278	299	205	234	262	285
	350	13 3/4	13 3/8	6 7/8	314	344	372	394	225	252	278	299	205	234	262	285
	400	15 3/4	15 3/8	8	314	344	372	394	225	252	278	299	205	234	262	285
	500	19 3/4	19 5/16	10	314	344	372	394	225	252	278	299	205	234	262	285
	600	23 5/8	23 1/4	11 3/4	314	344	372	394	225	252	278	299	205	234	262	285
13 **0.52**	200	8	7 1/2	4	450	493	532	564	312	351	387	416	262	319	357	388
	300	11 3/4	11	6	450	493	532	564	312	351	387	416	280	319	357	388
	400	15 3/4	15	8	450	493	532	564	312	351	387	416	280	319	357	388
	500	19 3/4	19	10	450	493	532	564	312	351	387	416	280	319	357	388
	600	23 5/8	22 13/16	11 3/4	450	493	532	564	312	351	387	416	280	319	357	388
	700	27 1/2	26 3/4	13 3/4	450	493	532	564	312	351	387	416	280	319	357	388
	800	31 1/2	30 11/16	15 3/4	450	493	532	564	312	351	387	416	280	319	357	388

NOTES and **GENERAL PRINCIPLES** on page 219.