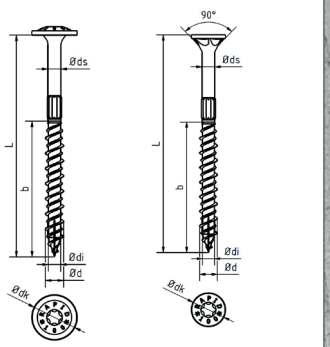
Screw geometry and diameters - basic values

d	[mm]	ø 6	ø 8	ø 10	ø 12
$d_{k,CS}$	[mm]	12	15	18.5	20
$d_{k,WH}$	[mm]	14	20	25	-
d_i	[mm]	3,9	5,3	6,8	7,0
$f_{ax,90,Rk}$	[N/mm²]	13,0	10,9	11,0	11,2
$f_{head,Rk,CS}$	[N/mm²]	14,6	12,4	12,2	11,0
$f_{head,Rk,WH}$	[N/mm²]	16,7	17,6	15,2	-
$F_{tens,Rk}$	[kN]	13,1	23,3	35,0	42,0
$M_{y,Rk}$	[Nmm]	10.700	22.600	33.600	46.900

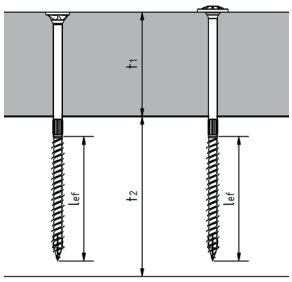
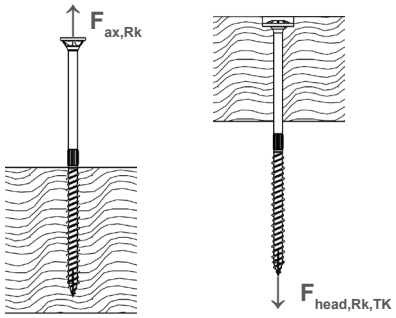
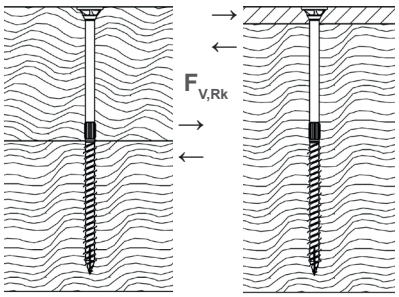
Valid for C24 (rk=350kg/m³)
Axis to fiber: 90°
$F_{ax,k}$ … extraction resistance
$F_{head,k}$ … head traction resistance
$F_{v,Rk}$ … shearing

Steel - Wood: l_{ef} = thread length b



Values for C24	Wood - Wood (WH = Washer head)						Steel - Wood (CS = Countersunk head)		
ø x L/b	$t_{1,min}$	$t_{1,max}$	$F_{head,Rk,WH}$	$F_{ax,Rk}$	$F_{V,Rk,min}$	$F_{V,RK,max}$	$F_{ax,Rk}$	$F_{V,Rk,thin}$	$F_{V,Rk,thick}$
	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
6 x 70/40	24	30	-	3,12	2,04	2,18	3,12	2,47	3,17
6 x 80/50	24	30	3,27	3,90	2,08	2,22	3,90	2,66	3,36
6 x 90/50	24	40	-	3,90	2,08	2,49	3,90	2,66	3,36
6 x 100/60	24	40	3,27	4,68	2,08	2,49	4,68	2,86	3,56
6 x 110/60	24	50	-	4,68	2,08	2,51	4,68	2,86	3,56
6 x 120/70	24	50	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 130/70	24	60	-	5,46	2,08	2,51	5,46	3,05	3,75
6 x 140/70	24	70	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 150/70	24	80	-	5,46	2,08	2,51	5,46	3,05	3,75
6 x 160/70	24	90	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 180/70	24	110	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 200/70	24	130	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 220/70	24	150	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 240/70	24	170	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 260/70	24	190	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 280/70	24	210	3,27	5,46	2,08	2,51	5,46	3,05	3,75
6 x 300/70	24	230	3,27	5,46	2,08	2,51	5,46	3,05	3,75

Values for C24	Wood - Wood (WH = Washer head)						Steel - Wood (CS = Countersunk head)		
ø x L/b	$t_{1,min}$	$t_{1,max}$	$F_{head,Rk,WH}$	$F_{ax,Rk}$	$F_{V,Rk,min}$	$F_{V,RK,max}$	$F_{ax,Rk}$	$F_{V,Rk,thin}$	$F_{V,Rk,thick}$
	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
8 x 80/50	30	30	7,04	4,36	3,08	3,08	4,36	3,54	4,93
8 x 90/60	30	30	-	5,23	3,30	3,30	5,23	4,02	5,14
8 x 100/60	30	40	7,04	5,23	3,30	3,58	5,23	4,02	5,14
8 x 120/80	30	40	7,04	6,98	3,69	4,02	6,98	4,46	5,58
8 x 140/80	30	60	7,04	6,98	3,69	4,46	6,98	4,46	5,58
8 x 160/80	30	80	7,04	6,98	3,69	4,46	6,98	4,46	5,58
8 x 180/100	30	80	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 200/100	30	100	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 220/100	30	120	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 240/100	30	140	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 260/100	30	160	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 280/100	30	180	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 300/100	30	200	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 320/100	30	220	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 340/100	30	240	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 360/100	30	260	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 380/100	30	280	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 400/100	30	300	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 420/100	30	320	-	8,72	3,69	4,47	8,72	4,89	6,02
8 x 440/100	30	340	-	8,72	3,69	4,47	8,72	4,89	6,02
8 x 450/100	30	350	7,04	8,72	3,69	4,47	8,72	4,89	6,02
8 x 460/100	30	360	-	8,72	3,69	4,47	8,72	4,89	6,02
8 x 480/100	30	380	-	8,72	3,69	4,47	8,72	4,89	6,02
8 x 500/100	30	400	7,04	8,72	3,69	4,47	8,72	4,89	6,02

Geometry Connections	Axial	Shearing
		

Values for C24	Wood - Wood (WH = Washer head)						Wood - Steel (CS = Countersunk head)		
ø x L/b	$t_{1,min}$	$t_{1,max}$	$F_{head,Rk,WH}$	$F_{ax,Rk}$	$F_{V,Rk,min}$	$F_{V,RK,max}$	$F_{ax,Rk}$	$F_{V,Rk,thin}$	$F_{V,Rk,thick}$
	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
10 x 80/50	40	40	-	4,40	3,48	3,48	5,50	4,03	6,21
10 x 100/60	40	40	9,50	6,60	4,47	4,47	6,60	5,18	6,71
10 x 120/80	40	40	9,50	8,80	5,02	5,02	8,80	5,78	7,26
10 x 140/80	40	60	9,50	8,80	5,02	5,78	8,80	5,78	7,26
10 x 160/80	40	80	9,50	8,80	5,02	5,78	8,80	5,78	7,26
10 x 180/100	40	80	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 200/100	40	100	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 220/100	40	120	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 240/100	40	140	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 260/100	40	160	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 280/100	40	180	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 300/100	40	200	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 320/100	40	220	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 340/100	40	240	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 360/100	40	260	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 380/100	40	280	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 400/100	40	300	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 420/100	40	320	-	11,0	5,19	5,95	11,0	6,33	7,81
10 x 440/100	40	340	-	11,0	5,19	5,95	11,0	6,33	7,81
10 x 450/100	40	350	9,50	11,0	5,19	5,95	11,0	6,33	7,81
10 x 460/100	40	360	-	11,0	5,19	5,95	11,0	6,33	7,81
10 x 480/100	40	380	-	11,0	5,19	5,95	11,0	6,33	7,81
10 x 500/100	40	400	9,50	11,0	5,19	5,95	11,0	6,33	7,81

Values for C24	Wood - Wood (WH = Washer head)						Steel - Wood (CS = Countersunk head)		
ø x L/b	$t_{1,min}$	$t_{1,max}$	$F_{head,Rk,WH}$	$F_{ax,Rk}$	$F_{V,Rk,min}$	$F_{V,RK,max}$	$F_{ax,Rk}$	$F_{V,Rk,thin}$	$F_{V,Rk,thick}$
	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
12 x 160/80	80	80	4,40	10,8	5,60	5,60	10,8	7,19	9,06
12 x 180/100	80	80	4,40	13,4	5,60	5,60	13,4	7,86	9,73
12 x 200/100	80	100	4,40	13,4	5,60	5,60	13,4	7,86	9,73
12 x 220/100	80	120	4,40	13,4	5,60	5,60	13,4	7,86	9,73
12 x 240/100	80	140	4,40	13,4	5,60	5,60	13,4	7,86	9,73
12 x 260/100	80	160	4,40	13,4	5,60	5,60	13,4	7,86	9,73
12 x 280/100	80	180	4.40	13.4	5.60	5.60	13.4	7.86	9.73
12 x 300/120	80	180	4,40	16,1	5,60	5,60	16,1	8,53	10,4
12 x 320/120	80	220	4,40	16,1	5,60	5,60	16,1	8,53	10,4
12 x 340/120	80	240	4,40	16,1	5,60	5,60	16,1	8,53	10,4
12 x 360/120	80	260	4,40	16,1	5,60	5,60	16,1	8,53	10,4
12 x 380/120	80	280	4,40	16,1	5,60	5,60	16,1	8,53	10,4
12 x 400/120	80	300	4,40	16,1	5,60	5,60	16,1	8,53	10,4

$t_{1\,min}$ = minimum timber thickness ---------- $t_{1\,max}$ = maximum thickness of fastened timber

$F_{V.Rk.thin}$ = Steel < d (konservativ) ---------- $F_{V.RK.thick}$ = Steel ≥ d