RAPID® T-Lift

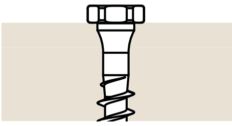
1.3 t & 2.5 t lifting system | fullthread

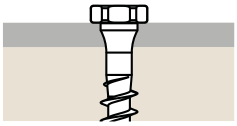
Characteristics

Flexible tool selection

> Dual head (hexagonal and T-slot) offers flexible screwing

> Reinforced area under the head with optimal fitting for reliable force transfer





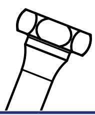
High pull-out forces and low splitting

> Sharply rolled out thread flanks for a minimised splitting, fast screwing in and very high pull-out forces

Patented follower thread tip – no pre-drilling necessary

> Patented compressor tip for a quick bite with reduced screwing torque

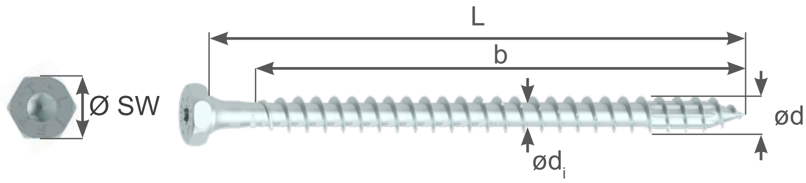
> Suitable for cordless screwdrivers

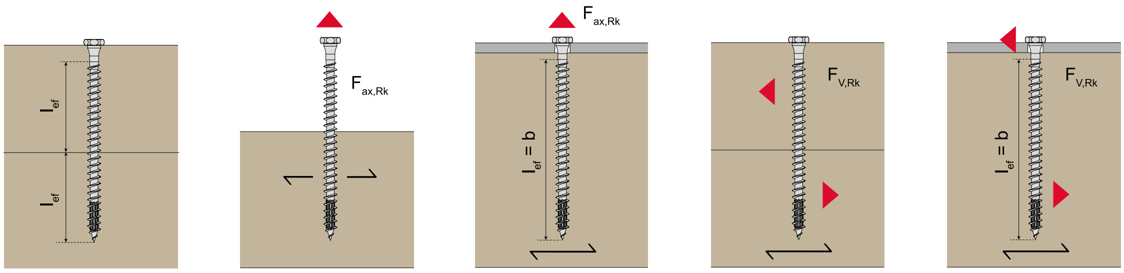


T-Lift		
Ø 12.0	Drive	T 40/SW 17
	Length	60–380 mm
	Thread	Single thread
	Underhead	Shoulder
Ø 16.0	Drive	T 50
	Length	180–600 mm
	Thread	Single thread
	Underhead	Shoulder
	Surface	BlueWin, Cr[VI] free

RAPID® T-Lift

CHARACTERISTICS AND VALUES FOR C24			
d	**[mm]**	**ø 12**	**ø 16**
SW = d_k	[mm]	17.0	24.0
d_i	[mm]	7.00	10.70
$f_{ax,90,k}$	[N/mm²]	11.2	11.0
$f_{head,k}$	[N/mm²]	17.1	16.9
$F_{tens,k}$	[kN]	45.0	88.6
$M_{y,k}$	[Nmm]	48 500	112 900





			AXIAL 90°		SHEAR 90°		
			TIMBER-TIMBER	METAL-TIMBER	TIMBER-TIMBER	METAL-TIMBER	
			l_{ef} = b/2	l_{ef} = b	l_{ef} = b/2	l_{ef} = b	
	ø [mm]	L/b [mm]	$F_{ax,Rk}$ [kN]	$F_{ax,Rk}$ [kN]	$F_{V,Rk}$ [kN]	$F_{V,Rk,thin}$ [kN]	$F_{V,Rk,thick}$ [kN]
ø 12.0	12.0	**60**/48	-	6.45	-	3.14	6.21
	12.0	**80**/68	-	9.14	-	4.45	7.87
	12.0	**100**/85	-	11.42	-	5.75	9.33
	12.0	**120**/105	7.06	14.11	-	7.06	10.00
	12.0	**140**/125	8.40	16.80	-	8.37	10.68
	12.0	**160**/145	9.74	19.49	-	9.16	11.35
	12.0	**180**/165	11.09	22.18	7.35	9.16	12.02
	12.0	**220**/205	13.78	27.55	8.02	9.16	12.95
	12.0	**300**/285	19.15	38.30	9.16	9.16	12.95
	12.0	**380**/365	24.53	45.00	9.16	9.16	12.95
ø 16.0	16.0	**180**/155	13.64	27.28	-	13.11	17.75
	16.0	**240**/215	18.92	37.84	12.46	15.45	20.39
	16.0	**280**/255	22.44	44.88	13.34	15.45	21.85
	16.0	**320**/295	25.96	51.92	14.22	15.45	21.85
	16.0	**400**/375	33.00	66.00	15.45	15.45	21.85
	16.0	**600**/575	50.60	88.60	15.45	15.45	21.85

Values for C24 (ρ_k=350kg/m³), axial axis to grain: 30° - 90°, $F_{ax,Rk}$ = thread withdrawal, $F_{v,Rk}$ = shear (// to grain 0° – ⊥ to grain 90°),
$F_{V,Rk,thin}$= steel sheet t ≤ d/2, $F_{V,RK,thick}$= steel sheet t ≥ d.
Type and printing errors reserved. The values stated are meant to serve as planning guides; projects should only be undertaken by authorised professionals.

AUSTRIA ETA-12/0373

RAPID® T-Lift

1.3 t & 2.5 t lifting system | fullthread

Areas of application

> Used in constructive timber work as a lifting system for prefabricated roofs, walls and ceilings, in timber frame construction for the prefab house industry, solid wood boards, cross laminated timber and the like

> RAPID® T-Lift is suitable for cross-laminated timber, solid wood, coniferous wood-based materials (OSB, LVL etc.). For deciduous woods, we recommend using screws, pre-drilled

> Can be used for axial loads (screw subjected to tension) and transverse loads (screw subjected to shear-off stress)

Application information

> The RAPID® T-Lift sperical head anchor for the load group up to 1.3 t or up to 2.5 t may only be used with the self-drilling RAPID® T-Lift screw certified under ETA-12/0373, ø 12 mm or ø 16 mm

> The weight of the components to be lifted must be known and must not exceed the calculated screw load bearing capacity

> Screws may not be screwed into drying cracks or the like

> Screw-in angle in the timber: 0 - 90°

> Complete operating instructions for the RAPID® T-Lift can be found at www.schmid-screw.com

Photo © Binderholz

Safety information

> For safety reasons, the screws should only be used once

> The entire component must be lifted with at least two screws

> RAPID® T-Lift must be checked for damage before each use

> The lifting system must be checked by an expert/safety officer from the user company at least once a year. The degree of wear and tear in particular should be determined, in addition to damage of all kinds

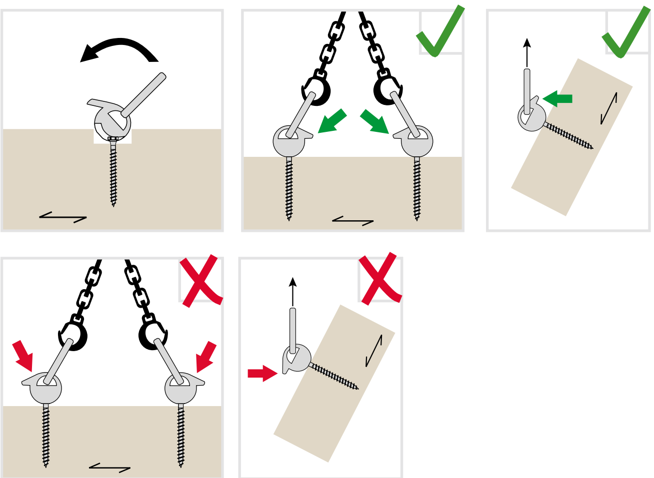
> Modifications and repairs, especially welding, on the lifting system are not permitted

> The lifting system complies to the EC Machinery Directive 2006/42/EC, Annex II 1A (EN 13001-1, EN ISO 12100:2011-03, VDI/BV-BS 6205:2012-04). Production is externally approved and monitored.

Foto © Binderholz

Connecting the RAPID® T-Lift lifting system correctly:

the lug on the sphere must point inward.



Minimum spacing

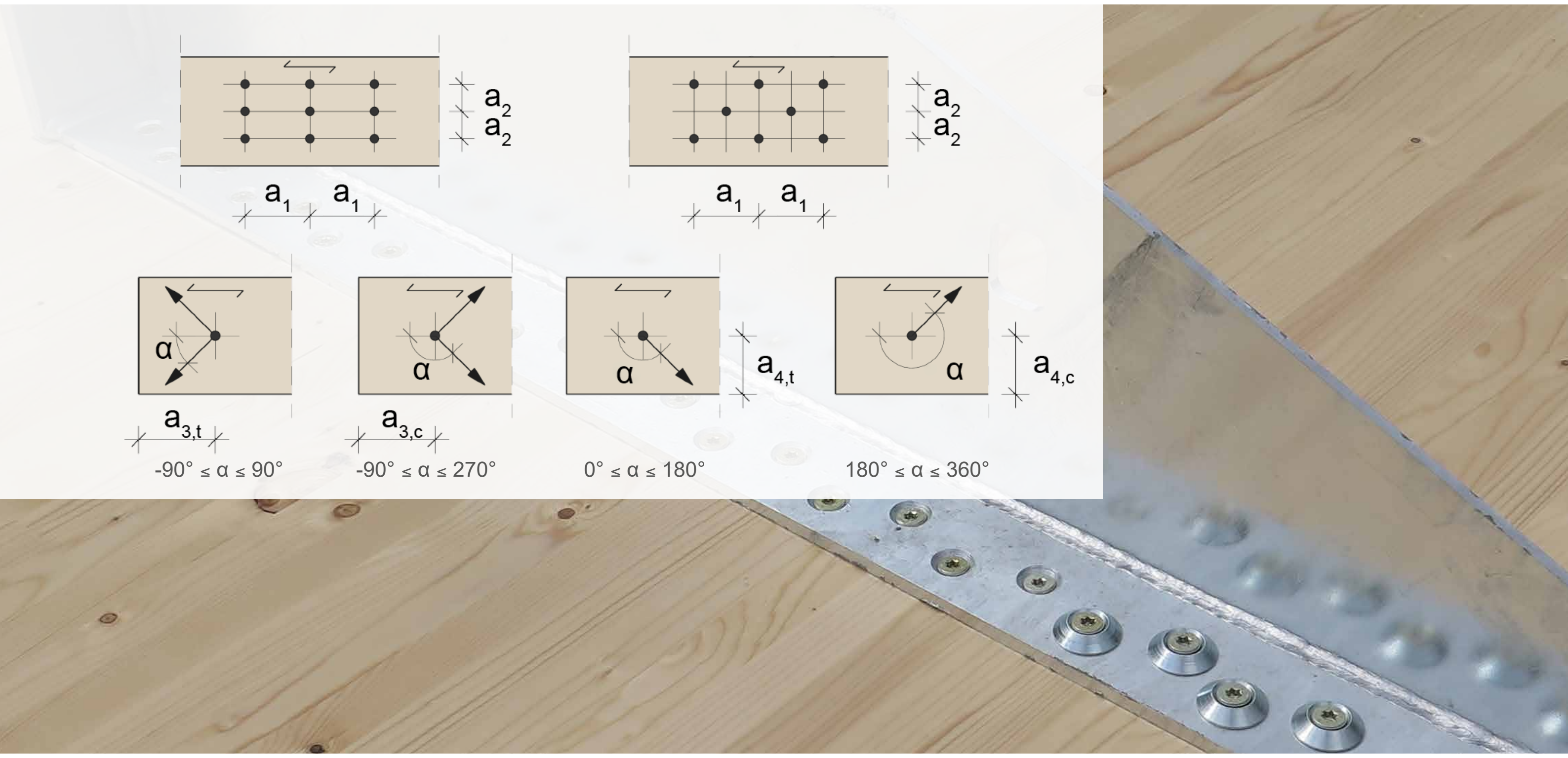
for self-drilling screws RAPID©, StarDrive GPR and for screws with drill bit

		Axial loaded screws		Subjected to axial and shear or only shear stress								
		Softwood and softwood based materials (predrilled, not-predrilled) and Hardwood (predrilled)		Cross laminated timer		Softwood and softwood based materials (predrilled, not-predrilled) and Hardwood (predrilled)						
		end-grain and side-grain		wide face	narrow face	end-grain and side-grain						
Conditions	a1 x a2	≥ 25 x d²	≥ 21 x d²	-	-	α	Screwing in pre-drilled coniferous wood, deciduous wood and LVL deciduous wood*		Screwing **without pre-drilling**			
							d < 5mm	d> 5 mm	Screws d < 5 mm in coniferous wood**	Screws d ≥ 5 mm in coniferous wood**	Screws d ≥ 5 mm with HSP in coniferous wood*	RAPID® Hardwood d=8 mm in deciduous wood and LVL beech**
Axial spacing	a1	5 x d	7 x d	4 x d	10 x d	0°	5 x d		10 x d	12 x d	5 x d	15 x d
						90°	4 x d		5 x d	5 x d	4 x d	7 x d
Edge distance	a1, c	5 x d		-	-	0°			-	-	-	-
						90°						
Axial spacing ⊥	a2	2.5 x d	3 x d	2.5 x d	3 x d	0°	3 x d		5 x d		3 x d	7 x d
						90°	4 x d				4 x d	
Edge distance ⊥	a2, c	4 x d		-	-	0°	-		-	-	-	-
						90°						
Edge distance // loaded	a3, t	-	-	6 x d	12 x d	0°	12 x d		15 x d		12 x d	20 x d
						90°	7 x d		10 x d (15 x d if screw d ≥ 8 and timber thickness t < 5d)		7 x d	15 x d
Edge distance // unloaded	a3, c	-	-	6 x d	7 x d	0°	7 x d				7 x d	15 x d
						90°						
Edge distance ⊥ loaded	a4, t	-	-	6 x d	5 x d	0°	3 x d		5 x d	5 x d	3 x d	7 x d
						90°	5 x d	7 x d	7 x d	10 x d	7 x d	12 x d
Edge distance ⊥ unloaded	a4, c	-	-	2.5 x d	3 x d	0°	3 x d		5 x d (3 x d if a1 and a3 min. 25 x d, even if timber thickness t < 5d)		3 x d	7 x d
						90°						
Distance between screws in screw cross	a cross	1.5 x d										
Minimum timber thickness	t	12d		10d								

Screw diameter	< 8	8	10	12
Minimum thickness t for load-bearing timber parts [mm]	24	30	40	80

- If the timber does not meet the minimum thickness, it should generally be pre-drilled
- Pre-drilling diameter: di (-0.5/+1.0) for coniferous wood di (-0/+0.5) for deciduous wood and LVL
- Woods at risk of splintering (e.g. Douglas fir, silver fir) should be pre-drilled or use a higher minimum thickness according to EN1995-1-1
- Drilled holes for positioning, guidance or orientation are NOT PRE-DRILLED
- All screws (d ≥ 5 mm) may be screwed into deciduous wood and LVL beech up to 10d in length without pre-drilling; the distances for RAPID® Hardwood should be observed
- The minimum binding anchoring depth for screws is 4d, or 20d in end wood.
- The minimum anchoring depth for CLT is 4d on the face side and 10d on the narrow edge (front face)

d = outer thread diameter, d_i = thread core diameter,
α = angle between direction of force and direction of grain
*See EN1995-1-1, table 8.2 how nails are pre-drilled
**See EN1995-1-1, table 8.2 how nails are not pre-drilled



Information

- Geometry and mechanical properties correspond to ETA 12/0373.
- In connections between main and secondary beams, the main beam must be able to adequately with stand torsion and fixed with fork support.
- The values stated for main/secondary beam connections only apply to vertically oriented loads. Any transverse stress must be verified separately.
- The rope effect has been factored into the calculation of shear-off values.

partial thread, Z-9.1-435 for StarDrive GPR, Z-9.1-656 for RAPID® fullthread, these lower values are only intended as guidance.

- Characteristic values F_{Rk}: Design according to EC5 and ETA 12/0373, these values should be used for calculations
- The design value of the ultimate limit state $F_{v,Rd}$ for the final design of the timber connection is taken from the characteristic values as follows:

$$F_{Rd} = \frac{F_{Rk} \cdot k_{mod}}{\gamma_m}$$

F_{Rd} ... Design value of ultimate limit state subjected to shear-off stress or tension depending on connection
F_{Rk} ... characteristic value of ultimate limit state subjected to shear-off stress or tension depending on connection
γ_m , k_{mod} ... Additional values from corresponding national norms