

# RAPID<sup>®</sup> partial thread

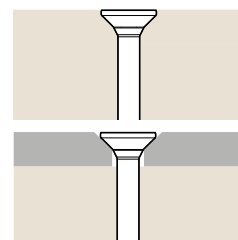
The next generation in wood construction

## Head types

### 90° countersunk head



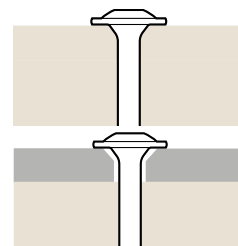
- > Countersinks fully into the wood and fits well in steel bores
- > Milling pockets reduce tearing and splitting in the wood



### Washer head



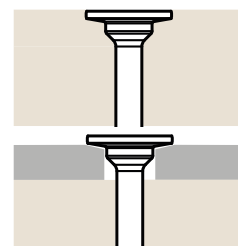
- > Highest permissible head pull-through values for sturdy joints pulled tightly together
- > No washers required, which makes processing faster



### SuperSenkFix



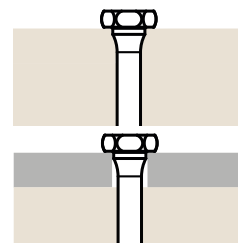
- > Innovative countersunk and washer head connections for the perfect fit in steel bores
- > Clean, flush countersinking in connections with high pull-through values - optimal for visible screwed connections



### Dual



- > The hexagonal recess allows for better force transfer; recommended for woods with higher density and impact drivers
- > Additional T-drive saves the time of changing tools



## Thread geometry

### Minimised effort

- > With hardwood screw development innovations
- > Significantly reduced turning resistance from the friction part
- > Longer battery life for screwdriver

### Fastest screwing processes

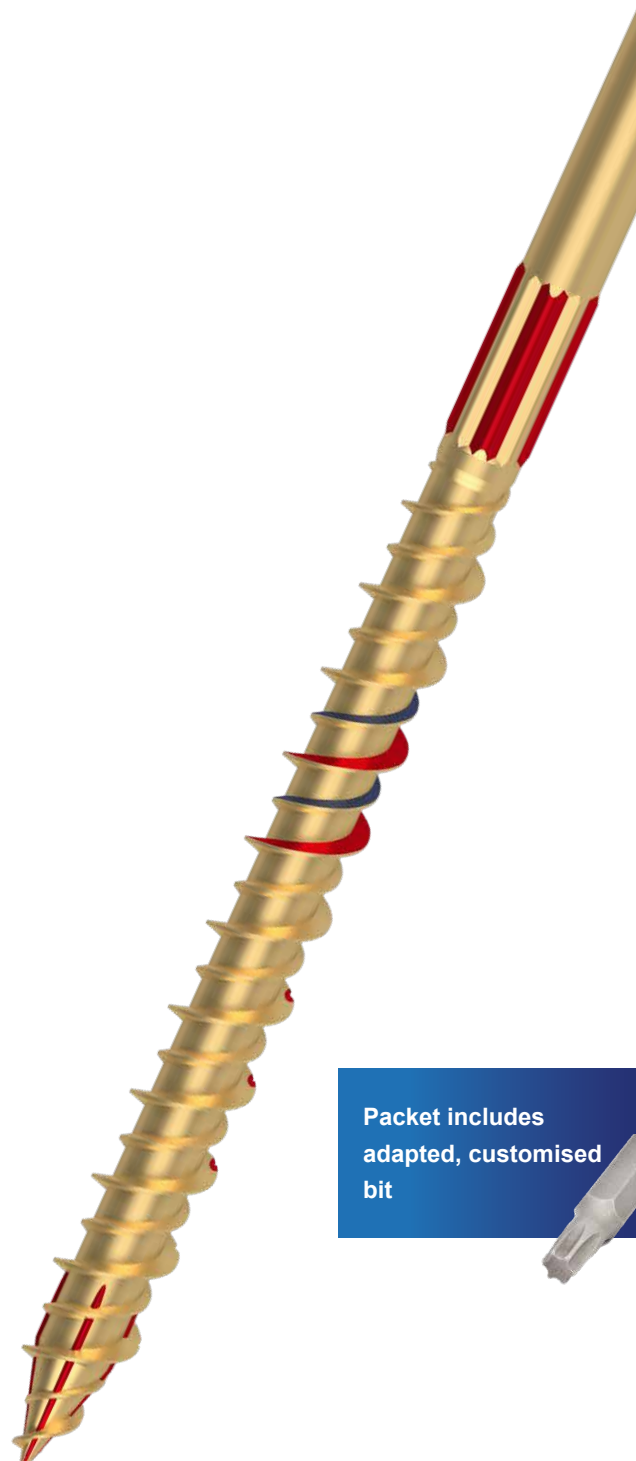
- > Dual thread with high and low flanks
- > Accelerated screwing processes save time - compared to conventional wood construction screws
- > The highest technical values guarantee a secure hold, even for oblique and cross grained wood screw connections

### Low splitting, little resistance

- > The wavy profile on the flanks reduces splitting and screw-in resistance thanks to the cutting function

### Patented tip – no pre-drilling necessary!

- > Self-drilling tip with ridged core
- > Saves time by biting precisely and instantly, even with oblique and cross grained wood screw connections
- > Much less splitting and lower screw-in resistance compared to conventional wood construction screws



Packet includes adapted, customised bit

# RAPID<sup>®</sup> partial thread

## Dimensions & surfaces

		Countersunk head		Washer head	SuperSenkFix	Dual
		≤ 25 mm	≥ 30 mm			
						
Ø 3.0	Drive	T10		–	–	–
	Length	16–45 mm		–	–	–
	Thread	Single thread	HiLo	–	–	–
	Underhead	Milling pockets		–	–	–
Ø 3.5	Drive	T20		–	–	–
	Length	16–50 mm		–	–	–
	Thread	Single thread	HiLo	–	–	–
	Underhead	Milling pockets		–	–	–
Ø 4.0	Drive	T20		–	–	–
	Length	20–70 mm		–	–	–
	Thread	Single thread	HiLo	–	–	–
	Underhead	Milling pockets		–	–	–
Ø 4.5	Drive	T20		–	–	–
	Length	20–80 mm		–	–	–
	Thread	Single thread	HiLo	–	–	–
	Underhead	Milling pockets		–	–	–
Ø 5.0	Drive	T25 (T20*)		–	–	–
	Length	20–120 mm		–	–	–
	Thread	Single thread	HiLo	–	–	–
	Underhead	Milling pockets		–	–	–
Ø 6.0	Drive	–	T30	T30	T30	–
	Length	–	50–300 mm	60–300 mm	80–300 mm	–
	Thread	–	HiLo	HiLo	HiLo	–
	Underhead	–	Milling pockets	Cone	Shoulder	–
Ø 8.0	Drive	–	T40	T40	T40	T30/SW12
	Length	–	80–500 mm	80–500 mm	80–400 mm	50–400 mm
	Thread	–	HiLo	HiLo	HiLo	HiLo
	Underhead	–	Milling pockets	Cone	Shoulder	Shoulder
Ø 10.0	Drive	–	T50	T50	T50	T40/SW15
	Length	–	80–500 mm	100–500 mm	120–400 mm	60–400 mm
	Thread	–	HiLo	HiLo	HiLo	HiLo
	Underhead	–	Milling ribs	Cone	Shoulder	Shoulder
Ø 12.0	Drive	–	T50	–	–	T40/SW17
	Length	–	100–400 mm	–	–	80–400 mm
	Thread	–	Single thread	–	–	Single thread
	Underhead	–	Milling ribs	–	–	Shoulder
<b>Surface</b>		YellWin 500+ 			BlueWin 700+ 	BlueWin 

\*Carpentry line

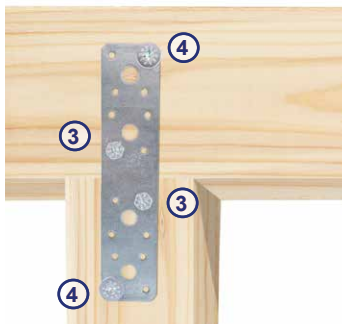
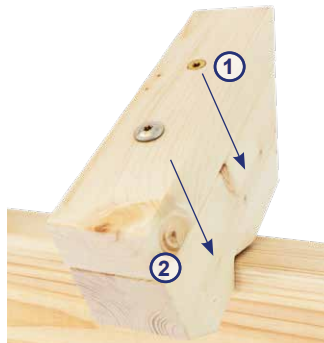
## Applications

### DOUBLING RAFTERS (1)

Doubling for reinforcement is usually done on the top or side of the rafter.

### RAFTERS (2)

Partial thread screws transfer the wind suction load and shear forces to the substructure through the screw heads.



### METAL SHEETS AND SHAPED SHEET METAL PARTS

RAPID® Dual (3)-, RAPID® SuperSenkFix (4)- and StarDrive GPR® post screws are optimal for metal sheets and shaped sheet metal parts.

These screws have an underhead shoulder which allows them to be optimally centred and to fit perfectly in the metal.

### CLT WALLS AND CEILINGS

Cross-Laminated-Timber (CLT) - ceiling panel screwed to the walls with RAPID® SuperSenkFix. Schmid screws are approved for all applications in side and end wood (0° and 90°) as well as CLT side faces and narrow edges.

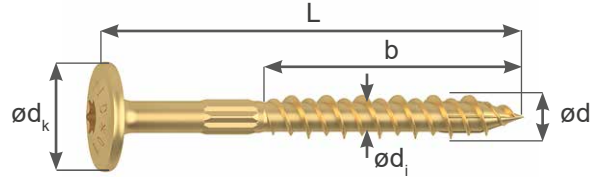
Corner and wall screw connections are pulled tightly together and securely screwed with RAPID® SuperSenkFix.



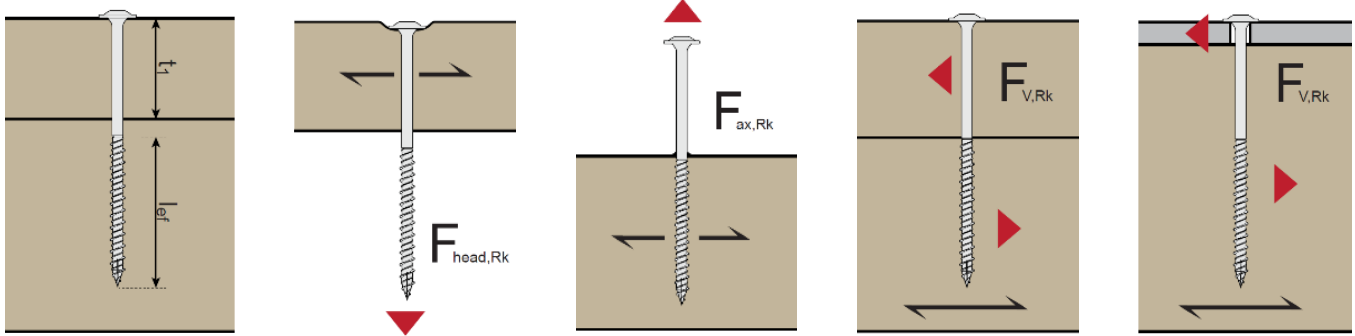
# RAPID<sup>®</sup> partial thread washer head

## Characteristics and values for C24

d	[mm]	ø 6	ø 8	ø 10
d <sub>k</sub>	[mm]	14.0	20.0	25.0
d <sub>i</sub>	[mm]	4.00	5.35	6.80
f <sub>ax,90,k</sub>	[N/mm <sup>2</sup> ]	13.0	10.9	11.0
f <sub>head,k</sub>	[N/mm <sup>2</sup> ]	16.7	17.6	15.2
F <sub>tens,k</sub>	[kN]	13.1	23.3	35.0
M <sub>y,k</sub>	[Nmm]	10 700	22 600	33 600



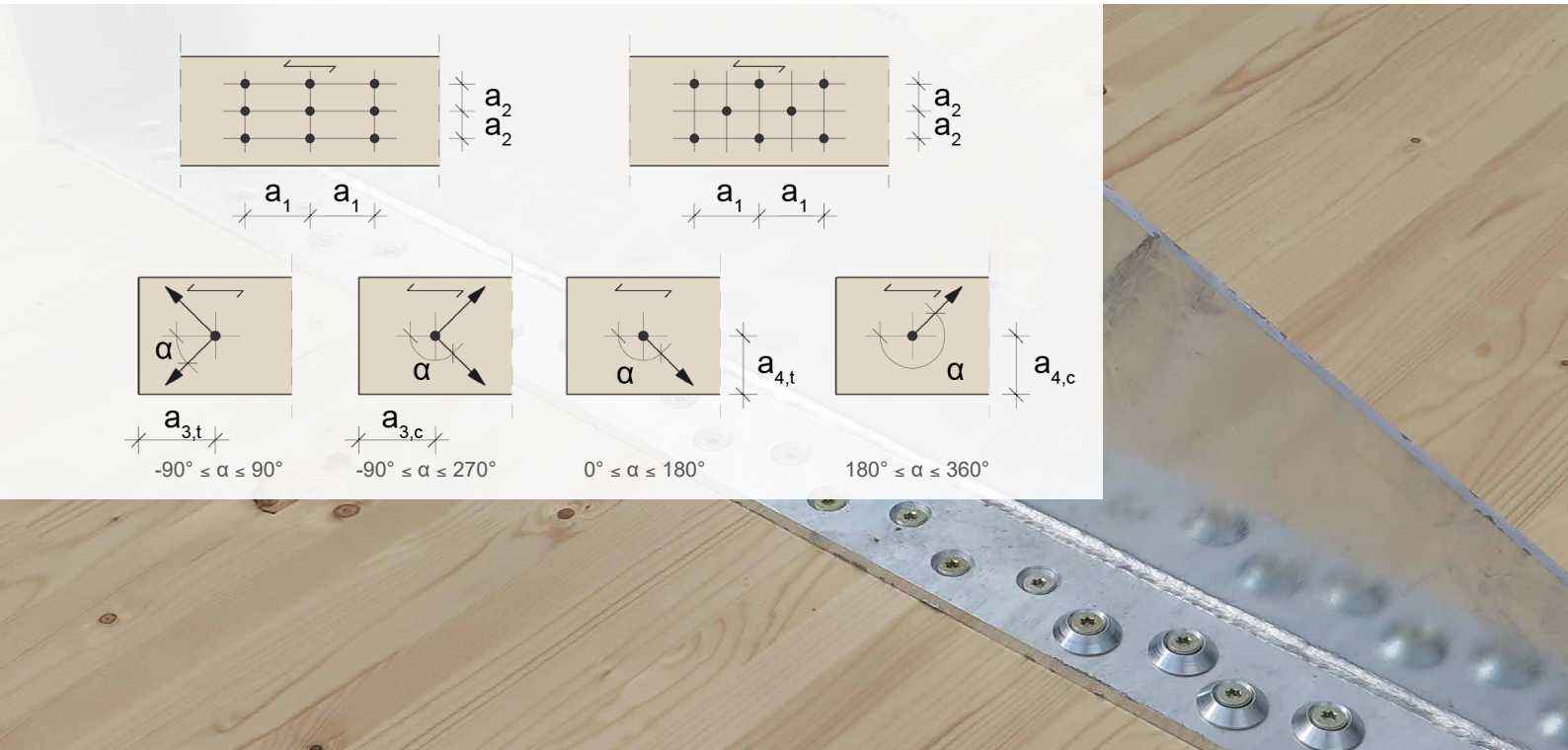
				AXIAL				SHEAR				
				HEAD PULL THROUGH		WITHDRAWAL		TIMBER-TIMBER		METAL - TIMBER		
	ø	L/b	t <sub>1,min</sub>	F <sub>head,Rk</sub>	F <sub>head,ASD</sub>	F <sub>ax,Rk</sub>	F <sub>ax,ASD</sub>	F <sub>v,Rk</sub>	F <sub>v,ASD</sub>	F <sub>v,Rk,thin</sub>	F <sub>v,Rk,thick</sub>	F <sub>v,ASD</sub>
				[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
ø 6.0	6.0	60/40	-	3.27	0.98	3.12	1.20	-	-	2.17	3.17	0.77
	6.0	80/50	30	3.27	0.98	3.90	1.50	2.22	0.61	2.66	3.36	0.77
	6.0	100/60	40	3.27	0.98	4.68	1.80	2.49	0.61	2.86	3.56	0.77
	6.0	120/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	140/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	160/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	180/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	200/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	220/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	240/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	260/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	280/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
	6.0	300/70	50	3.27	0.98	5.46	2.10	2.51	0.61	3.05	3.75	0.77
ø 8.0	8.0	80/50	30	7.04	2.00	4.36	2.00	3.08	0.75	3.54	4.93	1.36
	8.0	100/60	40	7.04	2.00	5.23	2.40	3.58	1.02	4.02	5.14	1.36
	8.0	120/80	40	7.04	2.00	6.98	3.20	4.02	1.09	4.46	5.58	1.36
	8.0	140/80	60	7.04	2.00	6.98	3.20	4.46	1.09	4.46	5.58	1.36
	8.0	160/80	60	7.04	2.00	6.98	3.20	4.46	1.09	4.46	5.58	1.36
	8.0	180/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	200/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	220/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	240/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	260/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	280/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	300/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36



				AXIAL				SHEAR				
				HEAD PULL THROUGH		WITHDRAWAL		TIMBER-TIMBER		METAL - TIMBER		
	ø	L/b	t <sub>1,min</sub>	F <sub>head,Rk</sub>	F <sub>head,ASD</sub>	F <sub>ax,Rk</sub>	F <sub>ax,ASD</sub>	F <sub>v,Rk</sub>	F <sub>v,ASD</sub>	F <sub>v,Rk,thin</sub>	F <sub>v,Rk,thick</sub>	F <sub>v,ASD</sub>
				[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
ø 8.0	8.0	320/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	340/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	360/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	380/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	400/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	450/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
	8.0	500/100	60	7.04	2.00	8.72	4.00	4.47	1.09	4.89	6.02	1.36
ø 10.0	10.0	100/60	40	9.50	3.13	6.60	3.00	4.47	1.20	5.18	6.71	2.13
	10.0	120/80	40	9.50	3.13	8.80	4.00	5.02	1.60	5.78	7.26	2.13
	10.0	140/80	60	9.50	3.13	8.80	4.00	5.78	1.70	5.78	7.26	2.13
	10.0	160/80	60	9.50	3.13	8.80	4.00	5.78	1.70	5.78	7.26	2.13
	10.0	180/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	200/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	220/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	240/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	260/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	280/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	300/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	320/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	340/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	360/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	380/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	400/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
	10.0	450/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13
10.0	500/100	60	9.50	3.13	11.00	5.00	5.95	1.70	6.33	7.81	2.13	

Values for C24 ( $\rho_k=350\text{kg/m}^3$ ), axial axis to grain:  $30^\circ - 90^\circ$ ,  $F_{ax,Rk}$  = thread withdrawal,  $F_{head,Rk}$  = head pull through,  $F_{v,Rk}$  = shear ( $//$  to grain  $0^\circ - \perp$  to grain  $90^\circ$ ), wood/steel plate:  $l_{ef}$  = thread length b,  $t_{1,min}$  = minimum wood thickness,  $t_{1,max}$  = maximum wood thickness add-on part (L-b),  $F_{v,Rk,thin}$  = steel sheet  $t \leq d/2$ ,  $F_{v,Rk,thick}$  = steel sheet  $t \geq d$   
 Type and printing errors reserved. The values stated are meant to serve as planning guides; projects should only be undertaken by authorised professionals.





## 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.
- Permissible values  $F_{ASD}$  load: Design according to DIN 1052:1988 and German licences Z-9.1-564 for RAPID® partial thread, Z-9.1-435 for StarDrive GPR®, Z-9.1-656 for RAPID® full thread, 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:

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

$F_{Rd}$  ... 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  
 $Y_m, k_{mod}$  ... Additional values from corresponding national norms