StarDrive GPR PS

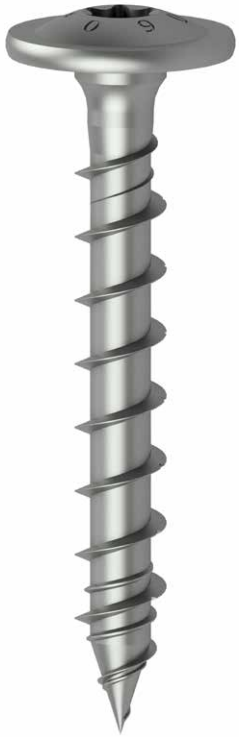
Post screw

The StarDrive GPR PS is a full thread screw that expands our proven StarDrive GPR assortment. The StarDrive GPR PS is specially designed for metal/wood connections. The special underhead guarantees a perfect fit in the metal. The zinc nickel 1000+ surface is the ideal complement to hot-dip galvanised metal parts and is also suitable for use in demanding conditions.

Washer head for higher pull-through values

> The washer head eliminates the need to use a separate washer

> Reduced assembly times - higher pull-through values



Centres automatically when turning

> Ensures a perfect fit in metal parts

Fast screwing processes

> Coarse thread including patented follower thread, rolled out to the tip

> Minimised splitting

> Lower screwing torque

Patented follower thread tip – no pre-drilling necessary

> Ensures that screw bites quickly with low splitting

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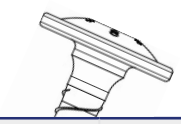
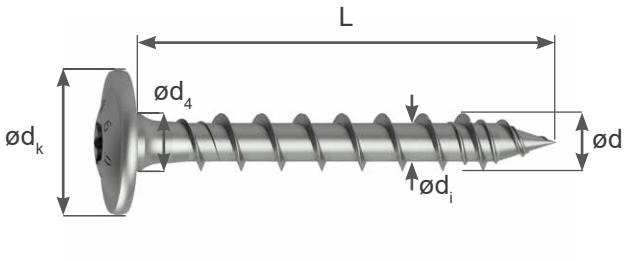
		
Ø 8.0	Drive	T 40
	Length	40–60 mm
	Thread	Coarse thread
	Underhead	Shoulder
	Surface	zinc nickel 1000+ Cr[VI] free

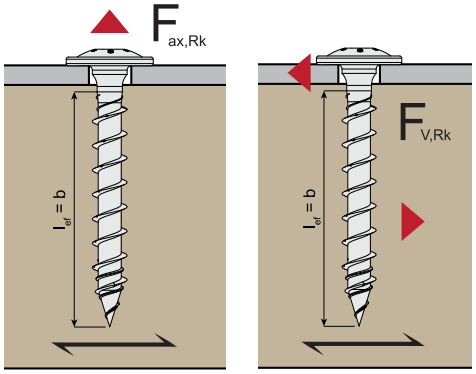
*Special lengths available upon request

StarDrive GPR PS

CHARACTERISTICS AND VALUES FOR C24		
d	**[mm]**	**ø 8**
d_k	[mm]	20.0
d_i	[mm]	5.30
d_4	[mm]	7.8
$f_{ax,90,k}$	[N/mm²]	13.1
$f_{head,k}$	[N/mm²]	17.6
$F_{tens,k}$	[kN]	22.0
$M_{y,k}$	[Nmm]	21 000



Values for C24 (ρ_k=350kg/m³), axial axis to grain: 30° - 90°,
F_{ax} = thread withdrawal force,
F_v = shear force (// to grain 0° – ⊥ to grain 90°),
$F_{V,Rk,thin}$= steel plate t ≤ d/2,
$F_{V,RK,thick}$= steel plate t ≥ d



			AXIAL WITHDRAWAL	SHEAR	
			METAL - TIMBER		
	ø	**L/b**	$F_{ax,Rk}$	$F_{V,Rk,thin}$	$F_{V,Rk,thick}$
	[mm]	[mm]	[kN]	[kN]	[kN]
ø 8.0	8.0	**40**/32	3,35	1,57	3,33
	8.0	**50**/42	4,40	2,07	3,92
	8.0	**60**/52	5,45	2,56	4,57

Type and printing errors reserved. The values stated are meant to serve as planning guides; projects should only be undertaken by authorised professionals.

Minimum spacing

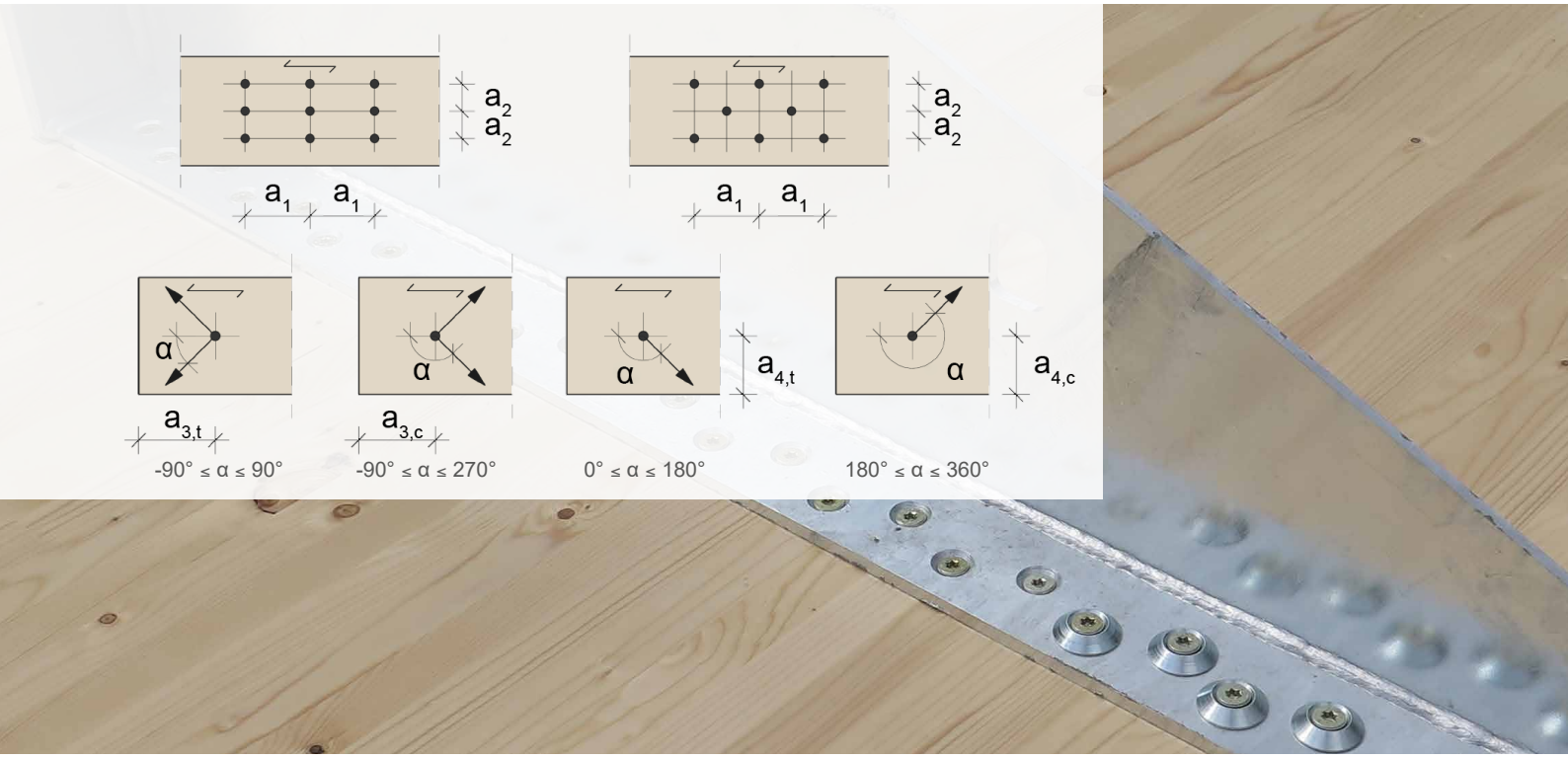
for self-drilling screws RAPID©, StarDrive GPR and for screws with drill bit

		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_1 = 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