S-MD 31 PS 4.8×19 stainless steel self-drilling screw

Product data

General information

Material specification:
made from A2 (AISI 304) material,
with hardened carbon steel drill point and
thread start, with reduced drill point
= greater pull-out value, with fitted EPDM
sealing washer ∅ 12 mm.
Coloured screws available on request.

Fastening tools:

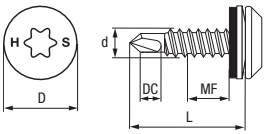
Screwdriver:	Hilti ST1800 Hilti ST2500
Drive using depth gauge set:	Item no. 304611
Bit S-B TX25W:	Item no. 237296

Approvals:

CE

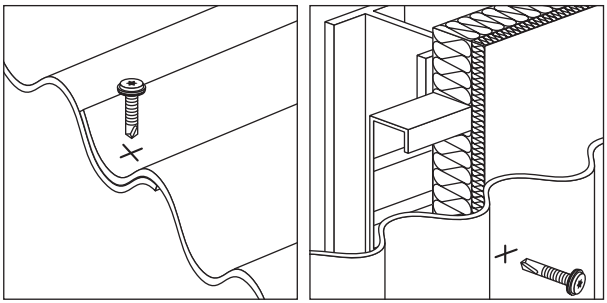
Dimensions

Uses:
Fastening profiled corrugated sheet metal with profiled corrugate sheet metal with or without intermediate insulation layers.
For corrosion-resistant and watertight joints.



Applications

Examples



Load data

Design data

Drilling capacity Σt

max. 2.75 mm

Screw in end-stop oriented

	Component II steel with t_{II} [mm] S235 (DIN EN 10025-1) S280GD, S320GD or S350GD (DIN EN 10326)								
	0.63	**0.75**	**0.88**	**1.00**	**1.13**	**1.25**	**1.50**	**1.75**	**2.00**
Component I steel with t_I [mm] S280GD up to S350GD (DIN EN 10326)	**Shear force $V_{R,k}$** [kN]								
0.63	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
0.75	1.12	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
0.88	1.12	1.31	1.92	1.92	1.92	1.92	1.92	1.92	–
1.00	1.12	1.31	1.92	2.53	2.53	2.53	2.53	2.53	–
1.13	1.12	1.31	1.92	2.53	2.53	2.53	2.53	–	–
1.25	1.12	1.31	1.92	2.53	2.53	2.53	2.53	–	–
1.50	1.12	1.31	1.92	2.53	2.53	2.53	–	–	–
1.75	1.12	1.31	1.92	2.53	–	–	–	–	–
2.00	1.12	1.31	–	–	–	–	–	–	–
	Tension force $N_{R,k}$ [kN]								
0.63	0.59	0.87	1.12	1.37	1.37	1.37	1.37	1.37	1.37
0.75	0.59	0.87	1.12	1.37	1.37	1.37	1.37	1.37	1.37
0.88	0.59	0.87	1.12	1.37	1.37	1.37	1.37	1.37	–
1.00	0.59	0.87	1.12	1.37	1.37	1.37	1.37	1.37	–
1.13	0.59	0.87	1.12	1.37	1.37	1.37	1.37	1.37	–
1.25	0.59	0.87	1.12	1.37	1.37	1.37	1.37	–	–
1.50	0.59	0.87	1.12	1.37	1.37	1.37	–	–	–
1.75	0.59	0.87	1.12	1.37	–	–	–	–	–
2.00	0.59	0.87	–	–	–	–	–	–	–

	Component II Solid timber S10/C24 with e ≥ 20 mm end stop oriented								
Component I									
steel with t_I [mm] S280GD up to S350GD (DIN EN 10326	**0.63**	**0.75**	**0.88**	**1.00**	**1.13**	**1.25**	**1.50**	**1.75**	**2.00**
Failure of component I (bearing stress)	**Shear force $V_{R,k}$** [kN] **1.36**	**2.22**	**2.22**	**2.22**	**2.22**	**2.22**	**2.22**	**2.22**	**2.22**
Failure of component I (pull-over)	**Tension force $N_{R,k}$** [kN] **2.34**	**2.34**	**2.34**	**2.34**	**2.34**	**2.34**	**2.34**	**2.34**	**2.34**
Addition provisions:	Calculating the resistance of the screw in timber (Component II) according to timber standard's								

Drilling capacity Σt

max. 2.75 mm

Screw in end-stop oriented

	Component II aluminium t_{II} [mm] Profil sheeting with $R_m \geq 185$ N/mm² according to DIN EN 485-2:2004-09 or substructure according to DIN 4113-1/A1:2002-09 witht β_Z 185 N/mm										
	0.50	**0.60**	**0.70**	**0.80**	**0.90**	**1.00**	**1.10**	**1.20**	**1.30**	**1.40**	**1.50**
Component I aluminium t_I [mm] Profil sheeting with R_m ≥ 185 N/mm² according to DIN EN 485-2:2004-09	**Shear force $V_{R,k}$** [kN]										
0.50	0.31	0.31	0.31	00.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
0.60	0.31	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
0.70	0.31	0.42	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
0.80	0.31	0.42	0.53	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
0.90	0.31	0.42	0.53	0.70	0.88	0.88	0.88	0.88	0.88	0.88	0.88
1.00	0.31	0.42	0.53	0.70	0.88	1.05	1.05	1.05	1.05	1.05	1.05
1.10	0.31	0.42	0.53	0.70	0.88	1.05	1.05	1.05	1.05	1.05	1.05
1.20	0.31	0.42	0.53	0.70	0.88	1.05	1.05	1.05	1.05	1.05	1.05
1.30	0.31	0.42	0.53	0.70	0.88	1.05	1.05	1.05	1.05	1.05	–
1.40	0.31	0.42	0.53	0.70	0.88	1.05	1.05	1.05	1.05	–	–
1.50	0.31	0.42	0.53	0.70	0.88	1.05	1.05	1.05	–	–	–
	Tension force $N_{R,k}$ [kN]										
0.50	0.17	0.26	0.35	0.46	0.55	0.61	0.61	0.61	0.61	0.61	0.61
0.60	0.17	0.26	0.35	0.46	0.55	0.61	0.70	0.70	0.70	0.70	0.70
0.70	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.83	0.83	0.83
0.80	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	0.99	0.99
0.90	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	1.00	1.05
1.00	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	1.00	1.05
1.10	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	1.00	1.05
1.20	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	1.00	1.05
1.30	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	1.00	–
1.40	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	0.91	–	–
1.50	0.17	0.26	0.35	0.46	0.55	0.61	0.73	0.82	–	–	–

Addition provisions: For asymmetric loading on profile sheeting with tI < 1.25 mm or asymmetric seel profiles with t_{II} < 5.0 mm (load values have to be multiplied by a factor of 0.7).

	Component II Solid timber S10/C24 with e ≥ 20 mm end stop oriented

Component I											
aluminium t_I [mm] Profil sheeting with R_m ≥ 185 N/mm² according to DIN EN 485-2:2004-09	**0.50**	**0.60**	**0.80**	**0.90**	**1.00**	**1.10**	**1.20**	**1.30**	**1.40**	**1.50**	
Failure of component I (bearing stress)	**Shear force $V_{R,k}$** [kN]										
	0.79	**0.93**	**1.06**	**1.28**	**1.49**	**1.71**	**1.71**	**1.71**	**1.71**	**1.71**	**1.71**
Failure of component I (pull-over)	**Tension force $N_{R,k}$** [kN]										
	0.61	**0.70**	**0.83**	**0.99**	**1.19**	**1.42**	**1.70**	**2.02**	**2.02**	**2.02**	**2.02**

Addition provisions: Calculating the resistance of the screw in timber (Component II) according to timber standard's

Safety factors according to EN 1993-1-3 and CUAP 06.02/07		
	Tension	**Shear**
Partial safety concept		
Partial safety factor	γ_M = 1.33	γ_M = 1.33
Influence of cyclic loading	α_{cyclic} = 1.0	– / –
Design load	$N_{Rd} = 1.0 \cdot N_{Rk} / 1.33$	$V_{Rd} = V_{Rk} / 1.33$
Global safety concept		
Global safety factor *	γ_{GLOB} = 2.0	γ_{GLOB} = 2.0
Recommended load	$N_{rec} = 1.0 \cdot N_{Rk} / 2.0$	$V_{rec} = V_{Rk} / 2.0$

* Note: The global safety factor of 2.0 includes a partial safety factor of γ_F = 1.5 for wind load. For other loads safety factors should be applied in accordance with the appropriate standards.

Screw selection

Screw program

Drilling thickness **DC** mm	Fastening thickness **MF** max. mm	Dimensions (dxL) mm	Sealing washer ∅ mm	Drive dimensions	Package contents	Ordering designation	Item no.
1.00–2.75	5	4.8x19	12	TX 25	500	S-MD 31 PS 4.8x19	**202421**
Fastening to wood							
1.00–2.75	–	4.8x38	12	TX25	250	S-MD31PS 4.8x38	**387248**
1.00–2.75	–	4.8x50	12	TX25	250	S-MD31PS 4.8x50	**202422**