Designated according to The Construction Products (Amendment etc.) (EU Exit) Regulations 2020

UK Technical Assessment	UKTA-0836-22/6521 of 02/03/2023
Technical Assessment Body issuing the UK Technical Assessment:	British Board of Agrément
Trade name of the construction product:	Hilti S-MD; Hilti S-MDW; Hilti S-MP; Hilti S-MS
Product family to which the construction product belongs:	Product code 33 - Fixings Fastening screws for metal members and sheeting
Manufacturer:	Hilti AG Feldkircherstrasse 100 FL 9494 SCHAAN Principality of Liechtenstein
Manufacturing plant(s):	Hilti AG – Plant 2855 Hilti AG – Plant 4330 Hilti AG – Plant 7855
This UK Technical Assessment contains:	102 pages including 90 Annexes which form an integral part of the document
This UK Technical Assessment is issued in accordance with The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 on the basis of:	UKAD 330046-01-0602 Fastening screws for metal members and sheeting

1. Technical description of the product

The fastening screws are self-drilling, self-piercing or self-tapping screws made of austenitic stainless steel A2 or A4 according to EN ISO 3506-1: 2020 (listed in Table 1). The fastening screws are normally completed with sealing washers consisting of metal washer made of austenitic stainless steel A2 according to EN ISO 3506-1: 2020 and EPDM seal.

Table 1 – Fastening screws of the corresponding ETA and their field of application

Annex	Product	Washer	Component I	Component II
1	General Annex - Terms and explanations			
2	General Annex - Design			
3	General Annex – Installation and additional provisions			
4 - 7	Drawings and materials of the screws			
8	Regulations for perforated steel sheets			
9	Regulations for perforated steel sheets			
10	S-MS 01 S 4,8xL S-MS 01 SS 4,8xL S-MS 01 PS 4,8xL S-MS 01 PSS 4,8xL	none	Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 1,25 mm	Steel S280GD to S350GD 0,40 mm ≤ t_{II} ≤ 1,25 mm
11			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_I ≤ 1,20 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_{II} ≤ 1,20 mm
12			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_I ≤ 1,20 mm	Steel S280GD to S350GD 0,50 mm ≤ t_{II} ≤ 1,25 mm
13			Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 1,25 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_I ≤ 1,20 mm
14	S-MS 41 S 4,8xL S-MS 41 SS 4,8xL S-MS 51 S 4,8xL S-MS 51 SS 4,8xL S-MS 41 PS 4,8xL S-MS 41 PSS 4,8xL S-MS 51 PS 4,8xL S-MS 51 PSS 4,8xL	14 mm and 16 mm	Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 1,25 mm	Steel S280GD to S350GD 0,40 mm ≤ t_{II} ≤ 1,25 mm
15			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² Steel S280GD to S350GD 0,50 mm ≤ t_I ≤ 1,20 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_{II} ≤ 1,20 mm
16			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm$_2$ 0,50 mm ≤ t_I ≤ 1,20 mm	Steel S280GD to S350GD 0,50 mm ≤ t_{II} ≤ 1,25 mm
17	S-MS 31 PS 4,8xL S-MS 31 PSS 4,8xL	12 mm	Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 1,25 mm	Steel S280GD to S350GD 0,40 mm ≤ t_{II} ≤ 1,25 mm
18			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² Steel S280GD to S350GD 0,50 mm ≤ t_I ≤ 1,20 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_{II} ≤ 1,20 mm
19			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm$_2$ 0,50 mm ≤ t_I ≤ 1,20 mm	Steel S280GD to S350GD 0,50 mm ≤ t_{II} ≤ 1,25 mm
20	S-MD 01 S 4,8xL S-MD 01 SS 4,8xL	none	Steel S280GD to S350GD 0,63 mm ≤ t_I ≤ 1,25 mm	Steel S235 to S355 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,25 mm

Annex	Product	Washer	Component I	Component II
21	S-MD 51 S 4,8xL S-MD 51 SS 4,8xL S-MD 61 S 4,8xL S-MD 61 SS 4,8xL	16 mm and 19 mm	Steel S280GD to S320GD 0,63 mm ≤ t_I ≤ 1,25 mm	Steel S235 Steel S280GD to S320GD 0,63 mm ≤ t_{II} ≤ 1,25 mm
22	S-MD 31 PS 4,8xL S-MD 31 PSS 4,8xL	12 mm	Steel S280GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 2,00 mm Structural timber
23			Aluminium alloy with R_m ≥ 185 N/mm2 Steel S280GD to S350GD 0,50 mm ≤ t_I ≤ 1,50 mm	Aluminium alloy with R_m ≥ 185 N/mm2 0,50 mm ≤ t_{II} ≤ 1,50 mm Structural timber
24	S-MD 01 S 5,5xL S-MD 01 SS 5,5xL	none	Steel S280GD to S350GD 0,63 mm ≤ t_I ≤ 1,50 mm	Steel S235 to S355 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 2,00 mm
25	S-MD 51 S 5,5xL S-MD 51 SS 5,5xL	16 mm	Steel S280GD to S320GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD 0,63 mm ≤ t_{II} ≤ 2,00 mm
26			Steel S320GD to S350GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S275 Steel S320GD to S350GD 0,63 mm ≤ t_{II} ≤ 2,00 mm
27	S-MD 51 S 5,5xL S-MD 51 SS 5,5xL S-MD 61 S 5,5xL S-MD 61 SS 5,5xL S-MD 71 S 5,5xL S-MD 71 SS 5,5xL	16 mm, 19 mm and 22 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 1,30 mm Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 1,25 mm	Structural timber
28	S-MD 31 PS 5,5xL S-MD 31 PSS 5,5xL	12 mm	Steel S280GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,75 mm or 2x0,63 mm ≤ t_{II} ≤ 2x1,13 mm
29			Aluminium alloy with R_m ≥ 185 N/mm^2 Steel S280GD to S350GD 0,50 mm ≤ t_I ≤ 1,50 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_{II} ≤ 2,00 mm
30			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,75 mm or 2x0,63 mm ≤ t_{II} ≤ 2x1,13 mm
31	S-MD 01 LS 5,5xL S-MD 01 LSS 5,5xL S-MD 01 LPS 5,5xL S-MD 01 LPSS 5,5xL	none	Steel S320GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S275 to S355 Steel S320GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,75 mm
32	S-MD 01 LS 5,5xL S-MD 01 LSS 5,5xL	none	Aluminium alloy with R_m ≥ 185 N/mm^2 1,00 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_{II} ≤ 2,00 mm
33			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S275 to S355 Steel S320GD to S390GD 0,63 mm ≤ t_{II} ≤ 2,00 mm
34			Steel S320GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 1,00 mm ≤ t_{II} ≤ 3,00 mm
35	S-MD 01 LPS 5,5xL S-MD 01 LPSS 5,5xL	none	Aluminium alloy with R_m ≥ 185 N/mm^2 1,00 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_{II} ≤ 2,00 mm
36			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 2,00 mm
37			Steel S320GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm$_2$ 0,50 mm ≤ t_{II} ≤ 2,00 mm

Annex	Product	Washer	Component I	Component II
38	S-MD 31 LPS 5,5xL S-MD 31 LPSS 5,5xL	12 mm	Steel S280GD to S320GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD 2x0,63 mm ≤ t_{II} ≤ 2x1,75 mm
39			Steel S320GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S275 Steel S320GD to S350GD 2x0,63 mm ≤ t_{II} ≤ 2x1,75 mm
40			Steel S280GD to S320GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD 0,63 mm ≤ t_{II} ≤ 1,75 mm
41			Steel S320GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S275 Steel S320GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,75 mm
42			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,50 mm 2x0,63 mm ≤ t_{II} ≤ 2x1,50 mm
43			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_{II} ≤ 2,00 mm
44			Steel S280GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 1,00 mm ≤ t_{II} ≤ 3,00 mm
45	S-MD 41 LS 5,5xL S-MD 51 LS 5,5xL S-MD 51 LSS 5,5xL S-MD 61 LS 5,5xL S-MD 61 LSS 5,5xL S-MD 71 LS 5,5xL S-MD 71 LSS 5,5xL S-MD 41 LPS 5,5xL S-MD 51 LPS 5,5xL S-MD 51 LPSS 5,5xL S-MD 61 LPS 5,5xL S-MD 61 LPSS 5,5xL S-MD 71 LPS 5,5xL S-MD 71 LPSS 5,5xL	14 mm, 16 mm, 19 mm and 22 mm	Steel S280GD to S320GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD 2x0,63 mm ≤ t_{II} ≤ 2x1,50 mm
46			Steel S320GD to S350GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S275 Steel S320GD to S350GD 2x0,63 mm ≤ t_{II} ≤ 2x1,50 mm
47			Steel S280GD to S320GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD 0,63 mm ≤ t_{II} ≤ 1,75 mm
48			Steel S320GD to S350GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S275 Steel S320GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,75 mm
49			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S350GD 0,63 mm ≤ t_{II} ≤ 1,50 mm 2x0,63 mm ≤ t_{II} ≤ 2x1,50 mm
50			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_{II} ≤ 2,00 mm
51			Steel S280GD to S350GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 1,00 mm ≤ t_{II} ≤ 3,00 mm
52	S-MD 03 S 5,5xL S-MD 03 SS 5,5xL S-MD 03 PS 5,5xL S-MD 03 PSS 5,5xL	none	Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
53	S-MD 03 S 5,5xL S-MD 03 SS 5,5xL	none	Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 1,50 mm ≤ t_{II} ≤ 4,00 mm
54			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
55			Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 1,50 mm ≤ t_{II} ≤ 4,00 mm

Annex	Product	Washer	Component I	Component II
56	S-MD 03 PS 5,5xL S-MD 03 PSS 5,5xL	none	Aluminium alloy with $R_m \geq 185$ N/mm² 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with $R_m \geq 185$ N/mm² 1,00 mm ≤ t_{II} ≤ 4,00 mm
57			Aluminium alloy with $R_m \geq 185$ N/mm² 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
58			Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with $R_m \geq 185$ N/mm² 1,00 mm ≤ t_{II} ≤ 4,00 mm
59	S-MD 53 S 5,5xL S-MD 53 SS 5,5xL S-MD 63 S 5,5xL S-MD 63 SS 5,5xL S-MD 73 S 5,5xL S-MD 73 SS 5,5xL	16 mm, 19 mm and 22 mm	Steel S280GD to S390GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
60			Steel S320GD to S390GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S275 to S355 Steel S320GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
61	S-MD 43 S 5,5xL S-MD 43 SS 5,5xL S-MD 53 S 5,5xL S-MD 53 SS 5,5xL S-MD 63 S 5,5xL S-MD 63 SS 5,5xL S-MD 73 S 5,5xL S-MD 73 SS 5,5xL	14 mm, 16 mm, 19 mm and 22 mm	Aluminium alloy with $R_m \geq 185$ N/mm² Steel S280GD to S350GD 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with $R_m \geq 185$ N/mm² Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
62	S-MD 43 S 5,5xL S-MD 43 SS 5,5xL	14 mm	Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
63			Steel S320GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S275 to S355 Steel S320GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
64	S-MD 33 PS 5,5xL S-MD 33 PSS 5,5xL	12 mm	Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 0,75 mm ≤ t_{II} ≤ 1,25 mm or 2x0,75 mm ≤ t_{II} ≤ 2x1,25 mm
65			Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with $R_m \geq 185$ N/mm² 1,00 mm ≤ t_{II} ≤ 4,00 mm
66			Aluminium alloy with $R_m \geq 185$ N/mm² 0,50 mm ≤ t_I ≤ 1,50 mm	Aluminium alloy with $R_m \geq 185$ N/mm² 1,00 mm ≤ t_{II} ≤ 5,00 mm
67			Aluminium alloy with $R_m \geq 185$ N/mm² 0,50 mm ≤ t_I ≤ 1,50 mm	Steel S235 to S355 Steel S280GD to S390GD 0,75 mm ≤ t_{II} ≤ 1,25 mm or 2x0,75 mm ≤ t_{II} ≤ 2x1,25 mm
68	S-MD 03 S 6,3xL S-MD 03 SS 6,3xL	none	Steel S280GD to S390GD 0,63 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
69	S-MD 53 S 6,3xL S-MD 53 SS 6,3xL S-MD 63 S 6,3xL S-MD 63 SS 6,3xL S-MD 73 S 6,3xL S-MD 73 SS 6,3xL	16 mm, 19 mm and 22 mm	Steel S280GD to S390GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm
70			Steel S320GD to S390GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S275 to S355 Steel S320GD to S390GD 1,50 mm ≤ t_{II} ≤ 4,00 mm

Annex	Product	Washer	Component I	Component II
71	S-MD 05 S 5,5xL S-MD 05 SS 5,5xL S-MD 05 PS 5,5xL S-MD 05 PSS 5,5xL	none	Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S280GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
72			Steel S390GD to S450GD 0,40 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S390GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
73		none	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S280GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
74			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² Steel S280GD to S450GD 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 4,00 mm ≤ t_{II} ≤ 12,00 mm
75	S-MD 55 S 5,5xL S-MD 55 SS 5,5xL S-MD 65 S 5,5xL S-MD 65 SS 5,5xL S-MD 75 S 5,5xL S-MD 75 SS 5,5xL S-MD 55 PS 5,5xL S-MD 55 PSS 5,5xL S-MD 65 PS 5,5xL S-MD 65 PSS 5,5xL S-MD 75 PS 5,5xL S-MD 75 PSS 5,5xL	16 mm, 19 mm and 22 mm	Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S280GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
76			Steel S390GD to S450GD 0,40 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S390GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
77			Aluminium alloy with R_m ≥ 165 N/mm2 or R_m ≥ 215 N/mm2 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm2 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S280GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
78			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² Steel S280GD to S450GD 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 4,00 mm ≤ t_{II} ≤ 12,00 mm
79	S-MD 35 PS 5,5xL S-MD 35 PSS 5,5xL	12 mm	Steel S280GD to S350GD 0,40 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S280GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
80			Steel S390GD to S450GD 0,40 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S390GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
81			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 with R_m ≤ 560 N/mm² 4,00 mm ≤ t_{II} ≤ 13,00 mm Steel S280GD to S450GD 2x0,50 mm ≤ t_{II} ≤ 2x2,00 mm
82			Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² Steel S280GD to S450GD 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 165 N/mm² or R_m ≥ 215 N/mm² 4,00 mm ≤ t_{II} ≤ 12,00 mm

Annex	Product	Washer	Component I	Component II
83	S-MDW 01 S 6,5xL S-MDW 01 SS 6,5xL S-MDW 01 PS 6,5xL S-MDW 01 PSS 6,5xL	none	Steel S280GD to S450GD 0,40 mm ≤ t_I ≤ 1,50 mm	Structural timber
84	S-MDW 51 S 6,5xL S-MDW 51 SS 6,5xL S-MDW 51 PS 6,5xL S-MDW 51 PSS 6,5xL	16 mm	Steel S280GD to S450GD 0,40 mm ≤ t_I ≤ 1,50 mm	Structural timber
85	S-MDW 61 S 6,5xL S-MDW 61 SS 6,5xL S-MDW 71 S 6,5xL S-MDW 71 SS 6,5xL S-MDW 61 PS 6,5xL S-MDW 61 PSS 6,5xL S-MDW 71 PS 6,5xL S-MDW 71 PSS 6,5xL	19 mm and 22 mm	Steel S280GD to S450GD 0,40 mm ≤ t_I ≤ 1,50 mm	Structural timber
86	S-MDW 01 S 6,5xL S-MDW 01 SS 6,5xL S-MDW 51 S 6,5xL S-MDW 51 SS 6,5xL S-MDW 61 S 6,5xL S-MDW 61 SS 6,5xL S-MDW 71 S 6,5xL S-MDW 71 SS 6,5xL S-MDW 01 PS 6,5xL S-MDW 01 PSS 6,5xL S-MDW 51 PS 6,5xL S-MDW 51 PSS 6,5xL S-MDW 61 PS 6,5xL S-MDW 61 PSS 6,5xL S-MDW 71 PS 6,5xL S-MDW 71 PSS 6,5xL	None, 16 mm, 19 mm and 22 mm	Aluminium alloy with R_m ≥ 185 N/mm^2 0,40 mm ≤ t_I ≤ 1,50 mm	Structural timber
87	S-MP 52 S 6,3xL S-MP 52 SS 6,3xL S-MP 62 S 6,3xL S-MP 62 SS 6,3xL S-MP 72 S 6,3xL S-MP 72 SS 6,3xL	16 mm, 19 mm and 22 mm	Steel S280GD to S320GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD t_{II} ≥ 1,25 mm
88	S-MP 54 S 6,3xL S-MP 54 SS 6,3xL S-MP 64 S 6,3xL S-MP 64 SS 6,3xL S-MP 74 S 6,3xL S-MP 74 SS 6,3xL	16 mm, 19 mm and 22 mm	Steel S280GD to S420GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 to S355 Steel S280GD to S420GD t_{II} ≥ 1,25 mm
89	S-MP 53 S 6,5xL S-MP 53 SS 6,5xL S-MP 63 S 6,5xL S-MP 63 SS 6,5xL S-MP 73 S 6,5xL S-MP 73 SS 6,5xL	16 mm, 19 mm and 22 mm	Steel S280GD to S320GD 0,50 mm ≤ t_I ≤ 2,00 mm	Steel S235 Steel S280GD to S320GD 0,63 mm ≤ t_{II} ≤ 3,00 mm Structural timber
90			Aluminium alloy with R_m ≥ 185 N/mm^2 0,50 mm ≤ t_I ≤ 2,00 mm	Aluminium alloy with R_m ≥ 185 N/mm$_2$ Steel S280GD to S350GD 0,50 mm ≤ t_{II} ≤ 3,00 mm Structural timber

2. Specification of the intended use(s) in accordance with the applicable UK Assessment Document (hereinafter UKAD)

The fastening screws are intended to be used for fastening metal sheeting made of steel according to EN 10346: 2015 or aluminium alloy according to EN 485-3: 2003 or EN 573-3: 2019 + A1: 2022 to substructures made of steel according to EN 10025-1: 2004 or EN 10346: 2015, aluminium alloy according to EN 485-3: 2003 or EN 573-3: 2019 + A1: 2022 or structural timber according to EN 14081-1: 2016 + A1: 2019. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge metal members. The intended use comprises fastening screws and connections for indoor and outdoor applications.

Fastening screws which are intended to be used in external environments with ≥ C2 corrosion according to the standard EN ISO 12944-2: 2017 are made of stainless steel. Furthermore, the intended use comprises connections with predominantly static loads (e.g., wind loads, dead loads). The fastening screws are not intended for re-use.

The performances given in Section 3 are only valid if the fastening screws are used in compliance with the specifications and conditions given in Annex 1 to 90.

The provisions made in this UK Technical Assessment are based on an assumed intended working life of the screws of 25 years.

The indications given on the intended working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body but are to be regarded only as a means for selecting the appropriate products in relation to the expected economically reasonable working life of the works.

The real working life might be, in normal use conditions, considerably longer without major degradation affecting the Basic requirements for construction works.

3. Performance of the product and references to the methods used for its assessment

Performances of the fasteners, related to the basic requirements for construction works (hereinafter BWR), were determined according to UKAD 330046-01-0602.
These performances, given in the following paragraphs, are valid if the components are the ones described in § 1 and Annexes 1 to 90 of this ETA.

3.1. Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Shear Resistance of the Connection	See Annex to this ETA
Tension Resistance of the Connection	See Annex to this ETA
Design Resistance in case of combined Tension and Shear Forces (interaction)	See Annex 2 to this ETA
Check of Deformation Capacity in case of constraining forces due to temperature	See Annex 2 to this ETA
Durability	See Annexes 4 to 7, material of the fasteners

3.2. Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	The screws are made from steel classified as A1 in accordance with EN 13501-1:2018

3.3. Health, hygiene, and the environment (BWR 3)

Regarding dangerous substances, there may be additional legislative requirements falling outside of the scope of this document. These requirements must be complied with as appropriate.

3.4. Safety and accessibility in use (BWR 4)

Not relevant.

3.5. Protection against noise (BWR 5)

Not relevant.

3.6. Energy economy and heat retention (BWR 6)

Not relevant.

3.7. Sustainable use of natural resources (BWR 7)

No performance assessed.

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied

4.1. System of assessment and verification of constancy of performance

According to UKAD No. 330046-01-0602 and Annex V of the Construction Products Regulation (Regulation (EU) 305/2011) as brought into UK law and amended, the system of assessment and verification of constancy of performance (AVCP) 2+ applies.

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable UKAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with the British Board of Agrément and made available to the UK Approved Bodies involved in the conformity attestation process.

5.1. UKCA marking for the product/ system must contain the following information:

- Identification number of the Approved Body
- Name/address of the manufacturer of the product/ system
- Marking with intention of clarification of intended use
- Date of marking
- Number of Certificate of Conformity of Factory Production Control
- UKTA number.

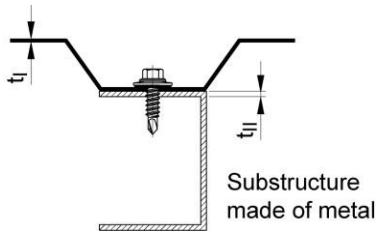
On behalf of the British Board of Agrément 	
Date of Issue: 2 February 2023	**Hardy Giesler** Chief Executive Officer

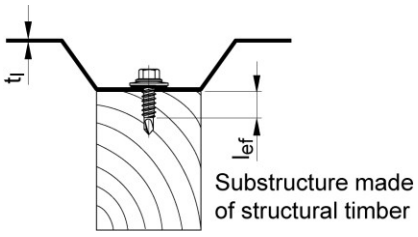
British Board of Agrément,
1st Floor Building 3,
Hatters Lane,
Croxley Park
Watford
WD18 8YG

ANNEX

This annex applies to the product described in the main body of the UK Technical Assessment.

Examples of execution a connection





Materials and dimensions

Design relevant materials and dimensions are indicated in the Annexes of the fastening screws:

Fastener	Material of the fastening screw
Washer	Material of the sealing washer
Component I	Material of the metal member or sheeting
Component II	Material of the substructure
t_I	Thickness of component I
t_{II}	Thickness of component II made of metal
l_{ef}	Effective screw-in length in component II made of structural timber (without drill point)
d_{pd}	Predrill diameter of component I and component II
$d_{pd,I}$	Predrill diameter of component I

The thickness t_{II} corresponds to the load-bearing screw-in length of the fastening screw in component II if the load-bearing screw-in length does not cover the entire component thickness.

Performance characteristics

The design relevant performance characteristics of a connection are indicated in the Annexes of the fastening screws:

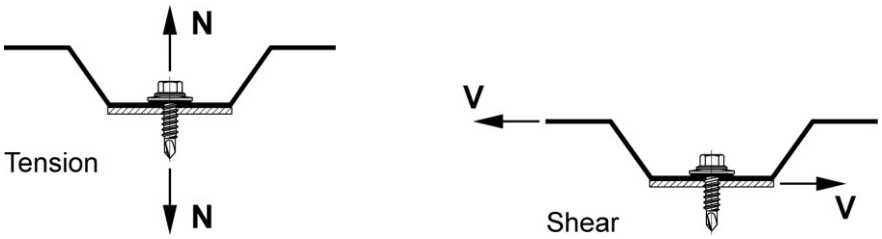
$N_{R,k}$	Characteristic value of tension resistance
$V_{R,k}$	Characteristic value of shear resistance

In some cases, component-specific performance characteristics are indicated for an individual calculation of the design relevant performance characteristics of a connection:

$N_{R,I,k}$	Characteristic value of pull-through resistance for component I
$N_{R,II,k}$	Characteristic value of pull-out resistance for component II
$V_{R,I,k}$	Characteristic value of hole bearing resistance for component I
$V_{R,II,k}$	Characteristic value of hole bearing resistance for component II
$M_{y,Rk}$	Characteristic value of yield moment of the fastening screw (for component II made of structural timber)
$f_{ax,k}$	Characteristic value of withdrawal strength for component II made of structural timber
$f_{h,k}$	Characteristic value of embedding strength for component II made of structural timber

Terms and explanations	
Fastening screws for metal members and sheeting	**Annex 1**

Occurred loadings of a connection



Design values

The design values of tension and shear resistance of a connection must be determined as follows:

$$N_{R,d} = \frac{N_{R,k}}{\gamma_M} \qquad V_{R,d} = \frac{V_{R,k}}{\gamma_M}$$

$N_{R,d}$ Design value of tension resistance
$V_{R,d}$ Design value of shear resistance
γ_M Partial safety factor

The recommended partial safety factor γ_M is 1,33, provided no partial safety factor is given in national regulations or national Annexes to Eurocode 3.

Special conditions

If the component thickness t_I or t_{II} lies in between two indicated component thicknesses, the characteristic value may be calculated by linear interpolation.

For asymmetric components II made of metal (e.g. Z- or C-shaped profiles) with component thickness $t_{II} < 5$ mm, the characteristic value $N_{R,k}$ has to be reduced to 70%.

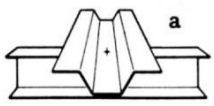
In case of combined loading by tension and shear forces the following interaction equation must be considered:

$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \leq 1{,}0$$

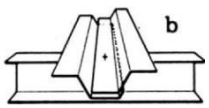
$N_{S,d}$ Design value of the applied tension forces
$V_{S,d}$ Design value of the applied shear forces

Types of connection

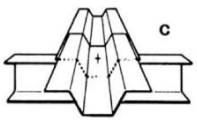
For the types of connection (a, b, c, d) given in the Annexes of the fastening screws, it is not necessary to consider the effect of constraints due to temperature. For other types of connection, the effect of constraints must be taken into account, unless they do not occur or are not significant (e.g., sufficient flexibility of the substructure).



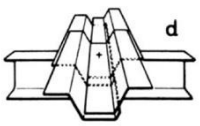
Single connection



Side lap connection



End overlap connection



Side lap + end overlap connection

Design	
Fastening screws for metal members and sheeting	**Annex 2**

Installation conditions

The installation is carried out according to the manufacturer's instruction.

The load bearing screw-in length of the fastening screw specified by the manufacturer must be considered.

The fastening screws must be processed with a suitable drill driver (e.g., cordless drill driver with depth stop). The use of an impact wrench is not allowed.

The fastening screws must be fixed rectangular to the surface of the component.

Component I and component II must be in direct contact with each other. The use of compression resistant thermal insulation strips up to a thickness of 3 mm is allowed.

Component I made is of perforated sheeting

The characteristic values of tension or shear resistance of the connection may be determined as follows:

$$N_{R,k} = \min \begin{cases} N_{R,I,k} \\ N_{R,k} \text{ or } N_{R,II,k} \end{cases} \qquad V_{R,k} = \min \begin{cases} V_{R,I,k} \\ V_{R,k} \end{cases}$$

$N_{R,I,k}$ and $V_{R,I,k}$ are given in Annex 8 and 9.
$N_{R,II,k}$, $N_{R,k}$ and $V_{R,k}$ are given in the corresponding Annexes 10-90.

Component I and/or component II are made of aluminum alloy

The characteristic value of tension resistance may be determined as follows:

$$N_{R,k} = \min \begin{cases} N_{R,I,k} \\ N_{R,II,k} \end{cases}$$

$N_{R,I,k}$ is determined according to EN 1999-1-4: 2007 + A1: 2011, equation (8.13). $N_{R,II,k}$ is given in the annex of the fastening screw.
The characteristic value of shear resistance $V_{R,k}$ is given in the corresponding Annexes 10-90.

Component II made of timber

The characteristic values of tension and shear resistance for other k_{mod} or ρ_k as indicated in the Annex of the fastening screw can be determined as follows:

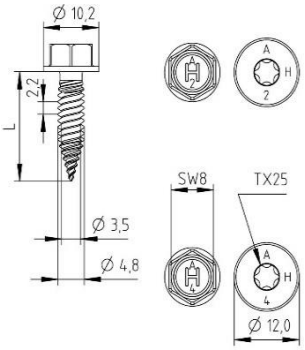
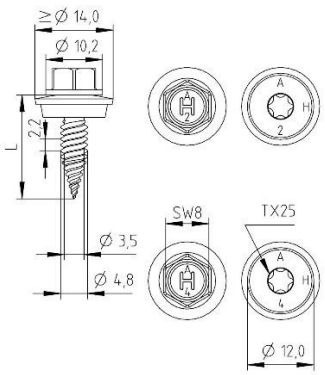
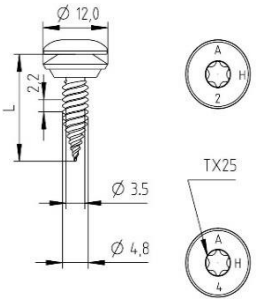
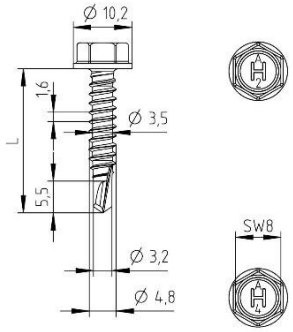
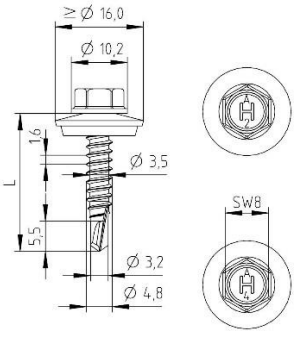
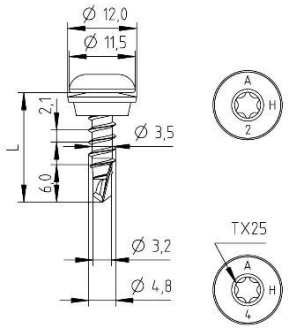
$$N_{R,k} = \min \begin{cases} N_{R,I,k} \\ N_{R,II,k} * k_{mod} \end{cases} \qquad V_{R,k} = \min \begin{cases} V_{R,I,k} \\ V_{R,II,k} * k_{mod} \end{cases}$$

$N_{R,I,k}$ and $V_{R,I,k}$ are given in the Annex of the fastening screw.

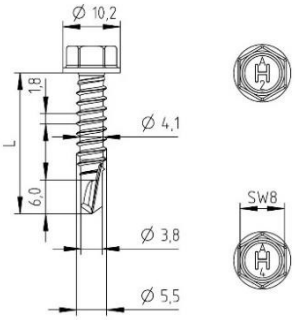
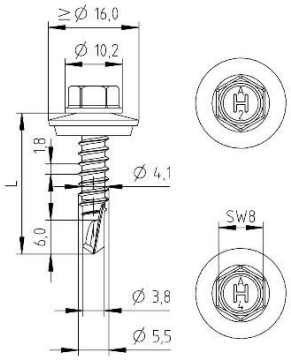
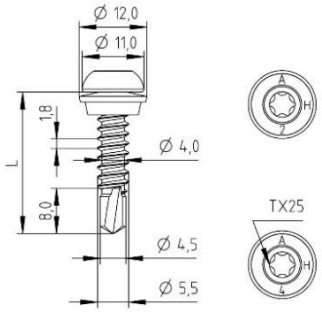
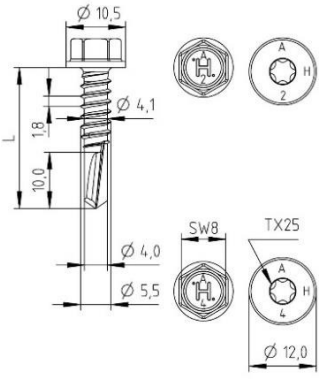
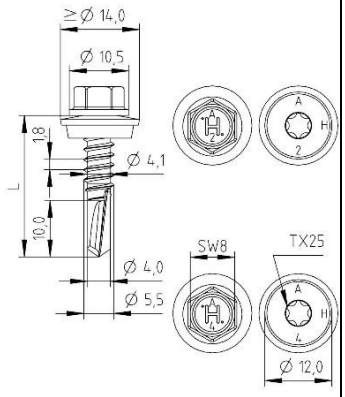
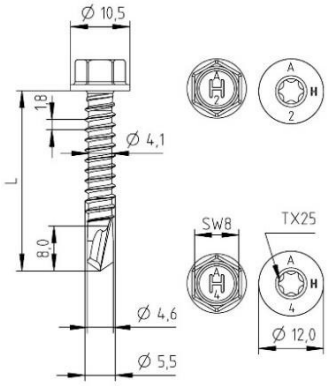
$N_{R,II,k}$ is determined according to EN 1995-1-1: 2004 + A2: 2014, equation (8.40a), with $f_{ax,k}$ given in the Annex of the fastening screw.

$V_{R,II,k}$ is determined according to EN 1995-1-1: 2004 + A2: 2014, equation (8.9), with $M_{y,Rk}$ given in the Annex of the fastening screw.

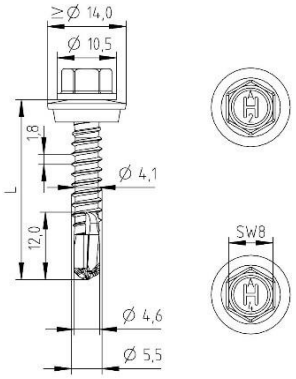
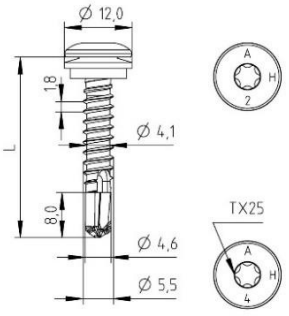
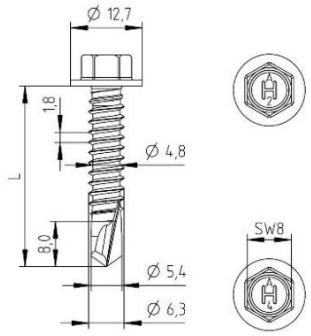
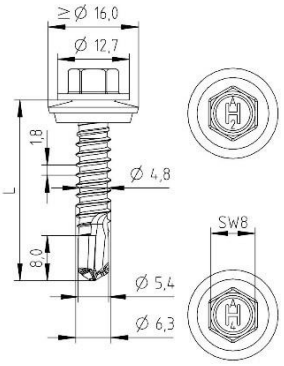
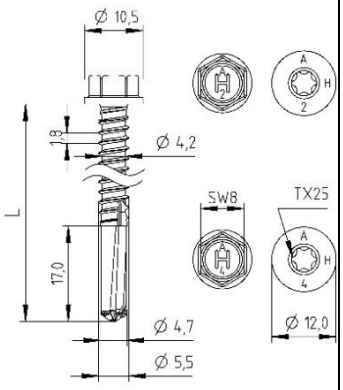
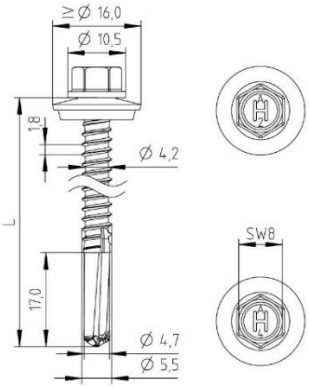
Installation and additional provisions	
Fastening of screws for metal members and sheeting	**Annex 3**

	stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MS 01 S 4,8xL** **Hilti S-MS 01 PS 4,8xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MS 01 SS 4,8xL** **Hilti S-MS 01 PSS 4,8xL** with hexagon or round head without sealing washer drilling capacity $\Sigma t_i \leq 2{,}50$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MS 41 S 4,8xL** **Hilti S-MS 51 S 4,8xL** **Hilti S-MS 41 PS 4,8xL** **Hilti S-MS 51 PS 4,8xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MS 41 SS 4,8xL** **Hilti S-MS 51 SS 4,8xL** **Hilti S-MS 41 PSS 4,8xL** **Hilti S-MS 51 PSS 4,8xL** with hexagon or round head with sealing washer Ø14 mm, Ø16 mm drilling capacity $\Sigma t_i \leq 2{,}50$ mm
	stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MS 31 PS 4,8xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MS 31 PSS 4,8xL** with round head with sealing washer Ø12 mm drilling capacity $\Sigma t_i \leq 2{,}50$ mm		stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MD 01 S 4,8xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MD 01 SS 4,8xL** with hexagon head without sealing washer drilling capacity $\Sigma t_i \leq 2{,}00$ mm
	stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MD 51 S 4,8xL** **Hilti S-MD 61 S 4,8xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MD 51 SS 4,8xL** **Hilti S-MD 61 SS 4,8xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm drilling capacity $\Sigma t_i \leq 2{,}00$ mm		stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MD 31 PS 4,8xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MD 31 PSS 4,8xL** with round head with sealing washer Ø12 mm drilling capacity $\Sigma t_i \leq 2{,}75$ mm

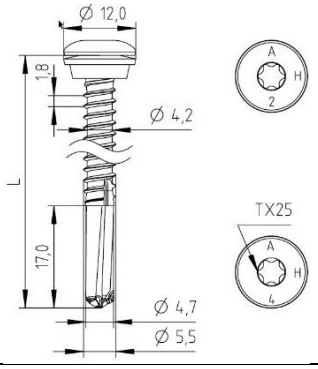
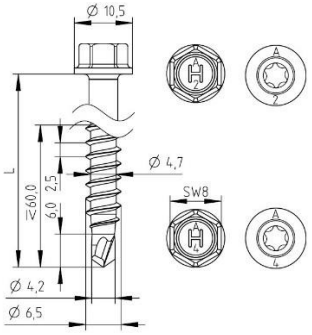
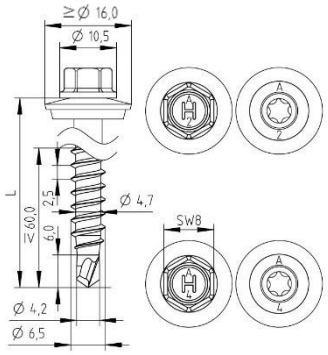
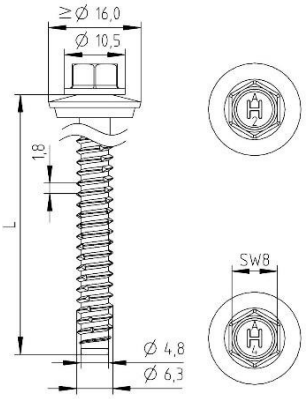
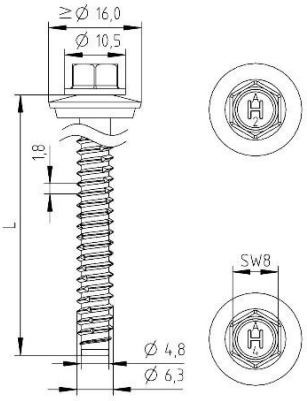
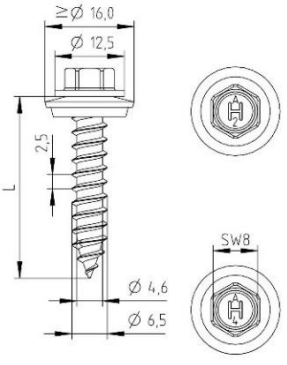
Drawings and materials	**Annex 4**
Fastening of screws for metal members and sheeting	

	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 01 S 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 01 SS 5,5xL** with hexagon head without sealing washer drilling capacity $\Sigma t_i \leq 3{,}00$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 51 S 5,5xL** **Hilti S-MD 61 S 5,5xL** **Hilti S-MD 71 S 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 51 SS 5,5xL** **Hilti S-MD 61 SS 5,5xL** **Hilti S-MD 71 SS 5,5xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm drilling capacity $\Sigma t_i \leq 3{,}00$ mm
	stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MD 31 PS 5,5xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MD 31 PSS 5,5xL** with round head with sealing washer Ø12 mm drilling capacity $\Sigma t_i \leq 3{,}00$ mm		stainless steel A2 - EN ISO 3506-1: 2020 **Hilti S-MD 01 LS 5,5xL** **Hilti S-MD 01 LPS 5,5xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MD 01 LSS 5,5xL** **Hilti S-MD 01 LPSS 5,5xL** with hexagon head or round head without sealing washer drilling capacity $\Sigma t_i \leq 4{,}00$ mm
	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 41 LS 5,5xL** **Hilti S-MD 51 LS 5,5xL** **Hilti S-MD 61 LS 5,5xL** **Hilti S-MD 71 LS 5,5xL** **Hilti S-MD 41 LPS 5,5xL** **Hilti S-MD 51 LPS 5,5xL** **Hilti S-MD 61 LPS 5,5xL** **Hilti S-MD 71 LPS 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 41 LSS 5,5xL** **Hilti S-MD 51 LSS 5,5xL** **Hilti S-MD 61 LSS 5,5xL** **Hilti S-MD 71 LSS 5,5xL** **Hilti S-MD 41 LPSS 5,5xL** **Hilti S-MD 51 LPSS 5,5xL** **Hilti S-MD 61 LPSS 5,5xL** **Hilti S-MD 71 LPSS 5,5xL** with hexagon head or round head with sealing washer Ø14 mm, Ø16 mm, Ø19 mm, Ø22 mm drilling capacity $\Sigma t_i \leq 4{,}00$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 03 S 5,5xL** **Hilti S-MD 03 PS 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 03 SS 5,5xL** **Hilti S-MD 03 PSS 5,5xL** with hexagon head or round head without sealing washer drilling capacity $\Sigma t_i \leq 6{,}00$ mm

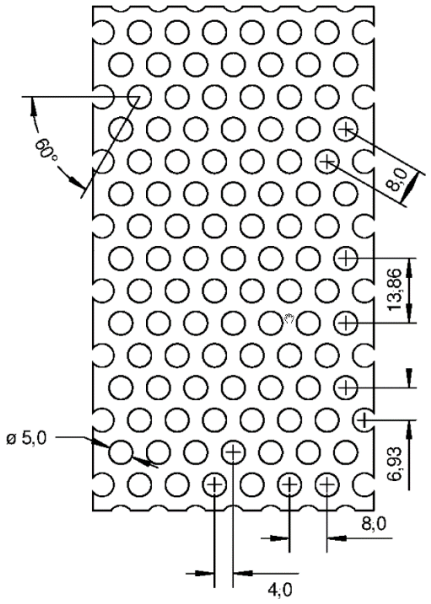
Drawings and materials	
Fastening of screws for metal members and sheeting	**Annex 5**

	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 43 S 5,5xL** **Hilti S-MD 53 S 5,5xL** **Hilti S-MD 63 S 5,5xL** **Hilti S-MD 73 S 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 43 SS 5,5xL** **Hilti S-MD 53 SS 5,5xL** **Hilti S-MD 63 SS 5,5xL** **Hilti S-MD 73 SS 5,5xL** with hexagon head with sealing washer Ø14 mm, Ø16 mm, Ø19 mm, Ø22 mm drilling capacity $\Sigma t_i \leq 6{,}00$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 33 PS 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 33 PSS 5,5xL** with round head with sealing washer Ø12 mm drilling capacity $\Sigma t_i \leq 6{,}00$ mm
	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 03 S 6,3xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 03 SS 6,3xL** with hexagon head without sealing washer drilling capacity $\Sigma t_i \leq 6{,}00$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 53 S 6,3xL** **Hilti S-MD 63 S 6,3xL** **Hilti S-MD 73 S 6,3xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 53 SS 6,3xL** **Hilti S-MD 63 SS 6,3xL** **Hilti S-MD 73 SS 6,3xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm drilling capacity $\Sigma t_i \leq 6{,}00$ mm
	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 05 S 5,5xL** **Hilti S-MD 05 PS 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 05 SS 5,5xL** **Hilti S-MD 05 PSS 5,5xL** with hexagon head or round head without sealing washer drilling capacity $\Sigma t_i \leq 15{,}00$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 55 S 5,5xL** **Hilti S-MD 65 S 5,5xL** **Hilti S-MD 75 S 5,5xL** stainless steel A4 - EN ISO 3506-1: 2020 **Hilti S-MD 55 SS 5,5xL** **Hilti S-MD 65 SS 5,5xL** **Hilti S-MD 75 SS 5,5xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm drilling capacity $\Sigma t_i \leq 15{,}00$ mm

Drawings and materials	**Annex 6**
Fastening of screws for metal members and sheeting	

	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MD 35 PS 5,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MD 35 PSS 5,5xL** with round head with sealing washer Ø12 mm drilling capacity $\Sigma t_i \leq 15$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MDW 01 S 6,5xL** **Hilti S-MDW 01 PS 6,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MDW 01 SS 6,5xL** **Hilti S-MDW 01 PSS 6,5xL** with hexagon head or round head without sealing washer drilling capacity $\Sigma t_i \leq 2,00$ mm
	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MDW 51 S 6,5xL** **Hilti S-MDW 61 S 6,5xL** **Hilti S-MDW 71 S 6,5xL** **Hilti S-MDW 51 PS 6,5xL** **Hilti S-MDW 61 PS 6,5xL** **Hilti S-MDW 71 PS 6,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MDW 51 SS 6,5xL** **Hilti S-MDW 61 SS 6,5xL** **Hilti S-MDW 71 SS 6,5xL** **Hilti S-MDW 51 PSS 6,5xL** **Hilti S-MDW 61 PSS 6,5xL** **Hilti S-MDW 71 PSS 6,5xL** with hexagon head or round head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm drilling capacity $\Sigma t_i \leq 2,00$ mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MP 52 S 6,3xL** **Hilti S-MP 62 S 6,3xL** **Hilti S-MP 72 S 6,3xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MP 52 SS 6,3xL** **Hilti S-MP 62 SS 6,3xL** **Hilti S-MP 72 SS 6,3xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm
	stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MP 54 S 6,3xL** **Hilti S-MP 64 S 6,3xL** **Hilti S-MP 74 S 6,3xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MP 54 SS 6,3xL** **Hilti S-MP 64 SS 6,3xL** **Hilti S-MP 74 SS 6,3xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm		stainless steel A2 – EN ISO 3506-1: 2020 **Hilti S-MP 53 S 6,5xL** **Hilti S-MP 63 S 6,5xL** **Hilti S-MP 73 S 6,5xL** stainless steel A4 – EN ISO 3506-1: 2020 **Hilti S-MP 53 SS 6,5xL** **Hilti S-MP 63 SS 6,5xL** **Hilti S-MP 73 SS 6,5xL** with hexagon head with sealing washer Ø16 mm, Ø19 mm, Ø22 mm

Drawings and materials	
Fastening of screws for metal members and sheeting	**Annex 7**

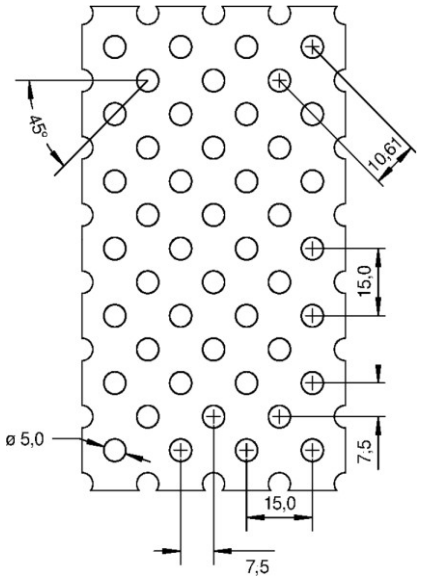


Fastening screws:	Self tapping screws from Ø 6,3 mm to Ø 6,5 mm and Self-drilling screws from Ø 5,5 mm to Ø 6,3 mm
Materials:	
Fastener:	Stainless steel – A2 or A4 – EN ISO 3506-1: 2020
Washer:	Stainless steel – A2 or A4 – EN ISO 3506-1: 2020 with EPDM sealing washer
Component I:	S280GD to S450GD – EN 10346: 2015
Component II:	According to the Annex of the fastening screw

Sheet		Perforated sheets S280GD with $R_{m,min}$ = 360 N/mm²				Perforated sheets S320GD with $R_{m,min}$ = 390 N/mm²				Perforated sheets ≥ S350GD with $R_{m,min}$ ≥ 420 N/mm²			
Ø washer [mm]		16	19	22	25	16	19	22	25	16	19	22	25
$V_{R,l,k}$ [kN] for t_I [mm]	0,75	2,16	2,22	2,24	2,38	2,34	2,40	2,44	2,58	2,54	2,60	2,62	2,78
	0,88	2,56	2,64	2,64	2,78	2,78	2,86	2,86	3,02	3,00	3,10	3,10	3,26
	1,00	2,92	3,04	3,02	3,16	3,16	3,30	3,26	3,42	3,42	3,65	3,52	3,68
	1,13	3,32	3,48	3,42	3,56	3,60	3,76	3,70	3,86	3,88	4,10	4,00	4,16
	1,25	3,70	3,88	3,80	3,94	4,00	4,20	4,10	4,26	4,32	4,54	4,42	4,60
	1,50	4,46	4,74	4,56	4,72	4,84	5,12	4,96	5,10	5,22	5,54	5,34	5,50
$N_{R,l,k}$ [kN] for t_I [mm]	0,75	1,40	1,94	2,14	2,22	1,52	2,08	3,32	2,42	1,64	2,26	2,50	2,60
	0,88	1,82	2,34	2,62	2,70	1,96	2,54	2,82	2,92	2,12	2,74	3,04	3,14
	1,00	2,24	2,74	3,06	3,14	2,44	2,96	3,32	3,42	2,62	3,20	3,58	3,68
	1,13	2,74	3,18	3,58	3,64	2,98	3,44	3,88	3,96	3,20	3,70	4,18	4,26
	1,25	3,24	3,58	4,08	4,12	3,52	3,88	4,40	4,46	3,78	4,18	4,76	4,80
	1,50	4,36	4,46	5,12	5,12	4,74	4,84	5,56	5,56	5,10	5,22	5,98	5,98

The characteristic values $N_{R,k}$ and $V_{R,k}$ can be determined according to Annex 3.
The thickness t_I shall be at least 1,00 mm if component I is exposed to wind loads.

Steel sheeting with hole pattern I	**Annex 8**
Fastening screws for perforated steel sheeting	



Fastening screws:	Self tapping screws from Ø 6,3 mm to Ø 6,5 mm and Self-drilling screws from Ø 5,5 mm to Ø 6,3 mm
Materials:	
Fastener:	Stainless steel – A2 or A4 – EN ISO 3506-1: 2020
Washer:	Stainless steel – A2 or A4 – EN ISO 506-1: 2020 with EPDM sealing washer
Component I:	S280GD to S450GD – EN 10346: 2015
Component II:	According to the Annex of the fastening screw

Sheet		Perforated sheets S280GD with $R_{m,min}$ = 360 N/mm²				Perforated sheets S320GD with $R_{m,min}$ = 390 N/mm²				Perforated sheets ≥ S350GD with $R_{m,min}$ ≥ 420 N/mm²			
Ø washer [mm]		16	19	22	25	16	19	22	25	16	19	22	25
$V_{R,I,k}$ [kN] for t_I [mm]	0,75	2,38	2,52	2,84	2,76	2,58	2,73	3,08	2,99	2,78	2,94	3,31	3,22
	0,88	3,02	3,12	3,42	3,32	3,27	3,38	3,70	3,60	3,52	3,64	3,99	3,87
	1,00	3,56	3,70	3,84	3,84	3,86	4,01	4,16	4,16	4,15	4,31	4,48	4,48
	1,13	4,14	4,26	4,40	4,40	4,48	4,61	4,77	4,77	4,83	4,97	5,13	5,13
	1,25	4,68	4,84	4,92	4,94	5,07	5,24	5,33	5,35	5,46	5,64	5,74	5,76
	1,50	5,76	6,04	5,90	6,10	6,24	6,54	6,39	6,61	6,72	7,04	6,88	7,11
$N_{R,I,k}$ [kN] for t_I [mm]	0,75	2,86	3,16	3,24	3,14	3,10	3,42	3,51	3,40	3,33	3,68	3,78	3,66
	0,88	3,40	3,72	3,76	3,70	3,68	4,03	4,07	4,01	3,96	4,34	4,38	4,31
	1,00	3,90	4,28	4,28	4,20	4,22	4,64	4,64	4,55	4,55	4,99	4,99	4,90
	1,13	4,44	4,86	4,88	4,72	4,81	5,26	5,29	5,11	5,18	5,67	5,69	5,50
	1,25	4,94	5,42	5,42	5,26	5,35	5,87	5,87	5,70	5,76	6,32	6,32	6,13
	1,50	6,00	6,60	6,60	6,38	6,50	7,15	7,15	6,91	7,00	7,70	7,70	7,44

The characteristic values $N_{R,k}$ and $V_{R,k}$ can be determined according to Annex 3.
The thickness t_I shall be at least 1,00 mm if component I is exposed to wind loads.

Steel sheeting with hole pattern II	**Annex 9**
Fastening screws for perforated steel sheeting	

Application range:

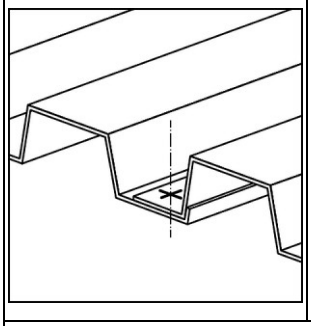
Steel S280GD to S350GD

Component I: t_I = 0,40 to 1,25 mm

Component II: t_{II} = 0,40 to 1,25 mm

Steel S280GD to S350GD

Typical application:



Fastener:

S-MS 01 S(S) 4,8 x L
S-MS 01 PS(S) 4,8 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,40		0,50		0,55		0,63		0,75		0,88		1,00		1,25	
$V_{R,k}$ [kN]	**0,40**	0,78	—	0,91	—	0,98	—	1,09	—	1,25	ac	1,25	ac	1,25	ac	1,25	ac
	0,50	0,78	—	1,00	—	1,05	—	1,13	—	1,25	ac	1,25	ac	1,25	ac	1,25	ac
	0,55	0,78	—	1,00	—	1,30	—	1,30	—	1,30	—	1,30	—	1,30	—	1,30	—
	0,63	0,78	—	1,00	—	1,30	—	1,78	—	1,78	—	1,78	—	1,78	—	1,78	—
	0,75	0,78	—	1,00	—	1,30	—	1,78	—	2,50	—	2,50	—	2,50	—	2,50	—
	0,88	0,78	—	1,00	—	1,30	—	1,78	—	2,50	—	3,47	—	3,47	—	3,47	—
	1,00	0,78	—	1,00	—	1,30	—	1,78	—	2,50	—	3,47	—	4,37	—	4,37	—
	1,25	0,78	—	1,00	—	1,30	—	1,78	—	2,50	—	3,47	—	4,37	—	4,71	—
$N_{R,k}$ [kN]	**0,40**	0,46	—	0,76	—	0,77	—	0,77	—	0,77	—	0,77	—	0,77	—	0,77	—
	0,50	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,34	—	1,34	—	1,34	—
	0,55	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,53	—	1,53	—	1,53	—
	0,63	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,60	—	1,82	—	1,82	—
	0,75	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,60	—	1,90	—	2,27	—
	0,88	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,60	—	1,90	—	2,27	—
	1,00	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,60	—	1,90	—	2,27	—
	1,25	0,46	—	0,76	—	0,86	—	1,03	—	1,27	—	1,60	—	1,90	—	2,27	—

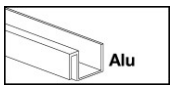
If both components I and II are made of S320GD or S350GD the grey highlighted values may be increased by 8,0%.

Self-piercing screw

Hilti S-MS 01 S 4,8 x L / Hilti S-MS 01 SS 4,8 x L
Hilti S-MS 01 PS 4,8 x L / Hilti S-MS 01 PSS 4,8 x L
with hexagon head or round head

Annex 10

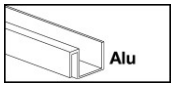
Application range:



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

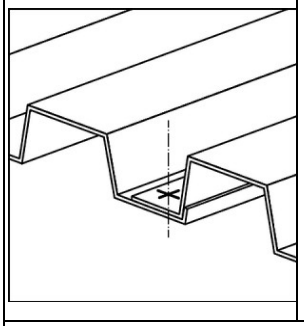
Component I: t_I = 0,50 to 1,20 mm

Component II: t_{II} = 0,50 to 1,20 mm



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Typical application:



Fastener:

S-MS 01 S(S) 4,8 x L
S-MS 01 PS(S) 4,8 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

Component I and component II made of aluminium alloy with $R_m \geq 165$ N/mm²

t_I [mm]	t_{II} [mm]					
	0,50	**0,60**	**0,70**	**0,80**	**1,00**	**1,20**
0,50	1,01	1,01	1,01	1,01	1,01	1,01
0,60	1,01	1,05	1,05	1,05	1,05	1,05
0,70	1,01	1,05	1,08	1,08	1,08	1,08
0,80	1,01	1,05	1,08	1,12	1,12	1,12
1,00	1,01	1,05	1,08	1,12	1,72	1,72
1,20	1,01	1,05	1,08	1,12	1,72	2,03
$N_{R,II,k}$ [kN]	0,27	0,38	0,48	0,59	0,76	1,03

$V_{R,k}$ [kN]

Component I and component II made of aluminium alloy with $R_m \geq 215$ N mm²

t_I [mm]	t_{II} [mm]					
	0,50	**0,60**	**0,70**	**0,80**	**1,00**	**1,20**
0,50	1,32	1,32	1,32	1,32	1,32	1,32
0,60	1,32	1,37	1,37	1,37	1,37	1,37
0,70	1,32	1,37	1,41	1,41	1,41	1,41
0,80	1,32	1,37	1,41	1,46	1,46	1,46
1,00	1,32	1,37	1,41	1,46	2,25	2,25
1,20	1,32	1,37	1,41	1,46	2,25	2,53
$N_{R,II,k}$ [kN]	0,35	0,49	0,63	0,77	1,00	1,29

$V_{R,k}$ [kN]

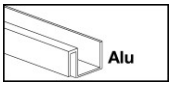
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-piercing screw

Hilti S-MS 01 S 4,8 x L / Hilti S-MS 01 SS 4,8 x L
Hilti S-MS 01 PS 4,8 x L / Hilti S-MS 01 PSS 4,8 x L
with hexagon head or round head

Annex 11

Application range:



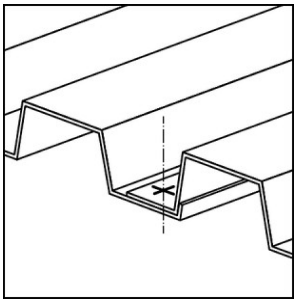
Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Component I: t_I = 0,50 to 1,20 mm

Component II: t_{II} = 0,50 to 1,25 mm

Steel S280GD to S350GD

Typical application:



Fastener:

S-MS 01 S(S) 4,8 x L
S-MS 01 PS(S) 4,8 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

Component I of aluminium alloy with $R_m \geq 165$ N/mm²

t_I [mm]		t_{II} [mm] 0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,50**	1,01 —	1,01 —	1,01 —	1,01 —	1,01 —	1,01 —	1,01 —
	0,60	1,01 —	1,01 —	1,05 —	1,05 —	1,05 —	1,05 —	1,05 —
	0,70	1,01 —	1,01 —	1,05 —	1,08 —	1,08 —	1,08 —	1,08 —
	0,80	1,01 —	1,01 —	1,05 —	1,08 —	1,12 —	1,12 —	1,12 —
	1,00	1,01 —	1,01 —	1,05 —	1,08 —	1,12 —	1,72 —	1,72 —
	1,20	1,01 —	1,01 —	1,05 —	1,08 —	1,12 —	1,72 —	2,03 —
$N_{R,II,k}$ [kN]		0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —

Component I of aluminium alloy with $R_m \geq 215$ N/mm²

t_I [mm]		t_{II} [mm] 0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,50**	1,32 —	1,32 —	1,32 —	1,32 —	1,32 —	1,32 —	1,32 —
	0,60	1,32 —	1,32 —	1,37 —	1,37 —	1,37 —	1,37 —	1,37 —
	0,70	1,32 —	1,32 —	1,37 —	1,41 —	1,41 —	1,41 —	1,41 —
	0,80	1,32 —	1,32 —	1,37 —	1,41 —	1,46 —	1,46 —	1,46 —
	1,00	1,32 —	1,32 —	1,37 —	1,41 —	1,46 —	2,25 —	2,25 —
	1,20	1,32 —	1,32 —	1,37 —	1,41 —	1,46 —	2,25 —	2,53 —
$N_{R,II,k}$ [kN]		0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —

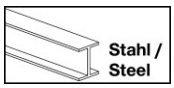
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-piercing screw

Hilti S-MS 01 S 4,8 x L / Hilti S-MS 01 SS 4,8 x L
Hilti S-MS 01 PS 4,8 x L / Hilti S-MS 01 PSS 4,8 x L
with hexagon head or round head

Annex 12

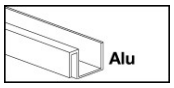
Application range:



Steel S280GD to S350GD

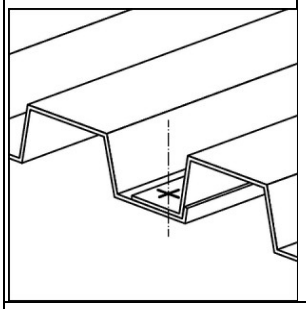
Component I: t_I = 0,40 to 1,25 mm

Component II: t_{II} = 0,50 to 1,20 mm



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Typical application:



Fastener:

S-MS 01 S(S) 4,8 x L
S-MS 01 PS(S) 4,8 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

Component II made of aluminium alloy with $R_m \geq 165$ N/mm²

t_I [mm]	t_{II} [mm]					
	0,50	**0,60**	**0,70**	**0,80**	**1,00**	**1,20**
0,40	1,01	1,05	1,08	1,08	1,08	1,08
0,50	1,01	1,05	1,08	1,12	1,72	1,72
0,55	1,01	1,05	1,08	1,12	1,72	1,84
0,63	1,01	1,05	1,08	1,12	1,72	2,03
0,75	1,01	1,05	1,08	1,12	1,72	2,03
0,88	1,01	1,05	1,08	1,12	1,72	2,03
0,40	0,27	0,38	0,48	0,59	0,76	0,77
0,50	0,27	0,38	0,48	0,59	0,76	1,03
0,55	0,27	0,38	0,48	0,59	0,76	1,03
0,63	0,27	0,38	0,48	0,59	0,76	1,03
0,75	0,27	0,38	0,48	0,59	0,76	1,03
0,88	0,27	0,38	0,48	0,59	0,76	1,03
1,00	0,27	0,38	0,48	0,59	0,76	1,03
1,25	0,27	0,38	0,48	0,59	0,76	1,03

Component II made of aluminium alloy with $R_m \geq 215$ N/mm²

t_I [mm]	t_{II} [mm]					
	0,50	**0,60**	**0,70**	**0,80**	**1,00**	**1,20**
0,40	1,32	1,37	1,37	1,37	1,37	1,37
0,50	1,32	1,37	1,41	1,41	1,41	1,41
0,55	1,32	1,37	1,41	1,46	1,46	1,46
0,63	1,32	1,37	1,41	1,46	2,25	2,25
0,75	1,32	1,37	1,41	1,46	2,25	2,53
0,88	1,32	1,37	1,41	1,46	2,25	2,53
0,40	0,35	0,49	0,63	0,77	0,77	0,77
0,50	0,35	0,49	0,63	0,77	1,00	1,29
0,55	0,35	0,49	0,63	0,77	1,00	1,29
0,63	0,35	0,49	0,63	0,77	1,00	1,29
0,75	0,35	0,49	0,63	0,77	1,00	1,29
0,88	0,35	0,49	0,63	0,77	1,00	1,29
1,00	0,35	0,49	0,63	0,77	1,00	1,29
1,25	0,35	0,49	0,63	0,77	1,00	1,29

Self-piercing screw

Hilti S-MS 01 S 4,8 x L / Hilti S-MS 01 SS 4,8 x L
Hilti S-MS 01 PS 4,8 x L / Hilti S-MS 01 PSS 4,8 x L
with hexagon head or round head

Annex 13

Application range:

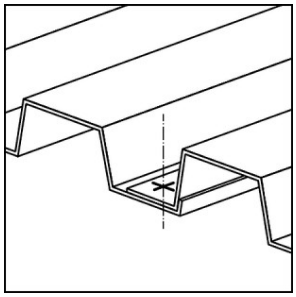
Steel S280GD to S350GD

Component I: t_I = 0,40 to 1,25 mm

Component II: t_{II} = 0,40 to 1,25 mm

Steel S280GD to S350GD

Typical application:



Fastener:

S-MS 41 S(S) 4,8 x L
S-MS 51 S(S) 4,8 x L
S-MS 41 PS(S) 4,8 x L
S-MS 51 PS(S) 4,8 x L

Washer: Ø14 / Ø16

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,40**	0,81 —	0,87 —	0,90 —	0,95 —	1,03 ac	1,03 ac	1,03 ac	1,03 ac
	0,50	0,81 —	1,01 —	1,01 —	1,02 —	1,03 ac	1,03 ac	1,03 ac	1,03 ac
	0,55	0,81 —	1,01 —	1,26 —	1,26 —	1,26 —	1,26 —	1,26 —	1,26 —
	0,63	0,81 —	1,01 —	1,26 —	1,66 —	1,66 —	1,66 —	1,66 —	1,66 —
	0,75	0,81 —	1,01 —	1,26 —	1,66 —	2,26 —	2,26 —	2,26 —	2,26 —
	0,88	0,81 —	1,01 —	1,26 —	1,66 —	2,26 —	2,77 —	2,77 —	2,77 —
	1,00	0,81 —	1,01 —	1,26 —	1,66 —	2,26 —	2,77 —	3,24 —	3,24 —
	1,25	0,81 —	1,01 —	1,26 —	1,66 —	2,26 —	2,77 —	3,24 —	4,24 —
$N_{R,k}$ [kN]	**0,40**	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,43 —	1,43 —	1,43 —
	0,50	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,80 —	1,80 —
	0,55	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	1,90 —
	0,63	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,34 —
	0,75	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	0,88	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	1,00	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	1,25	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —

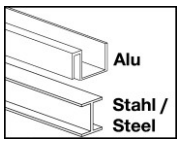
If both components I and II are made of S320GD or S350GD the grey highlighted values may be increased by 8,0%.

Self-piercing screw

Hilti S-MS 41/51 S 4,8 x L / Hilti S-MS 41/51 SS 4,8 x L
Hilti S-MS 41/51 PS 4,8 x L / Hilti S-MS 41/51 PSS 4,8 x L
with hexagon head or round head and sealing washer ≥ Ø14 mm

Annex 14

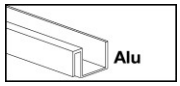
Application range:



Aluminium alloy with R_m ≥ 165 N/mm²
Aluminium alloy with R_m ≥ 215 N/mm²
Steel S280GD to S350GD

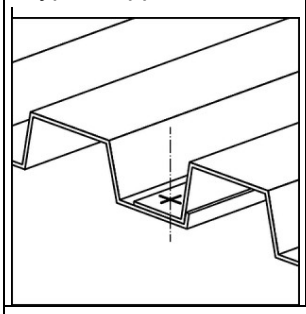
Component I: t_I = 0,50 to 1,20 mm

Component II: t_{II} = 0,50 to 1,20 mm



Aluminium alloy with R_m ≥ 165 N/mm²
Aluminium alloy with R_m ≥ 215 N/mm²

Typical application:



Fastener:

S-MS 41 S(S) 4,8 x L
S-MS 51 S(S) 4,8 x L
S-MS 41 PS(S) 4,8 x L
S-MS 51 PS(S) 4,8 x L

Washer: Ø14 / Ø16

Drilling capacity in metal: Σt_i ≤ 2,50 mm

Performance for timber substructures not determined

Component I made of steel or aluminium alloy with R_m ≥ 165 N/mm²
Component II made of aluminium alloy with R_m ≥ 165 N/mm²

	t_I [mm]	t_{II} [mm] 0,50	0,60	0,70	0,80	1,00	1,20
$V_{R,k}$ [kN]	0,50	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —
	0,60	0,55 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —
	0,70	0,55 —	0,71 —	0,88 —	0,88 —	0,88 —	0,88 —
	0,80	0,55 —	0,71 —	0,88 —	1,04 —	1,04 —	1,04 —
	1,00	0,55 —	0,71 —	0,88 —	1,04 —	1,44 —	1,44 —
	1,20	0,55 —	0,71 —	0,88 —	1,04 —	1,44 —	1,83 —
$N_{R,k}$ [kN]	0,50	0,27 —	0,38 —	0,40 —	0,40 —	0,40 —	0,40 —
	0,60	0,27 —	0,38 —	0,48 —	0,48 —	0,48 —	0,48 —
	0,70	0,27 —	0,38 —	0,48 —	0,56 —	0,56 —	0,56 —
	0,80	0,27 —	0,38 —	0,48 —	0,59 —	0,64 —	0,64 —
	1,00	0,27 —	0,38 —	0,48 —	0,59 —	0,76 —	0,80 —
	1,20	0,27 —	0,38 —	0,48 —	0,59 —	0,76 —	0,96 —
$N_{R,II,k}$ [kN]		0,27	0,38	0,48	0,59	0,76	1,03

Component I made of steel or aluminium alloy with R_m ≥ 215 N/mm²
Component II made of aluminium alloy with R_m ≥ 215 N/mm²

	t_I [mm]	t_{II} [mm] 0,50	0,60	0,70	0,80	1,00	1,20
$V_{R,k}$ [kN]	0,50	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —
	0,60	0,71 —	0,92 —	0,92 —	0,92 —	0,92 —	0,92 —
	0,70	0,71 —	0,92 —	1,14 —	1,14 —	1,14 —	1,14 —
	0,80	0,71 —	0,92 —	1,14 —	1,35 —	1,35 —	1,35 —
	1,00	0,71 —	0,92 —	1,14 —	1,35 —	1,88 —	1,88 —
	1,20	0,71 —	0,92 —	1,14 —	1,35 —	1,88 —	2,28 —
$N_{R,k}$ [kN]	0,50	0,35 —	0,49 —	0,52 —	0,52 —	0,52 —	0,52 —
	0,60	0,35 —	0,49 —	0,63 —	0,63 —	0,63 —	0,63 —
	0,70	0,35 —	0,49 —	0,63 —	0,73 —	0,73 —	0,73 —
	0,80	0,35 —	0,49 —	0,63 —	0,77 —	0,84 —	0,84 —
	1,00	0,35 —	0,49 —	0,63 —	0,77 —	1,00 —	1,05 —
	1,20	0,35 —	0,49 —	0,63 —	0,77 —	1,00 —	1,26 —
$N_{R,II,k}$ [kN]		0,35	0,49	0,63	0,77	1,00	1,29

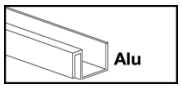
The grey highlighted values $N_{R,k}$ may be increased by 6,9% when using the type „S-MS 5x“.

Self-piercing screw

Hilti S-MS 41/51 S 4,8 x L / Hilti S-MS 41/51 SS 4,8 x L
Hilti S-MS 41/51 PS 4,8 x L / Hilti S-MS 41/51 PSS 4,8 x L
with hexagon head or round head and sealing washer ≥ Ø14 mm

Annex 15

Application range:



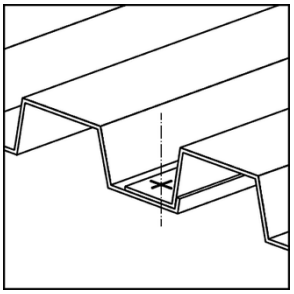
Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Component I: t_I = 0,50 to 1,20 mm

Component II: t_{II} = 0,50 to 1,25 mm

Steel S280GD to S350GD

Typical application:



Fastener:

S-MS 41 S(S) 4,8 x L
S-MS 51 S(S) 4,8 x L
S-MS 41 PS(S) 4,8 x L
S-MS 51 PS(S) 4,8 x L

Washer: Ø14 / Ø16

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

Component I of aluminium alloy with $R_m \geq 165$ N/mm²

	t_I [mm]	t_{II} [mm] 0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,50**	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —
	0,60	0,55 —	0,55 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —
	0,70	0,55 —	0,55 —	0,71 —	0,88 —	0,88 —	0,88 —	0,88 —
	0,80	0,55 —	0,55 —	0,71 —	0,88 —	1,04 —	1,04 —	1,04 —
	1,00	0,55 —	0,55 —	0,71 —	0,88 —	1,04 —	1,44 —	1,44 —
	1,20	0,55 —	0,55 —	0,71 —	0,88 —	1,04 —	1,44 —	1,83 —
$N_{R,k}$ [kN]	**0,50**	0,40 —	0,40 —	0,40 —	0,40 —	0,40 —	0,40 —	0,40 —
	0,60	0,48 —	0,48 —	0,48 —	0,48 —	0,48 —	0,48 —	0,48 —
	0,70	0,56 —	0,56 —	0,56 —	0,56 —	0,56 —	0,56 —	0,56 —
	0,80	0,64 —	0,64 —	0,64 —	0,64 —	0,64 —	0,64 —	0,64 —
	1,00	0,76 —	0,80 —	0,80 —	0,80 —	0,80 —	0,80 —	0,80 —
	1,20	0,76 —	0,87 —	0,96 —	0,96 —	0,96 —	0,96 —	0,96 —
$N_{R,II,k}$ [kN]		0,76	0,87	1,04	1,29	1,56	1,82	2,34

Component I of aluminium alloy with $R_m \geq 215$ N/mm²

	t_I [mm]	t_{II} [mm] 0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,50**	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —
	0,60	0,71 —	0,71 —	0,92 —	0,92 —	0,92 —	0,92 —	0,92 —
	0,70	0,71 —	0,71 —	0,92 —	1,14 —	1,14 —	1,14 —	1,14 —
	0,80	0,71 —	0,71 —	0,92 —	1,14 —	1,35 —	1,35 —	1,35 —
	1,00	0,71 —	0,71 —	0,92 —	1,14 —	1,35 —	1,88 —	1,88 —
	1,20	0,71 —	0,71 —	0,92 —	1,14 —	1,35 —	1,88 —	2,28 —
$N_{R,k}$ [kN]	**0,50**	0,52 —	0,52 —	0,52 —	0,52 —	0,52 —	0,52 —	0,52 —
	0,60	0,63 —	0,63 —	0,63 —	0,63 —	0,63 —	0,63 —	0,63 —
	0,70	0,73 —	0,73 —	0,73 —	0,73 —	0,73 —	0,73 —	0,73 —
	0,80	0,76 —	0,84 —	0,84 —	0,84 —	0,84 —	0,84 —	0,84 —
	1,00	0,76 —	0,87 —	1,04 —	1,05 —	1,05 —	1,05 —	1,05 —
	1,20	0,76 —	0,87 —	1,04 —	1,26 —	1,26 —	1,26 —	1,26 —
$N_{R,II,k}$ [kN]		0,76	0,87	1,04	1,29	1,56	1,82	2,34

The grey highlighted values $N_{R,k}$ may be increased by 6,9% when using the type „S-MS 5x“.

Self-piercing screw

Hilti S-MS 41/51 S 4,8 x L / Hilti S-MS 41/51 SS 4,8 x L
Hilti S-MS 41/51 PS 4,8 x L / Hilti S-MS 41/51 PSS 4,8 x L
with hexagon head or round head and sealing washer ≥ Ø14 mm

Annex 16

Application range:

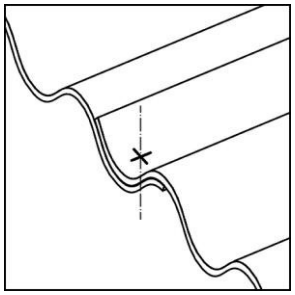
Steel S280GD to S350GD

Component I: t_I = 0,40 to 1,25 mm

Component II: t_{II} = 0,40 to 1,25 mm

Steel S280GD to S350GD

Typical application:



Fastener:

S-MS 31 PS(S) 4,8 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,40**	0,68 —	0,75 —	0,79 —	0,85 —	0,94 —	0,94 —	0,94 —	0,94 —
	0,50	0,68 —	0,94 —	0,94 —	0,94 —	0,94 —	0,94 —	0,94 —	0,94 —
	0,55	0,68 —	0,94 —	1,23 —	1,23 —	1,23 —	1,23 —	1,23 —	1,23 —
	0,63	0,68 —	0,94 —	1,23 —	1,70 —	1,70 —	1,70 —	1,70 —	1,70 —
	0,75	0,68 —	0,94 —	1,23 —	1,70 —	2,40 —	2,40 —	2,40 —	2,40 —
	0,88	0,68 —	0,94 —	1,23 —	1,70 —	2,40 —	2,95 —	2,95 —	2,95 —
	1,00	0,68 —	0,94 —	1,23 —	1,70 —	2,40 —	2,95 —	3,46 —	3,46 —
	1,25	0,68 —	0,94 —	1,23 —	1,70 —	2,40 —	2,95 —	3,46 —	4,17 —
$N_{R,k}$ [kN]	**0,40**	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,49 —	1,49 —	1,49 —
	0,50	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	1,93 —
	0,55	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,19 —
	0,63	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	0,75	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	0,88	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	1,00	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —
	1,25	0,46 —	0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —

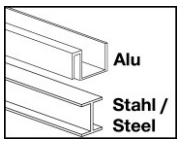
If both components I and II are made of S320GD or S350GD the grey highlighted values may be increased by 8,0%.

Self-piercing screw

Hilti S-MS 31 PS 4,8 x L / Hilti S-MS 31 PSS 4,8 x L
with round head and sealing washer Ø12 mm

Annex 17

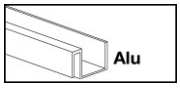
Application range:



Aluminium alloy with R_m ≥ 165 N/mm²
Aluminium alloy with R_m ≥ 215 N/mm²
Steel S280GD to S350GD

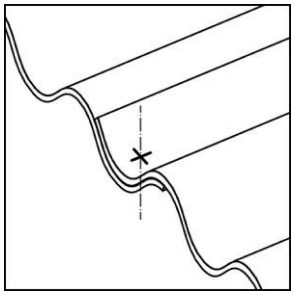
Component I: t_I = 0,50 to 1,20 mm

Component II: t_{II} = 0,50 to 1,20 mm



Aluminium alloy with R_m ≥ 165 N/mm²
Aluminium alloy with R_m ≥ 215 N/mm²

Typical application:



Fastener:

S-MS 31 PS(S) 4,8 x L

Washer: Ø12

Drilling capacity in metal: Σt_i ≤ 2,50 mm

Performance for timber substructures not determined

Component I made of steel or aluminium alloy with R_m ≥ 165 N/mm²
Component II made of aluminium alloy with R_m ≥ 165 N/mm²

t_I [mm]		t_{II} [mm] 0,50	0,60	0,70	0,80	1,00	1,20
$V_{R,k}$ [kN]	**0,50**	0,45 —	0,45 —	0,45 —	0,45 —	0,45 —	0,45 —
	0,60	0,45 —	0,63 —	0,63 —	0,63 —	0,63 —	0,63 —
	0,70	0,45 —	0,63 —	0,82 —	0,82 —	0,82 —	0,82 —
	0,80	0,45 —	0,63 —	0,82 —	1,00 —	1,00 —	1,00 —
	1,00	0,45 —	0,63 —	0,82 —	1,00 —	1,44 —	1,44 —
	1,20	0,45 —	0,63 —	0,82 —	1,00 —	1,44 —	1,77 —
$N_{R,II,k}$ [kN]		0,27 —	0,38 —	0,48 —	0,59 —	0,76 —	1,03 —

Component I made of steel or aluminium alloy with R_m ≥ 215 N/mm²
Component II made of aluminium alloy with R_m ≥ 215 N/mm²

t_I [mm]		t_{II} [mm] 0,50	0,60	0,70	0,80	1,00	1,20
$V_{R,k}$ [kN]	**0,50**	0,59 —	0,59 —	0,59 —	0,59 —	0,59 —	0,59 —
	0,60	0,59 —	0,83 —	0,83 —	0,83 —	0,83 —	0,83 —
	0,70	0,59 —	0,83 —	1,07 —	1,07 —	1,07 —	1,07 —
	0,80	0,59 —	0,83 —	1,07 —	1,31 —	1,31 —	1,31 —
	1,00	0,59 —	0,83 —	1,07 —	1,31 —	1,87 —	1,87 —
	1,20	0,59 —	0,83 —	1,07 —	1,31 —	1,87 —	2,21 —
$N_{R,II,k}$ [kN]		0,35 —	0,49 —	0,63 —	0,77 —	1,00 —	1,29 —

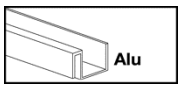
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-piercing screw

Hilti S-MS 31 PS 4,8 x L / Hilti S-MS 31 PSS 4,8 x L
with round head and sealing washer Ø12 mm

Annex 18

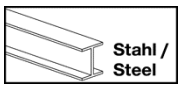
Application range:



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

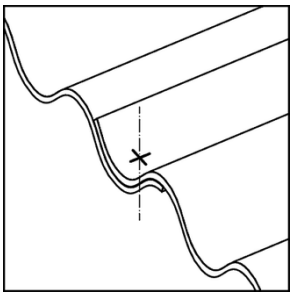
Component I: t_I = 0,50 to 1,20 mm

Component II: t_{II} = 0,50 to 1,25 mm



Steel S280GD to S350GD

Typical application:



Fastener:

S-MS 31 PS(S) 4,8 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 2{,}50$ mm

Performance for timber substructures not determined

Component I of aluminium alloy with $R_m \geq 165$ N/mm²

t_I [mm]		t_{II} [mm] 0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,50**	0,45 —	0,45 —	0,45 —	0,45 —	0,45 —	0,45 —	0,45 —
	0,60	0,45 —	0,45 —	0,63 —	0,63 —	0,63 —	0,63 —	0,63 —
	0,70	0,45 —	0,45 —	0,63 —	0,82 —	0,82 —	0,82 —	0,82 —
	0,80	0,45 —	0,45 —	0,63 —	0,82 —	1,00 —	1,00 —	1,00 —
	1,00	0,45 —	0,45 —	0,63 —	0,82 —	1,00 —	1,44 —	1,44 —
	1,20	0,45 —	0,45 —	0,63 —	0,82 —	1,00 —	1,44 —	1,77 —
$N_{R,II,k}$ [kN]		0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —

$V_{R,k}$ [kN]

Component I of aluminium alloy with $R_m \geq 215$ N/mm²

t_I [mm]		t_{II} [mm] 0,50	0,55	0,63	0,75	0,88	1,00	1,25
$V_{R,k}$ [kN]	**0,50**	0,59 —	0,59 —	0,59 —	0,59 —	0,59 —	0,59 —	0,59 —
	0,60	0,59 —	0,59 —	0,83 —	0,83 —	0,83 —	0,83 —	0,83 —
	0,70	0,59 —	0,59 —	0,83 —	1,07 —	1,07 —	1,07 —	1,07 —
	0,80	0,59 —	0,59 —	0,83 —	1,07 —	1,31 —	1,31 —	1,31 —
	1,00	0,59 —	0,59 —	0,83 —	1,07 —	1,31 —	1,87 —	1,87 —
	1,20	0,59 —	0,59 —	0,83 —	1,07 —	1,31 —	1,87 —	2,21 —
$N_{R,II,k}$ [kN]		0,76 —	0,86 —	1,03 —	1,27 —	1,60 —	1,90 —	2,49 —

$N_{R,k}$ [kN]

Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-piercing screw

Hilti S-MS 31 PS 4,8 x L / Hilti S-MS 31 PSS 4,8 x L
with round head and sealing washer Ø12 mm

Annex 19

Application range:

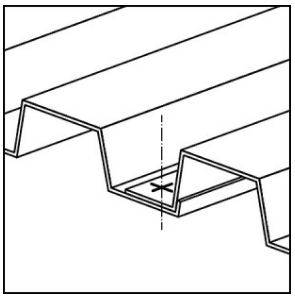
Steel S280GD to S350GD

Component I: t_I = 0,63 to 1,25 mm

Component II: t_{II} = 0,63 to 1,25 mm

Steel S235 to S355
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 01 S(S) 4,8 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 2{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00	
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	1,00	—	1,50	—	1,80	—	2,00	a	2,00	a	2,00	a	—	—	—	—
0,75	1,00	—	1,80	—	2,10	—	2,40	—	2,40	a	2,40	a	—	—	—	—
0,88	1,20	—	1,90	—	2,30	—	2,80	—	2,80	—	—	—	—	—	—	—
1,00	1,40	—	2,10	—	2,60	—	3,10	—	—	—	—	—	—	—	—	—
1,13	1,40	—	2,10	—	2,60	—	—	—	—	—	—	—	—	—	—	—
1,25	1,40	—	2,10	—	—	—	—	—	—	—	—	—	—	—	—	—
1,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1,75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	0,80	—	1,00	—	1,20	—	1,40	a	1,70	a	1,70	a	—	—	—	—
0,75	0,80	—	1,00	—	1,20	—	1,40	—	1,70	a	2,00	a	—	—	—	—
0,88	0,80	—	1,00	—	1,20	—	1,40	—	1,70	—	—	—	—	—	—	—
1,00	0,80	—	1,00	—	1,20	—	1,40	—	—	—	—	—	—	—	—	—
1,13	0,80	—	1,00	—	1,20	—	—	—	—	—	—	—	—	—	—	—
1,25	0,80	—	1,00	—	—	—	—	—	—	—	—	—	—	—	—	—
1,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1,75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]	5 Nm															

Self-drilling screw

Hilti S-MD 01 S 4,8 x L / Hilti S-MD 01 SS 4,8 x L
with hexagon head

Annex 20

Application range:

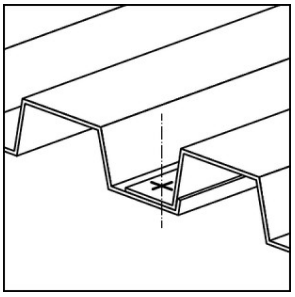
Steel S280GD to S320GD

Component I: t_I = 0,63 to 1,25 mm

Component II: t_{II} = 0,63 to 1,25 mm

Steel S235 to S355
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 51 S(S) 4,8 x L
S-MD 61 S(S) 4,8 x L

Washer: Ø16 / Ø19

Drilling capacity in metal: $\Sigma t_i \leq 2{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,00	—	1,50	—	1,80	—	2,00	a	2,00	a	2,00	a	—	—	—	—
	0,75	1,00	—	1,80	—	2,10	—	2,40	—	2,40	a	2,40	a	—	—	—	—
	0,88	1,20	—	1,90	—	2,30	—	2,80	—	2,80	—	—	—	—	—	—	—
	1,00	1,40	—	2,10	—	2,60	—	3,10	—	—	—	—	—	—	—	—	—
	1,13	1,40	—	2,10	—	2,60	—	—	—	—	—	—	—	—	—	—	—
	1,25	1,40	—	2,10	—	—	—	—	—	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,43	—	0,54	—	0,65	—	0,76	a	0,92	a	1,08	a	—	—	—	—
	0,55	0,55	—	0,68	—	0,82	—	0,95	a	1,16	a	1,36	a	—	—	—	—
	0,63	0,80	—	1,00	—	1,20	—	1,40	a	1,70	a	2,00	a	—	—	—	—
	0,75	0,80	—	1,00	—	1,20	—	1,40	—	1,70	a	2,00	a	—	—	—	—
	0,88	0,80	—	1,00	—	1,20	—	1,40	—	1,70	—	—	—	—	—	—	—
	1,00	0,80	—	1,00	—	1,20	—	1,40	—	—	—	—	—	—	—	—	—
	1,13	0,80	—	1,00	—	1,20	—	—	—	—	—	—	—	—	—	—	—
	1,25	0,80	—	1,00	—	—	—	—	—	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															

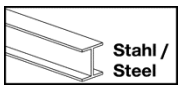
If both components I and II are made of S320GD or S350GD the grey highlighted values may be increased by 8,0%.

Self-drilling screw

Hilti S-MD 51/61 S 4,8 x L / Hilti S-MD 51/61 SS 4,8 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 21

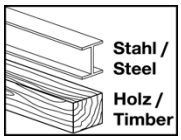
Application range:



Steel S280GD to S350GD

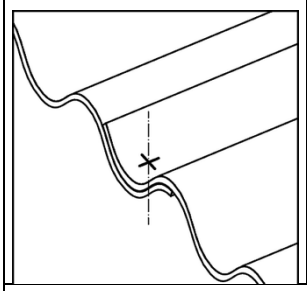
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,63 to 2,00 mm



Steel S235
Steel S280GD to S350GD
Structural timber

Typical application:



Fastener:

S-MD 31 PS(S) 4,8 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 2{,}75$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 4,429 Nm
$f_{ax,k}$ = 8,575 N/mm² for C24 and $l_{ef} \geq 20{,}0$ mm

	t_I [mm]	t_{II} [mm]											$V_{R,I,k}$ / $N_{R,I,k}$
		0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75	2,00	
$V_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	1,36
	0,55	—	—	—	—	—	—	—	—	—	—	—	2,22
	0,63	—	—	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12	2,22
	0,75	—	—	1,12	1,31	1,31	1,31	1,31	1,31	1,31	1,31	1,31	2,22
	0,88	—	—	1,12	1,31	1,92	1,92	1,92	1,92	1,92	1,92	—	2,22
	1,00	—	—	1,12	1,31	1,92	2,53	2,53	2,53	2,53	2,53	—	2,22
	1,13	—	—	1,12	1,31	1,92	2,53	2,53	2,53	2,53	—	—	2,22
	1,25	—	—	1,12	1,31	1,92	2,53	2,53	2,53	2,53	—	—	2,22
	1,50	—	—	1,12	1,31	1,92	2,53	2,53	2,53	—	—	—	2,22
	1,75	—	—	1,12	1,31	1,92	2,53	—	—	—	—	—	2,22
	2,00	—	—	1,12	1,31	—	—	—	—	—	—	—	2,22
$N_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	2,34
	0,55	—	—	—	—	—	—	—	—	—	—	—	2,34
	0,63	—	—	0,59	0,87	1,12	1,37	1,37	1,37	1,37	1,37	1,37	2,34
	0,75	—	—	0,59	0,87	1,12	1,37	1,37	1,37	1,37	1,37	1,37	2,34
	0,88	—	—	0,59	0,87	1,12	1,37	1,37	1,37	1,37	1,37	—	2,34
	1,00	—	—	0,59	0,87	1,12	1,37	1,37	1,37	1,37	1,37	—	2,34
	1,13	—	—	0,59	0,87	1,12	1,37	1,37	1,37	1,37	—	—	2,34
	1,25	—	—	0,59	0,87	1,12	1,37	1,37	1,37	1,37	—	—	2,34
	1,50	—	—	0,59	0,87	1,12	1,37	1,37	1,37	—	—	—	2,34
	1,75	—	—	0,59	0,87	1,12	1,37	—	—	—	—	—	2,34
	2,00	—	—	0,59	0,87	—	—	—	—	—	—	—	2,34

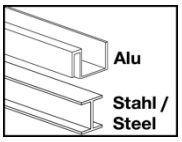
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MD 31 PS 4,8 x L / Hilti S-MD 31 PSS 4,8 x L
with round head and sealing washer Ø12 mm

Annex 22

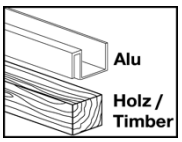
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²
Steel S280GD to S350GD

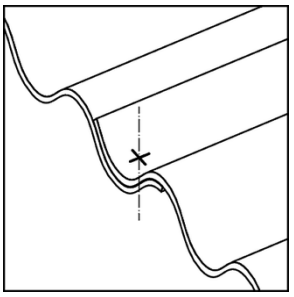
Component I: t_I = 0,50 to 1,50 mm

Component II: t_{II} = 0,50 to 1,50 mm



Aluminium alloy with $R_m \geq 185$ N/mm²
Structural timber

Typical application:



Fastener:

S-MD 31 PS(S) 4,8 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 2{,}75$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 4,429 Nm
$f_{ax,k}$ = 8,575 N/mm² for C24 and $l_{ef} \geq 20{,}0$ mm

	t_I [mm]	t_{II} [mm]											$V_{R,I,k}$
		0,50	**0,60**	**0,70**	**0,80**	**0,90**	**1,00**	**1,10**	**1,20**	**1,30**	**1,40**	**1,50**	$N_{R,I,k}$
$V_{R,k}$ [kN]	**0,50**	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,31	0,79
	0,60	0,31	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,42	0,93
	0,70	0,31	0,42	0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53	1,06
	0,80	0,31	0,42	0,53	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,28
	0,90	0,31	0,42	0,53	0,70	0,88	0,88	0,88	0,88	0,88	0,88	0,88	1,49
	1,00	0,31	0,42	0,53	0,70	0,88	1,05	1,05	1,05	1,05	1,05	1,05	1,71
	1,10	0,31	0,42	0,53	0,70	0,88	1,05	1,05	1,05	1,05	1,05	1,05	1,71
	1,20	0,31	0,42	0,53	0,70	0,88	1,05	1,05	1,05	1,05	1,05	1,05	1,71
	1,30	0,31	0,42	0,53	0,70	0,88	1,05	1,05	1,05	1,05	1,05	—	1,71
	1,40	0,31	0,42	0,53	0,70	0,88	1,05	1,05	1,05	1,05	—	—	1,71
	1,50	0,31	0,42	0,53	0,70	0,88	1,05	1,05	1,05	—	—	—	1,71
$N_{R,k}$ [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	0,61
	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
	0,70	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,83	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	0,99
	0,90	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,91	1,00	1,05	1,19
	1,00	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,91	1,00	1,05	1,42
	1,10	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,91	1,00	1,05	1,70
	1,20	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,91	1,00	1,05	2,02
	1,30	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,91	1,00	—	2,02
	1,40	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	0,91	—	—	2,02
	1,50	0,17	0,26	0,35	0,46	0,55	0,61	0,73	0,82	—	—	—	2,02

The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MD 31 PS 4,8 x L / Hilti S-MD 31 PSS 4,8 x L
with round head and sealing washer Ø12 mm

Annex 23

Application range:

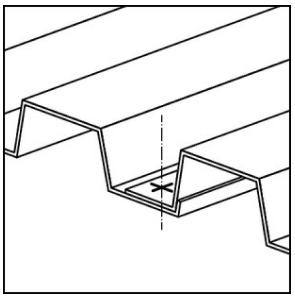
Steel S280GD to S350GD

Component I: t_I = 0,63 to 1,50 mm

Component II: t_{II} = 0,63 to 2,00 mm

Steel S235 to S355
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 01 S(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,00	—	1,30	—	1,70	—	2,00	—	2,40	—	2,80	ac	3,00	ac	3,00	a
	0,75	1,30	—	1,80	—	2,10	—	2,40	—	2,70	—	3,00	—	3,80	—	3,80	a
	0,88	1,30	—	1,80	—	2,10	—	2,70	—	2,70	—	3,00	—	3,80	—	4,50	—
	1,00	1,30	—	1,80	—	2,40	—	3,00	—	3,00	—	3,00	—	3,80	—	5,20	—
	1,13	1,30	—	1,80	—	2,40	—	3,40	—	3,40	—	3,40	—	4,40	—	—	—
	1,25	1,40	—	1,80	—	2,80	—	3,80	—	3,90	—	4,10	—	5,00	—	—	—
	1,50	1,40	—	1,80	—	2,80	—	3,80	—	3,90	—	4,70	—	5,00	—	—	—
	1,75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,70	ac	1,70	ac	1,70	a
	0,75	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,30	—	2,30	a
	0,88	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	2,90	—
	1,00	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	3,50	—
	1,13	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	—	—
	1,25	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	—	—
	1,50	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	—	—
	1,75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 01 S 5,5 x L / Hilti S-MD 01 SS 5,5 x L
with hexagon head

Annex 24

Application range:

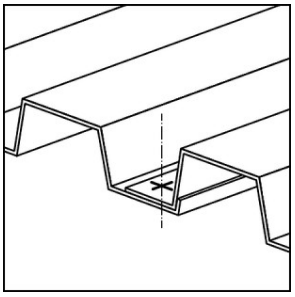
Steel S280GD to S320GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 2,00 mm

Steel S235
Steel S280GD to S320GD

Typical application:



Fastener:

S-MD 51 S(S) 5,5 x L

Washer: Ø16

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,00	—	1,30	—	1,70	—	2,00	—	2,40	—	2,80	ac	3,00	ac	3,00	a
	0,75	1,30	—	1,80	—	2,10	—	2,40	—	2,70	—	3,00	—	3,80	—	3,80	a
	0,88	1,30	—	1,80	—	2,10	—	2,70	—	2,70	—	3,00	—	3,80	—	4,50	—
	1,00	1,30	—	1,80	—	2,40	—	3,00	—	3,00	—	3,00	—	3,80	—	5,20	—
	1,13	1,30	—	1,80	—	2,40	—	3,40	—	3,40	—	3,40	—	4,40	—	—	—
	1,25	1,40	—	1,80	—	2,80	—	3,80	—	3,90	—	4,10	—	5,00	—	—	—
	1,50	1,40	—	1,80	—	2,80	—	3,80	—	3,90	—	4,70	—	5,00	—	—	—
	1,75	1,40	—	1,80	—	2,80	—	3,80	—	3,90	—	4,70	—	—	—	—	—
	2,00	1,40	—	1,80	—	2,80	—	3,80	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,38	—	0,49	—	0,59	—	0,76	—	0,92	—	1,03	ac	1,24	ac	1,24	a
	0,55	0,48	—	0,61	—	0,75	—	0,95	—	1,16	—	1,30	ac	1,57	ac	1,57	a
	0,63	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	ac	2,30	ac	2,30	a
	0,75	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	3,30	a
	0,88	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	3,70	—
	1,00	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	3,70	—
	1,13	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	—	—
	1,25	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	—	—
	1,50	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	2,50	—	—	—
	1,75	0,70	—	0,90	—	1,10	—	1,40	—	1,70	—	1,90	—	—	—	—	—
	2,00	0,70	—	0,90	—	1,10	—	1,40	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 51 S 5,5 x L / Hilti S-MD 51 SS 5,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 25

Application range:

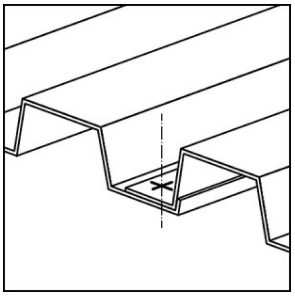
Steel S320GD to S350GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 2,00 mm

Steel S275
Steel S320GD to S350GD

Typical application:



Fastener:

S-MD 51 S(S) 5,5 x L

Washer: Ø16

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm

Performance for timber substructures not determined

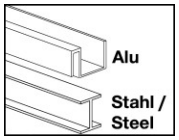
t_I [mm]		t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,10	—	1,40	—	1,80	—	2,20	—	2,60	—	3,00	ac	3,30	ac	3,30	a
	0,75	1,40	—	1,90	—	2,20	—	2,60	—	2,90	—	3,10	—	4,20	—	4,20	a
	0,88	1,40	—	1,90	—	2,20	—	2,90	—	2,90	—	3,10	—	4,20	—	4,80	—
	1,00	1,40	—	1,90	—	2,50	—	3,20	—	3,20	—	3,20	—	4,20	—	5,50	—
	1,13	1,50	—	1,90	—	2,50	—	3,60	—	3,60	—	3,60	—	4,80	—	—	—
	1,25	1,50	—	1,90	—	3,00	—	4,00	—	4,20	—	4,40	—	5,40	—	—	—
	1,50	1,50	—	1,90	—	3,00	—	4,00	—	4,20	—	5,10	—	5,40	—	—	—
	1,75	1,50	—	1,90	—	3,00	—	4,00	—	4,20	—	5,10	—	—	—	—	—
	2,00	1,50	—	1,90	—	3,00	—	4,00	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,38	—	0,54	—	0,70	—	0,86	—	0,97	—	1,13	ac	1,46	ac	1,46	a
	0,55	0,48	—	0,68	—	0,89	—	1,09	—	1,23	—	1,43	ac	1,84	ac	1,84	a
	0,63	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	ac	2,70	ac	2,70	a
	0,75	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	2,80	—	3,80	a
	0,88	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	2,80	—	4,10	—
	1,00	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	2,80	—	4,10	—
	1,13	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	2,80	—	—	—
	1,25	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	2,80	—	—	—
	1,50	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	2,80	—	—	—
	1,75	0,70	—	1,00	—	1,30	—	1,60	—	1,80	—	2,10	—	—	—	—	—
	2,00	0,70	—	1,00	—	1,30	—	1,60	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 51 S 5,5 x L / Hilti S-MD 51 SS 5,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 26

Application range:



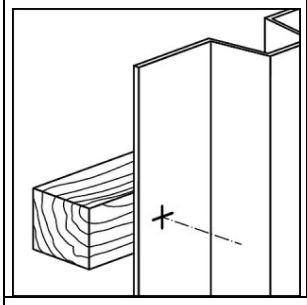
Aluminium alloy with $R_m \geq 185$ N/mm²
Steel S280GD to S350GD

Component I: t_I = 0,50 to 1,30 mm

Component II: t_I = 0,40 to 1,25 mm

Structural timber

Typical application:



Fastener:

S-MD 51 S(S) 5,5 x L
S-MD 61 S(S) 5,5 x L
S-MD 71 S(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 6,310 Nm
$f_{ax,k}$ = 7,856 N/mm² for C24 and $l_{ef} \geq 22{,}0$ mm

	t_I	Al-Alloy, R_{min} =			t_I	SxxxGD, R_{min} =		
	[mm]	**185 N/mm²**	**195 N/mm²**	**215 N/mm²**	[mm]	**360 N/mm²**	**390 N/mm²**	**420 N/mm²**
$V_{R,I,k}$ [kN]	**0,50**	0,87	0,94	1,08	**0,40**	1,29	1,42	1,53
	0,60	1,12	1,20	1,35	**0,50**	1,68	1,80	1,92
	0,70	1,36	1,44	1,59	**0,55**	1,89	2,01	2,11
	0,80	1,58	1,66	1,82	**0,63**	2,06	2,17	2,25
	0,90	1,77	1,85	1,99	**0,75**	2,30	2,30	2,30
	1,00	1,94	2,01	2,15	**0,88**	2,30	2,30	2,30
	1,10	2,07	2,14	2,26	**1,00**	2,30	2,30	2,30
	1,20	2,19	2,25	2,28	**1,13**	2,30	2,30	2,30
	1,30	2,28	2,28	2,28	**1,25**	2,30	2,30	2,30
$N_{R,I,k}$ [kN]	**0,50**	0,48	0,51	0,56	**0,40**	—	—	—
	0,60	0,58	0,61	0,67	**0,50**	1,24	1,34	1,34
	0,70	0,67	0,71	0,78	**0,55**	1,57	1,70	1,70
	0,80	0,77	0,81	0,89	**0,63**	2,30	2,48	2,48
	0,90	0,87	0,91	1,01	**0,75**	3,30	3,56	3,56
	1,00	0,96	1,01	1,12	**0,88**	3,70	4,00	4,00
	1,10	1,06	1,12	1,23	**1,00**	3,70	4,00	4,00
	1,20	1,15	1,22	1,34	**1,13**	3,70	4,00	4,00
	1,30	1,25	1,32	1,45	**1,25**	3,70	4,00	4,00

The grey highlighted values $N_{R,k}$ may be increased by 9.0% when using the types “S-MD 6x” and by 17.3% when using the types “S-MD 7x”.The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MD 51/61/71 S 5,5 x L / Hilti S-MD 51/61/71 SS 5,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 27

Application range:

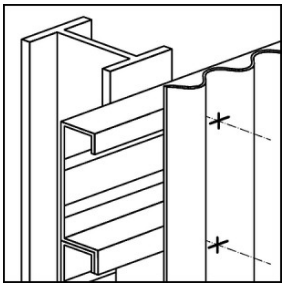
Steel S280GD to S350GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm
t_{II} = 2 x 0,63 to 2 x 1,13 mm

Steel S235
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 31 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm
Performance for timber substructures not determined

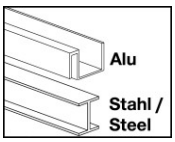
	t_I [mm]	t_{II} [mm]												
		0,63	**0,75**	**0,88**	**1,00**	**1,13**	**1,25**	**1,50**	**1,75**	**2 x 0,63**	**2 x 0,75**	**2 x 0,88**	**2 x 1,00**	**2 x 1,13**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,13	1,38	1,38	1,38	1,38	1,38	1,38	1,38	2,04	2,04	2,04	2,04	2,04
	0,75	1,21	1,74	1,74	1,74	1,74	1,74	1,74	1,74	2,04	2,41	2,41	2,41	—
	0,88	1,21	1,74	2,19	2,19	2,19	2,19	2,19	2,19	2,04	2,41	2,41	2,41	—
	1,00	1,21	1,74	2,19	2,63	2,63	2,63	2,63	2,63	2,04	2,41	2,41	3,07	—
	1,13	1,21	1,74	2,19	2,63	2,63	2,63	2,63	2,63	2,04	2,41	2,41	—	—
	1,25	1,21	1,74	2,19	2,63	2,63	2,63	2,63	2,63	2,04	2,41	—	—	—
	1,50	1,21	1,74	2,19	2,63	2,63	2,63	2,63	—	2,04	2,41	—	—	—
	1,75	1,21	1,74	2,19	2,63	2,63	2,63	—	—	—	—	—	—	—
	2,00	1,21	1,74	2,19	2,63	—	—	—	—	—	—	—	—	—
$N_{R,K}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,66	0,89	1,14	1,39	1,66	1,91	1,91	1,91	1,37	2,15	2,34	2,34	2,34
	0,75	0,66	0,89	1,14	1,39	1,66	1,91	1,91	1,91	1,37	2,15	2,34	2,34	—
	0,88	0,66	0,89	1,14	1,39	1,66	1,91	1,91	1,91	1,37	2,15	2,34	2,34	—
	1,00	0,66	0,89	1,14	1,39	1,66	1,91	1,91	1,91	1,37	2,15	2,34	2,34	—
	1,13	0,66	0,89	1,14	1,39	1,66	1,91	1,91	1,91	1,37	2,15	2,34	—	—
	1,25	0,66	0,89	1,14	1,39	1,66	1,91	1,91	1,91	1,37	2,15	—	—	—
	1,50	0,66	0,89	1,14	1,39	1,66	1,91	1,91	—	1,37	2,15	—	—	—
	1,75	0,66	0,89	1,14	1,39	1,66	1,91	—	—	—	—	—	—	—
	2,00	0,66	0,89	1,14	1,39	—	—	—	—	—	—	—	—	—

Self-drilling screw

Hilti S-MD 31 PS 5,5 x L / Hilti S-MD 31 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 28

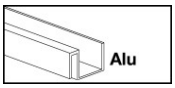
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²
Steel S280GD to S350GD

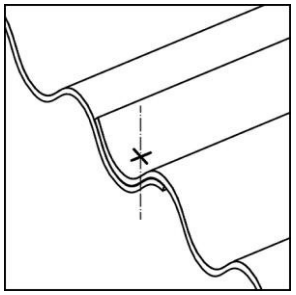
Component I: t_I = 0,50 to 1,50 mm

Component II: t_{II} = 0,50 to 2,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 31 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm

Performance for timber substructures not determined

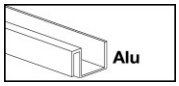
	t_I [mm]	t_{II} [mm] 0,50	0,60	0,70	0,80	0,90	1,00	1,50	2,00
$V_{R,k}$ [kN]	**0,50**	0,35	0,48	0,60	0,60	0,60	0,60	0,60	0,60
	0,60	0,37	0,48	0,60	0,60	0,60	0,60	0,60	0,60
	0,70	0,39	0,50	0,60	0,60	0,60	0,60	0,60	0,60
	0,80	0,39	0,50	0,60	0,80	0,80	0,80	0,80	0,80
	0,90	0,39	0,50	0,60	0,80	1,00	1,00	1,00	1,00
	1,00	0,39	0,50	0,60	0,80	1,00	1,20	1,20	1,20
	1,10	0,39	0,50	0,60	0,80	1,00	1,20	1,20	—
	1,20	0,39	0,50	0,60	0,80	1,00	1,20	1,20	—
	1,30	0,39	0,50	0,60	0,80	1,00	1,20	1,20	—
	1,40	0,39	0,50	0,60	0,80	1,00	1,20	1,20	—
	1,50	0,39	0,50	0,60	0,80	1,00	1,20	1,20	—
$N_{R,k}$ [kN]	**0,50**	0,23	0,31	0,39	0,53	0,61	0,61	0,61	0,61
	0,60	0,23	0,31	0,39	0,53	0,64	0,69	0,70	0,70
	0,70	0,23	0,31	0,39	0,53	0,64	0,69	0,83	0,83
	0,80	0,23	0,31	0,39	0,53	0,64	0,69	0,99	0,99
	0,90	0,23	0,31	0,39	0,53	0,64	0,69	1,19	1,19
	1,00	0,23	0,31	0,39	0,53	0,64	0,69	1,25	1,25
	1,10	0,23	0,31	0,39	0,53	0,64	0,69	1,25	—
	1,20	0,23	0,31	0,39	0,53	0,64	0,69	1,25	—
	1,30	0,23	0,31	0,39	0,53	0,64	0,69	1,25	—
	1,40	0,23	0,31	0,39	0,53	0,64	0,69	1,25	—
	1,50	0,23	0,31	0,39	0,53	0,64	0,69	1,25	—

Self-drilling screw

Hilti S-MD 31 PS 5,5 x L / Hilti S-MD 31 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 29

Application range:



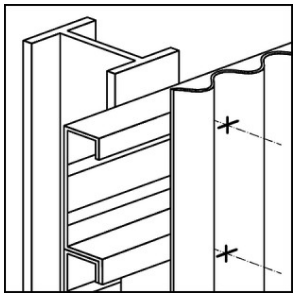
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm
t_{II} = 2 x 0,63 to 2 x 1,13 mm

Steel S235
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 31 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 3{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]												
		0,63	**0,75**	**0,88**	**1,00**	**1,13**	**1,25**	**1,50**	**1,75**	**2 x 0,63**	**2 x 0,75**	**2 x 0,88**	**2 x 1,00**	**2 x 1,13**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	0,94	0,94	0,94	0,94	0,94
	0,55	—	—	—	—	—	—	—	—	0,94	0,94	0,94	0,94	0,94
	0,63	—	—	—	—	—	—	—	—	0,94	1,21	1,21	1,21	1,21
	0,75	—	—	—	—	—	—	—	—	0,94	1,21	1,21	1,21	—
	0,88	—	—	—	—	—	—	—	—	0,94	1,21	1,21	1,21	—
	1,00	—	—	—	—	—	—	—	—	0,94	1,21	1,21	1,21	—
	1,13	—	—	—	—	—	—	—	—	0,94	1,21	1,21	—	—
	1,25	—	—	—	—	—	—	—	—	0,94	1,21	1,21	—	—
	1,50	—	—	—	—	—	—	—	—	0,94	1,21	—	—	—
	1,75	—	—	—	—	—	—	—	—	0,94	1,21	—	—	—
	2,00	—	—	—	—	—	—	—	—	0,94	1,21	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61
	0,60	0,66	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70
	0,70	0,66	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83
	0,80	0,66	0,89	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99	—
	0,90	0,66	0,89	1,14	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	—
	1,00	0,66	0,89	1,14	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	—
	1,10	0,66	0,89	1,14	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	—	—
	1,20	0,66	0,89	1,14	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	—	—
	1,30	0,66	0,89	1,14	1,25	1,25	1,25	1,25	—	1,25	1,25	—	—	—
	1,40	0,66	0,89	1,14	1,25	1,25	1,25	—	—	1,25	1,25	—	—	—
	1,50	0,66	0,89	1,14	1,25	—	—	—	—	1,25	1,25	—	—	—

Self-drilling screw

Hilti S-MD 31 PS 5,5 x L / Hilti S-MD 31 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 30

Application range:

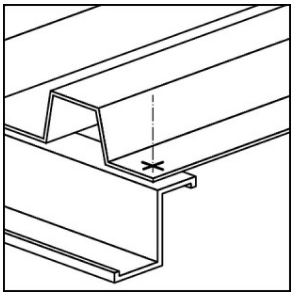
Steel S320GD to S350GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm

Steel S275 to S355
Steel S320GD to S350GD

Typical application:



Fastener:

S-MD 01 LS(S) 5,5 x L
S-MD 01 LPS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

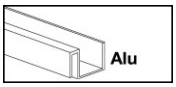
	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		1,75	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,08	—	1,46	—	1,71	—	1,95	—	2,16	—	2,38	—	2,38	—	2,38	—
	0,75	1,42	—	1,61	—	1,99	—	1,99	—	2,18	—	2,38	—	2,38	—	2,38	—
	0,88	1,45	—	1,86	—	2,28	—	2,28	—	2,33	—	2,38	—	2,38	—	2,38	—
	1,00	1,48	—	1,86	—	2,28	—	2,95	—	2,95	—	2,95	—	2,95	—	2,95	—
	1,13	1,51	—	1,86	—	2,28	—	2,95	—	3,64	—	3,64	—	3,64	—	3,64	—
	1,25	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	1,50	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	1,75	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	2,00	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,50	—	0,72	—	1,04	—	1,35	—	1,70	—	1,70	—	1,70	—	1,70	—
	0,75	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	0,88	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,00	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,13	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,25	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,50	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,75	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	2,00	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 01 LS 5,5 x L / Hilti S-MD 01 LSS 5,5 x L
Hilti S-MD 01 LPS 5,5 x L / Hilti S-MD 01 LPSS 5,5 x L
with hexagon head or round head

Annex 31

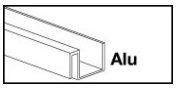
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

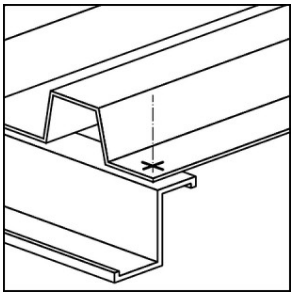
Component I: t_I = 1,00 to 2,00 mm

Component II: t_{II} = 0,50 to 2,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 01 LS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]										
	0,50	**0,60**	**0,70**	**0,80**	**0,90**	**1,00**	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**
0,50	—	—	—	—	—	—	—	—	—	—	—
0,60	—	—	—	—	—	—	—	—	—	—	—
0,70	—	—	—	—	—	—	—	—	—	—	—
0,80	—	—	—	—	—	—	—	—	—	—	—
0,90	—	—	—	—	—	—	—	—	—	—	—
1,00	—	—	—	—	—	1,16	1,16	1,16	1,16	1,16	1,16
1,20	—	—	—	—	—	1,16	1,71	1,71	1,71	1,71	1,71
1,40	—	—	—	—	—	1,16	1,71	2,22	2,22	2,22	2,22
1,60	—	—	—	—	—	1,16	1,71	2,22	2,69	2,69	2,69
1,80	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,11
2,00	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,49
$N_{R,II,k}$ [kN]	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21

$V_{R,k}$ [kN]

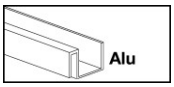
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 01 LS 5,5 x L / Hilti S-MD 01 LSS 5,5 x L
with hexagon head

Annex 32

Application range:



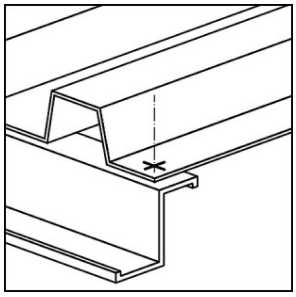
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 2,00 mm

Steel S275 to S355
Steel S320GD to S390GD

Typical application:



Fastener:

S-MD 01 LS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]								
	0,63	**0,75**	**0,88**	**1,00**	**1,13**	**1,25**	**1,50**	**1,75**	**2,00**
0,50	0,83	0,84	0,85	0,86	0,87	0,87	0,89	0,89	0,89
0,60	0,92	0,94	0,97	1,01	1,01	1,02	1,04	1,04	1,04
0,70	0,99	1,04	1,10	1,16	1,16	1,17	1,19	1,19	1,19
0,80	1,07	1,14	1,23	1,31	1,32	1,33	1,34	1,34	1,34
1,00	1,22	1,35	1,49	1,62	1,62	1,63	1,65	1,65	1,65
1,20	1,35	1,47	1,60	1,73	1,79	1,84	1,95	1,95	1,95
1,30	1,41	1,53	1,66	1,79	1,87	1,94	2,10	2,10	2,10
1,50	1,52	1,65	1,78	1,90	2,03	2,15	2,41	2,41	2,41
1,60	1,57	1,68	1,79	1,90	2,03	2,15	2,41	2,41	2,41
1,80	1,66	1,74	1,82	1,90	2,03	2,15	2,41	2,41	2,41
2,00	1,74	1,79	1,85	1,90	2,03	2,15	2,41	2,41	2,41
$N_{R,II,k}$ [kN]	0,50	0,72	1,04	1,35	1,71	2,07	2,07	2,07	2,07

$V_{R,k}$ [kN]

Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 01 LS 5,5 x L / Hilti S-MD 01 LSS 5,5 x L
with hexagon head

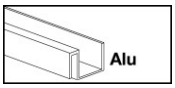
Annex 33

Application range:

Steel S320GD to S350GD

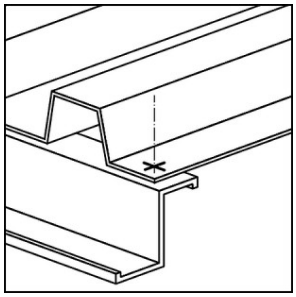
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,00 to 3,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 01 LS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

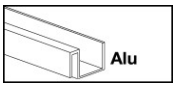
	t_I [mm]	t_{II} [mm]						
		1,00	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**	**3,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	1,12	1,32	1,51	1,71	1,91	2,10	2,59
	0,75	1,16	1,38	1,60	1,83	2,04	2,26	2,63
	0,88	1,20	1,45	1,70	1,94	2,19	2,43	2,68
	1,00	1,24	1,51	1,79	2,06	2,33	2,60	2,72
	1,13	1,28	1,58	1,88	2,18	2,47	2,77	—
	1,25	1,32	1,64	1,96	2,29	2,60	2,92	—
	1,50	1,40	1,77	2,15	2,52	2,89	3,26	—
	1,75	1,48	1,90	2,32	2,74	3,16	3,58	—
	2,00	1,56	2,03	2,51	2,98	3,45	3,92	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	0,75	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	0,88	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,00	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,13	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,25	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,50	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,75	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	2,00	0,69	0,90	1,10	1,21	1,21	1,21	1,21

Self-drilling screw

Hilti S-MD 01 LS 5,5 x L / Hilti S-MD 01 LSS 5,5 x L
with hexagon head

Annex 34

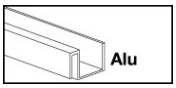
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

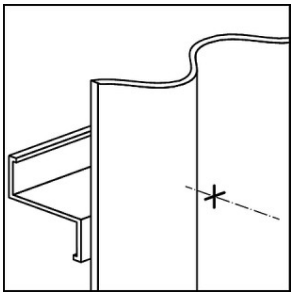
Component I: t_I = 1,00 to 2,00 mm

Component II: t_{II} = 0,50 to 2,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 01 LPS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]										
	0,50	**0,60**	**0,70**	**0,80**	**0,90**	**1,00**	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**
0,50	—	—	—	—	—	—	—	—	—	—	—
0,60	—	—	—	—	—	—	—	—	—	—	—
0,70	—	—	—	—	—	—	—	—	—	—	—
0,80	—	—	—	—	—	—	—	—	—	—	—
0,90	—	—	—	—	—	—	—	—	—	—	—
1,00	—	—	—	—	—	1,16	1,16	1,16	1,16	1,16	1,16
1,20	—	—	—	—	—	1,16	1,71	1,71	1,71	1,71	1,71
1,40	—	—	—	—	—	1,16	1,71	2,22	2,22	2,22	2,22
1,60	—	—	—	—	—	1,16	1,71	2,22	2,69	2,69	2,69
1,80	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,11
2,00	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,49
$N_{R,II,k}$ [kN]	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21

$V_{R,k}$ [kN]

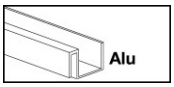
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 01 LPS 5,5 x L / Hilti S-MD 01 LPSS 5,5 x L
with round head

Annex 35

Application range:



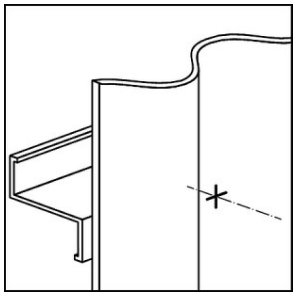
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 2,00 mm

Steel S235
Steel S320GD to S390GD

Typical application:



Fastener:

S-MD 01 LPS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]								
	0,63	**0,75**	**0,88**	**1,00**	**1,13**	**1,25**	**1,50**	**1,75**	**2,00**
0,50	0,83	0,84	0,85	0,86	0,87	0,87	0,89	0,89	0,89
0,60	0,92	0,94	0,97	1,01	1,01	1,02	1,04	1,04	1,04
0,70	0,99	1,04	1,10	1,16	1,16	1,17	1,19	1,19	1,19
0,80	1,07	1,14	1,23	1,31	1,32	1,33	1,34	1,34	1,34
1,00	1,22	1,35	1,49	1,62	1,62	1,63	1,65	1,65	1,65
1,20	1,35	1,47	1,60	1,73	1,79	1,84	1,95	1,95	1,95
1,30	1,41	1,53	1,66	1,79	1,87	1,94	2,10	2,10	2,10
1,50	1,52	1,65	1,78	1,90	2,03	2,15	2,41	2,41	2,41
1,60	1,57	1,68	1,79	1,90	2,03	2,15	2,41	2,41	2,41
1,80	1,66	1,74	1,82	1,90	2,03	2,15	2,41	2,41	2,41
2,00	1,74	1,79	1,85	1,90	2,03	2,15	2,41	2,41	2,41
$N_{R,II,k}$ [kN]	0,46	0,67	0,96	1,25	1,59	1,92	1,92	1,92	1,92

$V_{R,k}$ [kN]

Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 01 LPS 5,5 x L / Hilti S-MD 01 LPSS 5,5 x L
with round head

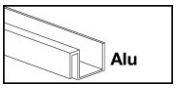
Annex 36

Application range:

Steel S320GD to S350GD

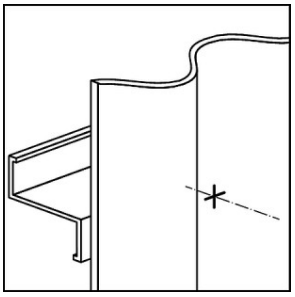
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,50 to 2,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 01 LPS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		0,50	**0,60**	**0,70**	**0,80**	**0,90**	**1,00**	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	1,12	1,32	1,51	1,71	1,91	2,10
	0,75	—	—	—	—	—	1,16	1,38	1,60	1,83	2,04	2,26
	0,88	—	—	—	—	—	1,20	1,45	1,70	1,94	2,19	2,43
	1,00	—	—	—	—	—	1,24	1,51	1,79	2,06	2,33	2,60
	1,13	—	—	—	—	—	1,28	1,58	1,88	2,18	2,47	2,77
	1,25	—	—	—	—	—	1,32	1,64	1,96	2,29	2,60	2,92
	1,50	—	—	—	—	—	1,40	1,77	2,15	2,52	2,89	3,26
	1,75	—	—	—	—	—	1,48	1,90	2,32	2,74	3,16	3,58
	2,00	—	—	—	—	—	1,56	2,03	2,51	2,98	3,45	3,92
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	0,75	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	0,88	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,00	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,13	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,25	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,50	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,75	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	2,00	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21

Self-drilling screw

Hilti S-MD 01 LPS 5,5 x L / Hilti S-MD 01 LPSS 5,5 x L
with round head

Annex 37

Application range:

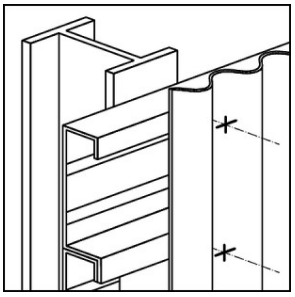
Steel S280GD to S320GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 2 x 0,63 to 2 x 1,75 mm

Steel S235
Steel S280GD to S320GD

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]															
		2 x 0,63		**2 x 0,75**		**2 x 0,88**		**2 x 1,00**		**2 x 1,13**		**2 x 1,25**		**2 x 1,50**		**2 x 1,75**	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,20	—	2,70	—	2,70	—	2,70	—	2,90	—	3,10	—	3,10	—	—	—
	0,75	2,40	—	3,10	—	3,10	—	3,10	—	3,30	—	3,60	—	3,60	—	—	—
	0,88	2,70	—	3,10	—	3,10	—	3,10	—	3,50	—	4,00	—	4,00	—	—	—
	1,00	3,10	—	3,20	—	3,20	—	3,20	—	3,80	—	4,40	—	4,40	—	—	—
	1,13	3,40	—	3,40	—	3,80	—	4,20	—	4,50	—	4,90	—	—	—	—	—
	1,25	3,70	—	3,70	—	4,40	—	5,10	—	5,30	—	5,40	—	—	—	—	—
	1,50	3,70	—	3,70	—	4,40	—	5,10	—	5,30	—	5,40	—	—	—	—	—
	1,75	3,70	—	3,70	—	4,40	—	5,10	—	—	—	—	—	—	—	—	—
	2,00	3,70	—	3,70	—	4,40	—	5,10	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	0,75	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	0,88	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	1,00	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	1,13	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—	—	—
	1,25	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—	—	—
	1,50	1,90	—	2,10	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—	—	—
	1,75	1,90	—	2,10	—	2,34	—	2,34	—	—	—	—	—	—	—	—	—
	2,00	1,90	—	2,10	—	2,34	—	2,34	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 38

Application range:

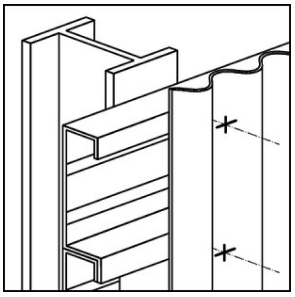
Steel S320GD to S350GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 2 x 0,63 to 2 x 1,75 mm

Steel S275
Steel S320GD to S350GD

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]															
		2 x 0,63		2 x 0,75		2 x 0,88		2 x 1,00		2 x 1,13		2 x 1,25		2 x 1,50		2 x 1,75	
$V_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,40	—	2,90	—	2,90	—	2,90	—	3,10	—	3,30	—	3,30	—	—	—
	0,75	2,60	—	3,30	—	3,30	—	3,30	—	3,60	—	3,90	—	3,90	—	—	—
	0,88	3,00	—	3,00	—	3,30	—	3,30	—	3,80	—	4,30	—	4,30	—	—	—
	1,00	3,30	—	3,50	—	3,50	—	3,50	—	4,10	—	4,70	—	4,70	—	—	—
	1,13	3,70	—	3,70	—	4,10	—	4,50	—	4,90	—	5,30	—	—	—	—	—
	1,25	4,00	—	4,00	—	4,80	—	5,50	—	5,70	—	5,90	—	—	—	—	—
	1,50	4,00	—	4,00	—	4,80	—	5,50	—	5,70	—	5,90	—	—	—	—	—
	1,75	4,00	—	4,00	—	4,80	—	5,50	—	—	—	—	—	—	—	—	—
	2,00	4,00	—	4,00	—	4,80	—	5,50	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	0,75	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	0,88	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	1,00	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—
	1,13	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—	—	—
	1,25	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—	—	—
	1,50	2,00	—	2,20	—	2,34	—	2,34	—	2,34	—	2,34	—	—	—	—	—
	1,75	2,00	—	2,20	—	2,34	—	2,34	—	—	—	—	—	—	—	—	—
	2,00	2,00	—	2,20	—	2,34	—	2,34	—	—	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 39

Application range:

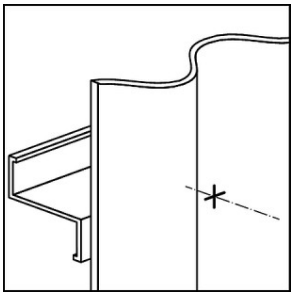
Steel S280GD to S320GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm

Steel S235
Steel S280GD to S320GD

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

t_I [mm]		t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		1,75	
$V_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,99	—	1,35	—	1,58	—	1,80	—	2,00	—	2,20	—	2,20	—	2,20	—
	0,75	1,31	—	1,48	—	1,84	—	1,84	—	2,02	—	2,20	—	2,20	—	2,20	—
	0,88	1,34	—	1,72	—	2,10	—	2,10	—	2,15	—	2,20	—	2,20	—	2,20	—
	1,00	1,36	—	1,72	—	2,10	—	2,72	—	2,72	—	2,72	—	2,72	—	2,72	—
	1,13	1,39	—	1,72	—	2,10	—	2,72	—	3,36	—	3,36	—	3,36	—	3,36	—
	1,25	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
	1,50	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
	1,75	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
	2,00	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
$N_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	0,75	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	0,88	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,00	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,13	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,25	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,50	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,75	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	2,00	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 40

Application range:

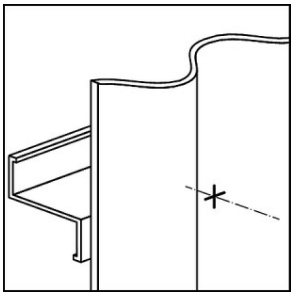
Steel S320GD to S350GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm

Steel S275
Steel S320GD to S350GD

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

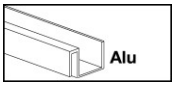
	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		1,75	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,08	—	1,46	—	1,71	—	1,95	—	2,16	—	2,38	—	2,38	—	2,38	—
	0,75	1,42	—	1,61	—	1,99	—	1,99	—	2,18	—	2,38	—	2,38	—	2,38	—
	0,88	1,45	—	1,86	—	2,28	—	2,28	—	2,33	—	2,38	—	2,38	—	2,38	—
	1,00	1,48	—	1,86	—	2,28	—	2,95	—	2,95	—	2,95	—	2,95	—	2,95	—
	1,13	1,51	—	1,86	—	2,28	—	2,95	—	3,64	—	3,64	—	3,64	—	3,64	—
	1,25	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	1,50	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	1,75	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	2,00	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	0,75	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	0,88	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,00	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,13	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,25	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,50	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,75	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	2,00	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 41

Application range:

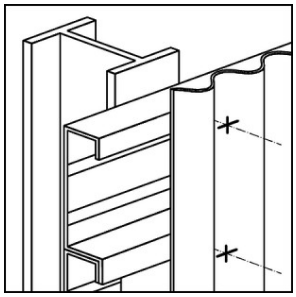


Aluminium alloy with $R_m \geq 185$ N/mm²

Component I:	t_I = 0,50 to 2,00 mm
Component II:	t_{II} = 0,63 to 1,50 mm t_{II} = 2 x 0,63 to 2 x 1,50 mm

Steel S235
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

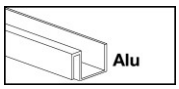
	t_I [mm]	t_{II} [mm]													
		0,63	**0,75**	**0,88**	**1,00**	**1,13**	**1,25**	**1,50**	**2 x 0,63**	**2 x 0,75**	**2 x 0,88**	**2 x 1,00**	**2 x 1,13**	**2 x 1,25**	**2 x 1,50**
$V_{R,k}$ [kN]	**0,50**	0,83	0,84	0,85	0,86	0,87	0,87	0,89	0,74	0,90	1,07	1,23	1,23	1,23	1,24
	0,60	0,92	0,94	0,97	1,01	1,01	1,02	1,04	0,86	1,03	1,20	1,36	1,37	1,37	1,38
	0,70	0,99	1,04	1,10	1,16	1,16	1,17	1,19	0,98	1,15	1,33	1,50	1,50	1,50	1,51
	0,80	1,07	1,14	1,23	1,31	1,32	1,33	1,34	1,11	1,29	1,47	1,64	1,64	1,65	1,66
	1,00	1,22	1,35	1,49	1,62	1,62	1,63	1,65	1,37	1,55	1,74	1,92	1,92	1,93	1,93
	1,20	1,35	1,47	1,60	1,73	1,79	1,84	1,95	1,39	1,57	1,75	1,93	2,00	2,06	—
	1,30	1,41	1,53	1,66	1,79	1,87	1,94	2,10	1,40	1,58	1,76	1,93	2,04	2,13	—
	1,50	1,52	1,65	1,78	1,90	2,03	2,15	2,41	1,43	1,60	1,78	1,95	2,11	2,27	—
	1,60	1,57	1,68	1,79	1,90	2,03	2,15	2,41	—	—	—	—	—	—	—
	1,80	1,66	1,74	1,82	1,90	2,03	2,15	2,41	—	—	—	—	—	—	—
	2,00	1,74	1,79	1,85	1,90	2,03	2,15	2,41	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,46	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61
	0,60	0,46	0,67	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70
	0,70	0,46	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58
	0,80	0,46	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67
	1,00	0,46	0,67	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83
	1,20	0,46	0,67	0,96	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	—
	1,30	0,46	0,67	0,96	1,08	1,08	1,08	1,08	1,08	1,08	1,08	1,08	1,08	1,08	—
	1,50	0,46	0,67	0,96	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	—
	1,60	0,46	0,67	0,96	1,25	1,25	1,25	1,25	—	—	—	—	—	—	—
	1,80	0,46	0,67	0,96	1,25	1,25	1,25	1,25	—	—	—	—	—	—	—
	2,00	0,46	0,67	0,96	1,25	1,25	1,25	1,25	—	—	—	—	—	—	—

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 42

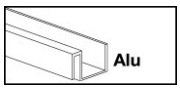
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

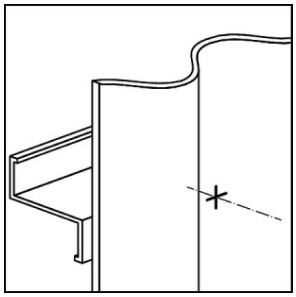
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,50 to 2,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		0,50	**0,60**	**0,70**	**0,80**	**0,90**	**1,00**	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—
	0,60	—	—	—	—	—	—	—	—	—	—	—
	0,70	—	—	—	—	—	—	—	—	—	—	—
	0,80	—	—	—	—	—	—	—	—	—	—	—
	0,90	—	—	—	—	—	—	—	—	—	—	—
	1,00	—	—	—	—	—	1,16	1,16	1,16	1,16	1,16	1,16
	1,20	—	—	—	—	—	1,16	1,71	1,71	1,71	1,71	1,71
	1,40	—	—	—	—	—	1,16	1,71	2,22	2,22	2,22	2,22
	1,60	—	—	—	—	—	1,16	1,71	2,22	2,69	2,69	2,69
	1,80	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,11
	2,00	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,49
$N_{R,k}$ [kN]	**0,50**	0,17	0,27	0,37	0,48	0,58	0,61	0,61	0,61	0,61	0,61	0,61
	0,60	0,17	0,27	0,37	0,48	0,58	0,69	0,70	0,70	0,70	0,70	0,70
	0,70	0,17	0,27	0,37	0,48	0,58	0,69	0,83	0,83	0,83	0,83	0,83
	0,80	0,17	0,27	0,37	0,48	0,58	0,69	0,90	0,99	0,99	0,99	0,99
	0,90	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,19	1,19	1,19
	1,00	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,20	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,40	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,60	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,80	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	2,00	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

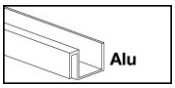
Annex 43

Application range:

Steel S280GD to S350GD

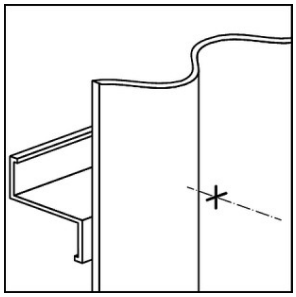
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,00 to 3,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 31 LPS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]						
		1,00	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**	**3,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	1,12	1,32	1,51	1,71	1,91	2,10	2,59
	0,75	1,16	1,38	1,60	1,83	2,04	2,26	2,63
	0,88	1,20	1,45	1,70	1,94	2,19	2,43	2,68
	1,00	1,24	1,51	1,79	2,06	2,33	2,60	2,72
	1,13	1,28	1,58	1,88	2,18	2,47	2,77	—
	1,25	1,32	1,64	1,96	2,29	2,60	2,92	—
	1,50	1,40	1,77	2,15	2,52	2,89	3,26	—
	1,75	1,48	1,90	2,32	2,74	3,16	3,58	—
	2,00	1,56	2,03	2,51	2,98	3,45	3,92	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	0,75	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	0,88	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,00	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,13	0,69	0,90	1,10	1,21	1,21	1,21	—
	1,25	0,69	0,90	1,10	1,21	1,21	1,21	—
	1,50	0,69	0,90	1,10	1,21	1,21	1,21	—
	1,75	0,69	0,90	1,10	1,21	1,21	1,21	—
	2,00	0,69	0,90	1,10	1,21	1,21	1,21	—

Self-drilling screw

Hilti S-MD 31 LPS 5,5 x L / Hilti S-MD 31 LPSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 44

Application range:

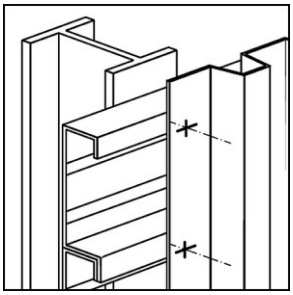
Steel S280GD to S320GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 2 x 0,63 to 2 x 1,50 mm

Steel S235
Steel S280GD to S320GD

Typical application:



Fastener:

S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	2 x 1,13	2 x 1,25	2 x 1,50	2 x 1,75
$V_{R,k}$ [kN]	0,50	— —	— —	— —	— —	— —	— —	— —	— —
	0,55	— —	— —	— —	— —	— —	— —	— —	— —
	0,63	2,20 —	2,70 —	2,70 —	2,70 —	2,90 —	3,10 —	3,10 —	— —
	0,75	2,40 —	3,10 —	3,10 —	3,10 —	3,30 —	3,60 —	3,60 —	— —
	0,88	2,70 —	3,10 —	3,10 —	3,10 —	3,50 —	4,00 —	4,00 —	— —
	1,00	3,10 —	3,20 —	3,20 —	3,20 —	3,80 —	4,40 —	4,40 —	— —
	1,13	3,40 —	3,40 —	3,80 —	4,20 —	4,50 —	4,90 —	— —	— —
	1,25	3,70 —	3,70 —	4,40 —	5,10 —	5,30 —	5,40 —	— —	— —
	1,50	3,70 —	3,70 —	4,40 —	5,10 —	5,30 —	5,40 —	— —	— —
	1,75	3,70 —	3,70 —	4,40 —	5,10 —	— —	— —	— —	— —
	2,00	3,70 —	3,70 —	4,40 —	5,10 —	— —	— —	— —	— —
$N_{R,k}$ [kN]	0,50	1,03 —	1,13 —	1,24 —	1,24 —	1,24 —	1,24 —	1,24 —	— —
	0,55	1,30 —	1,43 —	1,57 —	1,57 —	1,57 —	1,57 —	1,57 —	— —
	0,63	1,90 —	2,10 —	2,30 —	2,30 —	2,30 —	2,30 —	2,30 —	— —
	0,75	1,90 —	2,10 —	2,40 —	2,80 —	3,30 —	3,30 —	3,30 —	— —
	0,88	1,90 —	2,10 —	2,40 —	2,80 —	3,30 —	3,80 —	4,30 —	— —
	1,00	1,90 —	2,10 —	2,40 —	2,80 —	3,30 —	3,80 —	4,80 —	— —
	1,13	1,90 —	2,10 —	2,40 —	2,80 —	3,30 —	3,80 —	— —	— —
	1,25	1,90 —	2,10 —	2,40 —	2,80 —	3,30 —	3,80 —	— —	— —
	1,50	1,90 —	2,10 —	2,40 —	2,80 —	3,30 —	3,80 —	— —	— —
	1,75	1,90 —	2,10 —	2,40 —	2,80 —	— —	— —	— —	— —
	2,00	1,90 —	2,10 —	2,40 —	2,80 —	— —	— —	— —	— —
$M_{t,nom}$ [Nm]		5 Nm							

Self-drilling screw

Hilti S-MD 51/61/71 LS 5,5 x L / Hilti S-MD 51/61/71 LSS 5,5 x L
Hilti S-MD 51/61/71 LPS 5,5 x L / Hilti S-MD 51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 45

Application range:

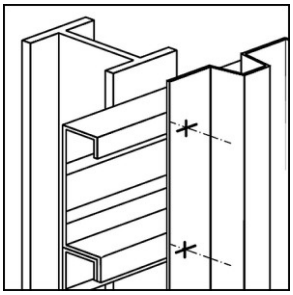
Steel S320GD to S350GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 2 x 0,63 to 2 x 1,50 mm

Steel S275
Steel S320GD to S350GD

Typical application:



Fastener:

S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	2 x 1,13	2 x 1,25	2 x 1,50	2 x 1,75
$V_{R,k}$ [kN]	0,50	— —	— —	— —	— —	— —	— —	— —	— —
	0,55	— —	— —	— —	— —	— —	— —	— —	— —
	0,63	2,40 —	2,90 —	2,90 —	2,90 —	3,10 —	3,30 —	3,30 —	— —
	0,75	2,60 —	3,30 —	3,30 —	3,30 —	3,60 —	3,90 —	3,90 —	— —
	0,88	3,00 —	3,00 —	3,30 —	3,30 —	3,80 —	4,30 —	4,30 —	— —
	1,00	3,30 —	3,50 —	3,50 —	3,50 —	4,10 —	4,70 —	4,70 —	— —
	1,13	3,70 —	3,70 —	4,10 —	4,50 —	4,90 —	5,30 —	— —	— —
	1,25	4,00 —	4,00 —	4,80 —	5,50 —	5,70 —	5,90 —	— —	— —
	1,50	4,00 —	4,00 —	4,80 —	5,50 —	5,70 —	5,90 —	— —	— —
	1,75	4,00 —	4,00 —	4,80 —	5,50 —	— —	— —	— —	— —
	2,00	4,00 —	4,00 —	4,80 —	5,50 —	— —	— —	— —	— —
$N_{R,k}$ [kN]	0,50	1,08 —	1,19 —	1,40 —	1,46 —	1,46 —	1,46 —	1,46 —	— —
	0,55	1,36 —	1,50 —	1,77 —	1,84 —	1,84 —	1,84 —	1,84 —	— —
	0,63	2,00 —	2,20 —	2,60 —	2,70 —	2,70 —	2,70 —	2,70 —	— —
	0,75	2,00 —	2,20 —	2,60 —	3,10 —	3,70 —	3,80 —	3,80 —	— —
	0,88	2,00 —	2,20 —	2,60 —	3,10 —	3,70 —	4,30 —	4,80 —	— —
	1,00	2,00 —	2,20 —	2,60 —	3,10 —	3,70 —	4,30 —	4,80 —	— —
	1,13	2,00 —	2,20 —	2,60 —	3,10 —	3,70 —	4,30 —	— —	— —
	1,25	2,00 —	2,20 —	2,60 —	3,10 —	3,70 —	4,30 —	— —	— —
	1,50	2,00 —	2,20 —	2,60 —	3,10 —	3,70 —	4,30 —	— —	— —
	1,75	2,00 —	2,20 —	2,60 —	3,10 —	— —	— —	— —	— —
	2,00	2,00 —	2,20 —	2,60 —	3,10 —	— —	— —	— —	— —
$M_{t,nom}$ [Nm]		5 Nm							

Self-drilling screw

Hilti S-MD 51/61/71 LS 5,5 x L / Hilti S-MD 51/61/71 LSS 5,5 x L
Hilti S-MD 51/61/71 LPS 5,5 x L / Hilti S-MD 51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 46

Application range:

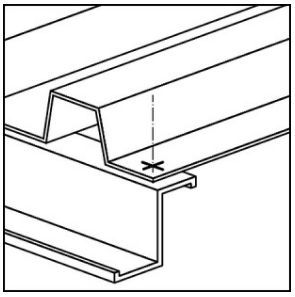
Steel S280GD to S320GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm

Steel S235
Steel S280GD to S320GD

Typical application:



Fastener:

S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		1,75	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,99	—	1,35	—	1,58	—	1,80	—	2,00	—	2,20	—	2,20	—	2,20	—
	0,75	1,31	—	1,48	—	1,84	—	1,84	—	2,02	—	2,20	—	2,20	—	2,20	—
	0,88	1,34	—	1,72	—	2,10	—	2,10	—	2,15	—	2,20	—	2,20	—	2,20	—
	1,00	1,36	—	1,72	—	2,10	—	2,72	—	2,72	—	2,72	—	2,72	—	2,72	—
	1,13	1,39	—	1,72	—	2,10	—	2,72	—	3,36	—	3,36	—	3,36	—	3,36	—
	1,25	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
	1,50	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
	1,75	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
	2,00	1,41	—	1,72	—	2,10	—	2,72	—	3,36	—	4,00	—	4,00	—	4,00	—
$N_{R,k}$ [kN]	**0,50**	0,46	—	0,67	—	0,96	—	1,24	—	1,24	—	1,24	—	1,24	—	1,24	—
	0,55	0,46	—	0,67	—	0,96	—	1,25	—	1,57	—	1,57	—	1,57	—	1,57	—
	0,63	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	0,75	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	0,88	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,00	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,13	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,25	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,50	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	1,75	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
	2,00	0,46	—	0,67	—	0,96	—	1,25	—	1,59	—	1,92	—	1,92	—	1,92	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 51/61/71 LS 5,5 x L / Hilti S-MD 51/61/71 LSS 5,5 x L
Hilti S-MD 51/61/71 LPS 5,5 x L / Hilti S-MD 51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 47

Application range:

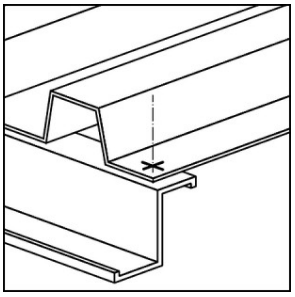
Steel S320GD to S350GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 1,75 mm

Steel S275
Steel S320GD to S350GD

Typical application:



Fastener:

S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

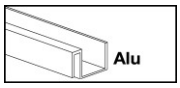
	t_I [mm]	t_{II} [mm] 0,63		0,75		0,88		1,00		1,13		1,25		1,50		1,75	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,08	—	1,46	—	1,71	—	1,95	—	2,16	—	2,38	—	2,38	—	2,38	—
	0,75	1,42	—	1,61	—	1,99	—	1,99	—	2,18	—	2,38	—	2,38	—	2,38	—
	0,88	1,45	—	1,86	—	2,28	—	2,28	—	2,33	—	2,38	—	2,38	—	2,38	—
	1,00	1,48	—	1,86	—	2,28	—	2,95	—	2,95	—	2,95	—	2,95	—	2,95	—
	1,13	1,51	—	1,86	—	2,28	—	2,95	—	3,64	—	3,64	—	3,64	—	3,64	—
	1,25	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	1,50	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	1,75	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
	2,00	1,53	—	1,86	—	2,28	—	2,95	—	3,64	—	4,34	—	4,34	—	4,34	—
$N_{R,k}$ [kN]	**0,50**	0,50	—	0,72	—	1,04	—	1,35	—	1,46	—	1,46	—	1,46	—	1,46	—
	0,55	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	1,84	—	1,84	—	1,84	—
	0,63	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	0,75	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	0,88	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,00	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,13	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,25	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,50	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	1,75	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
	2,00	0,50	—	0,72	—	1,04	—	1,35	—	1,71	—	2,07	—	2,07	—	2,07	—
$M_{t,nom}$ [Nm]		5 Nm															

Self-drilling screw

Hilti S-MD 51/61/71 LS 5,5 x L / Hilti S-MD 51/61/71 LSS 5,5 x L
Hilti S-MD 51/61/71 LPS 5,5 x L / Hilti S-MD 51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 48

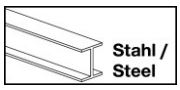
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

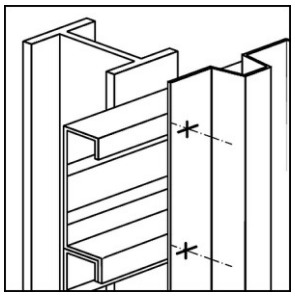
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 1,50 mm
t_{II} = 2 x 0,63 to 2 x 1,50 mm



Steel S235
Steel S280GD to S350GD

Typical application:



Fastener:

S-MD 41 LS(S) 5,5 x L
S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 41 LPS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø14 / Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]													
		0,63	**0,75**	**0,88**	**1,00**	**1,13**	**1,25**	**1,50**	**2 x 0,63**	**2 x 0,75**	**2 x 0,88**	**2 x 1,00**	**2 x 1,13**	**2 x 1,25**	**2 x 1,50**
$V_{R,k}$ [kN]	**0,50**	0,83	0,84	0,85	0,86	0,87	0,87	0,89	0,74	0,90	1,07	1,23	1,23	1,23	1,24
	0,60	0,92	0,94	0,97	1,01	1,01	1,02	1,04	0,86	1,03	1,20	1,36	1,37	1,37	1,38
	0,70	0,99	1,04	1,10	1,16	1,16	1,17	1,19	0,98	1,15	1,33	1,50	1,50	1,50	1,51
	0,80	1,07	1,14	1,23	1,31	1,32	1,33	1,34	1,11	1,29	1,47	1,64	1,64	1,65	1,66
	1,00	1,22	1,35	1,49	1,62	1,62	1,63	1,65	1,37	1,55	1,74	1,92	1,92	1,93	1,93
	1,20	1,35	1,47	1,60	1,73	1,79	1,84	1,95	1,39	1,57	1,75	1,93	2,00	2,06	—
	1,30	1,41	1,53	1,66	1,79	1,87	1,94	2,10	1,40	1,58	1,76	1,93	2,04	2,13	—
	1,50	1,52	1,65	1,78	1,90	2,03	2,15	2,41	1,43	1,60	1,78	1,95	2,11	2,27	—
	1,60	1,57	1,68	1,79	1,90	2,03	2,15	2,41	—	—	—	—	—	—	—
	1,80	1,66	1,74	1,82	1,90	2,03	2,15	2,41	—	—	—	—	—	—	—
	2,00	1,74	1,79	1,85	1,90	2,03	2,15	2,41	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45
	0,60	0,46	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54
	0,70	0,46	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63
	0,80	0,46	0,67	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72
	1,00	0,46	0,67	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90
	1,20	0,46	0,67	0,96	1,08	1,08	1,08	1,08	1,08	1,08	1,08	1,08	1,08	1,08	—
	1,30	0,46	0,67	0,96	1,17	1,17	1,17	1,17	1,17	1,17	1,17	1,17	1,17	1,17	—
	1,50	0,46	0,67	0,96	1,25	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35	—
	1,60	0,46	0,67	0,96	1,25	1,35	1,35	1,35	—	—	—	—	—	—	—
	1,80	0,46	0,67	0,96	1,25	1,35	1,35	1,35	—	—	—	—	—	—	—
	2,00	0,46	0,67	0,96	1,25	1,35	1,35	1,35	—	—	—	—	—	—	—

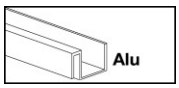
The grey highlighted values $N_{R,k}$ may be increased by 6.9% when using the types “S-MD 5x”, by 16.5% when using the types “S-MD 6x” and 25.4% when using the types “S-MD 7x”.

Self-drilling screw

Hilti S-MD 41/51/61/71 LS 5,5 x L / Hilti S-MD 41/51/61/71 LSS 5,5 x L
Hilti S-MD 41/51/61/71 LPS 5,5 x L / Hilti S-MD 41/51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø14 mm

Annex 49

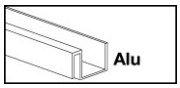
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

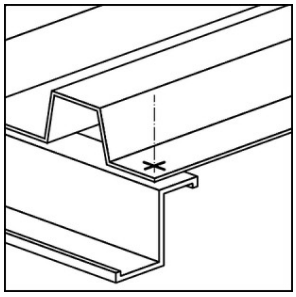
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,50 to 2,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 41 LS(S) 5,5 x L
S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 41 LPS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø14 / Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		0,50	**0,60**	**0,70**	**0,80**	**0,90**	**1,00**	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—
	0,60	—	—	—	—	—	—	—	—	—	—	—
	0,70	—	—	—	—	—	—	—	—	—	—	—
	0,80	—	—	—	—	—	—	—	—	—	—	—
	0,90	—	—	—	—	—	—	—	—	—	—	—
	1,00	—	—	—	—	—	1,16	1,16	1,16	1,16	1,16	1,16
	1,20	—	—	—	—	—	1,16	1,71	1,71	1,71	1,71	1,71
	1,40	—	—	—	—	—	1,16	1,71	2,22	2,22	2,22	2,22
	1,60	—	—	—	—	—	1,16	1,71	2,22	2,69	2,69	2,69
	1,80	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,11
	2,00	—	—	—	—	—	1,16	1,71	2,22	2,69	3,11	3,49
$N_{R,k}$ [kN]	**0,50**	0,17	0,27	0,37	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45
	0,60	0,17	0,27	0,37	0,48	0,54	0,54	0,54	0,54	0,54	0,54	0,54
	0,70	0,17	0,27	0,37	0,48	0,58	0,63	0,63	0,63	0,63	0,63	0,63
	0,80	0,17	0,27	0,37	0,48	0,58	0,69	0,72	0,72	0,72	0,72	0,72
	0,90	0,17	0,27	0,37	0,48	0,58	0,69	0,81	0,81	0,81	0,81	0,81
	1,00	0,17	0,27	0,37	0,48	0,58	0,69	0,90	0,90	0,90	0,90	0,90
	1,20	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,08	1,08	1,08	1,08
	1,40	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,60	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	1,80	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21
	2,00	0,17	0,27	0,37	0,48	0,58	0,69	0,90	1,10	1,21	1,21	1,21

The grey highlighted values $N_{R,k}$ may be increased by 6.9% when using the types “S-MD 5x”, by 16.5% when using the types “S-MD 6x” and 25.4% when using the types “S-MD 7x”.

Self-drilling screw

Hilti S-MD 41/51/61/71 LS 5,5 x L / Hilti S-MD 41/51/61/71 LSS 5,5 x L
Hilti S-MD 41/51/61/71 LPS 5,5 x L / Hilti S-MD 41/51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø14 mm

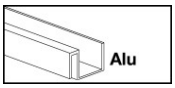
Annex 50

Application range:

Steel S280GD to S350GD

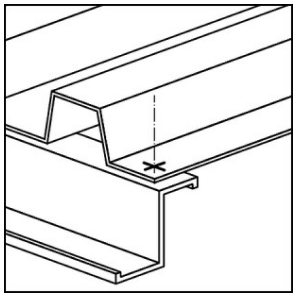
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,00 to 3,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 51 LS(S) 5,5 x L
S-MD 61 LS(S) 5,5 x L
S-MD 71 LS(S) 5,5 x L
S-MD 51 LPS(S) 5,5 x L
S-MD 61 LPS(S) 5,5 x L
S-MD 71 LPS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 4{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]						
		1,00	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**	**3,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	1,12	1,32	1,51	1,71	1,91	2,10	2,59
	0,75	1,16	1,38	1,60	1,83	2,04	2,26	2,63
	0,88	1,20	1,45	1,70	1,94	2,19	2,43	2,68
	1,00	1,24	1,51	1,79	2,06	2,33	2,60	2,72
	1,13	1,28	1,58	1,88	2,18	2,47	2,77	—
	1,25	1,32	1,64	1,96	2,29	2,60	2,92	—
	1,50	1,40	1,77	2,15	2,52	2,89	3,26	—
	1,75	1,48	1,90	2,32	2,74	3,16	3,58	—
	2,00	1,56	2,03	2,51	2,98	3,45	3,92	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	0,75	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	0,88	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,00	0,69	0,90	1,10	1,21	1,21	1,21	1,21
	1,13	0,69	0,90	1,10	1,21	1,21	1,21	—
	1,25	0,69	0,90	1,10	1,21	1,21	1,21	—
	1,50	0,69	0,90	1,10	1,21	1,21	1,21	—
	1,75	0,69	0,90	1,10	1,21	1,21	1,21	—
	2,00	0,69	0,90	1,10	1,21	1,21	1,21	—

Self-drilling screw

Hilti S-MD 51/61/71 LS 5,5 x L / Hilti S-MD 51/61/71 LSS 5,5 x L
Hilti S-MD 51/61/71 LPS 5,5 x L / Hilti S-MD 51/61/71 LPSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 51

Application range:

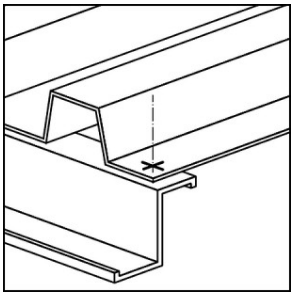
Steel S280GD to S390GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 03 S(S) 5,5 x L
S-MD 03 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

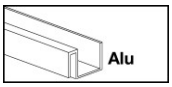
	t_I [mm]	t_{II} [mm]															
		1,50		2,00		2,50		3,00		4,00		6,00		-		-	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,10	ac	2,60	ac	3,00	ac	3,40	ac	3,40	ac	—	—	—	—	—	—
	0,75	2,50	ac	3,00	ac	3,50	ac	4,00	ac	4,00	ac	—	—	—	—	—	—
	0,88	2,70	—	3,40	ac	4,00	ac	4,60	ac	4,60	a	—	—	—	—	—	—
	1,00	2,90	—	4,80	ac	5,00	ac	5,20	ac	5,20	a	—	—	—	—	—	—
	1,13	3,30	—	5,10	—	5,40	—	6,00	—	6,00	—	—	—	—	—	—	—
	1,25	3,60	—	5,30	—	5,80	—	6,80	—	6,80	—	—	—	—	—	—	—
	1,50	4,40	—	5,90	—	6,60	—	7,20	—	7,20	—	—	—	—	—	—	—
	1,75	4,40	—	5,90	—	6,60	—	7,20	—	7,20	—	—	—	—	—	—	—
	2,00	5,40	—	6,50	—	6,60	—	7,20	—	7,20	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,70	ac	1,70	ac	1,70	ac	1,70	ac	1,70	ac	—	—	—	—	—	—
	0,75	1,70	ac	2,20	ac	2,20	ac	2,20	ac	2,20	ac	—	—	—	—	—	—
	0,88	1,70	—	2,60	ac	2,90	ac	2,90	ac	2,90	a	—	—	—	—	—	—
	1,00	1,70	—	2,60	ac	3,50	ac	3,50	ac	3,50	a	—	—	—	—	—	—
	1,13	1,70	—	2,60	—	3,60	—	4,30	—	4,30	—	—	—	—	—	—	—
	1,25	1,70	—	2,60	—	3,60	—	4,60	—	5,10	—	—	—	—	—	—	—
	1,50	1,70	—	2,60	—	3,60	—	4,60	—	6,00	—	—	—	—	—	—	—
	1,75	1,70	—	2,60	—	3,60	—	4,60	—	6,00	—	—	—	—	—	—	—
	2,00	1,70	—	2,60	—	3,60	—	4,60	—	6,00	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		$\Sigma t \leq 3{,}00$ mm: 2 Nm								$\Sigma t > 3{,}00$ mm: 5 Nm							

Self-drilling screw

Hilti S-MD 03 S 5,5 x L / Hilti S-MD 03 SS 5,5 x L
Hilti S-MD 03 PS 5,5 x L / Hilti S-MD 03 PSS 5,5 x L
with hexagon head or round head

Annex 52

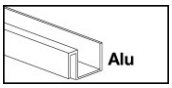
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

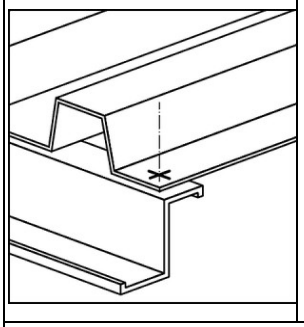
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 03 S(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]					
	1,50	**1,70**	**2,00**	**2,50**	**3,00**	**4,00**
0,50	0,82	0,82	0,82	0,82	0,82	0,82
0,60	0,94	0,94	0,94	0,94	0,94	0,94
0,70	1,05	1,05	1,05	1,05	1,05	1,05
0,80	1,17	1,17	1,17	1,17	1,17	1,17
0,90	1,27	1,27	1,27	1,27	1,27	1,27
1,00	1,37	1,40	1,45	1,53	1,61	1,61
1,20	1,55	1,55	1,55	1,55	1,61	1,61
1,40	1,70	1,70	1,70	1,70	1,70	1,70
1,60	1,83	1,83	1,83	1,83	1,83	1,83
1,80	1,93	1,93	1,93	1,93	1,93	1,93
2,00	2,00	2,00	2,00	2,00	2,00	3,05
$N_{R,II,k}$ [kN]	0,98	1,26	1,65	1,65	1,65	1,65

$V_{R,k}$ [kN]

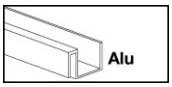
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 03 S 5,5 x L / Hilti S-MD 03 SS 5,5 x L
with hexagon head

Annex 53

Application range:



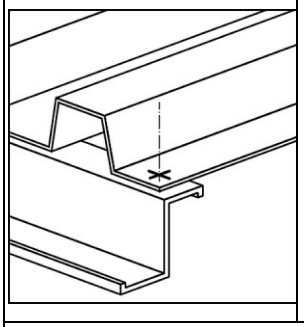
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 03 S(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]		t_{II} [mm]					
		1,50	**1,70**	**2,00**	**2,50**	**3,00**	**4,00**
$V_{R,k}$ [kN]	**0,50**	0,82	0,82	0,82	0,82	0,82	0,82
	0,60	0,94	0,94	0,94	0,94	0,94	0,94
	0,70	1,05	1,05	1,05	1,05	1,05	1,05
	0,80	1,17	1,17	1,17	1,17	1,17	1,17
	0,90	1,27	1,27	1,27	1,27	1,27	1,27
	1,00	1,37	1,40	1,45	1,53	1,61	1,61
	1,20	1,55	1,55	1,55	1,55	1,61	1,61
	1,40	1,70	1,70	1,70	1,70	1,70	1,70
	1,60	1,83	1,83	1,83	1,83	1,83	1,83
	1,80	1,93	1,93	1,93	1,93	1,93	1,93
	2,00	2,00	2,00	2,00	2,00	2,00	3,05
$N_{R,II,k}$ [kN]		1,70	2,15	2,60	3,60	4,60	6,00

Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 03 S 5,5 x L / Hilti S-MD 03 SS 5,5 x L
with hexagon head

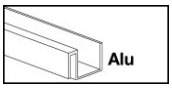
Annex 54

Application range:

Steel S280GD to S390GD

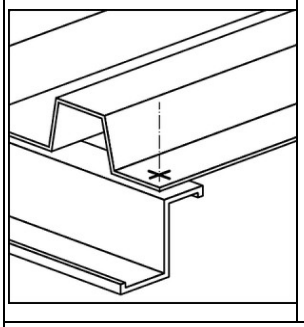
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 03 S(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

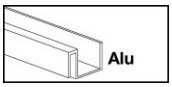
t_I [mm]		t_{II} [mm]					
		1,50	**1,70**	**2,00**	**2,50**	**3,00**	**4,00**
$V_{R,k}$ [kN]	**0,50**	1,27	1,27	1,27	1,27	1,27	1,27
	0,55	1,37	1,40	1,45	1,53	1,61	1,61
	0,63	1,50	1,52	1,55	1,60	1,65	1,65
	0,75	1,70	1,70	1,70	1,70	1,70	1,70
	0,88	1,83	1,83	1,83	1,83	1,83	1,83
	1,00	1,93	1,93	1,93	1,93	1,93	1,93
	1,13	2,00	2,00	2,00	2,00	2,00	3,05
	1,25	2,00	2,00	2,00	2,00	2,00	3,05
	1,50	2,00	2,00	2,00	2,00	2,00	3,05
	1,75	2,00	2,00	2,00	2,00	2,00	3,05
	2,00	2,00	2,00	2,00	2,00	2,00	3,05
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—
	0,55	—	—	—	—	—	—
	0,63	0,98	1,26	1,65	1,65	1,65	1,65
	0,75	0,98	1,26	1,65	1,65	1,65	1,65
	0,88	0,98	1,26	1,65	1,65	1,65	1,65
	1,00	0,98	1,26	1,65	1,65	1,65	1,65
	1,13	0,98	1,26	1,65	1,65	1,65	1,65
	1,25	0,98	1,26	1,65	1,65	1,65	1,65
	1,50	0,98	1,26	1,65	1,65	1,65	1,65
	1,75	0,98	1,26	1,65	1,65	1,65	1,65
	2,00	0,98	1,26	1,65	1,65	1,65	1,65

Self-drilling screw

Hilti S-MD 03 S 5,5 x L / Hilti S-MD 03 SS 5,5 x L
with hexagon head

Annex 55

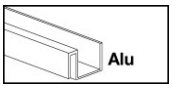
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

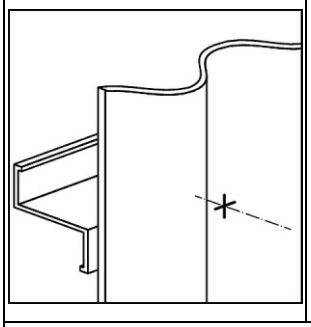
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,00 to 4,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 03 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]						
	1,00	**1,50**	**1,70**	**2,00**	**2,50**	**3,00**	**4,00**
0,50	0,56	0,79	0,79	0,79	0,79	0,79	0,79
0,60	0,65	0,91	0,91	0,91	0,91	0,91	0,91
0,70	0,74	1,03	1,03	1,03	1,03	1,03	1,03
0,80	0,85	1,10	1,10	1,10	1,10	1,10	1,10
0,90	0,96	1,18	1,18	1,18	1,18	1,18	1,18
1,00	1,07	1,25	1,25	1,25	1,25	1,25	1,25
1,20	1,07	1,25	1,25	1,25	1,25	1,25	1,25
1,40	1,07	1,25	1,25	1,25	1,25	1,25	1,25
1,60	1,07	1,25	1,25	1,25	1,25	1,25	1,25
1,80	1,07	1,25	1,25	1,25	1,25	1,25	1,25
2,00	1,07	1,25	1,25	1,25	1,25	1,25	1,25
$N_{R,II,k}$ [kN]	0,34	0,98	1,26	1,65	1,65	1,65	1,65

$V_{R,k}$ [kN]

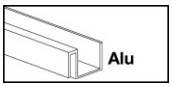
Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 03 PS 5,5 x L / Hilti S-MD 03 PSS 5,5 x L
with round head

Annex 56

Application range:



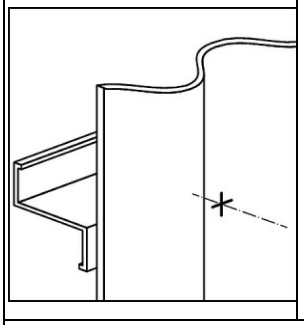
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 03 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm]					
	1,50	**1,75**	**2,00**	**2,50**	**3,00**	**4,00**
0,50	1,20	1,20	1,20	1,20	1,20	1,20
0,55	1,28	1,28	1,28	1,28	1,28	1,28
0,63	1,36	1,36	1,36	1,36	1,36	1,36
0,75	1,46	1,46	1,46	1,46	1,46	1,46
0,88	1,57	1,57	1,57	1,57	1,57	1,57
1,00	1,68	1,73	1,78	1,88	1,98	1,98
1,13	1,93	1,93	1,93	1,93	1,98	1,98
1,25	2,22	2,22	2,22	2,22	2,22	2,22
1,50	2,54	2,54	2,54	2,54	2,54	2,54
1,75	2,90	2,90	2,90	2,90	2,90	2,90
2,00	3,28	3,28	3,28	3,28	3,28	3,86
$N_{R,II,k}$ [kN]	1,70	2,15	2,60	3,60	4,60	6,00

$V_{R,k}$ [kN]

Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.

Self-drilling screw

Hilti S-MD 03 PS 5,5 x L / Hilti S-MD 03 PSS 5,5 x L
with round head

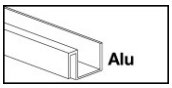
Annex 57

Application range:

Steel S280GD to S390GD

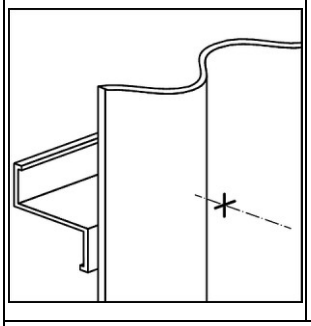
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,00 to 4,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 03 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]						
		1,00	**1,50**	**1,70**	**2,00**	**2,50**	**3,00**	**4,00**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	1,10	1,10	1,10	1,10	1,10	1,10	1,10
	0,75	1,28	1,46	1,46	1,46	1,46	1,46	1,46
	0,88	1,32	1,73	1,73	1,73	1,73	1,73	1,73
	1,00	1,36	1,99	1,99	1,99	1,99	1,99	1,99
	1,13	1,36	1,99	1,99	1,99	1,99	1,99	1,99
	1,25	1,36	1,99	1,99	1,99	1,99	1,99	1,99
	1,50	1,36	1,99	1,99	1,99	1,99	1,99	1,99
	1,75	1,36	1,99	1,99	1,99	1,99	1,99	—
	2,00	1,36	1,99	1,99	1,99	1,99	1,99	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	0,75	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	0,88	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	1,00	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	1,13	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	1,25	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	1,50	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	1,75	0,34	0,98	1,26	1,65	1,65	1,65	1,65
	2,00	0,34	0,98	1,26	1,65	1,65	1,65	1,65

Self-drilling screw

Hilti S-MD 03 PS 5,5 x L / Hilti S-MD 03 PSS 5,5 x L
with round head

Annex 58

Application range:

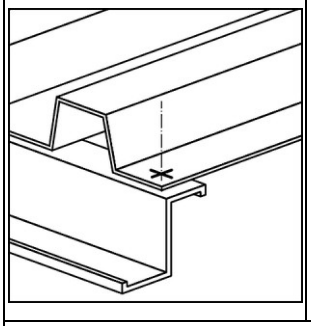
Steel S280GD to S390GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 53 S(S) 5,5 x L
S-MD 63 S(S) 5,5 x L
S-MD 73 S(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]																	
		1,50		2,00		2,50		3,00		4,00		6,00		-		-			
$V_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,10	ac	2,60	ac	3,00	ac	3,40	ac	3,40	ac	—	—	—	—	—	—		
	0,75	2,50	ac	3,00	ac	3,50	ac	4,00	ac	4,00	ac	—	—	—	—	—	—		
	0,88	2,70	—	3,40	ac	4,00	ac	4,60	ac	4,60	a	—	—	—	—	—	—		
	1,00	2,90	—	4,80	ac	5,00	ac	5,20	ac	5,20	a	—	—	—	—	—	—		
	1,13	3,30	—	5,10	—	5,40	—	6,00	—	6,00	—	—	—	—	—	—	—		
	1,25	3,60	—	5,30	—	5,80	—	6,80	—	6,80	—	—	—	—	—	—	—		
	1,50	4,40	—	5,90	—	6,60	—	7,20	—	7,20	—	—	—	—	—	—	—		
	1,75	4,40	—	5,90	—	6,60	—	7,20	—	7,20	—	—	—	—	—	—	—		
	2,00	5,40	—	6,50	—	6,60	—	7,20	—	7,20	—	—	—	—	—	—	—		
$N_{R,k}$ [kN]	0,50	0,92	ac	1,35	ac	1,35	ac	1,35	ac	1,35	ac	—	—	—	—	—	—		
	0,55	1,16	ac	1,71	ac	1,71	ac	1,71	ac	1,71	ac	—	—	—	—	—	—		
	0,63	1,70	ac	2,50	ac	2,50	ac	2,50	ac	2,50	ac	—	—	—	—	—	—		
	0,75	1,70	ac	2,60	ac	3,30	ac	3,30	ac	3,30	ac	—	—	—	—	—	—		
	0,88	1,70	—	2,60	ac	3,60	ac	4,10	ac	4,10	a	—	—	—	—	—	—		
	1,00	1,70	—	2,60	ac	3,60	ac	4,60	ac	4,70	a	—	—	—	—	—	—		
	1,13	1,70	—	2,60	—	3,60	—	4,60	—	5,40	—	—	—	—	—	—	—		
	1,25	1,70	—	2,60	—	3,60	—	4,60	—	5,90	—	—	—	—	—	—	—		
	1,50	1,70	—	2,60	—	3,60	—	4,60	—	6,00	—	—	—	—	—	—	—		
	1,75	1,70	—	2,60	—	3,60	—	4,60	—	6,00	—	—	—	—	—	—	—		
	2,00	1,70	—	2,60	—	3,60	—	4,60	—	6,00	—	—	—	—	—	—	—		
$M_{t,nom}$ [Nm]		$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm							

Self-drilling screw

Hilti S-MD 53/63/73 S 5,5 x L / Hilti S-MD 53/63/73 SS 5,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 59

Application range:

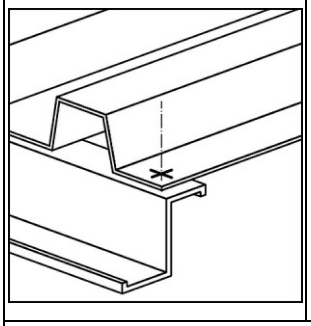
Steel S320GD to S390GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S275 to S355
Steel S320GD to S390GD

Typical application:



Fastener:

S-MD 53 S(S) 5,5 x L
S-MD 63 S(S) 5,5 x L
S-MD 73 S(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm] 1,50		2,00		2,50		3,00		4,00		6,00		-		-	
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	2,30	ac	2,80	ac	3,20	ac	3,70	ac	3,70	ac	—	—	—	—	—	—
0,75	2,70	ac	3,20	ac	3,80	ac	4,30	ac	4,30	ac	—	—	—	—	—	—
0,88	2,90	—	3,60	ac	4,30	ac	5,00	ac	5,00	a	—	—	—	—	—	—
1,00	3,20	—	5,20	ac	5,40	ac	5,70	ac	5,70	a	—	—	—	—	—	—
1,13	3,60	—	5,40	—	5,80	—	6,50	—	6,50	—	—	—	—	—	—	—
1,25	3,90	—	5,70	—	6,20	—	7,40	—	7,40	—	—	—	—	—	—	—
1,50	4,80	—	6,20	—	7,00	—	7,80	—	7,80	—	—	—	—	—	—	—
1,75	4,80	—	6,20	—	7,00	—	7,80	—	7,80	—	—	—	—	—	—	—
2,00	5,90	—	6,80	—	7,00	—	7,80	—	7,80	—	—	—	—	—	—	—
0,50	1,03	ac	1,51	ac	1,51	ac	1,51	ac	1,51	ac	—	—	—	—	—	—
0,55	1,30	ac	1,91	ac	1,91	ac	1,91	ac	1,91	ac	—	—	—	—	—	—
0,63	1,90	ac	2,80	ac	2,80	ac	2,80	ac	2,80	ac	—	—	—	—	—	—
0,75	1,90	ac	2,90	ac	3,60	ac	3,60	ac	3,60	ac	—	—	—	—	—	—
0,88	1,90	—	2,90	ac	4,00	ac	4,40	ac	4,40	a	—	—	—	—	—	—
1,00	1,90	—	2,90	ac	4,00	ac	5,10	ac	5,10	a	—	—	—	—	—	—
1,13	1,90	—	2,90	—	4,00	—	5,10	—	5,80	—	—	—	—	—	—	—
1,25	1,90	—	2,90	—	4,00	—	5,10	—	6,30	—	—	—	—	—	—	—
1,50	1,90	—	2,90	—	4,00	—	5,10	—	6,60	—	—	—	—	—	—	—
1,75	1,90	—	2,90	—	4,00	—	5,10	—	6,60	—	—	—	—	—	—	—
2,00	1,90	—	2,90	—	4,00	—	5,10	—	6,60	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]	$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm					

$V_{R,k}$ [kN]

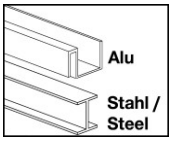
$N_{R,k}$ [kN]

Self-drilling screw

Hilti S-MD 53/63/73 S 5,5 x L / Hilti S-MD 53/63/73 SS 5,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 60

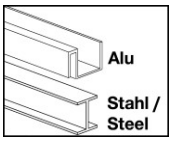
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²
Steel S280GD to S390GD

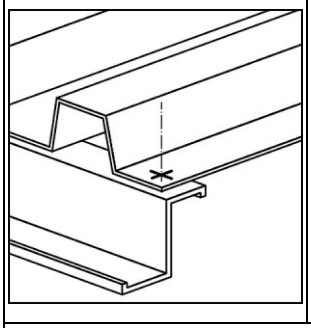
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 43 S(S) 5,5 x L
S-MD 53 S(S) 5,5 x L
S-MD 63 S(S) 5,5 x L
S-MD 73 S(S) 5,5 x L

Washer: Ø14 / Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	$t_{II,St}$ [mm]						$t_{II,Al}$ [mm]					
		1,50	**1,75**	**2,00**	**2,50**	**3,00**	**4,00**	**1,50**	**1,70**	**2,00**	**2,50**	**3,00**	**4,00**
$V_{R,k}$ [kN]	**0,50**	1,20	1,20	1,20	1,20	1,20	1,20	0,82	0,82	0,82	0,82	0,82	0,82
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	0,94	0,94	0,94	0,94	0,94	0,94
	0,70	1,36	1,36	1,36	1,36	1,36	1,36	1,05	1,05	1,05	1,05	1,05	1,05
	0,80	1,46	1,46	1,46	1,46	1,46	1,46	1,17	1,17	1,17	1,17	1,17	1,17
	0,90	1,57	1,57	1,57	1,57	1,57	1,57	1,27	1,27	1,27	1,27	1,27	1,27
	1,00	1,68	1,73	1,78	1,88	1,98	1,98	1,37	1,40	1,45	1,53	1,61	1,61
	1,20	1,93	1,93	1,93	1,93	1,98	1,98	1,55	1,55	1,55	1,55	1,61	1,61
	1,40	2,22	2,22	2,22	2,22	2,22	2,22	1,70	1,70	1,70	1,70	1,70	1,70
	1,60	2,54	2,54	2,54	2,54	2,54	2,54	1,83	1,83	1,83	1,83	1,83	1,83
	1,80	2,90	2,90	2,90	2,90	2,90	2,90	1,93	1,93	1,93	1,93	1,93	1,93
	2,00	3,28	3,28	3,28	3,28	3,28	3,86	2,00	2,00	2,00	2,00	2,00	3,05
$N_{R,k}$ [kN]	**0,50**	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45	0,45
	0,60	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54
	0,70	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63
	0,80	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72	0,72
	0,90	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81
	1,00	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90
	1,20	1,08	1,08	1,08	1,08	1,08	1,08	0,98	1,08	1,08	1,08	1,08	1,08
	1,40	1,26	1,26	1,26	1,26	1,26	1,26	0,98	1,26	1,26	1,26	1,26	1,26
	1,60	1,35	1,35	1,35	1,35	1,35	1,35	0,98	1,26	1,35	1,35	1,35	1,35
	1,80	1,35	1,35	1,35	1,35	1,35	1,35	0,98	1,26	1,35	1,35	1,35	1,35
	2,00	1,35	1,35	1,35	1,35	1,35	1,35	0,98	1,26	1,35	1,35	1,35	1,35

The grey highlighted values $N_{R,k}$ may be increased by 6.9% when using the types “S-MD 5x”, by 16.5% when using the types “S-MD 6x” and 25.4% when using the types “S-MD 7x”.

Self-drilling screw

Hilti S-MD 43/53/63/73 S 5,5 x L / Hilti S-MD 43/53/63/73 SS 5,5 x L
with hexagon head and sealing washer ≥ Ø14 mm

Annex 61

Application range:

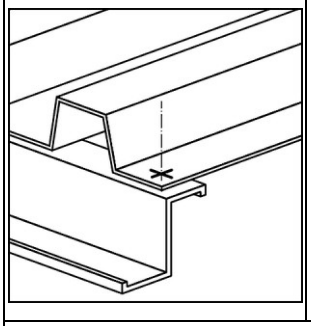
Steel S280GD to S390GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 43 S(S) 5,5 x L

Washer: Ø14

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm] 1,50		2,00		2,50		3,00		4,00		6,00		-		-	
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	2,50	—	2,50	ac	2,60	ac	2,70	ac	2,70	ac	—	—	—	—	—	—
0,75	2,80	—	2,80	ac	2,80	ac	2,80	ac	3,70	ac	—	—	—	—	—	—
0,88	3,00	—	3,00	ac	3,00	ac	3,00	ac	3,70	a	—	—	—	—	—	—
1,00	3,30	—	3,70	ac	4,30	ac	4,90	ac	4,90	a	—	—	—	—	—	—
1,13	3,50	—	3,90	—	4,60	—	5,30	—	5,30	—	—	—	—	—	—	—
1,25	3,80	—	4,10	—	4,90	—	5,80	—	5,80	—	—	—	—	—	—	—
1,50	3,80	—	5,30	—	5,60	—	5,90	—	6,40	—	—	—	—	—	—	—
1,75	3,80	—	5,30	—	5,60	—	5,90	—	6,40	—	—	—	—	—	—	—
2,00	5,60	—	5,60	—	5,60	—	5,90	—	6,40	—	—	—	—	—	—	—
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	1,90	—	2,30	ac	2,30	ac	2,30	ac	2,30	ac	—	—	—	—	—	—
0,75	1,90	—	2,50	ac	3,20	ac	3,20	ac	3,20	ac	—	—	—	—	—	—
0,88	1,90	—	2,50	ac	3,30	ac	4,10	ac	4,10	a	—	—	—	—	—	—
1,00	1,90	—	2,50	ac	3,30	ac	4,20	ac	4,90	a	—	—	—	—	—	—
1,13	1,90	—	2,50	—	3,30	—	4,20	—	5,60	—	—	—	—	—	—	—
1,25	1,90	—	2,50	—	3,30	—	4,20	—	5,60	—	—	—	—	—	—	—
1,50	1,90	—	2,50	—	3,30	—	4,20	—	5,60	—	—	—	—	—	—	—
1,75	1,90	—	2,50	—	3,30	—	4,20	—	5,60	—	—	—	—	—	—	—
2,00	1,90	—	2,50	—	3,30	—	4,20	—	5,60	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]	$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm					

$V_{R,k}$ [kN]

$N_{R,k}$ [kN]

Self-drilling screw

Hilti S-MD 43 S 5,5 x L / Hilti S-MD 43 SS 5,5 x L
with hexagon head and sealing washer Ø14 mm

Annex 62

Application range:

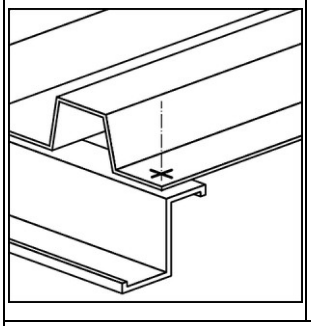
Steel S320GD to S390GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S275 to S355
Steel S320GD to S390GD

Typical application:



Fastener:

S-MD 43 S(S) 5,5 x L

Washer: Ø14

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

t_I [mm]	t_{II} [mm] 1,50		2,00		2,50		3,00		4,00		6,00		-		-	
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	2,70	—	2,70	ac	2,80	ac	2,90	ac	2,90	ac	—	—	—	—	—	—
0,75	3,00	—	3,00	ac	3,30	ac	3,70	ac	3,70	ac	—	—	—	—	—	—
0,88	3,30	—	3,30	ac	3,90	ac	4,50	ac	4,50	ac	—	—	—	—	—	—
1,00	3,50	—	4,00	ac	4,70	ac	5,30	ac	5,30	ac	—	—	—	—	—	—
1,13	3,80	—	4,20	—	5,00	—	5,80	—	5,80	—	—	—	—	—	—	—
1,25	4,10	—	4,40	—	5,30	—	6,30	—	6,30	—	—	—	—	—	—	—
1,50	4,80	—	5,70	—	6,10	—	6,40	—	7,00	—	—	—	—	—	—	—
1,75	4,80	—	5,70	—	6,10	—	6,40	—	7,00	—	—	—	—	—	—	—
2,00	6,10	—	6,10	—	6,10	—	6,40	—	7,00	—	—	—	—	—	—	—
0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0,63	2,10	—	2,60	ac	2,60	ac	2,60	ac	2,60	ac	—	—	—	—	—	—
0,75	2,10	—	2,80	ac	3,60	ac	3,60	ac	3,60	ac	—	—	—	—	—	—
0,88	2,10	—	2,80	ac	3,70	ac	4,50	ac	4,50	ac	—	—	—	—	—	—
1,00	2,10	—	2,80	ac	3,70	ac	4,70	ac	5,30	ac	—	—	—	—	—	—
1,13	2,10	—	2,80	—	3,70	—	4,70	—	6,10	—	—	—	—	—	—	—
1,25	2,10	—	2,80	—	3,70	—	4,70	—	6,40	—	—	—	—	—	—	—
1,50	2,10	—	2,80	—	3,70	—	4,70	—	6,40	—	—	—	—	—	—	—
1,75	2,10	—	2,80	—	3,70	—	4,70	—	6,40	—	—	—	—	—	—	—
2,00	2,10	—	2,80	—	3,70	—	4,70	—	6,40	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]	$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm					

$V_{R,k}$ [kN] / $N_{R,k}$ [kN]

Self-drilling screw

Hilti S-MD 43 S 5,5 x L / Hilti S-MD 43 SS 5,5 x L
with hexagon head and sealing washer Ø14 mm

Annex 63

Application range:

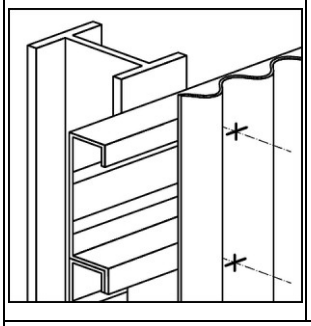
Steel S280GD to S390GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 0,75 to 1,25 mm
t_{II} = 2 x 0,75 to 2 x 1,25 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 33 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]							
		0,75	**0,88**	**1,00**	**1,25**	**2 x 0,75**	**2 x 0,88**	**2 x 1,00**	**2 x 1,25**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—	—
	0,75	1,29	1,29	1,29	1,29	2,05	2,05	2,05	2,05
	0,88	1,29	1,81	1,81	1,81	2,05	2,56	2,56	2,56
	1,00	1,29	1,81	2,32	2,32	2,05	2,56	3,07	3,07
	1,13	1,29	1,81	2,32	2,32	2,05	2,56	3,07	3,07
	1,25	1,29	1,81	2,32	2,32	2,05	2,56	3,07	3,07
	1,50	1,29	1,81	2,32	2,32	2,05	2,56	3,07	3,07
	1,75	1,29	1,81	2,32	2,32	2,05	2,56	3,07	3,07
	2,00	1,29	1,81	2,32	2,32	2,05	2,56	3,07	3,07
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—
	0,63	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	0,75	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	0,88	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,00	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,13	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,25	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,50	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,75	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	2,00	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91

Self-drilling screw

Hilti S-MD 33 PS 5,5 x L / Hilti S-MD 33 PSS 5,5 x L
with round head and sealing washer Ø12 mm

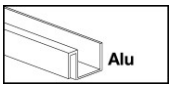
Annex 64

Application range:

Steel S280GD to S390GD

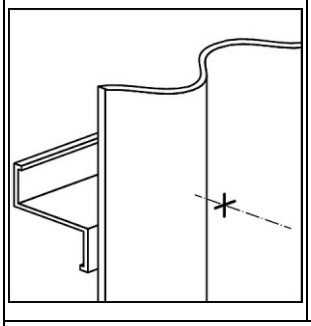
Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,00 to 4,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 33 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

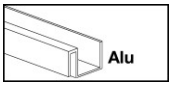
	t_I [mm]	t_{II} [mm]							
		1,00	1,50	2,00	2,50	3,00	4,00	5,00	-
$V_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—
	0,63	1,10	1,10	1,10	1,10	1,10	1,10	1,10	—
	0,75	1,28	1,46	1,46	1,46	1,46	1,46	1,46	—
	0,88	1,32	1,73	1,73	1,73	1,73	1,73	1,73	—
	1,00	1,36	1,99	1,99	1,99	1,99	1,99	1,99	—
	1,13	1,36	1,99	1,99	1,99	1,99	1,99	—	—
	1,25	1,36	1,99	1,99	1,99	1,99	1,99	—	—
	1,50	1,36	1,99	1,99	1,99	1,99	1,99	—	—
	1,75	1,36	1,99	1,99	1,99	1,99	—	—	—
	2,00	1,36	1,99	1,99	1,99	1,99	—	—	—
$N_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—
	0,63	0,34	0,78	1,17	1,66	2,34	2,34	2,34	—
	0,75	0,34	0,78	1,17	1,66	2,34	2,34	2,34	—
	0,88	0,34	0,78	1,17	1,66	2,34	2,34	2,34	—
	1,00	0,34	0,78	1,17	1,66	2,34	2,34	2,34	—
	1,13	0,34	0,78	1,17	1,66	2,34	2,34	—	—
	1,25	0,34	0,78	1,17	1,66	2,34	2,34	—	—
	1,50	0,34	0,78	1,17	1,66	2,34	2,34	—	—
	1,75	0,34	0,78	1,17	1,66	2,34	—	—	—
	2,00	0,34	0,78	1,17	1,66	2,34	—	—	—

Self-drilling screw

Hilti S-MD 33 PS 5,5 x L / Hilti S-MD 33 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 65

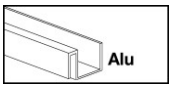
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

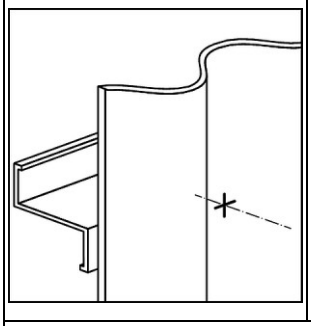
Component I: t_I = 0,50 to 1,50 mm

Component II: t_{II} = 1,00 to 5,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²

Typical application:



Fastener:

S-MD 33 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

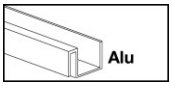
	t_I [mm]	t_{II} [mm]							
		1,00	1,50	2,00	2,50	3,00	4,00	5,00	-
$V_{R,k}$ [kN]	**0,50**	0,56	0,79	0,79	0,79	0,79	0,79	0,79	—
	0,60	0,65	0,91	0,91	0,91	0,91	0,91	—	—
	0,70	0,74	1,03	1,03	1,03	1,03	1,03	—	—
	0,80	0,85	1,10	1,10	1,10	1,10	1,10	—	—
	0,90	0,96	1,18	1,18	1,18	1,18	1,18	—	—
	1,00	1,07	1,25	1,25	1,25	1,25	1,25	—	—
	1,10	1,07	1,25	1,25	1,25	1,25	1,25	—	—
	1,20	1,07	1,25	1,25	1,25	1,25	1,25	—	—
	1,30	1,07	1,25	1,25	1,25	1,25	1,25	—	—
	1,40	1,07	1,25	1,25	1,25	1,25	1,25	—	—
	1,50	1,07	1,25	1,25	1,25	1,25	1,25	—	—
$N_{R,k}$ [kN]	**0,50**	0,34	0,61	0,61	0,61	0,61	0,61	0,61	—
	0,60	0,34	0,70	0,70	0,70	0,70	0,70	—	—
	0,70	0,34	0,78	0,83	0,83	0,83	0,83	—	—
	0,80	0,34	0,78	0,99	0,99	0,99	0,99	—	—
	0,90	0,34	0,78	1,17	1,19	1,19	1,19	—	—
	1,00	0,34	0,78	1,17	1,42	1,42	1,42	—	—
	1,10	0,34	0,78	1,17	1,66	1,70	1,70	—	—
	1,20	0,34	0,78	1,17	1,66	2,02	2,02	—	—
	1,30	0,34	0,78	1,17	1,66	2,02	2,02	—	—
	1,40	0,34	0,78	1,17	1,66	2,02	2,02	—	—
	1,50	0,34	0,78	1,17	1,66	2,02	2,02	—	—

Self-drilling screw

Hilti S-MD 33 PS 5,5 x L / Hilti S-MD 33 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 66

Application range:



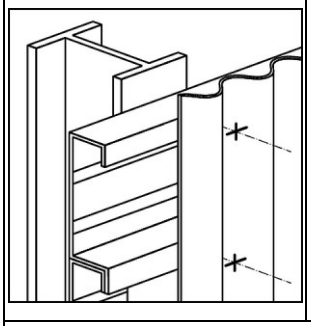
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,50 to 1,50 mm

Component II: t_{II} = 0,75 to 1,25 mm
t_{II} = 2 x 0,75 to 2 x 1,25 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 33 PS(S) 5,5 x L

Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]							
		0,75	**0,88**	**1,00**	**1,25**	**2 x 0,75**	**2 x 0,88**	**2 x 1,00**	**2 x 1,25**
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—
	0,60	—	—	—	—	—	—	—	—
	0,70	0,99	0,99	0,99	0,99	1,18	1,18	1,18	1,18
	0,80	0,99	0,99	0,99	0,99	1,18	1,18	1,18	1,18
	0,90	0,99	0,99	0,99	0,99	1,18	1,18	1,18	1,18
	1,00	0,99	0,99	1,31	1,31	1,18	1,18	1,18	1,18
	1,10	0,99	0,99	1,31	1,31	1,18	1,18	1,18	1,18
	1,20	0,99	0,99	1,31	1,31	1,18	1,18	1,18	1,18
	1,30	0,99	0,99	1,31	1,31	1,18	1,18	1,18	1,18
	1,40	0,99	0,99	1,31	1,31	1,18	1,18	1,18	1,18
	1,50	0,99	0,99	1,31	1,31	1,18	1,18	1,18	1,18
$N_{R,k}$ [kN]	**0,50**	0,45	0,61	0,61	0,61	0,61	0,61	0,61	0,61
	0,60	0,45	0,65	0,70	0,70	0,70	0,70	0,70	0,70
	0,70	0,45	0,65	0,83	0,83	0,83	0,83	0,83	0,83
	0,80	0,45	0,65	0,85	0,99	0,97	0,99	0,99	0,99
	0,90	0,45	0,65	0,85	1,08	0,97	1,19	1,19	1,19
	1,00	0,45	0,65	0,85	1,08	0,97	1,24	1,42	1,42
	1,10	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,70
	1,20	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,30	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,40	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91
	1,50	0,45	0,65	0,85	1,08	0,97	1,24	1,51	1,91

Self-drilling screw

Hilti S-MD 33 PS 5,5 x L / Hilti S-MD 33 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 67

Application range:

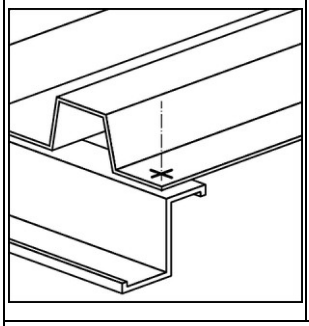
Steel S280GD to S390GD

Component I: t_I = 0,63 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 03 S(S) 6,3 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 1,50		2,00		2,50		3,00		4,00		6,00		-		-	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,20	—	2,50	ac	2,80	ac	3,00	ac	3,00	ac	—	—	—	—	—	—
	0,75	2,70	—	3,20	ac	3,60	ac	4,10	ac	4,10	ac	—	—	—	—	—	—
	0,88	3,00	—	3,70	ac	4,50	ac	5,30	ac	5,30	ac	—	—	—	—	—	—
	1,00	3,30	—	4,00	ac	5,20	ac	6,40	ac	6,40	ac	—	—	—	—	—	—
	1,13	3,70	—	4,70	—	5,70	—	6,70	—	6,70	—	—	—	—	—	—	—
	1,25	4,10	—	5,10	—	6,00	—	6,90	—	6,90	—	—	—	—	—	—	—
	1,50	5,00	—	6,30	—	6,90	—	7,50	—	8,10	—	—	—	—	—	—	—
	1,75	5,00	—	6,30	—	6,90	—	7,50	—	8,10	—	—	—	—	—	—	—
	2,00	6,70	—	6,70	—	6,90	—	7,50	—	8,10	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,40	—	1,90	ac	1,90	ac	1,90	ac	1,90	ac	—	—	—	—	—	—
	0,75	1,40	—	2,60	ac	2,60	ac	2,60	ac	2,60	ac	—	—	—	—	—	—
	0,88	1,40	—	2,70	ac	3,40	ac	3,40	ac	3,40	ac	—	—	—	—	—	—
	1,00	1,40	—	2,70	ac	4,00	ac	4,30	ac	4,30	ac	—	—	—	—	—	—
	1,13	1,40	—	2,70	—	4,00	—	5,30	—	5,30	—	—	—	—	—	—	—
	1,25	1,40	—	2,70	—	4,00	—	5,40	—	6,40	—	—	—	—	—	—	—
	1,50	1,40	—	2,70	—	4,00	—	5,40	—	6,90	—	—	—	—	—	—	—
	1,75	1,40	—	2,70	—	4,00	—	5,40	—	6,90	—	—	—	—	—	—	—
	2,00	1,40	—	2,70	—	4,00	—	5,40	—	7,20	—	—	—	—	—	—	—
$M_{t,nom}$ [Nm]		$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm					

Self-drilling screw

Hilti S-MD 03 S 6,3 x L / Hilti S-MD 03 SS 6,3 x L
with hexagon head

Annex 68

Application range:

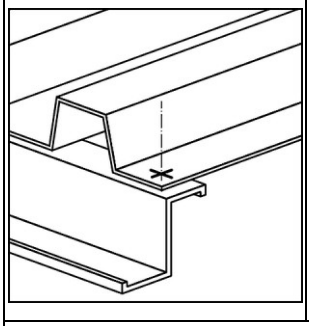
Steel S280GD to S390GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S235 to S355
Steel S280GD to S390GD

Typical application:



Fastener:

S-MD 53 S(S) 6,3 x L
S-MD 63 S(S) 6,3 x L
S-MD 73 S(S) 6,3 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]																	
		1,50		2,00		2,50		3,00		4,00		6,00		-		-			
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,20	—	2,50	ac	2,80	ac	3,00	ac	3,00	ac	—	—	—	—	—	—		
	0,75	2,70	—	3,20	ac	3,60	ac	4,10	ac	4,10	ac	—	—	—	—	—	—		
	0,88	3,00	—	3,70	ac	4,50	ac	5,30	ac	5,30	ac	—	—	—	—	—	—		
	1,00	3,30	—	4,00	ac	5,20	ac	6,40	ac	6,40	ac	—	—	—	—	—	—		
	1,13	3,70	—	4,70	—	5,70	—	6,70	—	6,70	—	—	—	—	—	—	—		
	1,25	4,10	—	5,10	—	6,00	—	6,90	—	6,90	—	—	—	—	—	—	—		
	1,50	5,00	—	6,30	—	6,90	—	7,50	—	8,10	—	—	—	—	—	—	—		
	1,75	5,00	—	6,30	—	6,90	—	7,50	—	8,10	—	—	—	—	—	—	—		
	2,00	6,70	—	6,70	—	6,90	—	7,50	—	8,10	—	—	—	—	—	—	—		
$N_{R,k}$ [kN]	**0,50**	0,76	—	1,46	ac	1,62	ac	1,62	ac	1,62	ac	—	—	—	—	—	—		
	0,55	0,95	—	1,84	ac	2,05	ac	2,05	ac	2,05	ac	—	—	—	—	—	—		
	0,63	1,40	—	2,70	ac	3,00	ac	3,00	ac	3,00	ac	—	—	—	—	—	—		
	0,75	1,40	—	2,70	ac	3,90	ac	3,90	ac	3,90	ac	—	—	—	—	—	—		
	0,88	1,40	—	2,70	ac	4,00	ac	4,80	ac	4,80	ac	—	—	—	—	—	—		
	1,00	1,40	—	2,70	ac	4,00	ac	5,40	ac	5,60	ac	—	—	—	—	—	—		
	1,13	1,40	—	2,70	—	4,00	—	5,40	—	6,20	—	—	—	—	—	—	—		
	1,25	1,40	—	2,70	—	4,00	—	5,40	—	6,80	—	—	—	—	—	—	—		
	1,50	1,40	—	2,70	—	4,00	—	5,40	—	7,20	—	—	—	—	—	—	—		
	1,75	1,40	—	2,70	—	4,00	—	5,40	—	7,20	—	—	—	—	—	—	—		
	2,00	1,40	—	2,70	—	4,00	—	5,40	—	7,20	—	—	—	—	—	—	—		
$M_{t,nom}$ [Nm]		$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm							

Self-drilling screw

Hilti S-MD 53/63/73 S 6,3 x L / Hilti S-MD 53/63/73 SS 6,3 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 69

Application range:

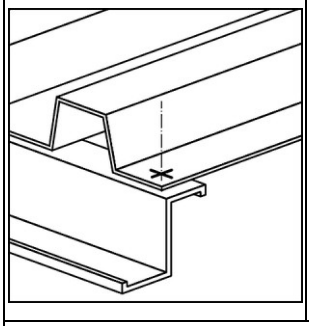
Steel S320GD to S390GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,50 to 4,00 mm

Steel S275 to S355
Steel S320GD to S390GD

Typical application:



Fastener:

S-MD 53 S(S) 6,3 x L
S-MD 63 S(S) 6,3 x L
S-MD 73 S(S) 6,3 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 6{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]																	
		1,50		2,00		2,50		3,00		4,00		6,00		-		-			
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,40	—	2,70	ac	3,00	ac	3,30	ac	3,30	ac	—	—	—	—	—	—		
	0,75	2,90	—	3,40	ac	3,90	ac	4,50	ac	4,50	ac	—	—	—	—	—	—		
	0,88	3,20	—	4,10	ac	4,90	ac	5,70	ac	5,70	ac	—	—	—	—	—	—		
	1,00	3,50	—	4,30	ac	5,60	ac	6,90	ac	6,90	ac	—	—	—	—	—	—		
	1,13	4,00	—	5,10	—	6,20	—	7,20	—	7,20	—	—	—	—	—	—	—		
	1,25	4,50	—	5,50	—	6,50	—	7,50	—	7,50	—	—	—	—	—	—	—		
	1,50	5,40	—	6,80	—	7,40	—	8,10	—	8,80	—	—	—	—	—	—	—		
	1,75	5,40	—	6,80	—	7,40	—	8,10	—	8,80	—	—	—	—	—	—	—		
	2,00	7,20	—	7,20	—	7,40	—	8,10	—	8,80	—	—	—	—	—	—	—		
$N_{R,k}$ [kN]	**0,50**	0,92	—	1,67	ac	1,84	ac	1,84	ac	1,84	ac	—	—	—	—	—	—		
	0,55	1,16	—	2,11	ac	2,32	ac	2,32	ac	2,32	ac	—	—	—	—	—	—		
	0,63	1,70	—	3,10	ac	3,40	ac	3,40	ac	3,40	ac	—	—	—	—	—	—		
	0,75	1,70	—	3,10	ac	4,30	ac	4,30	ac	4,30	ac	—	—	—	—	—	—		
	0,88	1,70	—	3,10	ac	4,50	ac	5,20	ac	5,20	ac	—	—	—	—	—	—		
	1,00	1,70	—	3,10	ac	4,50	ac	6,00	ac	6,00	ac	—	—	—	—	—	—		
	1,13	1,70	—	3,10	—	4,50	—	6,00	—	6,60	—	—	—	—	—	—	—		
	1,25	1,70	—	3,10	—	4,50	—	6,00	—	7,20	—	—	—	—	—	—	—		
	1,50	1,70	—	3,10	—	4,50	—	6,00	—	7,90	—	—	—	—	—	—	—		
	1,75	1,70	—	3,10	—	4,50	—	6,00	—	7,90	—	—	—	—	—	—	—		
	2,00	1,70	—	3,10	—	4,50	—	6,00	—	7,90	—	—	—	—	—	—	—		
$M_{t,nom}$ [Nm]		$\Sigma t \leq 3{,}00$ mm: 2 Nm										$\Sigma t > 3{,}00$ mm: 5 Nm							

Self-drilling screw

Hilti S-MD 53/63/73 S 6,3 x L / Hilti S-MD 53/63/73 SS 6,3 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 70

Application range:

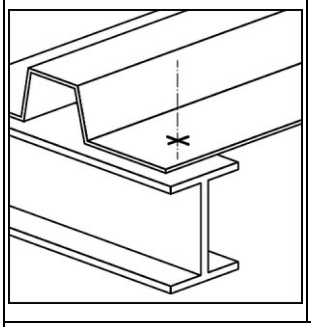
Steel S280GD to S350GD

Component I: t_I = 0,40 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S280GD to S450GD

Typical application:



Fastener:

S-MD 05 S(S) 5,5 x L
S-MD 05 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	**5,00**	**≥ 6,00**	**2 x 0,50**	**2 x 0,63**	**2 x 0,75**	**2 x 1,00**	**2 x 1,25**	**2 x 1,50**	**2 x 1,75**	**2 x 2,00**
$V_{R,k}$ [kN]	**0,40**	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33
	0,50	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59
	0,55	2,00	2,00	2,00	1,62	1,62	1,62	1,62	1,62	1,62	1,62	1,62
	0,63	2,65	2,65	2,65	1,68	1,68	1,68	1,68	1,68	1,68	1,68	1,68
	0,75	3,63[3)]	3,63[3)]	3,63[3)]	1,76[4)]	1,76[4)]	1,76[4)]	1,76[4)]	1,76[4)]	1,76[4)]	1,76[4)]	1,76[4)]
	0,88	4,25[3)]	4,25[3)]	4,25[3)]	2,08[4)]	2,08[4)]	2,08[4)]	2,08[4)]	2,08[4)]	2,08[4)]	2,08[4)]	2,08[4)]
	1,00	4,82[3)]	4,82[3)]	4,82[3)]	2,38[4)]	2,69[5)]	2,98[5)]	2,98[5)]	2,98[5)]	2,98[5)]	2,98[5)]	2,98[5)]
	1,25	6,26	6,26	6,26	2,38[4)]	2,94[5)]	3,46[5)]	3,46[5)]	3,46[5)]	3,46[5)]	3,46[5)]	3,46[5)]
	1,50	7,70	7,70	7,70	2,38[4)]	3,19[5)]	3,94[5)]	3,94[5)]	3,94[5)]	3,94[5)]	3,94[5)]	3,94[5)]
	1,75	7,70	7,70	7,70	2,38[4)]	3,55[5)]	4,63[5)]	4,63[5)]	4,63[5)]	4,63[5)]	4,63[5)]	4,63[5)]
	2,00	7,70	7,70	7,70	2,38[4)]	3,90[5)]	5,31[5)]	5,31[5)]	5,31[5)]	5,31[5)]	5,31[5)]	5,31[5)]
$N_{R,k}$ [kN]	**0,40**	1,09	1,09	1,09	0,81	1,09	1,09	1,09	1,09	1,09	1,09	1,09
	0,50	1,44[2)]	1,44[2)]	1,44[2)]	0,81	1,11[5)]	1,38[5)]	1,44[4)]	1,44[4)]	1,44[4)]	1,44[4)]	1,44[4)]
	0,55	1,67[3)]	1,67[3)]	1,67[3)]	0,81	1,11[5)]	1,38[5)]	1,67[5)]	1,67[5)]	1,67[5)]	1,67[5)]	1,67[5)]
	0,63	2,03[3)]	2,03[3)]	2,03[3)]	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,03[5)]	2,03[5)]	2,03[5)]	2,03[5)]
	0,75	2,57[3)]	2,57[3)]	2,57[3)]	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,57[5)]	2,57[5)]	2,57[5)]	2,57[5)]
	0,88	3,40	3,40	3,40	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,81	3,40	3,40	3,40
	1,00	4,17	4,17	4,17	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,81	3,53[5)]	4,17	4,17
	1,25	5,07	5,07	5,07	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,81	3,53[5)]	4,52[5)]	5,07
	1,50	6,46	6,87	6,87	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,81	3,53[5)]	4,52[4)]	5,50[4)]
	1,75	6,46[1)]	7,04	7,04	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,81	3,53[5)]	4,52[4)]	5,50[4)]
	2,00	6,46[1)]	7,21[2)]	7,21[2)]	0,81	1,11[5)]	1,38[5)]	1,77[4)]	2,81	3,53[5)]	4,52[4)]	5,50[4)]
$N_{R,II,k}$ [kN]		6,46[1)]	8,73	11,0	0,81	1,11	1,38	1,77[1)]	2,81	3,53	4,52[1)]	5,50[1)]

1) For component II made of S320GD, the value may be increased by 8%.
   For component II made of S350GD, the value may be increased by 16%.
2) For component I made of S320GD, the value may be increased by 8%.
   For component I made of S350GD, the value may be increased by 16%.
3) For component I made of S320GD, the value may be increased by 8%.
4) For component I and component II made of S320GD, the value may be increased by 8%.
   For component I and component II made of S350GD, the value may be increased by 16%.
5) For component I and component II made of S320GD, the value may be increased by 8%.

Self-drilling screw

Hilti S-MD 05 S 5,5 x L / Hilti S-MD 05 SS 5,5 x L
Hilti S-MD 05 PS 5,5 x L / Hilti S-MD 05 PSS 5,5 x L
with hexagon head or round head

Annex 71

Application range:

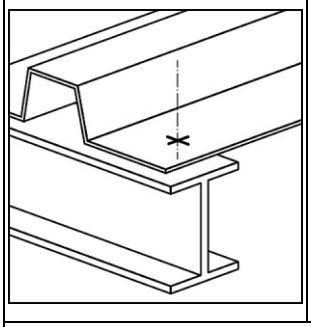
Steel S390GD to S450GD

Component I: t_I = 0,40 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S390GD to S450GD

Typical application:



Fastener:

S-MD 05 S(S) 5,5 x L
S-MD 05 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
$V_{R,k}$ [kN]	0,40	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35
	0,50	1,70	1,70	1,70	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73
	0,55	2,15	2,15	2,15	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80
	0,63	2,86	2,86	2,86	1,91	1,91	1,91	1,91	1,91	1,91	1,91	1,91
	0,75	3,93	3,93	3,93	2,07	2,07	2,07	2,07	2,07	2,07	2,07	2,07
	0,88	4,79	4,79	4,79	2,45	2,45	2,45	2,45	2,45	2,45	2,45	2,45
	1,00	5,59	5,59	5,59	2,80	3,02	3,22	3,22	3,22	3,22	3,22	3,22
	1,25	7,09	7,09	7,09	2,80	3,29	3,74	3,74	3,74	3,74	3,74	3,74
	1,50	8,59[2)]	8,59[2)]	8,59[2)]	2,80	3,56	4,26	4,26	4,26	4,26	4,26	4,26
	1,75	8,68	8,68	8,68	2,80	3,94	5,00	5,00	5,00	5,00	5,00	5,00
	2,00	8,77	8,77	8,77	2,80	4,33	5,74	5,74	5,74	5,74	5,74	5,74
$N_{R,k}$ [kN]	0,40	1,11	1,11	1,11	0,87	1,11	1,11	1,11	1,11	1,11	1,11	1,11
	0,50	1,69	1,69	1,69	0,87	1,19	1,49	1,69	1,69	1,69	1,69	1,69
	0,55	1,91	1,91	1,91	0,87	1,19	1,49	1,91	1,91	1,91	1,91	1,91
	0,63	2,26	2,26	2,26	0,87	1,19	1,49	2,05	2,26	2,26	2,26	2,26
	0,75	2,78	2,78	2,78	0,87	1,19	1,49	2,05	2,78	2,78	2,78	2,78
	0,88	3,62	3,62	3,62	0,87	1,19	1,49	2,05	2,88	3,62	3,62	3,62
	1,00	4,40	4,40	4,40	0,87	1,19	1,49	2,05	2,88	4,04	4,40	4,40
	1,25	5,20	5,20	5,20	0,87	1,19	1,49	2,05	2,88	4,04	5,20	5,20
	1,50	6,46	7,55[2)]	7,55[2)]	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53
	1,75	6,46	8,05	8,05	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53
	2,00	6,46	8,55	8,55	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53
$N_{R\,II\,k}$ [kN]		6,46[1)]	8,73	11,0	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53

1) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.
For component II made of S390GD, the value may be increased by 21%.

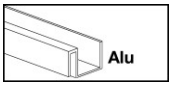
2) For component I made of S420GD, the value may be increased by 4%.

Self-drilling screw

Hilti S-MD 05 S 5,5 x L / Hilti S-MD 05 SS 5,5 x L
Hilti S-MD 05 PS 5,5 x L / Hilti S-MD 05 PSS 5,5 x L
with hexagon head or round head

Annex 72

Application range:



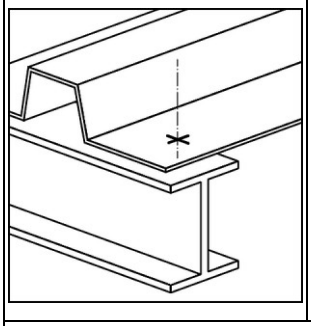
Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S280GD to S450GD

Typical application:



Fastener:

S-MD 05 S(S) 5,5 x L
S-MD 05 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	**5,00**	**≥ 6,00**	**2 x 0,50**	**2 x 0,63**	**2 x 0,75**	**2 x 1,00**	**2 x 1,25**	**2 x 1,50**	**2 x 1,75**	**2 x 2,00**
Al-Alloy, $R_m \geq 165$ N/mm²	**0,50**	0,84	0,84	0,84	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67
	0,60	1,10	1,10	1,10	0,82	0,82	0,82	0,82	0,82	0,82	0,82	0,82
	0,70	1,37	1,37	1,37	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96
	0,80	1,63	1,63	1,63	1,11	1,11	1,11	1,11	1,11	1,11	1,11	1,11
	0,90	1,82	1,82	1,82	1,17	1,17	1,17	1,17	1,17	1,17	1,17	1,17
	1,00	2,01	2,01	2,01	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22
	1,20	2,63	2,63	2,63	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32
	1,50	3,56	3,56	3,56	1,46	1,91	1,91	1,91	1,91	1,91	1,91	1,91
	2,00	4,62	4,62	4,62	1,46	2,31	2,31	2,31	2,31	2,31	2,31	2,31
Al-Alloy, $R_m \geq 215$ N/mm²	**0,50**	1,10	1,10	1,10	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88
	0,60	1,44	1,44	1,44	1,07	1,07	1,07	1,07	1,07	1,07	1,07	1,07
	0,70	1,79	1,79	1,79	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26
	0,80	2,13	2,13	2,13	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45
	0,90	2,38	2,38	2,38	1,52	1,52	1,52	1,52	1,52	1,52	1,52	1,52
	1,00	2,62	2,62	2,62	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59
	1,20	3,43	3,43	3,43	1,71	1,71	1,71	1,71	1,71	1,71	1,71	1,71
	1,50	4,64	4,64	4,64	1,90	2,48	2,48	2,48	2,48	2,48	2,48	2,48
	2,00	6,02	6,02	6,02	1,90	3,01	3,01	3,01	3,01	3,01	3,01	3,01
$N_{R;II;k}$ [kN]		6,46[2)]	8,73	11,0	0,81	1,11[1)]	1,38[1)]	1,77[2)]	2,81	3,53[1)]	4,52[2)]	5,50[2)]

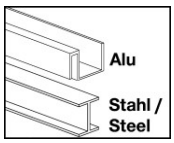
1) For component II made of S320GD, the value may be increased by 8%.
2) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.

Self-drilling screw

Hilti S-MD 05 S 5,5 x L / Hilti S-MD 05 SS 5,5 x L
Hilti S-MD 05 PS 5,5 x L / Hilti S-MD 05 PSS 5,5 x L
with hexagon head or round head

Annex 73

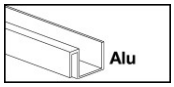
Application range:



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²
Steel S280GD to S450GD

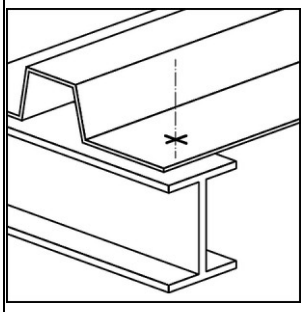
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 4,00 to 12,00 mm



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Typical application:



Fastener:

S-MD 05 S(S) 5,5 x L
S-MD 05 PS(S) 5,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

t_I [mm]		t_{II} [mm]											
		Al-Alloy, $R_m \geq 165$ N/mm²						Al-Alloy, $R_m \geq 215$ N/mm²					
		4,00	5,00	6,00	8,00	10,0	12,0	4,00	5,00	6,00	8,00	10,0	12,0
Al-Alloy, $R_m \geq 165$ N/mm² $V_{R,k}$ [kN]	0,50	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91	0,91
	0,60	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13
	0,70	1,34	1,34	1,34	1,34	1,34	1,34	1,34	1,34	1,34	1,34	1,34	1,34
	0,80	1,56	1,56	1,56	1,56	1,56	1,56	1,56	1,56	1,56	1,56	1,56	1,56
	0,90	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80
	1,00	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04
	1,20	2,55	2,55	2,55	2,55	2,55	2,55	2,55	2,55	2,55	2,55	2,55	2,55
	1,50	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31
	2,00	3,83	3,83	3,83	3,83	3,83	3,83	3,83	3,83	3,83	3,83	3,83	3,83
Al-Alloy, Rm ≥ 215 N/mm2 Stahl S280GD bis S450GD $V_{R,k}$ [kN]	0,50	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18
	0,60	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47
	0,70	1,75	1,75	1,75	1,75	1,75	1,75	1,75	1,75	1,75	1,75	1,75	1,75
	0,80	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04	2,04
	0,90	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
	1,00	2,65	2,65	2,65	2,65	2,65	2,65	2,65	2,65	2,65	2,65	2,65	2,65
	1,20	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31	3,31
	1,50	4,31	4,31	4,31	4,31	4,31	4,31	4,31	4,31	4,31	4,31	4,31	4,31
	2,00	4,99	4,99	4,99	4,99	4,99	4,99	4,99	4,99	4,99	4,99	4,99	4,99
$N_{R,II,k}$ [kN]		2,87	4,41	5,94	8,07	8,74	9,41	3,74	5,74	7,74	10,52	10,76	11,00

Self-drilling screw

Hilti S-MD 05 S 5,5 x L / Hilti S-MD 05 SS 5,5 x L
Hilti S-MD 05 PS 5,5 x L / Hilti S-MD 05 PSS 5,5 x L
with hexagon head or round head

Annex 74

Application range:

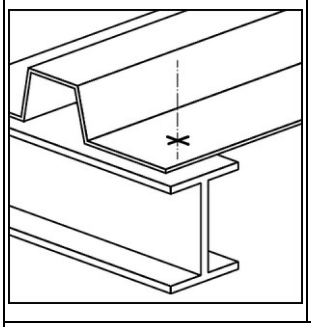
Steel S280GD to S350GD

Component I: t_I = 0,40 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S280GD to S450GD

Typical application:



Fastener:

S-MD 55 S(S) 5,5 x L
S-MD 65 S(S) 5,5 x L
S-MD 75 S(S) 5,5 x L
S-MD 55 PS(S) 5,5 x L
S-MD 65 PS(S) 5,5 x L
S-MD 75 PS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
$V_{R,k}$ [kN]	0,40	1,68	1,68	1,68	1,23	1,23	1,23	1,23	1,23	1,23	1,23	1,23
	0,50	1,99	1,99	1,99	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47
	0,55	2,38	2,38	2,38	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55
	0,63	2,99	2,99	2,99	1,68	1,68	1,68	1,68	1,68	1,68	1,68	1,68
	0,75	3,92	3,92	3,92	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]
	0,88	4,47[3]	4,47[3]	4,47[3]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]
	1,00	4,98[3]	4,98[3]	4,98[3]	2,48[4]	2,89[5]	3,27[5]	3,27[5]	3,27[5]	3,27[5]	3,27[5]	3,27[5]
	1,25	5,98	5,98	5,98	2,48[4]	3,23[5]	3,92[5]	3,92[5]	3,92[5]	3,92[5]	3,92[5]	3,92[5]
	1,50	6,97	6,97	6,97	2,48[4]	3,57[5]	4,57	4,57	4,57	4,57	4,57	4,57
	1,75	6,81	6,81	6,81	2,48[4]	3,71[5]	4,85	4,85	4,85	4,85	4,85	4,85
	2,00	6,65[2]	6,65[2]	6,65[2]	2,48[4]	3,85[5]	5,12[5]	5,12[5]	5,12[5]	5,12[5]	5,12[5]	5,12[5]
$N_{R,k}$ [kN]	0,40	1,35	1,35	1,35	0,81	1,11[5]	1,35	1,35	1,35	1,35	1,35	1,35
	0,50	1,64	1,64	1,64	0,81	1,11[5]	1,38[5]	1,64	1,64	1,64	1,64	1,64
	0,55	2,00	2,00	2,00	0,81	1,11[5]	1,38[5]	1,77[4]	2,00	2,00	2,00	2,00
	0,63	2,57	2,57	2,57	0,81	1,11[5]	1,38[5]	1,77[4]	2,57	2,57	2,57	2,57
	0,75	3,42	3,42	3,42	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,42[5]	3,42[5]	3,42[5]
	0,88	3,72	3,72	3,72	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	3,72[5]	3,72[5]
	1,00	4,00[3]	4,00[3]	4,00[3]	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,00[4]	4,00[4]
	1,25	6,06[2]	6,06[2]	6,06[2]	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,52[4]	5,50[5]
	1,50	6,46	7,33	7,33	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,52[4]	5,50[4]
	1,75	6,46	7,33	7,33	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,52[4]	5,50[4]
	2,00	6,46	7,33	7,33	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,52[4]	5,50[4]
$N_{R\,II\,k}$ [kN]		6,46[1]	8,73	11,0	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,52[4]	5,50[1]

1) For component II made of S320GD, the value may be increased by 8%.
   For component II made of S350GD, the value may be increased by 16%.
2) For component I made of S320GD, the value may be increased by 8%.
   For component I made of S350GD, the value may be increased by 16%.
3) For component I made of S320GD, the value may be increased by 8%.
4) For component I and component II made of S320GD, the value may be increased by 8%.
   For component I and component II made of S350GD, the value may be increased by 16%.
5) For component I and component II made of S320GD, the value may be increased by 8%.

Self-drilling screw

Hilti S-MD 55/65/75 S 5,5 x L / Hilti S-MD 55/65/75 SS 5,5 x L
Hilti S-MD 55/65/75 PS 5,5 x L / Hilti S-MD 55/65/75 PSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 75

Application range:

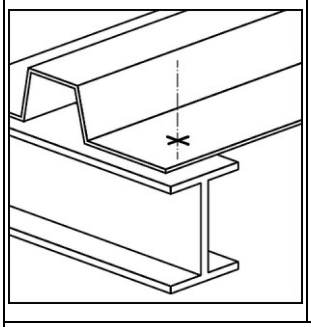
Steel S390GD to S450GD

Component I: t_I = 0,40 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S390GD to S450GD

Typical application:



Fastener:

S-MD 55 S(S) 5,5 x L
S-MD 65 S(S) 5,5 x L
S-MD 75 S(S) 5,5 x L
S-MD 55 PS(S) 5,5 x L
S-MD 65 PS(S) 5,5 x L
S-MD 75 PS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
$V_{R,k}$ [kN]	0,40	1,71	1,71	1,71	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25
	0,50	2,03	2,03	2,03	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49
	0,55	2,47	2,47	2,47	1,63	1,63	1,63	1,63	1,63	1,63	1,63	1,63
	0,63	3,17	3,17	3,17	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86
	0,75	4,23	4,23	4,23	2,20	2,20	2,20	2,20	2,20	2,20	2,20	2,20
	0,88	5,03	5,03	5,03	2,57	2,57	2,57	2,57	2,57	2,57	2,57	2,57
	1,00	5,77	5,77	5,77	2,91	3,24	3,54	3,54	3,54	3,54	3,54	3,54
	1,25	6,86	6,86	6,86	2,91	3,60	4,24	4,24	4,24	4,24	4,24	4,24
	1,50	7,66[2)]	7,66[2)]	7,66[2)]	2,91	3,96	4,93	4,93	4,93	4,93	4,93	4,93
	1,75	7,91	7,91	7,91	2,91	4,12	5,23	5,23	5,23	5,23	5,23	5,23
	2,00	7,88	7,88	7,88	2,91	4,27	5,53	5,53	5,53	5,53	5,53	5,53
$N_{R,k}$ [kN]	0,40	1,38	1,38	1,38	0,87	1,19	1,38	1,38	1,38	1,38	1,38	1,38
	0,50	1,80	1,80	1,80	0,87	1,19	1,49	1,80	1,80	1,80	1,80	1,80
	0,55	2,18	2,18	2,18	0,87	1,19	1,49	2,05	2,18	2,18	2,18	2,18
	0,63	2,78	2,78	2,78	0,87	1,19	1,49	2,05	2,78	2,78	2,78	2,78
	0,75	3,69	3,69	3,69	0,87	1,19	1,49	2,05	2,88	3,69	3,69	3,69
	0,88	4,18	4,18	4,18	0,87	1,19	1,49	2,05	2,88	4,04	4,18	4,18
	1,00	4,64	4,64	4,64	0,87	1,19	1,49	2,05	2,88	4,04	4,64	4,64
	1,25	6,21	6,21	6,21	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,21
	1,50	6,46	7,33	7,33	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53
	1,75	6,46	7,33	7,33	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53
	2,00	6,46	7,33	7,33	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53
$N_{R\,II\,k}$ [kN]		6,46[1)]	8,73	11,0	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53

1) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.
For component II made of S390GD, the value may be increased by 21%.

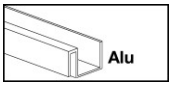
2) For component I made of S420GD, the value may be increased by 4%.

Self-drilling screw

Hilti S-MD 55/65/75 S 5,5 x L / Hilti S-MD 55/65/75 SS 5,5 x L
Hilti S-MD 55/65/75 PS 5,5 x L / Hilti S-MD 55/65/75 PSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 76

Application range:



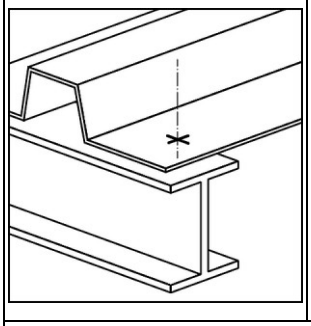
Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S280GD to S450GD

Typical application:



Fastener:

S-MD 55 S(S) 5,5 x L
S-MD 65 S(S) 5,5 x L
S-MD 75 S(S) 5,5 x L
S-MD 55 PS(S) 5,5 x L
S-MD 65 PS(S) 5,5 x L
S-MD 75 PS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

t_I [mm]		t_{II} [mm]										
		4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
Al-Alloy, $R_m \geq 165$ N/mm²	$V_{R,k}$ [kN]											
	0,50	0,84	0,84	0,84	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67
	0,60	1,10	1,10	1,10	0,82	0,82	0,82	0,82	0,82	0,82	0,82	0,82
	0,70	1,37	1,37	1,37	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96
	0,80	1,63	1,63	1,63	1,11	1,11	1,11	1,11	1,11	1,11	1,11	1,11
	0,90	1,82	1,82	1,82	1,17	1,17	1,17	1,17	1,17	1,17	1,17	1,17
	1,00	2,01	2,01	2,01	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22
	1,20	2,63	2,63	2,63	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32
	1,50	3,56	3,56	3,56	1,46	1,91	1,91	1,91	1,91	1,91	1,91	1,91
	2,00	4,62	4,62	4,62	1,46	2,31	2,31	2,31	2,31	2,31	2,31	2,31
Al-Alloy, $R_m \geq 215$ N/mm²	$V_{R,k}$ [kN]											
	0,50	1,10	1,10	1,10	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88
	0,60	1,44	1,44	1,44	1,07	1,07	1,07	1,07	1,07	1,07	1,07	1,07
	0,70	1,79	1,79	1,79	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26
	0,80	2,13	2,13	2,13	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45
	0,90	2,38	2,38	2,38	1,52	1,52	1,52	1,52	1,52	1,52	1,52	1,52
	1,00	2,62	2,62	2,62	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59
	1,20	3,43	3,43	3,43	1,71	1,71	1,71	1,71	1,71	1,71	1,71	1,71
	1,50	4,64	4,64	4,64	1,90	2,48	2,48	2,48	2,48	2,48	2,48	2,48
	2,00	6,02	6,02	6,02	1,90	3,01	3,01	3,01	3,01	3,01	3,01	3,01
$N_{R,II,k}$ [kN]		6,46[2)]	8,73	11,0	0,81	1,11[1)]	1,38[1)]	1,77[2)]	2,81	3,53[1)]	4,52[2)]	5,50[2)]

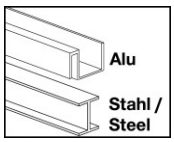
1) For component II made of S320GD, the value may be increased by 8%.
2) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.

Self-drilling screw

Hilti S-MD 55/65/75 S 5,5 x L / Hilti S-MD 55/65/75 SS 5,5 x L
Hilti S-MD 55/65/75 PS 5,5 x L / Hilti S-MD 55/65/75 PSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 77

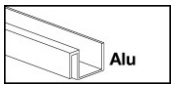
Application range:



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²
Steel S280GD to S450GD

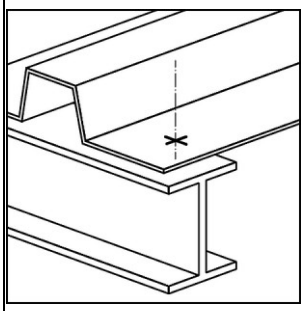
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 4,00 to 12,00 mm



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Typical application:



Fastener:

S-MD 55 S(S) 5,5 x L
S-MD 65 S(S) 5,5 x L
S-MD 75 S(S) 5,5 x L
S-MD 55 PS(S) 5,5 x L
S-MD 65 PS(S) 5,5 x L
S-MD 75 PS(S) 5,5 x L

Washer: Ø16 / Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

t_I [mm]		t_{II} [mm]											
		Al-Alloy, $R_m \geq 165$ N/mm²						Al-Alloy, $R_m \geq 215$ N/mm²					
		4,00	5,00	6,00	8,00	10,0	12,0	4,00	5,00	6,00	8,00	10,0	12,0
Al-Alloy, $R_m \geq 165$ N/mm²	$V_{R,k}$ [kN]												
	0,50	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
	0,60	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14
	0,70	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32
	0,80	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51
	0,90	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76
	1,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
	1,20	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22
	1,50	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56
	2,00	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85
Al-Alloy, Rm ≥ 215 N/mm2 Stahl S280GD bis S450GD	$V_{R,k}$ [kN]												
	0,50	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24
	0,60	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48
	0,70	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73
	0,80	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97
	0,90	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29
	1,00	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61
	1,20	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90
	1,50	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33
	2,00	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02
$N_{R,II,k}$ [kN]		2,87	4,41	5,94	8,07	8,74	9,41	3,74	5,74	7,74	10,52	10,76	11,00

Self-drilling screw

Hilti S-MD 55/65/75 S 5,5 x L / Hilti S-MD 55/65/75 SS 5,5 x L
Hilti S-MD 55/65/75 PS 5,5 x L / Hilti S-MD 55/65/75 PSS 5,5 x L
with hexagon head or round head and sealing washer ≥ Ø16 mm

Annex 78

Application range:

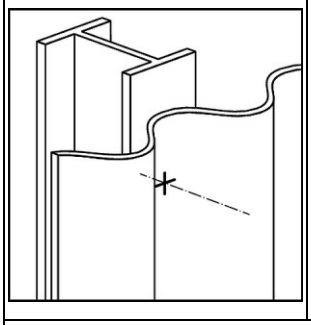
Steel S280GD to S350GD

Component I: t_I = 0,40 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S280GD to S450GD

Typical application:



Fastener:
S-MD 35 PS(S) 5,5 x L
Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm
Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
$V_{R,k}$ [kN]	0,40	1,68	1,68	1,68	1,23	1,23	1,23	1,23	1,23	1,23	1,23	1,23
	0,50	1,99	1,99	1,99	1,47	1,47	1,47	1,47	1,47	1,47	1,47	1,47
	0,55	2,38	2,38	2,38	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55
	0,63	2,99	2,99	2,99	1,68	1,68	1,68	1,68	1,68	1,68	1,68	1,68
	0,75	3,92	3,92	3,92	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]	1,87[4]
	0,88	4,47[3]	4,47[3]	4,47[3]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]	2,19[4]
	1,00	4,98[3]	4,98[3]	4,98[3]	2,48[4]	2,89[5]	3,27[5]	3,27[5]	3,27[5]	3,27[5]	3,27[5]	3,27[5]
	1,25	5,98	5,98	5,98	2,48[4]	3,23[5]	3,92[5]	3,92[5]	3,92[5]	3,92[5]	3,92[5]	3,92[5]
	1,50	6,97	6,97	6,97	2,48[4]	3,57[5]	4,57	4,57	4,57	4,57	4,57	4,57
	1,75	6,81	6,81	6,81	2,48[4]	3,71[5]	4,85	4,85	4,85	4,85	4,85	4,85
	2,00	6,65[2]	6,65[2]	6,65[2]	2,48[4]	3,85[5]	5,12[5]	5,12[5]	5,12[5]	5,12[5]	5,12[5]	5,12[5]
$N_{R,k}$ [kN]	0,40	—	—	—	—	—	—	—	—	—	—	—
	0,50	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	0,75	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	0,88	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	1,00	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	1,25	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	1,50	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	1,75	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
	2,00	2,34	2,34	2,34	0,81	1,11	1,38	1,77	2,34	2,34	2,34	2,34
$N_{R\,II\,k}$ [kN]		6,46[1]	8,73	11,0	0,81	1,11[5]	1,38[5]	1,77[4]	2,81	3,53[5]	4,52[4]	5,50[1]

1) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.
2) For component I made of S320GD, the value may be increased by 8%.
For component I made of S350GD, the value may be increased by 16%.
3) For component I made of S320GD, the value may be increased by 8%.
4) For component I and component II made of S320GD, the value may be increased by 8%.
For component I and component II made of S350GD, the value may be increased by 16%.
5) For component I and component II made of S320GD, the value may be increased by 8%.

Self-drilling screw

Hilti S-MD 35 PS 5,5 x L / Hilti S-MD 35 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 79

Application range:

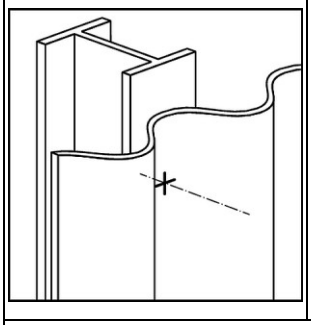
Steel S390GD to S450GD

Component I: t_I = 0,40 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S390GD to S450GD

Typical application:



Fastener:
S-MD 35 PS(S) 5,5 x L
Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm]										
		4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
$V_{R,k}$ [kN]	0,40	1,71	1,71	1,71	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25
	0,50	2,03	2,03	2,03	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49
	0,55	2,47	2,47	2,47	1,63	1,63	1,63	1,63	1,63	1,63	1,63	1,63
	0,63	3,17	3,17	3,17	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86
	0,75	4,23	4,23	4,23	2,20	2,20	2,20	2,20	2,20	2,20	2,20	2,20
	0,88	5,03	5,03	5,03	2,57	2,57	2,57	2,57	2,57	2,57	2,57	2,57
	1,00	5,77	5,77	5,77	2,91	3,24	3,54	3,54	3,54	3,54	3,54	3,54
	1,25	6,86	6,86	6,86	2,91	3,60	4,24	4,24	4,24	4,24	4,24	4,24
	1,50	7,66[2)]	7,66[2)]	7,66[2)]	2,91	3,96	4,93	4,93	4,93	4,93	4,93	4,93
	1,75	7,91	7,91	7,91	2,91	4,12	5,23	5,23	5,23	5,23	5,23	5,23
	2,00	7,88	7,88	7,88	2,91	4,27	5,53	5,53	5,53	5,53	5,53	5,53
$N_{R,k}$ [kN]	0,40	—	—	—	—	—	—	—	—	—	—	—
	0,50	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	0,75	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	0,88	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	1,00	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	1,25	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	1,50	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	1,75	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
	2,00	2,34	2,34	2,34	0,87	1,19	1,49	2,05	2,34	2,34	2,34	2,34
$N_{R\,II\,k}$ [kN]		6,46[1)]	8,73	11,0	0,87	1,19	1,49	2,05	2,88	4,04	5,29	6,53

1) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.
For component II made of S390GD, the value may be increased by 21%.
2) For component I made of S420GD, the value may be increased by 4%.

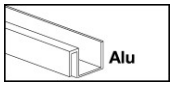
Self-drilling screw

Hilti S-MD 35 PS 5,5 x L / Hilti S-MD 35 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 80

Application range:

Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

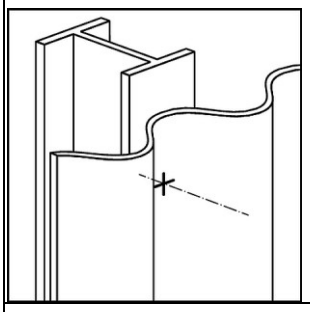


Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 4,00 to 13,00 mm
t_{II} = 2 x 0,50 to 2 x 2,00 mm

Steel S235 to S355 with $R_m \leq 560$ N/mm²
Steel S280GD to S450GD

Typical application:



Fastener:
S-MD 35 PS(S) 5,5 x L
Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm
Performance for timber substructures not determined

t_I [mm]			t_{II} [mm]										
			4,00	5,00	≥ 6,00	2 x 0,50	2 x 0,63	2 x 0,75	2 x 1,00	2 x 1,25	2 x 1,50	2 x 1,75	2 x 2,00
Al-Alloy, $R_m \geq 165$ N/mm²	$V_{R,k}$ [kN]	**0,50**	0,84	0,84	0,84	0,67	0,67	0,67	0,67	0,67	0,67	0,67	0,67
		0,60	1,10	1,10	1,10	0,82	0,82	0,82	0,82	0,82	0,82	0,82	0,82
		0,70	1,37	1,37	1,37	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96
		0,80	1,63	1,63	1,63	1,11	1,11	1,11	1,11	1,11	1,11	1,11	1,11
		0,90	1,82	1,82	1,82	1,17	1,17	1,17	1,17	1,17	1,17	1,17	1,17
		1,00	2,01	2,01	2,01	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22
		1,20	2,63	2,63	2,63	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32
		1,50	3,56	3,56	3,56	1,46	1,91	1,91	1,91	1,91	1,91	1,91	1,91
		2,00	4,62	4,62	4,62	1,46	2,31	2,31	2,31	2,31	2,31	2,31	2,31
	$N_{R,k}$ [kN]	**0,50**	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54
		0,60	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62
		0,70	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74
		0,80	0,88	0,88	0,88	0,81	0,88	0,88	0,88	0,88	0,88	0,88	0,88
		0,90	1,06	1,06	1,06	0,81	1,06	1,06	1,06	1,06	1,06	1,06	1,06
		1,00	1,27	1,27	1,27	0,81	1,27	1,27	1,27	1,27	1,27	1,27	1,27
		1,20	1,80	1,80	1,80	0,81	1,80	1,80	1,80	1,80	1,80	1,80	1,80
		1,50	1,80	1,80	1,80	0,81	1,80	1,80	1,80	1,80	1,80	1,80	1,80
		2,00	1,80	1,80	1,80	0,81	1,80	1,80	1,80	1,80	1,80	1,80	1,80
Al-Alloy, $R_m \geq 215$ N/mm²	$V_{R,k}$ [kN]	**0,50**	1,10	1,10	1,10	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88
		0,60	1,44	1,44	1,44	1,07	1,07	1,07	1,07	1,07	1,07	1,07	1,07
		0,70	1,79	1,79	1,79	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26
		0,80	2,13	2,13	2,13	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45
		0,90	2,38	2,38	2,38	1,52	1,52	1,52	1,52	1,52	1,52	1,52	1,52
		1,00	2,62	2,62	2,62	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59
		1,20	3,43	3,43	3,43	1,71	1,71	1,71	1,71	1,71	1,71	1,71	1,71
		1,50	4,64	4,64	4,64	1,90	2,48	2,48	2,48	2,48	2,48	2,48	2,48
		2,00	6,02	6,02	6,02	1,90	3,01	3,01	3,01	3,01	3,01	3,01	3,01
	$N_{R,k}$ [kN]	**0,50**	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71
		0,60	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81
		0,70	0,96	0,96	0,96	0,81	0,96	0,96	0,96	0,96	0,96	0,96	0,96
		0,80	1,15	1,15	1,15	0,81	1,15	1,15	1,15	1,15	1,15	1,15	1,15
		0,90	1,38	1,38	1,38	0,81	1,38	1,38	1,38	1,38	1,38	1,38	1,38
		1,00	1,65	1,65	1,65	0,81	1,65	1,65	1,65	1,65	1,65	1,65	1,65
		1,20	2,35	2,35	2,35	0,81	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		1,50	2,35	2,35	2,35	0,81	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		2,00	2,35	2,35	2,35	0,81	2,35	2,35	2,35	2,35	2,35	2,35	2,35
$N_{R,II,k}$ [kN]			6,46[2)]	8,73	11,0	0,81	1,11[1)]	1,38[1)]	1,77[2)]	2,81	3,53[1)]	4,52[2)]	5,50[2)]

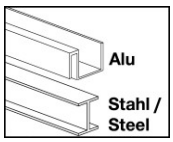
1) For component II made of S320GD, the value may be increased by 8%.
2) For component II made of S320GD, the value may be increased by 8%.
For component II made of S350GD, the value may be increased by 16%.

Self-drilling screw

Hilti S-MD 35 PS 5,5 x L / Hilti S-MD 35 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 81

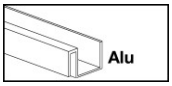
Application range:



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²
Steel S280GD to S450GD

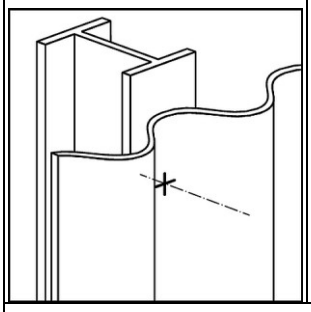
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 4,00 to 12,00 mm



Aluminium alloy with $R_m \geq 165$ N/mm²
Aluminium alloy with $R_m \geq 215$ N/mm²

Typical application:



Fastener:
S-MD 35 PS(S) 5,5 x L
Washer: Ø12

Drilling capacity in metal: $\Sigma t_i \leq 15{,}00$ mm
Performance for timber substructures not determined

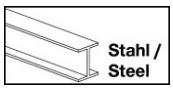
		t_I [mm]	t_{II} [mm]											
			Al-Alloy, $R_m \geq 165$ N/mm²						Al-Alloy, $R_m \geq 215$ N/mm²					
			4,00	5,00	6,00	8,00	10,0	12,0	4,00	5,00	6,00	8,00	10,0	12,0
Al-Alloy, $R_m \geq 165$ N/mm²	$V_{R,k}$ [kN]	0,50	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
		0,60	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14	1,14
		0,70	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32	1,32
		0,80	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51
		0,90	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76	1,76
		1,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
		1,20	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22	2,22
		1,50	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56
		2,00	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85
	$N_{R,k}$ [kN]	0,50	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54	0,54
		0,60	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62
		0,70	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74
		0,80	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88	0,88
		0,90	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06
		1,00	1,27	1,27	1,27	1,27	1,27	1,27	1,27	1,27	1,27	1,27	1,27	1,27
		1,20	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80
		1,50	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80
		2,00	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80
Al-Alloy, $R_m \geq 215$ N/mm² Steel S280GD to S450GD	$V_{R,k}$ [kN]	0,50	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24
		0,60	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48
		0,70	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73
		0,80	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97	1,97
		0,90	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29	2,29
		1,00	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61	2,61
		1,20	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90	2,90
		1,50	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33
		2,00	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02	5,02
	$N_{R,k}$ [kN]	0,50	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71
		0,60	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81
		0,70	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96
		0,80	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15
		0,90	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38
		1,00	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65
		1,20	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		1,50	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		2,00	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
$N_{R,II,k}$ [kN]			2,87	4,41	5,94	8,07	8,74	9,41	3,74	5,74	7,74	10,52	10,76	11,00

Self-drilling screw

Hilti S-MD 35 PS 5,5 x L / Hilti S-MD 35 PSS 5,5 x L
with round head and sealing washer Ø12 mm

Annex 82

Application range:



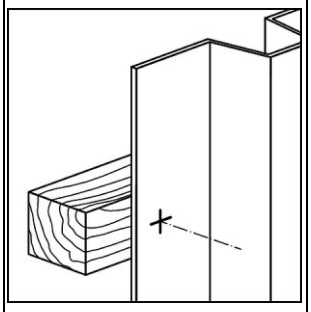
Steel S280GD to S450GD

Component I: t_I = 0,40 to 1,50 mm

Component II:

Structural timber

Typical application:



Fastener:

S-MDW 01 S(S) 6,5 x L
S-MDW 01 PS(S) 6,5 x L

Washer: none

Drilling capacity in metal: $\Sigma t_i \leq 2{,}00$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 11,546 Nm
$f_{ax,k}$ = 10,693 N/mm² for C24 and $l_{ef} \geq 30{,}0$ mm
$f_{ax,k}$ = 11,937 N/mm² for C40 and $l_{ef} \geq 30{,}0$ mm

	t_I [mm]	l_{ef} [mm] 30	35	40	45	55	65	75	
$V_{R,k}$ [kN]	**0,40**	1,63	1,63	1,63	1,63	1,63	1,63	1,63	1,63
	0,50	1,88	2,20	2,33	2,33	2,33	2,33	2,33	2,33
	0,55	1,88	2,20	2,51	2,62	2,62	2,62	2,62	2,62
	0,63	1,88	2,20	2,51	2,78	2,94	2,99	2,99	2,99
	0,75	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,50
	0,88	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,70
	1,00	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,90
	1,25	1,88	2,20	2,51	2,78	2,94	3,09	3,25	4,10
	1,50	1,88	2,20	2,51	2,78	2,94	3,09	3,25	4,30
$V_{R,II,k}$ [kN]		1,88	2,20	2,51	2,78	2,94	3,09	3,25	
$N_{R,k}$ [kN]	**0,40**	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92
	0,50	1,35	1,35	1,35	1,35	1,35	1,35	1,35	1,35
	0,55	1,57	1,57	1,57	1,57	1,57	1,57	1,57	1,57
	0,63	1,88	1,91	1,91	1,91	1,91	1,91	1,91	1,91
	0,75	1,88	2,19	2,48	2,48	2,48	2,48	2,48	2,48
	0,88	1,88	2,19	2,50	2,81	3,09	3,09	3,09	3,09
	1,00	1,88	2,19	2,50	2,81	3,44	3,70	3,70	3,70
	1,25	1,88	2,19	2,50	2,81	3,44	4,07	4,69	4,91
	1,50	1,88	2,19	2,50	2,81	3,44	4,07	4,69	6,34
$N_{R,II,k}$ [kN]		1,88	2,19	2,50	2,81	3,44	4,07	4,69	

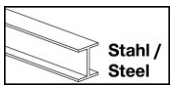
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MDW 01 S 6,5 x L / Hilti S-MDW 01 SS 6,5 x L
Hilti S-MDW 01 PS 6,5 x L / Hilti S-MDW 01 PSS 6,5 x L
with hexagon head or round head

Annex 83

Application range:



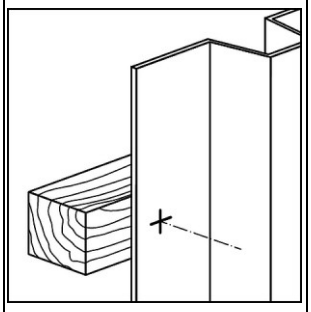
Steel S280GD to S450GD

Component I: t_I = 0,40 to 1,50 mm

Component II:

Structural timber

Typical application:



Fastener:

S-MDW 51 S(S) 6,5 x L
S-MDW 51 PS(S) 6,5 x L

Washer: Ø16

Drilling capacity in metal: $\Sigma t_i \leq 2{,}00$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 11,546 Nm
$f_{ax,k}$ = 10,693 N/mm² for C24 and $l_{ef} \geq 30{,}0$ mm
$f_{ax,k}$ = 11,937 N/mm² for C40 and $l_{ef} \geq 30{,}0$ mm

	t_I [mm]	l_{ef} [mm] 30	35	40	45	55	65	75	
$V_{R,k}$ [kN]	**0,40**	1,63	1,63	1,63	1,63	1,63	1,63	1,63	1,63
	0,50	1,88	2,20	2,33	2,33	2,33	2,33	2,33	2,33
	0,55	1,88	2,20	2,51	2,62	2,62	2,62	2,62	2,62
	0,63	1,88	2,20	2,51	2,78	2,94	2,99	2,99	2,99
	0,75	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,50
	0,88	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,70
	1,00	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,90
	1,25	1,88	2,20	2,51	2,78	2,94	3,09	3,25	4,10
	1,50	1,88	2,20	2,51	2,78	2,94	3,09	3,25	4,30
$V_{R,II,k}$ [kN]		1,88	2,20	2,51	2,78	2,94	3,09	3,25	$V_{R,I,k}$ [kN]
$N_{R,k}$ [kN]	**0,40**	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
	0,50	1,46	1,46	1,46	1,46	1,46	1,46	1,46	1,46
	0,55	1,70	1,70	1,70	1,70	1,70	1,70	1,70	1,70
	0,63	1,88	2,07	2,07	2,07	2,07	2,07	2,07	2,07
	0,75	1,88	2,19	2,50	2,68	2,68	2,68	2,68	2,68
	0,88	1,88	2,19	2,50	2,81	3,35	3,35	3,35	3,35
	1,00	1,88	2,19	2,50	2,81	3,44	4,01	4,01	4,01
	1,25	1,88	2,19	2,50	2,81	3,44	4,07	4,69	5,32
	1,50	1,88	2,19	2,50	2,81	3,44	4,07	4,69	6,87
$N_{R,II,k}$ [kN]		1,88	2,19	2,50	2,81	3,44	4,07	4,69	$N_{R,I,k}$ [kN]

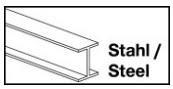
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MDW 51 S 6,5 x L / Hilti S-MDW 51 SS 6,5 x L
Hilti S-MDW 51 PS 6,5 x L / Hilti S-MDW 51 PSS 6,5 x L
with hexagon head or round head

Annex 84

Application range:



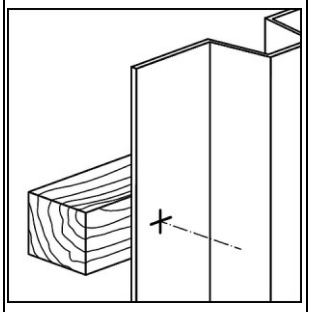
Steel S280GD to S450GD

Component I: t_I = 0,40 to 1,50 mm

Component II:

Structural timber

Typical application:



Fastener:

S-MDW 61 S(S) 6,5 x L
S-MDW 61 PS(S) 6,5 x L
S-MDW 71 S(S) 6,5 x L
S-MDW 71 PS(S) 6,5 x L

Washer: Ø19 / Ø22

Drilling capacity in metal: $\Sigma t_i \leq 2{,}00$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 11,546 Nm
$f_{ax,k}$ = 10,693 N/mm² for C24 and $l_{ef} \geq 30{,}0$ mm
$f_{ax,k}$ = 11,937 N/mm² for C40 and $l_{ef} \geq 30{,}0$ mm

	t_I [mm]	l_{ef} [mm] 30	35	40	45	55	65	75	
$V_{R,k}$ [kN]	**0,40**	1,63	1,63	1,63	1,63	1,63	1,63	1,63	1,63
	0,50	1,88	2,20	2,33	2,33	2,33	2,33	2,33	2,33
	0,55	1,88	2,20	2,51	2,62	2,62	2,62	2,62	2,62
	0,63	1,88	2,20	2,51	2,78	2,94	2,99	2,99	2,99
	0,75	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,50
	0,88	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,70
	1,00	1,88	2,20	2,51	2,78	2,94	3,09	3,25	3,90
	1,25	1,88	2,20	2,51	2,78	2,94	3,09	3,25	4,10
	1,50	1,88	2,20	2,51	2,78	2,94	3,09	3,25	4,30
$V_{R,II,k}$ [kN]		1,88	2,20	2,51	2,78	2,94	3,09	3,25	
$N_{R,k}$ [kN]	**0,40**	1,04	1,04	1,04	1,04	1,04	1,04	1,04	1,04
	0,50	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55
	0,55	1,82	1,82	1,82	1,82	1,82	1,82	1,82	1,82
	0,63	1,88	2,19	2,22	2,22	2,22	2,22	2,22	2,22
	0,75	1,88	2,19	2,50	2,81	2,88	2,88	2,88	2,88
	0,88	1,88	2,19	2,50	2,81	3,44	3,60	3,60	3,60
	1,00	1,88	2,19	2,50	2,81	3,44	4,07	4,31	4,31
	1,25	1,88	2,19	2,50	2,81	3,44	4,07	4,69	5,73
	1,50	1,88	2,19	2,50	2,81	3,44	4,07	4,69	7,40
$N_{R,II,k}$ [kN]		1,88	2,19	2,50	2,81	3,44	4,07	4,69	

$V_{R,I,k}$ [kN]

$N_{R,I,k}$ [kN]

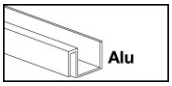
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MDW 61/71 S 6,5 x L / Hilti S-MDW 61/71 SS 6,5 x L
Hilti S-MDW 61/71 PS 6,5 x L / Hilti S-MDW 61/71 PSS 6,5 x L
with hexagon head or round head

Annex 85

Application range:



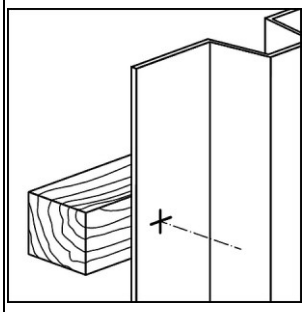
Aluminium alloy with $R_m \geq 185$ N/mm²

Component I: t_I = 0,40 to 1,50 mm

Component II:

Structural timber

Typical application:



Fastener:

S-MDW 01 S(S) 6,5 x L
S-MDW 51 S(S) 6,5 x L
S-MDW 61 S(S) 6,5 x L
S-MDW 71 S(S) 6,5 x L
S-MDW 01 PS(S) 6,5 x L
S-MDW 51 PS(S) 6,5 x L
S-MDW 61 PS(S) 6,5 x L
S-MDW 71 PS(S) 6,5 x L

Washer: none/Ø16/Ø19/Ø22

Drilling capacity in metal: $\Sigma t_I \leq 2{,}00$ mm

Performance for timber substructures determined with:
$M_{y,Rk}$ = 11,546 Nm
$f_{ax,k}$ = 10,693 N/mm² for C24 and $l_{ef} \geq 30{,}0$ mm
$f_{ax,k}$ = 11,937 N/mm² for C40 and $l_{ef} \geq 30{,}0$ mm

t_I [mm]	l_{ef} [mm]							
	30	**35**	**40**	**45**	**55**	**65**	**75**	
0,40	0,65	0,65	0,65	0,65	0,65	0,65	0,65	0,65
0,50	1,23	1,23	1,23	1,23	1,23	1,23	1,23	1,23
0,60	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30
0,70	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38
0,80	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48
0,90	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59
1,00	1,88	1,94	1,94	1,94	1,94	1,94	1,94	1,94
1,10	1,88	1,94	1,94	1,94	1,94	1,94	1,94	1,94
1,20	1,88	2,02	2,02	2,02	2,02	2,02	2,02	2,02
1,30	1,88	2,02	2,02	2,02	2,02	2,02	2,02	2,02
1,40	1,88	2,02	2,02	2,02	2,02	2,02	2,02	2,02
1,50	1,88	2,02	2,02	2,02	2,02	2,02	2,02	2,02
$N_{R,II,k}$ [kN]	1,88	2,19	2,50	2,81	3,44	4,07	4,69	

$V_{R,k}$ [kN] / $V_{R,I,k}$ [kN]

Pull-through of component I according to the recommendations of the aluminum profile producers.
The characteristic value $N_{R,k}$ can be determined according to Annex 3.The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-drilling screw

Hilti S-MDW 01/51/61/71 S 6,5 x L / Hilti S-MDW 01/51/61/71 SS 6,5 x L
Hilti S-MDW 01/51/61/71 PS 6,5 x L / Hilti S-MDW 01/51/61/71 PSS 6,5 x L
with hexagon head or round head

Annex 86

Application range:

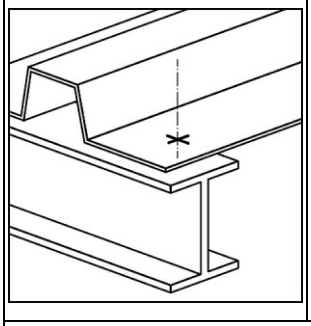
Steel S280GD to S320GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,25 to 30,00 mm

Steel S235
Steel S280GD to S320GD

Typical application:



Fastener:

S-MP 52 S(S) 6,3 x L
S-MP 62 S(S) 6,3 x L
S-MP 72 S(S) 6,3 x L

Washer: Ø16 / Ø19 / Ø22

Predrill diameters d_{pd} see table below

Performance for timber substructures not determined

	t_I [mm]	t_{II} [mm] 1,25		1,50		2,00		3,00		4,00		6,00		≥7,00		-	
$V_{R,k}$ [kN]	**0,50**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	2,50	ac	2,70	ac	2,90	abcd	3,00	abcd	3,10	abcd	3,10	abcd	3,10	abcd	—	—
	0,75	2,60	ac	3,10	ac	3,30	ac	3,60	ac	3,70	abcd	3,70	abcd	3,70	abcd	—	—
	0,88	2,80	ac	3,20	ac	3,80	ac	4,10	ac	4,30	ac	4,40	ac	4,40	ac	—	—
	1,00	3,20	—	3,60	ac	4,10	ac	4,80	ac	4,90	ac	5,10	ac	5,10	ac	—	—
	1,13	3,40	—	4,00	—	4,60	ac	5,40	ac	5,60	ac	5,80	ac	5,80	ac	—	—
	1,25	3,60	—	4,20	—	5,00	ac	6,10	ac	6,30	ac	6,50	ac	6,50	ac	—	—
	1,50	3,70	—	4,40	—	5,70	—	6,80	—	7,10	—	7,30	—	7,30	—	—	—
	1,75	3,70	—	4,70	—	6,20	—	7,60	—	7,70	—	8,10	—	8,10	—	—	—
	2,00	5,00	—	6,30	—	7,90	—	8,30	—	8,40	—	9,40	—	9,40	—	—	—
$N_{R,k}$ [kN]	**0,50**	0,97	ac	1,35	ac	1,51	abcd	1,51	abcd	1,51	abcd	1,51	abcd	1,51	abcd	—	—
	0,55	1,23	ac	1,71	ac	1,91	abcd	1,91	abcd	1,91	abcd	1,91	abcd	1,91	abcd	—	—
	0,63	1,80	ac	2,50	ac	2,80	abcd	2,80	abcd	2,80	abcd	2,80	abcd	2,80	abcd	—	—
	0,75	2,00	ac	2,60	ac	3,10	ac	3,60	ac	3,60	abcd	3,60	abcd	3,60	abcd	—	—
	0,88	2,00	ac	2,70	ac	3,30	ac	3,80	ac	3,80	ac	3,80	ac	3,80	ac	—	—
	1,00	2,00	—	2,70	ac	3,40	ac	4,00	ac	4,00	ac	4,00	ac	4,00	ac	—	—
	1,13	2,00	—	2,70	—	3,60	ac	4,40	ac	4,40	ac	4,40	ac	4,40	ac	—	—
	1,25	2,00	—	2,70	—	3,60	ac	4,80	ac	4,90	ac	4,90	ac	4,90	ac	—	—
	1,50	2,00	—	2,70	—	3,60	—	5,60	—	5,90	—	5,90	—	5,90	—	—	—
	1,75	2,00	—	2,70	—	3,60	—	5,80	—	6,90	—	7,10	—	7,10	—	—	—
	2,00	2,00	—	2,70	—	3,60	—	6,00	—	7,30	—	7,60	—	7,60	—	—	—
$M_{t,nom}$ [Nm]		5 Nm															
d_{pd} [mm]		$t_{II} \le 1{,}50$ mm d_{pd} = Ø5,0 mm				1,50 mm < $t_{II} \le$ 4,0 mm d_{pd} = Ø5,3 mm				4,0 mm < t_{II} < 7,0 mm d_{pd} = Ø5,5 mm				$t_{II} \ge 7{,}0$ mm d_{pd} = Ø5,7 mm			

Self-tapping screw

Hilti S-MP 52/62/72 S 6,3 x L / Hilti S-MP 52/62/72 SS 6,3 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 87

Application range:

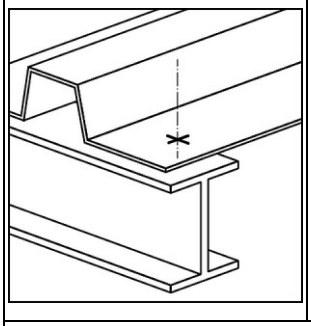
Steel S280GD to S420GD

Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 1,25 to 30,00 mm

Steel S235 to S355
Steel S280GD to S420GD

Typical application:



Fastener:

S-MP 54 S(S) 6,3 x L
S-MP 64 S(S) 6,3 x L
S-MP 74 S(S) 6,3 x L

Washer: Ø16 / Ø19 / Ø22

Predrill diameters d_{pd} see table below

Performance for timber substructures not determined

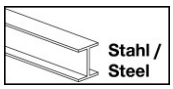
	t_I [mm]	t_{II} [mm] 1,25	1,50	2,00	3,00	4,00	6,00	≥7,00	-
$V_{R,k}$ [kN]	**0,50**	1,65 ac	1,72 ac	1,78 abcd	1,78 abcd	1,78 abcd	1,78 abcd	1,78 abcd	— —
	0,55	2,08 ac	2,21 ac	2,34 abcd	2,34 abcd	2,34 abcd	2,34 abcd	2,34 abcd	— —
	0,63	2,50 ac	2,70 ac	2,90 abcd	3,00 abcd	3,10 abcd	3,10 abcd	3,10 abcd	— —
	0,75	2,60 ac	3,10 ac	3,30 ac	3,60 ac	3,70 abcd	3,70 abcd	3,70 abcd	— —
	0,88	2,80 ac	3,20 ac	3,80 ac	4,10 ac	4,30 ac	4,40 ac	4,40 ac	— —
	1,00	3,20 —	3,60 ac	4,10 ac	4,80 ac	4,90 ac	5,10 ac	5,10 ac	— —
	1,13	3,40 —	4,00 —	4,60 ac	5,40 ac	5,60 ac	5,80 ac	5,80 ac	— —
	1,25	3,60 —	4,20 —	5,00 ac	6,10 ac	6,30 ac	6,50 ac	6,50 ac	— —
	1,50	3,70 —	4,40 —	5,70 —	6,80 —	7,10 —	7,30 —	7,30 —	— —
	1,75	3,70 —	4,70 —	6,20 —	7,60 —	7,70 —	8,10 —	8,10 —	— —
	2,00	5,00 —	6,30 —	7,90 —	8,30 —	8,40 —	9,40 —	9,40 —	— —
$N_{R,k}$ [kN]	**0,50**	0,97 ac	1,35 ac	1,51 abcd	1,51 abcd	1,51 abcd	1,51 abcd	1,51 abcd	— —
	0,55	1,23 ac	1,71 ac	1,91 abcd	1,91 abcd	1,91 abcd	1,91 abcd	1,91 abcd	— —
	0,63	1,80 ac	2,50 ac	2,80 abcd	2,80 abcd	2,80 abcd	2,80 abcd	2,80 abcd	— —
	0,75	2,00 ac	2,60 ac	3,10 ac	3,60 ac	3,60 abcd	3,60 abcd	3,60 abcd	— —
	0,88	2,00 ac	2,70 ac	3,30 ac	3,80 ac	3,80 ac	3,80 ac	3,80 ac	— —
	1,00	2,00 —	2,70 ac	3,40 ac	4,00 ac	4,00 ac	4,00 ac	4,00 ac	— —
	1,13	2,00 —	2,70 —	3,60 ac	4,40 ac	4,40 ac	4,40 ac	4,40 ac	— —
	1,25	2,00 —	2,70 —	3,60 ac	4,80 ac	4,90 ac	4,90 ac	4,90 ac	— —
	1,50	2,00 —	2,70 —	3,60 —	5,60 —	5,90 —	5,90 —	5,90 —	— —
	1,75	2,00 —	2,70 —	3,60 —	5,80 —	6,90 —	7,10 —	7,10 —	— —
	2,00	2,00 —	2,70 —	3,60 —	6,00 —	7,30 —	7,60 —	7,60 —	— —
$M_{t,nom}$ [Nm]		5 Nm							
d_{pd} [mm]		$t_{II} \le 1{,}50$ mm: d_{pd} = Ø5,0 mm		1,50 mm < $t_{II} \le$ 4,0 mm: d_{pd} = Ø5,3 mm		4,0 mm < t_{II} < 7,0 mm: d_{pd} = Ø5,5 mm		$t_{II} \ge 7{,}0$ mm: d_{pd} = Ø5,7 mm	

Self-tapping screw

Hilti S-MP 54/64/74 S 6,3 x L / Hilti S-MP 54/64/74 SS 6,3 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 88

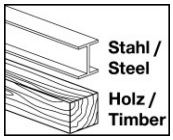
Application range:



Steel S280GD to S320GD

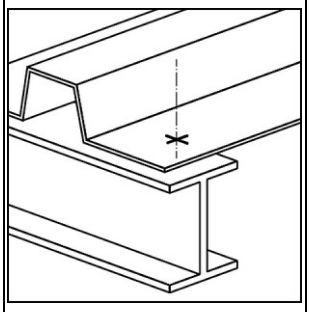
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,63 to 3,00 mm



Steel S235
Steel S280GD to S320GD
Structural timber

Typical application:



Fastener:

S-MP 53 S(S) 6,5 x L
S-MP 63 S(S) 6,5 x L
S-MP 73 S(S) 6,5 x L

Washer: Ø16 / Ø19 / Ø22

Predrill diameters d_{pd} see table below

Performance for timber substructures determined with:
$M_{y,Rk}$ = 9,742 Nm
$f_{ax,k}$ = 8,575 N/mm² for C24 and $l_{ef} \geq$ 26,0 mm

	t_I [mm]	t_{II} [mm]												$V_{R,I,k}$ / $N_{R,I,k}$
		0,63	0,75	0,88	1,00		1,13		1,25		1,50		≥ 2,00		
$V_{R,k}$ [kN]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,30	1,50	1,80	2,00	ac	2,30	ac	2,50	ac	2,90	ac	2,90	ac	2,90
	0,75	1,40	1,60	1,90	2,20	ac	2,50	ac	2,60	ac	3,10	ac	3,50	ac	3,50
	0,88	1,50	1,70	2,00	2,30	ac	2,60	ac	2,80	ac	3,20	ac	3,70	ac	3,70
	1,00	1,50	1,80	2,10	2,50	—	2,80	—	3,10	—	3,60	—	3,90	ac	3,90
	1,13	1,60	1,80	2,20	2,60	—	2,90	—	3,20	—	3,80	—	4,00	ac	4,00
	1,25	1,60	1,90	2,30	2,70	—	3,00	—	3,30	—	4,00	—	4,10	ac	4,10
	1,50	1,60	1,90	2,40	2,80	—	3,20	—	3,50	—	4,00	—	4,30	—	4,30
	1,75	1,60	1,90	2,40	2,80	—	3,20	—	3,50	—	4,00	—	4,30	—	4,30
	2,00	1,60	1,90	2,40	2,80	—	3,20	—	3,50	—	4,00	—	4,30	—	4,30
$N_{R,k}$ [kN]	0,50	0,49	0,59	0,70	0,76	ac	0,86	ac	0,97	ac	1,13	ac	1,19	ac	1,19
	0,55	0,61	0,75	0,89	0,95	ac	1,09	ac	1,23	ac	1,43	ac	1,50	ac	1,50
	0,63	0,90	1,10	1,30	1,40	ac	1,60	ac	1,80	ac	2,10	ac	2,20	ac	2,20
	0,75	0,90	1,10	1,30	1,40	ac	1,60	ac	1,80	ac	2,10	ac	2,80	ac	2,80
	0,88	0,90	1,10	1,30	1,40	ac	1,60	ac	1,80	ac	2,10	ac	3,50	ac	3,50
	1,00	0,90	1,10	1,30	1,40	—	1,60	—	1,80	—	2,20	—	3,60	ac	3,60
	1,13	1,00	1,20	1,40	1,50	—	1,70	—	1,90	—	2,30	—	3,60	ac	3,60
	1,25	1,00	1,20	1,40	1,50	—	1,70	—	1,90	—	2,30	—	3,60	ac	3,60
	1,50	1,00	1,20	1,40	1,50	—	1,70	—	1,90	—	2,30	—	3,60	—	3,60
	1,75	1,00	1,20	1,40	1,50	—	1,70	—	1,90	—	2,30	—	3,60	—	3,60
	2,00	1,00	1,20	1,40	1,50	—	1,70	—	1,90	—	2,30	—	3,60	—	3,60
$M_{t,nom}$ [Nm]		3 Nm							5 Nm						
d_{pd} [mm]		$t_{II} \leq$ 0,75 mm d_{pd} = Ø4,0 mm			0,75 mm < $t_{II} \leq$ 1,50 mm d_{pd} = Ø4,5 mm				$t_{II} \geq$ 1,50 mm d_{pd} = Ø5,0 mm						

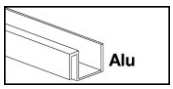
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-tapping screw

Hilti S-MP 53/63/73 S 6,5 x L / Hilti S-MP 53/63/73 SS 6,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 89

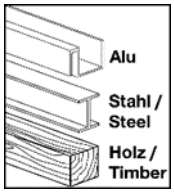
Application range:



Aluminium alloy with $R_m \geq 185$ N/mm²

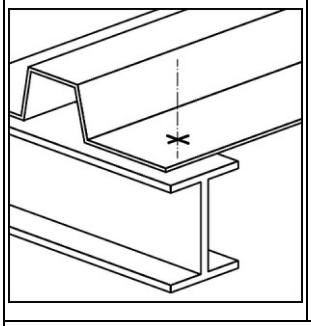
Component I: t_I = 0,50 to 2,00 mm

Component II: t_{II} = 0,50 to 3,00 mm



Aluminium alloy with $R_m \geq 185$ N/mm²
Steel S280GD to S350GD
Structural timber

Typical application:



Fastener:

S-MP 53 S(S) 6,5 x L
S-MP 63 S(S) 6,5 x L
S-MP 73 S(S) 6,5 x L

Washer: Ø16 / Ø19 / Ø22

Predrill diameters d_{pd} see table below

Performance for timber substructures determined with:
$M_{y,Rk}$ = 9,742 Nm
$f_{ax,k}$ = 8,575 N/mm² for C24 and $l_{ef} \geq 26,0$ mm

	t_I [mm]	Stahl S280GD bis S350GD t_{II} [mm]						Al-Alloy, $R_m \geq 185$ N/mm² t_{II} [mm]						$V_{R,I,k}$ $N_{R,I,k}$
		0,63	0,75	0,88	1,00	1,50	≥ 2,00	0,50	0,60	0,80	1,00	1,50	≥ 2,00	
$V_{R,k}$ [kN]	0,50	1,23	1,23	1,23	1,23	1,23	1,23	—	—	—	—	—	—	1,23
	0,60	1,30	1,30	1,30	1,30	1,30	1,30	—	—	—	—	—	—	1,30
	0,70	1,38	1,38	1,38	1,38	1,38	1,38	—	—	—	—	—	—	1,38
	0,80	1,48	1,48	1,48	1,48	1,48	1,48	0,50	0,50	0,50	0,50	0,50	0,50	1,48
	0,90	1,59	1,59	1,59	1,59	1,59	1,59	0,50	0,50	0,50	0,50	0,50	0,50	1,59
	1,00	1,72	1,79	1,87	1,94	1,94	1,94	0,50	0,71	1,15	1,59	1,59	1,59	1,94
	1,10	1,86	1,86	1,87	1,94	1,94	1,94	0,50	0,71	1,15	1,59	1,59	1,59	1,94
	1,20	2,02	2,02	2,02	2,02	2,02	2,02	0,50	0,71	1,15	1,59	1,59	1,59	2,02
	1,30	2,02	2,02	2,02	2,02	2,02	2,02	0,50	0,71	1,15	1,59	1,59	1,59	2,02
	1,90	2,02	2,02	2,02	2,02	2,02	2,02	0,50	0,71	1,15	1,59	1,59	1,59	2,02
	2,00	2,02	2,02	2,02	2,02	2,02	4,04	0,50	0,71	1,15	1,59	1,59	3,26	4,04
$N_{R,k}$ [kN]	0,50	0,48	0,48	0,48	0,48	0,48	0,48	0,16	0,21	0,32	0,45	0,48	0,48	0,48
	0,60	0,58	0,58	0,58	0,58	0,58	0,58	0,16	0,21	0,32	0,45	0,58	0,58	0,58
	0,70	0,67	0,67	0,67	0,67	0,67	0,67	0,16	0,21	0,32	0,45	0,67	0,67	0,67
	0,80	0,77	0,77	0,77	0,77	0,77	0,77	0,16	0,21	0,32	0,45	0,77	0,77	0,77
	0,90	0,87	0,87	0,87	0,87	0,87	0,87	0,16	0,21	0,32	0,45	0,82	0,87	0,87
	1,00	0,96	0,96	0,96	0,96	0,96	0,96	0,16	0,21	0,32	0,45	0,82	0,96	0,96
	1,10	1,00	1,06	1,06	1,06	1,06	1,06	0,16	0,21	0,32	0,45	0,82	1,06	1,06
	1,20	1,00	1,15	1,15	1,15	1,15	1,15	0,16	0,21	0,32	0,45	0,82	1,15	1,15
	1,30	1,00	1,20	1,25	1,25	1,25	1,25	0,16	0,21	0,32	0,45	0,82	1,25	1,25
	1,90	1,00	1,20	1,40	1,44	1,44	1,44	0,16	0,21	0,32	0,45	0,82	1,27	1,44
	2,00	1,00	1,20	1,40	1,44	1,44	1,44	0,16	0,21	0,32	0,45	0,82	1,27	1,44
$M_{t,nom}$ [Nm]		3 Nm				5 Nm								
d_{pd} [mm]		$t_{N,II} \leq 0,75$ mm d_p = ø4,0 mm				0,75 mm < $t_{N,II} \leq 1,50$ mm d_p = ø4,5 mm					$t_{N,II} \geq 1,50$ mm d_p = ø5,0 mm			

The grey highlighted values $N_{R,k}$ may be increased by 9.0% when using the types “S-MP 6x” and by 17.3% when using the types “S-MP 7x”.The values listed above in dependence on the screw-in length lef are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

Self-tapping screw

Hilti S-MP 53/63/73 S 6,5 x L / Hilti S-MP 53/63/73 SS 6,5 x L
with hexagon head and sealing washer ≥ Ø16 mm

Annex 90

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