EN

DECLARATION OF PERFORMANCE

according to Annex III of the Regulation (EU) Nr. 305/2011 (Construction Products Regulation)

Hilti Self Piercing Screws S-MS Z, S-MS C
No. Hilti-SF-DoP-003

1. Unique identification code of the product-type: Hilti Self Piercing Screws S-MS Z, S-MS C

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4): Type and Lot-Number displayed on the packaging

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

Generic type and use	Self piercing fastening screws for metal members and sheeting
Product size covered	Screw diameter 4.8 mm
Base and fastened material	Steel according to EN 10346 Aluminum alloy according to EN 485 / EN 573
Fastener material	Galvanized or coated, case-hardened carbon steel according to EN 10084
Loading	Static & quasi static (wind loading)

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5): Hilti Aktiengesellschaft, Business Unit Direct Fastening, 9494 Schaan, Fürstentum Liechtenstein

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2): n.a.

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V: System 2+

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard: n.a.

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:
On the basis of EAD 330046-01-0602 issued ETA-10/0182. The notified body MPA-Karlsruhe 0769 performed third party tasks under system 2+ and issued the certificate of conformity of the production control.

9. Declared performance:

Essential characteristic	**Performance**	**Harmonized technical specification**
Characteristic tension resistance $N_{R,k}$	Annex 1 - 6 ETA-10/0182 (Annex 4 – 9)	ETA-10/0182 EAD 330046-01-0602
Characteristic shear resistance $V_{R,k}$		
Types of connection		
Application limits		
Reaction to fire	A1	

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

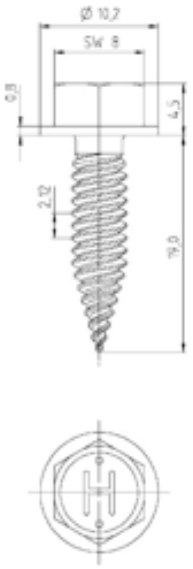
Signed for and on behalf of the manufacturer by:

Lars Taenzer
Head of Business Unit Direct Fastening

Pierre Hohmeier
Head of Quality Screw Fastening

Hilti Aktiengesellschaft, Schaan, 03.05.2019

Annex 1:
ETA-10/0182, Annex 4



Material:

Fastener:	carbon steel, case hardened and galvanized or coated
Washer:	none
Component I:	S280GD, S320GD, S350GD - EN 10346
Component II:	S280GD, S320GD, S350GD - EN 10346

Drilling capacity: $\Sigma t_I \leq 2{,}50$ mm

Timber substructures:

no performance determined

	t_I [mm]	t_{II} [mm]							
		0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25
$V_{R,k}$ [kN]	0,50	1,29	1,37	1,51	1,71	1,71	1,71	1,71	1,71
	0,55	1,29	1,54	1,65	1,82	1,82	1,82	1,82	2,05
	0,63	1,29	1,54	1,80	2,00	2,00	2,00	2,00	2,59
	0,75	1,29	1,54	1,80	2,27	2,27	2,27	2,84	3,40
	0,88	1,29	1,54	1,80	2,27	2,96	2,96	2,96	3,40
	1,00	1,29	1,54	1,80	2,27	2,96	3,64	3,64	3,64
	1,13	1,29	1,54	1,80	2,27	2,96	3,64	3,87	3,87
	1,25	1,29	1,54	1,80	2,27	2,96	3,64	3,87	4,10
	1,50	1,29	1,54	1,80	2,27	2,96	3,64	—	—
	1,75	1,29	1,54	1,80	2,27	—	—	—	—
	2,00	1,29	—	—	—	—	—	—	—
$N_{R,k}$ [kN]	0,50	0,76	0,87	1,04	1,29	1,56	1,82	1,93	1,93
	0,55	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,25
	0,63	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,34
	0,75	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,34
	0,88	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,34
	1,00	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,34
	1,13	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,34
	1,25	0,76	0,87	1,04	1,29	1,56	1,82	2,09	2,34
	1,50	0,76	0,87	1,04	1,29	1,56	1,82	—	—
	1,75	0,76	0,87	1,04	1,29	—	—	—	—
	2,00	0,76	—	—	—	—	—	—	—
M_{inst} [Nm]									

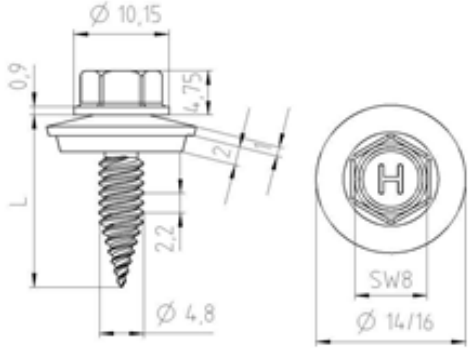
No additional regulations.

Self piercing screw

Hilti S-MS 01 Z 4,8 x L
Hilti S-MS 01 C 4,8 x L
with hexagon head

Annex 4

Annex 2:
ETA-10/0182, Annex 5



Material:

Fastener: carbon steel, case hardened and galvanized or coated

Washer: carbon steel, galvanized or coated stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD, S350GD - EN 10346

Component II: S280GD, S320GD, S350GD - EN 10346

Drilling capacity: $\Sigma t_I \leq 2{,}50$ mm

Timber substructures:

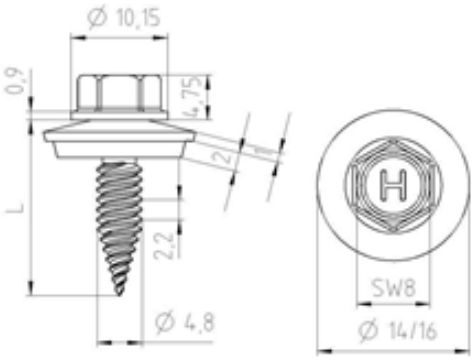
no performance determined

	t_I [mm]	t_{II} [mm] 0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,25
V_{Rk} [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_{Rk} [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 —
$M_{s,nom}$ [Nm]									

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 Z 4,8 x L Hilti S-MS 41 C 4,8 x L Hilti S-MS 51 Z 4,8 x L Hilti S-MS 51 C 4,8 x L with hexagon head and sealing washer ≥ Ø14 mm	Annex 5

Annex 3:
ETA-10/0182, Annex 6



Material:

Fastener:	carbon steel, case hardened and galvanized or coated
Washer:	carbon steel, galvanized or coated stainless Steel (1.4301) - EN 10088
Component I:	aluminium alloy with $R_{m,min}$ = 215 N/mm² - EN 573
Component II:	aluminium alloy with $R_{m,min}$ = 215 N/mm² - EN 573

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

Timber substructures:

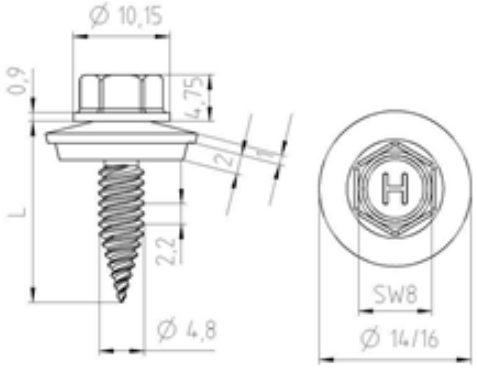
no performance determined

	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
$M_{I,rem}$ [Nm]							

The pull-through-capacities of the grey highlighted values $N_{R,k}$ have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values $N_{R,k}$ may be increased by 6,9% when using the type „S-MS 5x".

Self piercing screw	
Hilti S-MS 41 Z 4,8 x L Hilti S-MS 41 C 4,8 x L Hilti S-MS 51 Z 4,8 x L Hilti S-MS 51 C 4,8 x L with hexagon head and sealing washer ≥ Ø14 mm	Annex 6

Annex 4:
ETA-10/0182, Annex 7



Material:

Fastener:	carbon steel, case hardened and galvanized or coated
Washer:	carbon steel, galvanized or coated stainless Steel (1.4301) - EN 10088
Component I:	aluminium alloy with $R_{m,min}$ = 165 N/mm² - EN 573
Component II:	aluminium alloy with $R_{m,min}$ = 165 N/mm² - EN 573

Drilling capacity: $\Sigma t_I \leq 2{,}50$ mm

Timber substructures:

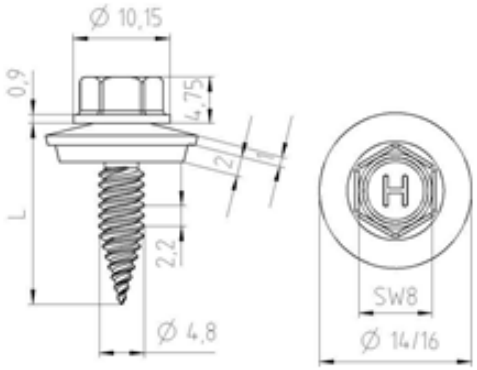
no performance determined

	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
$M_{I,nom}$ [Nm]							

The pull-through-capacities of the grey highlighted values $N_{R,k}$ have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values $N_{R,k}$ may be increased by 6,9% when using the type „S-MS 5x".

Self piercing screw	
Hilti S-MS 41 Z 4,8 x L Hilti S-MS 41 C 4,8 x L Hilti S-MS 51 Z 4,8 x L Hilti S-MS 51 C 4,8 x L with hexagon head and sealing washer ≥ Ø14 mm	Annex 7

Annex 5:
ETA-10/0182, Annex 8



Material:

Fastener: carbon steel, case hardened and galvanized or coated

Washer: carbon steel, galvanized or coated
stainless Steel (1.4301) - EN 10088

Component I: aluminium alloy with $R_{m,min}$ = 215 N/mm² - EN 573

Component II: S280GD, S320GD, S350GD - EN 10346

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

Timber substructures:

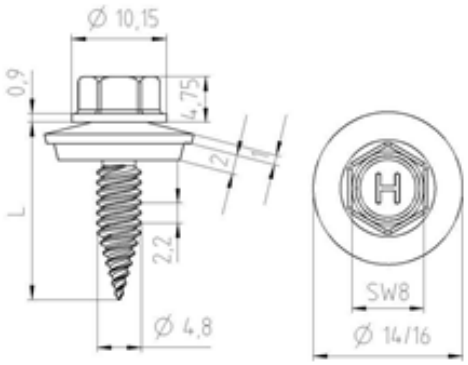
no performance determined

	t_1 [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 —
$N_{R,I,k}$ [kN]		0,76	0,87	1,04	1,28	1,58	1,86	2,42
$M_{I,rem}$ [Nm]								

The pull-through-capacities of the grey highlighted values $N_{R,k}$ have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values $N_{R,k}$ may be increased by 6,9% when using the type „S-MS 5x".

Self piercing screw	
Hilti S-MS 41 Z 4,8 x L Hilti S-MS 41 C 4,8 x L Hilti S-MS 51 Z 4,8 x L Hilti S-MS 51 C 4,8 x L with hexagon head and sealing washer ≥ Ø14 mm	Annex 8

Annex 6:
ETA-10/0182, Annex 9



Material:

Fastener:	carbon steel, case hardened and galvanized or coated
Washer:	carbon steel, galvanized or coated stainless Steel (1.4301) - EN 10088
Component I:	aluminium alloy with $R_{m,min}$ = 165 N/mm² - EN 573
Component II:	S280GD, S320GD, S350GD - EN 10346

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

Timber substructures:

no performance determined

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 —
$N_{R,I,k}$ [kN]		0,76	0,87	1,04	1,28	1,58	1,86	2,42
$M_{I,nom}$ [Nm]								

The pull-through-capacities of the grey highlighted values $N_{R,k}$ have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values $N_{R,k}$ may be increased by 6,9% when using the type „S-MS 5x".

Self piercing screw	
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