

ET

## TOIMIVUSDEKLARATSIOON

vastavalt järgneva määruse (EL) lisale III: 305/2011 (Ehitustoodete määrus)

 Hilti isepuurivad kruvid S-MS Z, S-MS C  
 Nr Hilti-SF-DoP-003

- 1. Tootetüübi kordumatu identifitseerimiskood:** Hilti isepuurivad kruvid S-MS Z, S-MS C
- 2. Tüübi-, partii- või seerianumber või muu element, mis võimaldab ehitustoote identifitseerimist artikli 11 lõike 4 kohaselt:** tüübi- ja partiiinumber on toodud pakendil

**3. Ehitustoote tootja poolt ette nähtud kavandatud kasutusotstarve või -otstarbed kooskõlas kohaldatava ühtlustatud tehnilise kirjeldusega:**

Üldine tüüp ja kasutusotstarve	Isepuurivad kinnituskruvid metallelementidele ja plekile
Hõlmatud toodete suurus	Kruvi läbimõõt 4,8 mm
Alus ja kinnitav materjal	Teras, mis vastab standardile EN 10346, Alumiiniumsulam, mis vastab standarditele EN 485 / EN 573
Kinnitusvahendi materjal	Tsingitud või kaetud, karastatud süsinikteras, mis vastab standardile EN 10084
Koormus	Staatiline ja mittestaatiline (tuulekoormus)

- 4. Artikli 11 (5) kohaselt nõutav tootja nimi, registreeritud kaubamärk või tootja registreeritud kaubamärk ja kontaktaadress:** Hilti Aktiengesellschaft, Business Unit Direct Fastening, 9494 Schaan, Fürstentum Liechtenstein
- 5. Vajaduse korral volitatud esindaja nimi ja kontaktaadress, kelle volitused hõlmavad artiklis 12 (2) täpsustatud ülesandeid:** puuduvad.
- 6. Lisas V sätestatud ehitustoote toimivuse püsivuse hindamise ja kontrollimise süsteem või süsteemid:** süsteem 2+
- 7. Ühtlustatud standardiga hõlmatud ehitustoote toimivusdeklaratsiooni korral:** puudub.

**8. Sellise ehitustoote, mille kohta on antud Euroopa tehniline hinnang, toimivusdeklaratsiooni korral:**

Põhineb dokumendil EAD 330046-01-0602, välja antud ETA-10/0182. Teavitatud asutus MPA-Karlsruhe 0769 viis läbi kolmanda osapoole ülesanded süsteemi 2+ all ja väljastas tootmisjuhtimise vastavusdeklaratsiooni.

**9. Deklareeritud toimivus:**

Põhiomadused	Toimivus	Ühtlustatud tehniline kirjeldus
Iseloomulik pingetaluvus $N_{R,k}$	Lisa 1 - 6 ETA-10/0182 (lisa 4 – 9)	ETA-10/0182 EAD 330046-01-0602
Iseloomulik nihketugevus $V_{R,k}$		
Ühendustüübid		
Rakendamise piirväärtused		
Tuletundlikkus	A1	

- 10. Punktides 1 ja 2 kindlaksmääratud toote toimivus on kooskõlas punktis 9 osutatud deklareeritud toimivusega. Käesolev toimivusdeklaratsioon on välja antud punktis 4 kindlaksmääratud tootja ainuvastutusel.**

Tootja eest ja nimel allkirjastanud:

**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

	<p><b>Material:</b></p> <p>Fastener: carbon steel, case hardened and galvanized or coated</p> <p>Washer: none</p> <p>Component I: S280GD, S320GD, S350GD - EN 10346</p> <p>Component II: S280GD, S320GD, S350GD - EN 10346</p>																																																																																																																																																																																																																																														
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Annex 2:  
ETA-10/0182, Annex 5

	<p><b>Material:</b></p> <p><b>Fastener:</b> carbon steel, case hardened and galvanized or coated</p> <p><b>Washer:</b> carbon steel, galvanized or coated stainless Steel (1.4301) - EN 10088</p> <p><b>Component I:</b> S280GD, S320GD, S350GD - EN 10346</p> <p><b>Component II:</b> S280GD, S320GD, S350GD - EN 10346</p>																																																																																																																																																																																																																																																																																																																																													
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<td>0,55</td><td>0,46</td><td>0,76</td><td>0,88</td><td>1,03</td><td>1,27</td><td>1,60</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td><td>1,90</td> </tr> <tr> <td>0,63</td><td>0,46</td><td>0,76</td><td>0,88</td><td>1,03</td><td>1,27</td><td>1,60</td><td>1,90</td><td>2,34</td><td>2,34</td><td>2,34</td><td>2,34</td><td>2,34</td><td>2,34</td><td>2,34</td><td>2,34</td><td>2,34</td> </tr> <tr> <td>0,75</td><td>0,46</td><td>0,76</td><td>0,88</td><td>1,03</td><td>1,27</td><td>1,60</td><td>1,90</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td> </tr> <tr> <td>0,88</td><td>0,46</td><td>0,76</td><td>0,88</td><td>1,03</td><td>1,27</td><td>1,60</td><td>1,90</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td> </tr> <tr> <td>1,00</td><td>0,46</td><td>0,76</td><td>0,88</td><td>1,03</td><td>1,27</td><td>1,60</td><td>1,90</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td> </tr> <tr> <td>1,25</td><td>0,46</td><td>0,76</td><td>0,88</td><td>1,03</td><td>1,27</td><td>1,60</td><td>1,90</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td><td>2,49</td> </tr> <tr> <td><math>M_{Rk}</math> [Nm]</td> <td colspan="17"></td> </tr> </tbody> </table>														$t_i$ [mm]	$t_i$ [mm]												0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,25	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	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	0,50	0,81	1,01	1,01	1,02	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	0,55	0,81	1,01	1,28	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	0,63	0,81	1,01	1,28	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	0,75	0,81	1,01	1,28	1,66	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	0,88	0,81	1,01	1,28	1,66	2,26	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	1,00	0,81	1,01	1,28	1,66	2,26	2,77	3,24	3,24	3,24	3,24	3,24	3,24	3,24	3,24	3,24	3,24	1,25	0,81	1,01	1,28	1,66	2,26	2,77	3,24	4,24	4,24	4,24	4,24	4,24	4,24	4,24	4,24	4,24	$N_{Rk}$ [kN]	0,40	0,46	0,76	0,88	1,03	1,27	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	0,50	0,46	0,76	0,88	1,03	1,27	1,60	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	0,55	0,46	0,76	0,88	1,03	1,27	1,60	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	0,63	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,34	2,34	2,34	2,34	2,34	2,34	2,34	2,34	2,34	0,75	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	0,88	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	1,00	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	1,25	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	$M_{Rk}$ [Nm]																	
	$t_i$ [mm]	$t_i$ [mm]																																																																																																																																																																																																																																																																																																																																												
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,25	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	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03																																																																																																																																																																																																																																																																																																																													
	0,50	0,81	1,01	1,01	1,02	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03																																																																																																																																																																																																																																																																																																																													
	0,55	0,81	1,01	1,28	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26	1,26																																																																																																																																																																																																																																																																																																																													
	0,63	0,81	1,01	1,28	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66																																																																																																																																																																																																																																																																																																																													
	0,75	0,81	1,01	1,28	1,66	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26	2,26																																																																																																																																																																																																																																																																																																																													
	0,88	0,81	1,01	1,28	1,66	2,26	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77	2,77																																																																																																																																																																																																																																																																																																																													
	1,00	0,81	1,01	1,28	1,66	2,26	2,77	3,24	3,24	3,24	3,24	3,24	3,24	3,24	3,24	3,24	3,24																																																																																																																																																																																																																																																																																																																													
	1,25	0,81	1,01	1,28	1,66	2,26	2,77	3,24	4,24	4,24	4,24	4,24	4,24	4,24	4,24	4,24	4,24																																																																																																																																																																																																																																																																																																																													
$N_{Rk}$ [kN]	0,40	0,46	0,76	0,88	1,03	1,27	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43	1,43																																																																																																																																																																																																																																																																																																																													
	0,50	0,46	0,76	0,88	1,03	1,27	1,60	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80																																																																																																																																																																																																																																																																																																																													
	0,55	0,46	0,76	0,88	1,03	1,27	1,60	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90																																																																																																																																																																																																																																																																																																																													
	0,63	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,34	2,34	2,34	2,34	2,34	2,34	2,34	2,34	2,34																																																																																																																																																																																																																																																																																																																													
	0,75	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49																																																																																																																																																																																																																																																																																																																													
	0,88	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49																																																																																																																																																																																																																																																																																																																													
	1,00	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49																																																																																																																																																																																																																																																																																																																													
	1,25	0,46	0,76	0,88	1,03	1,27	1,60	1,90	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49	2,49																																																																																																																																																																																																																																																																																																																													
$M_{Rk}$ [Nm]																																																																																																																																																																																																																																																																																																																																														
<p>If both components I and II are made of S320GD or S350GD the grey highlighted values may be increased by 8,0%.</p>																																																																																																																																																																																																																																																																																																																																														
<p>Self piercing screw</p> <p>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 <math>\geq \varnothing 14</math> mm</p>											<p>Annex 5</p>																																																																																																																																																																																																																																																																																																																																			

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  $R_{m,min} = 215 \text{ N/mm}^2$  - EN 573

**Component II:** aluminium alloy with  $R_{m,min} = 215 \text{ N/mm}^2$  - EN 573

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

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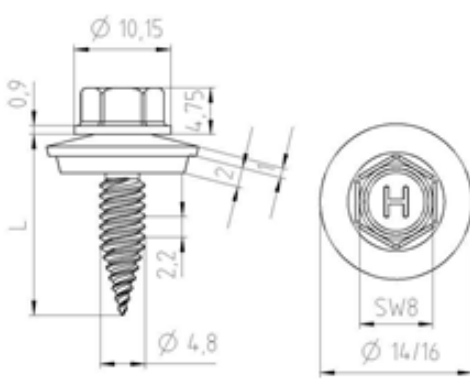
**Timber substructures:**  
no performance determined

t [mm]	t <sub>i</sub> [mm]					
	0,50	0,60	0,70	0,80	1,00	1,20
V <sub>rel,k</sub> [kN]	0,50	0,71	0,71	0,71	0,71	0,71
	0,60	0,71	0,92	0,92	0,92	0,92
	0,70	0,71	0,92	1,14	1,14	1,14
	0,80	0,71	0,92	1,14	1,35	1,35
	1,00	0,71	0,92	1,14	1,35	1,88
	1,20	0,71	0,92	1,14	1,35	1,88
N <sub>s,k</sub> [kN]	0,50	0,35	0,49	0,52	0,52	0,52
	0,60	0,35	0,49	0,63	0,63	0,63
	0,70	0,35	0,49	0,63	0,73	0,73
	0,80	0,35	0,49	0,63	0,77	0,84
	1,00	0,35	0,49	0,63	0,77	1,00
	1,20	0,35	0,49	0,63	0,77	1,00
N <sub>R,ilk</sub> [kN]	0,35	0,49	0,63	0,77	1,00	1,29
M <sub>torq,m</sub> [Nm]						

The pull-through-capacities of the grey highlighted values N<sub>s,k</sub> have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values N<sub>s,k</sub> may be increased by 6,9% when using the type „S-MS 5x“.

Self piercing screw	Annex 6
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 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  $R_{m,min} = 165 \text{ N/mm}^2$  - EN 573

Component II: aluminium alloy with  $R_{m,min} = 165 \text{ N/mm}^2$  - EN 573

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

**Timber substructures:**  
no performance determined

t [mm]	t <sub>i</sub> [mm]						
	0,50	0,60	0,70	0,80	1,00	1,20	
V <sub>rel,k</sub> [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 <sub>2,x</sub> [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	0,98
N <sub>2,lik</sub> [kN]	0,27	0,38	0,48	0,59	0,76	1,03	
M <sub>1,perm</sub> [Nm]							

The pull-through-capacities of the grey highlighted values  $N_{2,x}$  have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values  $N_{2,x}$  may be increased by 6,9% when using the type „S-MS 5x“.

Self piercing screw		Annex 7
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 $\geq \varnothing 14 \text{ mm}$		

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  $R_{m,min} = 215 \text{ N/mm}^2$  - EN 573

**Component II:** S280GD, S320GD, S350GD - EN 10346

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

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**Timber substructures:**  
no performance determined

t [mm]	t <sub>i</sub> [mm]							
	0,50	0,55	0,63	0,75	0,88	1,00	1,25	
V <sub>FeK</sub> [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 <sub>2,x</sub> [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 <sub>2,ilk</sub> [kN]	0,76	0,87	1,04	1,28	1,58	1,86	2,42	
M <sub>1,perm</sub> [Nm]								

The pull-through-capacities of the grey highlighted values N<sub>2,x</sub> have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values N<sub>2,x</sub> 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  $R_{m,min} = 165 \text{ N/mm}^2$  - EN 573

Component II: S280GD, S320GD, S350GD - EN 10346

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

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**Timber substructures:**  
no performance determined

t [mm]	t <sub>i</sub> [mm]							
	0,50	0,55	0,63	0,75	0,88	1,00	1,25	
V <sub>rel</sub> [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 <sub>ex</sub> [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	0,58	0,58	0,58	0,58	0,58	0,58	0,58
	0,80	0,64	0,64	0,64	0,64	0,64	0,64	0,64
	1,00	0,78	0,80	0,80	0,80	0,80	0,80	0,80
	1,20	0,78	0,87	0,96	0,96	0,96	0,96	0,96
N <sub>R,ilk</sub> [kN]	0,76	0,87	1,04	1,28	1,58	1,86	2,42	
M <sub>torq</sub> [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		Annex 9
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 $\geq \text{Ø}14 \text{ mm}$		