

FI

SUORITUSTASOILMOITUS

asetuksen (EU) nro 305/2011 (rakennustuotteiden asetus)

 Hilti itsekiinnittyvät ruuvit S-MS Z, S-MS C
 Nro Hilti-SF-DoP-003

- Tuotetyypin yksilöllinen tunniste:** Hilti itsekiinnittyvät ruuvit S-MS Z, S-MS C
- Tyyppi-, erä- tai sarjanumero tai muu merkintä, jonka ansiosta rakennustuotteet voidaan tunnistaa, kuten 11 artiklan 4 kohdassa edellytetään:** Tyyppi- ja eränumero näkyvät pakkauksen päällä
- Valmistajan ennakoima, sovellettavan yhdenmukaistetun teknisen eritelmän mukainen rakennustuotteen aiottu käyttötarkoitus tai -tarkoitukset:**

Yleistyyppi ja käyttö	Itsekiinnittyvät ruuvit metalliosille ja levyille
Tuotekokoalue	Ruuvin halkaisija 4,8 mm
Pohja- ja kiinnitysmateriaali	EN 10346 mukainen teräs EN 485 / EN 573 mukainen alumiiniseos
Kiinnitysmateriaali	Galvanoitu tai pinnoitettu, pintakarkaistu hiiliteräs EN 10084 mukaan
Kuormitus	Staattinen & kvasistaattinen (tuulikuorma)

- Valmistajan nimi, rekisteröity kaupp nimi tai tavaramerkki sekä osoite, josta valmistajaan saa yhteyden, kuten 11 artiklan 5 kohdassa edellytetään:** Hilti Aktiengesellschaft, Business Unit Direct Fastening, 9494 Schaan, Fürstentum Liechtenstein

- Mahdollisen valtuutetun edustajan, jonka toimeksiantoon kuuluvat 12 artiklan 2 kohdassa eriteltyt tehtävät, nimi sekä osoite, josta tähän saa yhteyden:** n/a

- Rakennustuotteen suoritusason pysyvyyden arviointi- ja varmennusjärjestelmä(t) liitteen V mukaisesti:**
Järjestelmä 2+

- Kun kyse on yhdenmukaistetun standardin piiriin kuuluvan rakennustuotteen suoritusasoilmoituksesta:** n/a

- Kun kyse on suoritusasoilmoituksesta, joka koskee rakennustuotetta, josta on annettu eurooppalainen tekninen arviointi:**

EAD 330046-01-0602:n mukaan julkaistu ETA-10/0182. Ilmoitettu elin MPA-Karlsruhe 0769 suoritti järjestelmän 2+ kolmannen osapuolen tehtävät ja antoi tuotannonvalvonnan vaatimustenmukaisuustodistuksen.

- Ilmoitettu suoritusaso/ilmoitetut suoritusasot:**

Oleellinen ominaisuus	Suorituskyky	Harmonisoidut tekniset tiedot
Ominaisvetolujuus $N_{R,k}$	Liite 1 - 6 ETA-10/0182 (Liite 4 – 9)	ETA-10/0182 EAD 330046-01-0602
Ominaisleikkauslujuus $V_{R,k}$		
Liitostyytit		
Kuormitusrajat		
Reaktio paloon	A1	

- Edellä 1 ja 2 kohdassa yksilöidyn tuotteen suoritusasot ovat 9 kohdassa ilmoitettujen suoritusasojen mukaiset. Tämä suoritusasoilmoitus on annettu 4 kohdassa ilmoitetun valmistajan yksinomaisella vastuulla.**

Valmistajan puolesta allekirjoittanut:

Lars Taenzer

Liiketoimintayksikön päällikkö, suorakiinnitys

Pierre Hohmeier

Laatupäällikkö, ruuvikiinnitys

Hilti Aktiengesellschaft, Schaan, 3.5.2019

Annex 1:
ETA-10/0182, Annex 4

	<p>Material:</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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<p>Self piercing screw</p>		<p>Annex 4</p>																																																																																																																																																																																																																																						
<p>Hilti S-MS 01 Z 4,8 x L Hilti S-MS 01 C 4,8 x L with hexagon head</p>																																																																																																																																																																																																																																								

Annex 2:
ETA-10/0182, Annex 5

	<p>Material:</p> <p>Fastener: carbon steel, case hardened and galvanized or coated</p> <p>Washer: carbon steel, galvanized or coated stainless Steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD, S350GD - EN 10346</p> <p>Component II: 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>$M_{i,rem}$ [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	$V_{i,x}$ [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	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	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	$N_{i,x}$ [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	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60	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	$M_{i,rem}$ [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																																																																																																																																																																																																																																																																																																																													
$V_{i,x}$ [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	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28																																																																																																																																																																																																																																																																																																																													
	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																																																																																																																																																																																																																																																																																																																													
$N_{i,x}$ [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	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60																																																																																																																																																																																																																																																																																																																													
	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																																																																																																																																																																																																																																																																																																																													
$M_{i,rem}$ [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 $\geq \varnothing 14$ 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

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

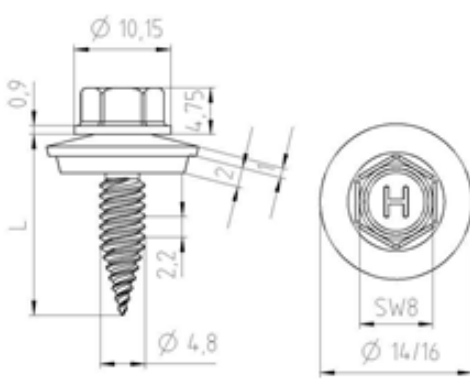
Timber substructures:
no performance determined

t [mm]	t _i [mm]						
	0,50	0,60	0,70	0,80	1,00	1,20	
V _{rel,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 _{s,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,ilk} [kN]	0,35	0,49	0,63	0,77	1,00	1,29	
M _{L,rel,m} [Nm]							

The pull-through-capacities of the grey highlighted values N_{s,k} have been determined according to EN 1999-1-4:2007 section 8.3.3.1 by calculation. This values N_{s,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 $\geq \varnothing 14 \text{ mm}$	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 $R_{m,min} = 165 \text{ N/mm}^2$ - EN 573

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

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

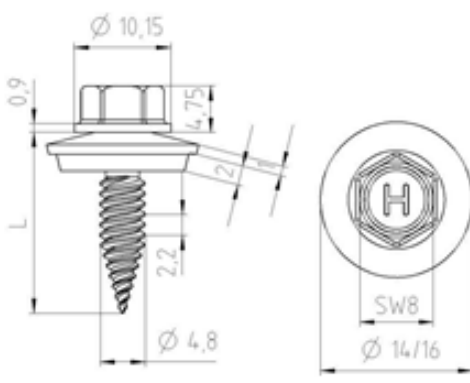
Timber substructures:
no performance determined

t [mm]	t _i [mm]						
	0,50	0,60	0,70	0,80	1,00	1,20	
V _{rel} [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 _{2,x} [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 _{2,lik} [kN]	0,27	0,38	0,48	0,59	0,76	1,03	
M _{1,10m} [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

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

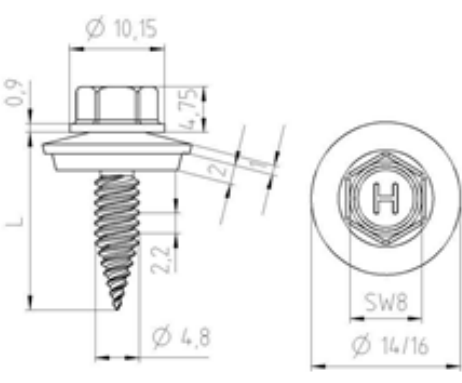
Timber substructures:
no performance determined

t [mm]	t_i [mm]							
	0,50	0,55	0,63	0,75	0,88	1,00	1,25	
V_{Fck} [kN]	0,50	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	
	0,70	0,71	0,71	0,92	1,14	1,14	1,14	
	0,80	0,71	0,71	0,92	1,14	1,35	1,35	
	1,00	0,71	0,71	0,92	1,14	1,35	1,88	
	1,20	0,71	0,71	0,92	1,14	1,35	1,88	
N_{Rk} [kN]	0,50	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	
	0,70	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	
	1,00	0,76	0,87	1,04	1,05	1,05	1,05	
	1,20	0,76	0,87	1,04	1,26	1,26	1,26	
$N_{R,ilk}$ [kN]	0,76	0,87	1,04	1,28	1,58	1,86	2,42	
$M_{L,perm}$ [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 8
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 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

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

Timber substructures:
no performance determined

t [mm]	t _i [mm]							
	0,50	0,55	0,63	0,75	0,88	1,00	1,25	
V _{rel} [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 _{ex} [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 _{R,lik} [kN]	0,76	0,87	1,04	1,28	1,58	1,86	2,42	
M _{torq} [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 $\geq \text{Ø}14 \text{ mm}$		