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Authorised and notified according
to Article 29 of the Regulation (EU)
No 305/2011 of the European
Parliament and of the Council of 9
March 2011

MEMBER OF EOTA



European Technical Assessment ETA-17/0346 of 07/06/2017

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Hilti fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product family to which the above construction product belongs:

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Manufacturer:

Hilti AG
Feldkircherstrasse 100
FL 9494 SCHAAN
Principality of Liechtenstein

Manufacturing plant:

Hilti AG – Plant 6522
Hilti AG – Plant 7855
Hilti AG – Plant 6103
Hilti AG – Plant 7443
Hilti AG – Plant LW009

This European Technical Assessment contains:

16 pages including 11 annexes which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

European Technical Approval Guideline No. 006, Annex D (ETAG 006), edition march 2000 amended November 2012, used as European Assessment Document (EAD)

This version replaces:

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product and intended use

Technical description of the product

The fasteners for systems of mechanically fastened flexible roof waterproofing membrane (MEFAWAME), subject of this ETA, are fasteners composed of a fastening element (screw) and a distribution washer. These fasteners mechanically fasten a waterproofing membrane to the bearing structure.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable EAD

The fasteners for systems of mechanically fastened flexible membranes are used to fasten waterproofing membranes which protect the roof surfaces against penetration of atmospheric water. The bearing elements are metallic. In the manufacturer's technical dossier (MTD) to this European technical assessment (ETA) the manufacturer gave information concerning the substrate on which the fasteners can be used.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the screws of 10 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 chapter 4 of the ETAG 006 edition march 2000 amended November 2012.

These performances, given in the following paragraphs, are valid as long as the components are the ones described in § 1 and Annexes A1 to B4 of this ETA.

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR2)	
Reaction to fire	No Performance Assessed
External fire performance	No Performance Assessed
3.3 Hygiene, health and the environment (BWR3)	
Influence on air quality	The product does not contain/release dangerous substances specified in TR 034, dated March 2012 0*)
3.4 Safety in use (BWR4)	
Axial loading	See annex B1 and B2
Resistance to unwinding	See annex B3
3.7 Sustainable use of natural resources (BWR7)	No Performance Assessed
3.8 General aspects related to the performance of the product	
Durability	
Corrosion resistance	See annex B3
Mechanical resistance/brittleness of the plastic fastener	See annex B4

*) In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 97/223/EC of the European Commission¹, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2017-06-07 by



Thomas Bruun
Managing Director, ETA-Danmark

Table A1: Fastener description and substrate

Fastener	Fastening element	Distribution washer	Substrate	
Profiled metal decking substrate (standard)				
S-IT 01C 4.8xL + S-IW 4.9 AZ 40	S-IT 01C 4.8xL	S-IW 4.9 AZ 40	Steel, S320GD EN 10346	
S-IT 01C 4.8xL + S-IW 4.9 AZ 40x40	S-IT 01C 4.8xL	S-IW 4.9 AZ 40x40		
S-IT 01C 4.8xL + S-IW 4.9 AZ 64x64	S-IT 01C 4.8xL	S-IW 4.9 AZ 64x64		
S-IT 01C 4.8xL + S-IW 4.9 AZ 80x40	S-IT 01C 4.8xL	S-IW 4.9 AZ 80x40		
S-IDP 4.8C/40xL	S-ID 01C 4.8xL	S-IP 40xL		
S-IDP 4.8C/8040xL	S-ID 01C 4.8xL	S-IP 8040xL		
S-IDP 4.8S/40xL	S-ID 01S 4.8xL	S-IP 40xL		
S-IDP 4.8S/8040xL	S-ID 01S 4.8xL	S-IP 8040xL		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 40	Steel S280GD S320 GD S350 GD S390 GD S420GD S450GD EN 10346	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 40x40		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	S-ID 01LC 4.8xL	S-IW 4.9 AZ 64x64		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 80x40		
S-ID 01LC 4.8xL + S-IP 40xL	S-ID 01LC 4.8xL	S-IP 40xL		
S-ID 01LC 4.8xL + S-IP 8040xL	S-ID 01LC 4.8xL	S-IP 8040xL		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 40		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 40x40		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 64x64		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 80x40		
S-ID 01LSS 4.8xL + S-IP 40xL	S-ID 01LSS 4.8xL	S-IP 40xL		
S-ID 01LSS 4.8xL + S-IP 8040xL	S-ID 01LSS 4.8xL	S-IP 8040xL		
Profiled metal decking substrate (acoustic)				
S-IT 01C 6.3xL + S-IW 6.6 AZ 40	S-IT 01C 6.3xL	S-IW 6.6 AZ 40		Steel, S320GD EN 10346
S-IT 01C 6.3xL + S-IW 6.6 AZ 40x40	S-IT 01C 6.3xL	S-IW 6.6 AZ 40x40		
S-IT 01C 6.3xL + S-IW 6.6 AZ 64x64	S-IT 01C 6.3xL	S-IW 6.6 AZ 64x64		
S-IT 01C 6.3xL + S-IW 6.6AZ 80x40	S-IT 01C 6.3xL	S-IW 6.6 AZ 80x40		
S-IDP 6.7C/40xL	S-ID 01C 6.7xL	S-IP 40xL		
S-IDP 6.7C/8040xL	S-ID 01C 6.7xL	S-IP 8040xL		
Aluminium substrate				
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 40	Aluminium and aluminium alloys, EN 755-2 with $f_u \geq 245 \text{ N/mm}^2$	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 40x40		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	S-ID 01LC 4.8xL	S-IW 4.9 AZ 64x64		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 80x40		
S-ID 01LC 4.8xL + S-IP 40xL	S-ID 01LC 4.8xL	S-IP 40xL		
S-ID 01LC 4.8xL + S-IP 8040xL	S-ID 01LC 4.8xL	S-IP 8040xL		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 40		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 40x40		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 64x64		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 80x40		
S-ID 01LSS 4.8xL + S-IP 40xL	S-ID 01LSS 4.8xL	S-IP 40xL		
S-ID 01LSS 4.8xL + S-IP 8040xL	S-ID 01LSS 4.8xL	S-IP 8040xL		

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product description
Fastening element, Distribution washer and Substrate

Annex A1

Table A1 continued

Fastener	Fastening element	Distribution washer	Substrate
Timber substrate			
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 40	Oriented Strand Boards (OSB) OSB/3 EN 300
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 40x40	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	S-ID 01LC 4.8xL	S-IW 4.9 AZ 64x64	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	S-ID 01LC 4.8xL	S-IW 4.9 AZ 80x40	
S-ID 01LC 4.8xL + S-IP 40xL	S-ID 01LC 4.8xL	S-IP 40xL	
S-ID 01LC 4.8xL + S-IP 8040xL	S-ID 01LC 4.8xL	S-IP 8040xL	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 40	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 40x40	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 64x64	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	S-ID 01LSS 4.8xL	S-IW 4.9 AZ 80x40	
S-ID 01LSS 4.8xL + S-IP 40xL	S-ID 01LSS 4.8xL	S-IP 40xL	
S-ID 01LSS 4.8xL + S-IP 8040xL	S-ID 01LSS 4.8xL	S-IP 8040xL	

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product description
Fastening element, Distribution washer and Substrate

Annex A2

Table A2: Materials

Designation	Material
Fastening elements	
S-IT 01C 4.8xL	hardened carbon steel screw, coated
S-IT 01C 6.3xL	hardened carbon steel screw, coated
S-ID 01C 4.8xL	hardened carbon steel screw, coated
S-ID 01LC 4.8xL	hardened carbon steel screw, coated
S-ID 01C 6.7xL	hardened carbon steel screw, coated
S-ID 01S 4.8xL	stainless steel A2 screw
S-ID 01LSS 4.8xL	stainless steel A4 screw
Distribution washer	
S-IW 4.9 AZ 40	steel plate, Aluzinc protection
S-IW 4.9 AZ 40x40	steel plate, Aluzinc protection
S-IW 4.9 AZ 64x64	steel plate, Aluzinc protection
S-IW 4.9 AZ 80x40	steel plate, Aluzinc protection
S-IW 6.6 AZ 40	steel plate, Aluzinc protection
S-IW 6.6 AZ 40x40	steel plate, Aluzinc protection
S-IW 6.6 AZ 64x64	steel plate, Aluzinc protection
S-IW 6.6 AZ 80x40	steel plate, Aluzinc protection
S-IP 40xL	plastic plug, polyamide PA6
S-IP 8040xL	plastic plug, polyamide PA6

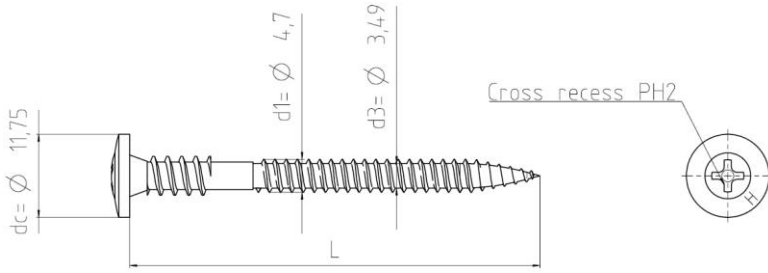
Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product description
Materials of screws, steel washers and plastic plugs

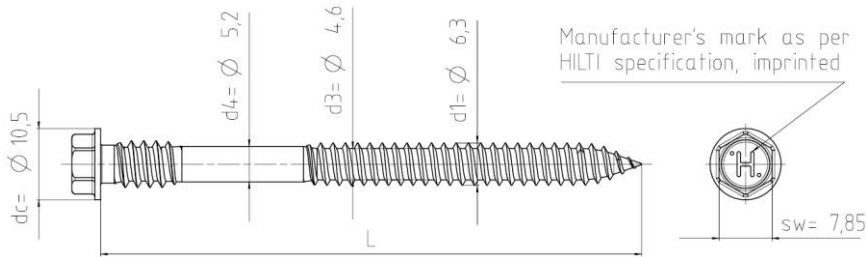
Annex A3

Fastening elements

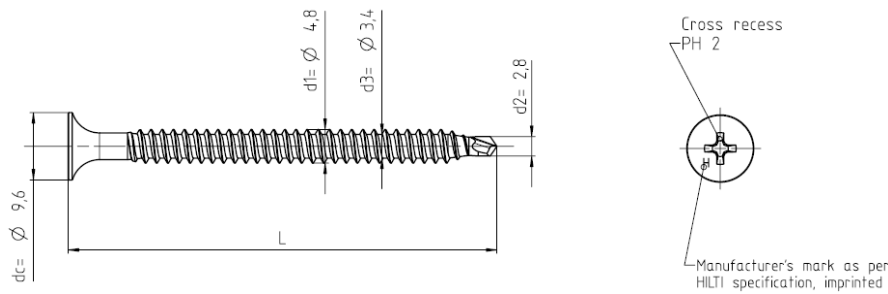
S-IT 01 C 4.8xL



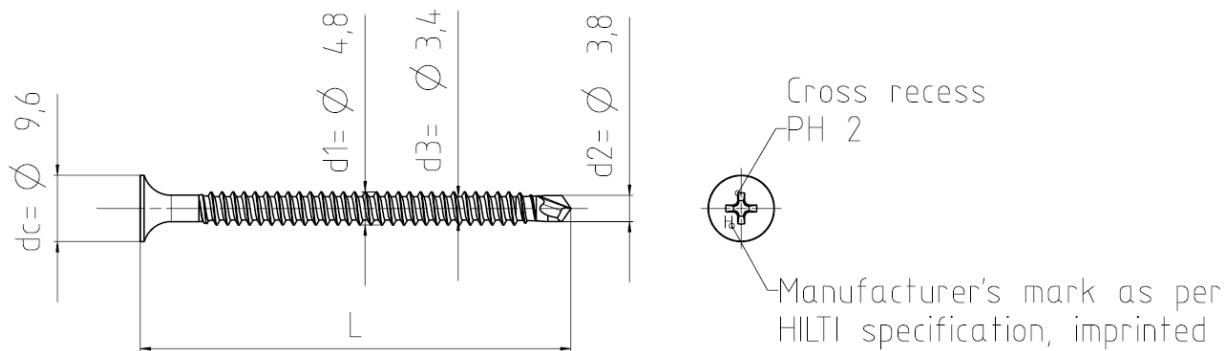
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S-ID 01C 4.8xL



S-ID 01LC 4.8xL



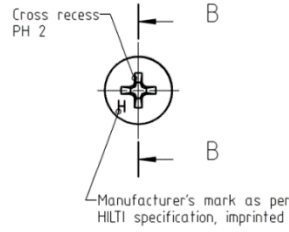
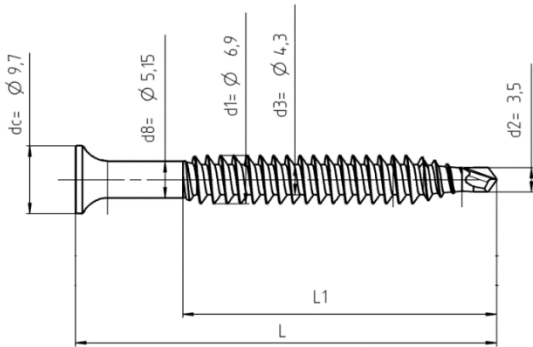
Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product description
Dimensions of screws

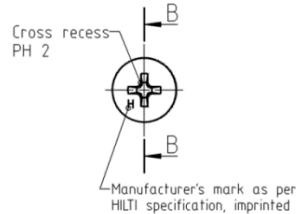
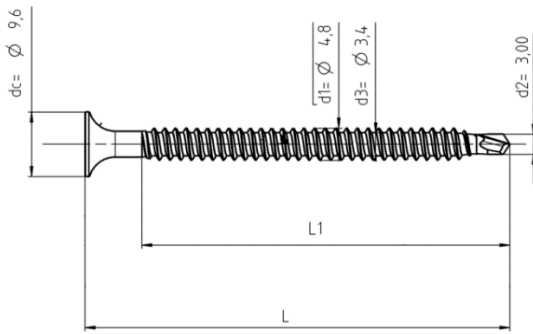
Annex A4

Fastening elements

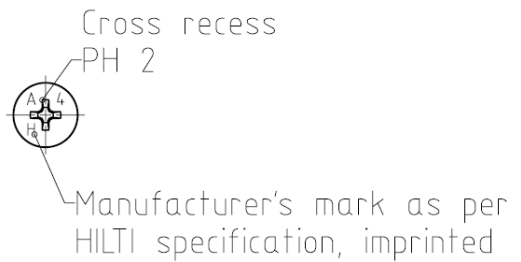
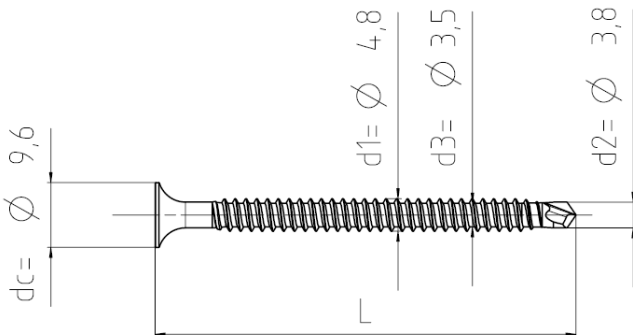
S-ID 01C 6.7xL



S-ID 01S 4.8xL



S-ID 01LSS 4.8xL



Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

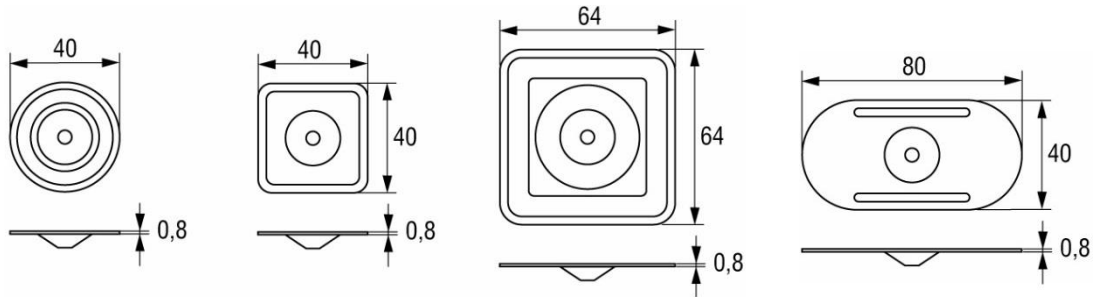
Product description
Dimensions of screws

Annex A5

Distribution washer (steel washer)

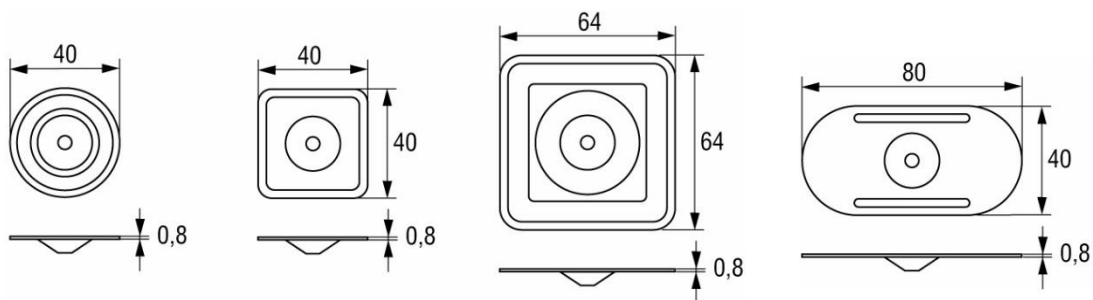
S-IW 4.9 AZ 40, S-IW 4.9 AZ 40x40, S-IW 4.9 AZ 64x64, S-IW 4.9 AZ 80x40

Hole \varnothing 4.9 mm



S-IW 6.6 AZ 40, S-IW 6.6 AZ 40x40, S-IW 6.6 AZ 64x64, S-IW 6.6 AZ 80x40

Hole \varnothing 6.6 mm



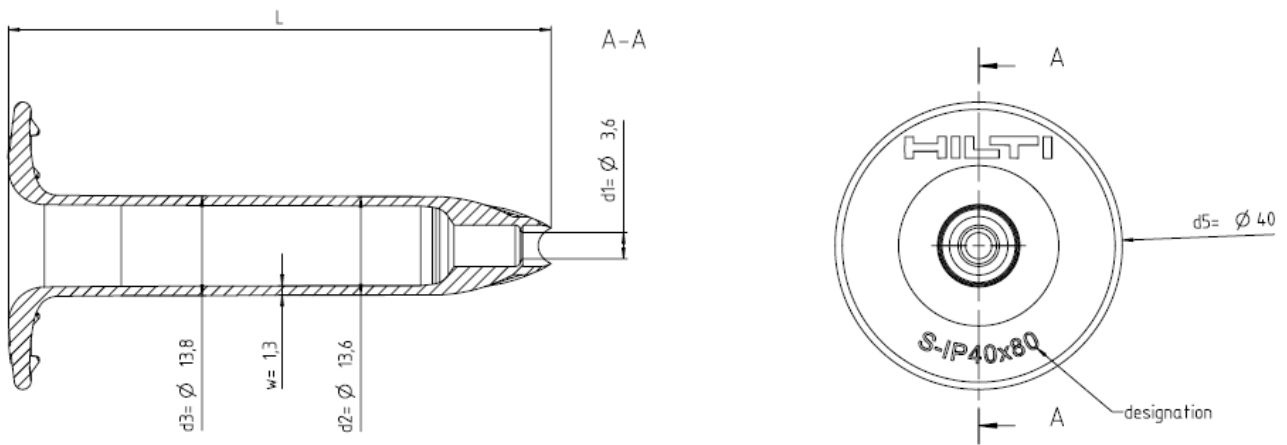
Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product description
Dimensions of steel washers

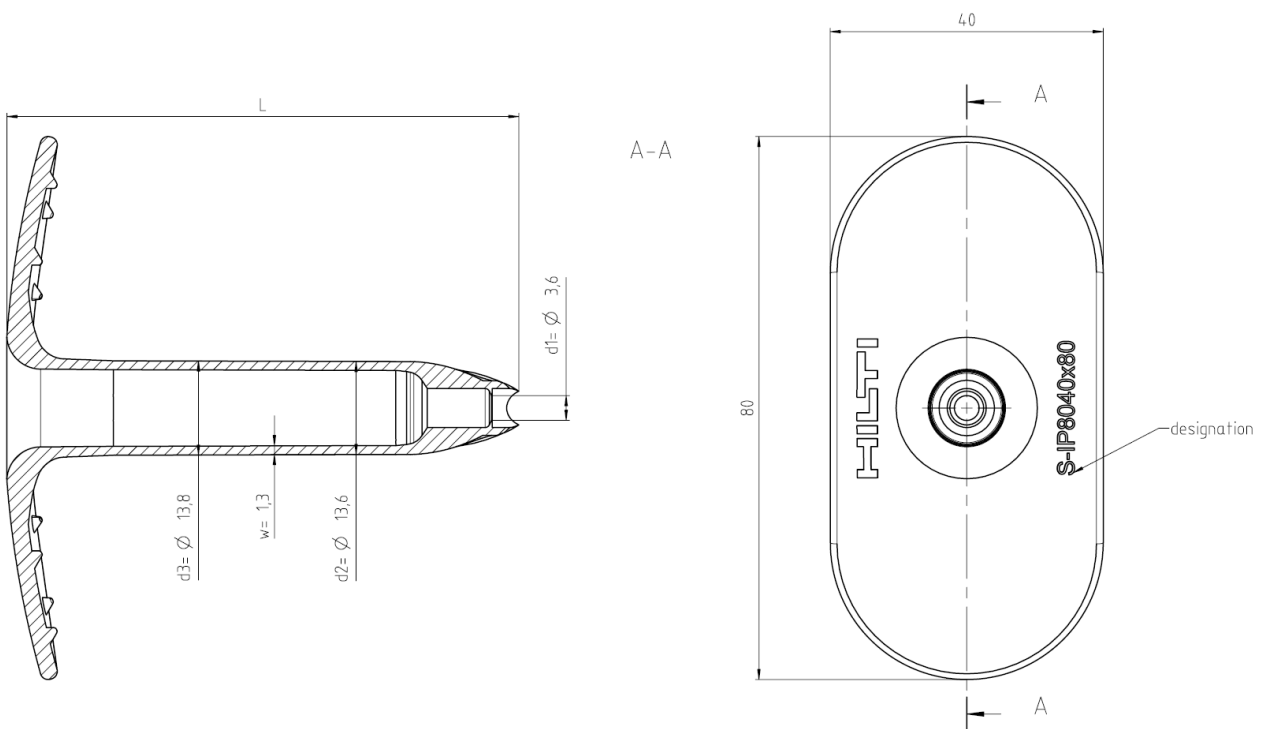
Annex A6

Distribution washer (plastic plugs)

S-IP 40xL



S-IP 8040xL



Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Product description
Dimensions of plastic plugs

Annex A7

Table B1: Characteristic axial loading resistance in steel substrate

Fastener	Thickness of support t [mm]	Characteristic axial loading resistance N_{Rk} [N]	Substrate	
Profiled metal decking substrate (standard)				
S-IT 01C 4.8xL + S-IW 4.9 AZ 40	0.75	1370	Steel, S320GD EN 10346	
S-IT 01C 4.8xL + S-IW 4.9 AZ 40x40	0.75	1370		
S-IT 01C 4.8xL + S-IW 4.9 AZ 64x64	0.75	1370		
S-IT 01C 4.8xL + S-IW 4.9 AZ 80x40	0.75	1370		
S-IDP 4.8C/40xL	0.75	970		
	1.00	1340		
	1.25	1340		
S-IDP 4.8C/8040xL	0.75	1090		
	1.00	1470		
	1.25	1470		
S-IDP 4.8S/40xL	0.75	970		
	1.00	1340		
S-IDP 4.8S/8040xL	0.75	1020		
	1.00	1470		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	$1.20 \leq t \leq 3.00$	1510		Steel S280GD S320 GD S350 GD S390 GD S420GD S450GD EN 10346
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LC 4.8xL + S-IP 40xL	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LC 4.8xL + S-IP 8040xL	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LSS 4.8xL + S-IP 40xL	$1.20 \leq t \leq 3.00$	1510		
S-ID 01LSS 4.8xL + S-IP 8040xL	$1.20 \leq t \leq 3.00$	1510		
Profiled metal decking substrate (acoustic)				
S-IT 01C 6.3xL + S-IW 6.6 AZ 40	0.75	1680	Steel S320GD EN 10346	
S-IT 01C 6.3xL + S-IW 6.6 AZ 40x40	0.75	1680		
S-IT 01C 6.3xL + S-IW 6.6 AZ 64x64	0.75	1680		
S-IT 01C 6.3xL + S-IW 6.6 AZ 80x40	0.75	1680		
S-IDP 6.7C/40xL	0.75	1030		
	1.00	1660		
	1.25	1660		
S-IDP 6.7C/8040xL	0.75	1030		
	1.00	1660		
	1.25	1660		

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Performances
Characteristic axial loading resistance in steel substrate

Annex B1

Table B2: Characteristic axial loading resistance in aluminium and timber substrate

Fastener	Thickness of support t [mm]	Characteristic axial loading resistance N_{Rk} [N]	Substrate
Aluminium substrate			
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	$1.65 \leq t \leq 3.00$	1990	Aluminium and aluminium alloys, EN 755-2 with $f_u \geq 245 \text{ N/mm}^2$
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LC 4.8xL + S-IP 40xL	$1.65 \leq t \leq 3.00$	1830	
S-ID 01LC 4.8xL + S-IP 8040xL	$1.65 \leq t \leq 3.00$	1830	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	$1.65 \leq t \leq 3.00$	1990	
S-ID 01LSS 4.8xL + S-IP 40xL	$1.65 \leq t \leq 3.00$	1830	
S-ID 01LSS 4.8xL + S-IP 8040xL	$1.65 \leq t \leq 3.00$	1830	
Timber substrate			
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	≥ 18	870	Oriented Strand Boards (OSB) OSB/3 EN 300
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	≥ 18	870	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	≥ 18	870	
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	≥ 18	870	
S-ID 01LC 4.8xL + S-IP 40xL	≥ 18	870	
S-ID 01LC 4.8xL + S-IP 8040xL	≥ 18	870	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	≥ 18	870	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	≥ 18	870	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	≥ 18	870	
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	≥ 18	870	
S-ID 01LSS 4.8xL + S-IP 40xL	≥ 18	870	
S-ID 01LSS 4.8xL + S-IP 8040xL	≥ 18	870	

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Performances

Characteristic axial loading resistance in aluminium and timber substrate

Annex B2

Resistance to unwinding

The fasteners are assessed as resistant to:

- rotation of the fastener head $\leq \frac{1}{4}$ turn after 500 cycles
- rotation of the fastener head $\leq \frac{1}{2}$ turn after 900 cycles
- vertical movement ≤ 1 mm after 900 cycles

Table B3: Corrosion resistance

Fastener	Corrosion class ¹⁾
S-IT 01C 4.8xL + S-IW 4.9 AZ 40	C15
S-IT 01C 4.8xL + S-IW 4.9 AZ 40x40	C15
S-IT 01C 4.8xL + S-IW 4.9 AZ 64x64	C15
S-IT 01C 4.8xL + S-IW 4.9 AZ 80x40	C15
S-IDP 4.8C/40xL	C15
S-IDP 4.8C/8040xL	C15
S-IDP 4.8S/40xL	not relevant
S-IDP 4.8S/8040xL	not relevant
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	C15
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	C15
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	C15
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	C15
S-ID 01LC 4.8xL + S-IP 40xL	C15
S-ID 01LC 4.8xL + S-IP 8040xL	C15
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	C15
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	C15
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	C15
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	C15
S-ID 01LSS 4.8xL + S-IP 40xL	not relevant
S-ID 01LSS 4.8xL + S-IP 8040xL	not relevant
S-IT 01C 6.3xL + S-IW 6.6 AZ 40	C15
S-IT 01C 6.3xL + S-IW 6.6 AZ 40x40	C15
S-IT 01C 6.3xL + S-IW 6.6 AZ 64x64	C15
S-IT 01C 6.3xL + S-IW 6.6AZ 80x40	C15
S-IDP 6.7C/40xL	C15
S-IDP 6.7C/8040xL	C15

- ¹⁾ class C2 = surface corrosion = 0 % after 2 cycles
class C7 = surface corrosion ≤ 5 % after 7 cycles
class C15 = surface corrosion ≤ 15 % after 15 cycles

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Performances
Resistance to unwinding and Corrosion resistance

Annex B3

Table B4: Mechanical resistance/brittleness of the plastic fastener

Fastener	Mechanical resistance before and after heat ageing: drop height [m] ¹⁾
S-IT 01C 4.8xL + S-IW 4.9 AZ 40	not relevant
S-IT 01C 4.8xL + S-IW 4.9 AZ 40x40	not relevant
S-IT 01C 4.8xL + S-IW 4.9 AZ 64x64	not relevant
S-IT 01C 4.8xL + S-IW 4.9 AZ 80x40	not relevant
S-IDP 4.8C/40xL	passed
S-IDP 4.8C/8040xL	passed
S-IDP 4.8S/40xL	passed
S-IDP 4.8S/8040xL	passed
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40	not relevant
S-ID 01LC 4.8xL + S-IW 4.9 AZ 40x40	not relevant
S-ID 01LC 4.8xL + S-IW 4.9 AZ 64x64	not relevant
S-ID 01LC 4.8xL + S-IW 4.9 AZ 80x40	not relevant
S-ID 01LC 4.8xL + S-IP 40xL	passed
S-ID 01LC 4.8xL + S-IP 8040xL	passed
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40	not relevant
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 40x40	not relevant
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 64x64	not relevant
S-ID 01LSS 4.8xL + S-IW 4.9 AZ 80x40	not relevant
S-ID 01LSS 4.8xL + S-IP 40xL	passed
S-ID 01LSS 4.8xL + S-IP 8040xL	passed
S-IT 01C 6.3xL + S-IW 6.6 AZ 40	not relevant
S-IT 01C 6.3xL + S-IW 6.6 AZ 40x40	not relevant
S-IT 01C 6.3xL + S-IW 6.6 AZ 64x64	not relevant
S-IT 01C 6.3xL + S-IW 6.6AZ 80x40	not relevant
S-IDP 6.7C/40xL	passed
S-IDP 6.7C/8040xL	passed

¹⁾ Heat ageing of the plastic part of the fastener for 28 days at 80 ± 2 °C.
Drop height ≥ 1.0 m is checked.

Fasteners for systems of mechanically fastened flexible roof waterproofing membranes

Performances
Mechanical resistance/brittleness of the plastic fastener

Annex B4