LUXEMBOURG INSTITUTE FOR
LUXIB
BUILDING AND TECHNOLOGY
62, Avenue de la Liberté
1930 Luxembourg
info@luxib.lu - www.luxib.lu

Designated according to Article 29 of Regulation (EU) No 305/2011

Member of EOTA
www.eota.eu

European Technical Assessment ETA-21/0936 of 03.05.2024

General Part

Technical Assessment Body issuing the European Technical Assessment:	LUXEMBOURG INSTITUTE FOR BUILDING AND TECHNOLOGY
Trade name of the construction product	**SIKLA FLS F**
Product family to which the construction product belongs	Self forming screw for metal members and sheeting
Manufacturer	Sikla Holding GmbH Ägydiplatz 3 4600 Thalheim bei Wels Austria
Manufacturing plant(s)	Plant 1 Plant 2 Plant 3 Plant 4
This European Technical Assessment contains	8 pages including 5 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 330046-01-0602 Fastening screws for metal members and sheeting
This version replaces	ETA-21/0936, issued on 14.08.2022

LUXEMBOURG INSTITUTE FOR LUXIB BUILDING AND TECHNOLOGY

Specific parts

1. Technical description of the product

The self forming screw FLS F of Sikla is made of cold extrusion carbon steel 20MnB4 according to EN 10263-4:2018 with anticorrosion coating. The self forming screw FLS F requires a predrilled hole in component I and component II. The pre-drilling diameter is 9.10 mm. The product description is given in Annex 1

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

The fastening screws are intended to be used for fastening metal members to metal substructures. The intended use comprises fastening screws and connections for indoor applications (C1 according to EN ISO 9223:2012-05). 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 Annexes 1 to 5.

According to EAD 330046-01-0602 a working life of the fastening screws of at least 25 years is assumed. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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

Mechanical resistance and stability (BWR1)	
Essential characteristic	**Performance**
Shear resistance of the connection	See Annex 4
Tension resistance of the connection	See Annex 5
Design resistance in combination of tension and shear forces (interaction)	See Annex 2
Check of deformation capacity in case of constraining forces due to temperature	NPD
Durability	NPD

Safety in case of fire (BWR2)	
Essential characteristics	Performance
Reaction to fire	Performance Class A1 in accordance with EC decision 96/603/EC (as amended)

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

In accordance with EAD 330046-01-0602, the applicable European legal act is:

Commission Decision 1998/214/EC, amended by 2001/596/EC.

The AVCP-system to be applied is: 2+

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

Technical details necessary for the implementation of the AVCP-system are laid down in the control plan deposited with LUXIB.

Issued in Luxembourg on 03.05.2024 by Luxembourg Institute for Building and Technology

Thierry Kohnen

General Manager

LUXEMBOURG INSTITUTE FOR LUXIB BUILDING AND TECHNOLOGY

Description of the product

The product is the self forming screw FLS F of Sikla Holding GmbH.

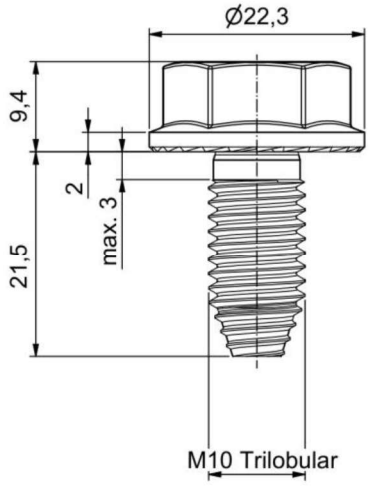


Figure 1: Self forming screw

Terms and symbols used in this ETA

t_I	thickness of component I
t_{II}	thickness of component II
N_{Rk}	characteristic value of tension resistance
V_{Rk}	characteristic value of shear resistance
N_{Ed}	design value of the applied tension force
V_{Ed}	design value of the applied shear force
γ_M	partial safety factor

Self forming screw FLS F	Annex 1
Description of the product Terms and symbols	

LUXEMBOURG INSTITUTE FOR LUXIB BUILDING AND TECHNOLOGY

Recommendations for design

The design values of tension and shear resistance shall to be determined by

$$N_{Rd} = \frac{N_{Rk}}{\gamma_M} \qquad V_{Rd} = \frac{V_{Rk}}{\gamma_M}$$

The characteristic values $N_{R,k}$ and $V_{R,k}$ are given in Annex 4 and 5.
The recommended partial safety factor is $\gamma_M = 1.33$, if no partial safety factor is given in national regulations or national Annexes to Eurocode 3.

In case of combined tension and shear forces the following interaction equation is taken into account:

$$\frac{N_{Ed}}{N_{Rd}} + \frac{V_{Ed}}{V_{Rd}} \leq 1$$

Installation conditions

The installation is carried out according to the manufacturer's instructions.
The FLS F is always fixed rectangular to the surface of the metal member or sheeting.

The following figure 2 shows the correct installation.

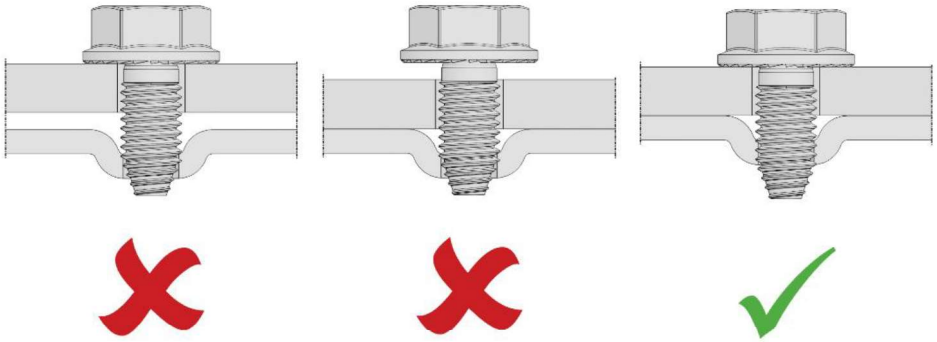


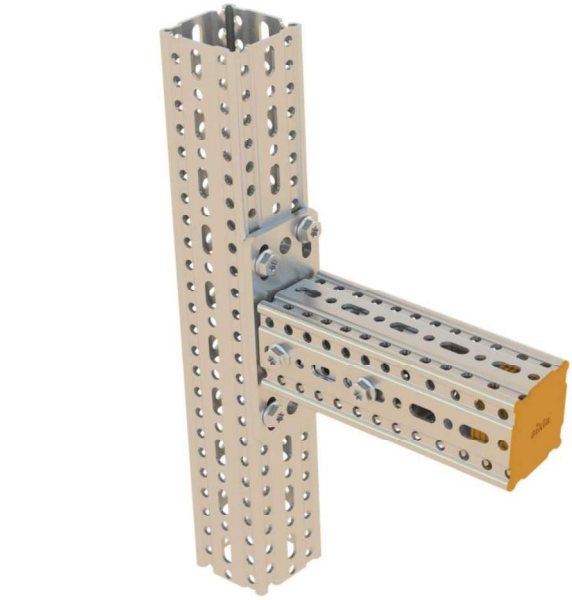
Figure 2:

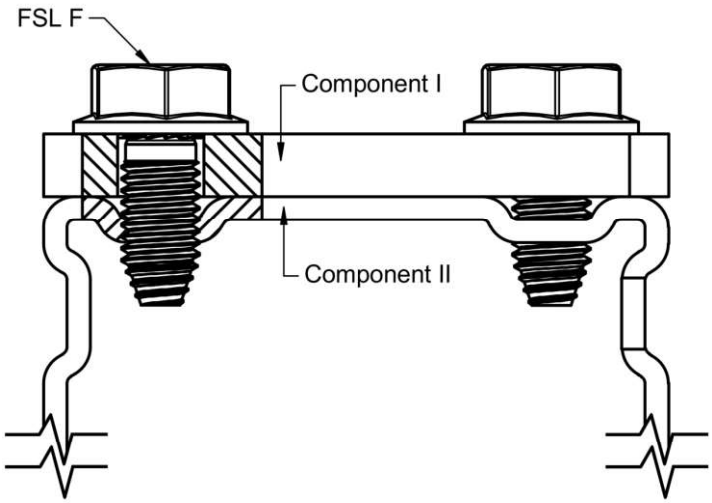
Self tapping screw FLS F	Annex 2
Design recommendations Installation conditions	

LUXEMBOURG INSTITUTE FOR LUXIB BUILDING AND TECHNOLOGY

Installation situation

The following figure shows typical installation situation of the screw FLS F used to connect metal members of the system siFramo of Sikla Holding GmbH.





Self forming screw FLS F	Annex 3
Installation situation	

LUXEMBOURG INSTITUTE FOR LUXIB BUILDING AND TECHNOLOGY

Characteristic values V_{Rk} (essential characteristics)

	Component I	Component II
Pre-drilling diameter	elongated hole Ø 11x15 mm (t = 3.0 mm) Ø 11x20 mm (t = 8.0 mm)	Ø 9.10 mm
Steel grade	S355 MC according EN 10149-2:2013	S355 MC according EN 10149-2:2013
Nominal thickness t	t = 3.0 mm or t = 8.0 mm	3.0 mm
Tightening torque	50 Nm	
V_{Rk}	**15.86 kN**	

	Component I	Component II
Pre-drilling diameter	elongated hole Ø 11x20 mm (t = 4.0 mm) Ø 11x20 mm (t = 8.0 mm)	Ø 9.10 mm
Steel grade	S355 MC according EN 10149-2:2013	S355 MC according EN 10149-2:2013
Nominal thickness	t = 4.0 mm or t = 8.0 mm	4.0 mm
Tightening torque	50 Nm	
V_{Rk}	**21.27 kN**	

Component II shall only be loaded elastically.

Self forming screw FLS F	**Annex 4**
Characteristic values of shear resistance V_{Rk}	

Characteristic values N_{Rk} (essential characteristics)

	Component I	Component II
Pre-drilling diameter	elongated hole Ø 11x20 mm (t = 8.0 mm)	Ø 9.10 mm
Steel grade	S355 MC according EN 10149-2	S355 MC according EN 10149-2
Nominal thickness	Ø 11x20 mm 8.0 mm	3.0 mm
Tightening torque	50 Nm	
N_{Rk}	**9.50 kN**	

	Component I	Component II
Pre-drilling diameter	elongated hole Ø 11x20 mm (t = 8.0 mm)	Ø 9.10 mm
Steel grade	S355 MC according EN 10149-2	S355 MC according EN 10149-2
Nominal thickness	Ø 11x20 mm 8.0 mm	4.0 mm
Tightening torque	50 Nm	
N_{Rk}	**16.51 kN**	

Component II shall only be loaded elastically.

Informative suggestion for design:
If the degree of elastic tension utilisation in component II is more than 50% in the area of the screw, the characteristic values of tension resistance shall be reduced by 10%.

Self forming screw FLS F	**Annex 5**
Characteristic values of tension resistance N_{Rk}	