**Technický a skúšobný ústav stavebný, n. o.**
Building Testing and Research Institute
Studená 3
821 04 Bratislava
Slovak Republic
Phone: +421 2 49228101
E-mail: sternova@tsus.sk
Website: www.tsus.sk

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

Member of EOTA
www.eota.eu

# European Technical Assessment ETA 25/0109 – version 01 of 22/04/2025

## General Part

| | |
|---|---|
| **Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:** | **Technický a skúšobný ústav stavebný, n. o.** |
| **Trade name of the construction product** | Self-drilling screw MSt and WSt with EPDM washer |
| **Product family to which the construction product belongs** | Product area code: 33<br>FIXINGS |
| **Manufacturer** | AMEKS-UKRAINE Ltd<br>Pshenychna Str., 4<br>03134 Kyiv<br>Ukraine |
| **Manufacturing plant** | AMEKS-UKRAINE Ltd<br>Pshenychna Str., 4<br>03134 Kyiv<br>Ukraine |
| **This European Technical Assessment contains** | 10 pages including 3 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<br>Fastening screws for metal members and sheeting |
| **This version replaces** | — |

# Specific part

## 1 Technical description of the product

The fastening screws WSt2 4.8xL, MSt5 4.8xL, MSt5 5.5xL and MSt12 5.5xL are self-drilling screws listed in Table 1. The fastening screws are made of galvanized carbon steel. The fastening screws are completed with sealing washer consisting of a metal washer of galvanized carbon steel, or aluminium and EPDM seal.

The components identified in Table 1 have the geometrical characteristics defined in the Annexes and are factory produced by different manufacturing plants.

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

### 2.1 Intended use

The fastening screws WSt2 4.8xL, MSt5 4.8xL, MSt5 5.5xL and MSt12 5.5xL are intended to be used for fastening metal members and sheeting to metal or timber supporting structures.

The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge metal members and sheeting and connections for indoor applications. Furthermore, the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads). Fastening screws are intended to be used in internal environments (C1 corrosion class according to the standard EN ISO 12944-2). The fastening screws are not intended for re-use.

The field of application of the screws is shown in Table 1. The corresponding sheet thicknesses are shown in the annexes. The performances given in Section 3 are only valid if the fastening screws are used in compliance with the specifications and conditions given in the Annexes.

**Table 1 – Fastening screws for metal members and sheeting**

| Fastener | Application | | Annex |
|---|---|---|---|
| | comp I | comp II | |
| MSt5 4.8xL *with sealing washer ≥ Ø14 mm* | steel | steel | 3.1 |
| MSt5 5.5xL *with sealing washer ≥ Ø14 mm* | steel | steel | 3.2 |
| MSt12 5.5xL *with sealing washer ≥ Ø14 mm* | steel | steel | 3.3 |
| WSt2 4.8xL *with sealing washer ≥ Ø14 mm* | steel | timber | 3.4 |

The provisions made in this European Technical Assessment (ETA) are based on an assumed intended working life of at least 25 years, provided that the conditions laid down in Clauses 4.2, 5.1 and 5.2 for the packaging, transport, storage and installation as well as appropriate use, maintenance and repair are met. The indications given as to the working life cannot be interpreted as a guarantee given by the manufacturer or the Technical Assessment Body, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

## 3 Performance of the product and reference to the methods used for its assessment

MECHANICAL RESISTANCE AND STABILITY (BWR 1)

| | | |
|---|---|---|
| 3.1 | Shear resistance of the connection | See Annexes 3.1 to 3.4 |
| 3.2 | Tension resistance of the connection | See Annexes 3.1 to 3.4 |
| 3.3 | Design resistance in combination of tension and shear forces (interaction) | See Annex 2 |
| 3.4 | Check of deformation capacity in case of constraining forces due to temperature | No performance assessed |
| 3.5 | Durability | See Annexes 3.1 to 3.4 for the material specification |

SAFETY IN CASE OF FIRE (BWR 2)

| | | |
|---|---|---|
| 3.6 | 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 at Building Testing and Research Institute.

This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

2) Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

The different components of product are generally manufactured using conventional techniques. Any critical process or treatment of the components which affects performance are highlighted in the manufacturer's documentation.

3) Product and materials specifications

The manufacturer's documentation includes:
- detailed drawings (possibly including manufacturing tolerances);
- incoming (raw) materials specifications and declarations;
- references to European and/or international standards;
- technical data sheets.

4) Control Plan (as a part of FPC)

The manufacturer and the "Technický a skúšobný ústav stavebný, n. o." have agreed a Control Plan which is deposited with the "Technický a skúšobný ústav stavebný, n. o." in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they shall be subject to suitable checks/tests by the product manufacturer before acceptance.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the Notified Body shall withdraw the certificate and inform Technický a skúšobný ústav stavebný, n. o. without delay.

**Technický a skúšobný ústav stavebný, n. o.**
Building Testing and Research Institute
Studená 3, 821 04 Bratislava, Slovak Republic

On behalf of the Technický a skúšobný ústav stavebný, n. o.
Bratislava, 22 April 2025

Prof. Ing. Zuzana Sternová, PhD.
Head of Technical Assessment Body

TECHNICKÝ A SKÚŠOBNÝ ÚSTAV STAVEBNÝ, n. o.
Building Testing and Research Institute
TSUS
Slovak Republic
Technical Assessment Body
Orgán technického posudzovania

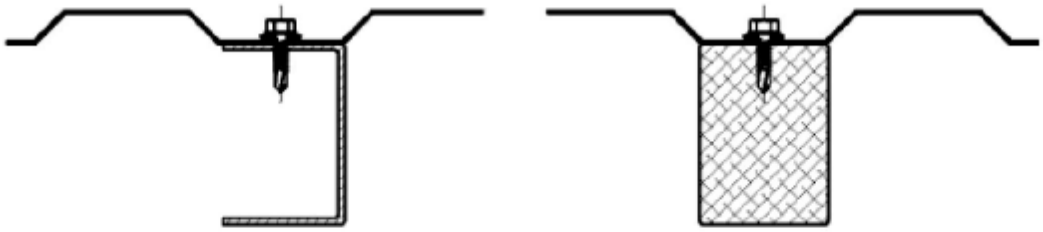
## Annexes

Annex 1 – Insulation product characteristics

Annex 2 – Description and characteristics of the anchors

Annex 3 – Fastening screws for metal members and sheeting

**Examples of connection made with the fastening screws**




**Terms for materials**

| | |
|---|---|
| Fastener | Fastening screw |
| Washer | Sealing washer |
| Component I | Metal member or sheeting |
| Component II | Substructure |

**Terms for dimensions**

| | |
|---|---|
| $t_I$ | Thickness of metal member or sheeting |
| $t_{II}$ | Thickness of metal substructure |
| $\Sigma_{(ti)}$ | Sum of the thicknesses of all components |
| $l_{ef}$ | Effective screw-in length in timber substructure (without drill point) |
| $d_{dp}$ | Pre-drill diameter of metal member or sheeting and substructure |
| $d_{dp,I}$ | Pre-drill diameter of metal member or sheeting |

**Terms for performances**

| | |
|---|---|
| $V_{R,k}$ | Characteristic value of shear resistance of the connection |
| $N_{R,k}$ | Characteristic value of tension resistance of the connection |
| $V_{R,I,k}$ | Characteristic value of shear resistance of metal member or sheeting |
| $N_{R,I,k}$ | Characteristic value of tension resistance (pull-through) of metal member or sheeting |
| $N_{R,II,k}$ | Characteristic value of tension resistance (pull-out) of the substructure |

Additionally for timber substructure the following terms are used:

| | |
|---|---|
| $M_{y,Rk}$ | Characteristic value of yield moment |
| $f_{ax,k}$ | Characteristic value of withdrawal strength |
| $f_{h,k}$ | Characteristic value of embedding strength |

| **Used terms in the Annexes** | **Annex 1** |
|---|---|
| Fastening screws for metal members, timber and sheeting | |

**Recommendation for design**

The design value of tension and shear resistance can be determined as follows:

$$N_{R,d} = \frac{N_{R,k}}{\gamma_M} \qquad V_{R,d} = \frac{V_{R,k}}{\gamma_M}$$

The characteristic values $N_{R,k}$ and $V_{R,k}$ are given in the Annexes. For intermediate dimensions of metal member or sheeting or substructures, the characteristic value can be determined by linear interpolation.

The recommended partial safety factor is $g_M$ = 1,33 if no partial safety factor is given in national regulations or national Annexes to Eurocode 3.

For Timber Substructures the design values of the pull-out resistance are the characteristic values of the pull-out resistance according to 2.2.2.4 multiplied by $k_{mod}$ according to EN 1995-1-1, Table 3.1, and divided by the recommended partial safety factor $g_M$ = 1,33. The recommended partial safety factor $g_M$ should be used in cases where no value is given in national regulations of the Member State where the fastening screws are used.

The design tension resistance $N_{r,ci}$ is the minimum value of the design values of either pull-through resistance or relevant pull-out resistance for the corresponding connection.

For asymmetric metal substructures with thickness $t_{II}$ < 5 mm (for instance Z- or C-shaped profiles), the characteristic value $N_{R,k}$ given in the Annexes shall be reduced to 70%.

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

$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \leq 1{,}0$$

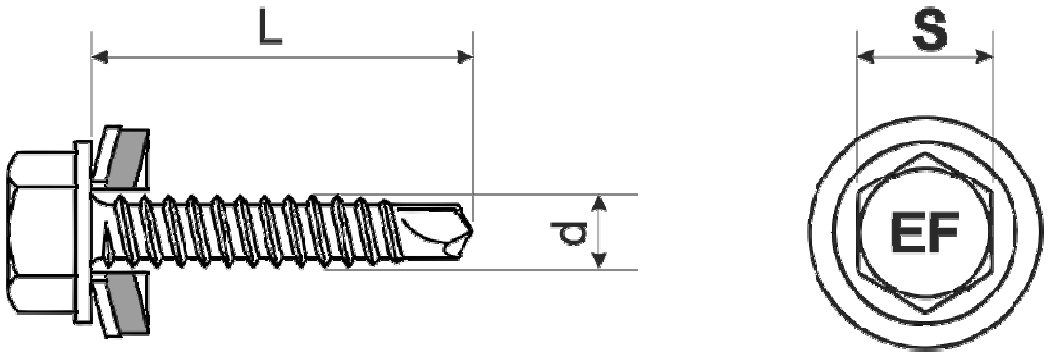
$N_{S,d}$ and $V_{S,d}$ indicates the design values of applied tension and shear forces.

**Installation conditions**

- The installation is carried out according to the manufacturer's instructions.
- The fastening screws are screwed-in with electric screwdriver. The use of impact wrenches is not allowed.
- The fastening screws are fixed perpendicular to the surface of the metal member or sheeting.
- The thickness (or minimum thickness) of metal substructure needs to be covered by the clamping length of the fastening screw. Otherwise only the screwed-in clamping length of the fastening screw may be considered.
- Requirements on the installation of fastening screws are given in EN 1090-2 (section 8.8) and EN 1090-4 (section 8.1 and 8.2) resp. EN 1090-3 (section 8.5) and EN 1090-5 (section 8.1 and 8.2).
- Requirements on minimum distances between fastening screws and minimum distances to component edges and ends are given in EN 1090-4 (section 8.7) and EN 1993-1-3 (section 8.3), EN 1090-5 (section 8.6) and EN 1999-1-4 (section 8.1).
- Requirements on the minimum screw-in depth in steel substructures are given in EN 1090-4 (section 8.5).

| **Recommendation for design** | **Annex 2** |
|---|---|
| Fastening screws for metal members, timber and sheeting | |

# MSt5 4.8xL




*d* = 4,8 mm
*L* = 16 – 75 mm
*S* = 8 mm

Sharp point diameter: 3,85 – 4,10 mm
Sharp point length: 6,5 – 7,0 mm
Thread pitch: min 1,6 mm
Drilling capacity: 5 mm

Materials:
Fastener: Galvanized steel SWRCH 22A - JIS G3539 (thickness of the zinc layer 12 mm)
Washer: Galvanized steel G3027 SGCC - CNS 1244, (thickness of the zinc layer 12 mm) or aluminium alloy AlMg5 - EN 573-1 and EPDM-seal Keltan® KSA 6405H

Component I: S355 - EN 10025, S280GD - EN 10346, DC01- EN 10130
Component II: S355 - EN 10025, S280GD - EN 10346

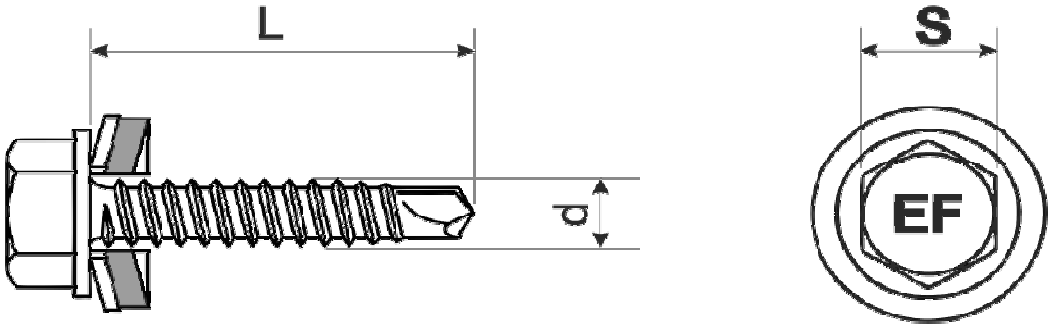
| | $t_I$ (mm) | $t_{II}$ (mm) | | | |
|---|---|---|---|---|---|
| | | 0,55 | 1,00 | 2,50 | 5,00 |
| $N_{r,k}$ (kN) | 0,55 | 0,48 | 1,95 | 1,95 | 1,95 |
| | 1,00 | 0,48 | 1,95 | 2,93 | 2,93 |
| | 1,50 | 0,48 | 1,95 | 2,93 | 3,62 |
| | 2,00 | 0,48 | 1,95 | 2,93 | 3,62 |
| | 2,50 | 0,48 | 1,95 | 2,93 | 3,62 |
| $V_{r,k}$ (kN) | 0,55 | 0,89 | 0,89 | 0,89 | 0,89 |
| | 1,00 | 0,89 | 0,89 | 0,89 | 0,89 |
| | 1,50 | 0,89 | 0,89 | 0,89 | 0,89 |
| | 2,00 | 0,89 | 0,89 | 0,89 | 0,89 |
| | 2,50 | 0,89 | 0,89 | 0,89 | 4,04 |

**Fastening screws for metal members and sheeting**

**Annex 3.1**

Self-drilling screw MSt5 4.8xL with hex washer head, thread, sharp point and washer ≥ ø 14 mm

## MSt5 5.5xL




$d$ = 5,5 mm
$L$ = 16 – 140 mm
$S$ = 8 mm

Sharp point diameter: 4,45 – 4,80 mm
Sharp point length: 7,5 – 8,0 mm
Thread pitch: min 1,8 mm
Drilling capacity: 5 mm

Materials:
Fastener: Galvanized steel SWRCH 22A - JIS G3539 (thickness of the zinc layer 12 mm)
Washer: Galvanized steel G3027 SGCC - CNS 1244, (thickness of the zinc layer 12 mm) or aluminium alloy AlMg5 - EN 573-1 and EPDM-seal Keltan® KSA 6405H

Component I: S355 - EN 10025, S280GD - EN 10346, DC01- EN 10130
Component II: S355 - EN 10025, S280GD - EN 10346

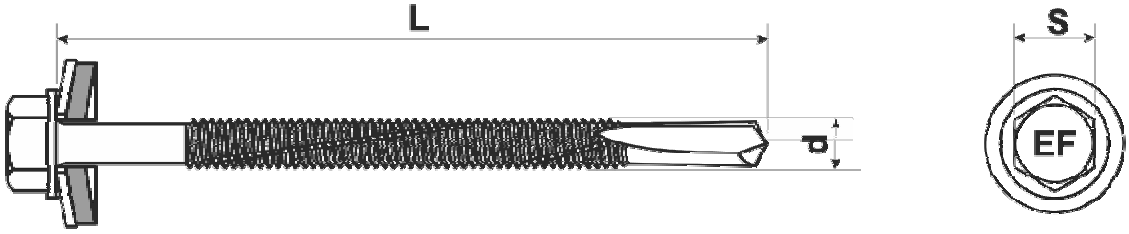
| | $t_I$ (mm) | $t_{II}$ (mm) | | | |
|---|---|---|---|---|---|
| | | 0,55 | 1,00 | 2,50 | 5,00 |
| $N_{r,k}$ (kN) | 0,55 | 0,48 | 1,74 | 1,74 | 1,74 |
| | 1,00 | 0,48 | 1,74 | 1,74 | 1,74 |
| | 1,50 | 0,48 | 1,74 | 1,74 | 9,39 |
| | 2,00 | 0,48 | 1,74 | 1,74 | 9,39 |
| | 2,50 | 0,48 | 1,74 | 1,74 | 9,39 |
| $V_{r,k}$ (kN) | 0,55 | 1,07 | 1,07 | 1,07 | 1,07 |
| | 1,00 | 1,07 | 1,07 | 1,07 | 1,07 |
| | 1,50 | 1,07 | 1,07 | 1,07 | 1,07 |
| | 2,00 | 1,07 | 1,07 | 1,07 | 1,07 |
| | 2,50 | 1,07 | 1,07 | 1,07 | 6,15 |

**Fastening screws for metal members and sheeting**

Self-drilling screw MSt5 5.5xL with hex washer head, thread, sharp point and washer ≥ ø 14 mm

**Annex 3.2**

# MSt12 5.5xL




$d$ = 5,5 mm
$L$ = 19 – 90 mm
$S$ = 8 mm

Sharp point diameter: 4,95 - 5,08 mm
Sharp point length: 14 - 16 mm
Thread pitch: min 1,06 mm
Drilling capacity: 12 mm

Materials:
Fastener: Galvanized steel SWRCH 22A - JIS G3539 (thickness of the zinc layer 12 mm)
Washer: Galvanized steel G3027 SGCC - CNS 1244, (thickness of the zinc layer 12 mm) or aluminium alloy AlMg5 - EN 573-1 and EPDM-seal Keltan® KSA 6405H

Component I: S355 - EN 10025, S280GD - EN 10346, DC01- EN 10130
Component II: S355 - EN 10025, S280GD - EN 10346

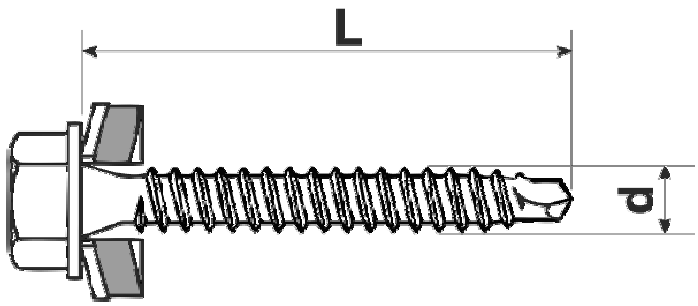
| | $t_I$ (mm) | $t_{II}$ (mm) | | | |
|---|---|---|---|---|---|
| | | 0,55 | 1,00 | 2,50 | 12,00 |
| $N_{r,k}$ (kN) | 0,55 | 0,46 | 1,85 | 1,85 | 1,85 |
| | 1,00 | 0,46 | 1,85 | 1,85 | 1,85 |
| | 1,50 | 0,46 | 1,85 | 1,85 | 1,85 |
| | 2,00 | 0,46 | 1,85 | 1,85 | 1,85 |
| | 2,50 | 0,46 | 1,85 | 1,85 | 12,26 |
| $V_{r,k}$ (kN) | 0,55 | 1,11 | 1,11 | 1,11 | 1,11 |
| | 1,00 | 1,11 | 1,11 | 1,11 | 1,11 |
| | 1,50 | 1,11 | 1,11 | 1,11 | 1,11 |
| | 2,00 | 1,11 | 1,11 | 1,11 | 1,11 |
| | 2,50 | 1,11 | 1,11 | 1,11 | 8,32 |

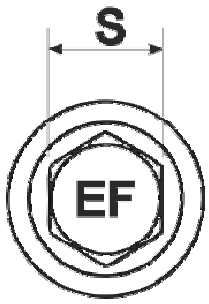
**Fastening screws for metal members and sheeting**

Self-drilling screw MSt12 4.8xL with hex washer head, thread, sharp point and washer ≥ ø 14 mm

**Annex 3.3**

# WSt2 4.8xL




*d* = 4,8 mm
*L* = 20 – 100 mm
*S* = 8 mm

Sharp point diameter: 2,80 - 3,10 mm
Sharp point length: 4,0 – 6,0 mm
Thread pitch: min 1,06 mm
Drilling capacity: 2,12 mm

Materials:
Fastener: Galvanized steel SWRCH 22A - JIS G3539 (thickness of the zinc layer 12 mm)
Washer: Galvanized steel G3027 SGCC - CNS 1244, (thickness of the zinc layer 12 mm) or aluminium alloy AlMg5 - EN 573-1 and EPDM-seal Keltan® KSA 6405H

Component I: S355 - EN 10025, S280GD - EN 10346, DC01- EN 10130
Component II: structural timber class ≥ C24 - EN 14081

| | $t_I$ (mm) | $t_{II}$ (mm) |
|---|---|---|
| | | 20 |
| $N_{r,k}$ (kN) | 0,55 | 1,83 |
| | 1,00 | 1,83 |
| | 1,50 | 1,83 |
| | 2,00 | 1,83 |
| | 2,50 | 1,83 |
| $V_{r,k}$ (kN) | 0,55 | 0,92 |
| | 1,00 | 0,92 |
| | 1,50 | 0,92 |
| | 2,00 | 0,92 |
| | 2,50 | 0,92 |

| | |
|---|---|
| **Fastening screws for metal members and sheeting** | **Annex 3.4** |
| Self-drilling screw WSt2 4.8xL with hex washer head, thread, sharp point and washer ≥ ø 14 mm | |