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

Member of EOTA
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# European Technical Assessment ETA-12/0056 of 18.06.2025

## General Part

| | |
|---|---|
| **Technical Assessment Body issuing the European Technical Assessment** | SINTEF AS by its institute SINTEF Community |
| **Trade name of the construction product** | Milletech Fastening System |
| **Product family to which the construction product belongs** | Fasteners for mechanically fastened flexible roof waterproofing systems |
| **Manufacturer** | Milles Teknikplast AB<br>Bergsjödalen 55<br>S-415 23, Gothenburg<br>Sweden |
| **Manufacturing plant** | Milles Teknikplast AB<br>Bergsjödalen 55<br>S-415 23, Gothenburg<br>Sweden |
| **This European Technical Assessment contains** | 11 pages including 2 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 030351-00-0402<br>Systems of Mechanically Fastened Flexible Roof Waterproofing Sheets |
| **This version replaces** | ETA 12/0056-2018-12-15 |

## Specific parts

## 1. Technical description of the product

Milletech Fastening System is used as mechanical fastening of insulation, bitumen based single/multi-layer or single ply waterproofing membranes, or polymeric single ply waterproofing membranes, for flat roofing. The supporting roof structure may consist of profiled steel sheets, concrete, light weight concrete, or a timber-based construction as defined in EAD 030351-00-0402, February 2019, *Systems of mechanically fastened flexible roof waterproofing sheets* (MEFAWAS), paragraph 1.1.

The range of fasteners consists of screws, washers and washers with integrated sleeve as illustrated in Annex 1.

The fastener system is introduced to the market separately from the other components of roof waterproofing membrane kits, and this ETA covers only the performance characteristics of the *Milletech Fastening System*. A separate ETA according to EAD 030351-00-0402 is necessary in order to cover an entire kit for mechanically fastened roof waterproofing sheets.

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

### *2.1. General*

The fasteners must be installed according to the manufacturer's instructions. It is the manufacturer's responsibility to provide correct information about the application of the products to the users.

Steel washers can be used on stiff substrates, i.e. on wood-based roof substrate, on concrete, or on non-compressible insulation. Plastic fasteners with integrated sleeve are recommended on thermal insulation.

If there is doubt about the suitability of the substrate, e.g. on a construction site, a pull-out test on site should be performed to verify the performance of the fastener. Furthermore, measures should be taken during design to ensure that galvanic corrosion between metal parts, especially between substrate and screw, does not occur. Likewise, use of insulation materials containing substances which can affect the performance of the fasteners must be avoided.

### *2.2. Fastening in steel sheets*

Characteristic pull-out values for fasteners are given in table 2 in annex 2 of this ETA. Load bearing decks made of profiled steel sheets normally have a minimum thickness of 0.7 mm and quality S280. A site pull-out test is recommended if the property of the steel substrate is unknown.

### *2.3. Fastening in concrete*

Characteristic pull-out values for fasteners are given in table 3 in annex 2 of this ETA. The drill hole diameter must be normally 5 mm. When fixing Milletech Itech 6,1 T25 in concrete, the drill hole depth should be normally minimum 30 mm, unless special precautions are taken regarding installation control and inspection. Minimum anchorage depth shall be normally minimum 20 mm. Fixings in 40 mm thick concrete without penetration requires drilling with depth control. Concrete compression strength is minimum class C25/30 according to EN 206. A site pull-out test is recommended if the property of the concrete substrate is unknown.

### *2.4. Fastening in aerated/light weight concrete*

Characteristic pull-out values for fasteners are given in table 4 in annex 2 of this ETA When fixing Milletech Itech 8,0 T25 in aerated concrete, the anchoring depth must be normally minimum 75 mm. A site pull-out test is recommended if the property of the aerated concrete substrate is unknown.

### *2.5. Fastening in timber-based construction*

Minimum thickness for timber-based substrate is 18 mm. A site pull-out test is recommended if the properties of the timber-based substrate is unknown.

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

See Annex 2.

### *3.1. Mechanical resistance and stability*

Not relevant.

### *3.2. Safety in case of fire*

No performance determined. The reaction to fire of roof waterproofing kits is determined for the complete kits including the membrane.

### *3.3. Hygiene, health and environment*

According to the manufacturer's declaration, the screws with corrosion protection contains no hazardous compounds. Consequently, the products do not contain any dangerous substances according to the EU database.

### *3.4. Safety in use*

The fasteners have been tested for wind uplift according to EN-16002:2010, ETA Guideline No. 006 edition March 2000, amended November 2012 and EAD 030351-00-0402. Axial pull out performance from substrates and resistance to unwinding are shown in Annex 2. The wind uplift performance of roof waterproofing kits is mainly determined by the roofing membranes. Several full scale wind load tests with bituminous and polymeric membranes have been executed.

The membranes are fixed with washers, washers with integrated sleeves and barbed washers in combination with fixings to substrates of steel sheets, concrete, aerated concrete and timber. The complete test reports may be obtained from Milles Teknikplast AB.

### *3.5. Protection against noise*

Not relevant

### *3.6. Energy consumption and heat retention*

Not relevant

### *3.7. Aspects of durability*

The Milletech tube washers produced of polypropylene satisfy the aspects of durability and have acceptable resistance to brittleness according to EAD 030351-00-0402, chapter 2.2.3.3 and A.2.3.

The carbon steel screws, and the steel washers have a corrosion-protection of Ruspert coating. The fasteners correspond to corrosion protection according to EAD 030351-00-0402, chapter A.2.4, see Annex 2. Test procedure is 15 cycles in accordance with DIN 50018.

### *3.8. Identification*

The characteristic values of detailed product dimensions and respective tolerances are stated in the manufacturer's technical dossier and form a part of the control plan for the factory production control. The tube washers are marked with Milletech®. All packaging must be marked with product type and batch number, including CE marking.

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

According to Decision 98/143/EC by the European Commission, the system 2+ of assessment and verification of constancy of performance applies. See Annex V to Regulation (EU) No. 305/2011.

## 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 SINTEF AS.

Issued in Oslo on 18.06.2025

By

SINTEF AS by its institute SINTEF Community

Anne-Jorunn Enstad

Anne-Jorunn Enstad

Certification Manager

## Annex 1

## Description of Milletech Fastening System

### Table 1

| Fastener type | Fig. no. | Function | Material |
|---|---|---|---|
| Quadro T | 1 | Tube washer with studs | Polypropylene |
| Quadro | 2 | Tube washer without studs | Polypropylene |
| Milletech Itech 40 | 3 | Steel washer | Coated carbon steel |
| Milletech Itech 40 countersunk | 4 | Steel washer | Coated carbon steel |
| Milletech Itech 40 countersunk | 5 | Steel washer for use together with wood screws | Coated carbon steel |
| Milletech Itech 40 | 6 | Steel washer for use together with wood screws | Coated carbon steel |
| Milletech Itech 4.8 T25 | 7 | Screw for fixing in steel sheets | Coated carbon steel |
| Milletech Itech 5.1 T25 | 8 | Screw for fixing in steel sheets | Coated carbon steel |
| Milletech Itech 6.1 T25 | 9 | Screw for fixing in steel sheets | Coated carbon steel |
| Milletech Itech 6.1 T25 concrete | 10 | Screw for fixing in concrete | Coated carbon steel |
| Milletech Itech 8,0 T25 | 11 | Screw for fixing in light weight concrete | Coated carbon steel |
| Milletech Itech 5.2 T25 | 12 | Screw for fixing in wood | Coated carbon steel |
| Milletech Itech 5.2 PH2 | 13 | Screw for fixing in wood | Coated carbon steel |

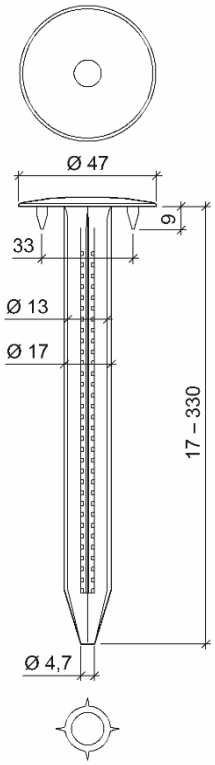


Fig. 1
Quadro – T fastening plug with studs

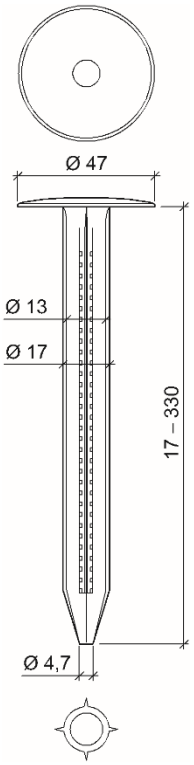


Fig. 2
Quadro fastening plug without studs

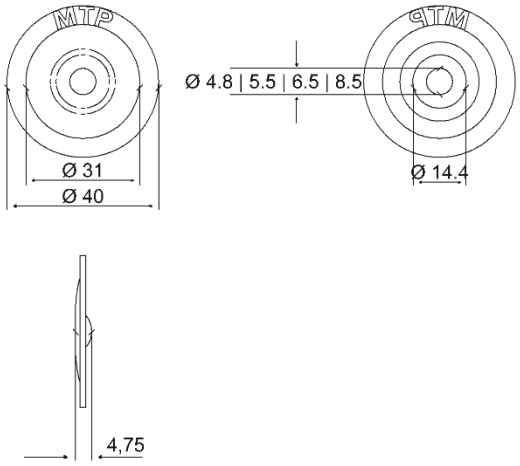


Fig. 3
Milletech Itech 40 steel washer

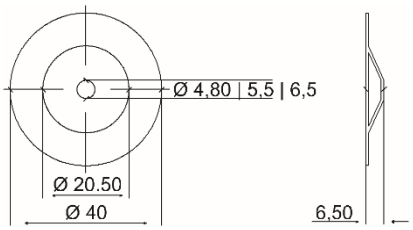


Fig. 4
Milletech Itech 40 countersunk steel washer

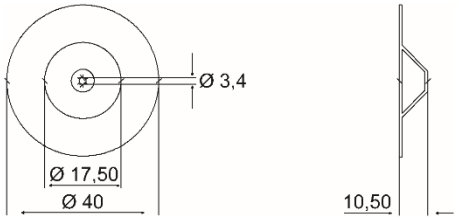


Fig. 5
Milletech Itech 40 countersunk steel washer for use together with wood screws

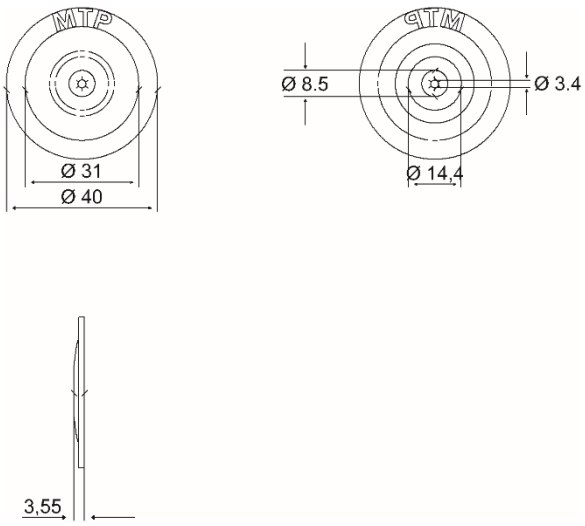


Fig. 6
Milletech Itech 40 steel washer for use together with wood screws

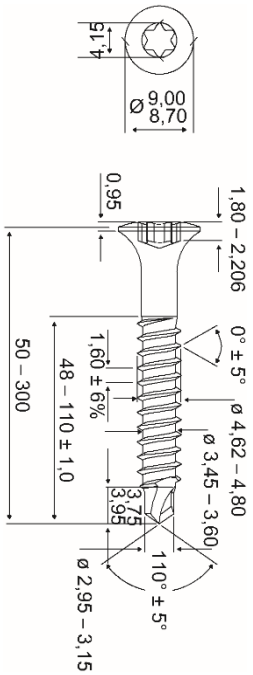


Fig. 7
Milletech Itech 4,8 T25 for fixing in steel sheets

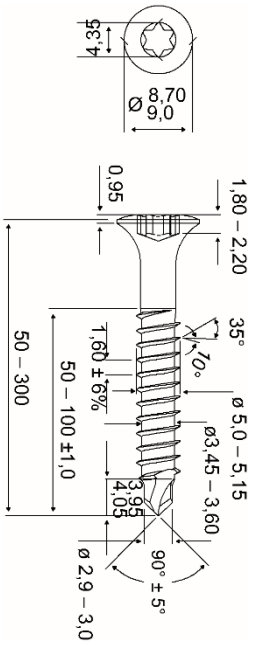


Fig. 8
Milletech Itech 5,1 T25 for fixing in steel sheets

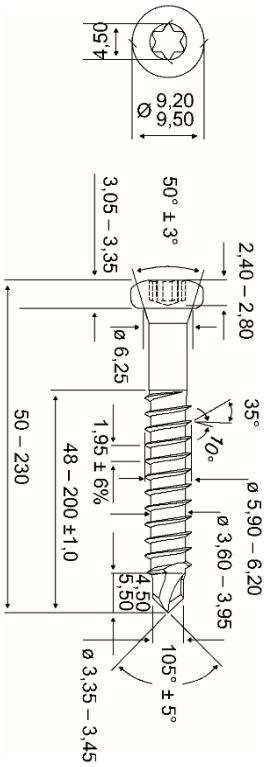


Fig. 9
Milletech Itech 6,1 T25 for fixing in steel sheets

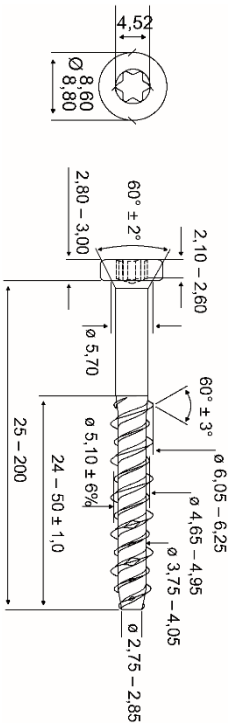


Fig. 10
Milletech Itech 6,1 T25 for fixing in concrete

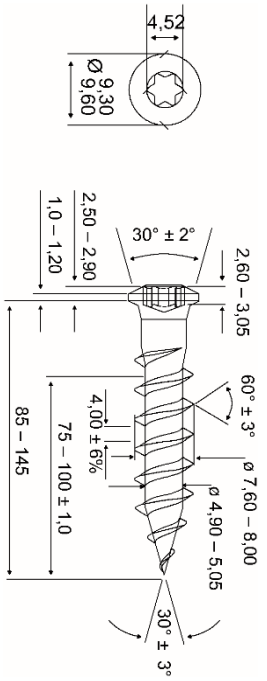


Fig. 11
Milletech Itech 8,0 T25 for fixing in light weight concrete

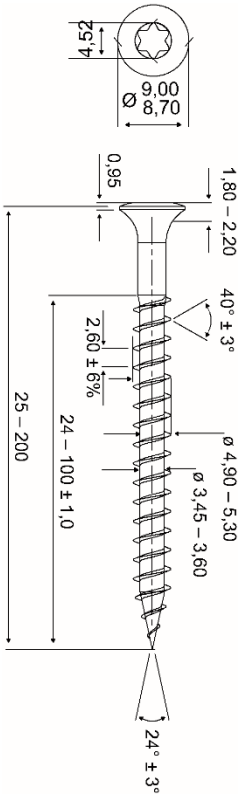


Fig. 12
Milletech Itech 5,2 T25 mm for fixing in wood

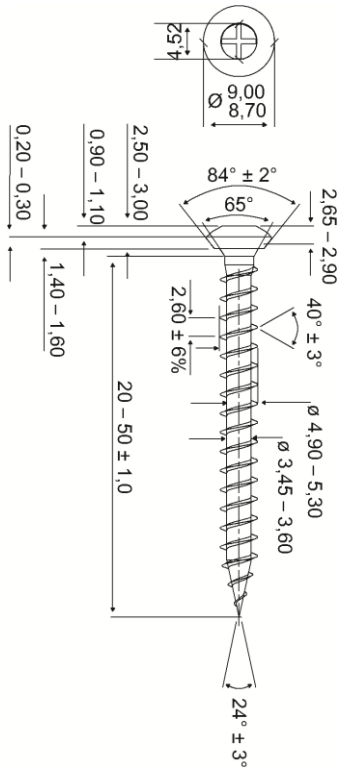


Fig. 13
Milletech Itech 5,2 PH2 for fixing in wood

**Annex 2**

**Performance of Milletech Fastening system on different substrates**

Characteristic values are calculated from the following formula:

$W_{char}$: α ($X_m$ – (k x s))

where: $W_{char}$ = characteristic y values of axial load resistance

$\alpha$ = corr. factor for tested substrate spec. compared with nominal substrate spec.

$X_m$ = mean axial pull-out load for 10 specimens

$k$ = 1,92 (according to Table D1 in EN-1990:2002)

$s$ = standard deviation

**Table 2: Profiled steel sheets substrate [1)2)]**

| Fastener | Substrate | Washer | Characteristic values of axial load resistance (kN) | Resistance to unwinding EAD 030351-00-0402 cl. 2.2.3.2 and Annex A2.2<br><br>Durability EAD 030351-00-0402 cl.2.2.3.4 and Annex A2.4 |
|---|---|---|---|---|
| Milletech Itech 4.8 T25 | Steel 0.65mm [2)] | Milletech Itec 40 | 0.99 | Approved |
| Milletech Itech 4.8 T25 | Steel 0.70mm [1)] | Milletech Itec 40 | 0.81 | Approved |
| Milletech Itech 4.8 T25 | Steel 0.80mm [1)] | Milletech Itec 40 | 0.98 | Approved |
| Milletech Itech 4.8 T25 | Steel 0.90mm [1)] | Milletech Itec 40 | 1.55 | Approved |
| Milletech Itech 4.8 T25 | Steel 1.00mm [1)] | Milletech Itec 40 | 1.85 | Approved |
| Milletech Itech 5.2 T25 | Steel 0.70mm [1)] | Milletech Itec 40 | 1.13 | Approved |
| Milletech Itech 6.1 T25 | Steel 0.65mm [2)] | Milletech Itec 40 | 2.01 | Approved |
| Milletech Itech 6.1 T25 | Steel 0.70mm [2)] | Milletech Itec 40 | 1.80 | Approved |

*[1)] Steel sheets, galvanized,min S280 according to EN 10147*
*[2)] Steel sheets, galvanized, yieldstrength 420 MPa*
*[3)] Obtained value from the axial load test in steel sheets substrates, table 2, and the pullover test, table 6, of washers is compared and the lowest of the two gives the characteristic value for the fastener / sleeve, washer combination of the application.*

**Table 3: Concrete substrate [1)]**

| Fastener | Substrate | Washer | Characteristic values of axial load resistance (kN) |
|---|---|---|---|
| Milletech Itech 6.1 T25 concrete | C25/30 | Milletech Itec 40 | 1.60 |

*[1)] See clause 2.3 regarding hole diameter and drill depth*

### Table 4: Aerated / light weight concrete substrate [1)]

| Fastener | Substrate | Characteristic values of axial load resistance (kN) |
|---|---|---|
| Milletech Itech 8,0 T25 | Light weight concrete | 1.38 |

*[1)] See clause 2.4 regarding hole diameter and drill depth*

### Table 5: Wood substrate

| Fastener | Substrate | Washer | Characteristic values of axial load resistance (kN) |
|---|---|---|---|
| Milletech Itech 5.2 T25 | Plywood 18 mm | Milletech Itec 40 | 2.80 |
| Milletech Itech 5.2 T25 | Roof boards | Milletech Itec 40 | 2.23 |

*[1)] See clause 2.5 regarding minimum thickness of timber based materials*

### Table 6: Pull-through test of washer

| Fastener | Washer | Characteristic values of axial load resistance (kN) | Durability EAD 030351-00-0402 cl. 2.2.3.3 and Annex A2.3 and cl.2.2.3.4 and Annex A2.4 |
|---|---|---|---|
| Milletech Itech 5.2 T25 | Quadro | 1.40 | Approved |
| Milletech Itech 8,0 T25 | Quadro | 1.37 | Approved |

*[1)]Obtained values from the axial load test in different substrates (table 2 - 5) and the pull-through test (table 6) of washers compared and the lowest of the two gives the characteristic value for the fastener / washer combination of the application.*