

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Hilti Aktiengesellschaft
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HIL-20240159-CBJ1-EN
Issue date	19/07/2024
Valid to	18/07/2029

## MFT-FOX HT & MFT-FOX VT Hilti AG

[www.ibu-epd.com](http://www.ibu-epd.com) | <https://epd-online.com>



## General Information

### Hilti AG

#### Programme holder

IBU – Institut Bauen und Umwelt e.V.  
Hegelplatz 1  
10117 Berlin  
Germany

#### Declaration number

EPD-HIL-20240159-CBJ1-EN

#### This declaration is based on the product category rules:

Building metals, 01/08/2021  
(PCR checked and approved by the SVR)

#### Issue date

19/07/2024

#### Valid to

18/07/2029

Dipl.-Ing. Hans Peters  
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold  
(Managing Director Institut Bauen und Umwelt e.V.)

### MFT-FOX HT & MFT-FOX VT

#### Owner of the declaration

Hilti Aktiengesellschaft  
Feldkircher Strasse 100  
9494 Schaan  
Liechtenstein

#### Declared product / declared unit

The declared product is the MFT-FOX HT 320 L 11 as a representative product for the FOX T portfolio. The declared unit is to kg of product. The packaging is also included in the calculation.

#### Scope:

This document relates to the MFT-FOX HT 320 L 11 as a representative product for the MFT-FOX T portfolio including FOX VT and FOX HT. FOX T products cover the same applications and are equal in material constitution and have been summarized in this EPD.

FOX HT and FOX VT can be divided into two classes with 1 bracket size. FOX VT to be used for the vertical façade application, FOX HT for horizontal ones. Moreover, FOX HT 320 L 11 is chosen because it displays the highest weight of this product group, leading to the most conservative results.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

#### Verification

The standard EN 15804 serves as the core PCR		
Independent verification of the declaration and data according to ISO 14025:2011		
<input type="checkbox"/>	internally	<input checked="" type="checkbox"/> externally

Matthias Klingler,  
(Independent verifier)

## Product

### Product description/Product definition

MFT-FOX T is designed as an aluminium substructure system. The brackets are suitable for all façade cladding. The products are used for fastening ventilated façade substructure to concrete, masonry, steel frame structure and wood. They enable mounting façade substructures on the primary structure as a helping hand bracket and can be used to install vertical and horizontal support rails.

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration EN 1090-1:2009+A1:2011.



Productgroup	Name	Articlenumber	Weight / item [kg]
FOX T - all sizes	Bracket MFT-FOX VT 140 M 6,5	2096973	0,14
	Bracket MFT-FOX VT 140 M 11	2096974	0,14
	Bracket MFT-FOX VT 160 M 6,5	2096975	0,15
	Bracket MFT-FOX VT 160 M 11	2096976	0,15
	Bracket MFT-FOX VT 180 M 6,5	2096977	0,15
	Bracket MFT-FOX VT 180 M 11	2096978	0,16
	Bracket MFT-FOX VT 200 M 6,5	2096979	0,16
	Bracket MFT-FOX VT 200 M 11	2096980	0,17
	Bracket MFT-FOX VT 220 L 6,5	2096981	0,31
	Bracket MFT-FOX VT 220 L 11	2096982	0,31
	Bracket MFT-FOX VT 240 L 6,5	2096983	0,33
	Bracket MFT-FOX VT 240 L 11	2096984	0,33
	Bracket MFT-FOX VT 260 L 6,5	2096985	0,34
	Bracket MFT-FOX VT 260 L 11	2096986	0,34
	Bracket MFT-FOX VT 280 L 6,5	2096987	0,36
	Bracket MFT-FOX VT 280 L 11	2096988	0,36
	Bracket MFT-FOX VT 300 L 6,5	2096989	0,36
	Bracket MFT-FOX VT 300 L 11	2096990	0,36
	Bracket MFT-FOX VT 320 L 6,5	2096991	0,38
	Bracket MFT-FOX VT 320 L 11	2096992	0,38
	Bracket MFT-FOX HT 140 M 5	2096993	0,15
	Bracket MFT-FOX HT 140 M 6,5	2096994	0,15
	Bracket MFT-FOX HT 140 M 11	2096995	0,15
	Bracket MFT-FOX HT 160 M 5	2096996	0,15
	Bracket MFT-FOX HT 160 M 6,5	2096997	0,15
	Bracket MFT-FOX HT 160 M 11	2096998	0,15
	Bracket MFT-FOX HT 180 M 5	2096999	0,15
	Bracket MFT-FOX HT 180 M 6,5	2097000	0,15
	Bracket MFT-FOX HT 180 M 11	2097001	0,15
	Bracket MFT-FOX HT 200 M 5	2097002	0,16
	Bracket MFT-FOX HT 200 M 6,5	2097003	0,19
	Bracket MFT-FOX HT 200 M 11	2097004	0,16
	Bracket MFT-FOX HT 220 L 5	2097005	0,31
	Bracket MFT-FOX HT 220 L 6,5	2097006	0,31
	Bracket MFT-FOX HT 220 L 11	2097007	0,31
	Bracket MFT-FOX HT 240 L 5	2097008	0,33
	Bracket MFT-FOX HT 240 L 6,5	2097009	0,33
	Bracket MFT-FOX HT 240 L 11	2097010	0,33
	Bracket MFT-FOX HT 260 L 5	2097011	0,33
	Bracket MFT-FOX HT 260 L 6,5	2097012	0,33
	Bracket MFT-FOX HT 260 L 11	2097013	0,33
	Bracket MFT-FOX HT 280 L 5	2097014	0,35
	Bracket MFT-FOX HT 280 L 6,5	2097015	0,35
	Bracket MFT-FOX HT 280 L 11	2097016	0,35
	Bracket MFT-FOX HT 300 L 5	2097017	0,36
	Bracket MFT-FOX HT 300 L 6,5	2097018	0,36
	Bracket MFT-FOX HT 300 L 11	2097019	0,36
	Bracket MFT-FOX HT 320 L 5	2097020	0,38
	Bracket MFT-FOX HT 320 L 6,5	2097021	0,38
	Bracket MFT-FOX HT 320 L 11	2097022	0,38

### Application

MFT-FOX T items are developed to be fixed on base materials like concrete, masonry, steel frame structure and wood. This product is used as a substructure for ventilated façade (rainscreen) applications. According to the method of installation to the base material – anchors, screws or direct fastening can be used – with different hole geometries in the base plate. During the application the horizontal profiles are connected to the brackets with specially designed screws, which combine the fix and flexible point in one connection point. Due to thermal expansion of the profile, the brackets take over this movement. With this system, wall tolerances of up to 40 mm can be balanced.

### Technical Data

Technical documentation according to EN 1090-3.

### Constructional data

Name	Value	Unit
Thickness Baseplate	4	mm
Length	140 - 320	mm
Length Steps	20	mm
Height	80 / 150	mm
Width	62	mm

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN 1090-1:2009+A1:2011 Standard for execution of steel structures and aluminium structures. The structural parts made of aluminum correspond to following harmonized standards: EN 1090-1, DIN EN 1999-1-1 + DIN EN 1993-1-4 incl. national annexes, DIN 18516-1. The product has a CE-marking Hilti MFT EN 1090.

### Base materials/Ancillary materials

The raw material used for the production of this product is aluminium alloy according to the standard *EN AW-6063-T66* with 200g (63% of product weight). The alloy is a widely used extrusion alloy, suitable for various applications. The material used for the plastic part is fiberglass-reinforced plastic (polyamid) with 180g (37% of product weight).

This product contains substances listed in the candidate list (date

05.04.2022) exceeding 0.1 percentage by mass: **no**  
This product contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: **no**

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): **no**

### Packaging

The packaging of this product is carton. This cardboard packaging can be recycled.

### Reference service life

The MFT-FOX T systems have a minimum service life of 35 years when used as prescribed according to the *BBA Certificate (British Board of Agreement)*. However, the actual service life can be considerably longer.

## LCA: Calculation rules

### Declared Unit

The declared product here is an aluminium profile from HILTI AG with the designation MFT-FOX HT 320 L11 as a representative product from the MFT-FOX HT & MFT-FOX VT portfolio. It is the heaviest product with the additional screw in the portfolio. The declared unit refers to 1 kg of aluminium profile. The packaging, based on 1 kg of aluminium profile, is also included in the calculation at 0.031 kg. The following table shows the data of the declared unit.

### Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	2700	kg/m <sup>3</sup>

### System boundary

Type of EPD: Cradle to factory gate with modules C1-C4 and D. The following information modules are defined as system boundaries in this study:

#### Production stage (A1- A3):

- A1, raw material extraction,
- A2, transport to the manufacturer,
- A3, production.

#### End of life (C1- C4):

- C1, dismantling/demolition,
- C2, transport,
- C3, waste treatment,
- C4, disposal.

#### Reuse, recovery and recycling potential (D)

In order to accurately record the indicators and environmental impacts of the declared unit, a total of 8 information modules are considered. The information modules A1 to A3 describe the provision of materials, transport to the production site and the production processes of the product itself.

The primary products are sourced from the European Union and Asia. Transport is by lorry and ship. The following flow charts illustrate the underlying production process.

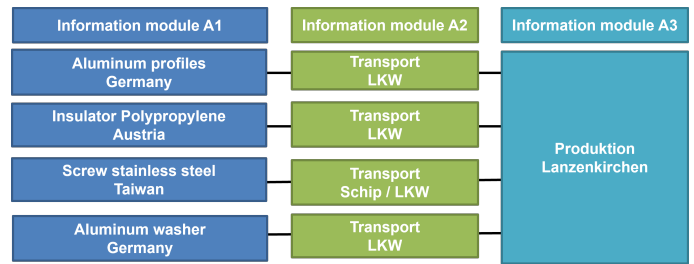


Figure Information modules A 1 to A3 of the product.

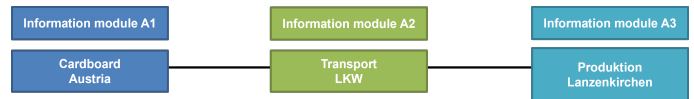


Figure Information modules A 1 to A3 of the packaging.

In the information modules C1 to C4, the deconstruction or demolition from the building, the transport to waste disposal, the waste treatment and disposal of the product are recorded. Furthermore, reuse, recovery and recycling potentials are reported in information module D.

### Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Global

### Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. The database referred to in this study is LCA for Experts by Sphera. (V1 2023)

## LCA: Scenarios and additional technical information

### Characteristic product properties of biogenic carbon

The declared product does not contain any biogenic Carbon. **Note: 1kg of biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>**

### Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in accompanying packaging	0.000337	kg C

### End of life (C1 - C4)

The demolition of the installation system from the building is calculated in information module C1. The demolition is carried out using an electric screwdriver. The electrical energy consumption for the tool is assumed to be 0.5 MJ for the

declared unit. The electricity consumption is calculated using a European electricity mix.

Name	Value	Unit
Collected as mixed construction waste	1	kg
Recycling	0.5285	kg
Energy recovery	0.444	kg

### Reuse, recovery and/or recycling potentials (D), relevant scenario information

In Module D, the metallic components are added to the primer material data sets through a recycling scenario of 85% and the plastic components are thermally utilised, thereby generating thermal and electrical energy.

Name	Value	Unit
Stainless Steel	0,018	kg
Aluminium	0,427	kg

## LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg MFT-FOX HT320 L11

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO <sub>2</sub> eq	6.57E+00	5.88E-02	7.39E-03	1.39E+00	0	-4.55E+00
Global Warming Potential fossil fuels (GWP-fossil)	kg CO <sub>2</sub> eq	6.57E+00	5.87E-02	7.42E-03	1.39E+00	0	-4.55E+00
Global Warming Potential biogenic (GWP-biogenic)	kg CO <sub>2</sub> eq	2.27E-03	2.92E-05	0	2.36E-05	0	-1.5E-03
Global Warming Potential luluc (GWP-luluc)	kg CO <sub>2</sub> eq	1.96E-03	5.37E-06	6.79E-05	2.06E-05	0	-1.07E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	9.21E-12	5.77E-13	6.42E-16	7.01E-14	0	-8.62E-12
Acidification potential of land and water (AP)	mol H <sup>+</sup> eq	2.42E-02	8.94E-05	8.82E-06	1.51E-04	0	-1.86E-02
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	4.46E-06	5.8E-08	2.67E-08	2.43E-08	0	-2.62E-06
Eutrophication potential aquatic marine (EP-marine)	kg N eq	3.89E-03	2.52E-05	2.99E-06	3.49E-05	0	-2.83E-03
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	4.23E-02	2.66E-04	3.62E-05	7.14E-04	0	-3.08E-02
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	1.21E-02	6.97E-05	7.57E-06	1.02E-04	0	-8.53E-03
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	5.13E-06	2.84E-09	4.73E-10	3.35E-09	0	-4.17E-06
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.09E+02	1.29E+00	9.97E-02	2.16E-01	0	-6.45E+00
Water use (WDP)	m <sup>3</sup> world eq deprived	7.63E-01	4.93E-03	8.45E-05	1.29E-01	0	-6.07E-01

### RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg MFT-FOX HT320 L11

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	2.86E+01	1.77E-01	7.05E-03	4.68E-02	0	-2.36E+01
Renewable primary energy resources as material utilization (PERM)	MJ	4.7E-01	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	2.91E+01	1.77E-01	7.05E-03	4.68E-02	0	-2.36E+01
Non renewable primary energy as energy carrier (PENRE)	MJ	8.91E+01	1.29E+00	9.99E-02	1.99E+01	0	-6.46E+01
Non renewable primary energy as material utilization (PENRM)	MJ	1.97E+01	0	0	-1.97E+01	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.09E+02	1.29E+00	9.99E-02	2.16E-01	0	-6.46E+01
Use of secondary material (SM)	kg	0	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m <sup>3</sup>	7.01E-02	2.96E-04	7.77E-06	3.02E-03	-5.52E-02	-5.52E-02

### RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:

1 kg MFT-FOX HT320 L11

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	9.59E-09	7.48E-11	3.7E-13	3.59E-12	0	-4.69E-09
Non hazardous waste disposed (NHWD)	kg	1.32E+00	2.84E-04	1.44E-05	5.53E-03	0	-1.08E+00
Radioactive waste disposed (RWD)	kg	4.01E-03	2.01E-04	1.29E-07	1.06E-05	0	-4.31E-03
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	2.89E-01	0	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	2.97E+00	0	0
Exported thermal energy (EET)	MJ	0	0	0	5.28E+00	0	0

### RESULTS OF THE LCA - additional impact categories according to EN 15804+A2-optional:

1 kg MFT-FOX HT320 L11

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND



Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND
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Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

## References

### DIN EN 1090-1

Standard for execution of steel structures and aluminium structures

### DIN EN 1999-1-1 + DIN EN 1993-1-4

Eurocode 9: Design of aluminum structures - Part 1-4: General design rules

### DIN 18516-1

DIN 18516-1:2010-06 Cladding for external walls, ventilated at rear facades – Part 1: Requirements, principles of testing

### EN 1090-1:2009+A1:2011

Standard for execution of steel structures and aluminium structures

### EN AW-6063-T66

Type of aluminium alloy

### EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

### ISO 14025

DIN EN /ISO 14025:2011-10/, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

### Regulation (EU) No. 305/2011

Construction Product Regulation (CPR)

### Regulation (EC) No 1907/2006

REACH Regulation

### Regulation (EU) No 528/2012

on EU Biocidal Products

### Other references

### BBA Certificate (British Board of Agreement)

The British Board of Agreement is a UK body issuing certificates

for construction products and systems and providing inspection services in support of their designers and installers.

### Calculation rules: PCR - Part A

Product category rules for construction products and services - Calculation rules for the eco-balance and requirements for the background report V1.3, Institut Bauen und Umwelt e.V., 08.2022.

### CML 2001 April. 2015

Indicators for environmental impacts, Leiden: Universitat Leiden,

<http://cml.leiden.edu/software/datacmlia.html#downloads> (20.08.2022)

### IBU 2021

General Instructions for the EPD programme of Institut Bauen und Umwelt e.V. Version 2.0,

Berlin: Institut Bauen und Umwelt e.V., 2021

[www.ibu-epd.de](http://www.ibu-epd.de)

### Product category rules for construction products – Part B

Institut Bauen und Umwelt e.V, Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations for Institut Bauen und Umwelt (IBU), PConstruction metals ,.01.08.2021

### Sphera

LCA for Experts: Ganzheitliche Bilanzierung Leinfelden-Echterdingen; Sphera Solution GmbH (Hrsg.)

[www.gabi-software.com/deutsch/index/](http://www.gabi-software.com/deutsch/index/)

(27.06.2023)



**Publisher**

Institut Bauen und Umwelt e.V.  
Hegelplatz 1  
10117 Berlin  
Germany

+49 (0)30 3087748- 0  
info@ibu-epd.com  
www.ibu-epd.com

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**Programme holder**

Institut Bauen und Umwelt e.V.  
Hegelplatz 1  
10117 Berlin  
Germany

+49 (0)30 3087748- 0  
info@ibu-epd.com  
www.ibu-epd.com

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**Author of the Life Cycle Assessment**

FIT-Umwelttechnik GmbH  
Westerstr. 13  
38442 Wolfsburg  
Germany

05362 72 69 474  
bertram@fit-umwelttechnik.de  
www.fit-umwelttechnik.com

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**Owner of the Declaration**

Hilti Aktiengesellschaft  
Feldkircher Strasse 100  
9494 Schaan  
Liechtenstein

+423 234 2111  
HAGHSE@hilti.com  
www.hilti.com