

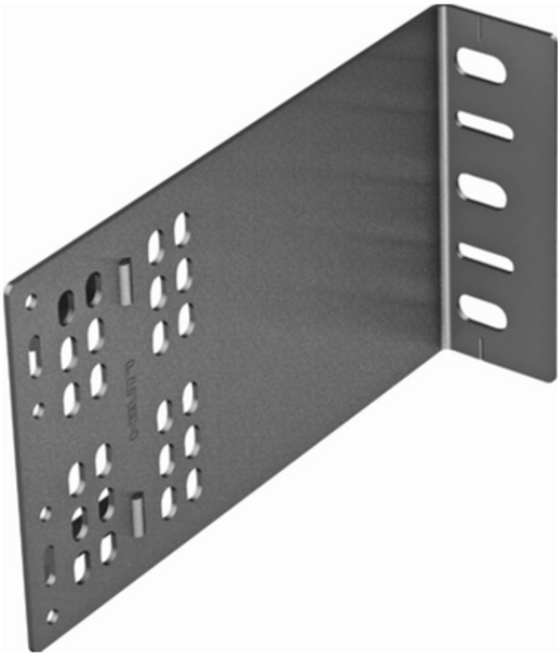
ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Hilti Austria Industrie GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HIL-20240158-CBJ2-EN
Issue date	19.07.2024
Valid to	18.07.2029

MFT-FOX VTR
Hilti AG

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ECO PLATFORM

EPD
VERIFIED

General Information

Hilti AG

Programme holder

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

Declaration number

EPD-HIL-20240158-CBJ2-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 VTR

Owner of the declaration

Hilti Austria Industrie GmbH
Gewerbepark C 7
2821 Lanzenkirchen
Austria

Declared product / declared unit

The declared product is the MFT-FOX VTR 300 L 6,5 as a representative product for the FOX VTR 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 VTR 300 L 6,5 as a representative product for the MFT-FOX VTR portfolio. FOX VTR products cover the same applications and are equal in material constitution and have therefore been summarized in this EPD.

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)

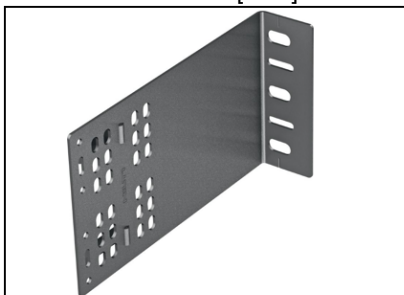
Product

Product description/Product definition

MFT-FOX VTR is designed as a steel substructure bracket. 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 support rails.

Product according to the CPR based on a hEN:

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 [GS1] 1090-1:2009+A1:2011.



Productgroup	Name	Articlenumber	Weight per item [kg]
VTR	Bracket MFT-FOX VTR 160 M 6.5/11 kpl	2349167	0,28
	Bracket MFT-FOX VTR 60 M 6.5/11 kpl	2349162	0,14
	Bracket MFT-FOX VTR 80 M 6.5/11 kpl	2349163	0,18
	Bracket MFT-FOX VTR 100 M 6.5/11 kpl	2349164	0,21
	Bracket MFT-FOX VTR 120 M 6.5/11 kpl	2349165	0,24
	Bracket MFT-FOX VTR 140 M 6.5/11 kpl	2349166	0,25
	Bracket MFT-FOX VTR 180 M 6.5/11 kpl	2349168	0,31
	Bracket MFT-FOX VTR 200 M 6.5/11 kpl	2349169	0,34
	Bracket MFT-FOX VTR 220 M 6.5/11 kpl	2349270	0,37
	Bracket MFT-FOX VTR 240 M 6.5/11 kpl	2349271	0,39
	Bracket MFT-FOX VTR 260 M 6.5/11 kpl	2349272	0,42
	Bracket MFT-FOX VTR 280 M 6.5/11 kpl	2349273	0,45
	Bracket MFT-FOX VTR 60 L 6.5/11 kpl	2349275	0,27
	Bracket MFT-FOX VTR 80 L 6.5/11 kpl	2349276	0,33
	Bracket MFT-FOX VTR 100 L 6.5/11 kpl	2349277	0,39
	Bracket MFT-FOX VTR 120 L 6.5/11 kpl	2349278	0,45
	Bracket MFT-FOX VTR 140 L 6.5/11 kpl	2349279	0,46
	Bracket MFT-FOX VTR 160 L 6.5/11 kpl	2349280	0,52
	Bracket MFT-FOX VTR 180 L 6.5/11 kpl	2349281	0,57
	Bracket MFT-FOX VTR 200 L 6.5/11 kpl	2349282	0,63
	Bracket MFT-FOX VTR 220 L 6.5/11 kpl	2349283	0,68
	Bracket MFT-FOX VTR 240 L 6.5/11 kpl	2349284	0,74
	Bracket MFT-FOX VTR 260 L 6.5/11 kpl	2349285	0,79
Bracket MFT-FOX VTR 280 L 6.5/11 kpl	2349286	0,85	
Bracket MFT-FOX VTR 300 L 6.5/11 kpl	2349287	0,91	
Bracket MFT-FOX VTR 300 M 6.5/11 kpl	2349274	0,48	

Application

LCA: Calculation rules

Declared Unit

The declared product here is a screw from HILTI AG with the designation MFT-FOX VTR 300 L as a representative product from the MFT-VTR bracket portfolio. The declared unit refers to 1 kg of steel substructure bracket. The packaging, based on 1

The application of the MFT FOX VTR product group is explained on the basis of the Bracket MFT-FOX VTR 300 L 6,5. The bracket can be used for the fastening of substructures for ventilated facades to concrete, masonry, SFS, and wood. The mounting of facade substructures on the main structure is supported by an auxiliary console that temporarily holds the rails in position during fastening. The installation of vertical support rails is also possible. These fastening techniques are suitable for all facade claddings.

Technical Data

Technical documentation according to EN 1090-1.

Constructional data

Name	Value	Unit
Thickness Baseplate	2,5	mm
Length	60-300	mm
Length Steps	20	mm
Height	70 / 140	mm
Width	50	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 product is CE marked accordingly. The structural parts made of stainless steel correspond to following harmonized standards: EN 1090-1, DIN EN 10088-1, DIN EN 1993-1-4 incl national annexes, DIN 18516-1.

Base materials/Ancillary materials

The raw material used for the production of this product is steel alloy according to the standard DIN EN 10088-1 with 910g (100% of product weight). The alloy is a widely used extrusion alloy, suitable for various applications.

This product contains substances listed in the candidate list (date 05.04.2022) exceeding 0.1 percentage by mass: no
This product contains other 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 VTR 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.

kg of steel substructure bracket, is also included in the calculation at 0.03 kg.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	8000	kg/m ³

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.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The declared product does not contain any biogenic Carbon.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in accompanying packaging	0.01	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

End of life (C1 - C4)

They are transported by lorry and container ship. The following flow charts illustrate the underlying production process.

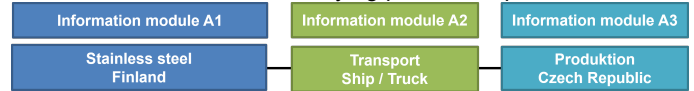


Figure Information modules A 1 to A3 of the product.

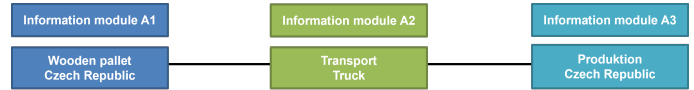


Figure Information modules A 1 to A3 of the packaging.

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: Europe

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)

The demolition of the bolt anchor from the building is calculated in information module C1. The demolition is carried out using an electric chisel. 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	0.85	kg

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

Module D shows the substitution potential of primer steel using a recycling scenario (85 % steel content of the product).

Name	Value	Unit
Stainless Steel	0,85	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 VTR 300 L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO ₂ eq	3.83E+00	5.86E-02	8.46E-03	2.58E-03	0	-2.84E+00
Global Warming Potential fossil fuels (GWP-fossil)	kg CO ₂ eq	3.82E+00	5.86E-02	8.38E-03	2.56E-03	0	-2.84E+00
Global Warming Potential biogenic (GWP-biogenic)	kg CO ₂ eq	3.32E-05	2.92E-05	0	0	0	0
Global Warming Potential luluc (GWP-luluc)	kg CO ₂ eq	3.62E-03	5.36E-06	7.64E-05	1.92E-05	0	-1.8E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1.3E-11	5.76E-13	7.22E-16	4.28E-15	0	-9.91E-12
Acidification potential of land and water (AP)	mol H ⁺ eq	2.63E-02	8.92E-05	3.29E-05	1.34E-05	0	-2E-02
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	4.96E-06	5.79E-08	3.01E-08	8.71E-09	0	-3.43E-06
Eutrophication potential aquatic marine (EP-marine)	kg N eq	2.85E-03	2.52E-05	1.55E-05	6.13E-06	0	-1.99E-03
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	3.17E-02	2.66E-04	1.73E-04	6.77E-05	0	-2.21E-02
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	8.73E-03	6.95E-05	2.98E-05	1.66E-05	0	-6.32E-03
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.14E-04	2.84E-09	5.32E-10	2.74E-09	0	-8.94E-05
Abiotic depletion potential for fossil resources (ADPF)	MJ	5.15E+01	1.29E+00	1.12E-01	5.04E-02	0	-3.81E+01
Water use (WDP)	m ³ world eq deprived	8.38E-01	4.92E-03	9.51E-05	4.98E-04	0	-6.54E-01

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg MFT-FOX VTR 300 L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	1.1E+01	1.76E-01	7.94E-03	4.68E-03	0	-8.35E+00
Renewable primary energy resources as material utilization (PERM)	MJ	4.5E-01	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	1.14E+01	1.76E-01	7.94E-03	4.68E-03	0	-8.35E+00
Non renewable primary energy as energy carrier (PENRE)	MJ	5.15E+01	1.29E+00	1.12E-01	5.05E-02	0	-3.81E+01
Non renewable primary energy as material utilization (PENRM)	MJ	0	0	0	0	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	5.15E+01	1.29E+00	1.12E-01	5.05E-02	0	-3.81E+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 ³	2.68E-02	2.95E-04	8.75E-06	1.44E-05	0	-2.07E-02

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

1 kg MFT-FOX VTR 300 L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	8.1E-10	7.46E-11	4.16E-13	-1.31E-13	0	-6.03E-10
Non hazardous waste disposed (NHWD)	kg	3.81E-01	2.84E-04	1.62E-05	1.33E-05	0	-2.98E-01
Radioactive waste disposed (RWD)	kg	1.89E-03	2.01E-04	1.45E-07	6.77E-07	0	-1.36E-03
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	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	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

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

1 kg MFT-FOX VTR 300 L

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 1090-2:2018-09

Standard for execution of steel structures and aluminium structures

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

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

DIN 18516-1

Cladding for external walls, ventilated

EN 1090-1:2009+A1:2011

Standard for execution of steel structures and aluminium structures

DIN EN-10088-1

Type of steel alloy

EN 15804

EN 15804:2012-04+A1 2013, 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)

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/ (19.02.2024)



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