ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN15804+A2

Evolution Fasteners Screws

Owner of the declaration:
Evolution Fasteners (UK) Ltd

Product:
Evolution Fasteners Screws

Declared unit:
1 kg

This declaration is based on Product Category Rules:
EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
EPD Ireland PCR Part A, Version 2.1, 2022

Program operator:
EPD Ireland - Irish Green Building Council

Declaration number:
EPDIE-25-223

Issue date:
05.11.2025

Valid to:
04.11.2030

General information

Product

Evolution Fasteners Screws

Owner of the declaration:

Evolution Fasteners (UK) Ltd
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Program operator:

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Manufacturer:

Evolution Fasteners (UK) Ltd
Clyde Gateway Trade Park, Dalmarnock Road
G73 1AN Glasgow, United Kingdom

Declaration number:

EPDIE-25-223

Place of production:

Evolution Production Facility
Jiangsu & Zheijang, China

This declaration is based on Product Category Rules:

EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
EPD Ireland PCR Part A, Version 2.1, 2022

Statement of liability:

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

Type of EPD

Specific product EPD

Issue date:

05.11.2025

Declared unit:

1 kg Evolution Fasteners Screws

Valid to:

04.11.2030

Scope of the EPD:

A1-A3, C1, C2, C3, C4, D

Year of study:

2024

Functional unit:

I kg of Evolution Fasteners screws

Comparability:

Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See clause 5.3 of EN 15804:2012+A2:2019

LCA consultant or person responsible for LCA: .
EcoReview, Peter Seymour

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

Third party verifier:
Stephen Forson

Approved:

SIGNATURE OF PROGRAMME OPERATOR

Pat Barry, CEO - Irish Green Building Council

Product

Product description:

Evolution Fasteners' screws are manufactured in two production facilities in Jiangsu and Zheijang, China. This EPD refers to screws made in both facilities, and is based on the LCA results of the "worst case" of these two production facilities. The high-quality self-tapping fasteners designed for efficient and reliable fixing across various applications, including steel, timber, board, and masonry. These screws are ideal for single-sided assembly operations, eliminating the need for pre-drilling and reducing labor time. They are commonly used in roofing, cladding, timber sheets, board materials, and lightweight construction methodologies. Their versatility makes them suitable for securing metal profiles or other fixture materials to substrate structures. The screws are engineered to provide long-term stability, pull-out resistance, and load-bearing capacity, ensuring structural reliability and aesthetic quality. They are available in diverse geometries, drive types, and protective finishes, allowing contractors to select solutions tailored to specific project demands.

Product specification:

Evolution Fasteners' screws are composed of 85% stainless steel and 15% carbon steel, with raw materials sourced from recycled and primary steel. The screws are manufactured using multi-stage extrusion techniques, including cold or hot forming processes, thread rolling, and drill point formation for self-drilling variants. The production process incorporates cleaning stages and surface treatments such as galvanic coating and dry lubricant deposition. The screws are packaged in cardboard, which is typically recycled. At the end of their lifecycle, it is assumed that 95% of the screws are recycled, contributing to sustainability by avoiding the manufacture of steel products from primary raw materials.

Technical data:

Evolution Fasteners' screws are manufactured using carbon steel and bi-metal designs, combining hardened steel drill points with stainless steel shanks for enhanced durability and corrosion resistance. They feature varied thread forms, including coarse, intermediate, and hi-lo profiles, optimising grip and reducing driving torque across substrates. Self-drilling TEK points (e.g., SuperTEK-8 and SuperTEK-X) enable penetration of thick steel up to 22–30 mm without pre-drilling, while Type 17 cutting points improve starts in wood or masonry. Head styles include hex, hex-flange, bugle, and countersunk, paired with drives such as Phillips, Pozi, and hex socket for torque control. Sizes range from 4.8–6.3 mm in diameter and 25–100+ mm in length, with hardened sections achieving ≥55 HRC for structural performance.

All products are CE marked, UKCA marked, and verified via UKAS accredited laboratory testing according to ISO/IEC 17025:2017.

Market/Geographical Area:

The screws are distributed to the United Kingdon and Republic of Ireland.

Reference service life, product

Due to the wide variety of uses of screws, a formal reference service life is not given. The service life of the screws depends on their application and usage, and can be significantly impacted by the environment in which they are used, as well as care in their usage

Reference service life, building or construction works

LCA: Calculation rules

Declared unit:

1 kg Evolution Fasteners Screws

kg per Declared unit 1

Cut-off criteria:

All relevant inputs and outputs - like emissions, energy and materials - have been taken into account in this LCA, and in accordance with EN15804+A2:2019. The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials andenergy of each unit process. Long term emissions have been excluded from the study.

Allocation:

The measurement of environmental impacts in this EPD uses the LCIA methodologies recommended for PEF 3.1. In this EPD, the waste processes are allocated in the relevant module. In the case of the use of secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g. materials, products, building elements or energy, reach the end-of-waste state. The modularity and the polluter payer principles have been followed.

Data quality:

Time Representativeness
In this LCA the background data is from ecoinvent version 3.9.1. Thus the age of the data relating to the manufacturing of the steel screws, and the data relating to the background processes for environmental impacts is between 3 and 6 years. Time Representativeness is considered to be Good.

Geographical Representativeness
The material references, from ecoinvent version 3.9.1, relate to "RoW", generally. However the electricity is related to the country of manufacture, and the fossil fuel reference is independent of geography. Geographical Representativeness is considered to be Fair.

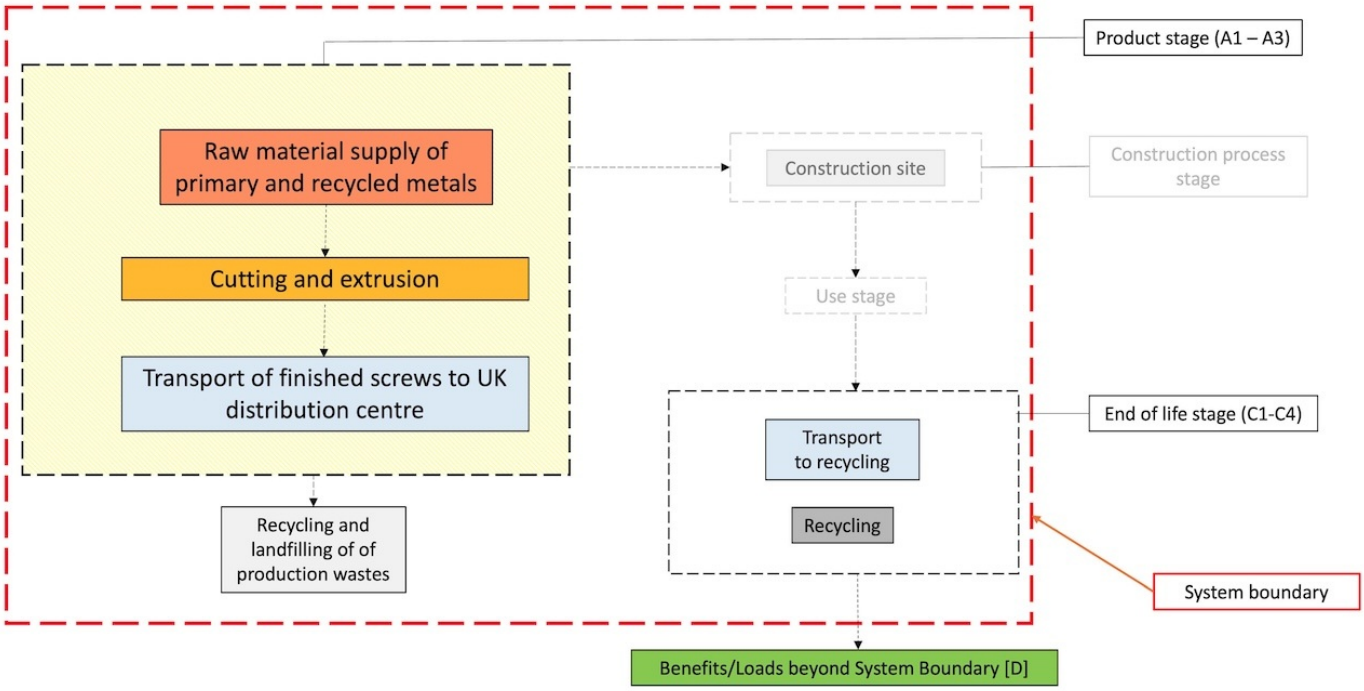
Technical Representativeness
The material references are general in nature and a conservative approach has been taken. They are based on ecoinvent version 3.9.1. The process energies references have a good level of representativeness. Technical data has been obtained indirectly, and as the raw materials references data is applied across a range of products, the Technical Representativeness is considered to be Fair.

Scope and type of EPD (X = Module declared; ND = Module not declared)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

System boundary:

This LCA is Cradle to gate with options, modules C1–C4 and module D (A1–A3, C, and D).



Additional technical information:

Electricity modelling

Electricity is supplied from the grid, and is modelled as the average residual mix for China. The CO2 intensity of the electricity is 1.0 kg CO2eq per kWh.

LCA: Scenarios and additional technical information

The following information describes the scenarios in the different modules of the EPD.

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A5 This models recycling of cardboard packaging wherein the biogenic CO2 in the cardboard is returned to the biosphere within 100 years.

C1 – C4 End of Life stage
At end of life, it is assumed that the screws are removed from wherever they are used and that 95% goes to metal recycling and 5% to landfill.

C1
It is assumed that removal energy and materials are insignificant, and thus this module is assumed to have zero impact.

C2
Transport to recycling/landfill at EoL is taken to be the default distance of 50km.

C3
It is assumed that 95% of the screws are recycled

C4
Disposal(of 5% of the product) is assumed to be in inert landfill.

D Benefits and loads beyond the system boundary
The benefits beyond the system are for the avoidance of manufacture of steel products from primary raw materials, thus the non-recycled portion of the steels in the screws is used to make this calculation.

Biogenic Carbon
These is no biogenic carbon in the product.

Database used: Ecoinvent v 3.9.1

LCA tool used: Ecochain Helix v 4.3.1

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact								
Indicator		Unit	A1-A3	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	7.90E+00	0.00E+00	9.25E-04	6.30E-02	3.24E-04	-3.15E+00
	GWP-fossil	kg CO_2 -eq	7.86E+00	0.00E+00	9.24E-04	6.29E-02	3.24E-04	-3.15E+00
	GWP-biogenic	kg CO_2 -eq	2.82E-02	0.00E+00	8.46E-07	1.44E-05	1.86E-07	5.15E-03
	GWP-luluc	kg CO_2 -eq	8.11E-03	0.00E+00	4.56E-07	7.08E-06	1.96E-07	-1.01E-03
	ODP	kg CFC11 -eq	1.04E-07	0.00E+00	2.00E-11	1.00E-09	9.00E-12	-6.89E-08
	AP	mol H+ -eq	4.70E-02	0.00E+00	2.02E-06	5.83E-04	2.44E-06	-1.15E-02
	EP-FreshWater	kg P -eq	2.44E-03	0.00E+00	7.50E-09	2.27E-07	3.16E-09	-1.50E-04
	EP-Marine	kg N -eq	1.03E-02	0.00E+00	4.97E-07	2.70E-04	9.32E-07	-2.55E-03
	EP-Terrestial	mol N -eq	1.09E-01	0.00E+00	5.18E-06	2.94E-03	1.00E-05	-2.96E-02
	POCP	kg NMVOC -eq	3.81E-02	0.00E+00	3.13E-06	8.70E-04	3.50E-06	-1.58E-02
	ADP-minerals&metals[1]	kg Sb-eq	1.71E-04	0.00E+00	3.02E-09	2.20E-08	4.50E-10	-2.87E-06
	ADP-fossil[1]	MJ	8.69E+01	0.00E+00	1.31E-02	8.24E-01	8.07E-03	-3.24E+01
	WDP[1]	m^3	1.33E+00	0.00E+00	5.43E-05	1.79E-03	3.57E-04	-6.54E-01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks on environmental impacts

Additional environmental impact indicators

Indicator		Unit	A1-A3	C1	C2	C3	C4	D
	PM	Disease incidence	6.45E-07	0.00E+00	6.90E-11	1.63E-08	5.30E-11	-2.21E-07
	IRP[2]	kgBq U235 -eq	3.73E-01	0.00E+00	6.65E-06	1.69E-04	2.13E-06	-3.39E-02
	ETP-fw[1]	CTUe	3.43E+01	0.00E+00	6.49E-03	3.94E-01	3.79E-03	-9.85E+00
	HTP-c[1]	CTUh	6.48E-08	0.00E+00	0.00E+00	1.90E-11	0.00E+00	-2.01E-08
	HTP-nc[1]	CTUh	1.32E-07	0.00E+00	9.00E-12	1.34E-10	2.00E-12	-1.72E-08
	SQP[1]	dimensionless	3.63E+01	0.00E+00	7.93E-03	5.55E-02	1.60E-02	-7.29E+00

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use								
Indicator		Unit	A1-A3	C1	C2	C3	C4	D
	PERE	MJ	1.44E+01	0.00E+00	2.06E-04	4.69E-03	6.84E-05	-1.16E+00
	PERM	MJ	1.70E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	3.14E+01	0.00E+00	2.06E-04	4.69E-03	6.84E-05	-1.16E+00
	PENRE	MJ	9.24E+01	0.00E+00	1.39E-02	8.76E-01	8.59E-03	-3.42E+01
	PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	9.24E+01	0.00E+00	1.39E-02	8.76E-01	8.59E-03	-3.42E+01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m^3	4.27E-02	0.00E+00	1.76E-06	5.79E-05	8.48E-06	-1.73E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Waste

Indicator		Unit	A1-A3	C1	C2	C3	C4	D
	HWD	kg	3.34E-04	0.00E+00	8.35E-08	5.55E-06	4.28E-08	-3.28E-04
	NHWD	kg	5.79E+00	0.00E+00	6.52E-04	1.18E-03	5.33E-02	-5.26E-01
	RWD	kg	9.70E-05	0.00E+00	4.31E-09	9.03E-08	1.19E-09	-2.54E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Output flow

Indicator		Unit	A1-A3	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	8.00E-04

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

Additional requirements

Dangerous substances

None of the substances contained in the product are listed in the “Candidate List of Substances of Very High Concern for authorisation”, or they do not exceed the limit for registration with the European Chemicals Agency.

Mandatory additional information on release of dangerous substances to indoor air, soil and water.

Bibliography

[1] 'ISO 14040: Environmental management -Life cycle assessment – Principles and Framework, International Organization for Standardization, ISO14040:2006.
[2] 'ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines, International Organization for Standardization, ISO14044:2006.
[3] 'ISO 14025: Environmental labels and declarations - Type III environmental declarations - Principles and procedures, International Organization for Standardization, ISO14025:2006.
[4 EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products EN 15804:2012+A2:2019.
[5] Product Category Rules: Part A, Implementation and use of EN 15804:2012+A2:2019 and CEN TR 16970:2016 in Ireland for the development of Environmental Product Declarations; Version 2.0, issue date: 17.08.2021, published by the EPD Ireland Programme operator (Irish Green Building Council).

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