Eurotec®

The specialist for fastening technology

# ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/ AC:2021 for

# WOOD SCREWS FROM EUROTEC

www.eurotec.team/en

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# 1 INTRODUCTION

| | |
|---|---|
| **Publication date:** | 2025-11-30 |
| **Validity date:** | 2030-11-30 |
| | An EPD may be updated or depublished if conditions change. EPD of multiple products, based on the average results of the product group. |

# 2 GENERAL INFORMATION

**PRODUCT CATEGORY RULES (PCR)**
**CEN STANDARD EN 15804 SERVES AS THE CORE PRODUCT CATEGORY RULES (PCR)**
**PRODUCT CATEGORY RULES (PCR): CONSTRUCTION PRODUCTS (EN 15804+A2) (VERSION 2.0.1) (2.0.1)**

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category, but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterization factors); and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025.

# 3 INFORMATION ABOUT EPD OWNER

**Owner of the EPD:** E.u.r.o.Tec GmbH
**Address:** Unter dem Hofe 5, 58099 Hagen
**Contact:** info@eurotec.team, +49 2331 6245-0

**Description of the organization:**
Eurotec GmbH is a German-mid-sized company specializing in fastening systems and construction connectors. The company develops, manufactures and distributes products such as screws, anchors, wood-construction connectors, and sub-structures for applications including terrace & garden construction, structural timber engineering, drywall, concrete & masonry anchoring, roofs & façades, and solar mounting systems.

**Product-related or management system-related certifications:**
The company is certified according to ISO 9001 (Quality Management). In addition, the company has been assessed by EcoVadis and holds a Bronze Medal (2025) for its performance in environment, labour & human rights, ethics, and sustainable procurement.

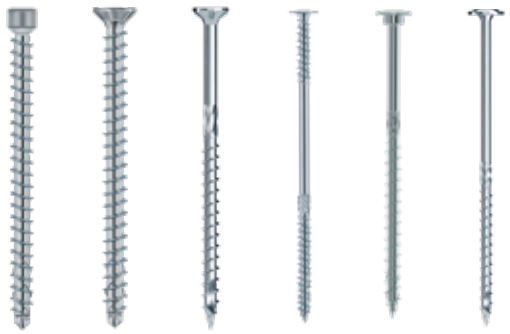
# 4 PRODUCT INFORMATION

**Product name:**
Wood Screw

**Product identification:**

Paneltwistec, KonstruX Vollgewindeschraube, SawTec, Topduo Dachbauschraube, LBS Konstruktionsschraube, Winkelbeschlagschrauben (WBS), Justitec, OSB Fix Senkkopf, EcoTec Spanplattenschraube, Flügelbohrschraube, Hobotec, Distanzschraube, Distanzschraube Mini, FuboFix, FloorFix, Panhead TX, Panhead TX 1000, Montage-Schrauben, Pfostenverbinderschraube, HBS Holzbauschraube, FRS, Rock, Bohrschraube

**Visual representation of example products:**



**HS-Code:** 731814

**Product description:**

The product group comprises a wide range of wood construction screws manufactured from low alloyed steel or stainless steel, with selected variants featuring zinc based surface coatings for corrosion protection. The screws are intended for structural timber connections and are applied in various building contexts including timber frame construction, roof assemblies and interior building works.

Since the environmental results differ by less than ten percent in GWP GHG for Modules A1 to A3, the screws are represented in this EPD by an average product based on weight. The product range includes full thread and partial thread screws with countersunk heads, washer heads or cylinder heads, depending on the intended use. Many variants can be installed without pre-drilling, which facilitates efficient assembly on site.

Specific product families are designed for load bearing timber to timber joints, timber to steel connections and the fixing of insulation materials in roof construction. Several screws incorporate specialized geometries such as self drilling tips or saw tooth cutting edges that reduce splitting in the timber and lower the required driving torque.

A majority of the screws have a European Technical Assessment according to EN 14592 which confirms their suitability for structural timber applications. The products are manufactured using standardized processes under certified quality management systems and are available in various dimensions and surface finishes suitable for indoor and outdoor use, depending on the selected steel grade and coating system.

**Name and location of production site(s):**

Unter dem Hofe 5, 58099 Hagen, Germany for German Production. Production Sites in Asia are in Vietnam and China

# 5 CONTENT DECLARATION

**The mass (weight) of one unit of a product, as purchased or per declared unit:**

1KG

**Content of the product in the form of a list of materials and substances, and their mass:**

>99% steel (19MnB4) and <1% zinc coating.

**The mass and the content of distribution and/or consumer packaging:**

25KG screws are packed in 1.1 KG of packaging (cardboard)

**Information on the environmental and hazardous/toxic properties of substances contained in the product:**

The materials are not a candidate list of Substances of Very High Concern (SVHCs)

**Other information on substances with hazardous and toxic properties:**

-

**The declared share of biogenic/recycled materials:**

biogenic materials are only used in the packaging with cardboard. The used steel contains common values of recycled material. Since the World Steel Organization states that 85% of steel is recycled, it is assumed that 85% of recycling is present in the used materials

| Product content | Mass, kg | Post-consumer recycled material, mass-% of product | Biogenic material, mass-% of product | Biogenic material, kg C/product or declared unit |
|---|---|---|---|---|
| Stainless steel | 1 kg | 85 % | 0 % | 0 kg C / kg |
| TOTAL | 1 kg | | | |

| Packaging materials | Mass, kg | Mass-% (versus the product) | Biogenic material, kg C/product or declared unit |
|---|---|---|---|
| Cardboard | 1.1 kg | 4.4 % | 0.484 kg C / kg |
| TOTAL | 1.1 kg | | 0.484 kg C / kg |

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of $CO_2$.

| Hazardous substances from the candidate list of SVHC | EC No. | CAS No. | Mass-% per product or declared unit |
|---|---|---|---|
| – | – | – | – |

# 6 LCA INFORMATION

**Functional unit:**
1 kg of screws

**Reference service life:**
50 Years

**Time representativeness:**
Data obtained refers to the year 2025

**Geographical scope:**
Raw material production scope is global, manufacturing scope is Germany, China and Vietnam, use phase is modelled in Germany, Austria and Switzerland, End-of-life is modelled in Europe

**Database(s) and LCA software used:**
UMBERTO, ecoinvet-en15804-3.11, uslci-2022.4, lcia-mapping-entries-2024.2, probas-2022,

**System boundaries:**
Cradle-to-grave, with options. A1-A3, A4-A5, C1-C4 & D

**More information:**

### Modules A1 to A3 Raw material supply and manufacturing

In Module A1 a globally sourced low alloyed steel represents the primary input material. The steel undergoes a wire drawing process before delivery to the production site. In Module A2 the drawn wire is transported by lorry to the manufacturing facility. The transport distance is modelled with one hundred kilometres. Modules A1 and A2 are represented with a global average dataset within the UMBERTO software provided by iPoint systems GmbH.

Module A3 represents manufacturing at the production site in Germany. The model also reflects the production processes used at additional sites in China and Vietnam, since comparable technologies and similar transport conditions can reasonably be assumed. A hot rolling process of the wire is modelled at this stage. The model includes a material loss of two millimetres for each screw with a length of fifty millimetres. In actual production the screws are produced through cold rolling and are subsequently transported externally for hardening by heat treatment. As UMBERTO cannot represent this exact process sequence the hot rolling process has been applied as a functional approximation. The missing distance for the heat treatment has been added to the distance for the surface treatment. The model further includes the galvanization of the screws.

### Module A4 Transport to distributors and construction sites

Module A4 assumes transportation of the packaged screws within Europe by lorry. The screws are assumed to be distributed to hardware stores in Germany, Austria, and Switzerland. A transport distance of one hundred kilometres is applied to reflect typical supply routes. It is further assumed that screws are purchased locally and installed within fifty kilometres of the point of sale.

### Module A5 Construction installation

Module A5 assumes that one kilogram of screws is installed with an electric screwdriver. The modelling includes a single battery charge of ninety watt-hours per functional unit. The cardboard packaging is discarded during installation. No further losses or additional emissions occur in this module.

### Use stage B1 to B7

No environmental impacts are expected during the use stage. The screws act as passive building components and do not require maintenance, additional materials or energy during use. Therefore, Modules B1 to B7 are not modelled with any significant flows or emissions.

### Modules C1 to C4 End of life

In Module C1 deconstruction is represented with the same equipment and energy use as during installation. An electric screwdriver is assumed for removal, and one battery charge of ninety watt-hours is used per functional unit.

Module C2 includes transport of fifty kilometres to a recycling facility. At this facility, the screws are sorted and processed. Module C3 is not relevant since the product does not undergo further reuse or refurbishment steps. In Module C4, fifteen percent of the screws are assumed to be disposed of as landfill waste. This value is based on an LCI study published by the World Steel Organization in the year two thousand and twenty.

### Module D Benefits and loads beyond the system boundary

In Module D an eighty-five percent recycling rate for steel is applied, which corresponds to the value published in the World Steel Organization LCI study from two thousand and twenty. The modelling includes the benefits of substituting primary steel with secondary material. These benefits reflect actual emission reductions and do not include compensation mechanisms. The approach strictly follows the requirements of EN 15804 A2, considering only verifiable substitution effects.

### Geographical representativeness and data basis

Raw material supply is represented globally, since steel production is based on international supply chains. Manufacturing processes are modelled according to the German production site and are considered applicable for the additional sites in China and Vietnam due to similar technology levels. Construction activities occur primarily in Germany, Austria, and Switzerland. Recycling and disposal processes are based on European waste management conditions. Variations in regional electricity mixes are not expected to cause significant deviations for this product type. All data are consistent in temporal, geographical and technological terms. All assumptions are transparently documented to ensure correct interpretation and to avoid misleading representation.

# Modules declared

| | Product stage | | | Distribution/ installation stage | | Use stage | | | | | | | End-of-life stage | | | | Beyond product life cycle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| Module | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Modules declared | X | X | X | X | X | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |

Modules/processes/life-cycle stages declared are noted with "X".

Modules/processes/life-cycle stages not declared are marked as "ND".

# 7 ENVIRONMENTAL PERFORMANCE

## LCA results of the products - main environmental performance results

### Mandatory impact category indicators according to EN 15804

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| GWP-total | kg $CO_2$ eq. | 3,40E+00 | 6,40E-02 | 7,66E-02 | 9,57E-03 | 3,60E-03 | 1,62E-08 | 6,58E-02 | -1,83E+00 |
| GWP-fossil | kg $CO_2$ eq. | 3,37E+00 | 1,15E-01 | 1,15E-02 | 9,24E-03 | 3,59E-03 | 6,57E-02 | 6,57E-02 | -1,83E+00 |
| GWP-biogenic | kg $CO_2$ eq. | 1,97E-02 | -5,24E-02 | 6,50E-02 | 2,96E-04 | 6,44E-06 | 2,67E-05 | 1,90E-05 | -2,57E-03 |
| GWP-luluc | kg $CO_2$ eq. | 9,52E-03 | 9,68E-04 | 2,80E-05 | 2,73E-05 | 1,14E-05 | 1,19E-05 | 1,16E-05 | -8,24E-04 |
| ODP | kg CFC 11 eq. | 3,25E-08 | 2,40E-09 | 2,00E-10 | 1,72E-10 | 5,21E-11 | 9,55E-10 | 9,92E-10 | -9,65E-09 |
| AP | mol $H^+$ eq. | 1,37E-02 | 5,99E-04 | 6,95E-05 | 5,32E-05 | 1,90E-05 | 5,77E-04 | 5,78E-04 | -7,45E-03 |
| EP-freshwater | kg P eq. | 1,71E-03 | 3,73E-05 | 9,37E-06 | 8,87E-06 | 4,51E-07 | 3,34E-06 | 2,29E-06 | -1,25E-03 |
| EP-marine | kg N eq. | 3,16E-03 | 1,75E-04 | 1,75E-05 | 8,49E-06 | 7,21E-06 | 2,65E-04 | 2,68E-04 | -1,64E-03 |
| EP-terrestrial | mol N eq. | 3,20E-02 | 1,71E-03 | 1,52E-04 | 7,51E-05 | 7,77E-05 | 2,90E-03 | 2,93E-03 | -1,76E-02 |
| POCP | kg NMVOC eq. | 1,14E-02 | 5,55E-04 | 4,43E-05 | 2,40E-05 | 2,56E-05 | 8,68E-04 | 8,80E-04 | -5,92E-03 |
| ADP-minerals&metals* | kg Sb eq. | 1,06E-04 | 4,27E-07 | 1,31E-07 | 1,26E-07 | 1,14E-08 | 3,89E-08 | 3,00E-08 | -1,65E-05 |
| ADP-fossil* | MJ | 3,81E+01 | 1,81E+00 | 2,32E-01 | 2,13E-01 | 4,96E-02 | 8,56E-01 | 8,69E-01 | -1,91E+01 |
| WDP* | $m^3$ | 2,08E+00 | 4,36E-02 | 8,01E-03 | 5,96E-03 | 3,27E-04 | 2,80E-03 | 3,27E-03 | -5,67E-01 |

Acronyms: 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

* Disclaimer: 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.

## Additional mandatory and voluntary impact category indicators

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| GWP-GHG[1] | kg $CO_2$ eq. | 3,38E+00 | 1,16E-01 | 1,16E-02 | 9,27E-03 | 3,60E-03 | 6,57E-02 | 6,57E-02 | -1,83E+00 |
| PM | incidences | 2,80E-07 | 1,40E-08 | 3,52E-10 | 1,89E-10 | 3,70E-10 | 1,621E-8 | 1,64E-08 | -1,47E-07 |
| SQP | points | 1,46E+01 | 5,31E+00 | 5,21E-02 | 4,17E-02 | 3,82E-02 | 7,53E-02 | 1,19E-01 | -5,99E+00 |
| HTP-c | CTUh | 4,32E-09 | 4,00E-11 | 7,95E-12 | 2,76E-12 | 8,69E-13 | 6,94E-12 | 7,05E-12 | -2,42E-09 |
| HTP-nc | CTUh | 6,79E-08 | 1,18E-09 | 3,63E-10 | 1,50E-10 | 3,31E-11 | 1,27E-10 | 1,22E-10 | -1,59E-08 |
| IRP | kBq U235-Eq | 2,01E-01 | 1,75E-02 | 5,99E-03 | 5,97E-03 | 5,73E-05 | 7,09E-04 | 3,88E-04 | -6,37E-02 |
| ETP-fw | CTUe | 4,34E+01 | 3,80E-01 | 5,44E-02 | 3,04E-02 | 1,01E-02 | 5,14E-02 | 5,08E-02 | -1,16E+01 |

Acronyms: PM = Particulate matter emissions potential; SQP = Soil quality potential; HTP-c = Human toxicity potential - cancer effects; HTP-nc = Human toxicity potential - non-cancer effects; IRP = Ionizing radiation potential - human health; ETP-fw = Eco-toxicity potential - freshwater

## Resource use indicators

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 3,81E+00 | 1,11E+00 | 5,80E-02 | 5,75E-02 | 9,81E-04 | 1,06E-02 | 5,76E-03 | -2,14E+00 |
| PERT | MJ | 3,81E+00 | 1,11E+00 | 5,80E-02 | 5,75E-02 | 9,81E-04 | 1,06E-02 | 5,76E-03 | -2,14E+00 |
| PENRE | MJ | 3,81E+01 | 1,81E+00 | 2,32E-01 | 2,13E-01 | 4,97E-02 | 8,56E-01 | 8,69E-01 | -1,91E+01 |
| PENRT | MJ | 3,81E+01 | 1,81E+00 | 2,32E-01 | 2,13E-01 | 4,97E-02 | 8,56E-01 | 8,69E-01 | -1,91E+01 |
| SM | kg | 4,09E-01 | 2,99E-03 | 5,32E-05 | 3,43E-05 | 2,85E-05 | 3,48E-04 | 3,59E-04 | -1,72E-01 |
| RSF | MJ | 4,42E-04 | 8,62E-03 | 5,11E-07 | 2,95E-07 | 2,78E-07 | 9,27E-07 | 1,16E-06 | -2,15E-04 |
| FW | m3 | 3,72E-02 | 9,86E-04 | 1,63E-04 | 1,39E-04 | 8,17E-06 | 6,87E-05 | 8,00E-05 | -1,20E-02 |

Acronyms: 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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

[11] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic $CO_2$ is set to zero.

## Waste indicators

| Results per functional or declared unit | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 1,06E+00 | 5,82E-03 | 2,29E-03 | ND | ND | ND | ND | ND | ND | ND | 5,17E-04 | 1,35E-04 | 1,17E-03 | 9,98E-04 | -8,08E-01 |
| Non-hazardous waste disposed | kg | 1,52E+01 | 2,00E-01 | 9,44E-02 | ND | ND | ND | ND | ND | ND | ND | 4,35E-02 | 2,52E-03 | 1,97E-02 | 1,68E-02 | -6,68E+00 |
| Radioactive waste disposed | kg | 5,12E-05 | 4,47E-06 | 1,54E-06 | ND | ND | ND | ND | ND | ND | ND | 1,53E-06 | 1,41E-08 | 1,74E-07 | 9,52E-08 | -1,63E-05 |

## Output flow indicators

| Results per functional or declared unit | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Material for recycling | kg | 4,21E-02 | 1,50E-04 | 3,68E-05 | ND | ND | ND | ND | ND | ND | ND | 3,65E-05 | 6,84E-07 | 7,66E-06 | 4,39E-04 | -9,94E-04 |
| Materials for energy recovery | kg | 4,49E-05 | 2,40E-07 | 4,93E-09 | ND | ND | ND | ND | ND | ND | ND | 3,05E-09 | 4,08E-09 | 1,48E-08 | 1,36E-08 | -9,11E-06 |
| Exported energy, electricity | MJ | 2,78E-02 | 2,88E-03 | 1,02E-03 | ND | ND | ND | ND | ND | ND | ND | 1,02E-03 | 5,41E-06 | 7,78E-05 | 3,92E-04 | -7,04E-03 |
| Exported energy, thermal | MJ | 8,99E-02 | 2,91E-03 | 2,10E-05 | ND | ND | ND | ND | ND | ND | ND | 1,40E-05 | 1,53E-05 | 1,99E-05 | 9,19E-05 | -1,22E-02 |

# 8 REFERENCES


a) General Programme Instructions of International EPD System.
b) PCR 2019:14. Construction Products. Version 2.0.1 (EN 15804 A2 aligned)
c) World Steel Organisation LCI Study 2020, https://worldsteel.org/wp-content/uploads/Life-cycle-inventory-LCI-study-2020-data-release.pdf
d) Umberto Software from IPoint Systems https://www.ipoint-systems.com/de/software/umberto/

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