Twin 5 Plus

Environmental Product Declaration

Twin 5 Plus, 3 phase, 2 x Type 2 socket

Geographical Availability: This product is available for sale in the European market

ALFEN
POWER TO ADAPT

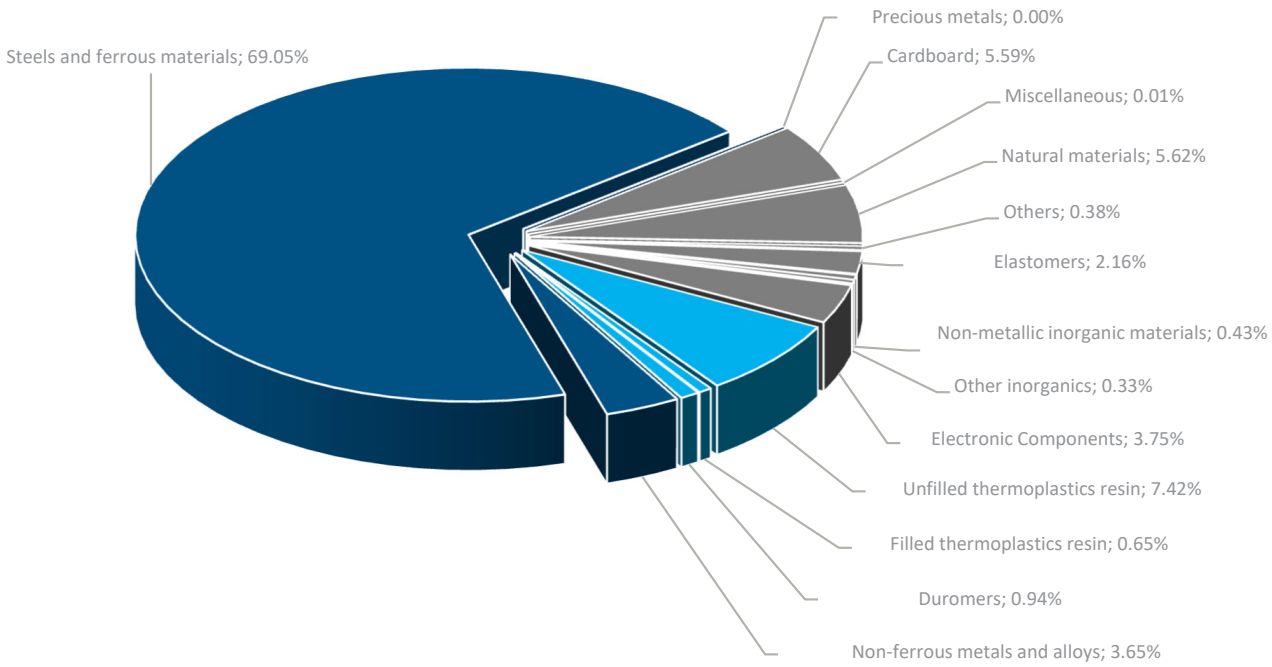
ACE-EPD-93445275OV1-EN

01
General Information

Reference Product	Twin 5 Plus CAM, 3 phase, 2 x Type 2 socket
Description of the product	Twin 5 Plus is an EV charger with smart solutions for business and public users. It runs in mode 3 and charging type is normal. It includes an MID-certified energy meter, RCDs, a 7" color HD LED display, a switch disconnector and 2 x type 2 socket, in accordance with IEC62196-2, ed. 2. The elements used for connecting the station to the mains grid and to the monitoring and communication network are excluded.
Functional Unit (FU)	supply 1 kWh to one vehicle at the charging point in accordance with the reference use scenario. The reference use scenario is described in the chapter 4. Environmental Impact.

02
Constituent Materials

Reference mass product	40.84 kg including the product, its packaging and installation elements supplied with the product.



Plastics	9.01 %	Metals	72.71 %	Other	18.28 %

03
Additional Environmental Information

Manufacturing	Twin 5 Plus is manufactured/assembled in our production facility in the Netherlands with an ISO 14001:2015-certified environmental management system. Details about conformity with ROHS and REACH regulated substances are available on Alfen's website.
End of life	Twin 5 Plus is covered by the WEEE directive (2012/19/EU). Therefore, it must be properly processed before recovery or recycling. **Selective Treatment** For this product, the printed circuit boards larger than 10 cm2 must be removed from the collected WEEE by the Authorized Treatment Facility (ATF). **Extended Producer Responsibility** This product is registered by Alfen in the applicable Extended Producer Responsibility scheme to which Alfen is obliged to pay fees in line with WEEE directive (2012/19/EU) for collection and recycling of end-of-life products placed on the European Market.

04
Environmental Impact

Reference Service lifetime (RL)	10 years
System boundary	The following LCA stages and modules have been modelled and declared: **Raw Material Supply (A1)** The supply of raw materials was modelled, including all significant components and assemblies such as electrical components, plastics, metals, packaging, and auxiliary materials. **Transport (A2)** Transport of materials and components from supplier manufacturing sites to the Alfen production facilities was modelled. Transport impacts were calculated based on tonnekilometres. **Manufacturing (A3)** Manufacturing processes at facilities located in the Netherlands were modeled, including energy use (with on-site solar electricity) and generation of manufacturing-related packaging waste. **Transport (A4)** Transport of the product to the installation site was modelled in accordance with PCR-ed4-EN-2021-09-06, section 2.5.3. **Installation (A5)** Installation activities were modeled, including treatment of product packaging waste. Energy use during installation was considered negligible. **Operational Energy Use (B6)** Operational energy use was modeled based on energy losses and intrinsic consumption during the reference use scenario for public-use AC charging stations. **Transport (C2)** Transport of the product to end-of-life treatment facilities was modelled in accordance with PCR-ed4-EN-2021-09-06, section 2.5.3. **Waste Processing (C3)** End-of-life waste processing was modeled, including manual depollution and recovery of economically valuable materials. Impacts from recycling and energy recovery processes were included. **Disposal (C4)** Final disposal of non-recoverable waste fractions was modeled using landfilling and incineration without energy recovery.

04
Environmental Impact

Cut-off criteria	All significant and major raw materials and energy flows were included. For unit processes with insufficient data, input flows contributing less than 1 % of the total mass or primary energy use were excluded. The cumulative contribution of all excluded inputs within each life cycle module does not exceed 5 % of the total mass and energy use. All exclusions have been documented, of which none apply for hazardous materials and substances.
Use scenario	Product category: PSR-0018-ed1.1-EN-2024 01 31 - 2.1.3.1. Public station on a base running on alternating current (AC) Number of charging sessions: 2 per day per simultaneous charging point, or 14,600 charges Effective charge time: 3 hours at 11 kW terminal reference power Average time plugged in per charging session = 3 hours Average amount of electricity supplied per charging session for a given charging point over the station's reference lifetime (RL) based on a vehicle consumption of 20kwh per 100 km: 481,800 kwh.
Geographical Representativeness	Europe
Technological Representativeness	Based on the specifications and technology described in the product's data sheet, detailing the charger's current design and functionality.
Energy model used	Manufacturing of components: Supplier-specific or region-specific electricity mixes are applied where available to reflect the actual energy context of upstream production. Assembly (final product): Photovoltaic Energy; Electricity Production; Low Voltage; NL Use: Electricity Mix; Production mix; Low voltage; NL Decarbonisation Consideration: The model incorporates the progressive decarbonisation of the electricity grid over a 10-year period. End of life: Electricity Mix; Production Mix, Low Voltage; EU27

All indicators below are scaled down to the supply of 1KWh of energy

Twin 5 Plus, 3 phase, 2x socket Type 2

Mandatory Environmental Impact Indicators	Unit	Total	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	Use (B1-B7)	End of life (C1-C4)
Climate change - total (GWP-t)[1]	kg CO2 eq	1.68E-03	7.67E-04	3.99E-05	9.37E-06	9.78E-04	8.64E-05
Climate change - fossil (GWP-f)	kg CO2 eq	1.81E-03	7.85E-04	3.99E-05	3.84E-07	9.04E-04	7.58E-05
Climate change - biogenic (GWP-b)[2]	kg CO2 eq	0.00E+00	-1.96E-05	0.00E+00	8.98E-06	0.00E+00	1.06E-05
Climate change - land use and LU change (GWP-luluc)	kg CO2 eq	3.46E-06	1.17E-06	1.94E-08	1.70E-10	2.26E-06	9.23E-09
Ozone depletion (ODP)	kg CFC11	eq 6.81E-11	3.80E-11	8.68E-13	4.36E-15	2.91E-11	1.43E-13
Acidification (AP)	mol H+ eq	1.02E-05	6.65E-06	1.30E-07	1.57E-09	3.32E-06	5.19E-08
Eutrophication, freshwater (EP-fw)	kg P eq	1.82E-07	1.50E-07	3.19E-10	6.14E-12	3.09E-08	2.27E-10
Eutrophication, marine (EP-m)	kg N eq	1.59E-06	9.63E-07	4.42E-08	6.44E-10	5.66E-07	1.97E-08
Eutrophication, terrestrial (EP-t)	mol N eq	1.77E-05	1.04E-05	4.73E-07	6.06E-09	6.63E-06	1.91E-07
Photochemical ozone formation (POCP)	kg NMVOCeq	5.61E-06	3.24E-06	1.94E-07	2.30E-09	2.12E-06	5.75E-08
Resource use, minerals and metals (ADP-mm)	kg Sb eq	1.45E-07	1.21E-07	1.28E-10	1.56E-12	2.38E-08	5.86E-11
Resource use, fossils (ADP-f)	MJ	5.50E-02	1.04E-02	5.66E-04	3.87E-06	4.39E-02	1.16E-04
Water use (WDP)	m3-world	eq 8.56E-04	3.57E-04	2.32E-06	3.64E-08	4.94E-04	2.83E-06

Twin 5 Plus, 3 phase, 2x socket Type 2

Mandatory Environmental Impact Indicators	Unit	Total	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	Use (B1-B7)	End of life (C1-C4)
Resource use indicators							
Energy, primary, renewable, excluding materials (PERE)	MJ	2.04E-04	1.21E-04	0.00E+00	0.00E+00	0.00E+00	8.31E-05
Energy, primary, renewable, materials (PERM)	MJ	4.68E-04	3.95E-04	0.00E+00	0.00E+00	0.00E+00	7.24E-05
Energy, primary, renewable (PERT)	MJ	8.46E-03	1.74E-03	8.78E-06	2.68E-07	6.70E-03	1.14E-05
Energy, primary, non-renewable, excluding materials (PENRE)	MJ	1.75E-03	1.75E-03	0.00E+00	0.00E+00	0.00E+00	7.62E-09
Energy, primary, non-renewable, materials (PENRM)	MJ	5.02E-05	5.02E-05	0.00E+00	0.00E+00	0.00E+00	7.13E-14
Energy, primary, non-renewable (PENRT)	MJ	5.65E-02	1.10E-02	6.01E-04	4.11E-06	4.49E-02	4.99E-05
Indicators describing the use of secondary materials, water, and energy resources							
Secondary material (SM)[3]	kg	kg	6.66E-06	6.66E-06	0.00E+00	0.00E+00	0.00E+00
Secondary fuel, renewable (RSF)	MJ	MJ	7.24E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Secondary fuel, non-renewable (NRSF)	MJ	MJ	1.06E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Water, fresh water use (FW)	m3	m3	2.48E-05	1.06E-05	7.52E-08	1.41E-05	1.41E-05
Waste category indicators							
Waste, hazardous (HWD)	kg	7,75E-02	1.57E-04	7.41E-05	3.60E-09	9.87E-08	9.87E-08
Waste, non hazardous (NHWD)	kg	1,10E-01	3.09E-04	1.03E-04	2.76E-05	1.04E-04	1.04E-04
Waste, radioactive (RWD)	kg	1,84E-04	1.11E-05	6.13E-08	1.84E-10	4.48E-07	4.48E-07
Output flow indicators							
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MFR)	kg	3.65E-03	6.35E-05	1.87E-06	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	3.29E-03	7.10E-06	3.76E-07	0.00E+00	0.00E+00	0.00E+00
Exported energy, electric (EEE)	MJ	8.64E-03	2.88E-05	9.15E-07	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal (EET)	MJ	2.14E-02	7.11E-05	2.26E-06	0.00E+00	0.00E+00	0.00E+00
Other indicators							
Biogenic carbon content of the product	kg of C	1.62E-06	1.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the packaging	kg of C	1.10E-06	1.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00

"Reading example: 1.0 E-03 = 1.0*103 = 0.001"

[1] Indicators have been adjusted based on the assumed linear reduction in electricity grid intensity from 2025 to 2050, aligning with the net-zero commitments of the countries where our products are sold.

[2] Indicator has been manually adjusted to reflect biogenic CO2-eq uptake from carbon sequestration and release from biomass, assumed to compensate to net zero emissions and methane assumed to be non-significant according to NEN-EN 15804+A2

[3] Indicator has been manually adjusted using supplier-specific data, only not third party verified and no generic database data. Packaging and internal production scrap are excluded.

Life cycle assessment was performed using the Ecochain LCA software, Ecoinvent version 3.11 database in compliance with ISO14040/ISO14044. The biogenic carbon content was calculated in accordance with EN15804+A2.

Data of issue	19/01/2026	
Drafting Rules	PEP-PCR-ed4-2021 09 06	
Supplemented by	PSR-0018-ed1.1-EN-2024 01 31	
Information and reference documents	www.pep-ecopassport.org	
Validity Period	5 years	
Independent Verification of the data and declaration conducted by an environmental specialist, in compliance with ISO 14025: 2010	■ Internal	☐ External

This PEP has been developed in alignment with the requirements of EN 50693:2019.

The elements of the present PEP cannot be compared with elements from another program.

This document is prepared in accordance with ISO 14025: 2010 « Environmental labels and declarations. Type III environmental declarations », based on self-declared and non-verified PEP.

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