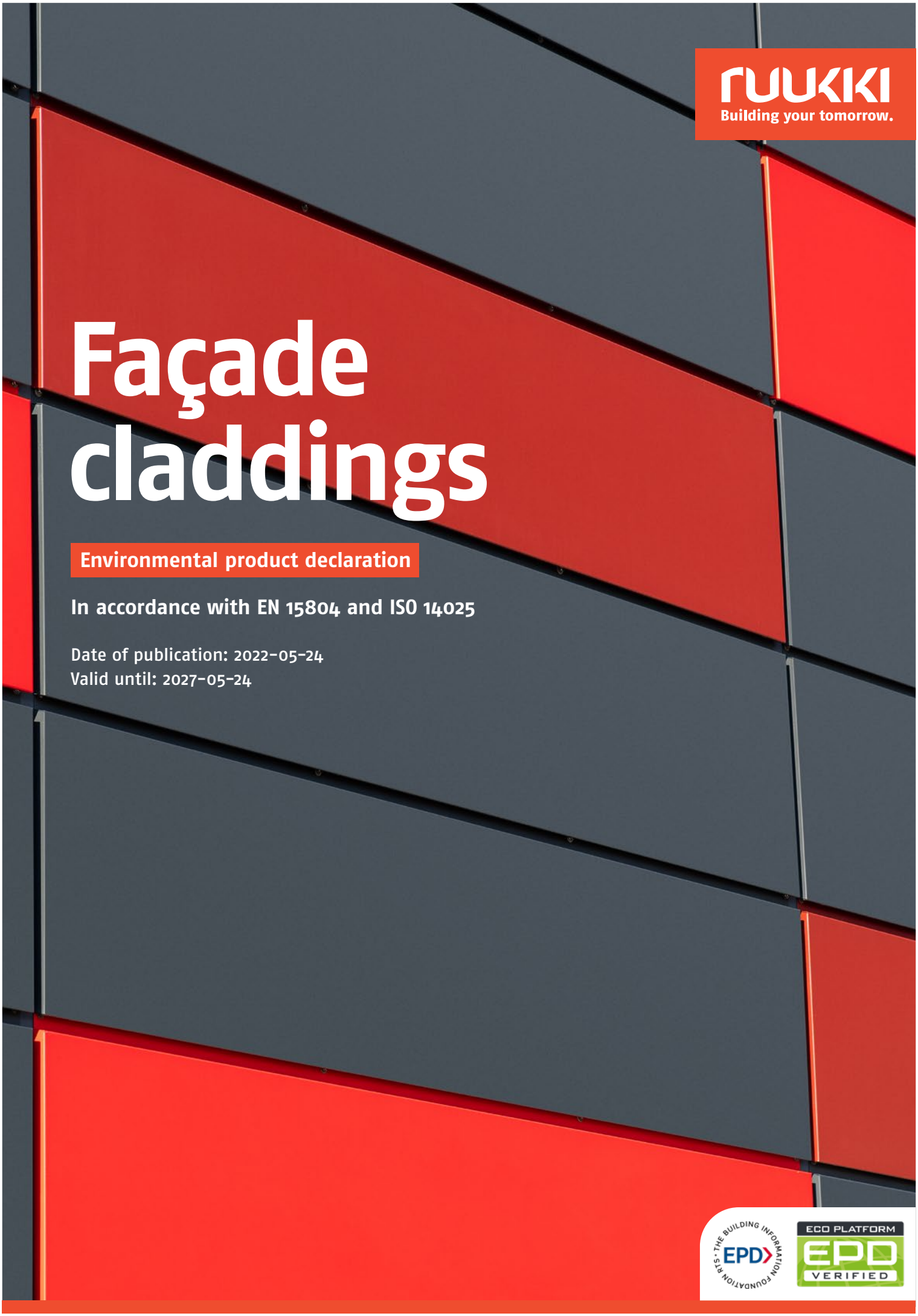

Ruukki
Building your tomorrow.

Façade claddings

Environmental product declaration

In accordance with EN 15804 and ISO 14025

Date of publication: 2022-05-24
Valid until: 2027-05-24

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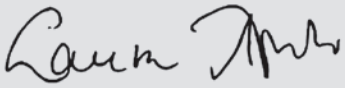
Jukka Seppänen
RTS EPD Committee Secretary



Laura Apilo
Managing Director

General information

Owner of the declaration	Ruukki Construction Oy, Panuntie 11 00620 Helsinki. www.ruukki.com Tuovi Palojärvi, tuovi.palojarvi@ruukki.com
Product	Façade cladding
Manufacturer	Ruukki Construction Oy, Panuntie 11 00620 Helsinki
Manufacturing sites	Pärnu (Estonia) and Vimpeli (Finland)
Product applications	Building facades
Declared unit	1 m^2 façade cladding
LCA performed by	Heini Koutonen, Pia Kautonen Ramboll Finland Oy, Itsehallintokuja 3, 02601 Espoo. www.ramboll.fi
Verified by	23.5.2022
Product category rules	RTS PCR (English version 14.6.2018)
Program operator, publisher	Building Information Foundation RTS, Malminkatu 16 A 00100 Helsinki. https://cer.rts.fi/en/rts-epd/

According to supplier notifications, none of the product components contains substances restricted under REACH or included on the candidate list of Substances of Very High Concern (SVHC).

The declaration has been prepared in accordance with EN 15804:2012+A1:2013 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version 14.6.2018). This declaration covers the life cycle stages from cradle to gate with options.

The EPD of construction products may not be comparable if they do not comply with EN 15804 and seen in a building context.

Verified according to the requirements of EN 15804+A1 (product group rules)
Independent verification of the declaration, according to EN ISO 14025:2010

☒ External ☐ Internal

Third party verifier:

Tytti Bruce-Hyrkäs, Granlund Oy
Verified 2.4.2020

Anni Viitala, Granlund Oy
(Assistant verifier)

Included products and materials

This environmental product declaration covers the environmental impacts of façade cladding products manufactured by Ruukki in Pärnu (Estonia) and Vimpeli (Finland). The EPD contains several different cladding products:

LIBERTA CASSETTES

- Liberta Original 102 & 102 Grande
- Liberta Elegant 500 & 500 Grande, Liberta Elegant 550
- Liberta Cor-Ten 600, 700 & 800
- Liberta Glass

Liberta cassettes are folded on all sides to offer maximum rigidity for solid metal cassettes with concealed or visible fixing solutions.

Liberta cassettes are available in the following materials:

- Steel: Colour-coated & Cor-Ten®
- Aluminium: Colour coated PVDF, powder-coated, anodized & raw (un-treated)
- Titanium zinc (Classic or Pre-patinated)
- Stainless steel
- Copper (Nordic Standard or Nordic Green, Blue or Brown)
- Brass
- Bronze (Nordic Bronze or Nordic Royal)
- Glass

LAMELLA PROFILES

- Lamella Groove 10, 20 & 30
- Lamella Sharp 40 & 45
- Lamella Lap 60
- Lamella ertical 70
- Lamella Straight 100
- Lamella Cor-Ten 20 & 30

Claddig lamellas are narrower profiles that are folded along two long edges and divide facade surfaces one-directionally, be it vertically, horizontally or at an angle.
Lamella profiles are available in the following materials:

- Steel: Colour-coated & Cor-Ten®
- Aluminium: Colour coated PVDF, powder-coated, anodized & raw (un-treated)
- Titanium zinc (Classic or Pre-patinated)
- Stainless steel
- Copper (Nordic Standard or Nordic Green, Blue or Brown)
- Brass
- Bronze (Nordic Bronze or Nordic Royal)

DESIGN PROFILES

- Design Venice 10, Tokyo S18, Rome S34 & S S34, Paris S55

Design profiles create a continuous, structured facade surface. With various profile options the scale and attenuation of the surface structure can be matched to meet the architectural needs of the facade in question.

Design profiles are available in the following materials:

- Steel: Colour-coated & Cor-Ten®
- Aluminium: Colour coated PVDF, powder-coated, anodized & raw (un-treated)
- Titanium zinc (Clasic or Pre-patinated)
- Stainles steel
- Copper (Nordic Standard or Nordic Green, Blue or Brown)
- Brass

PRIMO CASSETTES

- Primo Plana 10
- Primo Skyline 100, 150 & 1000

Primo cassettes are aimed for premium façade segment, e.g. hotels and offices in urban environment. Cassettes are folded on all sides and are available with both concealed and visible fixing solutions. Moreover, Primo cassettes are available in exceptionally big product sizes with excellent surface flatness.

Primo cassettes are available in the following materials:

- Aluminium composite

BESPOKE PRODUCTS

- Bespoke (taylor-made products)

On large projects, which are outside the possibilities of our standard products, the cladding solution can be designed in co-operation to meet the needs of that specific project.

Bespoke is a tailor-made product, which is made from the same raw materials as the standard Liberta and Lamella products but can be made in any size. The LCIA results for Bespoke products were formed with a range of variation in terms of product thickness (min. 0.5 mm – max. 2.0 mm) depending on the material. The results for Bespoke products are presented in the EPD in the same tables with the Liberta or Lamella product of the similar size as the studied Bespoke.

Bespoke products are available in the following materials:

- Steel: Colour-coated & Cor-Ten®
- Aluminium: Colour coated PVDF, powder-coated, anodized & raw (un-treated)
- Titanium zinc (Classic or Pre-patinated)
- Stainless steel
- Copper (Nordic Standard or Nordic Green, Blue or Brown)
- Brass
- Bronze (Nordic Bronze or Nordic Royal)

Product

APPLICATION

Façade claddings are used on various building types such as offices, hotels, shopping & logistic centres.

Most of our façade cladding products are also available with perforation, which can be symmetrical or even project specific.

In addition to pre-defined façade cladding portfolio, we are also able to offer tailor-made, Bespoke products. Bespoke products are made of the same raw materials as the standard products.

Construction products can positively affect the overall assessment of buildings for LEED and BREEAM certification. For more information, visit at www.ruukki.com.

TECHNICAL INFORMATION

Facade cladding products are made in conformity with EN 14782:2006 "Self-supporting metal sheet for roofing, external cladding and internal lining - Product specification and requirement.

Facade cladding products´ technical information as well as product stage (A1-A3) Global warming potential value is presented in table 1. Accessories - support studs and brackets, adjustable fasteners, starting fillets, flashings and joint pieces – are usually produced from same raw material as the main product. Detailed technical information on products can be found on the Ruukki website at www.ruukki.com.

By affixing CE marking to a product, the manufacturer indicates that the product conforms to all relevant legislative requirements, in particular to health, safety and environmental protection requirements.

Figure 1. Liberta Eleganta 500 cassette

Table 1. Technical information and global warming potential, GWP, for façade cladding products

Raw material(s)	Product / product group	Raw material thickness (mm)	Weight (kg/m²)	Product stage A1–A3 Global warming potential, GWP (kg CO2 equiv./m²)
Steel – Colour coated Hiarc or powder coated	Liberta cassettes & Bespoke products	1.20	11.4	35.5
	Lamella profiles & Bespoke products	1.20	9.7	30.2
	Design profiles	0.60	5.9 / 6.7	16.6 / 18.8
Aluminium – Colour coated PVDF	Liberta cassettes & Bespoke products	1.50 / 2.00	4.9 / 6.5	32.7 / 43.3
	Lamella profiles & Bespoke products	1.50 / 2.00	4.2 / 5.6	28.0 / 37.3
	Design profiles	0.70	2.4 / 2.7	4.6 / 5.1
Aluminium – Powder coated	Liberta cassettes & Bespoke products	1.50 / 2.00	4.9 / 6.5	48.6 / 64.5
	Lamella profiles & Bespoke products	1.50 / 2.00	4.2 / 5.6	41.7 / 55.6
	Design profiles	0.70	2.4 / 2.7	21.5 / 23.7
Aluminium – raw (un-treated)	Liberta cassettes & Bespoke products	1.50 / 2.00	4.9 / 6.5	48.8 / 64.7
	Lamella profiles & Bespoke products	1.50 / 2.00	4.2 / 5.6	41.8 / 55.7
	Design profiles	0.70	2.4 / 2.7	21.6 / 24.3
Aluminium – anodized	Liberta cassettes & Bespoke products	1.50 / 2.00	4.9 / 6.5	79.9 / 106.1
	Lamella profiles & Bespoke products	1.50 / 2.00	4.2 / 5.6	68.5 / 91.4
	Design profiles	0.70	2.4 / 2.7	35.3 / 39.8
Titanium zinc – Classic	Liberta cassettes & Bespoke products	1.0	8.7	32.2
	Lamella profiles & Bespoke products	1.0	7.4	27.4
	Design profiles	0.70	6.3 / 7.1	21.0 / 23.7
Titanium zinc – Pre-patinated	Liberta cassettes & Bespoke products	1.0	8.7	41.3
	Lamella profiles & Bespoke products	1.0	7.4	35.1
	Design profiles	0.70	6.3 / 7.1	27.0 / 30.4
Stainless steel	Liberta cassettes & Bespoke products	1.0	9.5	38.0
	Lamella profiles & Bespoke products	1.0	8.2	32.8
	Design profiles	0.50	4.9 / 5.6	17.7 / 20.2
Cor-Ten® steel	Liberta cassettes & Bespoke products	1.50	13.6	38.1
	Lamella profiles & Bespoke products	1.50	12.4	34.7
	Design profiles	0.70	7.0 / 7.9	17.7 / 20.0
Copper – Nordic Standard	Liberta cassettes & Bespoke products	1.0 / 1.50	10.8 / 16.2	7.74 / 11.6
	Lamella profiles & Bespoke products	1.0 / 1.50	9.3 / 13.9	6.67 / 9.97
	Design profiles	0.60	6.7 / 7.6	4.34 / 4.92
Copper – Nordic Green, Blue or Brown	Liberta cassettes & Bespoke products	1.0 / 1.50	10.8 / 16.2	8.49 / 12.7
	Lamella profiles & Bespoke products	1.0 / 1.50	9.3 / 13.9	7.31/ 10.9
	Design profiles	0.60	6.7 / 7.6	4.75 / 5.39
Brass – Nordic Brass	Liberta cassettes & Bespoke products	1.0 / 1.50	10.5 / 15.7	19.0 / 28.5
	Lamella profiles & Bespoke products	1.0 / 1.50	9.0 / 13.5	16.3 / 24.5
	Design profiles	0.60	6.5 / 7.4	10.6 / 12.1
Bronze – Nordic Bronze	Liberta cassettes & Bespoke products	1.0 / 1.50	10.5 / 15.7	10.9 / 16.3
	Lamella profiles & Bespoke products	1.0 / 1.50	9.0 / 13.5	9.32 / 14.0
Bronze – Nordic Royal	Liberta cassettes & Bespoke products	1.0 / 1.50	10.5 / 15.7	25.2 / 37.7
	Lamella profiles & Bespoke products	1.0 / 1.50	9.0 / 13.5	21.6 / 32.4
Aluminium composite	Primo Plana 10 FR / A2	4.0	7.8 / 8.3	51.2 / 28.5
	Primo Skyline 100 and 150 FR / A2	4.0	9.0 / 9.6	51.1 / 33.0
	Primo Skyline 1000 cassettes	14.0	5.2	63.4
Colour-coated steel, reverse side mineral wool 18mm	Liberta Grande cassettes	1.20	13.7	31.7
Colour-coated steel, glass module 6mm	Liberta Glass cassettes	1.20	25.2	140

Product materials

COLOUR-COATED STEEL

Façade cladding products made of steel are available in wide range of colours. The most common coating type is GreenCoat Hiarc, but also powder painting is available.

COR-TEN® STEEL

Cor-Ten is a solid steel that has a natural, rugged patina that ages continuously in a unique way. Cor-Ten is almost pure steel, alloyed only slightly to form a protective layer of patina when exposed to weather. The patina layer is initially reddish brown in colour, becoming darker in tone over the course of time.

COLOUR-COATED ALUMINIUM

Façade cladding products made of aluminium are available in wide range of colours. The most common coating type is PVDF, but also powder painting is available.

ANODIZED ALUMINIUM

Anodizing in an electrolytic passivation process, which increases the natural oxide layer thickness on Aluminium surface. This increases the resistance against corrosion and wear compared to non-treated Aluminium. Anodized Aluminiums are available in range of colours. Due to nature of anodizing process, colour and shade variances are normal.

RAW ALUMINIUM (UN-TREATED)

Raw aluminium in outdoor conditions will create a thin oxide layer, which changes appearance over the time.

TITANIUM ZINC

Titanium zinc is titanium alloyed zinc and the sheet is homogenous metal. Patinated titanium zinc has an aesthetically soft, matt surface that gives a very natural impression. The patina changes very little over time. Titanium zinc is available in following qualities: Classic Bright-Rolled, Pre-patinated Blue-grey and Pre-patinated Graphite-grey.

STAINLESS STEEL

Stainless steel maintains its shine and appearance very well and, as a solid material it is very easy to maintain. Stainless steel is an ideal material for highly corrosive environments.

COPPER, BRASS & BRONZE

Patina forming on the wall and various pre-patina options give these solid metals a live, genuine surface for very long time spans. The colour of naturally formed patina for copper, brass and bronze depends on environmental conditions, typically resulting in dark brownish matt surface. Each alloy will attain different hue. Copper is available in following qualities: Nordic Standard, Nordic Green and Blue and Nordic Brown. Brass and bronze is available in following qualities: Nordic Brass, Nordic Bronze and Nordic Royal.

ALUMINIUM COMPOSITE

Material consists of two aluminium facings bonded into inner core. Outer aluminium facing is PVDF or HQPE painted with primer and colour coat. Aluminium composite materials are available in three alternative core materials: Aluminium honeycomb core and solid FR and A2 cores.

GLASS

Glass creates a high gloss and durable flat surface for the façade and it's available in vibrant colours and in different sizes. Glass is tempered clear float glass with coloured double roll paint. Tempered glass is a type of safety glass with higher strength compared to normal glass. When tempered glass is broken, it crumbles into small granular chunks instead of splintering into jagged shards as normal glass does. The granular chunks are less likely to cause injuries.

INFORMATION ON RELEASE OF DANGEROUS SUBSTANCES

Soil and water impacts during the product use phase have not been studied, since harmonized testing methods of European product standards are not available. Indoor emission impacts of the product is not relevant since façade cladding product area of use is outdoors.

Product composition

Ruukki actively tracks and anticipates future changes in environmental, safety and chemical legislation and complies with valid EU chemical regulations, such as REACH (1907/2006/EC) and CLP (1272/2008/EC). By monitoring the list of Substances of Very High Concern (SVHC) and other legislative requirements, we ensure that products meet legal and customer requirements. According to supplier notifications, none of the product components contains substances restricted under REACH or included on the candidate list (SVHC). Tables 2–4 show product composition of façade cladding products.

Table 2. Product composition of Liberta cassettes, Lamella profiles and Design profiles

Product		**Liberta Original 102 Liberta Elegant 500 & 550 Liberta Cor-Ten 600, 700 & 800 Lamella Groove 10, 20 & 30 Lamella Sharp 40 & 45 Lamella Lap 60 Lamella Vertical 70 Lamella Straight 100 Lamella Cor-Ten 20 & 30**		**Design Venice 10 Design Tokyo S18 Design Rome S34 & S S34 Design Paris S55**	
Raw material	**Raw material origin**	**Raw material (w-%)**	**Surface treatment (w-%)**	**Raw material (w-%)**	**Surface treatment (w-%)**
Steel, colour-coated (Hiarc)	EU	≥ 99.3	≤ 0.67	≥ 98.9	≤ 1.1
Steel, powder painted	EU	≥ 97.6	≤ 2.35	≥ 96.13	≤ 3.87
Aluminium, colour-coated (PVDF)	EU	≥ 98.6	≤ 1.33	≥ 97.77	≤ 2.33
Aluminium, powder painted	EU	≥ 95.0	≤ 4.98	≥ 91.29	≤ 8.71
Aluminium, anodized	EU	≥ 97.6	≤ 2.4	≥ 97.6	≤ 2.4
Aluminium, raw (un-treated)	EU	100	–	100	–
Titanium zinc (Classic, Pre-patinated)	EU	100	–	100	–
Copper (Nordic Standard, Nordic Green, Blue and Brown)	EU	100	–	100	–
Brass (Nordic Brass)	EU	100	–	100	–
Bronze (Nordic Bronze, Nordic Royal)	EU	100	–	100	–
Stainless steel	EU	100	–	100	–
Cor-Ten® steel	EU	100	–	100	–

Table 3. Product composition of Liberta Original and Elegant Grande and Liberta Glass cassettes

Product		Liberta Original 102 Grande Liberta Elegant 500 Grande	Liberta Glass
Raw material	**Raw material origin**	**Raw material (w-%)**	**Surface treatment (w-%)**
Colour-coated steel sheet	EU	75.5	42.4
Mineral wool	EU	19.7	-
Glass	EU	-	56.1
Adhesive	EU	4.7	2.6

Table 4. Product composition of Primo Plana 10 and Primo Skyline 100, 150 and 1000 cassettes

Product		Primo Plana 10 FR / A2	Primo Skyline 100 and 150	Primo Skyline 1000
Raw material	**Raw material origin**	**Raw material (w-%)**	**Raw material (w-%)**	**Raw material (w-%)**
Colour coated aluminium sheet	EU	33.9 / 31.2	33.9	77.8
Core FR	EU	64.1	19.2	-
Core A2	EU	66.2	44.9	-
Core aluminium honeycomp	EU	-	-	14.4
Adhesive	EU	2.1 / 2.0	2.1	7.8

Product life cycle

PRODUCTION

Façade cladding products that conform to this environmental product declaration are manufactured at Ruukki's plants in Pärnu (Estonia) and Vimpeli (Finland). The choice of production site depends on product type. Prefabrication of façade cladding products results in minimum waste at the construction site. Production processes of façade cladding products are described in Figure 2.

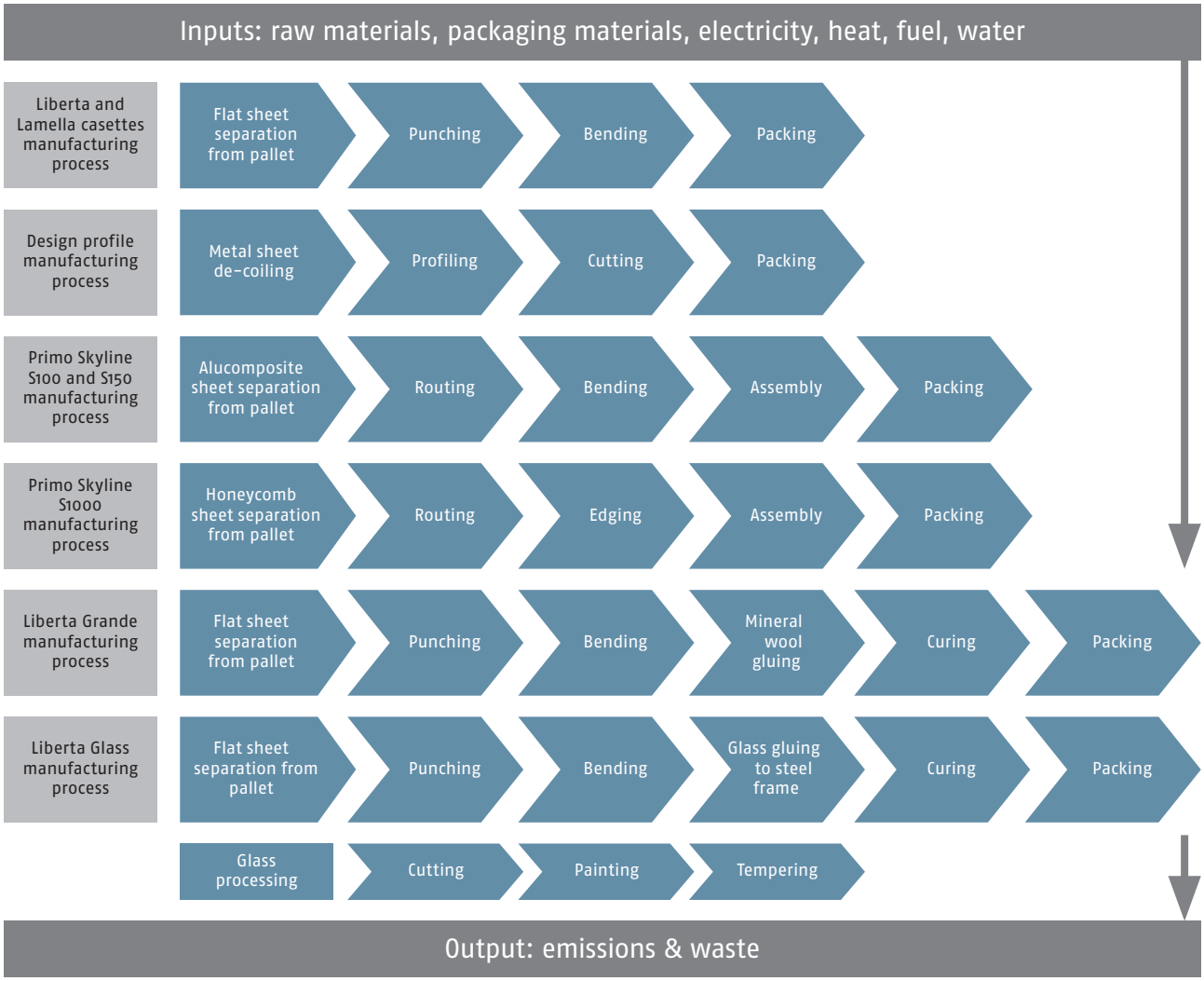


Figure 2. The production processes of façade cladding products

Information of energy in manufacturing phase (A3) of façade cladding products is described in Table 5.

Table 5. Energy in manufacturing (A3) of façade cladding products

Parameter	Value	Data quality
A3 Electricity information and CO_2 emissions kg CO_2 equiv./kWh for Estonian production	1.01	Electricity grid mix in Estonia 2017
A3 Heating information and CO_2 emissions kg CO_2 equiv./kWh for Estonian production	0.251	Thermal energy from biomass (solid), Estonia, 2017 Thermal energy from natural gas, EU-28, 2017 Thermal energy from peat, EU-28, 2017

PACKAGING

The products are wrapped to protect them during handling and transport. Packaging can consist of a wooden pallet, plastic film, plastic straps, stretch wrap, metal bands, plank wood and cardboard. All packaging materials are recyclable as material or alternatively utilised as waste to energy (WtE). Packaging materials are sorted at construction sites according to local regulations and customer preferences.

TRANSPORTATION

Raw materials are mostly transported to production sites by road. Finished products are transported by truck and ship. Ruukki's logistics unit is responsible for most of the transportation of raw materials and products. Logistics aims to optimise transport, maximise payloads and combine transport as efficiently as possible.

Environmental impacts for transport of finished product to the building site (A4), have been calculated based on the weighted average of the market shares. Table 6 describes parameters for the A4 transport scenario.

Table 6. Technical information on transport (A4) from production to the building site

Parameter	Value
Fuel type and consumption of vehicle used for transport	Truck: diesel, maximum load capacity 34 t. Specific transport emissions 0.064 kg C02 equiv. / tn x km Ship: LFO, maximum load capacity 10 000 dwt. Specific transport emissions 0.03 kg C02 equiv. / tn x km
Distance (km)	Average transport distance 741 km
Capacity utilization (%)	85% for truck and 70% for ship
Bulk density of transported products (kg/m3)	Bulk density varies depending on product type and thickness
Volume capacity utilization factor	1

END-OF-LIFE RECYCLING AND WASTE PROCESSING

No hazardous waste is formed from Ruukki façade cladding products. The European recycling classification codes for Ruukki's façade cladding products after use are as follows:

- for steel parts, 17 04 05 (iron and steel)
- for copper, brass and bronze parts, 17 04 01
- for aluminium parts, 17 04 02
- for other metal parts, 17 04 07 (titanium zinc)
- for glass parts, 17 02 02
- for insulation materials, 17 06 04 (excluding insulation materials mentioned in 17 06 01 and 17 06 03).

STEEL, ALUMINIUM, TITANIUM ZINC, STAINLESS STEEL, COPPER, BRASS AND BRONZE

Waste materials from construction, repair and demolition are sorted and metal scrap is cycled back to the industry by the scrap trade. Metals are fully recyclable. Metal scrap is valuable secondary material in the production of new raw material. The collection rate for metals in construction sector are high, from 95% to 99% depending on material. Prefabricated metal structures can also be re-used. Tables 7.1–7.4 describe the scenarios for the end-of-life processing for Liberta cassettes, lamella and design profiles and Bespoke taylor made products.

Table 7.1. The end-of-life process description for Liberta cassettes and similar Bespoke taylor made products. Figures per m² of product.

Liberta cassettes and Bespoke taylor made products		Steel, colour-coated	Aluminium, colour-coated, anodized or un-treated	Titanium zinc	Copper		Brass and bronze		Stainless steel	Cor-Ten® steel
Process flow	**Unit**	1.20 mm	1.50 / 2.00 mm	1.0 mm	1.0 mm	1.50 mm	1.0 mm	1.50 mm	1.0 mm	1.50 mm
Collection process specified by type (per m² of product)	kg collected separately	11.4 kg	4.9 / 6.5 kg	8.7 kg	10.8 kg	16.2 kg	10.5 kg	15.7 kg	9.5 kg	13.6 kg
	kg collected with mixed construction waste	–	–	–	–	–	–	–	–	–
Recovery system specified by type (per m² of product)	kg for reuse	–	–	–	–	–	–	–	–	–
	kg for recycling	10.8 kg	4.7 / 6.2 kg	8.4 kg	10.7 kg	16.0 kg	10.4 kg	15.5 kg	9.0 kg	12.9 kg
	kg for energy recovery	–	–	–	–	–	–	–	–	–
Disposal specified by type (per m² of product)	kg material for final deposition	0.57 kg	0.24 / 0.32 kg	0.35 kg	0.11 kg	0.16 kg	0.11 kg	0.16 kg	0.48 kg	0.68 kg
Assumptions for scenario development	units as appropriate	Waste materials are transported 150 km by truck to recycling facility with a truck capacity utilization of 45%								

Table 7.2. The end-of-life process description for Lamella profiles and similar Bespoke taylor made products. Figures per m² of product.

Lamella profiles and Bespoke taylor made products		Steel, colour-coated	Aluminium, colour-coated, anodized or un-treated	Titanium zinc	Copper		Brass and bronze		Stainless steel	Cor-Ten® steel
Process flow	**Unit**	1.20 mm	1.50 / 2.00 mm	1.0 mm	1.0 mm	1.50 mm	1.0 mm	1.50 mm	1.0 mm	1.50 mm
Collection process specified by type (per m² of product)	kg collected separately	9.7 kg	4.2 / 5.6 kg	7.4 kg	9.3 kg	13.9 kg	9.0 kg	13.5 kg	8.2 kg	12.4 kg
	kg collected with mixed construction waste	–	–	–	–	–	–	–	–	–
Recovery system specified by type (per m² of product)	kg for reuse	–	–	–	–	–	–	–	–	–
	kg for recycling	9.2 kg	4.0 / 5.3 kg	7.1 kg	9.2 kg	13.8 kg	8.9 kg	13.4 kg	7.8 kg	11.8 kg
	kg for energy recovery	–	–	–	–	–	–	–	–	–
Disposal specified by type (per m² of product)	kg material for final deposition	0.49 kg	0.21 / 0.28 kg	0.30 kg	0.09 kg	0.14 kg	0.09 kg	0.14 kg	0.41 kg	0.62 kg
Assumptions for scenario development	units as appropriate	Waste materials are transported 150 km by truck to recycling facility with a truck capacity utilization of 45%								

Table 7.3. The end-of-life process description for design profiles Venice, Tokyo, Rome. Figures per m² of product.

Design profiles Venice, Tokyo, Rome		Steel, colour-coated	Aluminium, colour-coated, anodized or un-treated	Titanium zinc	Copper	Brass	Stainless steel	Cor-Ten® steel
Process flow	**Unit**	0.60 mm	0.70 mm	0.70 mm	0.60 mm	0.50 mm	1.0 mm	1.50 mm
Collection process specified by type (per m² of product)	kg collected separately	5.9 kg	2.4 kg	6.3 kg	6.7 kg	6.5 kg	4.9 kg	7.0 kg
	kg collected with mixed construction waste	–	–	–	–	–	–	–
Recovery system specified by type (per m² of product)	kg for reuse	–	–	–	–	–	–	–
	kg for recycling	5.6 kg	2.3 kg	6.1 kg	6.6 kg	6.4 kg	4.7 kg	6.6 kg
	kg for energy recovery	–	–	–	–	–	–	–
Disposal specified by type (per m² of product)	kg material for final deposition	0.30 kg	0.12 kg	0.25 kg	0.07 kg	0.07 kg	0.24 kg	0.35 kg
Assumptions for scenario development	units as appropriate	Waste materials are transported 150 km by truck to recycling facility with a truck capacity utilization of 45%						

Table 7.4. The end-of-life process description for design profile Paris. Figures per m² of product.

Design profiles Paris		Steel, colour-coated	Aluminium, colour-coated, anodized or un-treated	Titanium zinc	Copper	Brass	Stainless steel	Cor-Ten® steel
Process flow	**Unit**	0.60 mm	0.70 mm	0.70 mm	0.60 mm	0.50 mm	1.0 mm	1.50 mm
Collection process specified by type (per m² of product)	kg collected separately	6.7 kg	2.7 kg	7.1 kg	7.6 kg	7.4 kg	5.6 kg	7.9 kg
	kg collected with mixed construction waste	–	–	–	–	–	–	–
Recovery system specified by type (per m² of product)	kg for reuse	–	–	–	–	–	–	–
	kg for recycling	6.4 kg	2.6 kg	6.8 kg	7.5 kg	7.3 kg	5.3 kg	7.5 kg
	kg for energy recovery	–	–	–	–	–	–	–
Disposal specified by type (per m² of product)	kg material for final deposition	0.33 kg	0.14 kg	0.28 kg	0.08 kg	0.07 kg	0.28 kg	0.40 kg
Assumptions for scenario development	units as appropriate	Waste materials are transported 150 km by truck to recycling facility with a truck capacity utilization of 45%						

PRIMO PLANA, PRIMO SKYLINE, LIBERTA GRANDE AND LIBERTA GLASS CASSETTES

Primo Plana, Primo Skyline, Liberta Grande and Liberta Glass cassettes can be dismantled and product components can be recycled back to new material production. It is recommended that the products are sent to reclamation facility for components separation and recovery. Primo Skyline aluminium facings are separated from insulation core that can be incinerated for energy recovery. Liberta Grande and Glass cassettes steel frame is separated from mineral wool or glass material. The clean mineral wool can be granulated and used in the manufacture of mineral blowing wool and, subject to certain restrictions, in the production of insulation wool, for example. Mineral wool is non-combustible and unsuitable for composting, but otherwise its disposal is not restricted. Glass can be crushed and utilized as raw material in many applications, such as glass wool or flat glass production.

Undamaged cassettes can also be reused. Table 7.5 describes the scenarios for the end-of-life processing for Primo Plana, Primo Skyline, Liberta Grande and Liberta Glass cassettes.

Table 7.5. The end-of-life process description for aluminium composite Primo Plana, Primo Skyline and Liberta Grande and Glass cassettes. Figures per m² of product.

Product Process flow	Unit	Primo Plana 10 (FR / A2)	Primo Skyline 100 and 150 (FR / A2)	Primo Skyline 1000	Liberta Original and Elegant Grande	Liberta Glass
Collection process specified by type (per m² of product)	kg collected separately	9.0 / 8.3 kg	9.0 / 9.6 kg	5.2 kg	13.7 kg	25.2 kg
	kg collected with mixed construction waste	-	-	-	-	-
Recovery system specified by type (per m² of product)	kg for reuse	-	-	-	-	-
	kg for recycling	3.0 / 2.6 kg	3.0 / 3.1 kg	4.9 kg	10.2 kg	10.3 kg
	kg for energy recovery	6.0 / 5.7 kg	5.8 / 6.5 kg	-	-	-
Disposal specified by type (per m² of product)	kg material for final deposition	0.15 / 0.13 kg	0.18 / 0.15 kg	0.26 kg	3.4 kg	14.9 kg
Assumptions for scenario development	units as appropriate	Waste cassettes are transported 150 km by truck to recycling facility with capacity utilization of 45%				

LCA CALCULATION INFORMATION

This environmental product declaration covers the following life cycle stages: A1 Raw material supply, A2 Transport, A3 Manufacturing and A4 Transportation of the product to construction site and end-of-life modules, C1 Deconstruction, C2 Transport end-of-life, C3 Waste processing and C4 Disposal, as well as module D benefits and loads beyond the system boundary; see Figure 4. The benefits of recycling in module D are calculated based on a recycling rate of 95% for steel and aluminium, 96% for titanium zinc and 99% for copper, brass and bronze.

Accessories – support studs and brackets, adjustable fasteners, starting fillets, flashings and joint pieces – that are produced from same material as the main product are not included in the LCA calculation. Screws, sealants and sockets used in installation phase, A5, are not included in the facade cladding products LCA calculation.

System boundaries (X=included, MND=Module not declared, MNR=Module not relevant)

Product stage			Construc-tion stage	Use stage								End of life stage				Beyond the life cycle		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	MNR	MNR	X
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Mandatory modules
Mandatory as per the RTS PCR section 6.2.1 rules and terms
Optional modules based on scenarios

Figure 4. System boundaries of life cycle assessment (LCA)

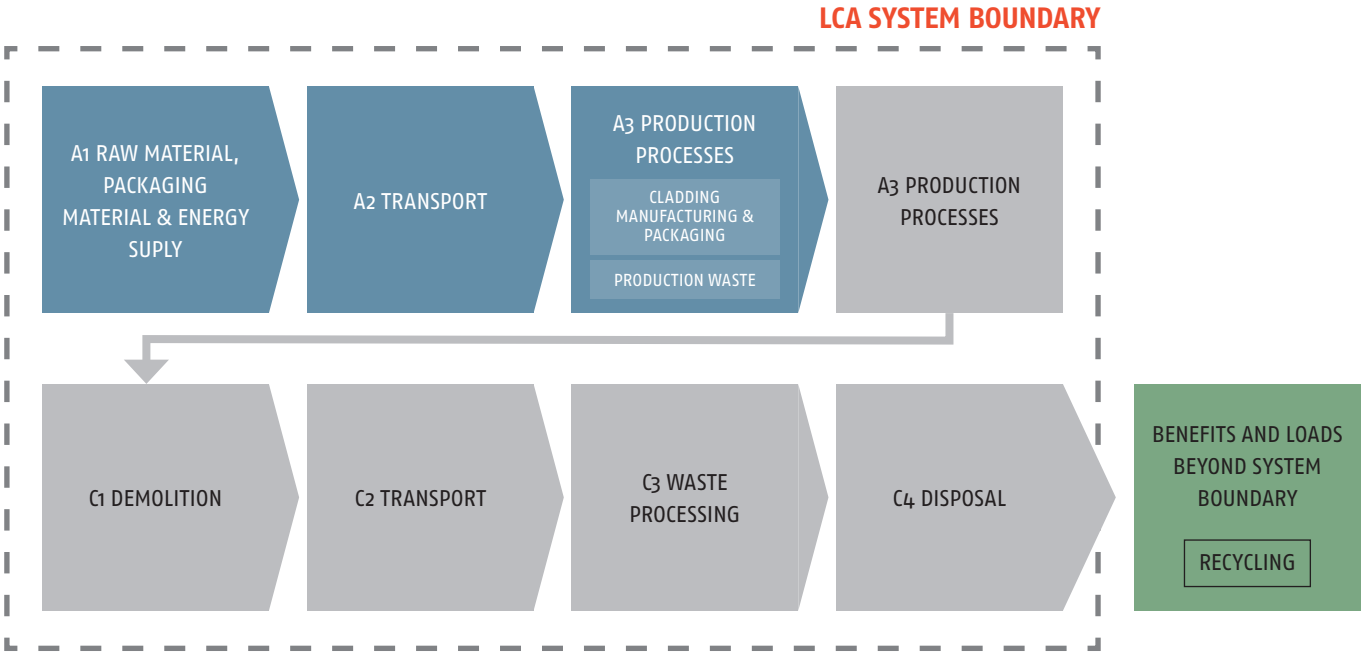


Figure 5 Flow diagram describing the system boundaries.

DATA QUALITY

Life cycle inventory data has been collected from the Pärnu production sites from 2019–2020 production as a 12 month period. Vimpeli profile production conditions have been considered equal to Pärnu production[1]. Steel made at the SSAB steel mill in Raahe (Finland) is used in façade cladding products. For other raw materials, producer-specific data have been used when available. Generic data is from Gabi 9 software. No data is more than 10 years old. Gabi 9 software was used to calculate the environmental impact categories.

CUT-OFF CRITERIA

Life cycle inventory data for a minimum of 99% of total material and energy input flows have been included in the life cycle analysis.

ALLOCATION

Physical allocation was applied for different types of façade cladding products based on yearly production volumes (kg).

[1] About 25 % of the produced design profiles (Design profile Tokyo) are roll formed in the Vimpeli manufacturing site. All other manufacturing activities are done in Pärnu. The electricity used in Vimpeli production facilities are Finnish average electricity and the heating is based on light fuel oil. The Vimpeli production process also involves forklifts using LPG fuel. Due to the small share of production in Vimpeli, all manufacturing (A3) was assessed using the data concerning Pärnu facilities. The environmental impacts of Vimpeli production site would only have a minor positive effect on the results (approx. 1 % according to sensitivity analysis) due to the less emission intensive energy profile and a small production proportion of the whole claddings production.

Environmental profile

All environmental impact values apply to 1 m2 façade cladding product. Tables 8–14 show the environmental indicators based on the life cycle assessment of facade cladding product of the specific raw material:

- Tables 8.1–8.18 for Liberta Original and Elegant cassettes and Bespoke products with specified raw material and thickness
- Table 9 for Liberta Original Grande and Liberta Elegant Grande cassettes
- Table 10 for Liberta Glass cassette
- Tables 11.1–11.18 for Lamella Groove, Sharp, Lap, Vertical and Straight profiles and Bespoke products with specified raw material and thickness
- Tables 12.1–12.11 for Design profiles Venice, Tokyo and Rome with specified raw material and thickness
- Tables 13.1–13.11 for Design profile Paris with specified raw material and thickness
- Tables 14.1–14.2 for Primo Plana and Primo Skyline cassettes

NOTE. The results for Bespoke products are presented in the same tables with Liberta cassettes and Lamella profiles for the respective materials, product weights and thicknesses. Bespoke is a tailor-made product, which is made from the same raw materials as the standard Liberta and Lamella products but can be made in any size. The LCIA results for Bespoke products were formed with a range of variation in terms of product thickness (min. 0.5 mm – max. 2.0 mm) depending on the material. The results for Bespoke products are presented in the EPD in the same tables with the Liberta or Lamella product of the similar size as the studied Bespoke.

The environmental impacts of accessories shall be calculated by adding an extra 5% to all environmental indicators in modules A1–3, A4, C1–C4 and D.

Reading example in the environmental profile tables: 9.65E-02 = $9.65*10^{-2}$ = 0.0965

Table 8.1. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from colour-coated steel, Hiarc-coated or powder painted

Product weight 11.4 kg/m², steel thickness 1.2 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	35.50	9.69E-02	4.16E-03	0.164	2.74E-02	8.18E-03	-15.75
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	6.88E-10	1.60E-17	7.51E-10	2.86E-17	9.75E-17	4.47E-17	-1.03E-06
AP Acidification potential of soil and water sources	kg SO_2 equiv.	8.58E-02	5.16E-04	3.15E-05	4.10E-04	1.88E-04	4.88E-05	-7.00E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	9.43E-03	1.26E-04	7.53E-06	1.00E-04	4.58E-05	5.54E-06	-2.78E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	7.95E-03	9.15E-06	3.29E-06	-1.54E-04	2.11E-05	3.75E-06	-1.56E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.22E-03	6.11E-09	1.40E-09	1.28E-08	3.10E-08	8.21E-10	-1.19E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	215.47	6.58E-01	3.00E-02	1.11	2.66E-01	5.55E-02	-112.69
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	48.85	5.01E-02	3.50E-04	1.25E-01	4.06E-02	1.54E-02	-9.93
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	48.85	5.01E-02	3.50E-04	1.25E-01	4.06E-02	1.54E-02	-9.93
Use of non-renewable primary energy used as energy carrier	MJ	459.24	1.32E+00	6.04E-02	2.24E+00	5.51E-01	1.14E-01	-2.48E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	459.24	1.32E+00	6.04E-02	2.24E+00	5.51E-01	1.14E-01	-248.31
Use of secondary material	kg	0.43	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	2.61E-09	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	3.31E-08	0	0	0	0	0	0
Net use of fresh water	m^3	3.44E-02	5.80E-05	8.19E-06	1.43E-04	1.52E-04	2.82E-05	-8.93E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.15E-06	4.70E-11	0	5.63E-11	3.08E-11	1.21E-11	0
Non-hazardous waste disposed	kg	3.09E-01	1.75E-04	0	1.66E-04	1.48E-04	5.71E-01	0
Radioactive waste disposed	kg	9.43E-03	1.54E-06	0	1.35E-06	7.11E-06	1.20E-06	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	5.20E-03	0	10.8	0	0	0	0
Materials for energy recovery	kg	0.109	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.2. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5 mm colour-coated aluminium powder painted

Product weight 4.9 kg/m², aluminium thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.86E+01	4.17E-02	1.79E-03	7.05E-02	1.18E-02	3.51E-03	-3.49E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	9.37E-11	6.89E-18	3.23E-10	1.23E-17	4.19E-17	1.92E-17	-5.02E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.02E-01	2.22E-04	1.36E-05	1.76E-04	8.08E-05	2.10E-05	-1.50E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.17E-02	5.43E-05	3.24E-06	4.31E-05	1.97E-05	2.38E-06	-8.18E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.17E-02	3.93E-06	1.41E-06	-6.61E-05	9.09E-06	1.61E-06	-8.42E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	5.33E-06	2.62E-09	6.00E-10	5.50E-09	1.33E-08	3.53E-10	-3.58E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	5.44E+02	5.66E-01	2.58E-02	9.55E-01	2.28E-01	4.77E-02	-3.79E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.82E+02	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-2.02E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.82E+02	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-2.02E+02
Use of non-renewable primary energy used as energy carrier	MJ	6.45E+02	5.69E-01	2.60E-02	9.61E-01	2.37E-01	4.92E-02	-4.50E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	6.45E+02	5.69E-01	2.60E-02	9.61E-01	2.37E-01	4.92E-02	-4.50E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	6.80E-01	2.49E-05	3.52E-06	6.13E-05	6.52E-05	1.21E-05	-5.16E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.84E-08	2.02E-11	0	4.84E-11	1.32E-11	5.22E-12	-3.46E-08
Non-hazardous waste disposed	kg	1.36E+01	7.51E-05	0	1.43E-04	6.34E-05	2.45E-01	-1.05E+01
Radioactive waste disposed	kg	3.73E-02	6.62E-07	0	1.16E-06	3.06E-06	5.16E-07	-2.66E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.24E-03	0	4.66E+00	0	0	0	0
Materials for energy recovery	kg	4.72E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.2. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5 mm colour-coated aluminium, PVDF coated

Product weight 4.9 kg/m², aluminium thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	3.27E+01	4.17E-02	1.79E-03	7.05E-02	1.18E-02	3.51E-03	-2.27E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	9.11E-11	6.89E-18	3.23E-10	1.23E-17	4.19E-17	1.92E-17	-3.26E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.32E-01	2.22E-04	1.36E-05	1.76E-04	8.08E-05	2.10E-05	-9.78E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	8.01E-03	5.43E-05	3.24E-06	4.31E-05	1.97E-05	2.38E-06	-5.32E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	7.65E-03	3.93E-06	1.41E-06	-6.61E-05	9.09E-06	1.61E-06	-5.47E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.70E-06	2.62E-09	6.00E-10	5.50E-09	1.33E-08	3.53E-10	-2.33E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	3.72E+02	5.66E-01	2.58E-02	9.55E-01	2.28E-01	4.77E-02	-2.46E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	1.88E+02	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-1.32E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	1.88E+02	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-1.32E+02
Use of non-renewable primary energy used as energy carrier	MJ	4.40E+02	5.69E-01	2.60E-02	9.61E-01	2.37E-01	4.92E-02	-2.93E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	4.40E+02	5.69E-01	2.60E-02	9.61E-01	2.37E-01	4.92E-02	-2.93E+02
Use of secondary material	kg	1.96E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	4.38E-01	2.49E-05	3.52E-06	6.13E-05	6.52E-05	1.21E-05	-3.35E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.38E-05	2.02E-11	0	4.84E-11	1.32E-11	5.22E-12	-2.25E-08
Non-hazardous waste disposed	kg	8.75E+00	7.51E-05	0	1.43E-04	6.34E-05	2.45E-01	-6.81E+00
Radioactive waste disposed	kg	2.52E-02	6.62E-07	0	1.16E-06	3.06E-06	5.16E-07	-1.73E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.24E-03	0	4.66E+00	0	0	0	0
Materials for energy recovery	kg	4.65E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.25. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 2.0 mm colour-coated aluminium, powder painted

Product weight 4.9 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	6.45E+01	5.53E-02	2.37E-03	9.36E-02	1.56E-02	4.66E-03	-4.63E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.24E-10	9.14E-18	4.28E-10	1.63E-17	5.56E-17	2.55E-17	-6.65E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.68E-01	2.94E-04	1.80E-05	2.34E-04	1.07E-04	2.78E-05	-2.00E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.55E-02	7.21E-05	4.30E-06	5.72E-05	2.61E-05	3.16E-06	-1.08E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	1.55E-02	5.22E-06	1.88E-06	-8.77E-05	1.21E-05	2.14E-06	-1.12E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	7.07E-06	3.48E-09	7.96E-10	7.29E-09	1.77E-08	4.68E-10	-4.75E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	7.22E+02	7.50E-01	3.42E-02	1.27E+00	3.03E-01	6.33E-02	-5.03E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.75E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-2.68E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0.
Total use of renewable primary energy resources	MJ	3.75E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-2.68E+02
Use of non-renewable primary energy used as energy carrier	MJ	8.55E+02	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-5.97E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	8.55E+02	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-5.97E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	9.01E-01	3.31E-05	4.67E-06	8.13E-05	8.65E-05	1.61E-05	-6.85E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.08E-08	2.68E-11	0	6.42E-11	1.75E-11	6.93E-12	-4.58E-08
Non-hazardous waste disposed	kg	1.81E+01	9.97E-05	0	1.89E-04	8.42E-05	3.25E-01	-1.39E+01
Radioactive waste disposed	kg	4.95E-02	8.78E-07	0	1.54E-06	4.05E-06	6.85E-07	-3.53E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.98E-03	0	6.18E+00	0	0	0	0
Materials for energy recovery	kg	6.26E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.25. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 2.0 mm colour-coated aluminium, PVDF coated

Product weight 4.9 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.33E+01	5.53E-02	2.37E-03	9.36E-02	1.56E-02	4.66E-03	-3.01E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.21E-10	9.14E-18	4.28E-10	1.63E-17	5.56E-17	2.55E-17	-4.33E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.75E-01	2.94E-04	1.80E-05	2.34E-04	1.07E-04	2.78E-05	-1.30E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.06E-02	7.21E-05	4.30E-06	5.72E-05	2.61E-05	3.16E-06	-7.05E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.01E-02	5.22E-06	1.88E-06	-8.77E-05	1.21E-05	2.14E-06	-7.26E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.91E-06	3.48E-09	7.96E-10	7.29E-09	1.77E-08	4.68E-10	-3.09E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	4.93E+02	7.50E-01	3.42E-02	1.27E+00	3.03E-01	6.33E-02	-3.27E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.50E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-1.75E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.50E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-1.75E+02
Use of non-renewable primary energy used as energy carrier	MJ	5.84E+02	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-3.88E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	5.84E+02	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-3.88E+02
Use of secondary material	kg	2.61E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.80E-01	3.31E-05	4.67E-06	8.13E-05	8.65E-05	1.61E-05	-4.45E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.79E-05	2.68E-11	0	6.42E-11	1.75E-11	6.93E-12	-2.98E-08
Non-hazardous waste disposed	kg	1.16E+01	9.97E-05	0	1.89E-04	8.42E-05	3.25E-01	-9.03E+00
Radioactive waste disposed	kg	3.34E-02	8.78E-07	0	1.54E-06	4.05E-06	6.85E-07	-2.29E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.98E-03	0	6.18E+00	0	0	0	0
Materials for energy recovery	kg	6.17E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.3. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5 mm raw aluminium (un-treated)

Product weight 4.9 kg/m², aluminium thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	48.8	4.17E-02	1.79E-03	7.05E-02	1.18E-02	3.51E-03	-34.9
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	8.42E-11	6.89E-18	3.23E-10	1.23E-17	4.19E-17	1.92E-17	-5.02E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.203	2.22E-04	1.36E-05	1.76E-04	8.08E-05	2.10E-05	-0.150
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.18E-02	5.43E-05	3.24E-06	4.31E-05	1.97E-05	2.38E-06	-8.18E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.16E-02	3.93E-06	1.41E-06	-6.61E-05	9.09E-06	1.61E-06	-8.42E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	5.35E-06	2.62E-09	6.00E-10	5.50E-09	1.33E-08	3.53E-10	-3.58E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	544	0.566	2.58E-02	0.955	0.228	4.77E-02	-379
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	284	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-202
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	284	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-202
Use of non-renewable primary energy used as energy carrier	MJ	645	0.569	2.60E-02	0.961	0.237	4.92E-02	-450
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	645	0.569	2.60E-02	0.961	0.237	4.92E-02	-450
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.684	2.49E-05	3.52E-06	6.13E-05	6.52E-05	1.21E-05	-0.516
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.54E-08	2.02E-11	0	4.84E-11	1.32E-11	5.22E-12	-3.46E-08
Non-hazardous waste disposed	kg	13.7	7.51E-05	0	1.43E-04	6.34E-05	0.245	-10.5
Radioactive waste disposed	kg	3.75E-02	6.62E-07	0	1.16E-06	3.06E-06	5.16E-07	-2.66E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.24E-03	0	4.66	0	0	0	0
Materials for energy recovery	kg	4.65E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.35. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 2.0 mm raw aluminium (un-treated)

Product weight 4.9 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	6.47E+01	5.53E-02	2.37E-03	9.36E-02	1.56E-02	4.66E-03	-4.63E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.12E-10	9.14E-18	4.28E-10	1.63E-17	5.56E-17	2.55E-17	-6.65E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.69E-01	2.94E-04	1.80E-05	2.34E-04	1.07E-04	2.78E-05	-2.00E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.56E-02	7.21E-05	4.30E-06	5.72E-05	2.61E-05	3.16E-06	-1.08E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	1.53E-02	1.35E-02	-1.25E-04	2.44E-04	5.22E-06	1.88E-06	-8.77E-05
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	7.09E-06	3.48E-09	7.96E-10	7.29E-09	1.77E-08	4.68E-10	-4.75E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	7.22E+02	7.50E-01	3.42E-02	1.27E+00	3.03E-01	6.33E-02	-5.03E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.77E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-2.68E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	3.77E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-2.68E+02
Use of non-renewable primary energy used as energy carrier	MJ	8.56E+02	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-5.97E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	8.56E+02	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-5.97E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	9.07E-01	3.31E-05	4.67E-06	8.13E-05	8.65E-05	1.61E-05	-6.85E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8.67E-08	2.68E-11	0	6.42E-11	1.75E-11	6.93E-12	-4.58E-08
Non-hazardous waste disposed	kg	1.82E+01	9.97E-05	0	1.89E-04	8.42E-05	3.25E-01	-1.39E+01
Radioactive waste disposed	kg	4.98E-02	8.78E-07	0	1.54E-06	4.05E-06	6.85E-07	-3.53E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.63E-03	0	6.18E+00	0	0	0	0
Materials for energy recovery	kg	5.46E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.4. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5 mm anodized aluminium

Product weight 4.9 kg/m², aluminium thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	79.9	4.17E-02	1.79E-03	7.05E-02	1.18E-02	3.51E-03	-34.9
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	8.50E-11	6.89E-18	3.23E-10	1.23E-17	4.19E-17	1.92E-17	-5.02E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.244	2.22E-04	1.36E-05	1.76E-04	8.08E-05	2.10E-05	-0.150
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.15E-02	5.43E-05	3.24E-06	4.31E-05	1.97E-05	2.38E-06	-8.18E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.48E-02	3.93E-06	1.41E-06	-6.61E-05	9.09E-06	1.61E-06	-8.42E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.43E-05	2.62E-09	6.00E-10	5.50E-09	1.33E-08	3.53E-10	-3.58E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	970	0.566	2.58E-02	0.955	0.228	4.77E-02	-379
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	441	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-202
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	441	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-202
Use of non-renewable primary energy used as energy carrier	MJ	1121	0.569	2.60E-02	0.961	0.237	4.92E-02	-450
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1121	0.569	2.60E-02	0.961	0.237	4.92E-02	-450
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.778	2.49E-05	3.52E-06	6.13E-05	6.52E-05	1.21E-05	-0.516
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.11E-07	2.02E-11	0	4.84E-11	1.32E-11	5.22E-12	-3.46E-08
Non-hazardous waste disposed	kg	15.2	7.51E-05	0	1.43E-04	6.34E-05	0.245	-10.5
Radioactive waste disposed	kg	5.68E-02	6.62E-07	0	1.16E-06	3.06E-06	5.16E-07	-2.66E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.24E-03	0	4.66	0	0	0	0
Materials for energy recovery	kg	4.65E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.45. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 2.0 mm anodized aluminium

Product weight 4.9 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	1.06E+02	5.53E-02	2.37E-03	9.36E-02	1.56E-02	4.66E-03	-4.63E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.13E-10	9.14E-18	4.28E-10	1.63E-17	5.56E-17	2.55E-17	-6.65E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.24E-01	2.94E-04	1.80E-05	2.34E-04	1.07E-04	2.78E-05	-2.00E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.86E-02	7.21E-05	4.30E-06	5.72E-05	2.61E-05	3.16E-06	-1.08E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	1.96E-02	5.22E-06	1.88E-06	-8.77E-05	1.21E-05	2.14E-06	-1.12E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.90E-05	3.48E-09	7.96E-10	7.29E-09	1.77E-08	4.68E-10	-4.75E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	1.29E+03	7.50E-01	3.42E-02	1.27E+00	3.03E-01	6.33E-02	-5.03E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	5.85E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-2.68E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	5.85E+02	2.85E-02	2.00E-04	7.11E-02	2.31E-02	8.78E-03	-2.68E+02
Use of non-renewable primary energy used as energy carrier	MJ	1.49E+03	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-5.97E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1.49E+03	7.55E-01	3.45E-02	1.27E+00	3.14E-01	6.52E-02	-5.97E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	1.03E+00	3.31E-05	4.67E-06	8.13E-05	8.65E-05	1.61E-05	-6.85E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.80E-07	2.68E-11	0	6.42E-11	1.75E-11	6.93E-12	-4.58E-08
Non-hazardous waste disposed	kg	2.02E+01	9.97E-05	0	1.89E-04	8.42E-05	3.25E-01	-1.39E+01
Radioactive waste disposed	kg	7.53E-02	8.78E-07	0	1.54E-06	4.05E-06	6.85E-07	-3.53E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.98E-03	0	6.18E+00	0	0	0	0
Materials for energy recovery	kg	6.17E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.5. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from titanium zinc – Classic

Product weight 8.7 kg/m², titanium zinc thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	32.2	7.40E-02	3.17E-03	0.125	2.11E-02	4.99E-03	-1.24E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-1.05E-07	1.22E-17	5.73E-10	2.18E-17	7.52E-17	2.73E-17	-8.07E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.182	3.94E-04	2.41E-05	3.13E-04	1.45E-04	2.98E-05	-5.50E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.68E-02	9.65E-05	5.75E-06	7.65E-05	3.54E-05	3.38E-06	-2.18E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	9.29E-03	6.98E-06	2.51E-06	-1.17E-04	1.63E-05	2.29E-06	-1.23E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.22E-03	4.66E-09	1.06E-09	9.76E-09	2.39E-08	5.01E-10	-9.33E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	263	1.00	4.57E-02	1.69	0.410	6.78E-02	-1.77E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	274	3.82E-02	2.67E-04	9.51E-02	3.13E-02	9.41E-03	-7.80E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	274	3.82E-02	2.67E-04	9.51E-02	3.13E-02	9.41E-03	-7.80E+00
Use of non-renewable primary energy used as energy carrier	MJ	629	1.01	4.61E-02	1.71	0.425	6.99E-02	-1.95E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	629	1.01	4.61E-02	1.71	0.425	6.99E-02	-1.95E+02
Use of secondary material	kg	0.150	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	6.87	4.43E-05	6.25E-06	1.09E-04	1.17E-04	1.72E-05	-7.02E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.22E-05	3.59E-11	0	8.60E-11	2.37E-11	7.42E-12	0
Non-hazardous waste disposed	kg	3.41E+00	1.33E-04	0	2.53E-04	1.14E-04	3.48E-01	0
Radioactive waste disposed	kg	2.67E-02	1.18E-06	0	2.06E-06	5.48E-06	7.33E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.98E-03	0	8.35	0	0	0	0
Materials for energy recovery	kg	8.25E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.6. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from titanium zinc – Pre-patinated

Product weight 8.7 kg/m², titanium zinc thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	41.3	7.40E-02	3.17E-03	0.125	2.11E-02	4.99E-03	-1.23E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-1.24E-07	1.22E-17	5.73E-10	2.18E-17	7.52E-17	2.73E-17	-8.05E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.217	3.94E-04	2.41E-05	3.13E-04	1.45E-04	2.98E-05	-5.48E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.24E-02	9.65E-05	5.75E-06	7.65E-05	3.54E-05	3.38E-06	-2.17E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	1.12E-02	6.98E-06	2.51E-06	-1.17E-04	1.63E-05	2.29E-06	-1.22E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.99E-03	4.66E-09	1.06E-09	9.76E-09	2.39E-08	5.01E-10	-9.30E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	321	1.00	4.57E-02	1.69	0.410	6.78E-02	-1.77E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	325	3.82E-02	2.67E-04	9.51E-02	3.13E-02	9.41E-03	-7.78E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	325	3.82E-02	2.67E-04	9.51E-02	3.13E-02	9.41E-03	-7.78E+00
Use of non-renewable primary energy used as energy carrier	MJ	769	1.01	4.61E-02	1.71	0.425	6.99E-02	-1.94E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	769	1.01	4.61E-02	1.71	0.425	6.99E-02	-1.94E+02
Use of secondary material	kg	0.177	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	8.11	4.43E-05	6.25E-06	1.09E-04	1.17E-04	1.72E-05	-6.99E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8.52E-05	3.59E-11	0	8.60E-11	2.37E-11	7.42E-12	0
Non-hazardous waste disposed	kg	4.52E+00	1.33E-04	0	2.53E-04	1.14E-04	3.48E-01	0
Radioactive waste disposed	kg	3.16E-02	1.18E-06	0	2.06E-06	5.48E-06	7.33E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.98E-03	0	8.35	0	0	0	0
Materials for energy recovery	kg	8.25E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.7. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5mm copper – Nordic Standard

Product weight 16.2 kg/m², copper thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	11.6	0.138	5.91E-03	0.233	4.05E-02	2.32E-03	-5.99E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.90E-10	2.28E-17	1.07E-09	4.06E-17	1.44E-16	1.27E-17	-4.64E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	4.09E-02	7.33E-04	4.48E-05	5.82E-04	2.78E-04	1.39E-05	-2.40E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.60E-03	1.80E-04	1.07E-05	1.42E-04	6.79E-05	1.57E-06	-1.47E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	3.32E-03	1.30E-05	4.68E-06	-2.19E-04	3.13E-05	1.07E-06	-1.57E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.38E-04	8.68E-09	1.98E-09	1.82E-08	4.59E-08	2.33E-10	-6.33E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	144	1.87	8.52E-02	3.16	0.787	3.15E-02	-7.34E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	68.8	7.12E-02	4.98E-04	0.177	6.01E-02	4.38E-03	-4.63E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	68.8	7.12E-02	4.98E-04	0.177	6.01E-02	4.38E-03	-4.63E-01
Use of non-renewable primary energy used as energy carrier	MJ	311	1.88	8.59E-02	3.18	0.817	3.25E-02	-8.97E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	311	1.88	8.59E-02	3.18	0.817	3.25E-02	-8.97E+00
Use of secondary material	kg	17.8	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	7.68E-02	8.24E-05	1.16E-05	2.03E-04	2.25E-04	8.02E-06	-8.90E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.11E-05	6.68E-11	0	1.60E-10	4.55E-11	3.45E-12	0.00E+00
Non-hazardous waste disposed	kg	8.34E-02	2.48E-04	0	4.72E-04	2.19E-04	0.162	0.00E+00
Radioactive waste disposed	kg	1.26E-02	2.19E-06	0	3.84E-06	1.05E-05	3.41E-07	-2.13E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	7.42E-03	0	16.0	0	0	0	0
Materials for energy recovery	kg	0.154	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.8. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.0mm copper – Nordic Standard

Product weight 10.8 kg/m², copper thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	7.74	9.18E-02	3.94E-03	0.155	2.70E-02	1.55E-03	-4.00E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.60E-10	1.52E-17	7.11E-10	2.71E-17	9.62E-17	8.46E-18	-3.09E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.72E-02	4.89E-04	2.99E-05	3.88E-04	1.86E-04	9.25E-06	-1.60E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.40E-03	1.20E-04	7.14E-06	9.50E-05	4.53E-05	1.05E-06	-9.81E-05
POCP Photochemical ozone creation potential	kg ethene equiv.	2.21E-03	8.67E-06	3.12E-06	-1.46E-04	2.09E-05	7.10E-07	-1.05E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.59E-04	5.78E-09	1.32E-09	1.21E-08	3.06E-08	1.56E-10	-4.22E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	96.2	1.25	5.68E-02	2.10	0.525	2.10E-02	-4.89E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	45.9	4.74E-02	3.32E-04	0.118	4.01E-02	2.92E-03	-3.09E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	45.9	4.74E-02	3.32E-04	0.118	4.01E-02	2.92E-03	-3.09E-01
Use of non-renewable primary energy used as energy carrier	MJ	207	1.26	5.73E-02	2.12	0.544	2.17E-02	-5.98E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	207	1.26	5.73E-02	2.12	0.544	2.17E-02	-5.98E+00
Use of secondary material	kg	11.8	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.12E-02	5.50E-05	7.75E-06	1.35E-04	1.50E-04	5.35E-06	-5.93E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.08E-05	4.46E-11	0	1.07E-10	3.04E-11	2.30E-12	0
Non-hazardous waste disposed	kg	5.56E-02	1.66E-04	0	3.15E-04	1.46E-04	0.108	0
Radioactive waste disposed	kg	8.41E-03	1.46E-06	0	2.56E-06	7.02E-06	2.28E-07	-1.42E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.94E-03	0	10.7	0	0	0	0
Materials for energy recovery	kg	0.102	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.9. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5mm copper – Nordic Green, Blue and Brown

Product weight 16.2 kg/m², copper thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	12.7	0.138	5.91E-03	0.233	4.05E-02	2.32E-03	-1.36E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.72E-10	2.28E-17	1.07E-09	4.06E-17	1.44E-16	1.27E-17	-1.05E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	5.41E-02	7.33E-04	4.48E-05	5.82E-04	2.78E-04	1.39E-05	-5.45E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.91E-03	1.80E-04	1.07E-05	1.42E-04	6.79E-05	1.57E-06	-3.34E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	4.00E-03	1.30E-05	4.68E-06	-2.19E-04	3.13E-05	1.07E-06	-3.56E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.40E-04	8.68E-09	1.98E-09	1.82E-08	4.59E-08	2.33E-10	-1.44E-04
ADP Abiotic depletion potential of resources – fossil fuel	MJ	157	1.87	8.52E-02	3.16	0.787	3.15E-02	-1.66E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	76.9	7.12E-02	4.98E-04	0.177	6.01E-02	4.38E-03	-1.05E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	76.9	7.12E-02	4.98E-04	0.177	6.01E-02	4.38E-03	-1.05E+00
Use of non-renewable primary energy used as energy carrier	MJ	348	1.88	8.59E-02	3.18	0.817	3.25E-02	-2.03E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	348	1.88	8.59E-02	3.18	0.817	3.25E-02	-2.03E+01
Use of secondary material	kg	17.1	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	9.53E-02	8.24E-05	1.16E-05	2.03E-04	2.25E-04	8.02E-06	-2.02E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.96E-05	6.68E-11	0	1.60E-10	4.55E-11	3.45E-12	0.00E+00
Non-hazardous waste disposed	kg	0.117	2.48E-04	0	4.72E-04	2.19E-04	0.162	0.00E+00
Radioactive waste disposed	kg	1.50E-02	2.19E-06	0	3.84E-06	1.05E-05	3.41E-07	-4.82E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	7.42E-03	0	16.0	0	0	0	0
Materials for energy recovery	kg	0.154	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.10. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.0mm copper – Nordic Green, Blue and Brown

Product weight 10.8 kg/m², copper thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	8.49	9.18E-02	3.94E-03	0.155	2.70E-02	1.55E-03	-9.06E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.15E-10	1.52E-17	7.11E-10	2.71E-17	9.62E-17	8.46E-18	-7.01E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.60E-02	4.89E-04	2.99E-05	3.88E-04	1.86E-04	9.25E-06	-3.63E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.61E-03	1.20E-04	7.14E-06	9.50E-05	4.53E-05	1.05E-06	-2.22E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	2.67E-03	8.67E-06	3.12E-06	-1.46E-04	2.09E-05	7.10E-07	-2.37E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.60E-04	5.78E-09	1.32E-09	1.21E-08	3.06E-08	1.56E-10	-9.57E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	104	1.25	5.68E-02	2.10	0.525	2.10E-02	-1.11E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	51.3	4.74E-02	3.32E-04	0.118	4.01E-02	2.92E-03	-7.00E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	51.3	4.74E-02	3.32E-04	0.118	4.01E-02	2.92E-03	-7.00E-01
Use of non-renewable primary energy used as energy carrier	MJ	232	1.26	5.73E-02	2.12	0.544	2.17E-02	-1.35E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	232	1.26	5.73E-02	2.12	0.544	2.17E-02	-1.35E+01
Use of secondary material	kg	11.4	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	6.35E-02	5.50E-05	7.75E-06	1.35E-04	1.50E-04	5.35E-06	-1.34E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.64E-05	4.46E-11	0	1.07E-10	3.04E-11	2.30E-12	0.00E+00
Non-hazardous waste disposed	kg	7.77E-02	1.66E-04	0	3.15E-04	1.46E-04	0.108	0.00E+00
Radioactive waste disposed	kg	9.99E-03	1.46E-06	0	2.56E-06	7.02E-06	2.28E-07	-3.22E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.94E-03	0	10.7	0	0	0	0
Materials for energy recovery	kg	0.102	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.11. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5mm Nordic brass

Product weight 15.7 kg/m², brass thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	28.5	0.133	5.73E–03	0.226	3.93E–02	2.25E–03	–6.94E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC–11 equiv.	3.55E–09	2.21E–17	1.03E–09	3.94E–17	1.40E–16	1.23E–17	–6.01E–14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.120	7.10E–04	4.34E–05	5.65E–04	2.70E–04	1.35E–05	–8.70E–02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	9.42E–03	1.74E–04	1.04E–05	1.38E–04	6.58E–05	1.53E–06	–2.66E–03
POCP Photochemical ozone creation potential	kg ethene equiv.	7.96E–03	1.26E–05	4.53E–06	–2.12E–04	3.04E–05	1.03E–06	–4.17E–03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.61E–02	8.41E–09	1.92E–09	1.76E–08	4.45E–08	2.26E–10	–4.19E–03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	335	1.81	8.25E–02	3.06	0.763	3.06E–02	–7.75E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	198	6.90E–02	4.82E–04	0.172	5.82E–02	4.24E–03	–1.86E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	198	6.90E–02	4.82E–04	0.172	5.82E–02	4.24E–03	–1.86E+01
Use of non–renewable primary energy used as energy carrier	MJ	821	1.82	8.32E–02	3.08	0.791	3.15E–02	–8.48E+01
Use of non–renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non–renewable primary energy resources	MJ	821	1.82	8.32E–02	3.08	0.791	3.15E–02	–8.48E+01
Use of secondary material	kg	3.42	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non–renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.267	7.99E–05	1.13E–05	1.96E–04	2.18E–04	7.77E–06	–5.70E–02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.32E–04	6.48E–11	0	1.55E–10	4.41E–11	3.35E–12	–1.61E–08
Non–hazardous waste disposed	kg	0.486	2.41E–04	0	4.57E–04	2.12E–04	0.157	–1.75E+00
Radioactive waste disposed	kg	3.78E–02	2.12E–06	0	3.73E–06	1.02E–05	3.31E–07	–2.43E–03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	7.19E–03	0	15.5	0	0	0	0
Materials for energy recovery	kg	0.149	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.12. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.0mm Nordic brass

Product weight 10.5 kg/m², brass thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	19.0	8.93E-02	3.83E-03	0.151	2.63E-02	1.51E-03	-4.64E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.38E-09	1.48E-17	6.92E-10	2.63E-17	9.36E-17	8.23E-18	-4.02E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	8.03E-02	4.75E-04	2.90E-05	3.78E-04	1.80E-04	9.00E-06	-5.82E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	6.30E-03	1.16E-04	6.94E-06	9.23E-05	4.40E-05	1.02E-06	-1.78E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	5.32E-03	8.43E-06	3.03E-06	-1.42E-04	2.03E-05	6.91E-07	-2.79E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.08E-02	5.62E-09	1.29E-09	1.18E-08	2.97E-08	1.51E-10	-2.80E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	224	1.21	5.52E-02	2.05	0.510	2.04E-02	-5.18E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	132	4.61E-02	3.23E-04	0.115	3.89E-02	2.84E-03	-1.24E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	132	4.61E-02	3.23E-04	0.115	3.89E-02	2.84E-03	-1.24E+01
Use of non-renewable primary energy used as energy carrier	MJ	549	1.22	5.57E-02	2.06	0.529	2.11E-02	-5.67E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1571	1.22	5.57E-02	2.06	0.529	2.11E-02	-5.67E+01
Use of secondary material	kg	2.29	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.179	5.34E-05	7.54E-06	1.31E-04	1.46E-04	5.20E-06	-3.81E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8.85E-05	4.33E-11	0	1.04E-10	2.95E-11	2.24E-12	-1.07E-08
Non-hazardous waste disposed	kg	0.325	1.61E-04	0	3.06E-04	1.42E-04	0.105	-1.17E+00
Radioactive waste disposed	kg	2.53E-02	1.42E-06	0	2.49E-06	6.82E-06	2.21E-07	-1.62E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.81E-03	0	10.4	0	0	0	0
Materials for energy recovery	kg	9.96E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.13. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5mm Nordic bronze

Product weight 15.7 kg/m², bronze thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	16.3	0.133	5.73E-03	0.226	3.93E-02	2.25E-03	0
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.40E-09	2.21E-17	1.03E-09	3.94E-17	1.40E-16	1.23E-17	0
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.87E-02	7.10E-04	4.34E-05	5.65E-04	2.70E-04	1.35E-05	0
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	4.29E-03	1.74E-04	1.04E-05	1.38E-04	6.58E-05	1.53E-06	0
POCP Photochemical ozone creation potential	kg ethene equiv.	2.90E-03	1.26E-05	4.53E-06	-2.12E-04	3.04E-05	1.03E-06	0
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.14E-06	8.41E-09	1.92E-09	1.76E-08	4.45E-08	2.26E-10	0
ADP Abiotic depletion potential of resources – fossil fuel	MJ	182	1.81	8.25E-02	3.06	0.763	3.06E-02	0
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	130	6.90E-02	4.82E-04	0.172	5.82E-02	4.24E-03	0
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	130	6.90E-02	4.82E-04	0.172	5.82E-02	4.24E-03	0
Use of non-renewable primary energy used as energy carrier	MJ	438	1.82	8.32E-02	3.08	0.791	3.15E-02	0
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	438	1.82	8.32E-02	3.08	0.791	3.15E-02	0
Use of secondary material	kg	17.7	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.169	7.99E-05	1.13E-05	1.96E-04	2.18E-04	7.77E-06	0
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.61E-04	6.48E-11	0	1.55E-10	4.41E-11	3.35E-12	0
Non-hazardous waste disposed	kg	0.151	2.41E-04	0	4.57E-04	2.12E-04	0.157	0
Radioactive waste disposed	kg	2.24E-02	2.12E-06	0	3.73E-06	1.02E-05	3.31E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	7.19E-03	0	15.5	0	0	0	0
Materials for energy recovery	kg	0.149	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.14. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.0mm Nordic bronze

Product weight 10.5 kg/m², bronze thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	10.9	8.93E-02	3.83E-03	0.151	2.63E-02	1.51E-03	0
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	9.35E-10	1.48E-17	6.92E-10	2.63E-17	9.36E-17	8.23E-18	0
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.59E-02	4.75E-04	2.90E-05	3.78E-04	1.80E-04	9.00E-06	0
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.87E-03	1.16E-04	6.94E-06	9.23E-05	4.40E-05	1.02E-06	0
POCP Photochemical ozone creation potential	kg ethene equiv.	1.94E-03	8.43E-06	3.03E-06	-1.42E-04	2.03E-05	6.91E-07	0
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.10E-06	5.62E-09	1.29E-09	1.18E-08	2.97E-08	1.51E-10	0
ADP Abiotic depletion potential of resources – fossil fuel	MJ	122	1.21	5.52E-02	2.05	0.510	2.04E-02	0
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	86.6	4.61E-02	3.23E-04	0.115	3.89E-02	2.84E-03	0
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	86.6	4.61E-02	3.23E-04	0.115	3.89E-02	2.84E-03	0
Use of non-renewable primary energy used as energy carrier	MJ	293	1.22	5.57E-02	2.06	0.529	2.11E-02	0
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	293	1.22	5.57E-02	2.06	0.529	2.11E-02	0
Use of secondary material	kg	11.9	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.113	5.34E-05	7.54E-06	1.31E-04	1.46E-04	5.20E-06	0
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.08E-04	4.33E-11	0	1.04E-10	2.95E-11	2.24E-12	0
Non-hazardous waste disposed	kg	0.101	1.61E-04	0	3.06E-04	1.42E-04	0.105	0
Radioactive waste disposed	kg	1.49E-02	1.42E-06	0	2.49E-06	6.82E-06	2.21E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.81E-03	0	10.4	0	0	0	0
Materials for energy recovery	kg	9.96E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.15. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.5mm Nordic Royal

Product weight 15.7 kg/m², bronze thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	37.7	0.133	5.73E–03	0.226	3.93E–02	2.25E–03	–6.94E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC–11 equiv.	3.91E–07	2.21E–17	1.03E–09	3.94E–17	1.40E–16	1.23E–17	–6.01E–14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.169	7.10E–04	4.34E–05	5.65E–04	2.70E–04	1.35E–05	–8.70E–02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.27E–02	1.74E–04	1.04E–05	1.38E–04	6.58E–05	1.53E–06	–2.66E–03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.10E–02	1.26E–05	4.53E–06	–2.12E–04	3.04E–05	1.03E–06	–4.17E–03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.76E–03	8.41E–09	1.92E–09	1.76E–08	4.45E–08	2.26E–10	–4.19E–03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	419	1.81	8.25E–02	3.06	0.763	3.06E–02	–7.75E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	280	6.90E–02	4.82E–04	0.172	5.82E–02	4.24E–03	–1.86E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	280	6.90E–02	4.82E–04	0.172	5.82E–02	4.24E–03	–1.86E+01
Use of non–renewable primary energy used as energy carrier	MJ	981	1.82	8.32E–02	3.08	0.791	3.15E–02	–8.48E+01
Use of non–renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non–renewable primary energy resources	MJ	981	1.82	8.32E–02	3.08	0.791	3.15E–02	–8.48E+01
Use of secondary material	kg	3.42	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non–renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.363	7.99E–05	1.13E–05	1.96E–04	2.18E–04	7.77E–06	–5.70E–02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8.57E–05	6.48E–11	0	1.55E–10	4.41E–11	3.35E–12	–1.61E–08
Non–hazardous waste disposed	kg	4.13	2.41E–04	0	4.57E–04	2.12E–04	0.157	–1.75E+00
Radioactive waste disposed	kg	3.65E–02	2.12E–06	0	3.73E–06	1.02E–05	3.31E–07	–2.43E–03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	7.19E–03	0	15.5	0	0	0	0
Materials for energy recovery	kg	0.149	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.16. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from 1.0mm Nordic Royal

Product weight 10.5 kg/m², bronze thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	25.2	8.93E-02	3.83E-03	0.151	2.63E-02	1.51E-03	-4.64E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.61E-07	1.48E-17	6.92E-10	2.63E-17	9.36E-17	8.23E-18	-4.02E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.113	4.75E-04	2.90E-05	3.78E-04	1.80E-04	9.00E-06	-5.82E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	8.52E-03	1.16E-04	6.94E-06	9.23E-05	4.40E-05	1.02E-06	-1.78E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	7.37E-03	8.43E-06	3.03E-06	-1.42E-04	2.03E-05	6.91E-07	-2.79E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.52E-03	5.62E-09	1.29E-09	1.18E-08	2.97E-08	1.51E-10	-2.80E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	280	1.21	5.52E-02	2.05	0.510	2.04E-02	-5.18E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	187	4.61E-02	3.23E-04	0.115	3.89E-02	2.84E-03	-1.24E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	187	4.61E-02	3.23E-04	0.115	3.89E-02	2.84E-03	-1.24E+01
Use of non-renewable primary energy used as energy carrier	MJ	656	1.22	5.57E-02	2.06	0.529	2.11E-02	-5.67E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	656	1.22	5.57E-02	2.06	0.529	2.11E-02	-5.67E+01
Use of secondary material	kg	2.29	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.243	5.34E-05	7.54E-06	1.31E-04	1.46E-04	5.20E-06	-3.81E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.73E-05	4.33E-11	0	1.04E-10	2.95E-11	2.24E-12	-1.07E-08
Non-hazardous waste disposed	kg	2.76	1.61E-04	0	3.06E-04	1.42E-04	0.105	-1.17E+00
Radioactive waste disposed	kg	2.44E-02	1.42E-06	0	2.49E-06	6.82E-06	2.21E-07	-1.62E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.81E-03	0	10.4	0	0	0	0
Materials for energy recovery	kg	9.96E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.17. Environmental profile for Liberta Original, Liberta Elegant and similar Bespoke from stainless steel

Product weight 9.4 kg/m², stainless steel thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	38.0	8.08E–02	3.47E–03	0.137	2.28E–02	6.81E–03	–1.66E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC–11 equiv.	2.15E–10	1.34E–17	6.26E–10	2.38E–17	8.12E–17	3.72E–17	–1.45E–14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.186	4.30E–04	2.63E–05	3.42E–04	1.57E–04	4.07E–05	–8.93E–02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.32E–02	1.05E–04	6.28E–06	8.35E–05	3.82E–05	4.62E–06	–5.41E–03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.24E–02	7.63E–06	2.74E–06	–1.28E–04	1.76E–05	3.12E–06	–5.60E–03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.03E–03	5.09E–09	1.16E–09	1.07E–08	2.58E–08	6.84E–10	–5.48E–04
ADP Abiotic depletion potential of resources – fossil fuel	MJ	565	1.10	4.99E–02	1.85	0.443	9.25E–02	–2.05E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	206	4.17E–02	2.92E–04	0.104	3.38E–02	1.28E–02	–3.93E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	206	4.17E–02	2.92E–04	0.104	3.38E–02	1.28E–02	–3.93E+01
Use of non–renewable primary energy used as energy carrier	MJ	1228	1.10	5.04E–02	1.86	0.459	9.54E–02	–2.10E+02
Use of non–renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non–renewable primary energy resources	MJ	1228	1.10	5.04E–02	1.86	0.459	9.54E–02	–2.10E+02
Use of secondary material	kg	7.00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non–renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.421	4.83E–05	6.82E–06	1.19E–04	1.26E–04	2.35E–05	–2.87E–01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.22E–04	3.92E–11	0	9.39E–11	2.56E–11	1.01E–11	–1.92E–03
Non–hazardous waste disposed	kg	3.68	1.46E–04	0	2.77E–04	1.23E–04	0.475	1.88E–01
Radioactive waste disposed	kg	2.54E–02	1.28E–06	0	2.25E–06	5.92E–06	1.00E–06	–1.37E–03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.35E–03	0	9.03	0	0	0	0
Materials for energy recovery	kg	9.01E–02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 8.18. Environmental profile for Liberta and similar Bespoke from Cor-Ten® steel

Product weight 13.5 kg/m², Cor-Ten® steel thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	3.81E+01	1.16E-01	4.96E-03	1.96E-01	3.27E-02	9.75E-03	-1.89E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.34E-10	1.91E-17	8.96E-10	3.41E-17	1.16E-16	5.33E-17	-1.23E-06
AP Acidification potential of soil and water sources	kg SO_2 equiv.	7.06E-02	6.15E-04	3.76E-05	4.89E-04	2.24E-04	5.83E-05	-8.41E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	7.57E-03	1.51E-04	8.99E-06	1.20E-04	5.47E-05	6.61E-06	-3.34E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	7.71E-03	1.09E-05	3.93E-06	-1.83E-04	2.52E-05	4.47E-06	-1.88E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	9.34E-06	7.28E-09	1.66E-09	1.53E-08	3.70E-08	9.79E-10	-1.43E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	4.15E+02	1.57E+00	7.15E-02	2.65E+00	6.34E-01	1.32E-01	-2.71E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	7.23E+01	5.97E-02	4.18E-04	1.49E-01	4.84E-02	1.84E-02	-1.19E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	7.23E+01	5.97E-02	4.18E-04	1.49E-01	4.84E-02	1.84E-02	-1.19E+01
Use of non-renewable primary energy used as energy carrier	MJ	8.361E+02	1.58E+00	7.21E-02	2.67E+00	6.58E-01	1.37E-01	-2.98E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	8.36E+02	1.58E+00	7.21E-02	2.67E+00	6.58E-01	1.37E-01	-2.98E+02
Use of secondary material	kg	4.00E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.24E-21	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.45E-20	0	0	0	0	0	0
Net use of fresh water	m^3	3.21E-01	6.92E-05	9.77E-06	1.70E-04	1.81E-04	3.37E-05	-1.07E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.38E-01	5.61E-11	0	1.34E-10	3.67E-11	1.45E-11	0.00E+00
Non-hazardous waste disposed	kg	9.37E-01	2.09E-04	0	3.96E-04	1.76E-04	6.81E-01	0.00E+00
Radioactive waste disposed	kg	8.01E-03	1.84E-06	0	3.23E-06	8.48E-06	1.43E-06	0.00E+00
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.23E-03	0	1.29E+01	0	0	0	0
Materials for energy recovery	kg	1.29E-01	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 9. Environmental profile for Liberta Original Grande casettes from colour-coated steel, Hiarc-coated or powder painted

Product weight 13.5 kg/m², steel thickness 1.2 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	3.17E+01	1.16E-01	4.98E-03	1.97E-01	2.59E-02	4.89E-02	-1.49E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.19E-08	1.92E-17	8.99E-10	3.42E-17	9.21E-17	2.67E-16	-9.71E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	7.47E-02	6.18E-04	3.78E-05	4.91E-04	1.78E-04	2.92E-04	-6.62E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	9.54E-03	1.51E-04	9.02E-06	1.20E-04	4.33E-05	3.32E-05	-2.62E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	6.82E-03	1.10E-05	3.94E-06	-1.84E-04	2.00E-05	2.25E-05	-1.48E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.53E-03	7.31E-09	1.67E-09	1.53E-08	2.93E-08	4.91E-09	-1.12E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	4.01E+02	1.58E+00	7.18E-02	2.66E+00	5.02E-01	6.65E-01	-2.13E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	6.71E+01	6.00E-02	4.19E-04	1.49E-01	3.84E-02	9.22E-02	-9.39E+00
Use of renewable primary energy resources used as raw material	MJ	1.20E+00	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	6.84E+01	6.00E-02	4.19E-04	1.49E-01	3.84E-02	9.22E-02	-9.39E+00
Use of non-renewable primary energy used as energy carrier	MJ	4.34E+02	1.59E+00	7.24E-02	2.68E+00	5.21E-01	6.85E-01	-2.35E+02
Use of non-renewable primary energy used as raw material	MJ	7.59E+00	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	4.41E+02	1.59E+00	7.24E-02	2.68E+00	5.21E-01	6.85E-01	-2.35E+02
Use of secondary material	kg	4.42E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.80E-09	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	2.28E-08	0	0	0	0	0	0
Net use of fresh water	m^3	6.70E-02	6.95E-05	9.80E-06	1.71E-04	1.43E-04	1.69E-04	-8.44E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.24E-06	5.63E-11	0	1.35E-10	2.91E-11	7.27E-11	0.00E+00
Non-hazardous waste disposed	kg	9.71E-01	2.09E-04	0	3.98E-04	1.40E-04	3.42E+00	0.00E+00
Radioactive waste disposed	kg	7.76E-03	1.84E-06	0	3.24E-06	6.72E-06	7.19E-06	0.00E+00
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.25E-03	0	1.02E+01	0	0	0	0
Materials for energy recovery	kg	1.35E-01	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 10. Environmental profile for Liberta Glass cassette

Product weight 25.2 kg/m², steel frame thickness 1.2 mm, glass module thickness 6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	140	0.214	9.19E-03	0.363	2.61E-02	0.213	-1.50E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.32E-09	3.55E-17	1.66E-09	6.32E-17	9.30E-17	1.17E-15	-9.80E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.271	1.14E-03	6.97E-05	9.06E-04	1.79E-04	1.27E-03	-6.68E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.25E-02	2.79E-04	1.67E-05	2.22E-04	4.37E-05	1.44E-04	-2.65E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	2.23E-02	2.02E-05	7.27E-06	-3.40E-04	2.02E-05	9.78E-05	-1.49E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.55E-03	1.35E-08	3.08E-09	2.83E-08	2.96E-08	2.14E-08	-1.13E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	1798	2.91	0.132	4.91	0.507	2.90	-2.15E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	110	0.111	7.74E-04	0.275	3.87E-02	0.402	-9.48E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	110	0.111	7.74E-04	0.275	3.87E-02	0.402	-9.48E+00
Use of non-renewable primary energy used as energy carrier	MJ	1945	2.93	0.134	4.94	0.526	2.98	-2.37E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1945	2.93	0.134	4.94	0.526	2.98	-2.37E+02
Use of secondary material	kg	0.297	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.81E-09	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	2.30E-08	0	0	0	0	0	0
Net use of fresh water	m^3	0.215	1.28E-04	1.81E-05	3.15E-04	1.45E-04	7.36E-04	-8.52E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0.256	1.04E-10	0	2.49E-10	2.93E-11	3.17E-10	0
Non-hazardous waste disposed	kg	8.82	3.86E-04	0	7.34E-04	1.41E-04	14.9	0
Radioactive waste disposed	kg	5.09E-02	3.40E-06	0	5.98E-06	6.78E-06	3.13E-05	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.15E-02	0	10.3	0	0	0	0
Materials for energy recovery	kg	0.250	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.1. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from colour-coated steel, Hiarc-coated or powder painted

Product weight 9.7 kg/m², steel thickness 1.2 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	30.2	8.25E-02	3.54E-03	0.140	2.33E-02	6.96E-03	-1.34E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	5.85E-10	1.36E-17	6.39E-10	2.43E-17	8.29E-17	3.80E-17	-8.74E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	7.30E-02	4.39E-04	2.68E-05	3.49E-04	1.60E-04	4.16E-05	-5.96E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	8.02E-03	1.08E-04	6.41E-06	8.53E-05	3.90E-05	4.71E-06	-2.36E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	6.77E-03	7.79E-06	2.80E-06	-1.31E-04	1.80E-05	3.19E-06	-1.33E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.89E-03	5.20E-09	1.19E-09	1.09E-08	2.64E-08	6.98E-10	-1.01E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	183	0.560	2.55E-02	0.945	0.226	4.72E-02	-9.59E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	41.6	4.26E-02	2.98E-04	0.106	3.45E-02	1.31E-02	-8.45E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0.00E+00
Total use of renewable primary energy resources	MJ	41.6	4.26E-02	2.98E-04	0.106	3.45E-02	1.31E-02	-8.45E+00
Use of non-renewable primary energy used as energy carrier	MJ	391	1.13	5.14E-02	1.90	0.469	9.74E-02	-2.11E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0.00E+00
Total use of non-renewable primary energy resources	MJ	391	1.13	5.14E-02	1.90	0.469	9.74E-02	-2.11E+02
Use of secondary material	kg	0.364	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	2.22E-09	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	2.81E-08	0	0	0	0	0	0
Net use of fresh water	m^3	2.92E-02	4.94E-05	6.97E-06	1.21E-04	1.29E-04	2.40E-05	-7.60E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.68E-06	4.00E-11	0	4.79E-11	2.62E-11	1.03E-11	0
Non-hazardous waste disposed	kg	2.63E-01	1.49E-04	0	1.41E-04	1.26E-04	4.85E-01	0
Radioactive waste disposed	kg	8.02E-03	1.31E-06	0	1.15E-06	6.05E-06	1.02E-06	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.44E-03	0	9.22	0	0	0	0
Materials for energy recovery	kg	9.28E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.2. Environmental profile for Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5mm colour-coated aluminium, powder painted

Product weight 4.2 kg/m², aluminium thickness 1.5 mm		**Life cycle stage**						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.17E+01	3.57E-02	1.53E-03	6.05E-02	1.01E-02	3.01E-03	-2.99E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	8.03E-11	5.91E-18	2.77E-10	1.05E-17	3.59E-17	1.65E-17	-4.30E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.73E-01	1.90E-04	1.16E-05	1.51E-04	6.93E-05	1.80E-05	-1.29E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	9.99E-03	4.66E-05	2.78E-06	3.69E-05	1.69E-05	2.04E-06	-7.01E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.00E-02	3.37E-06	1.21E-06	-5.66E-05	7.79E-06	1.38E-06	-7.22E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.57E-06	2.25E-09	5.14E-10	4.71E-09	1.14E-08	3.02E-10	-3.07E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	4.67E+02	4.85E-01	2.21E-02	8.18E-01	1.96E-01	4.09E-02	-3.25E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.42E+02	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-1.73E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.42E+02	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-1.73E+02
Use of non-renewable primary energy used as energy carrier	MJ	5.53E+02	4.88E-01	2.23E-02	8.24E-01	2.03E-01	4.22E-02	-3.86E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	5.53E+02	4.88E-01	2.23E-02	8.24E-01	2.03E-01	4.22E-02	-3.86E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.83E-01	2.14E-05	3.02E-06	5.26E-05	5.59E-05	1.04E-05	-4.42E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.87E-08	1.73E-11	0	4.15E-11	1.13E-11	4.48E-12	-2.96E-08
Non-hazardous waste disposed	kg	1.17E+01	6.44E-05	0	1.22E-04	5.44E-05	2.10E-01	-8.97E+00
Radioactive waste disposed	kg	3.20E-02	5.67E-07	0	9.96E-07	2.62E-06	4.43E-07	-2.28E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.92E-03	0	3.99E+00	0	0	0	0
Materials for energy recovery	kg	4.05E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.2. Environmental profile for Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5 mm colour-coated aluminium, PVDF coated

Product weight 4.2 kg/m², aluminium thickness 1.5 mm		**Life cycle stage**						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	2.80E+01	3.57E-02	1.53E-03	6.05E-02	1.01E-02	3.01E-03	-1.94E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	7.81E-11	5.91E-18	2.77E-10	1.05E-17	3.59E-17	1.65E-17	-2.79E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.13E-01	1.90E-04	1.16E-05	1.51E-04	6.93E-05	1.80E-05	-8.38E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	6.87E-03	4.66E-05	2.78E-06	3.69E-05	1.69E-05	2.04E-06	-4.56E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	6.56E-03	3.37E-06	1.21E-06	-5.66E-05	7.79E-06	1.38E-06	-4.69E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.17E-06	2.25E-09	5.14E-10	4.71E-09	1.14E-08	3.02E-10	-2.00E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	3.19E+02	4.85E-01	2.21E-02	8.18E-01	1.96E-01	4.09E-02	-2.11E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	1.61E+02	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-1.13E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	1.61E+02	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-1.13E+02
Use of non-renewable primary energy used as energy carrier	MJ	3.77E+02	4.88E-01	2.23E-02	8.24E-01	2.03E-01	4.22E-02	-2.51E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	3.77E+02	4.88E-01	2.23E-02	8.24E-01	2.03E-01	4.22E-02	-2.51E+02
Use of secondary material	kg	1.68E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	3.75E-01	2.14E-05	3.02E-06	5.26E-05	5.59E-05	1.04E-05	-2.88E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.33E-05	1.73E-11	0	4.15E-11	1.13E-11	4.48E-12	-1.92E-08
Non-hazardous waste disposed	kg	7.50E+00	6.44E-05	0	1.22E-04	5.44E-05	2.10E-01	-5.83E+00
Radioactive waste disposed	kg	2.16E-02	5.67E-07	0	9.96E-07	2.62E-06	4.43E-07	-1.48E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.92E-03	0	3.99E+00	0	0	0	0
Materials for energy recovery	kg	3.98E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.25. Environmental profile for Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 2.0 mm colour-coated aluminium, powder painted

Product weight 4.2 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	5.55E+01	4.76E-02	2.04E-03	8.06E-02	1.34E-02	4.02E-03	-3.99E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.07E-10	7.88E-18	3.69E-10	1.40E-17	4.79E-17	2.19E-17	-5.73E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.30E-01	2.53E-04	1.55E-05	2.01E-04	9.24E-05	2.40E-05	-1.72E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.33E-02	6.21E-05	3.70E-06	4.92E-05	2.25E-05	2.72E-06	-9.35E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.33E-02	4.50E-06	1.62E-06	-7.55E-05	1.04E-05	1.84E-06	-9.62E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.10E-06	3.00E-09	6.85E-10	6.28E-09	1.52E-08	4.03E-10	-4.09E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	6.22E+02	6.47E-01	2.94E-02	1.09E+00	2.61E-01	5.45E-02	-4.33E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.23E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.31E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	3.23E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.31E+02
Use of non-renewable primary energy used as energy carrier	MJ	7.37E+02	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-5.15E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	7.37E+02	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-5.15E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	7.77E-01	2.85E-05	4.02E-06	7.01E-05	7.46E-05	1.39E-05	-5.90E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.82E-08	2.31E-11	0	5.53E-11	1.51E-11	5.97E-12	-3.95E-08
Non-hazardous waste disposed	kg	1.56E+01	8.59E-05	0	1.63E-04	7.25E-05	2.80E-01	-1.20E+01
Radioactive waste disposed	kg	4.26E-02	7.57E-07	0	1.33E-06	3.49E-06	5.90E-07	-3.04E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.56E-03	0	5.32E+00	0	0	0	0
Materials for energy recovery	kg	5.40E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.25. Environmental profile for Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 2.0 mm colour-coated aluminium, PVDF coated

Product weight 4.2 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	3.73E+01	4.76E-02	2.04E-03	8.06E-02	1.34E-02	4.02E-03	-2.59E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.04E-10	7.88E-18	3.69E-10	1.40E-17	4.79E-17	2.19E-17	-3.73E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.51E-01	2.53E-04	1.55E-05	2.01E-04	9.24E-05	2.40E-05	-1.12E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	9.15E-03	6.21E-05	3.70E-06	4.92E-05	2.25E-05	2.72E-06	-6.07E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	8.74E-03	4.50E-06	1.62E-06	-7.55E-05	1.04E-05	1.84E-06	-6.25E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.23E-06	3.00E-09	6.85E-10	6.28E-09	1.52E-08	4.03E-10	-2.66E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	4.25E+02	6.47E-01	2.94E-02	1.09E+00	2.61E-01	5.45E-02	-2.82E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.15E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-1.50E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.15E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-1.50E+02
Use of non-renewable primary energy used as energy carrier	MJ	5.03E+02	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-3.34E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	5.03E+02	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-3.34E+02
Use of secondary material	kg	2.24E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.00E-01	2.85E-05	4.02E-06	7.01E-05	7.46E-05	1.39E-05	-3.83E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8.43E-05	2.31E-11	0	5.53E-11	1.51E-11	5.97E-12	-2.57E-08
Non-hazardous waste disposed	kg	1.00E+01	8.59E-05	0	1.63E-04	7.25E-05	2.80E-01	-7.78E+00
Radioactive waste disposed	kg	2.88E-02	7.57E-07	0	1.33E-06	3.49E-06	5.90E-07	-1.97E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.56E-03	0	5.32E+00	0	0	0	0
Materials for energy recovery	kg	5.31E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.3. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5 mm raw aluminium (un-treated)

Product weight 4.2 kg/m², aluminium thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	41.8	3.57E-02	1.53E-03	6.05E-02	1.01E-02	3.01E-03	-29.9
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	7.21E-11	5.91E-18	2.77E-10	1.05E-17	3.59E-17	1.65E-17	-4.30E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.174	1.90E-04	1.16E-05	1.51E-04	6.93E-05	1.80E-05	-0.129
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.01E-02	4.66E-05	2.78E-06	3.69E-05	1.69E-05	2.04E-06	-7.01E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	9.91E-03	3.37E-06	1.21E-06	-5.66E-05	7.79E-06	1.38E-06	-7.22E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.58E-06	2.25E-09	5.14E-10	4.71E-09	1.14E-08	3.02E-10	-3.07E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	467	0.485	2.21E-02	0.818	0.196	4.09E-02	-325
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	244	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-173
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	244	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-173
Use of non-renewable primary energy used as energy carrier	MJ	553	0.488	2.23E-02	0.824	0.203	4.22E-02	-386
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	553	0.488	2.23E-02	0.824	0.203	4.22E-02	-386
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.586	2.14E-05	3.02E-06	5.26E-05	5.59E-05	1.04E-05	-0.442
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.60E-08	1.73E-11	0	4.15E-11	1.13E-11	4.48E-12	-2.96E-08
Non-hazardous waste disposed	kg	11.8	6.44E-05	0	1.22E-04	5.44E-05	0.210	-8.97
Radioactive waste disposed	kg	3.22E-02	5.67E-07	0	9.96E-07	2.62E-06	4.43E-07	-2.28E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.92E-03	0	3.99	0	0	0	0
Materials for energy recovery	kg	3.98E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.3. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 2.0 mm raw aluminium (un-treated)

Product weight 4.2 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	5.57E+01	4.76E-02	2.04E-03	8.06E-02	1.34E-02	4.02E-03	-3.99E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	9.62E-11	7.88E-18	3.69E-10	1.40E-17	4.79E-17	2.19E-17	-5.73E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.32E-01	2.53E-04	1.55E-05	2.01E-04	9.24E-05	2.40E-05	-1.72E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.34E-02	6.21E-05	3.70E-06	4.92E-05	2.25E-05	2.72E-06	-9.35E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.32E-02	4.50E-06	1.62E-06	-7.55E-05	1.04E-05	1.84E-06	-9.62E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.11E-06	3.00E-09	6.85E-10	6.28E-09	1.52E-08	4.03E-10	-4.09E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	6.22E+02	6.47E-01	2.94E-02	1.09E+00	2.61E-01	5.45E-02	-4.33E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.25E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.31E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	3.25E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.31E+02
Use of non-renewable primary energy used as energy carrier	MJ	7.38E+02	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-5.15E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	7.38E+02	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-5.15E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	7.81E-01	2.85E-05	4.02E-06	7.01E-05	7.46E-05	1.39E-05	-5.90E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.47E-08	2.31E-11	0	5.53E-11	1.51E-11	5.97E-12	-3.95E-08
Non-hazardous waste disposed	kg	1.57E+01	8.59E-05	0	1.63E-04	7.25E-05	2.80E-01	-1.20E+01
Radioactive waste disposed	kg	4.29E-02	7.57E-07	0	1.33E-06	3.49E-06	5.90E-07	-3.04E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.56E-03	0	5.32E+00	0	0	0	0
Materials for energy recovery	kg	5.31E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.4. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5 mm anodized aluminium

Product weight 4.2 kg/m², aluminium thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	68.5	3.57E-02	1.53E-03	6.05E-02	1.01E-02	3.01E-03	-29.9
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	7.29E-11	5.91E-18	2.77E-10	1.05E-17	3.59E-17	1.65E-17	-4.30E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.209	1.90E-04	1.16E-05	1.51E-04	6.93E-05	1.80E-05	-0.129
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.85E-02	4.66E-05	2.78E-06	3.69E-05	1.69E-05	2.04E-06	-7.01E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.27E-02	3.37E-06	1.21E-06	-5.66E-05	7.79E-06	1.38E-06	-7.22E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.22E-05	2.25E-09	5.14E-10	4.71E-09	1.14E-08	3.02E-10	-3.07E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	831	0.485	2.21E-02	0.818	0.196	4.09E-02	-325
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	378	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-173
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	378	1.84E-02	1.29E-04	4.59E-02	1.49E-02	5.68E-03	-173
Use of non-renewable primary energy used as energy carrier	MJ	960	0.488	2.23E-02	0.824	0.203	4.22E-02	-386
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	960	0.488	2.23E-02	0.824	0.203	4.22E-02	-386
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.667	2.14E-05	3.02E-06	5.26E-05	5.59E-05	1.04E-05	-0.442
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.81E-07	1.73E-11	0	4.15E-11	1.13E-11	4.48E-12	-2.96E-08
Non-hazardous waste disposed	kg	13.0	6.44E-05	0	1.22E-04	5.44E-05	0.210	-8.97
Radioactive waste disposed	kg	4.87E-02	5.67E-07	0	9.96E-07	2.62E-06	4.43E-07	-2.28E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.92E-03	0	3.99	0	0	0	0
Materials for energy recovery	kg	3.98E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.45. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 2.0 mm anodized aluminium

Product weight 4.2 kg/m², aluminium thickness 2.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	9.14E+01	4.76E-02	2.04E-03	8.06E-02	1.34E-02	4.02E-03	-3.99E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	9.72E-11	7.88E-18	3.69E-10	1.40E-17	4.79E-17	2.19E-17	-5.73E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.79E-01	2.53E-04	1.55E-05	2.01E-04	9.24E-05	2.40E-05	-1.72E-01
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.46E-02	6.21E-05	3.70E-06	4.92E-05	2.25E-05	2.72E-06	-9.35E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.69E-02	4.50E-06	1.62E-06	-7.55E-05	1.04E-05	1.84E-06	-9.62E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.63E-05	3.00E-09	6.85E-10	6.28E-09	1.52E-08	4.03E-10	-4.09E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	1.11E+03	6.47E-01	2.94E-02	1.09E+00	2.61E-01	5.45E-02	-4.33E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	5.04E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.31E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	5.04E+02	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.31E+02
Use of non-renewable primary energy used as energy carrier	MJ	1.28E+03	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-5.15E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1.28E+03	6.51E-01	2.97E-02	1.10E+00	2.71E-01	5.62E-02	-5.15E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	8.89E-01	2.85E-05	4.02E-06	7.01E-05	7.46E-05	1.39E-05	-5.90E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.41E-07	2.31E-11	0	5.53E-11	1.51E-11	5.97E-12	-3.95E-08
Non-hazardous waste disposed	kg	1.74E+01	8.59E-05	0	1.63E-04	7.25E-05	2.80E-01	-1.20E+01
Radioactive waste disposed	kg	6.49E-02	7.57E-07	0	1.33E-06	3.49E-06	5.90E-07	-3.04E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.56E-03	0	5.32E+00	0	0	0	0
Materials for energy recovery	kg	5.31E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.5. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from titanium zinc – Classic

Product weight 7.4 kg/m², titanium zinc thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	27.4	6.29E-02	2.70E-03	0.107	1.80E-02	4.25E-03	-1.05E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-8.93E-08	1.04E-17	4.87E-10	1.85E-17	6.39E-17	2.32E-17	-6.86E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.155	3.35E-04	2.05E-05	2.66E-04	1.23E-04	2.54E-05	-4.68E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.28E-02	8.20E-05	4.89E-06	6.51E-05	3.01E-05	2.88E-06	-1.85E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	7.90E-03	5.94E-06	2.14E-06	-9.98E-05	1.39E-05	1.95E-06	-1.04E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.59E-03	3.96E-09	9.06E-10	8.30E-09	2.03E-08	4.26E-10	-7.94E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	223	0.854	3.89E-02	1.44	0.349	5.76E-02	-1.51E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	233	3.25E-02	2.27E-04	8.09E-02	2.66E-02	8.00E-03	-6.64E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	233	3.25E-02	2.27E-04	8.09E-02	2.66E-02	8.00E-03	-6.64E+00
Use of non-renewable primary energy used as energy carrier	MJ	535	0.860	3.92E-02	1.45	0.362	5.94E-02	-1.66E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	535	0.860	3.92E-02	1.45	0.362	5.94E-02	-1.66E+02
Use of secondary material	kg	0.128	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.84	3.77E-05	5.31E-06	9.26E-05	9.96E-05	1.47E-05	-5.97E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.14E-05	3.05E-11	0	7.31E-11	2.02E-11	6.31E-12	0
Non-hazardous waste disposed	kg	2.90	1.13E-04	0	2.16E-04	9.68E-05	0.296	0
Radioactive waste disposed	kg	2.27E-02	1.00E-06	0	1.76E-06	4.66E-06	6.24E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.39E-03	0	7.10	0	0	0	0
Materials for energy recovery	kg	7.02E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.6. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from titanium zinc – Pre-patinated

Product weight 7.4 kg/m², titanium zinc thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	35.1	6.29E-02	2.70E-03	0.107	1.80E-02	4.25E-03	-1.05E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-1.05E-07	1.04E-17	4.87E-10	1.85E-17	6.39E-17	2.32E-17	-6.84E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.185	3.35E-04	2.05E-05	2.66E-04	1.23E-04	2.54E-05	-4.66E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.76E-02	8.20E-05	4.89E-06	6.51E-05	3.01E-05	2.88E-06	-1.85E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	9.50E-03	5.94E-06	2.14E-06	-9.98E-05	1.39E-05	1.95E-06	-1.04E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.25E-03	3.96E-09	9.06E-10	8.30E-09	2.03E-08	4.26E-10	-7.91E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	273	0.854	3.89E-02	1.44	0.349	5.76E-02	-1.50E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	276	3.25E-02	2.27E-04	8.09E-02	2.66E-02	8.00E-03	-6.62E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	276	3.25E-02	2.27E-04	8.09E-02	2.66E-02	8.00E-03	-6.62E+00
Use of non-renewable primary energy used as energy carrier	MJ	654	0.860	3.92E-02	1.45	0.362	5.94E-02	-1.65E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	654	0.860	3.92E-02	1.45	0.362	5.94E-02	-1.65E+02
Use of secondary material	kg	0.151	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	6.90	3.77E-05	5.31E-06	9.26E-05	9.96E-05	1.47E-05	-5.95E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.25E-05	3.05E-11	0	7.31E-11	2.02E-11	6.31E-12	0
Non-hazardous waste disposed	kg	3.85	1.13E-04	0	2.16E-04	9.68E-05	0.296	0
Radioactive waste disposed	kg	2.69E-02	1.00E-06	0	1.76E-06	4.66E-06	6.24E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.39E-03	0	7.10	0	0	0	0
Materials for energy recovery	kg	7.02E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.7. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5mm copper – Nordic Standard

Product weight 13.9 kg/m², copper thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	9.97	0.118	5.07E-03	0.200	3.48E-02	1.99E-03	-5.14E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.35E-10	1.96E-17	9.15E-10	3.48E-17	1.24E-16	1.09E-17	-3.98E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.51E-02	6.29E-04	3.85E-05	5.00E-04	2.39E-04	1.19E-05	-2.06E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.09E-03	1.54E-04	9.19E-06	1.22E-04	5.82E-05	1.35E-06	-1.26E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	2.85E-03	1.12E-05	4.01E-06	-1.87E-04	2.69E-05	9.14E-07	-1.35E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.04E-04	7.44E-09	1.70E-09	1.56E-08	3.94E-08	2.00E-10	-5.44E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	124	1.60	7.31E-02	2.71	0.675	2.71E-02	-6.30E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	59.1	6.11E-02	4.27E-04	0.152	5.16E-02	3.76E-03	-3.97E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	59.1	6.11E-02	4.27E-04	0.152	5.16E-02	3.76E-03	-3.97E-01
Use of non-renewable primary energy used as energy carrier	MJ	267	1.62	7.37E-02	2.73	0.701	2.79E-02	-7.69E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	267	1.62	7.37E-02	2.73	0.701	2.79E-02	-7.69E+00
Use of secondary material	kg	15.2	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	6.59E-02	7.07E-05	9.98E-06	1.74E-04	1.93E-04	6.88E-06	-7.63E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.67E-05	5.74E-11	0	1.37E-10	3.91E-11	2.96E-12	0.00E+00
Non-hazardous waste disposed	kg	7.16E-02	2.13E-04	0	4.05E-04	1.88E-04	0.139	0.00E+00
Radioactive waste disposed	kg	1.08E-02	1.88E-06	0	3.30E-06	9.03E-06	2.93E-07	-1.83E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.36E-03	0	13.8	0	0	0	0
Materials for energy recovery	kg	0.132	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.8. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.0mm copper – Nordic Standard

Product weight 9.3 kg/m², copper thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	6.67	7.91E-02	3.39E-03	0.134	2.33E-02	1.33E-03	-3.44E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.24E-10	1.31E-17	6.12E-10	2.33E-17	8.29E-17	7.29E-18	-2.66E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.35E-02	4.21E-04	2.57E-05	3.34E-04	1.60E-04	7.97E-06	-1.38E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.07E-03	1.03E-04	6.15E-06	8.18E-05	3.90E-05	9.04E-07	-8.45E-05
POCP Photochemical ozone creation potential	kg ethene equiv.	1.91E-03	7.47E-06	2.68E-06	-1.25E-04	1.80E-05	6.12E-07	-9.02E-05
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.37E-04	4.98E-09	1.14E-09	1.04E-08	2.63E-08	1.34E-10	-3.64E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	82.8	1.07	4.89E-02	1.81	0.452	1.81E-02	-4.21E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	39.5	4.08E-02	2.86E-04	0.102	3.45E-02	2.51E-03	-2.66E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	39.5	4.08E-02	2.86E-04	0.102	3.45E-02	2.51E-03	-2.66E-01
Use of non-renewable primary energy used as energy carrier	MJ	178	1.08	4.93E-02	1.82	0.469	1.87E-02	-5.15E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	178	1.08	4.93E-02	1.82	0.469	1.87E-02	-5.15E+00
Use of secondary material	kg	10.2	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	4.41E-02	4.73E-05	6.68E-06	1.16E-04	1.29E-04	4.61E-06	-5.11E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.79E-05	3.84E-11	0	9.19E-11	2.61E-11	1.98E-12	0.00E+00
Non-hazardous waste disposed	kg	4.79E-02	1.43E-04	0	2.71E-04	1.25E-04	9.31E-02	0.00E+00
Radioactive waste disposed	kg	7.24E-03	1.26E-06	0	2.21E-06	6.04E-06	1.96E-07	-1.22E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.26E-03	0	9.21	0	0	0	0
Materials for energy recovery	kg	8.82E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.9. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5mm copper – Nordic Green, Blue and Brown

Product weight 13.9 kg/m², copper thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	10.9	0.118	5.07E-03	0.200	3.48E-02	1.99E-03	-1.17E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.05E-10	1.96E-17	9.15E-10	3.48E-17	1.24E-16	1.09E-17	-9.02E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	4.64E-02	6.29E-04	3.85E-05	5.00E-04	2.39E-04	1.19E-05	-4.67E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.36E-03	1.54E-04	9.19E-06	1.22E-04	5.82E-05	1.35E-06	-2.86E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	3.43E-03	1.12E-05	4.01E-06	-1.87E-04	2.69E-05	9.14E-07	-3.05E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.06E-04	7.44E-09	1.70E-09	1.56E-08	3.94E-08	2.00E-10	-1.23E-04
ADP Abiotic depletion potential of resources – fossil fuel	MJ	134	1.60	7.31E-02	2.71	0.675	2.71E-02	-1.43E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	66.0	6.11E-02	4.27E-04	0.152	5.16E-02	3.76E-03	-9.01E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	66.0	6.11E-02	4.27E-04	0.152	5.16E-02	3.76E-03	-9.01E-01
Use of non-renewable primary energy used as energy carrier	MJ	298	1.62	7.37E-02	2.73	0.701	2.79E-02	-1.74E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	298	1.62	7.37E-02	2.73	0.701	2.79E-02	-1.74E+01
Use of secondary material	kg	14.6	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	8.18E-02	7.07E-05	9.98E-06	1.74E-04	1.93E-04	6.88E-06	-1.73E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.39E-05	5.74E-11	0	1.37E-10	3.91E-11	2.96E-12	0.00E+00
Non-hazardous waste disposed	kg	0.100	2.13E-04	0	4.05E-04	1.88E-04	0.139	0.00E+00
Radioactive waste disposed	kg	1.29E-02	1.88E-06	0	3.30E-06	9.03E-06	2.93E-07	-4.14E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.36E-03	0	13.8	0	0	0	0
Materials for energy recovery	kg	0.132	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.10. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.0mm copper – Nordic Green, Blue and Brown

Product weight 9.3 kg/m², copper thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	7.31	7.91E-02	3.39E-03	0.134	2.33E-02	1.33E-03	-7.80E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.71E-10	1.31E-17	6.12E-10	2.33E-17	8.29E-17	7.29E-18	-6.03E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.10E-02	4.21E-04	2.57E-05	3.34E-04	1.60E-04	7.97E-06	-3.13E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.25E-03	1.03E-04	6.15E-06	8.18E-05	3.90E-05	9.04E-07	-1.92E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	2.30E-03	7.47E-06	2.68E-06	-1.25E-04	1.80E-05	6.12E-07	-2.04E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.38E-04	4.98E-09	1.14E-09	1.04E-08	2.63E-08	1.34E-10	-8.24E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	90.0	1.07	4.89E-02	1.81	0.452	1.81E-02	-9.55E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	44.1	4.08E-02	2.86E-04	0.102	3.45E-02	2.51E-03	-6.03E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	44.1	4.08E-02	2.86E-04	0.102	3.45E-02	2.51E-03	-6.03E-01
Use of non-renewable primary energy used as energy carrier	MJ	200	1.08	4.93E-02	1.82	0.469	1.87E-02	-1.17E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	200	1.08	4.93E-02	1.82	0.469	1.87E-02	-1.17E+01
Use of secondary material	kg	9.79	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.47E-02	4.73E-05	6.68E-06	1.16E-04	1.29E-04	4.61E-06	-1.16E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.27E-05	3.84E-11	0	9.19E-11	2.61E-11	1.98E-12	0.00E+00
Non-hazardous waste disposed	kg	6.69E-02	1.43E-04	0	2.71E-04	1.25E-04	9.31E-02	0.00E+00
Radioactive waste disposed	kg	8.61E-03	1.26E-06	0	2.21E-06	6.04E-06	1.96E-07	-2.77E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.26E-03	0	9.21	0	0	0	0
Materials for energy recovery	kg	8.82E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.11. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5mm Nordic brass

Product weight 13.5 kg/m², brass thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	24.5	0.115	4.92E-03	0.194	3.38E-02	1.94E-03	-5.97E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.05E-09	1.90E-17	8.89E-10	3.38E-17	1.20E-16	1.06E-17	-5.17E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.03E-01	6.11E-04	3.73E-05	4.85E-04	2.32E-04	1.16E-05	-7.49E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	8.10E-03	1.50E-04	8.92E-06	1.19E-04	5.66E-05	1.31E-06	-2.29E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	6.85E-03	1.08E-05	3.90E-06	-1.82E-04	2.61E-05	8.88E-07	-3.59E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.38E-02	7.23E-09	1.65E-09	1.51E-08	3.82E-08	1.94E-10	-3.61E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	288	1.56	7.10E-02	2.63	0.656	2.63E-02	-6.67E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	170	5.93E-02	4.15E-04	0.148	5.01E-02	3.65E-03	-1.60E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	170	5.93E-02	4.15E-04	0.148	5.01E-02	3.65E-03	-1.60E+01
Use of non-renewable primary energy used as energy carrier	MJ	706	1.57	7.16E-02	2.65	0.680	2.71E-02	-7.29E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	706	1.57	7.16E-02	2.65	0.680	2.71E-02	-7.29E+01
Use of secondary material	kg	2.94	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.230	6.87E-05	9.69E-06	1.69E-04	1.87E-04	6.68E-06	-4.90E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.14E-04	5.57E-11	0	1.33E-10	3.80E-11	2.88E-12	-1.38E-08
Non-hazardous waste disposed	kg	0.418	2.07E-04	0	3.93E-04	1.82E-04	0.135	-1.50E+00
Radioactive waste disposed	kg	3.25E-02	1.82E-06	0	3.20E-06	8.77E-06	2.84E-07	-2.09E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.18E-03	0	13.4	0	0	0	0
Materials for energy recovery	kg	0.128	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.12. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.0mm Nordic brass

Product weight 9.0 kg/m², brass thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	16.3	7.65E-02	3.28E-03	0.130	2.25E-02	1.29E-03	-3.98E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.04E-09	1.27E-17	5.93E-10	2.26E-17	8.02E-17	7.05E-18	-3.44E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	6.88E-02	4.07E-04	2.49E-05	3.24E-04	1.55E-04	7.71E-06	-4.99E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	5.40E-03	9.98E-05	5.95E-06	7.91E-05	3.77E-05	8.75E-07	-1.53E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	4.56E-03	7.23E-06	2.60E-06	-1.21E-04	1.74E-05	5.92E-07	-2.39E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	9.22E-03	4.82E-09	1.10E-09	1.01E-08	2.55E-08	1.30E-10	-2.40E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	192	1.04	4.73E-02	1.75	0.437	1.75E-02	-4.44E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	114	3.95E-02	2.77E-04	9.84E-02	3.34E-02	2.43E-03	-1.06E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	114	3.95E-02	2.77E-04	9.84E-02	3.34E-02	2.43E-03	-1.06E+01
Use of non-renewable primary energy used as energy carrier	MJ	471	1.05	4.77E-02	1.77	0.454	1.81E-02	-4.86E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	471	1.05	4.77E-02	1.77	0.454	1.81E-02	-4.86E+01
Use of secondary material	kg	1.96	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.153	4.58E-05	6.46E-06	1.13E-04	1.25E-04	4.46E-06	-3.27E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.59E-05	3.71E-11	0	8.90E-11	2.53E-11	1.92E-12	-9.20E-09
Non-hazardous waste disposed	kg	0.279	1.38E-04	0	2.62E-04	1.21E-04	9.01E-02	-1.00E+00
Radioactive waste disposed	kg	2.17E-02	1.22E-06	0	2.14E-06	5.85E-06	1.90E-07	-1.39E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.12E-03	0	8.91	0	0	0	0
Materials for energy recovery	kg	8.54E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.13. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5mm Nordic bronze

Product weight 13.5 kg/m², bronze thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	14.0	0.115	4.92E-03	0.194	3.38E-02	1.94E-03	0
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.20E-09	1.90E-17	8.89E-10	3.38E-17	1.20E-16	1.06E-17	0
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.33E-02	6.11E-04	3.73E-05	4.85E-04	2.32E-04	1.16E-05	0
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.69E-03	1.50E-04	8.92E-06	1.19E-04	5.66E-05	1.31E-06	0
POCP Photochemical ozone creation potential	kg ethene equiv.	2.49E-03	1.08E-05	3.90E-06	-1.82E-04	2.61E-05	8.88E-07	0
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.70E-06	7.23E-09	1.65E-09	1.51E-08	3.82E-08	1.94E-10	0
ADP Abiotic depletion potential of resources – fossil fuel	MJ	156	1.56	7.10E-02	2.63	0.656	2.63E-02	0
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	111	5.93E-02	4.15E-04	0.148	5.01E-02	3.65E-03	0
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	111	5.93E-02	4.15E-04	0.148	5.01E-02	3.65E-03	0
Use of non-renewable primary energy used as energy carrier	MJ	377	1.57	7.16E-02	2.65	0.680	2.71E-02	0
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	377	1.57	7.16E-02	2.65	0.680	2.71E-02	0
Use of secondary material	kg	15.3	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.145	6.87E-05	9.69E-06	1.69E-04	1.87E-04	6.68E-06	0
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.39E-04	5.57E-11	0	1.33E-10	3.80E-11	2.88E-12	0
Non-hazardous waste disposed	kg	0.129	2.07E-04	0	3.93E-04	1.82E-04	0.135	0
Radioactive waste disposed	kg	1.92E-02	1.82E-06	0	3.20E-06	8.77E-06	2.84E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.18E-03	0	13.4	0	0	0	0
Materials for energy recovery	kg	0.128	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.14. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.0mm Nordic bronze

Product weight 9.0 kg/m², bronze thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	9.32	7.65E-02	3.28E-03	0.130	2.25E-02	1.29E-03	0
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	8.01E-10	1.27E-17	5.93E-10	2.26E-17	8.02E-17	7.05E-18	0
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.22E-02	4.07E-04	2.49E-05	3.24E-04	1.55E-04	7.71E-06	0
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.46E-03	9.98E-05	5.95E-06	7.91E-05	3.77E-05	8.75E-07	0
POCP Photochemical ozone creation potential	kg ethene equiv.	1.66E-03	7.23E-06	2.60E-06	-1.21E-04	1.74E-05	5.92E-07	0
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.80E-06	4.82E-09	1.10E-09	1.01E-08	2.55E-08	1.30E-10	0
ADP Abiotic depletion potential of resources – fossil fuel	MJ	104	1.04	4.73E-02	1.75	0.437	1.75E-02	0
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	74.2	3.95E-02	2.77E-04	9.84E-02	3.34E-02	2.43E-03	0
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	74.2	3.95E-02	2.77E-04	9.84E-02	3.34E-02	2.43E-03	0
Use of non-renewable primary energy used as energy carrier	MJ	251	1.05	4.77E-02	1.77	0.454	1.81E-02	0
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	251	1.05	4.77E-02	1.77	0.454	1.81E-02	0
Use of secondary material	kg	10.2	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	9.70E-02	4.58E-05	6.46E-06	1.13E-04	1.25E-04	4.46E-06	0
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.24E-05	3.71E-11	0	8.90E-11	2.53E-11	1.92E-12	0
Non-hazardous waste disposed	kg	8.63E-02	1.38E-04	0	2.62E-04	1.21E-04	9.01E-02	0
Radioactive waste disposed	kg	1.28E-02	1.22E-06	0	2.14E-06	5.85E-06	1.90E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.12E-03	0	8.91	0	0	0	0
Materials for energy recovery	kg	8.54E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.15. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.5mm Nordic Royal

Product weight 13.5 kg/m², NORDIC ROYAL thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	32.4	0.115	4.92E-03	0.194	3.38E-02	1.94E-03	-5.97E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.36E-07	1.90E-17	8.89E-10	3.38E-17	1.20E-16	1.06E-17	-5.17E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.145	6.11E-04	3.73E-05	4.85E-04	2.32E-04	1.16E-05	-7.49E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.09E-02	1.50E-04	8.92E-06	1.19E-04	5.66E-05	1.31E-06	-2.29E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	9.48E-03	1.08E-05	3.90E-06	-1.82E-04	2.61E-05	8.88E-07	-3.59E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	5.81E-03	7.23E-09	1.65E-09	1.51E-08	3.82E-08	1.94E-10	-3.61E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	360	1.56	7.10E-02	2.63	0.656	2.63E-02	-6.67E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	240	5.93E-02	4.15E-04	0.148	5.01E-02	3.65E-03	-1.60E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	240	5.93E-02	4.15E-04	0.148	5.01E-02	3.65E-03	-1.60E+01
Use of non-renewable primary energy used as energy carrier	MJ	843	1.57	7.16E-02	2.65	0.680	2.71E-02	-7.29E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	843	1.57	7.16E-02	2.65	0.680	2.71E-02	-7.29E+01
Use of secondary material	kg	2.94	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.312	6.87E-05	9.69E-06	1.69E-04	1.87E-04	6.68E-06	-4.90E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.37E-05	5.57E-11	0	1.33E-10	3.80E-11	2.88E-12	-1.38E-08
Non-hazardous waste disposed	kg	3.55	2.07E-04	0	3.93E-04	1.82E-04	0.135	-1.50E+00
Radioactive waste disposed	kg	3.14E-02	1.82E-06	0	3.20E-06	8.77E-06	2.84E-07	-2.09E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	6.18E-03	0	13.4	0	0	0	0
Materials for energy recovery	kg	0.128	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.16. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from 1.0mm Nordic Royal

Product weight 9.0 kg/m², NORDIC ROYAL thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	21.6	7.65E-02	3.28E-03	0.130	2.25E-02	1.29E-03	-3.98E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.24E-07	1.27E-17	5.93E-10	2.26E-17	8.02E-17	7.05E-18	-3.44E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	9.67E-02	4.07E-04	2.49E-05	3.24E-04	1.55E-04	7.71E-06	-4.99E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	7.30E-03	9.98E-05	5.95E-06	7.91E-05	3.77E-05	8.75E-07	-1.53E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	6.32E-03	7.23E-06	2.60E-06	-1.21E-04	1.74E-05	5.92E-07	-2.39E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.87E-03	4.82E-09	1.10E-09	1.01E-08	2.55E-08	1.30E-10	-2.40E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	240	1.04	4.73E-02	1.75	0.437	1.75E-02	-4.44E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	160	3.95E-02	2.77E-04	9.84E-02	3.34E-02	2.43E-03	-1.06E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	160	3.95E-02	2.77E-04	9.84E-02	3.34E-02	2.43E-03	-1.06E+01
Use of non-renewable primary energy used as energy carrier	MJ	562	1.05	4.77E-02	1.77	0.454	1.81E-02	-4.86E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	562	1.05	4.77E-02	1.77	0.454	1.81E-02	-4.86E+01
Use of secondary material	kg	1.96	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.208	4.58E-05	6.46E-06	1.13E-04	1.25E-04	4.46E-06	-3.27E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.91E-05	3.71E-11	0	8.90E-11	2.53E-11	1.92E-12	-9.20E-09
Non-hazardous waste disposed	kg	2.37	1.38E-04	0	2.62E-04	1.21E-04	9.01E-02	-1.00E+00
Radioactive waste disposed	kg	2.09E-02	1.22E-06	0	2.14E-06	5.85E-06	1.90E-07	-1.39E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	4.12E-03	0	8.91	0	0	0	0
Materials for energy recovery	kg	8.54E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.17. Environmental profile for Lamella Groove, Lamella Sharp, Lamella Lap, Lamella Vertical, Lamella Straight and similar Bespoke from stainless steel

Product weight 8.2 kg/m², stainless steel thickness 1.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	32.8	6.97E-02	2.99E-03	0.118	1.97E-02	5.88E-03	-1.44E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.86E-10	1.15E-17	5.40E-10	2.06E-17	7.01E-17	3.21E-17	-1.25E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.160	3.71E-04	2.27E-05	2.95E-04	1.35E-04	3.51E-05	-7.71E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.14E-02	9.09E-05	5.42E-06	7.21E-05	3.30E-05	3.98E-06	-4.67E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.07E-02	6.58E-06	2.37E-06	-1.11E-04	1.52E-05	2.70E-06	-4.83E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.75E-03	4.39E-09	1.00E-09	9.20E-09	2.23E-08	5.90E-10	-4.73E-04
ADP Abiotic depletion potential of resources – fossil fuel	MJ	487	0.947	4.31E-02	1.60	0.382	7.98E-02	-1.77E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	177	3.60E-02	2.52E-04	8.96E-02	2.92E-02	1.11E-02	-3.39E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	177	3.60E-02	2.52E-04	8.96E-02	2.92E-02	1.11E-02	-3.39E+01
Use of non-renewable primary energy used as energy carrier	MJ	1060	0.953	4.35E-02	1.61	0.397	8.23E-02	-1.81E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1060	0.953	4.35E-02	1.61	0.397	8.23E-02	-1.81E+02
Use of secondary material	kg	6.04	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.363	4.17E-05	5.89E-06	1.03E-04	1.09E-04	2.03E-05	-2.47E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.50E-04	3.38E-11	0	8.10E-11	2.21E-11	8.74E-12	-1.66E-03
Non-hazardous waste disposed	kg	3.18	1.26E-04	0	2.39E-04	1.06E-04	0.410	1.62E-01
Radioactive waste disposed	kg	2.20E-02	1.11E-06	0	1.95E-06	5.11E-06	8.64E-07	-1.18E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.75E-03	0	7.79	0	0	0	0
Materials for energy recovery	kg	7.78E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 11.18. Environmental profile for Lamella and similar Bespoke from Cor-Ten® steel

Product weight 12.4 kg/m², Cor-Ten® steel thickness 1.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	34.7	0.105	4.52E-03	0.179	2.98E-02	8.89E-03	-1.73E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.13E-10	1.74E-17	8.17E-10	3.11E-17	1.06E-16	4.86E-17	-1.13E-06
AP Acidification potential of soil and water sources	kg SO_2 equiv.	6.44E-02	5.61E-04	3.43E-05	4.46E-04	2.05E-04	5.31E-05	-7.67E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	6.90E-03	1.37E-04	8.20E-06	1.09E-04	4.99E-05	6.03E-06	-3.04E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	7.03E-03	9.96E-06	3.58E-06	-1.67E-04	2.30E-05	4.08E-06	-1.71E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	8.51E-06	6.64E-09	1.52E-09	1.39E-08	3.37E-08	8.93E-10	-1.30E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	378	1.43	6.52E-02	2.42	0.578	0.121	-2.47E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	65.89	5.45E-02	3.81E-04	0.136	4.41E-02	1.68E-02	-1.09E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	65.89	5.45E-02	3.81E-04	0.136	4.41E-02	1.68E-02	-1.09E+01
Use of non-renewable primary energy used as energy carrier	MJ	762.32	1.44	6.57E-02	2.43	0.600	0.124	-2.72E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	762.32	1.44	6.57E-02	2.43	0.600	0.124	-2.72E+02
Use of secondary material	kg	0.36	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.13E-21	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.33E-20	0	0	0	0	0	0
Net use of fresh water	m^3	0.29	6.31E-05	8.90E-06	1.55E-04	1.65E-04	3.07E-05	-9.78E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0.126	5.12E-11	0	1.23E-10	3.35E-11	1.32E-11	0
Non-hazardous waste disposed	kg	0.854	1.90E-04	0	3.61E-04	1.61E-04	0.621	0
Radioactive waste disposed	kg	7.30E-03	1.68E-06	0	2.94E-06	7.73E-06	1.31E-06	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	5.68E-03	0	11.8	0	0	0	0
Materials for energy recovery	kg	0.118	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.1. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from colour-coated steel, Hiarc-coated or powder painted

Product weight 5.9 kg/m², steel thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	16.6	5.02E-02	2.15E-03	8.49E-02	1.42E-02	4.23E-03	-8.15E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.21E-10	8.30E-18	3.89E-10	1.48E-17	5.04E-17	2.31E-17	-5.32E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	4.01E-02	2.67E-04	1.63E-05	2.12E-04	9.73E-05	2.53E-05	-3.62E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	4.41E-03	6.54E-05	3.90E-06	5.19E-05	2.37E-05	2.87E-06	-1.44E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	3.72E-03	4.74E-06	1.70E-06	-7.96E-05	1.09E-05	1.94E-06	-8.08E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.04E-03	3.16E-09	7.22E-10	6.62E-09	1.60E-08	4.25E-10	-6.15E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	101	0.341	1.55E-02	0.575	0.137	2.87E-02	-5.83E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	22.8	2.59E-02	1.81E-04	6.45E-02	2.10E-02	7.97E-03	-5.14E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	22.8	2.59E-02	1.81E-04	6.45E-02	2.10E-02	7.97E-03	-5.14E+00
Use of non-renewable primary energy used as energy carrier	MJ	215	0.686	3.13E-02	1.16	0.285	5.92E-02	-1.29E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	215	0.686	3.13E-02	1.16	0.285	5.92E-02	-1.29E+02
Use of secondary material	kg	0.200	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.19E-09	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.51E-08	0	0	0	0	0	0
Net use of fresh water	m^3	1.61E-02	3.00E-05	4.24E-06	7.38E-05	7.86E-05	1.46E-05	-4.62E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.47E-06	2.43E-11	0	5.83E-11	1.59E-11	6.29E-12	0
Non-hazardous waste disposed	kg	0.144	9.05E-05	0	1.72E-04	7.64E-05	0.295	0
Radioactive waste disposed	kg	2.20E-03	4.00E-07	0	7.02E-07	1.85E-06	3.12E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.44E-03	0	5.61	0	0	0	0
Materials for energy recovery	kg	5.09E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.2. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from colour-coated aluminium, powder painted

Product weight 2.4 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	21.49	2.04E-02	8.76E-04	3.46E-02	5.76E-03	1.72E-03	-1.71E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.14E-11	3.38E-18	1.58E-10	6.02E-18	2.05E-17	9.40E-18	-2.46E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	8.92E-02	1.09E-04	6.64E-06	8.63E-05	3.96E-05	1.03E-05	-7.37E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	5.15E-03	2.66E-05	1.59E-06	2.11E-05	9.65E-06	1.17E-06	-4.01E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	5.16E-03	1.93E-06	6.93E-07	-3.24E-05	4.45E-06	7.89E-07	-4.12E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.36E-06	1.29E-09	2.94E-10	2.69E-09	6.52E-09	1.73E-10	-1.75E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	2.41E+02	2.77E-01	1.26E-02	4.68E-01	1.12E-01	2.34E-02	-1.86E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	1.25E+02	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-9.91E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	1.25E+02	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-9.91E+01
Use of non-renewable primary energy used as energy carrier	MJ	2.85E+02	2.79E-01	1.27E-02	4.71E-01	1.16E-01	2.41E-02	-2.21E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	2.85E+02	2.79E-01	1.27E-02	4.71E-01	1.16E-01	2.41E-02	-2.21E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	3.00E-01	1.22E-05	1.72E-06	3.00E-05	3.20E-05	5.94E-06	-2.53E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.03E-08	9.90E-12	0	2.37E-11	6.47E-12	2.56E-12	-1.69E-08
Non-hazardous waste disposed	kg	6.02E+00	3.68E-05	0	6.99E-05	3.11E-05	1.20E-01	-5.13E+00
Radioactive waste disposed	kg	1.65E-02	3.24E-07	0	5.69E-07	1.50E-06	2.53E-07	-1.30E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	9.92E-04	0	2.28E+00	0	0	0	0
Materials for energy recovery	kg	2.09E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.2. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from colour-coated aluminium, PVDF coated

Product weight 2.4 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.62E+00	2.04E-02	8.76E-04	3.46E-02	5.76E-03	1.72E-03	-2.22E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.47E-11	3.38E-18	1.58E-10	6.02E-18	2.05E-17	9.40E-18	-3.19E-15
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.52E-02	1.09E-04	6.64E-06	8.63E-05	3.96E-05	1.03E-05	-9.58E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.26E-03	2.66E-05	1.59E-06	2.11E-05	9.65E-06	1.17E-06	-5.21E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	9.88E-04	1.93E-06	6.93E-07	-3.24E-05	4.45E-06	7.89E-07	-5.36E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.37E-07	1.29E-09	2.94E-10	2.69E-09	6.52E-09	1.73E-10	-2.28E-07
ADP Abiotic depletion potential of resources – fossil fuel	MJ	5.94E+01	2.77E-01	1.26E-02	4.68E-01	1.12E-01	2.34E-02	-2.41E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.44E+01	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-1.29E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.44E+01	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-1.29E+01
Use of non-renewable primary energy used as energy carrier	MJ	6.95E+01	2.79E-01	1.27E-02	4.71E-01	1.16E-01	2.41E-02	-2.87E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	6.95E+01	2.79E-01	1.27E-02	4.71E-01	1.16E-01	2.41E-02	-2.87E+01
Use of secondary material	kg	2.12E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	4.26E-02	1.22E-05	1.72E-06	3.00E-05	3.20E-05	5.94E-06	-3.29E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.26E-05	9.90E-12	0	2.37E-11	6.47E-12	2.56E-12	-2.20E-09
Non-hazardous waste disposed	kg	8.29E-01	3.68E-05	0	6.99E-05	3.11E-05	1.20E-01	-6.67E-01
Radioactive waste disposed	kg	3.61E-03	3.24E-07	0	5.69E-07	1.50E-06	2.53E-07	-1.69E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	9.92E-04	0	2.28E+00	0	0	0	0
Materials for energy recovery	kg	2.06E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.3. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from raw aluminium (un-treated)

Product weight 2.4 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	21.6	2.04E-02	8.76E-04	3.46E-02	5.76E-03	1.72E-03	-17.1
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.72E-11	3.38E-18	1.58E-10	6.02E-18	2.05E-17	9.40E-18	-2.46E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	8.98E-02	1.09E-04	6.64E-06	8.63E-05	3.96E-05	1.03E-05	-7.37E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	5.20E-03	2.66E-05	1.59E-06	2.11E-05	9.65E-06	1.17E-06	-4.01E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	5.11E-03	1.93E-06	6.93E-07	-3.24E-05	4.45E-06	7.89E-07	-4.12E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.36E-06	1.29E-09	2.94E-10	2.69E-09	6.52E-09	1.73E-10	-1.75E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	241	0.277	1.26E-02	0.468	0.112	2.34E-02	-186
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	126	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-99.1
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	126	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-99.1
Use of non-renewable primary energy used as energy carrier	MJ	285	0.279	1.27E-02	0.471	0.116	2.41E-02	-221
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	285	0.279	1.27E-02	0.471	0.116	2.41E-02	-221
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.302	1.22E-05	1.72E-06	3.00E-05	3.20E-05	5.94E-06	-0.253
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.89E-08	9.90E-12	0	2.37E-11	6.47E-12	2.56E-12	-1.69E-08
Non-hazardous waste disposed	kg	6.06	3.68E-05	0	6.99E-05	3.11E-05	0.120	-5.13
Radioactive waste disposed	kg	1.66E-02	3.24E-07	0	5.69E-07	1.50E-06	2.53E-07	-1.30E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	9.92E-04	0	2.28	0	0	0	0
Materials for energy recovery	kg	2.06E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.4. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from anodized aluminium

Product weight 2.4 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	35.3	2.04E-02	8.76E-04	3.46E-02	5.76E-03	1.72E-03	-17.1
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.76E-11	3.38E-18	1.58E-10	6.02E-18	2.05E-17	9.40E-18	-2.46E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.108	1.09E-04	6.64E-06	8.63E-05	3.96E-05	1.03E-05	-7.37E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	9.52E-03	2.66E-05	1.59E-06	2.11E-05	9.65E-06	1.17E-06	-4.01E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	6.55E-03	1.93E-06	6.93E-07	-3.24E-05	4.45E-06	7.89E-07	-4.12E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.32E-06	1.29E-09	2.94E-10	2.69E-09	6.52E-09	1.73E-10	-1.75E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	429	0.277	1.26E-02	0.468	0.112	2.34E-02	-186
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	195	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-99.1
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	195	1.05E-02	7.37E-05	2.62E-02	8.54E-03	3.24E-03	-99.1
Use of non-renewable primary energy used as energy carrier	MJ	495	0.279	1.27E-02	0.471	0.116	2.41E-02	-221
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	495	0.279	1.27E-02	0.471	0.116	2.41E-02	-221
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.344	1.25E-05	1.72E-06	3.00E-05	3.20E-05	5.94E-06	-0.253
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.34E-08	9.90E-12	0	2.37E-11	6.47E-12	2.56E-12	-1.69E-08
Non-hazardous waste disposed	kg	6.72	3.68E-05	0	6.99E-05	3.11E-05	0.120	-5.13
Radioactive waste disposed	kg	2.51E-02	3.24E-07	0	5.69E-07	1.50E-06	2.53E-07	-1.30E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	9.92E-04	0	2.28	0	0	0	0
Materials for energy recovery	kg	2.06E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.5. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from titanium zinc – Classic

Product weight 6.3 kg/m², titanium zinc thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	21.0	5.36E-02	2.30E-03	9.07E-02	1.53E-02	3.61E-03	-8.96E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-6.87E-08	8.86E-18	4.15E-10	1.58E-17	5.44E-17	1.97E-17	-5.84E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.119	2.85E-04	1.74E-05	2.27E-04	1.05E-04	2.16E-05	-3.98E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.75E-02	6.98E-05	4.16E-06	5.54E-05	2.56E-05	2.45E-06	-1.58E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	6.07E-03	5.06E-06	1.82E-06	-8.50E-05	1.18E-05	1.66E-06	-8.88E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.76E-03	3.37E-09	7.71E-10	7.07E-09	1.73E-08	3.63E-10	-6.76E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	172	0.727	3.31E-02	1.23	0.297	4.91E-02	-1.28E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	179	2.77E-02	1.94E-04	6.89E-02	2.27E-02	6.81E-03	-5.65E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	179	2.77E-02	1.94E-04	6.89E-02	2.27E-02	6.81E-03	-5.65E+00
Use of non-renewable primary energy used as energy carrier	MJ	411	0.732	3.34E-02	1.24	0.308	5.06E-02	-1.41E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	411	0.732	3.34E-02	1.24	0.308	5.06E-02	-1.41E+02
Use of secondary material	kg	9.83E-02	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	4.49	3.21E-05	4.52E-06	7.88E-05	8.48E-05	1.25E-05	-5.08E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.72E-05	2.60E-11	0	6.23E-11	1.72E-11	5.37E-12	0
Non-hazardous waste disposed	kg	2.23	9.66E-05	0	1.84E-04	8.24E-05	0.252	0
Radioactive waste disposed	kg	1.74E-02	8.51E-07	0	1.49E-06	3.97E-06	5.31E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.60E-03	0	6.05	0	0	0	0
Materials for energy recovery	kg	5.40E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.6. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from titanium zinc – Pre-patinated

Product weight 6.3 kg/m², titanium zinc thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	27.0	5.36E-02	2.30E-03	9.07E-02	1.53E-02	3.61E-03	-8.93E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-8.09E-08	8.86E-18	4.15E-10	1.58E-17	5.44E-17	1.97E-17	-5.83E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.142	2.85E-04	1.74E-05	2.27E-04	1.05E-04	2.16E-05	-3.97E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.12E-02	6.98E-05	4.16E-06	5.54E-05	2.56E-05	2.45E-06	-1.57E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	7.30E-03	5.06E-06	1.82E-06	-8.50E-05	1.18E-05	1.66E-06	-8.86E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.26E-03	3.37E-09	7.71E-10	7.07E-09	1.73E-08	3.63E-10	-6.74E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	210	0.727	3.31E-02	1.23	0.297	4.91E-02	-1.28E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	212	2.77E-02	1.94E-04	6.89E-02	2.27E-02	6.81E-03	-5.63E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	212	2.77E-02	1.94E-04	6.89E-02	2.27E-02	6.81E-03	-5.63E+00
Use of non-renewable primary energy used as energy carrier	MJ	503	0.732	3.34E-02	1.24	0.308	5.06E-02	-1.41E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	503	0.732	3.34E-02	1.24	0.308	5.06E-02	-1.41E+02
Use of secondary material	kg	0.116	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.30	3.21E-05	4.52E-06	7.88E-05	8.48E-05	1.25E-05	-5.06E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.57E-05	2.60E-11	0	6.23E-11	1.72E-11	5.37E-12	0
Non-hazardous waste disposed	kg	2.96	9.66E-05	0	1.84E-04	8.24E-05	0.252	0
Radioactive waste disposed	kg	2.06E-02	8.51E-07	0	1.49E-06	3.97E-06	5.31E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.60E-03	0	6.05	0	0	0	0
Materials for energy recovery	kg	5.40E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.7. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from copper – Nordic Standard

Product weight 6.7 kg/m², copper thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.34	5.70E-02	2.44E-03	9.65E-02	1.68E-02	9.61E-04	-2.48E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.46E-10	9.43E-18	4.41E-10	1.68E-17	5.97E-17	5.25E-18	-1.92E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.53E-02	3.03E-04	1.85E-05	2.41E-04	1.15E-04	5.74E-06	-9.94E-04
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.34E-03	7.43E-05	4.43E-06	5.89E-05	2.81E-05	6.51E-07	-6.09E-05
POCP Photochemical ozone creation potential	kg ethene equiv.	1.24E-03	5.38E-06	1.93E-06	-9.04E-05	1.30E-05	4.41E-07	-6.49E-05
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	8.89E-05	3.59E-09	8.20E-10	7.52E-09	1.90E-08	9.65E-11	-2.62E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	53.9	0.774	3.52E-02	1.31	0.325	1.30E-02	-3.04E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	25.7	2.94E-02	2.06E-04	7.32E-02	2.49E-02	1.81E-03	-1.92E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	25.7	2.94E-02	2.06E-04	7.32E-02	2.49E-02	1.81E-03	-1.92E-01
Use of non-renewable primary energy used as energy carrier	MJ	116	0.779	3.55E-02	1.31	0.338	1.34E-02	-3.71E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	116	0.779	3.55E-02	1.31	0.338	1.34E-02	-3.71E+00
Use of secondary material	kg	6.63	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	2.87E-02	3.41E-05	4.81E-06	8.38E-05	9.30E-05	3.32E-06	-3.68E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.16E-05	2.76E-11	0	6.62E-11	1.88E-11	1.43E-12	0.00E+00
Non-hazardous waste disposed	kg	3.12E-02	1.03E-04	0	1.95E-04	9.04E-05	6.71E-02	0.00E+00
Radioactive waste disposed	kg	4.71E-03	9.05E-07	0	1.59E-06	4.35E-06	1.41E-07	-8.80E-07
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.77E-03	0	6.63	0	0	0	0
Materials for energy recovery	kg	5.74E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.8. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from copper – Nordic Green, Blue and Brown

Product weight 6.7 kg/m², copper thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.75	5.70E-02	2.44E-03	9.65E-02	1.68E-02	9.61E-04	-5.62E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.76E-10	9.43E-18	4.41E-10	1.68E-17	5.97E-17	5.25E-18	-4.35E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.02E-02	3.03E-04	1.85E-05	2.41E-04	1.15E-04	5.74E-06	-2.25E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.46E-03	7.43E-05	4.43E-06	5.89E-05	2.81E-05	6.51E-07	-1.38E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	1.49E-03	5.38E-06	1.93E-06	-9.04E-05	1.30E-05	4.41E-07	-1.47E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	8.96E-05	3.59E-09	8.20E-10	7.52E-09	1.90E-08	9.65E-11	-5.94E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	58.5	0.774	3.52E-02	1.31	0.325	1.30E-02	-6.88E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	28.7	2.94E-02	2.06E-04	7.32E-02	2.49E-02	1.81E-03	-4.34E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	28.7	2.94E-02	2.06E-04	7.32E-02	2.49E-02	1.81E-03	-4.34E-01
Use of non-renewable primary energy used as energy carrier	MJ	130	0.779	3.55E-02	1.31	0.338	1.34E-02	-8.40E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	130	0.779	3.55E-02	1.31	0.338	1.34E-02	-8.40E+00
Use of secondary material	kg	6.37	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	3.56E-02	3.41E-05	4.81E-06	8.38E-05	9.30E-05	3.32E-06	-8.34E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.48E-05	2.76E-11	0	6.62E-11	1.88E-11	1.43E-12	0.00E+00
Non-hazardous waste disposed	kg	4.35E-02	1.03E-04	0	1.95E-04	9.04E-05	6.71E-02	0.00E+00
Radioactive waste disposed	kg	5.60E-03	9.05E-07	0	1.59E-06	4.35E-06	1.41E-07	-2.00E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.77E-03	0	6.63	0	0	0	0
Materials for energy recovery	kg	5.74E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.9. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from Nordic brass

Product weight 6.5 kg/m², brass thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	10.6	5.53E-02	2.37E-03	9.36E-02	1.63E-02	9.32E-04	-2.88E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.33E-09	9.14E-18	4.28E-10	1.63E-17	5.79E-17	5.09E-18	-2.49E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	4.49E-02	2.94E-04	1.80E-05	2.34E-04	1.12E-04	5.57E-06	-3.60E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.52E-03	7.21E-05	4.30E-06	5.72E-05	2.72E-05	6.32E-07	-1.10E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	2.98E-03	5.22E-06	1.88E-06	-8.77E-05	1.26E-05	4.28E-07	-1.73E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.01E-03	3.48E-09	7.96E-10	7.29E-09	1.84E-08	9.36E-11	-1.74E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	125	0.750	3.42E-02	1.27	0.316	1.27E-02	-3.21E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	74.0	2.85E-02	2.00E-04	7.11E-02	2.41E-02	1.76E-03	-7.69E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	74.0	2.85E-02	2.00E-04	7.11E-02	2.41E-02	1.76E-03	-7.69E+00
Use of non-renewable primary energy used as energy carrier	MJ	307	0.755	3.45E-02	1.27	0.328	1.30E-02	-3.51E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	307	0.755	3.45E-02	1.27	0.328	1.30E-02	-3.51E+01
Use of secondary material	kg	1.28	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	9.99E-02	3.31E-05	4.67E-06	8.13E-05	9.02E-05	3.22E-06	-2.36E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.95E-05	2.68E-11	0	6.42E-11	1.83E-11	1.39E-12	-6.65E-09
Non-hazardous waste disposed	kg	0.182	9.97E-05	0	1.89E-04	8.77E-05	6.51E-02	-7.23E-01
Radioactive waste disposed	kg	1.41E-02	8.78E-07	0	1.54E-06	4.22E-06	1.37E-07	-1.01E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.69E-03	0	6.44	0	0	0	0
Materials for energy recovery	kg	5.57E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.10. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from stainless steel

Product weight 4.9 kg/m², stainless steel thickness 0.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	17.7	4.17E-02	1.79E-03	7.05E-02	1.18E-02	3.51E-03	-8.58E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.00E-10	6.89E-18	3.23E-10	1.23E-17	4.19E-17	1.92E-17	-7.47E-15
AP Acidification potential of soil and water sources	kg SO_2 equiv.	8.65E-02	2.22E-04	1.36E-05	1.76E-04	8.08E-05	2.10E-05	-4.60E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	6.14E-03	5.43E-05	3.24E-06	4.31E-05	1.97E-05	2.38E-06	-2.79E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	5.76E-03	3.93E-06	1.41E-06	-6.61E-05	9.09E-06	1.61E-06	-2.89E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	9.45E-04	2.62E-09	6.00E-10	5.50E-09	1.33E-08	3.53E-10	-2.83E-04
ADP Abiotic depletion potential of resources – fossil fuel	MJ	263	0.566	2.58E-02	0.955	0.228	4.77E-02	-1.06E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	95.7	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-2.03E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	95.7	2.15E-02	1.51E-04	5.36E-02	1.74E-02	6.62E-03	-2.03E+01
Use of non-renewable primary energy used as energy carrier	MJ	572	0.569	2.60E-02	0.961	0.237	4.92E-02	-1.08E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	572	0.569	2.60E-02	0.961	0.237	4.92E-02	-1.08E+02
Use of secondary material	kg	3.26	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.196	2.49E-05	3.52E-06	6.13E-05	6.52E-05	1.21E-05	-1.48E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.43E-04	2.02E-11	0	4.84E-11	1.32E-11	5.22E-12	-9.91E-04
Non-hazardous waste disposed	kg	1.71	7.51E-05	0	1.43E-04	6.34E-05	0.245	9.71E-02
Radioactive waste disposed	kg	1.18E-02	6.62E-07	0	1.16E-06	3.06E-06	5.16E-07	-7.05E-04
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.02E-03	0	4.66	0	0	0	0
Materials for energy recovery	kg	4.20E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 12.11. Environmental profile for Design profile Venice, Design profile Tokyo, Design profile Rome from Cor-Ten® steel

Product weight 7.0 kg/m², steel thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	17.7	5.95E-02	2.55E-03	0.101	1.68E-02	5.02E-03	-9.74E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.09E-10	9.85E-18	4.61E-10	1.75E-17	5.99E-17	2.74E-17	-6.35E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.28E-02	3.17E-04	1.94E-05	2.52E-04	1.15E-04	3.00E-05	-4.33E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.52E-03	7.76E-05	4.63E-06	6.16E-05	2.81E-05	3.40E-06	-1.72E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	3.58E-03	5.62E-06	2.02E-06	-9.44E-05	1.30E-05	2.30E-06	-9.66E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.34E-06	3.75E-09	8.57E-10	7.85E-09	1.90E-08	5.04E-10	-7.35E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	193	0.808	3.68E-02	1.36	0.326	0.068	-1.39E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.36E+01	3.07E-02	2.15E-04	7.65E-02	2.49E-02	9.46E-03	-6.14E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	3.36E+01	3.07E-02	2.15E-04	7.65E-02	2.49E-02	9.46E-03	-6.14E+00
Use of non-renewable primary energy used as energy carrier	MJ	3.88E+02	8.14E-01	3.71E-02	1.37E+00	3.39E-01	7.03E-02	-1.54E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	3.88E+02	8.14E-01	3.71E-02	1.37E+00	3.39E-01	7.03E-02	-1.54E+02
Use of secondary material	kg	1.86E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	5.75E-22	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	6.75E-21	0	0	0	0	0	0
Net use of fresh water	m^3	1.49E-01	3.56E-05	5.03E-06	8.76E-05	9.32E-05	1.73E-05	-5.52E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.41E-02	2.89E-11	0	6.92E-11	1.89E-11	7.46E-12	0
Non-hazardous waste disposed	kg	0.435	1.07E-04	0	2.04E-04	9.06E-05	0.350	0
Radioactive waste disposed	kg	3.72E-03	9.46E-07	0	1.66E-06	4.37E-06	7.38E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.89E-03	0	6.65	0	0	0	0
Materials for energy recovery	kg	5.99E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.1. Environmental profile for Design profile Paris from colour-coated steel, Hiarc-coated or powder painted

Product weight 6.7 kg/m², steel thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	18.8	5.70E-02	2.44E-03	9.65E-02	1.61E-02	4.80E-03	-9.26E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	3.65E-10	9.43E-18	4.41E-10	1.68E-17	5.73E-17	2.63E-17	-6.04E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	4.55E-02	3.03E-04	1.85E-05	2.41E-04	1.11E-04	2.87E-05	-4.11E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	5.00E-03	7.43E-05	4.43E-06	5.89E-05	2.69E-05	3.26E-06	-1.63E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	4.22E-03	5.38E-06	1.93E-06	-9.04E-05	1.24E-05	2.20E-06	-9.18E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.18E-03	3.59E-09	8.20E-10	7.52E-09	1.82E-08	4.82E-10	-6.98E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	114	0.387	1.76E-02	0.653	0.156	3.26E-02	-6.62E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	25.9	2.94E-02	2.06E-04	7,32E-02	2.38E-02	9.05E-03	-5.84E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	25.9	2.94E-02	2.06E-04	7,32E-02	2.38E-02	9.05E-03	-5.84E+00
Use of non-renewable primary energy used as energy carrier	MJ	244	0.779	3.55E-02	1.31	0.324	6.72E-02	-1.46E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	244	0.779	3.55E-02	1.31	0.324	6.72E-02	-1.46E+02
Use of secondary material	kg	0.227	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.36E-09	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.72E-08	0	0	0	0	0	0
Net use of fresh water	m^3	1.82E-02	3.41E-05	4.81E-06	8.38E-05	8.92E-05	1.66E-05	-5.25E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.67E-06	2.76E-11	0	6.62E-11	1.81E-11	7.14E-12	0
Non-hazardous waste disposed	kg	0.164	1.03E-04	0	1.95E-04	8.68E-05	0.335	0
Radioactive waste disposed	kg	2.50E-03	4.54E-07	0	7.97E-07	2.10E-06	3.54E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.77E-03	0	6.37	0	0	0	0
Materials for energy recovery	kg	5.78E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.2. Environmental profile for Design profile Paris from colour-coated aluminium, powder painted

Product weight 2.7 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	2.37E+01	2.30E-02	9.85E-04	3.89E-02	6.48E-03	1.94E-03	-1.92E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.57E-11	3.80E-18	1.78E-10	6.77E-18	2.31E-17	1.06E-17	-2.76E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	9.83E-02	1.22E-04	7.47E-06	9.71E-05	4.45E-05	1.16E-05	-8.29E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	5.68E-03	2.99E-05	1.78E-06	2.37E-05	1.09E-05	1.31E-06	-4.51E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	5.69E-03	2.17E-06	7.79E-07	-3.64E-05	5.01E-06	8.88E-07	-4.64E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.60E-06	1.45E-09	3.30E-10	3.03E-09	7.34E-09	1.94E-10	-1.97E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	2.65E+02	3.12E-01	1.42E-02	5.26E-01	1.26E-01	2.63E-02	-2.09E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	1.38E+02	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-1.12E+02
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	1.38E+02	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-1.12E+02
Use of non-renewable primary energy used as energy carrier	MJ	3.14E+02	3.14E-01	1.43E-02	5.30E-01	1.31E-01	2.71E-02	-2.48E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	3.14E+02	3.14E-01	1.43E-02	5.30E-01	1.31E-01	2.71E-02	-2.48E+02
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	3.31E-01	1.37E-05	1.94E-06	3.38E-05	3.59E-05	6.68E-06	-2.84E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.34E-08	1.11E-11	0	2.67E-11	7.28E-12	2.88E-12	-1.90E-08
Non-hazardous waste disposed	kg	6.64E+00	4.14E-05	0	7.87E-05	3.50E-05	1.35E-01	-5.77E+00
Radioactive waste disposed	kg	1.82E-02	3.65E-07	0	6.41E-07	1.68E-06	2.84E-07	-1.46E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.12E-03	0	2.57E+00	0	0	0	0
Materials for energy recovery	kg	2.35E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.2. Environmental profile for Design profile Paris from colour-coated aluminium, PVDF coated

Product weight 2.7 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	5.09E+00	2.30E-02	9.85E-04	3.89E-02	6.48E-03	1.94E-03	-2.50E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.93E-11	3.80E-18	1.78E-10	6.77E-18	2.31E-17	1.06E-17	-3.59E-15
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.67E-02	1.22E-04	7.47E-06	9.71E-05	4.45E-05	1.16E-05	-1.08E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.39E-03	2.99E-05	1.78E-06	2.37E-05	1.09E-05	1.31E-06	-5.86E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	1.09E-03	2.17E-06	7.79E-07	-3.64E-05	5.01E-06	8.88E-07	-6.03E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	7.03E-07	1.45E-09	3.30E-10	3.03E-09	7.34E-09	1.94E-10	-2.57E-07
ADP Abiotic depletion potential of resources – fossil fuel	MJ	6.55E+01	3.12E-01	1.42E-02	5.26E-01	1.26E-01	2.63E-02	-2.71E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.69E+01	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-1.45E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.69E+01	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-1.45E+01
Use of non-renewable primary energy used as energy carrier	MJ	7.66E+01	3.14E-01	1.43E-02	5.30E-01	1.31E-01	2.71E-02	-3.23E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	7.66E+01	3.14E-01	1.43E-02	5.30E-01	1.31E-01	2.71E-02	-3.23E+01
Use of secondary material	kg	2.34E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	4.70E-02	1.37E-05	1.94E-06	3.38E-05	3.59E-05	6.68E-06	-3.70E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.60E-05	1.11E-11	0	2.67E-11	7.28E-12	2.88E-12	-2.47E-09
Non-hazardous waste disposed	kg	9.14E-01	4.14E-05	0	7.87E-05	3.50E-05	1.35E-01	-7.50E-01
Radioactive waste disposed	kg	3.99E-03	3.65E-07	0	6.41E-07	1.68E-06	2.84E-07	-1.90E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.12E-03	0	2.57E+00	0	0	0	0
Materials for energy recovery	kg	2.31E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.3. Environmental profile for Design profile Paris from raw aluminium (un-treated)

Product weight 2.7 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	24.3	2.30E-02	9.85E-04	3.89E-02	6.48E-03	1.94E-03	-19.2
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.19E-11	3.80E-18	1.78E-10	6.77E-18	2.31E-17	1.06E-17	-2.76E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.101	1.22E-04	7.47E-06	9.71E-05	4.45E-05	1.16E-05	-8.29E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	5.85E-03	2.99E-05	1.78E-06	2.37E-05	1.09E-05	1.31E-06	-4.51E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	5.75E-03	2.17E-06	7.79E-07	-3.64E-05	5.01E-06	8.88E-07	-4.64E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	2.66E-06	1.45E-09	3.30E-10	3.03E-09	7.34E-09	1.94E-10	-1.97E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	271	0.312	1.42E-02	0.526	0.126	2.63E-02	-209
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	141	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-112
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	141	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-112
Use of non-renewable primary energy used as energy carrier	MJ	321	0.314	1.43E-02	0.530	0.131	2.71E-02	-248
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	321	0.314	1.43E-02	0.530	0.131	2.71E-02	-248
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.340	1.37E-05	1.94E-06	3.38E-05	3.59E-05	6.68E-06	-0.284
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.25E-08	1.11E-11	0	2.67E-11	7.28E-12	2.88E-12	-1.90E-08
Non-hazardous waste disposed	kg	6.82	4.14E-05	0	7.87E-05	3.50E-05	0.135	-5.77
Radioactive waste disposed	kg	1.87E-02	3.65E-07	0	6.41E-07	1.68E-06	2.84E-07	-1.46E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.12E-03	0	2.57	0	0	0	0
Materials for energy recovery	kg	2.31E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.4. Environmental profile for Design profile Paris from anodized aluminium

Product weight 2.7 kg/m², aluminium thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	39.8	2.30E-02	9.85E-04	3.89E-02	6.48E-03	1.94E-03	-19.2
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.23E-11	3.80E-18	1.78E-10	6.77E-18	2.31E-17	1.06E-17	-2.76E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.121	1.22E-04	7.47E-06	9.71E-05	4.45E-05	1.16E-05	-8.29E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.07E-02	2.99E-05	1.78E-06	2.37E-05	1.09E-05	1.31E-06	-4.51E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	7.36E-03	2.17E-06	7.79E-07	-3.64E-05	5.01E-06	8.88E-07	-4.64E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	7.11E-06	1.45E-09	3.30E-10	3.03E-09	7.34E-09	1.94E-10	-1.97E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	482	0.312	1.42E-02	0.526	0.126	2.63E-02	-209
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	219	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-112
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	219	1.19E-02	8.30E-05	2.95E-02	9.61E-03	3.65E-03	-112
Use of non-renewable primary energy used as energy carrier	MJ	557	0.314	1.43E-02	0.530	0.131	2.71E-02	-248
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	557	0.314	1.43E-02	0.530	0.131	2.71E-02	-248
Use of secondary material	kg	0	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.387	1.37E-05	1.94E-06	3.38E-05	3.59E-05	6.68E-06	-0.284
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.05E-07	1.11E-11	0	2.67E-11	7.28E-12	2.88E-12	-1.90E-08
Non-hazardous waste disposed	kg	7.56	4.14E-05	0	7.87E-05	3.50E-05	0.135	-5.77
Radioactive waste disposed	kg	2.82E-02	3.65E-07	0	6.41E-07	1.68E-06	2.84E-07	-1.46E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.12E-03	0	2.57	0	0	0	0
Materials for energy recovery	kg	2.31E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.5. Environmental profile for Design profile Paris from titanium zinc – Classic

Product weight 7.1 kg/m², titanium zinc thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	23.7	6.04E-02	2.59E-03	0.102	1.72E-02	4.07E-03	-1.01E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-7.74E-08	9.99E-18	4.68E-10	1.78E-17	6.13E-17	2.23E-17	-6.59E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.134	3.21E-04	1.96E-05	2.55E-04	1.18E-04	2.43E-05	-4.49E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.97E-02	7.87E-05	4.69E-06	6.24E-05	2.89E-05	2.76E-06	-1.78E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	6.84E-03	5.70E-06	2.05E-06	-9.58E-05	1.33E-05	1.87E-06	-1.00E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.11E-03	3.80E-09	8.69E-10	7.96E-09	1.95E-08	4.09E-10	-7.62E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	193	0.820	3.73E-02	1.38	0.334	5.53E-02	-1.44E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.01E+02	3.12E-02	2.18E-04	7.76E-02	2.55E-02	7.68E-03	-6.37E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.01E+02	3.12E-02	2.18E-04	7.76E-02	2.55E-02	7.68E-03	-6.37E+00
Use of non-renewable primary energy used as energy carrier	MJ	4.64E+02	8.25E-01	3.76E-02	1.39E+00	3.47E-01	5.70E-02	-1.59E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	4.64E+02	8.25E-01	3.76E-02	1.39E+00	3.47E-01	5.70E-02	-1.59E+02
Use of secondary material	kg	1.11E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.06E+00	3.61E-05	5.10E-06	8.88E-05	9.55E-05	1.41E-05	-5.73E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.32E-05	2.93E-11	0	7.02E-11	1.94E-11	6.05E-12	0
Non-hazardous waste disposed	kg	2.51	1.09E-04	0	2.07E-04	9.29E-05	0.284	0
Radioactive waste disposed	kg	1.96E-02	9.59E-07	0	1.68E-06	4.47E-06	5.98E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.93E-03	0	6.82	0	0	0	0
Materials for energy recovery	kg	6.08E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.6. Environmental profile for Design profile Paris from titanium zinc – Pre-patinated

Product weight 7.1 kg/m², titanium zinc thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	30.4	6.04E-02	2.59E-03	0.102	1.72E-02	4.07E-03	-1.01E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	-9.11E-08	9.99E-18	4.68E-10	1.78E-17	6.13E-17	2.23E-17	-6.57E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.160	3.21E-04	1.96E-05	2.55E-04	1.18E-04	2.43E-05	-4.47E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	2.39E-02	7.87E-05	4.69E-06	6.24E-05	2.89E-05	2.76E-06	-1.77E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	8.23E-03	5.70E-06	2.05E-06	-9.58E-05	1.33E-05	1.87E-06	-9.98E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	3.68E-03	3.80E-09	8.69E-10	7.96E-09	1.95E-08	4.09E-10	-7.59E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	236	0.820	3.73E-02	1.38	0.334	5.53E-02	-1.44E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.39E+02	3.12E-02	2.18E-04	7.76E-02	2.55E-02	7.68E-03	-6.35E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.39E+02	3.12E-02	2.18E-04	7.76E-02	2.55E-02	7.68E-03	-6.35E+00
Use of non-renewable primary energy used as energy carrier	MJ	5.66E+02	8.25E-01	3.76E-02	1.39E+00	3.47E-01	5.70E-02	-1.59E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	5.66E+02	8.25E-01	3.76E-02	1.39E+00	3.47E-01	5.70E-02	-1.59E+02
Use of secondary material	kg	1.30E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	5.97E+00	3.61E-05	5.10E-06	8.88E-05	9.55E-05	1.41E-05	-5.71E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.28E-05	2.93E-11	0	7.02E-11	1.94E-11	6.05E-12	0
Non-hazardous waste disposed	kg	3.33	1.09E-04	0	2.07E-04	9.29E-05	0.284	0
Radioactive waste disposed	kg	2.33E-02	9.59E-07	0	1.68E-06	4.47E-06	5.98E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.93E-03	0	6.82	0	0	0	0
Materials for energy recovery	kg	6.08E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.7. Environmental profile for Design profile Paris from copper – Nordic Standard

Product weight 7.6 kg/m², steel thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	4.92	6.46E-02	2.77E-03	0.109	1.90E-02	1.09E-03	-2.81E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.65E-10	1.07E-17	5.01E-10	1.91E-17	6.77E-17	5.96E-18	-2.18E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.73E-02	3.44E-04	2.10E-05	2.73E-04	1.31E-04	6.51E-06	-1.13E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.53E-03	8.43E-05	5.02E-06	6.68E-05	3.18E-05	7.39E-07	-6.90E-05
POCP Photochemical ozone creation potential	kg ethene equiv.	1.41E-03	6.10E-06	2.19E-06	-1.03E-04	1.47E-05	5.00E-07	-7.37E-05
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.01E-04	4.07E-09	9.30E-10	8.53E-09	2.15E-08	1.09E-10	-2.97E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	61.1	0.877	4.00E-02	1.48	0.369	1.48E-02	-3.44E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	29.1	3.34E-02	2.34E-04	8.31E-02	2.82E-02	2.05E-03	-2.17E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	29.1	3.34E-02	2.34E-04	8.31E-02	2.82E-02	2.05E-03	-2.17E-01
Use of non-renewable primary energy used as energy carrier	MJ	132	0.883	4.03E-02	1.49	0.383	1.53E-02	-4.21E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	132	0.883	4.03E-02	1.49	0.383	1.53E-02	-4.21E+00
Use of secondary material	kg	7.52	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	3.25E-02	3.87E-05	5.46E-06	9.51E-05	1.05E-04	3.76E-06	-4.17E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.32E-05	3.14E-11	0	7.51E-11	2.14E-11	1.62E-12	0.00E+00
Non-hazardous waste disposed	kg	3.53E-02	1.17E-04	0	2.21E-04	1.03E-04	7.61E-02	0.00E+00
Radioactive waste disposed	kg	5.34E-03	1.03E-06	0	1.80E-06	4.94E-06	1.60E-07	-9.98E-07
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.14E-03	0	7.52	0	0	0	0
Materials for energy recovery	kg	6.51E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.8. Environmental profile for Design profile Paris from copper – Nordic Green, Blue and Brown

Product weight 7.6 kg/m², copper thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	5.39	6.46E-02	2.77E-03	0.109	1.90E-02	1.09E-03	-6.37E-01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	2.00E-10	1.07E-17	5.01E-10	1.91E-17	6.77E-17	5.96E-18	-4.93E-08
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.29E-02	3.44E-04	2.10E-05	2.73E-04	1.31E-04	6.51E-06	-2.56E-03
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.66E-03	8.43E-05	5.02E-06	6.68E-05	3.18E-05	7.39E-07	-1.56E-04
POCP Photochemical ozone creation potential	kg ethene equiv.	1.69E-03	6.10E-06	2.19E-06	-1.03E-04	1.47E-05	5.00E-07	-1.67E-04
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.02E-04	4.07E-09	9.30E-10	8.53E-09	2.15E-08	1.09E-10	-6.74E-05
ADP Abiotic depletion potential of resources – fossil fuel	MJ	66.4	0.877	4.00E-02	1.48	0.369	1.48E-02	-7.80E+00
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	32.6	3.34E-02	2.34E-04	8.31E-02	2.82E-02	2.05E-03	-4.93E-01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	32.6	3.34E-02	2.34E-04	8.31E-02	2.82E-02	2.05E-03	-4.93E-01
Use of non-renewable primary energy used as energy carrier	MJ	147	0.883	4.03E-02	1.49	0.383	1.53E-02	-9.53E+00
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	147	0.883	4.03E-02	1.49	0.383	1.53E-02	-9.53E+00
Use of secondary material	kg	7.22	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	4.04E-02	3.87E-05	5.46E-06	9.51E-05	1.05E-04	3.76E-06	-9.46E-03
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.68E-05	3.14E-11	0	7.51E-11	2.14E-11	1.62E-12	0.00E+00
Non-hazardous waste disposed	kg	4.94E-02	1.17E-04	0	2.21E-04	1.03E-04	7.61E-02	0.00E+00
Radioactive waste disposed	kg	6.35E-03	1.03E-06	0	1.80E-06	4.94E-06	1.60E-07	-2.26E-06
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.14E-03	0	7.52	0	0	0	0
Materials for energy recovery	kg	6.51E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.9. Environmental profile for Design profile Paris from Nordic brass

Product weight 7.4 kg/m², steel thickness 0.6 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	12.1	6.29E-02	2.70E-03	0.107	1.85E-02	1.06E-03	-3.27E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.51E-09	1.04E-17	4.87E-10	1.85E-17	6.59E-17	5.80E-18	-2.83E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	5.11E-02	3.35E-04	2.05E-05	2.66E-04	1.27E-04	6.34E-06	-4.10E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	4.01E-03	8.20E-05	4.89E-06	6.51E-05	3.10E-05	7.19E-07	-1.26E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	3.39E-03	5.94E-06	2.14E-06	-9.98E-05	1.43E-05	4.87E-07	-1.97E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	6.85E-03	3.96E-09	9.06E-10	8.30E-09	2.10E-08	1.07E-10	-1.98E-03
ADP Abiotic depletion potential of resources – fossil fuel	MJ	143	0.854	3.89E-02	1.44	0.359	1.44E-02	-3.65E+01
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	84.3	3.25E-02	2.27E-04	8.09E-02	2.74E-02	2.00E-03	-8.75E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	84.3	3.25E-02	2.27E-04	8.09E-02	2.74E-02	2.00E-03	-8.75E+00
Use of non-renewable primary energy used as energy carrier	MJ	349	0.860	3.92E-02	1.45	0.373	1.49E-02	-4.00E+01
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	349	0.860	3.92E-02	1.45	0.373	1.49E-02	-4.00E+01
Use of secondary material	kg	1.46	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.114	3.77E-05	5.31E-06	9.26E-05	1.03E-04	3.66E-06	-2.68E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.63E-05	3.05E-11	0	7.31E-11	2.08E-11	1.58E-12	-7.57E-09
Non-hazardous waste disposed	kg	0.207	1.13E-04	0	2.16E-04	9.99E-05	7.41E-02	-8.24E-01
Radioactive waste disposed	kg	1.61E-02	1.00E-06	0	1.76E-06	4.81E-06	1.56E-07	-1.14E-03
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.06E-03	0	7.33	0	0	0	0
Materials for energy recovery	kg	6.34E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.10. Environmental profile for Design profile Paris from stainless steel

Product weight 5.6 kg/m², steel thickness 0.5 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	20.2	4.76E-02	2.04E-03	8.06E-02	1.34E-02	4.02E-03	-9.80E+00
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.14E-10	7.88E-18	3.69E-10	1.40E-17	4.79E-17	2.19E-17	-8.54E-15
AP Acidification potential of soil and water sources	kg SO_2 equiv.	9.89E-02	2.53E-04	1.55E-05	2.01E-04	9.24E-05	2.40E-05	-5.26E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	7.02E-03	6.21E-05	3.70E-06	4.92E-05	2.25E-05	2.72E-06	-3.19E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	6.58E-03	4.50E-06	1.62E-06	-7.55E-05	1.04E-05	1.84E-06	-3.30E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.08E-03	3.00E-09	6.85E-10	6.28E-09	1.52E-08	4.03E-10	-3.23E-04
ADP Abiotic depletion potential of resources – fossil fuel	MJ	300	0.647	2.94E-02	1.09	0.261	5.45E-02	-1.21E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	109	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.32E+01
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	109	2.46E-02	1.72E-04	6.12E-02	1.99E-02	7.57E-03	-2.32E+01
Use of non-renewable primary energy used as energy carrier	MJ	653	0.651	2.97E-02	1.10	0.271	5.62E-02	-1.24E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	653	0.651	2.97E-02	1.10	0.271	5.62E-02	-1.24E+02
Use of secondary material	kg	3.72	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	0.224	2.85E-05	4.02E-06	7.01E-05	7.46E-05	1.39E-05	-1.69E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.78E-04	2.31E-11	0	5.53E-11	1.51E-11	5.97E-12	-1.13E-03
Non-hazardous waste disposed	kg	1.96	8.59E-05	0	1.63E-04	7.25E-05	0.280	1.11E-01
Radioactive waste disposed	kg	1.35E-02	7.57E-07	0	1.33E-06	3.49E-06	5.90E-07	-8.05E-04
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.31E-03	0	5.32	0	0	0	0
Materials for energy recovery	kg	4.80E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 13.11. Environmental profile for Design profile Paris from Cor-Ten® steel

Product weight 7.9 kg/m², steel thickness 0.7 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	20.0	6.72E-02	2.88E-03	1.14E-01	1.90E-02	5.67E-03	-1.10E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.23E-10	1.11E-17	5.20E-10	1.98E-17	6.75E-17	3.10E-17	-7.17E-07
AP Acidification potential of soil and water sources	kg SO_2 equiv.	3.70E-02	3.57E-04	2.19E-05	2.84E-04	1.30E-04	3.38E-05	-4.89E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.97E-03	8.76E-05	5.22E-06	6.95E-05	3.18E-05	3.84E-06	-1.94E-02
POCP Photochemical ozone creation potential	kg ethene equiv.	4.04E-03	6.34E-06	2.28E-06	-1.07E-04	1.47E-05	2.60E-06	-1.09E-02
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	4.90E-06	4.23E-09	9.67E-10	8.86E-09	2.15E-08	5.69E-10	-8.29E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	218	0.912	4.15E-02	1.54	0.368	7.69E-02	-1.57E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.79E+01	3.47E-02	2.43E-04	8.64E-02	2.81E-02	1.07E-02	-6.93E+00
Use of renewable primary energy resources used as raw material	MJ	0	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	3.79E+01	3.47E-02	2.43E-04	8.64E-02	2.81E-02	1.07E-02	-6.93E+00
Use of non-renewable primary energy used as energy carrier	MJ	4.38E+02	0.918	4.19E-02	1.55	0.382	7.93E-02	-1.73E+02
Use of non-renewable primary energy used as raw material	MJ	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	4.38E+02	0.918	4.19E-02	1.55	0.382	7.93E-02	-1.73E+02
Use of secondary material	kg	2.10E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	6.49E-22	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	7.62E-21	0	0	0	0	0	0
Net use of fresh water	m^3	1.68E-01	4.02E-05	5.67E-06	9.89E-05	1.05E-04	1.96E-05	-6.23E-02
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.24E-02	3.26E-11	0	7.81E-11	2.13E-11	8.42E-12	0
Non-hazardous waste disposed	kg	0.491	1.21E-04	0	2.30E-04	1.02E-04	0.395	0
Radioactive waste disposed	kg	4.20E-03	1.07E-06	0	1.87E-06	4.93E-06	8.32E-07	0
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	3.26E-03	0	7.51	0	0	0	0
Materials for energy recovery	kg	6.77E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 14.1. Environmental profile for Primo Skyline 100 and 150 (FR grade)

Product weight 9.0 kg/m², aluminium thickness 4.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	51.1	7.65E-02	3.28E-03	0.130	1.87E+01	2.19E-03	-2.17E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.69E-06	1.27E-17	5.93E-10	2.26E-17	3.32E-15	1.20E-17	-3.12E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.235	4.07E-04	2.49E-05	3.24E-04	1.71E-03	1.31E-05	-9.37E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.97E-02	9.98E-05	5.95E-06	7.91E-05	3.90E-04	1.48E-06	-5.09E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.35E-02	7.23E-06	2.60E-06	-1.21E-04	1.28E-04	1.00E-06	-5.24E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.93E-05	4.82E-09	1.10E-09	1.01E-08	4.45E-08	2.20E-10	-2.23E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	651	1.04	4.73E-02	1.75	2.89E+00	2.97E-02	-2.36E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	380	3.95E-02	2.77E-04	9.84E-02	6.13E-01	4.12E-03	-1.26E+02
Use of renewable primary energy resources used as raw material	MJ	2.84	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	383	3.95E-02	2.77E-04	9.84E-02	6.13E-01	4.12E-03	-1.26E+02
Use of non-renewable primary energy used as energy carrier	MJ	1472	1.05	4.77E-02	1.77	3.09E+00	3.06E-02	-2.80E+02
Use of non-renewable primary energy used as raw material	MJ	10.5	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1483	1.05	4.77E-02	1.77	3.09E+00	3.06E-02	-2.80E+02
Use of secondary material	kg	0.182	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0.182	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0.187	0	0	0	0	0	0
Net use of fresh water	m^3	0.922	4.58E-05	6.46E-06	1.13E-04	4.02E-02	7.55E-06	-3.21E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.41E-02	3.71E-11	0	8.90E-11	6.11E-10	3.25E-12	-2.15E-08
Non-hazardous waste disposed	kg	8.65E+00	1.38E-04	0	2.62E-04	7.55E-02	1.53E-01	-6.52E+00
Radioactive waste disposed	kg	3.04E-02	1.22E-06	0	2.14E-06	7.58E-05	3.21E-07	-1.66E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	0.019	0	3.05	0	0	0	0
Materials for energy recovery	kg	0.106	0	5.95	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 14.15. Environmental profile for Primo Skyline 100 and 150 (A2 grade)

Product weight 9.0 kg/m², aluminium thickness 4.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	3.30E+01	8.16E-02	3.50E-03	1.38E-01	2.06E+01	2.19E-03	-1.85E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	5.30E-07	8.16E-02	3.50E-03	1.38E-01	2.06E+01	2.19E-03	-1.85E+01
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.40E-01	4.34E-04	2.66E-05	3.45E-04	1.88E-03	1.31E-05	-7.99E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.73E-02	1.06E-04	6.35E-06	8.44E-05	4.28E-04	1.48E-06	-4.34E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	7.47E-03	7.71E-06	2.77E-06	-1.29E-04	1.41E-04	1.00E-06	-4.47E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.07E-05	5.14E-09	1.17E-09	1.08E-08	4.82E-08	2.20E-10	-1.90E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	3.27E+02	1.11E+00	5.05E-02	1.87E+00	3.16E+00	2.97E-02	-2.01E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.45E+02	4.22E-02	2.95E-04	1.05E-01	6.73E-01	4.13E-03	-1.07E+02
Use of renewable primary energy resources used as raw material	MJ	-1.43E+00	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.44E+02	4.22E-02	2.95E-04	1.05E-01	6.73E-01	4.13E-03	-1.07E+02
Use of non-renewable primary energy used as energy carrier	MJ	8.061E+02	1.12E+00	5.09E-02	1.88E+00	3.38E+00	3.06E-02	-2.39E+02
Use of non-renewable primary energy used as raw material	MJ	1.70E+01	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	8.23E+02	1.12E+00	5.09E-02	1.88E+00	3.38E+00	3.06E-02	-2.39E+02
Use of secondary material	kg	1.61E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	8.53E-03	4.88E-05	6.89E-06	1.20E-04	4.42E-02	7.56E-06	-2.74E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.81E-05	3.96E-11	0	9.49E-11	6.71E-10	3.25E-12	-1.83E-08
Non-hazardous waste disposed	kg	5.44E+00	1.47E-04	0	2.80E-04	8.31E-02	1.53E-01	-5.56E+00
Radioactive waste disposed	kg	1.59E-02	1.30E-06	0	2.28E-06	8.32E-05	3.22E-07	-1.41E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.94E-02	0	3.05E+00	0	0	0	0
Materials for energy recovery	kg	1.14E-01	0	6.55E+00	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 14.2. Environmental profile for Primo Plana 10 (FR grade)

Product weight 9.0 kg/m², aluminium thickness 4.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	5.12E+01	7.65E-02	3.28E-03	1.30E-01	1.87E+01	2.19E-03	-2.17E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	1.69E-06	1.27E-17	5.93E-10	2.26E-17	3.32E-15	1.20E-17	-3.12E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	2.35E-01	4.07E-04	2.49E-05	3.24E-04	1.71E-03	1.31E-05	-9.37E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.97E-02	9.98E-05	5.95E-06	7.91E-05	3.90E-04	1.48E-06	-5.09E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	1.35E-02	7.23E-06	2.60E-06	-1.21E-04	1.28E-04	1.00E-06	-5.24E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.93E-05	4.82E-09	1.10E-09	1.01E-08	4.45E-08	2.20E-10	-2.23E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	6.51E+02	1.04E+00	4.73E-02	1.75E+00	2.89E+00	2.97E-02	-2.36E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	3.80E+02	3.95E-02	2.77E-04	9.84E-02	6.13E-01	4.12E-03	-1.26E+02
Use of renewable primary energy resources used as raw material	MJ	2.84E+00	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	3.83E+02	3.95E-02	2.77E-04	9.84E-02	6.13E-01	4.12E-03	-1.26E+02
Use of non-renewable primary energy used as energy carrier	MJ	1.472E+03	1.05E+00	4.77E-02	1.77E+00	3.09E+00	3.06E-02	-2.80E+02
Use of non-renewable primary energy used as raw material	MJ	1.05E+01	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1.48E+03	1.05E+00	4.77E-02	1.77E+00	3.09E+00	3.06E-02	-2.80E+02
Use of secondary material	kg	1.82E-01	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	1.82E-01	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	1.87E-01	0	0	0	0	0	0
Net use of fresh water	m^3	9.23E-01	4.58E-05	6.46E-06	1.13E-04	4.02E-02	7.55E-06	-3.21E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.41E-02	3.71E-11	0	8.90E-11	6.11E-10	3.25E-12	-2.15E-08
Non-hazardous waste disposed	kg	8.65E+00	1.38E-04	0	2.62E-04	7.55E-02	1.53E-01	-6.52E+00
Radioactive waste disposed	kg	3.04E-02	1.22E-06	0	2.14E-06	7.58E-05	3.21E-07	-1.66E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.92E-02	0	3.05E+00	0	0	0	0
Materials for energy recovery	kg	1.06E-01	0	5.95E+00	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 14.25. Environmental profile for Primo Plana 10 (A2 grade)

Product weight 9.0 kg/m², aluminium thickness 4.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	2.85E+01	7.06E-02	3.03E-03	1.19E-01	1.78E+01	1.89E-03	-1.60E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	4.58E-07	1.17E-17	5.47E-10	2.08E-17	3.16E-15	1.03E-17	-2.30E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	1.21E-01	3.76E-04	2.30E-05	2.98E-04	1.62E-03	1.13E-05	-6.91E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	1.50E-02	9.20E-05	5.49E-06	7.30E-05	3.70E-04	1.28E-06	-3.75E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	6.46E-03	6.66E-06	2.40E-06	-1.12E-04	1.22E-04	8.68E-07	-3.86E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	9.25E-06	4.45E-09	1.02E-09	9.31E-09	4.16E-08	1.90E-10	-1.64E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	2.83E+02	9.58E-01	4.36E-02	1.62E+00	2.74E+00	2.57E-02	-1.74E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	2.12E+02	3.65E-02	2.55E-04	9.07E-02	5.82E-01	3.57E-03	-9.29E+01
Use of renewable primary energy resources used as raw material	MJ	-1.24E+00	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	2.11E+02	3.65E-02	2.55E-04	9.07E-02	5.82E-01	3.57E-03	-9.29E+01
Use of non-renewable primary energy used as energy carrier	MJ	6.969E+02	9.65E-01	4.40E-02	1.63E+00	2.93E+00	2.65E-02	-2.07E+02
Use of non-renewable primary energy used as raw material	MJ	1.47E+01	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	7.12E+02	9.65E-01	4.40E-02	1.63E+00	2.93E+00	2.65E-02	-2.07E+02
Use of secondary material	kg	1.39E+00	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	7.37E-03	4.22E-05	5.96E-06	1.04E-04	3.82E-02	6.53E-06	-2.37E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.29E-05	3.42E-11	0	8.20E-11	5.80E-10	2.81E-12	-1.59E-08
Non-hazardous waste disposed	kg	4.70E+00	1.27E-04	0	2.42E-04	7.18E-02	1.32E-01	-4.80E+00
Radioactive waste disposed	kg	1.37E-02	1.12E-06	0	1.97E-06	7.19E-05	2.78E-07	-1.22E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	1.68E-02	0	2.64E+00	0	0	0	0
Materials for energy recovery	kg	9.86E-02	0	5.66E+00	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

Table 14.3. Environmental profile for Primo Skyline 1000

Product weight 5.2 kg/m², aluminium thickness 14.0 mm		Life cycle stage						
Environmental impacts	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP Global warming potential	kg CO_2 equiv.	63.4	4.42E-02	1.90E-03	7.49E-02	1.25E-02	3.73E-03	-2.06E+01
ODP Depletion potential of the stratospheric ozone layer	kg CFC-11 equiv.	5.73E-06	7.32E-18	3.42E-10	1.30E-17	4.45E-17	2.04E-17	-2.97E-14
AP Acidification potential of soil and water sources	kg SO_2 equiv.	0.402	2.35E-04	1.44E-05	1.87E-04	8.58E-05	2.23E-05	-8.89E-02
EP Eutrophication potential	kg $(PO_4)^{3-}$ equiv.	3.35E-03	5.77E-05	3.44E-06	4.57E-05	2.09E-05	2.53E-06	-4.83E-03
POCP Photochemical ozone creation potential	kg ethene equiv.	0.200	4.17E-06	1.50E-06	-7.01E-05	9.65E-06	1.71E-06	-4.98E-03
ADP Abiotic depletion potential of resources – element	kg Sb equiv.	1.99E-04	2.78E-09	6.36E-10	5.83E-09	1.41E-08	3.74E-10	-2.12E-06
ADP Abiotic depletion potential of resources – fossil fuel	MJ	894	0.600	2.73E-02	1.01	0.242	5.06E-02	-2.24E+02
Resource use and primary energy	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy used as energy carrier	MJ	512	2.28E-02	1.60E-04	5.68E-02	1.85E-02	7.03E-03	-1.20E+02
Use of renewable primary energy resources used as raw material	MJ	44.3	0	0	0	0	0	0
Total use of renewable primary energy resources	MJ	556	2.28E-02	1.60E-04	5.68E-02	1.85E-02	7.03E-03	-1.20E+02
Use of non-renewable primary energy used as energy carrier	MJ	1,870	0.604	2.76E-02	1.02	0.252	5.22E-02	-2.66E+02
Use of non-renewable primary energy used as raw material	MJ	47.4	0	0	0	0	0	0
Total use of non-renewable primary energy resources	MJ	1918	0.604	2.76E-02	1.02	0.252	5.22E-02	-2.66E+02
Use of secondary material	kg	2.60	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0	0
Net use of fresh water	m^3	18.9	2.65E-05	3.73E-06	6.51E-05	6.92E-05	1.29E-05	-3.05E-01
Waste categories	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8.89E-09	2.15E-11	0	5.14E-11	1.40E-11	5.54E-12	-2.04E-08
Non-hazardous waste disposed	kg	1.27E-02	7.97E-05	0	1.52E-04	6.73E-05	0.260	-6.19E+00
Radioactive waste disposed	kg	3.67E-04	7.03E-07	0	1.23E-06	3.24E-06	5.48E-07	-1.57E-02
Output flows	**Unit**	**A1–A3 Total**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Components for reuse	kg	0	0	0	0	0	0	0
Materials for recycling	kg	2.85E-02	0	4.94	0	0	0	0
Materials for energy recovery	kg	4.37E-02	0	0	0	0	0	0
Exported electrical energy	MJ	0	0	0	0	0	0	0
Exported thermal energy	MJ	0	0	0	0	0	0	0

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We make steel-based products for walls and roofs, for both commercial buildings and private homes. We're a supplier of high-quality products, systems and solutions, developed sustainably and to live up to the highest demands on durability in harsh conditions.

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