

# Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

## Robbie Family



## Family **Robbie** Design – Böttcher & Kayser

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**JOHANSON**

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**Owner of the declaration:**

Johanson Design AB

**Product:**

Robbie Family

**Declared unit:**

1 pcs

**This declaration is based on Product Category Rules:**

CEN Standard EN 15804:2012+A2:2019 serves as core PCR  
NPCR 026:2022 Part B for Furniture

**Program operator:**

EPD-Global

**Declaration number:**

NEPD-15460-19198

**Issue date:**

16.04.2026

**Valid to:**

16.04.2031

**EPD software:**

LCAno EPD generator ID: 1525767

## General information

### Product

Robbie Family

### Program operator:

EPD-Global  
Post Box 5250 Majorstuen, 0303 Oslo, Norway  
Phone: +47 977 22 020  
web: [www.epd-global.com](http://www.epd-global.com)

### Declaration number:

NEPD-15460-19198

### This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR  
NPCR 026:2022 Part B for Furniture

### Statement of liability:

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

### Declared unit:

1 pcs Robbie Family

### Declared unit (cradle to gate) with option:

A1-A3, A4, A5, B2, B3, B4, C1, C2, C3, C4, D

### Functional unit:

The idea behind Robbie was to design a chair that combines stackability with a genuinely attractive form. With this clearly in mind, the focus was on using as few components as possible and giving them a highly distinctive design.

The aim was to create a chair that is simple in design, yet by no means anonymous in terms of personality. The eye-catching lines of Robbie attract attention in any setting.

### General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global's General Programme Instructions for further information on EPD tools

### Verification of EPD tool:

### Owner of the declaration:

Johanson Design AB  
Contact person: Lucas Carlsson  
Phone: +46 (0) 433 725 00  
e-mail: [lucas@johansondesign.se](mailto:lucas@johansondesign.se)

### Manufacturer:

Johanson Design AB

### Place of production:

Johanson Design AB  
Anders Anderssons väg 7  
285 35 Markaryd, Sweden

### Management system:

ISO 14001

### Organisation no:

SE556358520601

### Issue date:

16.04.2026

### Valid to:

16.04.2031

### Year of study:

2025

### Comparability:

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

### Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD-Global.

Developer of EPD: Lucas Carlsson

Reviewer of company-specific input data and EPD: Sandra Rube

### Approved:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools.



Håkon Hauan, CEO EPD-Global

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

## Product

### Product description:

Efficiency meets elegance with Robbie, the stackable design is perfect for optimizing space at events or in storage. Crafted for both resilience and convenience, the chair's lightweight frame guarantees durability and ease of use.

### Product specification

This declaration focuses on an in-depth study of Robbie 08

The table on page 12 of this declaration provides the key environmental indicators for the other models within the product family

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Metal - Steel	2.50	42.53	0.00	0.00
Plastic - Polyethylene (LDPE)	0.008	0.1361	0.00	0.00
Plastic - Polypropylene (PP)	0.08	1.36	0.00	0.00
Powder coating	0.09	1.53	0.00	0.00
Wood - Solid beech/birch	3.20	54.44	0.00	0.00
Total	5.88	100.00	0.00	

Packaging	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Packaging - Cardboard	1.25	49.66	0.00	0.00
Packaging - Plastic straps	0.017	0.6754	0.00	0.00
Recycled cardboard	1.25	49.66	1.25	1.25
Total incl. packaging	8.40	100.00	1.25	

### Technical data:

Volume 0.27 m<sup>3</sup> - (excluding packaging)

Total height 80 cm  
Total width 57 cm  
Total depth 60 cm

Seat height 46 cm  
Seat width 40 cm  
Seat depth 40 cm

Complied with technical standards:

EN 16139 Furniture - Strength, durability and safety - Requirements for non-domestic seating

Möbelfakta certified

You can find all certifications and test results here:

<https://johansondesign.com/downloads/certificate>

### Market:

World Wide

### Reference service life, product

15 years (5 year warranty)

### Reference service life, building

Not relevant

## LCA: Calculation rules

### Declared unit:

1 pcs Robbie Family

### Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

**Allocation:**

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

**Data quality:**

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

<b>Materials</b>	<b>Source</b>	<b>Data quality</b>	<b>Year</b>
Metal - Steel	ecoinvent 3.6	Database	2019
Packaging - Cardboard	Modified ecoinvent 3.6	Database	2019
Packaging - Plastic straps	ecoinvent 3.6	Database	2019
Plastic - Polyethylene (LDPE)	ecoinvent 3.6	Database	2019
Plastic - Polypropylene (PP)	ecoinvent 3.6	Database	2019
Powder coating	ecoinvent 3.6	Database	2019
Recycled cardboard	Modified ecoinvent 3.6	Database	2019
Wood - Solid beech/birch	modified ecoinvent 3.6	Database	2019

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

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

**System boundary:**

**A3 Data Collection (Production Phase)**

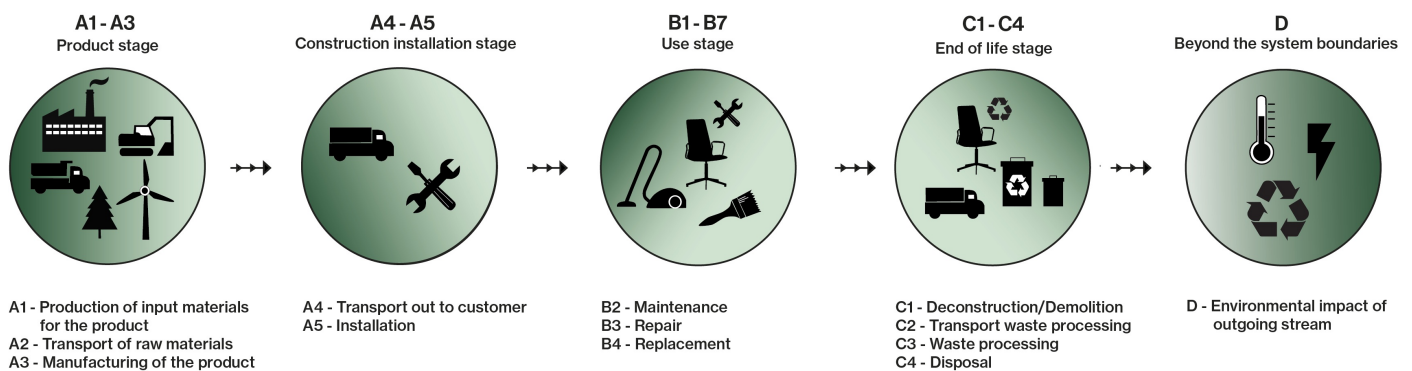
Data for the A3 module, encompassing the production phase, was collected in 2024. This data includes all relevant inputs and outputs associated with manufacturing processes.

**A4 Data Collection (Transport to Customer)**

Transport data for the A4 module was sourced from Trafa.se and reflects operations during the years 2021-2022. According to statistics from Trafikanalys, the average distance covered by a Swedish heavy-duty truck transporting furniture in domestic traffic was approximately 143 kilometers in 2022, with an average of 153 kilometers for the period 2012–2022. These values are based on representative industry conditions and account for the most recent data on logistics efficiency and route optimization.

**A5 Data (Packaging Disposal)**

For the A5 module, it is assumed that packaging materials are automatically handled and disposed of in alignment with standard waste management practices at this stage. This assumption aligns with typical end-of-life scenarios for packaging in regulated waste systems.



**Additional technical information:**

To achieve the best possible climate footprint, it's essential to take care of your furniture. The longer you maintain and care for your products, the better it is for the environment. Use our care instructions for optimal results.

You find it here:

<https://johansondesign.com/downloads>

Johanson Design is a company committed to sustainability and holds various certifications that underscore its dedication to environmental responsibility and quality.

**Environmental Management System (ISO 14001):**

Johanson has implemented an Environmental Management System (EMS) in accordance with ISO 14001 standards. This certification demonstrates the company's commitment to minimizing its environmental impact by systematically identifying, managing, and reducing its environmental footprint across all aspects of its operations.

## LCA: Scenarios and additional technical information

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

Maintenance Data (B2 Module)














Maintenance requirements are calculated based on typical cleaning scenarios over the product's lifespan, assumed to be 15 years:














Cleaning with wet cloth, Assume 0,0005 m3 (0.5 liter) once per month for 15 years

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36.7 %	143.00	0.043	l/tkm	6.15
Assembly (A5)					
Unit	Value				
Waste, packaging, PET straps, to average treatment - A5 (kg)	kg	0.017			
Waste, packaging, cardboard, 100 % recycled, to average treatment (kg)	kg	1.25			
Waste, packaging, corrugated board box, 0 % recycled, to average treatment (kg)	kg	1.25			
Maintenance (B2)					
Unit	Value				
Electricity, Sweden (kWh)	kWh	1.35			
Water, tap water (m3)	m3	0.09			
Waste, hazardous waste, to average treatment (kg)	kg	0.075			
Repair (B3)					
Unit	Value				
Varnish (kg)	kg	0.075			
Transport to waste processing (C2)					
Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)	
Truck, 16-32 tonnes, EURO 6 (km)	36.7 %	85.00	0.043	l/tkm	3.66
Waste processing (C3)					
Unit	Value				
Waste treatment per kg Wood, incineration with fly ash extraction (kg)	kg	3.20			
Waste treatment per kg Non-hazardous waste, incineration with fly ash extraction - C3 (kg)	kg	0.09			
Waste treatment per kg Polyethylene, PE, incineration with fly ash extraction - C3 (kg)	kg	0.008			
Waste treatment per kg Polypropylene (PP), incineration with fly ash extraction - C3 (kg)	kg	0.08			
Waste, materials to recycling (kg)	kg	0.8483			
Waste treatment per kg Scrap steel, incineration with fly ash extraction (kg)	kg	2.50			
Disposal (C4)					
Unit	Value				
Landfilling of ashes from incineration of Wood, process per kg ashes and residues (kg)	kg	0.03681			
Landfilling of ashes from incineration of Non-hazardous waste, process per kg ashes and residues - C4 (kg)	kg	0.02135			
Landfilling of ashes from incineration of Polyethylene, PE, process per kg ashes and residues - C4 (kg)	kg	0.0002819			
Landfilling of ashes from incineration of Polypropylene, PP, process per kg ashes and residues - C4 (kg)	kg	0.002381			
Landfilling of ashes and residues from incineration of Scrap steel (kg)	kg	1.65			
Benefits and loads beyond the system boundaries (D)					
Unit	Value				
Substitution of primary steel with net scrap (kg)	kg	0.8483			
Substitution of electricity, in Norway (MJ)	MJ	2.42			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	36.68			

**LCA: Results**

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

Environmental impact							
Indicator	Unit	A1-A3	A4	A5	B2	B3	
 GWP-total	kg CO <sub>2</sub> -eq	6.17E+00	1.96E-01	4.29E+00	1.94E-01	1.60E-01	
 GWP-fossil	kg CO <sub>2</sub> -eq	1.53E+01	1.96E-01	4.18E-02	1.88E-01	1.60E-01	
 GWP-biogenic	kg CO <sub>2</sub> -eq	-9.18E+00	8.12E-05	4.24E+00	1.79E-03	6.42E-04	
 GWP-luluc	kg CO <sub>2</sub> -eq	6.67E-02	6.98E-05	1.35E-05	4.55E-03	1.29E-04	
 ODP	kg CFC11 -eq	1.47E-06	4.44E-08	8.62E-09	4.60E-08	1.60E-08	
 AP	mol H+ -eq	7.82E-02	5.64E-04	1.93E-04	7.75E-04	2.09E-03	
 EP-FreshWater	kg P -eq	1.02E-03	1.57E-06	3.35E-07	9.25E-06	8.08E-06	
 EP-Marine	kg N -eq	1.71E-02	1.12E-04	6.49E-05	1.36E-04	1.61E-04	
 EP-Terrestrial	mol N -eq	1.79E-01	1.25E-03	6.92E-04	1.68E-03	1.68E-03	
 POCP	kg NMVOC -eq	6.24E-02	4.78E-04	1.99E-04	4.42E-04	6.27E-04	
 ADP-minerals&metals <sup>1</sup>	kg Sb-eq	4.52E-04	5.42E-06	9.91E-07	3.94E-06	3.78E-06	
 ADP-fossil <sup>1</sup>	MJ	2.16E+02	2.96E+00	5.71E-01	8.95E+00	2.77E+00	
 WDP <sup>1</sup>	m <sup>3</sup>	2.98E+03	2.87E+00	7.37E-01	8.24E+02	9.91E+00	

Indicator	Unit	B4	C1	C2	C3	C4	D
 GWP-total	kg CO <sub>2</sub> -eq	0	0	1.17E-01	5.73E+00	1.95E-02	-1.15E+00
 GWP-fossil	kg CO <sub>2</sub> -eq	0	0	1.17E-01	4.90E-01	1.95E-02	-1.15E+00
 GWP-biogenic	kg CO <sub>2</sub> -eq	0	0	4.82E-05	5.24E+00	1.44E-05	-9.54E-04
 GWP-luluc	kg CO <sub>2</sub> -eq	0	0	4.15E-05	1.32E-05	5.77E-06	-7.74E-03
 ODP	kg CFC11 -eq	0	0	2.64E-08	5.96E-09	5.88E-09	-1.55E-02
 AP	mol H+ -eq	0	0	3.35E-04	6.46E-04	1.35E-04	-6.39E-03
 EP-FreshWater	kg P -eq	0	0	9.31E-07	1.21E-06	1.97E-07	-7.63E-05
 EP-Marine	kg N -eq	0	0	6.63E-05	2.97E-04	4.81E-05	-1.53E-03
 EP-Terrestrial	mol N -eq	0	0	7.41E-04	3.16E-03	5.33E-04	-1.60E-02
 POCP	kg NMVOC -eq	0	0	2.84E-04	7.97E-04	1.53E-04	-6.38E-03
 ADP-minerals&metals <sup>1</sup>	kg Sb-eq	0	0	3.22E-06	3.02E-07	3.28E-07	-1.82E-05
 ADP-fossil <sup>1</sup>	MJ	0	0	1.76E+00	4.84E-01	4.36E-01	-1.09E+01
 WDP <sup>1</sup>	m <sup>3</sup>	0	0	1.70E+00	6.04E-01	9.18E-01	1.05E+01







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







"Reading example: 9.0 E-03 = 9.0\*10<sup>-3</sup> = 0.009"

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

**Remarks to environmental impacts**

Not relevant



Additional environmental impact indicators							
Indicator	Unit	A1-A3	A4	A5	B2	B3	
	PM	Disease incidence	1.28E-06	1.20E-08	2.86E-09	7.04E-09	9.11E-09
	IRP <sup>2</sup>	kgBq U235 -eq	1.54E+00	1.30E-02	2.45E-03	2.80E-01	8.89E-03
	ETP-fw <sup>1</sup>	CTUe	8.08E+02	2.20E+00	7.60E-01	6.60E+00	3.78E+00
	HTP-c <sup>1</sup>	CTUh	6.67E-08	0.00E+00	2.20E-11	3.08E-10	4.26E-10
	HTP-nc <sup>1</sup>	CTUh	4.48E-07	2.40E-09	9.53E-10	5.53E-09	3.36E-09
	SQP <sup>1</sup>	dimensionless	4.79E+02	2.07E+00	3.89E-01	4.01E+00	9.58E-01











Indicator	Unit	B4	C1	C2	C3	C4	D	
	PM	Disease incidence	0	0	7.14E-09	9.85E-09	2.46E-09	-1.84E-07
	IRP <sup>2</sup>	kgBq U235 -eq	0	0	7.70E-03	1.12E-03	1.75E-03	-1.61E-02
	ETP-fw <sup>1</sup>	CTUe	0	0	1.31E+00	2.18E+00	2.66E-01	-6.86E+01
	HTP-c <sup>1</sup>	CTUh	0	0	0.00E+00	2.53E-10	9.00E-12	-4.79E-09
	HTP-nc <sup>1</sup>	CTUh	0	0	1.43E-09	6.66E-09	2.65E-10	8.17E-08
	SQP <sup>1</sup>	dimensionless	0	0	1.23E+00	8.56E-02	9.57E-01	-2.09E+01

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

"Reading example: 9.0 E-03 = 9.0\*10<sup>-3</sup> = 0.009"




1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.


Resource use							
Indicator		Unit	A1-A3	A4	A5	B2	B3
	PERE	MJ	1.23E+02	4.24E-02	9.45E-03	4.00E+00	2.35E-01
	PERM	MJ	7.20E+01	0.00E+00	-2.72E+01	0.00E+00	0.00E+00
	PERT	MJ	1.95E+02	4.24E-02	-2.72E+01	4.00E+00	2.35E-01
	PENRE	MJ	2.14E+02	2.97E+00	5.71E-01	8.97E+00	2.77E+00
	PENRM	MJ	3.35E+00	0.00E+00	-3.90E-01	0.00E+00	7.61E-01
	PENRT	MJ	2.17E+02	2.97E+00	1.81E-01	8.97E+00	3.53E+00
	SM	kg	1.25E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	6.53E-01	1.52E-03	3.13E-04	2.21E-02	8.97E-03
	NRSF	MJ	8.99E-01	5.43E-03	1.28E-03	5.73E-02	2.24E-03
	FW	m <sup>3</sup>	2.01E-01	3.17E-04	2.70E-04	9.96E-02	4.09E-03

Indicator		Unit	B4	C1	C2	C3	C4	D
	PERE	MJ	0	0	2.52E-02	2.03E-02	8.36E-03	-1.94E+01
	PERM	MJ	0	0	0.00E+00	-4.48E+01	0.00E+00	0.00E+00
	PERT	MJ	0	0	2.52E-02	-4.47E+01	8.36E-03	-1.94E+01
	PENRE	MJ	0	0	1.76E+00	4.93E-01	4.36E-01	-1.09E+01
	PENRM	MJ	0	0	0.00E+00	-2.96E+00	0.00E+00	0.00E+00
	PENRT	MJ	0	0	1.76E+00	-2.47E+00	4.36E-01	-1.09E+01
	SM	kg	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0	0	9.03E-04	4.56E-04	2.21E-04	3.04E-02
	NRSF	MJ	0	0	3.23E-03	0.00E+00	2.10E-02	-1.32E-01
	FW	m <sup>3</sup>	0	0	1.88E-04	8.81E-04	3.93E-04	-2.46E-02

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






"Reading example: 9.0 E-03 = 9.0\*10<sup>-3</sup> = 0.009"






End of life - Waste							
Indicator		Unit	A1-A3	A4	A5	B2	B3
	HWD	kg	1.71E-01	1.53E-04	0.00E+00	7.55E-02	6.29E-04
	NHWD	kg	5.06E+00	1.44E-01	2.52E+00	3.28E-02	7.35E-02
	RWD	kg	1.08E-03	2.02E-05	0.00E+00	1.24E-04	8.86E-06

Indicator		Unit	B4	C1	C2	C3	C4	D
	HWD	kg	0	0	9.09E-05	0.00E+00	1.69E+00	-4.99E-03
	NHWD	kg	0	0	8.57E-02	9.00E-02	2.35E-02	-4.53E-01
	RWD	kg	0	0	1.20E-05	0.00E+00	2.68E-06	-1.33E-05

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

"Reading example: 9.0 E-03 = 9.0\*10<sup>-3</sup> = 0.009"

End of life - Output flow							
Indicator		Unit	A1-A3	A4	A5	B2	B3
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	1.99E-01	0.00E+00	2.33E+00	1.59E-02	0.00E+00
	MER	kg	4.32E-01	0.00E+00	4.25E-06	3.58E-02	0.00E+00
	EEE	MJ	2.83E-01	0.00E+00	1.43E-01	4.38E-05	0.00E+00
	EET	MJ	4.29E+00	0.00E+00	2.16E+00	6.63E-04	0.00E+00

Indicator		Unit	B4	C1	C2	C3	C4	D
	CRU	kg	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0	0	0.00E+00	8.48E-01	0.00E+00	0.00E+00
	MER	kg	0	0	0.00E+00	5.88E+00	0.00E+00	0.00E+00
	EEE	MJ	0	0	0.00E+00	2.44E+00	0.00E+00	0.00E+00
	EET	MJ	0	0	0.00E+00	3.69E+01	0.00E+00	0.00E+00

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

"Reading example: 9.0 E-03 = 9.0\*10<sup>-3</sup> = 0.009"

Biogenic Carbon Content		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	1.43E+00
Biogenic carbon content in accompanying packaging	kg C	1.16E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>

## Additional requirements

### Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Sweden (kWh)	ecoinvent 3.6	54.94	g CO <sub>2</sub> -eq/kWh

### Dangerous substances

The product contains no substances given by the REACH Candidate list.

### Indoor environment

Not relevant

## Additional Environmental Information

### Key Environmental Indicators

Key environmental performance indicators	Unit	Product stage	Construction stage		Use stage			End-of-life				Net benefits and loads from reuse, recovery, and/or recycling
		A1-A3	A4	A5	B2	B3	B4	C1	C2	C3	C4	D
GWPtotal	kg CO <sub>2</sub> -eq	6.17	0.20	4.29	0.19	0.16	0.00	0.00	0.12	5.73	0.02	-1.15
Total energy consumption	MJ	338.16	3.01	0.58	13.05	3.01	0.00	0.00	1.79	0.51	0.47	-30.42
Share of recycled materials	%	14.88										

### Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	B2	B3
GWPIOBC	kg CO <sub>2</sub> -eq	1.56E+01	1.96E-01	4.18E-02	1.94E-01	1.60E-01

Indicator	Unit	B4	C1	C2	C3	C4	D
GWPIOBC	kg CO <sub>2</sub> -eq	0	0	1.17E-01	4.90E-01	1.98E-02	-1.15E+00

GWPI-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

### Variants and Options

#### Key environmental indicators (A1-A3) for variants of this EPD






Variants	Weight (kg)	GWPtotal (kg CO <sub>2</sub> -eq)	Total energy consumption (MJ)	Amount of recycled materials (%)
Robbie 03-46	10.28	17.08	473.45	29.69
Robbie 03 with wheels	10.67	18.09	484.55	28.62
Robbie 08-46	8.40	6.17	338.16	14.89
Robbie 09-46	9.84	12.41	417.97	12.71
Robbie with arms - 09-46	10.10	14.21	445.06	12.17
Robbie BS 65	7.44	13.05	347.83	14.12
Robbie BS 80	7.44	14.62	375.92	14.31

#### Key environmental indicators (A1-A3) for options for this EPD

Options	Weight (kg)	GWPtotal (kg CO <sub>2</sub> -eq)	Total energy consumption (MJ)	Amount of recycled materials (%)
Robbie Half covered	0.53	3.34	78.25	33.83
Robbie Covered seat	1.48	8.67	152.69	25.68
Robbie BS Covered seat	0.70	4.30	91.48	28.57

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