

Environmental product declaration

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Flokk AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
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ECO Platform reference number:	-
Issue date:	30.12.2022
Valid to:	30.12.2027

HÅG Futu Mesh

Flokk AS



www.epd-norge.no



General information

Product:

HÅG Futu Mesh

Owner of the declaration:

Flokk AS
 Contact person: Atle Thiis-Messel
 Phone: 0047 98 25 68 30
 e-mail: atle.messel@flokk.com

Program operator:

The Norwegian EPD Foundation
 Pb. 5250 Majorstuen, 0303 Oslo
 Phone: +47 23 08 80 00
 e-mail: post@epd-norge.no

Manufacturer:

Flokk AS
 Drammensveien 145, 0277 Oslo
 Norway

Declaration number:

NEPD-4376-3605-EN

Place of production:

Flokk - Røros
 Sundveien N-7374 Røros
 Norway

ECO Platform reference number:

Management system:

ISO 14001, ISO 9001, ISO 50001(Norway, Sweden)

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR
 NPCR 026:2018 Part B for furniture

Organisation no:

No 928 902 749

Statement of liability:

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

Issue date:

30.12.2022

Valid to:

30.12.2027

Declared unit:

1 Pcs HÅG Futu Mesh

Year of study:

2022

Declared unit with option:

A1,A2,A3,A4

Comparability:

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

Functional unit:

HÅG Futu Mesh 1100 (including knock-down packaging option 1)

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

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. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the process is reviewed annually. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Developer of EPD:

Kenneth Dam Lindegaard Knudsen

Reviewer of company-specific input data and EPD:

Fabio Fava

Verification of EPD tool:

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

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Erik Svanes, Norsus AS

(no signature required)

Key environmental indicators	Unit	Cradle to gate A1 - A3
Global warming	kg CO2 eqv	62,36
Total energy use	MJ	947,77
Amount of recycled materials	%	41,83

Product

Market:

Worldwide

Product description:

The HÅG Futu mesh series has a breathable transparent backrest, keeping your back cool via constant ventilation. It features our latest HÅG inBalance® movement mechanism, which keeps you in continuous balanced movement. A fully functional lumbar support is optional, as are height and width-adjustable armrests. Our uniquely designed FutuKnit™ mesh fabrics have been technically developed to retain their tautness and are available in seven appealing colours.

Product specification

The model studied in this declaration is the HÅG Futu Mesh 1100 including knock down packaging option 1. The model declared does not include any options such as armrests, headrest, etc.

The key environmental indicators for the other models and applicable options of the product collection are presented in a table on page 8 of this declaration.

Technical data:

Total weight: 18,66 kg (packaging excluded)

Total weight: 21,45 kg (packaging included)

Reference service life, product

Reference service life, building

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Others	0,02	0,11	0,00	0,78
Kraft paper unbleached	0,02	0,09	0,00	0,00
Metal - Aluminium	3,27	15,25	3,16	96,56
Metal - Steel	8,58	39,98	0,22	2,55
Metal - Zinc	0,03	0,15	0,00	0,00
Textile - Polyester (PE)	0,48	2,21	0,42	89,40
Glass fibre	0,92	4,29	0,92	100,00
Packaging - Cardboard	1,10	5,11	0,00	0,00
Plastic - Polyurethane (PUR)	0,95	4,44	0,00	0,00
Plastic - Polypropylene (PP)	3,38	15,78	2,70	79,90
Plastic - Polyoxymethylene (POM)	0,32	1,48	0,00	0,00
Rubber, synthetic	0,36	1,68	0,00	0,00
Packaging - Plastic	0,12	0,58	0,00	0,00
Glue for metals	0,06	0,28	0,00	0,00
Powder coating	0,08	0,37	0,00	0,00
Plastic - Nylon (PA)	0,17	0,80	0,00	0,00
Plastic - Polyamide with glass fibre (PAGF30)	0,00	0,01	0,00	0,00
Packaging - Paper	0,00	0,02	0,00	0,00
Textile - Felt	0,01	0,06	0,00	17,51
Packaging - Recycled cardboard	1,54	7,20	1,54	100,00
Plastic - Polyoxymethylene with glass fiber (POMGF20)	0,02	0,11	0,00	0,00
Total:	21,45		8,97	

LCA: Calculation rules

Declared unit:

1 Pcs HÅG Futu Mesh

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.

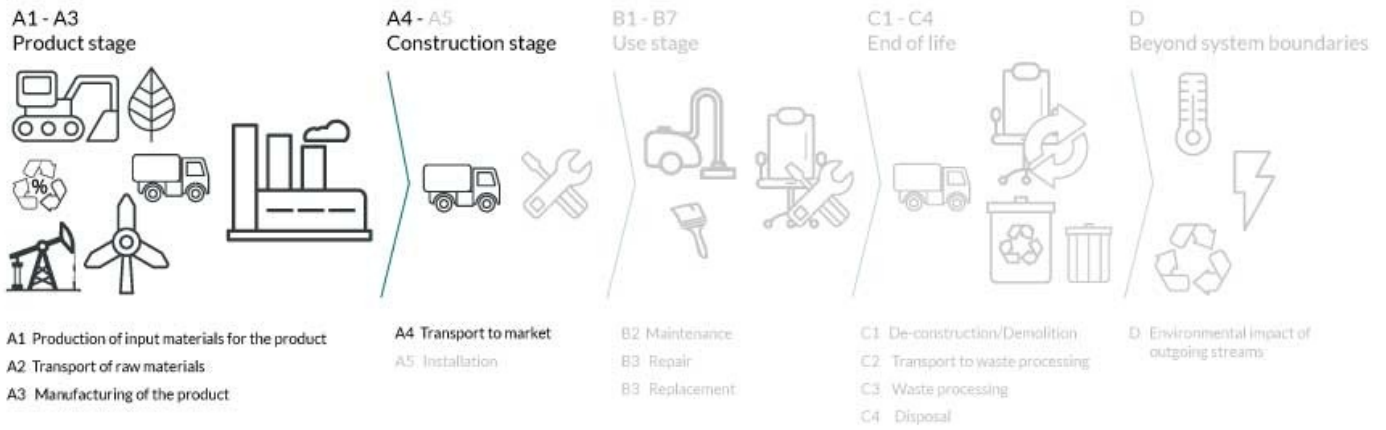
Data quality:

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.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. 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.

System boundary:



Additional technical information:

Product specification (HÅG Futu Mesh 1100):
 Chair height: 400-550 mm (with standard gaslift)
 Chair width: 460 mm
 Chair depth: 370-450 mm

LCA: Scenarios and additional technical information

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

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	55,0 %	Truck, over 32 tonnes, EURO 5	1000	0,022823	l/tkm	22,82
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m ³	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials for waste treatment	kg	
Dust in the air	kg	
VOC emissions	kg	

Use (B1)

.	Unit	Value

Maintenance (B2)/Repair (B3)

.	Unit	Value
Maintenance cycle*		
Auxiliary		
Other resources		
Water consumption	m ³	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
VOC emissions	kg	

Replacement (B4)/Refurbishment (B5)

.	Unit	Value
Replacement cycle*		
Electricity consumption	kWh	
Replacement of worn parts		
* Described above if relevant		

Operational energy (B6) and water consumption (B7)

.	Unit	Value
Water consumption	m ³	
Electricity consumption	kWh	
Other energy carriers	MJ	
Power output of equipment	kW	

End of Life (C1, C2)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling		
Energy recovery		
To landfill	kg	

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck					l/tkm	
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Scenarios after A1-A4 are not included

LCA: Results

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

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

Product stage				Construction installation stage	User 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	Deconstruction 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	

Environmental impact

Parameter	Unit	A1	A2	A3	A4
GWP	kg CO ₂ -eq	6,05E+01	1,25E+00	5,92E-01	1,87E+00
ODP	kg CFC11 -eq	3,39E-06	2,40E-07	3,54E-08	3,65E-07
POCP	kg C ₂ H ₄ -eq	2,32E-02	2,00E-04	1,28E-04	3,02E-04
AP	kg SO ₂ -eq	2,56E-01	4,09E-03	3,04E-03	6,08E-03
EP	kg PO ₄ ³⁻ -eq	7,56E-02	6,89E-04	1,05E-03	1,02E-03
ADPM	kg Sb -eq	1,95E-03	2,76E-06	1,52E-05	4,23E-06
ADPE	MJ	6,54E+02	1,93E+01	3,69E+00	2,94E+01

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009

*INA Indicator Not Assessed

Resource use

Parameter	Unit	A1	A2	A3	A4
RPEE	MJ	8,64E+01	3,50E-01	7,54E+01	5,31E-01
RPEM	MJ	1,76E+01	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,04E+02	3,50E-01	7,54E+01	5,31E-01
NRPE	MJ	7,59E+02	1,99E+01	6,98E+00	3,03E+01
NRPM	MJ	7,75E+01	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	8,36E+02	1,99E+01	6,98E+00	3,03E+01
SM	kg	8,97E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	7,73E-02	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	3,33E-02	0,00E+00	0,00E+00	0,00E+00
W	m ³	4,97E-01	4,68E-03	1,46E-02	7,13E-03

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE 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; W Use of net fresh water

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

End of life - Waste

Parameter	Unit	A1	A2	A3	A4
HW	kg	5,07E-02	1,06E-05	1,87E-02	1,61E-05
NHW	kg	4,51E+01	1,79E+00	3,73E-01	2,75E+00
RW	kg	INA*	INA*	INA*	INA*

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

End of life - Output flow

Parameter	Unit	A1	A2	A3	A4
CR	kg	1,23E-05	0,00E+00	0,00E+00	0,00E+00
MR	kg	3,94E-02	0,00E+00	2,54E+00	0,00E+00
MER	kg	1,62E-01	0,00E+00	1,41E-03	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

Additional Norwegian 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	Data source	Amount	Unit
Energy, electricity, Nordic average, hydro: 1 kWh	Østfoldforskning	10,19	g CO ₂ -ekv/kWh

Dangerous substances

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

Indoor environment

GREENGUARD Gold certified

Additional environmental information

Key environmental indicators for variants for this EPD: Cradle to Gate analyse from A1 to A3

Variant number	Global warming (kg CO ₂)	Total energy use (MJ)	Share of recycled material in product(%)
HÅG Futu Mesh 1100 - Mesh back, upholstered seat (Cura/Gabriel) - No packaging	57,38	886,83	39,81
HÅG Futu Mesh 1100-S - Mesh back, upholstered seat (FutuKnit Solid/Camira) - No packaging	57,15	882,71	37,79
HÅG Futu Mesh 1102 - Mesh back, upholstered seat (Cura/Gabriel) - No packaging	53,33	824,40	41,57
HÅG Futu Mesh 1102-S - Mesh back, upholstered seat (FutuKnit Solid/Camira) - No packaging	53,10	820,28	39,44

Key environmental indicators for options for this EPD: Cradle to Gate analyse from A1 to A3

Option number	Global warming (kg CO ₂)	Total energy use (MJ)	Share of recycled material in product(%)
Futu Adjustable armrests	6,47	87,96	52,45
Futu 3D Adjustable armrests	10,66	159,90	30,60
Lumbar support (only for 1100, 1100-S)	1,37	20,59	0,00
HÅG Footring	5,48	66,62	91,56
Packaging 1 (Small box, not assembled - used in declared unit)	4,97	60,94	55,30
Packaging 2 (Large box, fully assembled)	6,97	83,16	67,47

Bibliography

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ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.

EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.

ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.

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Vold et al., (2019) EPD generator for Norsk Industri, Background information for industry application and LCA data, LCA.no report number 06.19.

NPCR Part A: Construction products and services. Ver. 1.0. April 2017, EPD-Norge.

NPCR 026 Part B for Furniture. Ver. 2.0 October 2018, EPD-Norge.

<p>Global Program Operator</p>	<p>Program operator and publisher</p> <p>The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway</p>	<p>Phone: +47 23 08 80 00 e-mail: post@epd-norge.no web: www.epd-norge.no</p>
	<p>Owner of the declaration</p> <p>Flokk AS Drammensveien 145, 0277 Oslo</p>	<p>Phone: 0047 98 25 68 30 e-mail: atle.messel@flokk.com web: https://www.flokk.com</p>
	<p>Author of the Life Cycle Assessment</p> <p>LCA.no AS Dokka 6B 1671 Kråkerøy</p>	<p>Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no</p>
	<p>Developer of EPD generator</p> <p>LCA.no AS Dokka 1C 1671 Kråkerøy</p>	<p>Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no</p>

