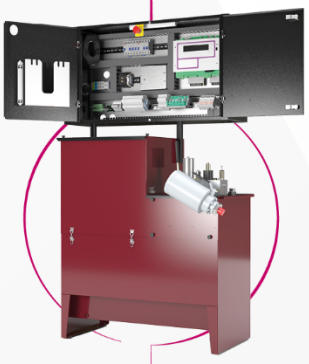


Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

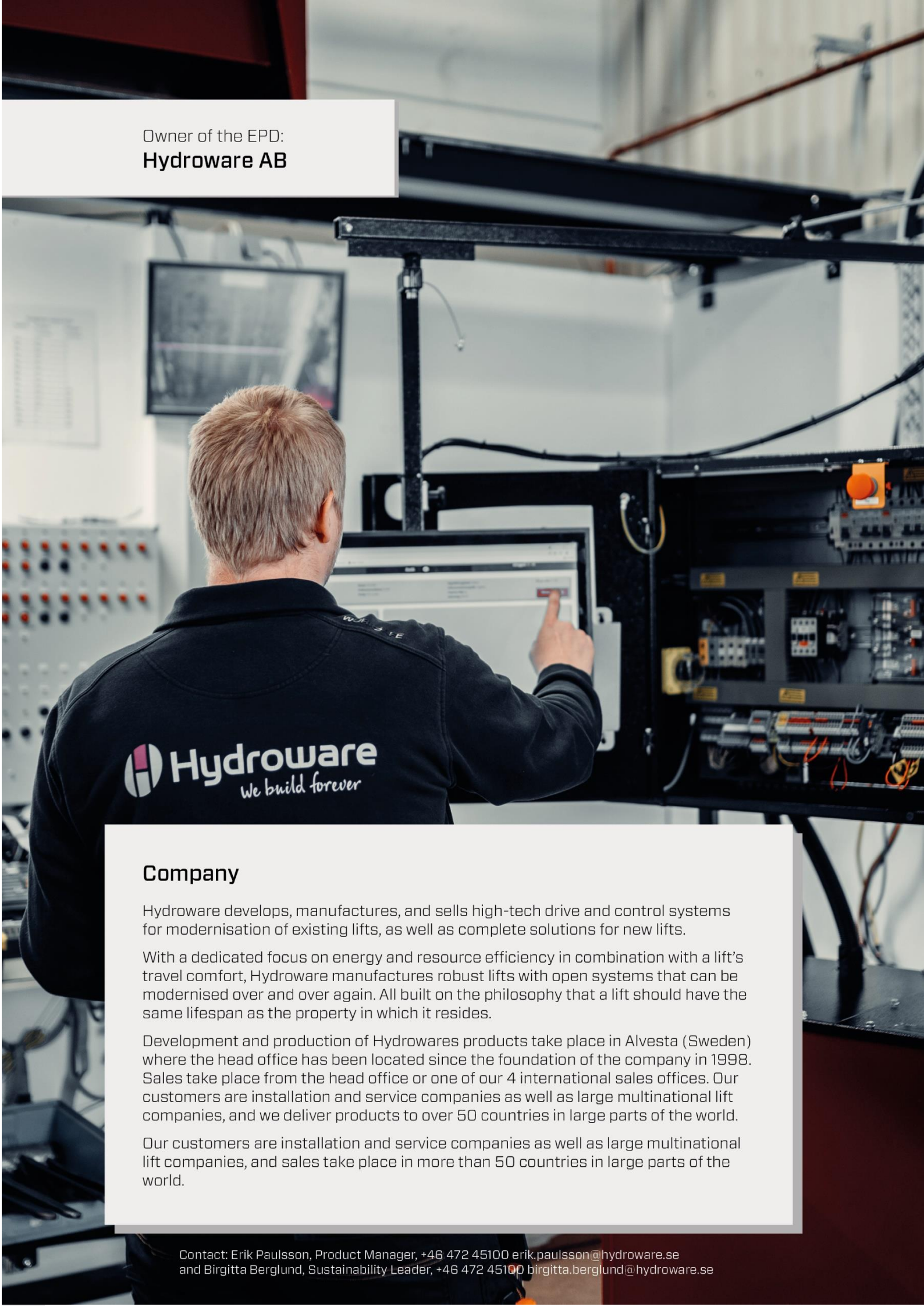
HydroElite VIDI 3G-5.20

from:

Hydroware AB

Programme	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-06437
Publication date:	2022-10-18
Valid until:	2027-09-28

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



Owner of the EPD:
Hydroware AB

Company

Hydroware develops, manufactures, and sells high-tech drive and control systems for modernisation of existing lifts, as well as complete solutions for new lifts.

With a dedicated focus on energy and resource efficiency in combination with a lift's travel comfort, Hydroware manufactures robust lifts with open systems that can be modernised over and over again. All built on the philosophy that a lift should have the same lifespan as the property in which it resides.

Development and production of Hydrowares products take place in Alvesta (Sweden) where the head office has been located since the foundation of the company in 1998. Sales take place from the head office or one of our 4 international sales offices. Our customers are installation and service companies as well as large multinational lift companies, and we deliver products to over 50 countries in large parts of the world.

Our customers are installation and service companies as well as large multinational lift companies, and sales take place in more than 50 countries in large parts of the world.

Contact: Erik Paulsson, Product Manager, +46 472 45100 erik.paulsson@hydroware.se
and Birgitta Berglund, Sustainability Leader, +46 472 45100 birgitta.berglund@hydroware.se

Vision:

Our vision at Hydroware is inspired by circular economy. We want to be involved in building long-term sustainable lift solutions where good finances are combined with everything being reusable or recycled

- Kjell Johansson, Founder of Hydroware

Business concept:

Our business must be performed in a resource-efficient way and our products must give customers the opportunity to streamline their resource needs. Through innovations and smart solutions, we want to ensure that our products require and consume a minimal amount of resources, and that as much as possible out of the resources that are used, can be reused or recycled.

The offering, based on the in-house developed integrated drive and control system, provides customers with many advantages such as market leading installation and delivery times and a more cost-efficient solution compared to a full lift replacement. Additionally, Hydroware's modernisation solutions have a strong sustainability advantage since they extend a lift's lifespan with approximately 25 to 30 years which significantly reduces the environmental footprint.

Hydroware is a circular actor and a member of CirEko, Sweden's broadest business and membership network for circular business.

Certificates Quality and environment:
SS-EN ISO 9001: 2015 Quality
SS-EN ISO 14001: 2015 Environment
SS-ISO ISO 45001: 2018 Safety/Health
(auditor DNV Certification AB, Sweden).

Core values:

When we build, let us think that we build for ever:

We build forever

- History of stability and growth
- Sustainability at all levels
- We are pioneer and unique
- First-rate and robust products
- A strong brand, fostering engagement and pride

We build together

- Mutual respect making us successful together
- Informative and holistic perspective
- Always adapting and improving
- Committed and personalised leadership resulting in well-being and job satisfaction
- Colleagues supporting each other for joint success
- Mentorships and in-house trainings nurture a sense of responsibility

We build for you

- Customer-oriented mindset
- Helping customers to help the selves
- Never leaving customers in the lurch
- Customer satisfaction, resulting in loyalty
- Engineering included

The HydroElite Experience

- A long-term sustainable lift solution that improves the quality of life and makes everyday life a little easier.
- Providing customers with multilingual support throughout the process with competent staff available at all levels.

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): C-PCR-008 Lifts (Elevators) to PCR2019-14 Construction products v1.11 and UN CPC code(s) 4354 Together with EN 15804:2012+A2:2019
PCR review was conducted by: the Technical Committee of the International EPD® System. Review chair: Gorka Benito. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *Hüdai Kara, PhD, Metsims Sustainability Consulting, hudai.kara@metsims.com, Oxford. U.K.* *Approved by: The International EPD® System*
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

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

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

The LCA approach harmonizes with the Product Environmental Footprint Category Rules for building products, cradle to grave (EPD International, 2021). The Life Cycle Assessment report (Böckin, 2022) is available to EPD-auditor on request and include all the detailed information required according to ISO 14044 (ISO, 2006b).

Product information

Index	Values	Representative values chosen in case of ranges
Type of installation	*New Lift and modernization*	
Commercial name	*HydroElite 3G-5.20 VIDI – L10*	
Main purpose	*Transport of passengers & goods*	
Type of lift	*Hydraulic lift*	
Type of drive system	*Hydraulic*	
Rated load (fixed or range)	*320 ... 30000 kg*	*1000 kg*
Rated speed (fixed or range)	*0,2 ... 1 m/s*	*0,63 m/s*
Number of stops (fixed or range)	*2-16*	*4*
Travelled height (fixed or range)	*1 ... 40 m*	*8,4 m*
Number of operating days per year (fixed or range)	*0 ... 365 days*	*365 days*
Applied usage category (UC) according to ISO 25745-2	*UC1 ... UC6*	*UC1*
Technical lifetime	*75 years (with two modernisations)*	
Reference Service Life (RSL)	*25 years (basis of comparison)*	
Transportation performance (TP) per RSL	*84,5 ... 8278 tkm (for UC1 ... UC6)*	*84,5 tkm (for UC1)*
Geographic region of intended installation	*Europe*	*Berlin, Germany*
Additional information		
Recommended application (main market) - Building rise (typical) - Building type	*Low-rise residential / commercial*	
Additional requirements	*NA*	
Standby power requirement	*40 W*	
Product versions	*For an additional charge, the lift is available with lithium batteries, in which case there are no dangerous substances over 0,1 wt% in the lift (SVHC)*	

HydroElite VIDI 3G-5.20 is a top model from Hydroware. It is an integrated drive and control system for hydraulic lifts and equipped with Hydroware's unique valve system which makes it possible for the lift to go with direct to floor travel, completely without creeping. The valve also does not need to bypass the oil at full speed upwards. HydroElite VIDI is equipped with an efficient air-cooled IE2 motor and frequency control. The rated speed is gradually reduced when the load exceeds 25 percent of the rated load, which greatly reduces the power requirement.

LCA information

Functional Unit	The functional unit was defined as the transportation of a load over a distance, expressed as one tonne transported over one kilometre (i.e. 1 tkm) over a vertical trajectory
Lifetime	Reference Service Life (RSL): 25 years. Technical lifetime 75 years (including two modernisations)
Product group classification	UN CPC 4354
Goal and Scope	Understanding the product's environmental impact during the life cycle, for internal product development to reduce the impact but also to for external communication.
Manufacturing Site	Hydroware AB, Alvesta, Sweden.
Geographical Area	Europe. Average use is represented by German electricity and disposal is represented by an average European scenario.
Compliant with	This EPD follows the "Book-keeping" LCA approach which is defined as attributional LCA in the ISO 14040 standard. In accordance with ISO 14025, ISO 14040 – ISO 140 44 and EN 15804:2012+A2:2019 This EPD follows the Product Category Rules PCR2019-14 Construction products v1.11 valid until 2024-12-20, and the c-PCR-008 Lifts (Elevators)
Cut-Off Rules	The following procedure is followed for the exclusion of inputs and output: - Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts shall be included A screening and expert judgement showed that the following aspects contribute less than 1% and could be cut-off: - Various supplier packaging - Production of capital goods for manufacturing (machines and facilities) - Energy for installation and dismantling
Background data	The data quality is considered good. All site-specific data for raw materials, auxiliary materials as well as energy and emissions in the manufacturing process is from 2021 and have been represented with ecoinvent datasets. All other relevant environmental aspects have been represented by generic ecoinvent data. ecoinvent is the world's biggest LCI (Life cycle inventory) data library and the latest and most updated version was used. ecoinvent contains data for the specific geographical regions relevant for this study. The background data from ecoinvent 3.8 are from 2016-2021.
Foreground data - primary	Weight of components and composition of raw materials. Packaging, electricity for assembly and use. Materials for maintenance and modernisation.
Electricity data	Electricity consumption in the A3 module is average Swedish grid mix and Italian grid mix (depending on the location) and B6 electricity is represented by average German grid mix in Ecoinvent 3.8.
Allocations	Polluter Pays / Allocation by Classification
Impact Assessment methods	Potential environmental impacts are calculated with Environmental Footprint 3.0 method as implemented in SimaPro 9.3 Resource use values are calculated from Cumulative Energy Demand V1.11.
Based on LCA Report	Miljögiraff LCA Report 1024
LCA Practitioner	Daniel Böckin, Miljögiraff AB
Software	SimaPro 9.3

Functional unit and transportation performance:

The LCA results shall be presented per functional unit (f.u.) (in addition to per RSL). The function of a lift is the transportation of persons and/or freight. In accordance with the PCR, the f.u. is thus defined as the transportation of a load over a distance, expressed as one tonne transported vertically over one kilometre, i.e. tonne-kilometre (tkm).

The total amount of tkm fulfilled by the lift during its lifetime (known as transportation performance, TP) is calculated according to the PCR and ISO 25745-2, according to the table below. The LCA results per functional unit are then obtained by dividing all inputs and outputs per RSL by the TP. The TP depends on how often the lift is used (i.e. in what usage category it belongs, UC1-UC6). In this report, UC1 has been chosen as the representative case, why results per tkm are presented for UC1 only.

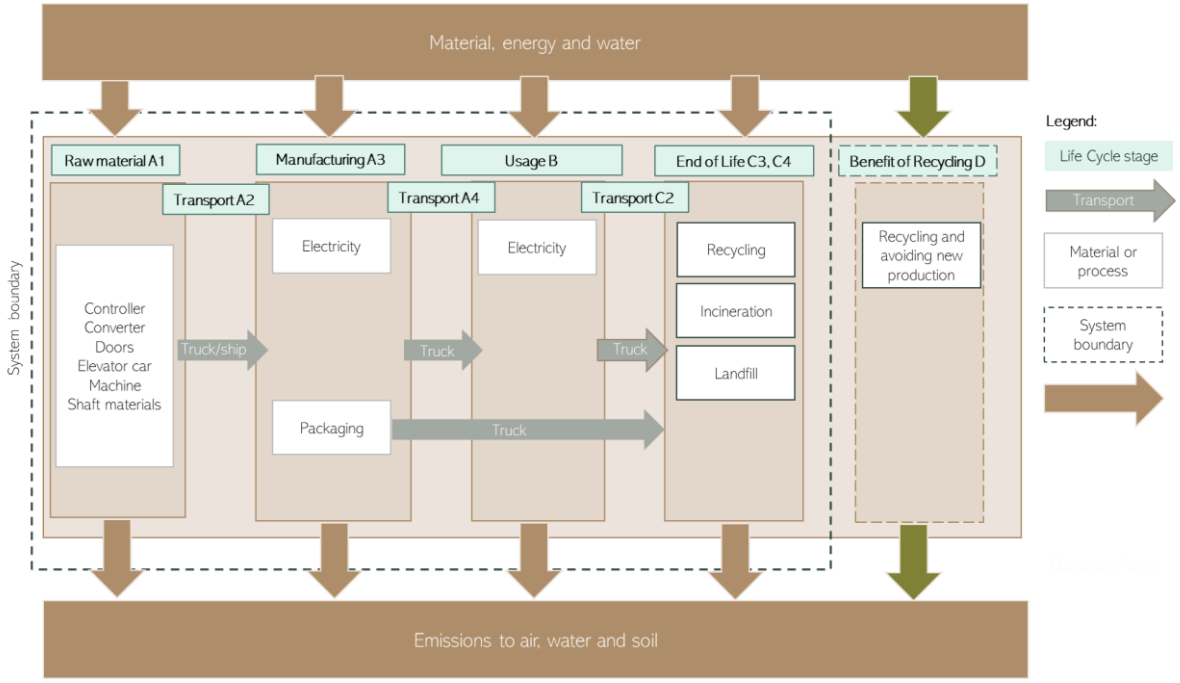
The calculation requires the following parameters:

- TP = transportation performance
  - Average car load (Q_{av}) multiplied by the distance travelled by the lift during the service life (s_{RSL})
- Q_{av} = average car load
  - Rated load (in tonnes) multiplied by the corresponding percentage from Table 3 of ISO 25745−2
- s_{RSL} = Distance travelled by the lift during the service life
  - One-way average travel distance (sav) * number of trips per day (nd) * number of operating days per year (dop) * Reference Service Life (RSL)

	UC1	UC2	UC3	UC4	UC5	UC6
TP	0,045 tonnes * 1878 km = **84,5 tkm**	0,045 tonnes * 4695 km = **211 tkm**	0,045 tonnes * 11 268 km = **507 tkm**	0,06 tonnes * 25 295 km = **1518 tkm**	0,082 tonnes * 44 840 km = **3677 tkm**	0,135 tonnes * 61 320 km = **8278 tkm**
Q_{av}	1 ton * 0,045 = 0,045 tonnes	1 ton * 0,045 = 0,045 tonnes	1 ton * 0,045 = 0,045 tonnes	1 ton * 0,06 = 0,06 tonnes	1 ton * 0,082 = 0,082 tonnes	1 ton * 0,135 = 0,135 tonnes
s_{RSL}	8,4 m * 50 trips * 365 days * 25 yrs = 1878 km	8,4 m * 125 trips * 365 days * 25 yrs = 4695 km	8,4 m * 300 trips * 365 days * 25 yrs = 11 268 km	8,4 m * 750 trips * 365 days * 25 yrs = 25 295 km	8,4 m * 1500 trips * 365 days * 25 yrs = 44840 km	8,4 m * 2500 trips * 365 days * 25 yrs = 61 320 km

System diagram:

This study includes a cradle-to-grave perspective. That means that all processes needed for raw material extraction, manufacturing, transport, usage and end-of-life are included in the study.



Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage		Construction process stage			Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	GLO	EU	SE/IT	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Type of data used	G	G	S	S	G	-	G	G	-	G	G	-	-	G	G	-	G

Modules B1, B3, B4, B7, C1 and C4 are declared with zero impacts.

Content and life cycle information

The following table shows the material content of the HydroElite VIDI lift and the percentage of recycled and renewable material in the product.

Product materials	Weight, kg	Recycled material, weight-%	Renewable material, weight-%
Steel, unalloyed	1774	0	0
Steel, low alloyed	230	0	0
Lubricating oil	110	0	0
MDF	98,0	0	80%
Polypropylene	49,5	0	0
Copper	28,8	0	0
Aluminium	28,0	48%	0
Glass	22,0	0	0
Cast iron	20,6	0	0
Electronic control unit	14,1	0	0
Synthetic rubber	8,90	0	0
Battery	4,80	0	0
Electric connector	3,20	0	0
PVC	3,00	0	0
Circuit board	1,18	0	0
LCD display	0,40	0	0
Total	2396	5,6%	3,3%
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	
Wood	135,5	5,7%	
Plastic (non-PVC)	7,7	0,3%	
Plastic (PVC)	4,0	0,2%	
Cardboard	5,3	0,2%	

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Substance: Lead	**231-100-4**	**7439-92-1**	**0,2%**

The majority of the product weight comes from steel components. The total weight for the lift modelled for this EPD (four stopping floors) is ca 2400 kg.

Manufacturing takes place in Alvesta, Sweden as well as in Italy and includes assembling and mounting the six different modules of the lift. Each module requires 23 kWh to assemble, and two modules are assembled in Sweden while four modules are assembled in Italy (in reality, one of the modules is partly assembled in both Sweden and Italy, but in the model it is conservatively assumed to be assembled only in Italy, with its more carbon intensive electricity). The source of the energy is an average Swedish grid mix (0,0412 kg CO2-eq/kWh) and an average Italian grid mix (0,396 kg CO2-eq/kWh), respectively.

Packaging is shown in the table above and includes mainly wood, with some plastic and cardboard.

It is assumed that there are no environmental aspects during **installation** of the product, except the waste management of packaging after installation.

For the **use phase**, the lift is assumed to be installed somewhere in Europe (Hydroware's main market). The 25 year energy consumption of 15,4 MWh was calculated in accordance with ISO 25745-1 and -2 (for usage category 1). The energy source was average European electricity, represented by German average mix on the grid (0,157 kg CO2-eq/kWh).

End of life is based on a generic scenario of average European waste management.

Modules B1, B3, B4, B7, C1 and C4 are assumed to include no environmental aspects.

Environmental Information

Potential environmental impact per functional unit (1 tkm) – mandatory indicators according to EN 15804 and additional voluntary indicators

Results per 1 tkm vertical transport by the HydroElite VIDI lift

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	B2	B5	B6	C2	C3	D
GWP-fossil	kg CO_2 eq.	3,36E+01	1,48E+00	4,65E-01	3,56E+01	1,48E+00	4,44E-02	3,28E+00	2,13E+01	1,02E+02	1,54E-02	4,52E-01	-1,71E+01
GWP-biogenic	kg CO_2 eq.	7,71E-01	1,28E-03	-9,01E-01	-1,28E-01	1,28E-03	4,43E-01	1,18E+00	1,20E+00	8,82E+00	1,33E-05	8,62E-01	1,01E-01
GWP-luluc	kg CO_2 eq.	3,01E-02	5,91E-04	1,96E-03	3,27E-02	5,91E-04	8,14E-06	2,72E-03	2,73E-02	1,39E-01	6,15E-06	3,27E-05	9,55E-03
GWP-total	kg CO_2 eq.	3,45E+01	1,48E+00	-4,33E-01	3,55E+01	1,48E+00	4,89E-01	4,52E+00	2,26E+01	1,11E+02	1,54E-02	1,33E+00	-1,70E+01
ODP	kg CFC 11 eq.	2,60E-06	3,42E-07	7,54E-08	3,02E-06	3,42E-07	3,68E-09	1,50E-06	2,09E-06	2,55E-06	3,57E-09	9,29E-09	-2,66E-06
AP	mol H^+ eq.	2,28E-01	4,20E-03	2,19E-03	2,34E-01	4,20E-03	1,39E-04	1,85E-02	2,41E-01	2,26E-01	4,37E-05	4,03E-04	-6,82E-02
EP-freshwater[1]	kg P eq	2,34E-02	9,68E-05	1,36E-04	2,36E-02	9,68E-05	3,72E-06	8,38E-04	2,25E-02	1,55E-01	1,01E-06	3,40E-05	-7,62E-03
EP-marine	kg N eq.	3,63E-02	8,53E-04	5,17E-04	3,77E-02	8,53E-04	1,54E-04	4,42E-03	2,83E-02	7,42E-02	8,88E-06	8,30E-04	-1,49E-02
EP-terrestrial	mol N eq.	3,66E-01	9,29E-03	5,29E-03	3,80E-01	9,29E-03	6,33E-04	3,08E-02	2,95E-01	5,18E-01	9,68E-05	1,64E-03	-1,58E-01
POCP	kg NMVOC eq.	1,48E-01	3,57E-03	1,80E-03	1,53E-01	3,57E-03	1,77E-04	4,83E-02	1,16E-01	1,28E-01	3,72E-05	5,25E-04	-7,64E-02
ADP-m&m[2]	kg Sb eq.	2,85E-03	5,24E-06	1,97E-06	2,86E-03	5,24E-06	7,09E-08	3,80E-05	4,84E-03	1,11E-04	5,46E-08	1,63E-07	-4,73E-05
ADP-f[3]	MJ	4,46E+02	2,24E+01	9,94E+00	4,78E+02	2,24E+01	1,73E-01	1,19E+02	3,11E+02	1,42E+03	2,33E-01	6,67E-01	-1,71E+02
WDP	m3	1,01E+01	6,82E-02	2,27E-01	1,04E+01	6,82E-02	4,34E-03	9,17E-01	7,23E+00	3,79E+00	7,10E-04	1,55E-02	-3,56E+00
Particulate matter	disease inc.	2,08E-06	1,19E-07	3,62E-08	2,24E-06	1,19E-07	1,56E-09	1,51E-07	1,45E-06	8,50E-07	1,24E-09	6,52E-09	-1,19E-06
Ionising radiation	kBq U-235 eq	3,95E+00	1,15E-01	1,47E-01	4,21E+00	1,15E-01	1,13E-03	6,55E-01	2,63E+00	1,94E+01	1,20E-03	3,32E-03	-5,69E-01
ET	CTUe	1,64E+03	1,76E+01	6,23E+00	1,66E+03	1,76E+01	9,46E-01	8,14E+01	1,85E+03	8,05E+02	1,83E-01	4,57E+00	-4,51E+02
HT, cancer	CTUh	1,48E-07	5,66E-10	2,39E-10	1,49E-07	5,66E-10	9,50E-11	1,96E-09	8,61E-08	1,84E-08	5,89E-12	1,43E-09	-9,30E-08
HT, non-cancer	CTUh	1,82E-06	1,78E-08	5,35E-09	1,85E-06	1,78E-08	5,58E-10	5,30E-08	2,57E-06	7,13E-07	1,85E-10	8,86E-08	-3,49E-07
Land use	Pt	1,95E+02	1,56E+01	1,06E+02	3,16E+02	1,56E+01	2,07E-01	6,45E+01	1,74E+02	1,93E+02	1,63E-01	1,02E+00	-3,02E+01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-m&m = Abiotic depletion potential for non-fossil resources; ADP-f = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption. ET = Ecotoxicity, freshwater. HT = Human toxicity												

[1] Disclaimer: The EP-freshwater indicator is calculated in kg P eq, according to this update: EN 15804:2012+A2:2019/AC:2021

[2] Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Potential environmental impact for the complete product over the RSL of 25 years – mandatory indicators according to EN 15804 and additional voluntary indicators

Results per 25 years for the HydroElite VIDI lift

Indicator	Unit	A1	A2	A3	Tot.A 1-A3	A4	A5	B2	B5	B6 (UC1)	B6 (UC2)	B6 (UC3)	B6 (UC4)	B6 (UC5)	B6 (UC6)	C2	C3	D
GWP-fossil	kg CO_2 eq.	2,84E+03	1,25E+02	3,93E+01	3,01E+03	1,25E+02	3,75E+00	2,77E+02	1,80E+03	8,64E+03	1,61E+04	3,34E+04	7,29E+04	1,32E+05	1,95E+05	1,30E+00	3,82E+01	-1,45E+03
GWP-biogenic	kg CO_2 eq.	6,52E+01	1,08E-01	-7,61E+01	-1,08E+01	1,08E-01	3,74E+01	1,00E+02	1,01E+02	7,45E+02	1,39E+03	2,88E+03	6,29E+03	1,14E+04	1,68E+04	1,12E-03	7,29E+01	8,54E+00
GWP-luluc	kg CO_2 eq.	2,55E+00	4,99E-02	1,66E-01	2,76E+00	4,99E-02	6,88E-04	2,30E-01	2,31E+00	1,18E+01	2,19E+01	4,56E+01	9,95E+01	1,80E+02	2,66E+02	5,20E-04	2,77E-03	8,07E-01
GWP-total	kg CO_2 eq.	2,91E+03	1,25E+02	-3,66E+01	3,00E+03	1,25E+02	4,13E+01	3,82E+02	1,91E+03	9,41E+03	1,75E+04	3,64E+04	7,94E+04	1,44E+05	2,12E+05	1,30E+00	1,13E+02	-1,44E+03
ODP	kg CFC 11 eq.	2,20E-04	2,89E-05	6,37E-06	2,55E-04	2,89E-05	3,11E-07	1,27E-04	1,76E-04	2,15E-04	4,00E-04	8,32E-04	1,82E-03	3,29E-03	4,85E-03	3,01E-07	7,85E-07	-2,25E-04
AP	mol H^+ eq.	1,92E+01	3,55E-01	1,85E-01	1,98E+01	3,55E-01	1,17E-02	1,57E+00	2,03E+01	1,91E+01	3,55E+01	7,37E+01	1,61E+02	2,92E+02	4,30E+02	3,70E-03	3,41E-02	-5,76E+00
EP-freshwater[3]	kg P eq	1,98E+00	8,18E-03	1,15E-02	2,00E+00	8,18E-03	3,15E-04	7,08E-02	1,90E+00	1,31E+01	2,44E+01	5,08E+01	1,11E+02	2,01E+02	2,96E+02	8,52E-05	2,87E-03	-6,44E-01
EP-marine	kg N eq.	3,07E+00	7,21E-02	4,37E-02	3,18E+00	7,21E-02	1,30E-02	3,74E-01	2,40E+00	6,27E+00	1,17E+01	2,42E+01	5,29E+01	9,59E+01	1,41E+02	7,51E-04	7,01E-02	-1,26E+00
EP-terrestrial	mol N eq.	3,09E+01	7,86E-01	4,47E-01	3,21E+01	7,86E-01	5,35E-02	2,60E+00	2,49E+01	4,38E+01	8,15E+01	1,69E+02	3,70E+02	6,70E+02	9,87E+02	8,18E-03	1,38E-01	-1,33E+01
POCP	kg NMVOC eq.	1,25E+01	3,02E-01	1,52E-01	1,30E+01	3,02E-01	1,50E-02	4,08E+00	9,84E+00	1,08E+01	2,01E+01	4,18E+01	9,14E+01	1,66E+02	2,44E+02	3,14E-03	4,43E-02	-6,46E+00
ADP-m&m[4]	kg Sb eq.	2,41E-01	4,43E-04	1,66E-04	2,42E-01	4,43E-04	6,00E-06	3,21E-03	4,09E-01	9,41E-03	1,75E-02	3,64E-02	7,95E-02	1,44E-01	2,12E-01	4,61E-06	1,38E-05	-4,00E-03
ADP-f[5]	MJ	3,77E+04	1,89E+03	8,40E+02	4,04E+04	1,89E+03	1,46E+01	1,00E+04	2,63E+04	1,20E+05	2,24E+05	4,65E+05	1,01E+06	1,84E+06	2,71E+06	1,97E+01	5,64E+01	-1,44E+04
WDP	m^3	8,54E+02	5,76E+00	1,92E+01	8,79E+02	5,76E+00	3,67E-01	7,75E+01	6,11E+02	3,20E+02	5,95E+02	1,24E+03	2,70E+03	4,90E+03	7,22E+03	6,00E-02	1,31E+00	-3,01E+02
Particulate matter	disease inc.	1,76E-04	1,01E-05	3,06E-06	1,89E-04	1,01E-05	1,32E-07	1,28E-05	1,22E-04	7,18E-05	1,34E-04	2,78E-04	6,06E-04	1,10E-03	1,62E-03	1,05E-07	5,51E-07	-1,00E-04
Ionising radiation	kBq U-235 eq	3,34E+02	9,75E+00	1,24E+01	3,56E+02	9,75E+00	9,52E-02	5,53E+01	2,22E+02	1,64E+03	3,04E+03	6,33E+03	1,38E+04	2,51E+04	3,69E+04	1,02E-01	2,81E-01	-4,81E+01
ET	CTUe	1,38E+05	1,49E+03	5,27E+02	1,40E+05	1,49E+03	7,99E+01	6,88E+03	1,57E+05	6,80E+04	1,27E+05	2,63E+05	5,74E+05	1,04E+06	1,53E+06	1,55E+01	3,86E+02	-3,81E+04
HT, cancer	CTUh	1,25E-05	4,78E-08	2,02E-08	1,26E-05	4,78E-08	8,02E-09	1,66E-07	7,28E-06	1,56E-06	2,90E-06	6,02E-06	1,31E-05	2,38E-05	3,51E-05	4,98E-10	1,21E-07	-7,86E-06
HT, non-cancer	CTUh	1,54E-04	1,50E-06	4,52E-07	1,56E-04	1,50E-06	4,72E-08	4,48E-06	2,17E-04	6,02E-05	1,12E-04	2,33E-04	5,08E-04	9,22E-04	1,36E-03	1,56E-08	7,49E-06	-2,95E-05
Land use	Pt	1,65E+04	1,32E+03	8,94E+03	2,67E+04	1,32E+03	1,75E+01	5,45E+03	1,47E+04	1,63E+04	3,03E+04	6,30E+04	1,38E+05	2,49E+05	3,67E+05	1,37E+01	8,59E+01	-2,55E+03
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-m&m = Abiotic depletion potential for non-fossil resources; ADP-f = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption. ET = Ecotoxicity, freshwater. HT = Human toxicity																	

[3] Disclaimer: The EP-freshwater indicator is calculated in kg P eq, according to this update: EN 15804:2012+A2:2019/AC:

[4] Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Global warming potential IPCC 2021

Results per functional unit (1 tkm vertical transport) and per RSL (25 years) for the HydroElite VIDI lift

Indicator[5]	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	B2	B5	B6	C2	C3	D
GWP 100 per f.u.	kg CO2 eq	33,1	1,47	0,460	35,0	1,47	0,0625	3,69	21,3	102	0,0153	0,646	-16,4
GWP 100 per RSL	kg CO2 eq	2797	124	38,8	2960	124	5,28	312	1796	8656	1,29	54,6	-1387

[5] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of resources - per functional unit (1 tkm) for the HydroElite VIDI lift of usage category 1 (UC1)

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	B2	B5	B6	C2	C3	D
PERE	MJ	3,97E+03	9,58E+00	1,07E-01	3,35E+00	1,30E+01	1,07E-01	3,10E-03	3,75E+00	1,20E+01	7,43E+01	1,11E-03	7,22E-03
PERM	MJ	8,94E+00	5,45E+00	0,00E+00	3,49E+00	8,94E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,98E+03	1,50E+01	1,07E-01	6,84E+00	2,20E+01	1,07E-01	3,10E-03	3,75E+00	1,20E+01	7,43E+01	1,11E-03	7,22E-03
PENRE	MJ	2,74E+04	1,54E+02	7,93E+00	2,91E+00	1,65E+02	7,93E+00	6,15E-02	4,22E+01	1,10E+02	5,10E+02	8,26E-02	2,37E-01
PENRM	MJ.	4,44E+00	3,82E+00	0,00E+00	6,15E-01	4,44E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,74E+04	1,58E+02	7,93E+00	3,52E+00	1,69E+02	7,93E+00	6,15E-02	4,22E+01	1,10E+02	5,10E+02	8,26E-02	2,37E-01
SM	kg	5,30E-02	5,30E-02	0,00E+00	0,00E+00	5,30E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,26E-01	3,61E-02	4,21E-04	3,09E-04	3,68E-02	4,21E-04	4,72E-05	1,85E-03	2,48E-02	6,17E-02	4,39E-06	1,61E-04
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water												

Use of resources - per RSL (25 years) for the HydroElite VIDI lift, for all usage categories

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	B2	B5	B6 (UC1)	B6 (UC2)	B6 (UC3)	B6 (UC4)	B6 (UC5)	B6 (UC6)	C2	C3	D
PERE	MJ	2,43E+03	2,71E+01	8,48E+02	3,31E+03	2,71E+01	7,87E-01	9,51E+02	3,05E+03	1,88E+04	3,50E+04	7,28E+04	1,59E+05	2,88E+05	4,24E+05	2,82E-01	1,83E+00	-5,16E+02
PERM	MJ	1,38E+03	0,00E+00	8,85E+02	2,27E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,81E+03	2,71E+01	1,73E+03	5,57E+03	2,71E+01	7,87E-01	9,51E+02	3,05E+03	1,88E+04	3,50E+04	7,28E+04	1,59E+05	2,88E+05	4,24E+05	2,82E-01	1,83E+00	-5,16E+02
PENRE	MJ	3,90E+04	2,01E+03	7,37E+02	4,17E+04	2,01E+03	1,56E+01	1,07E+04	2,79E+04	1,29E+05	2,40E+05	5,00E+05	1,09E+06	1,98E+06	2,91E+06	2,09E+01	6,01E+01	-1,52E+04
PENRM	MJ	9,69E+02	0,00E+00	1,56E+02	1,12E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,00E+04	2,01E+03	8,93E+02	4,29E+04	2,01E+03	1,56E+01	1,07E+04	2,79E+04	1,29E+05	2,40E+05	5,00E+05	1,09E+06	1,98E+06	2,91E+06	2,09E+01	6,01E+01	-1,52E+04
SM	kg	1,34E+01	0,00E+00	0,00E+00	1,34E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	9,16E+00	1,07E-01	7,84E-02	9,34E+00	1,07E-01	1,20E-02	4,69E-01	6,30E+00	1,56E+01	0,00E+00	0,00E+00	1,11E-03	4,08E-02	0,00E+00	1,11E-03	4,08E-02	0,00E+00
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water																	

Waste production and output flows

Final waste and output flows refers to flows that are leaving the system of the LCA. In this LCA only elementary flows (substances) are actually leaving the system (except materials sent for recycling). Waste production (hazardous, non-hazardous, radioactive) is zero across all modules.

Output flows, per functional unit (1 tkm) for the HydroElite VIDI lift

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	B2	B5	B6	C2	C3	D
Components for reuse	kg	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	6,31E-03	1,29E-02	8,40E-01	0	0	6,42E+00	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0

Output flows, per RSL (25 years) for the HydroElite VIDI lift

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	B2	B5	B6	C2	C3	D
Components for reuse	kg	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	1,60E+00	3,28E+00	2,13E+02	0	0	1,63E+03	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	35,3
Biogenic carbon content in packaging	kg C	62,9

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Additional information

From a life cycle perspective, the environmental impact of the HydroElite VIDI lift can mainly be attributed to the production of materials and components (module A1), the production of replacement materials and components for modernisation (module B5) as well as electricity consumption in the use phase (module B6), which depends on the usage category of the lift.

Modernisation enables the lift to last longer, and while replacement materials and components need to be produced, the net effect is a reduction of overall impacts per reference service life. Minimising the replaced materials would bring further environmental benefits.

The environmental impact of the raw materials is dominated by resource use of minerals and metals and by climate impacts. The copper and electronics in the shaft material, machine and controller and converter represent the largest amount of resource use. Of the raw materials, the steel components and associated metal working cause most of the climate impacts. The impact of the raw material production is partly mitigated by modernisation. Replacing certain components and materials enables the lift to last longer (75 years with two modernisations), so for a certain time period (like RSL=25 years) or amount of transportation performance, less materials need to be produced compared to a lift that lasts a shorter time.

The use-phase electricity consumption was calculated to be 15,4 MWh of electricity consumed over the reference service life of 25 years (for the most common usage category, UC1). For the highest usage category, the amount was instead 346 MWh). The majority (ca 56%) of this comes from stand-by energy use (for higher usage categories, the share of stand-by power is significantly less, down to 0,3% in UC6). The lift is assumed to be used in Germany, as an approximation for average European use, and the environmental impact of this electricity consumption is dominated by climate impacts, freshwater eutrophication and fossil resource use. Since the electricity represented a large share of all environmental impact, regardless of usage category, the model of the product system is sensitive to the source of energy in the use phase. If the lift is driven by only wind power instead, the total climate impact per functional unit is reduced by ca 60%.

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