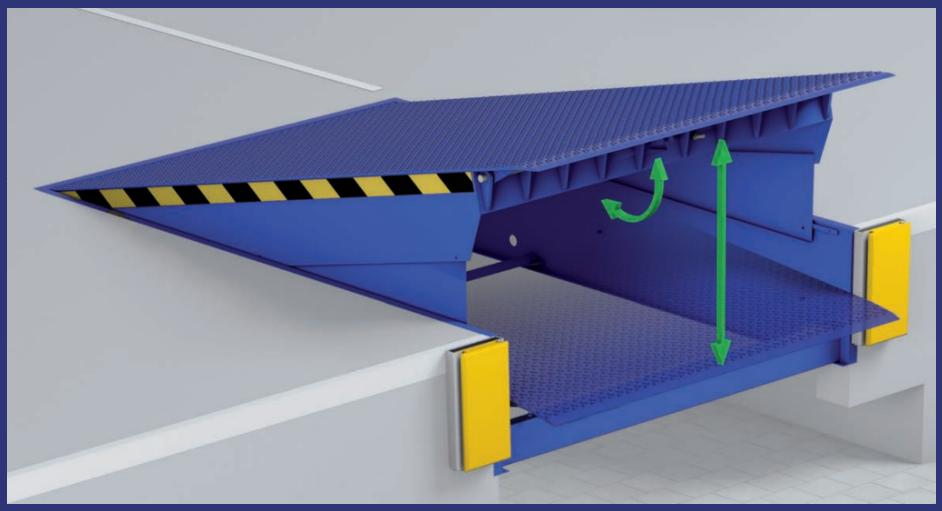
Environmental
Product
Declaration

ISO14025+EN15804+A2 Environmental Performance Assessment Method for Construction Works

This declaration is for:
NovoDock L320 Performance

Provided by:
Docking Solution und Service GmbH



MRPI® registration:
00153.2026.1.0
Program operator:
Stichting MRPI
Publisher:
Stichting MRPI
www.mrpi.nl

Date of first issue:
16-11-2026
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Expiry date:
16-11-2031

ECO PLATFORM EPD VERIFIED

Nationale MILIEUDATABASE

MRPI milieu relevante product informatie

COMPANY INFORMATION

Docking Solution und Service GmbH
Springrad 4
DE-30419

Hannover
Germany
+49-5117636790

https://www.mydocking.com

MRPI® REGISTRATION

00153.2026.1.0

DATE OF THIS ISSUE

16-11-2026

EXPIRY DATE

16-11-2031

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Vroege, Gert-Jan,Eco-Intelligence. The LCA study has been done by Koenders, Odile, SGS Search Ingenieursbureau B.V.. The certificate is based on a LCA-dossier According to ISO14025+EN15804+A2 Environmental Performance Assessment Method for Construction Works. It is verified according to the. 'Verification protocol for MRPI LCA project report & EPD 16th of April 2026, V. 5.3'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2.

PROGRAM OPERATOR

Stichting MRPI
Kingsfordweg 151
1043 GR
Amsterdam

PRODUCT

NovoDock L320 Performance

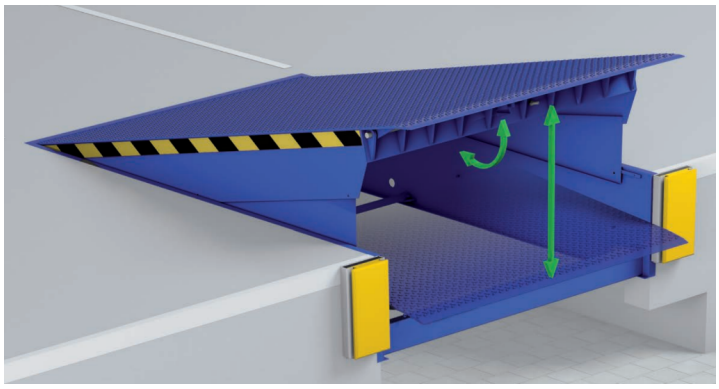
DECLARED AND FUNCTIONAL UNIT

Piece (1 piece)

DESCRIPTION OF PRODUCT

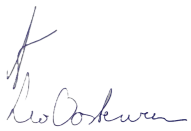
The hydraulic dock leveller with the hinged lip acts as a bridge between the building's ramp and the truck bed, enabling forklift loading and unloading. The movable hinged lip is pushed out hydraulically and placed on the loading area of the lorry to compensate for the gap between the building and the lorry.

VISUAL PRODUCT



MORE INFORMATION

https://www.mydocking.com/

Ing. L. L. Oosterveen MSc. MBA **Managing Director MRPI**	Demonstration of verification
	CEN standard EN15804 serves as the core PCR [1]
	Independent verification of the declaration and data ISO14025+EN15804+A2 Environmental Performance Assessment Method for Construction Works Internal: External: X
	Independent verifier: Vroege, Gert-Jan, Eco-Intelligence. Cerified NMD verifier.
	
	[1] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

NovoDock L320 Performance is a hydraulic dock leveller with the hinged lip acts as a bridge between the building's ramp and the truck bed, enabling forklift loading and unloading. The movable hinged lip is pushed out hydraulically and placed on the loading area of the lorry to compensate for the gap between the building and the lorry.

Novoferm Door SP. z o.o. makes only the steel structures that are ultimately wet-coated, the other parts are made by suppliers. The levellers are assembled at their production facility Wykroty, Poland.

The levellers are delivered by truck and installed after delivery to the customer site. Maintenance is only necessary for parts that are broken and need replacement. As this is incidental, it is not accounted for in the EPD.

The NovoDock L320 has a mass of 801,1 kg, and it is delivered with wood and rubber packaging weighing together 1,6 kg. The total mass delivered is thus 802,7 kg. Biogenic carbon content is from the wood packaging and a paper instruction manual of the leveller.

It has a reference service life of 25 years.

Component (> 1%)	(kg / %)
Steel	<95%
Copper	<5%
Aluminium	<5%
Plastics	<1%
Rubber	<1%
Paint	<5%
Electric components	<1%
Oil	<1%
Paper	<1%

Biogenic carbon content	Unit	Amount of uptake per functional unit
Biogenic carbon content in product	Kg C	0.01
Biogenic carbon content in accompanying packaging	Kg C	0,364
Note that 1 kg of biogenic carbon is equivalent to 44 / 12 kg of CO2.		

SCOPE AND TYPE

Background database: Ecoinvent 3.9.1
Method: Cut-off by classification
Software: Simapro 10.2
Characterization factor: Environmental Footprint (EF) 3.1

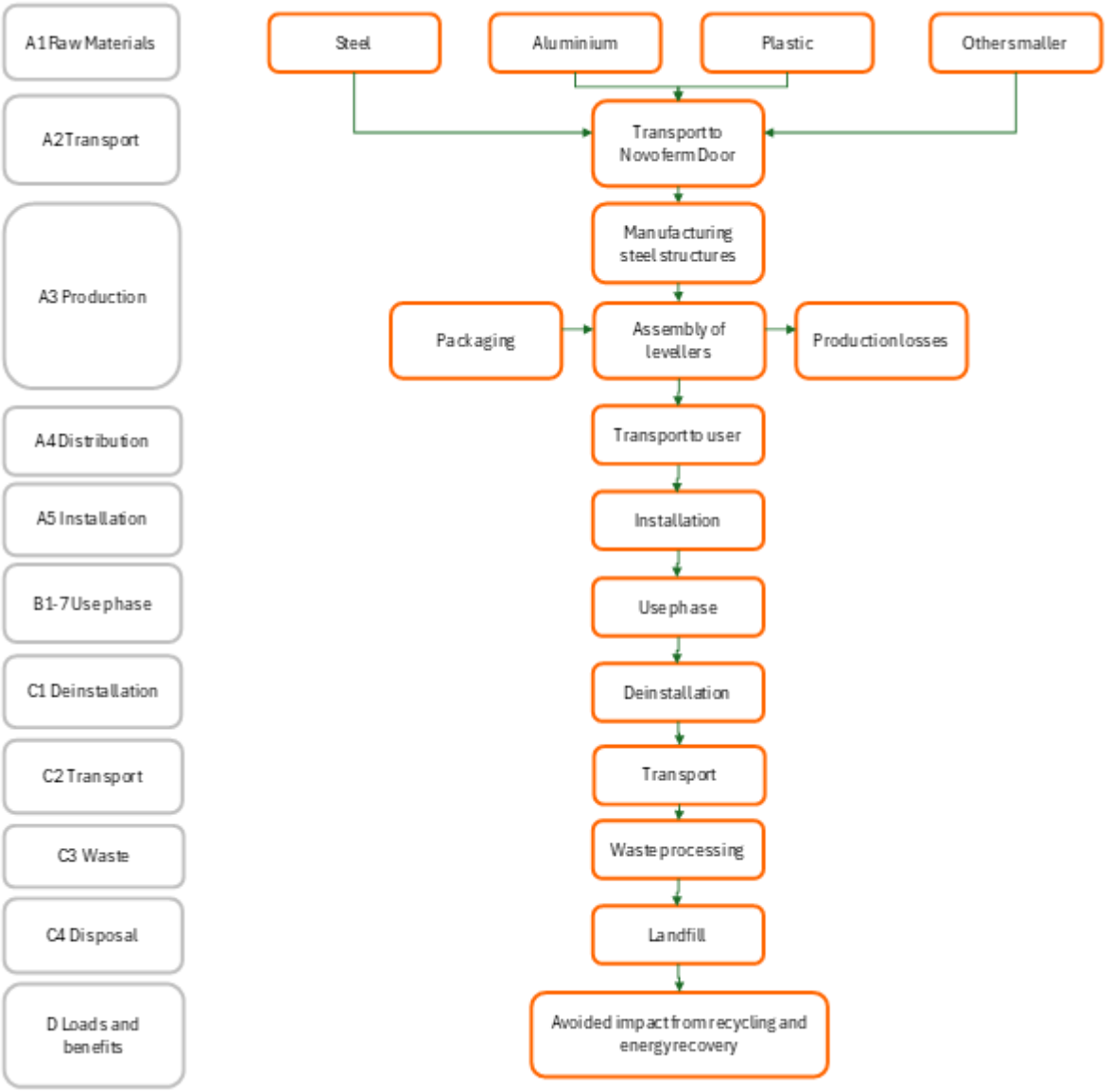
This is a specific EPD of a Cradle-to-Grave study of NovoDock L320 Performance. The product is made in Wykroty, Poland, components are delivered from global suppliers. This EPD is made according to the NMD Environmental Assessment Method; thus the the distribution and end-of-life scenarios are for the Dutch market.

The results are calculated using programme SimaPro 10.2 and database EcoInvent 3.9.1. The method used is EF3.1, this is in line with the Environmental Assessment Method of the NMD (Dutch National Environmental Database).

The followed standards are: NMD Environmental Assessment Method, NEN EN15804+A2, ISO 14040, ISO 14044, ISO 14025.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	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	x	x	x	x	x	x	x	x	x	x	x	x

X = Modules Assesed
ND = Not Declared


A1 Raw Materials
A2 Transport
A3 Production
A4 Distribution
A5 Installation
B1-7 Use phase
C1 Deinstallation
C2 Transport
C3 Waste
C4 Disposal
D Loads and benefits
Steel
Aluminium
Plastic
Others smaller
Transport to Novoferm Door
Manufacturing steel structures
Packaging
Assembly of levellers
Production losses
Transport to user
Installation
Use phase
Deinstallation
Transport
Waste processing
Landfill
Avoided impact from recycling and energy recovery

ENVIRONMENTAL IMPACT PER FUNCTIONAL UNIT OR DECLARED UNIT (CORE INDICATORS A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	2.71E+03	2.02E02	7.88E+01	3.00E+03	6.95E+01	1.11E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.41E+01	6.61E+01	4.55E+00	1.02E+02	1.03E-01	-7.15E+02
GWP-fossil	kg CO2 eq	2.63E+03	2.01E02	7.88E+01	2.91E+03	6.95E+01	1.10E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.39E+01	6.61E+01	4.55E+00	1.02E+02	9.95E-02	-7.15E+02
GWP-biogenic	kg CO2 eq	7.80E+01	8.16E-02	-1.75E-01	7.79E+01	2.24E-02	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-01	0.00E+00	1.47E-03	6.81E-02	3.00E-03	7.37E-01
GWP-luluc	kg CO2 eq	2.31E+00	1.18E-01	8.43E-02	2.51E+00	3.27E-02	3.44E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-02	7.44E-03	2.14E-03	2.64E-02	4.13E-05	-8.94E-01
ODP (A2)	kg CFC11 eq	5.38E-05	4.37E-06	2.48E-06	6.06E-05	1.52E-06	1.85E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-06	1.05E-06	9.95E-08	4.34E-07	1.64E-09	-2.30E-05
AP mol H+	mol H+ eq	1.42E+01	6.16E-01	2.15E-01	1.50E+01	2.34E-01	8.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-01	6.13E-01	1.53E-02	2.04E-01	4.50E-04	-4.02E+00
EP-freshwater	kg P eq	1.60E-01	1.94E-03	3.18E-03	1.65E-01	5.61E-04	1.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.50E-03	2.39E-04	3.68E-05	9.01E-04	7.91E-07	8.63E-03
EP-marine	kg N eq	2.54E+00	1.95E-01	3.55E-02	2.77E+00	8.00E-02	3.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-02	2.84E-01	5.24E-03	4.80E-02	1.81E-04	-5.11E-01
EP-terrestrial	mol N eq	2.81E+01	2.09E00	4.04E-01	3.06E+01	8.55E-01	3.90E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.84E-01	3.09E+00	5.60E-02	5.48E-01	1.78E-03	-7.74E+00
POCP kg NMVOC	kg NMVOC eq	1.21E+01	8.91E-01	1.91E-01	1.32E+01	3.64E-01	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-01	9.15E-01	2.38E-02	1.62E-01	6.29E-04	-4.46E+00
ADP-minerals & metals	kg Sb eq	4.57E-02	8.78E-04	3.76E-04	4.70E-02	1.87E-04	5.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E-04	2.31E-05	1.23E-05	1.07E-03	9.37E-08	-3.75E-02
ADP-fossil	MJ, net calorific value	3.14E+04	2.83E03	1.38E+03	3.56E+04	1.02E+03	1.37E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E+03	8.66E+02	6.66E+01	2.48E+02	1.45E+00	-6.68E+03
WDP	m3 world eq. Deprived	8.17E+02	1.36E01	6.40E+01	8.94E+02	5.41E+00	1.18E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E+01	2.32E+00	3.54E-01	3.63E+00	6.34E-02	-6.57E+01

GWP-total = Global Warming Potential total
GWP-fossil = Global Warming Potential fossil fuels
GWP-biogenic = Global Warming Potential biogenictotal
GWP-LULUC = Global Warming Potential land use and land use change
ODP = Depletion potential of the stratospheric ozone layer
AP = Acidification Potential, Accumulated Exceedence
AP-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 Exceedence
POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals & metals = Abiotic Depletion Potential for non-fossil resources [1]
ADP-fossil = Abiotic Depletion for fossil resources potential [1]
WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [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 experience withthe indicator.

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MRPI milieu relevante product informatie

ENVIRONMENTAL IMPACT PER FUNCTIONAL UNIT OR DECLARED UNIT (ADDITIONAL INDICATORS A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	2.02E-04	1.16E-05	1.06E-06	2.15E-04	7.00E-06	2.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.83E-07	1.71E-05	4.59E-07	2.79E-06	9.47E-09	-6.19E-05
IRP	kBq U235 eq	6.04E+01	2.02E00	6.43E+00	6.89E+01	4.89E-01	9.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.78E+00	1.77E-01	3.20E-02	6.55E-01	5.50E-04	3.98E+00
ETP-fw	CTUe	1.77E+04	1.50E03	1.71E+02	1.94E+04	4.89E+02	6.85E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E+02	4.14E+02	3.20E+01	2.72E+02	3.16E+00	7.06E+02
HTP-c	CTUh	1.18E-05	1.03E-07	2.62E-08	1.20E-05	3.01E-08	1.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.79E-08	2.03E-08	1.97E-09	8.92E-08	8.92E-09	3.57E-06
HTP-nc	CTUh	6.33E-05	1.98E-06	6.06E-07	6.58E-05	7.30E-07	8.51E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-06	1.41E-07	4.78E-08	1.43E-06	6.11E-07	1.19E-05
SQP	-	1.27E+04	1.18E03	2.55E+02	1.42E+04	1.03E+03	2.25E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E+02	5.84E+01	6.76E+01	4.20E+02	3.00E+00	-1.81E+03

PM = Potential incidence of disease due to particulate matter emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans, cancer [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

Disclaimer [1]:
- 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.

Disclaimer [2]:
- 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 experience with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES PER FUNCTIONAL OR DECLARED UNIT (A1 AND A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	2.55E -01	1.80E -02	3.90E -03	2.77E -01	6.31E -03	9.61E -03	0.00E +00	0.00E +00	0.00E +00	0.00E +00	0.00E +00	0.00E +00	3.92E -03	5.83E -03	4.14E -04	1.45E -03	7.41E -06	-9.92 E-02
NHWD	kg	6.23E +02	9.02E 01	4.78E +00	7.18E +02	8.91E +01	1.01E +01	0.00E +00	0.00E +00	0.00E +00	0.00E +00	0.00E +00	0.00E +00	4.46E +00	1.24E +00	5.84E +00	8.50E +00	8.54E +00	4.32E +01
RWD	kg	4.31E -02	1.39E -03	5.10E -03	4.95E -02	3.10E -04	6.14E -04	0.00E +00	0.00E +00	0.00E +00	0.00E +00	0.00E +00	0.00E +00	2.44E -03	9.49E -05	2.03E -05	4.97E -04	3.23E -07	2.68E -03
CRU	kg	0.00E +00	0.00E 00	0.00E +00	0.00E +00	0.00E +00	9.09E -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	9.09E +01	0.00E +00	0.00E +00
MFR	kg	0.00E +00	0.00E 00	0.00E +00	0.00E +00	0.00E +00	6.68E +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	6.68E +02	0.00E +00	0.00E +00
MER	kg	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	0.00E +00
EEE	MJ	0.00E +00	0.00E 00	0.00E +00	0.00E +00	0.00E +00	1.23E +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	1.23E +02	0.00E +00	0.00E +00
ETE	MJ	0.00E +00	0.00E 00	0.00E +00	0.00E +00	0.00E +00	2.12E +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	2.12E +02	0.00E +00	0.00E +00

HWD = Hazardous Waste Disposed
NHWD = Non Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
CRU = Components for reuse
MFR = Materials for recycling
MER = Materials for energy recovery
EEE = Exported Electrical Energy
ETE = Exported Thermal Energy

ECO PLATFORM EPD VERIFIED
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MRPI milieu relevante product informatie

RESOURCE USE PER FUNCTIONAL OR DECLARED UNIT (A1 AND A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	2.68E+03	6.16E01	1.49E+02	2.89E+03	1.49E+01	3.52E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E+02	4.93E+00	9.74E-01	3.73E+01	1.91E-02	-3.55E+01
PERM	MJ	4.78E-01	0.00E00	1.12E+01	1.17E+01	0.00E+00	1.17E-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
PERT	MJ	2.68E+03	6.16E01	1.61E+02	2.90E+03	1.49E+01	3.53E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E+02	4.93E+00	9.74E-01	3.73E+01	1.91E-02	-3.55E+01
PENRE	MJ	3.07E+04	2.83E03	1.36E+03	3.49E+04	1.02E+03	1.37E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.66E+02	6.66E+01	2.48E+02	1.45E+00	-6.68E+03
PENRM	MJ	7.05E+02	0.00E00	2.18E+01	7.27E+02	0.00E+00	7.27E+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	3.14E+04	2.83E03	1.38E+03	3.56E+04	1.02E+03	1.37E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E+03	8.66E+02	6.66E+01	2.48E+02	1.45E+00	-6.68E+03
SM	kg	1.86E+02	0.00E00	0.00E+00	1.86E+02	0.00E+00	1.86E+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	-1.93E+01
RSF	MJ	0.00E+00	0.00E00	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	0.00E00	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	2.51E+01	5.06E-01	1.89E+00	2.75E+01	1.72E-01	3.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.42E-01	7.85E-02	1.13E-02	1.55E-01	1.54E-03	1.00E-01

PERE = Use of renewable primary energy excluding renewable primary energy 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 resources excluding non-renewable 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 = Use of net fresh water

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CALCULATION RULES

Declared unit is 1 piece, with a mass of 801,1 kg (excluding packaging).

Materials, energy, emission and waste data is retrieved from mydocking. For data collection, 2024 is used as reference year for all plants. This data was complemented with data from literature and background data from Ecoinvent 3.9.1.

This LCA contains all relevant data, the cut-off by classification is followed. The following processes are not included in this LCA:
- Assumed is that the maintenance and use of auxiliary equipment have a negligible contribution to the total (<1%). Because of this, these processes are not taken in account in this LCA, except such processes that are included in the Ecoinvent background data.
- Assumed is that the capital goods and infrastructure processes have a negligible contribution. These processes are not taken in account in this LCA, except such processes that are included in the Ecoinvent background data.
There is no reason to believe that relevant in- or outputs are excluded from this study.

DATA QUALITY

Data quality level and criteria from the Product Environmental Footprint Category Rules.

DATA QUALITY REPRESENTATIVENESS

Representativenes	Quality level	Remarks
Geographical Representativeness	Very ...	Data used is obtained from the area under study.
Technical Representativeness	Good	The collected data directly relates to the manufacturing site, processes and product of the study.
Time Representativeness	Good	<2 year difference The production data has been collected for reference year 2024. This data was the most recent data available at the time of conducting the LCA study.

POWER MIX

Electricity modelling
Mydocking purchases renewable electricity from its energy supplier and has Guarantees of Origin for this electricity mix. The LCA is modelled in the upstream and core phase with a market-based approach mix, thus the supplier mix for electricity of case 3a from table 2 from ECO Platform LCA calculation rules v2.0 is followed. For the downstream phase at the building site, consumption mix is used of table 3 from ECO Platform LCA calculation rules v2.0.

Upstream electricity	Energy dataset	GWP (kg CO2e / kWh)
Electricity	Renewable electricity at production site	0,0004

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SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1. Supply of raw materials
This module declares the sourcing and processing of all raw materials and energy that take place upstream of the production process. Materials used in the production were modelled using the ecoinvent database and data from mydocking, as well as raw material data from the suppliers.

A2. Transportation of raw materials to manufacturer
This includes the transport distance of the raw materials to the production facility.

A3. Production
This module covers the production process and includes all processes related to production. The use of energy, the generation of waste, and direct emissions from the production process are taken into account.

A4. Transport to project location
The products are transported to the customers' location per lorry. Because these locations are located throughout the country (the Netherlands), the starting point is from production location to Utrecht.

Transport	Distance (km)	Capacity utilisation (%)	Bulk density (kg)	Fuel
Lorry >32 metric ton, EURO5	835	50%	802,7	Diesel

A5. Installation
The installation of the leveller is done using tools and machinery. The assumption of tools and electricity used is from a category 3 report of the NMD, chapter 43 steel construction, this is a tower crane which has the capacity of 1000 kg / hr. This is also assumed as energy input for de-construction in module C1.

The products are delivered pre-assembled/pre-fabricated from the factory and no cutting, trimming, or customization is performed on-site. As the products do not need to be altered at the building site, the installation loss is close to 0%. A conservative installation loss of 1% is assumed as safety margin, to account for any possible damages or broken shelter or levellers during transportation and installation.

Tool for installation	Time (hr)	kWh per hr	Energy
Tower crane	0,801	263	Diesel

Additionally, the disposal of packaging is accounted for in this module. For wood, the Eurostat end-of-life waste treatment scenario of 2023 is used. For rubber, NMD default waste treatment scenario is used.

Material	Recycling	Incineration	Landfill
Wood	38%	30%	32%
Rubber	0%	100%	0%

B1-B7. Use phase
Regular maintenance is necessary for the operation of the leveller. All components can be ordered when broken or non-functional. This is not anticipated or necessary for the leveller to reach the RSL. Thus, no replacement of parts is considered.

The leveller also uses electricity, this is for loadings and when the leveller is in stand-by. The estimated energy consumption is 0,243 kWh per day. This is 2.218,894 kWh electricity consumed during the whole lifetime. It is modelled with the Dutch low voltage market mix.

C1. De-construction
The same energy consumption as in A5 is considered.

C2. Transport to waste treatment facilities
It is transported per truck to the waste treatment facilities. A lorry of >32t, EURO5, is considered to transport the materials. The NMD Environmental Assessment Method is used for the transport distance assumed.

Waste treatment Scenario	Distance (km)	Capacity utilisation (%)	Fuel
Recycling and reuse	50	50%	Diesel

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Incineration	150	50%	Diesel
Landfill	100	50%	Diesel

C3-4 Waste treatment.
NMD default waste treatment scenarios are used. The NMD does not have default scenarios for paper and oil, a worst-case assumption of 100% incineration is considered for oil, and for paper eurostat 2023 data is considered.

Material	NMD scenario	Incineration (%)	Recycling (%)	Reuse (%)	Landfill (%)
Steel	73	0%	87%	12%	1%
Aluminium	4	3%	94%	0%	3%
Copper	42	5%	85%	0%	10%
Plastics	57	85%	5%	0%	10%
Paints	2	100%	0%	0%	0%
PVC	62	85%	5%	0%	10%
Electronic components	95	35%	60%	0%	5%
Rubber	65	100%	0%	0%	0%
Wood	35	85%	5%	0%	10%
Paper	Scenario of Eurostat 2023 data for paper packaging	8%	87%	0%	5%
Oil	No NMD scenario	100%	0%	0%	0%

D. Benefits and loads beyond the system boundary
In module D, the avoided production of material through recycling and reuse and avoided production of electricity and heat through incineration are included in this module.

The avoided production of material through recycling reuse is modelled using module D recycling and reuse processes of the NMD processdatabase. There is no negative output of secondary material.
Energy from incineration is divided into electricity and heat, with a respective efficiency factor of 18% and 31%, which is derived from the NMD Environmental Assessment Method. The avoided energy production is modelled using module D energy process of the NMD processdatabase.

DECLARATION OF SVHC

No substances of very high concern are present in concentrations greater than 0,1% by weight in the product.

REFERENCES

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