EPD

d line



Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Taps, external fixtures & wastes

from

d line

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-09170
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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

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General Information

Programme information

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

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): Construction products 2019:14 Version 1.2.5, 2022-11-20
UN CPC code of 42911

PCR review was conducted by: IVL Swedish Environmental Research Institute, Secretariat of the International EPD System.

Life Cycle Assessment (LCA)

LCA accountability: *Sigita Židonienė and Silvija Serapinaitė, Vesta Consulting www.vestaconsulting.lt*

Third-party verification

Independent third-party verification of the declaration and data, -according to ISO 14025:2006, via:

☒ EPD verification by individual verifier

Third-party verifier: *Prof. Ing. Vladimír Kočí, PhD., vladimir.koci@lca.cz*

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

Additional info

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data and etc. For further information about comparability, see EN 15804 and ISO 14025

Company Information

Owner of the EPD:
d line A/S | Jyllingevej 59, kld., 2720 Copenhahen | Denmark
T: +45 7212 0138 | E: info@dline.com

Contact:
Alius Jakušovas | Head of Products
M: +370 687 50525 | E: alj@dline.com



Description of the organisation:

d line is a heritage Danish design brand conceiving and hand crafting enduring architectural hardware, sanitary ware and solutions for barrier-free living.

Launched in 1971 with the coordinated line of stainless steel architectural products Knud Holscher created for St Catherine's College Oxford, d line has since collaborated with iconic Danish designers including Arne Jacobsen, Tom Dixon and Bjarke Ingels. The brand's ambition is to be universally known, coveted and admired for the uncompromising endurance of its design, craftsmanship and quality.

dline.com

Product-related or management system-related certifications:	Company is ISO certified with certification for ISO 9001:2015 (Quality Standard). Company is ISO certified with certification for ISO 14001:2015 (Environmental Standard).
Name and location of production site(s):	d line China, No. 200, Xingpu Road, Suzhou Industrial Park



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Product Information

Type of EPD:	This EPD is single company, product group EPD that covers a group of products – bathroom accessories - taps, external fixtures, and wastes. Full range of products identified by items no are presented at the end of this EPD. All items in this product group have similar production process, raw materials composition, and purpose. Some products due to the shape or size, or variations in metals ratio exceeds 10% rule, therefore the worst-case scenario, with representative product – control f/wall mount, diverter (as “worst case product”) is declatred.
Product name:	Control f/wall mount, diverter
Product identification:	Item no. – QA2290M
Product description:	Control f/wall mount, diverter
Product application:	Bathrooms, plumbing indoors
Product standards:	Certified in accordance with Kiwa UK Reguliation 4 (KUKreg4)
Technical specification:	Control Ø43mm Rose diameter Ø90mm – 3 ½’’ Spout diameter: Ø90mm – 3 ½’’ Material: Stainless steel AISI 316 Surface finish: satin finished
UN CPC code:	42911
Geographical scope:	Global

LCA Information

Functional unit / declared unit:	The declared unit is 1 kg of the product. Declared produt mass is 0,500 kg.
Reference service life: [where applicable]	The service life according to producer is 20 years.
Time representativeness:	Primary data was collected internally. The production data refers to the average for the year 2021.
Database(s) and LCA software used:	The Ecoinvent database v.3.6 provides the life cycle inventory data for the raw and process materials obtained from the background system. The LCA software used is One Click LCA.
Description of system boundaries:	Cradle to gate with options, modules A4-B7, modules C1–C4 and module D.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	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	GLO	CHN	GLO	GLO	GLO	GLO	GLO	GLO	LT	GLO	GLO	GLO	GLO	GLO	GLO	GLO
Specific data used		>90%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products		>10%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites		0%		-	-	-	-	-	-	-	-	-	-	-	-	-	-

Description of the system boundary (X = Included in LCA; MND = Module Not declared; MNR = Module Not Relevant)

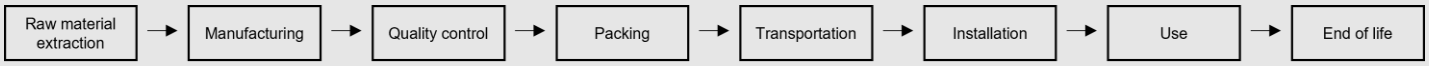
Data quality:

The foreground data collected internally is based on yearly production amounts and extrapolations of measurements on specific machines and plants. Overall, the data quality can be described as good. The primary data collection has been done thoroughly.

Cut-off criteria:

Life cycle inventory data for a minimum of 99% of total material and energy input flows have been included in the life cycle analysis. However, only materials having in summa less than 1% of the weight of the product were not used in calculations.

System diagram:



More information:

Product stage:

A1: This stage considers the extraction and processing of raw materials and energy consumption.

A2: The raw materials are transported to the manufacturing plant. In this case, the model includes road transportation of each raw material.

A3: This stage includes the manufacture of products and packaging. It also considers the energy consumption and waste generated at the production plant.

Production process description:

- Raw material extraction – Needed raw materials are supplied to be used like tubes, bars, metal sheets, etc.
- Manufacturing – In this stage, necessary production operations are made – turning, milling, cutting, stamping, grinding.
- Quality control – Manufactured parts are inspected by quality control manager visually and technically.
- Packing – Parts/products are securely packaged into the appropriate size boxes.

Construction process stage:

A4: This stage includes transport from the production gate to the construction site where the product shall be installed. Transportation is calculated based on data form manufacturer and a scenario with the parameters described in the following table. The transportation does not cause losses as products are packaged properly.

Parameter	Value/Description
Vehicle type used for transport	EURO 5 truck with a trailer with an average load of 16-32t Freight aircraft Container ship
Distance	96 % of production: Plane – 6626 km, Truck – 1397 km 2 % of production: Plane – 6626 km, Ship – 4053 km. 3 % of production: Plane - 8714

Capacity utilization	100 % of the capacity in volume (truck, including empty return), 100 % of the capacity in volume (plain, including empty return) 100 % of the capacity in volume (container ship, including empty return)

A5: This module describes impacts related to installing the product to the building. Since this is a manual process, no energy or fuels is needed for instalation. Product packaging waste are declared.

Use stage:

B1, B3, B4, B6, B7: These modules were considered, but evaluated as not relevant for the product and considered as zero.

B2: Maintenance - covers the combination of all planned technical and associated administrative actions during the service life to maintain the product installed in a building, as well as preserve the aesthetic qualities of the product. The product needs to be cleaned on regular basis with dry soft cloth.

B5: Refurbishment – product service life is set to 20 years. After or during this warranty period, the product is offered to be refurbished to extend its life with another 20 years. In this phase, materials needed to refurbish 1 kg of product is declared. Read more on page 16.

End of Life stage:

C1: This module describes impacts related to dismantling the product at the product end-of-life stage. Since this is a manual process, the environmental impacts are negligible.

C2: This module describes the transport of discarded product to final disposal. It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed that it has the same weight as the declared product. All the end-of-life product is assumed to be sent to the closest facilities such as recycling and landfill. Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is lorry which is the most common.

C3: This module describes waste processing for reuse, recovery or recycling. It is assumed that 90% or steel, stainless steel and brass will be collected separately and transformed into secondary material in a recycling plant.

C4: The remaining 10% of metals and mounting plastic and rubber parts are assumed to be sent to the landfill.

Resource recovery stage (D):

D: The benefits of recyclable waste generated in the module C3 are considered in module D. The recycled steel, stainless steel and brass has been modelled to avoid use of primary materials. The scrap content in the studied product has been acknowledged and only the mass of primary materials in the product provides the benefit to avoid double counting.

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Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Stainless steel	0,998	0	0
Rubber	0,001	0	0
TOTAL	1	0	0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	
Cardboard	0,099	9,9	
TOTAL	**0,099**	**9,9**	

No dangerous substances from the candidate list of SVHC for Authorisation are present in concentrations greater than 0.1% by weight in the product.

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	6,98E0	2,94E0	5,56E-3	0E0	0E0	0E0	0E0	6,01E-1	0E0	0E0	0E0	4,54E-3	2,56E-2	3,24E-3	-8,23E-1
GWP-biogenic	kg CO_2 eq.	2,98E-2	9,85E-4	3,74E-3	0E0	0E0	0E0	0E0	1,15E-2	0E0	0E0	0E0	3,3E-6	-1,52E-3	1,23E-6	8,44E-3
GWP-luluc	kg CO_2 eq.	1,05E-2	1,94E-4	2,25E-6	0E0	0E0	0E0	0E0	2,69E-3	0E0	0E0	0E0	1,37E-6	3,01E-5	1,73E-7	9,35E-4
GWP-total	kg CO_2 eq.	7,02E0	2,92E0	9,3E-3	0E0	0E0	0E0	0E0	6,16E-1	0E0	0E0	0E0	4,55E-3	2,42E-2	3,24E-3	-8,13E-1
ODP	kg CFC 11 eq.	3,97E-7	6,68E-7	8,04E-10	0E0	0E0	0E0	0E0	1,23E-7	0E0	0E0	0E0	1,07E-9	3,13E-9	2,23E-10	-2,12E-8
AP	mol H^+ eq.	4,03E-2	1,54E-2	3,24E-5	0E0	0E0	0E0	0E0	3,03E-3	0E0	0E0	0E0	1,91E-5	2,84E-4	5,62E-6	-3,16E-3
EP-freshwater	kg P eq.	3,18E-4	6,79E-6	9,77E-8	0E0	0E0	0E0	0E0	1,15E-5	0E0	0E0	0E0	3,7E-8	1,49E-6	7,07E-9	-2,99E-5
EP-marine	kg N eq.	7,23E-3	5,61E-3	1,14E-5	0E0	0E0	0E0	0E0	7,4E-4	0E0	0E0	0E0	5,75E-6	6,31E-5	2,01E-6	-5,69E-4
EP-terrestrial	mol N eq.	7,91E-2	6,15E-2	1,21E-4	0E0	0E0	0E0	0E0	8,34E-3	0E0	0E0	0E0	6,35E-5	7,27E-4	2,2E-5	-6,85E-3
POCP	kg NMVOC eq.	2,56E-2	1,59E-2	4,19E-5	0E0	0E0	0E0	0E0	2,48E-3	0E0	0E0	0E0	2,04E-5	1,99E-4	6,23E-6	-4,84E-3
ADP-minerals &metals*	kg Sb eq.	2,09E-4	4,1E-6	1,87E-7	0E0	0E0	0E0	0E0	1,7E-5	0E0	0E0	0E0	7,75E-8	1,26E-6	5,77E-9	-4,25E-7
ADP-fossil*	MJ	7,72E1	4,15E1	6,28E-2	0E0	0E0	0E0	0E0	1,03E1	0E0	0E0	0E0	7,07E-2	3,15E-1	1,52E-2	-5,82E0
WDP*	m^3	5,8E0	3,75E-2	4,9E-4	0E0	0E0	0E0	0E0	7,47E-2	0E0	0E0	0E0	2,63E-4	4,98E-3	8,12E-4	-2,27E-1
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-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															

** 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 – additional mandatory and voluntary indicators

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	6,98E0	2,94E0	5,56E-3	0E0	0E0	0E0	0E0	6,01E-1	0E0	0E0	0E0	4,54E-3	2,56E-2	3,24E-3	-8,23E-1

Use of resources

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,52E1	1,44E-1	1,93E-3	0E0	0E0	0E0	0E0	2,19E0	0E0	0E0	0E0	8,9E-4	4,35E-2	1,38E-4	1,45E-1
PERM	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
PERT	MJ	1,52E1	1,44E-1	1,93E-3	0E0	0E0	0E0	0E0	2,19E0	0E0	0E0	0E0	8,9E-4	4,35E-2	1,38E-4	1,45E-1
PENRE	MJ	7,72E1	4,15E1	6,28E-2	0E0	0E0	0E0	0E0	1,03E1	0E0	0E0	0E0	7,07E-2	3,15E-1	1,52E-2	-5,82E0
PENRM	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
PENRT	MJ	7,72E1	4,15E1	6,28E-2	0E0	0E0	0E0	0E0	1,03E1	0E0	0E0	0E0	7,07E-2	3,15E-1	1,52E-2	-5,82E0
SM	kg	2,78E-1	0E0	0E0	0E0	0E0	0E0	0E0	4,88E-4	0E0	0E0	0E0	0E0	0E0	0E0	4,63E-1
RSF	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
NRSF	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
FW	m^3	6,55E-2	3,27E-3	1,31E-5	0E0	0E0	0E0	0E0	2,05E-3	0E0	0E0	0E0	1,47E-5	1,33E-4	2,06E-5	-5,98E-3

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

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste production

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	4,87E0	1,31E-2	2,52E-4	0E0	0E0	0E0	0E0	1,34E-2	0E0	0E0	0E0	6,87E-5	0E0	5,15E-5	-1,09E-1
Non-hazardous waste	kg	1,44E1	4,21E-1	6,83E-3	0E0	0E0	0E0	0E0	8,05E-1	0E0	0E0	0E0	7,6E-3	0E0	1,01E-1	-1,04E0
Radioactive waste	kg	1,73E-4	2,99E-4	3,64E-7	0E0	0E0	0E0	0E0	6,64E-5	0E0	0E0	0E0	4,85E-7	0E0	9,87E-8	3,19E-7

Output flows

Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Material for recycling	kg	1,2E-2	0E0	9,9E-2	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	8,99E-1	0E0	0E0
Materials for energy recovery	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Exported energy, electricity	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0

Biogenic carbon content

Results per declared unit

Biogenic carbon content	Unit	Quantity
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

EPD

Re-handle® your product:
a disruptive refurbish system to reduce our carbon footprint between 54-91%



d line means business when they establish a circular system to keep their products in use for up to 100 years. Their purpose: to challenge you to choose the enduring solution and reuse, rather than to produce new.

Essentially, d line's Re-handle® concept encourages customers to return, refinish and have d line products refitted in their buildings, to keep them in their life cycle for as long as possible. With each Re-handle the 20-year product warranty period is renewed, and d line want you to reuse the same product up to 4 times, so that it can live for up to 100 years.

Sometimes good as new is better
In this waste-aware environment, Architects and Specifiers look for solutions that are fully documented and thought within their built environment. Now more than ever, we see a movement towards data-driven and future-thinking decision making.

Whilst Environmental Product Declarations (EPDs) are a powerful tool for taking into account energy and resource consumption as well as environmental impacts over the entire life cycle of a product, it requires that a product is fully declared across the entire life cycle in order to make fully informed decisions. Today, it is only mandatory to declare the product is its production phase, thus losing out on vital information across the remaining life cycle, such as use, end of life and recycling.

d line has made it their mission to challenge the industry for undercutting decision makers with correct data and have for that reason decided to fully disclose the complete global warming potential (GWP) in their EPDs. This means full declaration across its entire product life cycle, from production, use, refurbishment and right through to recycling. That's how they can confidently state, that by Re-handling a d line product, you will dramatically reduce the carbon footprint betweem 54-91% depending on the product, compared to specifying new.

Look for the GWP values in section B5 Refurbishment for the carbon footprint of Re-handling the product, thus making it applicable to be reused in a building as if it were new. It is not possible to Re-handle powder- and PVD coated variants.



References

General Programme Instructions of the International EPD® System. Version 4.0.

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

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

EN 15804+A2 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

PCR 2019:14 Construction products (version 1.2.5)

This declaration applies to products mentioned in the list, along with their mirror polished, powder- and PVD coated versions and brass equivalents:

QA1100M	QA2290M	QA3180M	QAL3280M	QS5229M	QS5690M	QT1190M	QS3100
QA1150M	QA2291M	QA3190M	QAL3290M	QS5239M	QST1150M	QT1200M	QS3200
QA1200M	QA2390M	QA3280M	QS5100M	QS5279M	QST3190M	QT2100M	QS3300
QA1250M	QA2391M	QA3290M	QS5110M	QS5289M	QST3290M	QR2100M	QT2300M
QA1400M	QA3080M	QA3380M	QS5209M	QS5320M	QT1150M	QR2200M	QT3100
QA2180M	QA3090M	QA3390M	QS5219M	QS5590M	QT1151M	QR2300M	QF6000M
QA2181M	QA2190M	QA2191M					

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