Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:
Manual dampers
from
Swegon Group AB

EPD of multiple products, based on the average results of the product group, all referenced products are described in the section "Products included in the EPD".

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Programme operator:	EPD International AB
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EPD®

ECO PLATFORM EPD VERIFIED

Swegon

Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
CEN standard EN15804 serves as the Core Product Category Rules (PCR). Product category rules (PCR): PCR 2019:14 Construction products. Version 1.3.4, date 2024-04-30. PCR 2019:14-c-PCR-018 c-PCR-018 Ventilation components (Adapted from EPD Norway, "Part B for ventilation components" NPCR 030 version 1.1) date 2021-05-18.	
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Claudia A. Peña. 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: Bureau Veritas Certification Sverige AB (Camilla Landén). The certification body is accredited by SWEDAC, accreditation nr 1236.	
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 programes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. 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; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.	

Company information

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Swegon Group AB

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Description of the organisation
People spend most of their time indoors, which is why we need a sound indoor climate for our health, well-being, and happiness. Swegon´s ambition is to achieve the world's best indoor environment with the least possible impact on the external environment. Our business models, services, products, and systems are all designed to provide the right solution for each individual project.

Swegon Group AB is a market leading supplier in the field of indoor environment, offering solutions for ventilation, heating, cooling and climate optimisation, as well as connected services and expert technical support. Swegon has subsidiaries and distributors all over the world as well as 21 production plants in Europe, North America and India. The company employs more than 3 300 people.

Name and location of production site
Swegon Operations AB, Industrigatan 5, 273 35 Tomelilla

Product information

Product name
Swegon Manual Damper.

Product identification
The table below provides information on the product presented in this EPD.

Product	Representative product included in the EPD	Technical standard	Weight (kg)	Dimensions (mm)	Material composition
Manual Damper	Swegon Manual Damper (Average)	-	1.55	See table below	Steel, Plastic, Rubber

Product description
Swegon Manual Dampers CRT, CRP and CRM are components in ventilation for regulating the flow of ventilated air. CRT regulates and shut of the air, CRP regulates the air but will not fully shut of the air flow due to holes in the blade. CRM regulates and shut of the air and is also prepared for connecting an external air flow measuring device.

The Dampers are manually adjustable with a handle and is available in sizes Ø100-630. Manual dampers consist mainly of sheet metal steel, rubber rings for sealing when connected in the ventilation channel and a rubber ring for sealing the shut of blade. The handle and measuring device in CRM are made of plastic material.

Products included in the EPD
Manual dampers are available in different sizes depending on the application needs. This EPD concerns the Swegon Manual Damper representing an average environmental performance for several products as listed in the table below. The average product was defined based on the weighted average of the products sold in year 2022. To investigate potential variations in results, two extreme product cases provided by Swegon were modelled and analysed. The results indicated that the difference among the two extreme products was lower than 10%.

This EPD covers the products listed in the Table below:

Article no.	GTIN	Product name	Diameter (mm)	Dimensions L x H (mm)	Total weight (kg)
73102	7333395006375	CRMc 1-100-1 Manual	Ø100	305 x 196	0,8
73103	7333395006382	CRMc 1-125-1 Manual	Ø125	356 x 221	1,0
73104	7333395006399	CRMc 1-160-1 Manual	Ø160	356 x 261	1,3
73105	7333395006405	CRMc 1-200-1 Manual	Ø200	372 x 301	1,6
73106	7333395006412	CRMc 1-250-1 Manual	Ø250	452 x 351	2,1
73107	7333395006429	CRMc 1-315-1 Manual	Ø315	538 x 416	3,0
73108	7333395006436	CRMc 1-400-1 Manual	Ø400	582 x 506	5,0
73109	7333395006443	CRMc 1-500-1 Manual	Ø500	660 x 606	9,0
73110	7333395006450	CRMc 1-630-1 Manual	Ø630	735 x 736	13,0
73202	7333395006559	CRPc 100-1 Manual	Ø100	210 x 196	0,7
73203	7333395006566	CRPc 125-1 Manual	Ø125	210 x 221	0,8
73204	7333395006573	CRPc 160-1 Manual	Ø160	210 x 261	0,9
73205	7333395006580	CRPc 200-1 Manual	Ø200	210 x 301	1,0
73206	7333395006597	CRPc 250-1 Manual	Ø250	210 x 351	1,2
73207	7333395006603	CRPc 315-1 Manual	Ø315	210 x 416	1,5
73208	7333395006610	CRPc 400-1 Manual	Ø400	255 x 506	2,6
73209	7333395006627	CRPc 500-1 Manual	Ø500	255 x 506	4,2

Products included in the EPD

Part no.	GTIN	Product name	Diameter (mm)	Dimensions L x H (mm)	Total weight (kg)
73210	7333395006634	CRPc 630-1 Manual	Ø630	255 x 736	6,0
73352	7333395007129	CRTc 100-4 excl motor	Ø100	210 x 196	0,7
73353	7333395007136	CRTc 125-4 excl motor	Ø125	210 x 221	0,8
73354	7333395007143	CRTc 160-4 excl motor	Ø160	210 x 261	0,9
73355	7333395007150	CRTc 200-4 excl motor	Ø200	210 x 301	1,0
73356	7333395007167	CRTc 250-4 excl motor	Ø250	210 x 351	1,2
73357	7333395007174	CRTc 315-4 excl motor	Ø315	210 x 416	1,5
73358	7333395007181	CRTc 400-4 excl motor	Ø400	255 x 506	2,6
73359	7333395007198	CRTc 500-4 excl motor	Ø500	255 x 506	4,2
73360	7333395007204	CRTc 630-4 excl motor	Ø630	255 x 736	6,0

UN CPC code

CPC 421 Structural metal products and parts thereof.

Geographical scope

Global.

LCA information

Declared unit

The declared unit is set to 1 kg of finished manual damper.

The dampers are normally sold in pieces. To be able to apply the results in other products within this product family however, results are presented as 1 kg of finished product. A conversion table with all included product variants is added in Additional information.

Reference service life

This EPD does not indicate Reference Service Life (RSL).

Time representativeness

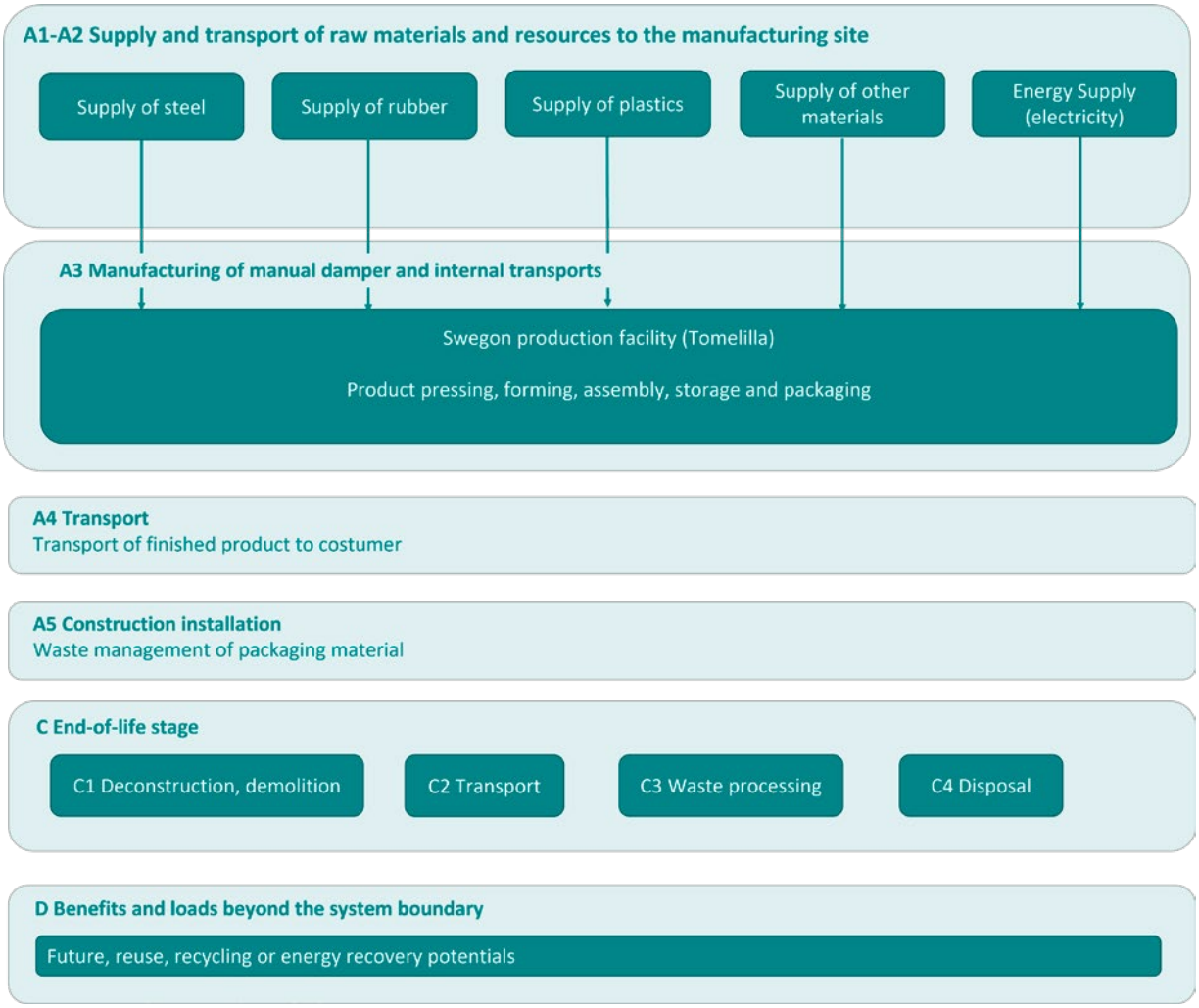
The data used to model product manufacturing corresponds to 2022. The data from generic databases are from 2017 – 2022.

Database(s) and LCA software used

The LCA was modelled using the LCA software LCA For Experts and the respective generic life cycle inventory datasets provided by Sphera (2023).

The characterization factors used in this study refer to PCR 2019:14 and EN15804+A2 (based on EF 3.0).

System diagram



Description of system

This LCA is a Cradle to gate with module A4-A5, C1-C4 and D. The life cycle stages included are described in the table below. The table also shows the 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	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction, demolition	Transport	Waste processing	Disposal	Reuse, recycling or energy recovery potentials
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	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	SE	GLO	GLO	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	2,3%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation -sites	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: Module declared
ND: Module not declared

Allocation

Allocation has been avoided whenever possible by increasing the level of detail of the production process and by collecting environmental data related to these sub-processes. In processes where product specific data could not be obtained or mass allocation was more conservative, allocation was based on physical properties.

Regarding co-product allocation of generated scrap, all impact from the scrap is allocated to the product.

Scenarios

The analysis is carried out using factory-specific data for use of energy and utilities and waste generation, as well as product-specific data for use of raw materials. Therefore, the results represent the product system and no other scenarios were applied.

Data quality

Site-specific production data has been retrieved for 2022 from the production site. The upstream and downstream processes have been modelled based on data from generic databases, mostly Sphera database. The collected data was reviewed in terms of consistency, and it is estimated as good quality.

Cut-off criteria

The study applies a cut-off criterion of maximum 1%.

Modelling of transportation modules

Three types of transportation processes are included in this LCA study; the transport of raw materials and its packaging to the production site (A2), the transport of the final product to the customers (A4) and the transport of waste materials from the production site to the disposal (C2). The following table presents the transport scenarios applied and the modelling assumptions:

Transport module	Transport mode	Average distance (km)	Capacity utilization (%)
Manufacturing to customer (A4)	28-32-ton Euro 6 diesel truck	646	85%
	Boat	217	
Customer to waste management (C2)	28-32-ton Euro 5 diesel truck	150	85%

Modelling of product manufacturing (A3)

Manual dampers consists primarily of steel, with smaller amounts of plastic and rubber components. The steel sheets produced in upstream modules is supplied in the form of cold rolled sheets that are formed in Swegon's production facility.

The inventory performed for the production process accounts for all the electricity and heat flows needed during the production process including electricity as well as the energy demands for auxiliary process such as internal transports. Electricity demand in the facilities is modelled using the site-specific renewable electricity mix that is supplied to Swegon consisting 100% of hydro power. The heat is supplied by biomass, so generic data representing thermal energy from biomass was used.

The waste streams from the manufacturing site include steel scrap that is sent to recycling.

Modelling of End-Of-Life (C1-C4)

The impacts from deconstruction were modelled based on literature data for energy use in demolition, accounting for 0.004 MJ of diesel-powered machinery work per kg finished product. The entire product was assumed to be demolished at the End of Life.

Below is an example on how the amounts for C3 and C4 was calculated.

*C3 = Reference flow * 0.85 * share of steel in the product*

C4 = Reference flow - C3

The following end-of-life scenario has been applied:

Scenario	Kg per declared unit	Source for scenario
Recycling, waste processing at treatment plant. (C3)	0.83	Assumption
Disposal, at inert construction waste landfill (C4)	0.17	Assumption

In this scenario, it was assumed that only steel (that represents the main material flow of the product) will be recycled.

Modelling of benefits beyond End-Of-Life (D)

For module D, the benefits from the recycling waste are presented. The steel recycled is credited with the avoided production of the raw material that would be displaced if recycled. A loss factor of 15 % for steel was applied to the benefits from the recycling waste streams since losses exits in the recycling process.

Furthermore, the steel was assumed to consist of 12.7 % scrap which therefore was subtracted before crediting. The steel was credited with the dataset "GLO: Values of scrap (Worldsteel 2018)."

Key estimates and assumptions

The scenarios and assumptions applied in this study for all the life cycle stages included are based on data provided by Swegon and correspond to the most likely scenario.

Regarding infrastructure in the modelling. Infrastructure is accounted for regarding transports, since this is a requirement according to the c-PCR. However, regarding the rest of the system no infrastructure have been included, other than what might be included in datasets and not possible to remove e.g. for electricity.

Content declaration

The content declaration includes the declared unit of product (1 kg) and the associated packaging material; therefore, the gross material weight is larger than 1 kg.

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Steel	0.9	0	0 resp. 0
Polymers & rubber	<0.1	0	0 resp. 0
Aluminium	<0.001	0	0 resp. 0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	
Corrugated board box	0.15	15	0.075

No substances that appear in the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) are present or used in the product concerning this EPD.

Environmental performance for the Manuel Damper

Potential environmental impact per kg finished product

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Furthermore, usage of results of modules A1-A3 without considering the results of module C is not encouraged.

The A1-A3 results includes the "balancing-out reporting" of the biogenic CO2 of packaging released in module A5

Parameter describing environmental impacts	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Indicator for climate impact, GWP-GHG	kg CO_2 eq.	4,35E+00	6,44E-02	4,94E-03	4,22E-04	1,06E-02	1,40E-01	1,29E-02	-1,29E+00
Climate Change - total	kg CO_2 eq.	4,13E+00	6,50E-02	4,94E-03	4,25E-04	1,07E-02	1,40E-01	1,29E-02	-1,29E+00
Climate Change - fossil	kg CO_2 eq.	4,34E+00	6,43E-02	4,92E-03	4,20E-04	1,06E-02	1,40E-01	1,28E-02	-1,29E+00
Climate Change - biogenic	kg CO_2 eq.	-2,09E-01	1,84E-04	2,13E-01	1,36E-06	3,71E-05	1,55E-05	4,48E-05	-1,41E-05
Climate Change - land use and land use change	kg CO_2 eq.	1,93E-03	5,13E-04	1,15E-06	3,55E-06	9,70E-05	1,65E-05	6,57E-06	-1,59E-04
Ozone depletion	kg CFC-11 eq.	1,33E-08	3,80E-09	2,55E-14	5,53E-20	9,17E-16	1,00E-14	4,81E-14	1,25E-12
Acidification	Mol H+ eq.	1,14E-02	2,48E-04	5,74E-05	2,97E-06	3,54E-05	2,85E-05	2,34E-05	-2,92E-03
Eutrophication aquatic freshwater	kg (PO4)3- eq.	3,00E-05	6,78E-06	7,98E-09	1,29E-09	3,82E-08	1,02E-08	5,52E-08	-3,38E-07
Eutrophication aquatic marine	kg N eq.	2,67E-03	8,23E-05	2,09E-05	1,47E-06	1,63E-05	8,96E-06	1,07E-05	-4,83E-04
Eutrophication terrestrial	mol N eq.	2,84E-02	9,33E-04	2,61E-04	1,63E-05	1,83E-04	1,37E-04	1,14E-04	-4,38E-03
Photochemical ozone formation	kg NMVOC eq.	9,79E-03	2,72E-04	5,53E-05	2,81E-06	3,19E-05	2,46E-05	2,83E-05	-1,93E-03
Depletion of abiotic resources - minerals and metals	kg Sb eq.	1,49E-05	3,92E-07	2,33E-10	3,30E-11	6,75E-10	2,38E-09	1,38E-09	-6,58E-06
Depletion of abiotic resources - fossil fuels	MJ	5,47E+01	1,00E+00	6,57E-02	5,76E-03	1,42E-01	6,31E-02	2,08E-01	-1,30E+01
Water use	m^3	4,95E-01	8,19E-03	2,58E-02	3,76E-06	1,21E-04	1,27E-02	1,88E-02	-8,23E-02

Use of resources per kg finished product

Parameter describing environmental impacts	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	1.01E+01	8.06E-02	1.59E-02	3.22E-04	1.01E-02	9.18E-03	8.00E-02	2.44E-01
Use of renewable primary energy resources used as raw materials (PERM)	MJ	2.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	1.29E+01	8.06E-02	1.59E-02	3.22E-04	1.01E-02	9.18E-03	8.00E-02	2.44E-01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	5.29E+01	1.00E+00	6.57E-02	5.77E-03	1.43E-01	7.52E-01	2.08E-01	-1.30E+01
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	1.82E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.89E-01	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	5.47E+01	1.00E+00	6.57E-02	5.77E-03	1.43E-01	6.32E-02	2.08E-01	-1.30E+01
Use of secondary material (SM)	kg	4.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (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
Use of non renewable secondary fuels (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
Net use of fresh water (FW)	m^3	2,99E-02	2,53E-04	6,07E-04	3,68E-07	1,11E-05	3,01E-04	4,80E-04	-1,18E-01

Output flows per kg finished product

Parameter describing environmental impacts	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	4.24E-08	2.95E-11	2.08E-12	2.91E-13	5.28E-13	6.38E-13	-7.10E-13	-8.67E-08
Non-hazardous waste disposed (NHWD)	kg	3.58E-02	1.34E-04	6.54E-03	8.57E-07	2.06E-05	2.82E-03	2.00E-02	1.39E-01
Radioactive waste disposed (RWD)	kg	1.87E-04	9.00E-07	3.48E-06	6.98E-09	1.85E-07	1.97E-06	2.57E-05	-5.48E-05

Output flows per kg finished product

Parameter describing environmental impacts	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use (CRU)	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
Materials for recycling (MFR)	kg	6.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.31E-01	0.00E+00	0.00E+00
Material for energy recovery (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
Exported electrical energy (EEE)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-01	0.00E+00	0.00E+00
Exported thermal energy (EET)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.82E-01	0.00E+00	0.00E+00

Variation between products

This EPD is an EPD of multiple products based on average results. According to the PCR, the variation aggregated over all included modules (from A to C) shall be declared if it is above 10%. Those two impact categories is shown below, together with the actual variation.

Variation of environmental impact indicator results where the variation is higher than 10%

Indicator	Unit	Variation (%)
ODP	kg CFC eq.	32
ADP-minerals and metals	kg Sb eq.	74

Additional information

Certifications and labels

The production plant is certified under ISO 14001 and ISO 9001.

Technical documentation

CRT

https://www.swegon.com/siteassets/_product-documents/flow-control/dampers/_en/crtc.pdf

CRM

https://www.swegon.com/siteassets/_product-documents/flow-control/dampers/_en/crmc.pdf

CRP

https://www.swegon.com/siteassets/_product-documents/flow-control/dampers/_en/crpc.pdf

Products included in this EPD

This EPD concerns the Swegon manual damper representing an average environmental performance for several products as listed in the table below. The expected lifetime of product is 30 years. The GWP-GHG impact presented per size below has been calculated based on the GWP-GHG for A1-A3 presented in this EPD, multiplied with the respective weight.

Article no.	GTIN	Product name	Diameter (mm)	Dimensions L x H (mm)	Total weight (kg)	GWP-GHG, A1-A3 (kg CO_2e/item)
73102	7333395006375	CRMc 1-100-1 Manual	Ø100	305 x 196	0,8	3,48
73103	7333395006382	CRMc 1-125-1 Manual	Ø125	356 x 221	1,0	4,35
73104	7333395006399	CRMc 1-160-1 Manual	Ø160	356 x 261	1,3	5,66
73105	7333395006405	CRMc 1-200-1 Manual	Ø200	372 x 301	1,6	6,96
73106	7333395006412	CRMc 1-250-1 Manual	Ø250	452 x 351	2,1	9,14
73107	7333395006429	CRMc 1-315-1 Manual	Ø315	538 x 416	3,0	13,05
73108	7333395006436	CRMc 1-400-1 Manual	Ø400	582 x 506	5,0	21,75
73109	7333395006443	CRMc 1-500-1 Manual	Ø500	660 x 606	9,0	39,15
73110	7333395006450	CRMc 1-630-1 Manual	Ø630	735 x 736	13,0	56,55
73202	7333395006559	CRPc 100-1 Manual	Ø100	210 x 196	0,7	3,05
73203	7333395006566	CRPc 125-1 Manual	Ø125	210 x 221	0,8	3,48
73204	7333395006573	CRPc 160-1 Manual	Ø160	210 x 261	0,9	3,92
73205	7333395006580	CRPc 200-1 Manual	Ø200	210 x 301	1,0	4,35
73206	7333395006597	CRPc 250-1 Manual	Ø250	210 x 351	1,2	5,22
73207	7333395006603	CRPc 315-1 Manual	Ø315	210 x 416	1,5	6,53
73208	7333395006610	CRPc 400-1 Manual	Ø400	255 x 506	2,6	11,31
73209	7333395006627	CRPc 500-1 Manual	Ø500	255 x 506	4,2	18,27
73210	7333395006634	CRPc 630-1 Manual	Ø630	255 x 736	6,0	26,10
73352	7333395007129	CRTc 100-4 excl motor	Ø100	210 x 196	0,7	3,05
73353	7333395007136	CRTc 125-4 excl motor	Ø125	210 x 221	0,8	3,48
73354	7333395007143	CRTc 160-4 excl motor	Ø160	210 x 261	0,9	3,92
73355	7333395007150	CRTc 200-4 excl motor	Ø200	210 x 301	1,0	4,35
73356	7333395007167	CRTc 250-4 excl motor	Ø250	210 x 351	1,2	5,22
73357	7333395007174	CRTc 315-4 excl motor	Ø315	210 x 416	1,5	6,53
73358	7333395007181	CRTc 400-4 excl motor	Ø400	255 x 506	2,6	11,31
73359	7333395007198	CRTc 500-4 excl motor	Ø500	255 x 506	4,2	18,27
73360	7333395007204	CRTc 630-4 excl motor	Ø630	255 x 736	6,0	26,10

References

CEN European Committee for Standardisation (2019). EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EPD International AB (2023) General programme instructions for the International EPD System. Version 4.0, date 2023-03-29.

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