Product Environmental Profile

Air Conditioner

Midea Split Cassette Type Air Conditioner

Registration number: MRAC-00006-V01.01-EN	Drafting rules: PCR-ed4-EN-2021 09 06 Supplemented by: PSR-0013-ed3.1-EN-2025 06 17
Verifier accreditation number: VH31	Information and reference documents: www.pep-ecopassport.org
Date of issue: 10-2025	Validity period: 5 years
Independent verification of the declaration and data in compliance with ISO 14025: 2006 Internal: ☐ External: ☒	
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)	
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 The components of the present PEP may not be compared with components from any other program.	
Document complies with ISO 14025:2006 “Environmental labels and declarations. Type III environmental declarations”	

General information

Company information

GD Midea Air-Conditioning Equipment Co., Ltd. (hereinafter referred to as Midea), a key part of the Midea Group, is a business platform integrating product development, production and service of domestic and commercial air conditioners. Midea has the largest and most complete air conditioner industry chain in China, including a full range of air handling equipment, such as split type, portable type, dehumidifier, window opener, floor standing type, light commercial, etc. Midea owns 6 domestic production bases and 5 overseas production bases, of which CKD & SKD are the largest and most advanced production lines with monthly peaks reaching 7 million units. SKD is the largest and most advanced production line, with a production capacity of over 62.6 million units in 2021 and a monthly peak of 7 million units. Its production of air conditioning products (Air Conditioner), refers to the use of artificial means, the building or structure of the ambient air temperature, humidity, flow rate and other parameters of the regulation and control of the equipment, generally including the cold source / heat source equipment, hot and cold media transmission and distribution system, the end of the device, and other auxiliary equipment and other major parts.

Product category

Split Type Air Conditioner

Functional unit

To produce 1 kW of heating or 1 kW of cooling according to the appropriate usage scenario defined in the EN 14825 standard and during the 17-year reference lifetime of the product.

Declared unit

To produce heating or cooling thanks to air conditioner of 4.2 kW (heating capacity) according to the appropriate usage scenario and during the 17-year reference lifetime of the product

Product information

Reference product: MOX330U-18HFN8-QRD0W(GA) outdoor unit with MCA4U-18HRFNX-QRD1W(GA)

The products covered in this report are air-to-air reversible type air conditioners without the production of domestic hot water. The indoor units are ceiling mounted cassette type. The technical characteristics of the reference product is shown in the table below. The refrigerant refill threshold is 90%.

Total weight (kg)	54.2	**$P_{design\ h}$ (kW)**	4.2
Product weight (kg)	48.7	**$P_{design\ c}$ (kW)**	5.3
Packaging weight (kg)	5.5	**P_{rev} (kW)**	4.4
Type of refrigerant	R32	**SCOP**	4.1
Refrigerant charge (g)	1150	**SEER**	6.5

Constituent materials

Material categories	Materials		
Metals	Steel	47.28%	70.57%
	Copper	10.33%	
	Aluminium	9.17%	
	Iron	3.79%	
Plastics	EPS	2.84%	14.19%
	ABS	2.39%	
	AS	2.09%	
	PVC	1.72%	
	BMC	1.57%	
	PP	1.27%	
	Rubber	1.10%	
	Other plastics	1.21%	
Others	Corrugated board box	6.62%	15.24%
	Electronics	3.63%	
	Refrigerant	1.85%	
	Other materials	3.14%	

Total weight of the reference product: 54.2 kg, including 5.5 kg of product packaging.

Products that are part of the same environmental family

This PEP declaration covers all the products in the same environmental homogeneous family below:

Market model number (Outdoor unit + Indoor unit)	Factory model number (Outdoor unit + Indoor unit)
MO-12N8-Q + MCA4U-12NX	MOX230-12HFN8-QRD0W(GA) + MCA4U-12HRFNX-QRD1W(GA)
MO-18N8-Q + MCA4U-18NX*	MOX330U-18HFN8-QRD0W(GA) + MCA4U-18HRFNX-QRD1W(GA)*
MO-24N8-Q-1 + MCD-24NX	MOX430U-24HFN8-QRD1W(GA) + MCD1-24HRFNX-QRD0W(GA)

* Reference product

Life Cycle Assessment methodology

Methodology

The Product Environmental Profile (PEP) is based on Life Cycle Assessment in accordance with the rules published by PEP Ecopassport program (for more information on the program, consult the website www.pep-ecopassport.org).

All life cycle stages are considered, including manufacturing stage (A1-A3), distribution stage (A4), installation stage (A5), use stage (B1-B7), and end-of-life stage (C1-C4). The Benefits and loads beyond the system boundaries (Module D) are also included.

The life cycle impact assessment (LCIA) results are obtained using Midea's internal product environment footprint management system (version 2). The system has been developed in compliance with EN 50693 requirements and integrates the Ecoinvent v3.11 database (allocation cut-off, EN 15804). The LCIA method adopted is EN15804+A2.

Manufacturing stage (A1-A3)	
Raw materials and components	The production of more than 99% of the reference product weight (materials, components and packaging), as well as the shaping and assembly processes of the components were taken into account. Raw material packaging is also considered, with an average packaging rate of 5% of the reference equipment mass (equipment and packaging). Raw materials packaging includes plastic, corrugated cardboard, and plywood.
Transport	The transportation assumptions (distance and transportation mode) are based on actual transportation scenarios in China.
Product manufacturing	The products covered in this report are manufactured in China. The product manufacturing process includes injection molding, electronics production, evaporator and condenser production, tube assembly, and final assembly. The modeling takes into account the energy consumption, the consumables, and the emissions of refrigerant. The manufacturing site is equipped with on-site photovoltaic systems. The energy model includes: • market for electricity, low voltage | electricity, low voltage | Cutoff, S - CN-CSG • electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel mounted | Cutoff, S - CN-GD • electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel mounted | Cutoff, S - CN-GD
Manufacturing waste	The inventory data of manufacturing stage within the system boundary were obtained from evidential document from Midea. Waste gas is discharged after treatment. Wastewater is discharged to the municipal system. Solid wastes is recycled and hazardous wastes is treated with incineration. The transport distance for collection of waste to the treatment center is based on the actual activity data from commissioner.

Distribution stage (A4)	
Transport	The transportation mode of product delivery to the downstream customers is to the port with road transport - sea transport - out of the port with road transport. The final road transport distance is assumed to be 1000 km (according to the default data of transportation scenarios of PEP-PCR-ed4-EN-2021 09 06). No reconditioning packaging was considered.

Installation stage (A5)	
Installation process	The air conditioning installation process requires 4 to 6 screws with an electric drill to install the inner unit hanging wall plate (about 1 minute), and a vacuum pump for evacuation (about 20 minutes). Test run after installation takes about 5 minutes. The total electricity consumption during the installation is 0.30 kWh. In addition, extra copper pipes and copper nuts are required. Water use is negligible. The energy model considered is market group for electricity, low voltage | electricity, low voltage | Cutoff, S – RER.
Packaging waste	The disposal of packaging of the reference product is modelled according to default values in Table 5 of PSR-0013-ed3.1-EN-2025 06 17.

Use stage (B1-B7)	
Electricity consumption	Electricity consumption is calculated as below: $$C_{tot}\ (in\ kWh) = \left(\frac{P_h}{\mathrm{SCOP} * \left(1 + \frac{\mathrm{Fregul}}{100}\right)} * t_{heating} + \frac{P_c}{\mathrm{SEER}} * t_{cooling} \right) * RLT$$ With: Fregul = 0 according to the PSR-0013-ed3.1-EN-2025 06 17; RLT (reference life time of the device) = 17. The electrical energy model considered for European use is: Electricity, low voltage {RER}| market group for electricity, low voltage | Cut-off, U (reference year: 2024). The measurements standards of electricity consumption is EN 14825:2022.
Refrigerant leakage	Based on the default values provided by the PSR, for split systems, an annual refrigerant leakage rate of 5g/year/removable coupling is considered, resulting in the following annual refrigerant leakage for the air conditioners in the report: $$Annual\ refrigerant\ leakage = 4\ (total\ number\ of\ fittings) * 5\ g = 20\ g/year$$
Refrigerant refill	According to the following calculation formula in PSR: $$\mathrm{N} \times (1 - S_r) \times C_t$$ The charge amount of air-conditioning refrigerant in B2 module is calculated to be 230 g.

End-of-life stage (C1-C4)	
Product end-of-life	The energy required to dismantle he product is extremely small and negligible. The waste treatment applies the default recovery ratio from Table 7 of PCR-ed4-EN-2021-09-06.
Refrigerant end-of-life	End-of-life treatment of refrigerant applies default scenarios in PSR-0013-ed3.1-EN-2025 06 17.
Transport	The considered transport to the treatment center is 1000 km for the refrigerant and product disposal.

Benefits and loads beyond the system boundaries stage (D)	
Calculation formulas	The net benefits and loads beyond the system boundary are calculated based on the calculation formulas described in Table 1 of PCR-ed4-EN-2021-09-06.
Recovery ratio	The recovery ratios refer to Table 5 of PSR-0013-ed3.1-EN-2025 06 17 and Table 7 of PCR-ed4-EN-2021-09-06.
Energy recovery substitution	The specific energy source selected for energy recovery substitution applied in module D is the production of heat from natural gas, since natural gas is a common energy source in Europe.

Environmental impacts

The PEP was drawn up under the assumption 1 kW of heating or cooling power being supplied. The real impact of the stages of the life cycle of a product installed in an actual situation is calculated by the user of the PEP by multiplying the impact concerned by the total heating and cooling capacity in 4.4 kW.

Environmental impacts per kW corresponding to the functional unit

Impact indicator	Unit	Total	Manufacturing	Distribution	Installation	Use			End-of-life	Benefits and loads
		A-C	A1-A3	A4	A5	B1	B2	B6	C1-C4	D
Environmental impact indicators										
Climate change - total	kg CO_2 eq.	2.59E+03	2.23E+02	4.53E+00	4.87E+00	5.96E+01	8.16E+00	2.26E+03	2.70E+01	-2.31E+01
Climate change - fossil fuels	kg CO_2 eq.	2.51E+03	2.22E+02	4.53E+00	4.51E+00	5.96E+01	8.15E+00	2.18E+03	2.68E+01	-2.32E+01
Climate change - biogenics	kg CO_2 eq.	7.05E+01	-2.00E-01	1.12E-03	3.48E-01	0.00E+00	8.37E-03	7.01E+01	2.51E-01	2.55E-01
Climate change - land use and land use transformation	kg CO_2 eq.	6.88E+00	4.16E-01	1.96E-03	6.22E-03	0.00E+00	4.76E-03	6.45E+00	4.07E-03	-1.95E-01
Ozone depletion	kg CFC-11 eq.	5.41E-05	1.32E-05	8.21E-08	3.76E-08	0.00E+00	1.15E-07	4.06E-05	8.03E-08	-5.06E-07
Acidification	mol H+ eq.	1.55E+01	2.63E+00	7.39E-02	1.23E-01	0.00E+00	3.91E-02	1.26E+01	1.00E-01	-2.25E-01
Freshwater eutrophication	kg P eq.	2.47E+00	3.11E-01	2.39E-04	5.28E-02	0.00E+00	1.37E-03	2.10E+00	4.76E-03	-1.13E-01
Marine aquatic eutrophication	kg N eq.	2.42E+00	3.49E-01	1.96E-02	2.34E-02	0.00E+00	1.21E-02	2.01E+00	1.26E-02	-5.82E-02
Terrestrial eutrophication	mol N eq.	2.23E+01	3.77E+00	2.17E-01	3.31E-01	0.00E+00	1.32E-01	1.78E+01	1.08E-01	-7.71E-01
Photochemical ozone formation	kg NMVOC eq.	7.02E+00	1.13E+00	6.24E-02	6.92E-02	0.00E+00	5.06E-02	5.68E+00	3.52E-02	-1.78E-01
Abiotic resource depletion - elements	kg Sb eq.	8.66E-02	5.41E-02	1.04E-05	1.54E-03	0.00E+00	6.70E-05	2.97E-02	1.19E-03	-1.95E-03
Abiotic resource depletion - fossil fuels	MJ	5.34E+04	2.70E+03	6.02E+01	3.72E+01	0.00E+00	1.10E+02	5.04E+04	6.33E+01	-3.03E+02
Water requirement	m^3 eq depr.	1.49E+03	7.93E+01	2.52E-01	2.01E+00	0.00E+00	9.54E-01	1.41E+03	1.55E+00	-1.83E+01

Impact indicator	Unit	Total	Manufacturing	Distribution	Installation	Use			End-of-life	Benefits and loads
		A-C	A1-A3	A4	A5	B1	B2	B6	C1-C4	D
Resource use indicators										
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	1.39E+04	2.92E+02	7.48E-01	-1.57E+01	0.00E+00	3.23E+00	1.36E+04	-4.17E+00	-6.78E+01
Use of renewable primary energy resources used as raw materials	MJ	6.91E+01	3.98E+01	0.00E+00	1.89E+01	0.00E+00	0.00E+00	0.00E+00	1.04E+01	-1.00E+01
Total use of renewable primary energy resources	MJ	1.41E+04	4.48E+02	7.48E-01	1.57E+01	0.00E+00	3.23E+00	1.36E+04	6.27E+00	-7.79E+01
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	5.31E+04	2.52E+03	6.02E+01	-1.03E+01	0.00E+00	1.09E+02	5.04E+04	-3.96E+00	-2.97E+02
Use of non-renewable primary energy resources used as raw materials	MJ	2.95E+02	1.98E+02	0.00E+00	2.85E+01	0.00E+00	9.60E-01	0.00E+00	6.71E+01	-6.40E+00
Total use of non-renewable primary energy resources	MJ	5.32E+04	2.58E+03	6.02E+01	2.64E+00	0.00E+00	1.10E+02	5.04E+04	6.31E+01	-3.03E+02
Use of secondary materials	MJ	1.48E+01	3.97E+00	2.77E-02	2.21E-02	0.00E+00	5.91E-02	8.11E+00	2.60E+00	-2.11E+00
Use of renewable secondary fuels	kg	2.18E-01	1.47E-01	2.24E-04	1.44E-05	0.00E+00	5.25E-04	6.98E-02	5.91E-04	-7.64E-02
Use of non-renewable secondary fuels	MJ	1.51E-01	1.31E-01	0.00E+00	2.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	m^3	5.26E+01	1.94E+01	5.81E-03	2.78E-01	0.00E+00	2.28E-02	3.28E+01	5.42E-02	-3.98E-01
Waste category indicators										
Hazardous waste disposed of	kg	2.50E+02	1.07E+02	8.38E-02	1.88E+01	0.00E+00	3.37E-01	1.22E+02	1.37E+00	-4.67E+00
Non-hazardous waste disposed of	kg	1.13E+04	9.75E+02	1.55E+00	1.42E+00	0.00E+00	7.29E+00	1.03E+04	4.08E+01	-5.83E+01
Radioactive waste disposed of	kg	8.27E-02	1.45E-03	3.26E-06	1.70E-05	0.00E+00	1.45E-05	8.12E-02	2.82E-05	-1.79E-04
Output flow indicators										
Components for reuse	kg	4.72E-01	3.79E-01	0.00E+00	9.35E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.04E+01	8.39E-01	2.53E-02	8.85E-01	0.00E+00	2.46E-03	8.62E+00	4.57E-02	-1.17E-01
Materials for energy recovery	kg	1.37E-01	1.22E-01	2.63E-06	1.41E-02	0.00E+00	5.01E-06	7.21E-04	8.45E-06	-3.18E-05
Exported energy	MJ	2.48E+02	3.06E+00	1.66E-02	3.66E-03	0.00E+00	4.11E-02	2.44E+02	8.60E-01	-1.55E-01

The biogenic carbon content per kW, corresponding to the functional unit is shown as follows:

- Biogenic carbon content of the product: 0.00E+00 kg C
- Biogenic carbon content of the associated packaging: 4.05E-01 kg C

Environmental impacts per device corresponding to the reference product

Impact indicator	Unit	Total	Manufacturing	Distribution	Installation	Use			End-of-life	Benefits and loads
		A-C	A1-A3	A4	A5	B1	B2	B6	C1-C4	D
Environmental impact indicators										
Climate change - total	kg CO_2 eq.	1.14E+04	9.80E+02	2.00E+01	2.14E+01	2.62E+02	3.59E+01	9.95E+03	1.19E+02	-1.02E+02
Climate change - fossil fuels	kg CO_2 eq.	1.10E+04	9.79E+02	1.99E+01	1.99E+01	2.62E+02	3.59E+01	9.61E+03	1.18E+02	-1.02E+02
Climate change - biogenics	kg CO_2 eq.	3.10E+02	-8.81E-01	4.91E-03	1.53E+00	0.00E+00	3.68E-02	3.08E+02	1.10E+00	1.12E+00
Climate change - land use and land use transformation	kg CO_2 eq.	3.03E+01	1.83E+00	8.63E-03	2.74E-02	0.00E+00	2.09E-02	2.84E+01	1.79E-02	-8.56E-01
Ozone depletion	kg CFC-11 eq.	2.38E-04	5.79E-05	3.61E-07	1.65E-07	0.00E+00	5.05E-07	1.79E-04	3.53E-07	-2.23E-06
Acidification	mol H+ eq.	6.84E+01	1.16E+01	3.25E-01	5.40E-01	0.00E+00	1.72E-01	5.54E+01	4.42E-01	-9.88E-01
Freshwater eutrophication	kg P eq.	1.09E+01	1.37E+00	1.05E-03	2.32E-01	0.00E+00	6.05E-03	9.23E+00	2.09E-02	-4.99E-01
Marine aquatic eutrophication	kg N eq.	1.07E+01	1.54E+00	8.63E-02	1.03E-01	0.00E+00	5.32E-02	8.82E+00	5.53E-02	-2.56E-01
Terrestrial eutrophication	mol N eq.	9.82E+01	1.66E+01	9.55E-01	1.46E+00	0.00E+00	5.83E-01	7.81E+01	4.74E-01	-3.39E+00
Photochemical ozone formation	kg NMVOC eq.	3.09E+01	4.95E+00	2.75E-01	3.04E-01	0.00E+00	2.23E-01	2.50E+01	1.55E-01	-7.82E-01
Abiotic resource depletion - elements	kg Sb eq.	3.81E-01	2.38E-01	4.56E-05	6.77E-03	0.00E+00	2.95E-04	1.31E-01	5.23E-03	-8.57E-03
Abiotic resource depletion - fossil fuels	MJ	2.35E+05	1.19E+04	2.65E+02	1.64E+02	0.00E+00	4.82E+02	2.22E+05	2.79E+02	-1.33E+03
Water requirement	m^3 eq depr.	6.57E+03	3.49E+02	1.11E+00	8.82E+00	0.00E+00	4.20E+00	6.20E+03	6.81E+00	-8.06E+01
Resource use indicators										
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	6.11E+04	1.29E+03	3.29E+00	-6.90E+01	0.00E+00	1.42E+01	5.98E+04	-1.84E+01	-2.98E+02
Use of renewable primary energy resources used as raw materials	MJ	3.04E+02	1.75E+02	0.00E+00	8.29E+01	0.00E+00	0.00E+00	0.00E+00	4.59E+01	-4.41E+01
Total use of renewable primary energy resources	MJ	6.19E+04	1.97E+03	3.29E+00	6.91E+01	0.00E+00	1.42E+01	5.98E+04	2.76E+01	-3.43E+02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	2.33E+05	1.11E+04	2.65E+02	-4.55E+01	0.00E+00	4.78E+02	2.22E+05	-1.74E+01	-1.31E+03
Use of non-renewable primary energy resources used as raw materials	MJ	1.30E+03	8.73E+02	0.00E+00	1.25E+02	0.00E+00	4.22E+00	0.00E+00	2.95E+02	-2.82E+01

Impact indicator	Unit	Total	Manufacturing	Distribution	Installation	Use			End-of-life	Benefits and loads
		A-C	A1-A3	A4	A5	B1	B2	B6	C1-C4	D
Total use of non-renewable primary energy resources	MJ	2.34E+05	1.14E+04	2.65E+02	1.16E+01	0.00E+00	4.82E+02	2.22E+05	2.78E+02	-1.34E+03
Use of secondary materials	MJ	6.51E+01	1.75E+01	1.22E-01	9.71E-02	0.00E+00	2.60E-01	3.57E+01	1.15E+01	-9.26E+00
Use of renewable secondary fuels	kg	9.61E-01	6.48E-01	9.85E-04	6.35E-05	0.00E+00	2.31E-03	3.07E-01	2.60E-03	-3.36E-01
Use of non-renewable secondary fuels	MJ	6.67E-01	5.78E-01	0.00E+00	8.90E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	m^3	2.32E+02	8.56E+01	2.55E-02	1.22E+00	0.00E+00	1.00E-01	1.44E+02	2.39E-01	-1.75E+00
Waste category indicators										
Hazardous waste disposed of	kg	1.10E+03	4.70E+02	3.69E-01	8.27E+01	0.00E+00	1.48E+00	5.37E+02	6.03E+00	-2.06E+01
Non-hazardous waste disposed of	kg	4.98E+04	4.29E+03	6.82E+00	6.26E+00	0.00E+00	3.21E+01	4.53E+04	1.80E+02	-2.56E+02
Radioactive waste disposed of	kg	3.64E-01	6.36E-03	1.43E-05	7.50E-05	0.00E+00	6.40E-05	3.57E-01	1.24E-04	-7.88E-04
Output flow indicators										
Components for reuse	kg	2.08E+00	1.67E+00	0.00E+00	4.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	4.58E+01	3.69E+00	1.11E-01	3.89E+00	0.00E+00	1.08E-02	3.79E+01	2.01E-01	-5.17E-01
Materials for energy recovery	kg	6.04E-01	5.39E-01	1.16E-05	6.22E-02	0.00E+00	2.21E-05	3.17E-03	3.72E-05	-1.40E-04
Exported energy	MJ	1.09E+03	1.35E+01	7.31E-02	1.61E-02	0.00E+00	1.81E-01	1.07E+03	3.78E+00	-6.84E-01

The biogenic carbon content per device, corresponding to the declared unit is shown as follows:

- Biogenic carbon content of the product: 0.00E+00 kg C
- Biogenic carbon content of the associated packaging: 1.79E+00 kg C

Extrapolation rules

Calculation formula

At the product level, extrapolation coefficient for the environmental impacts for other covered references can be determined based on the formulas below and the data for each reference.

Stage	Extrapolation rules applied at the declared product level
Manufacturing (A1-A3)	$\frac{Mass\ of\ the\ product\ considered + Mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Mass\ of\ the\ reference\ product + Mass\ of\ packaging\ of\ the\ reference\ product\ (kg)}$
Distribution (A4)	$\frac{Mass\ of\ the\ product\ considered + Mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Mass\ of\ the\ reference\ product + Mass\ of\ packaging\ of\ the\ reference\ product\ (kg)}$
Installation (A5)	$\frac{Mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Mass\ of\ packaging\ of\ the\ reference\ product\ (kg)}$
Use-B1	$\frac{\left(\frac{Qfu\ of\ the\ product\ considered}{Initial\ refrigerant\ fill\ Ct\ of\ the\ product\ considered}\right)}{\left(\frac{Qfu\ of\ the\ reference\ product}{Initial\ refrigerant\ fill\ Ct\ of\ the\ reference\ product}\right)}$
Use-B2	1
Use-B6	$\frac{Total\ energy\ consumption\ of\ the\ product\ considered\ (kWh)}{Total\ energy\ consumption\ of\ the\ reference\ product\ (kWh)}$
End-of-life (C1-C4)	$\frac{Mass\ of\ the\ product\ considered\ (kg)}{Mass\ of\ the\ reference\ product\ (kg)}$
Net benefits and loads (D)	$\frac{Mass\ of\ the\ product\ considered + Mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Mass\ of\ the\ reference\ product + Mass\ of\ packaging\ of\ the\ reference\ product\ (kg)}$

To obtain the coefficients at the functional unit level, the coefficients at the product level must be multiplied by the ratio between the rated power of the reference product and the rated power of the product considered.

$$Extrapolation\ rules\ applied\ at\ the\ declared\ product\ level \times \left(\frac{Capacity\ of\ the\ reference\ product}{Capacity\ of\ the\ product\ considered}\right)$$

Input data to calculate the environmental impacts of other products

Model (Outdoor unit + Indoor unit)	Total weight (kg)	Product weight (kg)	Packaging weight (kg)	$P_{design\ h}$ (kW)	$P_{design\ c}$ (kW)	P_{rev} (kW)	SCOP	SEER	Annual fugitive emissions (g)	Initial refrigerant fill (g)
MOX230-12HFN8-QRD0W(GA) + MCA4U-12HRFNX-QRD1W(GA)	47.8	42.7	5.1	2.7	3.5	2.9	4.1	6.8	20	710
MOX330U-18HFN8-QRD0W(GA) + MCA4U-18HRFNX-QRD1W(GA)*	54.2	48.7	5.5	4.2	5.3	4.4	4.1	6.5	20	1150
MOX430U-24HFN8-QRD1W(GA) + MCD1-24HRFNX-QRD0W(GA)	70.6	63.5	7.1	6.2	7.1	6.4	4.1	6.3	20	1400

* Reference product

Extrapolation coefficients at the functional unit level

Extrapolation coefficients are given for the environmental impact of the functional unit, i.e. the emission of 1 kW of heating or cooling power. For each stage of the life cycle, the environmental impacts of the product concerned are calculated by multiplying the impacts of the declaration corresponding to the reference product by the extrapolation coefficient. The "Total" column should be calculated by adding the environmental impacts of each stage of the life cycle.

Model (Outdoor unit + Indoor unit)	Manufacturing	Distribution	Installation	Use			End-of-life	Benefits and loads
	A1-A3	A4	A5	B1	B2	B6	C1-C4	D
MOX230-12HFN8-QRD0W(GA) + MCA4U-12HRFNX-QRD1W(GA)	1.36	1.36	1.43	2.50	1.55	0.99	1.36	1.36
MOX330U-18HFN8-QRD0W(GA) + MCA4U-18HRFNX-QRD1W(GA)*	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MOX430U-24HFN8-QRD1W(GA) + MCD1-24HRFNX-QRD0W(GA)	0.90	0.90	0.89	0.57	0.69	1.01	0.90	0.90

* Reference product

Further information

For any other additional information on the PEP, please contact us at hegm@midea.com.