Chillers | TM65 Calculation

MECH-iF-G04 0351

CIBSE TM65 Embodied Carbon Mid-level Calculation

Assesment Date:	23rd May 2024
Assessor / Organisation:	Mitsubishi Electric UK
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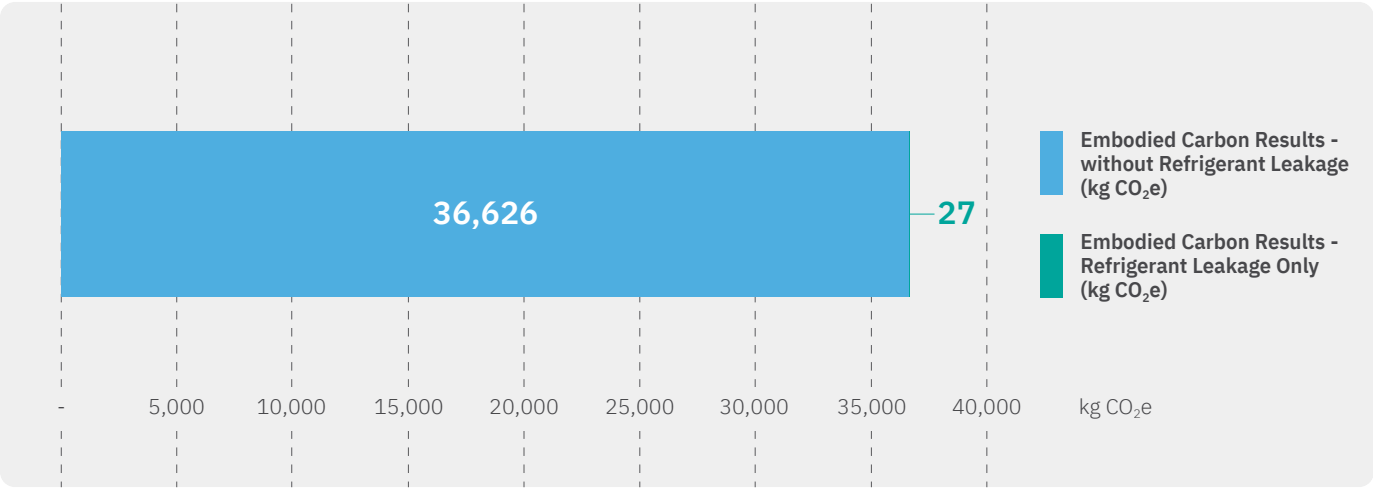
Embodied Carbon with 'Mid-level TM65 Calculation' Method (kg CO_2e) Total:	**36,653**



MECH-iF-G04 0351 - Product Information

Type of product	**Chiller**
Capacity of equipment (kW)	**345.5**
Product weight (kg)	**3,900**
Material breakdown for at least 95% of the product weight? (Y/N)	**Y**
Service life of the product (years)	**17.5**
Type of refrigerant	**HFO1234ze**
Refrigerant GWP	**1**
Energy consumption of the factory per unit of product (kWh)	**3,112**
Location of manufacture	**Europe**
Product Complexity	**Category 3: High**

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Embodied Carbon Results Breakdown (kg CO_2e)	
A1: Material extraction	**19,558**
A2: Transport	**90**
A3: Manufacturing	**4,232**
A4: Transport to Site	**769**
B1: Use	**26**
B3: Repair	**2,561**
C1: Deconstruction	**1**
C2: Transport	**51**
C3: Waste Processing	**902**
C4: Disposal	**10**

Embodied Carbon Results - without Refrigerant Leakage (kg CO_2e)	
A1-C4 (excluding B1,C1)	**28,174**
A1-C4 with Buffer Factor (excluding B1, C1)	**36,626**

Embodied Carbon Result - Refrigerant Leakage Only (kg CO_2e)	
B1 (Refrigerant leakage during use) + C1 (Refrigerant leakage end of life)	**27**

Assumptions	
A1: Material carbon coefficient source	**TM65 Table 2.1 & The ICE Database**
B1: Refrigerant annual leakage rate (%)	**2** (TM65 Assumption)
C1: Refrigerant end of life recovery rate (%)	**99** (TM65 Assumption)
B3: Materials replaced as part of repair (%)	**10** (TM65 Assumption)
C4: Percentage of product going to landfill (%)	**30** (TM65 Assumption)

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Changes for the Better

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Note: The fuse rating is for guidance only and please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R290 (GWP:3), R32 (GWP:675), R407C (GWP:1774), R134a (GWP:1430), R513A (GWP:631), R454B (GWP:466), R454C (GWP:148), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of May 2024

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