

Embodied Carbon Calculator: Mid-level Report

(CIBSE TM65 Digital Tool)



If Section A of the 'Input' tab is correctly completed, the results will be shown here.

Please complete all purple and yellow cells.

If you would like to assist CIBSE in building knowledge on the embodied carbon of products used in building services, please complete as directed above, name this file as instructed in the 'Introduction and Instructions' tab, and email this file to embodiedcarbon@cibse.org.

If you are a manufacturer and would like to share the results of your calculations with clients, please create PDFs of the relevant tabs ONLY (instructions are available in the 'Introduction and Instructions' tab). You may not share any CIBSE tool with clients. Instead, please refer any interested party to www.cibse.org/TM65, where they will be able to download the most up-to-date version of the relevant CIBSE tool.

Mid-level report for Fireray Hub Reflective Controller as manufactured by FFE Ltd

'Mid-level' calculation		Notes/source
Date of assessment	29/09/25	Form "dd/mm/yy"
Name of assessor and assessor organisation	Self Assessment	
Contact email address of assessor	marketing@ffeuk.com	

Product information		
Type of product	Fire Alarm Devices	
Capacity of equipment/size (kW; m ³ ; litres; etc.)	1 unit	
Product weight (kg)	3.84 kg	
Material % breakdown for at least 95% of the product weight? (Y/N)	Y	
Product service life (years)	10 Years	
If refrigerant based, type of refrigerant used and GWP	No refrigerant, 0 kgCO ₂ e	
Refrigerant charge (kg)	0.00 kg	
Energy consumption of the factory* per unit of product	2.19 kWh	Electricity - UK, Biodiesel, bioethanol etc
Location of manufacture*	Hitchin, England	
Product complexity category	Category 1	See CIBSE TM65 Table 4.3

Embodied carbon results (kg CO ₂ e) — breakdown		
A1: Material extraction	32.08 kgCO ₂ e	TM65 assumption
A2: Transport	0.82 kgCO ₂ e	TM65 assumption
A3: Manufacturing	0.48 kgCO ₂ e	
A4: Transport to site	0.23 kgCO ₂ e	TM65 assumption
A5: Construction	n/a	
B1: Refrigerant leakage during use	0.00 kgCO ₂ e	TM65 leakage Type 0
B2: Maintenance (if information given by manufacturer)	n/a	
B3: Repair	0.00 kgCO ₂ e	TM65 assumption
B4: Replacement	n/a	
B5: Refurbishment	n/a	
B6: Operational energy	n/a	
B7: Operational water	n/a	
C1: Refrigerant leakage when decommissioning	0.00 kgCO ₂ e	TM65 leakage Type 0
C2: Transport	0.01 kgCO ₂ e	
C3: Waste processing	0.48 kgCO ₂ e	
C4: Disposal	0.01 kgCO ₂ e	TM65 assumption

Embodied carbon results (kg CO ₂ e) — without refrigerant leakage		
A1–C4 without buffer factor (excluding B1, C1)	34.12 kgCO ₂ e	
A1–C4 with buffer factor (excluding B1, C1)	44.36 kgCO ₂ e	

Embodied carbon result (kg CO ₂ e) — refrigerant leakage only		
B1 (refrigerant leakage during use) + C1 (refrigerant leakage at end of life)	0.00 kgCO ₂ e	

Embodied carbon result with 'mid-level' calculation method (kg CO ₂ e) — total		
Result of 'mid-level' calculation method	44.36 kgCO ₂ e	

Assumptions		
A1: Material carbon coefficient source	Source = CIBSE TM65, Table 2.1	<i>E.g.: Source = CIBSE TM65, Table 2.1</i>
B1: Refrigerant annual leakage rate (%)	n/a	
C1: Refrigerant end of life recovery rate (%)	n/a	
B3: Materials replaced as part of repair (%)	0%	<i>This product cannot be repaired without invalidating approvals</i>
C4: Percentage of product going to landfill (%)	17%	<i>E.g.: Source = CIBSE TM65</i>

Details
Please provide any relevant details
<i>* Please provide information on the final assembly factory. If you have more information on energy consumption of factories in the supply chain, email embodiedcarbon@cibse.org.</i>

Information disclosure	Select Yes if you agree	Notes
I consent to CIBSE's use of the data contained in this form for research purposes, on the condition that all identifying information is removed from any published output.	Yes	
I consent to CIBSE's use of the data contained in this form in order to establish an embodied carbon database for products used in building services.	Yes	