

Date: 12 May 2023

1) Air Ducts: Embodied Carbon

A Comparison between 22mm KoolDuct phenolic ductwork and sheet metal ductwork

Assumed ductwork surface area: approx. 1000 m²

Embodied Carbon of sheet metal per ICE database. Embodied Carbon of insulation for sheet metal NOT ESTIMATED

Embodied Carbon of KoolDuct phenolic insulation board per EPD, 13.3 kg CO₂e/functional unit (1 m², 66mm, 60 kg/m³) = 3.36 kg CO₂e/kg

Mass per unit of sheet metal per BESA DW/144:2013 page 172 Weight of galvanised sheet steel Thickness 0.8mm = 6.2741 kg/m²

Mass per unit of 22mm KoolDuct phenolic insulation board = 1.66 kg/m²

Additional Insulation: for sheet metal please add relevant data, for KoolDuct NO additional insulation is needed

Assumed ductwork dimensions						Upfront embodied carbon emitted at manufacturing stage								
Ductwork						Embodied Carbon: 1) Ductwork					2) Additional Insulation			Tot
Ductwork	Duct Width	Surface Height	Duct Length	Duct internal surface area	Assumed Sheet Metal Thickness	Mass per unit	TOT Mass	Embodied Carbon	Total GWP	Insulation Density	Carbon content	Embodied carbon	TOTAL Embodied carbon	
	W	H	L											
	m	m	m	m ²	mm	kg/m ²	kg	kg CO ₂ e/kg	kg CO ₂ e	kg/m ³	kg CO ₂ e/kg	kg CO ₂ e	kg CO ₂ e	
Select														
A	KoolDuct	1.0	0.6	315.0	1008	0	1.66	1857	3.36	6241	0	0	0	6241
B	Sheet metal duct	1.0	0.6	315.0	1008	0.8	6.27	6320	2.76	17444	0	0	0	17444

Embodied Carbon

Carbon Savings with KoolDuct

11203

kg CO₂e

Kingspan Insulation takes no responsibility for any application where products are used. This calculation is done to the best of our knowledge, in accordance with the mentioned Standard/method and given circumstances. The ambient conditions as well as the application of the product and the used materials always need to be verified and confirmed. Although the information reported is true to the best of our knowledge, we decline any responsibility for errors and omissions and damage or loss resulting here from. It is always necessary to verify our recommendations with regards to suitability and conformity with actual requirements, specifications and any applicable laws.