Cooling thermal load calculation

Project: Test project
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General informations:

Mode: normal
Cooling temp: 0 °C
Contingency allowance: 10 %
Defrosting system: Electric
Number of defrost: 4
Air change: normal
Hours run per day: 18 h

Chamber data:

Side	Size	Outer temperature	K value	Insulation thickness
A	2 m	36 °C	0.037 W/m K	70 mm
B	3 m	36 °C	0.037 W/m K	70 mm
C	2 m	36 °C	0.037 W/m K	70 mm
D	3 m	36 °C	0.037 W/m K	70 mm
E				
F				
Floor		10 °C	0.037 W/m K	70 mm
Ceiling		36 °C	0.037 W/m K	70 mm

Height: 2.7 m
Volume: 16.20 m3

Goods data:

Type: Beef
Cooling time: 24 h
Freezing temp: -1.7 °C
Density: 445 kg/m3
Input temp: 35 °C
Input quantity: 300 kg
Specific heat +: 2.85 kj/kg °C
Specific heat - : 1.76 kj/kg °C
Final temp: 0 °C
Total quantity: 600 kg
Latent heat: 234 kj/kg
Respiration: 0 kj/kg 24h

Heat sources:

Machines:
Lighting hours: 1
Persons: 1
Output / machines.:
Lighting load: 100 W
Person h/day: 1
Machines h/day:
Lighting W / m2:

Result, loads:

Machines: 0 W
Air change: 300.89 W
Goods: 346.35 W
Hours per day: 1824.37 W
Lighting: 4.17 W
Defrosting: 62.88 W
Insulations: 702.49 W
Total thermal load: 2.23 KW
Persons: 14.38 W
Cooling fans: 140.74 W
Net: 1368.28 W

This calculation was made by **thermalloadcalculation.com**