HENGSEN REFRIGERATION · TECHNICAL CENTER

How to calculate the load of a chiller room

Document No.	CX-TC-001	Revision	A/0
Issue date	2026-08-12	Category	Sizing
Applies to	Chiller rooms (+2…+8 °C), 5–50 m³	Issued by	Engineering Department

1. What the load is made of

A chiller-room heat load is the sum of five parts: heat transmitted through the panels (walls, ceiling, floor), the pull-down load on the product, respiration heat for fresh produce, air exchanges through the door, and internal gains from people, lights and fans. Defrost heat is added as a duty margin on the evaporator, not to the room load.

2. Worked example — 13.2 m³ at +2…+8 °C

Load component	Typical value (13.2 m³, +2…+8 °C)
Transmission through panels (80 mm PIR, U ≈ 0.23 W/m²K, ΔT 25 K)	150–180 W
Product pull-down (300 kg dairy, +12 → +4 °C over 24 h)	300–350 W average
Door and person gains (2 staff, 4 openings/h, summer)	150–250 W
Fans and lights (evaporator fans 120–200 W + LED 30–60 W)	150–260 W
Safety margin added to the total	+10–15 %

Add a safety margin of 10–15 % and size the unit for the resulting duty at the design ambient, not at the sales-catalogue condition. A unit chosen on catalogue numbers alone will short-cycle in July and ice its evaporator in winter.

3. Why it matters

An oversized unit short-cycles and dehumidifies the room too fast; an undersized one never leaves the critical zone during loading. Both fail HACCP checks that a correctly sized unit passes.