Shelfbot Cold Room Specification

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1. Scope

This specification states how a Shelfbot system is installed and operated in a chilled room, and what the customer provides. It covers rooms held between 2 and 8 degrees C. Frozen storage below 0 degrees C is outside this specification.

It supplements the Shelfbot Technical Data Sheet, the Shelfbot Racking Specification and the Shelfbot Installation Specification, which apply unchanged unless stated here.

2. Principle

The whole Shelfbot system, the grid, robots, Shelfbot doors, station and put wall trolley, is installed inside the chilled room and runs there continuously. Shelfbot never forms part of the room's wall, and no Shelfbot door opens onto a warm space.

The cold itself is within every component's rating. The condition designed out is condensation, which forms only when warm humid air meets cold surfaces.

3. Customer Requirements

- The room is held continuously within the agreed temperature range, 24 hours a day, including days on which the system is idle.
- The grid, its Shelfbot doors and the station are placed at least 3 metres from the cold room's entrance and from any other opening to a warmer space. The entrance is a rapid door.
- The room's temperature and humidity are agreed in the site design and recorded at commissioning. Shelfbot logs temperature and humidity at the station throughout operation.
- Racking supplied for a chilled room is galvanised or coated to the racking supplier's cold store standard.
- Handhelds, label printers and label stock are the customer's equipment and are rated by the customer for the room.
- The site server cabinet is located inside the room, sealed, or outside the room with a network connection into it.
- Electrical supply, floor and fire requirements are as per the standard specifications.

4. Ratings and What Stays Inside

All servo drives, motors, gearboxes, safety controllers, door controls, sensors, the site server and the network equipment are rated by their makers for continuous operation at the room temperatures in section 1, in non-condensing conditions.

Totes stay in the grid and the put wall trolley stays in the room. Nothing passes through the Shelfbot doors. The operator picks from the tote presented at the station into the shippers on the put wall trolley, and the shippers leave the room through the cold room's entrance.

5. Installation and Commissioning

Installation is carried out in the room at its normal operating temperature. The customer does not bring the room to ambient temperature.

The cold room's entrance is kept closed as far as practicable during installation so that the room's air stays dry. Equipment brought into the room is allowed to reach room temperature before it is powered, and is then powered up normally.

Commissioning includes a 24 hour run at the agreed temperature with temperature and humidity logged at the station.

6. Operation and Maintenance

Robots remain powered while in the room. After a shutdown the system is restarted normally. A part taken out of the room for service is allowed to reach room temperature before it is powered. The first movements after an idle period are made at reduced speed.

Preventive maintenance is as per the Shelfbot Service Level Specification, with an added inspection of exposed steel, fasteners and cable jackets at each service, and an insulation resistance check on any motor or drive that has been exposed to moisture.

7. Cold Room Build

A system supplied for a chilled room is built with plated or stainless exposed shafts and fasteners, powder coat over zinc on sheet steel parts, and polyurethane jacketed drag chain cables, in place of the standard specification.

8. Pricing

Cold room systems are quoted separately. The cold room build in section 7, installation in a chilled room and service in a chilled room carry higher parts and labour costs. The installation price and the subscription fee are each a minimum of 25 percent above those of a standard system.