

RINAC's WALK-IN COOLER

Where freshness comes to stay...

Rinac walk in Cold rooms are designed to store for long term duration of large quantity of vaccines at a temperature between +2° to +8° C. Typical gross internal volume 16.5/32/40 cu. Mtr.

Features

These cold rooms are constructed out of RPUF pre-fabricated and modular complete with floor and ceiling panels, can be mounted on a flat, solid concrete base.

The cold room equipped with two completely independent refrigeration systems. One of these will remain as standby

Each refrigeration system are provided with :

- Condensing unit
- Evaporator unit
- Refrigeration unit
- Electronic controls
- Pipe work
- Other necessary control instrumentation, to ensure proper operation of each respective refrigeration system.

Provided with additional control which permits simultaneous operation of both refrigeration systems in case of Emergency

There is manual & automatic switchover to the standby system by programmable Microprocessor based controller.

Depending upon the internal room layout and the room location, refrigeration units may be one of the following types:

- Wall-mounted with the condenser unit discharging inside the building that houses the cold room (monobloc system);
- Wall-mounted with weatherproof condenser units located externally in a separate ventilated enclosure as close as possible to the evaporator units (weatherproof split system)

Model No:	Capacity (Cu Mtr)
RINWIC- 16	16.5
RINWIC- 20	20
RINWIC- 32	32
RINWIC- 40	40



Internal Temperature:

2° to +8°C adjustable

(i) Capable of maintaining in continuous ambient 43°C

(ii) Capable of maintaining in continuous ambient 32°

(iii) Capable of maintaining in 45/05°C day/night cycling temperatures

Panels: wall and Ceiling panel internal skins are made of stainless steel, Grade 304

Outer Panels: Pre painted galvanized steel panels, double wall having minimum thickness 22 SWG each

Panels fully insulated and without internal structural members or stiffeners between the skins.

Tongued and grooved joints between panels designed to minimize cold-bridging.

Gaskets resistant to damage from oil, fats, water and detergents.

After assembly, all joints mastic sealed on the interior side to ensure air-tightness.

Ceiling panels with an overall length of 6 metres or less and self-supporting.

Modular panel-Easily assembled and disassembled.

Double action cam-lock assembly/panel interlocking, for perfect seal.

No screws or panel cover strips.

Have airtight seals between condensing unit and wall.

Have airtight seals around all pipe and cable penetrations through wall and/or ceiling panels.

Insulation: CFC-Free Urethane foam core bonded sandwiched between two galvanized steel sheets.

Minimum thickness: 100 mm Density: not less than 40 kg/m³

Thermal conductivity of 0.17 w/m²k or better for hot zone climate

Thermal insulation foaming agents: CFC free gas in compliance with limitations and deadlines of Montreal Protocol, on the elimination of ozone-depleting chemicals.

Flooring:

Base - 1st layer: 75 mm (optional) thick cement concrete (dimensions suitable to the size of cold room);

2nd layer: of specified insulation as specified in para 3.3

- RPUF/ Extruded polystyrene slabs laid with the joints staggered to achieve a 'U' value of 0.17 W/m.K or better.

- 250 micron polythene vapor barrier.

- Reinforced granolithic concrete topping trowel led smooth.

3rd layer of 6mm thick non-slip finish Aluminum checker plate.

The floor capable to support load of 1500 kg/m².

Concrete floors designed and constructed to allow Shallow ramped access entry to the cold room or freezer room.

local on the elimination of ozone-depleting chemicals.

Door

The door have:

i) Heavy duty lock - lockable with 100% fail-safe provision for opening from inside.

ii) The door is self-closing type with Plastic curtains on the door way.

iii) Door is flush type with kick plate at bottom and fitted with door closer.

iv) Examination Window (View port).

v) Seal closer mechanism which cushions the closing movement of the door, shuts the door silently and keeps it seal-closed preventing loss of cooling.

An incandescent vapour-proof light mounted on the interior of the vaccine chamber.

Dimensions: 34" to 40" (W) x72" to 80" (H).

Additional alarm switch to be fitted inside the cold room close to the door latch , to activate man trap alarm.

Lighting

Internal ceiling-mounted low energy fluorescent or LED luminaries with an external switch .

The external light and light switch fixed to the wall of room enclosure near to the entrance door.

The minimum illumination level on the vertical face of the lowest shelves must be 150 lux.

The lighting is evenly distributed inside the cold room

Refrigeration System

Dual Refrigeration system (100% standby)

The refrigeration system have 3.5 to 6.0 KW compressor for 16.5 to 40 Cum Walk-in-cooler as per size.

Cooled refrigeration units, preferably Mono-block type Automating defrosting

CFC-free refrigerant.

Tropicalized units suitable for ambient temperature up to 45 deg C.

In case of a split system, the condensing Unit mounted in a weather proof enclosure with proper canopy so as to get protection from rain and hard weather and prevent any vandalism or injury to people upon accidental access.

Condensing unit (s) to comprise compressor with:

- (a) Forced air condenser,
- (b) Liquid level glass,
- (c) Liquid receiver to carry full charge,
- (d) Filter/dryer with solder connections,
- (e) Isolating stop valves.
- (f) Fitted with high and low pressure cut-outs,
- (g) Time-operated defrost control
- (h) With run hour meter.
- (i) Where cold climate freeze prevention is specified provide a low temperature protection system to prevent the temperature of the cold room dropping below +2°C under low ambient conditions.

Temperature Control

Room temperature controlled by a Digital thermostat within the tolerances specified

The thermostat is calibrated to ITS-90 and is accurate to $\pm 0.5^{\circ}\text{C}$

All parts of the room designated for vaccine storage remain between 2°C to 8°C when measured under any loading condition between empty and full and over the full ambient temperature range of the required temperature zone.

The control supply relay carrying the compressor running current is rated twice the running current, or provide additional contactor to be provided in the control circuit to sustain the running current, without causing overheating of the control boards.

Temperature Monitoring and recording

Provided with a digital temperature recording system with display controlling indicating logging facility : for example

- A programmable electronic temperature and event data logger system with minimum 10,000 data storage capacity, complying with PQS E006/TR03.2 linked to the alarm system

Wall mounted paperless type graphic temperature recorder.

Evaporator

Evaporators, forced air wall or - ceiling-mounted units with a condenser unit discharging inside the building that houses the cold room.

Provided with automatic defrosting system and a condensate drip tray and drain connection.

Size and position the evaporator units so that the plume of discharged air at a temperature below $+2^{\circ}\text{C}$ does not reach areas where vaccine is stored. If necessary provide a removable mesh cage or deflector shield around the evaporator so as to maintain the safe storage zone.

Thermometer complying with PQS E006/TH02, mounted on the wall of the cold room in an accessible position.

Alarm & Buzzer

Provided with a mains-operated audible and visible loud alarm with battery backup and automatic recharge, which is triggered in the event of mains failure or when the cold room temperatures are outside set limits.

In case of a triggered event, the acoustic alarm unit comply as per specification WHO/PQS/E06/AL01-01 or with E006/TR03

Alarm sounders will be located adjacent to the cold room.

Buzzer system : Visual indicator along with buzzer alarm system is provided to alert the user in the

following events :

- (a) Power failure alarm
- (b) High pressure (dirty condenser) alarm
- (c) Open door alarm
- (d) Probe failure alarm

Shelves

Cold room(s) is fitted with locally made/manufactured, running height adjustable perforated shelves (slotted shelves will be preferred)

Approx size of shelf will be 600 mm wide at 600 mm spacing;

Four shelves above the ground all around the wall and intermediate shelves are placed suitably

The total area covered by shelves will be at least 42% of the ground area.

There is minimum 900 mm distance in between two intermediate racks, to facilitate the movement of men and material.

The material of the shelves is non corrosive grade stainless steel / Anodized Aluminum which can take load of at least 0.075kg/cm²

The top face of the lowest shelf is mounted 200 mm above the floor

Shelving are made of food safe Polyethylene which is washable

