



**Bana  
BARN<sup>3E</sup>**  
Series  
RIPENING CHAMBERS



Rinac's  
**MULTI-COMPRESSOR  
RACK REFRIGERATION**

Ensures  
Energy efficiency in Ripening.

**For The Farmer**

Better Value For His Labour.

**For The Trader**

Quality, Less Wastage And Better Market Price.

**For The Consumer**

Banana Without Depreciating  
Its Natural Properties.

STANDARD RIPENING CHAMBERS FROM RINAC.

# Bana BARN<sup>3E</sup> Series

## RIPENING CHAMBERS

RINAC, Pioneer in bringing world class cold room technology for India market, offers Standard Banana ripening Chambers which provide most cost effective solution in ripening fruits. There are various methods for ripening fruits. The most popular way of doing the ripening is with the help of Calcium Carbide, generally used in welding applications. These are toxic and may be hazardous to health. It is banned chemical and are being monitored more aggressively by the policy makers. Use of Calcium Carbide for any ripening process is banned under Rule 44-AA of PoFA (Prevention of Food Adulteration) Rules, 1955. Till recent past, in India almost all ripening (more than 99%) are done by using this Technique only. Ripening with Ethylene is scientific and safe ripening method accepted worldwide. Exposure of unripe fruit to a miniscule dose of ethylene is sufficient to stimulate the natural ripening process until the fruit itself starts producing ethylene in large Quantities. When it happened in the controlled temperature and humidity condition. The out put will be excellent. In today's world of globalization, customer has become very much quality conscious about the fruits If fruits properly ripened and displayed in presentable form with attractive color definitely catches the eyes of the buyer and fetch higher value. Ethylene gas used for ripening most of the climacteric fruits like Banana, Mango, Papaya, etc under controlled condition of temperature, humidity and ethylene concentration in air tight room. Ethylene being natural hormone does not pose any health hazard for fruits and also being detrainng agent which turn out peel from green to perfect yellow and maintain sweetness and aroma of fruit thus value addition in fruit is possible.



### FEATURES OF STANDARD BANANA RIPENING CHAMBER

- Specially designed, economic version as direct replacement to ripening room using Calcium Carbide.
- Standard Banana Ripening chamber are equipped with Eco- friendly and state-of-the-art refrigeration system designed for trouble-free and optimum performance.
- Multi-compressor Refrigeration rack system specially designed to undertake needs of the ripening working cycle (with optional standby compressor).
- Equipped with either Air Cooled or Water cooled condensers as per customer requirements.
- Forced Draft coolers are designed for good air circulation & provide high humidity conditions for proper ripening of fruits.

### COMPONENTS OF STANDARD BANANA RIPENING CHAMBER

- Air tight insulated Ripening chamber.
- Refrigeration rack system (with optional standby compressor)
- Air Cooled or Water cooled condensers,
- Powder coated Evaporator casing and galvanized steel with exterior quality powder coating finishes.
- Electrical Control Panel
- Safety protection system for running equipments like high/ low pressure switch, Differential Pressure Switch, and Over Load Protection etc.
- Ethylene generators /Gas-discharge systems suitable for ripening processes.
- CO<sub>2</sub> and Ethylene analyzers to monitor levels of gas in the room.

### RIPENING CHAMBER PRINCIPLE AND WORKING CYCLE.

The plant is generally operated on 4-6 days ripening cycle.

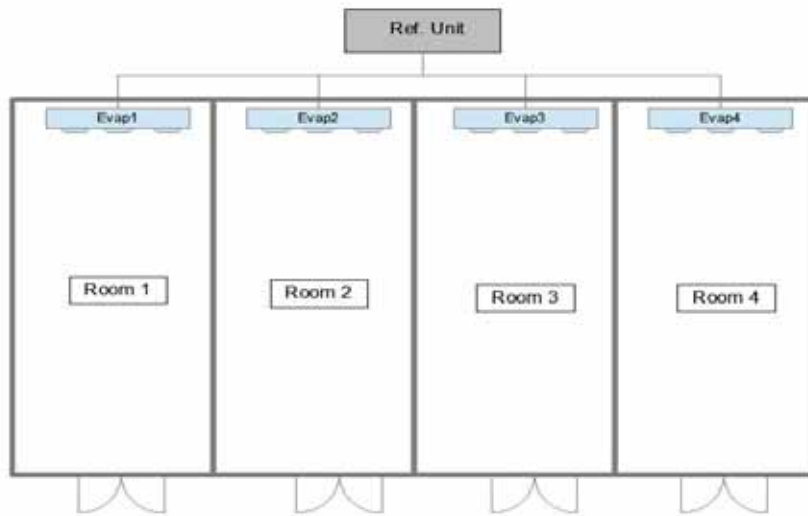
This 4-6 days ripening cycle comprises of;

- Operation: 14-23 Deg C and >90 % RH & Pull down time (18 – 24 hrs) to 16-18 Deg. C
- Ethylene injection, after 24 hrs at constant room temperature of 18/19 Deg. C and >90%RH
- Holding period 16-12 hrs (total 24 hours from start of ethylene injection) temperature held at 18 or 19 Deg. C and >90% RH
- Ventilation after 24 hrs after ethylene injection. Ethylene and CO<sub>2</sub> is expelled out and fresh air is injected in cold room. CO<sub>2</sub> level not to exceed 5000 ppm during ripening process
- Holding period for 3-4 days till coloration. Temperature can be reduced gradually to 14-16 Deg C for enhancing

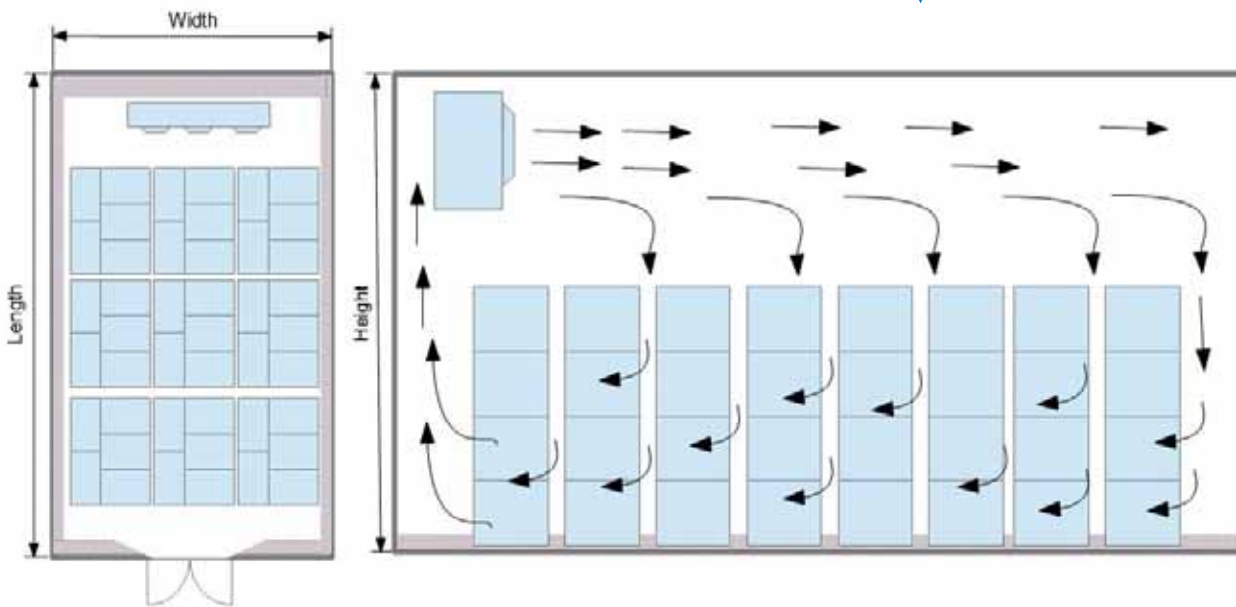
### BANANA RIPENING CYCLE



## TYPICAL BANANA RIPENING CHAMBER - 4 ROOM ARRANGEMENT



## ROOM LAYOUT & AIR PROFILE



## RIPENING CHAMBER DIMENSION & REFRIGERATION CAPACITY SELECTION TABLE

| Sl. No. | Model   | Capacity [MT] | Width [m] | Length [m] | Height [m] | No Of Crates | Refrigeration Capacity [kW] | Central Refrigeration unit Capacity [kW] | Connected Power [kW] | Required Power [kW] |
|---------|---------|---------------|-----------|------------|------------|--------------|-----------------------------|--|----------------------|---------------------|
| 1       | BRC R 5 | 5             | 3.0       | 5.0        | 3.3        | 280          | 7                           | 18                                       | 11                   | 8                   |
| 2       | BRC R10 | 10            | 4.5       | 6.0        | 3.3        | 560          | 10                          | 23                                       | 15                   | 11                  |
| 3       | BRC R15 | 15            | 5.5       | 7.0        | 3.3        | 840          | 14                          | 30                                       | 18                   | 13                  |
| 4       | BRC R20 | 20            | 5.5       | 9.0        | 3.5        | 1120         | 20                          | 45                                       | 29                   | 24                  |



We, at Rinac, begin with seamless solutions for cold chain and modular construction. Soon, a relationship develops, empowered by our domain expertise, service excellence, and customising capabilities. As the bond deepens, you will discover that we invest in curiosity, innovation, and ingenuity; constantly questioning perfection, and leveraging our resources to nurture each relationship into a win-win proposition. What's more - warm, pro-active support is always just a call away through RinaCare, our dedicated relationship service group.

For about a decade and half, Rinac has been the chosen partner for industry leaders, providing an unrivalled range of solutions and superior value. But that's just the tip of the iceberg.

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