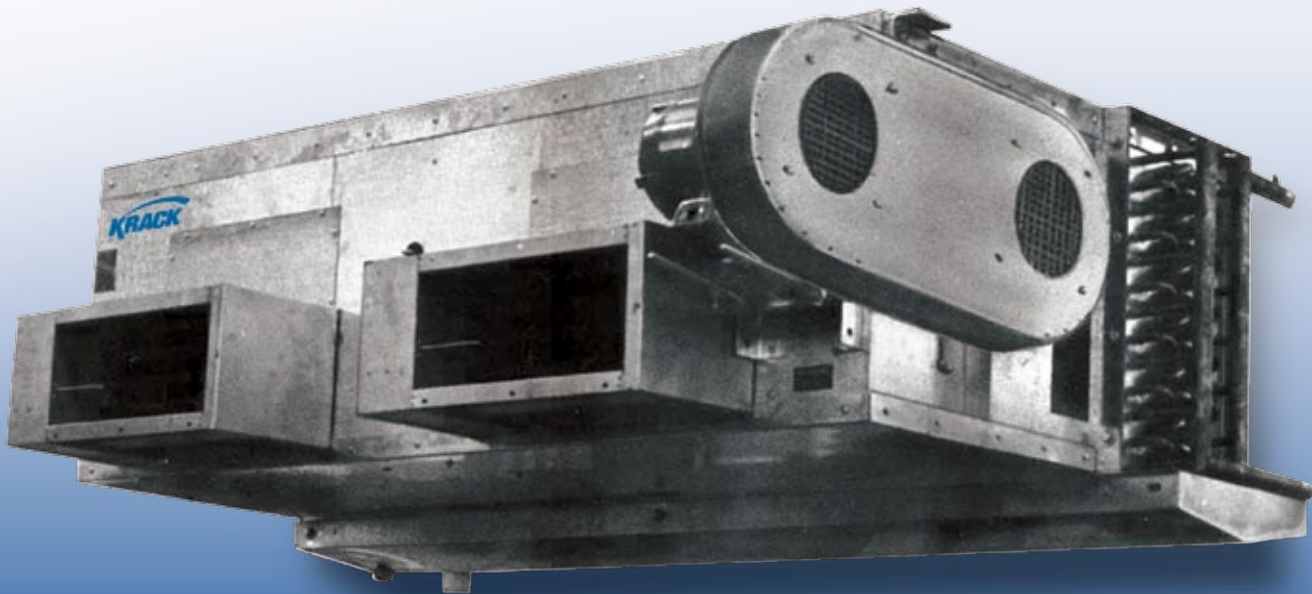




PR Series

UNIT COOLERS

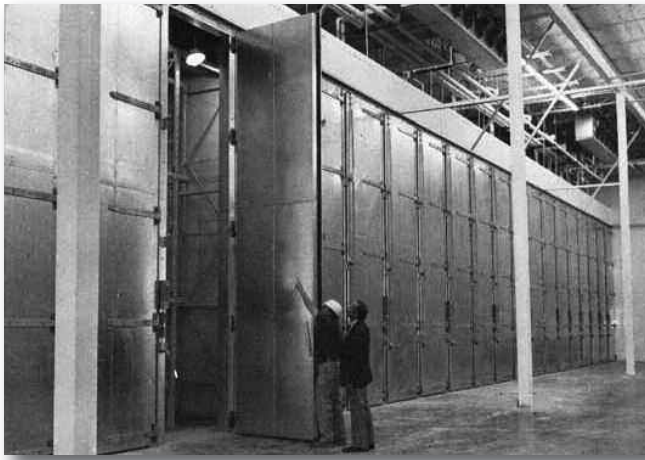
Technical Bulletin



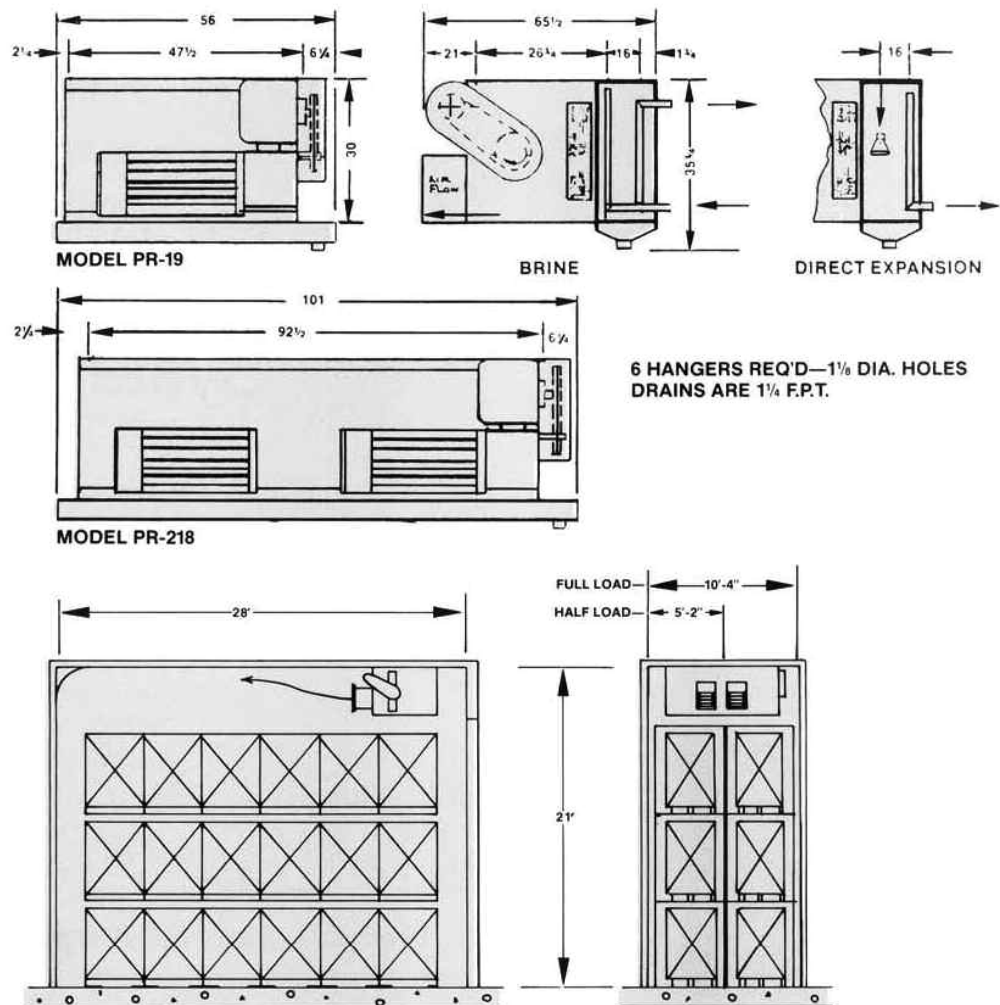
Products that provide lasting solutions.

PR Series Unit Coolers

Dimensions



Ripening Room unit coolers are designed for gas tight rooms with approximate dimensions as shown. Even though high air circulation produces little room temperature variation, fruit in the warmer return air stream ripens first. Unit coolers are located 24 inches from the wall above doors to position this fruit for easy early removal.



PR Series Unit Coolers

Specifications

Capacity Data - Direct Expansion Models

ROOM SIZE	BOXES	DESIGN TOTAL BTUH	DIRECT EXPANSION HALOCARBON MODELS	UNIT CAPACITY BTUH		HP	COND UNIT CAPACITY 110°F COND TEMP R22 REFRIGERANT		
				SENSIBLE 15°TD 60 DB—45 SST 55 DB—40 SST	TOTAL 10°TD 85% RH 60 DB—50 SST 55 DB—45 SST		40°SST	45° SST	50° SST
HALF	432	34560	PR-194-3-DXF	30000	36000	3	37000	41000	45000
	540	43200	PR-196-3-DXF	42000	48000	3	37000	41000	45000
	540	47700	PR-196-5-DXF	42000	48000	5	62000	69000	76000
FULL	864	69120	PR-2184-5-DXF	60000	72000	5	62000	69000	76000
	1080	86400	PR-2186-5-DXF	84000	96000	7½	87000	97000	107000
	1080	92400	PR-2186-7½-DXF	84000	96000	7½	87000	97000	107000

Capacity Data - Brine Models

ROOM SIZE	BOXES	DESIGN TOTAL BTUH	BRINE MODELS	20% WT ETHYLENE GLYCOL 60 DB—45 ENT TEMP 55 DB—40 ENT TEMP			WATER 55 DB—40 ENT TEMP		
				GPM	ΔP—PSI	RISE—°F	GPM	ΔP—PSI	RISE—°F
HALF	540	43200	PR-196-3-B	14	3.0	6.5	12	1.7	7.2
	540	47700	PR-196-5-B	16	3.8	6.3	14	2.2	6.8
FULL	1080	86400	PR-2186-5-B	28	3.7	6.5	24	2.1	7.2
	1080	92400	PR-2186-7½-B	30	4.2	6.5	26	2.5	7.1

Physical Data

MODEL SERIES	CFM	FAN MOTOR BHP	ROW DEPTH	COIL DATA			SHIP WT		DXF LIQ—SUCTION ODS	CONNECTIONS		RTA LIQ—SUCTION MPT
				FACE AREA SQFT	TOTAL SURFACE SQFT	INT VOL CUFT	CU/AL	STEEL		BRINE IN—OUT ODS	DXA LIQ—SUCTION FPT—MPT	
PR-194-3	6900	3	4	9.3	536	0.6	785	1000	—	—	—	
PR-196-3	6700	3	6	9.3	804	0.9	835	1175	5/8-1 1/8	1 3/8	1/2-3/4	
PR-196-5	9000	5	6	9.3	804	0.9	855	1200	—	1 3/8	—	
PR-2184-5	15000	5	4	18.6	1072	1.2	1150	1530	—	—	—	
PR-2186-5	14500	5	6	18.6	1608	1.8	1240	1880	7/8-1 3/8	1 5/8	1/2-1	
PR-2186-7½	17000	7½	6	18.6	1608	1.8	1280	1920	—	1 5/8	3/4-1 1/4	

Design Heating Load

Basis—Raise the temperature of the maximum number of boxes at a rate not exceeding 1°F per hour. Ripening cycles do not require heat unless the load is below prescribed temperature requirements. Approximately half the required heat is provided by blower motors (3000 BTUH/HP—0.9 KW/HP).

Design Refrigeration Load

Basis—80 BTUH per box with a pulldown rate of 1°F per hour. Boxes per pallet may vary. Design load is the total of sensible and latent. Natural respiration of fruit, within airtight rooms, contributes to high humidity required for proper ripening. Unit coolers have capacity to maintain room conditions with 15°F dry coil TD and 10°F wet coil TD.

Brine Application

Large distribution centers with central refrigeration plants generally use ethylene glycol brine as the refrigerant. Shell and tube chillers maintain 40 to 45° F leaving brine temp. Motorized two or three-way valves control ON-OFF flow to the unit coolers. Chillers are normally provided with EPR and adequate freeze-up protection. 20% by weight ethylene glycol, having a freezing point of 17° F, is recommended for 20° F SST systems.

Control Requirements

Banana ripening cycles range from four to eight days with pulp temperatures controlled from 64 to 58° F. Return air ranges from 45 to 65° F. Tomatoes and other fruits require different time-temp conditions.

Temperatures are reset manually or by automatic programmed recorder-controllers, during the ripening cycle. Refrigeration

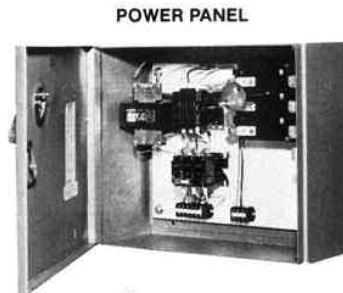
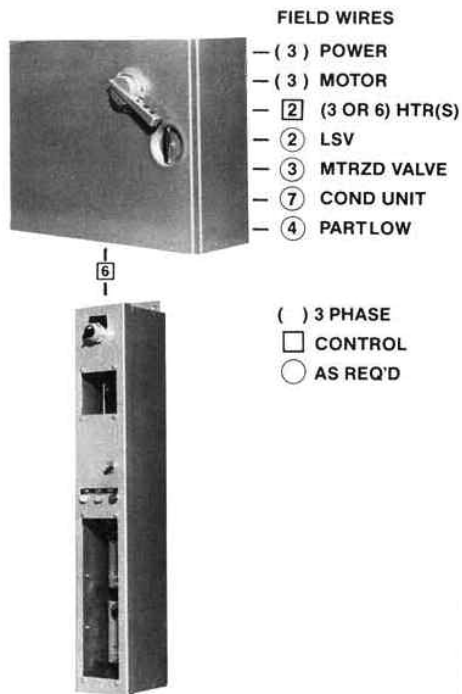
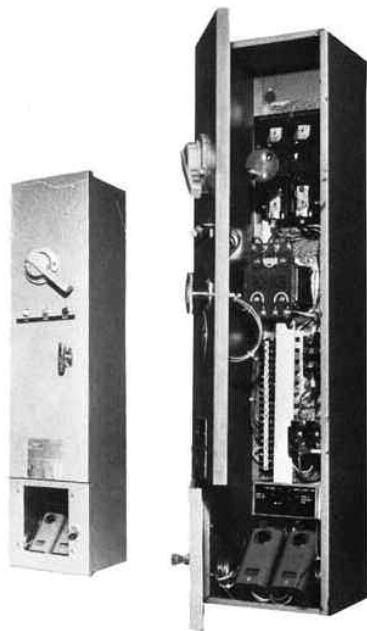
is ON-OFF—blowers run continuously or intermittently.

Air temperatures of 40° F will damage fruit. Evaporator pressure regulators (EPR) are required for each unit cooler with central station refrigeration plants. Select individual EPR to control above 40° F SST. Allowable pressure drop can be 20-25 psig with central station R-22 systems. Do not select on the basis of line size.

Temperature sensors may be located in the unit cooler return air stream or box inserted. When box inserted, upper layer boxes may be over-chilled damaging the fruit. Low temperature safety thermostats may be required with systems other than brine. Sensing unit cooler return air temperature, LTST cycle LSV. Approximate setting is—break 45° F.

PR Series Unit Coolers

Control Panels



**MULLION
TEMP
CONTROL
MODULE**

Mullion Panels

Designed to be located at eye-level between doors, 36" high x 8 1/4" wide x 8" deep mullion panels include all necessary electrical components to manually control temperature. Panels have grey enamel finish with key-lock hinged doors. Design conforms to NEC and UL Standards.

PANEL COMPONENTS	SPLIT	MULLION
MAIN DISCONNECT	POWER PANEL	
115V CONT TRANSFORMER		
MOTOR STARTER		
HEATER TERMINALS		
OPTIONAL ANTI-RECYCLE TIMER		NOT INCL
OPTIONAL LTST		NOT INCL
MOTORIZED BRINE VALVE RELAY		NOT INCL
PARTLOW TERMINALS		
SELECTOR SWITCH	MULLION TEMP CONTROL MODULE	
HEAT CONT FAN		
FAN ONLY		
COOL CONT FAN		
COOL INTER FAN		
INDICATOR LIGHTS		
FAN—WHITE		
COOL—AMBER		
HEAT—RED		
COOL AND HEAT STATS		
40-90°F RANGE		
1-1/2°F FIX DIFF		
20 FT CAPILLARY		
ON-OFF SWITCH		NOT REQ'D

Split Panels

Consist of two panels. The main power panel, 16" high x 20" wide x 6 5/8" deep, in NEMA-12 enclosure, is located above doors or inside the room on a side wall under the unit. The temperature control module, 27" high x 4" wide x 5" deep, is located at eye-level between doors, and has a key-lock feature. Panels have grey enamel finish with hinged doors. Design conforms to NEC and UL Standards. Split arrangement reduces field wiring cost.

Optional SPLIT arrangements are available to be used with Solid State temperature control which replaces temperature control modules. Solid State controls are provided by others.

PR Series Unit Coolers

Condensing Unit Systems

Outdoor air cooled, indoor remote air cooled, or indoor air and water cooled condensing units may be applied with individual unit coolers using R12, R22 or R502 refrigerants.

Protection may be required to prevent compressor short cycling due to ON-OFF control cycles during ripening cycles. Automatic or manual temperature reset may create periods of abnormal cycling.

Split power panels are provided with 1-10 minute adjustable time delays which delay compressor starting after temperature controls call for cooling.

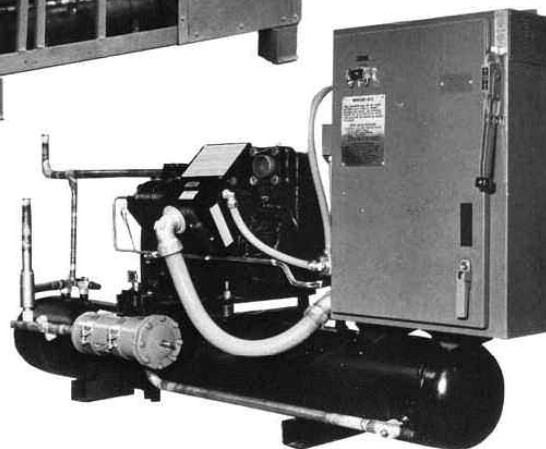
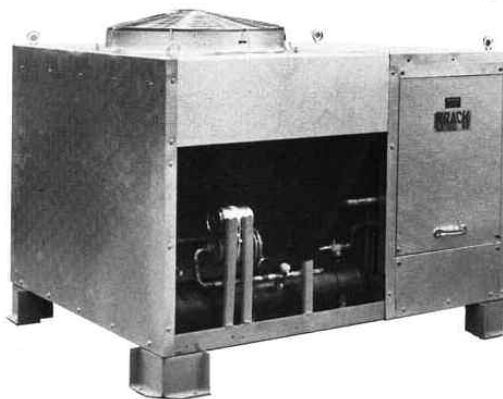
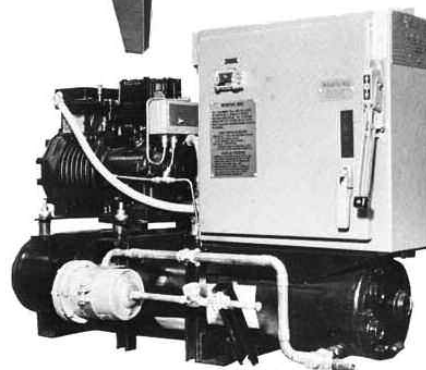
Systems are arranged so that the compressor starts when the room thermostat time delay makes, and stops when the low pressure switch breaks after pumpdown.

Systems have a lock-out relay to prevent heaters being energized during compressor operation.

Outdoor air cooled condensing units are provided with "SAFE-START" electrical systems allowing the low pressure switch trip setting to be near 10° F; even in ambients below zero. Deep pump-downs are prevented minimizing false oil safety trips.

Evaporator pressure regulators (EPR) are not recommended. Low temperature safety thermostats are recommended.

All necessary electrical components are provided. System electrical drawings are "tailor-made" for each installation. Refer to Krack-Pak bulletins for details.





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