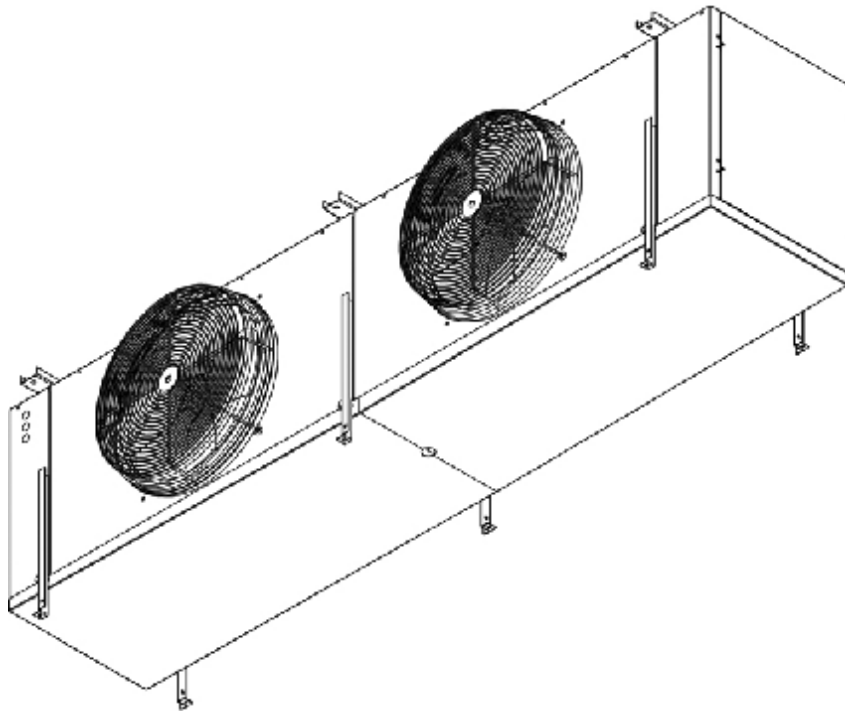


INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR INDUSTRIAL COOLERS

SERIES "MPA, HPA"
SERIES "MPE, HPE & JPE"
SERIES "MPG, HPG & JPG"
SERIES "MPH, HPH & JPH"

AIR DEFROST APPLICATION
ELECTRIC DEFROST APPLICATION
REVERSE CYCLE HOT GAS DEFROST
THREE PIPES HOT GAS DEFROST



WARNING: ELECTRICAL POWER MUST BE SWITCHED OFF/DISCONNECTED BEFORE STARTING ANY SERVICE WORK ON UNITS.

RECEIVING & INSPECTION

You have purchased one of the best units available today in the market with unique features. Congratulations and thank you for using Kool-Air. Upon receipt of shipment, please inspect the unit immediately and notify and file a claim with the transport if there is any damage. Our shipment is thoroughly inspected before it is handed over to the transport driver.

Location & Installation

The unit can be flush mounted against the ceiling or suspended from the ceiling. Suspended units must have space above to clean the top of the unit. To ensure uniform air distribution throughout the cooler a location should be chosen so that the air flow from the unit (both entering and leaving) is unrestricted. Also to create air curtain effect, blow cold air towards the door of the cooler. This unit draws air in from the coil and discharge cold air through the fan. The horizontal throw of the “MP” unit is from 40 to 50 feet and for the “HP” & “JP” from 50 to 65 feet. The unit must have space equal to the height of the unit between the coil and the wall for air movement. For “MPE, HPE & JPE” models, heaters are embedded into die-formed fin slots in the face of the coil and therefore no space on the side is necessary for heater removal.

(The air throw shown is for optimum conditions, it can be affected by the room height and the products loading.)

Wiring

All wiring must be done in accordance with national and local electrical codes. All internal wiring of the unit is done at our factory and all wiring connections terminate at the terminal block. The power supply must match with the name plate requirement. The unit cabinet must be grounded. On applications where total heater amperage exceeds 40 amps the heaters must be wired through a separate contactor, which should be located outside the cooler. Refer to the wiring diagram which is supplied with the unit for full details.

Drain Line

MP series units have ¾ inch MPT drain connection, whereas the HP, JP series units have 1 ¼ inch connection. The drain line should be pitched sharply and exit the cooler/freezer on the shortest run as possible. The drain line should be insulated and if the cooler temperature is below 32° F drain line heaters (approx. 15 watts per foot of drain line) may be required. Do not overlap the drain heaters. Provide drain trap outside the cooler/freezer in a warm area. Also a union in the drain line is preferred for ease of installation and service.

Refrigerant Connections / Piping

All refrigerant piping and connections must be installed in accordance with local and national codes. Lines should be sized in accordance with the latest A.S.H.R.A.E. Standards. Suction line trap(s) should be provided and suction line should be pitched downward toward the compressor to prevent slugging and to ensure oil return to compressor. Make sure the system is completely clean and dry. Evacuate the entire system after it has been purged and leak tested, before charging it with refrigerant.

Expansion Valve

All units use externally equalized TX valves and are provided with an equalizer line connection. All units' liquid line/TX valve connections are sweat connections. Selection of expansion valve is very important to get peak performance from the evaporator and to have a balanced system. Check superheat reading and adjust it to obtain full evaporator performance. Refer to expansion valve manufacturer's catalogue for full details.

OPERATION

“MPA & HPA” models are for Air-Defrost applications, where cooler temperature is +34° F. or above. The coil can be defrosted by switching the compressor off and just running the unit cooler fans. “MPE, MPG, MPH, HPE, HPG, HPH, JPE, JPG & JPH” models are for freezer applications down to -40 deg. F. “MPE, HPE & JPE” units are provided with high density stainless steel electric heaters and fan delay/defrost termination thermostat. Adjust defrost timer (45 minutes) to match the application and to ensure that the coil is completely defrosted after each defrost cycle. Defrost thermostat must terminate defrost cycle and fan delay thermostat must prevent moisture from being blown from the wet coil to the freezer at the termination of the defrost cycle. Time initiated temperature terminated defrost cycle is preferred to ensure clean coils at all times. Fan motor starts from the defrost thermostat. All fan motors are permanently lubricated and thermally protected. Fan motors may cycle due to thermal protection if the coil is blocked or iced up. “MPG, MPH, HPG, HPH, JPG & JPH” units are defrosted by the hot gas from the compressor discharge line. See piping diagram. A crankcase pressure regulating valve is recommended on low temperature applications. Also a suction accumulator with boil out coil or suction/liquid heat exchanger is recommended to avoid liquid slug to compressor.

SYSTEM START-UP

Before start-up:

1. All wiring should be in accordance with local codes.
2. Refrigerant should be adequately sized.
3. Liquid line solenoid should be installed on every system.
4. Complete evacuation and system dehydration has been done.
5. All valves must be open.(suction, discharge, receiver, etc.)
6. Make sure these components are installed: liquid line drier, moisture indicator and suction filter.
7. Pour water in the drain pan to check if it's sealed correctly and if the drainage is adequate.

After start-up:

1. If necessary by-pass fans delay control until the room temperature is lowered.
2. Check oil level.
3. Make sure the expansion valve is set correctly to provide good amount of superheat. (Around 5 to 6 °F for 10 °FTD)
4. When starting up the system for the first time, moisture is usually encountered in the system. This will frost the coil rapidly if the coil temperature is below 32 °F. Watch the coil during the initial start-up and perform manual coil defrost if necessary. Repeat if required.
5. Check fans for proper rotation sense.

MAINTENANCE

Periodically check the unit for any vibrations and dirt accumulation. Grease and dirt should be removed from the fans, fan guards and drain pan. The drain line should be checked and all foreign material removed. The finned surface may be cleaned using a whisk or fin brush. These are relatively maintenance free units as the motors are permanently lubricated and thermally protected.

REPLACEMENT PARTS

Use only manufacturer approved replacement parts. When ordering parts, please make sure you have the complete model number, serial number and voltage information.

UNIT	MOTOR 208-230/1/60	MOTOR 208-230/3/60	MOTOR 460/3/60	MOTOR 575/3/60	FAN	FAN GUARD	FAN DELAY
MP(A,E,G,H)-18-02300	M0028	M0027		M0025	F0020	F2022	E-0004
MP(A,E,G,H)-18-02900							
MP(A,E,G,H)-18-03200							
MP(A,E,G,H)-28-04570							
MP(A,E,G,H)-28-05800							
MP(A,E,G,H)-28-07000							
MP(A,E,G,H)-38-07600							
MP(A,E,G,H)-38-09750							
MP(A,E,G,H)-48-10600							
MP(A,E,G,H)-48-12500							

NOTE: MPE OR MP(G,H) SERIES WITH ELECTRIC DEFROST IN THE PAN ARE N/A IN 208-230/1/60 MOTOR VOLTAGE

UNIT	MOTOR 208-230/1/60	MOTOR 208-230/3/60	MOTOR 460/3/60	MOTOR 575/3/60	FAN	FAN GUARD	FAN DELAY
HP(A,E,G,H)-18-04500	N/A	M0036		M0035	F0030	F2025	E-0004
HP(A,E,G,H)-18-05800							
HP(A,E,G,H)-18-06400							
HP(A,E,G,H)-28-09200							
HP(A,E,G,H)-28-11600							
HP(A,E,G,H)-28-13000							
HP(A,E,G,H)-38-16000							
HP(A,E,G,H)-38-19000							
HP(A,E,G,H)-48-25200							

UNIT	MOTOR 208-230/1/60	MOTOR 208-230/3/60	MOTOR 460/3/60	MOTOR 575/3/60	FAN	FAN GUARD	FAN DELAY
JP(E,G,H)-16-04400	N/A	M0046		M0045	F0031	F2025	E-0004
JP(E,G,H)-16-05800							
JP(E,G,H)-16-06800							
JP(E,G,H)-26-09100							
JP(E,G,H)-26-11400							
JP(E,G,H)-26-13200							
JP(E,G,H)-36-16200							
JP(E,G,H)-36-20600							
JP(E,G,H)-46-27800							

UNIT	HEATER 208-230/1/60	HEATER 208-230/3/60	HEATER 460/3/60	HEATER 575/3/60	TERMINAL BOARD
MPA-18-02300	N/A				E-0003
MPA-18-02900					
MPA-18-03200					
MPA-28-04570					
MPA-28-05800					
MPA-28-07000					
MPA-38-07600					
MPA-38-09750					
MPA-48-10600					
MPA-48-12500					

UNIT	HEATER 208-230/1/60	HEATER 208-230/3/60	HEATER 460/3/60	HEATER 575/3/60	TERMINAL BOARD
MP(E,G,H)-16-02100	H-0050		H-0080		E-0003
MP(E,G,H)-16-02700					
MP(E,G,H)-16-03000					
MP(E,G,H)-26-04250	H-0055		H-0085		
MP(E,G,H)-26-05600					
MP(E,G,H)-26-06600					
MP(E,G,H)-36-07350	H-0060		H-0090		
MP(E,G,H)-36-09400					
MP(E,G,H)-46-10000	H-0065		H-0095		
MP(E,G,H)-46-12000					

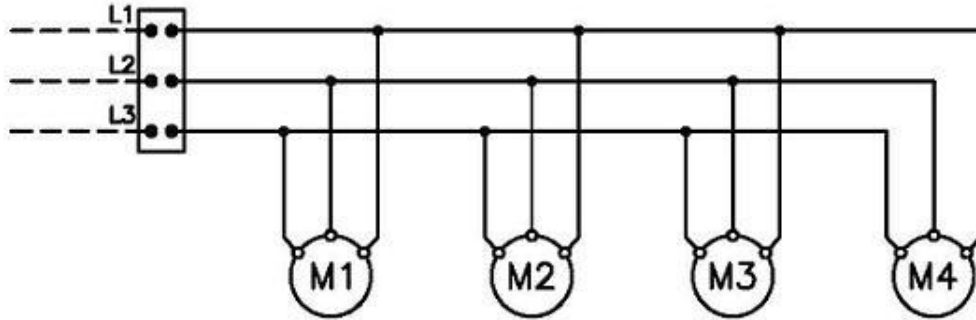
UNIT	HEATER 208-230/1/60	HEATER 208-230/3/60	HEATER 460/3/60	HEATER 575/3/60	TERMINAL BOARD
HPA-18-04500	N/A				E-0003
HPA-18-05800					
HPA-18-06400					
HPA-28-09200					
HPA-28-11600					
HPA-28-13000					
HPA-38-16000					
HPA-38-19000					
HPA-48-25200					

UNIT	HEATER 208-230/1/60	HEATER 208-230/3/60	HEATER 460/3/60	HEATER 575/3/60	TERMINAL BOARD
HP(E,G,H)-16-04000	N/A	H-0080		E-0003	
HP(E,G,H)-16-05150					
HP(E,G,H)-16-06000					
HP(E,G,H)-26-08200		H-0085			
HP(E,G,H)-26-10200					
HP(E,G,H)-26-12400					
HP(E,G,H)-36-14000		H-0090			
HP(E,G,H)-36-18200					
HP(E,G,H)-46-24400					H-0095

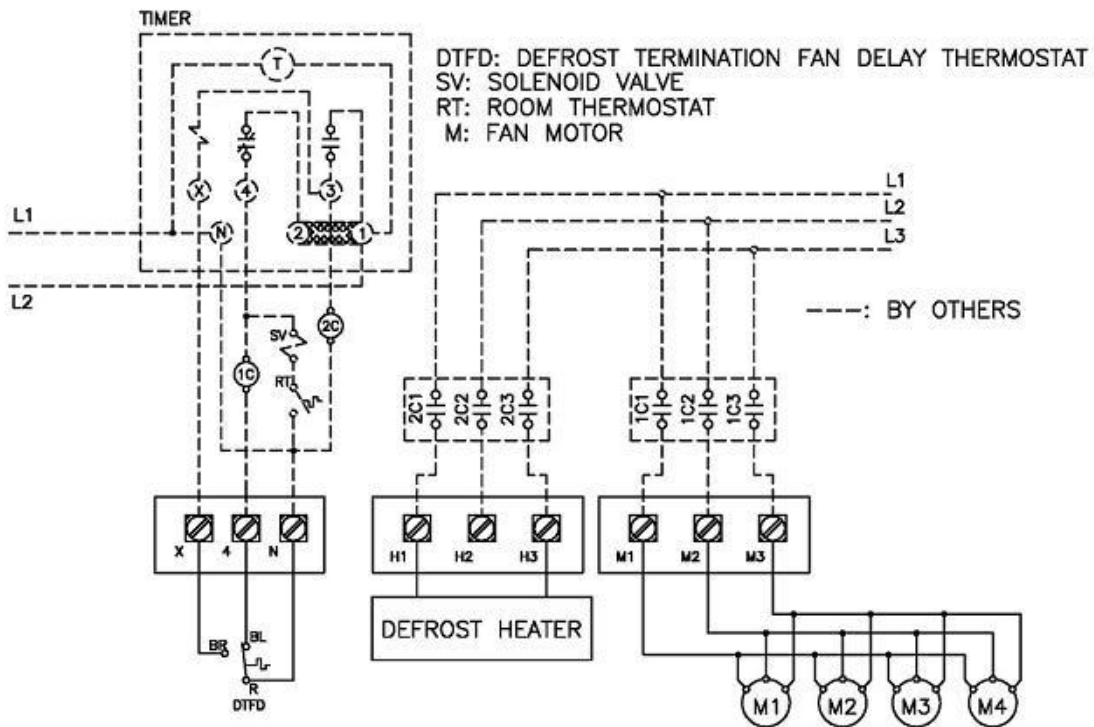
UNIT	HEATER 208-230/1/60	HEATER 208-230/3/60	HEATER 460/3/60	HEATER 575/3/60	TERMINAL BOARD
JP(E,G,H)-16-04400	N/A	H-0080		E-0003	
JP(E,G,H)-16-05800					
JP(E,G,H)-16-06800					
JP(E,G,H)-26-09100		H-0085			
JP(E,G,H)-26-11400					
JP(E,G,H)-26-13200					
JP(E,G,H)-36-16200		H-0090			
JP(E,G,H)-36-20600					
JP(E,G,H)-46-27800					H-0095

ELECTRICALS (Wiring Diagrams)

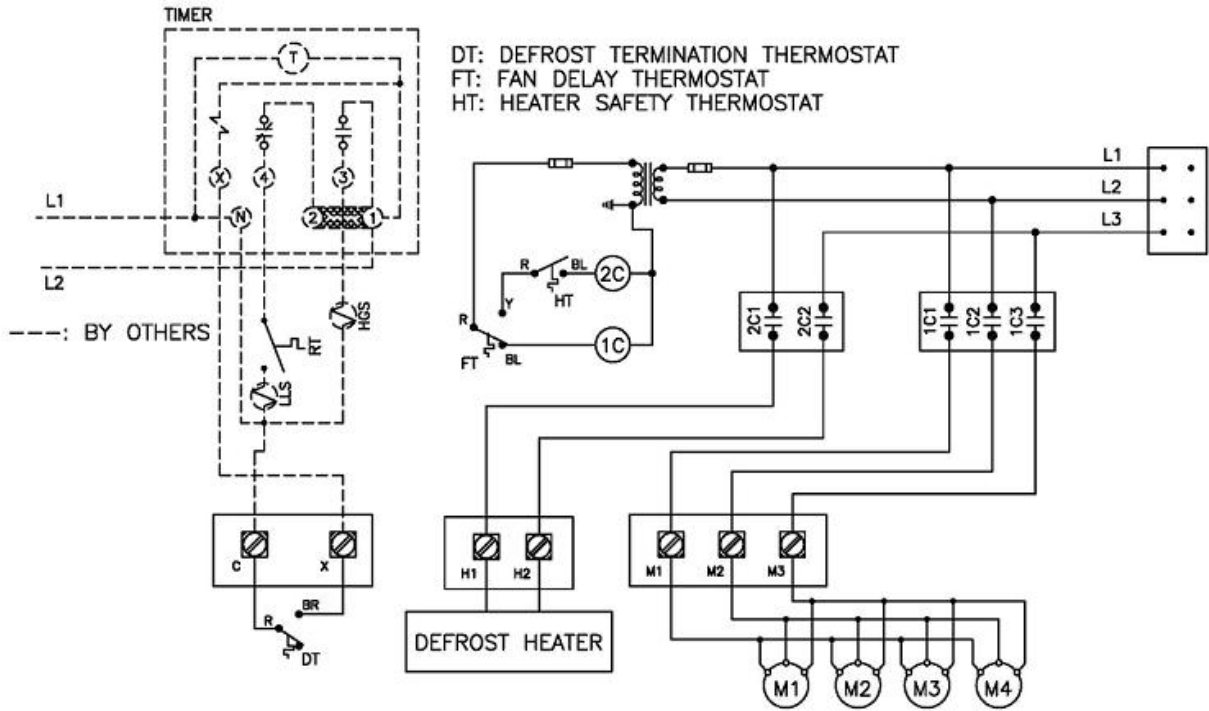
“MPA & HPA Air Defrost



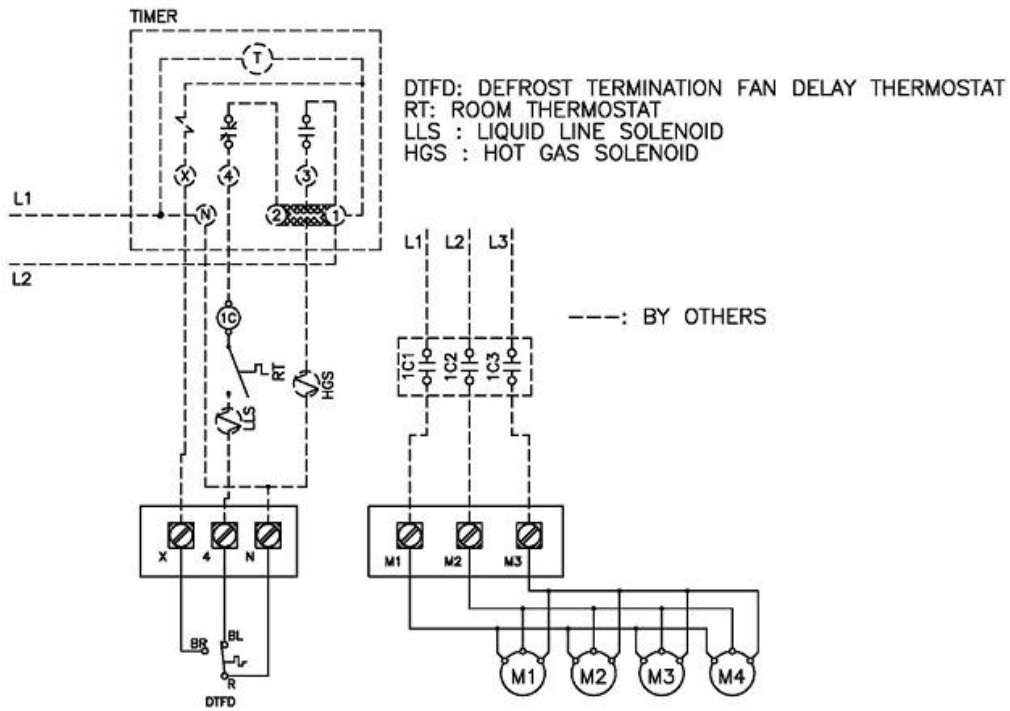
“MPE, HPE & JPE” Electric Defrost



“MP, HP & JP (GE, HE)” Reverse cycle hot gas defrost & 3 pipes defrost whit electric defrost in drain pan.

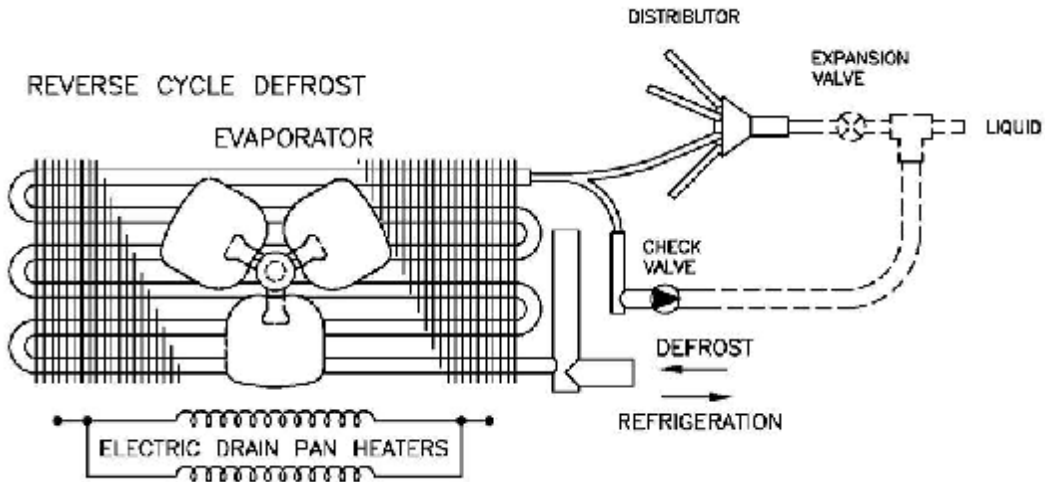


“MP, HP & JP” (GL, HL)” Reverse cycle hot gas defrost & 3 pipes defrost whit hot gas loop in drain pan.

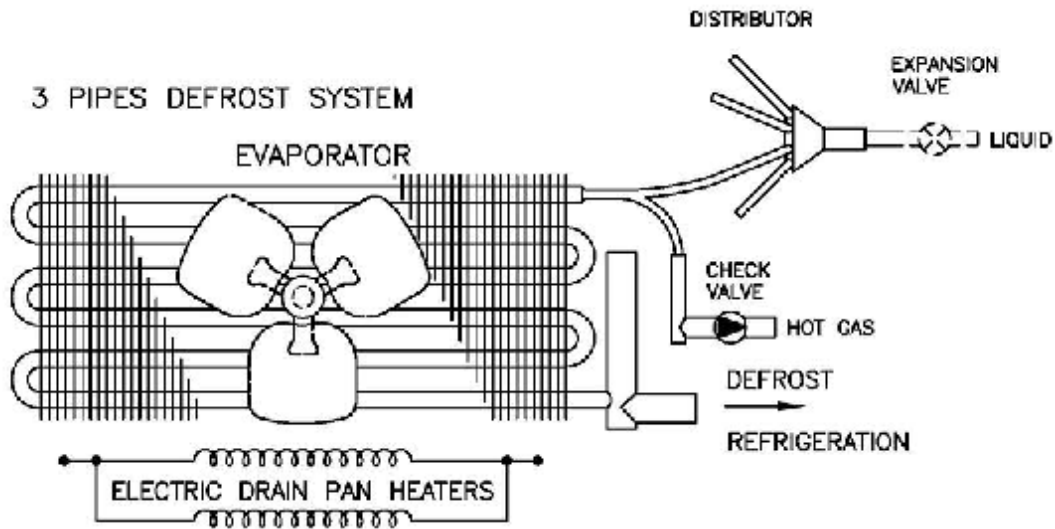


PIPING LAYOUT (Piping Diagrams)

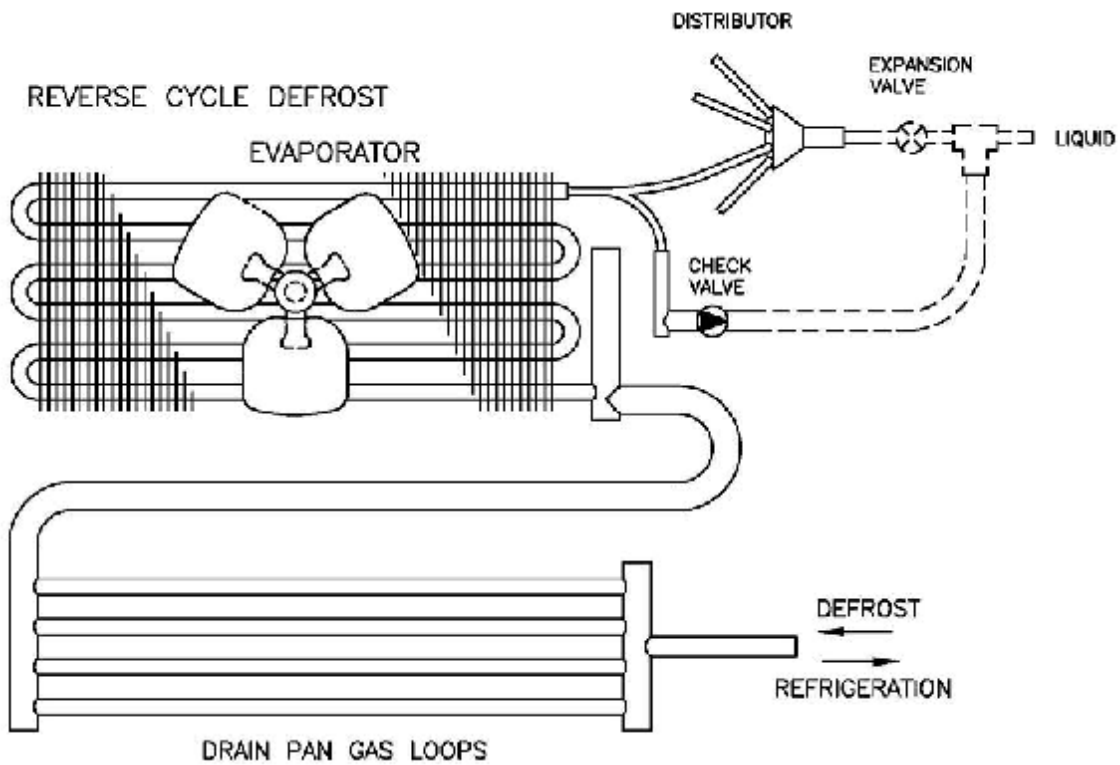
“MP, HP & JP (GE)” Reverse cycle hot gas defrost with electric defrost in drain pan.



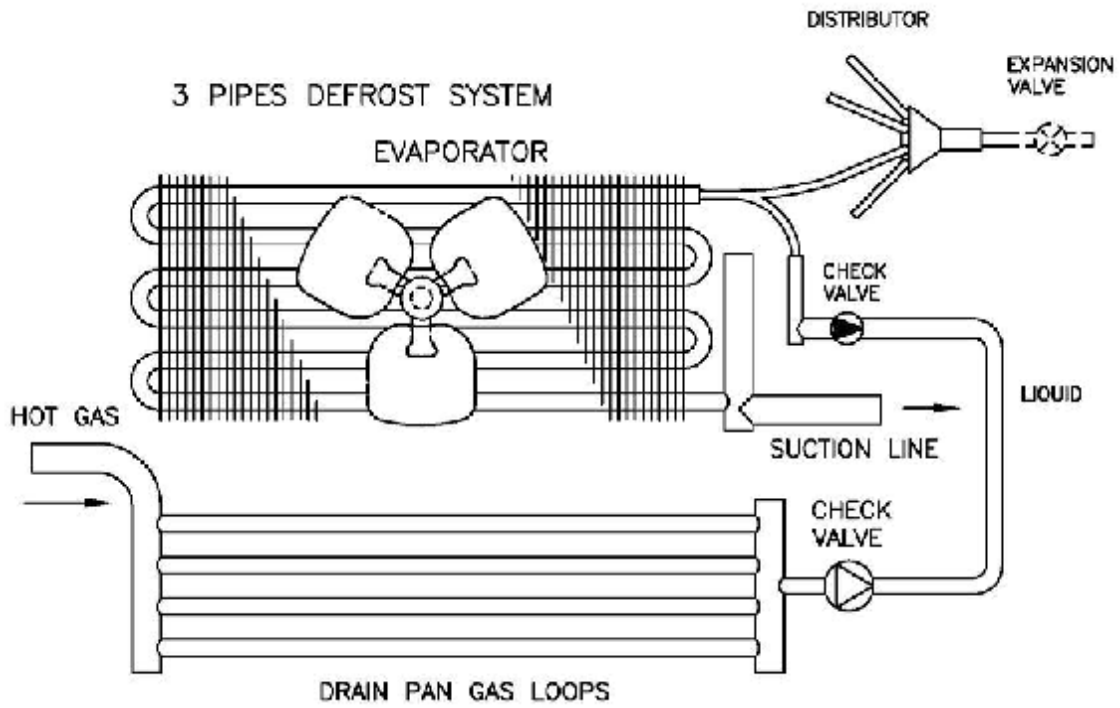
“MP, HP & JP (HE)” Three pipes hot gas defrost with electric defrost in drain pan.



“MP, HP & JP (GL)” Reverse cycle hot gas defrost whit hot gas loop in drain pan.



“MP, HP & JP (HL)” Three pipes hot gas defrost whit hot gas loop in drain pan.



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Due to Kool-Air policies to continuously improve the quality of its products, specifications are subject to change without notice.