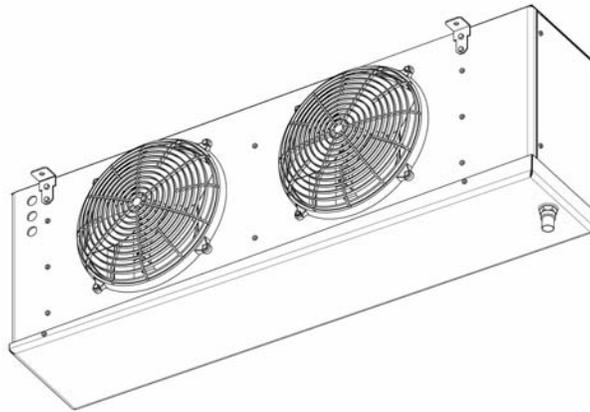


**INSTALLATION, OPERATION
& MAINTENANCE INSTRUCTIONS
FOR
LOW PROFILE-UNIT COOLERS AND DUAL FLOW
UNIT COOLER**

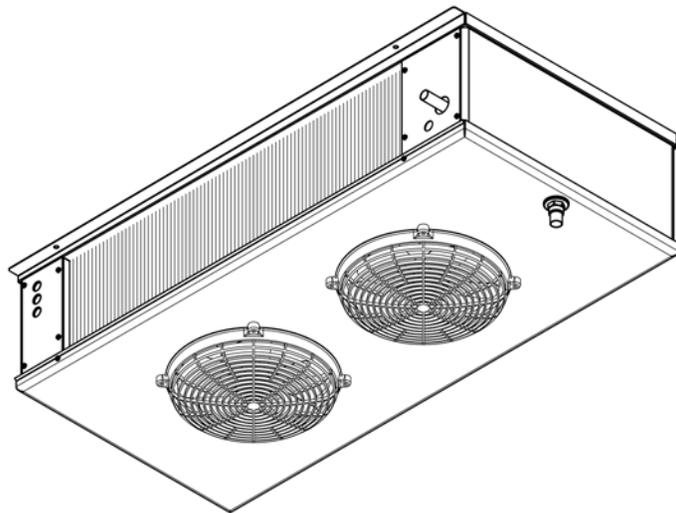
SERIES "LPA"
SERIES "LPE"
SERIES "LPG"
SERIES "LPH"

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



SERIES "MVA" & "BVA"
SERIES "MVE" & "BVE"
SERIES "MVG" & "BVG"
SERIES "MVH" & "BVH"

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 depending upon the height of the room. 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.

LP SERIE: 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 this unit is 20 to 30 feet. The unit must have at least an 8 inch space between the coil and the wall for air movement.

MV & BV SERIE: These units draw air in from the fan and discharge cold air through the coils. The horizontal air throw of these units is 12 to 18 feet for MV series and 10 to 15 feet for BV series. Unit spacing between two units should never exceed twice the air

throw. These units must have at least a 36 inch space between the coil and the wall for proper air movement.

For “LPE”, “MVE” & “BVE” 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

LP SERIE: The ¾ inch MPT drain connection is factory mounted on the right side of the unit when facing fans but can be easily moved to the left to accommodate field requirements.

MV & BV SERIE: These units has a $\frac{3}{4}$ inch MPT drain 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 degrees 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.

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

“LPA”, “MVA” & “BVA” models are for Air-Defrost applications, where cooler temperature is +34 deg. F. or above. The coil can be defrosted by switching the compressor off and just running the unit cooler fans. “LPE”, “LPG” and “LPH” models are for freezer applications down to -20 deg. F. “BVE”, “MVE”, “BVG”, “MVG”, “BVH” and “MVH” models are for freezer applications down to 26 deg. F. “LPE”, “MVE” & “BVE” units are provided with high density stainless steel electric heaters, factory set sealed fan delay/defrost termination thermostat. Adjust defrost timer (maximum 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. “LPG”, “LPH”, “MVG”, “MVH”, “BVG” and “BVH” 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 slugging at compressor.

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	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN
LPA-18-0380-1	M0010	F0010	F0204	E-0001	E-0030	1303D01
LPA-18-0520-1	M0010	F0010	F0204	E-0001	E-0030	1303D01
LPA-18-0610-1	M0010	F0010	F0204	E-0001	E-0030	1303D01
LPA-28-0860-1	M0010	F0010	F0204	E-0001	E-0030	1303D02
LPA-28-1000-1	M0010	F0010	F0204	E-0001	E-0030	1303D03
LPA-28-1160-1	M0010	F0010	F0204	E-0001	E-0030	1303D03
LPA-38-1570-1	M0010	F0010	F0204	E-0001	E-0030	0303D04
LPA-38-1860-1	M0010	F0010	F0204	E-0001	E-0030	0303D04
LPA-48-2140-1	M0010	F0010	F0204	E-0001	E-0030	1303D05
LPA-58-2630-1	M0010	F0010	F0204	E-0001	E-0030	1303D07
LPA-58-3130-1	M0010	F0010	F0204	E-0001	E-0030	1303D07
LPA-68-3500-1	M0010	F0010	F0204	E-0001	E-0030	1303D07

UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN	HEATERS	FAN DELAY
LPE-16-0480-2	M0015	F0010	F0204	E-0003	E-0030	1303D01	H-0010	E0004
LPE-16-0550-2	M0015	F0010	F0204	E-0003	E-0030	1303D01	H-0010	E0004
LPE-26-0780-2	M0015	F0010	F0204	E-0003	E-0030	1303D02	H-0015	E0004
LPE-26-0860-2	M0015	F0010	F0204	E-0003	E-0030	1303D03	H-0020	E0004
LPE-26-1080-2	M0015	F0010	F0204	E-0003	E-0030	1303D03	H-0020	E0004
LPE-36-1300-2	M0015	F0010	F0204	E-0003	E-0030	1303D04	H-0025	E0004
LPE-36-1660-2	M0015	F0010	F0204	E-0003	E-0030	1303D04	H-0025	E0004
LPE-46-2260-2	M0015	F0010	F0204	E-0003	E-0030	1303D05	H-0030	E0004
LPE-56-2890-2	M0015	F0010	F0204	E-0003	E-0030	1303D07	H-0035	E0004
LPE-66-3220-2	M0015	F0010	F0204	E-0003	E-0030	1303D07	H-0035	E0004

NOTE: THERE ARE 6 HEATERS PER UNIT 2 IN THE DRAIN PAN AND 4 IN THE COIL SLAB.

UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN
LP(G)(H)-16-0480-1	M0010	F0010	F0204	E-0001	E-0030	1303D01
LP(G)(H)-16-0550-1	M0010	F0010	F0204	E-0001	E-0030	1303D01
LP(G)(H)-26-0780-1	M0010	F0010	F0204	E-0001	E-0030	1303D02
LP(G)(H)-26-0860-1	M0010	F0010	F0204	E-0001	E-0030	1303D03
LP(G)(H)-26-1080-1	M0010	F0010	F0204	E-0001	E-0030	1303D03
LP(G)(H)-36-1300-1	M0010	F0010	F0204	E-0001	E-0030	1303D04
LP(G)(H)-36-1660-1	M0010	F0010	F0204	E-0001	E-0030	1303D04
LP(G)(H)-46-2260-1	M0010	F0010	F0204	E-0001	E-0030	1303D05
LP(G)(H)-56-2890-1	M0010	F0010	F0204	E-0001	E-0030	1303D07
LP(G)(H)-66-3220-1	M0010	F0010	F0204	E-0001	E-0030	1303D07

DRAIN FITTING KIT
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UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN
MVA-16-0600-1	M0010	F0012	F0204	E-0001	E-0030	1505D01
MVA-26-0850-1	M0010	F0012	F0204	E-0001	E-0030	1505D02
MVA-26-1200-1	M0010	F0012	F0204	E-0001	E-0030	1505D02
MVA-26-1350-1	M0010	F0012	F0204	E-0001	E-0030	1505D03
MVA-36-1800-1	M0010	F0012	F0204	E-0001	E-0030	1505D04
MVA-36-2000-1	M0010	F0012	F0204	E-0001	E-0030	1505D04
MVA-46-2800-1	M0010	F0012	F0204	E-0001	E-0030	1505D05
MVA-56-3600-1	M0010	F0012	F0204	E-0001	E-0030	1505D13
MVA-66-4500-1	M0010	F0012	F0204	E-0001	E-0030	1505D15

UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN	HEATERS	FAN DELAY
MVE-16-0600-2	M0015	F0012	F0204	E-0003	E-0030	1505D01	H-0010	E0004
MVE-26-0850-2	M0015	F0012	F0204	E-0003	E-0030	1505D02	H-0015	E0004
MVE-26-1200-2	M0015	F0012	F0204	E-0003	E-0030	1505D02	H-0015	E0004
MVE-26-1350-2	M0015	F0012	F0204	E-0003	E-0030	1505D03	H-0020	E0004
MVE-36-1800-2	M0015	F0012	F0204	E-0003	E-0030	1505D04	H-0025	E0004
MVE-36-2000-2	M0015	F0012	F0204	E-0003	E-0030	1505D04	H-0025	E0004
MVE-46-2800-2	M0015	F0012	F0204	E-0003	E-0030	1505D05	H-0030	E0004
MVE-56-3600-2	M0015	F0012	F0204	E-0003	E-0030	1505D13	H-0035	E0004
MVE-66-4500-2	M0015	F0012	F0204	E-0003	E-0030	1505D15	H-0035	E0004

NOTE: THERE ARE 6 HEATERS PER UNIT 2 IN THE DRAIN PAN AND 4 IN THE COIL SLAB.

UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN	HEATERS	FAN DELAY
MV(G)(H)-16-0600-1	M0010	F0012	F0204	E-0001	E-0030	1505D01	H-0010	E0004
MV(G)(H)-26-0850-1	M0010	F0012	F0204	E-0001	E-0030	1505D02	H-0015	E0004
MV(G)(H)-26-1200-1	M0010	F0012	F0204	E-0001	E-0030	1505D02	H-0015	E0004
MV(G)(H)-26-1350-1	M0010	F0012	F0204	E-0001	E-0030	1505D03	H-0020	E0004
MV(G)(H)-36-1800-1	M0010	F0012	F0204	E-0001	E-0030	1505D04	H-0025	E0004
MV(G)(H)-36-2000-1	M0010	F0012	F0204	E-0001	E-0030	1505D04	H-0025	E0004
MV(G)(H)-46-2800-1	M0010	F0012	F0204	E-0001	E-0030	1505D05	H-0030	E0004
MV(G)(H)-56-3600-1	M0010	F0012	F0204	E-0001	E-0030	1505D13	H-0035	E0004
MV(G)(H)-66-4500-1	M0010	F0012	F0204	E-0001	E-0030	1505D15	H-0035	E0004

NOTE: THERE ARE 2 HEATERS PER UNIT IN THE DRAIN PAN

DRAIN FITTING KIT
P0002

UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN
BVA-16-0650-1	M0010	F0012	F0204	E-0001	E-0030	1505D21
BVA-16-0750-1	M0010	F0012	F0204	E-0001	E-0030	1505D21
BVA-26-0900-1	M0010	F0012	F0204	E-0001	E-0030	1505D09
BVA-26-1200-1	M0010	F0012	F0204	E-0001	E-0030	1505D09
BVA-26-1500-1	M0010	F0012	F0204	E-0001	E-0030	1505D09
BVA-26-1800-1	M0010	F0012	F0204	E-0001	E-0030	1505D11
BVA-36-2700-1	M0010	F0012	F0204	E-0001	E-0030	1505D10
BVA-46-3000-1	M0010	F0012	F0204	E-0001	E-0030	1505D12
BVA-56-3600-1	M0010	F0012	F0204	E-0001	E-0030	1505D13

UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DRAIN PAN	HEATERS	FAN DELAY
BVE-16-0650-2	M0015	F0012	F0204	E-0003	E-0030	1505D21	H-0015	E0004
BVE-16-0750-2	M0015	F0012	F0204	E-0003	E-0030	1505D21	H-0015	E0004
BVE-26-0900-2	M0015	F0012	F0204	E-0003	E-0030	1505D09	H-0025	E0004
BVE-26-1200-2	M0015	F0012	F0204	E-0003	E-0030	1505D09	H-0025	E0004
BVE-26-1500-2	M0015	F0012	F0204	E-0003	E-0030	1505D09	H-0025	E0004
BVE-26-1800-2	M0015	F0012	F0204	E-0003	E-0030	1505D11	H-0030	E0004
BVE-36-2700-2	M0015	F0012	F0204	E-0003	E-0030	1505D10	H-0035	E0004
BVE-46-3000-2	M0015	F0012	F0204	E-0003	E-0030	1505D12	H-0035	E0004
BVE-56-3600-2	M0015	F0012	F0204	E-0003	E-0030	1505D13	H-0035	E0004

NOTE: THERE ARE 6 HEATERS PER UNIT 2 IN THE DRAIN PAN AND 4 IN THE COIL SLAB.

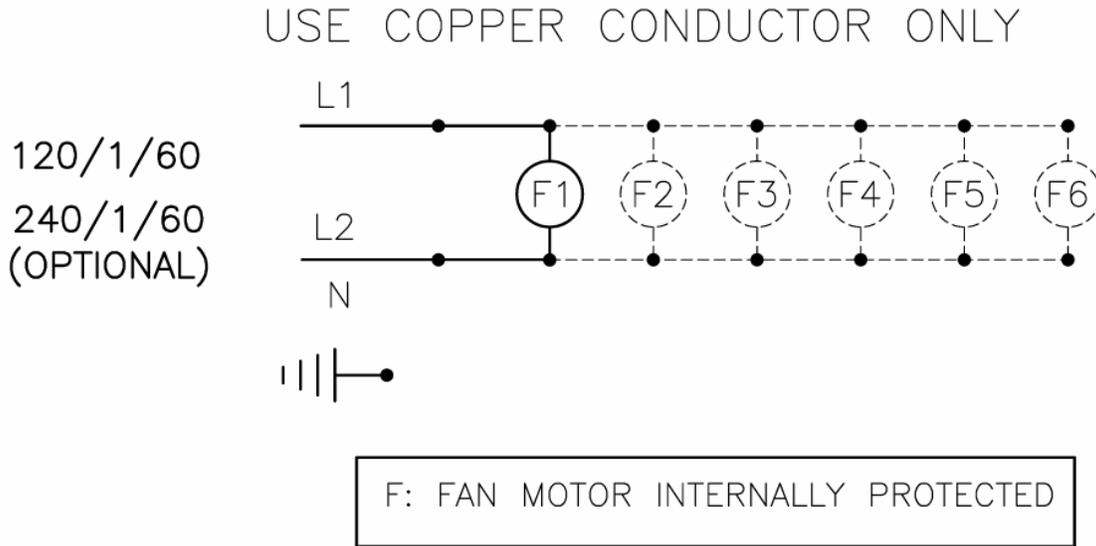
UNIT	MOTOR	FAN	FAN GUARD	TERMINAL BOARD	WIRE HARNESS	DAIN PAN	HEATERS	FAN DELAY
BV(G) (H)-16-0650-1	M0010	F0012	F0204	E-0001	E-0030	1505D21	H-0015	E0004
BV(G) (H)-16-0750-1	M0010	F0012	F0204	E-0001	E-0030	1505D21	H-0015	E0004
BV(G) (H)-26-0900-1	M0010	F0012	F0204	E-0001	E-0030	1505D09	H-0025	E0004
BV(G) (H)-26-1200-1	M0010	F0012	F0204	E-0001	E-0030	1505D09	H-0025	E0004
BV(G) (H)-26-1500-1	M0010	F0012	F0204	E-0001	E-0030	1505D09	H-0025	E0004
BV(G) (H)-26-1800-1	M0010	F0012	F0204	E-0001	E-0030	1505D11	H-0030	E0004
BV(G) (H)-36-2700-1	M0010	F0012	F0204	E-0001	E-0030	1505D10	H-0035	E0004
BV(G) (H)-46-3000-1	M0010	F0012	F0204	E-0001	E-0030	1505D12	H-0035	E0004
BV(G) (H)-56-3600-1	M0010	F0012	F0204	E-0001	E-0030	1505D13	H-0035	E0004

NOTE: THERE ARE 2 HEATERS PER UNIT IN THE DRAIN PAN

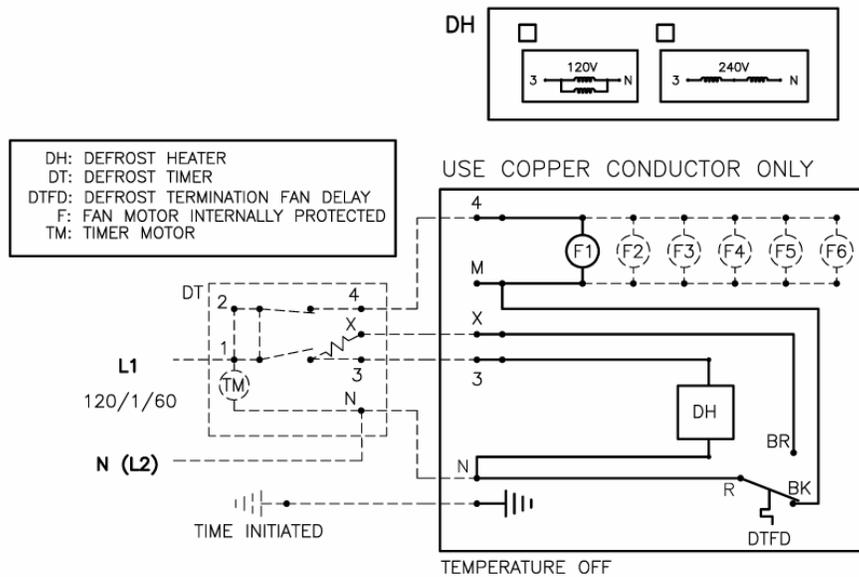
DRAIN FITTING KIT
P0002

ELECTRICALS (Wiring Diagrams)

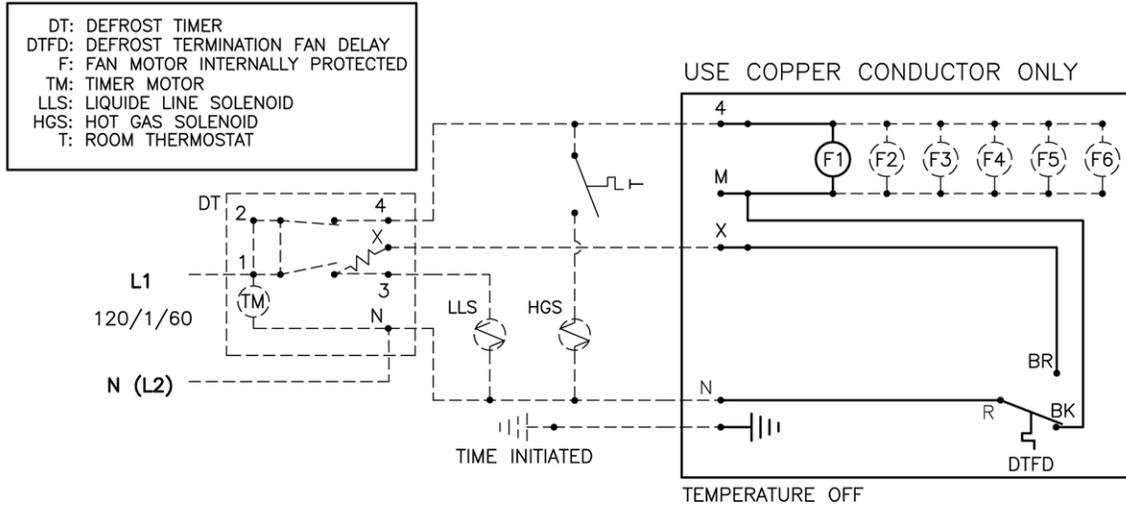
“LPA, MVA & BVA” Air Defrost



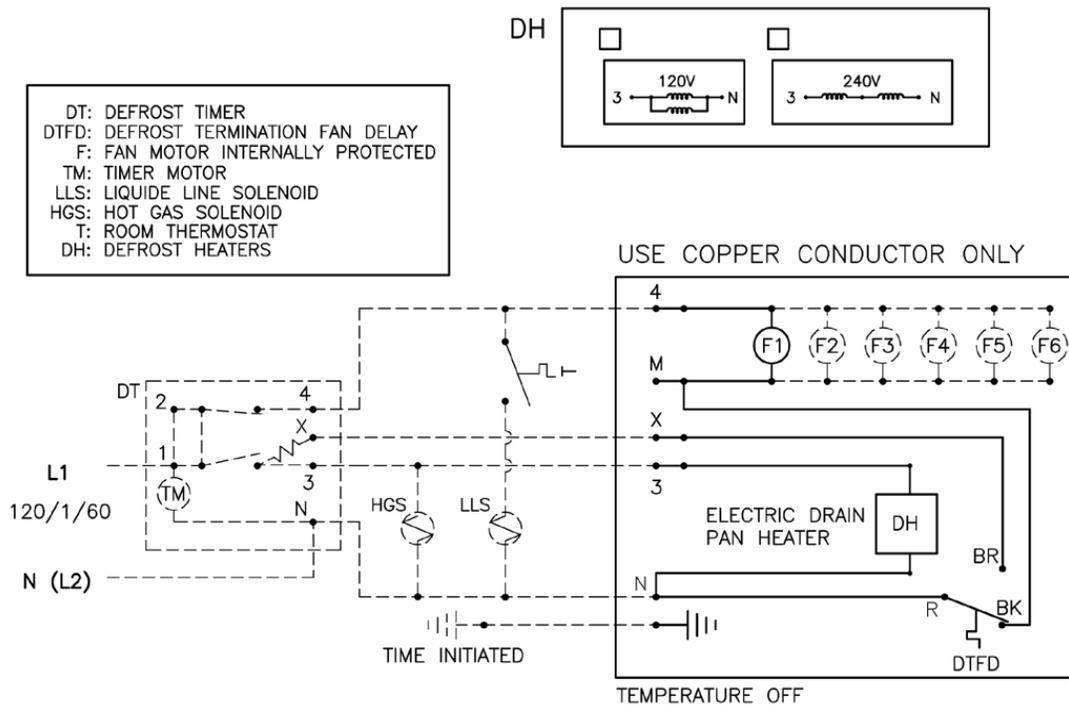
“LPE, MVE & BVE” Electric Defrost



“LP (G, H)” Reverse cycle hot gas defrost & 3 pipes defrost

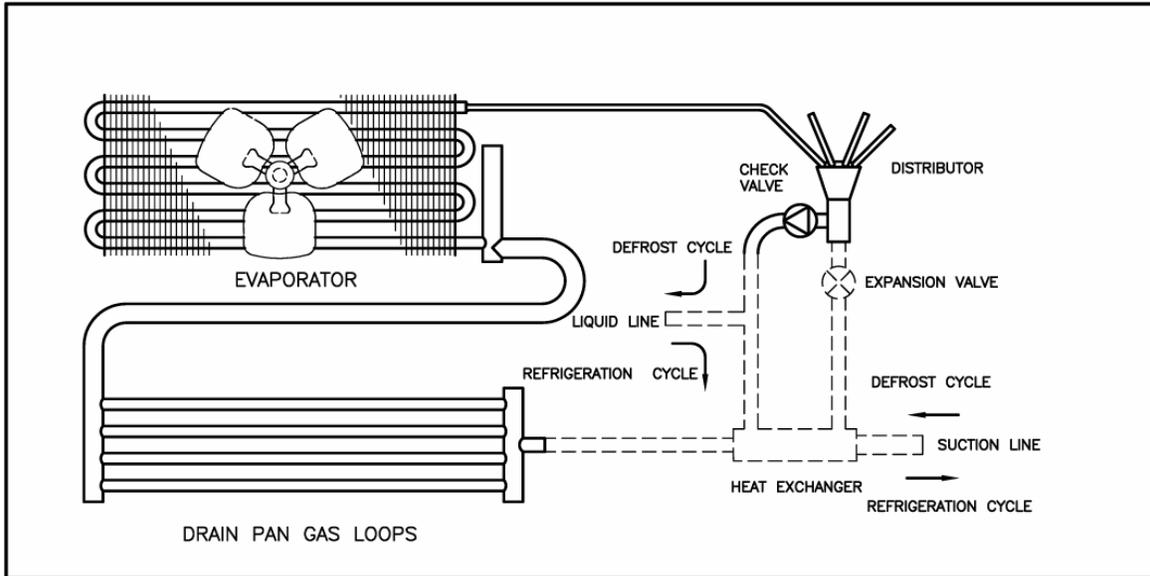


“MV (G, H)” & “BV (G, H)” Reverse cycle hot gas defrost & 3 pipes defrost

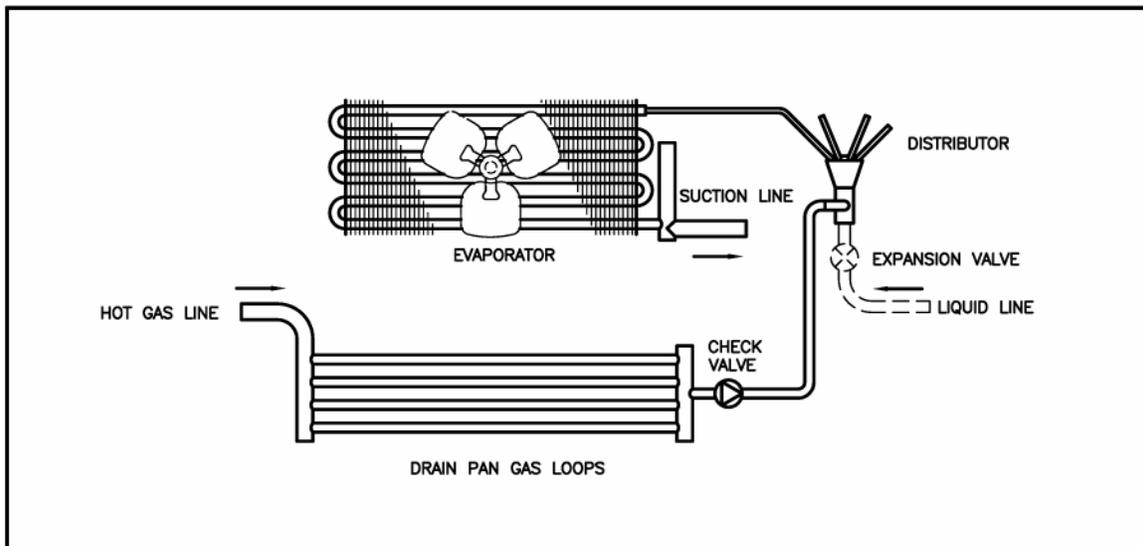


PIPING LAYOUT (Piping Diagrams)

“LPG” Reverse cycle hot gas defrost

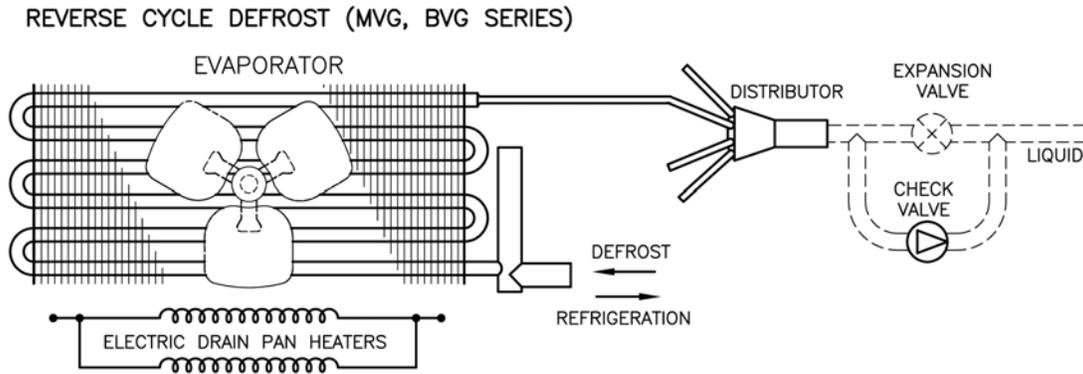


“LPH” Three pipes hot gas defrost

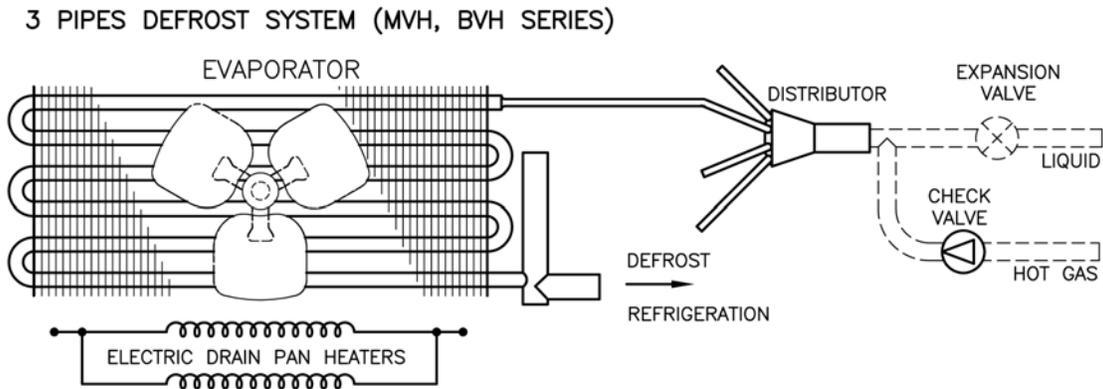


PIPING LAYOUT (Piping Diagrams)

“MVG” & “BVG” Reverse cycle hot gas defrost



“MVH” & “BVH” Three pipes hot gas defrost



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