

# Bosch Multi-Position Cased Coils Cooling and Heat Pump Compatible

BMAC Series



## Installation Manual





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## 1 Key to symbols and safety instructions

### 1.1 Key to symbols

#### Warnings



Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- ▶ **DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- ▶ **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- ▶ **CAUTION** indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.
- ▶ **NOTICE** is used to address practices not related to personal injury.

#### Important information



This symbol indicates important information where there is no risk to people or property.

### 1.2 Safety

#### Please read safety precautions before installation



##### **WARNING:**

- ▶ These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance and possibly resulting in fire, electrical shock, property damage, personal injury or death.



##### **WARNING:**

- ▶ Disconnect all power to the unit before starting any service and maintenance. Failure to do so could cause severe electrical shock resulting in personal injury or death.



##### **WARNING: INSTALLATION REQUIREMENTS**

- ▶ Installation or servicing of this unit can be hazardous due to parts, components and system pressure. Qualified and properly trained service personnel should perform installation and repair. Failure to do so could cause severe electrical shock resulting in personal injury or death.

## 2 General

These coils are approved for upflow or downflow, vertical and horizontal installation. For furnace applications, the coil must be installed downstream (in the air outlet) of the furnace.

### 2.1 Codes & regulations

This product is designed and manufactured to comply with national codes. Installation in accordance with such codes and/or prevailing local codes/regulations is the responsibility of the installer. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.

The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. Should you have any questions please contact the local office of the EPA.

### 2.2 Inspection upon unit arrival

As soon as unit is received, it should be inspected and noted for possible shipping damage during transportation. It is carrier's responsibility to cover the cost of shipping damage. Manufacturer or distributor will not accept a claim from contractors for any transportation damage.

### 2.3 Clearances

Following clearances should be provided during installation:

1. Maintenance and service access, including coil cleaning and coil assembly removal
2. Refrigerant piping and connections
3. Condensate drain line

For ensure the proper installation, Select a solid and level site. Ensure enough space required for installation and maintenance.

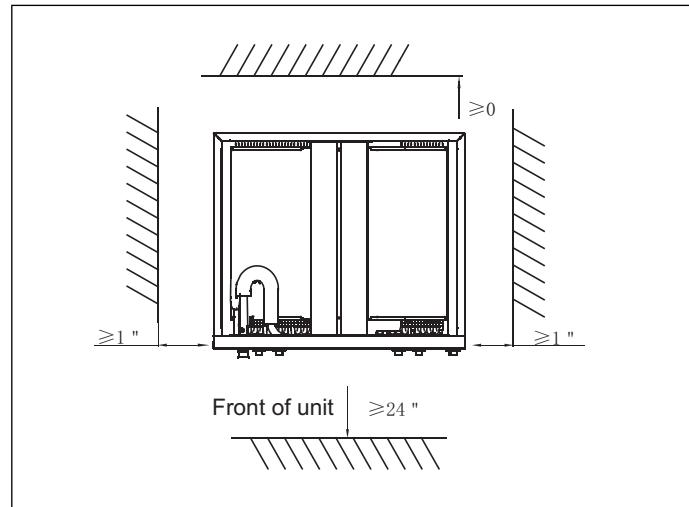


Figure 2 Clearance - top view (including air duct)

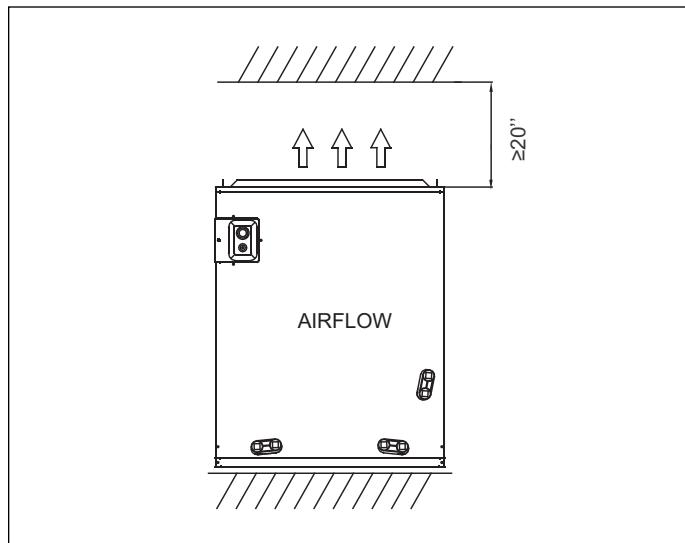


Figure 1 Clearance - front view (including air duct)

## 2.4 Dimensional data

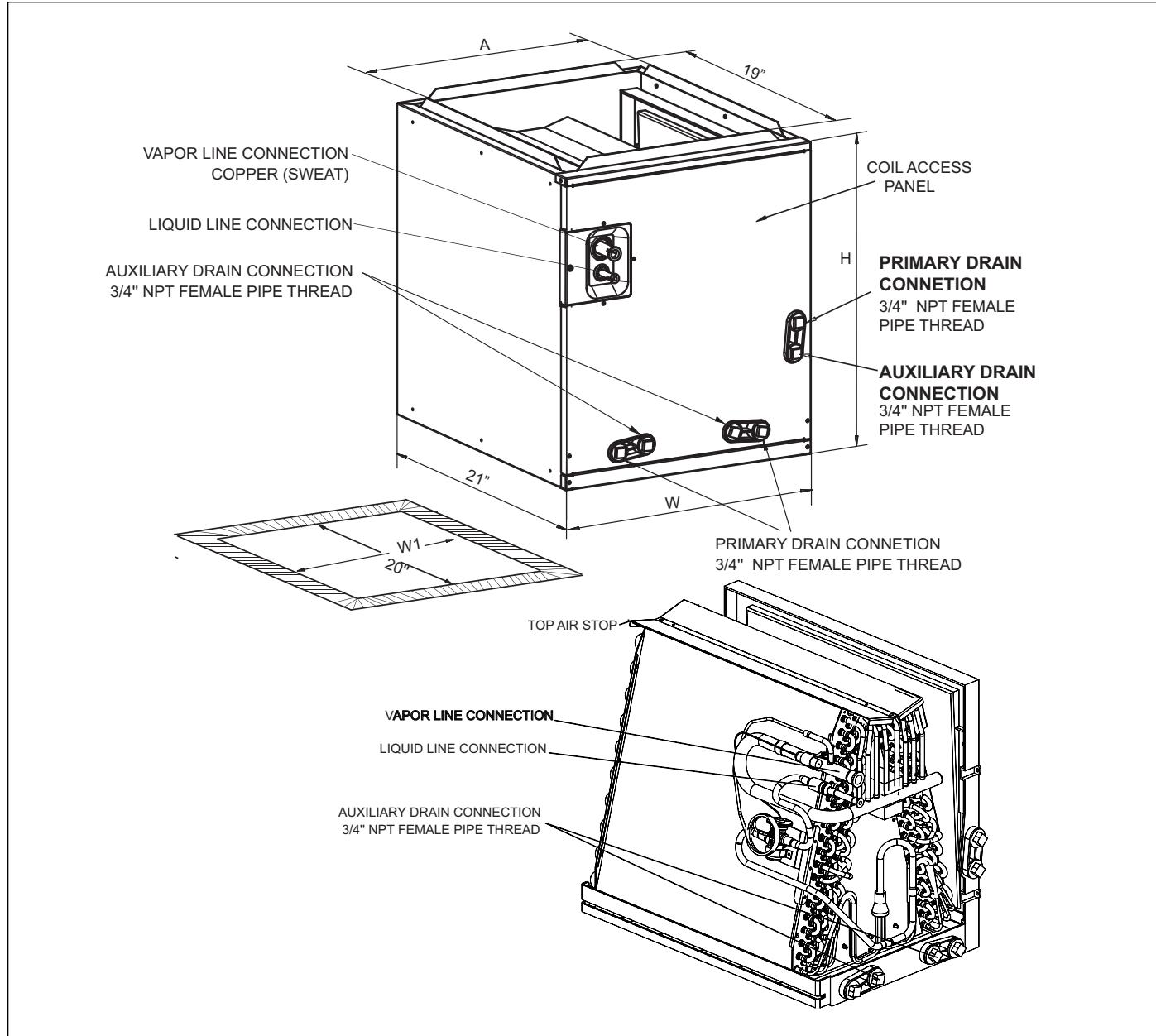


Figure 3

Model	Dimensions inch [mm]					Weight /Shipping (LBS [kg])
	Unit Height "H"	Unit Width "W"	Supply Duct "A"	"W1"	Liquid line /Vapor Line	
BMAC2430ANTD	20 [508]	14 1/2 [368]	13 [330]	13 1/2 [343]	5/8 / 3/4	45.6/62.1 [20.7/28.2]
BMAC2430BNTD	20 [508]	17 1/2 [445]	16 [407]	16 1/2 [419]	5/8 / 3/4	48/66 [21.8/29.9]
BMAC3036ANTD	20 [508]	14 1/2 [368]	13 [330]	13 1/2 [343]	5/8 / 3/4	45.6/62.1 [20.7/28.2]
BMAC3036BNTD	20 [508]	17 1/2 [445]	16 [407]	16 1/2 [419]	5/8 / 3/4	48/66 [21.8/29.9]
BMAC3036CNTD	20 [508]	21 [553]	19 1/2 [495]	20 [508]	5/8 / 3/4	51.8/74.3 [23.5/33.7]

Table 1

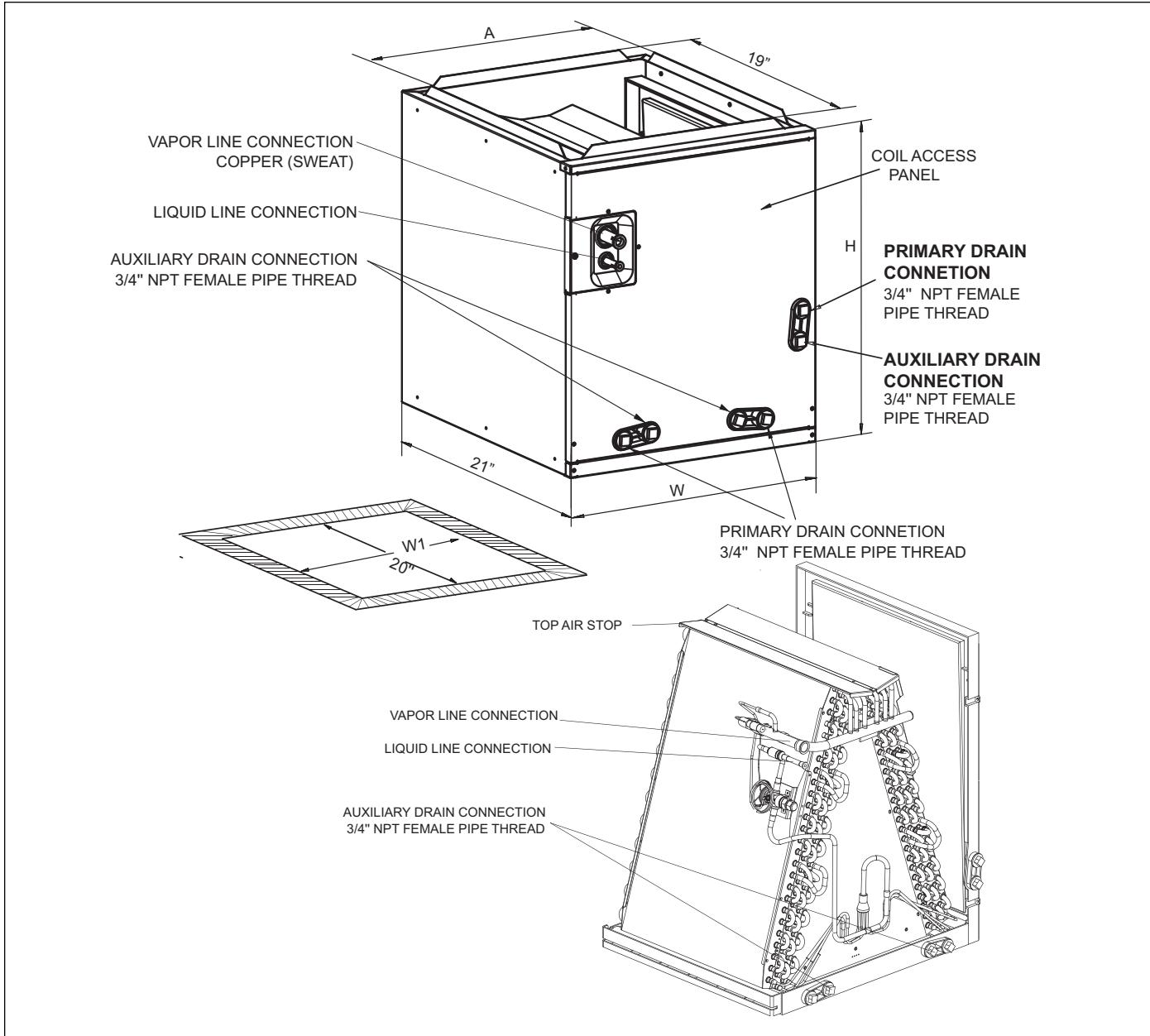


Figure 4

Model	Dimensions inch [mm]					Weight /Shipping (LBS [kg])
	Unit Height "H"	Unit Width "W"	Supply Duct "A"	"W1"	Liquid line /Vapor Line	
BMAC4248BNTF	30 [762]	17½ [445]	16 [407]	16½ [419]	¾ /¾	74.3/93.2 [33.7/42.3]
BMAC4248CNTF	30 [762]	21 [533]	19½ [495]	20 [508]	¾ /¾	74.3/97.8 [33.7/44.4]
BMAC4248DNTF	30 [762]	24½ [622]	23 [584]	23½ [597]	¾ /¾	78/102.9 [35.4/46.7]

Table 2

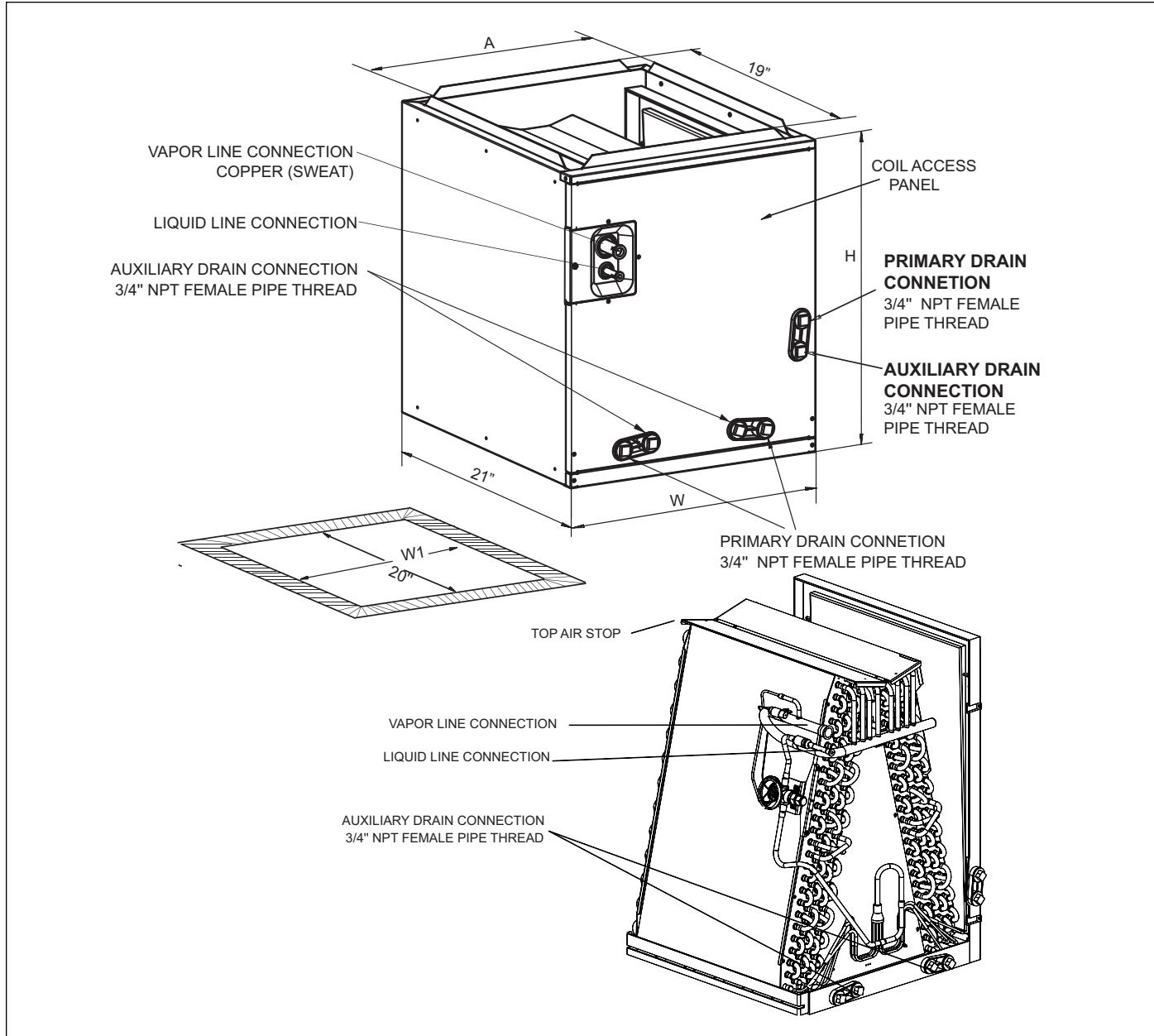


Figure 5

Model	Dimensions inch [mm]					Weight /Shipping (LBS [kg])
	Unit Height "H"	Unit Width "W"	Supply Duct "A"	"W1"	Liquid line /Vapor Line	
BMAC4860CNTF	30 [762]	21 [533]	19½ [495]	20 [508]	¾ /¾	83/106.7 [37.6/48.4]
BMAC4860DNTF	30 [762]	24½ [622]	23 [584]	23½ [597]	¾ /¾	86.4/111.3 [39.2/50.5]

Table 3

### 3 Installation Instructions

#### 3.1 Parts

Contact your distributor for authorized replacement parts.

#### 3.2 Pre-installation instructions

Carefully read all instructions for installation prior to installing product. Make sure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally. Make sure everything needed to install the product is on hand before starting.

#### 3.3 Installation and trap connection

1. See Fig. 6 & 7 for coil installation and drain connection.
2. Installation steps for cased coil:
  - A. Shut off or disconnect gas furnace's power and remove gas pipe if necessary.
  - B. Disconnect and remove a sufficient portion of the supply ductwork to provide clearance for the cased coil.
  - C. Ensure that the coil is level. Seal the gap between coil and furnace.



See Figure 6 & 7. In case that coil and furnace sizes are not matched, use proper size of sheet metal or other material to fill the gap and seal the gap to prevent air leak

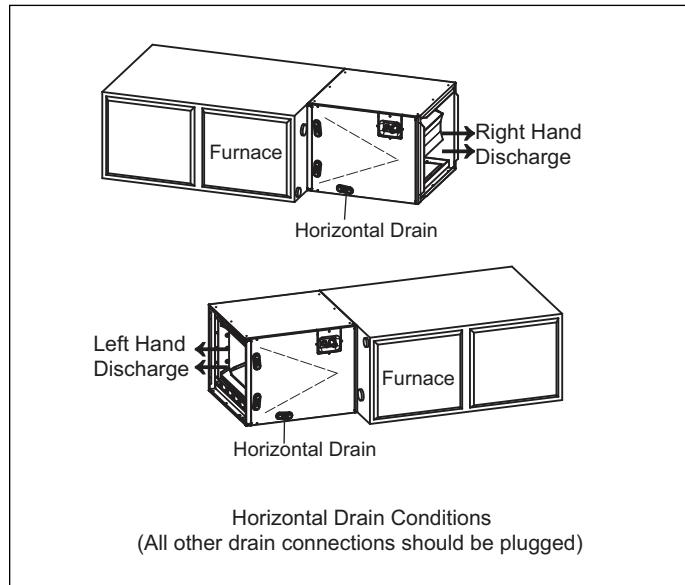


Figure 7

- A. Shut off or disconnect gas furnace's power and remove gas pipe if necessary.
- B. Disconnect and remove a sufficient portion of the supply ductwork to provide clearance for the cased coil.
- C. Ensure that the coil is level. Seal the gap between coil and furnace.
- D. Reconnect the ductwork to the coil case, and seal any leakage.
- E. Reconnect power line on gas furnace, turn on the furnace to check any sign of leakage.

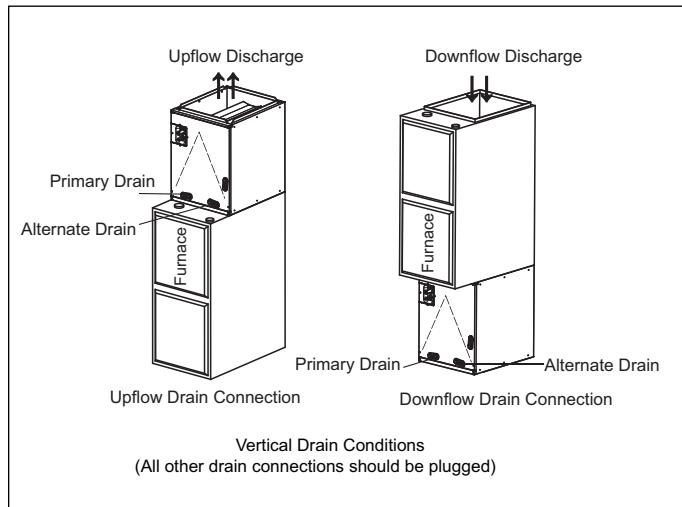


Figure 6

## 4 Drain application

### 4.1 Condensate drain piping

Consult local codes for special requirements.

To provide extra protection from water damage, it is always recommended to install an additional drain pan, provided by installer, under the entire unit with a separate drain line. Manufacturer will not be responsible for any damages due to the failure to follow these recommendations.

### 4.2 Plastic drain pan installation

**WARNING:**

- Do not use the coil pan shipped with the unit on OIL furnaces or any application where the temperature of the drain pan may exceed 275 °F . A field fabricated metal drain pan can also be used for these type of applications. Failure to follow this warning may result in property damage and/or personal injury.

The coil drain pan has a primary and an optional secondary drain with 3/4" NP T female connections; use either PVC or copper pipe and hand tighten to a torque of approximately 37 in-lbs. to prevent damage to the drain pan connection. An insertion depth between .355 to .485 inches (3-5 turns) should be expected at this torque setting.

Use male 3/4" NPT threaded fitting for outside connection and make sure the drain holes are not blocked.

Insulation may be needed for drain line to prevent sweating.

Drain pan has two drain connections on each side to provide flexibility of connection and drainage. Make sure pan has proper pitch and plugged if second connection is not used.

If the secondary drain line is required, run the line separately from the primary drain and terminate it where it can be easily seen.



Water coming from this line means the coil primary drain is plugged and needs clearing.

Install a trap in the drain line below the bottom of the drain pan. If using a copper drain line, solder a short piece of pipe to the connector before installing a drain fitting. DO NOT over torque the 3/4" copper connector to the plastic drain connection. Use a wet rag or heatsink material on the short piece to protect plastic drain pan, complete the drain line installation (Fig.8). Use (Fig.9) as a template for typical drain pipe routing. This figure shows how to avoid interference with vent piping.

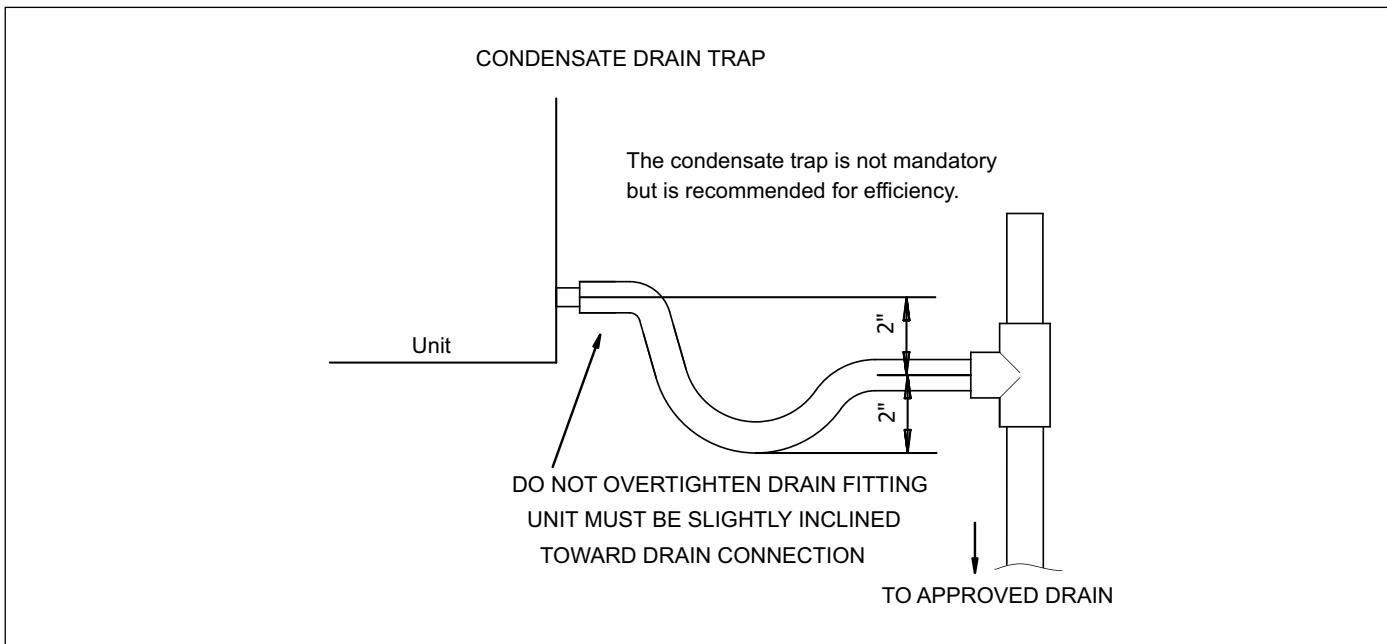


Figure 8

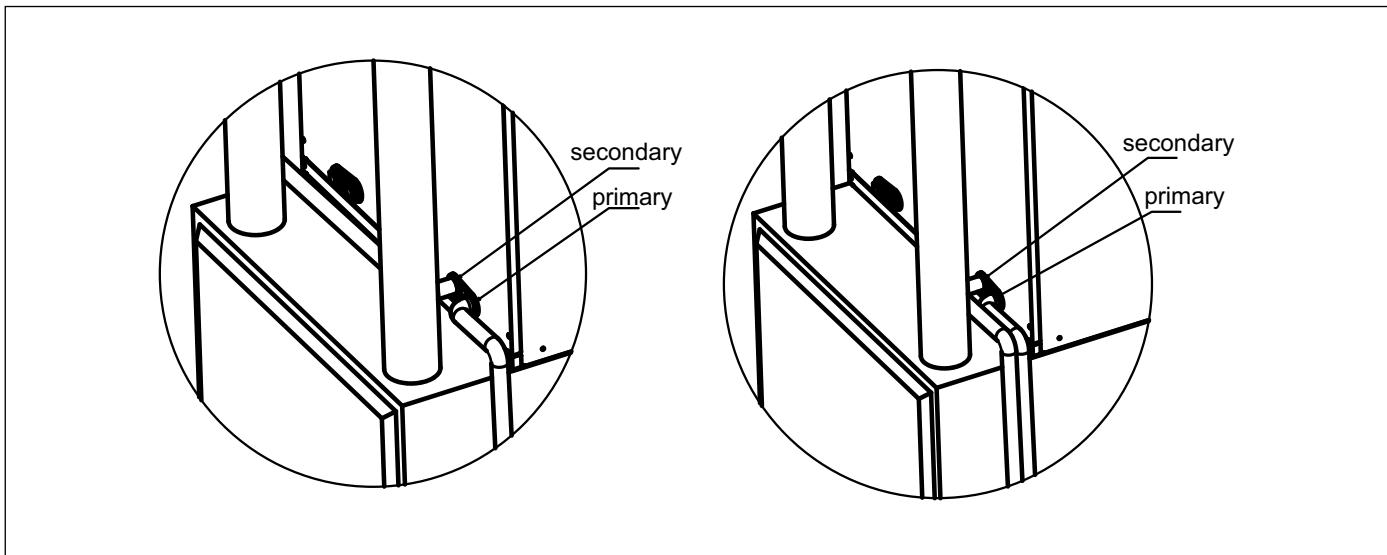


Figure 9

## 5 Refrigerant connections

**NOTICE:**

- Gently remove the sealing plug of vapor line, use one wrench to fix the valve base, loosen the nut with another wrench, take out the flange pad and sealing ring. The nitrogen pressure is about 10 PSIG.

To prevent refrigerant leak, use proper tools to ensure clean, burr-free cut.

**NOTICE:**

- TXV bulb MUST be protected (wrapped with wet rag) or removed, while brazing the tubing. Overheating of the sensing bulb will affect the functional characteristics and performance of the comfort coil.

Use brazing shield when brazing close to the cabinet surface and wet rag to protect rubber grommet. Brazing alloy should be at least 5% silver content.

### 5.1 Airflow performance [CFM vs pressure drop]:

Model	Pressure Drop (Inches of Water)							
	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4
BMAC2430ANTD	307	485	618	729	823	911	991	1063
BMAC2430BNTD	327	527	682	810	925	1024	1122	1217
BMAC2430CNTD	360	585	748	893	1019	1132	1238	1348
BMAC3036ANTD	307	485	618	729	823	911	991	1063
BMAC3036BNTD	327	527	682	810	925	1024	1122	1217
BMAC3036CNTD	360	585	748	893	1019	1132	1238	1348
BMAC4248BNTF	456	638	810	953	1077	1191	1284	1390
BMAC4248CNTF	505	726	932	1098	1244	1375	1494	1604
BMAC4248DNTF	533	857	1105	1319	1509	1675	1824	1956
BMAC4860CNTF	439	699	906	1071	1224	1362	1487	1589
BMAC4860DNTF	466	764	978	1157	1313	1466	1590	1695

Table 2 Pressure drop for cooling and heat pump coils

\*Data based on wet coil with entering air at 80°F DB / 67°F WB without air filter.



Water blow-off could occur in certain installation positions if the airflow setting exceeds the maximum values listed.

Model / Coil	Maximum airflow setting,CFM			
	Upflow	Horizontal Left	Downflow	Horizontal Right
BMAC2430ANTD	1125	1050	1050	1125
BMAC2430BNTD	1125	1050	1050	1125
BMAC2430CNTD	1250	1200	1050	1250
BMAC3036ANTD	1200	1050	1050	1200
BMAC3036BNTD	1250	1200	1050	1250
BMAC3036CNTD	1250	1200	1050	1250
BMAC4248BNTF	1800	1800	1700	1500
BMAC4248CNTF	1800	1800	1700	1700
BMAC4248DNTF	1800	1800	1700	1800
BMAC4860CNTF	1850	1850	1750	1750
BMAC4860DNTF	2000	2000	1850	1850

Table 3

## 6 TXV replacement information



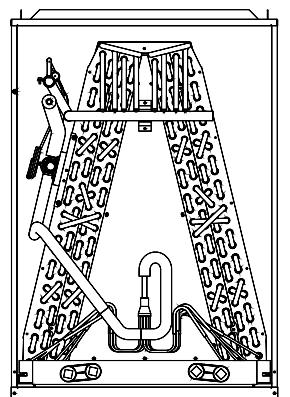
The TXV replacement options noted in this sheet supersede those in the installation guide. Please reference this sheet for all refrigerant metering options.



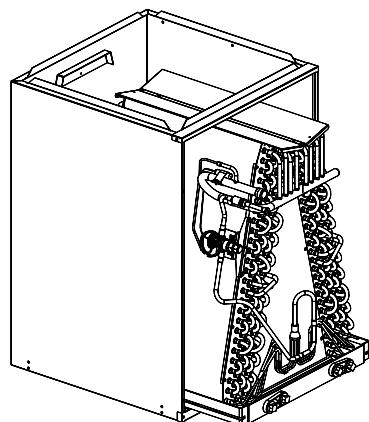
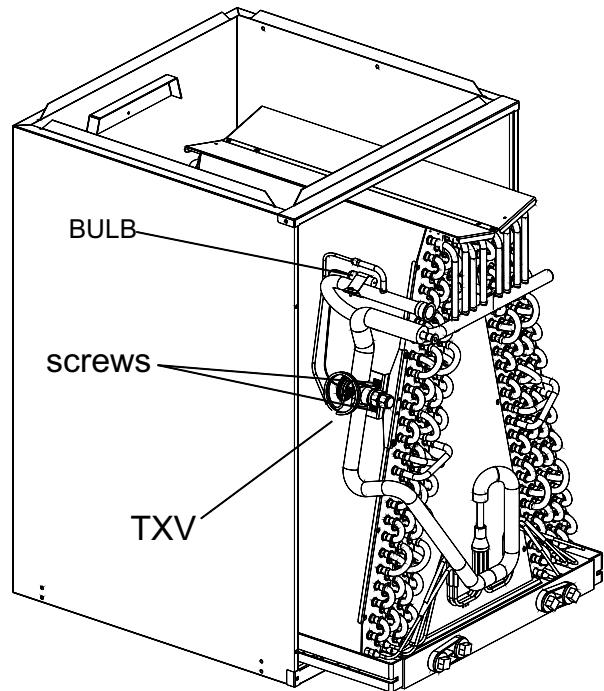
### WARNING:

- Wrap the TXV and coil panel with a wet rag to prevent overheating while brazing; and use a shield plate to prevent the fire and copper pollution.

1. Remove the screws and front coil panel.
2. Remove the rubber plugs from the liquid and vapor lines.
3. Remove relevant ties and pipe insulation.
4. Unwrap and remove the TXV sensing bulb.
5. Remove the equalizer tube from vapor pipe. Wrap the TXV and coil panel with a wet rag to prevent overheating while brazing. Use a shield plate to prevent the copper pollution.
6. Disconnect the input pipe ,Wrap the TXV and coil panel with a wet rag to prevent overheating while brazing,Use a nitrogen flow and braze all connections while brazing. Use a shield plate to prevent the copper pollution.
7. Remove the TXV fixed screws.
8. Replace a new TXV, wrap the TXV with a wet rag or dip into water to prevent overheating while brazing.
9. Allow tubing to cool and pressurize line sets with 150 PSI of nitrogen to check braze connections and flow assembly for leaks. Make repairs as needed.



front view



removed insulation view



Figure 10

10. Dry the TXV.
11. It is recommended to insulate the TXV and liquid line.
12. Connect and secure the TXV to the coil panel. Wrap a wet rag to prevent overheating while brazing. Use a shield plate to prevent the copper pollution.
13. Clean a straight section of the vapor line in original position. Use the straps to secure the TXV sensing bulb on top of the vapor line as picture, about 45 degrees.
14. Insulate the entire vapor line and sensing bulb. It is also recommended to insulate the TXV and liquid line between the valve and coil to prevent condensation in hot humid environments.
15. Replace the front coil panel and secure in place. Follow the steps in the installation guide for vacuum requirements and system start up procedures.
16. Allow system to run for a minimum of 10 minutes in the cooling mode, charge the system to 10 degrees of subcooling. Adjust the expansion valve to achieve 9 ( $\pm 3$  degrees) of superheat.
17. Allow system to run for an additional 10 minutes to verify the subcooling and superheat readings.

#### Expansion Valve (TXV) Spare Parts

Cased Coil Model Number	Spare Parts Material Number - Expansion Valve (TXV)
BMAC2430ANTD	8733948235
BMAC2430BNTD	8733948235
BMAC3036ANTD	8733948235
BMAC3036BNTD	8733948235
BMAC3036CNTD	8733948235
BMAC4248BNTF	8733941929
BMAC4248CNTF	8733941929
BMAC4248DNTF	8733941929
BMAC4860CNTF	8733941932
BMAC4860DNTF	8733941932

Table 4

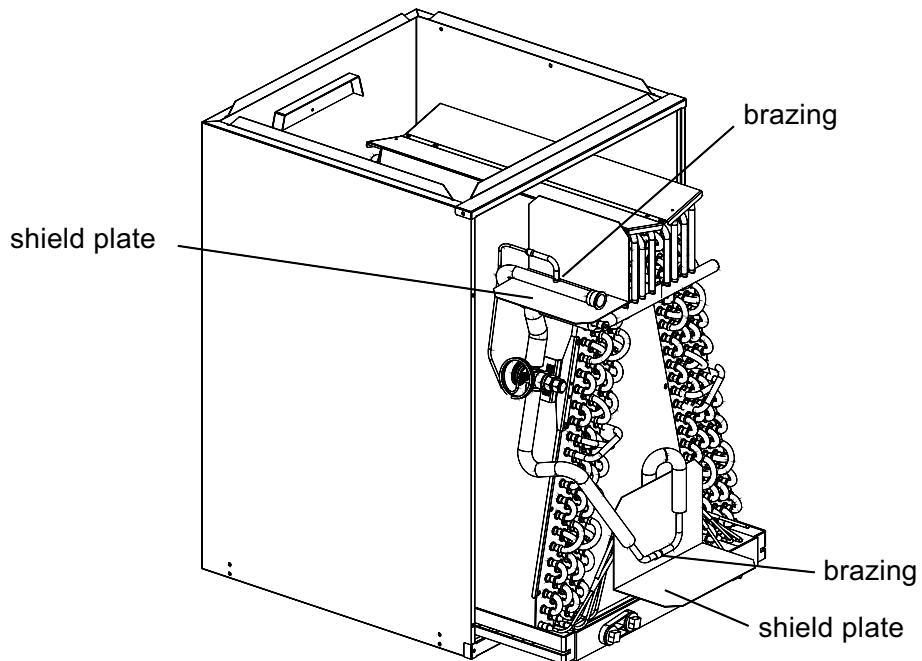


Figure 11

**United States and Canada**

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