



## Installation Instructions

# CMH Series Manufactured Housing Evaporator Coils

### GENERAL

Manufactured housing coils are designed for use with condensing units or heat pump units. These instructions are intended as a general guide and do not supersede local codes in any way. Consult with local authorities having jurisdiction before installation. Installer must comply with all local, state, and federal codes and regulations during installation. **Read this installation manual and all "Warning" statements prior to installing.**

Manufactured housing evaporator coils are designed for pull-through configuration with use with many manufactured housing electric furnaces (down-flow and upflow) and gas furnaces (down-flow).

Check coil for shipping damage and verify the contents of the box containing the evaporator coil. If you should find damage, immediately contact the last carrier. Verify the efficiency or performance requirements, such as SEER, EER, and/or HSPF, are appropriate with the matched condensing or heat pump units. See AHRI ratings directory for more information. Check outdoor unit manufacturer for proper line sizing. **Coils are shipped with a 10 psi dry air holding charge. Puncture rubber plug on suction line to release charge before removing plugs.** The absence of pressure does not verify a leak. Check the coil for leaks before installing or returning it to your wholesaler.

#### Drain Pans

- Drain pans are made of a polymer that can withstand temperatures up to 400 deg. F.
- **Maintain a 3" clearance on drum type heat exchangers and 1½" on sectionalized heat exchangers.**
- Coil should be level, or pitched slightly toward the drain connection.

#### Airflow

- **Airflow face velocity above 350 ft/min is not recommended for downflow applications due to potential water blow-off.**
- Low airflow below 360 CFM per 12,000 BTUH can lead to coil freeze-up problems.
- Improper airflow across the evaporator coil can cause component or system problems.



### SAFETY CONSIDERATIONS

Your safety and the safety of others are very important.

We have provided many important safety messages in this manual and on your appliance. Always read and obey all safety messages.



This is the safety alert symbol.

This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages will follow the safety alert symbol and signal word. These signals words mean the following:

**DANGER:** You can be **killed or seriously injured** if you don't immediately follow instructions.

**WARNING:** Indicate a potentially hazardous situation which, if not avoided, could result in **death or serious injury**.

**CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in **minor or moderate injury**. Caution may also be used to alert against unsafe practices.

**NOTICE:** Indicates a statement of company policy as the message relates directly or indirectly to the safety of personnel or protection of property.

**IMPORTANT:** More detailed information concerning the statement of company policy as the message relates directly or indirectly to the safety of personnel or protection of property.

All safety messages will tell you what the potential hazard is, tell you how to reduce the chance of injury, and tell you what can happen if the instructions are not followed.



# METERING DEVICE

Coils are suited for R-22 and R-410A refrigerants and can be used with or without a TXV. Replacement TXV part numbers are listed below; see kit instructions for change out or installation. Remove sensing bulb from suction line during brazing to prevent damage from occurring. For optimum performance, attach and insulate the bulb at a 10 to 2 o'clock position outside of the cabinet to the main suction line no more than one foot from the suction line connection. If necessary, the bulb can be installed on a vertical suction line. In this instance, the bulb must be placed before any trap, with the bulb's capillary tube facing upward. When changing a system from AC to heat pump or heat pump to AC, check the current TXV specifications to determine if a TXV replacement is required. **If the evaporator coil contains a non-bleed TXV and is used with a condensing unit containing a reciprocating compressor, a hard start mechanism will be required on the outdoor unit.**

For optimum performance, the piston should be sized to match the recommendation from the outdoor unit manufacturer. If the outdoor unit manufacturer does not recommend a piston size, refer to the piston size chart below.

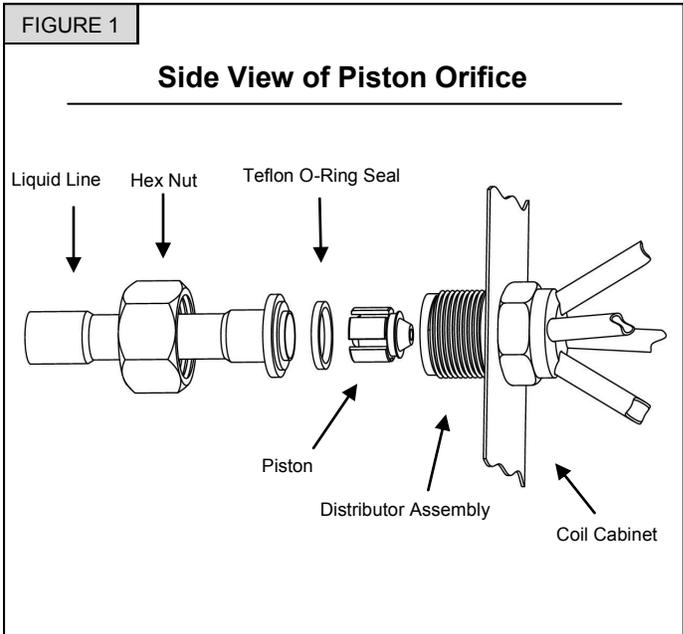
When changing pistons, refer to Figure 1 and use the following procedure:

1. Loosen hex nut located on liquid line and separate from distributor assembly.
2. Remove the existing piston from inside the distributor assembly.
3. Insert the desired piston into the distributor assembly.
4. Inspect Teflon O-ring and replace if damaged. Ensure Teflon O-ring is in place.
5. Re-install hex nut to body and torque to 10 ft-lbs.

! **IMPORTANT** !

When changing the metering device, ensure the metering device matches the refrigerant type and capacity of the condensing unit. Failure to do so will result in poor performance and possible compressor damage. All coils must be matched properly as listed in the AHRI directory.

R-22 TXV Part Numbers	
18-30 MBUTH A/C-HP	H2TXV01
36-48 MBUTH A/C-HP	H2TXV02
60 MBUTH A/C-HP	H2TXV03



R-410A TXV Part Numbers	
18-30 MBUTH A/C-HP	H4TXV01
36-48 MBUTH A/C-HP	H4TXV02
60 MBUTH A/C-HP	H4TXV03

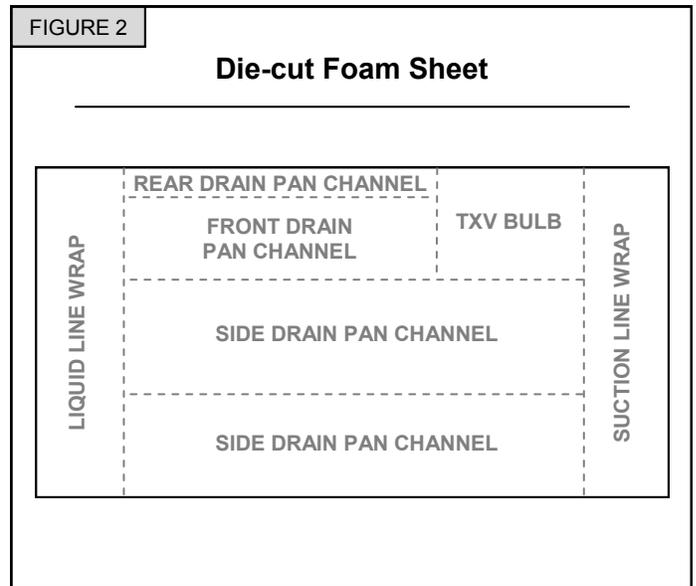
Piston Size				
Ton	R-22		R-410A	
	Piston Size	Part #	Piston Size	Part #
1	41	176799941	41	176799941
1.5	53	176799953	49	176799959
2	59	176799959	53	176799953
2.5	67	176799967	59	176799959
3	73	176799973	67	176799967
3.5	80	176799980	73	176799973
4	84	176799984	76	176799976
5	93	176799993	93	176799993

## BOX CONTENTS

Box Contents:

1. Evaporator Coil
2. Accessory Bag
  - Installation Instructions
  - PVC Elbow
  - Condensate Drain Hose
  - Condensate Hose Clamp
  - Die-cut Foam Sheet (Figure 2)

For best performance, wrap the TXV bulb, liquid and suction lines with enclosed foam pieces. Additional pieces are provided to insulate the drain pan to help prevent condensation, in certain applications.

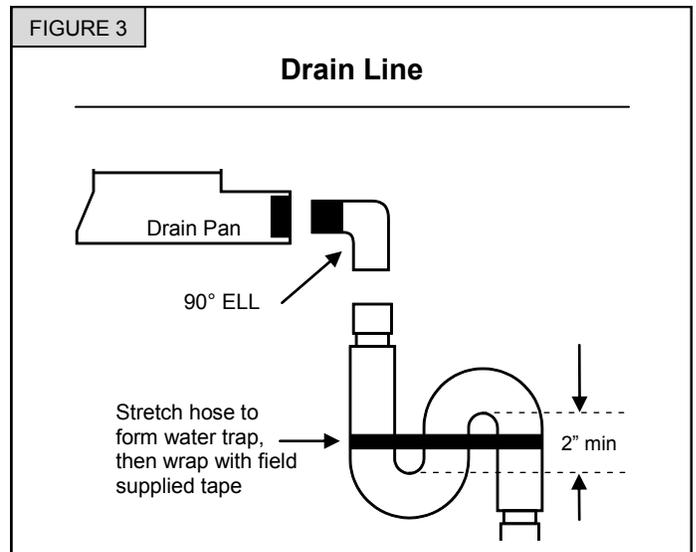


## CONDENSATE DRAIN

Note the difference between the primary and secondary openings. Attach drain line to pan with included 90 degree ELL. Hand tight is adequate—do not over tighten & do not reduce drain line size!

Included drain hose will fit over the PVC fitting and should be secured with included hose clamp; a field supplied PVC fitting can be used if required by code. Route drain line(s) so they will not be exposed to freezing temperatures and do not interfere with accessibility to the coil, air handling system or filter. Stretch hose to form a 2" water trap, then wrap using field supplied tape (Figure 3). Locate trap under home but as close to the coil as possible.

A **WATER TRAP** is required on electric furnace installations, and is recommended for all installations. **Failure to use a water trap can cause improper drainage, leading to a shock hazard or property damage.** Test drain lines with water before running the system.



**IMPORTANT**

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFC's and HFC's). Approved methods of reclaiming must be followed. Fines and/or incarceration may be levied for non-compliance.

## REFRIGERANT LINE INSTALLATION

It is recommended to install a filter drier and sight glass in the liquid line. While brazing, purge the system with Nitrogen to prevent contamination. It is recommended to reattach and insulate the TXV sensing bulb at a 10 to 2 o'clock position on the suction line, outside the coil housing, no more than one foot

from the connection. Evacuate the system to 500 microns to ensure proper air and moisture removal (**Note: Deep evacuation or triple evacuation method recommended**). Open the suction service valve slowly and allow the refrigerant to bleed into the system before opening the liquid service valve.

## REFRIGERANT CHARGING INSTRUCTIONS <sup>1</sup>

When charging in cooling mode, the outdoor temperature should be 60°F or higher. To allow the pressures to stabilize, operate the system a minimum of 15 minutes between adjustments. When adjusting charge to systems with micro-channel outdoor coils, make small (1 ounce or less) adjustments as these systems are very sensitive to refrigerant charge.

**TXV Charging<sup>2, 3, 4</sup>** – Use the charging method recommended by the outdoor unit instructions. Alternatively, it is recommended to charge to 12°F sub-cooling for AC units and 10°F sub-cooling for heat pump units. In addition, if equipped with an adjustable valve, adjust to 10°F superheat.

**Fixed Orifice Charging<sup>2, 3, 4</sup>** – Use the superheat recommended by the outdoor unit instructions. Alternatively, it is recommended to charge to the superheat table below.

Outdoor Air Temp. (°F)	60	65	70	75	80	85	90	95	100	105	110	115
Superheat (°F)	31	28	25	22	20	16	13	10	8	6	5	5

For heat pump units initially charged in the cooling mode, final adjustments to charge in the heating mode are acceptable if

necessary. Some heat pump units require charging in the heating mode. In this case, refer to the outdoor instructions for recommended charging procedures.

If the system is undercharged after the initial charge, add refrigerant until the sight glass is clear and recommended pressures, temperatures, sub-cooling and superheat can be obtained. If the system is overcharged after the initial charge, recover refrigerant until recommended pressures, temperatures, sub-cooling and superheat can be obtained.

### Notes:

1. If any problems or questions regarding charge occur, contact customer service.
2. OEM charging methods vary depending on design and application. Verify all recommended pressures, temperatures, sub-cooling and superheat settings result in the proper charge.
3. Coils may require charge compensation due to size variation versus the OEM coil.
4. Temperatures are  $\pm 2^\circ\text{F}$  unless otherwise recommended.

## INSTALLATION CHECKLIST

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### Downflow:

- <350 ft/min
- Tape top edge of insulation

### Multi-Position:

- Complete additional checklist on page 3

### Horizontal:

- Slope the coil approximately 1/2" toward the drain connections.

### Metering Device:

- Verify and/or install correct TXV or piston

#### ***TXV Installation Only:***

- Place TXV bulb at 10 to 2 o'clock position
- Insulate bulb
- Connect equalizer line

### Charging:

- Charge per charging instructions

### Drains:

- Install and trap primary and secondary condensate drains
- If over a finished space, install secondary drain pan

### Air Path:

- Cover any unused knockouts



## LIMITED EXPRESS WARRANTY - CMH SERIES COILS

Congratulations on purchasing your new HVAC equipment. It has been designed for long life and reliable service, and is backed by one of the strongest warranties in the industry. Your unit automatically qualifies for the warranty coverage listed below, provided you keep your proof of purchase (receipt) for the equipment and meet the warranty conditions.

### LIMITED SIX (6) YEAR PARTS EXPRESS WARRANTY

All parts are warranted to be free from defects in workmanship and materials for normal residential use and maintenance for six (6) years from the date of purchase by the original consumer for the original residential installation, when the coil is installed in an AHRI matched system. Register the product within 60 days of the purchase for the AHRI-matched system warranty.

### EXCEPTIONS

The Limited Express Warranty does not cover normal maintenance—MARS recommends that regular inspection/maintenance be performed according to the Installation/Operation/Maintenance Manual. Additionally, labor charges, transportation charges for replacement parts, replacement of refrigerant or filters, any other service calls/repairs are not covered by this Limited Express Warranty. It also does not cover any portion or component of the system that is not supplied by MARS, regardless of the cause of failure of such portion or component.

### CONDITIONS FOR WARRANTY COVERAGE

- Unit must be operated according to the MARS operating instructions included with the unit and cannot have been subjected to accident, neglect or misuse, alteration, improper repair, or an act of God (such as a flood)
- Installation was done by a trained, licensed or otherwise qualified HVAC dealer/contractor
- Performance has not been impaired by use of any product not authorized by MARS or by any adjustments or adaptations to components
- Serial numbers and/or rating plate have not been altered or removed
- Damage has not been a result of inadequate wiring or voltage conditions, use during brown-out conditions, or circuit interruptions
- Air flow around the unit has not been restricted
- Unit remains in the original residential installation
- Any extended warranty is valid to original purchaser only (non-transferable)
- Owner must supply proof of proper maintenance over the life of the unit
- Unit was not purchased over the internet

### DURATION OF WARRANTY & REGISTRATION

The warranty begins on the date of purchase by the original consumer. The original consumer must register at [www.marsdelivers.com](http://www.marsdelivers.com) within 60 days of purchase. **The original consumer must retain a receipted bill of sale as proof of warranty period. To receive the AHRI-matched system warranty, also retain proof of the AHRI-matched system installation (part numbers, serial numbers, purchase and installation dates).** Without this proof, the warranty begins on date of shipment from the factory.

### REMEDY PROVIDED BY THE LIMITED EXPRESS WARRANTY

The sole remedy under the Limited Warranty is replacement of the defective part. If replacement parts are required within the period of this warranty, MARS replacement parts shall be used; any warranty on the replacement part(s) shall not affect the applicable original unit warranty. Labor to diagnose and replace the defective part is not covered by this Limited Express Warranty. Access to the unit for service is the owner's responsibility. If for any reason the replacement part/product is no longer available during the warranty period, MARS shall have the right to allow a credit in the amount of the current suggested retail price of the part/product instead of providing repair or replacement.

### LIMITATION OF LIABILITY

1. **EXCLUSION OF ALL IMPLIED WARRANTIES AND LIMITATION.** There are no other express or implied warranties. MARS makes no warranty of merchantability. We do not warrant that the unit is suitable for any particular purpose or can be used in buildings or rooms of any particular size or condition except as specifically provided in this document. There are no other warranties, express or implied, which extend beyond the description in this document.
2. All warranties implied by law are limited in duration to the five-year term of the AHRI matched system Parts Warranty. Your exclusive remedy is limited to the replacement of defective parts. **We will not be liable for any consequential or incidental damages caused by any defect in this unit.**
3. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. Some states do not allow limitation on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
4. No warranties are made for units sold outside the continental United States and Canada. Your distributor or final seller may provide a warranty on units sold outside these areas.
5. MARS will not be liable for damages if our performance regarding warranty resolution is delayed by events beyond our control including accident, alteration, abuse, war, government restrictions, strikes, fire, flood, or other acts of God.

*Please follow the below steps to register your product.*

- Please log onto our website [www.marsdelivers.com](http://www.marsdelivers.com)
- Resources
- Product Registration
- Complete the requested information in all caps especially the Email Address
- Press the "Continue" button at the bottom
- A copy of the registration will be sent to the email address that you entered at the top of the page for your records

### KEEP THIS INFORMATION AS A RECORD OF YOUR PURCHASE

Apply Serial Number and Model Number sticker here (from product carton). if unavailable, write serial number and model number below (can be found on unit rating plate).

\_\_\_\_\_  
Date of Purchase

\_\_\_\_\_  
Date Installation Completed

Component of new HVAC system       Replacement furnace only

Remember to retain your bill of sale as proof of warranty period and ownership.

