



JJM Boiler Works, Inc.

# CBM Series Installation Operation & Maintenance

**Model: CBM-225**

Acidic Condensate Waste Water pH Treatment Tube





# Overview

## Read before proceeding



Failure to comply with these guidelines could result in severe personal injury, death or substantial property damage.

## Neutralizer and lines must be wet

- **Before operating the boiler, hot water heater or furnace, fill the CBM tube and traps with tap water. NEVER operate with tubes or P-traps dry.**



Never allow children or animals access the pH power pellets (white magnesium hydroxide pellets), they are not for human or animal consumption.

## Application restrictions

- Condensing boilers, hot water heaters or furnaces, and flue pipe condensate drains.
- DO NOT exhaust flue gases through CBM tubes, they are not rated for boiler or furnace flue gases. Operating CBM tubes as exhaust vents can cause injury or death from carbon monoxide.
- Gas traps must be installed between the boiler, vent drains, and furnace condensate outlet and the inlet of all CBM tubes.
- CBM tubes must be installed below system P-traps, boiler, furnace, and breeching condensate drains.
- The use of Ferris and Copper piping on the neutralizer inlet or out is not permitted. The use of CPVC, PVC, PP Tubing, and Stainless Steel piping is the only material that shall be used.

## Combined piping options

### Flue pipe condensate drains / CBM-225

- Boiler/furnace condensate drain and flue condensate drain can be common piped to a neutralizer tube ONLY if the boiler/furnace is individually vented (NOT connected to a common vent system). Also, the flue pipe must be terminated so rain water cannot enter the flue pipe.
- DO NOT connect any flue pipe condensate line to a neutralizer tube that serves more than one boiler.

### Boiler/furnace condensate line common piping

- DO NOT combine vent condensate drain lines and boiler/furnace condensate lines if appliances are common vented. Use a separate CBM-series tube for each application. For individually-vented appliances, vent and condensate drain lines can be combined. Common vent drains can be piped together into one neutralizer. Sizing is 33% of total connected BTU inputs.

## Recharge tubes regularly

- Tubes must be replaced when the pH level at the outlet falls below 5.0.
- At minimum tubes must be replaced at least once a year.
- Installer should check the pH level when the unit is first started and make the end user aware of recharge requirements.

## What is pH?

The pH measurement of a fluid is an indicator of the acidity or alkalinity. Neutral fluids have pH of 7.0. Acid fluids have pH below 7. And alkaline fluids have pH above 7 (up to 14). The pH can be easily measured using a digital pocket pH probe.

Condensate pH from condensing boilers and furnaces is typically around 3.2 - 4.0. The condensate pH needs to be increased (made more neutral) to prevent possible damage to cast iron soil pipe, ABS pipe, septic tanks, plants, wastewater treatment plants and other materials handling waste water.

## CBM-series condensate pH treatment tubes increase pH (reduce acidity).

CBM-series residential/commercial flue-side condensate neutralizing tubes & tanks are designed to raise the pH level of the condensate discharged by high-efficiency boilers and warm air furnaces and hot water heaters.

Each increase of 1.0 in pH is a 10-times decrease in acidity. The pH of condensate is increased by approximately 1.0 to 3.0 after passing through neutralizing tubes.

## Applying CBM-series neutralizing tubes

Condensate can be collected from flueways and boiler/furnace condensate trap outlets. See WARNING section at left for guidelines on application.

Match neutralizing tubes to boiler/furnace ratings.

Locate the neutralizing tube below the condensate connection and slightly above the floor drain or inlet to a condensate pump reservoir (if used).

Follow the guidelines in this manual, the boiler/furnace manual and all applicable local codes when installing, using and maintaining CBM-series condensate neutralizing tubes.

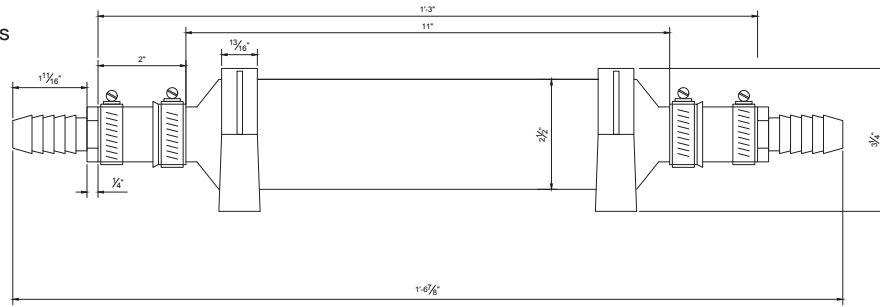
## Installation sequence

1. Before installing boiler or furnace, determine if a mounting pad will be needed to elevate the boiler or furnace so that the condensate connection will be above bottom of the CBM tube OUTLET. See Figure 2 or Figure 3. Provide a mounting pad for the CBM tube if needed to obtain the proper elevation relative to a condensate pump reservoir (when used — see Figure 3).
2. Mount the CBM-225 in a horizontal position only, vertical mounting is not permitted. Mount the plastic clamps to the floor, wall, or the side of the appliance jacket making sure not to damage any appliance components. Leave the RED plugs in the tube until the mount is complete by snapping the tube into the mounting brackets, once the tube is in place remove the red plugs and pipe the pH treatment tube according to good piping practices.
3. Connect PVC piping from appliance or breaching drains to P-traps and then from P-trap outlets to either one of the two CBM tube inlets.
4. Connect the CBM tube outlet to house drain or condensate pump.
5. Use Teflon tape on all threaded plastic fittings.
6. **NOTE** — Always consult the local authority regarding any requirements concerning flue gas condensate handling codes.

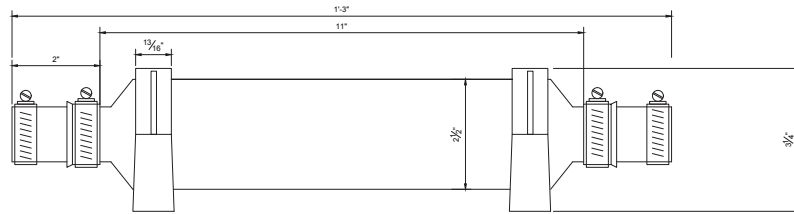


# Installation

**Figure 1** Features and dimensions



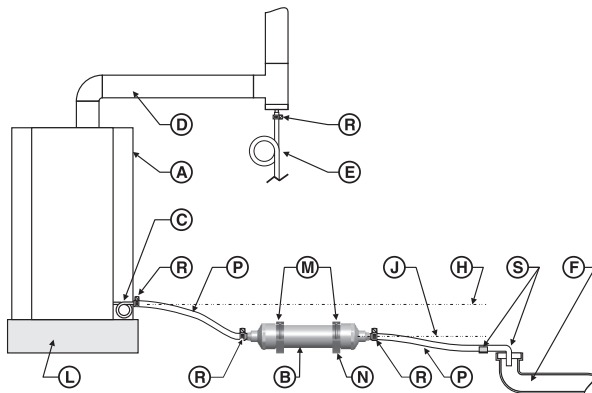
**Figure 2**  
CBM-225 WITH DIRECT  
SCH40 COUPLING CONNECTIONS



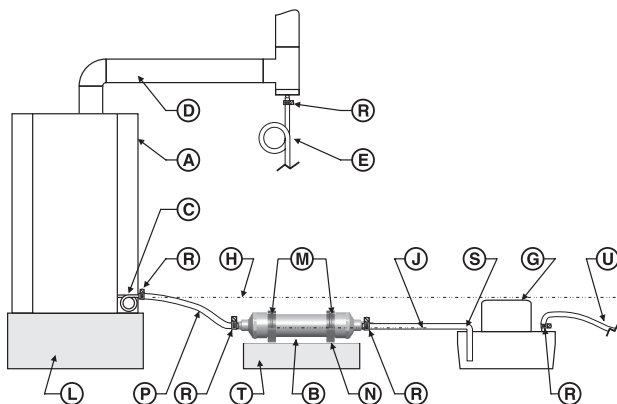
RATINGS & DIMENSIONS (in inches)								
Model	MBH	GPH	A	B	C	D	E	F
CBM-225	225	1.70	0	0	0	0	0	0

1	PVC tubing filled with pH Power Pellets™
2	Clamp-on support brackets
3	Condensate hose barb fitting
4	Direct Sch40 Pipe Connections
5	Poly Coupling
6	SS Clamps

**Figure 3** CBM-series tube with floor drain, typical



**Figure 4** CBM-series tube with condensate pump, typical



- A Condensing boiler, hot water heater or furnace
- B condensate neutralizing tube (or multiple tubes piped in parallel)
- C Boiler/furnace condensate trap connection
- D Boiler/furnace vent
- E Vent condensate trap, when used — Install a trap as shown. Connect the tubing to a separate CBM tube if appliances are common vented. For individually-vented appliances, the vent condensate drain can be connected to the appliance condensate drain line.
- F Drain or sump
- G Condensate pump
- H Bottom of boiler/furnace condensate outlet — MUST be ABOVE condensate pump inlet connection
- J Bottom of CBM tube condensate outlet
- L Mounting pad or structural platform, when required to elevate boiler condensate drain as needed
- M Mounting clamps
- N Mounting clamps must be secured to the mounting surface
- P Plastic tubing or PVC pipe — When using PVC pipe, remove the CBM inlet and outlet hose barb fittings and replace with threaded PVC fittings. Include unions in the piping to allow removal of the CBM tube for inspection and service. — Secure pipe or tubing in place. — Protect with a shield if necessary if routed through traffic areas.
- R Use hose clamps at all connections when using plastic tubing.
- S Condensate drain termination at floor drain (or condensate pump reservoir inlet) — secure in place with clamps. — Follow instructions for condensate pump.
- T Elevate the CBM tube on a structural base if necessary for the outlet to be raised.
- U Route condensate discharge line from to appropriate drain location.



# Installation *(continued)*

**Piping Options** - Make sure the installation complies with all local code requirements.

## Piping for multiple boilers/furnaces/vent

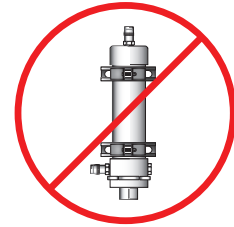
Follow the guidelines on page 2, do not connect a flue pipe with multiple boilers or furnaces.

As stated on page 2, do not connect a flue pipe condensate line to the to the same neutralizer as used for a boiler/furnace unless the boiler/furnace is individually vented, the vent will not allow rain water to enter the flue pipe, and no other appliance is connected to the same neutralizer tube.

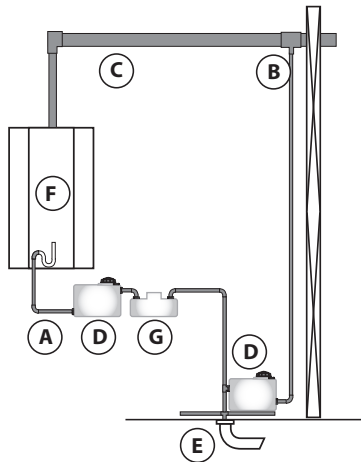
**Figure 5**

Never install the CBM in a vertical position as show in Figure 5.

**Do Not Mount  
The PH Treatment Tube  
in Vertical Position**



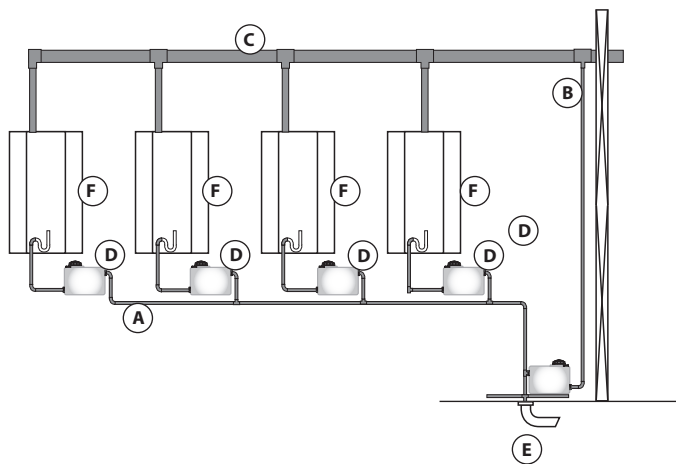
**Figure 6** Piping for Single Heating Unit with Condensate Pump



- A Boilers / Hot Water Heaters / Furnace Condensate Drains
- B Flue Drain
- C Common Flue Vent
- D pH Treatment Tube or Tank
- E House Drain
- F Boilers / Hot Water Heaters / Furnaces
- G Condensate Drain

**Note:** Contact Factory for pH Treatment Tube and Tank Sizing and Pipe Sizing.

**Figure 7** Piping for Single Heating Unit with Common pH Treatment Tube or Tank



- A Boilers / Hot Water Heaters / Furnace Condensate Drains
- B Flue Drain
- C Common Flue Vent
- D pH Treatment Tube or Tank
- E House Drain
- F Boilers / Hot Water Heaters / Furnaces

**Note:** Contact Factory for pH Treatment Tube and Tank Sizing and Pipe Sizing.

**WARNING**

**OUTDOOR INSTALLATIONS** — provide and install electric heat tape on the condensate drain lines and around the CBM tube to prevent possibility of neutralizer tube damage or line blockage due to freezing. Failure to comply with the following guidelines could result in severe personal injury, death or substantial property damage.



## Replacement Instructions

1. Use protective rubber or plastic gloves and eye protection.
2. The neutralizer tube must be changed on a yearly basis minimum for heating systems and domestic hot water systems or if pH at the outlet falls below 5.0pH.
3. Remove electrical power from the hot water heater, boiler or furnace.
4. Remove inlet and outlet piping and fittings from pH treatment tube.
5. Using a flat head screw driver carefully pry open the plastic brackets at the top where they connect together.
6. Remove tube from the plastic mounting brackets.
7. Remove either the barb or PVC fittings for reuse.
8. Clean “P” traps and drain piping.
9. Use old fittings and connect to the new neutralizing tube. Remount the tube by pressing the tube into the mounting brackets using a little force which will snap the brackets arms in place. Reconnect piping and fittings. Be sure there are no leaks.
10. Insure that condensate can flow without any blockage.
11. Dispose of the used tube properly and obey local disposal codes.
12. SDS sheet can be found on our website.

## Maintenance

### Inspect frequently

Installer — Instruct the building owner to frequently inspect the CBM neutralizer and all condensate connections. The owner must notify a qualified technician if any problems are noticed.

### Recharge as required

When pH tube or tank outlet falls below 5PH. Local codes may have different requirement, check with local authority.

### Replacement parts

Contact your local wholesaler or manufacturer's representative for replacement parts.

Dealer listing at [www.jjmboilerworks.com](http://www.jjmboilerworks.com)