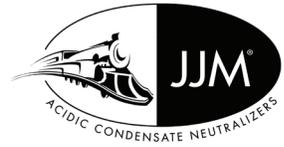


NB Series Installation Operation & Maintenance

Models: NBT-610, NBT-230

Acidic Waste Water Condensate pH Treatment Tank





Overview

Read before proceeding

WARNING

Always use eye protection and plastic or rubber gloves when installing, recharging, adding water, or cleaning the NBT-610 & 230 tanks.

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

Keep pH Power Pellets® and power pellet bags out of the reach of children and animals. pH Power Pellets® (magnesium Hydroxide) are NOT food grade and should not be consumed by humans or animals.

Always return the clear cover lockdown bolts and nuts in place and tighten for child safety.

DO NOT exhaust flue gases through tanks, they are not rated for boiler or furnace flue gases. Operating NBT tanks 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 NBT tanks.

Neutralizer and lines must be wet

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

Application restrictions

- Condensing boilers, hot water heaters or furnaces, and flue pipe condensate drains.
- NBT-610 & NBT-230 tanks 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 / NBT tanks

- Condensate drain piping options / Flue Drain, Boiler Drain, Furnace Drain, Hot Water Heater Drains: See Figures 1,2,3,4,5,6, and 7.
- If using a separate NBT-610 & 230 tank for a common flue pipe drain the tank should be rated at 33.3% of the total gross BTU of all units attached to the common vent.

Replacement of the NBT-610 & NBT-230 pH Power Pellet® Media Bags

- The media bags should be replaced when pH level at the NBT-610 & NBT-230 outlet level falls below 5.0.
- At a minimum the media bags must be changed once a year.
- Use only JJM pH Power Pellet® media bags. DO NOT USE LIMESTONE OR MARBLE CHIPS.

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 wastewater.

NBT-610 & NBT-230 condensate pH treatment tanks increase pH (reduce acidity).

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

Applying NBT-610 & NBT-230 neutralizing tanks

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

Match neutralizing tank to boiler, hot water heater and furnace gross BTU input ratings.

Do not install a condensate pump unit before the NBT tanks inlet; a condensate pump can only be installed at the outlet of a NBT tank.

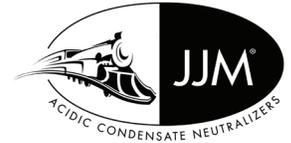
Locate the neutralizing tank outlet port below the condensate connection and slightly above the floor drain or inlet to a condensate pump reservoir (if used).

Follow the guidelines in this manual, the boiler/furnace manual and all applicable local codes when installing, using and maintaining NBT tanks condensate neutralizing tank.

WARNING

Keep pH Power Pellets® and power pellet bags out of the reach of children and animals. pH Power Pellets® (magnesium Hydroxide) are NOT food grade and should not be consumed by humans or animals.

Always return the clear cover lockdown bolts and nuts in place and tighten for child safety.



Installation

1. Remove all bolts and nuts from the clear cover.
2. Remove shipping bubble wrap and safely discard.
3. Remove “Date of installation label” and the “red warranty tag”.
4. Remove the pH Power Pellet® bags.
5. Remove porous pellet bags from plastic shipping bags before placing in the NBT tank.

Floor mounting units:

1. Place the NBT tank in a location where it will not be a foot traffic hazard.
2. Use clamps on inlet & outlet piping.

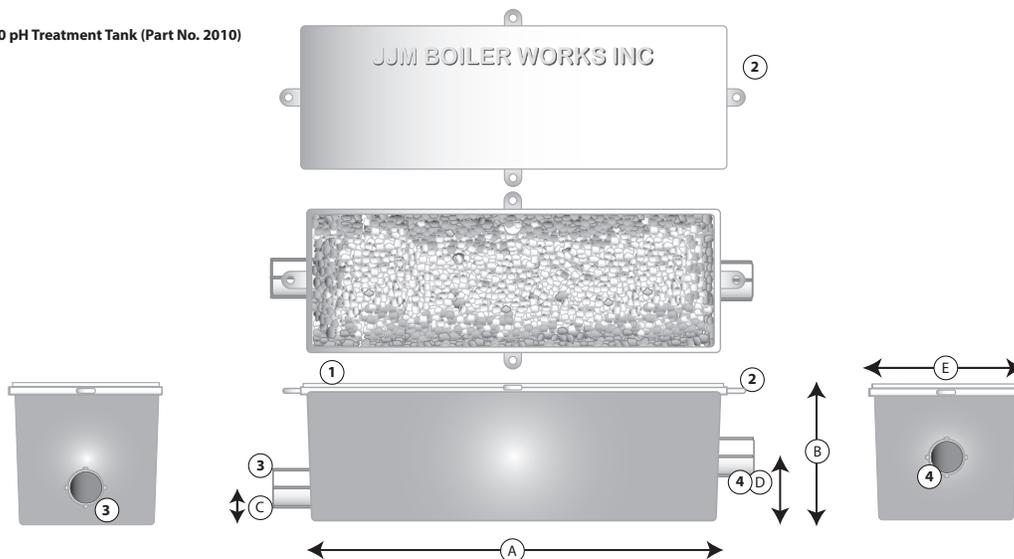
Operational Flow:

1. Once the heating unit is fired and acidic condensate is produced the condensate will flow from the heater condensate drain down into the NBT tank's inlet port. The acidic condensate enters the bottom chamber of the tank below the flow baffle. The acid will now flow up through the baffle ports via gravity and slight head pressure at which point it comes in contact with the Magnesium Hydroxide Pellet bag (pH Power Pellets®). A chemical reaction now takes place in which ions from the acid and pellets are exchanged raising the pH level of the acid in the range of 5.0 to 9.0 pH. In this ranged the condensate can be safely be put to a waste drain via the NBT's outlet port and piping.

Installation

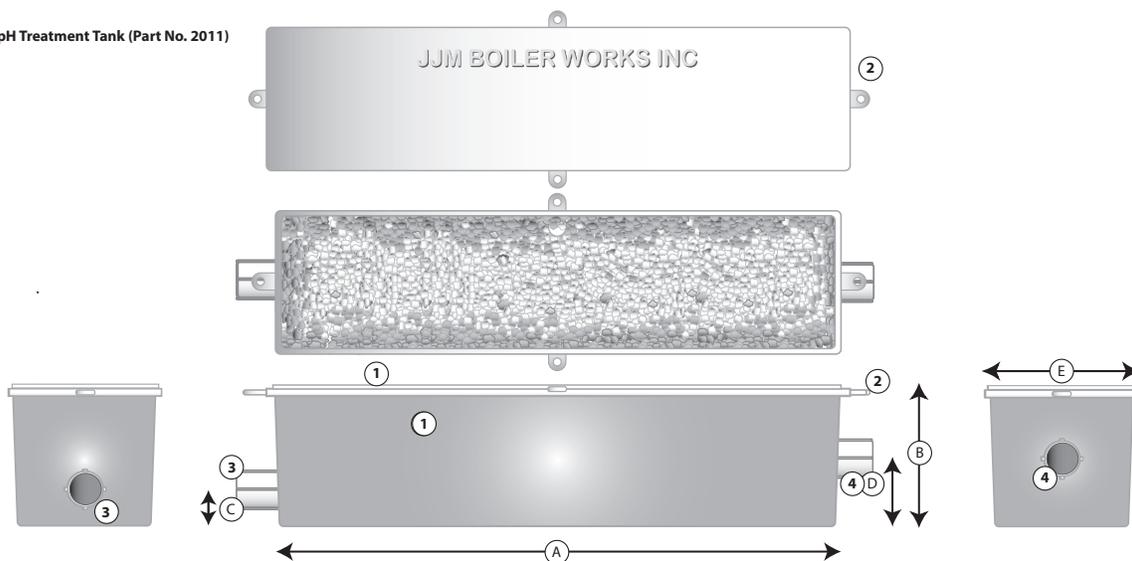
Figure 1 & 2 NBT-610 & NBT-230 pH Treatment Tank – features and dimensions

NBT-610 pH Treatment Tank (Part No. 2010)



NBT-610 pH Treatment Tank Ratings & Dimensions (in inches)							Active Ingredient/pH Power Pellets™ by JJM Boiler Works, Inc.	
MBH	Flow Rating	A	B	C	D	E	3	4
1500 Max	11 GPH Max	18.25"	6.75"	7/8"	3.5"	6.50"	INLET	OUTLET Port Size/PVC - 3/4" Socket (EDPM Flat Gasket)
1	Tank - Corrosion-resistant polypropylene						3C	4D
2	Cover plate - clear polycarbonate (8-32 x 1/2" Screw/ 8-32 Nut)						INLET 7/8" From Base to Center Outlet 3 3/4" Base to Center	

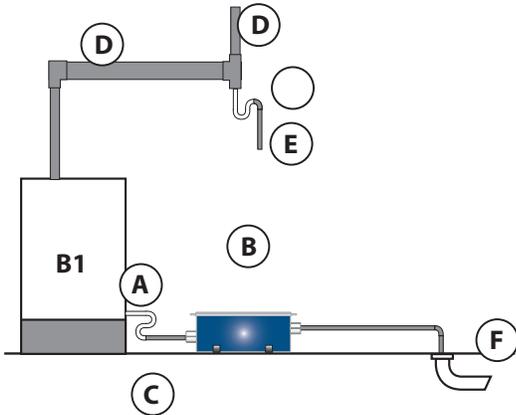
NBT-230 pH Treatment Tank (Part No. 2011)



NBT-230 pH Treatment Tank Ratings & Dimensions (in inches)							Active Ingredient/pH Power Pellets™ by JJM Boiler Works, Inc.	
MBH	Flow Rating	A	B	C	D	E	3	4
3500 Max	26.0 GPH Max	23.25"	6.75"	7/8"	3.5"	6.50"	INLET	OUTLET Port Size/PVC - 3/4" Socket (EDPM Flat Gasket)
1	Tank - Corrosion-resistant polypropylene						3C	4D
2	Cover plate - clear polycarbonate (8-32 x 1/2" Screw/ 8-32 Nut)						INLET 7/8" From Base to Center Outlet 3 1/2" Base to Center	

Installation

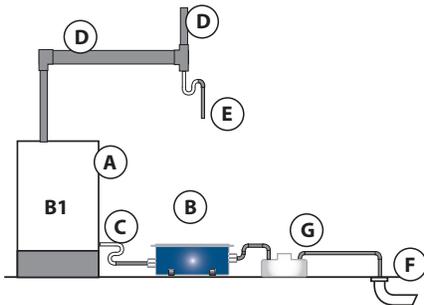
Figure 3 NBT-610 & NBT-230 pH Treatment Tank/Single Unit



- A Boilers / Hot Water Heaters / Furnace Condensate Drains
- B NBT pH Treatment Tank
- C Trap
- D Flue Pipe
- E Trap
- F Floor Drain

Note: Contact Factory for pH Treatment Tank and Piping Size

Figure 4 NBT-610 & NBT-230 pH Treatment Tank Single Unit - Condensate Pump



- A Boilers / Hot Water Heaters / Furnace Condensate Drains
- B NBT pH Treatment Tank
- C Trap
- D Flue Pipe
- E Trap
- F Floor Drain
- G Condensate Pump

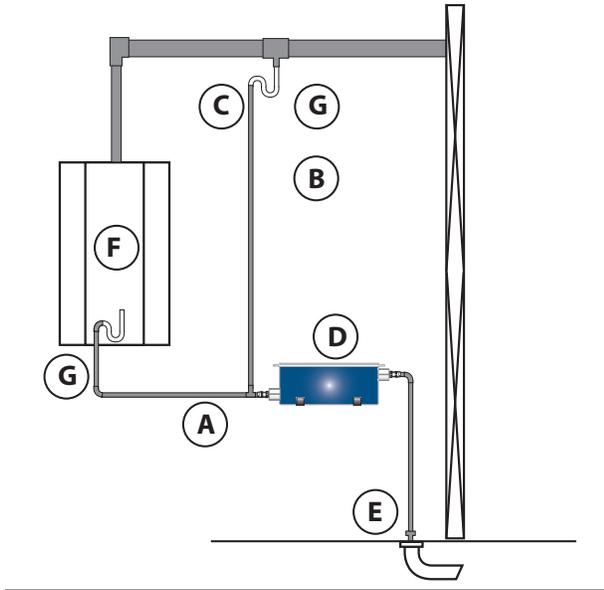
Note: Contact Factory for pH Treatment Tank and Piping Size

Piping Methods

WARNING

Do not install the NBT tanks in a vertical position. Only mount in a horizontal position on the floor.

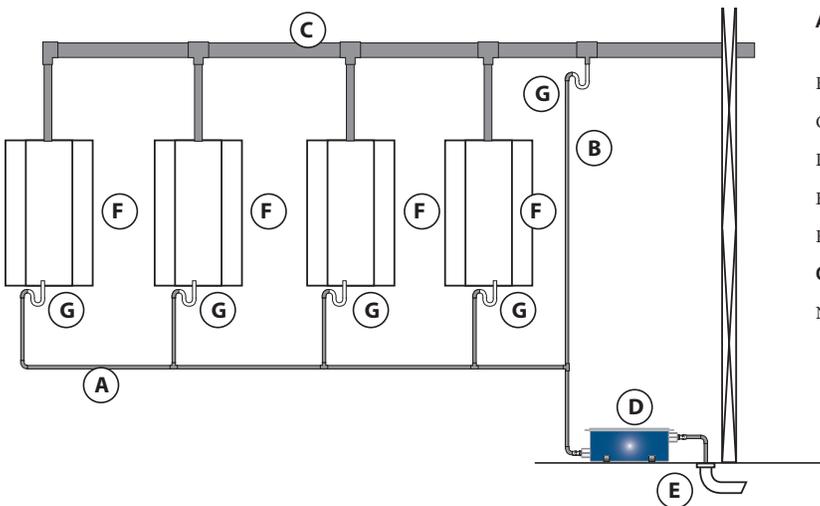
Figure 5 Piping for Single Heating Unit with Common NBT pH Treatment Tanks and Flue Drain Connection



- A Boilers / Hot Water Heaters / Furnace Condensate Drains
- B Flue Drain/Trapped
- C Single Flue Vent
- D NBT pH Treatment Tank
- E House Drain
- F Boilers / Hot Water Heaters / Furnaces
- G Gas/Water Trap

Note: Contact Factory for pH Treatment Tank and Piping Size

Figure 6 Piping Multiple Heating Units/Single NBT pH Treatment Kit / Common Vent Piping / Common Condensate Drain



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

Note: Contact Factory for pH Treatment Tank and Piping Size

Piping Methods

Figure 7 Piping for Multiple Heating Units with Common NBT pH Treatment Tanks. Common Flue Vent with Separate NBT pH Treatment Tank.

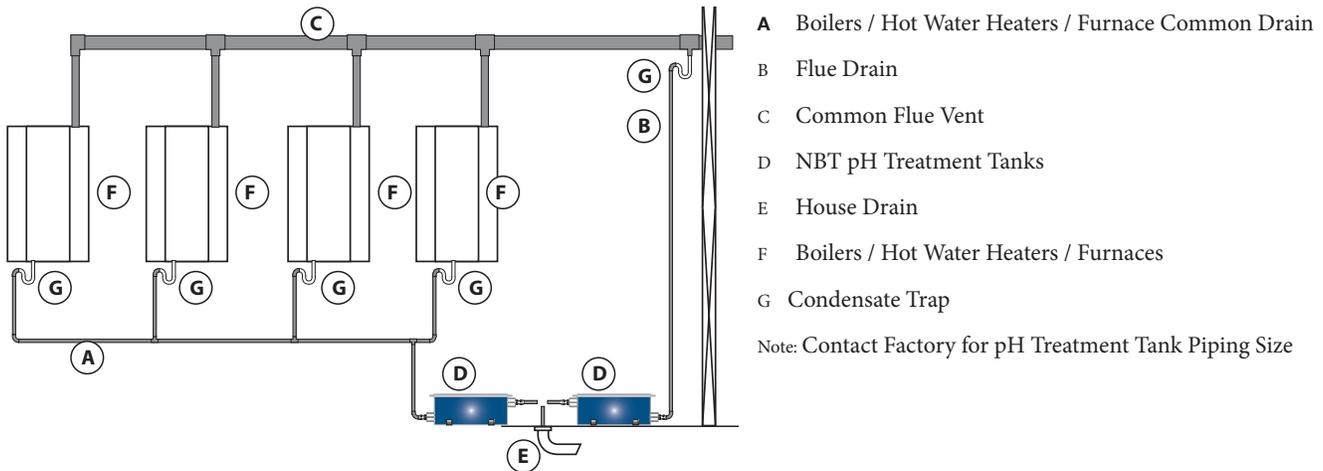
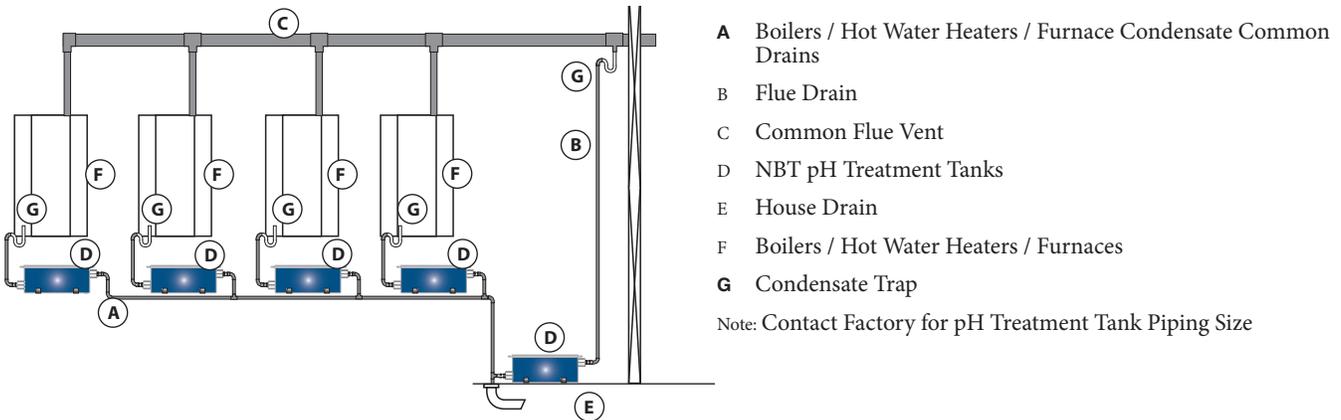


Figure 8 Piping for Multiple Heating Units / Single pH Treatment Kit / Common Vent Piping / Common Condensate Drain



WARNING

OUTDOOR INSTALLATIONS — provide and install electric heat tape provide and install electric heat tape and insulation on the condensate drain lines and around the NBT tanks 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.



Maintenance

Inspect frequently

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

Environmentally Friendly

The pH Power Pellets® (Magnesium Hydroxide) pellets are NON-Hazardous to the environment and can be disposed of as normal refuse. Do not allow children or animals to consume pH power pellets as they are not meant as a neutralizer for human or animal consumption.

Important

Remove porous pellet bag from plastic shipping bag before placing in the NBT tanks.

MSDS and SDS sheets are included with the NBT tanks or can be found on the JJM Boiler Works, Inc. website @ www.jjmboilerworks.com

Recharge as required

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

At least at a minimum once a year.

Cleaning

The baffle at the bottom of the NBT tanks should be lifted out every three years during re-charging for cleaning of the tank bottom. This should be done by a trained technician.

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

Dealer listing at www.jjmboilerworks.com



Maintenance Procedures

Getting the most out of your JJM® Neutralizer

Acidic wastewater neutralizers like all filtering devices need both maintenance and replacing. The average pH level of acidic wastewater produced by today's condensing boilers, hot water heaters, furnaces, flue stack drains, and stack economizers is 3.2pH. When using a passive Inline Tube, Tank, or Canister the range of pH modification will fall in between 5.0 and 9.5 pH.

When the pH falls below 5.0 at the outlet port of any neutralizer the active ingredient must be replaced. **Media replacement schedule will depend on several factors including Operating Hours, Efficiency, System Design, and Neutralizer Piping Scheme.** The active ingredient in the case of JJM® products is Magnesium Hydroxide Pellets. The trade name is pH Power Pellets®.

Before changing the pellets when the pH level falls below 5.0 you can get the most out of your neutralizer by first agitating the pellets. In the case of an **inline tube products** try lightly tapping the outer sides of the tube with a rubber mallet several times and then check the pH level once again at the outlet port. You may find that your pH level has risen back into the 5.0 to 9.5pH range.

When your **neutralizer is a tank product with loose pellets** you can simply use a wooded dowel to stir the pellets and again use fresh tap water to flush out the tank.

If your **neutralizer pellets are incased in a porous pellet bag** there are three methods to agitating the pellets:

1. Remove the pellet bag or bags from the tank and using your hands move the pellets around inside the bags.
2. Using a five gallon bucket filled with fresh tap water, use step one with the bag under water.
3. Using a fresh water hose slowly pour fresh water over both sides of the pellet bag and also use method one.

If the pH level is has not risen back into the safe range of 5.0 to 9.5 pH the pellets must be replaced.

If you have our **Model V-250 or V-250 Combi vertical canisters** try the following method:

1. Twist off the outer canister to get access to the inner pellet cartridge and over a five gallon pail shake the Cartridge several times to agitate the pellets.
2. Again using a five gallon pail filled with fresh tap water let the cartridge soak for five minutes under water and then drain and hand shake the cartridge to agitate the pellets. Also clean out any sediment which may be held within the outer canister.

DURING ALL OF THE ABOVE PROCEDURES THE FOLLOWING SAFETY ITEMS MUST BE USED:

- 1. WEAR SAFETY GLASSES**
- 2. WEAR RUBBER OR LATEX PROTECTIVE GLOVES**
- 3. SHUT OFF ALL ELECTRICAL POWER TO THE HEATING UNIT OR UNITS BEFORE SERVICING YOUR NEUTRALIZERS.**

The pellets are **Non-Hazardous** and can be disposed of in your normal refuge.

MSDS sheets can be found online at www.jjmboilerworks.com.

Any questions can be directed to JJM Boiler Works, Inc. at

413-527-1893 or at www.jjmboilerworks.com

George Carney, President, JJM Boiler Works, Inc.