



JJM Boiler Works, Inc.

pH Neutralizing Tubes, Tanks, and Canisters

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 with push pins 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 Bag

- The media bag should be replaced when pH level at the NBT-610 & NBT-230 outlet level falls below 5.0.
- At a minimum the media bag must be changed once a year.
- Use only JJM pH Power Pellet media bags. DO NOTE 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 four push pins 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™ bag.
5. Remove porous pellet bag from plastic shipping bag before placing in the NBT tank.
6. Place porous pellet bag on top of black orifice baffle. Spread out the pellet bag evenly across the baffle.
7. Be sure to fill the NBT tank with fresh tap water to the level of the outlet port once piped.
8. Return clear cover and push pins and securely close cover before putting the NBT tank into operation.

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 ABS flow baffle. The acid will now flow up through the ABS 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 NBT-610 pH Treatment Tank – features and dimensions

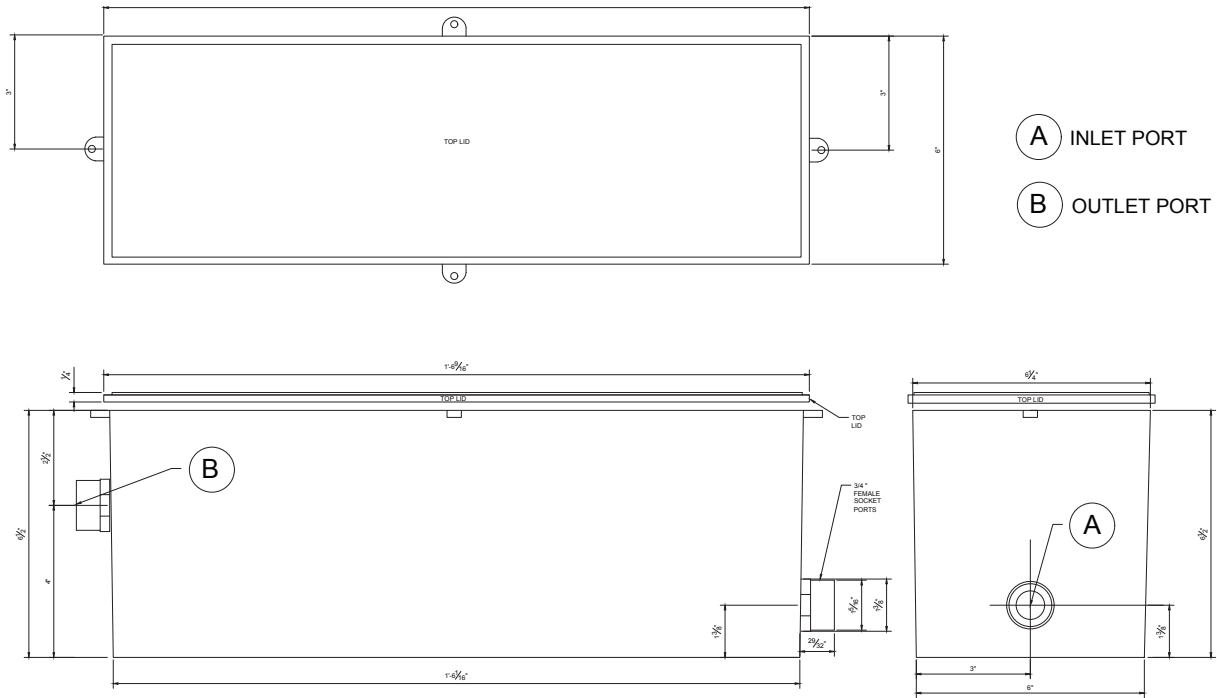


Figure 2 NBT-230 pH Treatment Tank – features and dimensions

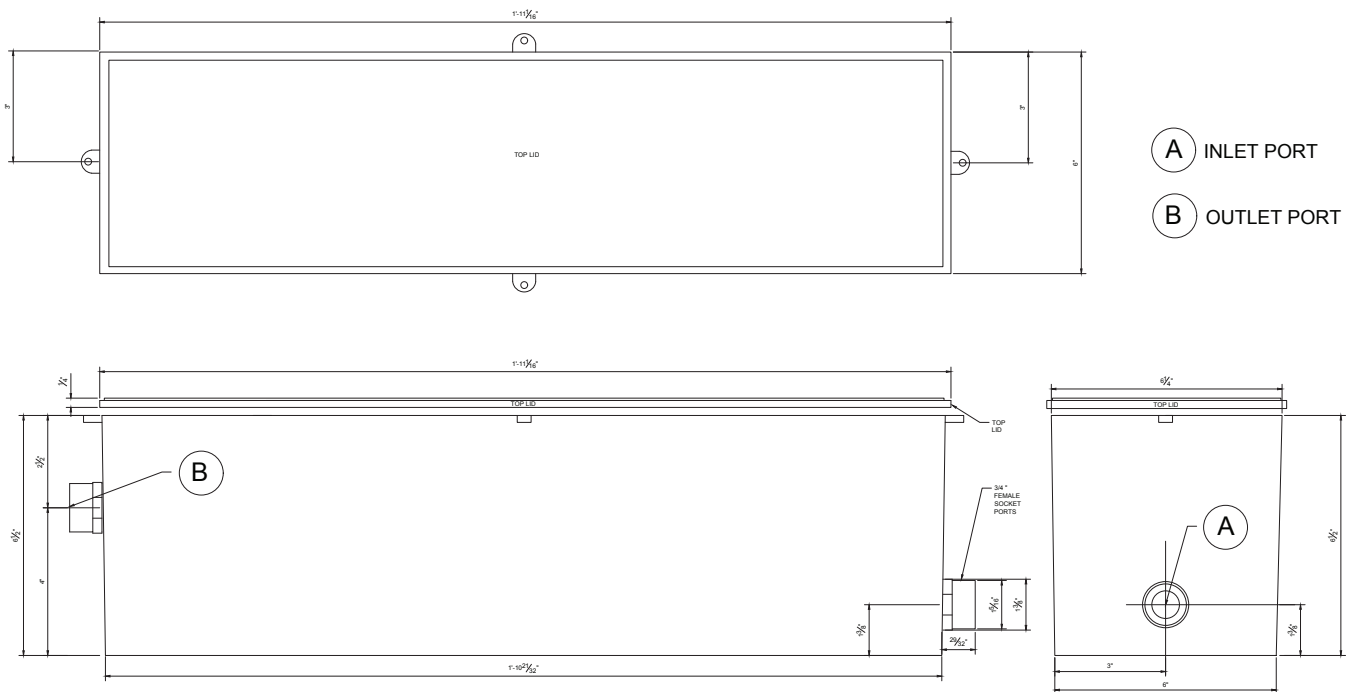
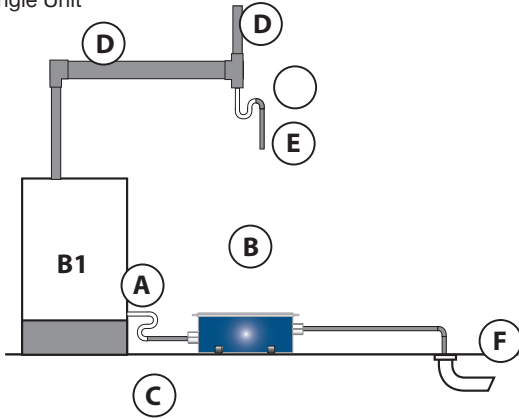




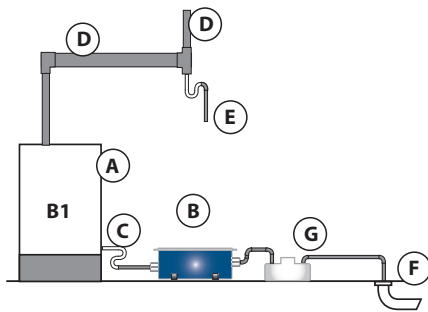
Figure 3 NBT-610 & NBT-230 pH Treatment Tank/
Single Unit



- 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

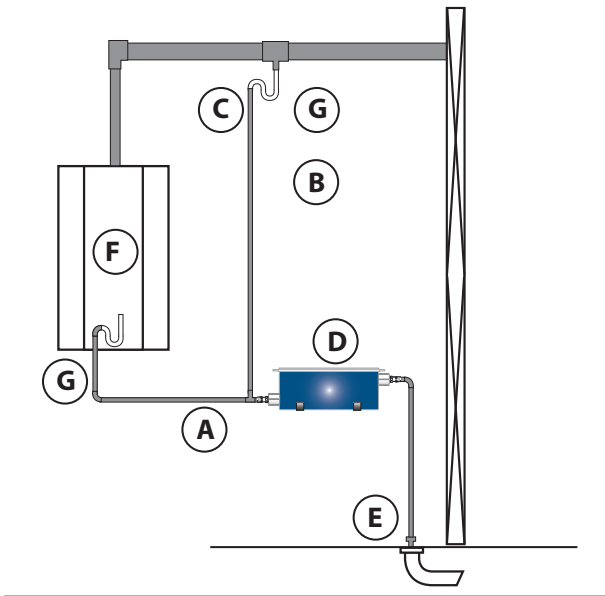


Piping Methods

⚠ WARNING

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

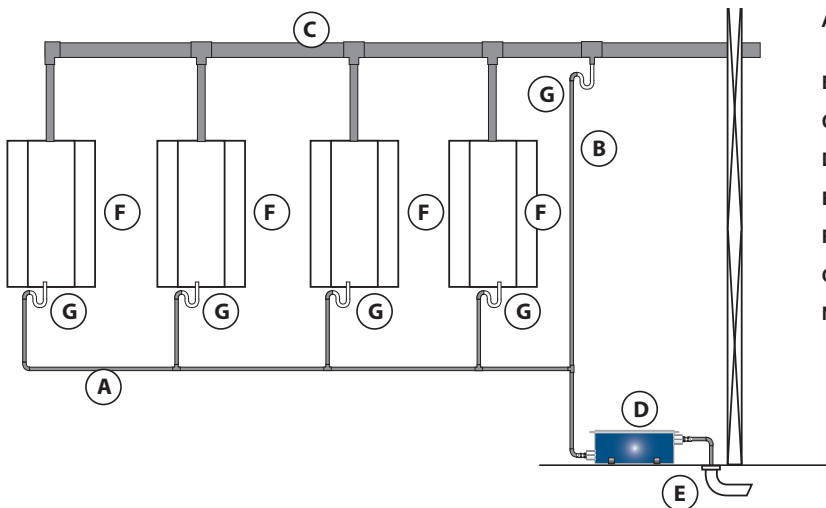
Figure 5 Piping for Single Heating Unit with Common NBT pH Treatment Tanks and Flue Drain Connection



- 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



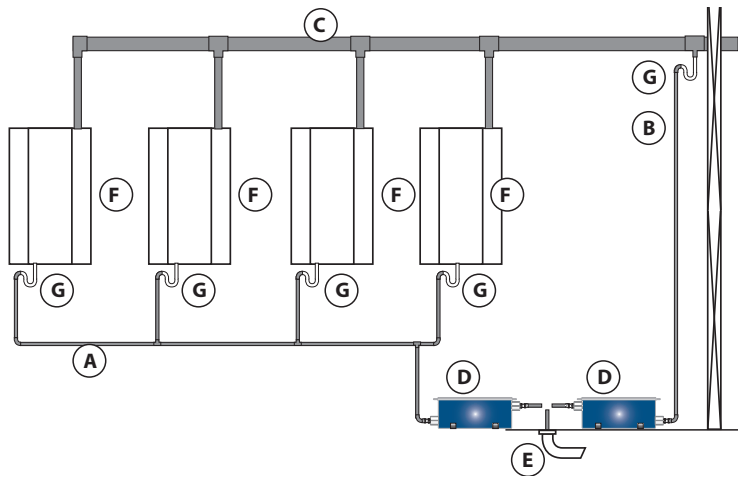
- A Boilers / Hot Water Heaters / Furnace Condensate Common Drain
- B Flue Drain
- C Common Flue Vent
- D NBT pH Treatment Tank
- E House Drain
- F Boilers / Hot Water Heaters / Furnaces
- G Condensate Trap

Note: Contact Factory for pH Treatment Tank and Piping Size



Piping Methods

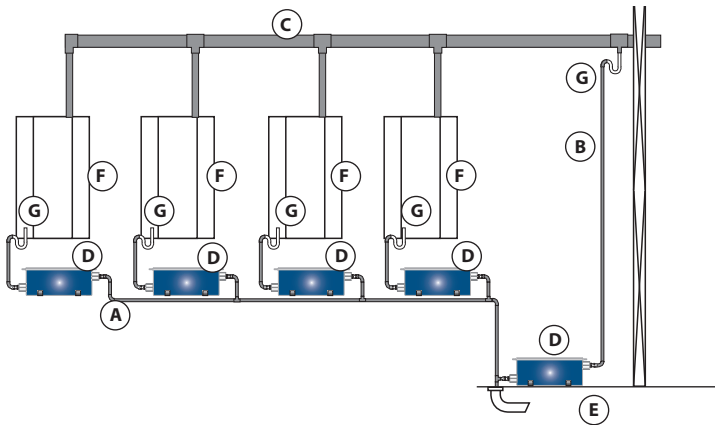
Figure 6 Piping for Multiple Heating Units with Common NBT pH Treatment Tanks. Common Flue Vent with Separate NBT pH Treatment Tank.



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

Note: Contact Factory for pH Treatment Tank Piping Size

Figure 7 Piping for Multiple Heating Units / Single pH Treatment Kit / Common Vent Piping / Common Condensate Drain



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

Note: Contact Factory for pH Treatment Tank Piping Size

▲WARNING

OUTDOOR INSTALLATIONS — provide and install electric heat tape 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.

Recharge as required

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

At least at a minimum once a year.

Replacement parts

The ABS black 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

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

Data

Model	Part#	Rating MBH	GPH	Material	Active Ingredient	Temp Rating
NBT-610	2010	1500 MAX	11.0	Polypropylene	Mg(OH) ₂ Pellets	140F Const.

Inlet Port	Outlet Port	Mounting	Cover	Field Rechargeable
.75" PVC Socket	7.5" PVC Socket	Horizontal Floor	Clear	YES

Fittings	Fittings	Wall Brackets	Porous Refill Bag	Refill Part #
.5" NPT x 3/4" Barb (2)	.5" NPT PVC x 3/4" Soc.	NO	YES	1112

Model	Part#	Rating MBH	GPH	Material	Active Ingredient	Temp Rating
NBT-230	2011	3500 MAX	26.0	Polypropylene	Mg(OH) ₂ Pellets	140F Const.

Inlet Port	Outlet Port	Mounting	Cover	Field Rechargeable
.75" PVC Socket	7.5" PVC Socket	Horizontal Floor	Clear	YES

Fittings	Fittings	Wall Brackets	Porous Refill Bag	Refill Part #
.5" NPT x 3/4" Barb (2)	.5" NPT PVC x 3/4" Soc.	NO	YES	1113