

Installation  
Operation &  
Maintenance

**NB**  
series

Condensate  
neutralizing  
tanks



# Overview

## Read before proceeding . . .

**⚠ WARNING** Failure to comply with the following guidelines could result in severe personal injury, death or substantial property damage.

### Neutralizer and lines must be wet

- **Before operating the boiler or furnace, fill the NB tank and traps with tap water. NEVER operate with tanks or P-traps dry.**

### Application restrictions

- Flue gas condensing boilers, furnaces, and flue pipe condensate drains only.
- DO NOT exhaust flue gases through NB tanks, they are not rated for boiler or furnace flue gases. Operating NB 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 NB tanks.
- NB tanks must be installed below system P-traps, boiler, furnace, and breeching condensate drains. IF NOT — Install a condensate pump with integral check valve as in Figure 3, page 3.

### Combined piping options

#### Flue pipe condensate drains

- Boiler/furnace condensate drain and flue condensate drain can be common piped to a neutralizer tank 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 tank 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 NB tank for each application. For individually-vented appliances, vent and condensate drain lines can be combined.

### Recharge tanks regularly

- Tanks should be recharged when pH level moves below 6. The pH should be checked regularly (at least twice during the first year of operation) to determine the required recharging schedule.
- This may require recharging as often as twice per year for high-usage systems, such as boiler systems equipped with indirect water heaters.
- Boiler/furnace applications for space heating only (no DHW) may require recharging only once per year.

## 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 litmus paper.

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

## NB-series condensate neutralizing tanks increase pH (reduce acidity).

NB-series 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.

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 NB neutralizing tanks. (This is a reduction in acid concentration of from 10 to 1000 times.)

## Applying NB-series 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 tanks to boiler/furnace ratings. Use multiple tanks if needed to handle the load. Consider using the next larger size neutralizing tank for boiler systems with domestic hot water heating.

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

An optional 24-vac high water level limit control kit is available.

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

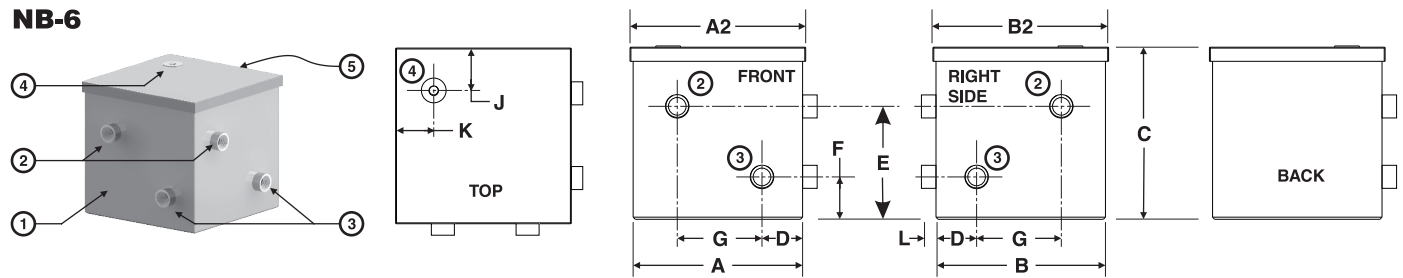
## Installation sequence

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 NB tank OUTLET. See Figure 2, page 3 or Figure 3, page 3. Provide a mounting pad for the NB tank if needed to obtain the proper elevation relative to a condensate pump reservoir (when used — see Figure 3, page 3).
2. Place the NB tank in position. Fill the tank to the maximum fill line with neutralizing agent obtained from NB Boiler Works only.
3. Connect PVC piping from appliance or breeching drains to P-traps and then from P-trap outlets to either one of the two NB tank inlets.
4. Connect the NB tank 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.

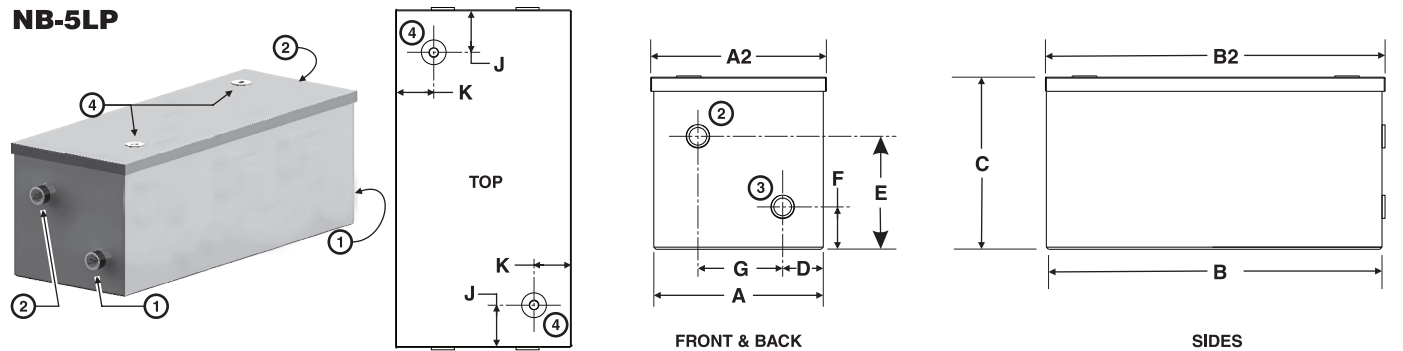
# Installation

**Figure 1** NB-series condensate neutralizing tanks — features, ratings and dimensions

**NB-6**



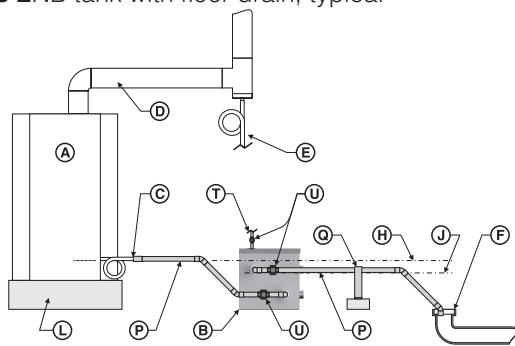
**NB-5LP**



**RATINGS & DIMENSIONS** (in inches)

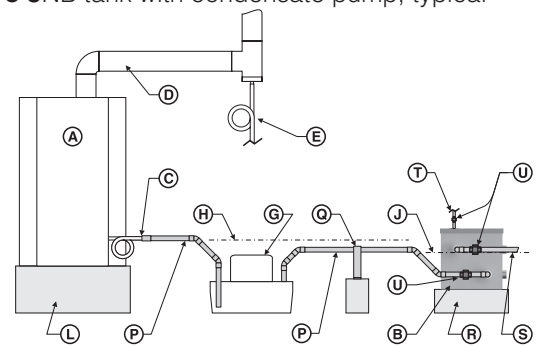
Model	MBH	GPH	A	A2	B	B2	C	D	E	F	G	J	K	L	
NB-6	6000	60	12	12 7/16	12	12 7/16	12 3/16	2 7/8	8	3	6 1/8	3	3	3/4	
NB-5LP	5000	50	36 1/4	36 3/4	9	9 7/16	7 5/16	3 5/16	4 7/16	2 1/2	2 1/2	4 9/16	3 9/16	—	
<b>1</b>	Corrosion-resistant neutralizing tank							<b>3</b>	Condensate <b>INLETS</b> , 1 1/4" NPT female (two locations)						
<b>2</b>	Condensate <b>OUTLETS</b> , 1 1/4" NPT female (two locations)							<b>4</b>	Vent connection, 1/2" NPT female						

**Figure 2** NB tank with floor drain, typical



- A** Condensing boiler or furnace
- B** Condensate neutralizing tank
- C** Boiler/furnace condensate trap connection
- D** Boiler/furnace vent
- E** Vent condensate trap, when used — Install a trap as shown.
- F** Floor drain or sump
- G** Condensate pump — MUST include integral check valve
- H** Bottom of boiler/furnace condensate outlet — MUST be ABOVE bottom of NB tank condensate outlet (or condensate pump inlet) UNLESS a condensate pump with integral check valve is installed as in Figure 3.
- J** Bottom of NB tank condensate outlet
- L** Mounting pad or structural platform, when required to elevate boiler

**Figure 3** NB tank with condensate pump, typical



- P** PVC pipe — Include unions in the piping to allow removal of the NB tank for inspection and service. — Secure pipe in place. — Protect with a shield if necessary if routed through traffic areas.
- Q** Secure condensate piping in place with clamps (follow instructions for securing at condensate pump, when used).
- R** Elevate the NB tank on a structural base if necessary for the outlet to be raised.
- S** Route discharge line to an appropriate drain location.
- T** Install 1/2-inch PVC vent piping to outside from vent tapping on top of tank where required by codes. (A 1/2" thread-one-end PVC nipple is supplied with the optional trim kit.)
- U** Install a union at each connection to the NB tank to allow disconnection for removal and servicing as needed. (Unions are supplied in the optional trim kit.)

**NOTE:** Install a 1 1/4" pipe cap on the unused INLET and OUTLET tank connections of the NB tank. (Caps are supplied in the OPTIONAL trim kit.)

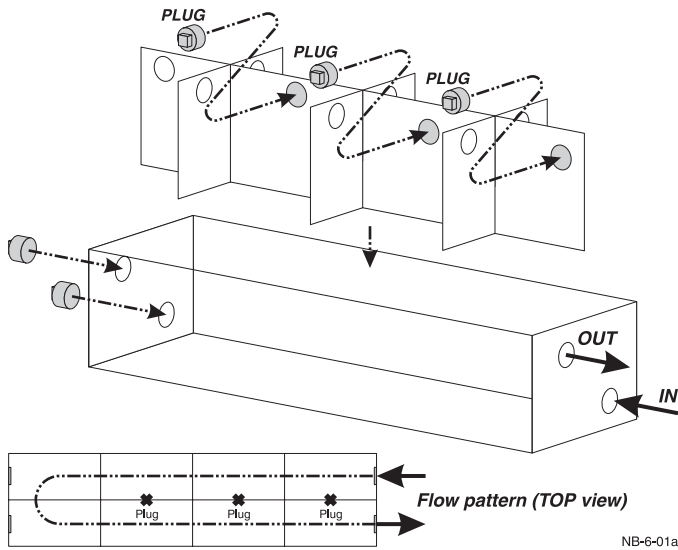
## NB-5L baffle installation

**NOTICE** The NB-5L is equipped with baffles that are needed to direct the flow of condensate throughout the neutralizing medium. Baffles must be correctly installed for the NB-5L to work properly.

### Flow in and out same end

Install threaded PVC plugs in the baffle hole locations as shown in . Condensate will flow down one side of the NB-5L and back the other side to the outlet.

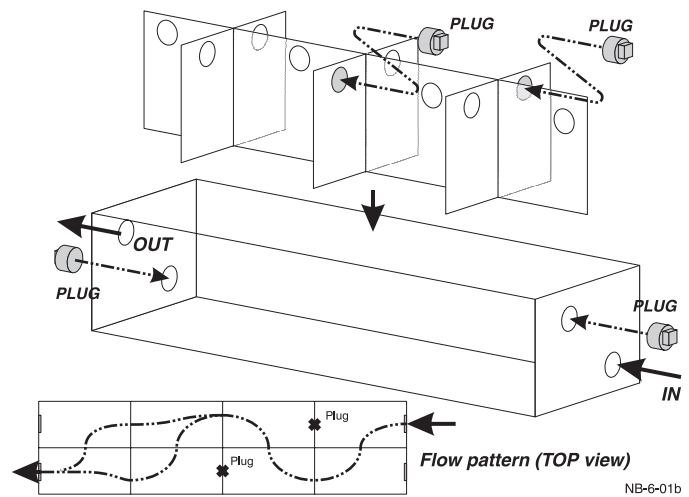
**Figure 4** Baffle plug installation for in/out on same end



### Flow in and out opposite ends

Install threaded PVC plugs in the baffle hole locations as shown in . Condensate will flow side to side in the NB-5L as it works its way from the inlet end to the outlet end.

**Figure 5** Baffle plug installation for in/out on opposite ends



## Maintenance

### Inspect frequently

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

### Recharge as required

Follow the requirements on page 2 for recharging or replacing the neutralizer tanks. Follow instructions at right.

### Replacement parts

Contact JJM Boiler Works, Inc., your local wholesaler or manufacturer's representative for replacement parts.

**WARNING**

### Recharging procedure

**Use rubber or latex gloves and low level respirator mask when handling all aggregate.**

1. Empty **BROWN CALCIUM CARBONATE** into the top of the **LIMESTONE** aggregate bag.
2. Empty **WHITE LIMESTONE** and **BROWN CALCIUM CARBONATE** mix into the NB tank, up to the stone fill lines.
3. Connect all necessary piping and caps.
4. Fill NB tank to drain opening with tap water before operating the boiler or furnace.

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