



The Noritz system is space saving and energy efficient.

## NORITZ SYSTEM 16% MORE EFFICIENT

Two sets of gas and water consumption meters were installed to monitor both restaurants to compare the gas used per gallon of water heated. Not only did the Noritz system save on gas consumption, but the efficiency results were also clearly shown in the diverging curves in the graph (see graph below). It was evident that the tank's decreased efficiency over time increased the gas usage whereas the Noritz curve was very flat.

During the study, the Noritz units consumed 16% less gas to heat the same volume of water than the tank system. This equates to over \$700 in savings\* during the 7.5 month period at the location with the Noritz commercial water heating system.

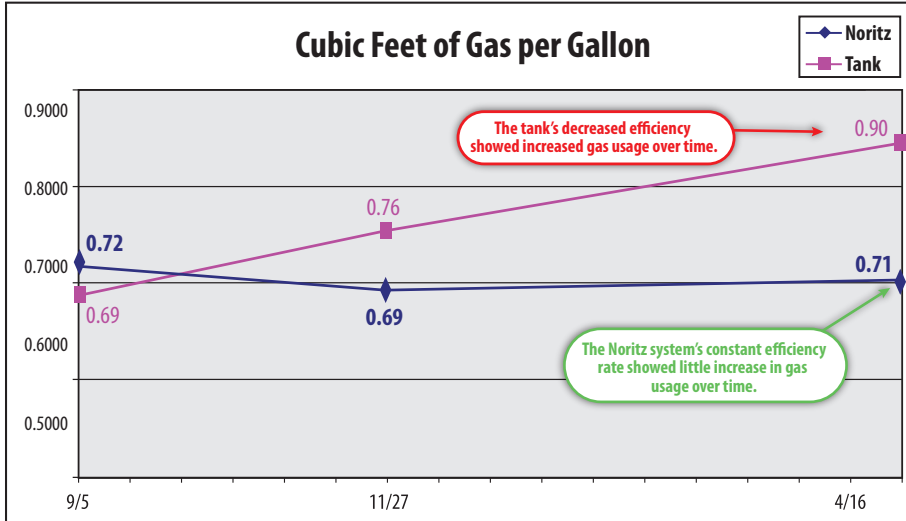
\*Savings calculation based on current U.S. average gas price of \$8.59/1,000 cubic feet.

### PROJECT BACKGROUND

A perfect case study opportunity was presented to Noritz when two nearly identical full service Smokey Bones Restaurants in Buffalo, NY needed water heating systems. One location would install high-efficiency Noritz commercial heaters and the other would install efficient tank type water heaters. Both systems received water from the same source, and both were set at 135°F.



The other system.



### Noritz Meter Readings (actual)

	5- Sep	27-Nov	16-Apr
Gas	159.13	1929.45	4312.34
Water	1218.00	3773.00	7109.00

### Tank System Readings (actual)

	5- Sep	27-Nov	16-Apr
Gas	816.34	2011.00	4513.00
Water	1235.00	2798.00	5571.00

### Property profiles

**Noritz location:** Smokey Bones Restaurant  
City: 2007 Walden Ave, Buffalo, NY  
**Tank system location:** Smokey Bones Restaurant  
City: 4120 Maple Rd, Buffalo, NY

### Installation profiles

**Noritz location:** Indoor installation (mechanical room)  
**Tank system location:** Indoor installation (mechanical room)

### Solution profiles

**Noritz location:** Three N-084M-DV (equivalent model NC250-DV-ASME)  
Fuel type: Natural gas  
Gas consumption: Max. 236,000 btuh – Min. 21,000 btuh each  
Flow rate performance: 0.7 – 8.4 GPM each  
Temperature settings: 100-180 degree F  
Warranty: 5 years on heat exchanger and parts (non-prorated)

**Tank system location:** Two efficient tanks  
Fuel type: Natural gas  
Gas input: 199,000 btuh each  
Storage: 100 gallons each  
Temp: 80-180°F  
Warranty: 3-year warranty, 1 year parts



# Model NC250 Series Commercial Water Heater Specification Sheet

Job Name \_\_\_\_\_  
 Location \_\_\_\_\_  
 Architect/Engineer \_\_\_\_\_  
 Wholesaler \_\_\_\_\_  
 Contractor \_\_\_\_\_  
 Model No. \_\_\_\_\_  
 Gas Type \_\_\_\_\_  
 No. of Units \_\_\_\_\_ Total BTU/hr Input \_\_\_\_\_  
 Flow Rate (GPH) \_\_\_\_\_  
 Notes \_\_\_\_\_

- **Standard Input** - gas consumption ranges from 11,000 BTU/h to 250,000 BTU/h
- **Compact Design** - ANSI Z21.10.3/CSA 4.3 certified design that can be wall-mounted indoors or installed outdoors (-SV model only) using optional Vent Cap
- **Durable Stainless Steel Casing**
- **Heat Exchanger** - manufactured with commercial grade copper, 25% thicker piping than standard models
- **Venting Options** - available in power or direct vent model that requires 4" Category III stainless steel pipe
- **Direct Electronic Ignition**
- **Multi-System Capability** - units can be linked together by using either the optional 2-unit Quick Connect or multi-unit System Controller for up to 24 units.
- **Fully Modulating** - BTU input can range from 11,000 to 6 million BTU/h (for 24-unit Multi-System) with stable combustion provided by the industry's 1st Dual-Flame Burner
- **Thermal Efficiency** - 84% efficient for use with natural gas or propane
- **Temperature Controls** - includes remote thermostat that can precisely adjust the output temperature from 100°F to 180°F
- **Safety Devices** - Flame Sensor, Overheat Prevention Device, Lightning Protection Device, Freeze Protection
- **Five Year Limited Heat Exchanger Warranty for Commercial Use**
- **Five Year Limited Parts Warranty**
- **ASME Certified** - all models are certified by ASME and the National Board



- **Approvals** - CSA, UPC, NSF, Low NOx Approved By SCAQMD (Rule 1146.2)

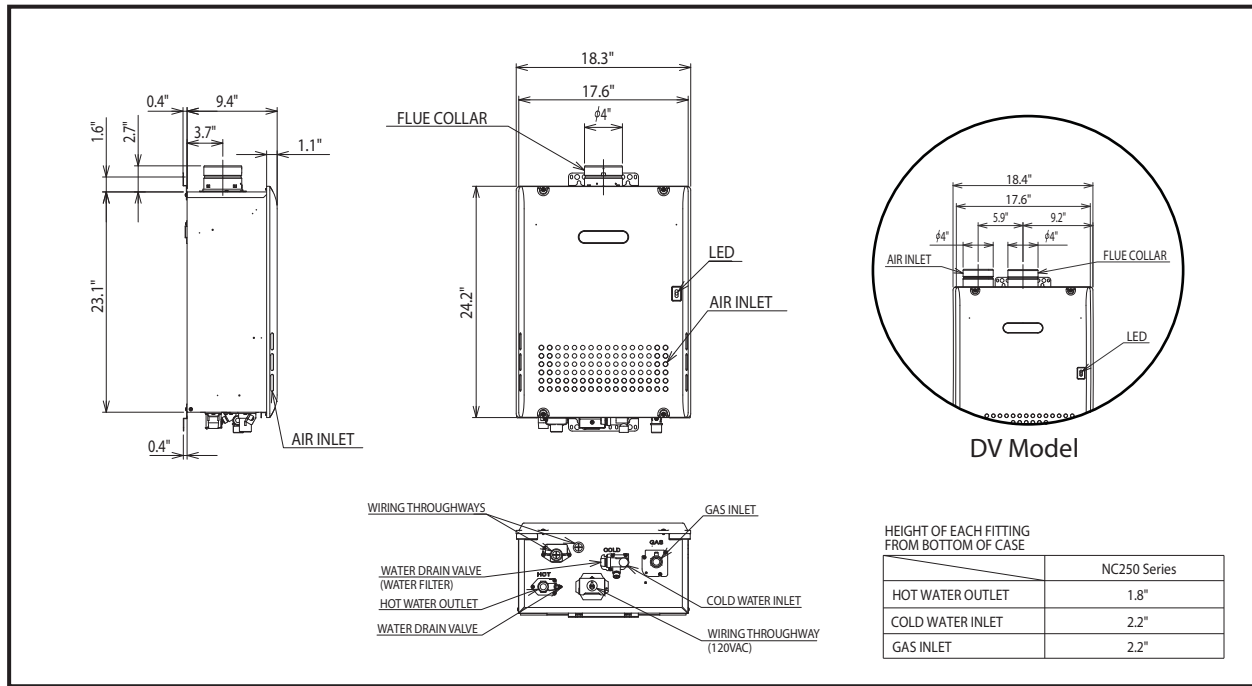


SV Model

DV Model

- Model**  
 NC250 - \_\_\_\_\_ - ASME
- SV (Standard Vent)  
 DV (Direct Vent)
- Accessories**
- Outdoor Vent Cap for -SV Model (#VC-4-1)  
 Isolator Valves (#IK-WV-8)  
 Pipe Cover (#PC-3S-SUS)  
 Quick Connect Cord (#QC-1) System Controller
- 6-unit (#SC-201-6M)  
 12-unit (#SC-201-12M)  
 24-unit (#SC-201-24M)

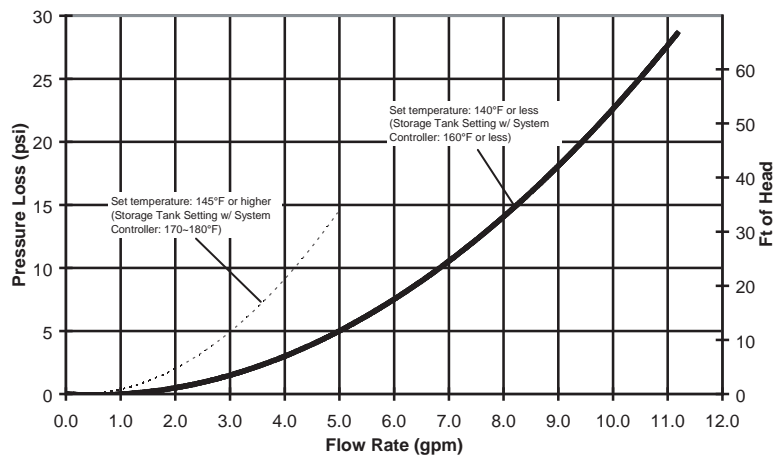
## Dimensions



## Flow Rates

Temperature Rise (°F)		70	100
Flow Rate (GPM)	1-unit	6.0	4.2
	2-unit	12.0	8.4
	3-unit	18.0	12.6
	6-unit	36.0	25.2
	9-unit	43.2	30.6
	12-unit	57.6	40.8
	24-unit	115.2	81.6
Flow Rate (GPH)	1-unit	360	252
	2-unit	720	504
	3-unit	1080	756
	6-unit	2160	1512
	9-unit	3240	2268
	12-unit	4320	3024
	24-unit	8640	6048

## Pressure Loss



**NOTE:** For Quick-Connect and Multi-System installations, pressure loss remains constant throughout the system regardless of the number of units installed. Multiply the total number of units in the system by the required flow rate from each unit to determine the total pressure loss from the chart above.

## Temperature Settings and Options

Temperature Settings	100-150°F (In 5°F intervals), 160, 170, *180°F (14 Options)
Default Temperature Options	120, 130, 140, *180°F (Default is 120°F)

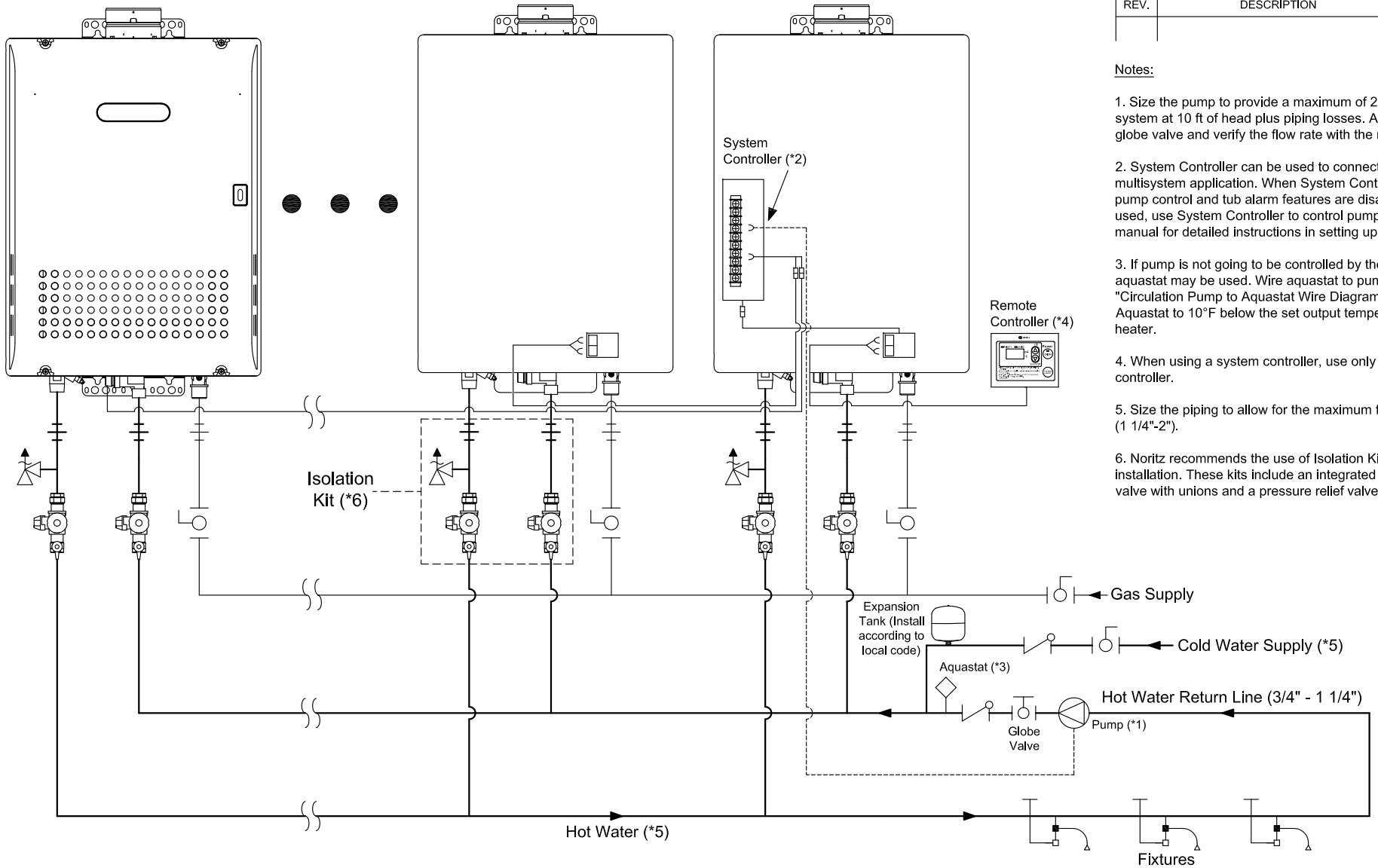
\*181.4°F actual output temperature

## Specification

Commercial, gas-fired, wall-mounted water heater(s) shall be direct/power vent Model NC250 Series as manufactured by Noritz America Corporation. The water heater(s) shall have a 5-year limited Heat Exchanger warranty and a 5-year limited Parts warranty per Noritz Limited Warranty. Unit(s) shall be designed to burn natural/propane gas and certified by CSA International to the latest edition of ANSI standard Z21.10.3/CSA 4.3. Water heater(s) shall have a nominal flow rate capacity of \_\_\_\_ GPH @ 100°F rise with rated input of \_\_\_\_ BTU/hr. Water heater(s) shall be vented with 4" Category III stainless steel vent pipe at a distance not to exceed 15 feet (or equivalent) with 3 elbows for SV models and 45 feet (or equivalent) with 3 elbows for DV models terminating vertically or horizontally. Water heater(s) is rated for 150 PSI working water pressure and 300 PSI test pressure. Unit(s) shall have a stainless steel case, copper heat exchanger, stainless steel dual-flame burner, aluminum gas control valves and connections, brass inlet and outlet water connections. Unit(s) shall include features such as an adjustment for high elevation installations, temperature lockout, and 14 temperature options from 100-150°F in 5°F intervals and 160-180°F in 10°F intervals. The heater(s) shall be controlled by an internal circuit board that monitors the inlet and outlet temperatures with installed thermistors, sensing and controlling flow rate to set point temperature with air-fuel ratio controls in order to maintain thermal combustion efficiency. Unit(s) shall include safety features such as flame sensor system, thermal cut-off fuses, lightning protection device, overheat prevention device, freeze protection device, and fan rotator detector. Multi-system applications that require 2 units shall be installed by connecting the units using a single cable-only connection (Quick-Connect). Applications that require 3 to 24 units shall use a multi-unit central controller (System Controller). The water heater(s) exceeds the energy efficiency requirements of ASHRAE 90.1b-1992 and listed by SCAQMD rule 1146.2 Low NOx.

**Noritz America reserves the right to discontinue, or change at any time, the designs and/or specifications of its products without notice.**

REVISIONS			
REV.	DESCRIPTION	DATE	APPRVD.



- Notes:**
1. Size the pump to provide a maximum of 2 GPM through the system at 10 ft of head plus piping losses. Adjust the flow using a globe valve and verify the flow rate with the maintenance monitors.
  2. System Controller can be used to connect a 2 or more unit multisystem application. When System Controller is in use, internal pump control and tub alarm features are disabled. If pump is to be used, use System Controller to control pump. Refer to SC-201-6M manual for detailed instructions in setting up system controller.
  3. If pump is not going to be controlled by the system controller, an aquastat may be used. Wire aquastat to pump according to "Circulation Pump to Aquastat Wire Diagram (PAWD.pdf)." Set the Aquastat to 10°F below the set output temperature of the water heater.
  4. When using a system controller, use only a single remote controller.
  5. Size the piping to allow for the maximum flow rates of the units (1 1/4"-2").
  6. Noritz recommends the use of Isolation Kit (IK-WV-5) with installation. These kits include an integrated shut-off and service valve with unions and a pressure relief valve.

**NORITZ**  
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**MODEL:**  
 N-0931M

**APPLICATION:**  
 Domestic Hot Water  
 2-6 Unit Multi-System  
 Recirculation

**DRAWING NUMBER:**  
 (2a2-6)N931M

**DRAWING DATE:**  
 September 22, 2008

- Noritz Accessories**
- RC-7649M (Remote Controller)
  - RC-CORD10 (10' Remote Controller Cord, optional in 26')
  - VC-4-1 (Outdoor Vent Cap, place on top of unit)
  - SC-201-6M (System Controller, for 2 or more unit Multi-System)

*Note: This diagram is for reference only. Installation must comply with State and Local Code, all gas and water pipe must be sized correctly to specific length, according to accepted engineering methods or the UPC Code for Noritz Water Heaters to operate correctly.*

- Shut-off Ball Valve
- Check Valve
- Union
- Pressure Relief Valve (Watts 174A, Zurn P3000BR, Cash Acme F-82)
- Aquastat (Honeywell Model #L6006A or L6006C)
- Pump
- Mixing Valve
- Thermal Expansion Tank