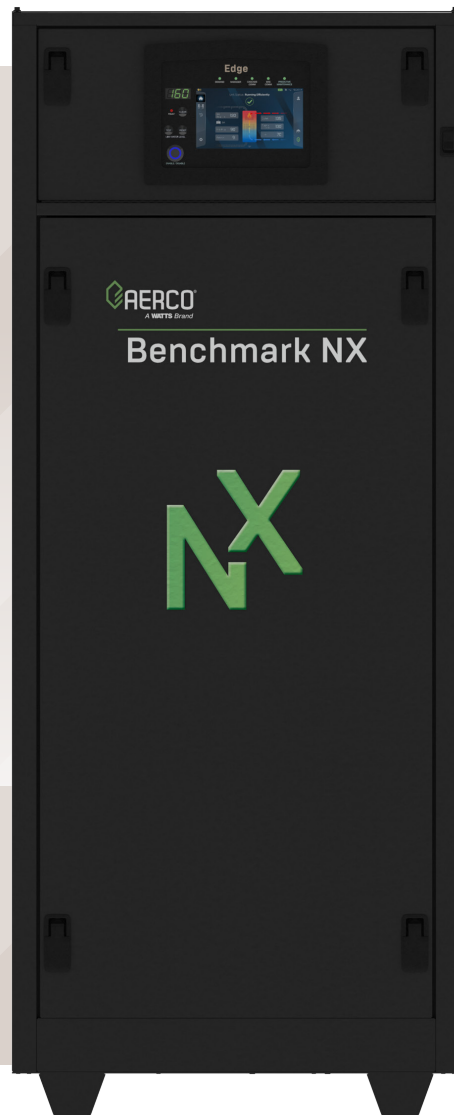


# Benchmark® NX

High Efficiency Boiler



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A WATTS Brand

# Bringing Benchmark Reliability to Light Commercial

Every project regardless of size deserves dependable performance, high efficiency, and intelligent control. Benchmark NX brings the trusted Benchmark platform into the 399-500 MBH range, offering a compact, fully condensing fire-tube boiler engineered for light commercial, multifamily, institutional, and retrofit applications.

Combining up to 97.4% thermal efficiency, a durable stainless steel heat exchanger, and the advanced Edge Controller, Benchmark NX delivers the performance and operational intelligence required for today's energy-conscious buildings.

Designed to support modern hydronic systems and flexible installation requirements, Benchmark NX helps simplify system design while providing precise, responsive comfort. Whether replacing aging equipment or designing a new system, Benchmark NX helps owners and operators reduce energy costs, simplify installation, and maintain comfort for building occupants.



## Up to 97.4% Efficiency

Lower energy costs

# 10:1

## Up to 10:1 Turndown

Reduced cycling,  
improved efficiency



## Stainless Steel HX

Engineered for demanding  
conditions



## Edge® Controller

Smarter operation  
and diagnostics



## Variable Primary Flow

Simplified piping design



## Low NOx Emissions

Supports sustainability goals

# Designed to Deliver More Than Heat

Benchmark NX combines proven condensing performance, intelligent controls, and reliable operation to help buildings reduce costs, simplify management, and maximize long-term value.

## Reduce Energy Costs

Up to 97.4% thermal efficiency and up to 10:1 turndown ratio help Benchmark NX precisely match heating demand, reducing fuel consumption and minimizing wasted energy during part-load operation.

## Simplify Boiler Plant Operation

The Edge Controller integrates advanced control, diagnostics, and sequencing capabilities into a single platform, making it easier to manage system performance while reducing complexity.

## Lower Installation Costs

Variable primary flow capability, flexible venting options, and integrated plant management features help simplify system design, reduce external components, and streamline installation.

## Built for Long-Term Reliability

A stainless steel heat exchanger, proven Benchmark engineering, and industry-leading warranty coverage provide confidence for years of dependable operation.

## Ideal for a Wide Range of Applications



Light Commercial



Multifamily



Education



Hotels & Hospitality



Office & Municipal



Healthcare

# Benchmark Performance in a Smaller Package

Benchmark NX brings the trusted reliability and high-performance engineering of the Benchmark platform to light commercial heating applications. Designed for facilities that don't require higher-capacity commercial boilers, it delivers the efficiency, durability, and operational flexibility needed to meet today's comfort and energy demands.

## Condensing Efficiency That Reduces Operating Costs

Benchmark NX combines a fully condensing fire-tube design with advanced combustion control to achieve up to 97.4% thermal efficiency. Its up to 10:1 turndown ratio allows the boiler to closely match changing building loads, helping reduce fuel consumption, minimize cycling, and maintain comfort throughout the heating season.

## Engineered for Long-Term Reliability

A stainless steel heat exchanger and metal-fiber burner are designed to withstand the demands of condensing operation while delivering consistent performance year after year. Fewer moving components within the burner assembly help improve durability while supporting reliable combustion across the operating range.

## Flexible by Design

Benchmark NX supports variable primary flow applications, allowing greater flexibility in system design while helping reduce piping complexity and installation costs. The compact footprint makes it ideal for retrofit projects and mechanical rooms where space is limited.

## Cleaner Combustion

Producing less than 20 ppm NOx emissions while maintaining high efficiency, Benchmark NX helps facilities meet sustainability goals and local emissions requirements without sacrificing performance.

## Benchmark NX Highlights

- 399-500 MBH input
- Up to 97.4% thermal efficiency
- Up to 10:1 turndown
- Stainless steel heat exchanger
- Variable primary flow capable
- Less than 20 ppm NOx
- Natural gas or propane
- 10-year heat exchanger warranty



# Intelligent Control. Simplified Operation

The Edge Controller is an advanced platform that simplifies commissioning, optimizes performance, and provides greater visibility into Benchmark NX operation. Whether controlling a single boiler or a cascade plant, Edge helps maximize efficiency while reducing complexity.

## Greater Visibility and Better Decisions

A touchscreen graphical interface provides quick access to operating conditions, setpoints, temperatures, firing rates, and system status information. The streamlined menu structure helps reduce configuration errors while making day-to-day operation and monitoring easier for facility staff.

## Advanced Boiler Plant Management

Edge extends beyond boiler control to coordinate plant operation across multiple units. It can sequence up to 16 Benchmark NX boilers, automatically staging and de-staging units in response to changing demand while balancing runtime through lead/lag rotation. Integrated primary pump control and reserve unit functionality further simplify plant management and help maintain reliable operation.

## Optimized Performance Across Changing Loads

Precise temperature control and Delta-T Optimization technologies continuously respond to changing operating conditions, helping maintain stable temperatures, improve efficiency, and support long-term equipment reliability. Edge intelligently coordinates system operation to ensure the right amount of heat is delivered when and where it's needed.

## Faster Commissioning, Easier Service

USB-based software updates, configuration backup and restore capabilities, data logging, event history, and enhanced diagnostics simplify startup, replication, troubleshooting, and ongoing maintenance. Integrated BACnet® communication provides seamless connectivity with building automation systems for centralized monitoring and control.



## Edge Controller Highlights

- Intuitive touchscreen graphical interface
- Precise temperature control
- Cascade control for up to 16 boilers
- Automatic lead/lag rotation
- Delta-T Optimization
- Reserve unit control
- Native BACnet communications
- Primary pump control
- USB backup, logging & updates
- Enhanced diagnostics and event history

# Designed to Simplify Installation

Benchmark NX delivers high-efficiency heating performance for a variety of light commercial and institutional facilities. Its compact footprint, flexible installation options, and advanced controls make it an ideal solution for both new construction and retrofit projects.

## Compact Footprint

Benchmark NX brings Benchmark performance to smaller capacities, making it easier to fit high-efficiency heating into space-constrained mechanical rooms and retrofit applications.

## Flexible Venting Options

Supports polypropylene, stainless steel, PVC, and CPVC venting materials with individual or common venting configurations available to accommodate a wide variety of installation requirements.

## Variable Primary Flow Ready

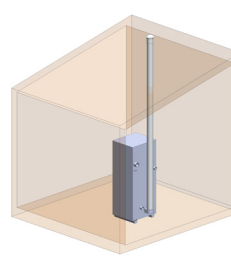
Designed to support modern hydronic system designs while helping reduce piping complexity, installation costs, and overall system footprint.

## Simplified Commissioning

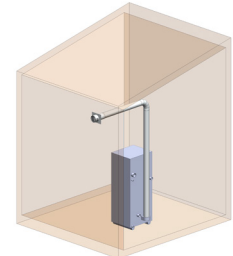
The Edge Controller streamlines startup with guided setup, intuitive touchscreen navigation, USB configuration tools, and integrated plant controls designed to reduce installation and commissioning time.

## Easy Maintenance Access

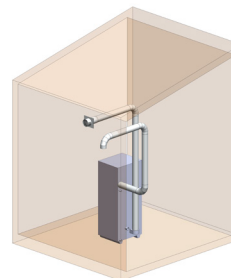
Removable enclosure panels provide convenient access to key service areas, helping technicians inspect, maintain, and service the boiler with less effort and downtime.



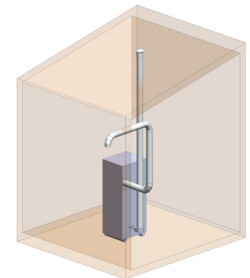
Vertical vent/room air



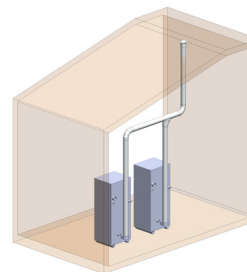
Sidewall vent/room air



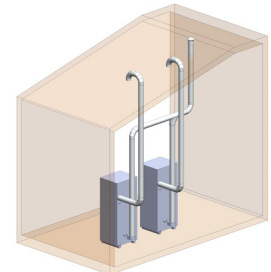
Direct-vent



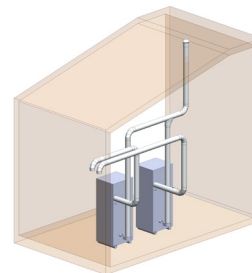
Vertical vent/  
sidewall air



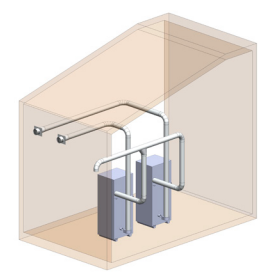
Common vertical  
vent/room air



Common vertical vent/  
individual vertical air



Common vertical vent/  
individual sidewall air

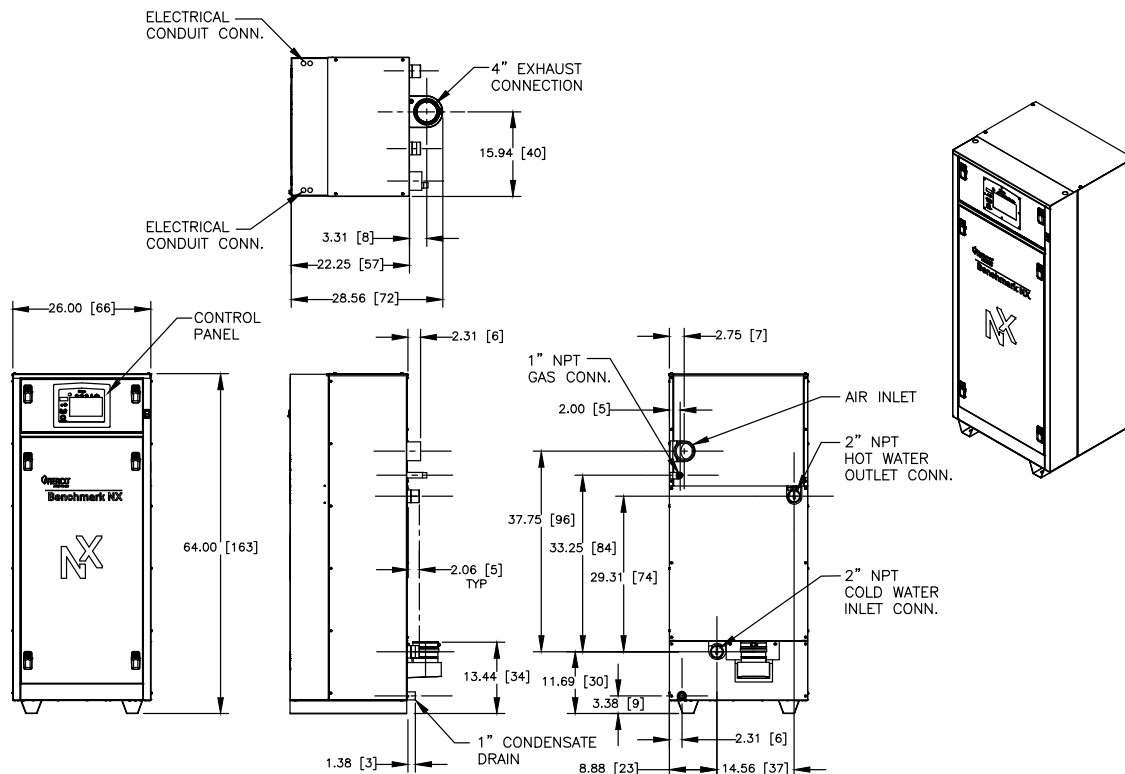


Individual sidewall vent/  
common sidewall air

# Specifications and Dimensions

|                                       | Benchmark NX                                                          |          |
|---------------------------------------|-----------------------------------------------------------------------|----------|
|                                       | 399                                                                   | 500      |
| Boiler Category                       | ASME Section IV                                                       |          |
| Gas Connections (NPT)                 | 1"                                                                    |          |
| Max. Gas Pressure                     | 14"                                                                   |          |
| Min. Gas Pressure                     | 4"                                                                    |          |
| Max. Allowed Working Pressure         | 160 PSIG                                                              |          |
| Electrical Requirements 120V/1PH/60Hz | FLA TBD                                                               |          |
| Water Connection (NPT)                | 2"                                                                    |          |
| Min. Water Flow (GPM)                 | 19 GPM                                                                | 23 GPM   |
| Max. Water Flow (GPM)                 | 75 GPM                                                                | 91 GPM   |
| Water Volume Gallons                  | 13.5 gal                                                              | 12.4 gal |
| Turndown Ratio                        | Up to 10:1                                                            |          |
| Vent/Air Intake Connections           | 4"                                                                    |          |
| Vent Materials                        | UL 1738/ ULC-S636 certified stainless steel, Polypropylene, cPVC, PVC |          |
| Type of Gas                           | Natural Gas or Propane                                                |          |
| NOx Emissions <20 ppm Capability      | ✓                                                                     |          |
| Standard Listings & Approvals         | ASME                                                                  |          |
| Gas Train Operations                  | FM Compliant                                                          |          |

All specifications in the table above are preliminary and subject to change





**Heating and Hot Water Solutions**

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