

# Modulex EXT

High-Efficiency Boilers



# History of Innovation

AERCO Modulex EXT boilers deliver maximum efficiency, reliability, and space savings for your hydronic system. Modulex EXT builds on the heritage of industry leader AERCO, helping engineers, contractors, facility managers, and owners achieve their efficiency mandates.

AERCO has been supplying the commercial market with hot water solutions featuring condensing, modulating technology longer than any other company. AERCO invented the category and continues to redefine efficiency, eco-friendliness, and innovation with products such as Modulex EXT, a family of boilers that incorporates advanced technology to produce best-in-class efficiency for space and financial savings in both retrofits and new designs.

## Key Features

- Available in eight sizes from 481-3,060 MBH
- Natural gas or propane
- Unmatched turndown – 10.5:1 to 39:1 depending on unit
- Whisper-quiet operation <50 dBA at full fire
- Low NOx emissions <20 ppm
- Direct/conventional vent with PVC, CPVC, Polypropylene, or AL29-4C materials
- Small, doorway-size footprint
- Multiple, field-configurable piping and venting connections
- Flexible Installation: Indoor / Outdoor
- Easy-open access for serviceability
- Touchscreen controller with intuitive menu structure for easy setup and navigation



## Ufly Controller

The Modulex EXT boilers feature the award-winning Ufly controller with a color touchscreen and an intuitive menu structure with categorized menu items, a clean icon design, and color-coded operating status.

Ufly enables users to save time on setup and lower startup costs as well as make it easier to operate the boilers. Users can also restrict boiler control access via password protection and rename heating circuits.

Multifamily/  
Apartment Buildings



Education



Government/Military



Office Buildings



Entertainment/Retail



# Re-defining Efficiency

Today's facilities need to be efficient in every way. Engineers, contractors, building owners, and managers are looking for methods to improve designs and operations so costs are lowered and square footage is maximized, all to create the best possible return on investment.

## Best-in-Class Efficiency

The Modulex EXT boilers have a unique design to achieve the best possible fuel savings. By incorporating separate thermal modules that operate independently, Modulex EXT units deliver superior turndown of up to 39:1. Another design advantage is simultaneous low-fire operation, which helps maximize operating efficiency up to 99%.

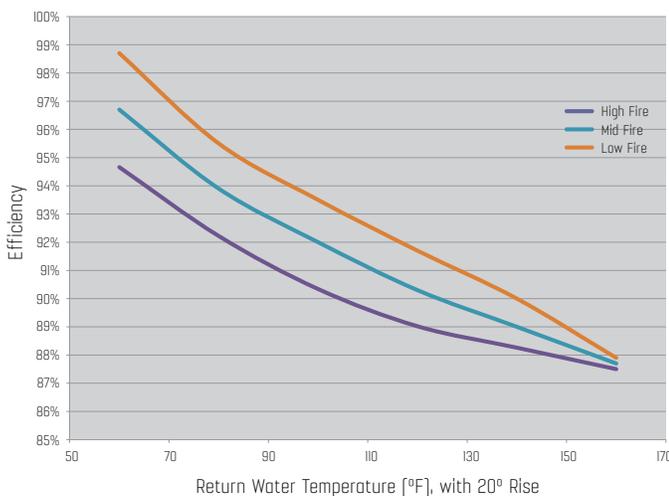
## Maximize Space

Efficient design also means optimizing each square foot of a facility for greater profitability. Having space for one more classroom in a school saves a district thousands of dollars, adding a few rooms to a hotel creates additional income sources, and another assembly line improves a facility's productivity.

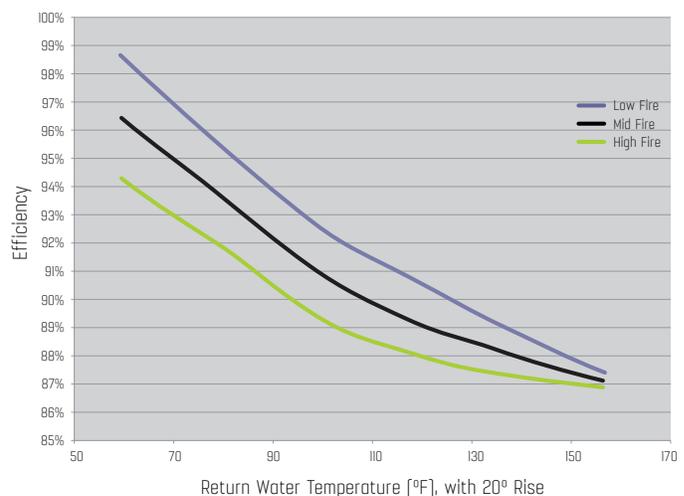
## Ratings

MLX EXT Model	Min Input BTU/hr	Max Input BTU/hr	Max Output BTU/hr	Efficiency Range
450	46,000	481,500	422,000 - 457,000	87-99%
600	46,000	642,000	564,000 - 609,000	87-99%
800	46,000	802,500	707,000 - 762,000	87-99%
1100	46,000	1,123,500	993,000 - 1,067,000	87-99%
1500	83,000	1,530,000	1,334,000 - 1,476,000	87.5-99%
2300	83,000	2,295,000	2,001,000 - 2,215,000	87.5-99%
2600	83,000	2,677,000	2,334,000 - 2,583,000	87.5-99%
3000	83,000	3,060,000	2,668,000 - 2,951,000	87.5-99%

Efficiency of Modulex 450 to 1100



Efficiency of Modulex 1500 to 3000



# Green Footprint



Modulex EXT fits today's environmentally conscious designs. It is the highest performing boiler family for light industrial and commercial facilities requiring 481-3,060 MBH hydronic systems. Engineers and contractors have design flexibility and easy installation, while facility personnel enjoy lower cost of ownership and peace of mind from a highly reliable and efficient solution.

The unique design of the Modulex EXT boiler system combines independent 161,500 or 382,000 BTU/hr. thermal modules that have superior turndown of up to 39:1 and a range of non-cycling operation not readily achieved by competitive equipment.

#### **Eco-friendly**

The SCAQMD-certified Modulex is perfect for eco-friendly designs. Modulex EXT, with its high turndown and unmatched seasonal efficiency of up to 99%, also helps facilities achieve LEED status.

#### **Small Carbon Footprint**

Modulex EXT has extremely Low NO<sub>x</sub> emissions of <20 ppm to satisfy green initiatives. Environmental impact is further reduced by minimal chimney flue losses and constant CO<sub>2</sub> operation.

#### **Fuel Savings**

By simultaneously operating multiple thermal modules, each at its lowest firing rate, Modulex EXT boilers achieve unmatched energy efficiency and fuel savings.



# Solutions You Can Count On

The Modulex EXT is the most reliable boiler in its class, so facility owners and managers enjoy lower maintenance costs. As many as eight independent modules are within a single enclosure, creating the inherent advantages of a multiple-boiler plant in one Modulex EXT unit.

## Built-in Redundancy

The independently operating thermal modules deliver high reliability. This patented design significantly reduces the need for redundant system capacity, virtually eliminating boiler downtime.

## Simplicity

Maintenance is simple with top and front component access as well as easy-to-remove panels. Combustion view ports for each thermal module and clear access to all major operating components from the front/top of each unit further simplify and minimize maintenance.

## Easy Operation

A user-friendly control panel on the front of each boiler makes operation a breeze. In addition to controlling the boiler, the panel allows one or more units to be integrated via Modbus communications protocol to a facility-wide energy management or building automation system (BAS).

## Outside Installation

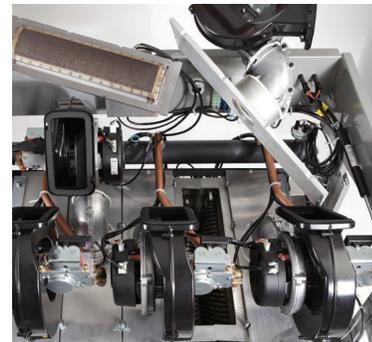
Modulex EXT comes standard with a coated stainless steel enclosure and is rated for 5°F to 104°F ambient temperatures, making it perfect for outdoor installations with no additional accessories or changes. Its lightweight design makes Modulex EXT suitable for rooftop systems.

## Whisper-quiet Operation

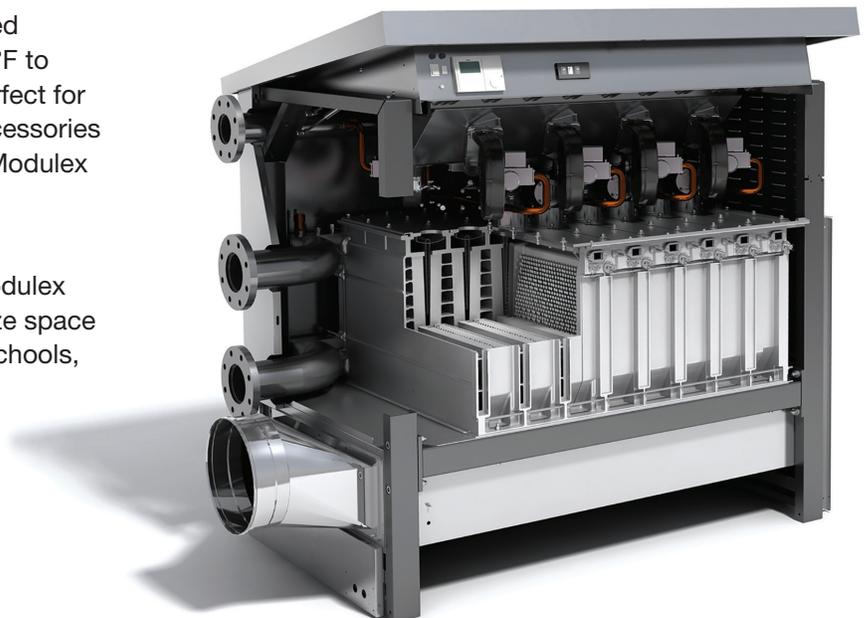
Having an acoustic impact of <50 dBa, Modulex EXT creates installation options to maximize space in noise-sensitive environments, such as schools, nursing homes, and hospitals.



Top view of the blowers



Burner lifts out easily for fireside inspection



# Sample Installations



## Asbury Beergarden, Asbury Park, NJ

The Asbury Festhalle and Biergarten needed to refurbish its HVAC system to create the most inviting and authentic beer hall experience for thirsty customers. Concealing the boiler was particularly important as the rooftop has “living walls” where foliage grows to maintain an outdoor and environmental look and feel. The team of Thermco, Dover Construction and Minervini Vandemark Architecture chose to install a compact Modulex unit in a closet on the rooftop. Because the Modulex EXT 1123 only measures 45”H x 51”W x 30”D, the entire primary loop and boiler were installed in a room that otherwise would have been a supply closet in the Women’s lavatory. Another reason the Modulex was selected was its whisper quiet operation of <50 dBA which meant patrons can’t hear the boiler during operation and it won’t drown out the live music played on the nearby stage.



## Apartment Complex Installation, Weymouth, MA

Located 15 miles from Boston, Weymouth Commons is a luxury condominium complex that requires hot water systems to serve 563 units, as well as a state-of-the-art fitness center and business office. When the original systems were reaching end-of-life, the director of maintenance operations for Corcoran Management Company, Gary Saltmarsh, sought a more efficient condensing system that would decrease heating costs and provide the reliability necessary to keep tenants happy. George T. Wilkinson, Inc. worked with Saltmarsh to design and install heating systems in each building that included one MLX EXT paired with a buffer tank and SmartPlate to provide both space heating and domestic hot water. The AERCO MLX units were selected because of their high efficiency of up to 99% and high turndown. “The AERCO solution was exactly what I needed to maximize my condensing usage. The turndown ratio and

redundancy of the Modulex was a good selling point. “We have been able to increase the amount of time spent condensing and decrease heating costs,” said Saltmarsh. “I can safely say we are seeing 20%-30% savings. The added benefits of resident comfort, safety, and ease of maintenance are priceless.”



## William J. Burkholder Administrative Building, Fairfax, VA

The Office of the Fire Marshall in Fairfax, VA had an emergency situation – an outdated boiler system so unreliable and inefficient the office was burning through money. The legacy four-boiler system in the basement of the Administrative Building was causing issues, including low efficiency of about 72% due to its atmospheric and non-modulating design. The biggest problem, was the insufficient amount of makeup air to the room that caused the boilers to produce a great deal of soot and fail prematurely. The team selected the Modulex EXT 641 for two key reasons – a smaller footprint and better venting options. Its unique modular design allowed for both common combustion air and common venting – both with polypropylene venting through the existing vent chase. The new condensing Modulex EXT, sized correctly and combined with an aggressive outdoor reset schedule, provides an estimated 70% energy savings

over the original system. Additionally, the Modulex EXT is half the size of the original footprint. “With the previous system, we had soot everywhere and the room was incredibly hot. Now, it’s very clean and a comfortable temperature in the mechanical room,” said Neal Bickers, Project Manager for Fairfax County.

# Installation Flexibility

To reduce cost and simplify installation, Modulex EXT boilers offer multiple piping and venting options. They are UL-listed for use with small-diameter PVC combustion air and exhaust venting through the ceiling or a sidewall.

## Simplicity Redefined

Modulex EXT requires no special rigging or system changes in existing mechanical rooms or outdoors because it has a variety of quick-to-install, inexpensive accessories.

## Low Install Cost

With Modulex EXT, there is only one connection for each service: HWS, HWR, gas, vent, and combustion air.

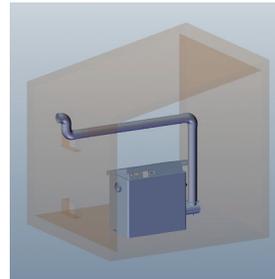
## Expandability

Multiple units can be easily co-located in applications requiring greater than 3 million BTU/hr. Modulex EXT is also approved for installation with near-zero side clearance for greater space savings and expandability options.

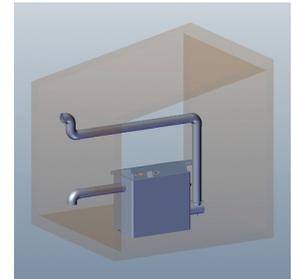
## Fits Into any Space

Multiple supply/return piping and venting locations create another user benefit, as the Modulex EXT can fit into any site installation configuration. This makes the Modulex EXT a perfect solution for retrofit applications.

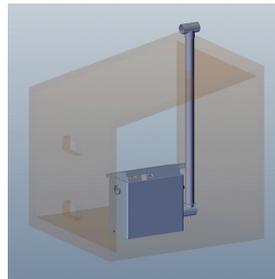
## Vent Configurations



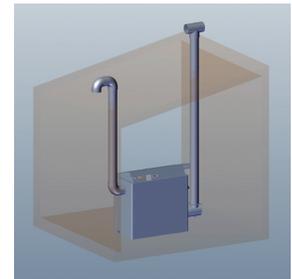
Single sidewall vent room air



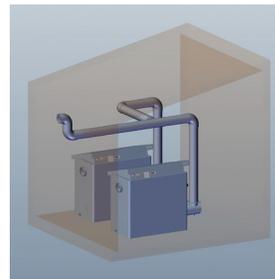
Single sidewall vent and air



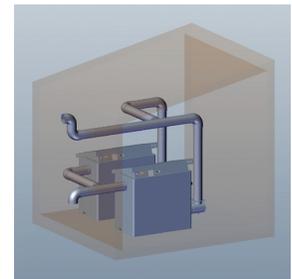
Single vertical vent room air



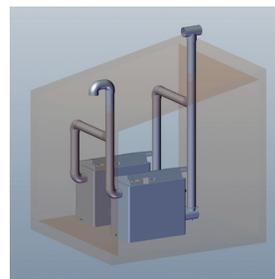
Single vertical vent vertical air



Multi sidewall vent room air



Multi sidewall vent and air



Multi vertical vent vertical air

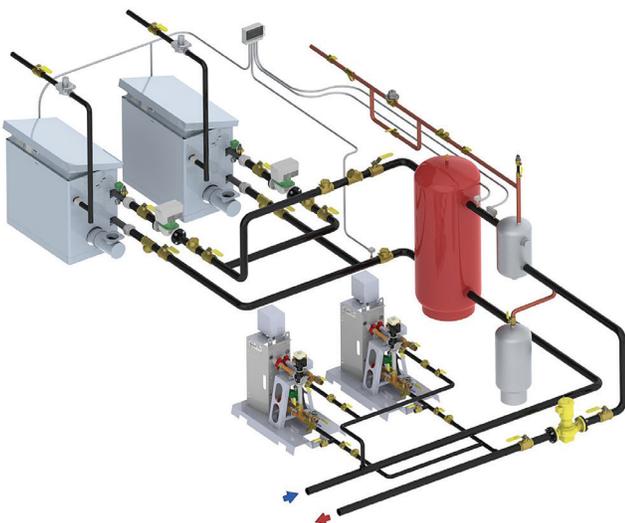
# Accessories and Service Parts



AERCO Condensate Neutralizer Kit



Variable Speed Pump



Sample combination system installation using the AERCO Control System (ACS)

## Sentinel Products

Compatible with all materials found in a hydronic loop, these chemicals offer overall protection of a heating system from sludge, scale, corrosion, and freeze conditions.

## AERCO Condensate Neutralizer Kit

AERCO Condensate Neutralizer Kit is ideal for neutralizing condensate from condensing boilers and furnaces operating on natural gas or propane.

## Constant Speed Pumps

These kits include a circuit setter that allows setting flow rates that meet the minimum allowable boiler flow rate and do not exceed the maximum. The pumps are in-line and permanently lubricated for ease of maintenance with a cast iron body and electrical requirement of 115V/1ph/60Hz.

## Variable Speed Pump Kits

Specifically selected for hydronic heating, these pumps are ideal for the boiler loop pump of Modulex EXT series installations and help ensure coldest return temperatures and highest efficiencies.

## Hydraulic Separator

These hydraulic separators establish primary-secondary piping for Modulex EXT boiler applications. Primary-secondary piping de-couples the boiler loop from the system loop — making it independent from system loop pressure fluctuations associated with opening/closing of zone valves or 3-way valves.

## Communications Gateway

This optional accessory supports boiler or BMS integration with BACnet, LonWorks, and N2 systems.

## AERCO Control System (ACS)

The AERCO Control System (ACS) maximizes modular heating plant efficiency by providing remote access and control of multiple boiler installations. ACS is compatible with Building Automation Systems via Modbus open protocol or conventional analog systems.

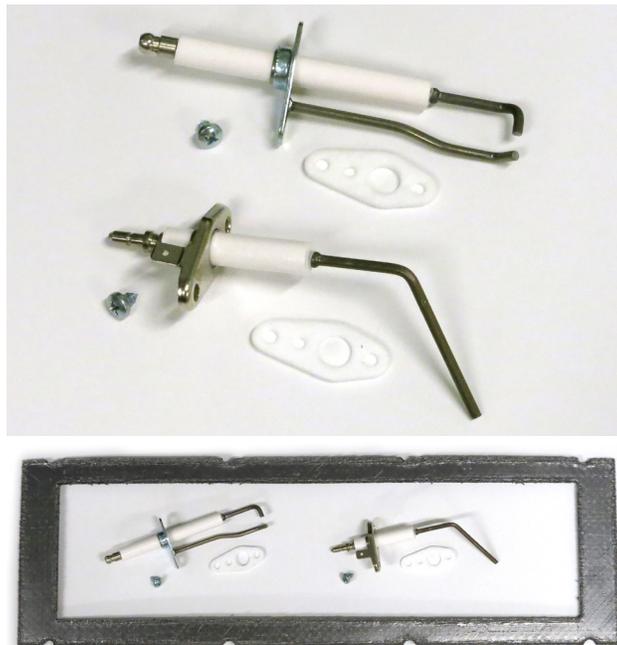
# Service and Support

Preventive Maintenance Kits - AERCO Preventive Maintenance Kits are designed to meet the preventive maintenance needs of your AERCO equipment. Each maintenance kit includes the required spare parts to perform the AERCO recommended maintenance schedules for the specified appliance.

The annual maintenance kit includes the Igniter and Flame Detector, and the 24-month kit adds the burner gasket. Each kit includes equal quantities of each component required for the model to be serviced.

## Extended Warranty Program

AERCO provides an extended warranty on our Modulex EXT Boiler as well as on all other major equipment — Benchmark Boilers, Modulex Boilers, and Innovation Water Heaters — to allow customers another opportunity to manage their ongoing costs of operations. While you receive a standard warranty as the original purchaser, our extended warranties help you project your costs and protect your business against increases in material and/or labor costs.



AERCO Preventive Maintenance Kit

# Specifications

## Light Commercial Sizes

	MLX EXT 450	MLX EXT 600	MLX EXT 800	MLX EXT 1100
Boiler Category	IV	IV	IV	IV
Gas Connections (NPT)	2"	2"	2"	2"
Max. Gas Pressure	10.5"	10.5"	10.5"	10.5"
Min. Gas Pressure	3.5"	3.5"	3.5"	3.5"
Max. Allowed Working Pressure	92 psi	92 psi	92 psi	92 psi
Electrical Req: 120V 15AMP max.	2.7 FLA	3.6 FLA	4.5 FLA	6.3 FLA
Water Connections (NPT)	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Min. Water Flow @ Min. Fire (GPM)	7	9	11	16
Min. Water Flow @ Full Fire (GPM)	18	24	30	41
Max. Water Flow (GPM)	38	53	64	93
Water Pressure Drop @ Max. Flow (Ft. of Hd)	9	9.5	8.1	8.9
Water Volume: Gallons	3.8	4.9	5.9	8
Thermal Modules	3	4	5	7
Turndown or Operating Range	10.5:1	14:1	17.5:1	24.5:1
Vent / Air Intake Size	4"	4" air intake 6" exhaust	6"	6"
Vent Materials (as per local code)	Can support PVC, cPVC , Polypropylene, or AL29-4C venting materials			
Type of Gas	Natural Gas or Propane			
Temperature Control Range	Units deliver 50°-180°F supply; Min. 35°F inlet water required			
Maximum Noise Level	All units deliver <50 dBA when operating at or below full fire			
Standard Listings and Approvals	CSA, ASME, CSD-1, CRN, Mass Approval			
Water Quality	Ph operating range 6.5 to 8.0 and Glycol (if used) MUST be compatible Cast Aluminum heat exchangers			

Model Number	Height	Width	Depth	Weight(wet)	Weight (shipping)
MLX EXT 450	45.3"	30"	30.3"	454 lbs.	520 lbs.
MLX EXT 600	45.3"	40.6"	30.3"	568 lbs.	650 lbs.
MLX EXT 800	45.3"	40.6"	30.3"	634 lbs.	717 lbs.
MLX EXT 1100	45.3"	51.2"	30.3"	828 lbs.	924 lbs.

# Specifications

## Commercial Sizes

	MLX EXT 1500	MLX EXT 2300	MLX EXT 2600	MLX EXT 3000
Boiler Category	IV	IV	IV	IV
Gas Connections (Flange)	3"	3"	3"	3"
Max. Gas Pressure	10.5"	10.5"	10.5"	10.5"
Min. Gas Pressure	4"	4"	4"	4"
Max. Allowed Working Pressure	92 psi	92 psi	92 psi	92 psi
Electrical Req: 120V 15AMP max.	10 FLA	15 FLA	17.5 FLA	20 FLA
Water Connections (Flange)	4"	4"	4"	4"
Min. Water Flow @ Min. Fire (GPM)	8	12	14	16
Min. Water Flow @ Full Fire (GPM)	56	84	99	113
Max. Water Flow (GPM)	113	169	197	225
Water Pressure Drop @ Max. Flow (Ft. of Hd)	7.9	16.4	17.8	13.2
Water Volume: Gallons	2.7	4.8	5.9	7
Thermal Modules	4	6	7	8
Turndown or Operating Range	19.6:1	29:1	34:1	39:1
Vent / Air Intake Size	10"	12"	12"	12"
Vent Materials (as per local code)	Can support PVC, cPVC , Polypropylene, or AL29-4C venting materials			
Type of Gas	Natural Gas or Propane			
Temperature Control Range	Units deliver 50°-180°F supply; Min. 35°F inlet water required			
Maximum Noise Level	All units deliver <50 dBA when operating at or below full fire			
Standard Listings and Approvals	UL, ASME, CSD-1, SCAQMD			
Water Quality	Ph operating range 6.5 to 8.0 and Glycol (if used) MUST be compatible Cast Aluminum heat exchangers			
Outdoor Temperature Range	5°F to 104°F			

Model Number	Height	Width	Depth	Weight (wet)	Weight (shipping)
MLX EXT 1500	57.2"	42.8"	37.2"	1137 lbs.	1289 lbs.
MLX EXT 2300	57.2"	53.3"	37.2"	1384 lbs.	1558 lbs.
MLX EXT 2600	57.2"	63.9"	37.2"	1549 lbs.	1776 lbs.
MLX EXT 3000	57.2"	63.9"	37.2"	1664 lbs.	1891 lbs.



**Heating and Hot Water Solutions**

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