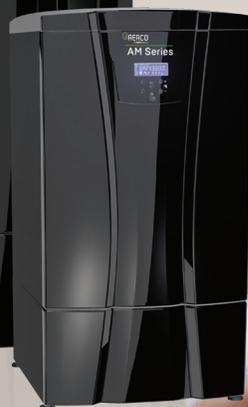


# AM Series

High-Efficiency Boilers and Water Heaters



# AM Boilers

## A Single Unit Provides the Reliability and Redundancy of a Multi-Unit System

The AM boilers (AMB) function as a pre-packaged boiler plant. Every unit consists of between two and four individual modules, each with its own combustion chamber, burner, gas valve, and combustion controls and safeguards, all tied together to common water connections and assembled in a single enclosure. This provides all of the advantages of a larger boiler plant, including high turndown and multiple-unit redundancy, while keeping operation simple and decreasing installation costs.

The AM boilers feature an advanced high efficiency, condensing hydronic technology that delivers installation and operational savings for systems operating from 117 to 293 kW. For applications greater than 293 kW, multiple units are easily tied together to provide the superior reliability and redundancy of a multi-boiler system in a single unit. Premix burners with a fiber mesh make the AM boilers ideal for “green” designs and facilities in which LEED certification is a goal. The fiber mesh burners also help the AM series achieve emission levels under 20 ppm NOx. The AM Series may also be paired with a storage tank for water heating applications. High turndown means the AM requires a smaller storage tank than traditional water heaters.

### Key Features

- Available in four sizes from 117 to 293 kW
- Efficiencies up to 99%
- Superior uptime reliability
- Natural gas or propane
- Turndown up to 20:1
- Whisper-quiet operation, even at full fire
- Small footprint
- Removable front panel allows for easy access and simplifies maintenance
- Combine multiple units for applications over 293 kW
- Direct/conventional vent with PVC, CPVC, Polypropylene or AL29-4C materials
- Can be vented with concentric venting



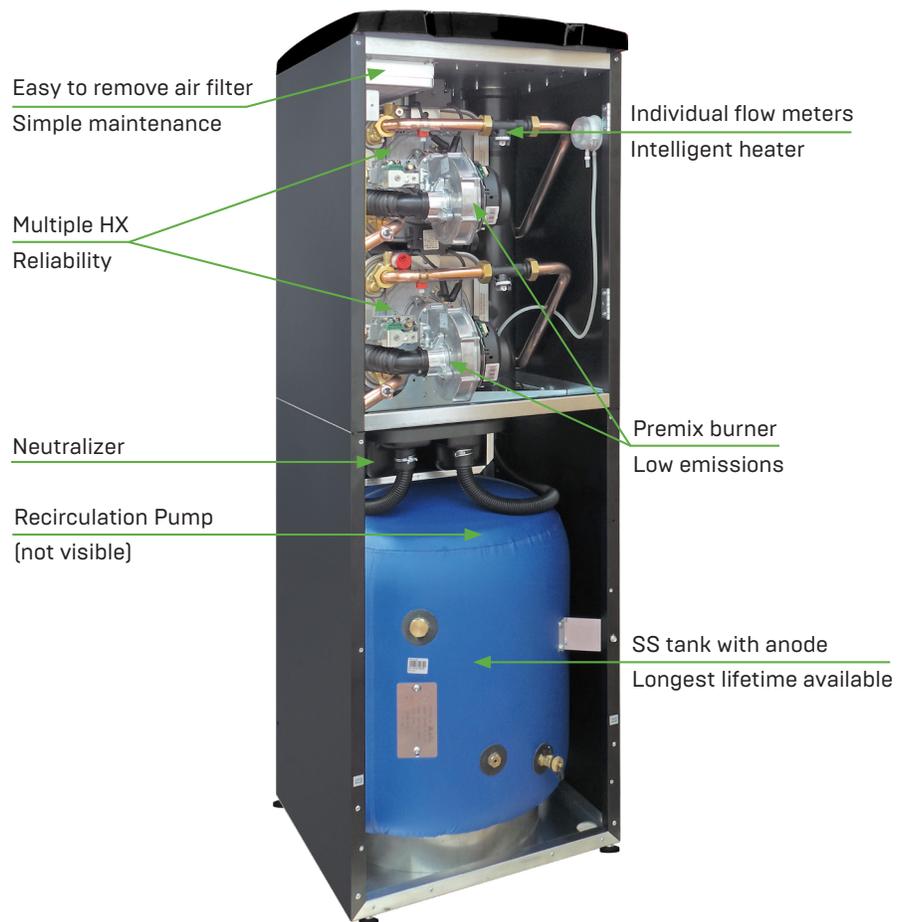
Boilers



# AM Water Heaters

## Powerful Hot Water Solutions with a Compact Footprint

AMR Integrated water heater (AMRI) comes in four sizes from 58.3 to 146 kW. The AM Variable Radial Circulation heat exchanger is highly resistant to scale build-up which increases your ROI and expands the lifetime expectancy of your system. The high quality design promotes uptime reliability while providing you with a powerful water heating system in a compact footprint. Multiple units can be located with near-zero side clearance for even larger installations. Internal valves are included affording you additional savings on installation costs.



### Water Heaters



# Performance You Need...Savings You Want

The AM Series brings best-in-class heat and hot water solutions to a wide range of facilities including:

- Multi-family Housing/Apartments
- Education
- Lodging
- Medical Centers/Nursing Homes
- Office Buildings

High performance in a compact, flexible design makes the AM Series the perfect hot water solution for systems requiring 58.3 to 293 kW and above. In addition to lowering energy usage, the AM Series maximizes each square foot for a greater return on new facility investment. A variety of quick-to-install, cost-efficient accessories eliminates the need for special rigging or system changes to existing mechanical rooms, making the AM Series equally well-suited for retrofits. The end result is an easily installed, highly efficient solution that conserves space and lowers energy use to create significant short- and long-term savings.

The modular design in the AM Series creates installation, operational, and reliability benefits unmatched by competitive boilers or water heaters in the same class. Designing a hydronic system with an AM Series unit delivers a number of advantages:

## Lower Costs

Installation, operating, and lifetime costs are all reduced due to the modular design that maximizes efficiency and operation.

## Higher Uptime Reliability

The modular design also creates a level of redundancy and reliability from a single AM Series boiler or water heater that is typically only found in multi-unit systems.

## Installation Flexibility

A wide variety of venting options allows the AM Series to be easily integrated into any system, whether retrofit or new construction.

## Space Savings

Its compact footprint allows the AM Series to be installed in small mechanical rooms, yet it delivers large performance.

Multifamily Apartments



Education



Lodging



Medical Centers/Nursing Homes



Office Buildings



# Designed for Efficiency

Maintaining the AERCO heritage, the AM Series delivers high operating efficiency of up to 98%. By achieving the highest possible seasonal efficiencies, the AM Series creates short-term and life-cycle energy savings. Best-in-class performance is achieved by using superior design approach that incorporates:

## Multiple Modules

Each unit is designed with between one and four independent modules that fire up to 73.3 kW at 5:1 individual turndown, to create a maximum turndown of up to 20:1 per unit.

## High-quality Heat Exchanger

At the heart of the modules is a patented Variable Radial Circulation (V.R.C.) heat exchanger designed with three series of stainless steel round tubes. The heat exchanger is constructed out of 316Ti stainless steel tubes for high reliability and long life.



## Advanced Modulation and Condensing Technologies

The AM Series continues the decades-long trademark of AERCO solutions featuring fully modulating and condensing technologies. High modulation means the AM Series matches loads exactly to need, minimizing cycling, eliminating over-firing, and achieving tight temperature control. Additionally, each load is split when it reaches a designated level to support two modules without cycling for the highest possible efficiencies.

## Boiler Ratings

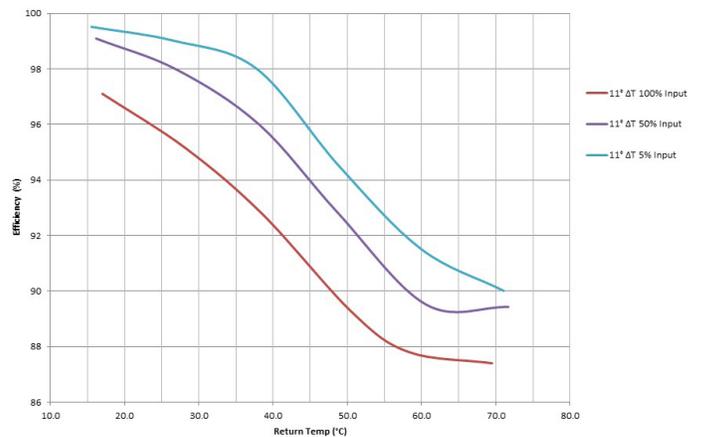
Model Number	Min Input kW	Max Input kW	Max Output kW	Efficiency Range	AMB AHRI Efficiency
AM 399	14.66	117	116	up to 99%	93.8%
AM 500	14.66	147	145	up to 99%	93.8%
AM 750	14.66	220	218	up to 99%	93.8%
AM 1000	14.66	293	290	up to 99%	93.8%

## AMRI Ratings

Model	Min Input kW	Max Input kW	Max Output* kW	LPM @ 56°C Rise	AHRI Thermal Efficiency
AM 199RI	14.66	58	56	14	90%
AM 250RI	14.66	73	70	18	91%
AM 399RI	14.66	117	111	29	92%
AM 500RI	14.66	147	139	36	94%

\*BTU output depends on several factors, including supply and return water temperatures. Please contact your local factory representative for further details.

## Efficiency



# Sample Installations



## Hampton Inn, Daytona Beach, Florida

The existing unit delivering hot water to the washing machines serving the 91-room Hampton Inn broke for the second time and began leaking well within the 3-year warranty period. Since it was the only water heater for the laundry room, management needed to quickly find a reliable solution. The hotel turned to AERCO International, who raced to deliver an AM Series unit in one day. The new water heater system provides 100% redundancy and the system temperature was reduced from 82°C to 60°C, which significantly lowers energy costs and prevents scale buildup. Its compact design enabled the unit to easily fit inside the existing closet that contained the old system, for a straightforward and simple installation. The high efficiency and low pollutant levels of <20 ppm NO<sub>x</sub> of the AM Series made the water heaters comply with the Hampton Inn's green operation guidelines. Further meeting the environmental benchmark was the whisper quiet operation of the AM Series, which runs at <70 dBA, much quieter than comparable solutions.



## The Parke Assisted Living Center, Tulsa, Oklahoma

The maintenance manager of The Parke Assisted Living Center identified a problem with their old boilers and indicated they were starting to fail. He recommended because they are more sophisticated and efficient. Hydronic Systems worked with Air Comfort, Inc. in Jenks, Oklahoma to install the two modular boilers. These are really nice systems and much more user friendly than what I have seen from AERCO's competition," said Jason Blevins, a project manager for Air Comfort, Inc. "What is really nice about the system is the overall ease of use. A lot of systems are complicated but the set up and start-up on this system was very straight forward, especially for a high-efficiency boiler system." The new AM series also works well with the existing heat pump system The Parke was already utilizing. With the ability to maintain the temperature to within a few degrees of set-point and warm the water quickly if needed, the modular system will save The Parke a good deal of money in utility costs.



## East Ridge Retirement Village, Miami

When management of the high end retirement community began a 70-room expansion, it needed to make sure that the project maintained the highest caliber lifestyle for its residents. The heating system design for the expansion combined fan coils with electric heaters, heat pumps and standard gas-fired boilers. The specified boilers were replaced by two smaller AERCO AM 750 boilers that had higher efficiency (up to 98%), were more reliable, and had greater redundancy. Further shrinking operating costs was the fact that the boilers could run a much lower return water temperature than the original boilers, allowing management to turn down the loop temperature and save further on operating costs. Taking advantage of the complete front maintenance access, the two boilers were installed with a minimum service distance between units, allowing the AM 750 units to easily fit into the allocated space. By utilizing an intelligent design that coupled the AM 750 boilers and heat pumps, a low-cost and environmentally friendly solution was installed. The AERCO-based system required fewer BTUs, saving the village management money through lower operating costs and energy savings.





### Coushatta Casino, Kinder, LA

Louisiana’s largest casino resort, took a gamble with their heating system by installing two non-condensing, 378-liter, 58 kW storage water heaters. Despite a short run time, these storage water heaters began to leak and fail. One issue with the existing water heaters was their inefficient “on-off” design, which resulted in excessive wear and tear and higher operating costs. Manufacturing Rep Heatran selected a single AERCO AM 500R high-efficiency water heater to fill the slot. The system’s requirements and operating costs were considerably decreased. The storage tank volume was dropped from 757 liters to 121 liters, creating lower tank losses and less cycling to maintain tank temperature, while the minimum firing rate was reduced from 58 kW to 15 kW achieving tighter temperature control under the typical low loads. And by improving the maximum firing rate from 117 kW to 146 kW, the system is now also to support larger loads. Adding to the ease of installation was the fact the AM 500R could be side-wall vented with 100mm PVC venting. With a newfound ability to modulate down as far as 10% of the maximum input, the new system will be much more efficient, saving a tremendous amount in energy bills - a conservative estimate of fuel cost savings is 25%, but energy savings could be upwards of 50% due to higher efficiency, lower cycling losses, and lower tank losses.



### Dialysis Center, Northeast Ohio

When it was discovered that the original boiler systems at two of dialysis centers’ facilities were beginning to fail, Comfort Systems developed a solution featuring AERCO Modulex and AM Series boilers that provided high efficiency and reliability. Modulex and AM Series boilers feature multiple combustion chambers, a burner, gas valves, and combustion controls in a single enclosure. This not only adds a level of redundancy the facilities did not have previously, it improves efficiency and lowers operating costs. Another advantage of the units is whisper-quiet operation of less than 70 dBA—even at full fire—which makes for a more relaxed and peaceful patient experience. Each of the units has a compact footprint that proved invaluable on this retrofit project, as space in the mechanical rooms was tight. The AM Series design allows one unit essentially to serve as a prepackaged boiler plant that delivers 20:1 turndown, which is five times better than the dialysis center’s previous system. With a compact footprint, the AM 1000 provides the same modularity as the previous system in about a quarter of the space. The AM Series’ durable variable-radial-circulation heat exchanger and its 316Ti stainless-steel construction will help to reduce future maintenance costs and prolong the life of the boiler. AERCO provided a detailed calculation showing payback in about three-and-a-half years. The estimate was based on actual running conditions of the sites, more-efficient equipment, and local gas prices. Both facilities can expect even greater return from energy savings and lower operating and maintenance costs because of the boilers’ high efficiency, reliability, and high-quality construction.



# Green Footprint



High efficiency is one of the many reasons why the AM Series is perfect for green designs. The boilers and water heaters satisfy the stringent requirements associated with modern, environmentally-conscious facilities by incorporating revolutionary design elements.

#### **Premixed Burners**

The AM Series produces high-efficiency combustion and low pollutant levels of less than 20 ppm NO<sub>x</sub>, thanks to advanced premixed burners with a unique fiber mesh.

#### **On-board Control**

To ensure AM Series units always run at the highest possible efficiencies, an on-board control automatically cycles lead-lag burners to balance run hours and cycles, as well as stage burners so multiple burners run at the lowest fire rate. Integrated check valves and automatic shutoff valves on every module ensure that there is no heat loss through the flue or water side of the module.

#### **Whisper Quiet Operation**

The AM Series runs at <70 dBA, much quieter than comparable products. It meets low noise specifications, so the boilers and water heaters are ideal for apartments, schools, hotels and other facilities where quiet operation is necessary.

#### **Cascade Installation**

The inherent environmental advantages of the AM Series can be realized in systems requiring more than 293 kW. Up to eight units can be sequenced via a simple Cascade Manager (available on request).

#### **Low Vent Temperature**

The AM Series generates modest venting temperatures and therefore units can be single or cascade vented using eco-friendly Polypropylene venting material.

# Lifecycle Benefits

The true value of a hot water solution is realized over the life of the system. No other solution in its class has the lifecycle savings and uptime reliability of the AM Series. By incorporating advanced design techniques and high-quality components, the AM Series is more efficient and saves more money than competitive boilers and water heaters.

## Long-lasting

To maintain the integrity and durability of the stainless steel in the C.R.V. heat exchanger, the tubes are assembled and hydraulically connected without welding for high reliability. Long life is also supported by automatic rotation of the lead-lag modules and minimal cycling that reduces wear on unit components.

## Reliable

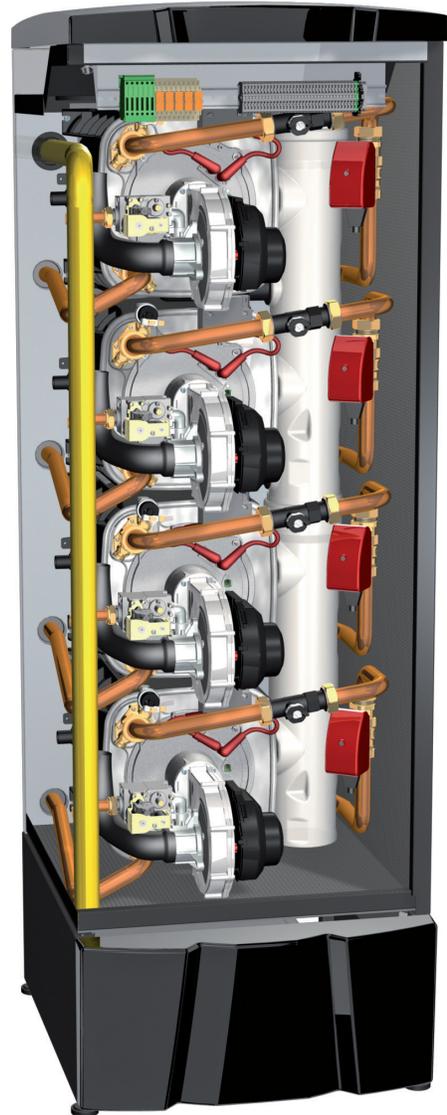
The built-in reliability of the modular design eliminates emergency tech service and associated repair costs and downtime. Each module has an independent burner, gas valve, ignition system, flame safeguard, check valve and automatic water shutoff valve. If one module goes down, the required load is met by the remaining modules until the scheduled maintenance can be performed.

## Easy Access

Simple front access makes it more efficient for technicians to conduct scheduled service and maintenance on the units, which in turn saves time and reduces labor costs.

## Warranty

The AM Series of boilers and water heaters come with a 7-year warranty on the heat exchanger.



# AERCO HeatSmart

## A Guaranteed Way to Size Your Water Heaters

The newly designed, user-friendly and intuitive HeatSmart tool is a practical and financially viable alternative to measuring and monitoring flow for months to determine the design load conditions for optimum water heater sizing. AERCO HeatSmart is built upon 70 years of experience and empirical data from sizing and selecting instantaneous domestic water heaters across a variety of commercial building applications. Additionally, through its remote monitoring system, AERCO has visibility to numerous demand profiles for a variety of applications which allows HeatSmart generates a much more realistic and economic selection proven to satisfy the specified load of your project without the excessive oversizing prevalent with most industry-standard sizing methods. By not oversizing your water heater, you'll save energy, optimize your system and increase ROI. It also provides a peace of mind by assuring the AERCO generated sizing will meet the design load.

AERCO is the only manufacturer to guarantee its selection will satisfy the building design load provided the real design conditions and accurate fixture count have been entered to generate the sizing. The guarantee covers material and labor charges necessary to correct the system capacity issue.

The comprehensive tool gives you a high degree of flexibility during sizing and selection process allowing you to:

- Size a system using building fixture count or input liter/sec
- Size a single system with multiple applications (e.g., a resort with multiple full service restaurants)
- Size multiple systems (or zones) within a single building
- Size multiple systems (or zones) within a single building, with multiple applications
- Size a campus with multiple building with multiples zones and/or multiple applications
- As an option, incorporate storage tanks into the design
- Calculate and incorporate the stored water volume within the piping
- Add desirable spare or redundant capacities
- Review previous sizing reports ran with or without sizing guarantee

Every sizing will generate a PDF of the selection report for print or download. You can access HeatSmart at [heatsmart.aerco.com](https://heatsmart.aerco.com).

The guaranteed HeatSmart sizing will ensure the best-sized gas-fired water heater for your project!

# Accessories and Service Parts

## Installation Kits

These kits consist of near-equipment piping components including pump, circuit setter, strainer, isolation valves, relay for pump contact, and pipe fittings.

## AM Series Cascade Manager

The AM Series Cascade Manager is a simple tool that maximizes the performance of a bank of AM Boilers or Water Heaters. The Cascade Manager is designed specifically to work with the AM Series control system.



## Contractor Parts Kit

This kit includes all the spare parts necessary to service and maintain the unit, including control board, igniters, flame rods, and all the screws, nuts and gaskets.



## Sentinel Products

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

## Hydraulic Separator

These hydraulic separators establish primary-secondary piping for AM Series 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.

**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.

## Water Heating Applications

### Domestic Water Storage Tank

AERCO storage tanks are ASME certified glass-lined pressure vessels designed for use with instantaneous water heaters. When contending with challenging applications they assure consistent hot water service during peak demands.

### Domestic Pumps

The all-stainless body complies with the latest low-lead requirements.

# Installation Solutions

## AM Installation Kit

To help you install your new AM Series boiler or water heater, AERCO has compiled everything you need into one, convenient place, our AM Installation Kits. These kits eliminate the need to separately purchase all near-equipment piping components as well as remove any guesswork regarding which size piping is appropriate for your project. You'll have all the components you need at your fingertips to get your AM unit installed quickly and properly so it operates at peak performance.

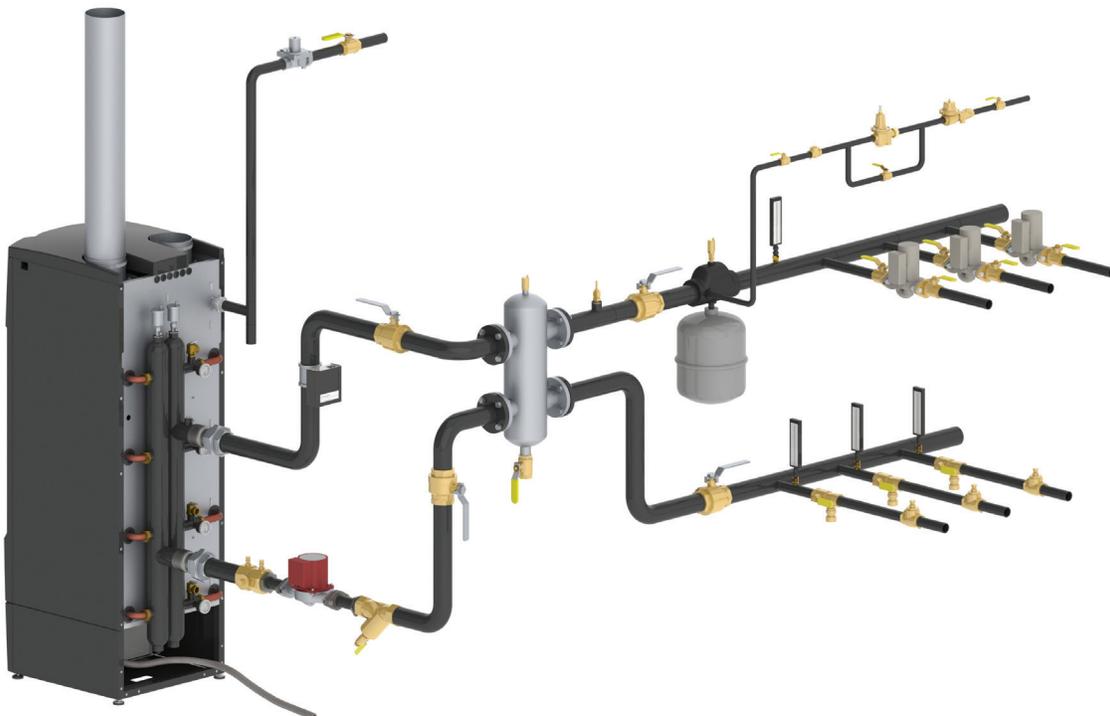
AM Installation Kits contain all near-equipment piping components\* including:

- Constant speed pump with mating flange
- RIB Relay/starter for pump contact
- Positive shut-off circuit setter
- Tee for low water cutoff installation
- Y-Strainer (304 SS screen, #20 mesh) with blow-off valve
- Isolation ball valves
- Pipe fittings



\*Domestic hot water kits include lead-free components

## Sample Installation



# Installation Advantages

# Venting Configurations

A key benefit of the AM Series is the simplicity and flexibility of the boilers and water heaters. They are equally well-suited to bring efficiency and reliability advantages to retrofit designs, as well as meet the environmental goals associated with new systems.

### Small Footprint

Having one of the smallest footprints in its class allows the AM Series to occupy less space in cramped mechanical rooms. Servicing of the units can be done from the front of the boiler or water heater, allowing multiple units to be located with near-zero clearance between units to conserve even more space. The small footprint makes it easy for the AM Series to fit in a standard 770 mm (0.77 m) doorway.

### Venting

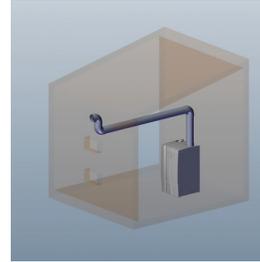
Direct or conventional venting with PVC, cPVC, polypropylene and AL29-4C can be used, due to the high efficiencies and low vent temperatures. A variety of options, including sidewall, concentric and common venting, allows the AM Series to be installed in any design configuration, as well.

### AM Dimensions

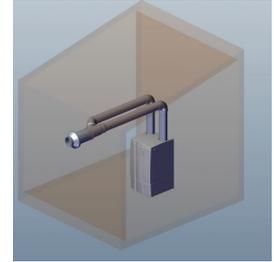
Model Number	Height in mm	Width in mm	Depth in mm	Weight (wet)	Weight (shipping)
AM 399	1160	600	885	136 kg	147 kg
AM 500	1160	600	885	141 kg	152 kg
AM 750	1815	600	886	240 kg	257 kg
AM 1000	1815	600	886	279 kg	292 kg

### AMRI Dimensions

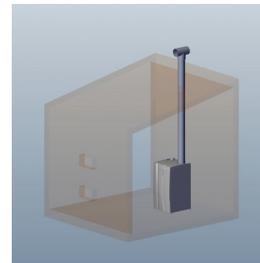
Model Number	Height in mm	Width in mm	Depth in mm	Weight (wet, 80 gal)	Weight (shipping)
AM 199RI	1815	600	905	250 kg	136 kg
AM 250RI	1815	600	905	286kg	170 kg
AM 399RI	1815	600	905	370 kg	245 kg
AM 500RI	1815	600	905	422 kg	295 kg



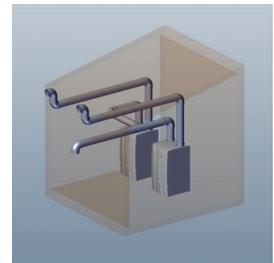
Single sidewall vent room air



Sidewall Concentric Vent



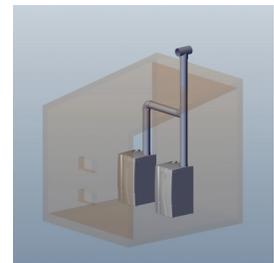
Single makeup air



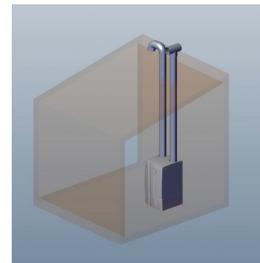
Multi sidewall



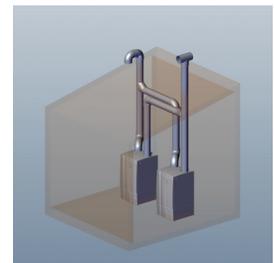
Single sidewall



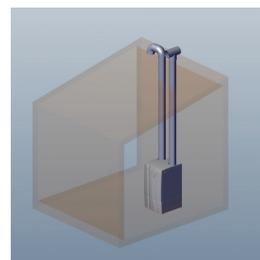
Multi makeup air



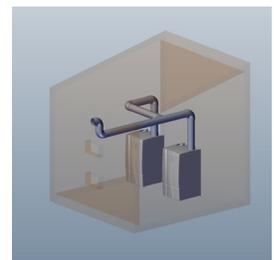
Single vertical vent



Multi vertical vent



Single Vertical-Concentric Vent



Multi sidewall vent room air

# AM Boiler Specifications

	AM 399	AM 500	AM 750	AM 1000
Boiler Category	IV	IV	IV	IV
Gas Connections (NPT) in mm	25.4	25.4	31.75	31.75
Max. Gas Pressure in mbar (kPa)	32.35 (3.24)	32.35 (3.24)	32.35 (3.24)	32.35 (3.24)
Min. Gas Pressure in mbar (kPa)	7.47 (0.75)	7.47 (0.75)	7.47 (0.75)	7.47 (0.75)
Max. Allowed Working Pressure in bar (kPa)	11 (1100)	11 (1100)	11 (1100)	11 (1100)
Electrical Req: 120V (AMP)	1.8	2.5	3.6	4.9
Water Connections (NPT) in mm	50.8	50.8	63.5	63.5
Min. Water Flow (LPM) @ Max. Fire	83.3	90.8	136.3	181.7
Max. Water Flow (LPM)	151.4	151.4	227.1	302.8
Water Pressure Drop @ 16.7°C rise (kPa)	38.6	74.5	68.9	80.7
Unit Water Volume: Liters	15.14	15.14	26.5	34.07
Thermal Modules	2	2	3	4
Turndown or Operating Range	8:1	10:1	15:1	20:1
Vent Size (combustion air & vent) in mm	101.6	101.6	152.4	152.4
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	Boilers deliver 20°-82.2°C*, Water Heaters deliver 20°-82.2°C			
Maximum Noise Level	<70 dBA			
Condensate Production (LPH)	14.53	17.49	37.7	34.97
Standard Listings and Approvals	ASME, CSA, CSD-1, Mass. Approval, SCAQMD, NSF 372, AHRI			

\*For applications with return water temperature >62.8°C, the design  $\Delta T$  must be >19.5°C to allow the use of PVC venting.  
For further information contact your local sales representative.

# AMR Integrated Specifications

	AM 199R	AM 250R	AM 399R	AM 500R
Boiler Category	II & IV	II & IV	II & IV	II & IV
Gas Connections (NPT) in mm	25.4	25.4	25.4	25.4
Min. Gas Pressure in mbar (kPa)	7.46 (0.75)	7.46 (0.75)	7.46 (0.75)	7.46 (0.75)
Max. Gas Pressure in mbar (kPa)	32.35 (3.24)	32.35 (3.24)	32.35 (3.24)	32.35 (3.24)
Max. Working Pressure in bar (kPa)	11 (1100)	11 (1100)	11 (1100)	11 (1100)
Water Connections (NPT)	31.8	31.8	31.8	31.8
Electrical Req: 120V (Amp)	15	15	15	15
ASME Buffer Volume (lit)	121	121	121	121
Thermal Modules	1	1	2	2
Turndown	4:1	5:1	8:1	10:1
Vent Size	76.2	76.2	101.6	101.6
Vent Materials	PVC*, cPVC, Polypropylene, Stainless Steel			
Gas Type	Natural Gas or Propane			
Temperature Control Range	Water Heater delivers 20-82.2°C			
Noise Level	<70 dBA			
Max. Condensate Production (LPH)	7.2	8.7	14.4	17.4
Standards, Listings, and Approvals	ASME, CSA, Low Lead, Mass Approval, SCAQMD, NSF-372			

\*For applications with return water temperature >62.8°C, the design  $\Delta T$  must be >19.5°C to allow the use of PVC venting.  
For further information contact your local sales representative.



**Heating and Hot Water Solutions**

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