

Technical Data Sheet

Modulex EXT 450-1100 Boilers

A breakthrough in high-efficiency design, AERCO's condensing and fully modulating Modulex boilers support 481 to 1132 MBH hydronic heating systems while delivering a greater degree of operating reliability for customer peace of mind. To achieve the greatest possible fuel savings, each boiler combines independent, 160,500 BTU/hr. thermal modules (see back) that operate to deliver superior turndown and a range of non cycling operation not readily achieved by competitive equipment or controls. In addition to minimizing redundant capacity needed for any project, these quiet and lightweight boilers can support low NOx and low gas pressure applications as well as a variety of venting materials. The unit offers multiple supply/return piping and venting locations for installation flexibility and allows for multiple units to be easily co-located for greater than 1 million BTU/hr applications. Combustion view ports and easy access to all operating components further simplify minimal maintenance requirements. The Modulex EXT comes standard with a coated enclosure allowing for outdoor installations. In addition to controlling the boiler according to a constant set point, indoor/outdoor reset or 0-10V signal, one or more units can be integrated via Modbus communications protocol to a facility wide Energy Management or Building Automation System.

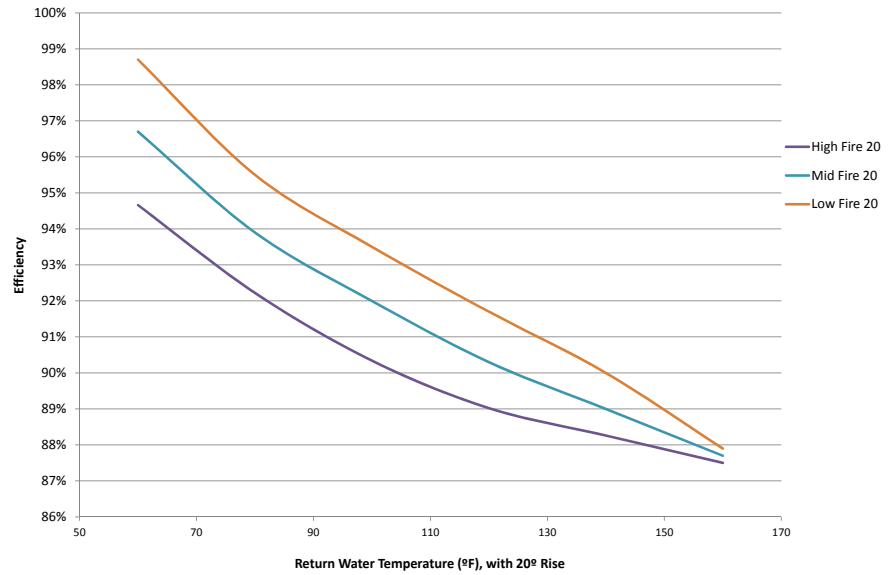


Features

- Condensing Boiler
- Natural Gas or Propane
- Unmatched Turndown 10.5:1 to 24.5:1 (unit dependent)
- Whisper Quiet Operation <50 dBa
- Low NOx Emission <20 ppm
- Direct or Conventional Vent with PVC, CPVC, Polypropylene or AL29-4C Materials
- Common Vent Capability
- Outdoor Installation Standard
- Small, Doorway-Size Footprint
- Flexible Piping and Venting Connections
- Equipped with Sealed Combustion
- Superior Reliability
- Minimal Maintenance
- Easy Open Access for Serviceability
- 0-10V output to control primary VFD pump
- Supports Integration to BAS System

Thermal Efficiency

Comprehensive tests were conducted to confirm the unit's efficiency over its entire 46,000 to 1,123,000 BTU/hr. operating range for a variety of operating conditions. These tests indicate that efficiency up to 98.6% can be achieved when the unit operates at its lowest firing rate (46,000 BTU/Hr input) with 60°F inlet water temperature. Even at full fire (100% input), the Modulex EXT delivers exceptional efficiency.



Ratings

Model Number	Min Input	Max Input	Max Output*	Efficiency Range
MLX EXT 450	46,000	481,500	422,000-457,000	87%-99%
MLX EXT 600	46,000	642,000	564,000-609,000	87%-99%
MLX EXT 800	46,000	802,500	707,000-762,000	87%-99%
MLX EXT 1100	46,000	1,123,500	993,000-1,067,000	87%-99%

*Note: Max output varies depending on supply and return water temperatures. Please contact a factory representative for greater details.

Enhanced Reliability with Greater Seasonal Efficiency

The independent operation of two or more thermal modules increases each boiler's turndown range while also increasing its overall reliability. And since thermal efficiency increases as firing rates drop, the simultaneous low fire operation of multiple modules also ensures that Modulex boilers continuously maximize operating efficiency.

For example, the MLX EXT 1100 combines the power of seven thermal modules, each operating with greater than 3.5:1 turndown to deliver a 24.5:1 range of operations. From the low fire input of a single module (46,000 BTU/hr.) to the unit's full fire capacity (1,123,000 BTU/hr.), the boiler precisely matches load without cycling or temperature overshoot. Importantly, it does so by always employing as many modules as possible, each firing at its lowest possible firing rate. Less energy is required for the group of thermal modules, each firing at part load, to heat a building than if only some modules, each operating at full fire, carried the entire load. Consequently, this approach to control results in greater fuel savings than if each thermal module reached its full 160,500 BTU/hr. capacity before the next module came on line.

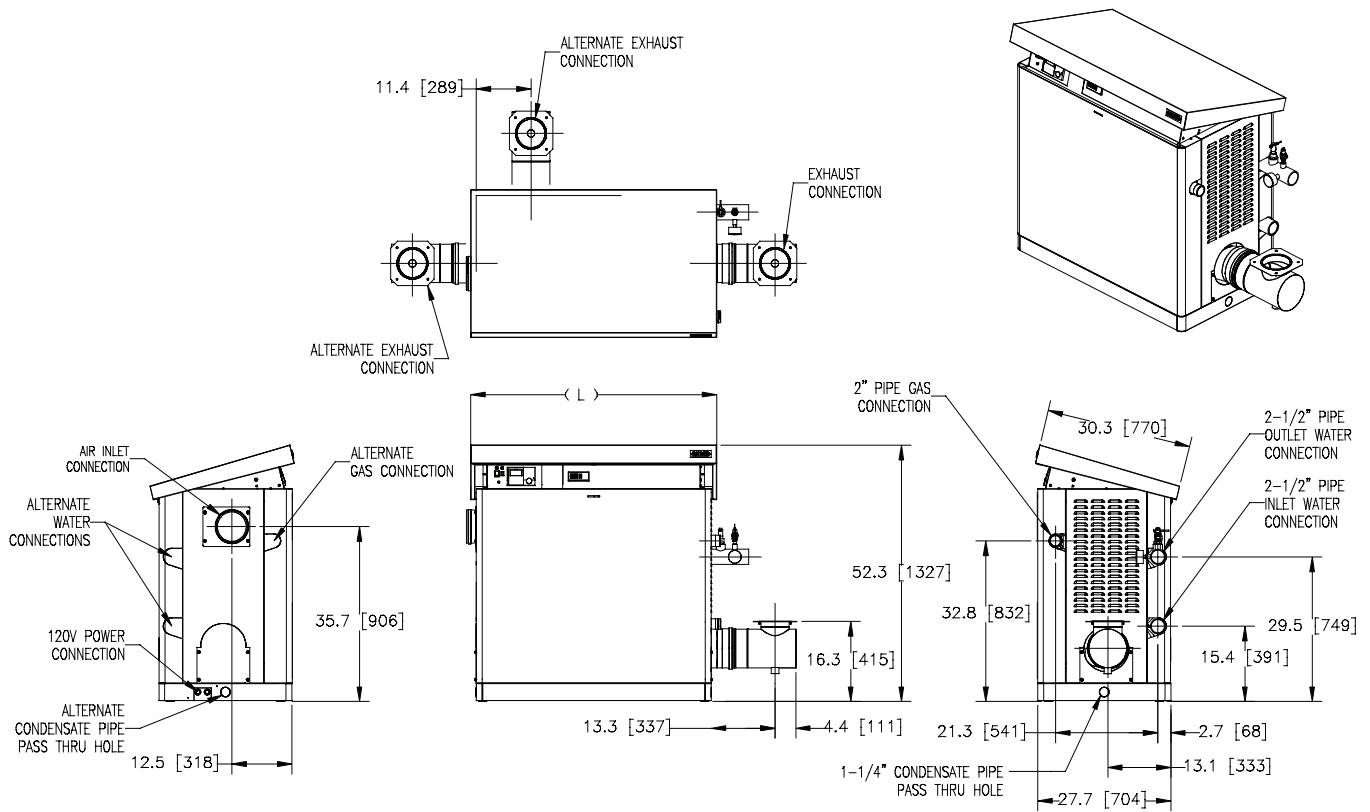
In the event that one module is not working correctly, the remaining modules – hence the boiler unit – will continue to operate. Independently operating thermal modules deliver built-in redundancy to the boiler through the availability of multiple combustion safeguards, burners, gas valves, blowers, and the back-up master controller. Such a design approach is unique in the industry and can significantly reduce the need for redundant system capacity.

Specifications

	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	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	42
Max. Water Flow (GPM)	42	56	71	99
Water Pressure Drop @ Max. Flow (Ft. of Hd)	9.5	8.1	7.9	8.3
Water Volume: Gallons	3.8	4.9	5.9	8.0
Thermal Modules	3	4	5	7
Turndown or Operating Range	10.5:1	14:1	17.5:1	24.5:1
Vent & Air Inlet 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	UL, ASME, CSD-1, Mass. Approval, SCAQMD			
Water Quality	PH operating range 6.5 to 8.0 and Glycol (if used) MUST be compatible Cast Aluminum heat exchangers.			

Dimensions

Model	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.	716 lbs.
MLX EXT 1100	45.3"	51.2"	30.3"	826 lbs.	924 lbs.



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