RIELLO ARRAY
High Efficiency Condensing Boiler
1000–4000 MBH
# POWER RANGE

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Max Input Btu/hr</th>
<th>Max Output Btu/hr</th>
<th>Number of Modules</th>
<th>AHRI Thermal Efficiency %</th>
<th>Turndown Ratio</th>
<th>Overall Dimensions W x H x D (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR 1000</td>
<td>1,000,000</td>
<td>961,000</td>
<td>2</td>
<td>96.1%</td>
<td>10:1</td>
<td>33.3x67.2x60.8</td>
</tr>
<tr>
<td>AR 1500</td>
<td>1,500,000</td>
<td>1,441,500</td>
<td>3</td>
<td>96.1%</td>
<td>15:1</td>
<td>33.3x67.2x60.8</td>
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<tr>
<td>AR 2000</td>
<td>2,000,000</td>
<td>1,922,000</td>
<td>4</td>
<td>96.1%</td>
<td>20:1</td>
<td>33.3x83x60.8</td>
</tr>
<tr>
<td>AR 3000</td>
<td>3,000,000</td>
<td>2,883,000</td>
<td>6</td>
<td>96.1%</td>
<td>30:1</td>
<td>35.4x83x72.8</td>
</tr>
<tr>
<td>AR 4000</td>
<td>4,000,000</td>
<td>3,844,000</td>
<td>8</td>
<td>96.1%</td>
<td>40:1</td>
<td>35.4x83x72.8</td>
</tr>
</tbody>
</table>
THE ULTIMATE IN EFFICIENCY, REDUNDANCY & RELIABILITY

The Riello Array is a pre-packaged boiler plant, the new standard in boiler efficiency, redundancy and reliability.

Each Array boiler utilizes multiple heat engine modules, providing high turn down and multiple boiler redundancy in one packaged unit.

A single Array boiler provides superior uptime reliability previously found only in larger multiple boiler systems.

KEY FEATURES
One platform, multiple sizes
Built in redundancy. Each 500 MBH module is fully independent and “stand alone” thus allowing boiler operation even if an adjacent module is turned off
Plug & Play installation
Extremely simple to service and maintain
For operation with natural gas or propane
Factory installed flue exhaust damper on each module, allows common venting capability of Array boilers in cascade
Heat Exchanger Protection: Control monitors supply and return temperature and prevents heat exchanger from excessive temperature rise

SUPERIOR DESIGN: STRUCTURE AND MATERIALS
Multi modules design
Horizontal modules
High quality stainless steel heat exchanger (AISI 316L)
Direct vent / Room sealed combustion

FLEXIBLE INSTALLATION
Direct vent air intake and exhaust up to 100 equivalent feet
6” to 10” venting system that can run horizontally or vertically
Venting Materials: CPVC, Polypropylene or AL29-4C stainless steel
Available with an air inlet damper for cold climates to prevent outdoor air from entering the heat exchanger in standby mode

HIGH PERFORMANCES
Efficiency up to 99%
NOx emissions of 9 PPM at 3% O2
Turndown ratio up to 40:1
ASME Design Pressure 80 PSI
Low noise operation (each module <48 dB)
The Riello Array Premix combustion system is comprised of a modulating gas valve integrated with a high performance fan and stainless steel mesh burner. The proportional control guarantees a consistent air/fuel ratio throughout the entire range of modulation resulting in a clean low temperature flame.

**ADVANCED PREMIX BURNER**

The Riello Array Premix combustion system is comprised of a modulating gas valve integrated with a high performance fan and stainless steel mesh burner. The proportional control guarantees a consistent air/fuel ratio throughout the entire range of modulation resulting in a clean low temperature flame.

**HIGH QUALITY HEAT EXCHANGER**

- Heat engine with a unique "Helix" style design
- Advanced design for greater reliability and an extended life
- The heart of the Array boiler is the power unit module
- Patented heat exchanger geometry consists of two stainless steel smooth pipes working in parallel eliminating the need for internal baffles
- The design allows minimum waterside pressure drop and efficient heat exchange
LOOKING INSIDE

- Constructed for high reliability and long life
- All water, gas, and venting connections on top
- Small installed footprint
- Assured minimum water flow rate for each module
- One pump for each module
- Stand-alone operation of each module to assure continuous functioning
- No additional boiler pumps or valves are required
- Color touch screen control

INSTALLATION ADVANTAGES

- Ease of commissioning & maintenance
- Minimum training required
- Saves space and easy to install
- Perfect for new installation and retrofit projects
- Quick-to-install, cost-efficient accessories
- Cascade up to 8 boilers (64 modules) allows to reach a modulation up to 320:1

OPERATION & MAINTENANCE

- Internal cascade redundancy always delivers reliable performance with no downtime
- Simple maintenance: each module can be serviced while the others are running
- Easy roll-out module configuration: the boiler can work with one or more modules removed
CONTROLS

STANDARD ON-BOARD CONTROL FEATURES

- 7" color touch screen outside the boiler cabinet
- Graphic display of actual input rate of cascade, boiler and modules
- User-Friendly menus to monitor the whole cascade (up to 8 boilers) or each single module
- Immediate access to Cascade, Supply, Return, Flue temperatures and Fan speed of each module
- Easy access to Settings, Service reminder, Outdoor reset capability, Error log
- Control provides remote operation through the 0-10Vdc for set point

CASCADE MANAGEMENT

- Service display inside the cabinet
- Analog input for remote DDC operation
- Onboard $\Delta T$ limiting eliminates on/off cycles
- Communication protocol Modbus

BOILER MANAGEMENT

MODULE MANAGEMENT
DIMENSIONS

ARRAY 1000 - 1500

A - Width
inch 33.3'' 33.3'' 33.3'' 35.4'' 35.4''
mm 846 846 846 899 899

B - Length
inch 60.8'' 60.8'' 60.8'' 72.8'' 72.8''
mm 1544 1544 1544 1849 1849

C - Height
inch 67.2'' 67.2'' 83'' 83'' 83''
mm 1707 1707 2108 2108 2108

ARRAY 3000 - 4000

Description | AR 1000 | AR 1500 | AR 2000 | AR 3000 | AR 4000
--- | --- | --- | --- | --- | ---
A - Width | inch | 33.3'' | 33.3'' | 33.3'' | 35.4'' | 35.4''
mm | 846 | 846 | 846 | 899 | 899

B - Length | inch | 60.8'' | 60.8'' | 60.8'' | 72.8'' | 72.8''
mm | 1544 | 1544 | 1544 | 1849 | 1849

C - Height | inch | 67.2'' | 67.2'' | 83'' | 83'' | 83''
mm | 1707 | 1707 | 2108 | 2108 | 2108
## TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Boiler Category</th>
<th>Unit</th>
<th>AR 1000</th>
<th>AR 1500</th>
<th>AR 2000</th>
<th>AR 3000</th>
<th>AR 4000</th>
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<tbody>
<tr>
<td>ASME Sect.IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Type of Gas</td>
<td>Natural Gas, Propane</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max Input Rate</td>
<td>BTU/hr (kW)</td>
<td>1,000,000 (293)</td>
<td>1,500,000 (440)</td>
<td>2,000,000 (586)</td>
<td>3,000,000 (879)</td>
<td>4,000,000 (1172)</td>
</tr>
<tr>
<td>Min Input Rate</td>
<td>BTU/hr (kW)</td>
<td>100,000 (29)</td>
<td>100,000 (29)</td>
<td>100,000 (29)</td>
<td>100,000 (29)</td>
<td>100,000 (29)</td>
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<tr>
<td>Turndown</td>
<td>Rate</td>
<td>10:1</td>
<td>15:1</td>
<td>20:1</td>
<td>30:1</td>
<td>40:1</td>
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<tr>
<td>Gas Connections (NPT)</td>
<td>Ø Inch</td>
<td>1 1/4&quot;, 1 5/8&quot;, 2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>Max. NG Pressure</td>
<td>Inch W.C. (mbar)</td>
<td>20 (50)</td>
<td>20 (50)</td>
<td>20 (50)</td>
<td>20 (50)</td>
<td>20 (50)</td>
</tr>
<tr>
<td>Min. NG Pressure</td>
<td>Inch W.C. (mbar)</td>
<td>3.5 (8.7)</td>
<td>3.5 (8.7)</td>
<td>3.5 (8.7)</td>
<td>3.5 (8.7)</td>
<td>3.5 (8.7)</td>
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<tr>
<td>Max. LPG Pressure</td>
<td>Inch W.C. (mbar)</td>
<td>20 (50)</td>
<td>20 (50)</td>
<td>20 (50)</td>
<td>20 (50)</td>
<td>20 (50)</td>
</tr>
<tr>
<td>Min. LPG Pressure</td>
<td>Inch W.C. (mbar)</td>
<td>8 (19.9)</td>
<td>8 (19.9)</td>
<td>8 (19.9)</td>
<td>8 (19.9)</td>
<td>8 (19.9)</td>
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<tr>
<td>Water Connections</td>
<td>Ø Inch</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>Max. Allowable Working Pressure (MAWP)</td>
<td>PSI (bar)</td>
<td>80 (5.5)</td>
<td>80 (5.5)</td>
<td>80 (5.5)</td>
<td>80 (5.5)</td>
<td>80 (5.5)</td>
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<tr>
<td>Water Volume</td>
<td>Gallon (liter)</td>
<td>12 (46)</td>
<td>18 (69)</td>
<td>24 (92)</td>
<td>36 (138)</td>
<td>48 (184)</td>
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<tr>
<td>Vent/Air Intake Connections</td>
<td>Ø Inch (Ø mm)</td>
<td>6 (160)</td>
<td>6 (160)</td>
<td>6 (160)</td>
<td>8/10 (200/250)</td>
<td>8/10 (200/250)</td>
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<tr>
<td>Venting Materials</td>
<td>CPVC, PP, Stainless Steel AL29–4C</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max Operating Temperature</td>
<td>°F (°C)</td>
<td>194 (90)</td>
<td>194 (90)</td>
<td>194 (90)</td>
<td>194 (90)</td>
<td>194 (90)</td>
</tr>
<tr>
<td>Max HE Allowable Temperature</td>
<td>°F (°C)</td>
<td>210 (98.9)</td>
<td>210 (98.9)</td>
<td>210 (98.9)</td>
<td>210 (98.9)</td>
<td>210 (98.9)</td>
</tr>
<tr>
<td>Ambient Storage Temperature</td>
<td>°F (°C)</td>
<td>5 to 158 (−15 to 70)</td>
<td>5 to 158 (−15 to 70)</td>
<td>5 to 158 (−15 to 70)</td>
<td>5 to 158 (−15 to 70)</td>
<td>5 to 158 (−15 to 70)</td>
</tr>
<tr>
<td>Ambient Operating Temperature</td>
<td>°F (°C)</td>
<td>32 to 120 (0 to 49)</td>
<td>32 to 120 (0 to 49)</td>
<td>32 to 120 (0 to 49)</td>
<td>32 to 120 (0 to 49)</td>
<td>32 to 120 (0 to 49)</td>
</tr>
<tr>
<td>Heat Exchanger Surface Area</td>
<td>SQFT (m2)</td>
<td>12.91 (1.2)</td>
<td>12.91 (1.2)</td>
<td>12.91 (1.2)</td>
<td>12.91 (1.2)</td>
<td>12.91 (1.2)</td>
</tr>
<tr>
<td>Standard Listings &amp; Approvals</td>
<td>ETL, ASME, AHRI</td>
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</tr>
<tr>
<td>Electrical Req. 230–120V/1PH/60Hz</td>
<td>120VAC 11.5 FLA*</td>
<td>120VAC 17.2 FLA*</td>
<td>120VAC 23 FLA*</td>
<td>230VAC 18 FLA*</td>
<td>230VAC 24 FLA*</td>
<td></td>
</tr>
<tr>
<td>Weight (dry)</td>
<td>lbs (kg)</td>
<td>992 (450)</td>
<td>1,212 (550)</td>
<td>1,543 (700)</td>
<td>2,204 (1000)</td>
<td>2,866 (1300)</td>
</tr>
<tr>
<td>Dimensions WxHxD</td>
<td>Inch (mm)</td>
<td>33.3x67.2x60.8</td>
<td>33.3x67.2x60.8</td>
<td>33.3x83.3x60.8</td>
<td>35.4x83.7x72.8</td>
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</tr>
</tbody>
</table>

(*) FLA (Full Load Amperage) – maximum current drawn by the boiler if all pumps reach rated horsepower.

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The manufacturer strives to continuously improve all products. appearance, dimensions, technical specifications, standard equipment and accessories are therefore liable to modification without notice.