

NEW  
RANGE  
MODEL



# RIELLO ARRAY V2.5

High Efficiency Condensing Boiler 800–4000 MBH

A Carrier Company

**RIELLO**  
Energy For Life

# 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 exchanger** modules, providing high turndown and multiple boiler redundancy in one packaged unit.

A single Array boiler provides **superior uptime reliability** that is only found in **larger boiler plants and multi boiler systems**.



## NEW ENHANCED BENEFITS

- Reduced head loss provides for greater design flexibility
- Increased vent lengths
- Improved serviceability
- Enhanced software capabilities

## KEY FEATURES

- One platform, multiple capacities
- Built in redundancy. Each module (400 MBH for ARRAY 800 and 500 MBH for ARRAY 1000-4000) is independent and "stand-alone" ensuring continued boiler operation if an adjacent module is turned off or even removed
- Extremely simple plug & play installation, service & maintenance
- Dedicated pump for each module eliminates need for boiler circulating pump
- Standard integrated boiler cascade capability for up to 8 boilers
- Factory installed flue exhaust damper on each module allows common venting capability of Array boilers in cascade and eliminates off cycle heat loss
- Heat Exchanger Protection: Control monitors supply and return temperature and prevents heat exchanger from excessive temperature rise
- Standard integrated boiler freeze protection

## HIGH PERFORMANCE

- High quality AISI 316L stainless steel heat exchanger
- True counterflow 4-pass design
- Efficiency up to 99%
- NOx emissions less than 9 PPM at 3% O<sub>2</sub>
- Turndown ratio up to 40:1 per boiler; up to 320:1 per system
- ASME Design Pressure 80 PSI
- Low noise operation (each module <48 dBA)
- Low pressure gas capability

## FLEXIBLE INSTALLATION

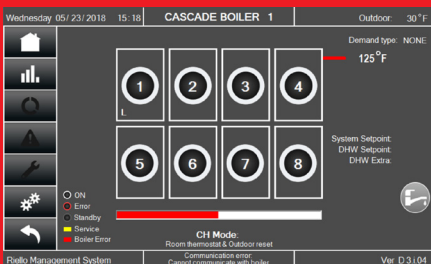
- Single point connections for hydronic, electrical, fuel and venting
- Small footprint, fits through standard doorway
- Venting flexibility including sidewall, through the roof and direct vent options up to 100 equivalent feet exhaust vent length
- Venting Materials: CPVC, Polypropylene or AL29-4C stainless steel

# GRAPHIC TOUCHSCREEN CONTROL

## STANDARD ON-BOARD CONTROL FEATURES

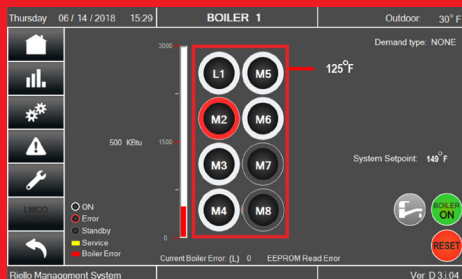
- 7" color touch screen
- Graphic display of actual input rate for cascade, boiler and modules
- User-Friendly text driven menus to monitor the whole cascade (up to 8 boilers) or each single module
- Immediate access to Cascade, Supply, Return, Flue temperatures and Fan speed of each module
- Simple access to Settings, Commissioning, Maintenance procedures and Error Log through the touch screen
- Graphic outdoor reset adjustment
- In addition to integrated Modbus, additional BMS gateways available for BACnet, Metasys and Lon Works protocols
- Control provides remote operation through 0-10Vdc set point control

### CASCADE MANAGEMENT

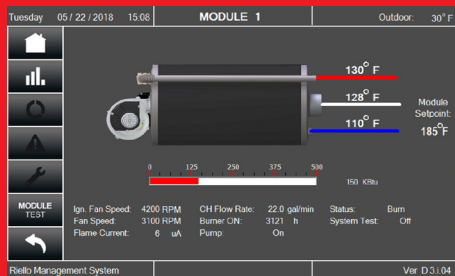


- Dedicated service display inside the cabinet
- Analog input for remote DDC operation
- Onboard  $\Delta T$  limiting reduces on/off cycles
- Integrated Modbus communications

### BOILER MANAGEMENT

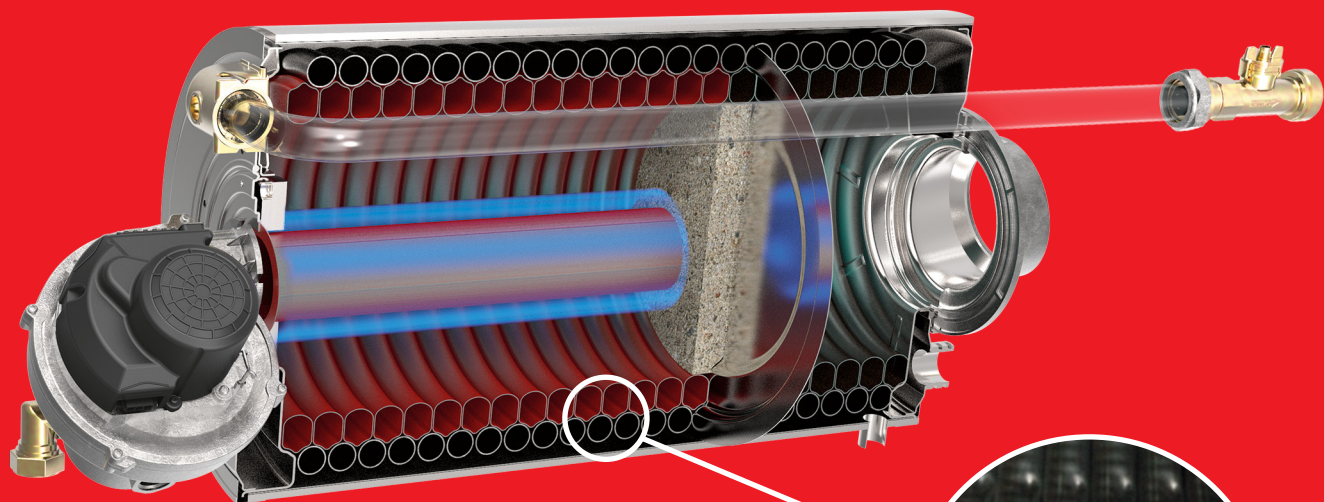


### MODULE MANAGEMENT





## LOOKING INSIDE



### ADVANCED PRE-MIX BURNER

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

### PATENTED RIELLO HEAT EXCHANGER

- Heat exchanger with a unique helix design
- Advanced design for superior reliability and industry leading longevity
- Large heat exchanger surface area in a compact design
- High water velocity and large tube diameter eliminates scaling
- Better heat transfer results in increased fuel savings and lower operating costs
- Vortex flow meters monitor and ensure correct flow through each heat exchanger
- The design ensures minimum waterside pressure drop and highly efficient heat transfer



- Fully redundant design ensures zero downtime during heat exchanger service or maintenance
- Single point connections for hydronic, electrical, fuel and venting
- Smallest installed footprint enables easy installation and minimizes mechanical room space
- Individual pump for each heat exchanger eliminates need for boiler circulating pump
- Independent service controller for detailed commissioning and troubleshooting
- Every boiler is 100% live fire tested prior to shipment

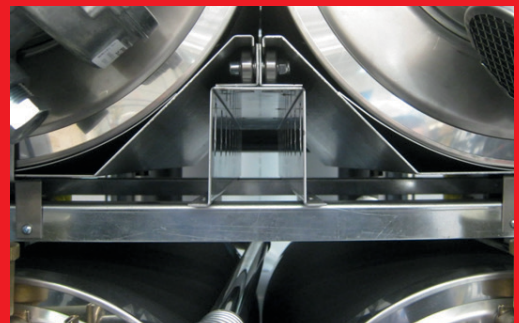


## INSTALLATION ADVANTAGES

- Ease of commissioning & maintenance
- Minimum training required
- Saves space and easy to install
- Perfect for new installation and retrofit projects
- Cascade up to 8 boilers (64 modules) for a maximum system turndown up to 320:1

## OPERATION & MAINTENANCE

- 100% 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 allows for easy removal, service and maintenance



# POWER RANGE



ARRAY 800 - 2000



ARRAY 3000 - 4000

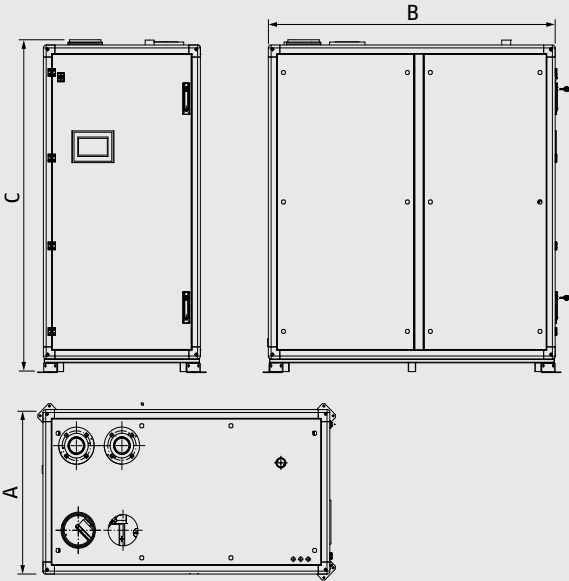
Model	Input Power MBH	Number of Modules	AHRI Thermal Efficiency %	Turndown Ratio	Overall Dimensions (*) WxHxD (inches)
AR 800	800	2 (400 MBH)	96.1%	20:1	29.4x53.1x52.4
AR 1000	1000	2 (500 MBH)	96.1%	10:1	33.3x67.2x60.8
AR 1500	1500	3 (500 MBH)	96.1%	15:1	33.3x67.2x60.8
AR 2000	2000	4 (500 MBH)	96.1%	20:1	33.3x83x60.8
AR 3000	3000	6 (500 MBH)	96.1%	30:1	35.4x83x72.8
AR 4000	4000	8 (500 MBH)	96.1%	40:1	35.4x83x72.8

(\*) Bottom feet may be removed to reduce overall height by 2" during installation if required

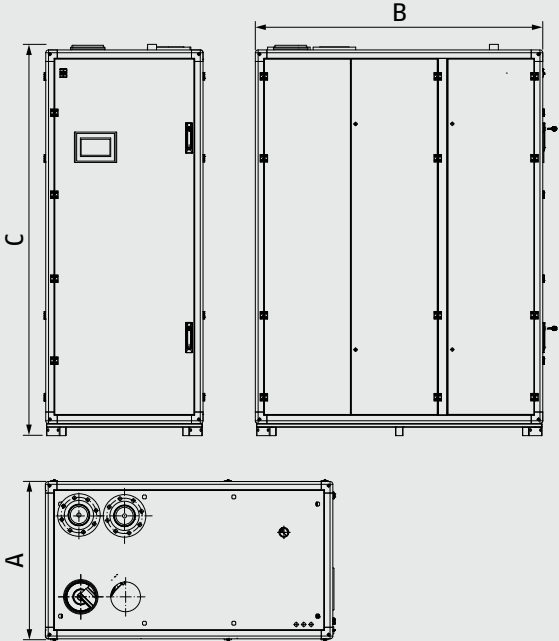


# DIMENSIONS

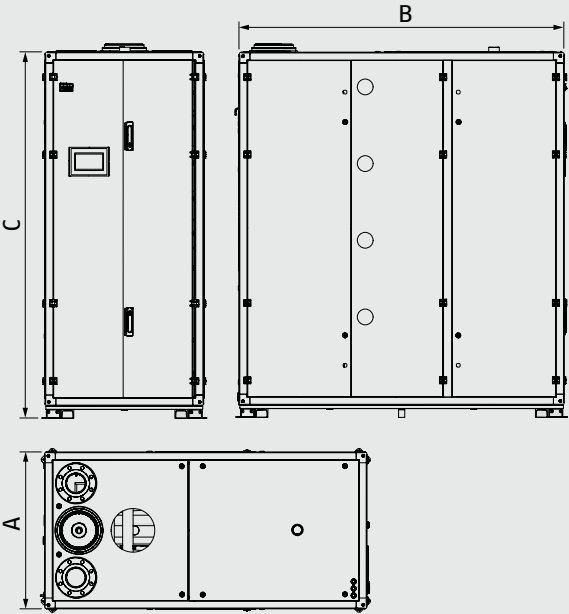
## ARRAY 800 - 1500



## ARRAY 2000



## ARRAY 3000 - 4000



Description		AR 800	AR 1000	AR 1500	AR 2000	AR 3000	AR 4000
A - Width	inch	29.4	33.3	33.3	33.3	35.4	35.4
	mm	747	846	846	846	899	899
B- Length	inch	52.4	60.8	60.8	60.8	72.8	72.8
	mm	1330	1544	1544	1544	1849	1849
C - Height (*)	inch	53.1	67.2	67.2	83	83	83
	mm	1350	1707	1707	2108	2108	2108

(\*) Bottom feet may be removed to reduce overall height by 2" during installation if required



# TECHNICAL SPECIFICATIONS

Model	Unit	AR 800	AR 1000	AR 1500	AR 2000	AR 3000	AR 4000
Boiler Category	ASME Sect.IV						
Type of Gas	Natural Gas, Propane						
Max input rate	BTU/hr (kW)	800,000 (234)	1,000,000 (293)	1,500,000 (440)	2,000,000 (586)	3,000,000 (879)	4,000,000 (1172)
Min input rate	BTU/hr (kW)	40 (12)	100,000 (29)	100,000 (29)	100,000 (29)	100,000 (29)	100,000 (29)
Turndown	Rate	20:1	10:1	15:1	20:1	30:1	40:1
Gas Connections (NPT)	Ø Inch	1 ½"	1 ½"	1 ½"	1 ½"	2"	2"
Max. NG Pressure	Inch W.C. (mbar)	13.5 (33.6)	20 (50)	20 (50)	20 (50)	20 (50)	20 (50)
Min. NG Pressure	Inch W.C. (mbar)	4.0 (10.0)	4.0 (10.0)	4.0 (10.0)	4.0 (10.0)	4.0 (10.0)	4.0 (10.0)
Max. LPG Pressure	Inch W.C. (mbar)	13.5 (33.6)	20 (50)	20 (50)	20 (50)	20 (50)	20 (50)
Min. LPG Pressure	Inch W.C. (mbar)	8 (19)	8 (19.9)	8 (19.9)	8 (19.9)	8 (19.9)	8 (19.9)
Water Connections	Ø Inch	2 ½"	3"	3"	4"	4"	4"
Max. Allowable Working Pressure (MAWP)	PSI (bar)	80 (5.5)	80 (5.5)	80 (5.5)	80 (5.5)	80 (5.5)	80 (5.5)
Water Volume	Gallon (liter)	9.5 (37)	12 (46)	18 (69)	24 (92)	36 (138)	48 (184)
Vent (slip-on) / Air Inlet Connections	Ø Inch (Ø mm)	6"/6" (150/150)	6"/6" (150/150)	6"/6" (150/150)	8"/8" (200/200)	[8" or 10"]/10" (*) ([200 or 250]/250)	
Venting Materials	CPVC, PP, Stainless Steel AL29-4C						
Max operating temperature	°F (°C)	194 (90)	194 (90)	194 (90)	194 (90)	194 (90)	194 (90)
Max HE allowable temperature	°F (°C)	210 (98.9)	210 (98.9)	210 (98.9)	210 (98.9)	210 (98.9)	210 (98.9)
Storage temperature	°F (°C)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)
Ambient Room Temperature Operating Range	°F (°C)	32 to 120 (0 to 49)	32 to 120 (0 to 49)	32 to 120 (0 to 49)	32 to 120 (0 to 49)	32 to 120 (0 to 49)	32 to 120 (0 to 49)
Total Heating Surface Area	SQFT (m²)	54 (5)	86 (8)	129 (12)	172 (16)	258 (24)	344 (32)
Standard Listings & Approvals	ETL, ASME, AHRI, CSD-1 and SCAQMD						
Single-Point Electrical Connection Electrical – FLA (**)	V/Ph/Hz Amps	120/1/60 15.5A	120/1/60 15.5A	120/1/60 23.3A	240/1/60(***) 15.5A	208-230/3/60 15.5A	208-230/3/60 23.3A
Weight (Dry)	lbs (kg)	926 (430)	1058 (480)	1323 (600)	1676 (760)	2315 (1050)	2998 (1360)
Dimensions WxHxD (****)	Inch (mm)	29.4x53.1x52.4 747x1350x1330	33.3x67.2x60.8 846x1707x1544	33.3x67.2x60.8 846x1707x1544	33.3x83x60.8 846x1707x1544	35.4x83x72.8 899x2108x1849	35.4x83x72.8 899x2108x1849

(\*) The boiler is supplied with a removable vent reducer.

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

(\*\*\*) AR2000: It is possible to power this boiler using two (2) legs of a 208-230V/3PH/60HZ source, provided the system is balanced.

(\*\*\*\*) Bottom feet may be removed to reduce overall height by 2" during installation if required.

RIELLO NORTH AMERICA

35 Pond Park Road  
Hingham, Massachusetts  
U.S.A. 02043  
www.rielloboilers.com

2165 Meadowpine Blvd  
Mississauga, Ontario  
Canada L5N 6H6

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

# RIELLO