Evergreen™

HIGH-EFFICIENCY CONDENSING BOILER

Water | Natural/Propane Gas | 220-399 MBH | 3 Sizes
Direct Vent | 95% AFUE*

Evergreen™

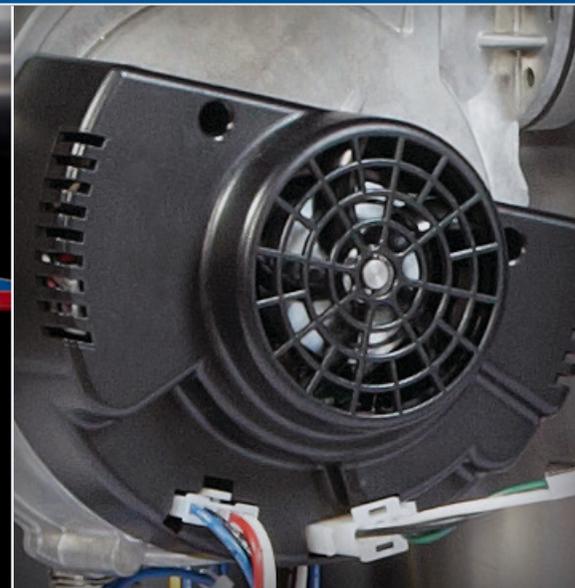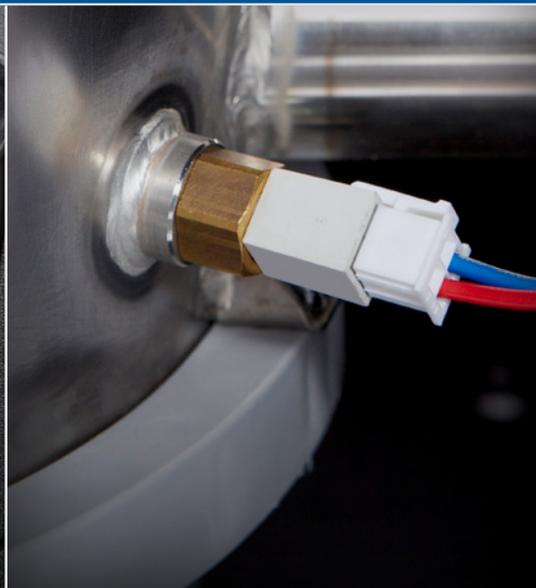## Easy heat, Effortless comfort

DURABLE
Stainless steel fire tube heat exchanger

FLEXIBLE
24-zone capacity
Floor standing/wall mount

EASY
Control presets
Accessible parts

*Evergreen 399 rating is combustion efficiency

APPLICATIONS

The new Evergreen™ boiler extends comfort levels to every area of your property for the long run. The Evergreen is perfect for light commercial or large residential applications and single or multi-unit installations with **ZoneStacking**™ up to 24 programmable zones.

It's everything you want in heating: quiet operation, aesthetically pleasing design, floor standing or wall mount options, environmental sustainability with Low NOx, heating comfort with lower utility bills* and more.

RESIDENTIAL

Stay *effortlessly comfortable* in any home environment with the new Evergreen boiler. The quiet operation of the Evergreen further enhances the sense of "invisible" heat, from multiple in-home zones to pool heating.

- The Evergreen's sleek, modern design adds value to the home or property.
- Ease of programmability makes achieving comfort simple.
- For the homeowner who wants heating comfort while maintaining lower utility bills and reducing their carbon footprint, the Evergreen 220 and 299 boilers are recognized as Most Efficient by Energy Star® 2015 standards with an AFUE rating of 95%. This could qualify the homeowner for available local utility rebates, if available. The Evergreen provides a Low NOx of < 20 PPM, which adds to the greener environment sustainability.
- The high performance of the Evergreen boiler works seamlessly with the efficient and durable AHRI Certified™ Weil-McLain AquaPlus® Indirect Fired Water Heaters, available in five sizes to meet demanding hot water applications.

Federal tax credit available in qualifying areas

ENERGY STAR

10%
10%
10%
10%
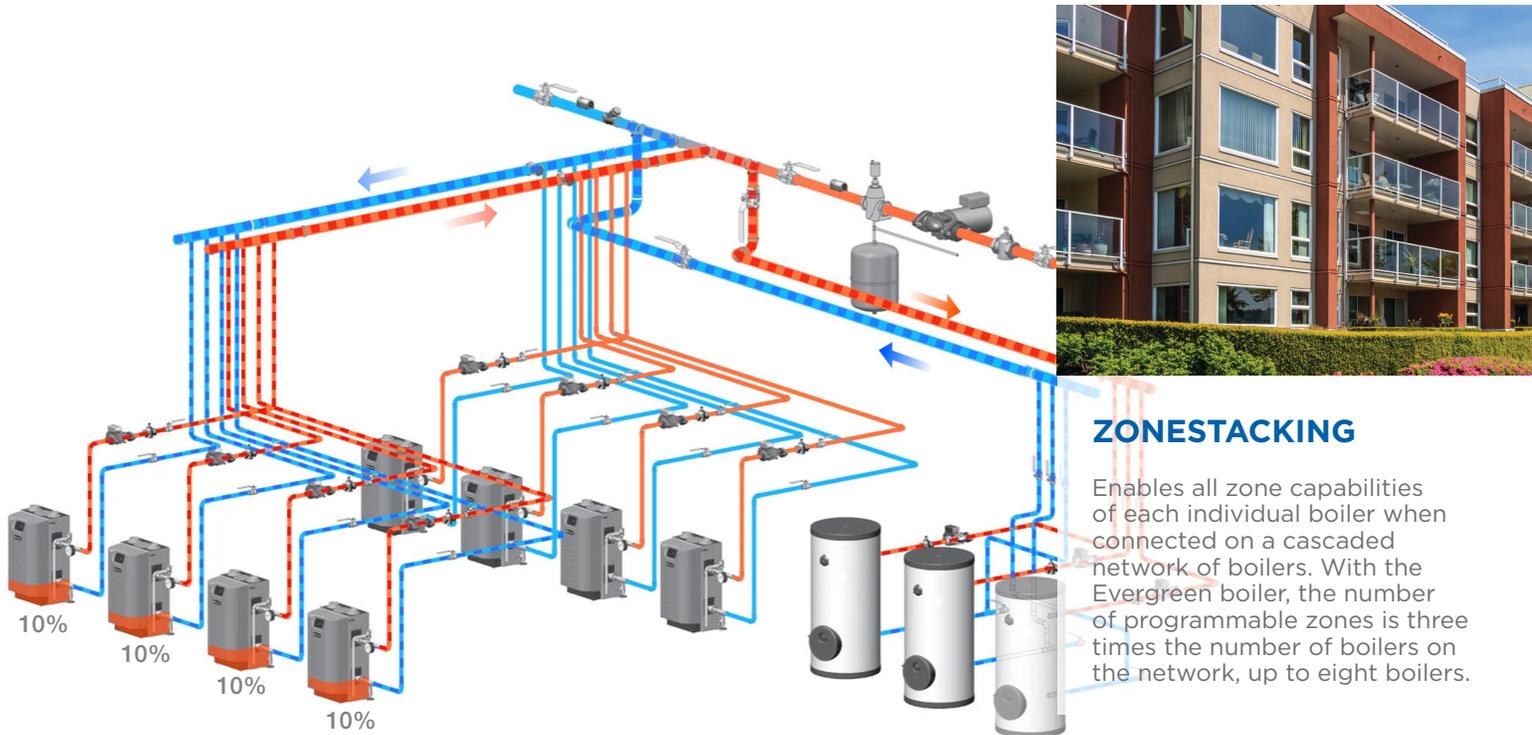
ZONESTACKING

Enables all zone capabilities of each individual boiler when connected on a cascaded network of boilers. With the Evergreen boiler, the number of programmable zones is three times the number of boilers on the network, up to eight boilers.

COMMERCIAL

Familiar interface - innovative technology

As our technology has advanced to create smoother, more efficient operations, we've kept the interface of the Evergreen boiler familiar, simple to use and easy to learn.

- For the residential and light commercial customer who requires a multiple boiler setup, the Evergreen provides **ZoneStacking** - 24 zone capability **without** an additional external 3rd party control.

- **ZoneStacking** reduces the installation costs and time while increasing reliability. With this advanced control feature, the Evergreen boiler maintains optimal efficiency through lead-lag rotation and balanced heat loading.

EASE OF INSTALLATION

- Setup wizard efficiently guides the installer through a single or multiple boiler installation in minutes
- For the contractor, installer and/or service provider, the Evergreen has an easy to understand graphical user Interface and makes programming and monitoring operations simple
- Wiring diagrams provided are clear and easily accessible

EASE OF USE

- Ability to control multiple boilers with lead-lag capability without an external device
- Interactive diagnostic capability
- Reliable operation
- Easy to understand and monitor controls
- Effortless heating and comfort in all zones

EASE OF MAINTENANCE

- Large, accessible panels for quick and easy maintenance checks
- Interactive diagnostic capability provides a snapshot of the past and current operation parameters
- Reliable operation of the complete heating system including radiant elements
- Sentinel X100® inhibitor is included with the boiler to ensure the water chemistry is optimal for heating system efficiency

MULTIPLE BOILER SEQUENCING

The flexibility of the Evergreen boiler system reduces setup time and keeps costs down.

SERIES Sequencing	PARALLEL Sequencing	SMART Sequencing
Higher Part-Load Efficiency → ← **Quicker Boiler Response Time**		

STAGE 1 – Lead boiler modulates up to a maximum of 100% before turning on the next boiler in the sequence. The STABILIZE TIME allows time for the boilers to modulate to meet system demand before turning on additional boilers.

STAGE 1 – Lead boiler modulates up to a maximum of Base Rate High before turning on the next boiler in the sequence. The STABILIZE TIME allows time for the boilers to modulate to meet system demand before turning on additional boilers.

STAGE 1 – Lead boiler modulates up to a low firing rate before turning on the next boiler in the sequence. The STABILIZE TIME allows time for the boilers to modulate to meet system demand before turning on additional boilers.

STAGE 2 – Boiler #2 in sequence ignites and both boilers modulate to so their combined energy output matches the energy output of Boiler #1 at 100%. After a short MOD DELAY TIME, the boilers will be released to modulate.

STAGE 2 – Boiler #2 in sequence ignites and both boilers modulate to so their combined energy output matches the energy output of Boiler #1 at Base Rate High. After a short MOD DELAY TIME, the boilers will be released to modulate.

STAGE 2 – Boiler #2 in sequence ignites and both boilers modulate to BASE RATE LOW. After a short MOD DELAY TIME, the boilers will be released to modulate.

STAGE 3 – Both boilers modulate up to a maximum of 100% before turning on the next boiler in the sequence. The STABILIZE TIME allows time for the boilers to modulate to meet system demand before turning on additional boilers.

STAGE 3 – Both boilers modulate up to a maximum of Base Rate High before turning on the next boiler in the sequence. The STABILIZE TIME allows time for the boilers to modulate to meet system demand before turning on additional boilers.

STAGE 3 – Both boilers modulate up to a low firing rate before turning on the next boiler in the sequence. The STABILIZE TIME allows time for the boilers to modulate to meet system demand before turning on additional boilers.

STAGE 4 – Boiler #3 in sequence ignites and then all boilers modulate to so their combined energy output matches the energy output of Boilers #1 and #2 at 100%. After a short MOD DELAY TIME, the boilers will be released to modulate.

STAGE 4 – Boiler #3 in sequence ignites and then all boilers modulate to so their combined energy output matches the energy output of Boilers #1 and #2 at Base Rate High. After a short MOD DELAY TIME, the boilers will be released to modulate.

STAGE 4 – Boiler #3 in sequence ignites and then all boilers modulate to BASE RATE LOW. After a short MOD DELAY TIME, the boilers will be released to modulate.

STAGE 5 – After all available boilers are firing, boilers are release to modulate up to 100% of rate.

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THREE SELECTABLE SEQUENCING MODES TO CHOOSE FROM

- **Series Sequencing**
  Quickest- boiler goes to 100% before another boiler is turned on; output is achieved more quickly with less total burner hours
- **Parallel Sequencing**
  Efficiency and speed- based on Base Rate High; Hybrid mode between Smart and Series modes; boilers will go to user- programmed base rate high before turning on the next boiler
- **SmartSequencing™**
  Most efficient- maximizes part-load efficiency by turning on as many boilers as possible

PROGRAMMABLE PREFERENCES FOR MULTIPLE BOILER SETUPS

- **Multiple Boiler Sequencing**
  User selects what point one boiler stops modulating before turning on another boiler
- **Lead Lag Rotation**
  User selects which boiler turns on first and can choose based on burner hours, fixed rotation or no rotation
- **Input/Output Options**
  Input and outputs can be used for every boiler with up to 24 capable input/ output pairs
- **Redundant Sensors**
  If one system supply or outdoor temperature sensor fails, there are backups. If backups fail, the system can still run on a special safety mode
- **Auxiliary Output Flexibility**
  Ability to control system circulators, combustion air dampers and/or other auxiliary system components

SIMPLE INTERFACE – COMPLEX CALCULATIONS

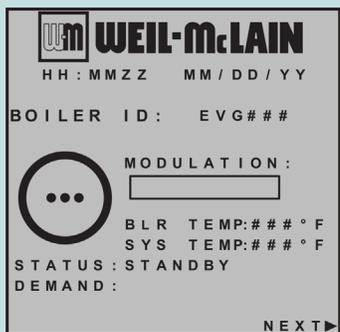Straightforward, user-friendly design with advanced technology.

What's happening behind the scenes? Complex calculations of the required energy to meet system demands is distributed across all the boilers in the network.

System maximizes user's comfort by simultaneously meeting as many system demands as possible: When there are multiple requests on a cascaded boiler system, the control satisfies both local and network heating demands.
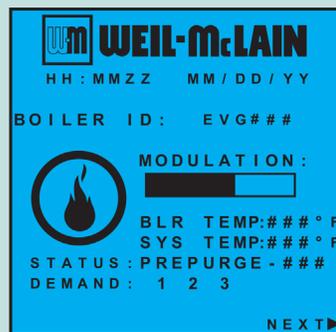
Setup is easy. The built-in wizard asks direct questions on setup, making customization easy and straightforward. Contextual help is also available on screen.

Visual Communication Screens

WEIL-McLAIN	WEIL-McLAIN	WEIL-McLAIN	WEIL-McLAIN
HH:MMZZ MM/DD/YY	HH:MMZZ MM/DD/YY	HH:MMZZ MM/DD/YY	HH:MMZZ MM/DD/YY
BOILER ID: EVG###	BOILER ID: EVG###	BOILER ID: EVG###	BOILER ID: EVG###
MODULATION:	MODULATION:	MODULATION:	LOCKOUT ############ ############
BLR TEMP:###°F SYS TEMP:###°F	BLR TEMP:###°F SYS TEMP:###°F	BLR TEMP:###°F SYS TEMP:###°F	BLR TEMP:###°F SYS TEMP:###°F
STATUS:STANDBY DEMAND:	STATUS:PREPURGE-### DEMAND: 1 2 3	STATUS:PREPURGE-### DEMAND: 1 2 3	STATUS:LOCKOUT DEMAND: 1 2 3
NEXT▶	NEXT▶	NEXT▶	NEXT▶
STANDBY	**SPACE HEATING**	**DHW HEATING**	**CHECK SYSTEM**
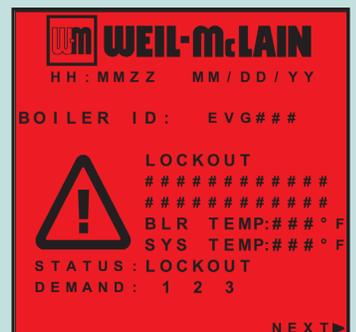
FEATURES

BOILER

- Stainless steel fire-tube heat exchanger
- Non-metallic heat exchanger base
- Floor standing or wall-mount option with kit
- Natural or LP gas
- Negative regulated combustion
- 10 to 1 turndown ratio
- Boiler circulator
- Propane conversion kit
- Low water cut-off
- Sentinel X100 inhibitor and test kit
- Low NOx < 20 PPM

CONTROL FEATURES

- Easy installation with Setup Wizard
- Zone and/or priority based control
- Three thermostat Inputs
- Outdoor reset for each priority
- Rate adjustable per priority
- 0-10V input (modulation or setpoint)
- Four total outputs
    - 1 dedicated boiler circulator output
    - 3 additional outputs can be used with
      circulators, dampers, or system aux
- Aux inputs – flow switch or end switch
- Aux outputs – system pump or damper
- Modbus® connectivity
- Additional heat demand contact

BOILER CIRCULATORS

- 1-1/4" & 1-1/2" flanges (220/299) Taco 0014
- 1-1/4" & 1-1/2" flanges (399) Taco 0013

MULTIPLE BOILER FEATURES

- Up to 8 boilers, multiple system
- Series, Parallel, or SmartSequencing
- Lead boiler rotation
- 2 network priorities for the system
- 2 local priorities per boiler
- 24 zone inputs and outputs with 8 total cascaded boilers
- Aux inputs – flow switch or end switch
- System aux outputs – system pump or damper

VENTING*

- Direct vent 100 ft. for intake and 100 ft. for vent
- Dual pressure zones
- Common combustion air

Please call your local Weil-McLain sales office for additional venting options.

JACKET ASSEMBLY

- Easy maintenance with top access panel
- Fully removable jacket front door
- Adjustable boiler legs
- On/off power switch
- Line voltage service receptacle
- Mounting bracket ready for wall-mount kit
- Condensate trap

OPTIONAL EQUIPMENT

- Wall-mount kit
- Concentric vent kit
- Condensate neutralizer kit
- Sidewall vent/air termination kit
- Maintenance kits

MODEL	CSA INPUT (MBH)	DOE HEATING CAPACITY (MBH)	NET AHRI (MBH)	DOE AFUE	VENT MATERIAL	VENT SIZE	COMBUSTION AIR SIZE	VENTING LENGTH	MIN. RECOMMENDED PIPE SIZE	SUPPLY / RETURN TAPPING	GAS CONNECTION SIZE	APPROX. SHIP WEIGHT	WATER VOLUME
EVG 220	220	206	179	95.0%	PVC, CPVC, PP, SS (AL29-4C)	3" or 4"	3" or 4"	100'	1 1/4"	1 1/2"	3/4"	215 lbs.	4.6 Gal.
EVG 299	299	280	243	95.0%	PVC, CPVC, PP, SS (AL29-4C)	4"	4"	100'	1 1/2"	1 1/2"	3/4"	260 lbs.	7.0 Gal.
EVG 399	399	383*	333	96.5%*	PVC, CPVC, PP, SS (AL29-4C)	4"	4"	100'	1 1/2"	1 1/2"	3/4"	260 lbs.	6.7 Gal.

Evergreen 399 ratings are gross output and combustion efficiency

INNOVATIVE CONTROL SYSTEM FEATURES

- 3 programmable priorities for up to three heat inputs
- Text display for easy operation monitoring and diagnostics
- 0-10 VDC input modulation
- Additional heat demand contact for hybrid system
- Integrated low water protection
- Dual temperature sensors on boiler outlet and flue
- Blower speed modulation

Contact your local Weil-McLain sales office for more information.

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Weil-McLain® is a leading North American designer and manufacturer of hydronic comfort heating systems for residential, commercial and institutional buildings since 1881. Weil-McLain has manufacturing facilities in Michigan City, Indiana and Eden, North Carolina, along with regional sales offices throughout the United States and an administrative office in Burr Ridge, Illinois. Building on a reputation of quality and innovation, Weil-McLain is committed to creating Simplified Solutions for our Complex World™.

Architects, engineers, contractors, facility managers and homeowners alike rely on Weil-McLain for their comfort heating needs. Installed in homes, offices, schools, restaurants, hotels and other facilities throughout North America, the Weil-McLain brand is among the most respected and often used in the building industry.

Weil-McLain hydronic boilers and indirect-fired water heaters integrate the latest in advanced controls and materials including cast iron, stainless steel and aluminum heat exchanger technologies. The reliability and energy efficiency of our products has helped to make Weil-McLain industry leaders. Products are engineered with aesthetics, functionality, safety and structural tolerance in mind. By combining our expertise with the responsiveness of our support operations, we provide our customers with added value and peace of mind.

WEIL-McLAIN®