

# WEIL-McLAIN

# Ultra

with

**PhD** PRECISION  
HYDRONIC  
DATA technology®

## CONDENSING HIGH EFFICIENCY GAS BOILER

### RATINGS - (5 SIZES)

80 MBH

105 MBH

155 MBH

230 MBH

310 MBH

ALL WITH 20-100%  
MODULATION

### *Ultra* INNOVATIVE

*Innovative combination of appearance, intelligence and technology.*

### *Ultra* HIGH EFFICIENCY

*Over 92% AFUE and up to 98% for low temperature applications.*

### *Ultra* ATTRACTIVE

*The Ultra boiler features a new attractive design for installation in any setting.*

### *Ultra* INTELLIGENT

*Features PhD Technology - an intelligent system that delivers Precision Hydronic heating and hot water needs while maximizing efficiency by measuring and responding to the Data parameters of your heating system.*

### *Ultra* HIGH TECHNOLOGY

*Cast mono block aluminum heat exchanger. Gas valve, blower and venturi technology that constantly maintains optimal air and fuel ratio at all firing rates.*



# SERIES 2

## PhD Technology - Precision Hydronic Data

An intelligent system that delivers Precision Hydronic heating and hot water needs while maximizing efficiency by measuring and responding to the Data parameters of your heating system.

PhD Technology is built around proven key components that when combined make the Ultra the most advanced, reliable and efficient boiler available.

## The key components include...

A negative regulated gas valve that Precisely delivers gas to the boiler;

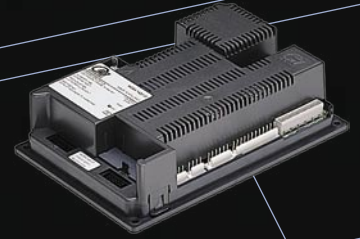
A variable speed motor that matches combustion output to your heating needs;

A venturi mixing body that Precisely mixes air and gas providing higher efficiency;

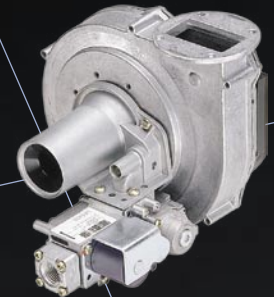
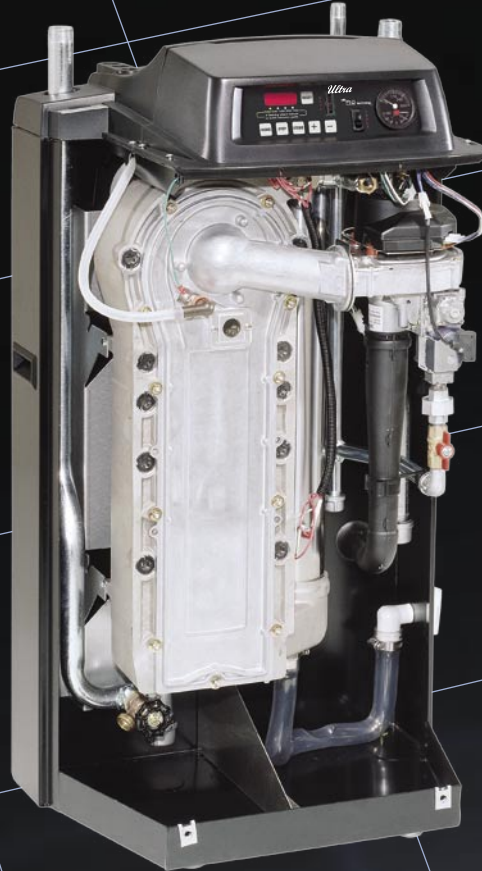
System intelligence with the Ultra Control Module which maintains proper, efficient and Precise Hydronic heat through inputs of all system Data;

A cast aluminum mono block heat exchanger designed to operate in low temperature condensing applications;

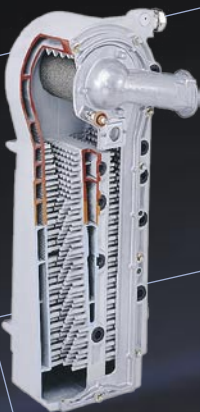
Pre-mix stainless steel burner designed for perfect firing rate modulation, efficiency, clean combustion and quiet operation.



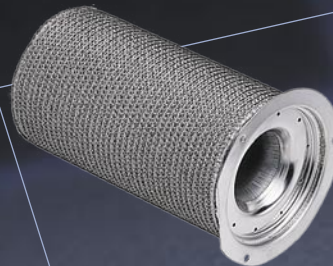
The Ultra Control Module, a microprocessor electronic control, responds to signals from the room thermostat, supply water temperature sensor, return water temperature sensor, flue temperature sensor, domestic hot water aquastat, summer/winter switch and outdoor temperature sensor. The module automatically adjusts blower speed and gas flow rate to modulate boiler firing rate to closely match boiler output for space heating or DHW heating demand.



The blower, gas valve and venturi all work in concert to provide the proper fuel and air mixture for precise combustion. The blower pulls in air and gas through the venturi. The air and gas mix inside the blower and are pushed into the burner for combustion. The gas valve senses suction from the blower, allowing gas to flow only if combustion air is flowing and proper combustion is achieved.



The cast aluminum heat exchanger features a mono block design. This low mass heat exchanger heats faster, providing heat to the system quicker. This aluminum block has been specifically designed to work in low return temperature applications in condensing mode.



High grade stainless steel burner with woven steel fiber mesh. Burner uses pre-mixed air and gas providing for a 20% to 100% modulating firing rate. The Ultra burner features long life, quiet operation, high efficiency and cleaner combustion for low NOx applications.



The 4-digit electronic display with programming buttons and data port make entering and receiving information very easy. There are two levels of information: User Level and Contractor Level. The User Level is used to: Turn space and DHW heating "on" or "off"; set space heating temperature and boiler circulator operation; display soft and hard lockout codes for easy troubleshooting. The Contractor Level is accessible through the use of a special code that is entered through the front panel or with a computer interface control kit and a laptop computer. This access can be used to customize the Ultra boiler to each specific job application. Adjustments can be made for high altitude, outdoor reset, boost timing and much more...

# WEIL-McLAIN *Ultra*



## Weil-McLain *Ultra* Boiler

The Weil-McLain Ultra boiler has been designed for easy installation. The Ultra boiler requires minimal clearance and minimal floor space, and the same boiler can be used in floor standing or wall hung applications.

Water and gas piping is conveniently arranged for connection at the top or bottom of the boiler. In fact, when using the boiler in a floor standing application, all boiler connections are on the top of the boiler except for the condensate drain.

The electrical components have been pre-wired and labeled on separate line voltage and low voltage terminal strips. Terminal strips are provided for quick and easy field wiring.

Venting has been simplified by using PVC for both exhaust and combustion air. Slide the PVC into the top outlet flue pipe adaptors and tighten the restraining ring. No messy sealants required. You can even achieve vent runs up to the equivalent of 100 feet.

The Ultra comes with a side mounted service receptacle on a separate circuit for use with a condensate pump, service equipment or service light.

The Ultra boiler is lightweight compared to a conventional boiler. Side jacket handles are provided for easy handling along with four adjustable boiler feet for easy placement and leveling.

For fast and easy installation, combine an Ultra PLUS Indirect-Fired Water Heater with your Ultra boiler installation. Ultra PLUS water heaters come in three sizes:

*Ultra* PLUS 40

*Ultra* PLUS 60

*Ultra* PLUS 80

Combined with an Ultra boiler, the Ultra PLUS water heater provides more domestic hot water when you need it, while taking advantage of the extremely high efficiency of the Ultra boiler. A standard feature of the Ultra boiler control module is domestic hot water priority control, providing quicker response time for domestic hot water demands, along with faster recovery times for the hot water tank.

*The perfect match for an Ultra boiler is an Ultra PLUS Indirect-Fired Water Heater.*



## *Ultra* High Efficiency And Environmentally Friendly

All Ultra boilers feature AFUE efficiencies in the range of 92.0 - 93.0%. These are some of the highest efficiencies in the industry, however, Ultra boilers, when used in common low temperature applications have annual efficiencies of 98.0%. The Ultra boiler exceeds all of the requirements of the Department of Energy's ENERGY STAR program.

Besides being Ultra High Efficient, the Ultra boiler is environmentally friendly. Through PhD Technology and the use of our high grade burner, the Ultra boiler produces less NOx while exceeding all current environmental codes and is certified by South Coast Air Quality Management District (Rule 1146.2) in California.



# Ultra

with **PhD** PRECISION HYDRONIC DATA technology®

## CONDENSING HIGH EFFICIENCY GAS BOILER

20-100% Modulation



### SERIES 2

Ultra 80	Ultra 105	Ultra 155	Ultra 230	Ultra 310
Part No.	Part No.	Part No.	Part No.	Part No.

#### PACKAGED BOILER

-Natural Gas field convertible to LP as standard equip. except *Ultra 80*

Natural Gas	383-500-400	383-500-402	383-500-403	383-500-404	383-500-405
Propane Gas	383-500-401	NA			
Taco Pump	007		0011		

#### OPTIONAL EQUIPMENT

Wall Mounting Kit	389-900-180			NA	
Alarm Control Kit	383-500-080				
Indirect-Fired Water Heaters	Matching Ultra PLUS 40, 60 and 80 Water Heaters Available				

#### RATINGS

CSA Input (Maximum)	80 MBH	105 MBH	155 MBH	230 MBH	310 MBH
CSA Input (Minimum)	16 MBH	21 MBH	31 MBH	46 MBH	62 MBH
DOE Heating Cap.	71 MBH	94 MBH	139 MBH	207 MBH	*289 MBH
Net I=B=R	62 MBH	81 MBH	123 MBH	183 MBH	252 MBH
DOE AFUE	93.0%	92.0%	93.0%	92.8%	*93.3%
Weil-McLain Low Temp Seasonal Efficiency	98.1%		98.0%		95.6%
	Boiler return water temp=90°F and boiler outlet water temp=110°F				

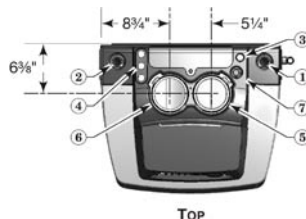
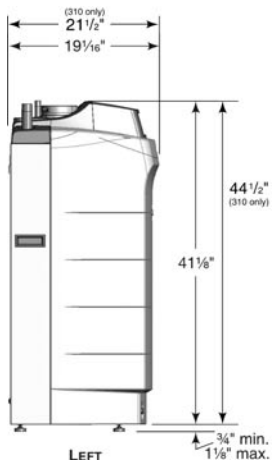
\*Note: 310 ratings are gross output and combustion efficiency.

#### DATA

Vent Size / Material	3" PVC/ABS		3 or 4 in. PVC/ABS	4 in. PVC/ABS
Combustion Air Size	3 in.			
Water Volume	.95 Gal.	1.07 Gal.	1.17 Gal.	1.57 Gal.
Approx. Ship. Weight	149 lbs.	154 lbs.	193 lbs.	254 lbs.

#### DIMENSIONS

Supply Tapping	1"		1-1/4"		
Return Tapping	1"		1-1/4"		
Gas Connection Size	1/2"		3/4"		
Crate Dimensions	53-1/2"L x 27"W x 23-1/2"H			56"Lx27"Wx27"H	



- TOP
- ① Supply Connection
  - ② Return Connection
  - ③ Low Voltage Wire Opening
  - ④ Electrical Entrance Openings
  - ⑤ Vent Connection
  - ⑥ Air Connection
  - ⑦ Gas Connection

#### STANDARD EQUIPMENT

Factory Tested  
 Limited 15 Year Heat Exchange Warranty  
*Ultra* Homeowner Protection Plan with  
 •5 years Parts and Labor  
 Cast Aluminum Block  
 30 PSI ASME Relief Valve  
 Drain Valve  
 Stainless Steel Burner (80, 105 & 310)  
 with woven steel fiber mesh  
 (155 & 230)  
 Direct Spark Ignition  
 Variable Speed Blower Assembly  
 Gas/Air Ratio Venturi with Air Silencer  
 Negative Pressure Regulation Gas Valve  
 50 VA Transformer  
 Combination T&P Gauge  
 Outlet Water Temperature Sensor  
 Return Water Temperature Sensor  
 Flue Gas Temperature Sensor  
 Outdoor Temperature Sensor  
 12 AMP 110 V Circ. Relay (310 only)

*Ultra* Control Module with

- Digital Display & Data Port
- Ignition Control
- High Limit & Modulating Temp Control
- Low Water Protection
- Outdoor Reset
- DHW Priority
- Two Pump Controls (Heating & DHW)

Taco Boiler Circulators:

- 1" flanges (80 & 105) Taco 007
- 1" & 1-1/4" flanges (155, 230 & 310) Taco 0011

Complete Jacket Assembly with

Fully Removable Front Jacket Cover

Adjustable Boiler Legs

Sidewall Vent/Air Termination Kit

Line & Low Voltage

Pre-wired Terminal Strips

On/Off Power Switch

Line Voltage Service Receptacle

Condensate Trap

with Drain Tee Assembly

Propane Conversion Orifice

(All except Model 80)

*Ultra* boilers are low NOx Certified by the South Coast Air Quality Management District (Rule 1146.2) in California.

In the interest of continual improvements in product and performance, Weil-McLain reserves the right to change specifications without notice.



Locate our Sales Offices by visiting our website:

[www.weil-mclain.com](http://www.weil-mclain.com)

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