

**CONDENSING COMMERCIAL  
GAS WATER HEATERS**

# **ARMOR**<sup>®</sup> CONDENSING WATER HEATER

4 MODELS FROM 150,000 TO 285,000 BTU/HR

96% THERMAL EFFICIENCY

5:1 TURNDOWN RATIO

CONDENSING STAINLESS STEEL  
HEAT EXCHANGER

 **SMART SYSTEM**<sup>™</sup>  
W/CASCADING SEQUENCER

 **CONXUS**<sup>®</sup>  
REMOTE CONNECT CAPABLE



# AN INNOVATION IN COMMERCIAL WATER HEATING

DESIGNED ★ ENGINEERED ★ ASSEMBLED

# **USA**

 **Lochinvar**<sup>®</sup>

# ARMOR<sup>®</sup>

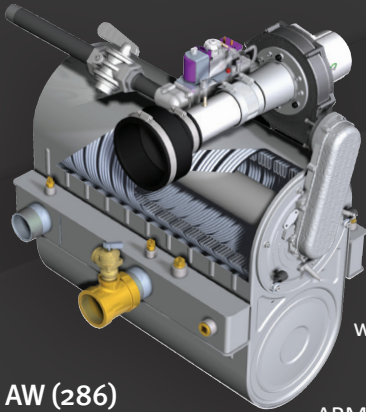
## CONDENSING WATER HEATER

### A BETTER WAY TO ACHIEVE 96% THERMAL EFFICIENCY

ARMOR is a fully condensing commercial gas water heater. Available in three models with inputs ranging from 150,000 to 285,000 Btu/hr, the ARMOR achieves 96% thermal efficiency.

### SEPARATE TANK FOR FLEXIBILITY, LOWER REPLACEMENT COSTS

With standard tank-type water heaters, your choices are limited when it comes to matching input with storage capacity to meet "peak demand" delivery requirements. With ARMOR, you can match one or more water heaters with one or more storage tanks in a wide variety of sizes. Lochinvar Lock-Temp<sup>®</sup> tanks are available from our 80-gallon vertical to the 5000-gallon vertical or horizontal model. Another advantage of the ARMOR "dual component" system is lower replacement costs. Standard tank-type designs require replacement of the entire water heater. With ARMOR, you'll save time and money by only replacing individual components as needed, such as the pump or storage tank.



### FULLY MODULATING WITH 5:1 TURNDOWN

ARMOR features advanced Negative Regulation (Neg/Reg) sealed combustion technology, permitting fan speed to constantly adjust the volume of fuel and air entering the burner. This ensures that ARMOR can safely and reliably operate with supply gas pressure as low as 4 inches water column.

AW (286)

ARMOR is equipped with fully modulating combustion with 5:1 turndown. This means ARMOR can fire as low as 20% of maximum input when water heating demand is lowest, and increase the firing rate up to 100% as demand increases. The result is better overall efficiency and less cycling, compared to "on-off" tank-type units which can only fire at 100% input.

### STAINLESS STEEL CONDENSING HEAT EXCHANGER

The ARMOR's stainless steel heat exchanger is built to ASME Section IV requirements. Its design provides superior resistance to corrosion caused by condensation from low entering water temperatures. Non - Condensing commercial water heaters will fail early with low entering water temperatures; however, with the ARMOR the lower the supply water temperature the more efficiently it performs throughout the life of the heater.

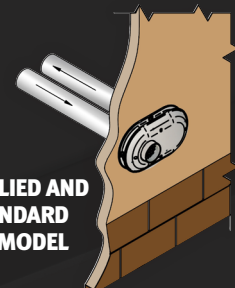
### DIRECT-VENTING UP TO 100 FEET



Sidewall Vent Termination

ARMOR offers 7 venting options and tremendous flexibility for placement of units within the building, because it permits direct-vent air intake and exhaust runs up to 100 equivalent feet using either PVC, CPVC, Polypropylene or AL29-4C stainless steel vent pipe. Intake and exhaust runs can terminate horizontally through a sidewall or vertically through the roof.

*\*Optional Concentric Vent Kit Sold Separately*



**FACTORY SUPPLIED AND  
SHIPPED STANDARD  
WITH EVERY MODEL**



## WATER HEATER CONTROL, FROM ANYWHERE.

ARMOR features the latest generation of Lochinvar's all-in-one SMART SYSTEM operating control with an advanced multi-color LCD interface. SMART SYSTEM provides outstanding functionality, and can be integrated directly into a Building Management System via ModBus and other communication protocols. And now, the CON·X·US mobile communication platform allows SMART SYSTEM to go where no other water heater has gone before.†

CON·X·US provides the ability to monitor and manage Armor water heaters without ever stepping into the mechanical room. CON·X·US will send alerts via text or e-mail with notification of changes in system status, and anytime, from anywhere, a user can check system status and re-program water heater functions. Once downloaded, the free CON·X·US mobile application allows for remote access to all SMART SYSTEM functions using any internet-capable device.



† CON·X·US board sold separately. See back cover for a complete list of SMART SYSTEM features.

## LONG-LASTING "LIFE CYCLE" EFFICIENCY

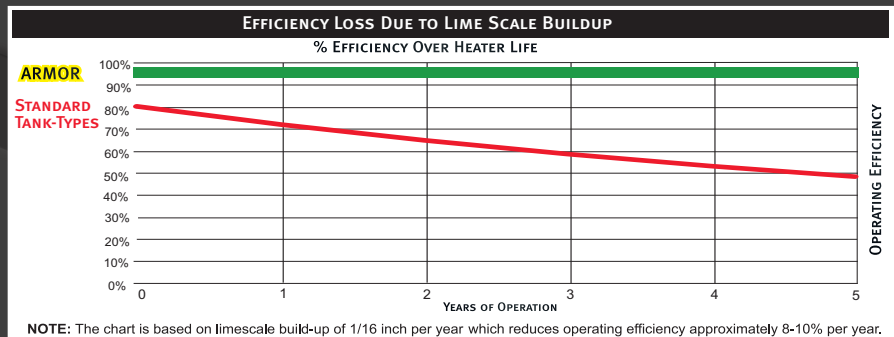
In a standard tank-type water heater, lime scale builds up over time on important heat transfer surfaces, insulating the water from the heat source. This decreases thermal efficiency and increases operating cost. Just 1/4" of lime scale can increase operating costs as much as 25%! This buildup in the bottom of the tank and around the flue tubes can cause tank-type heaters to fail in as little as 2-3 years.

ARMOR's "Better idea" concept eliminates the impact of lime scale, maintaining a high-rated thermal efficiency and low operating cost throughout its long life cycle.

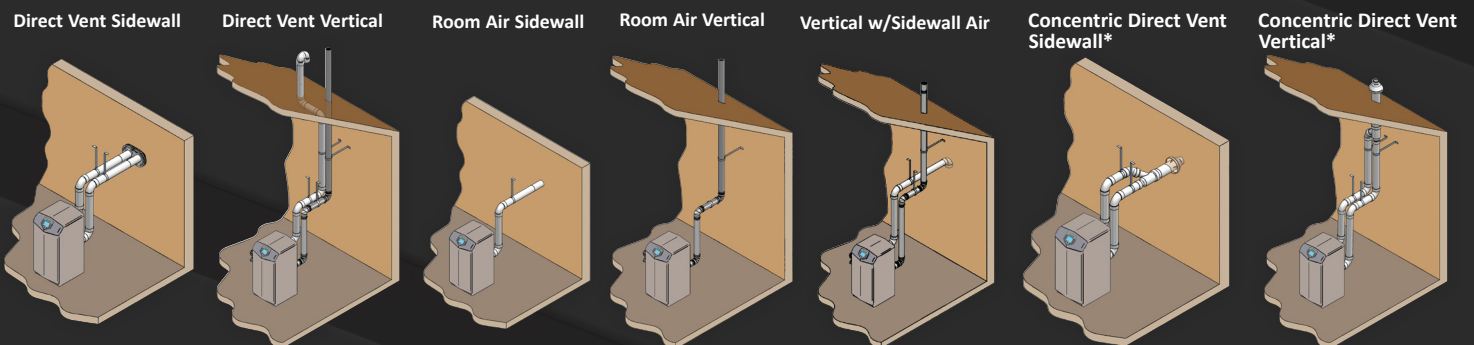
The chart below illustrates how ARMOR is a better way, delivering true "life cycle efficiency" compared to standard tank-type units.



Traditional tank-type water heater flue tubes with nearly 6" of lime scale buildup

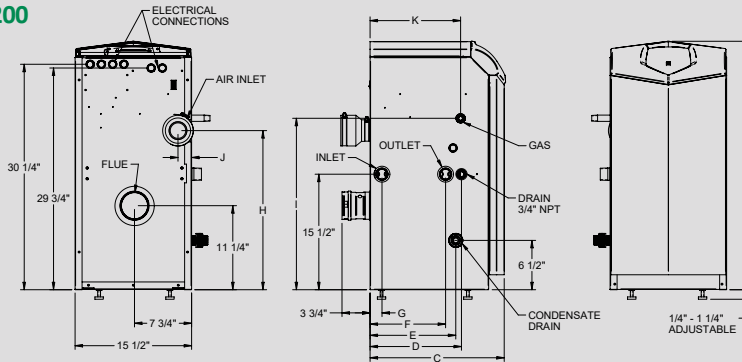


## 7 FLEXIBLE VENTING OPTIONS - Up to 100 feet of air intake and 100 feet of exhaust vent with PVC, CPVC, Polypropylene or Stainless Steel.

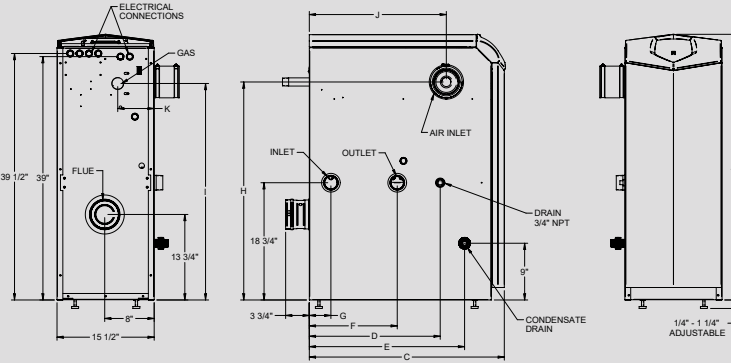


# ARMOR WATER HEATER DIMENSIONS AND SPECIFICATIONS

## MODELS 151 & 200



## MODELS 286



### Model Number Guide

AW	N	151	PM
Armor Water Heater		Natural Gas	Btu/hr Input
			Pump Mount

Armor Water Heater,  
Natural Gas,  
150,000 Btu/hr Input,  
Pump Mount

## ARMOR WATER HEATER

## DIMENSIONS & SPECIFICATIONS

Model Number	Btu/hr Input	GPH @ 100° Rise	A	C	D	E	F	G	H	I	J	K	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
AWN151PM*	150,000	175	33-1/4"	18"	12-1/4"	11-1/2"	10"	1-1/2"	21-1/4"	23"	1-3/4"	12"	1/2"	1-1/4"	3"	3"	176
AWN200PM*	199,000	232	33-1/4"	22-1/4"	16-1/2"	15-3/4"	14-1/4"	5-1/4"	21-1/4"	23"	1-3/4"	16-1/4"	1/2"	1-1/4"	3"	3"	195
AWN201PM †	201,000	232	33-1/4"	22-1/4"	16-1/2"	15-3/4"	14-1/4"	5-1/4"	21-1/4"	23"	1-3/4"	16-1/4"	1/2"	1-1/4"	3"	3"	195
AWN286PM †	285,000	332	42-1/2"	19-3/4"	12-3/4"	13-1/2"	6"	2"	34"	31"	11-3/4"	4-1/4"	3/4"	2"	4"	4"	237

\* Canada Only † AHRI Certified Models

## STANDARD FEATURES

- › 96% Thermal Efficiency (AHRI Certified)
- › Modulating Burner with 5:1 Turndown
  - Direct-Spark Ignition
  - Low NOx Operation
  - Sealed Combustion
  - Low Gas Pressure Operation
- › Vertical & Horizontal Direct-Vent
  - PVC, CPVC, Polypropylene or Stainless Steel up to 100 Feet
  - PVC/CPVC Sidewall Vent Termination
- › Stainless Steel Heat Exchanger
  - All Welded Construction, Gasketless Design
  - 160 psi Working Pressure
  - ASME Construction (AW 286)
  - Natural to L.P. Conversion Kit
  - Stainless Steel Circulating Pump
  - On/Off Switch
  - Flow Switch
  - ASME Temperature & Pressure Relief Valve (AW286)
  - Adjustable Leveling Legs
  - Tank Sensor
  - Adjustable High Limit w/ Manual Reset
  - Automatic Reset High Limit
  - Condensate Trap
  - Zero Clearances to Combustible Material
  - 5 Year Limited Warranty (See Warranty for Details)
  - 1 Year Parts Warranty (See Warranty for Details)

## SMART SYSTEM FEATURES

- › SMART SYSTEM Digital Operating Control
  - Multi Color Graphic LCD Display
- › Built in Cascading Sequencer for up to 8 Water Heaters
  - Multiple Size Water Heater Cascade
  - Lead Lag
  - Efficiency Optimization
  - Front-End Loading Capability with CopperFin II
- › Building Management System Integration
  - 0-10 VDC Input to Control Modulation or Set point
  - 0-10 VDC Modulation Rate Output
  - 0-10 VDC Input to Enable/Disable call for heat
- Access to BMS Settings Through Graphic LCD Display
- Low Water Flow Safety Control & Indication
- Inlet & Outlet Temperature Sensors & Readout
- Flue Temperature Sensor
- Water Heater Pump Control
- Pump Delay with Freeze Protection
- Pump Exercise
- Night Setback
- Building Recirculation Loop Pump Control
- Night Setback of Building Recirculation Loop
- Time Clock
- › Maintenance Reminder
  - Ability to program installer name and number into the product as service contact
- › High Voltage Terminal Strip
  - 120V/1PH/60Hz
  - Water Heater Pump Control Contacts
  - Building Recirculation Pump Control Contacts

## Low Voltage Terminal Strip

- 24 VAC Auxiliary Device Relay
- Auxiliary Proving Switch Contacts
- Flow Switch Contacts
- Alarm on Any Failure Contacts
- Runtime Contacts
- Tank Sensor Contacts
- Cascade Contacts
- 0-10 VDC BMS External Control Contacts
- 0-10 VDC Water Heater Rate Output Contacts

## FIRING CONTROL SYSTEMS

M9 Standard Construction

## OPTIONAL EQUIPMENT

- CON-X-US® Remote Connectivity
- Audible Alarm
- Condensate Neutralization Kit
- Concentric Vent Kit (3" & 4" PVC/CPVC only)
- ModBus or BACnet MSTP Communications
- BMS Gateway to LonWorks or BACnet IP
- SMART SYSTEM PC Software
- Room Air Kits
- Stack Frame

For technical information call 800-722-2101. Lochinvar, LLC reserves the right to make product changes or improvements without prior notice.



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