

CONDENSING COMMERCIAL GAS WATER HEATERS



SMART SYSTEM™

CONTROL WITH CASCADING
SEQUENCER

UP TO 98% THERMAL EFFICIENCY

8 MODELS FROM 150,000 TO
800,000 BTU/HR

5:1 TURNDOWN FIRING RATE

LESS THAN 20 ppm NOx



**UP TO 98%
THERMAL EFFICIENCY**



lochinvar.com



A BETTER WAY TO ACHIEVE 98% THERMAL EFFICIENCY

There are several tank-type commercial water heaters on the market with thermal efficiencies of 95% or higher. They all promise tremendous savings on operating costs compared to standard-efficiency units, but none of them truly measures up to the Lochinvar ARMOR™.

ARMOR is a fully condensing commercial gas water heater. Available in eight models with inputs ranging from 150,000 to 800,000 Btu/hr, the ARMOR achieves thermal efficiencies up to 98%.

ARMOR delivers long-lasting life-cycle efficiency surpassing any commercial unit in its class. When you look beyond the numbers you'll discover the many ways that ARMOR technology is in a class by itself!

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.

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 all other tank-type units which are "on-off," which means they can only fire at 100% of maximum 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. Traditional 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.



AW (285-800)

SMART SYSTEM™

THE ULTIMATE WATER HEATER OPERATING CONTROL

EASY TO USE – MAKES SETUP AND SERVICE A BREEZE

2-LINE 16-CHARACTER LCD DISPLAY OF SETUP, SYSTEM
STATUS AND DIAGNOSTIC DATA IN WORDS, NOT CODES

WATER HEATER PUMP CONTROL:

- › PUMP DELAY WITH FREEZE PROTECTION
- › PUMP EXERCISE

HIGH-VOLTAGE TERMINAL STRIP:

- › 110 VAC INPUT TO WATER HEATER
- › 110 VAC OUTPUT TO PUMP

LOW-VOLTAGE TERMINAL STRIP WITH
22 POINTS OF CONNECTION

BUILT-IN CASCADING SEQUENCER CONTROLS UP TO
8 ARMOR UNITS WITHOUT THE ADDED COST OF A
SEPARATE THIRD-PARTY SEQUENCER

INTERFACE FOR OPTIONAL SMART SYSTEM PC
SOFTWARE FOR ADVANCED SETUP AND DIAGNOSTICS

2-LINE 16-CHARACTER
LCD DISPLAY OF SETUP,
SYSTEM STATUS AND
DIAGNOSTIC DATA IN
WORDS, NOT CODES



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 inputs ranging from 150,000 to 800,000 with one or more storage tanks in a wide variety of sizes. Lochinvar Lock-Temp® tanks are available to meet the need, 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.

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 in the tank can increase operating costs as much as 25%!

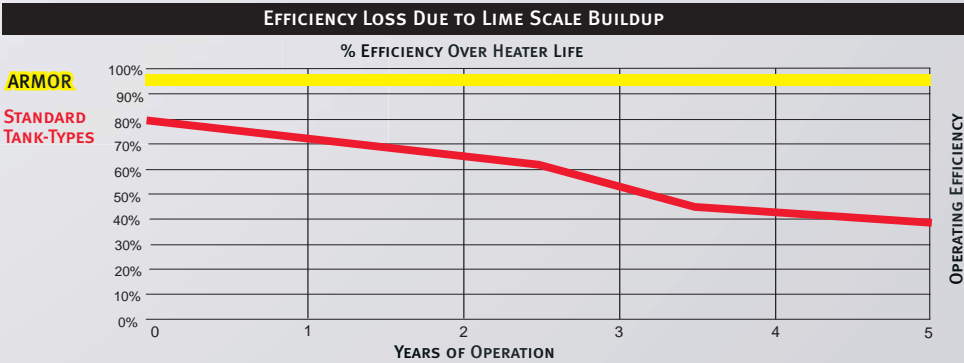
Traditional tank-type water heater flue tubes with nearly 6" of lime scale buildup

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 “dual component” 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.



EASY, FLEXIBLE INSTALLATION AND SERVICE

Vent using PVC, CPVC or SS – Up to 100 feet of air intake and 100 feet of exhaust vent with PVC, CPVC or SS.

Conduit Knockouts – For field wiring connections.

User-Friendly Terminal Strip – Allows 22 points of low-voltage field connections for additional safeties or accessories.

Easy-Access Cabinet – Front and top panels are hand-removable, without tools.

Leveling Legs – Certified for installation on combustible floors.

Water Heater Circulating Pump – Included as standard equipment.

Small Footprint – Conserves valuable floor space.

Lightweight Design – Easy to handle, simple to install.

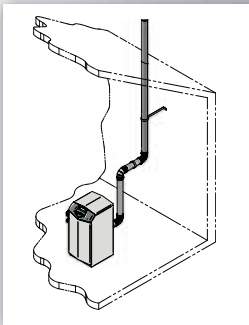
Natural to LP Gas Conversion – Simple and fast

LOW-VOLTAGE
TERMINAL STRIP
WITH 22 POINTS OF
CONNECTION

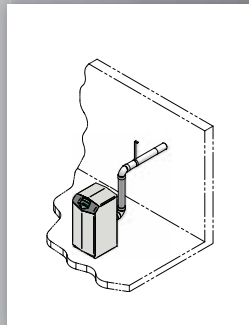


7 VENTING OPTIONS!

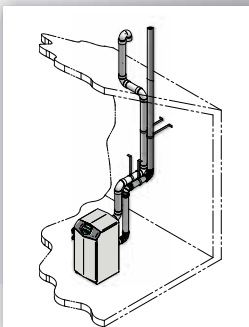
Room Air Vertical



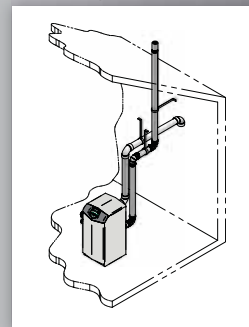
Room Air Sidewall



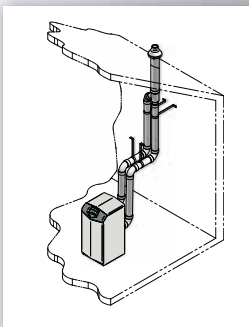
Direct Vent Vertical



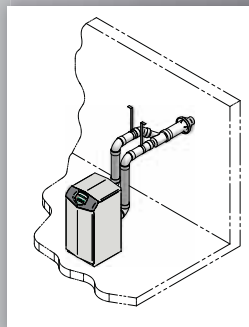
Vertical w/Sidewall Air



Direct Vent Vertical*

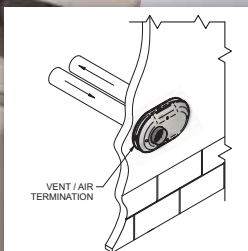
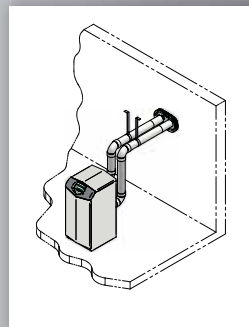


Direct Vent Sidewall*



*Optional Concentric Vent Kit Sold Separately

Direct Vent Sidewall



**SIDEWALL VENT
TERMINATION FACTORY
SUPPLIED AND SHIPPED
STANDARD WITH EVERY
MODEL**

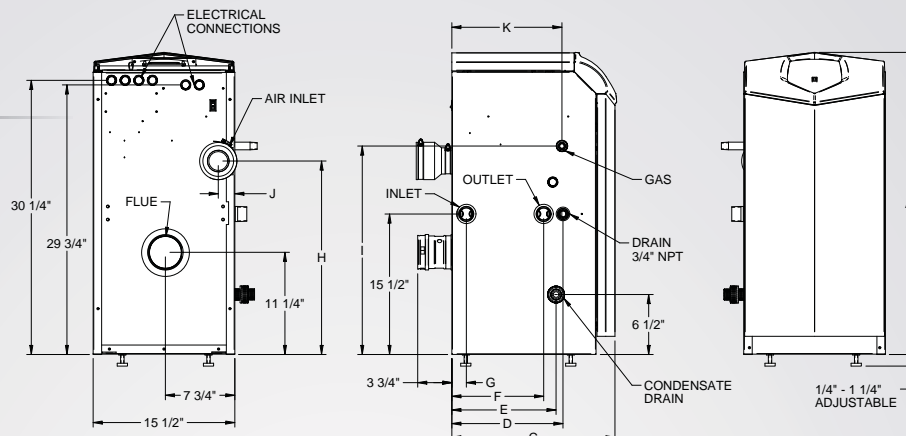


SIDEWALL VENT
TERMINATION

AW (150-199)

ARMOR™ WATER HEATER DIMENSIONS AND SPECIFICATIONS

MODELS 150-199

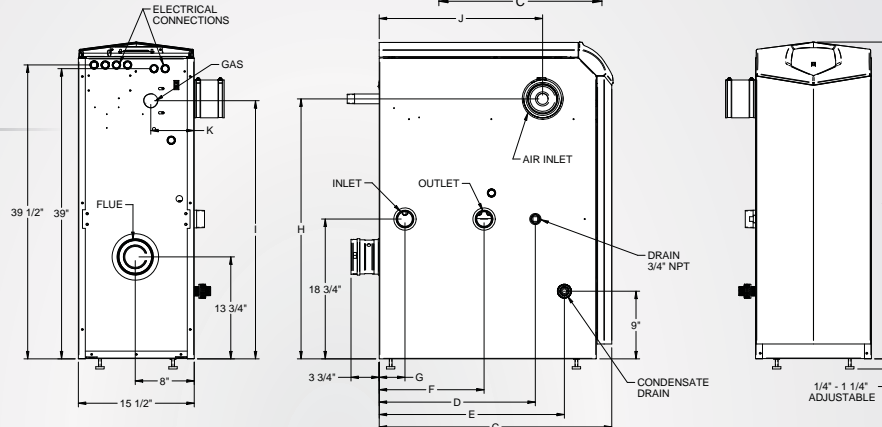


MODELS 285-800

Model Number Guide

AW	N	150	PM
Model	Natural Gas	Btu/hr Input	Pump Mount

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



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.)
AWN150PM	150,000	174	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"	165
AWN199PM	199,999	235	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"	185
AWN285PM	285,000	339	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"	235
AWN399PM	399,999	475	42-1/2"	27"	21"	20-3/4"	14"	3-1/2"	34"	34"	18-3/4"	2"	1"	2"	4"	4"	295
AWN500PM	500,000	594	42-1/2"	31-1/4"	21"	25"	14"	3-1/2"	35"	35"	22"	5-3/4"	1"	2"	4"	4"	335
AWN600PM	600,000	713	42-1/2"	36-1/4"	25"	21"	14"	3-1/2"	36"	32-3/4"	19-1/2"	5-1/2"	1"	2"	4"	4"	380
AWN700PM	700,000	832	42-1/2"	40-1/4"	29"	23"	17"	3-1/2"	36"	32-3/4"	23-1/2"	3-1/4"	1"	2"	4"	6"	461
AWN800PM	800,000	950	42-1/2"	45-1/4"	33-1/4"	23"	17"	3-1/2"	36"	32-3/4"	27-3/4"	3-1/4"	1"	2"	4"	6"	527

STANDARD FEATURES

- › Up to 98% Thermal Efficiency
- › Modulating Burner with 5:1 Turndown
 - › Direct-Spark Ignition
 - › Low NOx Operation
 - › Sealed Combustion
 - › Low Gas Pressure Operation
- › Vertical & Horizontal Direct-Vent
 - › PVC, CPVC or SS Venting 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 285-800)
- › Natural to L.P. Conversion Kit
- › All Bronze Circulating Pump
- › On/Off Switch
- › Flow Switch
- › ASME Temperature & Pressure Relief Valve
- › Temperature & Pressure Gauge (AW 500-800)
- › Downstream Test Valves (AW 500-800)
- › Adjustable Leveling Legs
- › Tank Sensor
- › Manual 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
 - › 2 line, 16 Character Display
 - › Dual Level Password Security
 - › Built in Cascading Sequencer for up to 8 Water Heaters
 - › Building Management System Integration with 0-10 VDC Input
 - › 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
 - › Time Clock
 - › Service Reminder
- › High Voltage Terminal Strip
 - › 120 VAC / 60 Hertz / 1 Phase Power Supply
 - › 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 Contact

OPTIONAL EQUIPMENT

- › Adjustable High Limit w/ Manual Reset
- › Alarm Bell
- › Condensate Neutralization Kit
- › High & Low Gas Pressure Switches (AW 500-800)
- › Concentric Vent Kit (3" & 4" PVC/CPVC only)
- › SMART SYSTEM PC Software
- › Room Air Vent Kits
- › Stack Frame

FIRING CONTROL SYSTEMS

- › M9 Standard Construction
- › M7 California Code (AW 285-800)
- › M13 CSD1 / FM / GE Gap (AW 500-800)



Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters