

CONDENSING GAS WATER HEATERS



1.0 MILLION BTU/HR

FIRING RATE MODULATION TO 10:1

LESS THAN 20 ppm NO_x

DIRECT-VENT FLEXIBILITY TO 100 FEET



TOUCHSCREEN OPERATING CONTROL
FEATURING A BUILT-IN CASCADING
SEQUENCER



DESIGNED ★ ENGINEERED ★ ASSEMBLED

USA



Lochinvar®

ARMOR X2™

COMMERCIAL CONDENSING WATER HEATER

AN INNOVATION IN COMMERCIAL WATER HEATING



The ARMOR X2 Commercial Water Heater combines stainless steel heat exchanger technology with Modulating Condensing combustion to deliver efficiencies as high as 96%. With an input of 1.0 million BTU/hr, ARMOR X2 will serve a large range of commercial applications and add the “green” touch that building owners and facility managers desire.

ARMOR X2 delivers new levels of innovation with SMART TOUCH™... touchscreen technology that puts total operational control at your fingertips! With Lochinvar SMART TOUCH, it's easier than ever to set up a perfectly synchronized “green” system, and access a complete onboard database of real-time operational data and performance history.

Other features of the ARMOR X2 include space-saving footprints, direct-vent design with intake and exhaust runs up to 100 equivalent feet, and a built-in cascading sequencer for up to 8 water heaters, delivering up to 8 million BTU/hr capacity.

THE ARMOR X2

Lochinvar's Armor X2 offers peace of mind in the truest sense. With two independent combustion systems operating with two 316L stainless steel heat exchangers, along with gas valves and combustion blowers designed to work in concert, worries about meeting the domestic hot water demand are a thing of the past. This built in redundancy means that if a failure of a component such as the spark igniter occurs on one heating module the second heating module will come on-line to meet the hot water demand.

With unparalleled modulation capabilities the Armor X2 boasts a turndown ratio of 10:1. This means that at times when the hot water demand requires less than the full input capabilities of the water heater, Armor X2 will deliver the proper amount of heat to exactly match the demand with inputs as low as 10% of the maximum water heater input.

Couple the Armor X2 with a Lock-Temp Storage tank for long system life and high performance. All Lock-Temp storage tanks are equipped with the patented Lock-Temp baffle. This baffle isolates the turbulence of incoming water thus allowing the tank to be a constant temperature throughout, this feature allows for an industry best 80% tank drawdown.

If foot print, installation costs or final installed appearance are of great concern, consider allowing Lochinvar to create a custom water heater package for your application. Each package is custom built, factory assembled and tested to meet the requirements of the job. All packages include a welded channel iron skid which houses the water heater(s) and associated storage tank(s) for ease of maneuverability and installation.

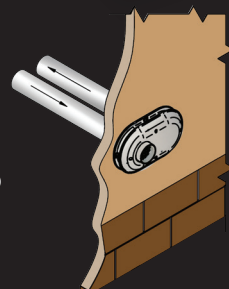


DIRECT-VENTING UP TO 100 FEET



Sidewall Vent Termination

ARMOR X2 offers multiple 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.



FACTORY SUPPLIED AND SHIPPED STANDARD WITH EVERY MODEL

Lochinvar SMART TOUCH

UNEQUALED CONTROL AND MONITORING FUNCTIONS THAT ARE EASY TO USE

TOTAL CONTROL, AT YOUR FINGERTIPS

The full-color Lochinvar SMART TOUCH Main Menu screen is your gateway to complete control of all ARMOR X2 functions, and total access to system performance data and history. Do it all and see it all right here, with or without connecting to a separate PC using Lochinvar SMART TOUCH software.

- MODBUS COMMUNICATION
- PASSWORD SECURITY
- PRODUCT SERVICE INDICATOR
- FREEZE PROTECTION
- LOW WATER FLOW INDICATOR
- NIGHT TEMPERATURE SETBACK
- BUILDING MANAGEMENT SYSTEM CONTROL
- TANK TEMPERATURE READOUT
- WATER HEATER CONTROLS
- PC CONNECTION



THE ARMOR X2 COMBUSTION SYSTEM ADVANCED NEGATIVE REGULATION TECHNOLOGY

ARMOR X2 safely and reliably operates with supply gas pressure as low as 4 inches water column, because Negative Regulation (Neg/Reg) technology automatically adjusts fan speed to ensure the correct volume of fuel and air enter the burner.

“FAIL-SAFE” DIRECT-SPARK IGNITION

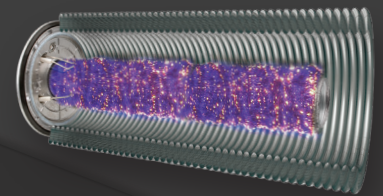
With each call for heat, two electrodes ignite the fuel/gas mixture. A third electrode then senses for flame. SMART TOUCH will lock out and display the fault if ignition does not occur.

TWO-IN-ONE STAINLESS STEEL HEAT EXCHANGER

A primary heat exchanger combined with a secondary heat exchanger captures flue gas heat and eliminates low temperature protection requirements. The stainless steel, pH-tolerant design features a weld-sealed assembly with no O-rings or gaskets. The Armor X2 is ASME Section IV approved and stamped.

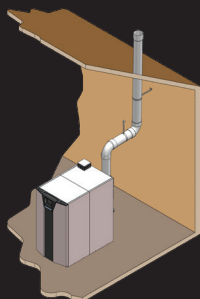
FULLY MODULATING BURNER

SMART TOUCH allows fully modulating combustion with 10:1 turndown. The combustion system can fire as low as 10% of maximum input, and modulates the firing rate up to 100% as demand increases. The burner design incorporates a woven steel mesh over a stainless steel burner tube and fires in a 360° pattern along the entire length of the primary heat exchanger. These together allow ARMOR X2's compact size to excel compared to units with larger multiple burners.

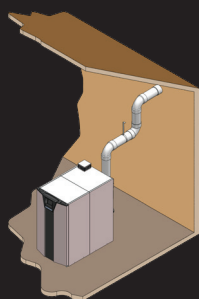


FLEXIBLE VENTING OPTIONS - Up to 100 feet of air intake and 100 feet of exhaust vent with PVC, CPVC, Polypropylene or SS.

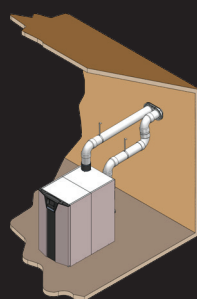
Room Air Vertical



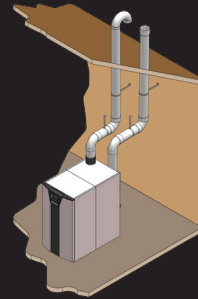
Room Air Sidewall



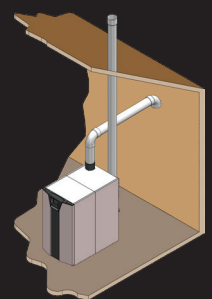
Direct Vent Sidewall



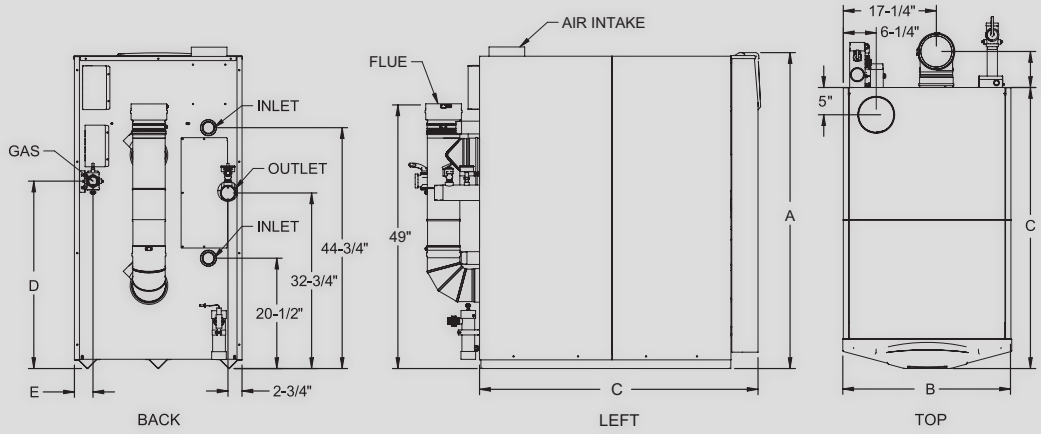
Direct Vent Vertical



Vertical w/Sidewall Air



DIMENSIONS AND SPECIFICATIONS



Model Number Guide			
AW	N	1000	PM
Model	Natural Gas	Btu/hr Input	Pump Mounted

Armor X2 Water Heater,
Natural Gas,
1,000,000 Btu/hr input,
PM Pump Mounted

ARMOR X2 WATER HEATER				DIMENSIONS AND SPECIFICATIONS											
Model Number	Btu/hr Input	Thermal Efficiency	GPH @ 100° Rise	A	B	C	D	E	F	Inlet Gas Conn.	Inlet Water Conn.	Outlet Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
AWN1000PM	999,999	96.0%	1,164	58-3/4"	31"	48"	35"	4-1/2"	15"	1-1/2"	2 x 2"	3"	6"	6"	910

Notes: Change 'N' to 'L' for L.P. Gas Model. No deration on L.P. models. Performance data based on manufacturer test results. All dimensions shown in inches.

STANDARD FEATURES

- › **96% Thermal Efficiency (AHRI Certified)**
- › **Modulating Burner with 10:1 Turndown**
 - Direct-Spark Ignition
 - Low NOx Operation
 - Sealed Combustion
 - Low Gas Pressure Operation
- › **Vertical & Horizontal Venting**
 - Category IV Venting up to 100 Feet
 - PVC, CPVC, Polypropylene or AL29-4C Vent Material
 - Sidewall Vent Termination Provided
- › **ASME Stainless Steel Heat Exchanger**
 - Gasketless Design
 - 160 psi Working Pressure
- › **(2) Stainless Steel Circulating Pumps**
- › **On/Off Switch**
- › **Adjustable High Limit with Manual Reset**
- › **Low Air Pressure Switch**
- › **Flow Switch**
- › **Inlet & Outlet Temperature Sensors**
- › **Two Easy Access Terminal Strips**
- › **Temperature & Pressure ASME Relief Valve**
- › **Zero Clearance to Combustible Material**
- › **Approved for Combustible Floor Installation**
- › **1 Year Warranty on Parts**
- › **5 Year Limited Warranty (see warranties for details)**

SMART TOUCH™ FEATURES

- › **SMART TOUCH™ Touchscreen Operating Control**
 - Full-Color Touchscreen LCD Display
 - Built-in Cascading Sequencer for up to 8 Water Heaters
 - Building Management System Integration with 0-10 VDC Input
 - Password Security
 - Low Water Flow Safety Control & Indication
 - Inlet & Outlet Temperature Readout
 - Freeze Protection
 - Service Reminder
 - Time Clock
- › **Data Logging**
 - Hours Running
 - Ignition Attempts
 - Last 10 Lockouts
- › **Programmable System Efficiency Optimizers**
 - Night Setback
 - Anti-Cycling
- › **Water Heater Pump Control**
 - High Voltage Terminal Strip
 - 120 VAC / 60 Hertz / 1-Phase Power Supply
 - Pump Contacts
- › **Low Voltage Terminal Strip**
 - 24 VAC Auxiliary Device Relay
 - Auxiliary Proving Switch Contacts
 - Alarm on Any Failure Contacts
 - Runtime Contacts
 - Tank Thermostat Contacts
 - Tank Sensor Contacts
 - Cascade Contacts

OPTIONAL EQUIPMENT

- Alarm Bell
- Condensate Neutralization Kit
- SMART TOUCH PC Software
- Modbus Communications
- BMS Gateway to LON or BacNet

CODES & REGISTRATIONS

- ANSI Z21.10.3 compliant
- ASME certified, "HLW" stamp
- California Code compliant
- Massachusetts Code compliant
- South Coast Air Quality Management District registered

Patent # 8,371,252