Greenstar

The World's Best Selling Condensing Boiler System

BOSCH
Invented for life

Comfort Care

Simply Smart

Residential space and water heating boiler solutions with 95% Annual Fuel Usage Efficiency Rating (AFUE) completed by Bosch Zoning System Control

Most Efficient 2016
ENERGY STAR
www.energystar.gov

95% AFUE

LIFETIME HEAT EXCHANGER LIMITED WARRANTY

PARTS 5 YEAR LABOR LIMITED WARRANTY

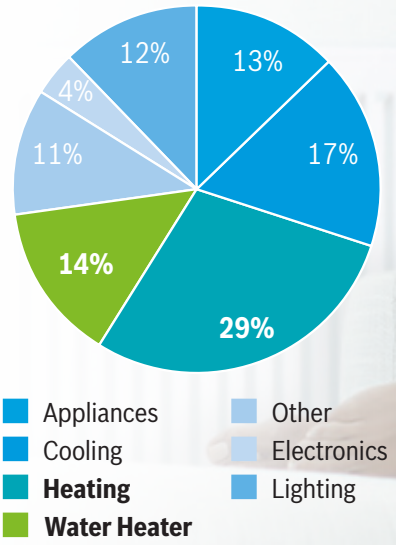
Reduce Fuel Bills, Emissions and Save Space
Upgrade to a Modern Condensing Boiler and Control System

Did you know that space and water heating account for 43% of average U.S. household energy use? Now is the time to upgrade to the latest, affordable technology that combines both space heating and domestic hot water applications in one compact unit to save both space in your home and money on monthly utility bills.

What is High Efficiency Condensing Technology and why is it More Efficient?

During the operation of a boiler, fuel is burned and exhaust gases are expelled out of the flue; a condensing boiler is able to extract and use much of the latent heat from the flue gases before venting. This ability to extract more heat from the fuel it consumes makes it more efficient and also reduces emissions.

U.S. Household Energy Use*



Source: DOE website. www.energystar.gov/indexcfm?c=products.pr_pie

Fast Payback and Ecological Awareness

AFUE (Annual Fuel Utilization Efficiency) is a measure of how energy efficient the appliance is in its annual fuel consumption. Specifically, AFUE is the ratio of heat output compared to the total energy consumed by the boiler. It takes into account the cyclic on/off operation of your appliance throughout the heating season. However, AFUE does not factor in boilers that utilize reset controls or modern micro-processing technology.

Bosch Greenstar models have an AFUE of 95%, meaning 95% of the energy in the fuel becomes heat for the home. All this adds up to greater overall system efficiency—and most importantly, lower energy costs. Bosch offers a 95% AFUE rated high efficiency condensing boiler consuming low fuel and eligible for Federal Tax Credit and utility rebates (where offered) bringing your total installation costs down.

Environmental Responsibility with Low NOx Emissions

The EPA identified NOx (nitrous oxide) as one main gas contributing to acid rain. Bosch's Greenstar condensing boiler series uses a combustion process which achieves up to 95% efficiency and reduces NOx emissions providing greater energy savings while contributing to cleaner air and better quality of life.

* Source: U.S. Department of Energy

Giving you the Ultimate Comfort you Deserve

Greenstar is ideal for providing comfortable heating and domestic hot water from small apartments, condominiums and single family homes within the 151,000 maximum BTU rating. Greenstar's ultra quiet operation is perfect for radiant heating with panel radiators, in floor radiant, or baseboards. Radiant heat, like the sun, warms objects rather than just the air, creating a greater sense of warmth and at lower room temperatures.

Peace-Of-Mind Warranties are Best in Industry

Bosch products are built using top-grade materials and are tested to meet the highest standards for performance and sustainability, which is why Bosch can back each product with the most generous warranties in the industry. Our 5-year parts and labor limited warranty§ and lifetime heat exchanger limited warranty§ ensure longevity of your investment.

Bosch, the Quality Name you Know and Trust

Bosch has been producing products since 1886. We first produced water heaters and boilers in 1895. Since 2001 more than 2 million units have been installed worldwide. The Bosch Greenstar condensing boiler line is engineered to offer the ideal solution for residential heating and hot water needs at an affordable price, without compromising quality or fuel economy.

Bosch Aesthetic and Space Saving

Sleek appliance like industrial design. Small foot print offering space saving within the installation.

§ Limited warranty. Copies of original warranties in their entirety are available on www.boschheatingandcooling.com.

Bosch Greenstar Applications

Greenstar is ideal for providing comfortable heating and domestic hot water for a townhouse, condo, apartment or single family home.

Just the Right Fit

Floor-Standing Series
Ideal for replacing old floor boiler

The Greenstar is available as a heat only boiler for use with a hot water tank, or as a combi model for heating integrated with tankless domestic hot water (DHW).

Wall-Mounted Series
No floor space required

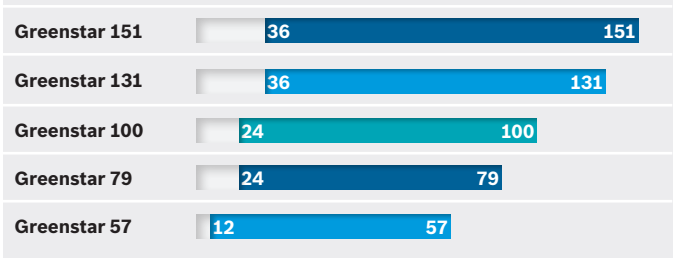
Heat-Only Boiler

- Boiler setup with separate circuits for heating and a DHW tank
- Ideal replacement solution where the existing DHW source will stay in place
- Perfect for systems with a very high DHW demand as the tank can be matched to the hot water requirement without necessarily having to increase the boiler output
- For use with renewables like solar thermal to reduce the energy consumption even further

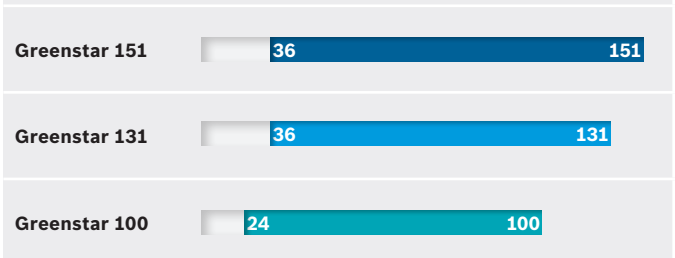
Combination Boiler

- Boiler with an integrated system for providing tankless DHW
- All-in-one solution with very low installation effort and very few external components
- Ideally suited for smaller properties with low to medium DHW demand and relatively short hot water pipe runs
- Smallest footprint suits properties with little space in the utility room – frees up space that could otherwise be used
- Efficiency is maintained while producing domestic hot water, unlike most combi-boilers on the market

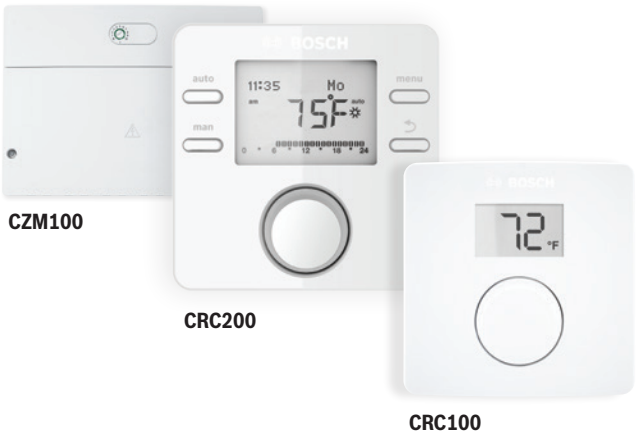
Greenstar Heat-Only Boilers
Input Rate Range in MBH (180/79°F, 82/26°C)



Greenstar Combi-Boilers
Input Rate Range in MBH (180/79°F, 82/26°C)



Smart Comfort



Smart Comfort

Boiler controls make a big difference to your heating system. With our condensing boilers already operating at peak efficiency, our range of controls give you an additional way of boosting your system's overall performance. Bosch boiler controls give you ability to precisely manage your system, as opposed to older controls which simply turn your boiler on and off. Similar to cruise control in your car, the Bosch controls work to deliver a steady comfort level, adjusting the boilers output based on the conditions, delivering consistent, efficient heating. By completing your Greenstar system with matching Bosch controls, you can fine tune your comfort levels, increase your boiler longevity, and realize incremental fuel savings.

Why use a Boiler Control

1. Enhanced comfort
2. Incremental fuel saving
3. Programmable features to suit your lifestyle
4. Increased efficiency, reliability, and longevity

Increased Efficiency

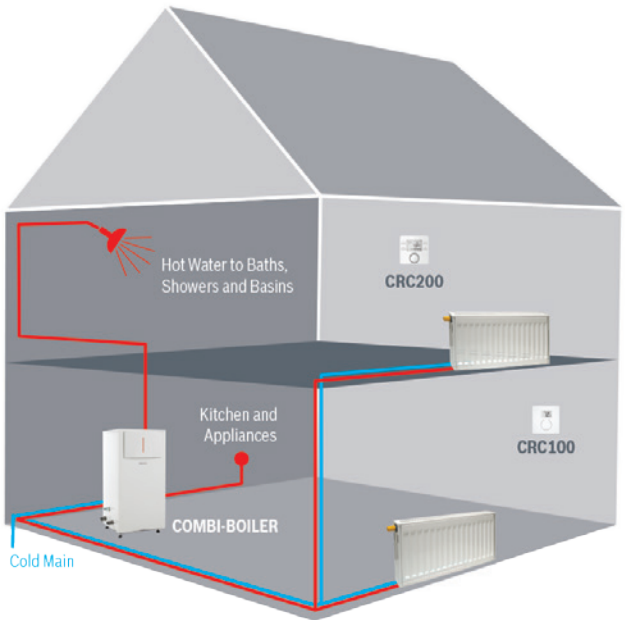
Enhance Your Comfort: Two-way communication between boiler and control system relates to more consistent room temperatures.

Let the Intelligence Come into Your Home: Extend the boilers lifetime by reducing firing at it's maximum output. Greenstar is ideal for providing comfortable heating and domestic hot water for small apartments, condominiums and single family homes within the 151,000 maximum BTU rating. Special insulation offers ultra quiet operation perfect for radiant heating with panel radiators, in floor radiant, or baseboards. Radiant heat, like the sun, warms objects rather than just the air, creating a greater sense of warmth and at lower room temperatures.

Load Compensation: The load compensation feature adjusts the temperature of the heat going to your radiators. When a room is cold the boiler temperature will be high, but as the room warms up and less heat is needed, it lowers the boiler temperature so that comfort is maintained and energy usage is reduced.

Weather Compensation: The weather compensation feature adjusts the temperature of the heat going to your baseboards. However, it does so in keeping with the outside temperature. An outdoor sensor allows the control to monitor the weather, with radiators running hotter if the temperatures outside drop, ensuring a comfortable home.

Realize the maximum potential of your Bosch Greenstar heating system. The right control system is key to saving energy and will increase savings compared to your old standard on/off controls.



Greenstar Boiler — A Look Inside

All Greenstar Models

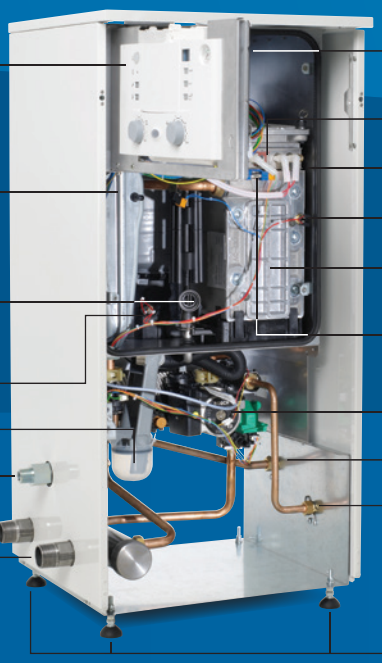
- **Broad BTU Output Range:** Floor and Wall models with 95% AFUE and up to 5:1 modulation are available in 5 Heat-Only and 3 Combi sizes
- **Simplified Installation:** Integral pump is standard on all models
- **Coated Heat Exchanger:** Reduces scale build-up, reduces service, maintains high efficiency and extends the life of the boiler
- **Combi Models High DHW Output:** Up to 4 GPM DHW output on Combi models – based on ΔT at 72°F / 40°C. Large flat-plate heat exchanger allows for lower operating temperatures and larger ΔT in DHW mode for higher efficiency and condensing operation
- **Proven Reliability:** Over 2 million Greenstar boilers sold worldwide
- **Venting Material:** Options include polypropylene (PP), flexible PP chimney liner, concentric PP kit, PVC or CPVC

Most Efficient 2016

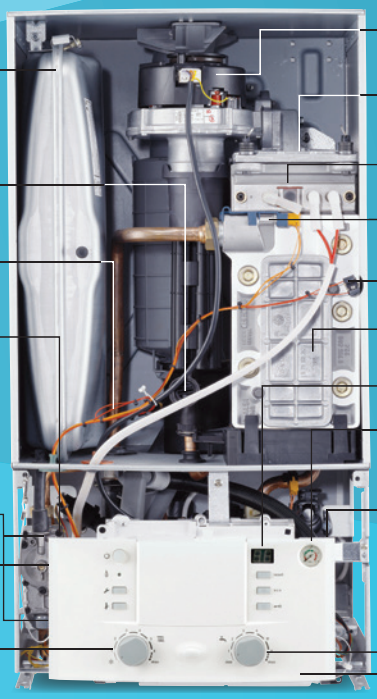
LIFETIME HEAT EXCHANGER LIMITED WARRANTY

5 YEAR PARTS LABOR LIMITED WARRANTY

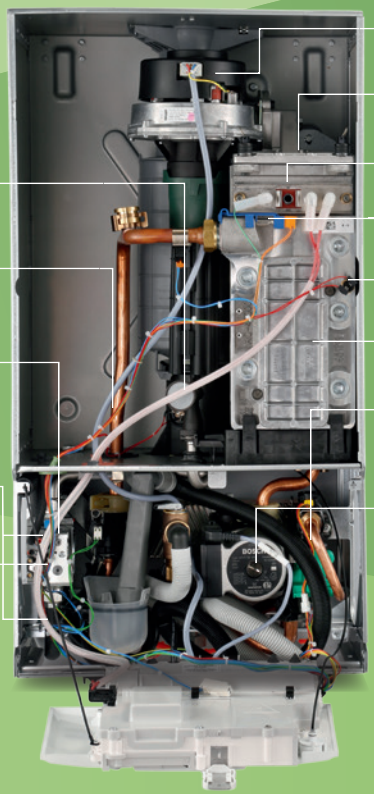
Greenstar FS Floor-Standing Series



Greenstar Wall-Mounted Series



Greenstar 151P Wall-Mounted Combi-Boiler



Comfort Control Modules — Features and Functions

Ease of Installation and Set-Up

The NSC consists of the the CZM100 and any of the Comfort Room Controllers, providing installers with a simple, boiler integrated, innovative plug and play control. The NSC is perfectly matched to the Greenstar for increased comfort and performance, while installation, wiring and setup are similar to other multi zone control system in the market.

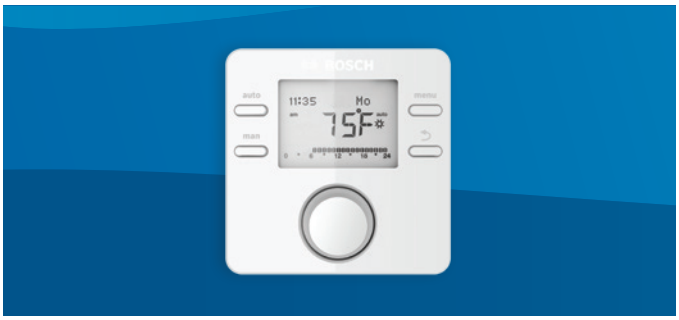
- Installs with a simple, boiler integrated, innovative plug and play control
- No complicated outdoor reset curves — Operates using indoor feedback / load compensation
- Provides two way communication with the boiler and control.

Comfort Zone Manager — CZM100

- Three zone control, expandable up to eight zones, can activate either circulator pumps or zone valves
- Reduces energy by adjusting boiler water temperature and firing rate due to changes in room temperature
- Operates the system at the lowest possible output in order to reduce room temperature swings, resulting in more consistent room temperatures and optimized fuel savings
- Warm weather shutdown, using an optional outdoor sensor, is available; when used with the CRC100 it is fixed at 70˚F, the CRC200 allows you to adjust the shutdown temperature setting

Comfort Room Controller — CRC100

- Simple, easy to operate thermostat with integrated temperature sensor
- Can be used in a single zone, or multi zone system. In multi zone systems CRC100 and CRC200 can be used in any configuration in conjunction with a required CZM100 module
- Added efficiency by providing the boiler with more than an on /off signal. It provides an exact supply temperature request to increase comfort and decrease energy consumption
- Preprogrammed with default settings for the most common application



Comfort Room Controller — CRC200

- Includes CRC100 function plus programmable time schedule, back lighting as well as push buttons for Menu, Auto-Run, Hold-Run and Back
- Offers additional functions and communication to the boiler: display of boiler temp, target temp, and outdoor temperature with optional outdoor sensor installed at boiler
- Integrated temperature sensor that can be used as a boiler control or in conjunction with the CZM100 as a room controller
- Operate the indirect water heater in parallel with the clock program or continuously
- Display outdoor temp when adding an optional outdoor sensor to the boiler

Superior Design and Components

The new Bosch Greenstar series features industry-leading design and technology components built for years of reliable operation and optimal energy efficiency.

Al-Si Heat Exchanger

Plated Stainless Steel Heat Exchanger

Full Modulating Fan Assembly

Heatronic III Boiler Control

CRC200

Al-Si Heat Exchanger

Each unit features an ASME approved Al-Si heat exchanger constructed of advanced magnesium-aluminum-silicon alloy offering increased flexibility versus traditional stainless steel. This highly durable heating block is corrosion resistant and designed to optimize clean burning combustion over an extra large surface area. The heat exchanger has a coating that prevents scale build-up, reduces service, maintains high efficiency and extends the life of the boiler.

Plated Stainless Steel Heat Exchanger

All Greenstar Combi-boilers are equipped with a high-strength stainless steel flat plate heat exchanger with double passage ensuring consistent DHW temperature output based on demand. This heat exchanger, with its large surface area and advanced technology, allows the boiler to use a lower water temperature and to condense even while producing DHW for greater efficiency and helps reduce the build-up of scale within the heat exchanger.

Full Modulating Fan Assembly

A full modulating fan automatically increases or decreases its speed depending on the heat demand controlling the amount of gas coming into the boiler. This process, called modulation, prevents the boiler from either having too little or too much air in the unit for optimal combustion ensuring high efficiency.

Heatronic III Boiler Control

Bosch Heatronic III, a device integrated into the boiler, provides instant access to the hot water and heating control buttons. Furthermore it enables the easy setting and testing of many customized appliance functions and applications. The exclusive keypad safety lock feature prevents unwanted tampering with the control.

CRC200 Control*

Our CRC200 Control combines a programmer, that is typically plugged into the boiler, and a room thermostat so you can access to all control functions at a single, easily accessible location.The control allows you to set different adjustable heating temperatures per day and can be accessed through a simple menu structure with a minimal amount of steps.The control also included a number of functions that are for exclusive use by the installer/service engineer for use during installation, commissioning, annual servicing and to assist with troubleshooting.

* Not included with the Greenstar 151P boiler

Accessories



Domestic Hot Water Tanks

Combine your Bosch boiler with one of our indirect hot water tanks. A Bosch tank is extremely well insulated for minimal stand-by heat loss. Available in 32, 50, 77 and 94 gallons, these tanks have a higher recovery rate than direct fired or tankless coil versions. While a Bosch boiler works great with any hot water tank—you can be sure of increased boiler efficiency, system longevity, and minimized service calls when you insist on a Bosch tank and boiler.

Panel Radiators

Radiant heat, like the sun, warms objects rather than just the air, creating a greater sense of warmth and at lower room temperatures. Forced hot air or baseboard systems with fin-tubes produce heat that warms the air by convection heat. Panel radiators provide the perfect combination of both radiant and convection heat. Depending on system and designed supply temperatures, panel radiators can offer an additional energy savings of up to 15%.

Simple to Install. Simple to Use. Simply Smarter.

Our Bosch Contol is smart, internet connected programmable control for central heating and hot water which can be operated using a smart phone or tablet.

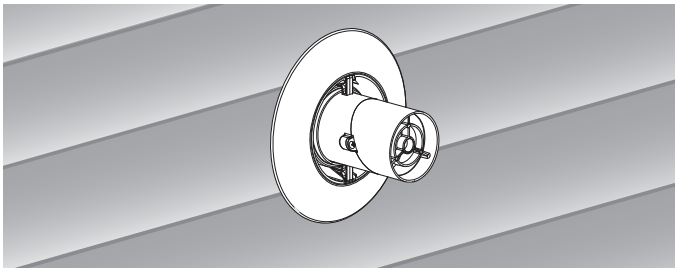
The Bosch Control's innovative programming enables it to have an "intelligent conversation" with the boiler and take advantage of advanced control features such as weather and load compensation.

The Bosch Control only requires a 2-core wire connection between the control and the boiler and it does not need an external wired sensor unlike standard weather compensation controls. The CT100's intuitive and modern design ensures it is very simple to operate using either its in-built touchscreen or via the app.

(Phone not included)

Concentric Vent Kit

A concentric vent is designed to use only one pipe for both the intake for combustion air and the exhaust vent. This design is an alternative to the standard two pipe intake/vent. Unlike standard venting, which requires cutting two holes through the home, one for intake and one for exhaust, a concentric vent only requires one hole through the wall to the outside. This simplifies installation, saving time and money by reducing the amount of work required and has a neater appearance on the outside of the home. Our concentric vent has a multi-positional vent discharge that can be redirected to reduce the risk of cross contamination.



Technical Specifications

MODEL	HEATING AND TANKLESS HOT WATER			HEATING*				
	GREENSTAR COMBI 100	GREENSTAR COMBI 131	GREENSTAR COMBI 151 COMBI 151P**	GREENSTAR 57	GREENSTAR 79	GREENSTAR 100	GREENSTAR 131	GREENSTAR 151
WALL MODEL	ZWB28-3	ZWB35-3	ZWB42-3	ZBR16-3	ZBR21-3	ZBR28-3	ZBR35-3	ZBR42-3
FLOOR MODEL	KWB28-3	KWB35-3	KWB42-3	KBR16-3	KBR21-3	KBR28-3	KBR35-3	KBR42-3
PERFORMANCE SPECIFICATIONS								
Fuel	NG / LP			NG / LP				
Input Maximum (MBH)	100.8	131.9	151.6	57.2	79.2	100.8	131.9	151.6
Input Minimum (MBH)	24.6	36.0	36.0	12.9	24.6	24.6	36.0	36.0
DOE Heating Capacity (MBH)	91	118	135	52	71	91	118	135
Net I=B=R (MBH)	79	103	117	45	62	79	103	117
AFUE	95%	95%	95%	95%	95%	95%	95%	95%
DHW Flow Max (ΔT at 72°F), GPM	2.65	3.2	4.0	not applicable				
Water Volume, Gal (L)	0.952 (3.5)			0.952 (3.5)				
TECHNICAL DATA								
Wall Model ▶ Weight, lbs (without Packaging, kg ▶ Dimensions, in. (W x H x D)	110.2 (50) 17 2/5 x 33 1/2 x 13 9/10			103.6 (47) 17 2/5 x 33 1/2 x 13 9/10				
Floor Model ▶ Weight, lbs (without Packaging, kg) ▶ Dimensions, in. (W x H x D)	136.6 (62) 19 1/2 x 41 x 21 7/8			132 (60) 19 1/2 x 41 x 21 7/8				
Optional Base Dimensions	Stand dimensions: 13 3/4" deep, by 17 3/8" wide by 20 5/8" high. Total height of stand and boiler: 54 1/8"							
Wall Boiler Supply & Return Tappings, in.	1			1				
Floor Boiler Supply & Return Tappings, in.	1 1/4			1 1/4				
Domestic Cold Water Supply, in.	3/4			not applicable				
Domestic Hot Water Supply, in.	3/4			not applicable				
Gas Connection Size, in.	3/4			3/4				
Vent Size, in.	2 - 3			2 - 3				
Vent Material	PVC / CPVC / PP / PP-Flex / SS			PVC / CPVC / PP / PP-Flex / SS				
Combustion Air Size, in.	2 - 3			2 - 3				
High Altitude Capability	No De-Rating up to 6,000'	No De-Rating up to 6,000'	De-Rating 3% per 1,000'	No De-Rating up to 6,000'	No De-Rating up to 6,000'	No De-Rating up to 6,000'	No De-Rating up to 6,000'	De-Rating up 3% per 1,000'
Permissible Inlet Gas Pressure ▶ NG in. W.C. ▶ LP (propane) in. W.C.	3.5-10.5" 8-13"							

* Heat only Greenstar models may be used with indirect water tanks to provide domestic hot water

**Greenstar 151 Pro does not include the internal expansion tank and integrated control

§ Copies of original warranties in their entirety are available at www.boschheatingandcooling.com

Bosch Thermotechnology Corp.

Londonderry, NH • Ft. Lauderdale, FL
General Inquiries: 1-866-642-3198

www.boschheatingandcooling.com

boschheatingandcooling.com

75H995235a 01-17