



# Greenstar™ Gas-Fired Condensing Boilers

## A Green Start To Space & Water Heating

Residential space and water heating boiler solutions with up to 98.7% efficiency and 57.2 to 151.6 MBH inputs.



**BOSCH**

Invented for life



LOWNOx  
EMISSIONS

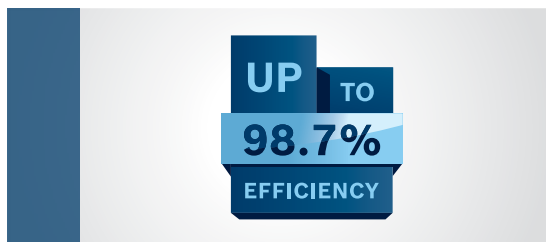
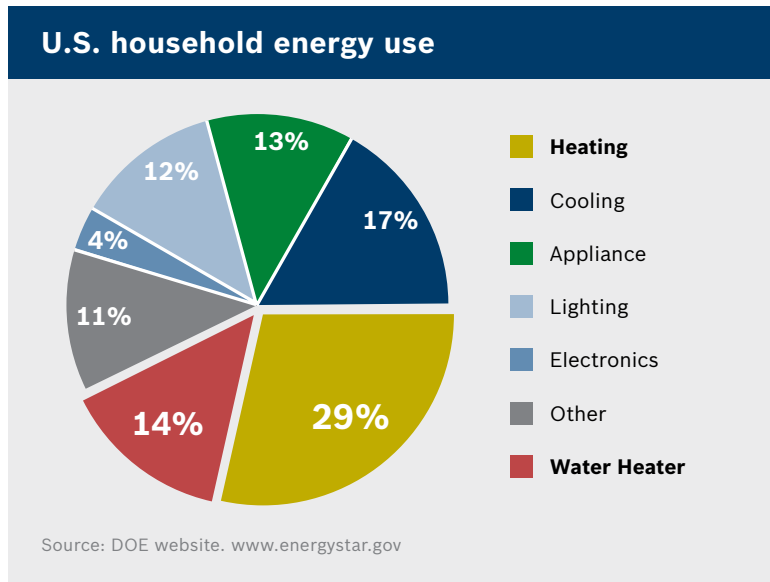


# Upgrade to a modern condensing boiler for savings on fuel bills, emissions & space

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 condensing technology?

Greenstar condensing boilers deliver energy saving performance by recycling exhaust gases to extract and re-use the latent heat – a highly efficient use of energy which also significantly reduces carbon dioxide emissions into the atmosphere.



## Upgrade for increased efficiency & performance

Bosch Greenstar condensing boilers offer efficiency levels of up to 98.7%, turning 98.7% of the fuel used into heat - a significant upgrade compared to traditional or non-condensing boilers. Bosch offers application engineering support to maximize system efficiency for all Greenstar products.



## Reduce your fuel bills & your carbon footprint

Energy efficiency upgrades and a new high-efficiency heating system can often cut fuel bills and boiler pollution output in half. Upgrading your boiler from 56% to 98.7% efficiency in an average cold-climate house will save 1.5 tons of carbon dioxide emissions each year.\*



## Smart wall-hung design saves valuable floor space

A traditional boiler is bulky and sits on the floor, taking up ample space in your basement. As a wall-hanging unit, the Greenstar series can free up valuable floor space inside the home with multiple size configurations based on need. Just think of what you can do with all the extra floor space!

\*Source: U.S. Department of Energy

# Why Bosch Greenstar™ boilers are your best choice

## Bosch, the name you know & trust

The inventor of condensing technology has been producing water heaters, boilers, conventional combi and wall mounted condensing boilers since 1895 and continues to improve its products by constantly renewing its technology. The new 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 is your single source for indoor comfort & water heating solutions

Whether you are retrofitting a worn out boiler and / or water heater tank, renovating, or building a new home, you can trust Bosch has a high-quality space and water heating solution that's a perfect match for your needs. With over 125 years of engineering experience, you can buy with confidence knowing that Bosch products are designed to integrate and work together seamlessly for the ideal, customized solution.



## Bosch exclusive safety & precision controls

The keypad safety lock button feature prevents accidental tampering with the controls, which could increase temperatures and or disable the boiler. This feature is especially important for increased reassurance to homeowners with children.



## Peace-of-mind warranties are best in industry

Bosch products are built using top-grade materials and 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 & labor warranty\* and lifetime heat exchanger warranty\* ensure longevity of your investment.

\*Limited warranty. Copies of original warranties in their entirety are available upon request. Please contact your area representative.



## Environmental responsibility with low NOx emissions

The EPA identified NOx as a main greenhouse gas contributing to acid rain, respiratory problems and global warming. Bosch's Greenstar condensing boiler series use a combustion process which achieves up to 98.7% efficiency and reduces NOx emissions ahead of 2012 SCAQMD (14ng/j) regulations, providing greater energy savings while contributing to cleaner air and better quality of life.



# Bosch Greenstar™ overview



## Efficiency with unsurpassed performance & control

This new series includes 6 compact models available in configurations ranging from 57.2 to 151.6 MBH. Energy Star® rated, these low operating cost units utilize Bosch patented condensing technology to deliver reliable performance with low emissions. Bosch Greenstar boilers offer homeowners and service professionals easy access while providing a layer of security for peace-of-mind and can also be integrated with other Bosch energy efficient products for a complete and environmentally friendly modern home.

- ▶ Ideal for detached and terraced houses, also suitable for apartments.
- ▶ Available as a space heating boiler for connection to a hot water tank.
- ▶ Available as a combi (combination) unit with integrated DHW water heating.
- ▶ Solar compatible with new control options.

## Energy-saving & environmental features

- ▶ Aluminum-Silicon heat exchanger delivers high efficiency - up to 98.7% with low temperature applications (up to 96.1% AFUE).
- ▶ Low NOx emissions ahead of 2012 SCAQMD regulations.
- ▶ Simple, intelligent control options optimize efficiency and fuel consumption.
- ▶ Low electrical consumption when the boiler is in standby mode.
- ▶ Electronic ignition.
- ▶ Anti-cycle and modulation control.

## Time & labor saving installation features

- ▶ All models available as NG or LP (conversion kit included).
- ▶ Hydronics manifold bracket with NPT connection.
- ▶ Robust water side PH operating levels of 4.0 – 8.5.\*
- ▶ High altitude flexibility - 7,000' no de-rate.

- ▶ Venting length up to 100' each way with 3" PVC pipe, up to 8 elbows.
- ▶ Venting combined length up to 81' with 2" PVC (except Bosch Greenstar 151 models).

## End user comfort & convenience features

- ▶ Limited lifetime heat exchanger warranty.\*\*
- ▶ Limited 5-year parts & labor warranty.\*\*
- ▶ Special insulation ensures ultra-quiet operation.
- ▶ Compact dimensions and built-in frost protection offer flexibility for location of installation.
- ▶ ECO mode for energy saving fuel consumption.
- ▶ Exclusive safety feature - keypad safety lock prevents unwanted tampering with the controls.
- ▶ Eligible for Federal Tax Credit.

\*Visit [www.bosch-climate.us](http://www.bosch-climate.us) to review the Installation Manual which contains further water quality information.

\*\*Limited warranty. Copies of original warranties in their entirety are available upon request. Please contact your area representative.

# Superior design & components

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

## 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. They are equipped with highly durable heating blocks that are corrosion resistant and designed to optimize clean burning combustion over an extra large surface area, which requires minimal servicing and reliance on spare parts during the boiler's lifetime.



## FW200 weather compensation control

The included FW200 digital thermostat and outdoor reset boiler control acts as the nerve center of a home's heating system. Programmable up to six switching times throughout the day, this interface can be installed within the appliance or be wall mounted in any location throughout the home.



## Heatronic III control

Bosch Heatronic III, a device integrated into the base of the boiler, provides instant access to the hot water and heating controls. Optional system controls are accessible, while instant feedback to the end-user along with a built-in diagnostics module effortlessly pinpoints operational issues. The exclusive keypad safety lock feature prevents unwanted tampering with the controls.



## Plated stainless steel heat exchanger

All Greenstar Combi boilers are equipped with a high-strength stainless steel secondary exchanger and burner with double passage - ensuring consistent temperature output based on demand. The DHW hot water temperature control limit of 140°F helps prevent scale build-up within the heat exchanger.



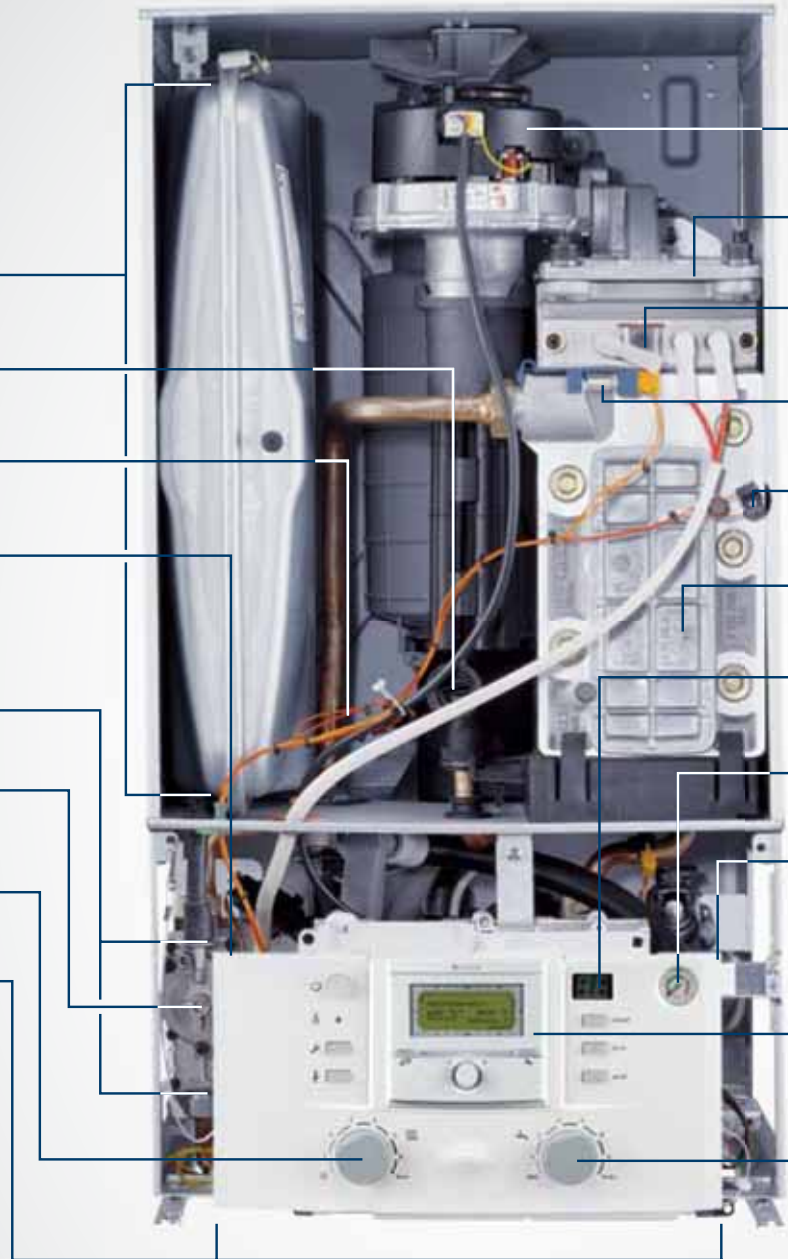
## Full modulating fan assembly

A full modulating fan automatically increases or decreases its speed according to the amount of gas coming into the boiler depending on the heat demand. 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.



# A look inside the **Greenstar**™ boiler

- Expansion Vessel
- Max CO<sub>2</sub> Adjustment
- Limit Stat (Flue Gas)
- Plated Stainless Steel Heat Exchanger (\*Behind Heatronic III)
- Gas Valve
- Min CO<sub>2</sub> Adjustment
- Heating Temperature Setting
- Heatronic III Control





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↓  
E M I S S I O N S

— Full Modulating Fan

— Stainless Steel Burner

— Electrode Assembly

— Primary Sensor

— Limit Stat

— Al-Si Heat Exchanger

— Digital Display

— System Pressure Gauge

— Circulating Pump (\*Behind Heatronic III)

— FW200 Weather Compensation Control

— DHW Temperature Setting

# Technical specifications

Application	Space Heating + DHW			Space Heating Only		
Models	Greenstar Combi 100	Greenstar Combi 151	Greenstar 57	Greenstar 100	Greenstar 131	Greenstar 151
Description	ZWB28-3	ZWB42-3	ZBR16-3	ZBR28-3	ZBR35-3	ZBR42-3
Part Number	7738100002	7713331041	7712231416	7712231415	7712231414	7712231413
<b>Performance Specifications</b>						
Fuel	NG / LP	NG / LP	NG / LP	NG / LP	NG / LP	NG / LP
Input Maximum (MBH)	100.8	151.6	57.2	100.8	131.9	151.6
Input Minimum (MBH)	34.6	36	12.9	24.6	36	36
DOE Heating Capacity (MBH)	89.4	134.4	50.8	89.4	116.7	134.4
Net I=B=R (MBH)	79	117	45	79	103	117
AFUE	96.0%	94.3%	96.1%	96.0%	96.0%	94.3%
Low Temp Application Efficiencies	98.5%	96.8%	98.7%	98.5%	97.5%	96.8%
DHW Flow Max ( $\Delta T$ at 72°F)	2.65 GPM	4.0 GPM	-	-	-	-
Water Volume	0.952 Gal. (3.5 L)	0.952 Gal. (3.5 L)	0.952 Gal. (3.5 L)	0.952 Gal. (3.5 L)	0.952 Gal. (3.5 L)	0.952 Gal. (3.5 L)
<b>Technical Data</b>						
Weight (Without Packaging)	110.2 Lbs. (50 kg)	110.2 Lbs. (50 kg)	103.6 Lbs. (47 kg)	103.6 Lbs. (47 kg)	103.6 Lbs. (47 kg)	103.6 Lbs. (47 kg)
Dimensions W x H x D	17.4" x 33.5" x 13.9"	17.4" x 33.5" x 13.9"	17.4" x 33.5" x 13.9"	17.4" x 33.5" x 13.9"	17.4" x 33.5" x 13.9"	17.4" x 33.5" x 13.9"
Minimum Recommended Pipe Size	1"	1"	1"	1"	1"	1"
Supply Tappings	1"	1"	1"	1"	1"	1"
Return Tappings	1"	1"	1"	1"	1"	1"
Domestic Cold Water Supply	¾"	¾"	-	-	-	-
Domestic Hot Water Supply	¾"	¾"	-	-	-	-
Gas Connection Size	¾"	¾"	¾"	¾"	¾"	¾"
Vent Size	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"
Vent Material	PVC / CPVC	PVC / CPVC	PVC / CPVC	PVC / CPVC	PVC / CPVC	PVC / CPVC
Combustion Air Size	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"
High Altitude Capability	No De-Rating up to 7,000'	De-Rated	No De-Rating up to 7,000'	No De-Rating up to 7,000'	No De-Rating up to 7,000'	De-Rated
Gas Pressure Minimum w.c.	NG 3.5" - LP 8"	NG 3.5" - LP 8"	NG 3.5" - LP 8"	NG 3.5" - LP 8"	NG 3.5" - LP 8"	NG 3.5" - LP 8"
<b>Included Package Contents</b>						
Al-Si Heat Exchanger	✓	✓	✓	✓	✓	✓
3 Speed Grundfos Integrated Pump	✓	✓	✓	✓	✓	✓
Integrated Expansion Vessel	3.17 Gal. (12 L)	3.17 Gal. (12 L)	-	-	-	-
FW200 Weather Compensation Control	✓	✓	✓	✓	✓	✓
Heatronic III - Control PCB	✓	✓	✓	✓	✓	✓
Hydronics Manifold Bracket with NPT Connection	✓	✓	✓	✓	✓	✓
Twin Pipe Flue Adapter	✓	✓	✓	✓	✓	✓
Tank Sensor	-	-	✓	✓	✓	✓
System Supply Sensor	✓	✓	✓	✓	✓	✓
NG / LP Conversion Kit	✓	✓	✓	✓	✓	✓
Condensate Trap Drain Hose	✓	✓	✓	✓	✓	✓



# Optional accessories

Optional Accessories <i>Not Included</i>	FB100 Control	ISM2 Control	IPM2 Control	ICM Control	Cleaning Tool 1060	Cleaning Tool 1061
Description	Room Sensor	Solar Control Module	Pump Control Module	Cascade Control Module (4 Max)	Cleaning Brush Set	Cleaning Tool
Part Number	7719003525	7719003527	7719003526	7719003528	7719002502	7719002503
Product Image						

## Boiler knowledge 101

### What is a “combi” boiler?

A “combi” or combination boiler is a high efficiency water heater and a central heating boiler combined within one compact unit. Water is heated directly from the water main eliminating the need for a hot water storage tank. Because hot water is delivered to your taps or showers at high pressure, it’s very convenient and can save on your hot water costs.

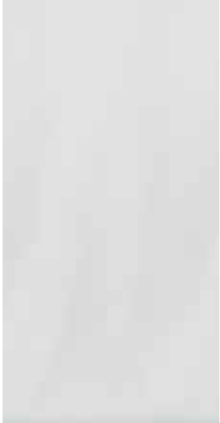
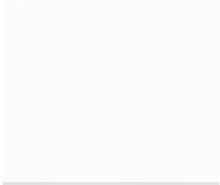
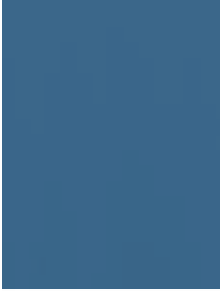
### What is a traditional boiler?

Regular boilers – sometimes referred to as traditional or conventional boilers – are suitable for homes that already have a traditional heating and hot water system that require a separate hot water tank. They are a good

option for any home where a large volume of stored hot water is required (homes with 3 or more bathrooms, or areas where the water pressure is low).

### What is AFUE?

AFUE 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. Bosch Greenstar 57 models have an AFUE of 96.1%, meaning 96.1% of the energy in the fuel becomes heat for the home and the other 3.9% escapes up the chimney and elsewhere, saving money in fuel costs over the life of the boiler.



**Bosch Thermotechnology Corp.**

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