



COMBUSTION

Sustainably tailored –  
**efficient components**  
**for heating boilers**

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**SIEMENS**

# Sustainably tailored ...

Decades of experience and close partnerships with renowned customers in the field of boiler components have made Siemens one of the leading suppliers of boiler control systems.

Based on the expertise we have accumulated from this, today we are able to offer a sophisticated portfolio that is perfectly tailored to the needs of the market. From simple boiler control systems right through to high-end solutions with integrated combustion optimization, we deliver proven systems with modular expansion options accommodating almost every requirement, allowing us to provide support for everything up to assembling a perfectly tuned application.

Sustainably tailored systems and components – for your heating boiler operations and toward a responsible future for generations to come!



# Innovation you can rely on.

## Heating boiler systems for now and the years ahead.

**The right solution every time – with products and systems from Siemens for the heating market**

We are specialists in reliable and innovative systems and products for use in oil, hydrogen and gas burners, heating boilers, and alternative heating systems. From development and production, right through to global marketing. Our wide and varied product portfolio includes complete system solutions as well as burner controls, actuators, flame detectors, sensors, control systems, valves, and related test equipment.

Benefitting from the combination of our specialization with decades of experience in these fields, our products and systems deliver ideal solutions for all market segments – from single-family homes and residential buildings of multiple occupancy and extending to commercially used buildings (Commercial Buildings).

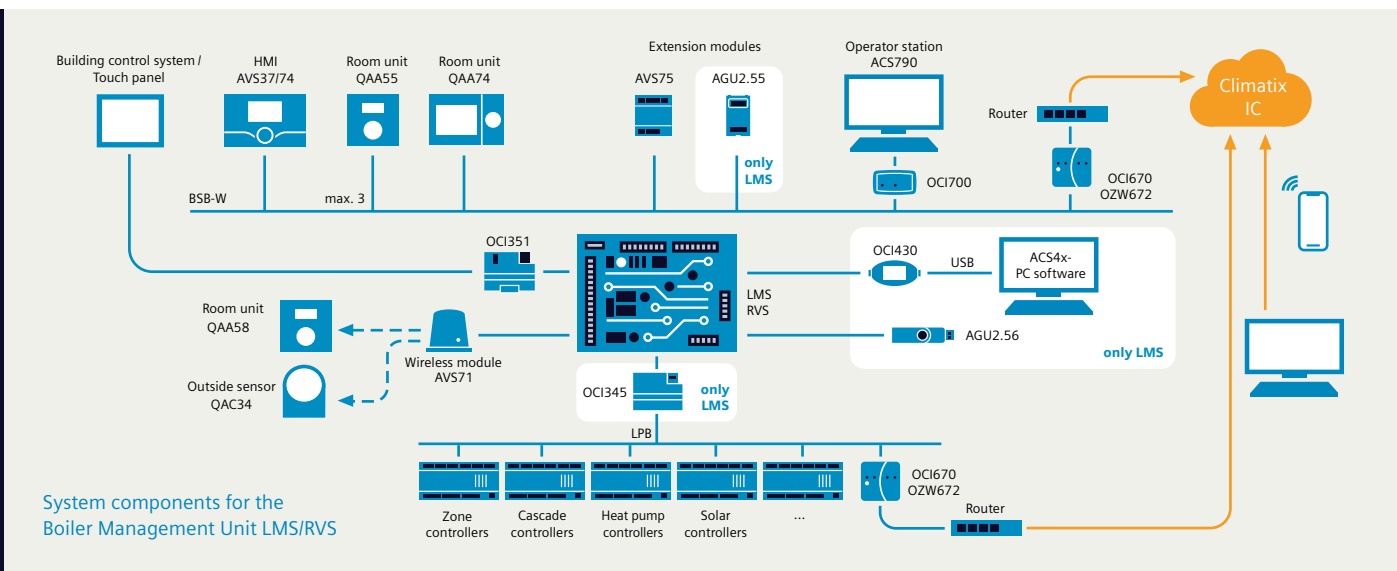


**Everything from a single source – teamwork, process optimization, and quality**

Working in a team is not only an efficient way to think and do business, it also helps encourage innovation. In our OEM team, too, the opportunity for close collaboration and constant sharing of ideas and experience between our qualified and highly motivated staff members is crucial to our success in the global market.

|                                   | Residential Buildings | Commercial Buildings | Industry   |
|-----------------------------------|-----------------------|----------------------|------------|
| Wall-hung boilers                 | ██████████            | ██████████           |            |
| Floor-standing boilers            | ██████████            | ██████████           |            |
| Alternative heating systems       | ██████████            | ██████████           |            |
| Forced draft burners (small)      | ██████████            | ██████████           |            |
| Forced draft burners (med./large) |                       | ██████████           |            |
| Industrial burners                |                       |                      | ██████████ |

# A systematic approach to responsibility



## Protecting the environment for our future

With a view to protecting the environment and using our scarce energy resources efficiently, it is more important than ever that today's companies take their responsibilities seriously and focus on sustainable solutions.

Siemens has committed itself to achieving this goal and offers innovative products and solutions designed to help pave the way toward it.

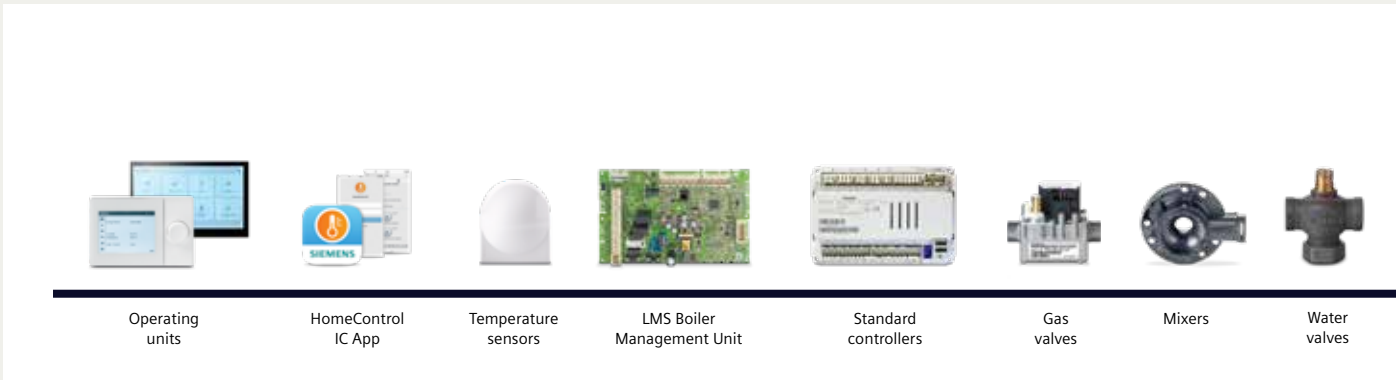
## Universal connectivity

Our components can be combined with one another easily using compatible interfaces, providing a straightforward way of integrating boilers into existing building management systems via Modbus or even incorporating LMS and RVS controllers into more extensive commercial systems.

## Climatix IC – Remote Servicing System

With Climatix IC, Siemens delivers cloud-based support for original equipment manufacturers throughout the entire life cycle of a system. This enables effective monitoring, analysis, and optimization of system performance, allowing any potential issues to be identified quickly and resolved proactively.





**Full range of gas valves**

Our range has been specifically developed for universal use in conventional heating boilers and condensing boilers. It contains a wide selection of solutions, from the ON/OFF function for multi-stage boilers and electrically modulating uses in atmospheric boilers to pneumatic ratio control for premix applications. An additional version we offer is a stepper motor-actuated gas valve for electronic ratio control.

**Universal sensor range**

To accommodate even the most complex of applications, Siemens offers an extensive range of sensors, covering everything from cable, screw-in, and contact sensors to outside sensors for weather compensation.

**Optimized operation and display**

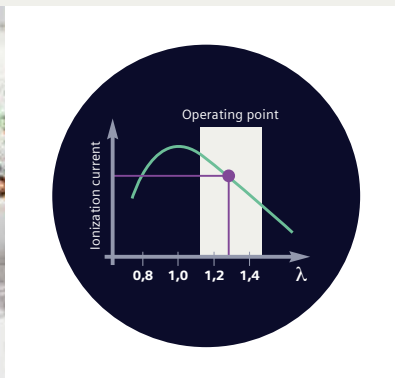
Our room units are available as both wired and wireless versions. Ease of operation thanks to a plain-text display and backlighting is just one of the many benefits that our units feature.

**Powerful gas-air mixers**

Siemens mixers are specifically designed for inlet-side use with a quick connection, and feature optimized noise levels plus a maximum modulation range.


























**Electronic high-voltage ignition**

Our high-voltage igniters have been specifically adapted for easy installation on our gas valves. They are supplied ready to install and fitted with a cable and plug.



















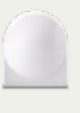










- Highlights**
- Gas valves for any type of application
  - Climatix IC – web-based Remote Servicing System
  - Noise-optimized gas-air mixing system
  - Wireless and wired control units with graphic or clear-text display in several languages
  - Building management system integration thanks to Modbus communication

# Innovative boiler management – ready for anything





|                         |   |  |  | Type of boiler   | Fan /burner   | Output modulation   | Sitherm Pro<br>(combustion optimization) | Cascade | System compatibility | Heating circuits  | DHW heating   | Solar (integrated)   | Bivalent | Cooling function | Buffer management | Swimming pool function | Multi-functional inputs<br>and outputs |
|-------------------------|---|---|---|--|---|---|--|---------|----------------------|---|---|--|----------|------------------|-------------------|------------------------|--|
| FIELD OF USE            |   |   |   |  |   |   |  |         |                      |   |   |  |          |                  |                   |                        |  |
| BOILER MANAGEMENT UNITS |   | LMS<br>(Std.)   | P   |   |   |   | ■ <sup>1)</sup>                          | ■       | ■                    |  |  |   | ■        | ■                | ■                 | ■                      | ■                                      |
|                         |  | LMS<br>(Mini)   | P   |   |  |  | ■ <sup>1)</sup>                          | ■       | ■                    |  |  |   | ■        | ■                | ■                 | ■                      | ■                                      |
| CONTROLLERS             |  | RVS43   |   | <br> |   |   |  | ■       | ■                    |  |  | <br> | ■        | ■                | ■                 | ■                      | ■                                      |
|                         |  | RVS46.530   |   |  |   |   |  | ■       |                      |  |   |  |          | ■                |                   |                        |  |

**Legend:**



-  Premix
-  Solar Thermal
-  2-stage burner
-  Mixing heating circuit
-  DHW heating
-  Pump heating circuit
-  Communication
-  Control output for modulating fan
-  Pump heating circuit (modulation)
-  Solar photovoltaics
-  1-stage burner

|    |    |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| Extension modules S75/AGU2.5  | Communication*  | Operating unit AVS37/AVS74  | Room units wire QAA74/QAA55 or QAA58 (wireless)                                   | Strap-on, threaded immersion, cable sensors QAR/QAD QAK/QAL/QAZ                   | Outside sensor, wireless or wire QAC  | Service tool ACS4/OCI4, ACS790  | Remote management Climatrix IC  |
| EXTENSION MODULES   |   |   |   |   |   |   |   |
|   |   | ■   | ■   | ■   | ■   | ■   | ■   |
|  |  | ■   | ■   | ■   | ■   | ■   | ■   |
|  |  | ■   | ■   | ■   | ■   | ■   | ■   |
|  |  | ■   | ■   | ■   | ■   | ■   | ■   |

**Legend:**

-  Input (programmable)
-  Output (programmable)
- 1)** Optional
- 2)** Integrated
-  Stepper motor
-  Gas-air ratio control (pneumatic)

\* integrated or via communication module

-  LPB communication
-  Modbus RS485

# LMS – modular boiler management for condensing appliance technology

In an era when raw materials are becoming increasingly scarce, operating costs are rising, and people are becoming more conscious of environmental issues, modern heating boilers are expected to deliver more quality, safety, and efficiency.

Our LMS boiler management unit uses a proven safety concept for fault-free, automated operation of heating systems – from commissioning and ignition right through to distributing heat to a range of circuits. Additionally, numerous integrated functions not only ensure that everything functions smoothly, but also reduce the amount of work required during maintenance and production.



# New perspectives with the perfect full-system solution

## Peripheral LMS



### Control center for innovative condensing appliance technology

Our LMS boiler management unit represents the heart of a modular, universal system solution for condensing boilers with a load range of less than 10 kW right up to 2 MW.

### A consistent range

Our cutting-edge technologies are setting standards the world over – whether they come in the form of customized operator interfaces, combustion optimization, or simply the ability to perform remote maintenance via phone and Internet.

High-quality gas valves and mixers are essential to ensuring an ideal gas mixture. Integrated combustion optimization, pump modulation, and stepper motor control systems create efficient energy utilization with minimal noise.

Thanks to its extensive, consistent approach to product harmonization, Siemens offers key advantages in the areas of production, service, training, and spare parts.



## Highlights

- Can be expanded via system bus for system application/integration
- Optimized energy usage and low standby losses
- Applications from < 10 kW to 2 MW

## Digital advancements – with every available option



Configurations of complex installations can be saved in advance on the desktop and copied to the LMS memory locally with the parameter stick; no other tools are needed. Exporting configurations for offline diagnostics is just as easy.

### Communication across system borders

Integrated interfaces plus system integration and remote management options open up entirely new possibilities for service and preventive functions. This makes it possible to obtain in-depth information so that faults or necessary maintenance steps can be identified and reported in advance – creating new service options and preventive functions.

Open communication via OpenTherm or Modbus makes it easy to exchange information across system borders.

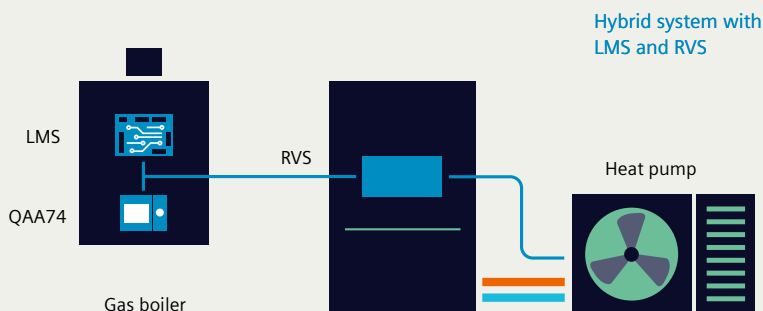
### Easy configuration, efficient service

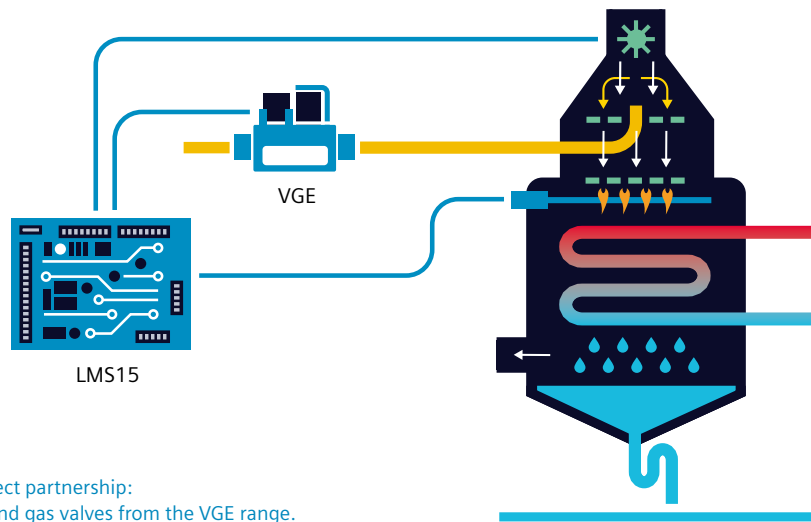
Whether they're needed for boiler configuration in a laboratory environment or the administration and archiving of boiler data records, Siemens can supply the right software solutions. Automated parameter setting during final inspection of the boiler and intelligent spare parts parameterization in the field round off what we have to offer.

Thanks to tailored boiler commissioning using a parameter stick at the end user's premises, our customers and service technicians only have to keep a minimum supply of spare parts in stock for the basic unit.

### Highlights

- Reading in plant data via the parameter stick
- Controlling complex installations
- Integration of wireless outside sensors and wireless room units
- Integrated stepper motor control for diverting valves





The perfect partnership:  
LMS 15 and gas valves from the VGE range.

### Combustion optimization with Sitherm Pro

Sitherm Pro is a high-performance, efficient type of combustion optimization that reduces costs during production, commissioning, and operation while also keeping combustion environmentally friendly with minimum emissions.

The software improves the entire combustion process by using various ignition methods to safeguard the starting of the boiler and boost efficiency. It also ensures optimum flue gas values over the long term, with the values consistently remaining within the range of the prescribed standards during operation. The ionization current indicates the quality of the combustion.

### Easier to assemble and operate

Sitherm Pro adapts automatically to external influences such as fluctuations in the gas quality or changes in the air pressure. This means easier boiler production, no adjustment work at the gas valve during installation, and less time needed for commissioning.

### Extended modulation range

Precise monitoring and control of the flame also allows you to reduce the low-fire load limits and extend the modulation range as a result, improving efficiency and leading to energy savings.

## Highlights

- Low-pollutant, efficient, and thus environmentally friendly combustion
- Minimum stocks of spare parts needed
- Wide modulation range
- Automatic adaptation to gas quality
- Fewer different types of boiler



# VGU/VGE – the modular gas valve concept that is fit for the future

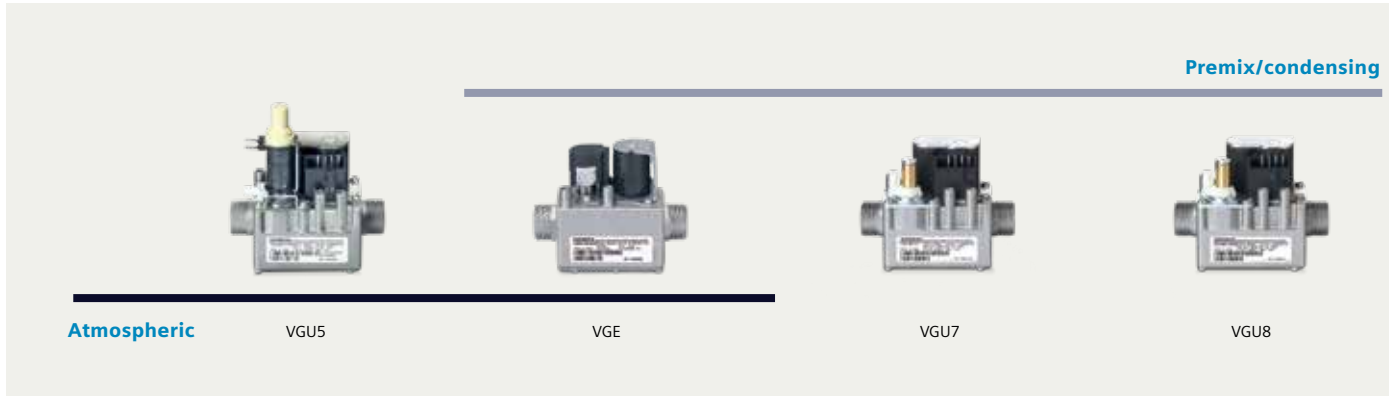
Siemens' selection of gas valves is impressively user-friendly, opening up a wide range of potential applications, and it offers a whole host of other benefits.

An established product range for many years now, the modular VGU gas valves designed for residential applications stand out thanks to their outstanding compatibility with every well-known product available on the market – which means that they are not tied to any specific manufacturer and will stay that way for years to come.

Compatible for universal use on the gas market, our VGE valves are innovative and fit for the future. Compared to conventional models, the VGE gas valve features much more extensive functions and offers huge potential for future technical developments thanks to its outstanding flexibility.



# VGU gas valves – durable yet flexible



### Extensive range of applications

VGU gas valves are ideal for use in residential gas boilers, combi boilers with instantaneous water heaters, and hot water heaters, plus a whole range of gas-fired heating appliances in the catering sector, direct-fired air heaters, white goods, and back boilers.

### Extremely robust

VGU gas valves are based on a technology that has proven its worth over many years. Every VGU gas valve is equipped with safety shutoff valves that have undergone numerous tests and shockproof servo pressure regulators to meet the highest standards of safety and reliability.

### Excellent flexibility

VGU gas valves are designed for operation with a 230 V or 24 V supply voltage and are suitable for both AC and DC voltages. The safety shutoff valves can be controlled in parallel or separately, and are available in a variety of thread and flange designs.

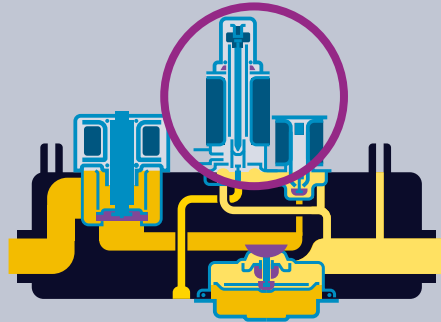
### Easy to assemble and adjust

The adjustment screws and pressure test points for VGU gas valves are easily accessible from one side, ensuring perfect operating and handling conditions during laboratory and assembly work.



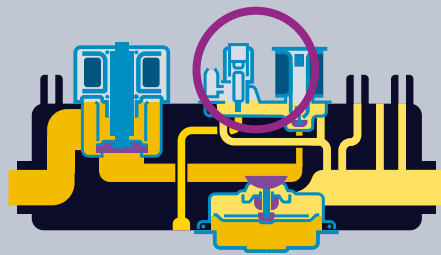
## Highlights

- Extensive application area
- Optimum boiler support
- Shock-proof servo pressure regulator
- Straightforward mounting and operation



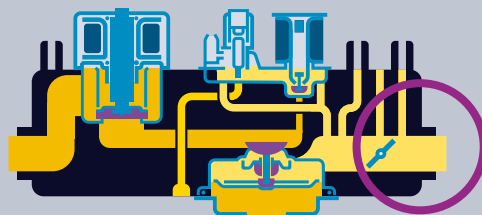
**VGU5**

- Suited for conventional boilers with modulating burner with or without fan assistance
- Modulating operation via current signal (low-voltage)
- Control range can be mechanically limited
- Connection facility for combustion chamber pressure compensation



**VGU7**

- Suited for condensing boilers with modulating premix burner
- Pneumatic air-fuel ratio control (1:1)
- Modulation by changing the air pressure signal



**VGU8**

- Suited for condensing boilers with modulating premix burner
- Pneumatic air-fuel ratio control (1:1)
- Gas volume adjustment via main throttle
- Modulation by changing the air pressure signal
- Adjustment of air-gas ratio and gas volume with identical tool

**Standalone solution**

The gas valves are very versatile in terms of application and can be used in connection with matching electronic equipment from Siemens or for autonomous operation.

**Area of application**

Gas valves can be used in both conventional heating boilers with modulating burners and condensing boilers with modulating premix burners.

# VGE gas valves – ready for anything



### Extensive area of application

The VGE gas valve from Siemens is suitable for all applications and supports boilers with direct burner ignition (DBI). It conforms to both European and US standards, reinforcing its versatility and ability to be used universally.

There are gas valve types for use on conventional heating boilers with multi-stage or modulating burners, and for condensing boilers with modulating premix burners.

### Open to innovation

A safety-related stepper motor provides two functions in the VGE gas valve: the drive for the safety shutoff valve and the modulating drive for the gas output variable.

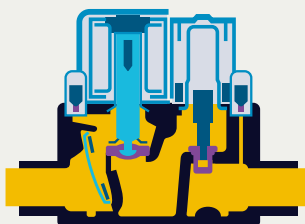
Sitherm Pro technology from Siemens ensures gas-adaptive combustion optimization. The VGE gas valve works without hysteresis in modulating operation as all the settings can be controlled fully electronically, eliminating the need for mechanical adjustments.

### Easy to assemble and handle

VGE gas valves are easy to assemble and use. They can be installed upright or offset to the left or right by 90°, enabling easy access to all pressure test points from above. The gas flow can be controlled via the electronics and is limited by minimum and maximum values.

#### VGE

- Suited for conventional boilers with modulating burner with or without fan assistance, and for condensing boilers with modulating premix burner
- Hysteresis-free operation
- No mechanical settings required



The modular concept enables outstanding compatibility with every well-known product available on the market. This means it is not tied to any specific manufacturer – and is guaranteed to stay that way for many years to come.

### Highlights

- Optimum boiler support
- Safety-related stepper motor
- Sitherm Pro technology
- Straightforward mounting and operation



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