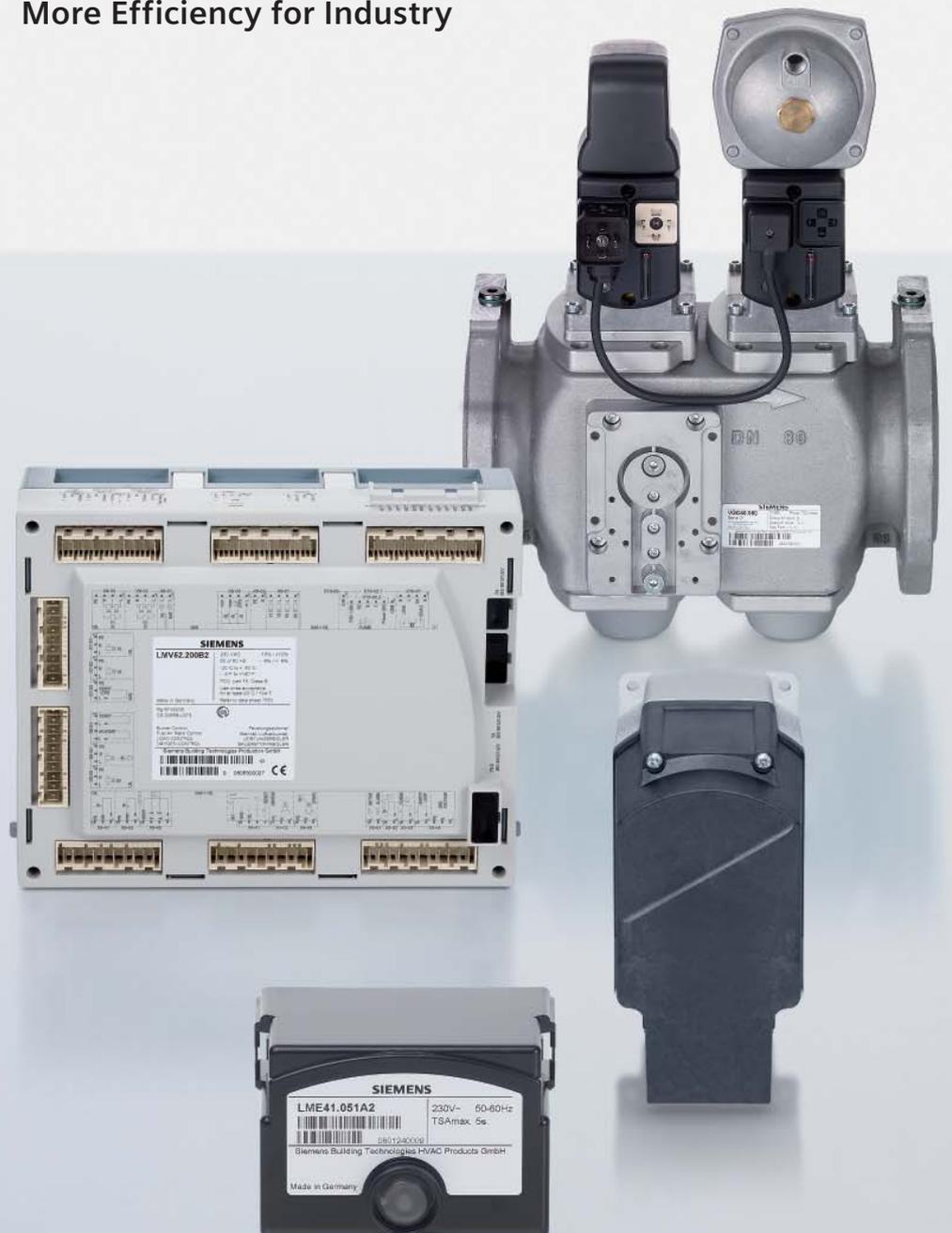




# OEM Heat Control Systems

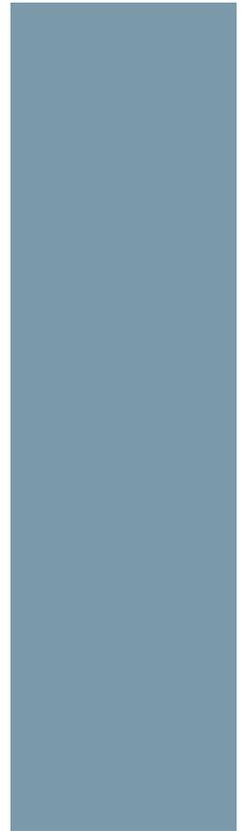
## Industrial Combustion Solutions

More Efficiency for Industry



Answers for industry.

**SIEMENS**



## Reliable burners for production

Industrial burners are the heart of every thermal process-based production line, and the quality of the final product depends primarily on the burner's reliability and performance.

Low maintenance effort and maximum availability, high levels of energy efficiency and seamless integration into existing automation systems are the key requirements placed on advanced firing systems.

Using decades of experience, know-how and commitment in the field of industrial firing systems, Siemens has become a key partner for manufacturers of high-quality thermoprocessing equipment.



# Robustness and reliability

## ■ Advanced burner management from Siemens

In addition to products for floor-standing and wall-hung boilers, Siemens also produces and supplies components for use with forced draft standard burners and industrial burners.

The comprehensive product range includes burner controls, actuators, sensors and detectors, control systems, valves, test equipment and integrated system solutions.

These products and systems enable us to offer optimum solutions for our customers' market segments. They include single- and multi-family houses (residential buildings), commercial buildings and complex industrial plants.

## ■ Solutions from a single source

With its extensive range of burner controls and matching peripheral devices, Siemens is able to offer complete control systems from a single source.

**As a global market leader in this sector, we will be pleased to provide consultancy services based on our unique expertise in conjunction with our solution partners.**

## ■ Experience and know-how

For more than 40 years, Siemens has developed and produced high-performance control systems for the heating market and the industrial sector.

To satisfy the increasingly demanding requirements of today's production processes, our development department performs extensive project work, aimed at optimizing and further developing industrial firing systems.

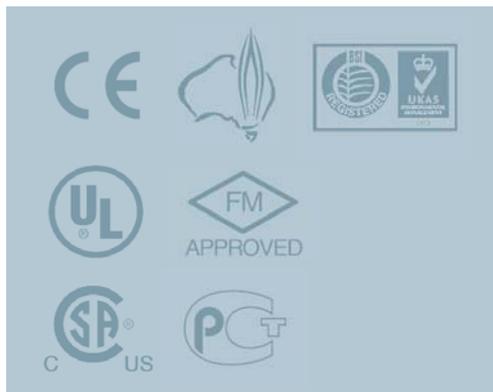
## ■ Success based on partnership

For the development of your special system solutions, you can rely on our support at any time.

**We attach great importance to teamwork both within our company and in close cooperation with customers.**

## Highlights

- Market leadership in the field of burner components
- More than 40 years of experience and know-how
- Innovation thanks to extensive research and development work
- Consistent consultancy and reliable cooperation
- Optimum systems for demand-related solutions
- Close cooperation with certified partners
- Global approvals





# LME – user-friendly burner controls

## New generation based on innovative technology

### ■ Safe and robust burner controls for optimum operation

LME burner controls ensure reliable operation and supervision of single- or two-stage gas burners working intermittently. The products have proven their worth over many years and excel in a high level of safety while offering ease of operation. Burner controls of the LME line feature a redundant, 2-channel microprocessor system and 2 independent shutdown paths for safety-related functions. Flame supervision is ensured by an ionization probe or UV flame detector.

Thanks to their parameter setting facility, LME39 burner controls make possible the setting of safety, pre- and postpurge times, for example.

Another new product in this range of burner controls is the LME7 which also features integrated air damper control, gas valve proving, an exchangeable program card and pulse width modulation control.

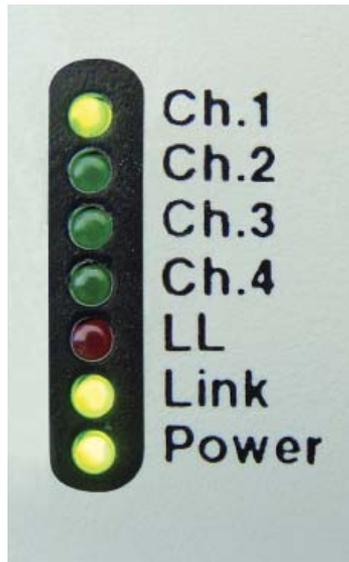
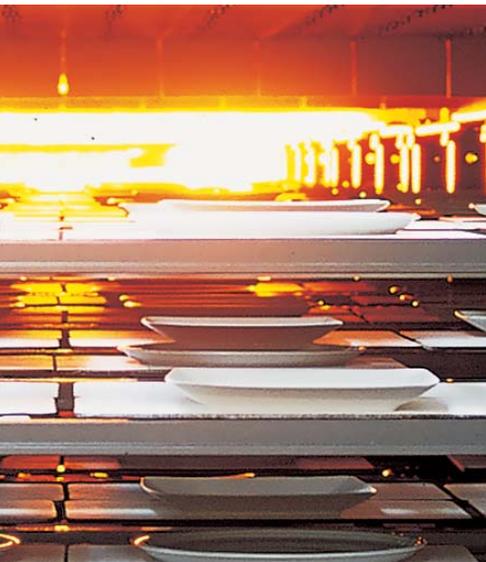
And all this is rounded off by a universal PC tool for analysis and parameter settings – suited for the entire range.

Burner controls of the LME line can be complemented by display and operator units.



## Highlights

- Program versions for atmospheric and forced draft gas burners
- Multicolor indication of operating status and fault status messages
- Controlled intermittent mode after 24 hours of continuous operation
- Limitation of the number of repetitions
- Remote reset facility
- Burner control lockout history can be read out via software tool or separate display unit
- Times can be parameterized
- Program sequences and settings on memory card



# Operator units of a special standard

## Affording straightforward and efficient work

### ■ Power and performance in a small package

The AZL2 display and operator units are designed for use with the LMV2/LMV3 and LME39 burner controls, for fitting directly on the burner or in control panels close to the burner.

They are designed for the display, operation and parameterization of specific safety- and non-safety-related burner functions. Key plant data and lockout codes can be interrogated and displayed.

The universal ACS410 software tool is suited for use with all standalone LME burner controls plus LMV2/3. It serves as a tool visualizing data, for setting parameters and for data storage.

Operating units and software tools from Siemens offer extensive communication.

### ■ Large AZL brother with great capabilities

The LMV5 burner management system is operated and programmed via the AZL5 display and operator unit or the PC tool.

Using the Modbus of the AZL5, the LMV5 system can be integrated into a complex data network, e.g. for process control. It is thus possible to visualize plant status, to control plant and to accomplish reporting.

The matching ACS450 software tool is designed for direct connection to the AZL5 and is used for visualizing data, for setting parameters and for storing LMV5 data.

## Highlights

- Display of operating status, program sequences and error codes
- Setting parameters and fuel/air ratio curves
- Backlit display
- Multifunction button with reset facility
- Modbus interface
- Backup/restore function
- Reading settings and parameters, operating states and types of error
- Data logger including trigger function
- Customized report prints





# LMV – the universal burner management system for every type of application

## Intelligent interplay

### ■ Demand-driven solutions for efficient production

Whether thermal after-burning, drying or assisted firing – the array of industrial applications demands an extensive range of solutions. Depending on the specific requirements of your production lines, the LMV family offers you complete high-end systems for the control of your thermal process. This applies to metal treatment and the manufacture of products, such as glass, ceramics, textiles, paper, plastics and rubber.

LMV burner management systems from Siemens are designed for the control of complex combustion processes reaching from basic to special applications. These burner management systems perform all supervisory functions for forced draft burners of medium to high capacity in single- or dual-fuel operation. Using communication interfaces, they offer convenient diagnostics, parameter settings and integration into process control.

The basic unit accommodates the burner control, electronic fuel/air ratio control and gas valve proving. Coded RAST5 connectors ensure error-free connection of the associated components, thus simplifying field service.

The LMV2/3 are of compact design, can be fitted directly to the burner and provide a number of variable control sequences for the burner control, depending on the unit version. There is a choice of 3 gas programs and 3 oil programs, depending on the basic unit version, enabling the system to be matched to the relevant application.

The LMV2/3 burner management system can be used with the same types of operating unit as the burner controls of the LME range



## Highlights

- Complete with gas valve proving system
- Electronic fuel/air ratio control for maximum 2 SQM3 actuators
- Variable speed drive control
- Modbus interface (PROFIBUS via coupling module software)
- Intermittent operation: UV, ionization, photo resistance
- Continuous operation with ionization
- Analog input load controller 4...20 mA
- PC tool



■ **Compact systems for high-end applications**

In addition to the basic functions of the LMV family, the LMV5 offers a host of extra features, making the system the perfect solution for complex applications. The compact basic unit uses a powerful data bus (cable length up to 100 m) so that it can still be fitted in a control panel.

The LMV5 burner management system provides 7 different variable gas/oil control sequences.

The integrated PID load controller is equipped with an electronic temperature limiter and an algorithm for smooth cold starts of thermal process plant without causing thermal shock. Continuous operation (>24h) with the universal infrared and UV flame detectors, or an ionization probe, poses no problems for the LMV5 system.

■ **Perfect service and operation**

The LMV5 system also sets new standards with regard to service and operation. The AZL5 display and operator unit features clear-text display with a choice of 17 languages and user-oriented, password-protected access levels.

The system can be configured and parameterized by the plant operator, the service engineer, or the burner manufacturer.

As an alternative to the operating software, the system can be parameterized and monitored via a software tool.

LMV5 offers an array of configurations. The operator unit helps arrange and display system status messages; it also serves as an interface to other systems.



**Highlights**

- Integrated fuel/air ratio control and load control for dual-fuel burners
- Complete with gas valve proving system
- Electronic fuel/air ratio control for maximum 4 or 6 actuators (depending on type)
- Optional PID temperature/pressure controller (load controller)
- Optional variable speed drive module (VSD module)
- Optional oxygen trim control
- Safety level SIL 3
- Suited for worldwide use (17 operating languages)
- Modbus as a standard feature



# High performance valves and their actuators

## Cast from the same mold

### Flexibility, simplicity and high performance

Gas valves are another product where great importance is attached to detail: Thanks to their modular design, the gas valves are compatible with all types of valve actuator, thus ensuring maximum flexibility. They are extremely compact and excel in robustness – even under extreme conditions. The double gas valves of the VGD40 line offer unique, patented technology, meaning that each of the 2 valve seats has its own closing spring.

Valves and valve actuators are separate components. Hence, it is not only possible to combine any type of actuator with any type of our valves, but the actuators can be fitted in different positions: Left or right, vertically or horizontally.

The double gas valves of the VGD line are specifically suited for use on plants firing on gas. Thanks to their extremely high flow rates and operating pressures, capacities up to 35 MW can be handled.

Gas valves are available as single or double valves, with single or double seats, and flanged or threaded connections. Solutions are available for almost any type of application.



## Highlights

- Safety shutoff valves class A conforming to EN 161 in connection with SKP actuators
- For gases of gas families I to III
- Valves in connection with SKP actuators open slowly and close rapidly
- Valve sizes from DN15 to DN150
- Bio- and recycling gas valves VR...
- Robust valve design featuring patented double-seat technology
- High and reliable inlet pressures up to 1,500 mbar (20 psi)
- Degree of protection IP54 or IP65



■ **The perfect interplay**

Depending on type, the combination of actuator and valve provides the functions of safety shutoff valve only, or safety shutoff valve with gas pressure governor. The valves open slowly and close rapidly.

With the hydraulic SKP gas valve actuators, the required control function is integrated, so that the entire force of the actuator is available for the control process.

The products are suited for an array of applications. For example, Siemens gas pressure governors are available as constant pressure governors, zero pressure governors, ratio pressure governors, or differential pressure governors.

The range of gas valve actuators from Siemens excel in reliability and longevity.



**Highlights**

- Open/closed safety shutoff function conforming to EN 161 in connection with SKP actuators and gas valves from Siemens
- Damped opening behavior (fast closing)
- Very low power consumption
- For gases of gas families I to III
- With or without end switches (factory-set)
- Electrical indication of operating state



# Highly sensitive detectors

## Flame detectors for perfect combustion

### Highly specialized flame detectors for every type of process

To ensure optimum process control, Siemens has focussed for many years on the development and design of highly sensitive flame detectors.

For monitoring oil flames, RAR silicon photocell detectors and QRB photoresistive detectors are available.

The range of flame detectors also includes UV detectors of the QRA line, highly sensitive infrared detectors of the QRI line, and use of the ionization current principle for intermittent or continuous operation.

The range of sensors and flame detectors is rounded off by the QGO oxygen sensor which acquires the residual oxygen content of flue gases.

### Highlights

- Matched to the range of Siemens burner controls
- Universal flame detectors for continuous operation based on UV or IR sensitivity
- Degree of protection IP65
- For straightforward use – no adjustments required
- Can be combined with the range of flame safeguards from Siemens

Siemens offers optimized flame detectors and sensors for almost any type of application.





# Versatile damper actuators

## Damper control for great performance

### ■ Broad field of application and robust design

The damper actuators of the SQM40/41 and SQM5 lines are of robust design and used for the control of gas or air volumes for burners of medium or high capacity. The design of the synchronous motors and the modular concept enable the damper actuators to be used on an array of applications.

All types of actuator are designed for universal use and have a high level of protection for use in many environments.

Control is effected via the burner control and the 3-position controller or – in the case of the electronic version – via analog input (e.g. 4...20 mA). Switches, single or double potentiometers are available for position feedback.

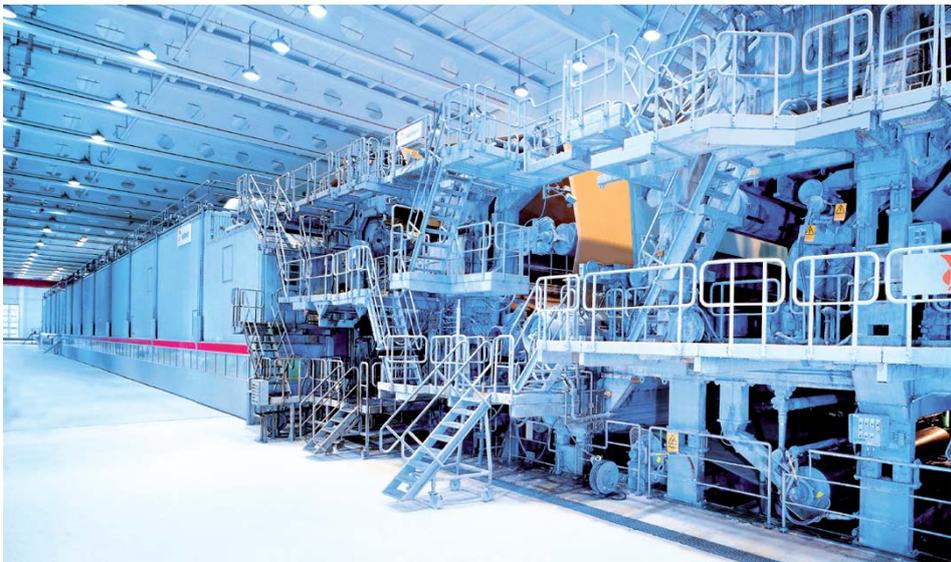
The design of the actuators is based on many years of experience gained with this type of product. The actuators are designed for demanding applications.

The larger SQM40/41 and SQM5 models are available in many versions. The right solution for every application.

### Highlights

- Several product lines offering torques from 5 to 40 Nm
- Clockwise or counterclockwise rotation (4.5 to 120 s)
- Great accuracy, small hysteresis
- Choice of drive shaft versions
- Electronic version with analog inputs
- Global approvals
- Degree of protection IP54 or IP65





# ... and much more

## Rounding off the range of products

### ■ Complementing the product range

In addition to burner controls, sensors, flame detectors, valves and actuators, the Siemens product range includes a host of other products.

When used as a pilot gas valve, the VGS solenoid valve matches the pressure range of the double valves.

The QPL pressure switches are designed for use in gas control systems and can be employed as minimum gas pressure switches or for detecting excessive pressures.

For gas volume control, optional products such as the VKF...C butterfly valves are available – in addition to the actuators of the SKP line.

For the control of temperature and pressure in processes, the versatile RWF40 universal controllers are at your disposal.

Finally, the SKL actuators, which constitute part of the modular SKP system, and the VLF hot air valves, are designed for air applications.

## Highlights

- Solenoid valves VGS
- Pressure switches for air or gas in gas trains
- Butterfly valves VKF...C
- Hot air valves VLF for temperatures up to 450 °C
- Actuators SKL for air applications
- Universal controllers RWF

Monitoring pressure, releasing the flow of gas, controlling process variables – the range of products from Siemens offer a host of choices.





# System integration and special solutions

## Many more irons in the fire

### ■ Connection to PLC architectures

We attach great importance to system integration capability of Siemens solutions. This applies in particular to your existing infrastructure. Therefore – in close cooperation with our partners – we also make certain that our systems can be connected to the Siemens PLC of the S7 line. This way, we can ensure closed process loops and a uniform and comprehensive architecture, aimed at optimally automating your entire production.

### ■ And all from a single source

Our Solution Partners deliver all elements and services required for operating closed thermal process plants – from engineering and measures required for plant optimization to gas control systems and switchboard construction including comprehensive services.

### ■ Siemens Solution Partner program

The Solution Partners for Industrial Combustion are well trained and have the latest information about the products. Siemens maintains a continuous dialog with its Solution Partners, aimed at meeting current market requirements.

## Highlights

- Engineering of industrial plants
- Tailored, customized solutions
- Complete gas trains in close cooperation with our partners
- Consultations
- Service
- Products conforming to ATEX Directive

Programmable logic control SIMATIC is extensively used in process technology and facilitates integration of some of our products.



Solution Partner

Building Technologies  
Heat Control Systems  
Industrial Combustion



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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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