

The new generation for premix condensing - gas adaptive systems



***E**lektra
Combustion Management System*

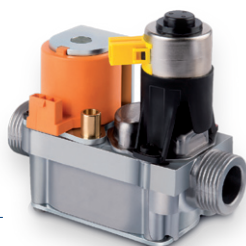
Elektra Combustion Management System

Thanks to consolidated experience in the gas combustion process together with the continuous innovation of our product development department, we bring to the market our latest-generation combustion management system. SIT's combustion expertise is embodied in a state-of-the-art solution to maximise systems efficiency while respecting the environment.

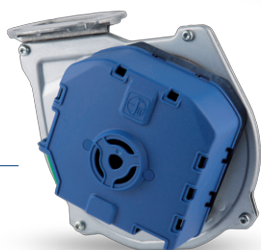
Elektra CMS is the SIT state-of-the-art solution for premix gas adaptive applications. A combination of products and experience that together provide an outstanding result in terms of:

- **Gas adaptivity:**
detection and reaction to the gas composition over the time;
- **Efficiency:**
high performances in every ambient condition;
- **Low Emissions:**
continuous optimal Lambda regulation.

877 Elektra gas valve



NG40-E fan



Human Machine Interface



Elektra Boiler Integrated Control (BIC)



Elektra CMS perfectly fits heating applications with a high modulation range and offers a unique Plasma Pulse intelligence to analyse the flame and provide the best gas adaptivity.

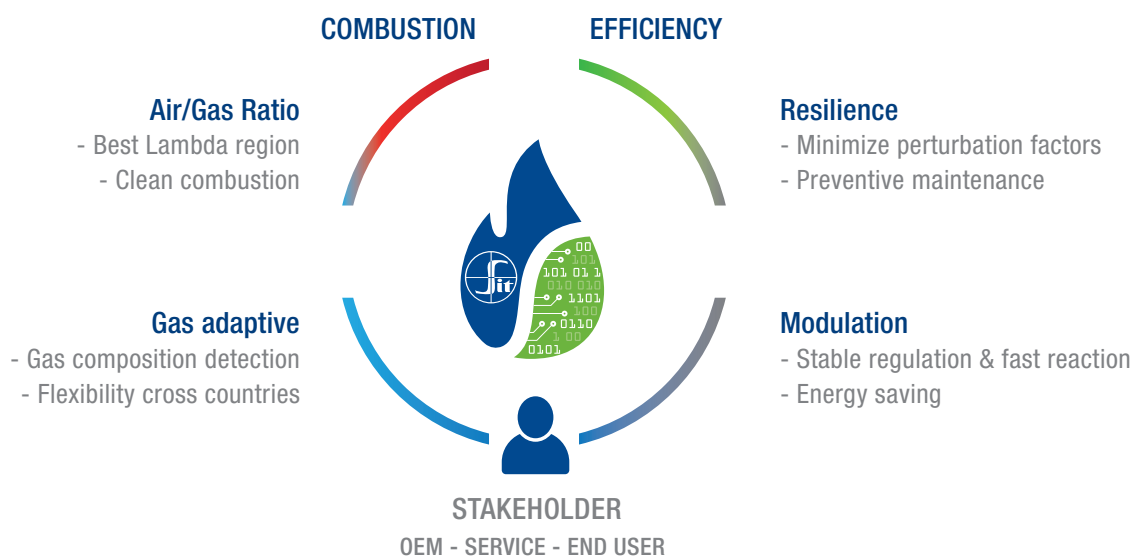
"A lifetime continuous commissioning process that always guarantee comfort and efficiency"

Elektra Combustion Management System

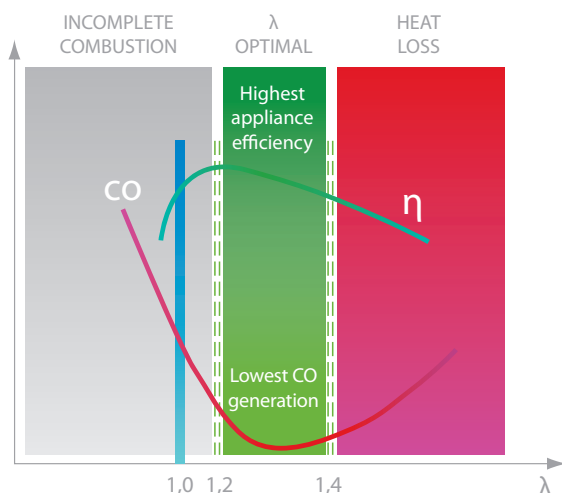
Elektra CMS creates value over the complete stakeholder chain:

from OEM, going through the Service, up to the End User by targeting the two main aspects of a gas appliance application: combustion and efficiency

Value Proposition



Air/Gas ratio: Lambda



Elektra CMS, based on flame analysis, electrically manages the NG40-E blower and the 877 Elektra gas valve in order to target the correct air/gas ratio keeping the application in the optimal Lambda region.

High modulation

Elektra CMS capability of high modulation ratio provides advantages in terms of:

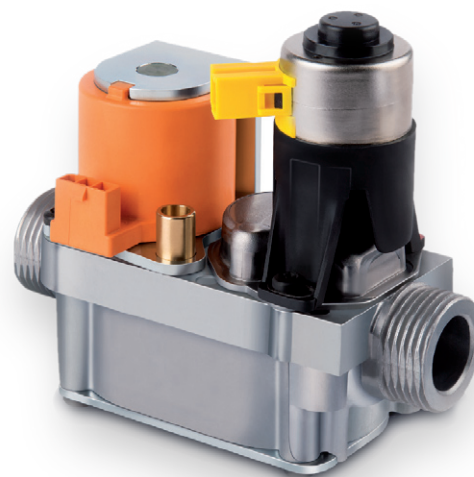
- Stable regulation at low heating load avoiding cycling (on/off)
- Fast reaction to the DHW request with stable hot water flow temperature control
- Extended appliance longevity due to less mechanical and thermal stress



Elektra Combustion Management System

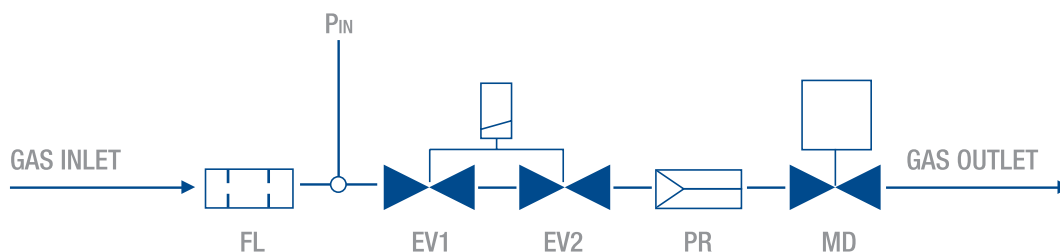
877 Elektra

Multifunctional control for domestic boilers with premix burner and automatic ignition



Main Features

- Two automatic shut-off valves, silent operation (EV1, EV2)
- Pressure regulator (PR)
- Modulating device driven by a stepper actuator (MD)
- Inlet pressure test point (P_{IN})
- Inlet filter (FL)



Functions

Shut-Off

- First automatic shut-off valve (EV1) class C according to EN 126
- Second automatic shut-off valve (EV2) class C according to EN 126

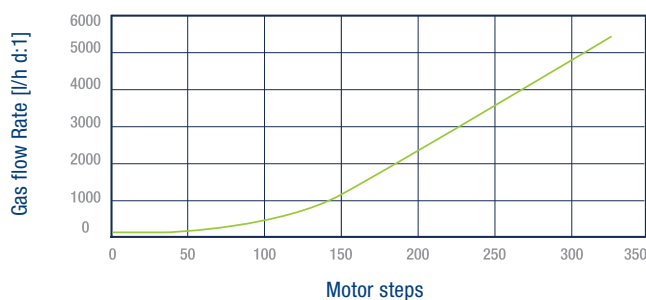
Pressure Regulation

- Direct compensated pressure regulator class C according to EN 126

Modulation

- Continuous outlet flow rate modulation
- Modulating range 100 – 5000 l/h ($d=1$) @ 20mbar inlet pressure

The stepper motor acts the flow adjuster in accordance with the chart below



Flow rate curve with $P_{in} = 20\text{mbar}$ @ 20°C

Elektra Combustion Management System

NG40-E

Fan with brushless motor for gas appliances using premix burner



Main Features

Housing

- Made of die-cast aluminum
- Divergent venturi
- Outlet flanges in many designs

Impeller

- in antistatic plastic material

Mixer (sold separately)

- Different sizes available
- Installable with several orientations

Brushless motor

- 230V-50Hz controlled by PWM

Version with only Hall sensor

- within a package with electronic

Motor protection cap

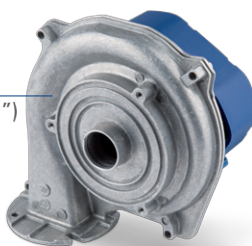
- 3 different position (rotation at 120°)

Functions

- Wide modulation (10:1)
- High performance
- Low noise
- Modular & installation flexibility
- Compact design

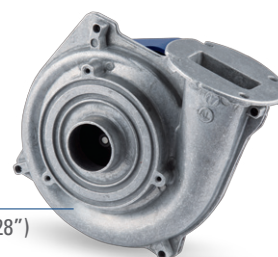
NG40-E M21

(divergent venturi "21")

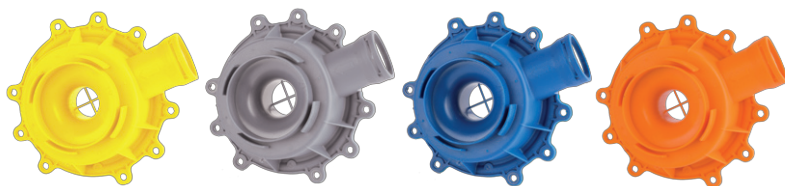


NG40-E M28

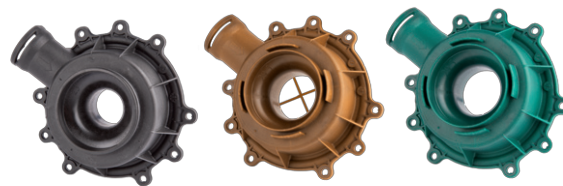
(divergent venturi "28")



Combinations of fan models and mixers



Mixer M40-E



Mixer M40-E

Various sizes of venturi are available (identified by different colors) to fit the maximum appliance power

Appliance reference power [kW]	Mixer color	Convergent diameter [mm]	Fan model
24	Yellow	18	NG40-E M21
24	Orange	19	
28	Grey	20	
28	Blue	21	
30	Blue	21*	

Appliance reference power [kW]	Mixer color	Convergent diameter [mm]	Fan model
35	Black	23	NG40-E M28
38	Black	23*	
42	Brown	28,55	
45	Green	29,5*	

* Mixer without air turbulator (cross)

Elektra Combustion Management System

Elektra Boiler Integrated Control

Elektra CMS embeds as a software the SIT combustion experience and guarantees the maximum system efficiency at lowest emissions



Main Features

Platform

- Gas Adaptive
- Pneumatic

User Interface

- Integrated or Remote Display
- LCD custom, TFT dotMatrix colored with touch technology

Protocol

- Modbus, OpenTherm, LIN, BACnet, CAN

Advanced actuators

- 877 Elektra Valve
- NG40E Fan
- 848 Valve
- NG40/NG40m Fan

Software

- Complete condensing boiler management
- Advanced SW for gas adaptive application
- Dedicated suite for OEM application fine tuning
- Preventive Maintenance

Connectivity & I/O

- Complete range of sensors and actuators
- Wi-Fi & Bluetooth

Human Machine Interface

HMI as a key element for differentiation.

Customer has the flexibility to design the interface to make its own brand recognition on the market and create a “family feeling” approach across the product line.



Diagonal 2.8"



Diagonal 3.5"



Diagonal 5.0"



Diagonal 7.0"

Hardware Features

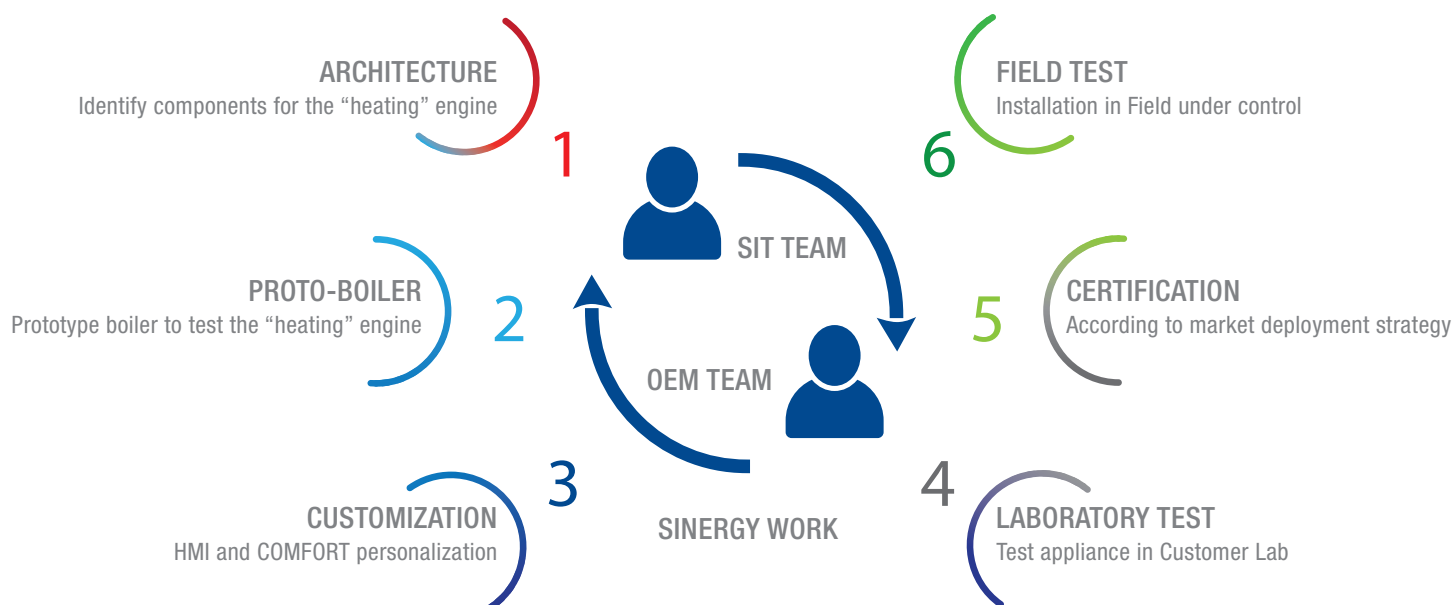
- TFT doMatrix colored
- Touch screen technology

Software Features

- Multilanguage interface
- System integration
- Flexibility in personalization

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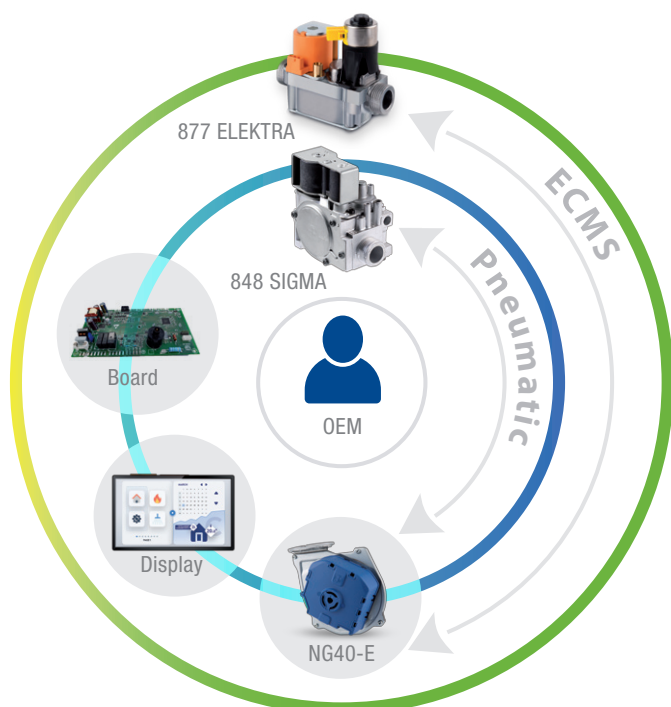
From kickoff to the start of production, we are present in each single phase to smoothly deploy the new application into the market.



Platform Approach

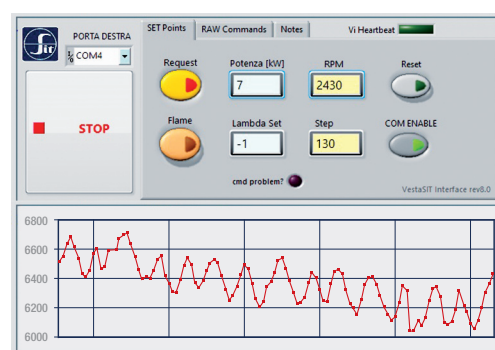
OEM has the possibility to develop a Platform:

- SIT as "One stop Shop" solution
- Flexibility to easily move from Pneumatic to Gas Adaptive application (vice versa)
- Reduce the time to market and effect on the complexity in production line.



Elektra Software Suite

guarantees maximum flexibility to the OEM by providing a dedicated software able to speed up the laboratory phase and to reduce the Time-To-Market for a new boiler.





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