

# ALKON 140

| MODEL ALKON                                |                 |    | 140        |
|--------------------------------------------|-----------------|----|------------|
| Nominal Output max./min.                   | in condensation | kW | 136÷11.5   |
|                                            | traditional     | kW | 131.6÷10.5 |
| Nominal Input                              |                 | kW | 135        |
| $\eta$ in condensation at minimum capacity |                 | %  | 104,3      |
| Efficiency class (Dir. CEE 92/42)          |                 |    | ★★★★       |

## 47 cm of Pure Power

In 2005 with ALKON 50 and in 2006 with ALKON 70, Unical has anticipated the trend of the wall hung commercial condensing boilers. Today with ALKON 140 Unical introduces a new **“Power Optimized Boiler”**.

- **Compact**, only 47 centimetres of depth for 76 of width and 128 of height!
- **Powerful**: up to 136 kW (in condensing mode)
- **Efficiency**: up to **104.3%**
- **Elastics, modulation ratio** up to **1:13**
- **Wall hung**, with carrying metallic structure in order not to burden on the walls, not always fit to the purpose, and **also in floor standing version (optional)**
- **With accessories**: to satisfy the most complex installation.

Derived from two “special”: they collect the best of the Unical innovation, synthesizing it in a **modular boiler** equipped with:

- a battery of **2 heat exchangers in aluminium/silicon/magnesium** alloy with **anodizing treatment** against the corrosion, on the water and smoke sides
- **2 modulating pumps**
- a **unique smoke evacuation duct**
- **electronic programmable HSCP**, expandable and controllable from remote
- **Low NO<sub>x</sub>** (class 5 according to EN 15420)
- **Twin safety switches** (for emergency operation)
- **homologation as range rated power** to suit every possible use
- **maximum** attention to the **maintainability**.



Group of: fan, modulating gas valve, premix burner



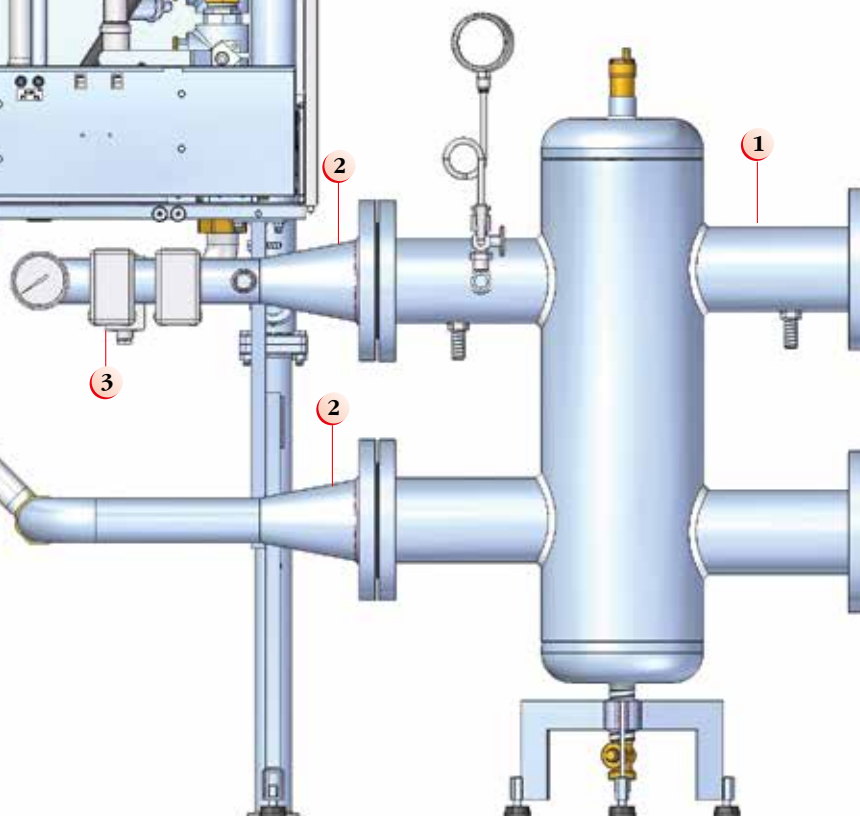
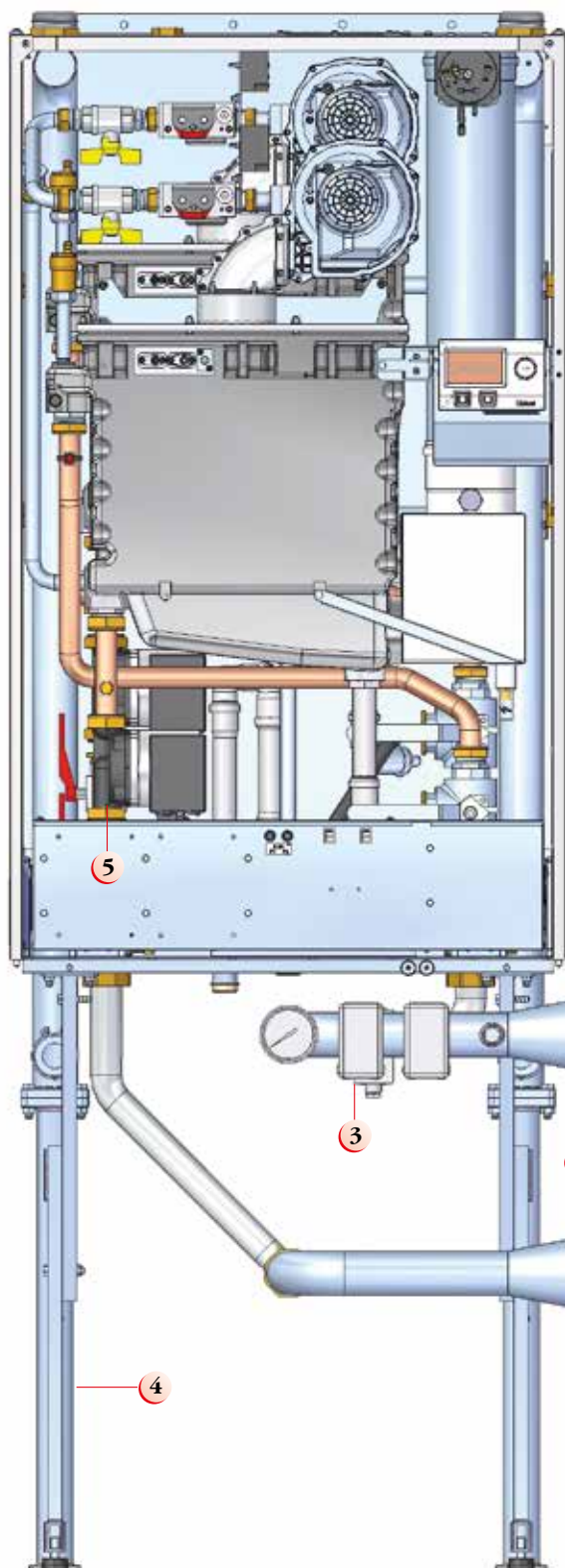
Pumps and gate valves



ALKON 140 occupy the segment of the commercial boilers capable to satisfy the building park represented by buildings of medium sizes, such as condominiums (from 6 to 10 and more apartments), industrial and handicraft sheds, and housebuilding destined to the communities, where a little encumbering and very low environmental impact solutions (in terms of noise and polluting emissions) have to be proposed. Besides they distinguish themselves for the rapidity of mounting, being ready to the use.

## The Strong Points

- **2 complete interceptables thermal elements**, operating also separately in case of necessity, controlled by the **BMM (Burner Module Manager) electronic cards**,
- **2 low water content heat exchangers** in Al/Si/Mg alloy, the best for:
  - *100% wet surfaces of the boiler body*
  - *for long time guaranteed efficiency*, thanks to the absence of scaling
  - *reliability, thanks to the optimized circulation* that avoids thermal overloads (NTC control's sensors)
  - *long lasting, fruit of the multi-year metallurgical Unical experience*
- **2 Low NOx premix modulating burners** in class 5, composed by:
  - *2 fans* (40 Pa of manometric head) with electronically controlled speed
  - *2 safety gas valves* with constant air-gas ratio
  - *radiating flame surface in "metallic sponge"* (guaranteed operation up to 13 mbar of natural gas pressure)
- **2 modulating pumps** (one for each thermal element) with antifreeze protection, antijamming and overrun circulation
- **minimum water pressure switch**
- **ready for the electrical connection** of the additional safety devices
- **optional hydraulic groups** including:
  - *Pipe for installation of safety devices and accessories*
  - *Differential pressure switch for the control of water circulation*
  - *Hydraulic connection system*
  - *Mixing header*
- **conversion kit from Natural Gas to LPG (optional)**



- 1 **MIXING HEADER KIT**  
code 00361976
- 2 **MANIFOLD KIT FOR N°1 ALKON 140**  
code 00362810
- 3 **ADDITIONAL SAFETY DEVICES KIT**  
code 00361316  
**Made of:**  
Three way cock 1/2", with flange for master pressure gauge, Shock absorbing pipe for manometer, Thermometer with 1/2" bulb holder, Additional 1" pipe, Minimum water pressure switch with manual reset, 0.5 to 1.7 bar, safety maximum pressure switch 1 to 5 bar 1", Immersion Thermostat 100°C, Bulb holder for inspection agency master thermometer 1/2" L=100, Bushing M/F 1/2", Safety Valve 5 bar. Manometer not supplied.
- 4 **KIT SUPPORTING FRAME FOR N°1 ALKON 140**  
(supplied as standard)  
code 00362804
- 5 **DIFFERENTIAL PRESSURE SWITCH KIT with connection fittings**  
code 00362803



## Electronics “on Installation Scale”

The boiler electronic manager / controller **HSCP (Heating System Control Panel)**, endowed with back lighted LCD display and of rotating selecting knob, allows to access different menus.

The functions of controller allow:

- the weekly hourly programming up to a maximum of 12 heating circuits completely independent (optional) and of a DHW storage tank
- the hourly programming of different types of activities
- the possibility to manage the DHW recirculating pump
- the anti-legionella function, both on the storage tank and on the secondary circuits with special accessories.

The management of the heating zones and, more in general, of all the types of the loads, happens through multifunction optional cards, the **SHCs (Slavic Heating Controller)**, for the utilizer circuits CH, DHW and the auxiliary resources (time controlled relays, solar accumulators, etc.), allowing so **to exactly hit the demands of the users / installation, justifying performances and budget.**

### Managing from remote

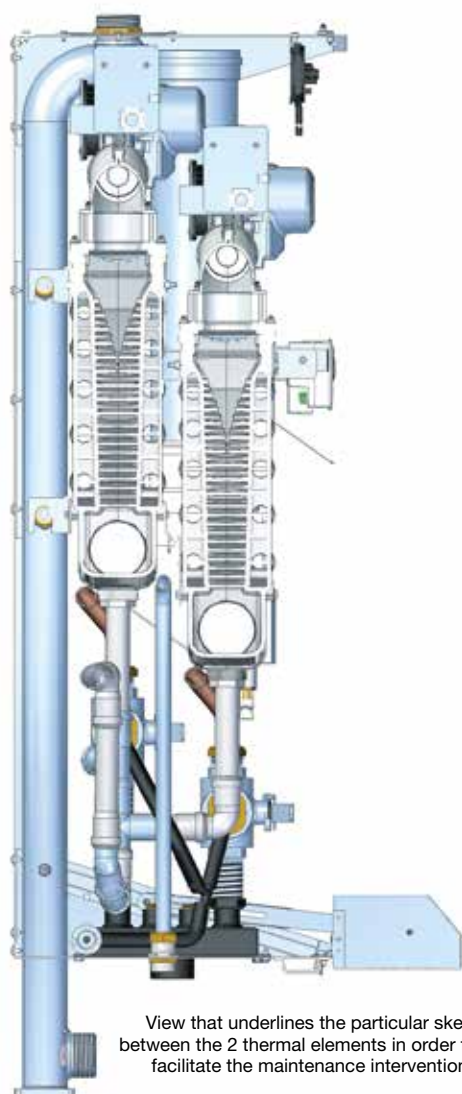
In alternative, two different communication standards are available:

- eBUS and Modbus, intended for connection to different control devices. With these it is possible to remote the acquisition of the operational information of all the connected devices, included the complete **diagnostic management** for acquisition and reset of the alarms.

On board are then present the *change-over switches* and the *insertion and protection fuses* of the 2 thermal elements.

Thanks to the interface card **BCM (Burner Control Manager)** the predisposition for controlling, through 0-10 volts signal, the adjustment of the output from the external source is available. As well as connections for:

- external temperature sensor
- control of modulating and ON/OFF pumps
- Modbus port
- alarm contact.



View that underlines the particular skew between the 2 thermal elements in order to facilitate the maintenance interventions



HSCP panel

## Modulation to the square

The particular configuration of the modulation system foresees the **sharing of the power on 2 thermal elements** up to the minimum possible load, equal to 10.5+10.5 kW for the obtainment of the maximum efficiency. In case the requested output decreases below this value, one of the thermal elements automatically extinguishes and the second element modulates from 20.5 kW up to 10.5 kW.

With the **optimum modulation ratio of 1:13!**

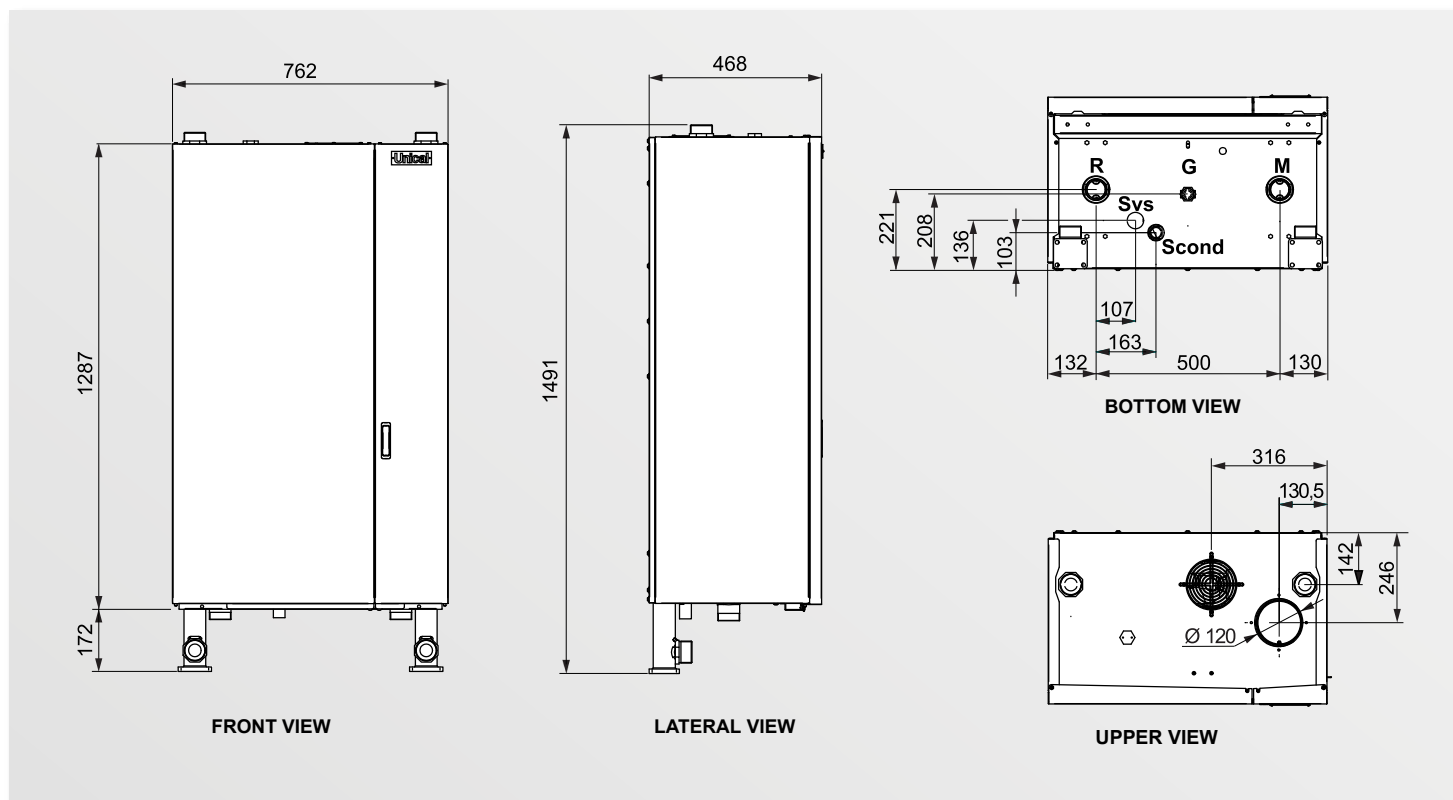
Not only this. The refined electronics couples, to the variation of the output, **the variation of the pumps flow rates**, assuring:

- increase of the condensation capacity, thanks to the reduction of the return temperature and the maintenance of the constant  $\Delta T$
- reduction of the electric consumptions, thanks to the pumps motors with electronic control.

## Easy maintenance

The extraordinary disposition of the 2 thermal elements, allows to easily access all the components in case of extraordinary maintenance. In the case of ordinary maintenance, it simplifies and shortens the intervention times, both for the cleaning of the boiler bodies and for the verification of the lighting and control flame devices.

# Dimensions and Technical Data



| MODEL                                              | ALKON 140 |              |
|----------------------------------------------------|-----------|--------------|
| <b>Powers</b>                                      |           |              |
| NOMINAL OUTPUT max. / min. in Condensation         | kW        | 136 / 11.5   |
| NOMINAL OUTPUT max. / min. in std. mode            | kW        | 131.6 / 10.5 |
| NOMINAL INPUT max. / min.                          | kW        | 135 / 11     |
| <b>Efficiency</b>                                  |           |              |
| EFFICIENCY CATEGORY (European Directive EEC 92/42) |           | ★★★★         |
| EFFICIENCY AT NOMINAL OUTPUT                       | %         | 97.5         |
| EFFICIENCY AT MINIMUM OUTPUT in CONDENSATION       | %         | 104,3        |
| EFFICIENCY AT PART LOAD in CONDENSATION            | %         | 105          |
| COMBUSTION EFFICIENCY at nominal / part load       | %         | 97.5 / 98.3  |
| HEAT LOSSES THROUGH CASING min. / max.             | %         | 0.02 / 3.2   |
| <b>Combustion</b>                                  |           |              |
| CO <sub>2</sub> (at min. / max. output)            | %         | 9-9.1        |
| CO (min. / max.) at 0% O <sub>2</sub>              | mg/kWh    | 49/139       |
| NOx (weighted value according to EN 15420)         | mg/kWh    | 68           |
| Max. condensate production                         | kg/h      | 21.8         |
| <b>NOx Class</b>                                   |           |              |
| APPLIANCE CATEGORY (Type B)                        |           | II2H3P       |
| <b>Heating</b>                                     |           |              |
| OPERATING TEMPERATURE IN HEATING MODE min. / max.  | °C        | 25 / 85      |
| OPERATING PRESSURE IN HEATING CIRCUIT min. / max.  | bar       | 0,5-6        |
| MINIMUM FLOW RATE OF THE HEATING CIRCUIT Δt 35°C   | l/h       | 2826         |
| <b>Weight</b>                                      |           |              |
| NET WEIGHT                                         | kg        | 150          |
| <b>Electrical supply</b>                           |           |              |
| MAXIMUM ABSORBED POWER (with modulating pump)      | W         | 560          |
| SUPPLY TENSION / FREQUENCY                         | V/Hz      | 230 / 50     |
| WATER CONTENT                                      | l         | 10           |
| ELECTRICAL PROTECTION DEGREE                       | IP        | X4D          |

Key:

**R** - C.H. return 2"

**M** - C.H. flow 2"

**G** - Gas inlet 1

**Svs** - Drain of safety valve

**Scond** - Condensate drain DN 32