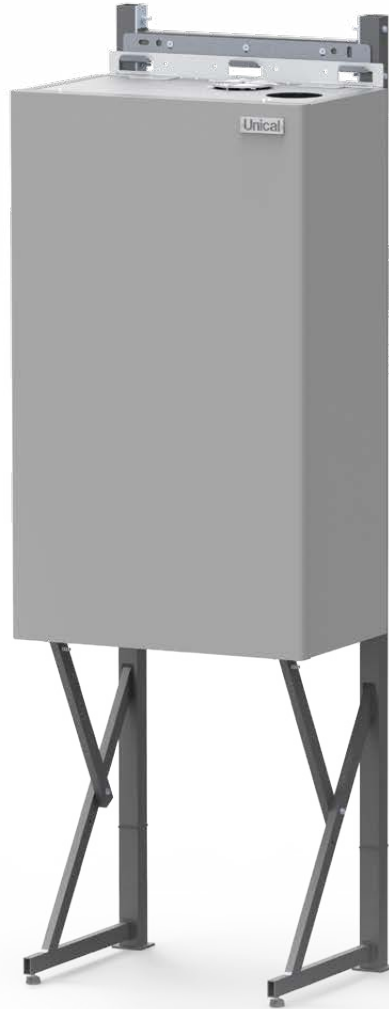


**Unical**

# ALKON 140 EXT



**MODULATING CONDENSING BOILER with double premix low NOx burner and double heat exchanger EXPANDABLE IN BATTERY for indoor and outdoor installations (IPX5D)**

OUTPUT RANGE

from 115 to 560 kW (in battery)

WORKING TEMPERATURE

no limit on the return temperature

SUPPLY

Natural Gas or LPG

MODELS

140 EXT

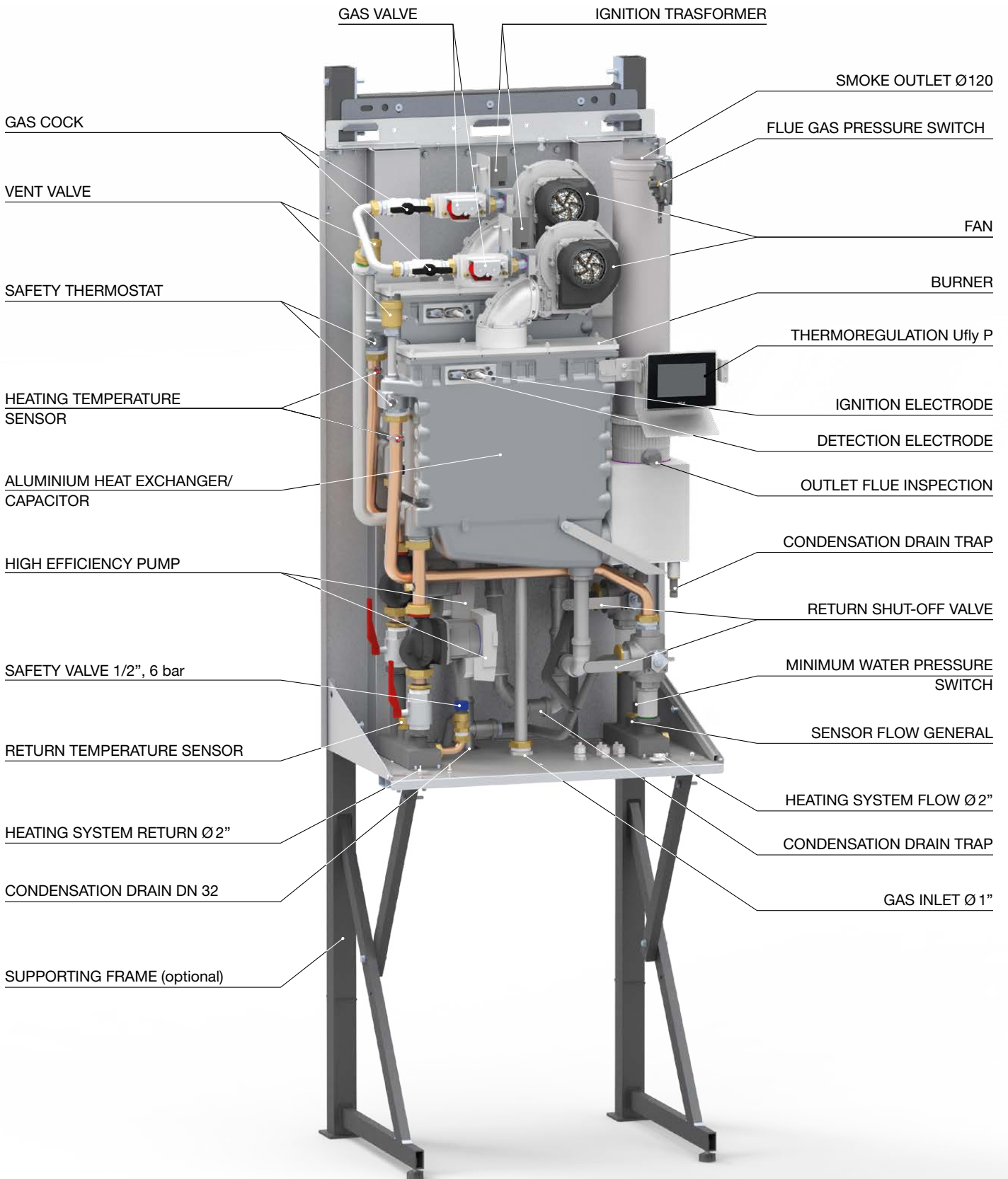
SEASONAL EFFICIENCY



**A**

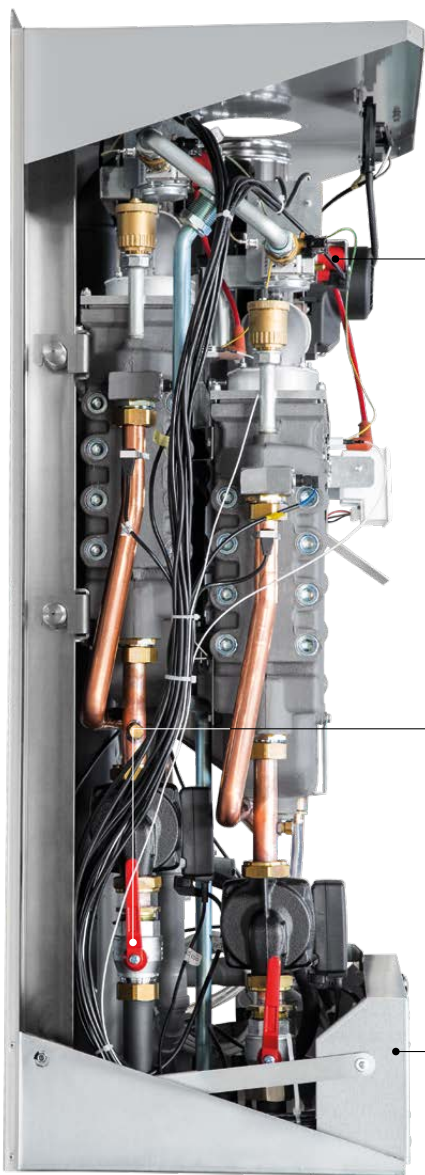
Wall hung with dedicated supporting kit  
**available in battery up to 4 units for a total of 560 kW**  
can be combined both with **MIXING HEADER** and with **PLATE HEAT EXCHANGERS**

MAIN COMPONENTS



## PRODUCT PLUS VALUES

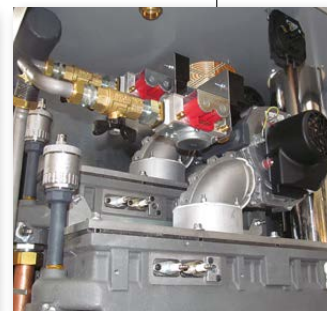
- **Calibration possibility according to the thermal requirement of the system**  
(possible customization of the requested power)
- **2 complete interceptables THERMAL ELEMENTS**, operating also separately in case of necessity, controlled by the BMM (Burner Module Manager) electronic cards
- **2 LOW 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 6, 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
- **COMPLETE OUTER CASING FOR OUTDOOR INSTALLATION** in electro-galvanized steel sheet with epoxy-polyester painting
- **CONVERSION KIT** from Nat. Gas to LPG, optional
- **EXPANDIBLE IN CASCADE** up to 1120 kW (8 boilers, 2 group of 4 boiler in cascade)
- **OPTIONAL ACCESSORIES** for cascade installation
- **Kit Gateway P for Ufly P remote connection (optional)**
- **Wall box kit for Ufly P.**



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



Pumps and gate valves

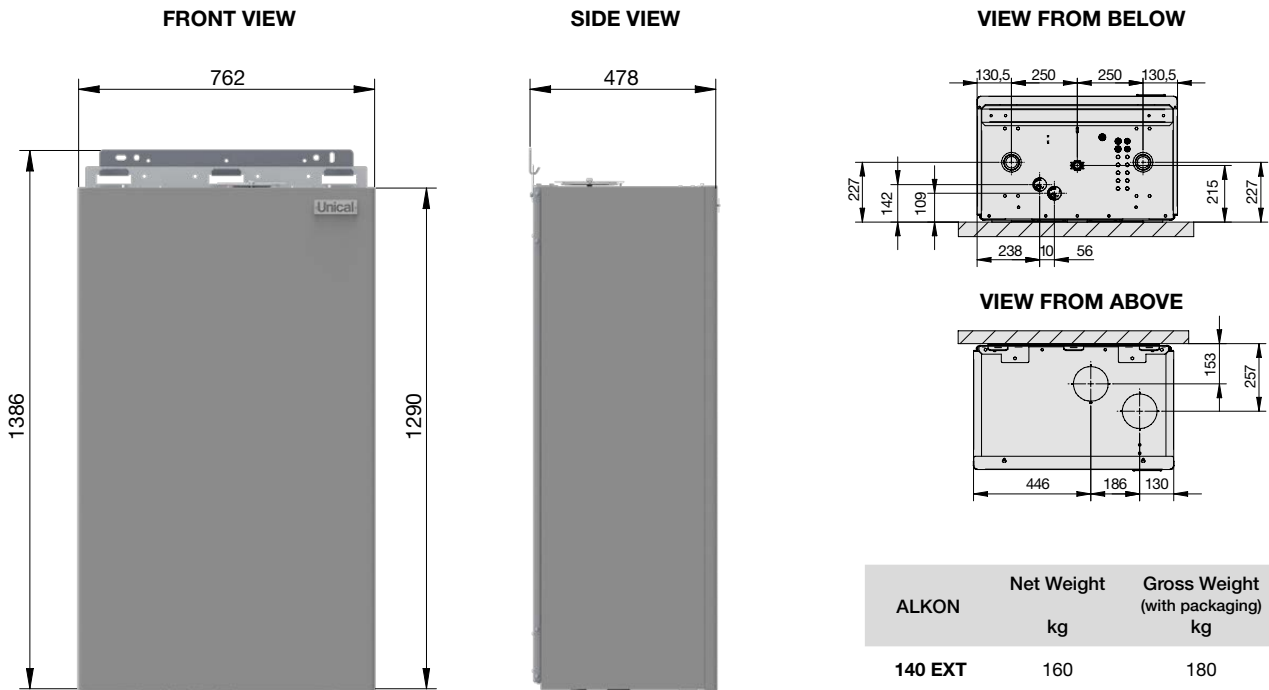


Group of: fan, modulating gas valve, premix burner

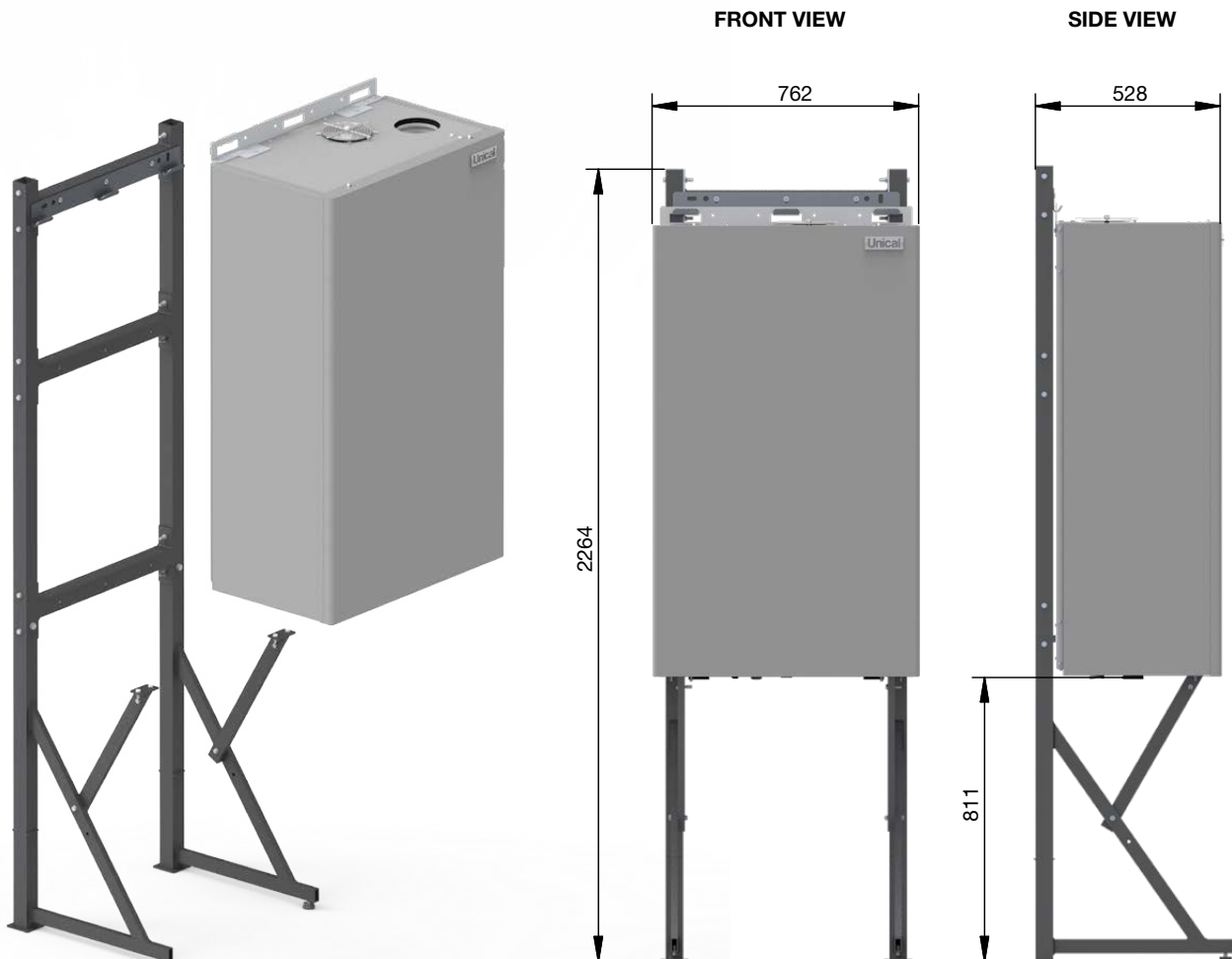


Assembly of the electronic PCBs for the management of the thermal elements and BCM 2.0

DIMENSIONS OF A SINGLE BOILER ALKON 140 EXT



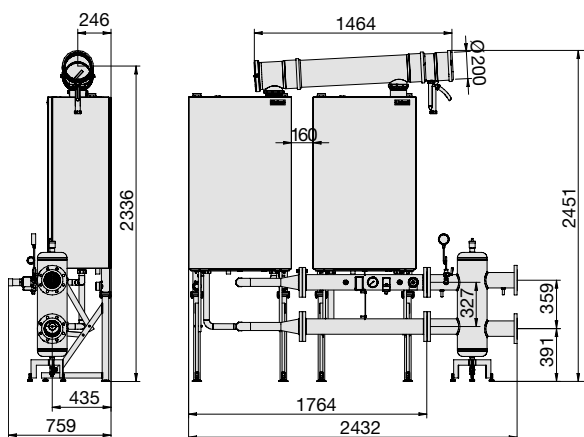
DIMENSIONS WITH SUPPORTING FRAME (optional)



## ALKON 140 EXT IN BATTERY

The ALKON 140 EXT is foreseen, thanks to an oportune and dedicated series of accessories, to be assembled in battery. The combinations can be in groups of 2 - 3 & 4 units, up to a maximum of 560 kW.

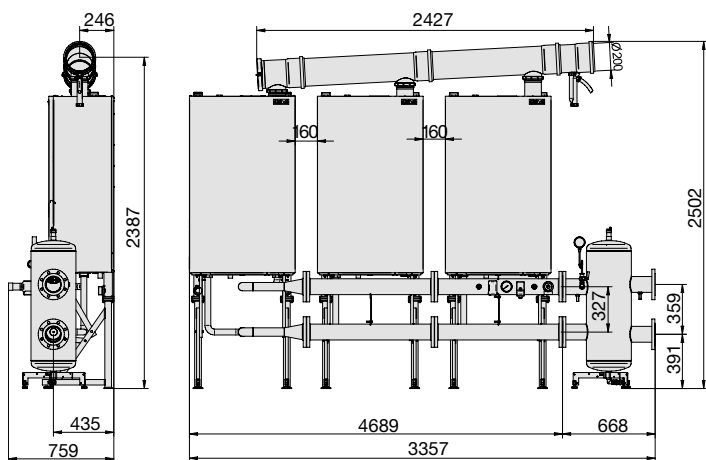
### DIMENSIONS OF TWO ALKON 140 EXT IN BATTERY



Operational data		ALKON 140 EXT
Minimum Input on N.C.V. Qmin	kW	11
Nominal Input on N.C.V. Qn	kW	270
Nominal Output (60/80°C) Pn	kW	263.20
Nominal Output (30/50°C) Pcond	kW	271.36
Setting temperature of the gas cut-off valve	°C	98 <sup>+0</sup> <sub>-5</sub>

Warning: The flue ducts in plastic material (PPS) are suitable only for Indoor installations.

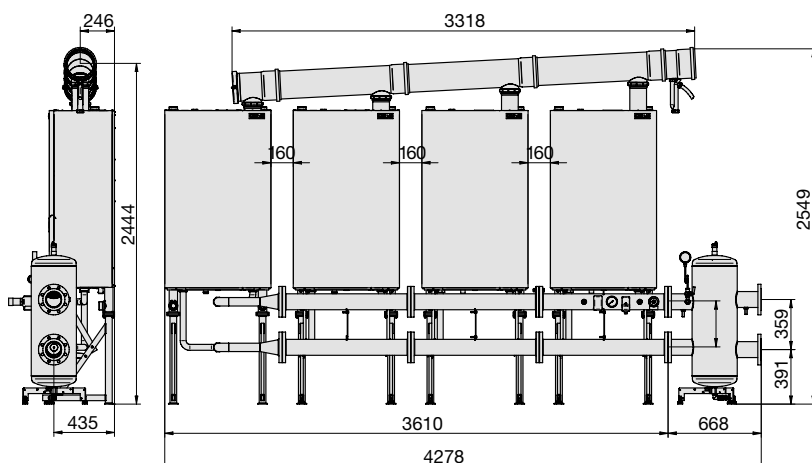
### DIMENSIONS OF THREE ALKON 140 EXT IN BATTERY



Operational data		ALKON 140 EXT
Minimum Input on N.C.V. Qmin	kW	11
Nominal Input on N.C.V. Qn	kW	405
Nominal Output (60/80°C) Pn	kW	394.8
Nominal Output (30/50°C) Pcond	kW	407.04
Setting temperature of the gas cut-off valve	°C	98 <sup>+0</sup> <sub>-5</sub>

Warning: The flue ducts in plastic material (PPS) are suitable only for Indoor installations.

### DIMENSIONS OF FOUR ALKON 140 EXT IN BATTERY



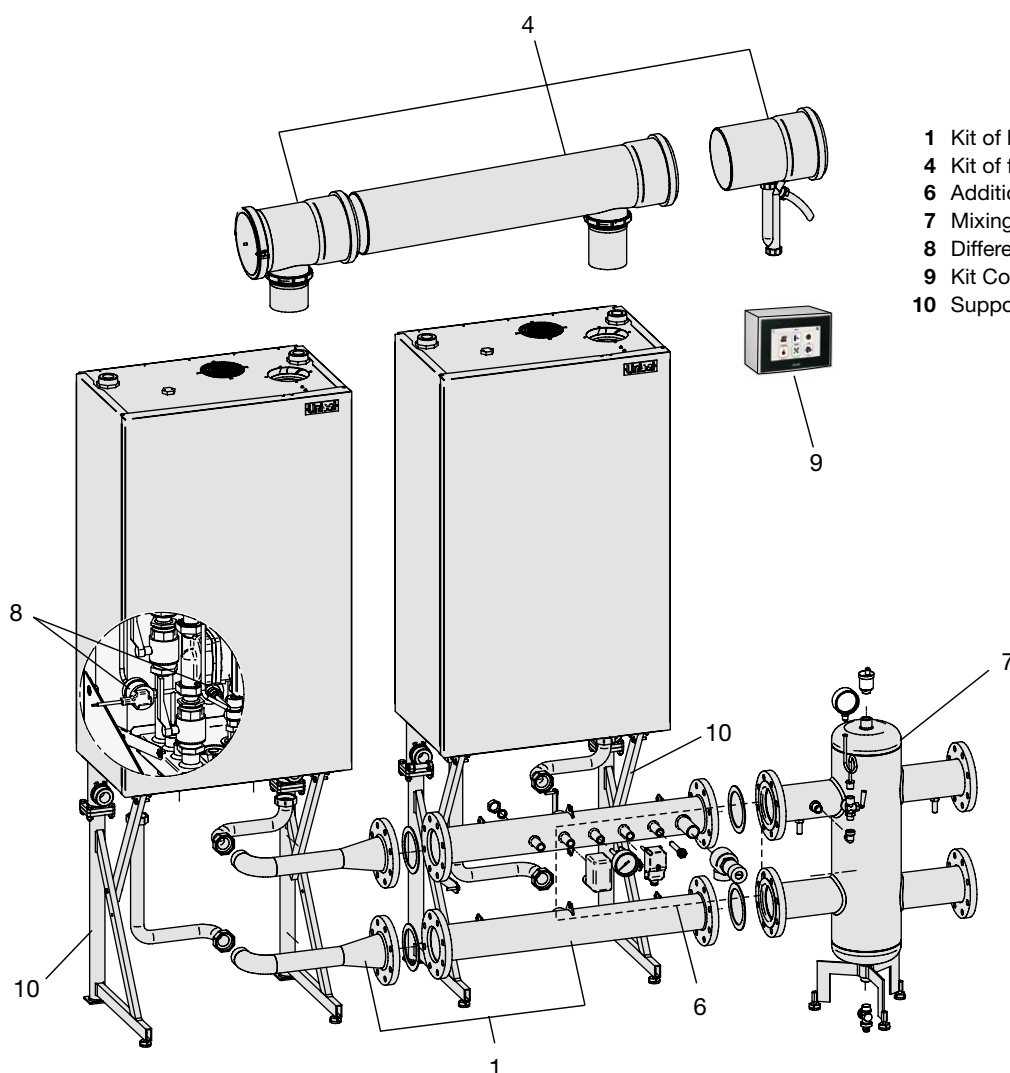
Operational data		ALKON 140 EXT
Minimum Input on N.C.V. Qmin	kW	11
Nominal Input on N.C.V. Qn	kW	540
Nominal Output (60/80°C) Pn	kW	526.40
Nominal Output (30/50°C) Pcond	kW	542.72
Setting temperature of the gas cut-off valve	°C	98 <sup>+0</sup> <sub>-5</sub>

Warning: The flue ducts in plastic material (PPS) are suitable only for Indoor installations.

ACCESSORY KITS FOR ALKON 140 EXT IN BATTERY

	No. of units	2x	3x	4x
1	Kit of hydraulic manifolds for 2 units battery	1		
2	Kit of hydraulic manifolds for 3 units battery		1	
3	Kit of hydraulic manifolds for 4 units battery			1
4	Kit of flue ducts for 2 units battery	1	1	1
5	Expansion kit of flue ducts for battery of 3 & 4 units		1	2
6	Additional safety kit	1	1	1
7	Mixing header kit	1	1	1
8	Differential pressure switch kit	2	3	4
9	Kit Control Manager Ufly P	1	1	1
10	Supporting frame	2	3	4

EXAMPLE OF 2 ALKON 140 EXT IN BATTERY

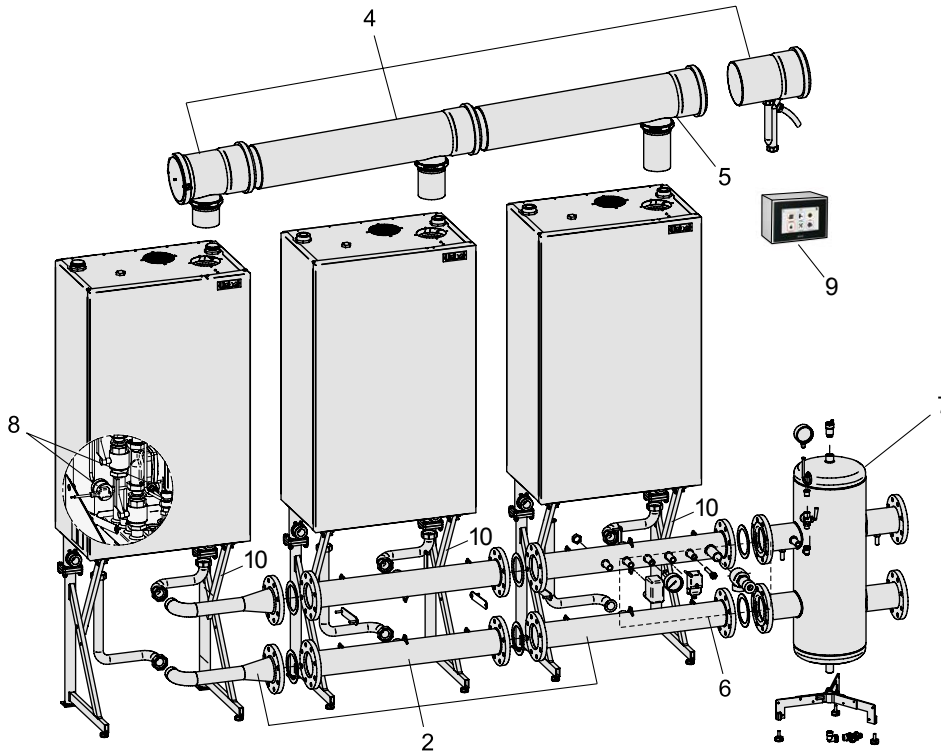


- 1 Kit of hydraulic manifolds for 2 units battery
- 4 Kit of flue ducts for 2 units battery
- 6 Additional safety kit
- 7 Mixing header kit
- 8 Differential pressure switch kit
- 9 Kit Control Manager Ufly P
- 10 Supporting frame



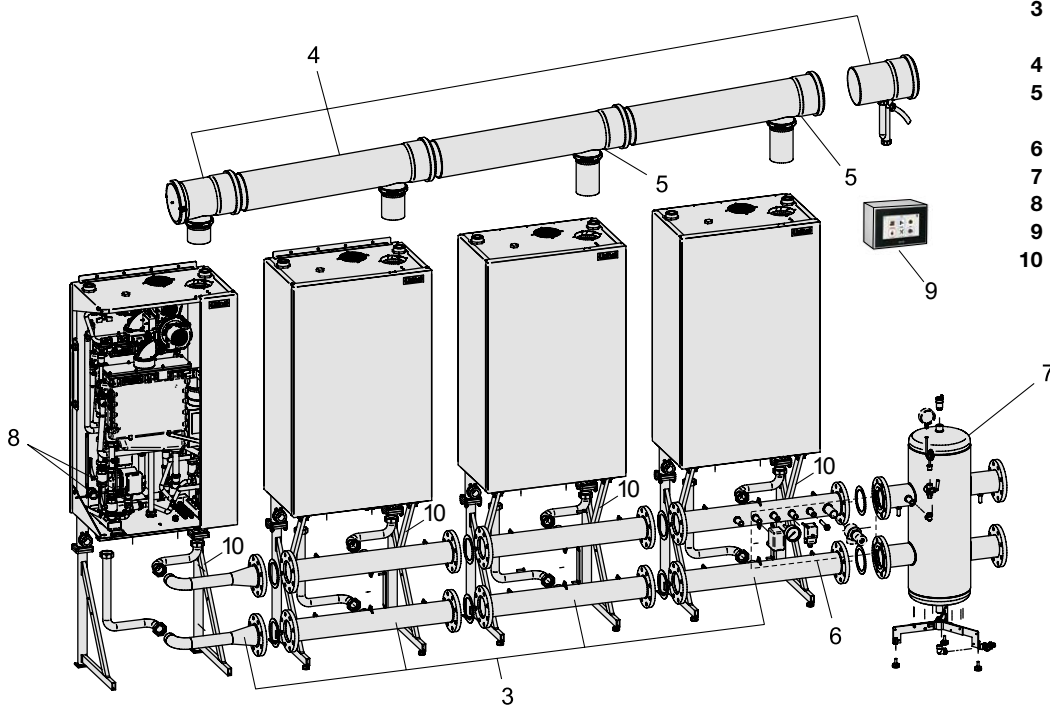
ACCESSORY KITS FOR ALKON 140 EXT IN BATTERY

EXAMPLE OF 3 ALKON 140 EXT IN BATTERY



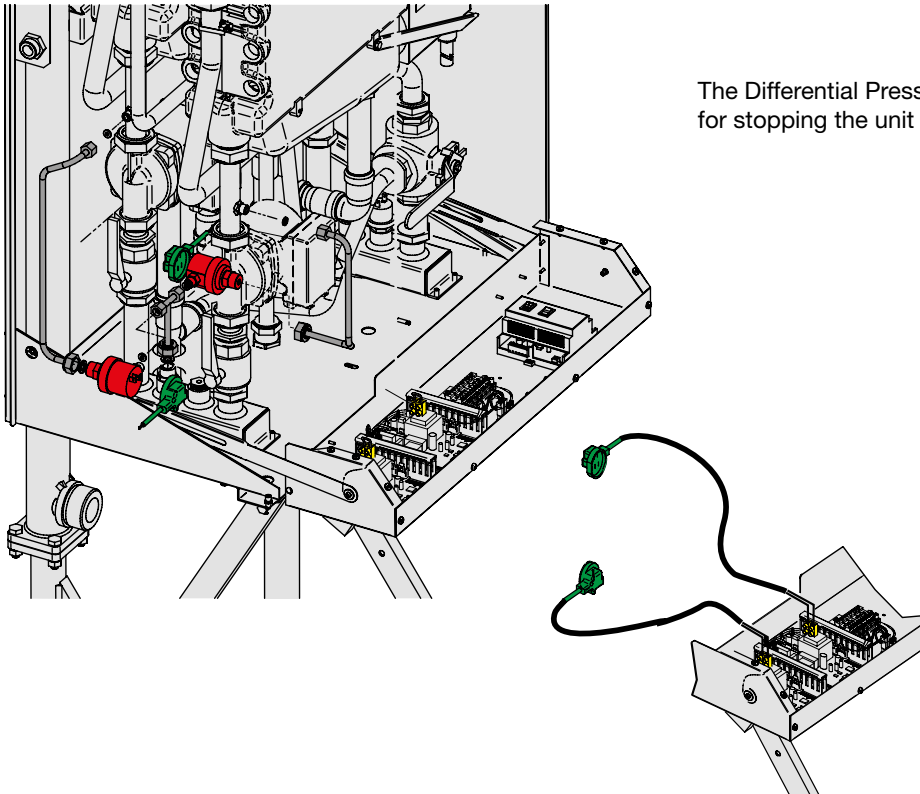
- 2 Kit of hydraulic manifolds for 3 units battery
- 4 Kit of flue ducts for 3 units battery
- 5 Expansion kit of flue ducts for battery of 3 & 4 units
- 6 Additional safety kit
- 7 Mixing header kit
- 8 Differential pressure switch kit
- 9 Kit Control Manager Ufly P
- 10 Supporting frame

EXAMPLE OF 4 ALKON 140 EXT IN BATTERY



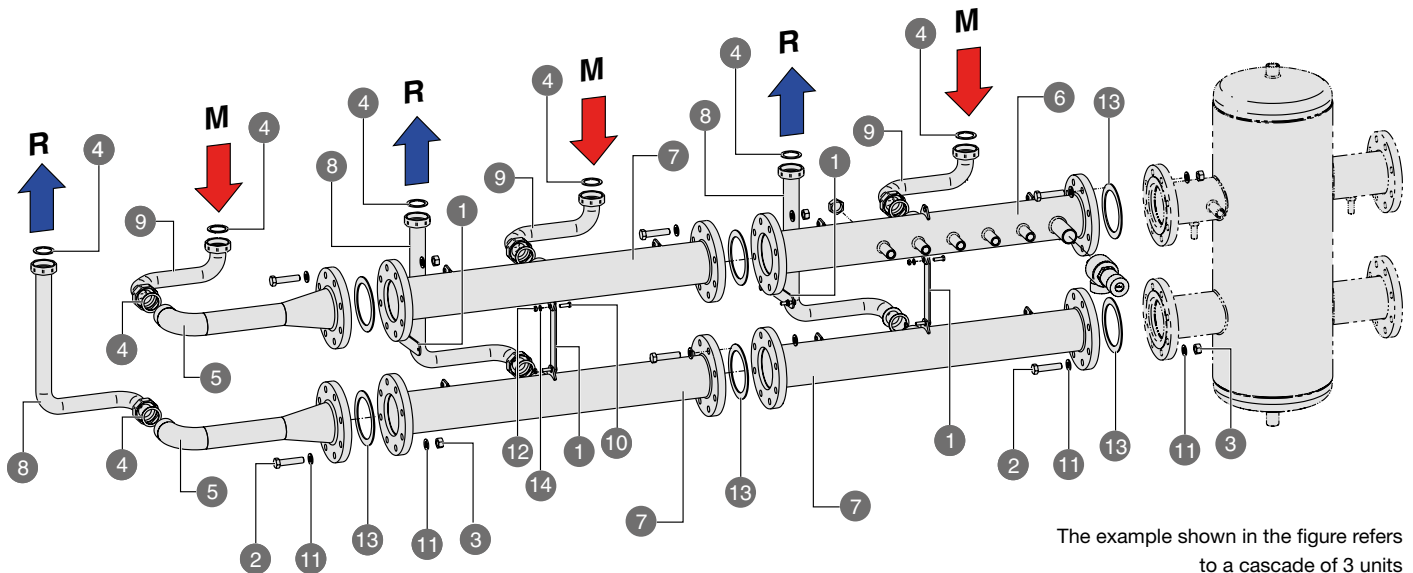
- 3 Kit of hydraulic manifolds for 4 units battery
- 4 Kit of flue ducts for 2 units battery
- 5 Expansion kit of flue ducts for battery of 3 & 4 units
- 6 Additional safety kit
- 7 Mixing header kit
- 8 Differential pressure switch kit
- 9 Kit Control Manager Ufly P
- 10 Supporting frame

DIFFERENTIAL PRESSURE SWITCH KIT



The Differential Pressure Switch kit is a safety device used for stopping the unit in case the pump is defective.

MOUNTING SCHEME OF HYDRAULIC MANIFOLDS



The example shown in the figure refers to a cascade of 3 units

Pos.	Description	No. of units		
		2x	3x	4x
1	Mounting bracket of the battery manifold	2	4	6
2	Screw M16	32	48	64
3	Nut M16	32	48	64
4	Gasket 2"	8	12	16
5	Return manifold of a single unit	2	2	2
6	Additional safety kit	1	1	1
7	Battery manifold	1	3	5

Pos.	Description	No. of units		
		2x	3x	4x
8	Return pipe between boiler & manifold	2	3	4
9	Flow pipe between boiler & manifold	2	3	4
10	Screw M10 x 40	4	6	8
11	Washer Ø 17 / 30	64	96	128
12	Nut M8	8	12	16
13	Gasket DN 100	4	6	8
14	Washer	8	12	16



## TECHNICAL DATA

**ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site [www.unical.eu](http://www.unical.eu) at the page of the product**

ALKON 140 EXT		
Appliance category		II <sub>2H3P</sub>
Modulation Ratio		1:12.3
Nominal Heat Input on P.C.I. Qn	kW	135
Minimum Heat Input on P.C.I. Qmin	kW	11
Nominal Output (Tr 60 / Tm 80 °C) Pn	kW	131.60
Minimum Output (Tr 60 / Tm 80 °C) Pn min	kW	10.5
Nominal Output (Tr 30 / Tm 50 °C) Pcond	kW	136.1
Minimum Output (Tr 30 / Tm 50 °C) Pcond min	kW	11.5
Efficiency at max. output (Tr 60 / Tm 80°C)	%	97.48
Efficiency at min. output (Tr 60 / Tm 80°C)	%	95.1
Efficiency at max. output (Tr 30 / Tm 50°C)	%	100.8
Efficiency at min. output (Tr 30 / Tm 50°C)	%	104.3
Efficiency at 30% output (Tr 30°C)	%	108.3
Combustion efficiency with nominal load	%	97.5
Combustion efficiency with minimum load	%	98.35
Heat loss at casing with burner in operation (Qmin)	%	3.28
Heat loss at casing with burner in operation (Qn)	%	0.02
Flue gas temperature tf-ta (min)(*)	°C	33
Flue gas temperature tf-ta (max)(*)	°C	55
Maximum allowable temperature	°C	100
Maximum operating temperature	°C	85
Flue gas mass flow rate (min)	kg/h	12.58
Flue gas mass flow rate (max)	kg/h	153.03
Excess λ air	%	25.53
Flue losses with burner in operation (min)	%	1.65
Flue losses with burner in operation (max)	%	2.90
Minimum heating circuit pressure	bar	0.5
Maximum heating circuit pressure	bar	6
Water content	l	10
Gas Consumption Natural (20 mbar) gas G 20 a Qn	m <sup>3</sup> /h	14.27
Gas Consumption Natural gas (20 mbar) G 20 a Qmin	m <sup>3</sup> /h	1.16
Gas Consumption G25 (supply pressure 25 mbar) Qn	m <sup>3</sup> /h	16.60
Gas Consumption G25 (supply pressure 25 mbar) Qmin	m <sup>3</sup> /h	1.35
Gas Consumption G31 (supply pressure 37/50 mbar) Qn	kg/h	10.48
Gas Consumption G31 (supply pressure 37/50 mbar) Qmin	kg/h	0.85
Max. available pressure at the chimney base	Pa	40
Condensate production max	kg/h	21.8
<b>Emissions</b>		
CO at Minimum Heat Input with 0% of O <sub>2</sub>	mg/kWh	139
NO <sub>x</sub> at Nominal Heat Input with 0% of O <sub>2</sub>	mg/kWh	58
NO <sub>x</sub> Class		6
<b>Electrical Data</b>		
Voltage/Frequency electric power supply	V/Hz	230/50
Fuse on main supply	A (R)	4
Insulation degree	IP	X5D

Room Temperature = 20°C. (\*) Temperatures detected with the unit in operation (Tr 60 / Tm 80°C).

DATA ACCORDING TO ErP DIRECTIVE

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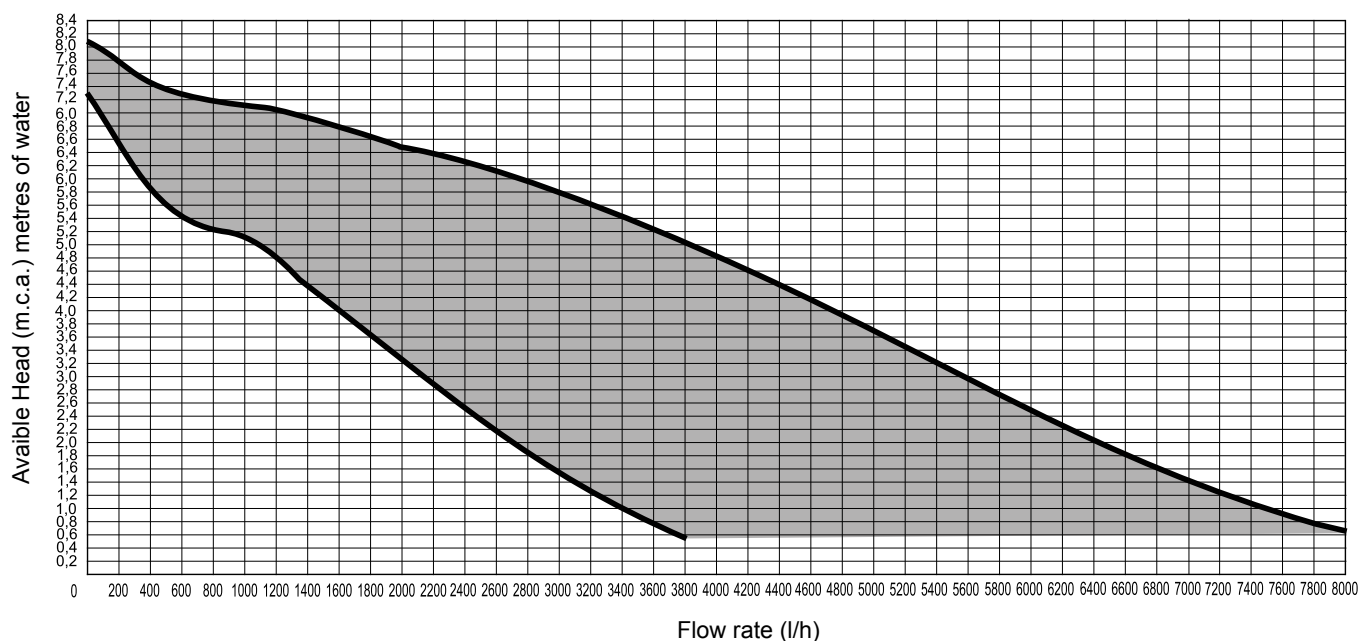
ALKON 140 EXT			
NOMINAL HEAT OUTPUT	$P_n$	kW	132
SEASONAL SPACE HEATING ENERGY EFFICIENCY	$\eta_s$	%	93
<b>SEASONAL EFFICIENCY CLASS IN HEATING MODE</b>			<b>A</b>
<b>FOR CH ONLY AND COMBINATION BOILERS: USEFUL HEAT OUTPUT</b>			
USEFUL HEAT OUTPUT in high temperature regime (Tr 60 °C / Tm 80 °C)	$P_4$	kW	71.2
USEFUL EFFICIENCY AT NOM. HEAT OUTPUT in high-temperature regime (Tr 60°C / Tm 80°C)	$\eta_4$	%	87.8
USEFUL HEAT OUTPUT AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30°C)	$P_1$	kW	23.7
USEFUL EFFICIENCY AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30 °C)	$\eta_1$	%	97.6
RANGE-RATED BOILER: YES / NO			SI
<b>AUXILIARY ELECTRICITY CONSUMPTION</b>			
AT FULL LOAD	$e_{l_{max}}$	kW	0.474
AT PART LOAD	$e_{l_{min}}$	kW	0.159
IN STAND-BY MODE	$P_{SB}$	kW	0.007
<b>OTHER ITEMS</b>			
STAND-BY HEAT LOSS	$P_{stby}$	kW	2.68
EMISSIONS OF NITROGEN OXIDES referred to NCV & (GCV)	$NO_x$	mg/kWh	58 (52)
CONSUMPTION OF ANNUAL ELECTRICITY	$Q_{HE}$	GJ	653

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION



ALKON 140 EXT		
Power supply	kW	135
Max flow rate demanded l/h ( $\Delta t$ 15 K)	l/h	7545
Nominal flow rate request ( $\Delta t$ 20 K)	l/h	5659