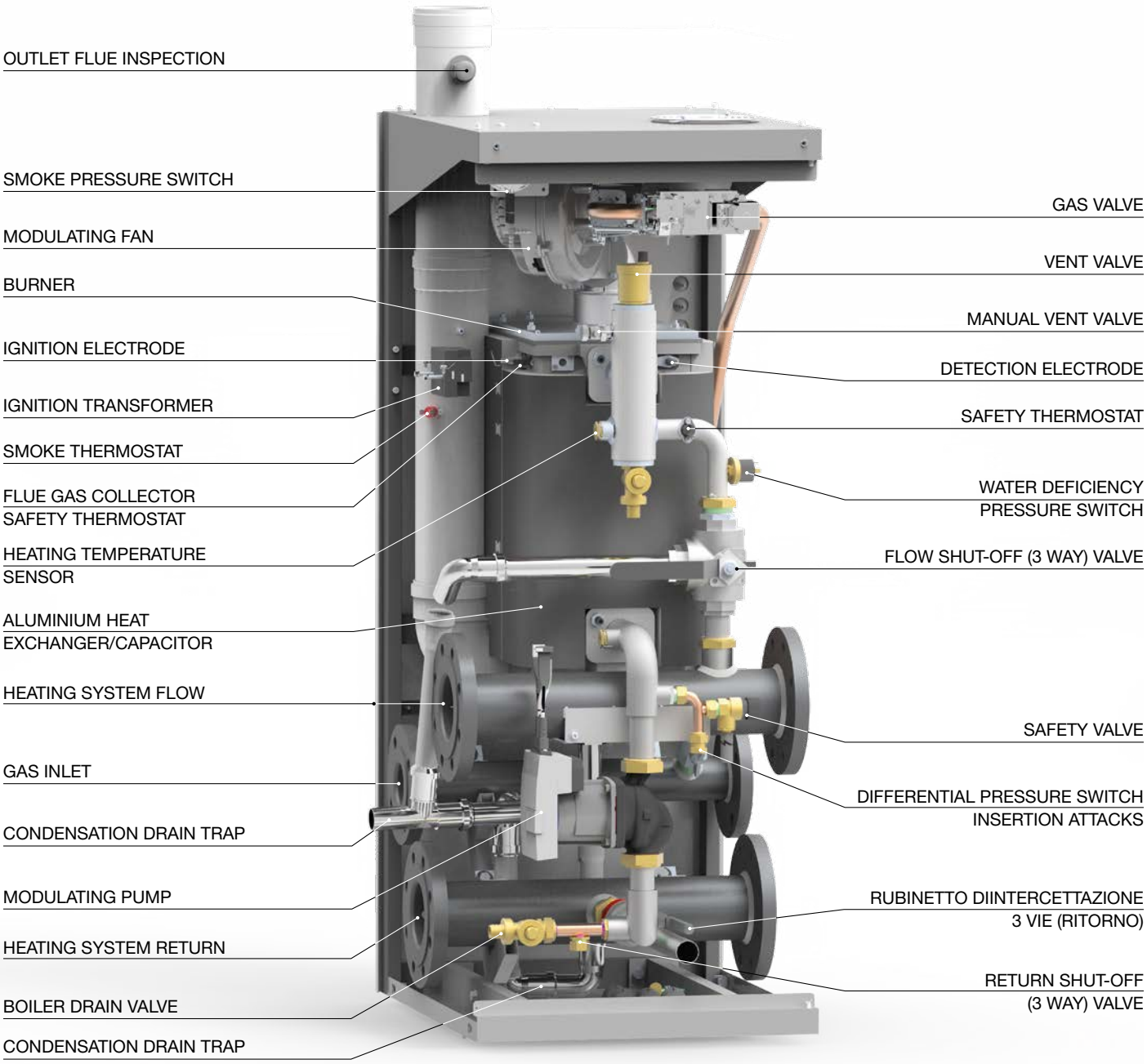
KONf 100-115

FLOOR STANDING, MODULATING CONDENSING BOILER WITH LOW NO_x PREMIX BURNER - FOR INDOOR & OUTDOOR INSTALLATION		
OUTPUT RANGE	from 99.5 to 920 kW in battery (115 kW x 8)	
WORKING TEMPERATURE	no limit on the return temperature	
SUPPLY	Natural Gas or LPG	
MODELS	KONf 100	KONf 115
SEASONAL EFFICIENCY	**A**	
ENERGETIC CLASS Ex Directive 92/42	★★★★ CE	

Heat exchanger in Al/Si/Mg alloy – floor standing installation – IPX5D (for Outdoor installation)
Battery (up to batteries of 4 boilers each)

MAIN COMPONENTS



DESCRIPTION

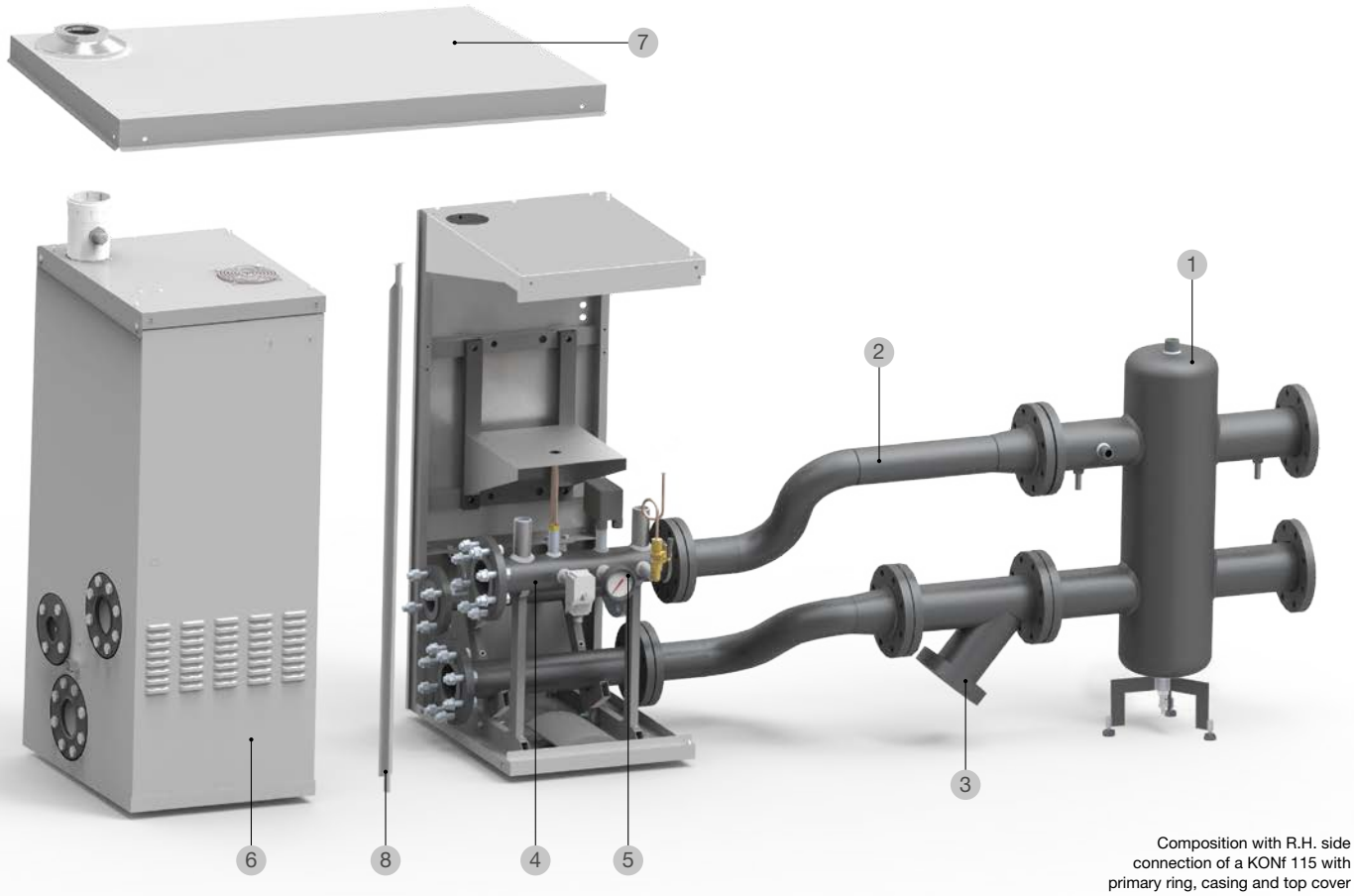
The KONf is a low water content (ca. 9 litres) gas boiler, with integral totally premix burner, FOR HEATING ONLY.

PECULIAR FEATURES:

1) High integration modular structure
2) Specially for Outdoor installation (Protection degree IPX5D)
3) Predisposition for quick installation “Plug & Play), also in cascade up to 8 units
4) Modulating pump controlled by the on board electronics for the maximum efficiency in condensing mode
5) Optional controller for the management of each individual unit or the complete cascade and of the thermal charges (possible from remote)
6) High modulation ratio for each individual unit (up to 1:5,75)
7) Control panel on board of each unit, with display and diagnostics
8) Smoke evacuation: elbow in polypropylene PPP and terminal in stainless steel.

Each unit develops an Output of 100/115 kW and belongs to the category II2H/3P, then can operated with Natural Gas or LPG.

COMPONENTS FOR THE CONNECTION TO THE C.H. SYSTEM (optional)



Composition with R.H. side connection of a KONf 115 with primary ring, casing and top cover

1 **- MIXING HEADER Ø 220 mm FOR C.H. SYSTEM UP 350 kW, DN 100**

2 **- RH SIDE CONNECTION KIT FOR MIXING HEADER DN 100**

3 **- Y SHAPED FILTER DN 100**

4 **- ADDITIONAL SAFETY DEVICES MANIFOLD + GAS, FLOW AND RETURN MANIFOLDS**

5 **- ADDITIONAL SAFETY KIT**
made of: - ½" 3 way valve – N. 2 bulb holders ½" for calibration purposes - Thermometer Ø 100 mm with bulb holder - Safety pressure switch 5 bar - Thermostat 100°C – Shock absorber for manometer.
Note: Some of the additional devices aren't supplied because their setting depends on the C.H. system features.

6 **- KIT OF OUTDOOR CASING COMPLETE WITH SUPPORTS FOR SAFETY DEVICES ***

- KIT OF EMPTY CASING (to be used as container for accessories) *****

- KIT OF SUPPORTS FOR SAFETY DEVICES (suggested for indoor installation)

7 **- TOP COVER FOR 2 ELEMENTS for outdoor installations + longitudinal member for battery coupling ***
This is mandatory for outdoor casing kit complete with supports for safety devices (pos. 6).

- TOP COVER for 3 elements for outdoor installations + longitudinal member for battery coupling *

* In case the kit of outdoor casing, complete with supports for safety devices, or the kit of empty casing is installed (pos. 6), ask also for the top cover (equipped with the closing cap on the not used evacuation hole), considering an additional element. If both, the a.m. kits are installed, ask for a top cover two elements longher. (E.g.: for N.1 KONf 115 + Kit of outdoor casing complete with supports for safety devices + Kit of empty casing, ask for a top cover for 3 elements)

8 **- UNION KIT FOR INDOOR INSTALLATIONS for 2 elements**

- DIFFERENTIAL PRESSURE SWITCH

PRODUCT PLUS VALUES

- **HIGHT EFFICENCY CLASS**
  (ex dir. CE 92/42)
- **CLASS 5 Low NOx (UNI EN 15502-1)**
  thanks to the pre-mix burner with gas-air ratio control which offers a constant CO_2
- **UP TO 109% EFFICIENCY**
- **CERTIFICATION IN OUTPUT RANGE**
- **EXCHANGER/CONDENSER**
  aluminium (Al/Si/Mg)
- **CONTAINED DIMENSIONS**
  Height 130 cm, Width 51 cm, Depth 60 cm
- **PREMIX COMBUSTION GROUP WORKING AT CONSTANT CO_2**
- **SCHEDA MICROPROCESSORE**
  di comando caldaia
- **MICROPROCESSOR TYPE PCB for boiler control E8 CONTROLLER (optional)**
- **I.TOTHEM**
  cascade formation for a bank of up to 4 boilers (2x)
- **MODULATING PUMP (std supplied)**
  for the maximum condensate production
- **ELEVATED MODULATING RATIO: 1:5.75**
- **BCM (Burner Cascade Manager)**
  interface for remote control (optional)
- **PANEL BOARD CAN BE OPEN**
  for an easy servicing
- **EASY TO INSTALL**
  compact and simple connections
- **CERTIFICATION OF THE ADDITIONAL SAFETY DEVICES**
- **IPX5D PROTECTION GRADE**
  for outdoor installation
- **PLATE HEAT EXCHANGERS**
  available on request
  up to batteries of 4 modules

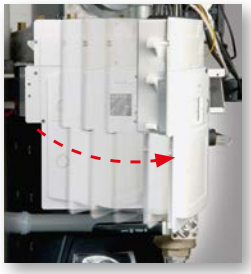
Pre-mixed combustion system with constant CO_2 emission (modulating gas valve, modulating fan and stainless steel burner)

heat module complete with primary ring, composed of additional safety devices kit and mixing header

E8 heating controller (optional) for complex heating plants and cascade applications with WAG holder

Aluminium (AlSiMg) heat exchanger/condenser (a detail of the combustion chamber)

Modulating pump for maximum condensate production

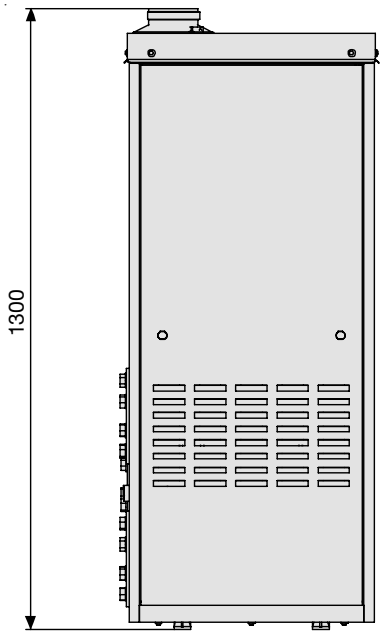


The control panel can be opened to facilitate maintenance

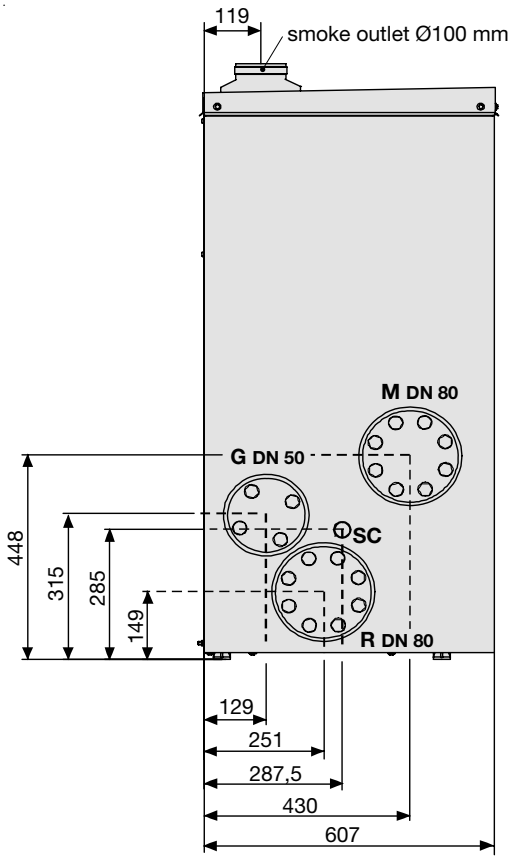
BCM board for remote control (optional accessory)

DIMENSIONS OF SINGLE BOILER

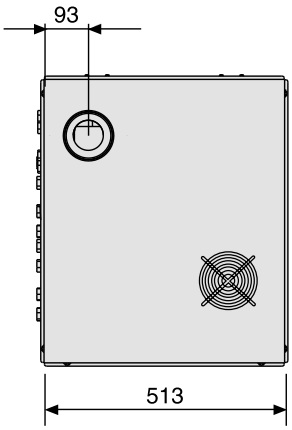
FRONT VIEW



LEFT SIDE VIEW



VIEW FROM ABOVE

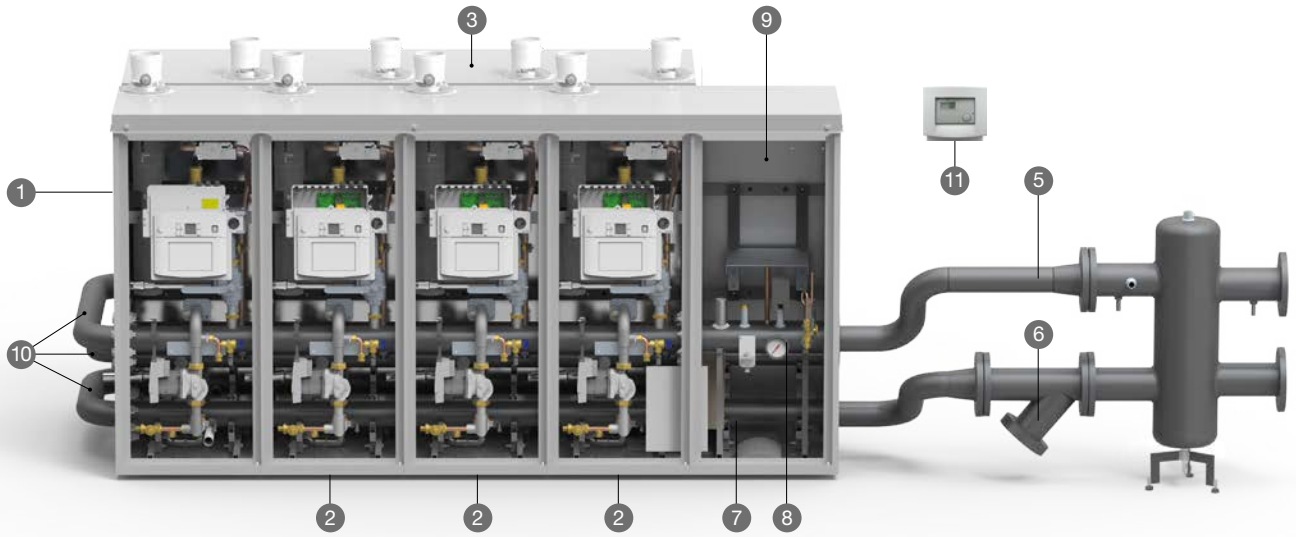


Key:
- **R** - CH safety system return DN 80
- **M** - CH flow system DN 80
- **G** - Gas Inlet DN 50
- **Sc** - Outlet condensate drain siphon Ø 32

KONf	Net Weight kg	Gross Weight (with packaging) kg
100-115	157.8	171.6

KONf IN BATTERY

BATTERY COMPOSITION + PRIMARY RING



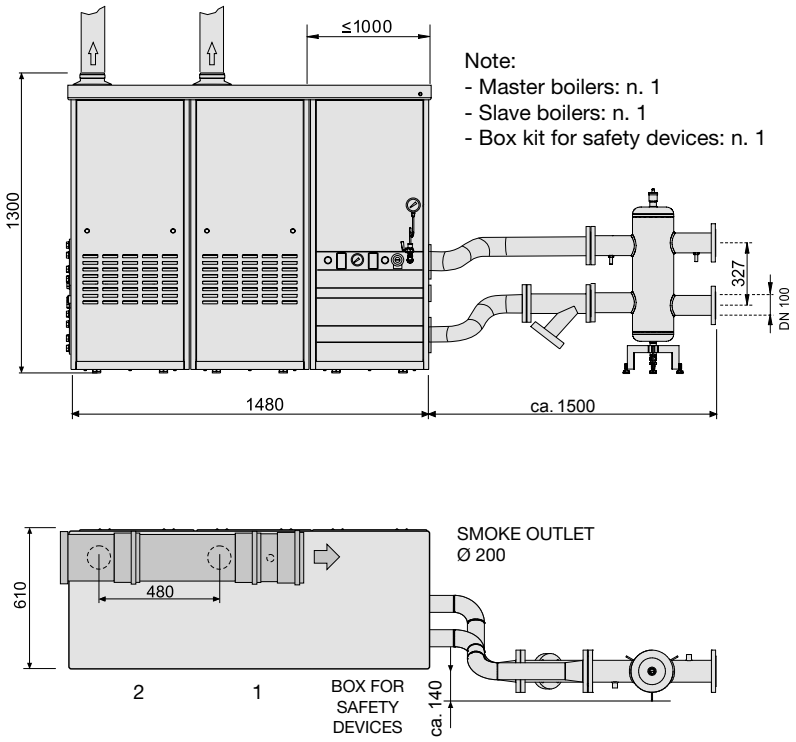
COMPOSITION WITH R.H. SIDE CONNECTION	Nr of KONf UNITS IN BATTERY						
	2	**3**	**4**	**5**	**6**	**7**	**8**
1 **- KONf 115 "MASTER"**	1	1	1	2	2	2	2
- KONf 115 in combination with "MASTER" Does not include : Side panels – Black flanges with bolts and nuts – Casing cover of one unit	1	2	3	3	4	5	6
3 **- Top casing for 2 units + longitudinal member for battery ass.y ***	1				1		
- Top casing for 3 units + longitudinal member for battery ass.y *		1				1	
- Top casing for 4 units + longitudinal member for battery ass.y *			1	1	1	1	2
- Top casing for 5 units + longitudinal member for battery ass.y *							
* If a casing kit for outdoor installation, complete with supports for safety kit (pos. 9), or the kit of empty casing is installed, place the order for the top casing (complete with plug to close the unused hole) considering one additional unit. In case both of the casing kits are installed place the order for the top casing considering two additional units. Example: for 2 x ALKON 90 + complete kit for outdoor installation + empty casing kit, place the order for 4 unit top casing)							
- ASS.Y KIT FOR INDOOR INSTALLATIONS for 2 units	1	2	7	4	5	6	7
4 **- MIXING HEADER UP TO 350 kW DN 100 ø220**	1	1	1				
- MIXING HEADER UP 360 kW DN 100 ø320				1	1	1	1
5 **- R.H. SIDE CONNECTION KIT FOR MIXING HEADER DN 100**	1	1	1	1	1	1	1
6 **- Y SHAPE FILTER DN 100**	1	1	1	1	1	1	1
7 **- ADDITIONAL SAFETY DEVICES KIT + HYDRAULIC AND GAS MANIFOLDS**	1	1	1	1	1	1	1
8 **- PROTECTION AND CONTROL KIT for hydraulic manifold for additional safety devices**	1	1	1	1	1	1	1
9 **- OUTDOOR CASING KIT, complete with supports for additional safety devices***	1	1	1	1	1	1	1
- EMPTY CASING KIT * (it can be used as container for accessories)	1	1	1	1	1	1	1
- KIT OF SUPPORTS for ADDITIONAL SAFETY DEVICES (suggested for indoor installation)	1	1	1	1	1	1	1
10 **- KIT OF MANIFOLDS FOR WATER & GAS**				1	1	1	1
11 **- REGULATION ACCESSORIES**	1	1	1	1	1	1	1
- DIFFERENTIAL PRESSURE SWITCH KIT (in combination with each unit)	2	3	4	5	6	7	8

ACCESSORIES FOR SMOKE EVACUATION IN BATTERY in PPS (optional)

- SMOKE EVACUATION EXPANSION KIT 	1	2	3	3	4	5	6
- SIPHON 	1	1	1	2	2	2	2
- SINGLE SMOKE MANIFOLD 	1	1	1	2	2	2	2
- SMOKE DUCT EXTENSION Ø200 				3	2	1	

DIMENSIONS KONf 115 IN BATTERY (n.2 boilers)

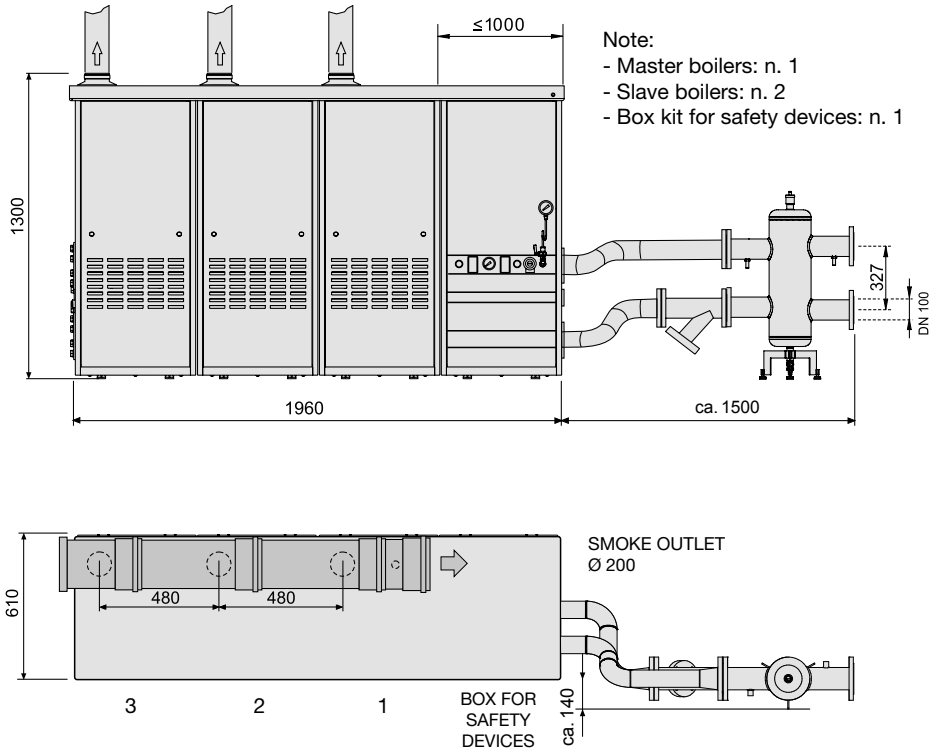
BATTERY + KIT SAFETY DEVICES + HYDRAULIC HEADER +Y FILTER KIT



Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	199	230
Nominal Output (60/80°C) Pn	kW	197.6	223
Nominal Output (30/50°C) Pcond	kW	210	240.6

DIMENSIONS KONf 115 IN BATTERY (n.3 boilers)

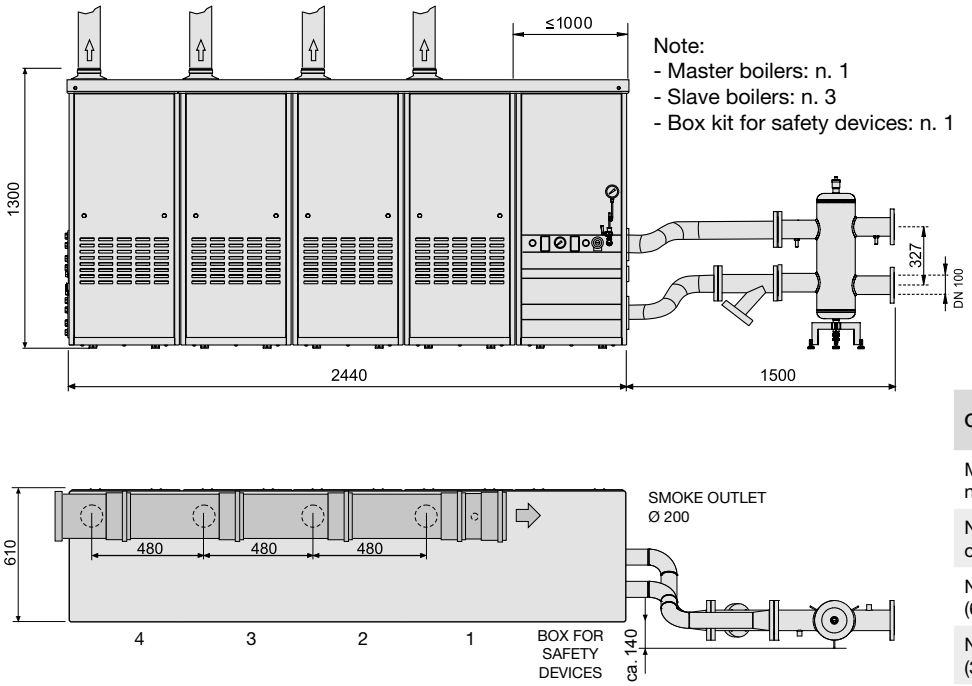
BATTERY + KIT SAFETY DEVICES + HYDRAULIC HEADER +Y FILTER KIT



Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	298.5	345
Nominal Output (60/80°C) Pn	kW	296.4	334.5
Nominal Output (30/50°C) Pcond	kW	315	360.9

DIMENSIONS KONf 115 IN BATTERY (n.4 boilers)

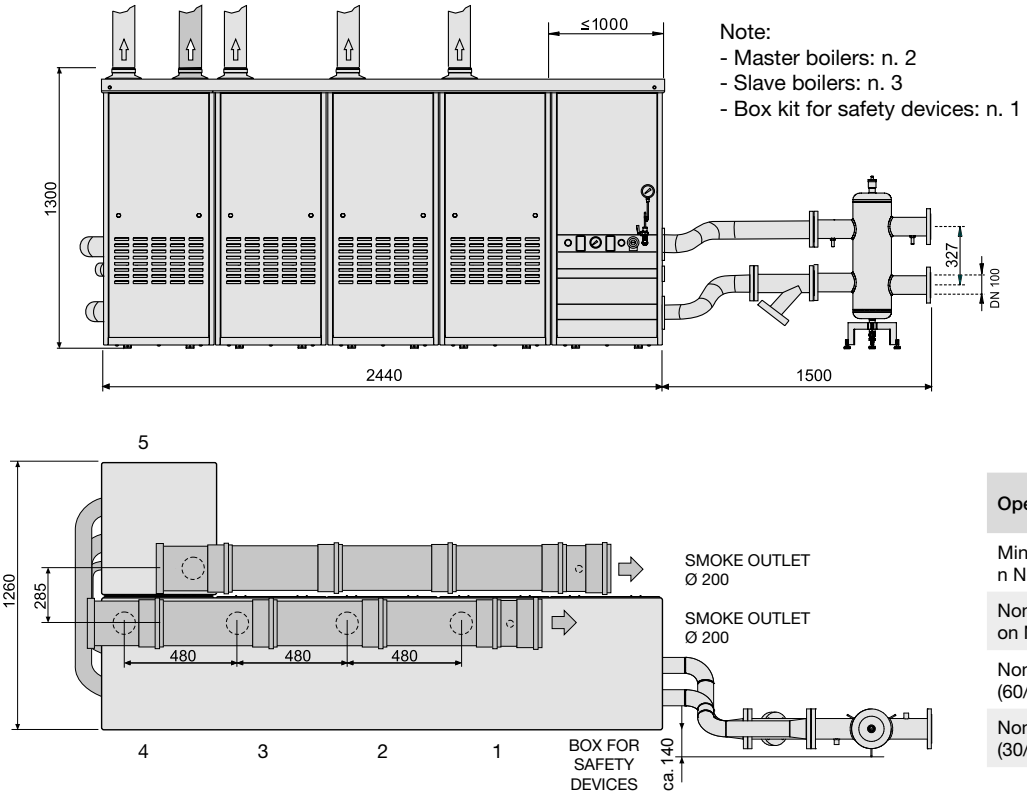
BATTERY + KIT SAFETY DEVICES + HYDRAULIC HEADER +Y FILTER KIT



Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	398	460
Nominal Output (60/80°C) Pn	kW	395.2	446
Nominal Output (30/50°C) Pcond	kW	420	481.2

DIMENSIONS KONf 115 IN BATTERY (n.5 boilers 4+1 ON THE OPPOSITE SIDE)

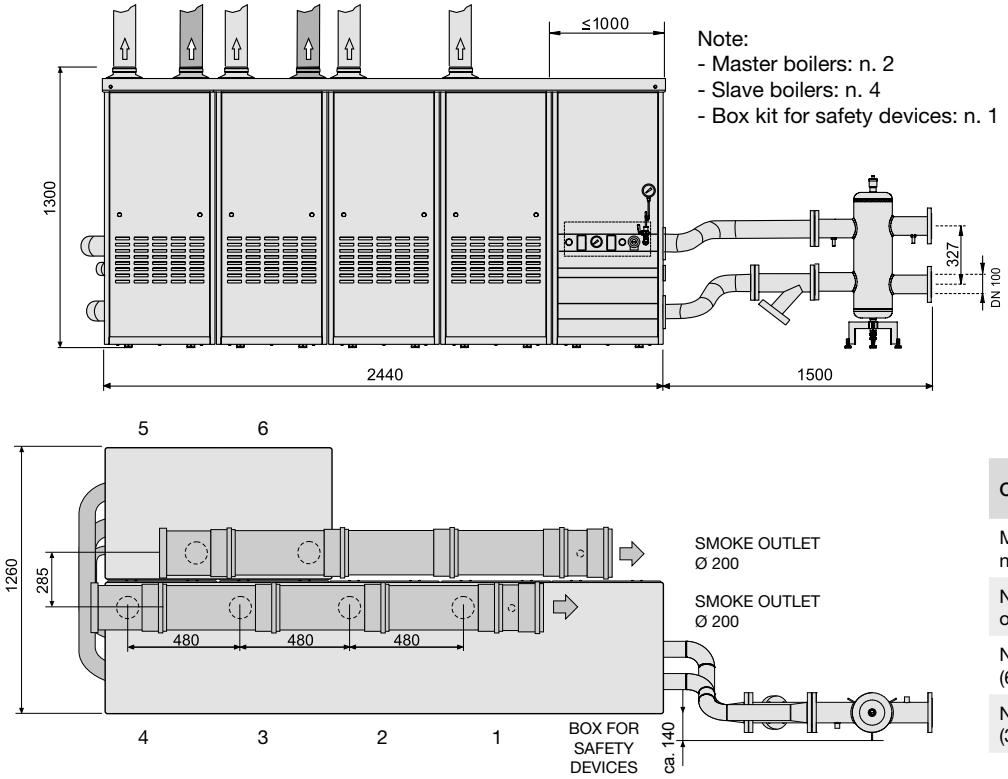
BATTERY + KIT SAFETY DEVICES + HYDRAULIC HEADER +Y FILTER KIT



Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	497.5	575
Nominal Output (60/80°C) Pn	kW	494	557.5
Nominal Output (30/50°C) Pcond	kW	525	601.5

DIMENSIONS KONf 115 IN BATTERY (n.6 boilers 4+2 ON THE OPPOSITE SIDE)

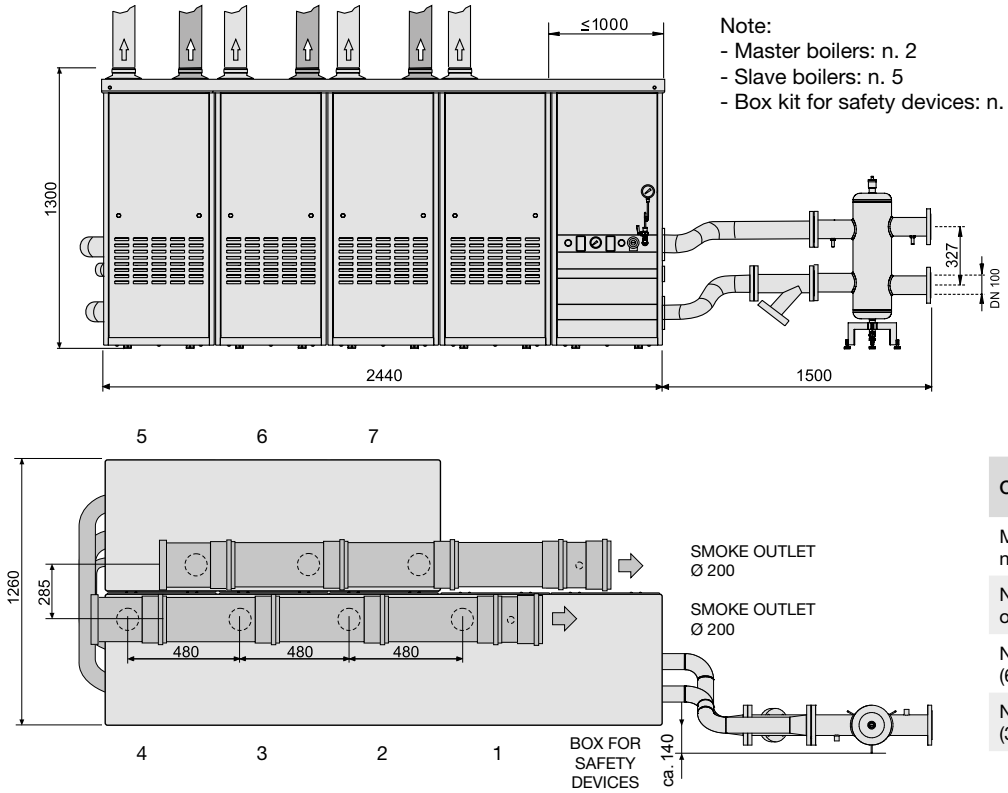
BATTERY + KIT SAFETY DEVICES + HYDRAULIC HEADER +Y FILTER KIT



Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	597	690
Nominal Output (60/80°C) Pn	kW	592.8	669
Nominal Output (30/50°C) Pcond	kW	630	721.8

DIMENSIONS KONf 115 IN BATTERY (n.7 boilers 4+3 ON THE OPPOSITE SIDE)

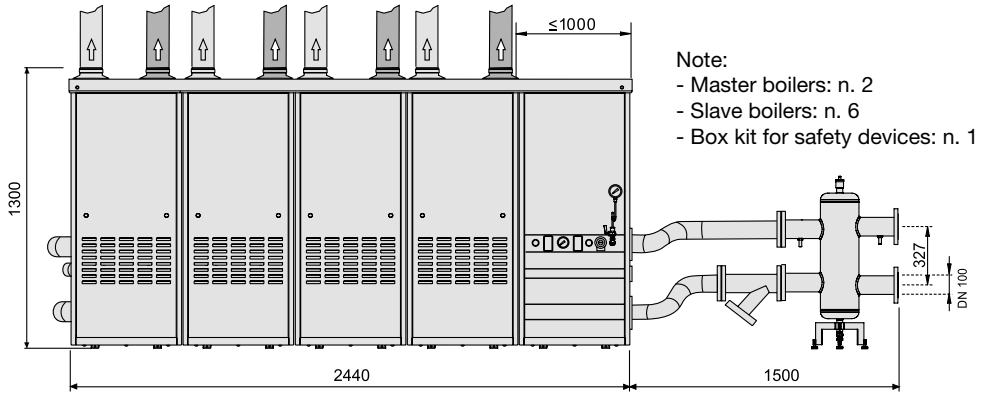
BATTERY + KIT SAFETY DEVICES + HYDRAULIC HEADER +Y FILTER KIT



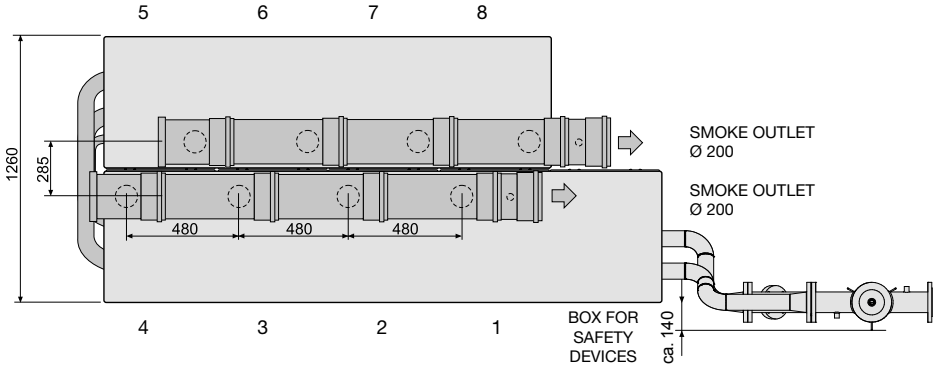
Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	696.5	805
Nominal Output (60/80°C) Pn	kW	691.6	780.5
Nominal Output (30/50°C) Pcond	kW	735	842.1

DIMENSIONS KONf 115 IN BATTERY (n.8 boilers 4+4 ON THE OPPOSITE SIDE)

BATTERIA + KIT INAIL + SEPARATORE IDRAULICO + KIT FILTRO Y

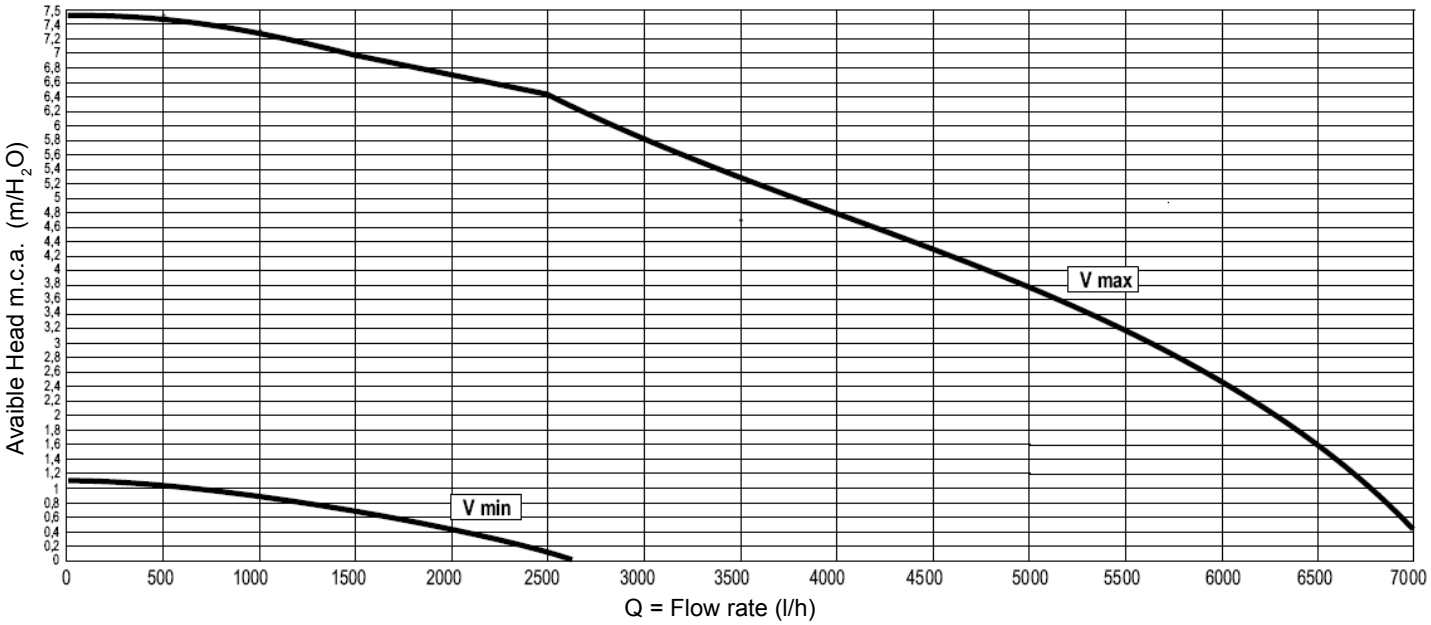


Note:
- Master boilers: n. 2
- Slave boilers: n. 6
- Box kit for safety devices: n. 1



Operational data		KONf 100	KONf 115
Minimum Input n N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	796	920
Nominal Output (60/80°C) Pn	kW	790.4	892
Nominal Output (30/50°C) Pcond	kW	840	962.4

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION



		KONf 100	KONf 115
Power supply	kW	99,5	115
Max flow rate demanded l/h (Δt 15 K)	l/h	5700	6600
Nominal flow rate request (Δt 20 K)	l/h	4280	4950
Power supply in condensation (50/30)	kW	105	117
Max flow rate demanded l/h (Δt 15 K)	l/h	6020	6897
Nominal flow rate request (Δt 20 K)	l/h	4520	5173

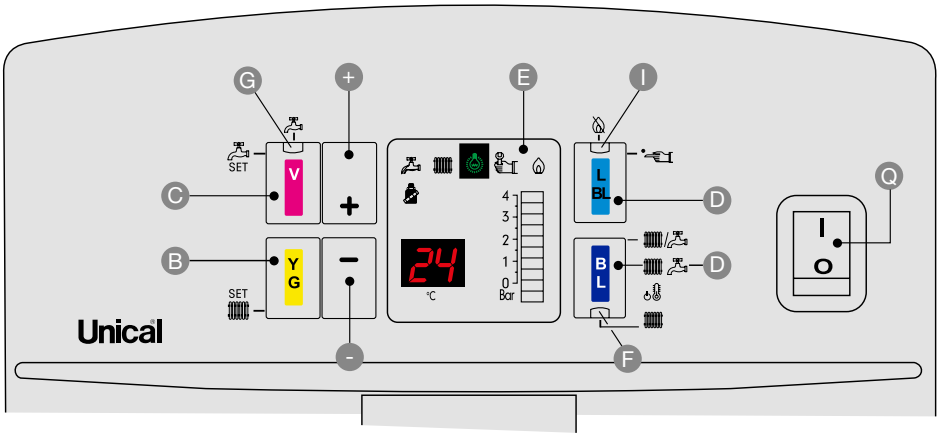
approximate data

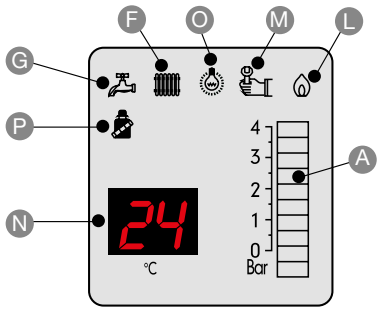
The Δt between supply and return boiler must never be less than 15 °K.

NOTE:
The use of a mixing header fitted between the boiler circuit and the system circuit is always advisable.
It becomes INDISPENSABLE if the system requires flow rates superior to the maximum permitted boiler flow rates, which is to say lower than 15K.

CONTROL PANEL (std. supplied)

The panel board equipping the boiler allows the management of an heating circuit with fixed set-point





+/- Increase/decrease key
A Digital system pressure gauge (only for boilers equipped with pressure encoder)
B Central Heating adjustment key
C Domestic hot water adjustment key
D Reset /chimney-sweeper key
E Information display
F Led/Simbol Heating function active
G Led/Simbol Domestic hot water function active
I Block symbol
L Burner in operation symbol
M Fault symbol
N Temperature or fault code indication
O Power On indicator led
P Activation sweeper mode
Q Power supply
S Function key: Stand-by / Heating / Domestic hot water + Heating / Antifreeze protection

KIT CONTROL PANEL (optional)

The Kit Control Panel is necessary for the management of complex circuits: DHW, Heating, Thermal Solar, etc. in conjunction with the optional kit Multi-function Module SHC.

SHC - MULTI-FUNCTION MODULE - HEATING CIRCUITS MANAGEMENT (optional)

The board is designed as a multi-function support for heating systems. It should be considered part of a modular system joined by an **eBUS** or **Modbus** communication system.

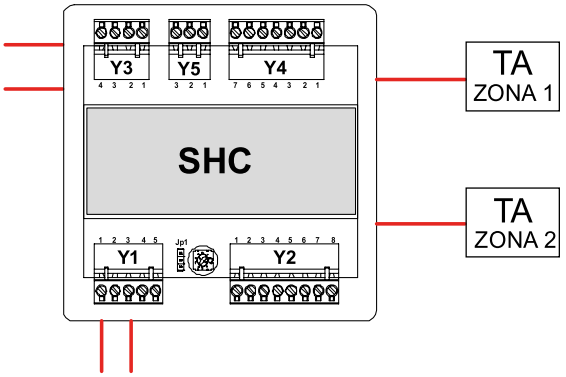
It is possible to control up to a maximum of 4 SHC printed circuit boards.

Its input and output resources make it suitable for a variety of applications:
1. Direct or mixed heating circuits
2. Domestic hot water with storage tank.
3. Domestic hot water with plate heat exchanger.
4. Domestic hot water with plate heat exchanger and mixing valve
5. Solar collector with tank.

The multi-function module interacts with the system like a user, whose demands must be met by a manager controller, which is responsible for the running of the heat generator.

The multi-function module kit consists of:
- Panel
- NTC temperature sensor (3 pcs.)
- Technical assembly instructions

For further information consult the site www.unical.eu in the section Accessories of the product.



TECHNICAL DATA

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site www.unical.eu at the page of the product

		KONf 100	KONf 115
		II_{2H3P}	II_{2H3P}
Modulation Ratio		1:5.0	1:5.75
Nominal Heat Input on P.C.I. Qn	kW	99,5	115
Minimum Heat Input on P.C.I. Qmin	kW	20	20
Nominal Output (Tr 60 / Tm 80 °C) Pn	kW	98.8	111.5
Minimum Output (Tr 60 / Tm 80 °C) Pn min	kW	19.2	19.2
Nominal Output (Tr 30 / Tm 50 °C) Pcond	kW	105	120.3
Minimum Output (Tr 30 / Tm 50 °C) Pcond min	kW	21.75	21.75
Efficiency at max. output (Tr 60 / Tm 80°C)	%	98.81	98.81
Efficiency at min. output (Tr 60 / Tm 80°C)	%	95.90	95.90
Efficiency at max. output (Tr 30 / Tm 50°C)	%	105.03	104.6
Efficiency at min. output (Tr 30 / Tm 50°C)	%	108.77	108.77
Efficiency at 30% output (Tr 30°C)	%	109.3	107.27
Combustion efficiency with nominal load	%	98.05	97.7
Combustion efficiency with minimum load	%	98.28	98.28
Heat loss at casing with burner in operation (Qmin)	%	2.30	2.30
Heat loss at casing with burner in operation (Qn)	%	0.1	0.1
Flue gas temperature tf-ta (min)(*)	°C	35.0	36.0
Flue gas temperature tf-ta (max)(*)	°C	39.4	46.6
Maximum allowable temperature	°C	100	100
Maximum operating temperature	°C	85	85
Flue gas mass flow rate (min)	kg/h	37.71	34.31
Flue gas mass flow rate (max)	kg/h	163.59	184.6
Excess λ air	%	25.53	23
Flue losses with burner in operation (min)	%	1.72	1.87
Flue losses with burner in operation (max)	%	1.95	2.29
Minimum heating circuit pressure	bar	0.5	0.5
Maximum heating circuit pressure	bar	6	6
Water content	l	9	9
Gas Consumption Natural (20 mbar) gas G 20 a Qn	m^3/h	10.57	12.08
Gas Consumption Natural gas (20 mbar) G 20 a Qmin	m^3/h	2.11	2.11
Gas Consumption G25 (supply pressure 25 mbar) Qn	m^3/h	12.3	14.0
Gas Consumption G25 (supply pressure 25 mbar) Qmin	m^3/h	2.46	2.46
Gas Consumption G31 (supply pressure 37/50 mbar) Qn	kg/h	7.76	8.92
Gas Consumption G31 (supply pressure 37/50 mbar) Qmin	kg/h	1.55	1.55
Max. available pressure at the chimney base	Pa	150	150
Condensate production max	kg/h	8.46	8.46
Emissions			
CO at Minimum Heat Input with 0% of O_2	mg/kWh	140	147
NO_x at Nominal Heat Input with 0% of O_2	mg/kWh	47	47
NO_x Class		5	5
Electrical Data			
Voltage/Frequency electric power supply	V/Hz	230/50	230/50
Fuse on main supply	A (R)	4	4
Insulation degree	IP	X5D	X5D

Room Temperature = 20°C.

(*) Temperatures detected with the unit in operation (Tr 60 / Tm 80°C)

Seasonal Efficiency ηs according to Directive 2009/125/EC for Outputs < = 400 kW. See Erp Table

Standstill heat losses at Δt 30K – P_{stby} – See Erp Table

Standstill electrical consumption – P_{sb} – See Erp Table

DATA ACCORDING TO ErP DIRECTIVE

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site www.unical.eu at the page of the product

			KONf 100	KONf 115
NOMINAL HEAT OUTPUT	P_n	kW	99	112
SEASONAL SPACE HEATING ENERGY EFFICIENCY	η_s	%	94	92
SEASONAL EFFICIENCY CLASS IN HEATING MODE			**A**	**A**
FOR CH ONLY AND COMBINATION BOILERS: USEFUL HEAT OUTPUT				
USEFUL HEAT OUTPUT in high temperature regime (Tr 60 °C / Tm 80 °C)	P_4	kW	98.8	111.5
USEFUL EFFICIENCY AT NOM. HEAT OUTPUT in high-temperature regime (Tr 60°C / Tm 80°C)	η_4	%	89.0	87.4
USEFUL HEAT OUTPUT AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30°C)	P_1	kW	32.2	36.9
USEFUL EFFICIENCY AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30 °C)	η_1	%	98.5	96.5
RANGE-RATED BOILER: YES / NO			NO	NO
AUXILIARY ELECTRICITY CONSUMPTION				
AT FULL LOAD	el_{max}	kW	0.289	0.314
AT PART LOAD	el_{min}	kW	0.156	0.160
IN STAND-BY MODE	P_{SB}	kW	0.018	0.028
OTHER ITEMS				
STAND-BY HEAT LOSS	P_{stby}	kW	0.641	0.642
EMISSIONS OF NITROGEN OXIDES	NO_x	mg/kWh	43	46
FOR CH & DHW PRODUCTION BOILERS				
DECLARED LOAD PROFILE			-	-
ENERGY EFFICIENCY IN DHW PRODUCTION MODE	η_{WH}	%	-	-
DAILY ELECTRICITY CONSUMPTION	Q_{elec}	kWh	-	-
DAILY FUEL CONSUMPTIONL	Q_{fuel}	kWh	-	-
INSIDE SOUND POWER LEVEL	Lwa	dB(A)	-	-
SEASONAL EFFICIENCY CLASS IN DHW PRODUCTION MODE			-	-