


KON 100-115

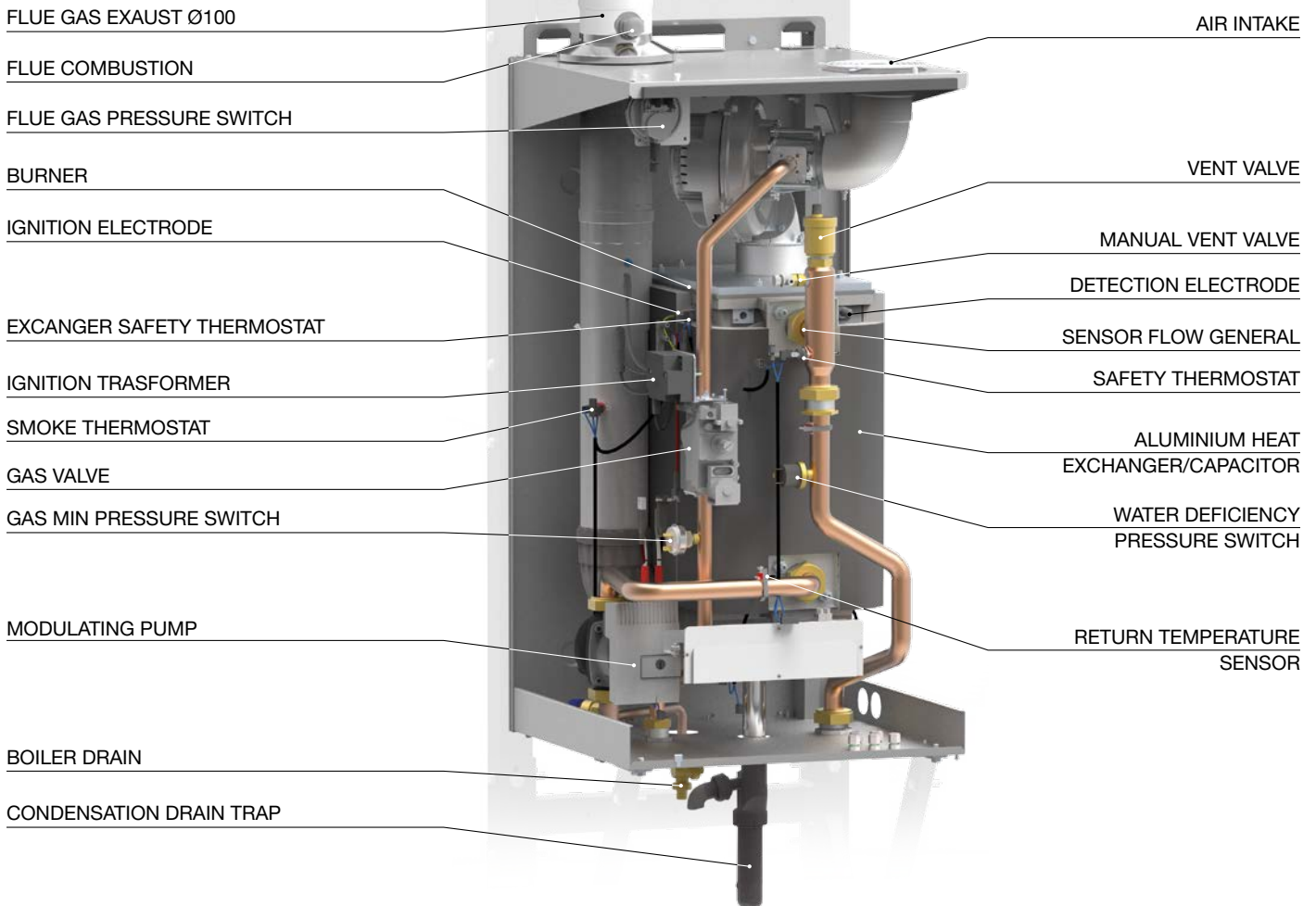


MODULATING CONDENSING BOILER WITH LOW NOX PREMIX BURNER FOR OUTDOOR INSTALLATION (IPX5D)

OUTPUT RANGE	from 99.5 to 920 kW in battery (115kW x8)	
WORKING TEMPERATURE	No temperature limit on the return (max. Δt 20K) For outdoor installation in partially protected places: - 15C (with dedicated kits and protections)	
SUPPLY	Natural Gas or LPG	
MODELS	KON 100	KON 115
SEASONAL EFFICIENCY	 A	
ENERGETIC CLASS Ex Directive 92/42	★★★★★ CE	

Wall hung with optional dedicated supporting kit - **available in battery (up to 8 for a total of 920 kW)**

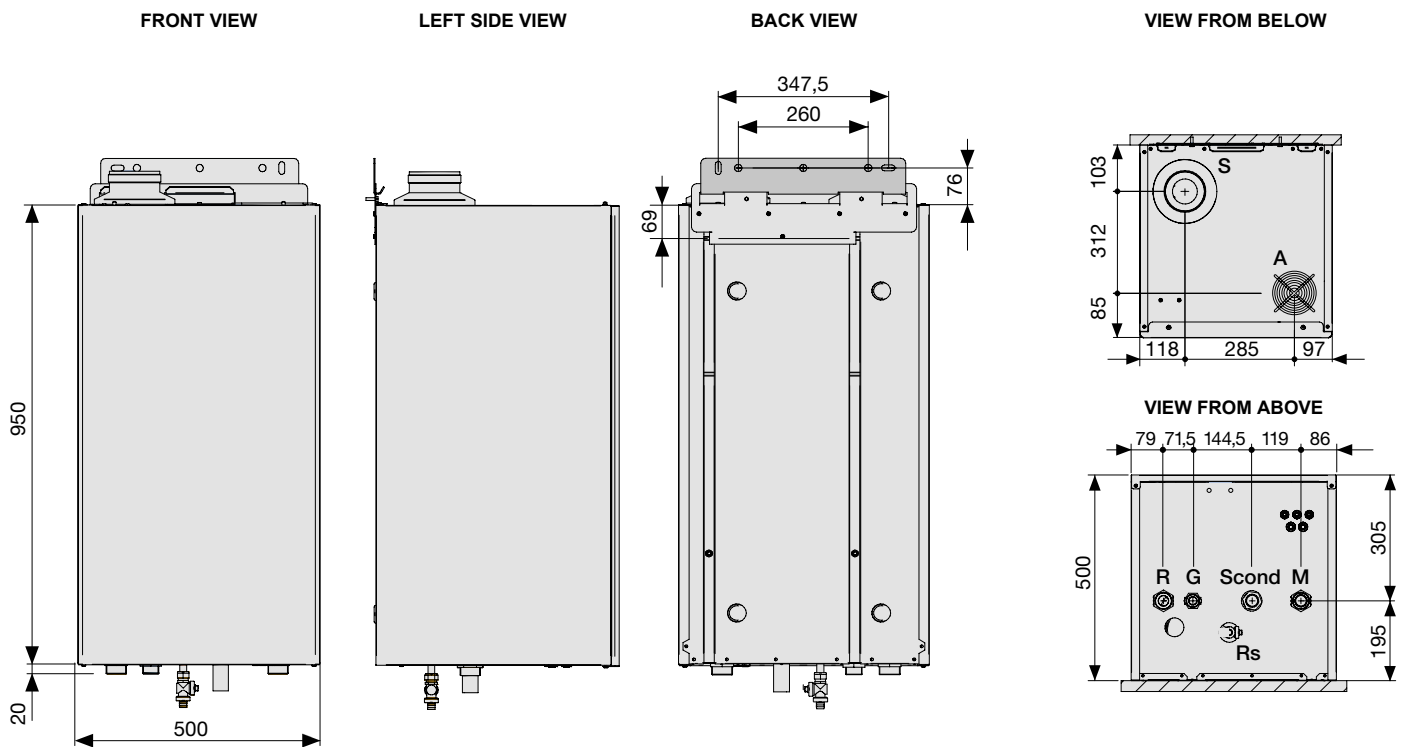
MAIN COMPONENTS



PRODUCT PLUS VALUES

- **CERTIFICATION IN OUTPUT RANGE**
it is possible to have the customization of the input
- **WALL HUNG** with metallic load bearing structure (optional)
- **COMPACTNESS:** dimensions (WxHxD): 50x95x48 cm
- **PERFORMANCES** ■■■■ ErP class A
- **RENDIMENTO**
up to 108,8% (ex Directive 92/42)
 $\eta_s=94\%$ according to ErP Directive
- **EMISSIONS:** Low NOx Class 5
- **ISOLATION DEGREE IPX5D** can be installed outdoor in partially protected place (with antifreeze kit)
- **BODY STRUCTURE** with double furnace
- **BOILER BODY in Al/Si/Mg**
low water content - 100% wet surfaces
- **EXCELLENT THERMAL EXCHANGE**
Sophisticated cooling circuit with triple water circulation on 3 vertical columns
- **SIMPLE CONSTRUCTION**
for a quick and economic servicing
- **DURATION**
thanks to the multi-year Unical experience in the metallurgy the body is guaranteed 5 years
- **RELIABILITY**
thanks to the optimized circulation that avoids thermal overcharges; heat exchanger carefully designed, high efficiency modulating pump, NTC control sensors
- **EFFICIENCY GUARANTEED FOR LONG TIME**
thanks to the absence of scaling
- **ACCESSORIES (optional)**
 - PRIMARY RING, with MIXING HEADER / PLATE HEAT EXCHANGER
 - ADDITIONAL SAFETY DEVICES KIT
 - DIFFERENTIAL PRESSURE SWITCH with fittings
 - CONTROL PANEL BOARD HSCP
 - MULTI-FUNCTION MODULE SHC (for zones control)
 - NTC SENSOR FOR SHC MODUL
 - MULTI-FUNCTION MODULES FEEDER
 - PT1000 SENSOR for management of solar collectors
 - SIPHON HEATING KIT
 - KIT OF RESISTANCES FOR LOW TEMPERATURES
 - ACIDIC CONDENSATE INHIBITORS
- **EXPANDABLE IN CASCADE (up to 8 modules)**
- **GAS FEEDING PIPES** available (optional)
- **Available, on request, PLATE HEAT EXCHANGERS up to 4 modules in battery**

DIMENSIONS



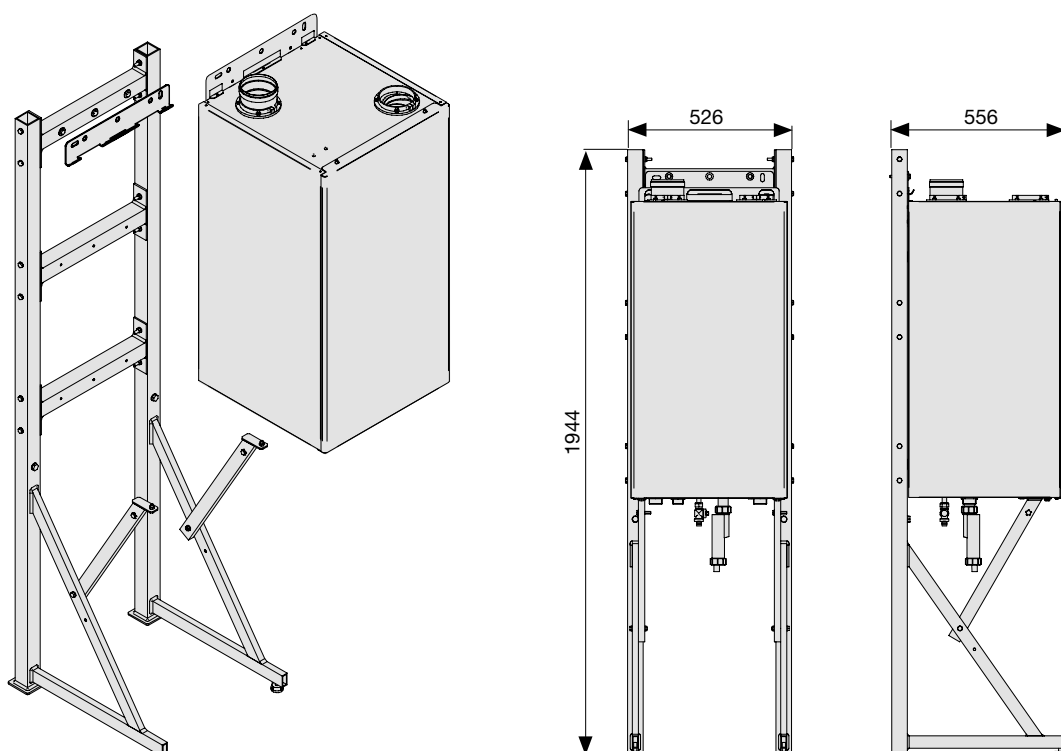
Key:

- G** - Gas inlet G1"
- M** - Mandata impianto riscaldamento G1 ¼"
- R** - Heating system return G1 ¼"
- Rs** - Boiler drain

- Scond** - Condensation drain Ø 32
- S** - Flue gas exhaust Ø 100
- A** - Air intake Ø 80-100

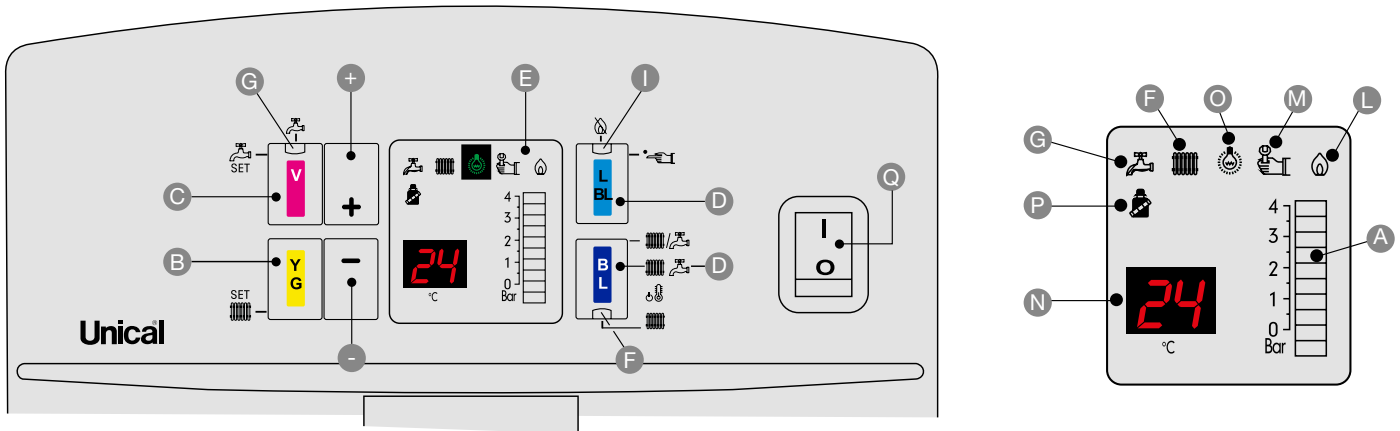
KON	Net Weight kg	Gross Weight (with packaging) kg
100-115	96	120

DIMENSIONS WITH SUPPORTING FRAME (optional)



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:

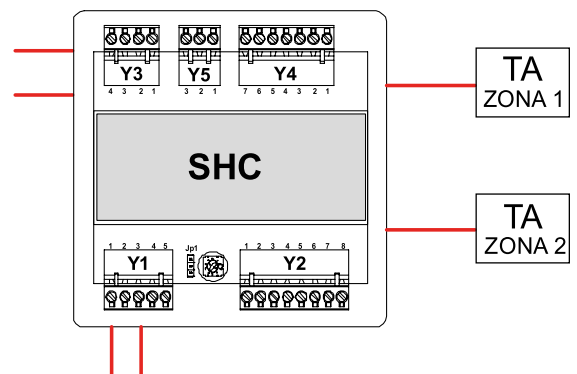
1. Direct or mixed heating circuits
2. Domestic hot water with storage tank.
3. Domestic hot water with plate heat exchanger.
4. Domestic hot water with plate heat exchanger and mixing valve
5. Solar collector with tank.

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.



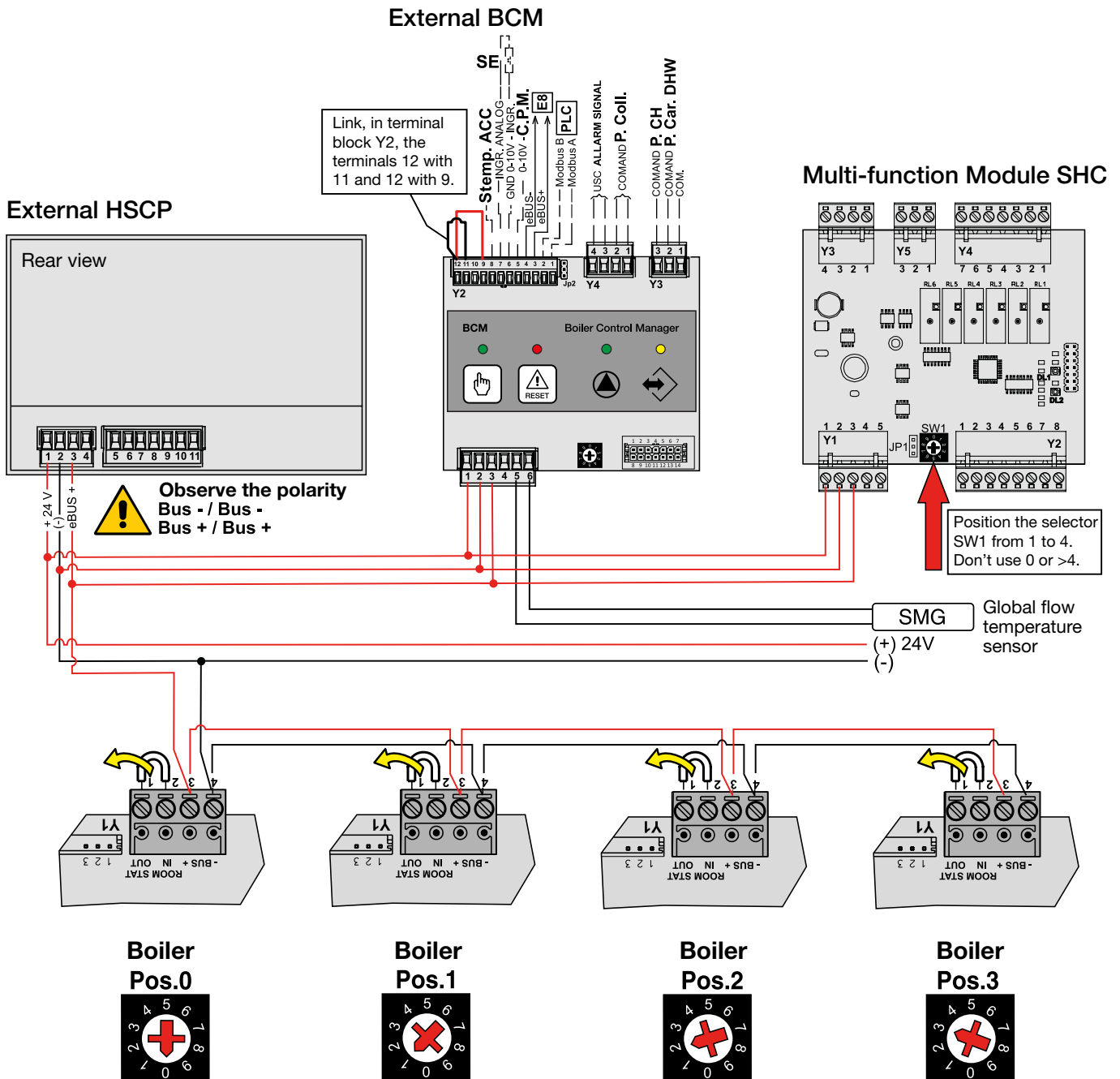
THERMAL MODULE IN CASCADE

The thermal Module KON 115 is foreseen, thanks to a convenient and dedicated series of accessories, to be assembled in cascade. Le combinations can be from 2 to 8 modules for a maximum of 800 kW.

For the management of the battery it is necessary to use the kit **CONTROL MANAGER CM 140** (supplied as an option). Here below the diagram showing the electrical connections for the battery.

For further information consult the manual on the site www.unical.eu in the section of the product. (SHC multi-function module)

EXTERNAL CONTROL PANEL HSCP + BCM



KON 115 IN BATTERY



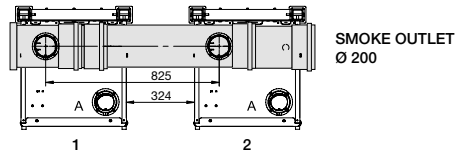
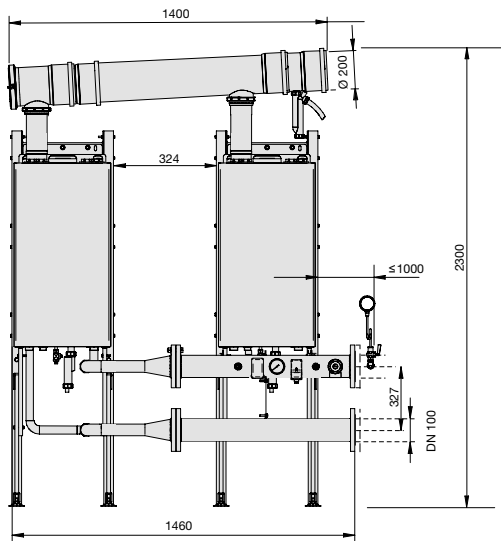
Note: the boiler has a degree of electric isolation IPX5D and is certified also for outdoor installation in partially protected place, up to -15°C without need of additional protections; it is opportune, however, to insulate the external pipelines and protect from the atmospheric agents the kit according to its electric protection degree in outdoor installations; the same precautions are recommended for the condensate drains.

COMPOSITION OF BATTERY + PRIMARY RING	Q.TY of KON 115 IN BATTERY						
	2	3	4	5	6	7	8
KIT OF HYDRAULIC MANIFOLD FOR 2 MODULES	1						
KIT OF HYDRAULIC MANIFOLD FOR 3 MODULES		1					
KIT OF HYDRAULIC MANIFOLD FOR 4 MODULES			1				
KIT OF HYDRAULIC MANIFOLD FOR 5 MODULES				1			
KIT OF HYDRAULIC MANIFOLD FOR 6 MODULES					1		
KIT OF HYDRAULIC MANIFOLD FOR 7 MODULES						1	
KIT OF HYDRAULIC MANIFOLD FOR 8 MODULES							1
KIT OF ADDITIONAL SAFETY DEVICES	1	1	1	1	1	1	1
MIXING HEADER FOR 2 MODULES	1						
MIXING HEADER FOR 3 TO 8 MODULES		1	1	1	1	1	1
DIFFERENTIAL PRESSURE SWITCH	2	3	4	5	6	7	8
BOILER SUPPORT	2	3	4	5	6	7	8
KIT CONTROL MANAGER CM A 140 made of: - cascade manager PCB - programmer HSCP - adapter 24V	1	1	1	1	1	1	1
KIT OF GAS MANIFOLD for connection of a single boiler	1	1	1	1	1	1	1
KIT OF GAS MANIFOLD for connection of a cascade	1	2	3	4	5	6	7
U SHAPED GAS MANIFOLD				1	1	1	1

Smoke evacuation

BASE KIT		1	1	1	1	1	1	1
SIPHON			1	2	2	3	6	5
OUTLET SIPHON		1	1	1	2	2	2	2
SINGLE SMOKE MANIFOLD					1	1	1	1
SMOKE PIPE EXTENSION Ø200 mm					3	2	1	

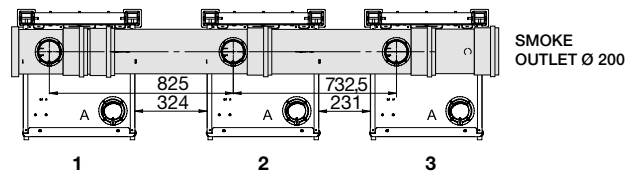
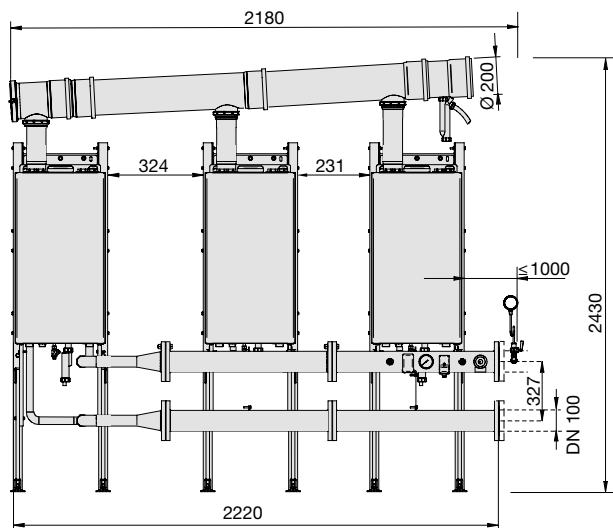
DIMENSIONS OF A BATTERY OF TWO KON 115



Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	199	230
Nominal Output (60/80°C) P _n	kW	197.6	223
Nominal Output (30/50°C) P _{cond}	kW	210	240.6

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

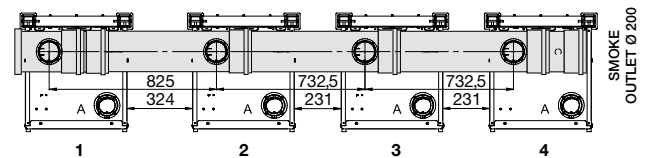
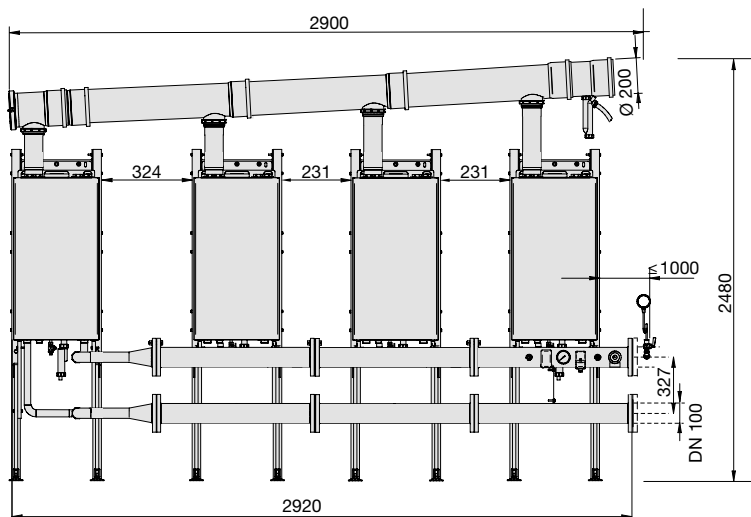
DIMENSIONS OF A BATTERY OF THREE KON 115



Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	298.5	345
Nominal Output (60/80°C) P _n	kW	296.4	334.5
Nominal Output (30/50°C) P _{cond}	kW	315	360.9

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

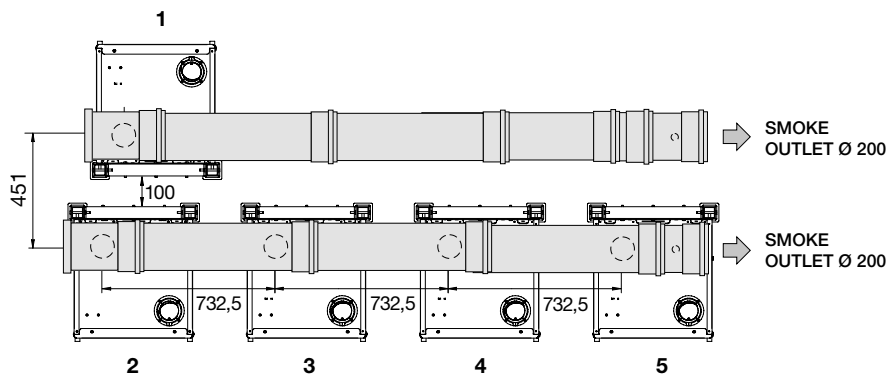
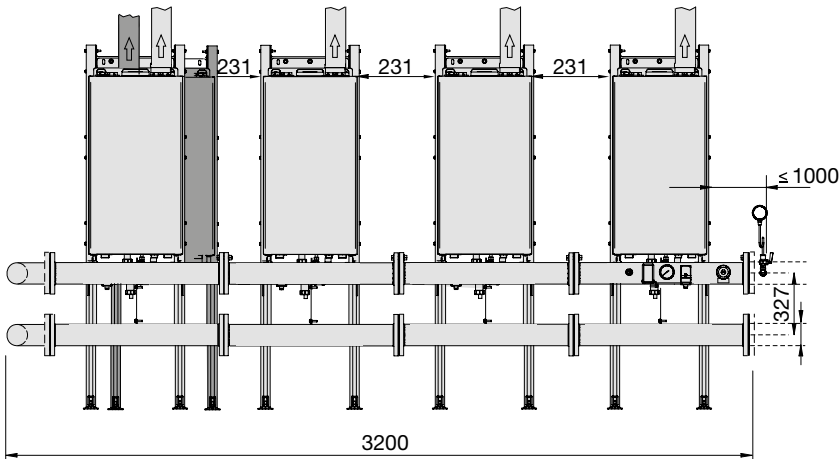
DIMENSIONS OF A BATTERY OF FOUR KON 115



Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	398	460
Nominal Output (60/80°C) P _n	kW	395.2	446
Nominal Output (30/50°C) P _{cond}	kW	420	481.2

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

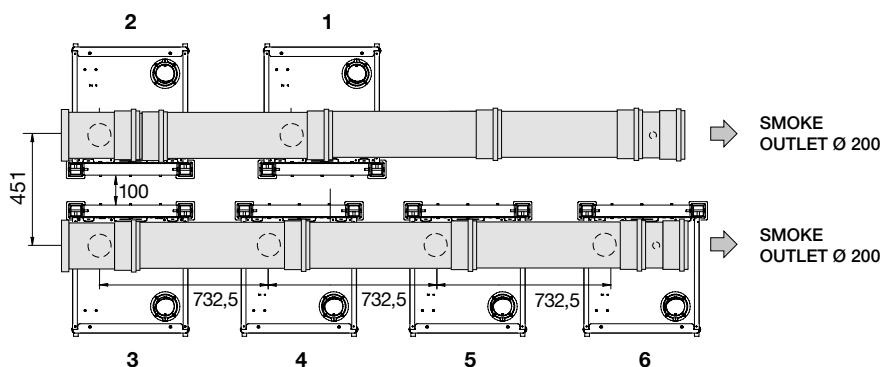
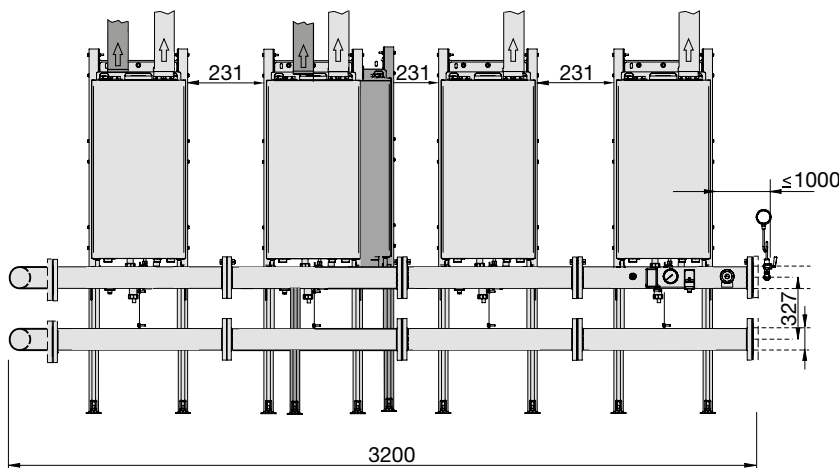
DIMENSIONS OF A BATTERY OF FIVE KON 115 (4+1 ON THE OPPOSITE SIDE)



Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	497.5	575
Nominal Output (60/80°C) P _n	kW	494.0	557.5
Nominal Output (30/50°C) P _{cond}	kW	525.0	601.5

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

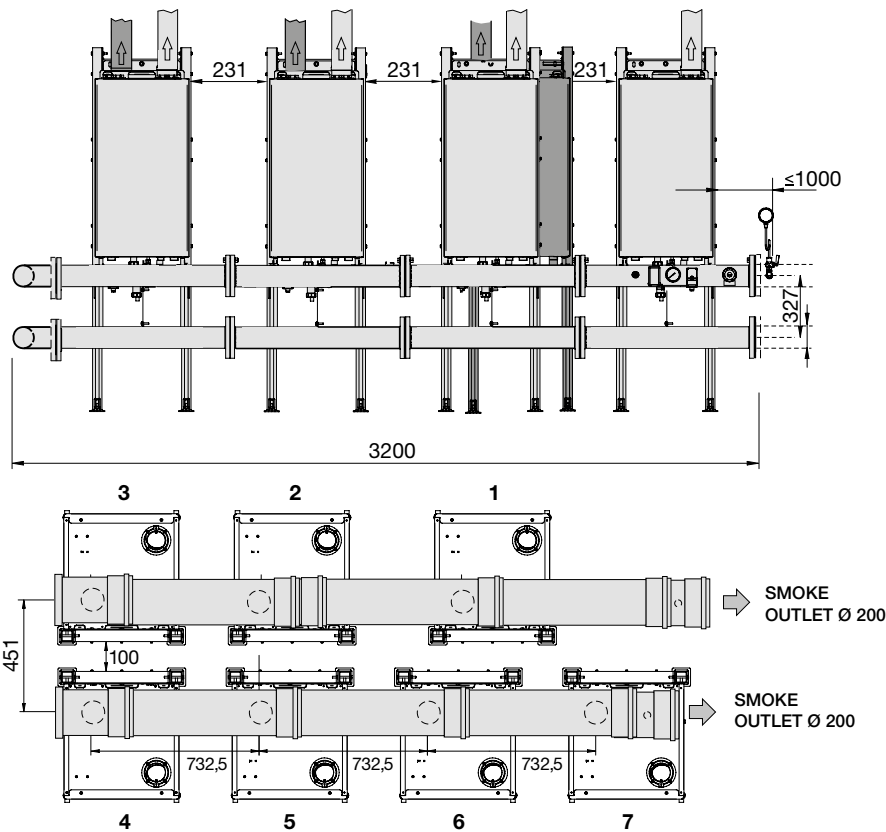
DIMENSIONS OF A BATTERY OF SIX KON 115 (4+2 ON THE OPPOSITE SIDE)



Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	597	690
Nominal Output (60/80°C) P _n	kW	592.8	669
Nominal Output (30/50°C) P _{cond}	kW	630.0	721.8

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

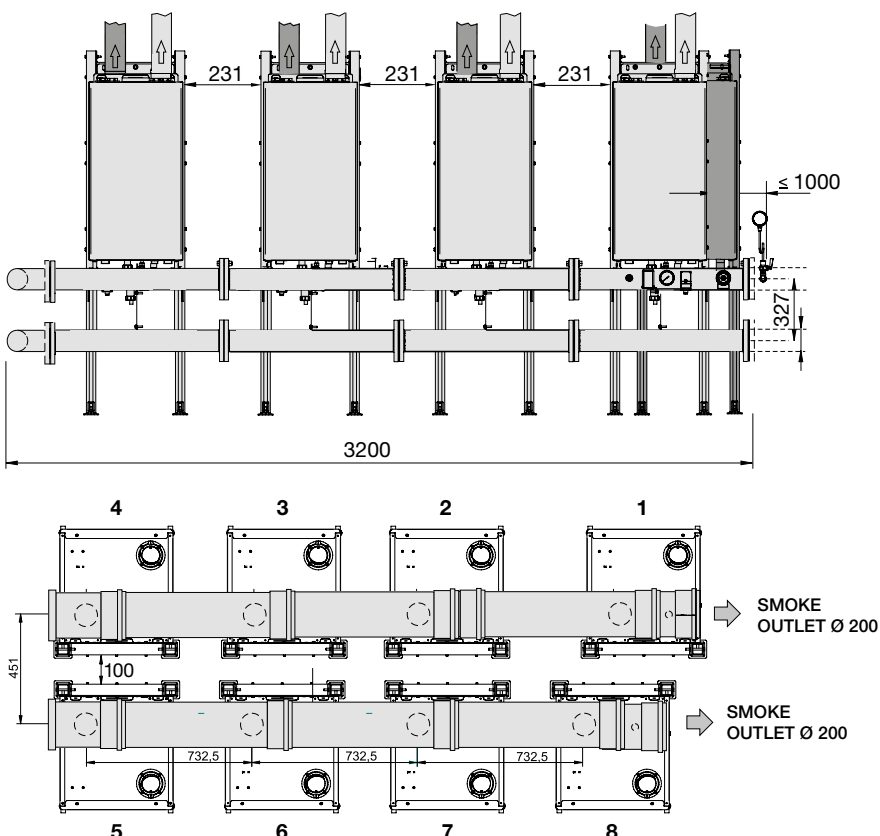
DIMENSIONS OF A BATTERY OF SEVEN KON 115 (4+3 ON THE OPPOSITE SIDE)



Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	696.5	805
Nominal Output (60/80°C) P _n	kW	691.6	780.5
Nominal Output (30/50°C) P _{cond}	kW	735.0	842.1

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

DIMENSIONS OF A BATTERY OF EIGHT KON 115 (4+4 ON THE OPPOSITE SIDE)

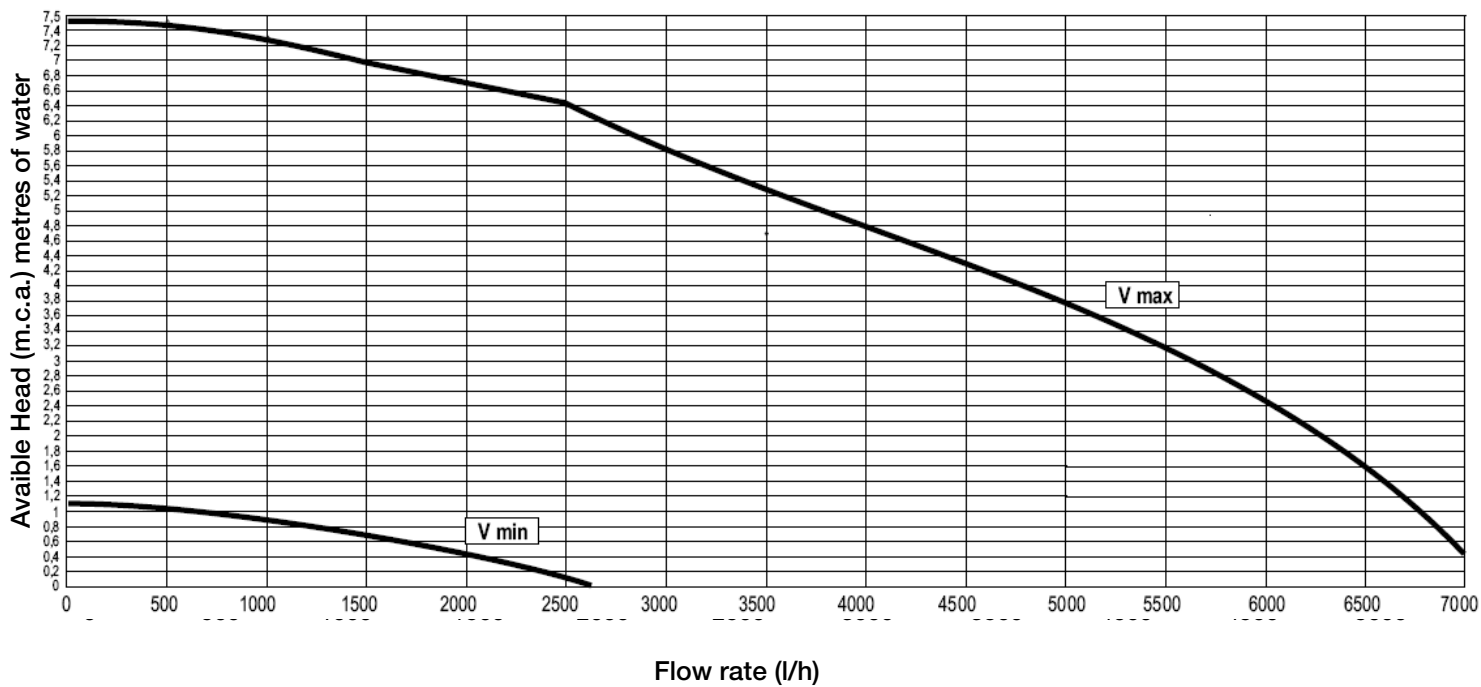


Operational data		KON 100	KON 115
Minimum Input on N.C.V. Q _{min}	kW	20	20
Nominal Input on N.C.V. Q _n	kW	796	920
Nominal Output (60/80°C) P _n	kW	790.4	892
Nominal Output (30/50°C) P _{cond}	kW	840	962.4

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

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION

Manometric head available for the C.H. System



		KON 100	KON 115
Power supply	kW	99.5	115
Max flow rate demanded (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 (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 20 K.

TECHNICAL DATA

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

		KON 100	KON 115
Appliance category		II _{2H3P}	II _{2H3P}
Modulation Ratio		1:5.0	1:5.75
Nominal Heat Input on P.C.I. Q _n	kW	99.5	115
Minimum Heat Input on P.C.I. Q _{min}	kW	20	20
Nominal Output (Tr 60 / Tm 80 °C) P _n	kW	98.8	111.5
Minimum Output (Tr 60 / Tm 80 °C) P _n min	kW	19.2	19.2
Nominal Output (Tr 30 / Tm 50 °C) P _{cond}	kW	105	120.3
Minimum Output (Tr 30 / Tm 50 °C) P _{cond} min	kW	21.75	21.75
Efficiency at max. output (Tr 60 / Tm 80°C)	%	98.81	97.1
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 (Q _{min})	%	2.30	2.69
Heat loss at casing with burner in operation (Q _n)	%	0.1	0.7
Flue gas temperature t _{f-ta} (min)(*)	°C	35.0	36.0
Flue gas temperature t _{f-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 Q _n	m ³ /h	10.57	12.08
Gas Consumption Natural gas (20 mbar) G 20 a Q _{min}	m ³ /h	2.11	2.11
Gas Consumption G25 (supply pressure 25 mbar) Q _n	m ³ /h	12.3	14.0
Gas Consumption G25 (supply pressure 25 mbar) Q _{min}	m ³ /h	2.46	2.46
Gas Consumption G31 (supply pressure 37/50 mbar) Q _n	kg/h	7.76	8.92
Gas Consumption G31 (supply pressure 37/50 mbar) Q _{min}	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 η_s 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

			KON 100	KON 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	37
USEFUL EFFICIENCY AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30 °C)	η_1	%	98.5	96.7
RANGE-RATED BOILER: YES / NO			NO	NO
AUXILIARY ELECTRICITY CONSUMPTION				
AT FULL LOAD	$e_{l_{max}}$	kW	0.289	0.314
AT PART LOAD	$e_{l_{min}}$	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	0.642	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 CONSUMPTION	Q_{fuel}	kWh	-	-
INSIDE SOUND POWER LEVEL	L_{wa}	dB(A)	-	-
SEASONAL EFFICIENCY CLASS IN DHW PRODUCTION MODE			-	-