

BWAm 100-115



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

OUTPUT RANGE

da 99.5 a 920 kW in battery (115 kW x8)

EMISSIONS

Class 6 NO_x

SUPPLY

Natural Gas or LPG

MODELS

BWAm 100

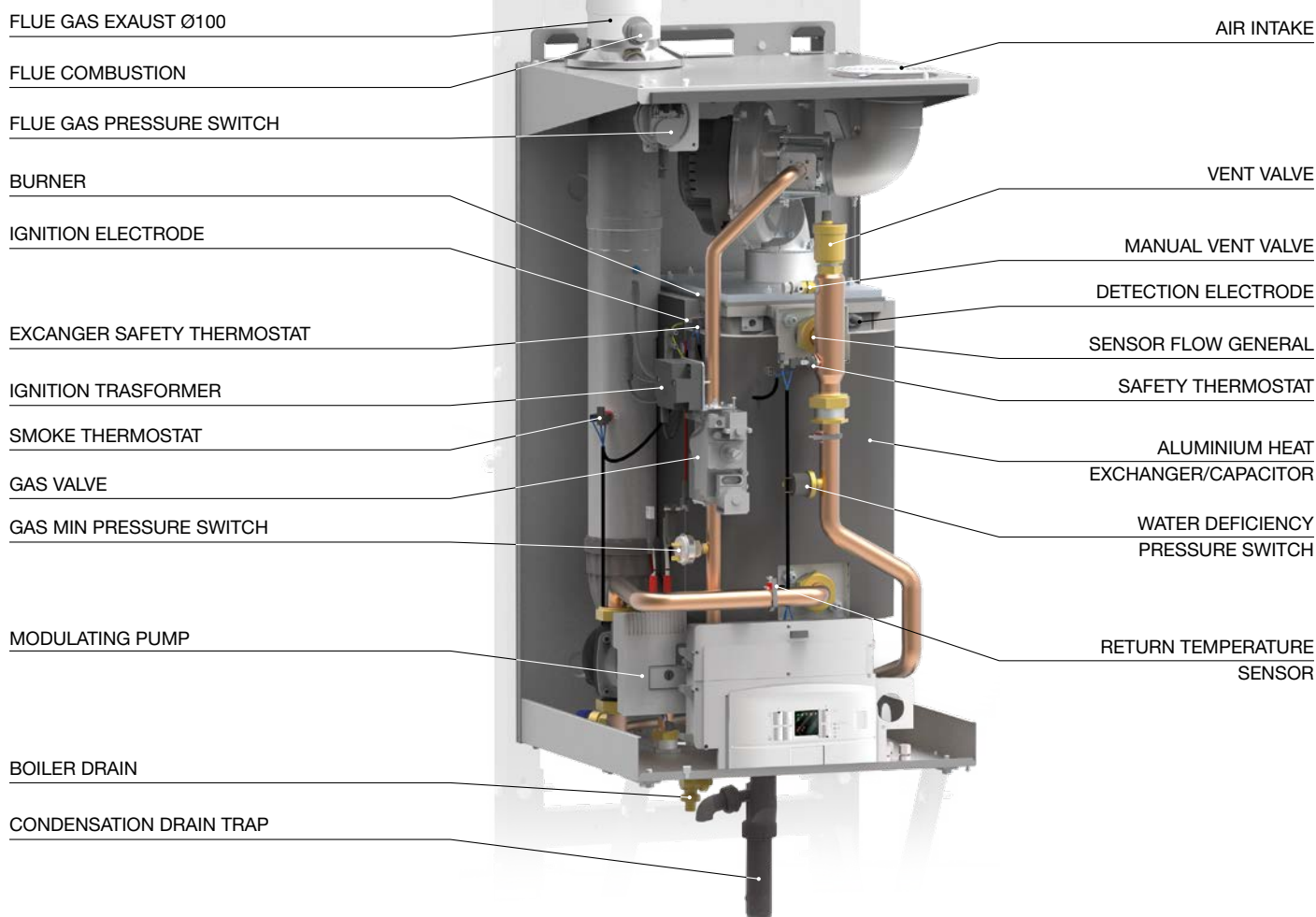
BWAm 115

SEASONAL EFFICIENCY

 A

Wall hung with optional dedicated supporting kit - **available in battery (up to 8 for a total of 920 kW)**
can be combined both with MIXING HEADER and with PLATE HEAT EXCHANGERS

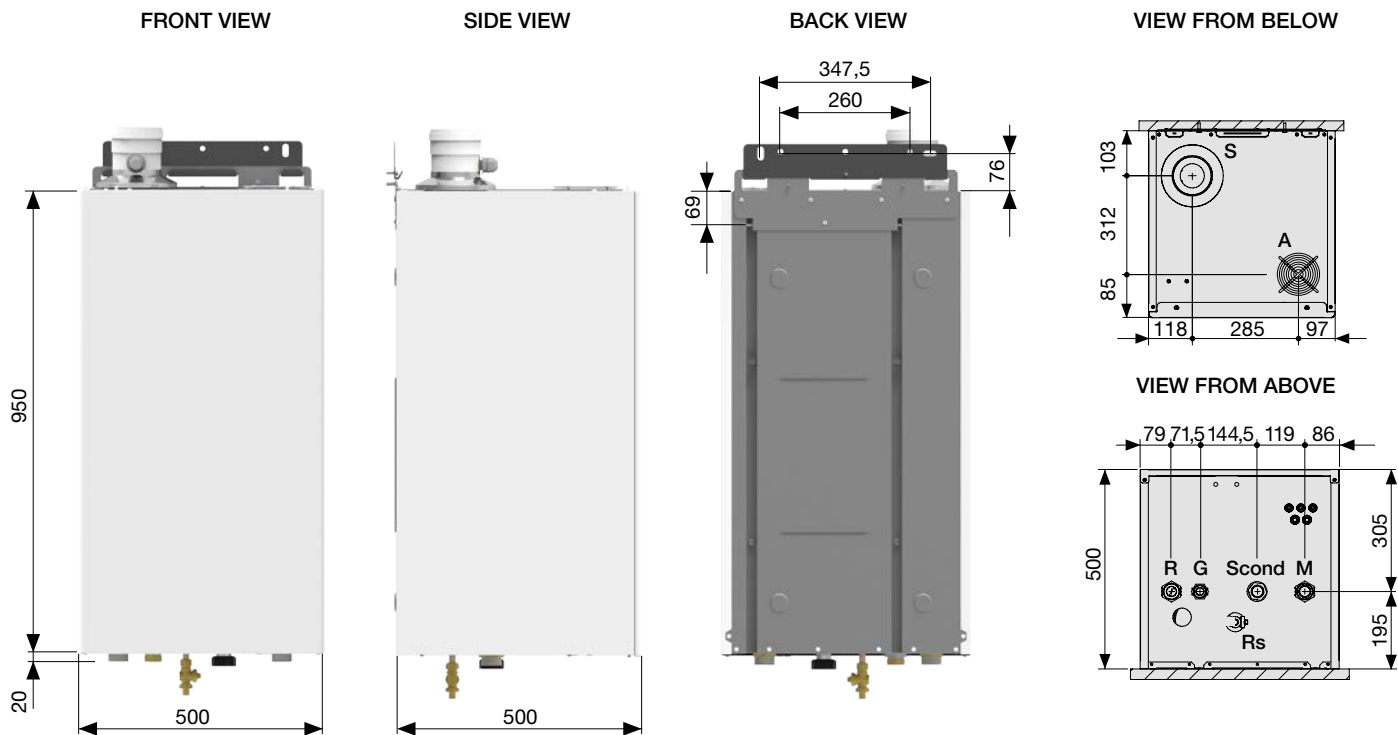
MAIN COMPONENTS



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
- **EFFICIENCY**
up to 108,8% (ex Directive 92/42)
 $\eta_s=94\%$ according to ErP Directive
- **EMISSIONS:** Low NO_x Class 6
- **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
- **BODY DURATION**
thanks to the multi-year Schuster experience in the metallurgy
- **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 MODULE
 - 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
- **Kit Gateway P (optional)** for Ufly P remote connection

DIMENSIONS

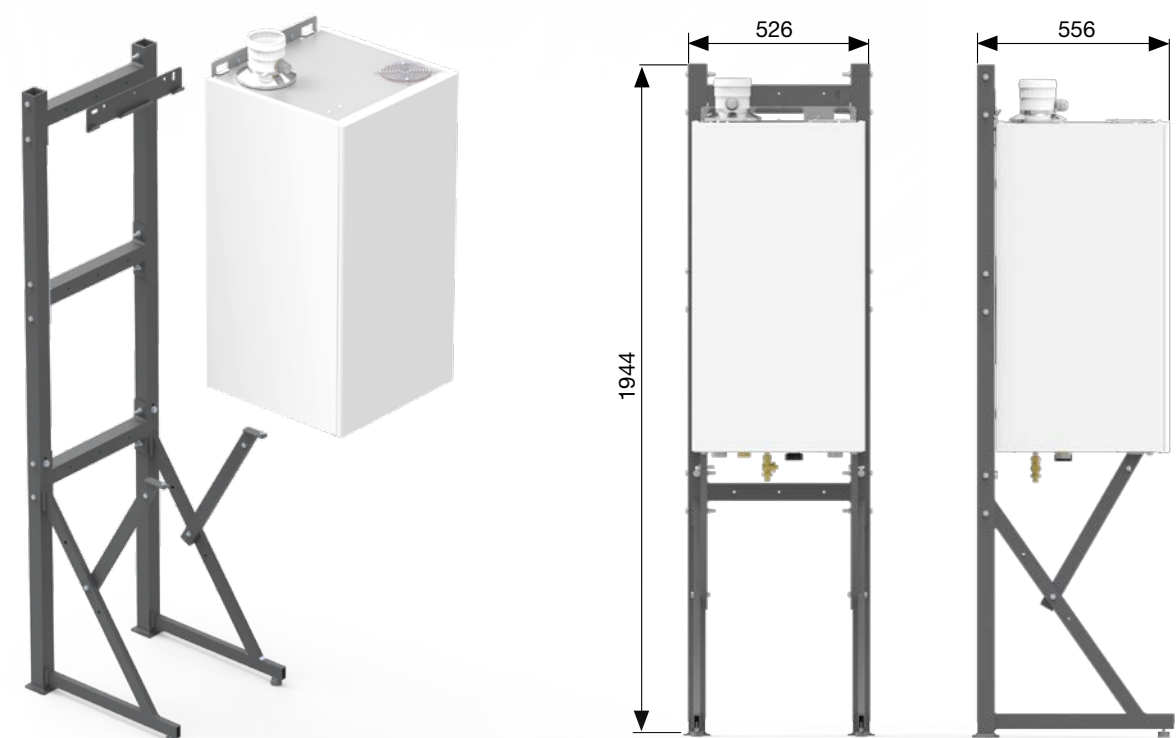


BWAm	Net Weight	Gross Weight
	kg	(with packaging) kg
100-115	81	96

Key:

- G** - Gas inlet G1"
- M** - Heating system flow 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

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

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

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:

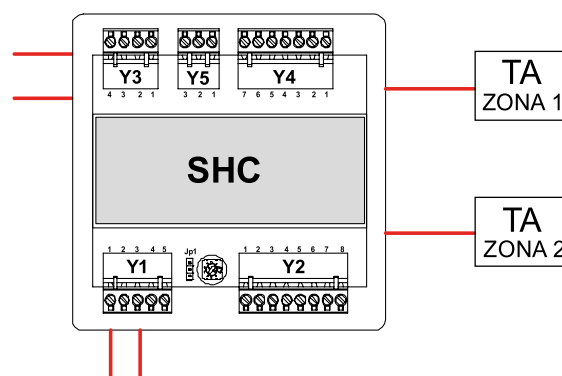
1. Direct or mixed heating circuits
2. Domestic hot water with storage tank.
3. Domestic hot water with plate heat exchanger.
4. Domestic hot water with plate heat exchanger and mixing valve
5. Solar collector with tank.

The multi-function module interacts with the system like a user, whose demands must be met by a manager controller Ufly P, 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.schusterboilers.com in the section Accessories of the product.

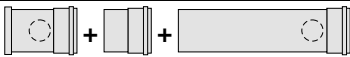


BWAm 100-115 IN BATTERY



COMPOSITION OF BATTERY + PRIMARY RING	Q.TY of BWAm 100-115 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 Ufly P made of: cascade manager card BCM 2.0, viewer / programmer Ufly P, power pack 24V, outdoor temperature sensor, D.H.W. temperature sensor	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

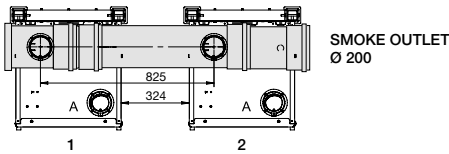
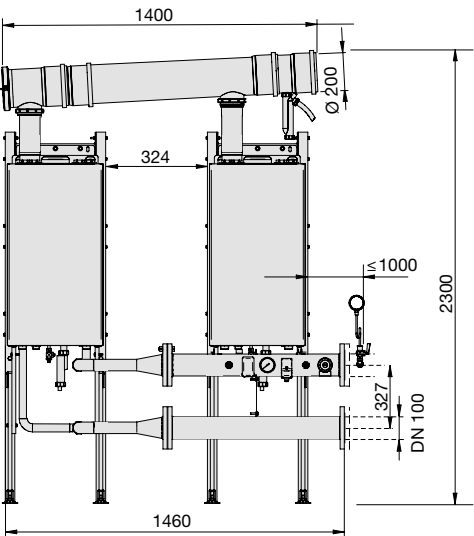
BASE KIT		1	1	1	1	1	1	1
SIPHON			1	2	2	3	6	5
OUTLET SIPHON		1	1	1	2	2	2	2
SINGLE SMOKE MANIFOLD					1	1	1	1
SMOKE PIPE EXTENSION Ø200 mm					3	2	1	

It is possible to reverse the hydraulic connections. It is not possible to reverse the gas manifold kits.

NOTE: 2 smoke exhaust ducts are foreseen which flow together with 2 separate couplings into a single flue; if you want to connect the 2 smoke ducts together with a special union manifold (not provided), you must have them calculated by a thermal engineer. For information, consult the "battery assembly instructions" document on the website www.schusterboilers.com

Available in combination with **PLATE EXCHANGERS**

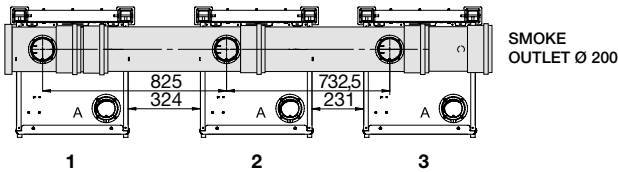
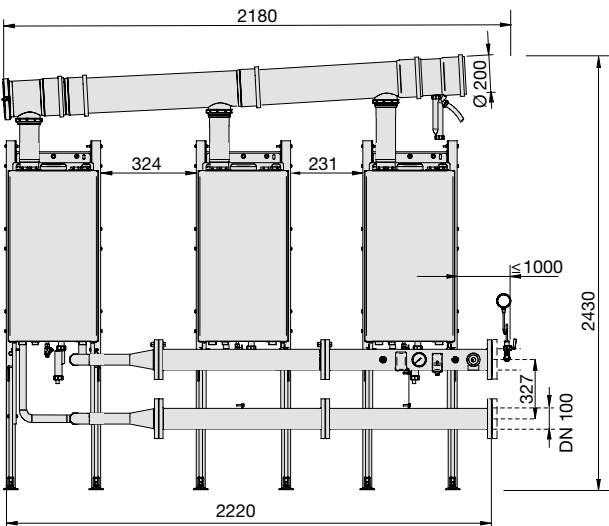
DIMENSIONS OF A BATTERY OF TWO BWAm 100-115



Operational data		BWAm 100	BWAm 115
Minimum Input on 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

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

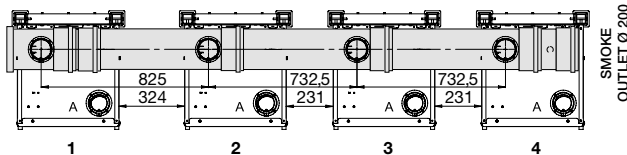
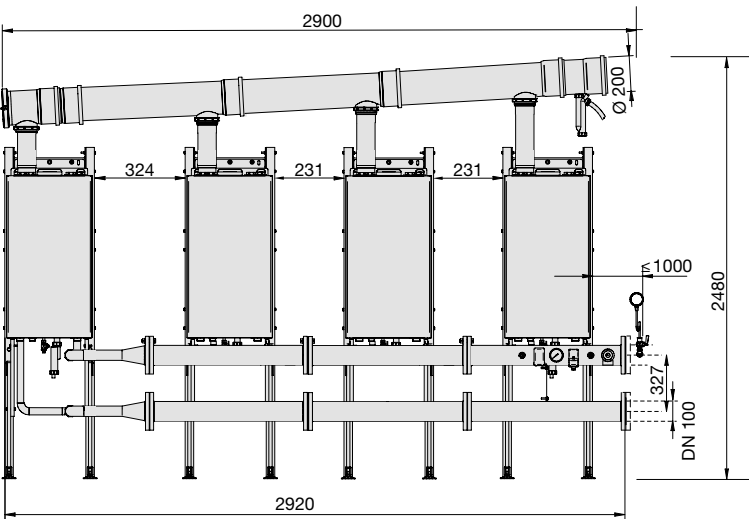
DIMENSIONS OF A BATTERY OF THREE BWAm 100-115



Operational data		BWAm 100	BWAm 115
Minimum Input on 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

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

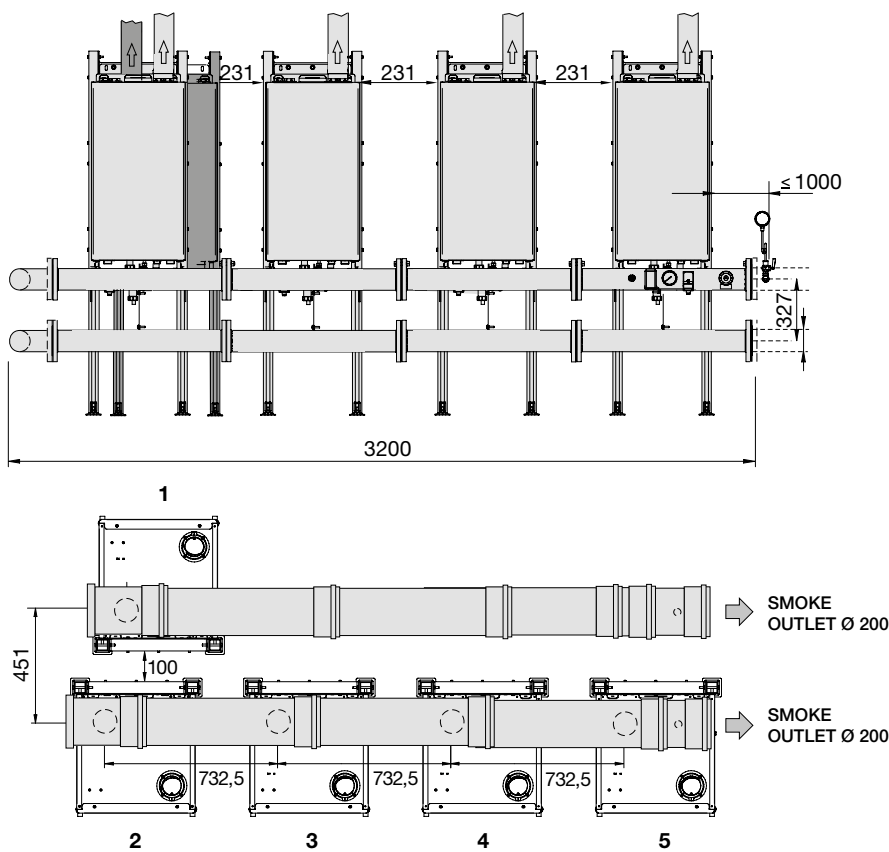
DIMENSIONS OF A BATTERY OF FOUR BWAm 100-115



Operational data		BWAm 100	BWAm 115
Minimum Input on 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

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

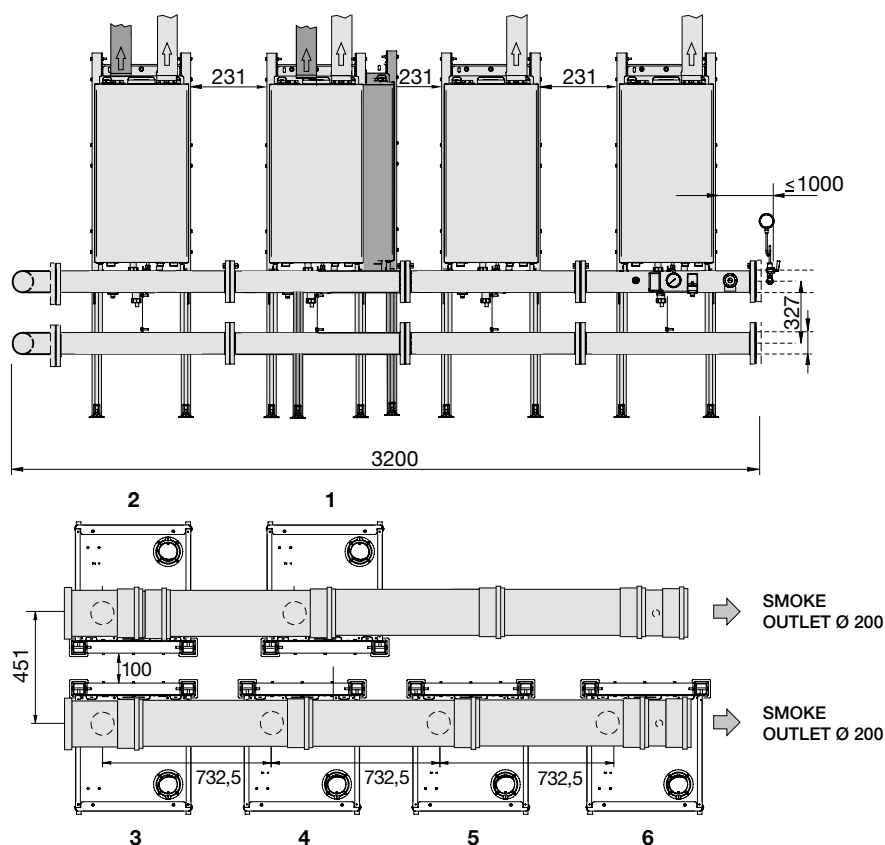
DIMENSIONS OF A BATTERY OF FIVE BWAm 100-115 (4+1 ON THE OPPOSITE SIDE)



Operational data		BWAm 100	BWAm 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.

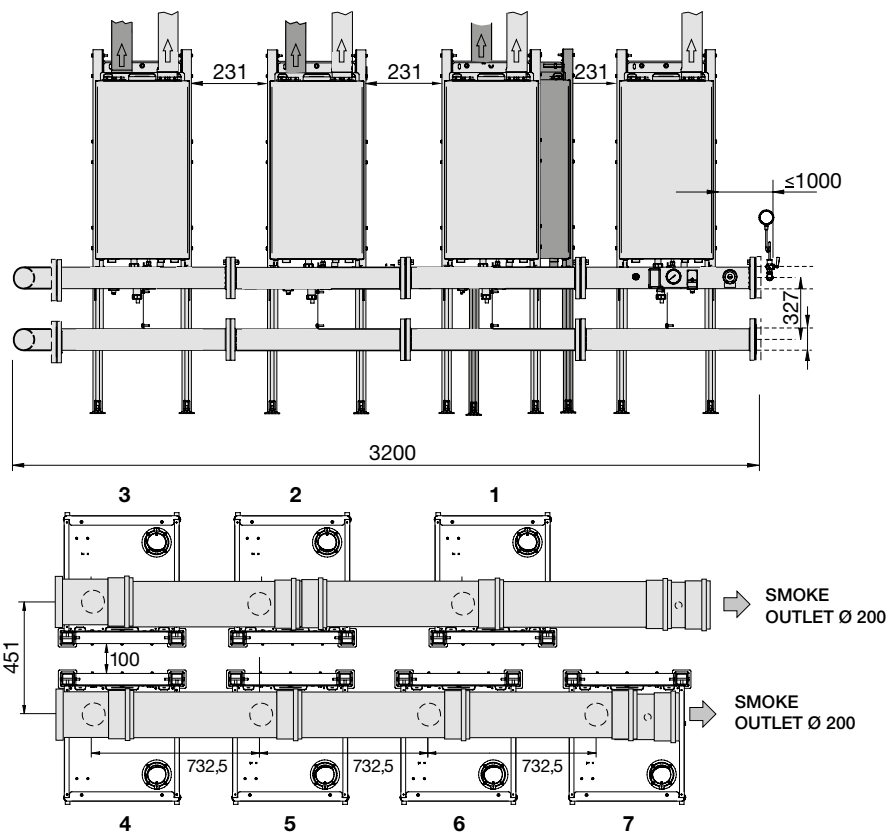
DIMENSIONS OF A BATTERY OF SIX BWAm 100-115 (4+2 ON THE OPPOSITE SIDE)



Operational data		BWAm 100	BWAm 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.

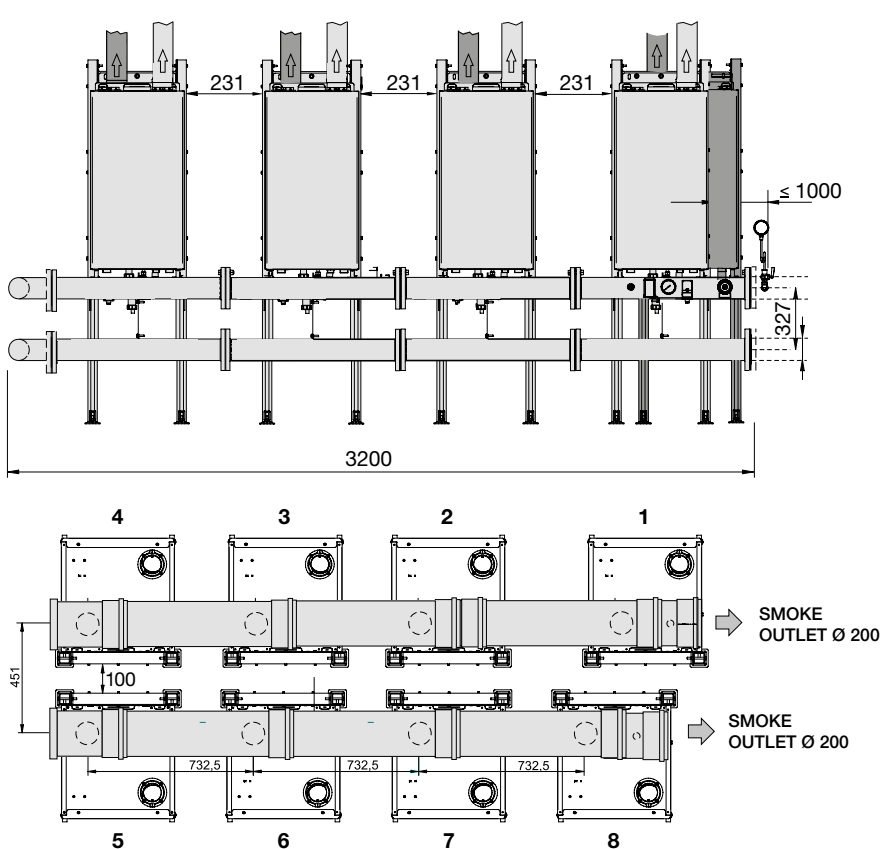
DIMENSIONS OF A BATTERY OF SEVEN BWAm 100-115 (4+3 ON THE OPPOSITE SIDE)



Operational data		BWAm 100	BWAm 115
Minimum Input on 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	735.0	842.1

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

DIMENSIONS OF A BATTERY OF EIGHT BWAm 100-115 (4+4 ON THE OPPOSITE SIDE)

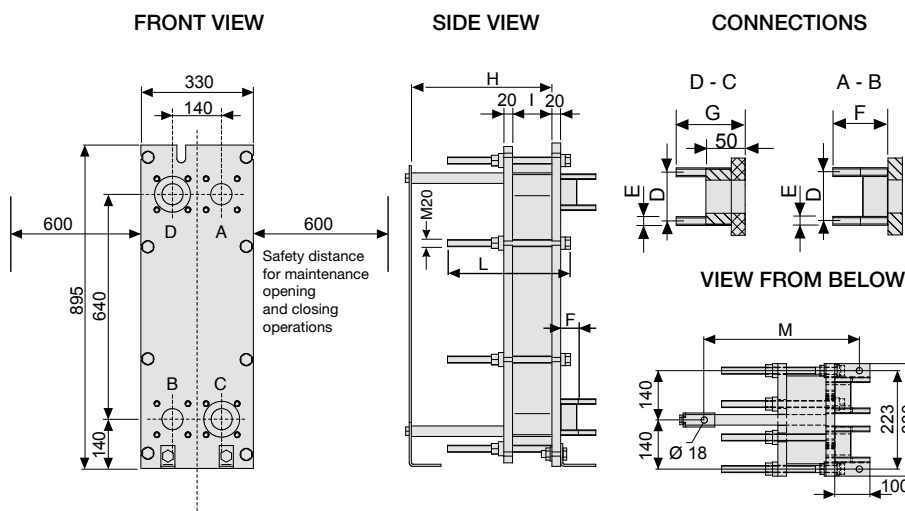


Operational data		BWAm 100	BWAm 115
Minimum Input on N.C.V. Qmin	kW	20	20
Nominal Input on N.C.V. Qn	kW	796	920
Nominal Output (60/80°C) Pn	kW	790.4	892
Nominal Output (30/50°C) Pcond	kW	840	962.4

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

MATCHING PLATE EXCHANGERS

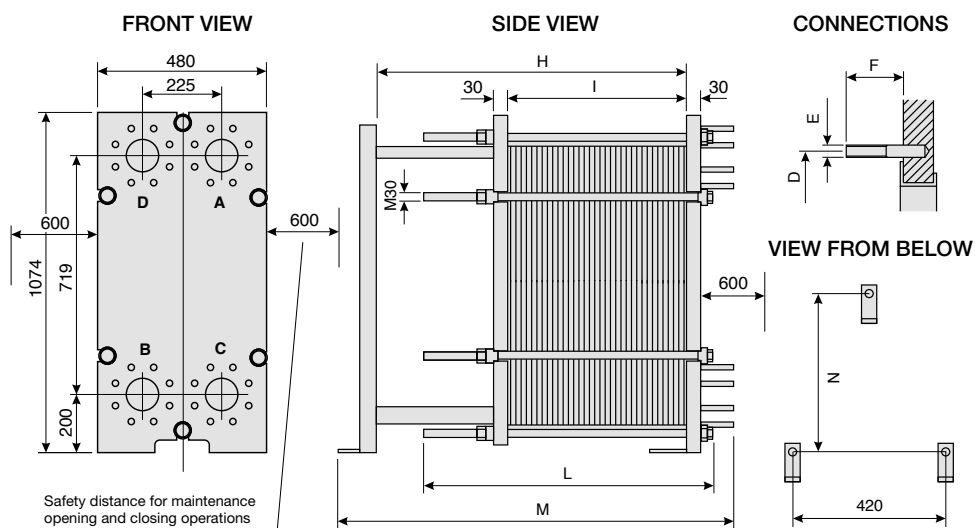
DIMENSIONS SERIES E 50W



Plates	H	I	L	M
11	400	39	350	441
21	400	74	350	441
27	400	95	350	441
45	400	158	350	441

Connection	D	E	F	G
DN50 - 2"	125	M16	54	99

DIMENSIONS SERIES E 100W



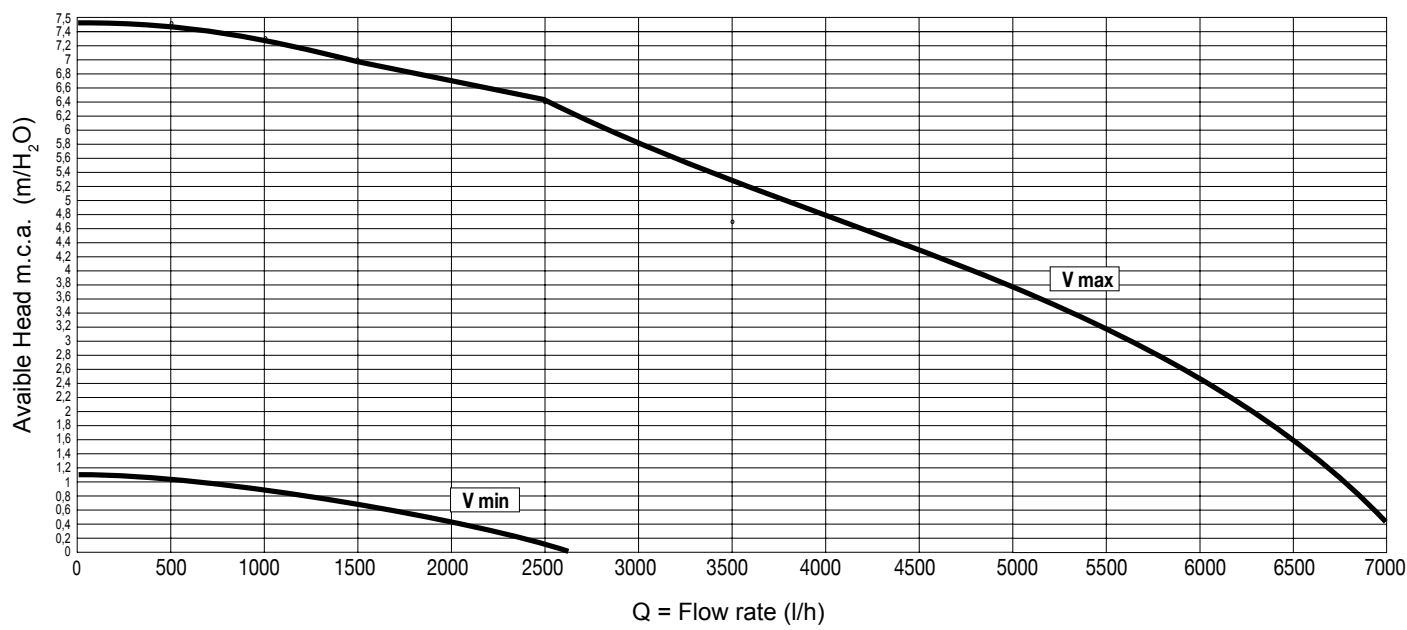
Plates	H	I	L	M	N
55	900	245	750	1110	905
63	900	281	750	1110	905
77	900	343	750	1110	905
87	900	388	750	1110	905

Connection	D	E	F
DN100 - 4"	180	M16	60

Number of boilers	Model	Number of plates	Pn kW	Δp (m H ₂ O) ^(*) primary / secondary	T. op. °C	Pmax bar	Volume H ₂ O primary / secondary	Connections primary / secondary	Weight kg
1	E50W-21Y	21	115	1,0 / 2,3	-10 / +110	10	4 / 4	DN50 / DN50	144
2	E50W-45X	45	230	2,0 / 4,4	-10 / +110	10	9 / 9	DN50 / DN50	165
3	E50W-45X	45	345	2,0 / 4,4	-10 / +110	10	9 / 9	DN50 / DN50	165
4	E100W-55H	55	460	0,8 / 1,8	-10 / +110	10	27 / 27	DN100 / DN100	367
5	E100W-55H	55	575	1,2 / 2,8	-10 / +110	10	27 / 27	DN100 / DN100	367
6	E100W-77H	77	690	0,9 / 2,2	-10 / +110	10	38 / 38	DN100 / DN100	400
7	E100W-77H	77	805	1,3 / 3,0	-10 / +110	10	38 / 38	DN100 / DN100	400
8	E100W-87H	87	920	0,9 / 2,0	-10 / +110	10	43 / 43	DN100 / DN100	415

(*) Δp alla Pn Primary circuit 80°C - 65°C Secondary circuit 60°C - 70°C

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION



		BWAm 100	BWAm 115
Power supply	kW	99.5	115
Max flow rate demanded l/h (Δt 15 K)	l/h	5700	6600
Portata nominale richiesta (Δt 20 K)	l/h	4280	4950
Potenza in cond. (50/30)	kW	105	120.3
Power supply in condensation (50/30)	l/h	6020	6897
Max flow rate demanded l/h (Δt 15 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 15 K.

TECHNICAL DATA

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

		BWAm 100	BWAm 115
Appliance category		II _{2H3P}	II _{2H3P}
Modulation Ratio		1:5	1:5.8
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	97.3	111.9
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	104.6	120.3
Minimum Output (Tr 30 / Tm 50 °C) P _{cond min}	kW	21.4	21.4
Efficiency at max. output (Tr 60 / Tm 80°C)	%	97.77	97.32
Efficiency at min. output (Tr 60 / Tm 80°C)	%	95.90	95.90
Efficiency at max. output (Tr 30 / Tm 50°C)	%	105.17	104.31
Efficiency at min. output (Tr 30 / Tm 50°C)	%	107.1	107.1
Efficiency at 30% output (Tr 30°C)	%	107.27	107.21
Combustion efficiency with nominal load	%	97.84	97.73
Combustion efficiency with minimum load	%	98.27	98.26
Heat loss at casing with burner in operation (Q _{min})	%	2.38	2.36
Heat loss at casing with burner in operation (Q _n)	%	0.07	0.41
Flue gas temperature t _f -t _a (min)(*)	°C	33.2	33.4
Flue gas temperature t _f -t _a (max)(*)	°C	44	46.1
Maximum allowable temperature	°C	100	100
Maximum operating temperature	°C	85	85
Flue gas mass flow rate (min)	kg/h	34.31	34.31
Flue gas mass flow rate (max)	kg/h	158.98	184.7
Excess λ air	%	23	23
Flue losses with burner in operation (min)	%	1.73	1.74
Flue losses with burner in operation (max)	%	2.16	2.27
Minimum heating circuit pressure	bar (kPa)	0.6 (60)	0.6 (60)
Maximum heating circuit pressure	bar (kPa)	6 (600)	6 (600)
Water content	l	9	9
Gas Consumption Natural (20 mbar) gas G 20 a Q _n	m ³ /h	10.52	12.16
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	12.24	14.14
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	7.72	8.93
Gas Consumption G31 (supply pressure 37/50 mbar) Q _{min}	kg/h	1.56	1.56
Max. available pressure at the chimney base	Pa	150	150
Condensate production max	kg/h	15.94	18.51
Emissions			
CO at Minimum Heat Input with 0% of O ₂	mg/kWh	178	209
NO _x at Nominal Heat Input with 0% of O ₂	mg/kWh	40	40
NO _x Class		6	6
Electrical Data			
Voltage/Frequency electric power supply	V/Hz	230/50	230/50
Fuse on main supply	A (R)	4AF 250V	4AF 250V
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 TableStandstill heat losses at Δt 30K - P_{stby} - See Erp TableStandstill 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.schusterboilers.com at the page of the product

			BWAm 100	BWAm 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	0.641	0.642
EMISSIONS OF NITROGEN OXIDES referred to GCV	NO_x	mg/kWh	39	42
CONSUMPTION OF ANNUAL ELECTRICITY	Q_{tHE}	GJ	301	349