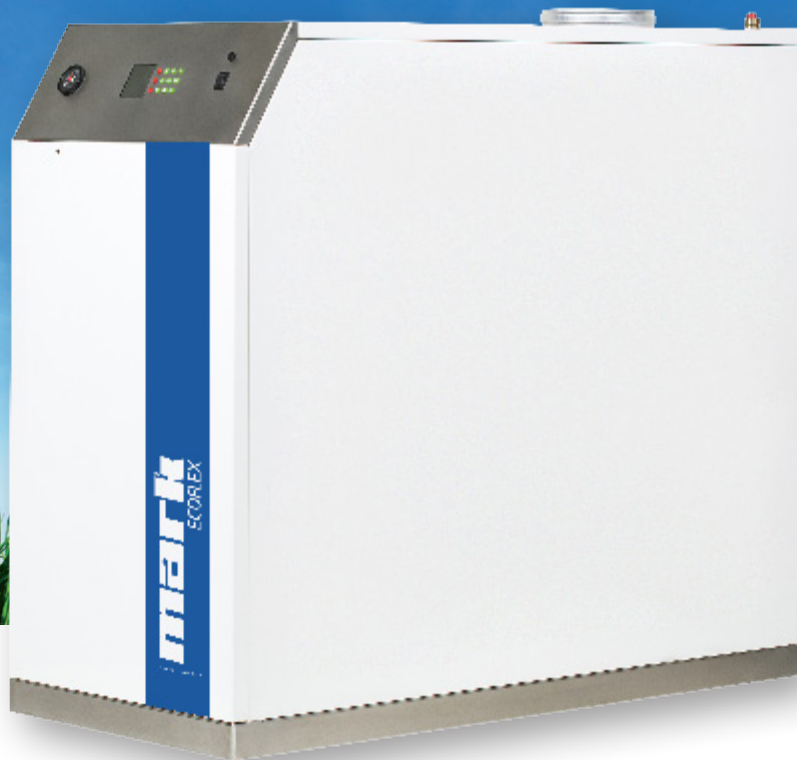


Mark Boilers



mark[®]
CLIMATE TECHNOLOGY
FEELS BETTER, WORKS BETTER.
WWW.MARKCLIMATE.COM

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EcoFlex

EXTREMELY COMPACT BOILER



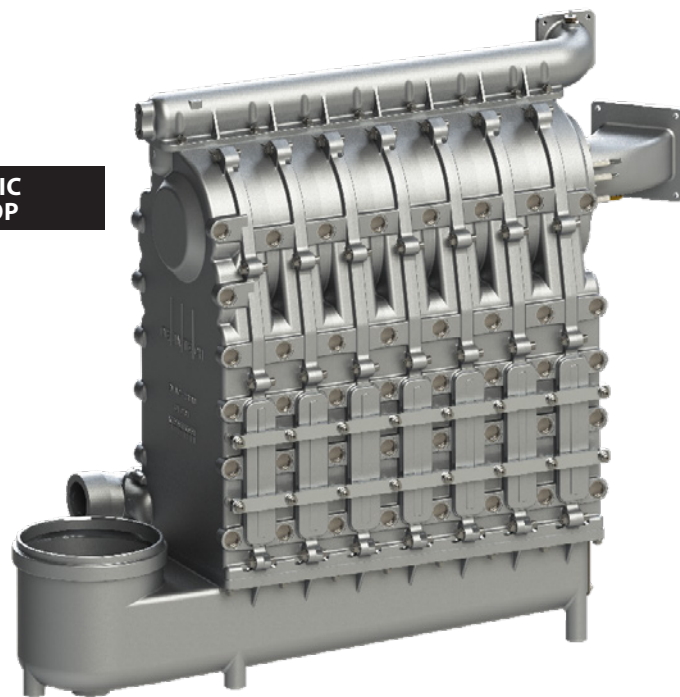
Extremely compact and very resistant boiler for industrial use. The dividers are also made of cast aluminum. Available in the following capacities: 168 kW, 210 kW, 252 kW and 294 kW.

CE APPROVED

Advantages

- For industrial use
- Low hydraulic pressure loss due to parallel water flow
- High modulation range possible
- Low pneumatic resistance
- Best price / quality ratio on the market
- With CE approval
- Combustion chamber completely water cooled, no refractories needed.

LOW PNEUMATIC PRESSURE DROP



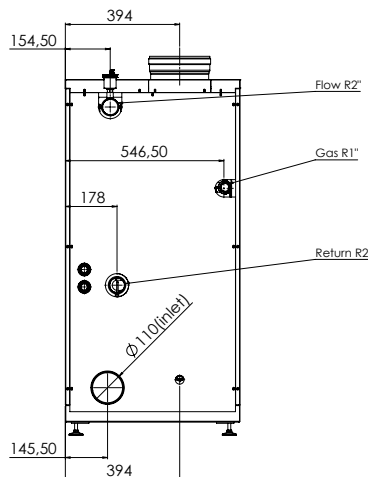
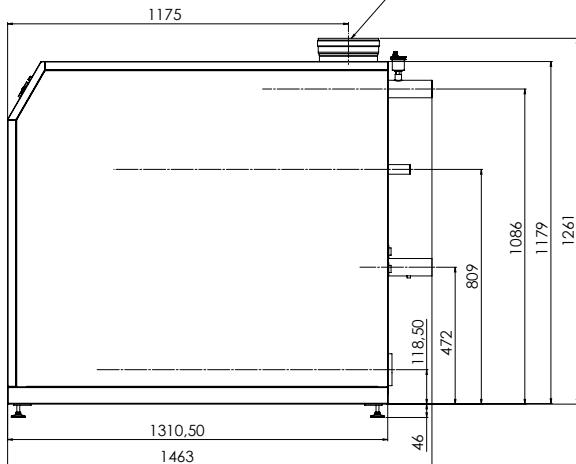
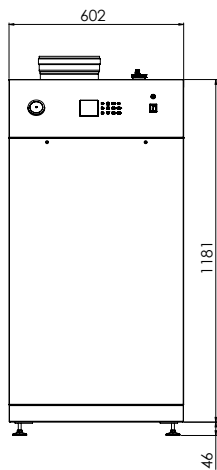
FOR INDUSTRIAL USE

ECOFLEX					
Model	HR168	HR210	HR252	HR294	unity
Nominal input	168	210	252	294	kW
Efficiency load at 30%	107,5	107,5	107,5	107,5	%
Operating pressure	6	6	6	6	bar
W = 412 x H = 880 x L =	837	922	1006	1090	mm
Flue connection Ø	200	200	200	200	mm
Weight heat exchanger including distributor and condensate tray	81,9	99,9	116,9	143,9	kg
Total weight boiler	193	210	227	244	kg

L x W x H including condensate tray and burnerhood.
Subject to change. Dimensions of the products offered may vary.



Flue gas 200mm



PowerFlex

BOILER



This revolutionary design sets a new standard in assembly time and cost savings. Distribution pipes (Tichelmann system) and condensate tray are already integrated in all cast segments. This leads to fewer components, a lower chance of failure and thus higher reliability. Both the supply and return pipes leave the boiler at the rear. The boiler consists of a front, rear and center cast segment only.

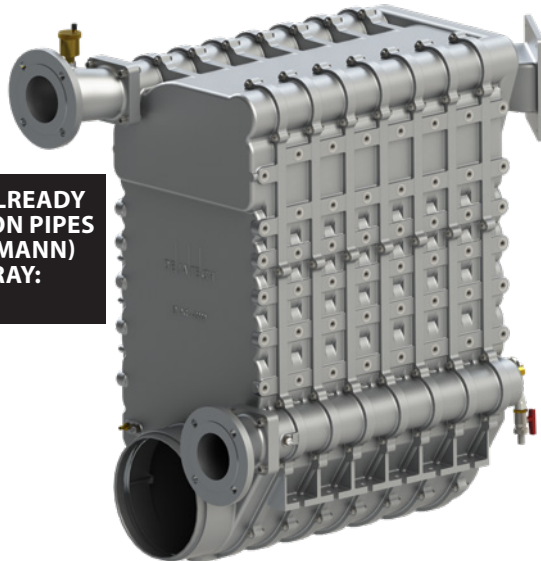
By adding several middle segments, boilers with a capacity of 340 kW to 600 kW can be built. As a customer, you can therefore flexibly decide which heating capacity you want.

Advantages

- For industrial use
- Low hydraulic pressure drop due to parallel water flow
- High modulation range possible
- Low pneumatic resistance
- Best price/quality ratio
- Global patented design
- Cast segments with already integrated distribution pipes (Tichelmann) and condensate tray
- With CE approval
- Combustion chamber completely water cooled, no refractories needed.

**SMALL INSTALLATION DIMENSIONS
1.08 M2 (600 KW)**

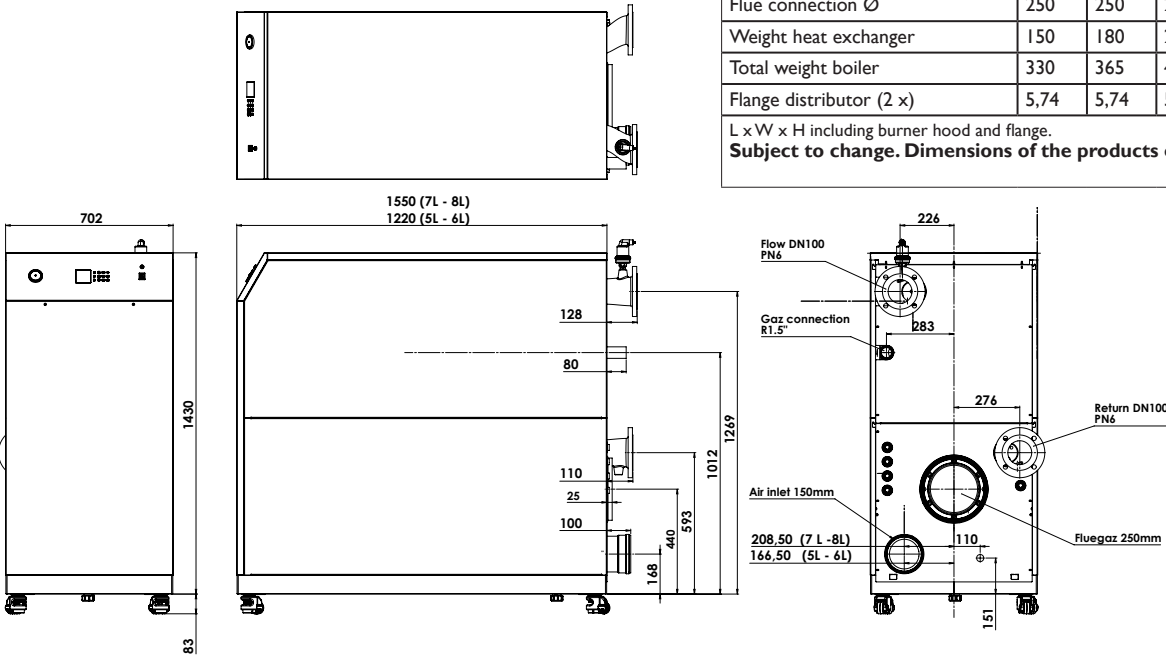
CAST SEGMENTS WITH ALREADY INTEGRATED DISTRIBUTION PIPES (ACCORDING TO TICHELMANN) AND CONDENSATE TRAY: LONG LIFESPAN



CE APPROVED

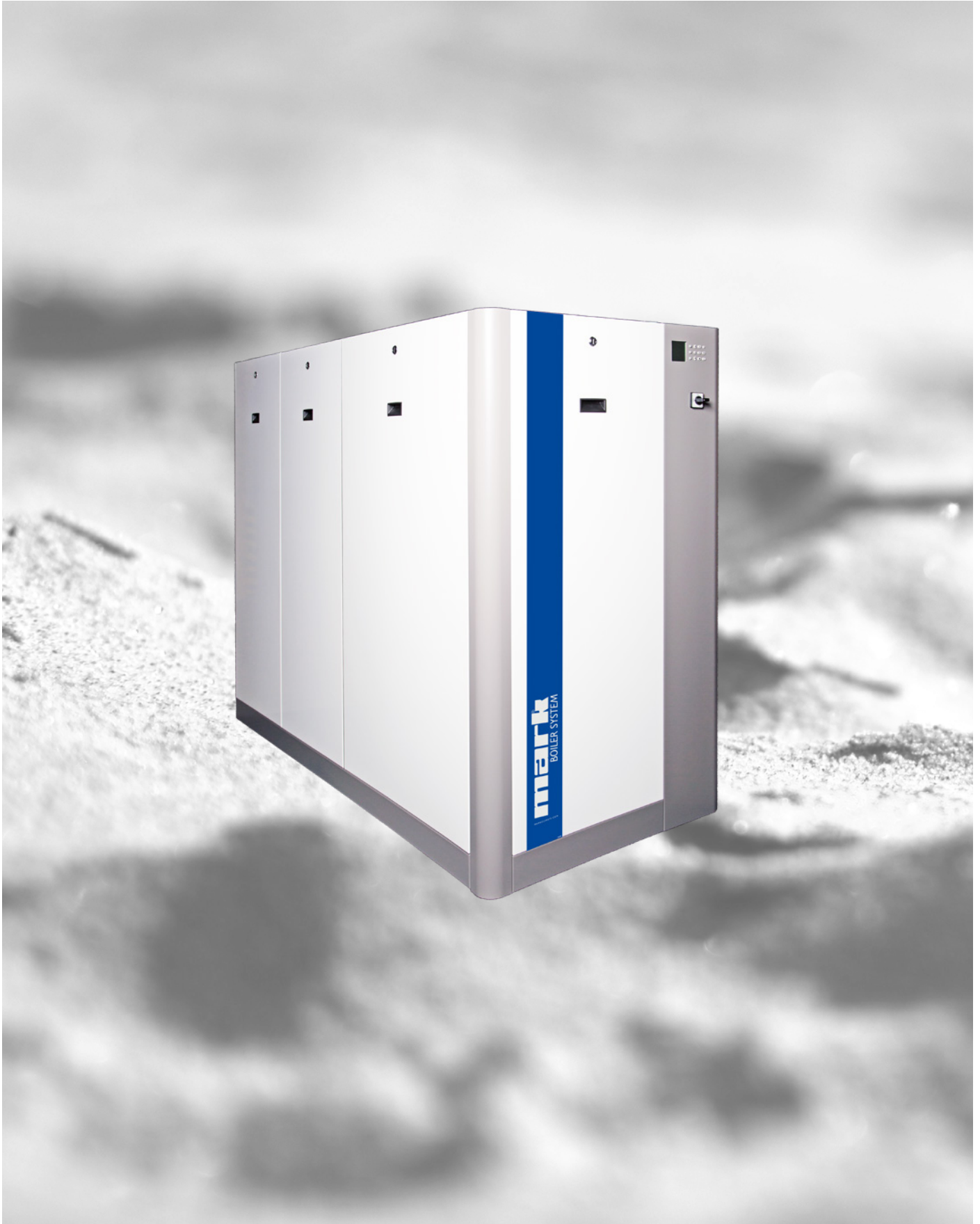
POWERFLEX					
Model	HR340	HR425	HR510	HR600	unity
Nominal input	340	425	510	600	kW
Efficiency load at 30%	108,1	108,1	108,1	108,1	%
Operating pressure	6	6	6	6	bar
W = 712 x H = 1085 x L =	880	975	1070	1165	mm
Flue connection Ø	250	250	250	250	mm
Weight heat exchanger	150	180	215	245	kg
Total weight boiler	330	365	429	464	kg
Flange distributor (2 x)	5,74	5,74	5,74	5,74	

L x W x H including burner hood and flange.
Subject to change. Dimensions of the products offered may vary.



MegaFlex

THE EXTRA LARGE CONDENSING BOILER

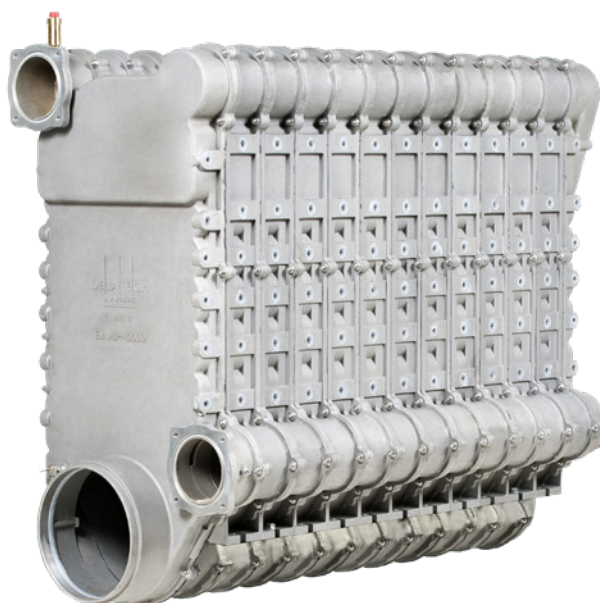


Based on the revolutionary PowerFlex design, we have now designed an even larger model: the MegaFlex! Our innovative distribution pipes (Tichelmann system) and the condensate tray are already integrated in all cast segments at the factory. This means fewer components with higher reliability. Both the supply and return pipes leave the MegaFlex boiler at the rear. Our patented heat exchanger consists of a front, rear and center casting. With the model, industrial capacities from 680 kW to 1020 kW can be achieved.

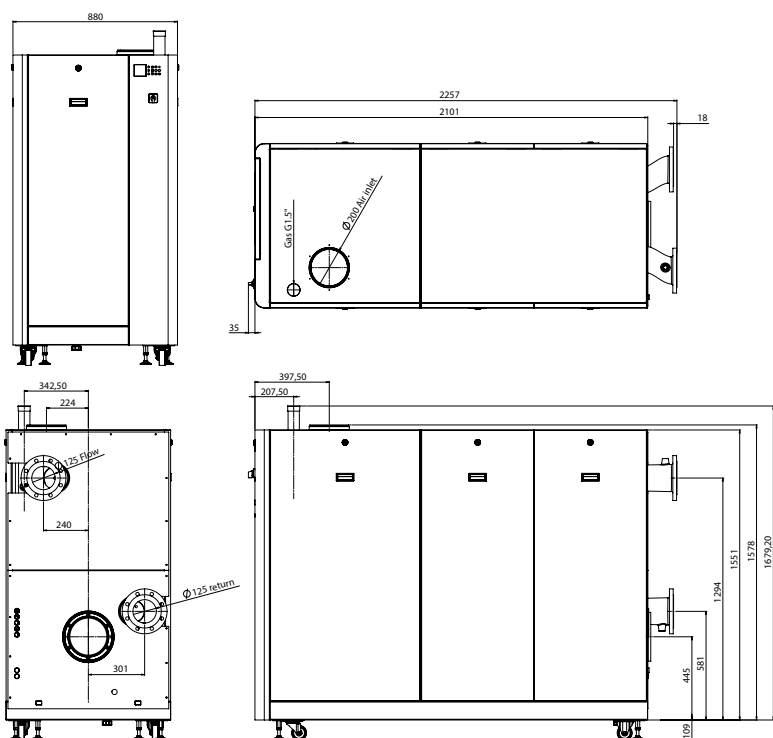
Advantages

- For industrial use (XL)
- Best price/quality ratio in the market
- Low hydraulic pressure drop due to parallel water flow
- Cast segments with already integrated distribution pipes (Tichelmann) and condensate tray.
- Low pneumatic resistance
- Combustion chamber completely water cooled, no refractories needed
- High performance on a small footprint
- With CE approval
- With a state-of-the-art cylindrical Worgas burner
- Easy cleaning and maintenance
- Global patented design

EASY CLEANING AND MAINTENANCE THANKS TO THE COMBUSTION CHAMBER WITH LOCKING MECHANISM



HIGH EFFICIENCY UP TO 108.3%



SMALL INSTALLATION DIMENSIONS 1.84 M2 (1020 KW)

MEGAFLEX

Model	HR850	HR1020	Unity
Nominal input	680-850	850-1020	kW
Efficiency load at 30%	107	107	%
Operating pressure	6	6	bar
W: 781 x H: 1120 x L =	1492	1682	mm
Weight heat exchanger	348	412	kg
Total weight boiler	625	700	kg
Flue connection Ø	250	250	mm

L x W x H excluding burner hood and flange.

Subject to change. Dimensions of the products offered may vary.

MaxiFlex

THE LARGEST CONDENSING BOILER IN THE WORLD



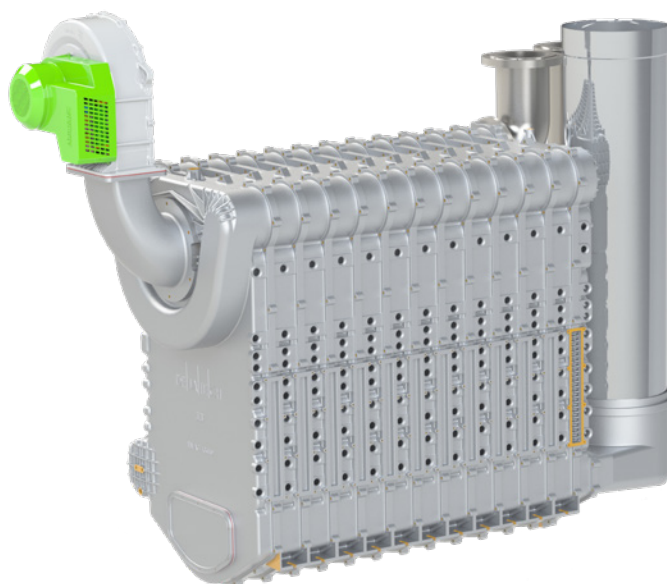
We have developed the „MaxiFlex“ based on the revolutionary design of the previous models „PowerFlex“ and „MegaFlex“. The largest cast aluminum condensing boiler on the market. Our innovative distribution pipes (Tichelmann system) and the condensate tray are already integrated in all cast segments. This means fewer components with higher reliability. Both the supply and return lines leave the MaxiFlex boiler at the rear. Our patented heat exchanger consists of a front, rear and center casting. This model can deliver an industrial power of up to 2200 kW.

Advantages

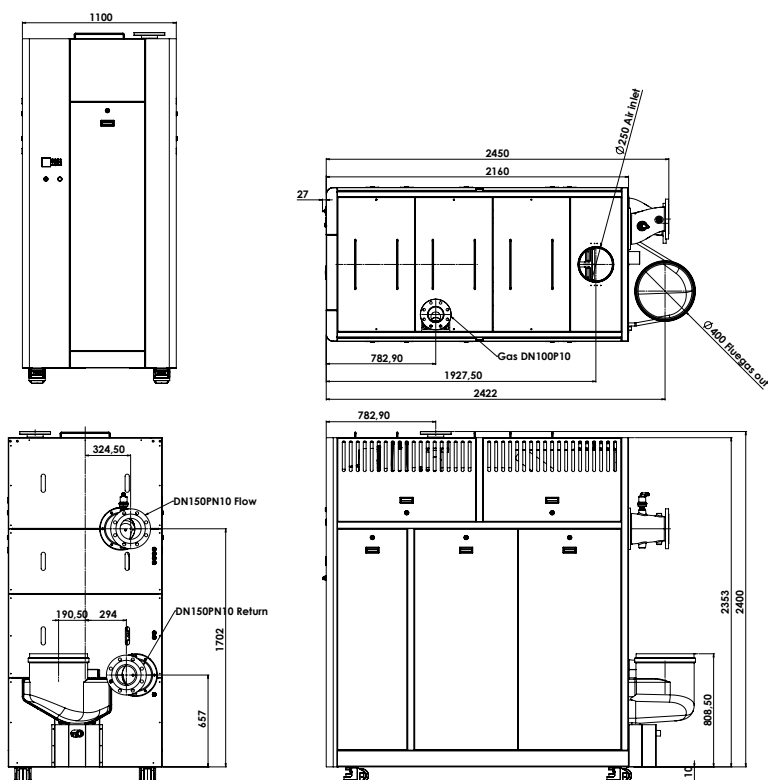
- For industrial use (XXL)
- Cast segments with already integrated distribution pipes (Tichelmann) and condensate tray.
- Best price / quality ratio in the market
- Low hydraulic pressure drop due to parallel water flow
- Low pneumatic resistance
- High performance on a small footprint (only requires 3.2 m²)
- With CE approval
- With a state-of-the-art cylindrical worm gas burner
- Combustion chamber completely water cooled, no refractories needed
- Easy to clean and maintain
- Global patented design (Tichelmann system)

**ONE OF THE BIGGEST
CONDENSING BOILER
WITH PREMIX BURNER IN THE WORLD**

HIGH EFFICIENCY



**SMALL INSTALLATION
DIMENSIONS
2.89 M² (2,200 KW)**



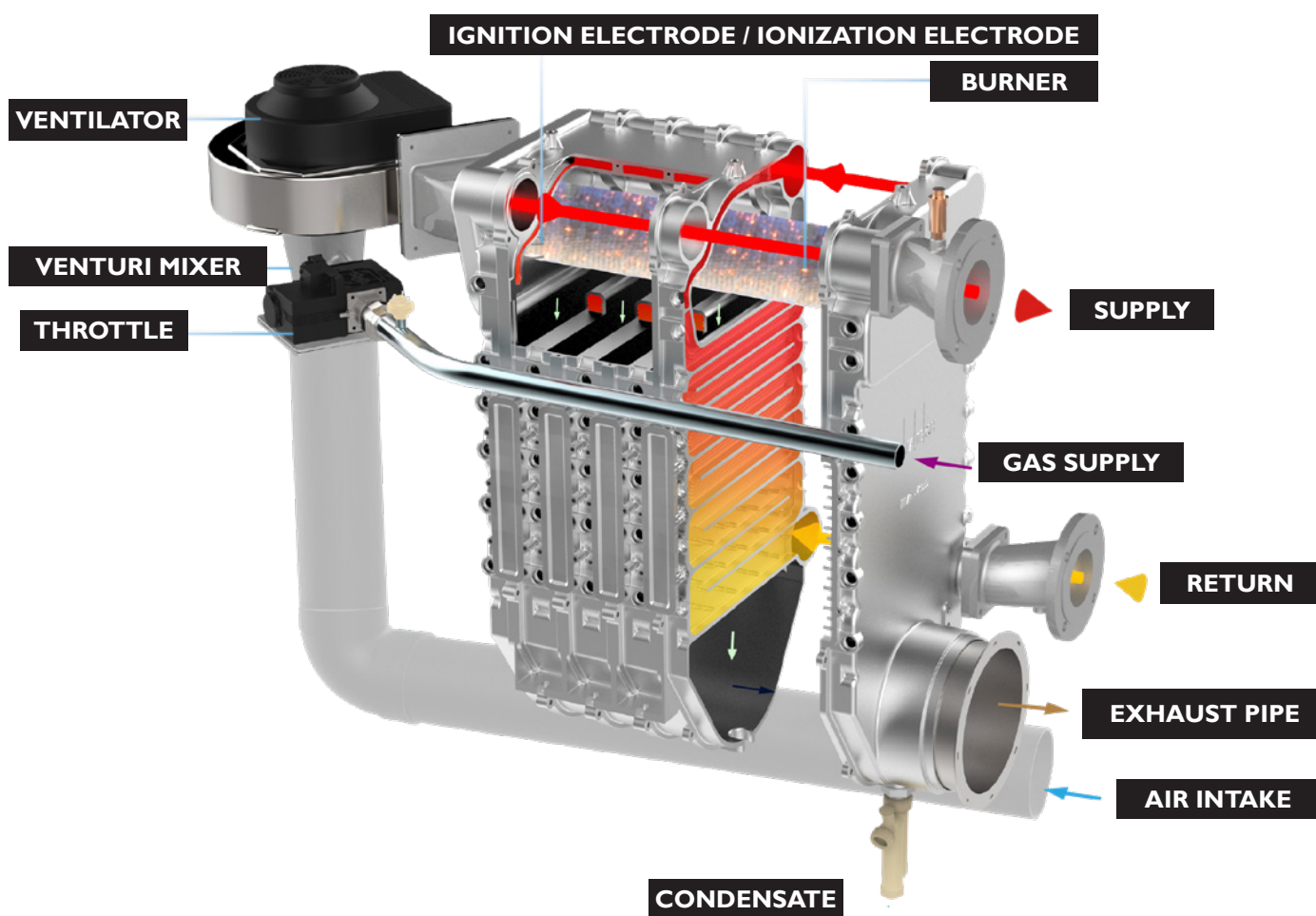
MAXIFLEX

Model	HR2200	Unity
Nominal input	2200	kW
Efficiency load at 30%	107,5	%
Operating pressure	6	bar
W: 1020 x H: 1566 x L =	2151	mm
Flue connection Ø	400	mm
Weight heat exchanger	1250	kg
Total weight boiler	1740	kg

L x W x H including burner hood.
Subject to change. Dimensions of the products offered may vary.

Main components

MAIN COMPONENTS OF THE MARK CONDENSING BOILER



Pretreatment of the heating water

To guarantee the life of the boiler, we strongly recommend pre-treatment of the heating water.

The following parameters can influence water quality:

- PH value
- Degree of hardness
- Air / oxygen
- Conductivity and chloride content
- Magnetite and sediment
- Specific guidelines

We also strongly recommend that you follow the practical advice in the installation guide. For more information about (setting) values, official guidelines and products for cleaning and maintenance, please contact us:

Mark Climate Technology (NL)

Tel: +31(0)598 656 600

Email: info@markclimate.com

Regulation

The demand for heating power (central heating (CH) and domestic water (DHW)) can be realized as follows:

Demand for heating capacity (heat demand):

1) Two-point room thermostat

Mark's boilers are easy to control via a two-point room thermostat.

The default desired flow temperature is 85 °C and can be set by the end user.

2) OpenTherm (OT) room thermostat

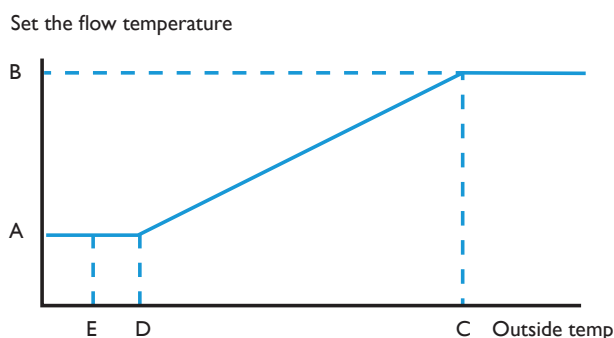
The set point for central heating and domestic hot water can be influenced with an OT room thermostat. Further functionalities depend on the OT room thermostat and the selected OT protocol.

3) 0-10V standard signal

Control of the desired flow temperature or output control with a 0–10V standard signal. This type of control is particularly suitable for building management systems.

4) Control based on outside temperature

- An outside temperature based control uses an outside temperature sensor (accessory), with one relative to the outside temperature adjustable minimum and maximum supply temperature.
- Including night setback and programmable weekdays, weekend and weekend programs.
- Outside temperature value for CH out (E)
- Lower heating limit (D,A)
- Upper heating limit (C, B)
- The lower and upper limits of the heating determine the temperature curve and thus the desired flow temperature during heating mode
- Setpoint reduction for eco operation
- Switch the control on or off according to the day, week and weekend program
- Bridging of terminals 1 + 2 of terminal block C2 activates regulation based on outside temperature
- Connection of a two-point room thermostat to terminal block C2 (terminals 1 + 2)



5) Demand for domestic water

The sanitary water sensor (12 k Ω) (accessory) or a two-point thermostat in combination with an external water storage tank ensures that domestic water is available. The domestic water control can give priority to a domestic water request over a heat demand OR allow it to be requested at the same time.

6) Modbus controller

Enables a heat demand and changes the internal setpoints of the boiler. Often used in conjunction with a building management system.

7) EBV integration

Allows the use of an EBV control devices or cascade controller (similar to a THETA cascade controller).

8) Integrated cascade controller

The integrated cascade control can control up to six boilers based on the master-slave principle. The central heating or tap water controller only needs to be connected to the main boiler. All other boilers (slaves) are controlled by the master boiler.

Hydraulic heating scheme

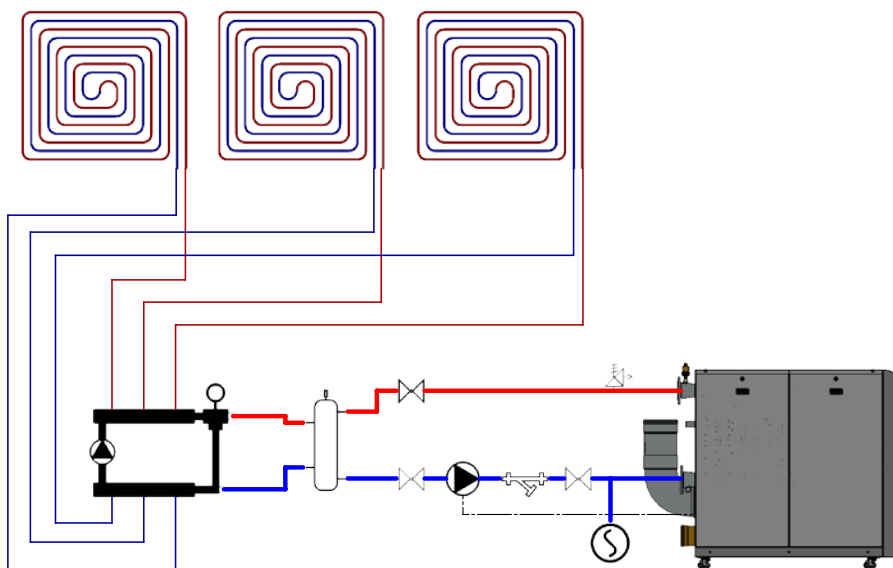


Diagram 1: Boiler with plate heat exchanger or hydraulic switch and low temperature underfloor heating.

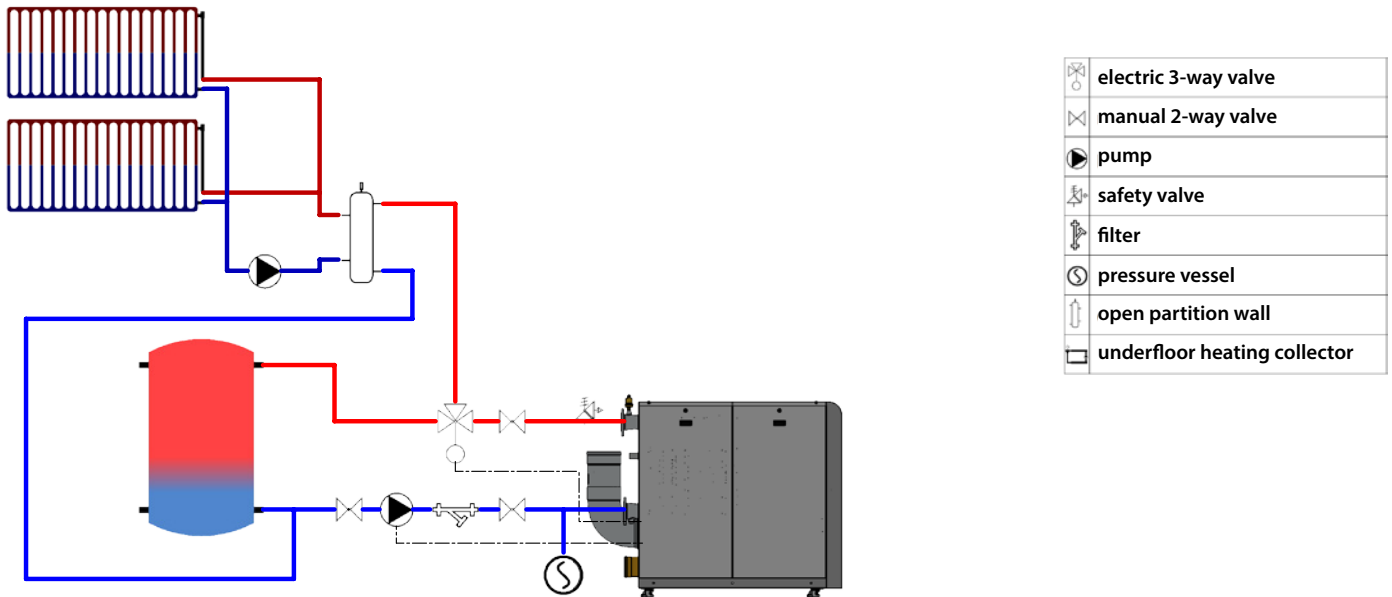


Diagram 2: Boiler with plate heat exchanger or hydraulic switch and heating system with heating and storage of domestic water (3-way valve control).

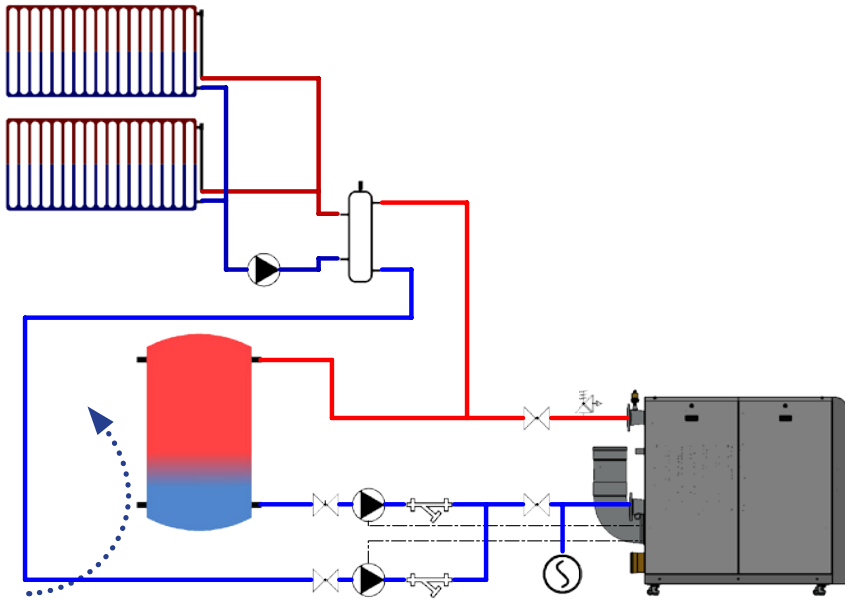


Diagram 3: Boiler with plate heat exchanger or open distributor and heating system with radiators and domestic water storage tank (2-pump configuration).

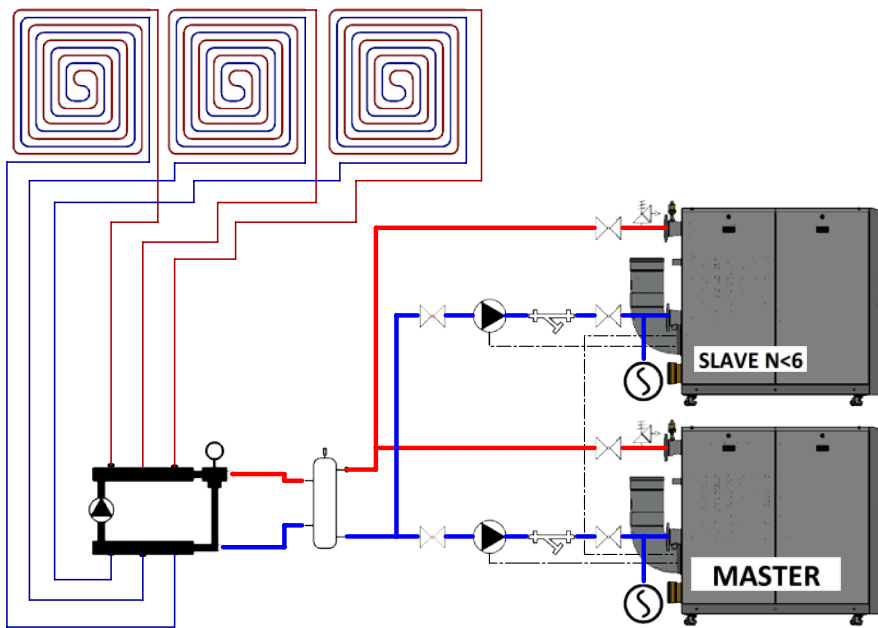


Diagram 4: Two electrically cascaded auxiliary boilers with plate heat exchangers or hydraulic separator and low temperature underfloor heating.

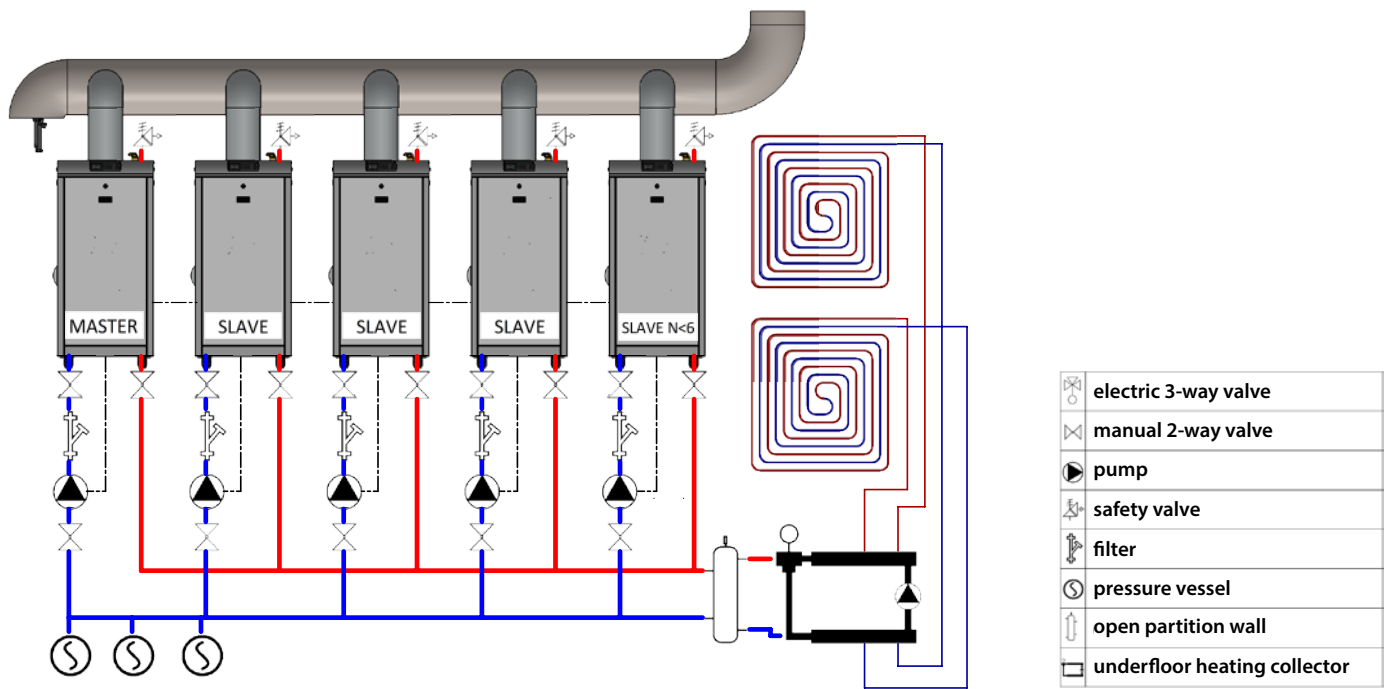
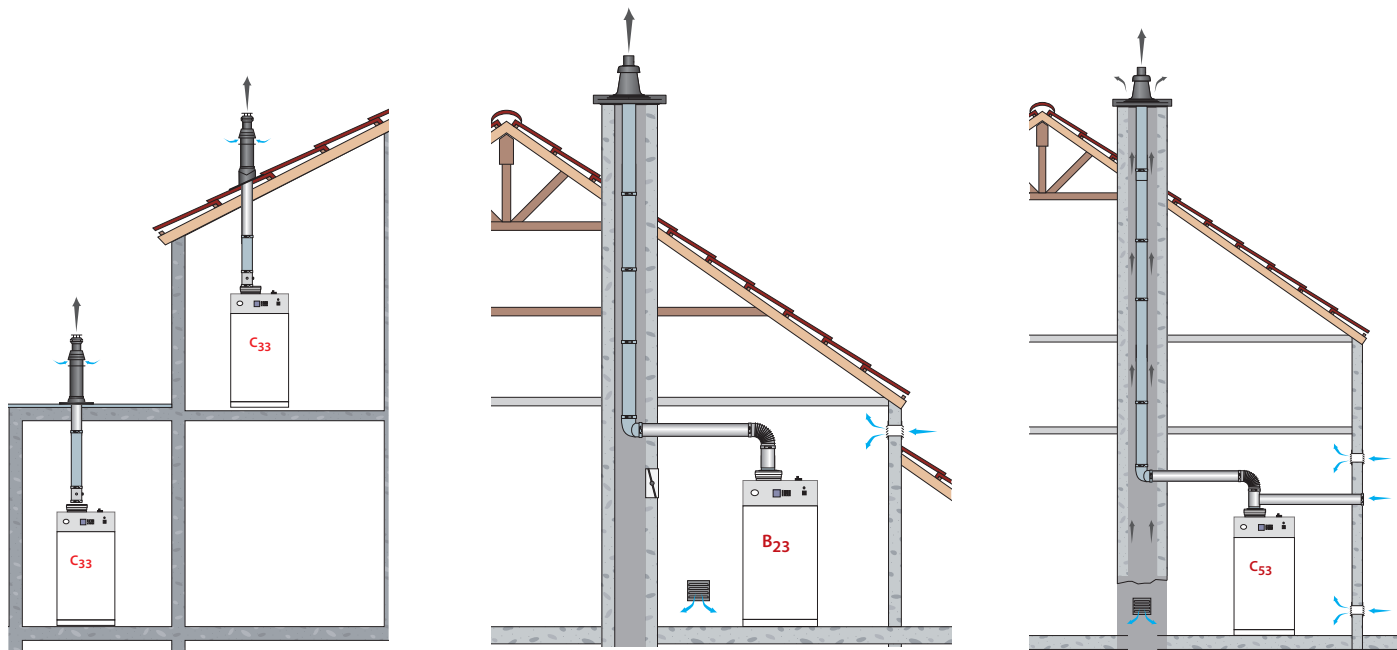


Diagram 5: Several auxiliary boilers (max. six) electrically cascaded and connected to a common flue gas system, with plate heat exchanger or hydraulic switch and low temperature underfloor heating.

Note: The heating schedules are only basic images!

Chimney connection

The boiler room must be ventilated. The dimensions of the top or bottom ventilation opening depend on the boiler output and the size of the boiler room. Refer to the locally applicable regulations.



Connection types for exhaust gas routing

B23: Connection to an exhaust pipe that takes the combustion products out of the boiler room, taking the combustion air directly from the boiler room.

C33(x): Connection with pipes equipped with a vertical joint that simultaneously draws in fresh air for the burner and expels the combustion products outside through openings that are either concentric or close enough to each other to be exposed to similar wind conditions, i.e. the openings must fit in a 50 cm square for boilers up to 70 kW and a 100 cm square for boilers above 70 kW.

C63(x): Boiler type C for connection to a system for the supply of combustion air and the removal of combustion products, approved and sold separately (not approved in Belgium). Connections for the supply of combustion air and for the discharge of combustion products must not be installed against opposite walls of the building. See also the following additional specifications:

- C63 devices may only be used with materials and connections according to Gastec QA or EN 14989-2.
- Maximum permissible return percentage of 10% below wind conditions
- Maximum permissible combustion air temperature: 45 °C

C(11)3: General overpressure exhaust system (cascade)

We recommend using an exhaust system made entirely of aluminum. An exhaust system made of PP (temperature class T120) or stainless steel can also be used for this (see TPW table below). In this case, the condensate must be drained before it flows back into the aluminum components of the boiler. Otherwise, the aggressive condensate from the non-aluminum flue gas system can corrode the aluminum components of the boiler. To do this, a condensate discharge or condensate collector must be installed just before the boiler silencer.

T-P-W-CLASS	
Temperature range	T 120
Pressure range	P I
Condensation resistance (W = wet / D = dry)	W

Guidelines

Below we have listed some directives and regulations in accordance with the applicable EU standards.

Directive	Norm	Date of publication	Description
GAR	EN 15502-1	2015	Gaseous fuel boilers - Part 1: General requirements and exams.
GAR	EN 15502-1	2018	Gaseous fuel boilers - Part 2-1: Specific standard 1: 2012 + A1: 2016 for type C boilers and type B2, B3 and B5 boilers with a nominal heat load not exceeding 1,000 kW.
BED	92/42/EWG	1992	Boiler efficiency guideline
GAR	EN 60335-2-102	2006	Safety of electrical appliances for household and similar purposes - Part 2-102: Special requirements for gas, oil and solid fuel appliances with electrical connections. Sections: 6, 11.1, 13.3, 15, 16.3, 19.11.4, 23.1 to 23.6, 23.8, 23.9, 24.1.2 and 29; A1: 2010.
EMC	EN 55014-1	2006	Electromagnetic Compatibility - requirements for household appliances, Power Tools and Similar Electrical Equipment - Part 1: Emitted Interference. A1: 2009, A2: 2011
EMC	EN 55014-2	1997	Electromagnetic Compatibility - requirements for household appliances, Power Tools and Similar Electrical Equipment - Part 2: Immunity - Product Family Standard (1997), A1: 2002, A2: 2008.
GAR	EN 60335-2-102	2006	Safety of electrical appliances for household and similar purposes - Part 2-102: (EMC, NSR). Special requirements for gas, oil and solid fuel appliances with electrical connections (2006), A1: 2010.
EMV	EN 61000-3-2	2006	Electromagnetic Compatibility (EMC) - Part 3-2: Limits - Limits values for harmonic currents (device input current ≤ 16 A each Head), (2006), A1: 2009, A2: 2009.
EMV	EN 61000-3-3	2008	Electromagnetic Compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage networks for appliances with a nominal current ≤ 16 A per conductor, for which no special connection is required (2008).
ERP	Regulatie (EU)	2013	ERP Regulation (EU) No. 813/2013 of the Commission for implementation No. 813/2013 of Directive 2009/125 / EC in view of the requirements for the environmentally friendly design of space heaters and combination heaters.
VDI	2035	2004	Requirements for the quality of the heating water.
GAR	EN 1856-1	2009	Exhaust systems - Requirements for metal exhaust systems.
GAR	EN 14471	2013	Single, multiple and concentric PP exhaust systems.

TECHNICAL SPECIFICATIONS

	168-5	210-6	252-7	294-8	
Central heating					
Nominal input max load (Hi)	168	210	252	294	kW
Nominal input min load (Hi)	33,6	42	50,4	58,8	kW
Nominal output max load 80-60 °C	163,6	204,5	245,4	282,5	kW
Nominal output min load 80-60 °C	32,6	40,7	48,9	57	kW
Efficiency max load (80-60 °C) (Hi)	97,4	97,4	97,4	98,4	%
Efficiency min load (80-60 °C) (Hi)	97	97	97	97	%
Efficiency max load (50-30 °C) (Hi)	102,8	102,8	102,8	103,9	%
Efficiency 30% load 30 °C (return) (Hi)	107,5	107,5	107,5	107,5	%
Exhaust					
Flue-gas temperature max load (80-60 °C)	70-75	70-75	70-75	70-75	°C
Flue-gas temperature min load (80-60 °C)	65-70	65-70	65-70	65-70	°C
Flow flue-gasses max load G25	275	343	412	474	m ³ /h
Flow flue-gasses min load G25	55	69	83	96	m ³ /h
Maximum flue-resistance	150	150	150	150	Pa
Emission CO (n = 1)	38	39	37	35	ppm
Emission NOx (n = 1)	29	29	29	29	ppm
Connection types B23, C13, C33, C53, C63	yes	yes	yes	yes	
Gas					
Gasflow max load G25	20,2	25,2	30,3	34,9	m ³ /h
Gasflow min load G25	4,04	5,05	6,05	7,06	m ³ /h
Gasflow max load G25.3	19,75	24,65	29,6	34,05	m ³ /h
Gasflow min load G25.3	3,95	4,93	5,92	6,9	m ³ /h
Gasflow max load G20	17,4	21,8	26,2	30,2	m ³ /h
Gasflow min load G20	3,49	4,36	5,23	6,1	m ³ /h
CO ₂ content max load G20	9,3	9,3	9,3	9,3	%
CO ₂ content min load G20	9,1	9,1	9,1	9,1	%
O ₂ content max load G25	3,90 +0,10-0,30				%
O ₂ content min load G25	4,30 +0,35-0,20				%
O ₂ content max load G25.3	3,95 +0,10-0,35				%
O ₂ content min load G25.3	4,30 +0,35-0,20				%
O ₂ content max load G20	4,35 +0,35-0,25				%
O ₂ content min load G20	4,60 +0,40-0,20				%
Water					
Max flow temperature	85	85	85	85	°C
Content heat-exchanger	16,9	21,3	24,7	30,2	l
Min/max operating pressure	0,8/6	0,8/6	0,8/6	0,8/6	bar
Hydraulic resistance	90	96	99	103	mbar
(DT 20: nominal flow max load 80-60 °C)					
Max DT max load / min load	25/35	25/35	25/35	25/35	°C
Max waterflow	14,1	17,6	21,1	24,3	m ³ /h
Weight					
Heat exchanger including distributor and condensate tray	82	99	116	133	kg
Total weight of the Mark boiler	193	210	227	244	kg
Dimensions housing					
Width	602	602	602	602	mm
Depth including connections	1463	1463	1463	1463	mm
Height	1307	1307	1307	1307	mm
Electrical data					
Protection class	00B	00B	00B	00B	IP
Supply voltage	230/50	230/50	230/50	230/50	V / Hz
Max power consumption	1150	1150	1150	1150	W
Standby power consumption	5	5	5	5	W
Fuse	5	5	5	5	A

TECHNICAL SPECIFICATIONS					
	340-5	425-6	510-7	600-8	
Central heating					
Nominal input max load (Hi)	340	425	510	595	kW
Nominal input min load (Hi)	68	85	102	119	kW
Nominal output max load 80-60 °C	331	413,1	495,7	578,3	kW
Nominal output min load 80-60 °C	66	82,5	99	115,6	kW
Efficiency max load (80-60 ° C) (Hi)	97,2	97,2	97,2	97,2	%
Efficiency min load (80-60 ° C) (Hi)	97	97	97	97	%
Efficiency max load (50-30 ° C) (Hi)	103,1	103,1	103,1	103,1	%
Efficiency 30% load 30 ° C (return) (Hi)	108,1	108,1	108,1	108,1	%
Exhaust					
Flue-gas temperature max load (80-60 ° C)	65-70	65-70	65-70	65-70	°C
Flue-gas temperature min load (80-60 ° C)	60-65	60-65	60-65	60-65	°C
Flow flue-gasses max load G25	556	695	835	974	m ³ /h
Flow flue-gasses min load G25	111	139	167	195	m ³ /h
Maximum flue-resistance	250	250	300	300	Pa
Emission CO (n = 1)	116	110	100	90	ppm
Emission NOx (n = 1)	27 / Class 6	27 / Class 6	27 / Class 6	27 / Class 6	ppm
Connection types B23, B33, C13, C33, C43, C53, C63, C83	yes	yes	yes	yes	
Gas					
Gasflow max load G25	41,8	52,3	62,8	73,2	m ³ /h
Gasflow min load G25	8,4	10,5	12,6	14,6	m ³ /h
Gasflow max load G25.3	39,94	49,93	59,92	69,91	m ³ /h
Gasflow min load G25.3	7,99	9,98	11,98	13,98	m ³ /h
Gasflow max load G20	36	45	54	63	m ³ /h
Gasflow min load G20	7,2	9	10,8	12,6	m ³ /h
CO ₂ content max load G20	9,3	9,3	9,3	9,3	%
CO ₂ content min load G20	9,1	9,1	9,1	9,1	%
O ₂ content max load G25	3,90 +0,10-0,30				%
O ₂ content min load G25	4,30 +0,35-0,20				%
O ₂ content max load G25.3	3,95 +0,10-0,35				%
O ₂ content min load G25.3	4,30 +0,35-0,25				%
O ₂ content max load G20	4,25 +0,10-0,35				%
O ₂ content min load G20	4,60 +0,40-0,20				%
Water					
Max flow temperature	85	85	85	85	°C
Content heat-exchanger	36,2	43,7	51,1	58,5	l
Min/max operating pressure	0,8/6	0,8/6	0,8/6	0,8/6	bar
Hydraulic resistance	200	210	220	230	mbar
(DT 20: nominal flow max load 80-60 ° C)					
Max DT max load / min load	25/35	25/35	25/35	25/35	°C
Max waterflow	28,5	35,6	42,7	49,8	m ³ /h
Weight					
Heat exchanger including distributor and condensate tray	150	180	215	245	kg
Total weight of the Mark boiler	330	365	429	464	kg
Dimensions housing					
Width	700	700	700	700	mm
Depth without exhaust connection	1222	1222	1553	1553	mm
Height	1431	1431	1431	1431	mm
Electrical data					
Protection class	00B	00B	00B	00B	IP
Supply voltage	230/50	230/50	230/50	230/50	V / Hz
Standby power consumption *	21	21	36	36	W
Min load power consumption *	78	78	105	105	W
Max load power consumption *	587	587	874	874	W
Max. permissible power consumption	2300	2300	2300	2300	W
Fuse	10	10	10	10	A

* on delivery and without additional devices connected

TECHNICAL SPECIFICATIONS			
	850-11	1020-13	
Central heating			
Nominal input max load (Hi)	850	1020	kW
Performance range in%			
(Technician level) Setting for CV mode	100	100	
Nominal input min load (Hi)	170	204	kW
Nominal output max load 80-60 °C	828,8	994,5	kW
Nominal output min load 80-60 °C	165,4	198,5	kW
Efficiency max load (80-60 °C) (Hi)	97,5	97,5	%
Efficiency min load (80-60 °C) (Hi)	97,3	97,3	%
Efficiency max load (50-30 °C) (Hi)	103,1	103,1	%
Efficiency 30% load 30 °C (return) (Hi)	108,3	108,3	%
Exhaust			
Flue-gas temperature max load (80-60 °C)	65-70	65-70	°C
Flue-gas temperature min load (80-60 °C)	60-65	60-65	°C
Flow flue-gasses max load G25	1221	1465	m ³ /h
Flow flue-gasses min load G25	245	294	m ³ /h
Maximum flue-resistance	500	500	Pa
Emission CO (n = 1)	96	96	ppm
Emission NOx (n = 1)	Class 6	Class 6	
Connection types B23, C (11) 3, C33, C63	yes	yes	
Gas			
Gasflow max load G25	104,5	125,4	m ³ /h
Gasflow min load G25	21	25,1	m ³ /h
Gasflow max load G25.3	99,9	119,8	m ³ /h
Gasflow min load G25.3	20	24	m ³ /h
Gasflow max load G20	90	108	m ³ /h
Gasflow min load G20	24	24	m ³ /h
CO ₂ content max load G20	9,3	9,3	%
CO ₂ content min load G20	9,1	9,1	%
O ₂ content max load G25	3,90 +0,10-0,30		%
O ₂ content min load G25	4,30 +0,35-0,20		%
O ₂ content max load G25.3	3,95 +0,10-0,35		%
O ₂ content min load G25.3	4,35 +0,35-0,25		%
O ₂ content max load G20	4,25 +0,10-0,35		%
O ₂ content min load G20	4,60 +0,40-0,20		%
Water			
Max flow temperature	85	85	°C
Content heat-exchanger	100	118	l
Min/max operating pressure	0,8/6	0,8/6	bar
Hydraulic resistance	200	225	mbar
(DT 20: nominal flow max load 80-60 °C)			
Max DT max load / min load	25/35	25/35	°C
Max waterflow	71,3	85,6	m ³ /h
Weight			
Heat exchanger *	412,6	412,6	kg
Total weight of the Mark boiler	348,4	348,4	kg
Dimensions housing			
Width	877	877	mm
Depth without manifold flange	2096	2096	mm
Height excluding feet	1551	1551	mm
Electrical data			
Supply voltage	400V 3~ N / 50	400V 3~ N / 50	V / Hz
Standby power consumption *	15	15	W
Min load power consumption *	50	50	W
Max load power consumption *	1560	2000	W
Max. permissible power consumption	6900	6900	W
Fuse	400V 3~ N / 10	400V 3~ N / 10	A

* on delivery and without additional devices connected

TECHNICAL SPECIFICATIONS		
	2200	
Central heating		
Nominal input max load (Hi)	2200	kW
Performance range in%		%
(Technician level) Setting for CV mode	80	
Nominal input min load (Hi)	440	kW
Nominal output max load 80-60 °C	2156	kW
Nominal output min load 80-60 °C	431	kW
Efficiency max load (80-60 °C) (Hi)	98,0	%
Efficiency min load (80-60 °C) (Hi)	98,0	%
Efficiency max load (50-30 °C) (Hi)	103,1	%
Efficiency 30% load 30 °C (return) (Hi)	107,9	%
Exhaust		
Flue-gas temperature max load (80-60 °C)	60-65	°C
Flue-gas temperature min load (80-60 °C)	60-65	°C
Flow flue-gasses max load G25	3160	m ³ /h
Flow flue-gasses min load G25	649	m ³ /h
Maximum flue-resistance	480	Pa
Emission CO (n = 1)	60	ppm
Emission NOx (n = 1)	Class 6	
Connection types B23, C33, C63	yes	
Gas		
Gasflow max load G25	270,4	m ³ /h
Gasflow min load G25	55,4	m ³ /h
Gasflow max load G25.3	258,3	m ³ /h
Gasflow min load G25.3	52,9	m ³ /h
Gasflow max load G20	232	m ³ /h
Gasflow min load G20	47,7	m ³ /h
CO ₂ content max load G20	9,3	%
CO ₂ content min load G20	9,1	%
O ₂ content max load G25	3,90 +0,10-0,30	%
O ₂ content min load G25	4,30 +0,35-0,20	%
O ₂ content max load G25.3	3,95 +0,10-0,35	%
O ₂ content min load G25.3	4,35 +0,35-0,25	%
O ₂ content max load G20	4,25 +0,10-0,35	%
O ₂ content min load G20	4,60 +0,40-0,20	%
Water		
Max flow temperature	90	°C
Content heat-exchanger	460	l
Min/max operating pressure	0,8/6	bar
Hydraulic resistance	190	mbar
(DT 20: nominal flow max load 80-60 °C)		
Max DT max load / min load	25/30	°C
Max waterflow	190	m ³ /h
Weight		
Heat exchanger	1250	kg
Total weight of the Mark boiler	1740	kg
Dimensions housing		
Width	1100	mm
Depth without manifold flange	2160	mm
Height	2463	mm
Electrical data		
Supply voltage	400V 3~ N / 50	V / Hz
Standby power consumption *	15	W
Min load power consumption *	190	W
Max load power consumption *	4700	W
Max. permissible power consumption	13800	W
Fuse	400V 3~ N / 20	A

* on delivery and without additional devices connected

Product overview



GS+ High Efficiency
Gas-Fired Air Heater



TANNER MDE
Electric Air Heater



TANNER MDA
Water-Supplied Air Heater



DRY COOLERS



ECOFAN
Recirculation Fan



FÖHN
Gas-Fired Air Heater



AIRSTREAM
Heat Recovery Unit



AHU Air Handling Unit



MDV BLUE Roof Fan



INFRA AQUA DESIGN
Water-Supplied Radiant Panels



INFRA
Gas-Fired Black Tube Heater



INFRA HT Gas-Fired
High Temperature Radiant Heater



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