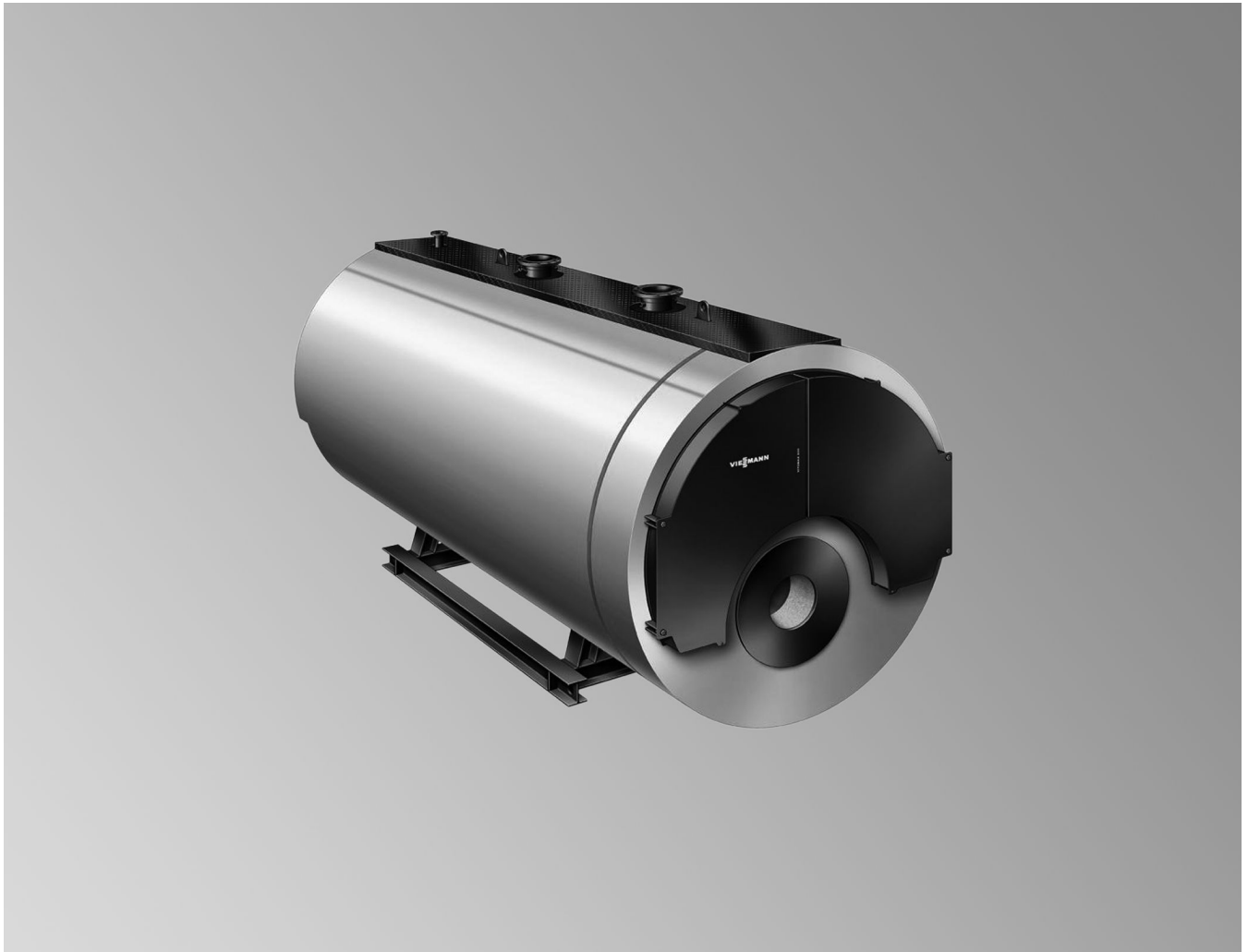


## Datasheet

**VITOMAX 200-LW** Type M62A/System

Low pressure hot water boiler

Certified in accordance with Gas Appliances Directive 2009/142/EC

Permissible for flow temperatures up to 110 °C

Certified in accordance with Pressure Equipment Directive 97/23/EC

Permissible for flow temperatures up to 120 °C

For the combustion of gas, fuel oil EL and fuel oil S (conversion required)

Three-pass boiler

Permissible operating pressure 10 and 16 bar

## Specification for burner selection

### Note

All diagrams in this document are schematic, illustrative examples.

Tolerances related to production factors are not taken into consideration for all dimensions and weights (+ 10 %).

### Test conditions

The information and values in the tables relate to the following test conditions:

- O<sub>2</sub> content in the flue gas
  - For natural gas: 3.0 %
  - For fuel oil EL: 3.0 %

- Flow/return temperature:

- 80/60 °C
- 90/70 °C with Vitotrans 100-LW/200-LW flue gas/water heat exchanger

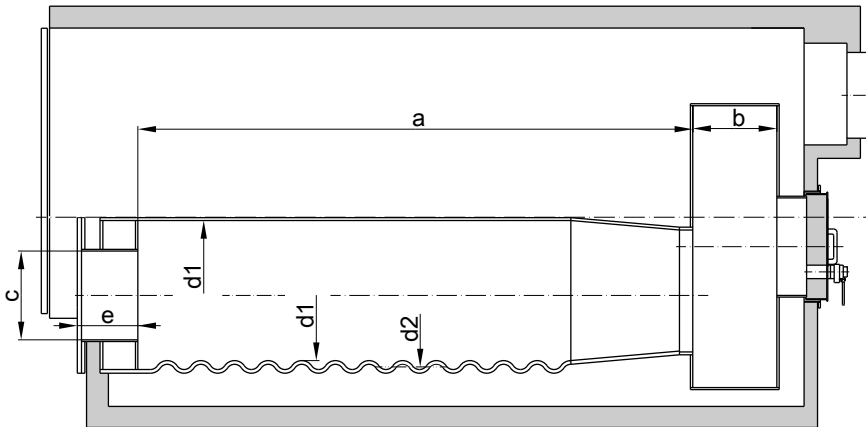
- 100 % load
- Installation altitude: < 500 m above sea level
- Combustion air temperature: 25 °C
- Operating pressure: 6 bar

Boiler size		1	2	3	4	5
<b>Rated heating output 110 °C</b>						
– For natural gas	MW	2.30	2.80	3.50	4.50	6.00
– For fuel oil EL	MW	2.30	2.80	3.50	4.50	6.00
<b>Rated heating output 120 °C</b>						
– For natural gas	MW	2.30	2.80	3.50	4.50	6.00
– For fuel oil EL	MW	2.30	2.80	3.50	4.50	6.00
<b>Permiss. combustion heating output 110 °C<sup>*1*2</sup></b>						
– For natural gas	MW	2.50	3.04	3.80	4.89	6.52
– For fuel oil EL	MW	2.50	3.04	3.80	4.89	6.52
<b>Permiss. combustion heating output 120 °C<sup>*1*2</sup></b>						
– For natural gas	MW	2.50	3.04	3.80	4.89	6.52
– For fuel oil EL	MW	2.50	3.04	3.80	4.89	6.52
<b>Flame tube dimensions</b>						
Diameter						
– Smooth pipe, min. internal ∅	d1	mm	795	845	893	964
– Corrugated pipe, min. internal ∅	d1	mm	—	—	—	950
– Flame tube length	a	mm	2630	2900	3240	3660
Reversing chamber depth	b	mm	500			
<b>Burner connections</b>						
– Max. flame head ∅	c	mm	420	420	520	520
– Min. flame head length	e	mm	360			
<b>Combustion chamber volume (average value)</b>						
– Flame tube	m <sup>3</sup>		1.31	1.63	1.99	2.63
– Relative to flame tube length a and reversing chamber depth b	m <sup>3</sup>		1.55	1.91	2.35	3.07
<b>Max. pressure drop on the flue gas side at 110 °C</b>						
– For natural gas	mbar		7.5	8.5	10.0	11.5
– For fuel oil EL	mbar		6.8	7.8	9.0	10.3
<b>Max. pressure drop on the flue gas side at 120 °C</b>						
– For natural gas	mbar		7.5	8.5	10.0	11.5
– For fuel oil EL	mbar		6.8	7.8	9.0	10.3

\*1 In accordance with EN 12953, the internal diameter of the flame tube limits the maximum combustion heating output for oil operation.

\*2 According to EN 12953, a flame tube temperature monitor is required for a combustion heating output > 14 MW when using fuel oil EL or > 18.2 MW when using natural gas.

## Specification for burner selection (cont.)



Flame tube dimensions

## Engineering information for burner selection

### Burner selection

#### Criteria for burner selection:

- The burner must be selected in accordance with the combustion heating output and the pressure drop on the flue gas side.
- The boiler and burner combination must be in line with country-specific regulations (statutes, standards, guidelines, ordinances, etc.).
- Burner head must be suitable for operating temperatures of at least 500 °C.
- The minimum flame head length must be guaranteed.

#### Recommendation

Certain types of burner, such as rotary atomisers, can hinder the opening of the cleaning doors. Check with the factory prior to delivery.

Burner type	Requirements
Pressure-jet oil burner	Test and identification in accordance with DIN EN 267
Pressure-jet gas burner	Test in accordance with DIN EN 676, CE designation in accordance with Directive 2009/142/EC



**Burner specification**  
Manufacturer's datasheets

### Burner connection

If the burner plate is to be prepared at the factory, specify burner make and boiler type when ordering.

Otherwise, make the flame tube aperture and fixing holes on site in the blank plate supplied. Then fit the burner to the boiler.

### Burner adjustment

Adjust the oil or gas throughput of the burner to the stated combustion heating output of the boiler.

### Fuels

#### Oil

- Fuel oil EL to DIN 51603 Part 1
- Fuel oil S to DIN 51603 Part 3 (requires conversion)  
If using fuel oil S, different output data for the rated heating output, flue gas temperature and efficiency may result.  
Never use heat exchangers if using fuel oil S.

#### Bio diesel

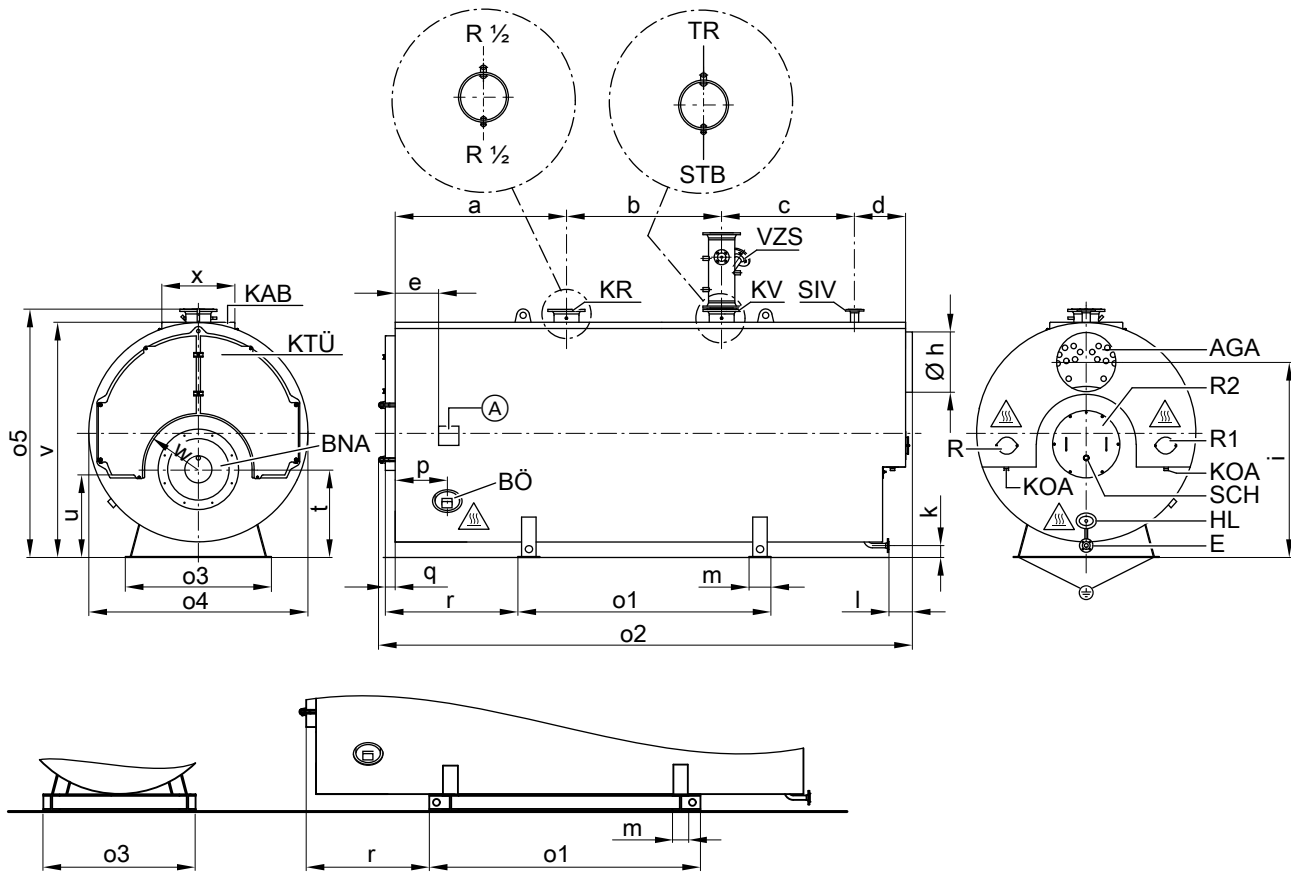
- To DIN EN 51603-6, EN 14213, EN 14214 (or equivalent)

Alternative fuels on request

#### Gas

- Natural gas, town gas and LPG to DVGW Code of Practice G 260/I and II or local regulations

# Boiler geometry



Alternative boiler base with longitudinal I-beams (optional, incurs additional charge)

- |     |                                    |     |   |
|-----|------------------------------------|-----|---|
|     | Caution - hot surface              | KTÜ | Boiler door   |
|     | Type plate                         | KV  | Boiler flow   |
| AGA | Flue outlet                        | R1  | Cleaning aperture, flue gas collector               |
| BNA | Burner connection                  | R2  | Cleaning aperture, flame tube                       |
| BÖ  | Inspection port                    | SCH | Inspection port                                     |
| E   | Drain - DN40 PN40                  | SIV | Safety valve connector                              |
| HL  | Handhole - 100 x 150 mm            | STB | High limit safety cut-out - female connection R 1/2 |
| KAB | Boiler cover                       | TR  | Temperature controller - female connection R 1/2    |
| KOA | Condensate drain connector R 1 1/2 | VZS | Intermediate flow pieces as accessories             |
| KR  | Boiler return                      |     | Equipotential bonding                               |

Boiler size		1	2	3	4	5
a	mm	1235	1440	1535	1670	1876
b	mm	1100	1150	1350	1500	1700
c	mm	1057	1072	1137	1272	1457
d	mm	510	510	510	560	560
e	mm	510	510	530	530	560
h (internal $\varnothing$ ) <sup>*3</sup>	mm	400	450	500	550	650
i	mm	1725	1805	1930	2025	2140
k	mm	100	100	100	130	130
l	mm	210	210	210	260	260
m	mm	200	200	200	240	240
m - I-beam	mm	120	120	120	160	160
o1	mm	1935	2070	2240	2480	2770
o1 - I-beam	mm	2095	2230	2400	2730	3010
o2	mm	4161	4429	4789	5259	5850
o3	mm	1250	1300	1400	1550	1600
o3 - I-beam	mm	1380	1430	1520	1700	1760
o4	mm	1925	2010	2150	2280	2400
o5	mm	2215	2300	2440	2600	2720
p	mm	285	285	305	305	335
q	mm	75	75	95	95	125
r	mm	1025	1093	1198	1288	1453

\*3 External  $\varnothing$  = internal  $\varnothing$  + 10 mm

## Boiler geometry (cont.)

Boiler size		1	2	3	4	5
r - I-beam	mm	945	1013	1118	1163	1333
t	mm	752	782	847	915	965
u	mm	740	760	830	870	900
v	mm	2070	2155	2295	2455	2575
w	mm	435	460	510	550	600
x	mm	700	700	700	800	800

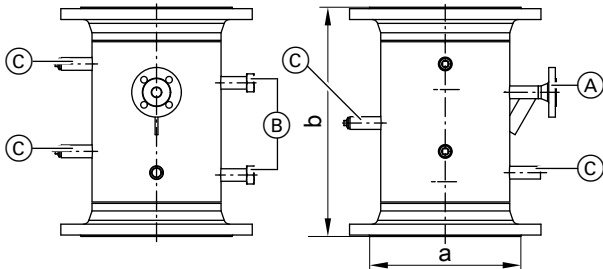
## Transport information

Boiler size		1	2	3	4	5
<b>Shipping dimensions incl. packaging</b>						
- Total length	m	4.20	4.50	4.85	5.30	5.90
- Total width	m	1.95	2.04	2.18	2.31	2.43
- Total height	m	2.24	2.33	2.47	2.63	2.75
<b>Dry weight Boiler incl. thermal insulation</b>						
For perm. operating pressure	10 bar	t	5.6	6.4	7.6	9.2
	16 bar	t	6.7	7.6	9.1	11.0

## Boiler connections

Boiler size		1	2	3	4	5
<b>Boiler flow and return</b>						
For perm. operating pressure	10 bar	PN16 DN	150	150	200	200
	16 bar	PN25 DN	—	—	200	200
	16 bar	PN40 DN	150	150	—	—
<b>Safety valve connector</b>						
For perm. operating pressure	10 bar	PN16 DN	—	50	50	65*4
	10 bar	PN40 DN	40	—	—	—
	16 bar	PN40 DN	32	40	40	50
Flue gas connection - flue outlet (DIN 24154-T2)		DN	410	460	510	560

## Intermediate flow piece (option)



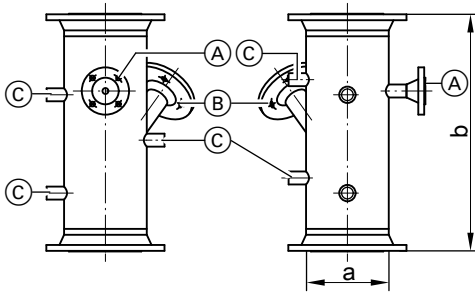
Intermediate flow piece (VZS) for boilers with permissible flow temperature 110 °C

- (A) Connector for fitting assembly DN20 PN40
- (B) Connector for water level limiter with float (VZS standard delivery)
- (C) Female connections for thermometer, sampling valve and other control equipment 4 x R ½

a	DN	80	100	125	150	200	250	300	350	400
b	mm	470	470	470	470	475	485	490	515	515

## Boiler geometry (cont.)

### Intermediate flow piece (option)

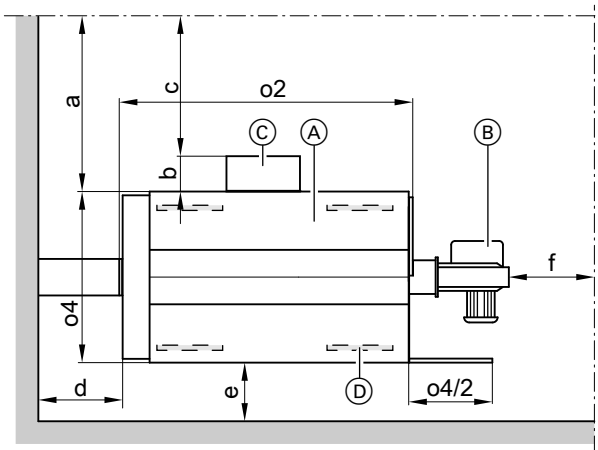


Intermediate flow piece (VZS) for boilers with permissible flow temperature 120 °C

- (A) Connector for fitting assembly DN20 PN40
- (B) Connector for water level limiter with electrodes DN20 PN40
- (C) Female connections for thermometer, sampling valve and other control equipment 5 x R 1/2

a	DN	125	150	200	250	300	350	400
b	mm	500	500	500	550	550	600	600

### Recommended minimum clearances



- (A) Boiler
- (B) Burner

- (C) Regulating and control system
- (D) Optional: Anti-vibration boiler supports
- a Control system not fitted
- b Control system depth
- c Control system fitted
- d,e,f Miscellaneous clearances

o2, o4 See dimension tables: Max. length, max. width

a/b/c	mm	≥1000/≥500/≥800
d/e/f	mm	≥500/≥300/≥500

#### Recommendation for dimension f

Leave one boiler length (o2) of space in front of the boiler door to extract the turbulators (if fitted) and for cleaning.

Observe the specified clearances to ensure easy installation and maintenance.

Observe the clearances with regard to the regulations applicable at the installation site. Allow for equipment and accessories.

### Siting conditions

- Prevent air contamination from halogenated hydrocarbons. Halogenated hydrocarbons can be found in sprays, paints, solvents and cleaning agents.
- Provide an adequate supply of uncontaminated combustion air if there is a risk of air contamination from halogenated hydrocarbons where the boiler is sited.

- Avoid very dusty conditions.
- Avoid high levels of humidity.
- Prevent frost and ensure good ventilation.
- Site on a level surface.

Failure to observe these instructions can cause system faults and damage.

### Reducing noise

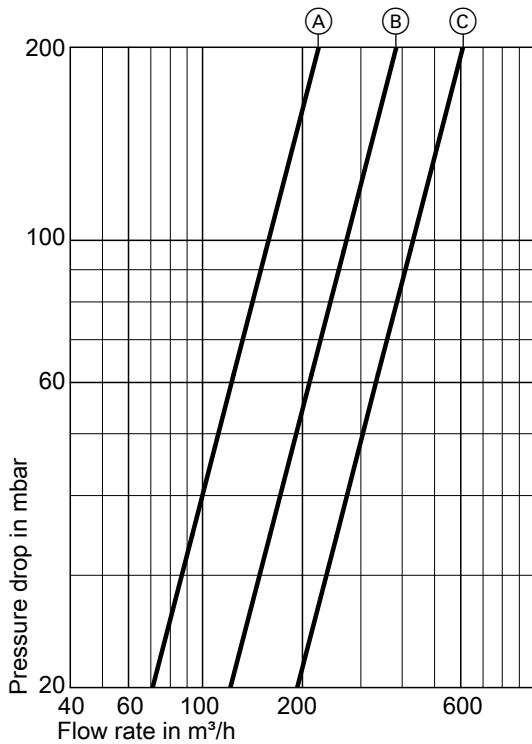
Place anti-vibration supports (not included in standard delivery) under the boiler shell. Position supports centrally under the base rails, distributed evenly along the length.

### Boiler performance data

Boiler size		1	2	3	4	5
Boiler water content	m <sup>3</sup>	4.9	5.6	7.0	8.7	10.5

## Boiler performance data (cont.)

### Pressure drop on the heating water side



Connectors for boiler flow and return

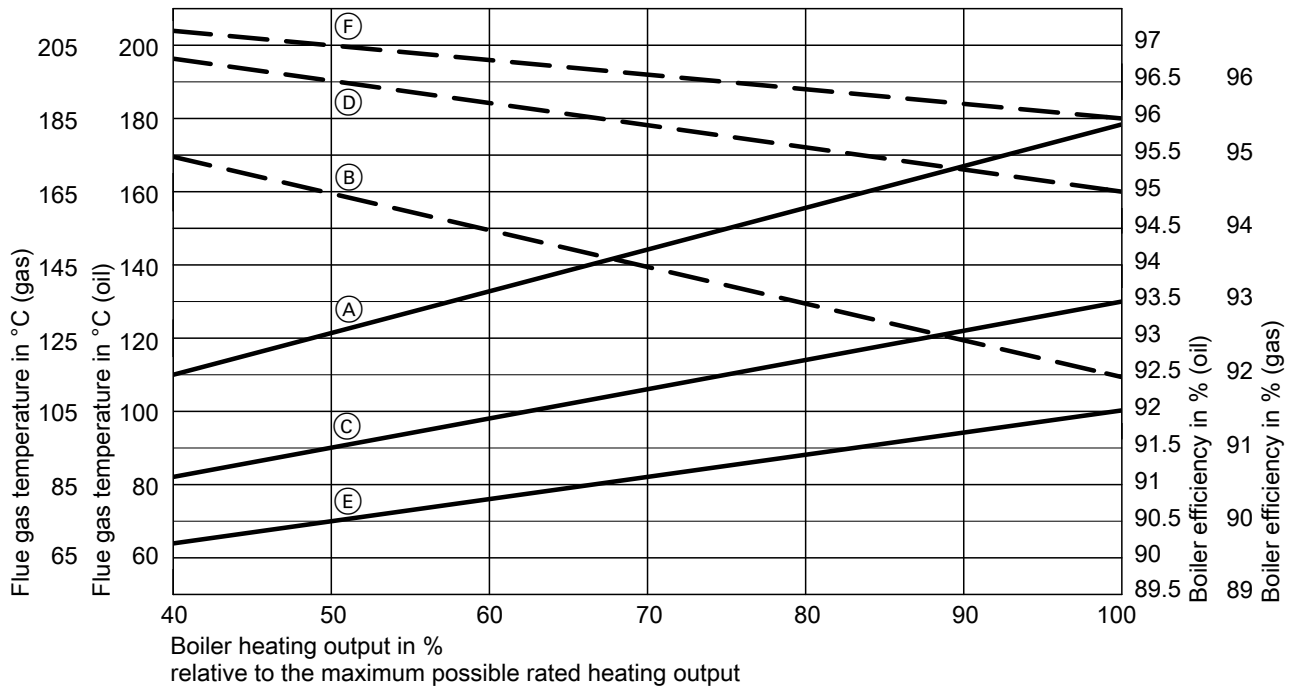
- Ⓐ DN150
- Ⓑ DN200
- Ⓒ DN250

Boiler size		1	2	3	4	5
<b>Flue gas mass flow rate</b> *5						
– For natural gas	t/h	1.5225 x combustion heating output in MW				
– For fuel oil EL	t/h	1.5 x combustion heating output in MW				
Heating surface, flue gas side	m <sup>2</sup>	63.0	76.4	90.5	118.0	150.8
Flue gas volume	m <sup>3</sup>	2.71	3.28	4.16	5.38	7.14

\*5 Calculation of values for sizing the flue system to EN 13384 with the following CO<sub>2</sub> contents: 13 % for fuel oil EL, 10 % for natural gas. The significant factor for sizing the flue system is the flue gas temperature at 80 °C boiler water temperature. It is used to determine the application range of flue pipes with maximum permissible operating temperatures.

## Boiler performance data (cont.)

### Flue gas temperature and boiler efficiency



Without Vitotrans 100-LW/200-LW

Lower limits averaged across all boiler sizes

- (A) Flue gas temperature in °C
- (B) Boiler efficiency in %

With Vitotrans 200-LW

All efficiency figures  $\pm 0.5\%$ , relative to heat exchanger use

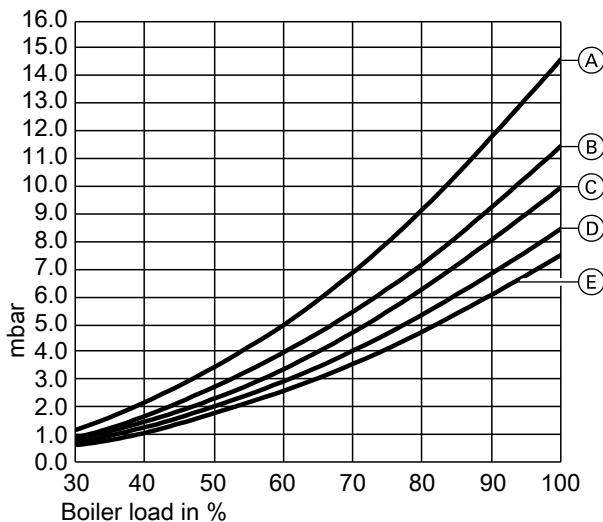
- (E) Flue gas temperature in °C
- (F) Boiler efficiency in %

With Vitotrans 100-LW

All efficiency figures  $\pm 0.5\%$ , relative to heat exchanger use

- (C) Flue gas temperature in °C
- (D) Boiler efficiency in %

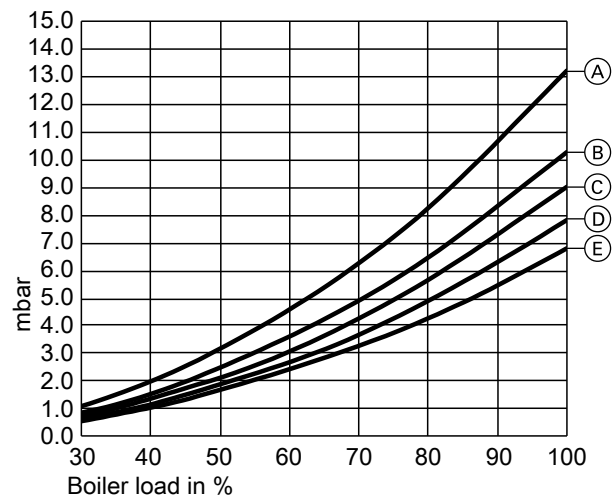
### Pressure drop on the flue gas side, natural gas



Pressure drop on the flue gas side 30 % to 100 % boiler load

- (A) M62A005
- (B) M62A004
- (C) M62A003
- (D) M62A002
- (E) M62A001

### Pressure drop on the flue gas side, fuel oil EL



Pressure drop on the flue gas side 30 % to 100 % boiler load

- (A) M62A005
- (B) M62A004
- (C) M62A003
- (D) M62A002
- (E) M62A001



## Operating conditions

		Requirements/notes	
		Boiler	Boiler with Vitotrans 100-/200-LW
1.	Heating water flow rate	No minimum heating water flow rate required	
2.	<b>Boiler return temperature</b> (minimum value) – Oil operation – Gas operation	50 °C 55 °C	65 °C 65 °C
3.	Lower boiler water temperature	70 °C	
4.	<b>Max. spread</b> – Oil operation – Gas operation	50 K 50 K	40 K 40 K
5.	Stepped burner operation	None	
6.	Modulating burner operation	None	
7.	<b>Reduced mode</b>		
	Single boiler system	Operation with lower boiler water temperature	
	Multi boiler system – Lead boiler – Lag boiler	Operation with lower boiler water temperature Lag boilers can be shut down	
	Weekend setback	See reduced mode	



**For water quality requirements**  
"Requirements and standard values for water quality"

## Permissible flow temperatures

Hot water boiler for permissible flow temperatures (= safety temperatures)

- **Up to 110 °C**
  - Designation: In accordance with Gas Appliances Directive 2009/142/EC
- **Up to 120 °C**
  - Designation: In accordance with Pressure Equipment Directive 97/23/EC



**Further information on design/engineering**  
see the technical guide to this boiler

## Tested quality

 CE designation according to current EC directives.

## Boiler scope of delivery

### Boiler

- Boiler shell with burner connection flange and burner plate supplied
- Fitted boiler doors
- Bolted down cleaning cover

### Boiler accessories (option)

- Safety equipment
- Burner
- Valves/fittings
- Heat exchanger
- Return temperature raising facilities

- Fitted load bearing boiler cover
- Fitted thermal insulation and thermally insulated flue gas collector
- Turbulators (if installed)
- Turbulator extractor (if turbulators are installed)
- Packaging
  
- Boiler control platform
- Regulating and control systems
- Flue gas components
- Pressure-maintaining facility
- For further accessories, see pricelist

## System scope of delivery

### As per the boiler, plus:

- Drilled burner plate
- Burner
- Shut-off damper for boiler flow and return connectors
- Shut-off valve for drain outlet
- Fitting assembly with pressure gauge
- Straight-through shut-off valve
- Mating flanges for boiler flow, boiler return and drain connectors

- Maximum pressure limiter
- Minimum pressure limiter
- Vitocontrol control panel with fitted Vitotronic 100 (type GC1B)
- Control panel with adaptor
- Flash trap replacement set
- Safety valve
- Intermediate flow piece with low water indicator

## System scope of delivery (cont.)

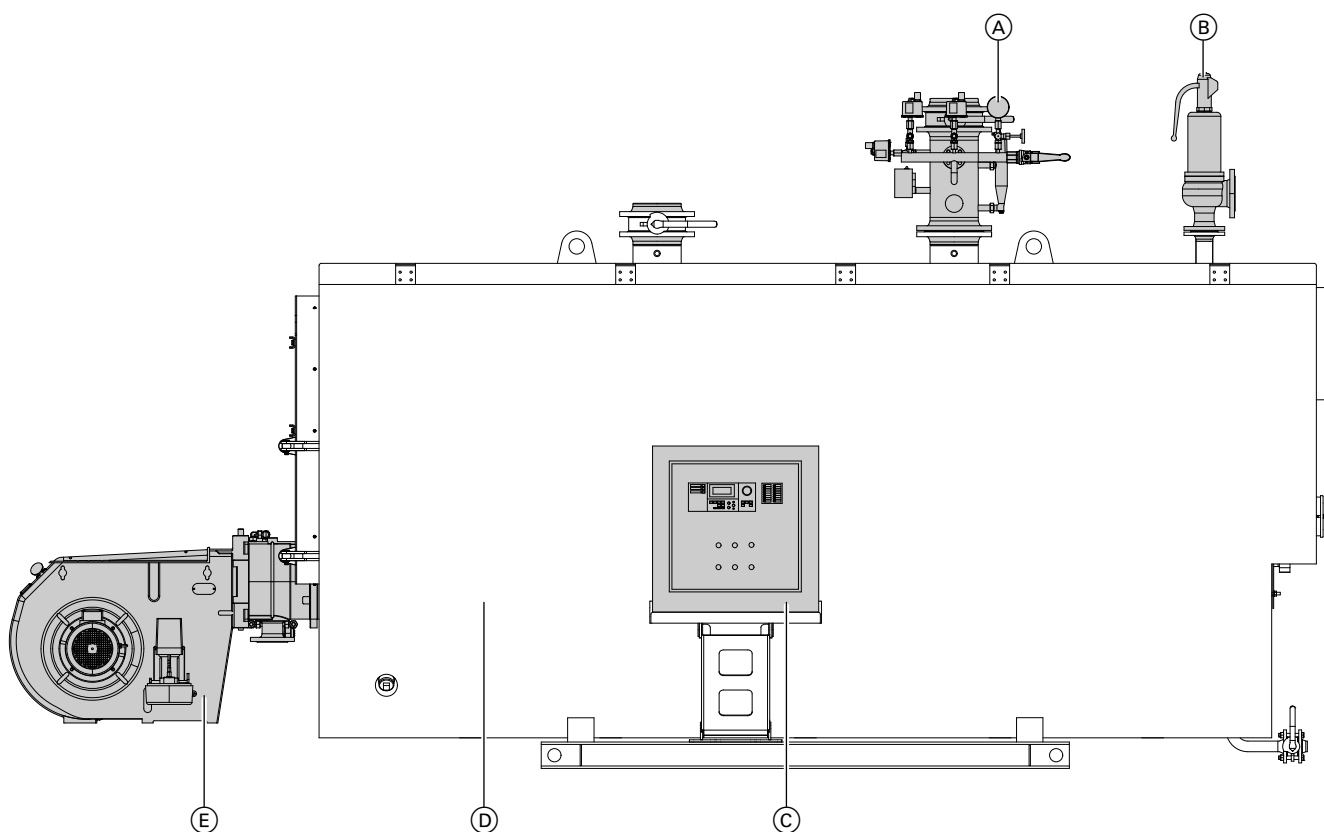
- Dial thermometer with sensor well
- Provisions for control platform installation

### System accessories (optional)

- Return temperature raising facility (RTRF) with shunt pump\*<sup>6</sup>
- Return temperature raising facility with 3-way mixing valve and boiler circuit pump\*<sup>6</sup>
- Temperature sensor for flue outlet
- Vitotrans 100-LW/200-LW flue gas/water heat exchanger, max. flow, with mating flanges on the water side for improved efficiency\*<sup>6</sup>

- Flue gas silencer\*<sup>6</sup>
- Steel or stainless steel motorised flue gas damper\*<sup>6</sup>
- Gas train with 100 mbar or 300 mbar supply pressure
- Modular operating platform\*<sup>6</sup>

## Example system with accessories



- (A) Intermediate flow piece with safety control and limiting equipment
- (B) Safety valve

- (C) Regulating and control system (Vitocontrol with Vitotronic)
- (D) Low pressure hot water boiler
- (E) Combustion system



**Specification and dimensions**  
Component datasheets

\*<sup>6</sup> For specification, see the manufacturer's datasheet



Subject to technical modifications.

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