VIESMANN

VITOMAX 300-LT

Heating output 1.86 to 5.90 MW

Datasheet

VITOMAX 300-LT Type M343B

Low pressure hot water boilers
Low NO_x version
Certified in accordance with Gas Appliances Directive 2009/142/EC, approved for flow temperatures up to 110 °C
Certified in accordance with Pressure Equipment Directive 97/23/EC, approved for flow temperatures up to 120 °C, individual test certification only
Suitable for the combustion of fuel oil EL and gas
Three-pass boiler
Permissible operating pressure 6 bar

5774 565 GB 4/2014

Specification for burner selection

Note

All diagrams are schematic, illustrative examples.

Tab. 1

Boiler size[*1]			**0**	**1**	**2**	**3**	**4**	**5**	**6**
Rated heating output[*2]									
- for natural gas/fuel oil EL		MW	1.86	2.30	2.90	3.50	4.10	4.70	5.90
Max. perm. combustion heating output									
- for natural gas/fuel oil EL		MW	2.01	2.49	3.14	3.79	4.43	5.08	6.38
			Flame tube dimensions						
Lengths									
- Flame tube length to reversing chamber	a1	mm	2466	2665	2867	3017	3134	3283	3608
- Flame tube length to the centre of the reversing chamber	a2	mm	2670	2891	3121	3296	3439	3613	3974
- Total flame tube length	a3	mm	2977	3227	3477	3677	3850	4050	4485
Diameter									
- Smooth pipe min. internal ∅	d1	mm	866	926	994	1050	1110	1160	1238
			Burner connections						
- Max. flame head ∅	c	mm	410	410	520	520	520	520	590
- Min. flame head length	e	mm	265	265	265	265	265	265	270
			Flame tube volume						
- Relative to flame tube length a3		m³	1.75	2.17	2.70	3.18	3.73	4.28	5.40

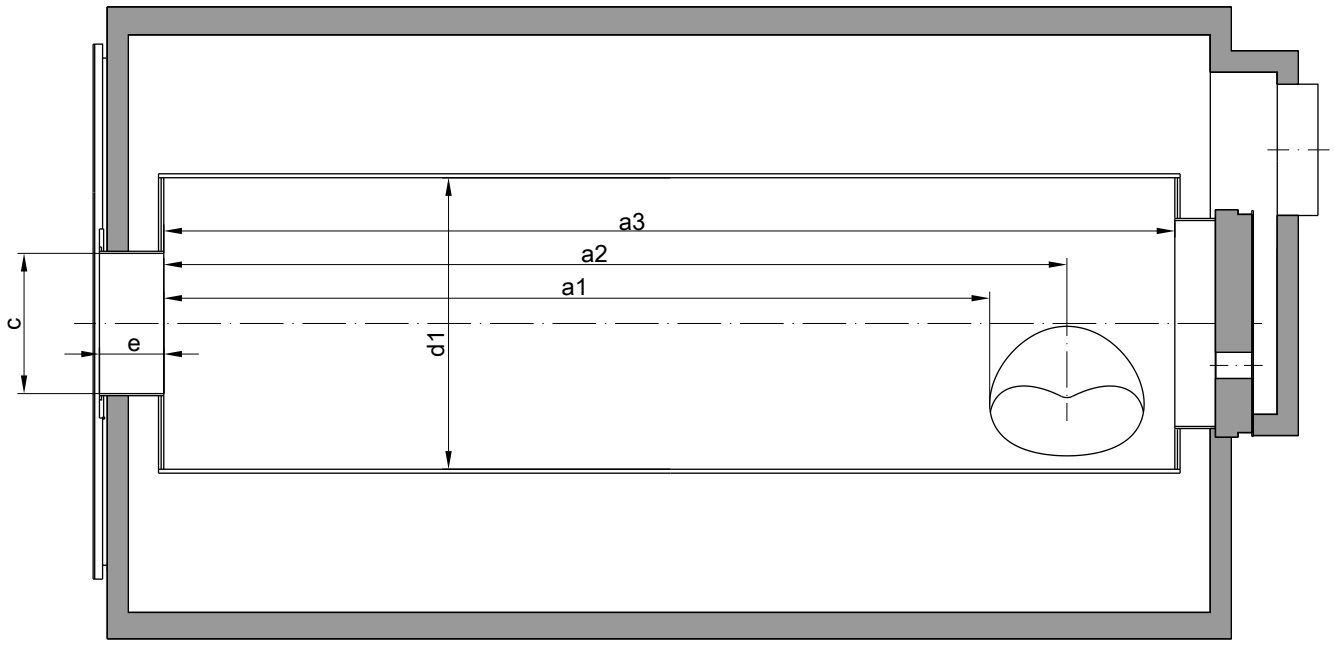


Fig. 1

Note

Tolerances related to production factors are not taken into consideration.

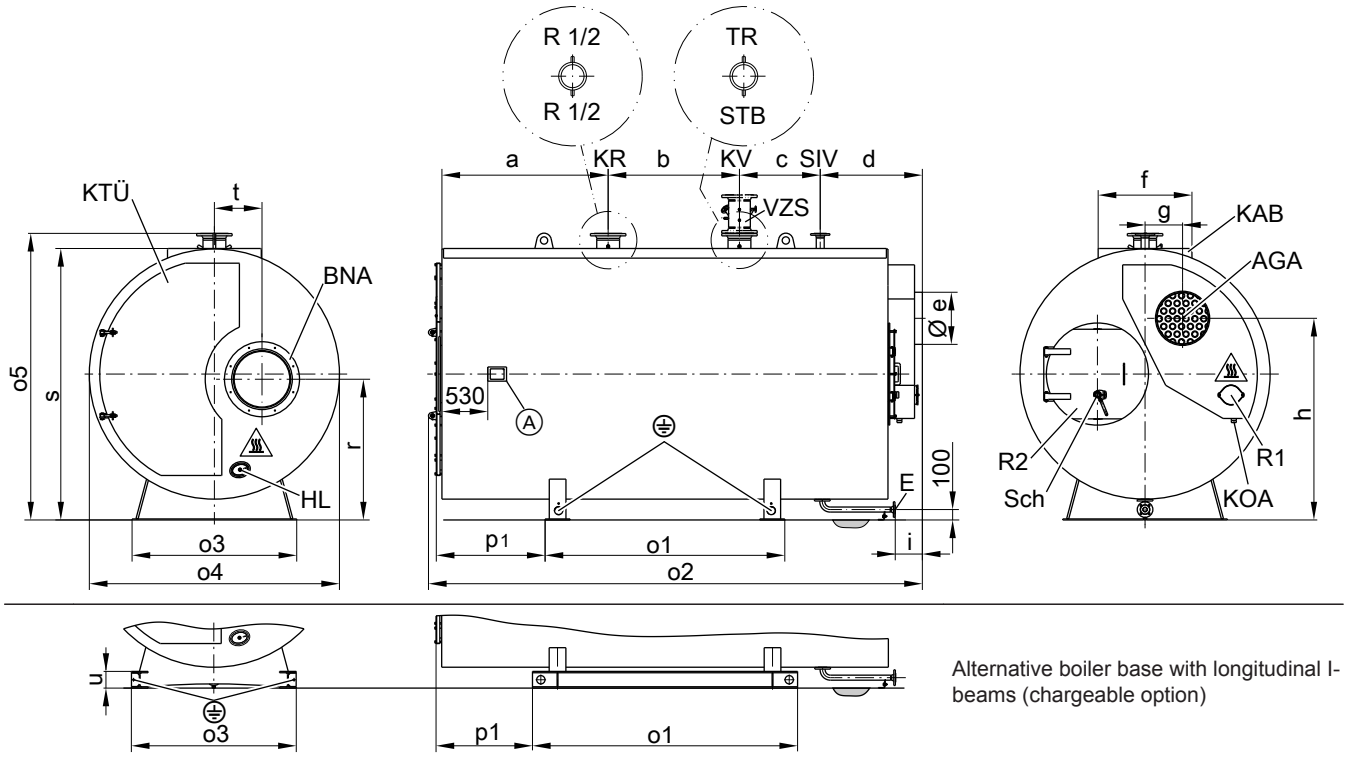
Tab. 2: Max. pressure drop on the flue gas side[*2]

Boiler size[*1]		**0**	**1**	**2**	**3**	**4**	**5**	**6**
- for natural gas	mbar	6.0	6.5	8.5	9.0	9.5	10.0	10.8
- for fuel oil EL	mbar	5.5	6.0	7.9	8.2	8.5	9.0	9.8

*[*1] Last digit of part number*

*[*2] For a flow/return temperature of 80/60 °C*

Specification for boiler



Alternative boiler base with longitudinal I-beams (chargeable option)

Fig. 2: Caution - hot surface

Ⓐ Type plate
AGA Flue outlet
BNA Burner connection
E Drain - DN 40 PN 40
HL Handhole - 100 x 150 mm
KAB Boiler cover
KOA Condensate drain - connector R 1 ½
KR Boiler return
KTÜ Boiler door
KV Boiler flow
R1 Cleaning aperture, flue gas collector
R2 Flame tube cleaning aperture
SCH Inspection port
SIV Safety valve connector
STB High limit safety cut-out - female connection R ½
TR Temperature controller - female connection R ½
VZS Intermediate flow piece as accessory - option for 110/120 °C boiler
⏚ Equipotential bonding

Tab. 3: Nominal dimensions **3*

Boiler size **1*		**0**	**1**	**2**	**3**	**4**	**5**	**6**
a	mm	1300	1395	1470	1540	1595	1670	1830
b	mm	1000	1080	1160	1226	1260	1340	1475
c	mm	610	665	700	740	775	810	900
d	mm	777	807	857	881	980	990	1040
e (internal ∅) **4*	mm	346	346	392	440	490	550	620
f	mm	900	900	900	900	1000	1000	1000
g	mm	150	235	290	330	360	370	395
h	mm	1765	1790	1790	1870	1935	2000	2130
i	mm	210	210	210	210	260	260	260
o1	mm	1825	1950	2075	2175	2300	2400	2620
o1 I-beam	mm	1985	2110	2235	2335	2540	2800	2860
o2	mm	3816	4066	4316	4516	4739	4939	5374
o3	mm	1320	1370	1420	1470	1580	1630	1730
o4	mm	2020	2110	2200	2300	2400	2500	2680
o5	mm	2370	2460	2550	2650	2750	2850	3030
p1	mm	845	908	970	1020	1044	1094	1202
p1 I-beam	mm	765	828	890	940	924	894	1082
q	mm	440	440	440	440	440	440	440
r	mm	1120	1185	1265	1330	1400	1450	1540
s	mm	2225	2315	2405	2505	2605	2705	2885
t	mm	380	397	415	438	457	475	512
u	mm	120	120	120	120	160	160	160

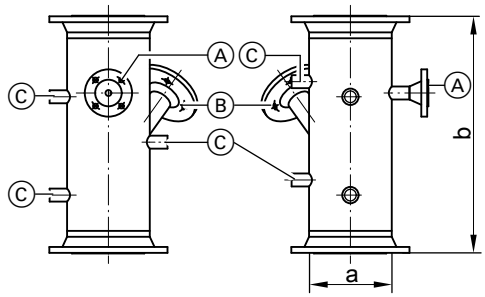
**3 Subject to modification*

**1 Last digit of part number*

**4 Internal ∅ + 8 mm (for sizes 0-2) and + 10 mm (for sizes 3-6) produces external ∅*

Specification for boiler (cont.)

Intermediate flow piece (option)



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

Ⓐ Connector for fitting assembly DN 20 PN 40
Ⓑ Connector for electrode water level limiter DN 50 PN 40
Ⓒ Female connections for thermometer, sampling valve and other control equipment 5 x R ½

Fig. 3: VZS for 120 °C - boiler

Tab. 4

Boiler size[*1]				**0**	**1**	**2**	**3**	**4**	**5**	**6**
Permiss. flow temperature[*5]										
- for permiss. op. pressure		6 bar	°C	See "Permissible flow temperatures" on page 8						
Permiss. return temperature			°C	See "Operating conditions" on page 7						
Shipping dimensions incl. packaging										
- Total length			m	4.02	4.27	4.52	4.72	4.94	5.14	5.57
- Total width			m	2.07	2.16	2.25	2.35	2.45	2.55	2.73
- Total height			m	2.40	2.49	2.58	2.68	2.78	2.88	3.06
Dry weight[*6] boiler incl. thermal insulation										
- for permiss. op. pressure		6 bar	t	5.3	6.3	7.3	8.2	9.6	10.6	13.3
Boiler water content			m^3	5.0	5.5	6.4	8.2	9.3	10.5	13.0
Connections for boiler										
				Boiler flow and return						
- for permiss. op. pressure		6 bar	PN 16 DN	150	150	200	200	200	250	250
				Safety valve connector						
- for permiss. op. pressure		6 bar	PN 16 DN	50	50	65[*7]	65[*7]	65[*7]	80	80
Flue gas mass flow rate	– for natural gas		t/h	1.5225 x combustion output in MW						
	– for fuel oil EL		t/h	1.5 x combustion output in MW						
Flue gas side heating surface			m^2	53	63	75	87	99	110	132
Flue gas volume			m^3	3.10	3.70	4.60	5.40	6.50	7.50	9.50

*[*1] Last digit of part number*

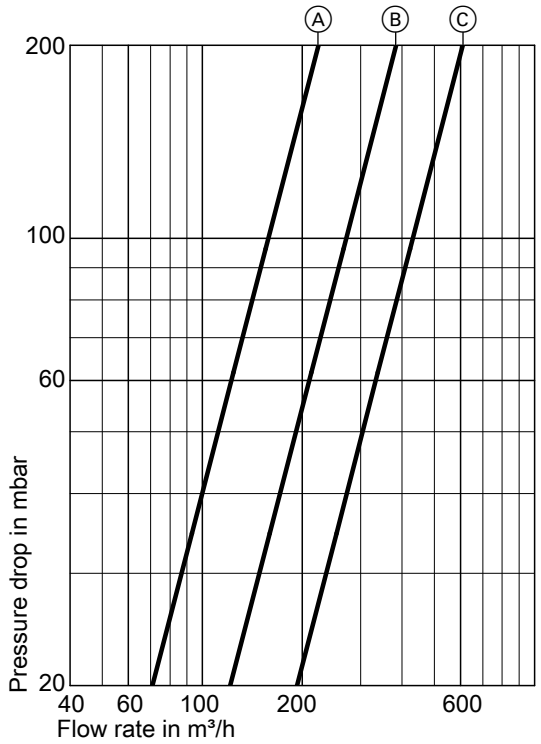
*[*5] The maximum achievable flow temperature is approx. 15 K below the permissible flow temperature (= safety temperature)*

*[*6] Deviations of 10 % are possible, subject to order*

*[*7] 4-hole version*

Specification for boiler (cont.)

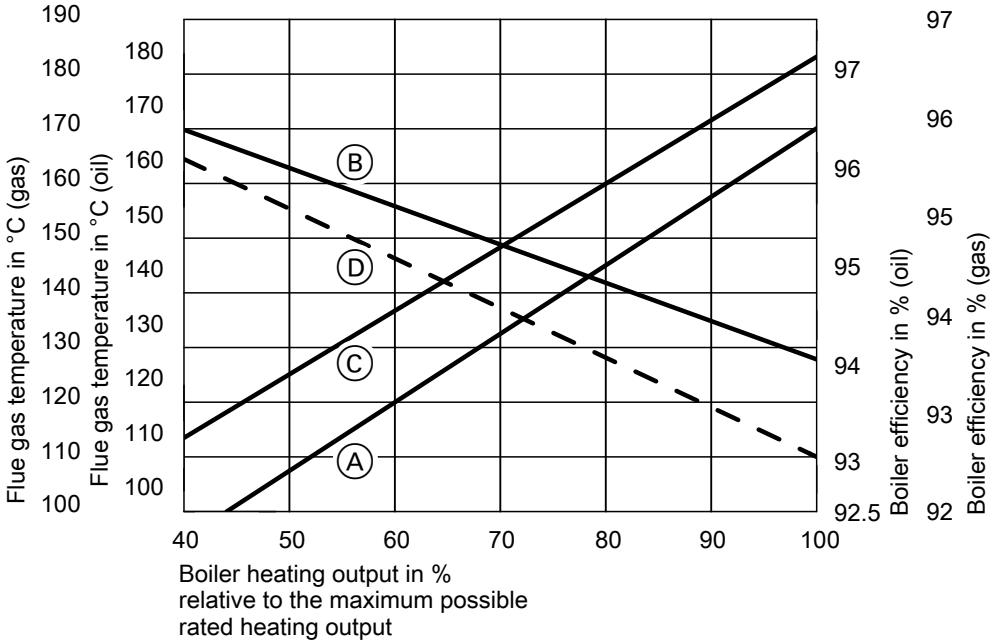
Pressure drop on the heating water side



Connectors for boiler flow and return
Ⓐ DN 150
Ⓑ DN 200
Ⓒ DN 250

Dia 1

Flue gas temperature and boiler efficiency



Dia. 2

At 60/40 °C boiler water temperatures
Ⓐ Flue gas temperature in °C
Ⓑ Boiler efficiency in %

At 80/60 °C boiler water temperatures
Ⓒ Flue gas temperature in °C
Ⓓ Boiler efficiency in %

Subject to boiler heating output
■ Residual oxygen content in the flue gas: 3 %

5774 565 GB

Specification

Minimum clearances

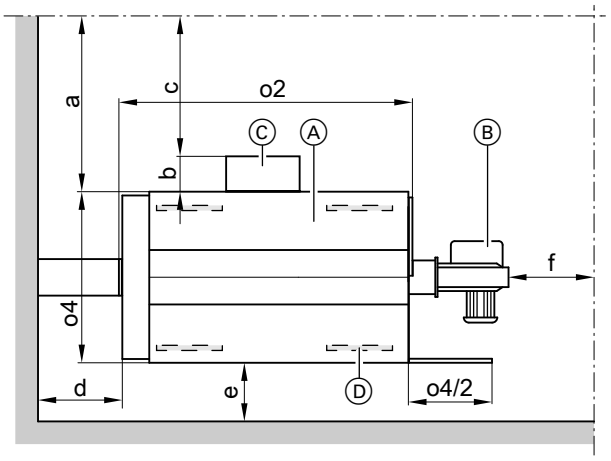


Fig. 3

a	≥1000 mm
b	≥ 500 mm
c	≥ 800 mm
d	≥ 500 mm
e	≥ 300 mm
f*8	≥ 500 mm

*Observe **risk warnings** and the information provided.*

Ⓐ	Steam boiler or hot water boiler
Ⓑ	Burner
Ⓒ	Regulating and control system
Ⓓ	Option: anti-vibration supports

a	Control system not fitted
b	Control system depth
c	Control system fitted
d,e,f	Miscellaneous clearances
o2, o4	Max. length, max. width

Observe the given dimensions to ensure easy installation and maintenance.
The minimum clearances must be observed.

Reducing noise
Place anti-vibration supports (not included in standard delivery) under the boiler shell. Position supports evenly over the length and centrally underneath the base rails.

Siting conditions

- Prevent air contamination from halogenated hydrocarbons. Halogenated hydrocarbons can be found in sprays, paints, solvents and cleaning agents
  If there is a risk of air contamination from **halogenated hydrocarbons** where the boiler is sited, an adequate supply of uncontaminated combustion air must be provided.
- Avoid very dusty conditions
- Avoid high levels of humidity
- Prevent frost and ensure good ventilation
- Site on a level surface

Impact can cause system faults and damage.

Delivered condition

Boiler
- Boiler shell with burner connection flange and burner plate supplied
- Fitted boiler door/doors
- Bolted down cleaning cover
- 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 accessories (option)
- Flue gas/water heat exchanger
- Regulating and control systems
- Safety equipment
- Burner
- Platform
- Intermediate flow piece as an accessory (required for ≥ 120 °C)
- Valves/fittings

Control unit versions

For single boiler system
With burner control panel

Vitotronic 100	Vitotronic 200
For operation with a constant boiler water temperature or for a modulating boiler water temperature in conjunction with a control panel or an external control unit	– For modulating boiler water temperature – For modulating boiler water temperature with mixer control up to 2 heating circuits

For a single and multi boiler system
With **Vitocontrol** control panel

– For constant or modulating boiler water temperature
– Implementation of boiler sequence control and regulating or unregulated heating circuits including DHW heating according to customer requirements

*8 *Leave one boiler length of space clear in front of the boiler door. This makes it easier to remove the turbulators and clean the boiler.*

Operating conditions

For water quality requirements
See the "Standard values for water quality" section

Tab. 5: M343B operating conditions *9

		Requirements	
Operation with burner load		**≥ 60 %**	**< 60 %**
1. Heating water flow rate		None	None
2. Boiler return temperature *9 (minimum value)	Oil operation:	38 °C	53 °C
	Gas operation:	45 °C	53 °C
3. Lower boiler water temperature	Oil operation:	50 °C	60 °C
	Gas operation:	60 °C	65 °C
4. Two-stage burner operation		Stage 1: 60 % of rated heating output	No minimum load required
5. Modulating burner operation		Between 60 and 100 % of rated heating output	
6. Reduced mode		Single boiler systems: operation with the lower boiler water temperature Multi boiler systems: – Lead boiler: operation with the lower boiler water temperature – Lag boiler: can be shut down	
7. Weekend setback		As per reduced mode	

Design information

Burner selection

See:
- ***"Specifications for burner selection"*** *chapter*
- *Burner specification*

Note
The minimum flame head length must be maintained

Criteria for burner selection:
- Burner must be selected in accordance with the combustion heating output and the pressure drops on the flue gas side
- Burner must be selected in accordance with the current flue gas standards
- Burner head must be suitable for operating temperatures of at least 500 °C

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

Burner connection

Preparing the burner plate - 2 options (M)

M 1: **At the factory** (by Viessmann)	M 2: **On site**
a) If the burner is supplied by Viessmann: commission Viessmann to carry out the preparatory work b) If the burner is **not** supplied by Viessmann: proceed as in (a), stating the burner type and make	If the burner plate is being adapted by the customer: create the flame tube aperture and fixing holes in the blank plate supplied. *To ensure correct burner operation, comply with the boiler manufacturer's specification for the flame head length.*

Fuels

Oil
– Fuel oil EL to DIN 51603 part 1
Bio diesel
– To DIN EN 51603-6, EN 14213, EN 14214 (or similar)

Gas
– Natural gas, town gas and LPG according to DVGW Code of Practice G 260/I and II or local regulations
Alternative fuels on request

*9 *For an installation example of a return temperature raising facility, see "System examples" in the technical guide*

Design information (cont.)

Permissible flow temperatures

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

– **Up to 110 °C**
  - Identification: in accordance with Gas Appliances Directive 2009/142/EC

– **Up to 120 °C (by means of individual test certification only)**
  - Identification: in accordance with Pressure Equipment Directive 97/23/EC
  - Install additional safety equipment for operation with a safety temperature of 120 °C
  - According to the Health & Safety at Work Act [Germany], these boilers require supervision. In accordance with conformity assessment diagram no. 5 of the EU Pressure Equipment Directive, these boilers must be classed as category IV
  - Assembly, installation and operation are subject to approval by the appropriate local authority [check local regulations]
  - The system must be tested prior to commissioning
  - External inspection annually
  - In place of an internal inspection, a pressure test at least every 3 years
  - Inspections may only be carried out by an approved inspection body, e.g. TÜV

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

Tested quality

CE designation according to current EC Directives.

Subject to technical modifications.

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