VIESMANN

VITOMAX 300-HW

Heating output 8.0 to 20.0 MW

Datasheet

For part no. and prices: see pricelist

VITOMAX 300-HW Type M94A

High pressure hot water boilers
Low NO_x version
For permissible flow temperatures up to 150 °C
For the combustion of fuel oil and gas
(approved for operation with fuel oil S (heavy fuel oil))
Compliant with the requirements of the Pressure Equipment Directive 97/23/EC and the TRD regulations, in conjunction with the [German] trade association agreements
Three-pass boiler
Permissible operating pressure 6, 10 and 16 bar

Specification - boiler general (for burner selection)

Note

All diagrams in this document are schematic diagrams.

Tab. 1a

Boiler size				1	2	3	4	5	6	7
Rated heating output[*1]										
- for natural gas			MW	8.00	10.00	12.00	14.00	16.00	18.00	20.00
- for fuel oil EL			MW	8.00	10.00	12.00	13.75	14.63	15.39	16.20
Permissible combustion heating output[*2]										
- for natural gas			MW	8.70	10.87	13.04	15.22	17.39	19.57	21.74
- for fuel oil EL			MW	8.70	10.87	13.04	14.78	15.68	16.40	17.18
				Combustion chamber dimensions						
Length										
- Flame tube length	a		mm	4830	5330	5820	6220	6600	7000	7400
- Reversing chamber depth	b		mm	500						
Diameter[*3]										
- Smooth pipe, internal diameter, min.	d1		∅mm	1306	1431	1531	1631	—	—	—
- Corrugated pipe, internal diameter	d1	6 bar	∅mm	—	—	—	—	1700	1750	1825
		10 bar	∅mm	—	1425	1525	1625	1700	1750	1800
		16 bar	∅mm	1250	1400	1500	1580	1655	1725	1780
- Corrugated pipe, average diameter	d2	6 bar	∅mm	—	—	—	—	1750	1800	1875
		10 bar	∅mm	—	1475	1575	1675	1750	1800	1875
		16 bar	∅mm	1300	1475	1575	1665	1740	1800	1865
				Burner connections						
- Max. flame head diameter	c		∅mm	520	520	590	590	590	718	718
- Minimum flame head length	e		mm	360						
				Flame tube volume						
- Flame tube (average)			m³	6.47	8.57	10.71	13.00	15.87	17.81	20.43
- Flame tube plus reversing chamber			m³	7.14	9.38	11.63	14.04	17.08	19.09	21.81

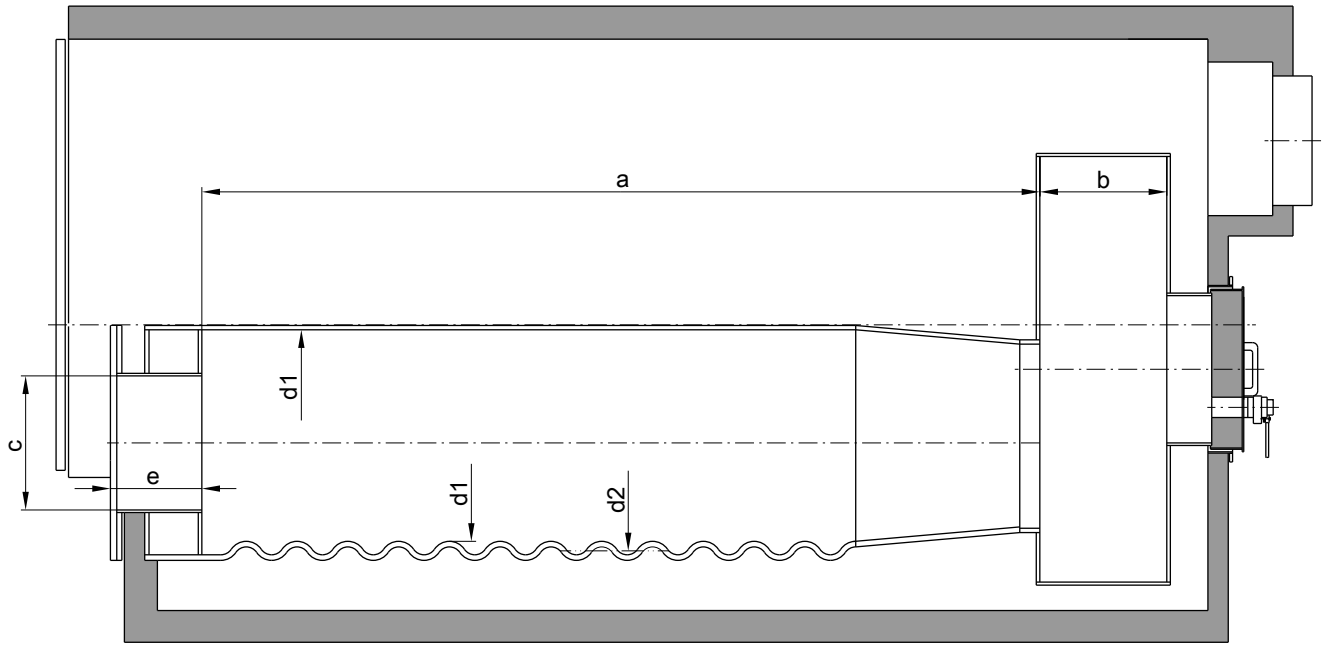

Fig. 1 - Boiler cross-section with flame tube

Tab. 1b - Pressure drop on the flue gas side

Boiler size		1	2	3	4	5	6	7
Max. flue gas pressure drop[*1]								
- for natural gas	mbar	10.8	11.9	15.1	14.2	14.7	16.8	19.0
- for fuel oil EL	mbar	9.7	10.6	13.5	11.8	10.4	10.2	10.0

*[*1] At a flow/return temperature of 80/60 °C*

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

*[*3] Product-dependent tolerances are not taken into consideration.*

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Specification - boiler

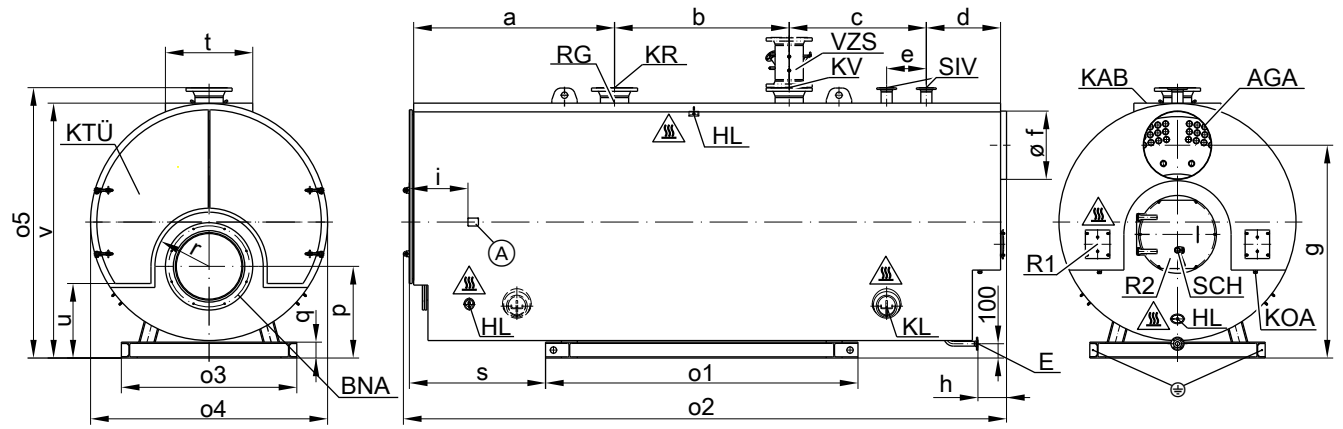

Fig. 2 - ⚠ Caution – hot surface!

Ⓐ Type plate
AGA Flue outlet
BNA Burner connection
E Drain DN 40 PN 40
HL Handhole - 100 mm x 150 mm
KAB Boiler cover
KL Headhole - 220 mm x 320 mm
KOA Condensate drain - R 1½ connector
KR Boiler return
KTÜ Boiler door
KV Boiler flow
R1 Cleaning aperture, flue gas collector
R2 Cleaning aperture, combustion chamber
RG Two female connections for additional control facilities - R ½
SCH Inspection port
SIV Safety valve connector
VZS Intermediate flow piece as an accessory (required for ≥ 120 °C)

Tab. 2 - Dimensions*4

Boiler size		1	2	3	4	5	6	7
a	mm	2145	2350	2530	2690	2730	2950	2990
b	mm	1900	2050	2200	2400	2650	2750	3150
c	mm	1382	1667	1727	1807	1937	2037	2037
d	mm	885	785	935	985	1035	1035	1035
e	mm	400	500	500	500	500	500	500
f*5 (internal)	∅mm	700	790	790	890	990	990	1110
g	mm	2520	2725	2915	3085	3210	3280	3350
h	mm	310	310	360	410	460	460	460
i	mm	698	738	738	778	818	838	878
o1	mm	3435	3685	4055	4265	4735	4775	4965
o2	mm	6441	6981	7521	8011	8481	8901	9341
o3	mm	2120	2250	2450	2560	2750	2790	2850
o4	mm	2815	3035	3150	3360	3500	3580	3675
o5	mm	3235	3455	3650	3860	4000	4080	4175
p	mm	1145	1220	1350	1455	1493	1518	1555
q	mm	200	200	240	240	280	280	280
r	mm	675	750	800	850	888	912	950
s	mm	1430	1595	1655	1790	1785	1985	2130
t	mm	1000	1100	1100	1200	1200	1200	1200
u	mm	980	1030	1127	1172	1182	1182	1195
v	mm	3035	3255	3450	3660	3800	3880	3975

*4 *Nominal dimensions, subject to modification.*
*5 *Internal diameter, for external diameter: + 10 mm*

Specification - boiler (cont.)

Intermediate flow piece (order separately)

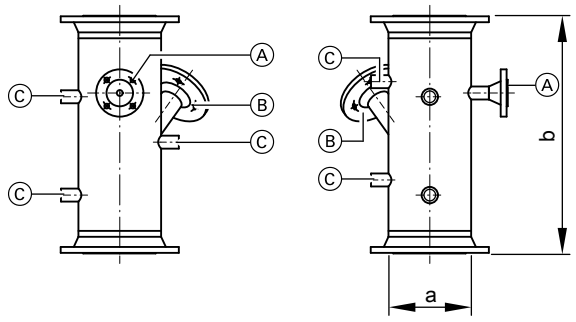

Fig. 3

Ⓐ Connector for fitting assembly (pressure regulator, pressure limiter and pressure gauge) - DN 20 PN 40
Ⓑ Connector for water level limiter electrodes - DN 50 PN 40
Ⓒ Female connections for thermometer, sampling valve and other control equipment 5 x R ½

Tab. 3

Boiler size		1	2	3	4	5	6	7
a	DN	125	150	200	250	300	350	400
b	mm	500	500	500	550	550	600	600

Tab. 4

Boiler size			1	2	3	4	5	6	7
Rated heating output[*1]									
- for natural gas		MW	8.00	10.00	12.00	14.00	16.00	18.00	20.00
- for fuel oil EL		MW	8.00	10.00	12.00	13.75	14.63	15.39	16.20
Permissible combustion heating output[*2]									
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- for fuel oil EL		MW	8.70	10.87	13.04	14.78	15.68	16.40	17.18
CE designation			see page 7						
Permissible flow temperature[*6]		°C	150 °C						
Permissible operating pressure		bar	6, 10 or 16						
Shipping dimensions (incl. packaging)									
- Total length		m	6.64	7.18	7.72	8.21	8.68	9.10	9.54
- Total width		m	2.87	3.09	3.20	3.41	3.55	3.63	3.73
- Total height		m	3.26	3.48	3.68	3.89	4.03	4.11	4.20
Dry weight[*7]									
Boiler with thermal insulation									
for permissible operating pressure	6 bar	t	16.9	21.8	25.2	30.1	32.8	35.9	40.0
	10 bar	t	19.9	23.9	28.3	33.4	41.0	44.8	47.3
	16 bar	t	23.3	29.6	34.7	40.5	44.5	48.0	54.4
Boiler water content		m^3	16.2	20.2	23.0	28.1	30.1	34.0	37.2
Boiler connections									
			Boiler flow and return[*8]						
- for permissible operating pressure	6 and 10 bar	PN 16 DN	250	300	350	350	400	400	400
	16 bar	PN 25 DN	250	300	350	350	400	400	400
			Safety valve connector						
- for permissible operating pressure	6 bar	PN 40 DN	100	100	100	125	125	150	150
	10 bar	PN 40 DN	65	80	80	100	100	100	125
	16 bar	PN 40 DN	65	65	65	80	80	80	100
Drain	6 and 10 bar	PN 16 DN	50						
	16 bar	PN 40 DN	50						
Flue gas connection									
- Flue outlet (DIN 24154-T2)		DN	710	800	800	900	1000	1000	1120
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 volume		m^3	13.1	17.2	20.6	25.3	30.8	34.4	38.7

*[*1] At a flow/return temperature of 80/60 °C*

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

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

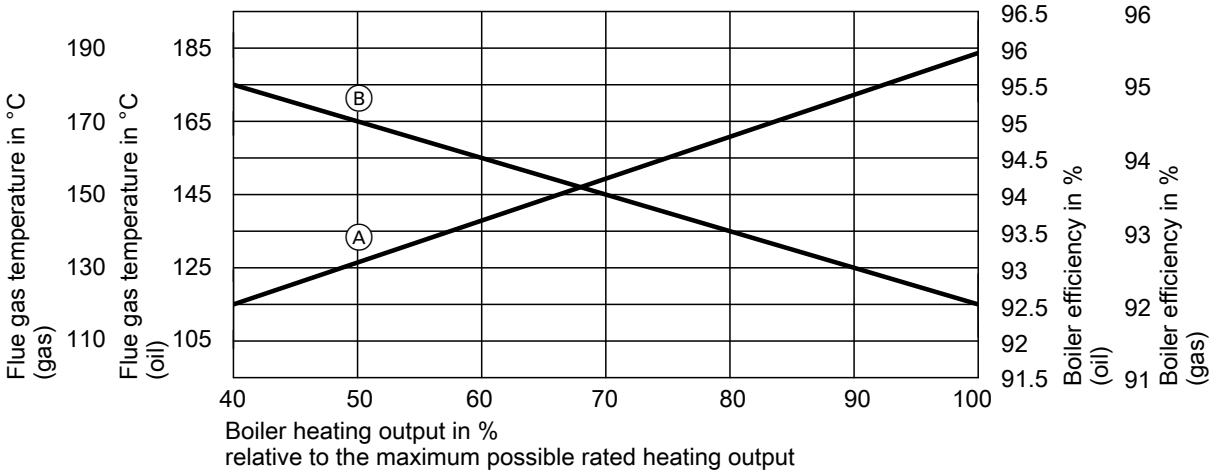
*[*7] Deviations of 10 % are possible, subject to order.*

*[*8] With a spread of 20 K*

Specification - boiler (cont.)

Flue gas temperature and boiler efficiency

Subject to the boiler heating output at a boiler water temperature of 80/60 °C and a residual oxygen content in the flue gas of 3 %.



Dia. 1

Ⓐ Flue gas temperature in °C
Ⓑ Boiler efficiency in %

Specification - boiler, general

Recommended minimum clearances

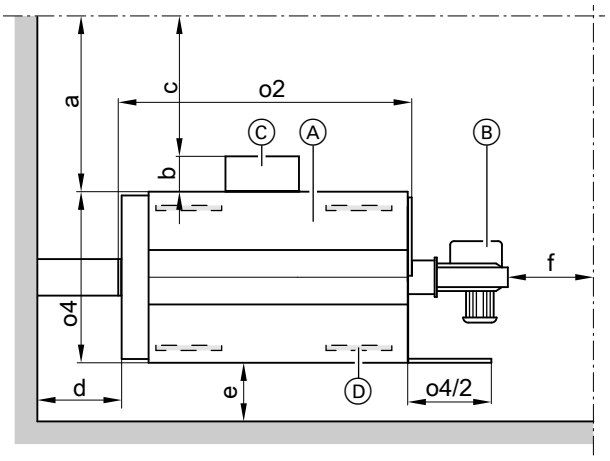


Fig. 4

Ⓐ Boiler
Ⓑ Burner
Ⓒ Regulating and control system
Ⓓ Anti-vibration boiler supports (option)
a Control panel not fitted
b Control panel depth
c Control panel fitted
d,e,f Remaining clearances
o2, o4 Max. length, max. width

Tab. 5

a/b/c	mm	≥1000/≥500/≥800
d/e/f*9	mm	≥500/≥300/≥500

Observe the given dimensions to **ensure easy installation and maintenance**. Where space is tight, only the minimum clearances must be maintained. Check clearances in accordance with the applicable regulations at the installation site, subject to the fitted equipment (accessories).

Installation conditions

- Avoid air contamination by halogenated hydrocarbons (e.g. as contained in sprays, paints, solvents and cleaning agents)
- Avoid very dusty conditions
- Avoid high levels of humidity
- Prevent frost and ensure good ventilation
- Install on a level surface

Otherwise, the system may suffer faults and damage.
In rooms where air contamination through **halogenated hydrocarbons** may occur, install the boiler only if adequate measures can be taken to provide a supply of uncontaminated combustion air.

Delivered condition

- Boiler shell with burner connection flange and burner plate supplied
- Fitted boiler doors
- Bolted down cleaning cover
- Fitted thermal insulation and thermally insulated flue gas collector
- Fitted load-bearing boiler cover
- Turbulators (if installed)
- Turbulator extractor (if turbulators are installed)
- Packaging

Boiler accessories (optional)

- Flue gas/water heat exchangers
- Regulating and control systems
- Safety equipment
- Burner
- Platform
- Intermediate flow piece as an accessory (required for ≥ 120 °C)
- Valves/fittings

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

Operating conditions

Note
For water quality requirements, see the operating and service instructions.

Tab. 6

		Requirements	
1.	Heating water flow rate	None	
2.	Boiler return temperature (minimum value)	Oil operation:	50 °C
		Gas operation:	55 °C
3.	Lower boiler water temperature	70 °C	
4.	Max. temperature spread*10	50 K	

Design information

Mounting a suitable burner

Note
See the burner manufacturer's specification.

- The burner must be suitable for the relevant rated heating output and the pressure drop on the hot gas side of the boiler.
- The material of the burner head must be suitable for operating temperatures of at least 500 °C.

Note
Burners with a special design, e.g. rotary atomisers, can hinder the opening of the cleaning doors. We therefore recommend checking with the factory that your burner is compatible.

Pressure-jet oil burner
- The burner must be tested and designated to EN 267.

Pressure-jet gas burner
- The burner must be tested to EN 676 and CE-designated in accordance with Directive 2009/142/EC.

Burner connection
On request, the burner plate can be prepared at the factory. For this, please state the burner make and type when ordering if the burner is not to be provided by us. Otherwise, create the blast tube aperture and fixing holes on site in the blank plate supplied.

Burner adjustment
Adjust the oil or gas throughput of the burner to suit the rated boiler heating output.

Fuels

Oil
- Fuel oil EL to DIN 51603 part 1.
- Fuel oil S or SA to DIN 51603 part 3, 5.
  When using fuel oil S or SA, different output data (rated heating output, flue gas temperature, efficiency) may result.

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.

Tested quality

CE designation according to current EC Directives.

*10 according to EN 12953

Subject to technical modifications.

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