VIESMANN

VITOPLEX 200

Low temperature oil/gas boiler
90 to 560 kW

Datasheet

Part no. and prices: see pricelist

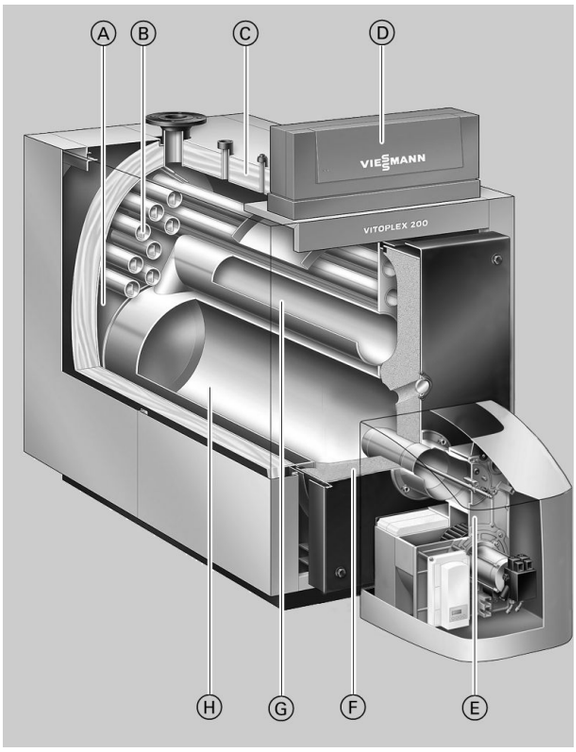
VITOPLEX 200 Type SX2A

Low temperature oil/gas boiler
Three-pass boiler
For operation with modulating boiler water temperature
With the Vitotrans 300 as a condensing unit

5728 770 GB 5/2010

Benefits at a glance

- Economical and environmentally responsible through modulating boiler water temperature.
- Standard seasonal efficiency [to DIN] for operation with fuel oil: 89 % (H_s)/95 % (H_i).
- Optional stainless steel flue gas/water heat exchanger for higher standard seasonal efficiency [to DIN] through condensing technology.
- Three-pass boiler with low combustion chamber loading, resulting in clean combustion with low emissions.
- Wide water galleries and large water content provide excellent natural circulation and safe heat transfer.
- Integral Therm-Control start-up system for easy hydraulic connections – a shunt pump and a return temperature raising facility are not required.
- Low water indicators are not required up to 300 kW.
- Compact design for easy transportation to the boiler room and economical use of space – important for modernisation projects.
- Vitoflame Unit pressure-jet oil/gas burners are available with 100 to 270 kW.
- Fastfix assembly system for control unit and thermal insulation.



Ⓐ Wide water galleries and large water content ensure excellent natural circulation and easy hydraulic connection
Ⓑ Third hot gas flue
Ⓒ Highly effective thermal insulation
Ⓓ Vitotronic – the new generation of controllers: intelligent, easy to install, operate and maintain
Ⓔ Viessmann Vitoflame 100 Unit burner
Ⓕ Thermal insulation of boiler door
Ⓖ Second hot gas flue
Ⓗ Combustion chamber

Boiler specification

Specification

Rated output	**kW**	**90**	**120**	**150**	**200**	**270**	**350**	**440**	**560**
Rated heat input	kW	98	130	163	217	293	380	478	609
CE designation									
– according to the Efficiency Directive		CE-0085BQ0020						—	—
– according to the Gas Appliances Directive		CE-0085BQ0020							
Permissible flow temperature (= safety temperature)	°C	110 (to 120 °C on request)							
Permiss. operating temperature	°C	95							
Permiss. operating pressure	bar	4							
Pressure drop on hot gas side	Pa	60	80	100	200	180	310	280	400
	mbar	0.6	0.8	1.0	2.0	1.8	3.1	2.8	4.0
Boiler body dimensions									
Length (dim. q)*1	mm	1195	1400	1385	1580	1600	1800	1825	1970
Width (dim. d)	mm	575	575	650	650	730	730	865	865
Height (incl. connectors) (dim. t)	mm	1145	1145	1180	1180	1285	1285	1455	1455
Overall dimensions									
Total length (dim. r)	mm	1270	1470	1455	1650	1675	1875	1895	2040
Total length with burner and hood (dim. s)	mm	1660	1860	1865	2060	2085	–	–	–
Total width (dim. e)	mm	755	755	825	825	905	905	1040	1040
Total height (dim. b)	mm	1315	1315	1350	1350	1460	1460	1625	1625
Maintenance height (control unit) (dim. a)	mm	1485	1485	1520	1520	1630	1630	1795	1795
Height									
– adjustable anti-vibration feet	mm	28	28	28	28	28	28	28	28
– anti-vibration boiler supports (loaded)	mm	–	–	–	–	–	37	37	37
Foundations									
Length	mm	1000	1200	1200	1400	1400	1650	1650	1800
Width	mm	760	760	830	830	900	900	1040	1040
Combustion chamber diameter	mm	380	380	400	400	480	480	570	570
Combustion chamber length	mm	800	1000	1000	1200	1200	1400	1400	1550
Weight boiler body	kg	300	345	405	455	630	700	925	1025
Total weight Boiler with thermal insulation and boiler control unit	kg	345	390	455	505	680	760	990	1095
Total weight Boiler with thermal insulation, burner and boiler control unit	kg	375	420	485	535	710	–	–	–
Content boiler water	litres	180	210	255	300	400	445	600	635
Boiler connections									
Boiler flow and return	PN 6 DN	65	65	65	65	65	80	100	100
Safety connection (safety valve)	R	1¼	1¼	1¼	1¼	1¼	1¼	1½	1½
Drain	R	1¼							
Flue gas parameters*2									
Temperature (at boiler water temperature 60 °C)									
– at rated output	°C	180							
– at partial load	°C	125							
Temperature (at boiler water temperature 80 °C)	°C	195							
Flue gas mass flow rate									
– for natural gas	kg/h	1.5225 x combustion output in kW							
– for fuel oil EL	kg/h	1.5 x combustion output in kW							
Required draught	Pa/mbar	0							
Flue outlet	Ø mm	180	180	200	200	200	200	250	250
Standard seasonal efficiency [to DIN] (for operation with fuel oil) at heating system temp. 75/60 °C	%	89 (H_s)/95 (H_i)							

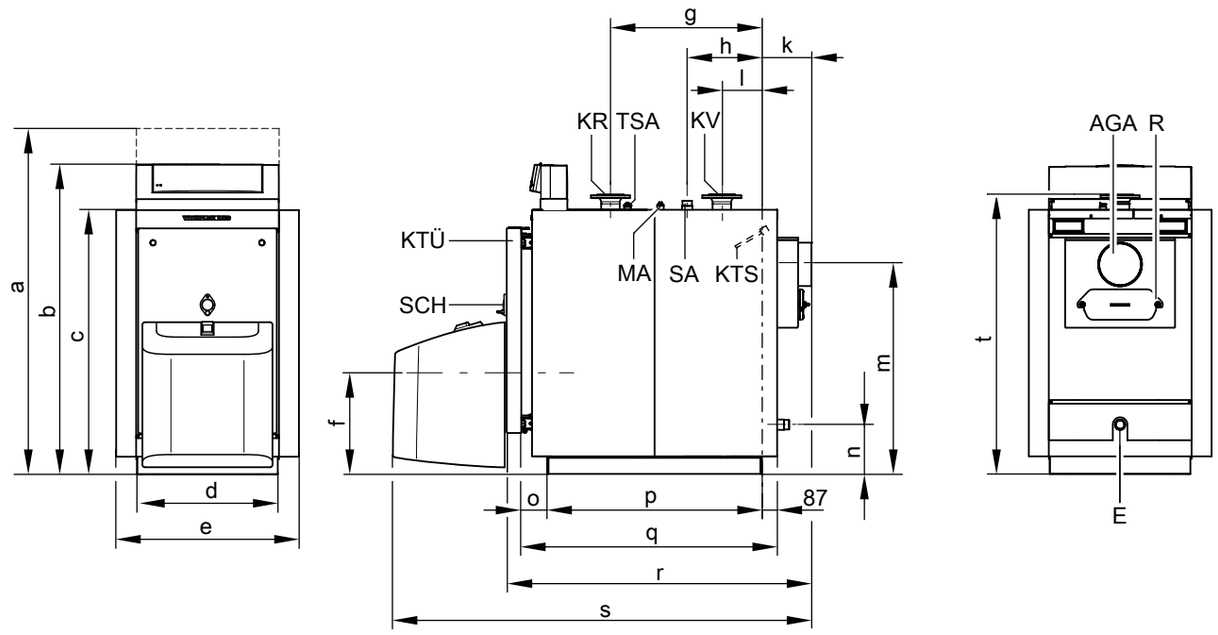
*1 *Boiler door removed.*

*2 *Values for calculating the size of the flue system to EN 13384 relative to 13.2 % CO_2 for fuel oil EL and 10 % CO_2 for natural gas.*
Flue gas temperatures as actual gross values at 20 °C combustion air temperature.
The details for partial load refer to 60 % of the rated output. Calculate the flue gas mass flow rate accordingly when the partial load differs from that stated (subject to operating mode).

Boiler specification (cont.)

Rated output	**kW**	**90**	**120**	**150**	**200**	**270**	**350**	**440**	**560**
Standby loss $q_{B,70}$	%	0.40	0.35	0.30	0.30	0.25	0.25	0.22	0.20
Matching Vitotrans 300									
– Gas operation	Part no.	Z000 701		Z000 702		Z002 118		Z000 704	
– Oil operation	Part no.	Z000 705		Z000 706		Z002 120		Z000 708	
Rated output									
Boiler with Vitotrans 300									
– Gas operation	kW	98.7	131.4	164.3	219.0	295.6	383.3	478.7	608.9
– Oil operation	kW	95.8	127.8	159.8	213.0	287.5	372.7	466.4	593.5
CE designation		CE-0085BS0287							
Vitotrans 300 in conjunction with a boiler as a condensing unit									
Pressure drop on hot gas side	Pa	125	145	185	285	280	410	385	505
Boiler with Vitotrans 300	mbar	1.25	1.45	1.85	2.85	2.80	4.10	3.85	5.05
Total length	mm	1990		2290		2570		2950	
Boiler with Vitotrans 300 without burner									

Dimensions



90 to 270 kW

AGA Flue outlet
E Drain
KR Boiler return
KTS Boiler water temperature sensor
KTÜ Boiler door
KV Boiler flow
MA Female connection for pressure gauge (R ½)
R Cleaning aperture
SA Safety connection (safety valve)
SCH Inspection port
TSA Female connection for Therm-Control temperature sensor (R ½)

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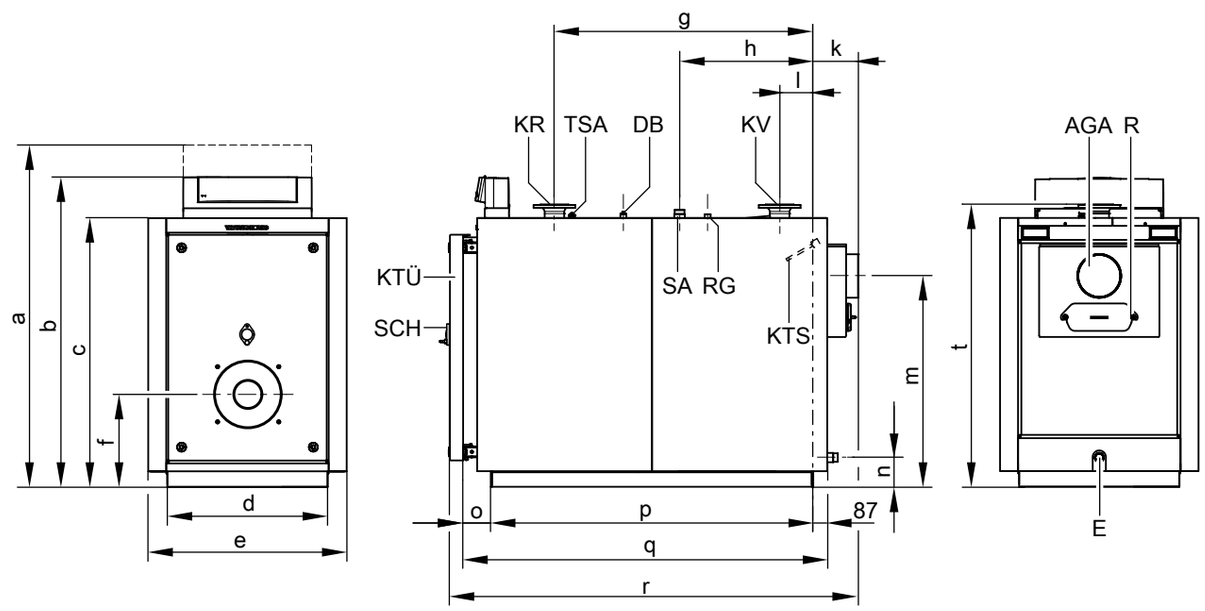
Boiler specification (cont.)



350 to 560 kW

AGA Flue outlet
DB Female connection for maximum pressure limiter (R ½)
E Drain
KR Boiler return
KTS Boiler water temperature sensor
KTÜ Boiler door
KV Boiler flow
R Cleaning aperture
RG Female connection for additional control equipment (R ½)
SA Safety connection (safety valve)
SCH Inspection port
TSA Female connection for Therm-Control temperature sensor (R ½)

Dimensions

Rated output	kW	90	120	150	200	270	350	440	560
a	mm	1485	1485	1520	1520	1630	1630	1795	1795
b	mm	1315	1315	1350	1350	1460	1460	1625	1625
c	mm	1085	1085	1115	1115	1225	1225	1395	1395
d	mm	575	575	650	650	730	730	865	865
e	mm	755	755	825	825	905	905	1040	1040
f	mm	440	440	440	440	420	420	470	470
g	mm	622	825	811	1009	979	1179	1146	1292
h	mm	307	395	324	423	409	609	710	783
k	mm	203	203	203	203	203	203	224	224
l	mm	165	165	151	151	153	153	166	166
m	mm	860	860	885	885	960	960	1110	1110
n	mm	200	200	190	190	135	135	135	135
o	mm	110	110	110	110	130	130	130	130
p (length of base rails)	mm	882	1085	1071	1268	1269	1469	1471	1617
q (transport dimension)	mm	1195	1400	1385	1580	1600	1800	1825	1970
r	mm	1270	1470	1455	1650	1675	1875	1895	2040
s	mm	1660	1860	1865	2060	2085	–	–	–
t	mm	1145	1145	1180	1180	1285	1285	1455	1455

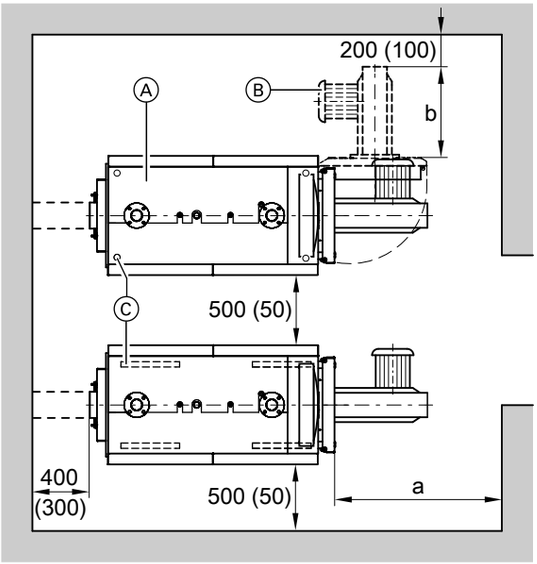
The boiler door can be removed if access to the boiler room is restricted.

Dim. f: Observe the installation height of the burner.
Dim. q: Boiler door removed.

Boiler specification (cont.)

Siting

Minimum clearances



To enable convenient installation and maintenance, observe the stated clearance dimensions; maintain the minimum clearances where space is tight (dimensions in brackets). In the delivered condition, the boiler door opens to the left. You can reposition the hinge bolts so that the door can open to the right.

Ⓐ Boiler
Ⓑ Burner
Ⓒ Adjustable anti-vibration feet (90 to 560 kW) or anti-vibration boiler supports (350 to 560 kW)

Rated output	kW	90	120	150	200	270	350	440	560
a	mm	1100			1400		1600		

Dim. a: Maintain this space in front of the boiler to enable the withdrawal of the turbulators or for cleaning the hot gas flues.
Dim. b: Observe the installed length of the burner.

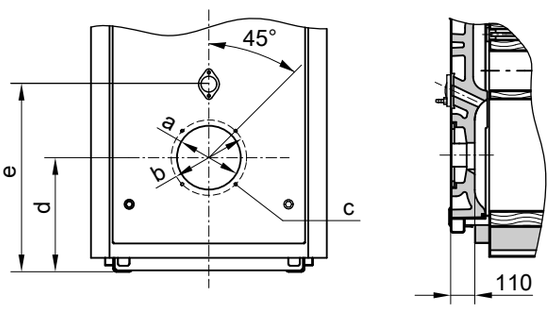
Installation conditions

- 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 damage and ensure good ventilation

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.

Burner installation

Boiler up to 120 kW:
The burner fixing hole circle, burner fixing holes and blast tube aperture meet the requirements of EN 226.
Boiler from 150 kW:
The burner fixing hole circle, burner fixing holes and blast tube aperture comply with the following table.
The burner may be installed directly on the hinged boiler door. Fit the burner plate included in the standard delivery if the burner dimensions deviate from those stated in the following table.
Burner plates may be factory-fitted on request (chargeable option). For this, please state the burner make and type when ordering. The blast tube must protrude through the thermal insulation on the boiler door.

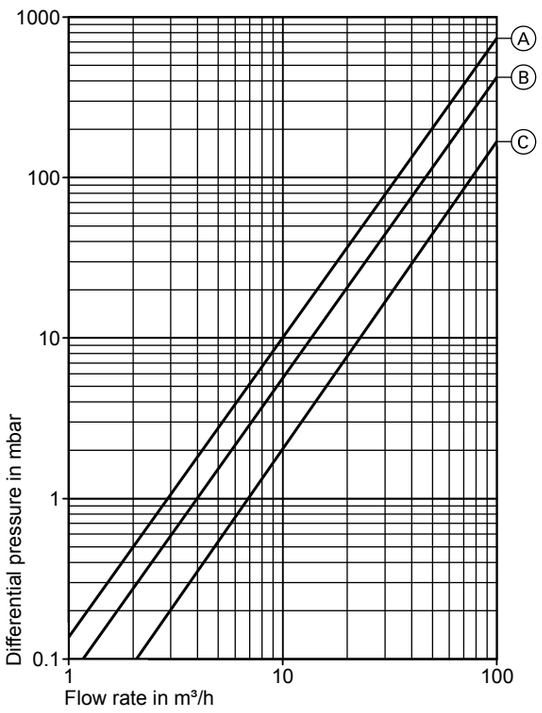


Rated output	kW	90	120	150	200	270	350	440	560
a	Ø mm	135	135	240	240	240	240	290	290
b	Ø mm	170	170	270	270	270	270	330	330
c	number/thread	4/M 8	4/M 8	4/M 10	4/M 10	4/M 10	4/M 10	4/M 12	4/M 12

Boiler specification (cont.)

Rated output	kW	90	120	150	200	270	350	440	560
d	mm	440	440	440	440	420	420	470	470
e	mm	650	650	650	650	670	670	780	780

Pressure drop on the heating water side



Ⓐ Rated output 90 to 270 kW
Ⓑ Rated output 350 kW
Ⓒ Rated output 440 and 560 kW

The Vitoplex 200 is only suitable for fully pumped hot water heating systems.

Vitotrans 300 specification

Specification

Vitotrans 300					
– Gas operation	**Part no.**	**Z000 701**	**Z000 702**	**Z002 118**	**Z000 704**
– Oil operation	**Part no.**	**Z000 705**	**Z000 706**	**Z002 120**	**Z000 708**
Rated boiler output	kW	90-125	140-200	230-350	380-560
Rated output range of the Vitotrans 300 for					
– Gas operation	from kW	8.7	12.7	21.8	33.3
	to kW	11.9	19.0	33.3	48.9
– Oil operation	from kW	5.8	8.8	14.9	22.9
	to kW	8.1	13.0	22.7	33.5
Permiss. operating pressure	bar	4			6
Permissible flow temperature (= safety temperature)	°C	110			
Hot gas pressure drop	Pa	65	85	100	105
	mbar	0.65	0.85	1.00	1.05
Flue gas temperature					
– Gas operation	°C	65			
– Oil operation	°C	70			
Flue gas mass flow rate	from kg/h	136	213	383	546
	to kg/h	213	341	596	954
Overall dimensions					
Total length (dimension h), incl. mating flanges	mm	666	777	856	967
Total width (dimension b)	mm	714	760	837	928
Total height (dimension c)	mm	1037	1152	1167	1350
Transport dimensions					
Length excl. mating flanges	mm	648	760	837	928
Width (dimension a)	mm	618	636	706	839
Height (dimension d)	mm	1081	1098	1172	1296
Heat exchanger weight	kg	94	119	144	234
Total weight Heat exchanger with thermal insulation	kg	125	150	188	284
Capacity					
Heating water	litres	70	97	134	181
Flue gas	m^3	0.055	0.096	0.133	0.223
Connections					
Heating water flow and return	DN	40	50	50	65
Condensate drain	R	½			
Flue gas connection					
– to the boiler	NW	180	200	200	250
– to the flue system	NW	150	200	200	250

Rated output range of the Vitotrans 300 and flue gas temperature
Output of the Vitotrans 300 for flue gas cooling during gas operation of 200/65 °C, during oil operation of 200/70 °C and a heating water temperature rise in the Vitotrans 300 of 40 °C to 42.5 °C.
For conversion to other temperatures, see chapter "Output data".

Hot gas pressure drop
Hot gas pressure drop at rated output. The burner must be able to overcome the hot gas pressure drop of the boiler, that of the Vitotrans 300 and that of the flue. Viessmann Vitoflame 100 burners are unsuitable for use with the Vitotrans 300.

Approved quality
CE designation according to current EC Directives at a permissible flow temperature (safety temperature) of up to 110 °C to EN 12828.

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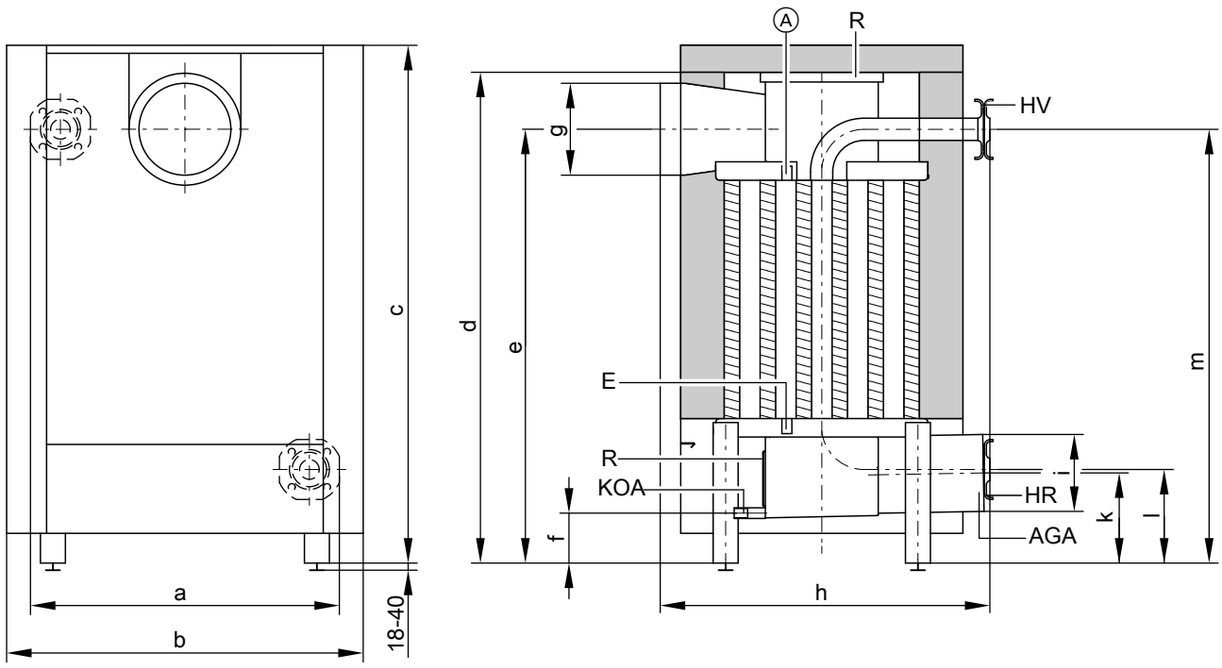
Vitotrans 300 specification (cont.)

Dimensions



Ⓐ Additional fem. connection (R ½")
AGA Flue outlet
E Drain (R ½")
HR Heating water return (inlet)
HV Heating water flow (outlet)
KOA Condensate drain (R ½")
R Cleaning aperture

Dimensions

Part no.		Z000 701 Z000 705	Z000 702 Z000 706	Z002 118 Z002 120	Z000 704 Z000 708
a	mm	618	636	706	839
b	mm	714	760	837	928
c	mm	1037	1152	1167	1350
d	mm	1081	1098	1172	1296
e	mm	851	907	960	1080
f	mm	100	119	80	150
g (internal)	∅ mm	181	201	201	251
h	mm	666	777	856	967
i (internal)	∅ mm	151	201	201	251
k	mm	181	223	184	284
l	mm	187	227	198	285
m	mm	868	954	963	1130

Delivered condition

Heat exchanger body with fitted flue gas header. Mating flanges are fitted to all the connectors.

1 carton with thermal insulation

Connection on the flue gas side

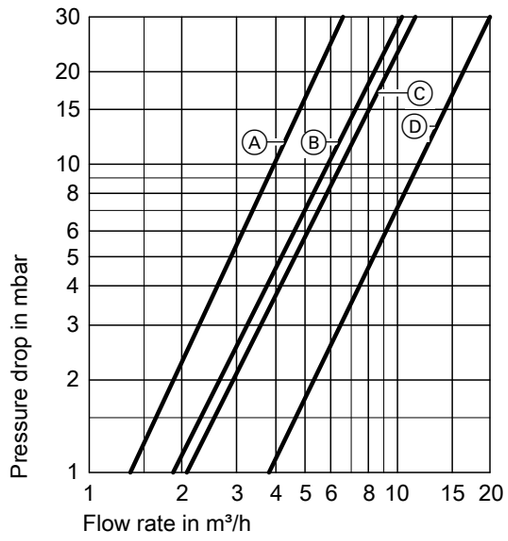
Connect the boiler flue gas connectors and those of the flue gas/water heat exchanger through a connection collar (accessory) (not welded).

Height compensation:
- Vitoplex boiler through adjustable screws
- Vitorond boiler through on-site adaptor

Vitotrans 300 specification (cont.)

Pressure drop on the heating water side

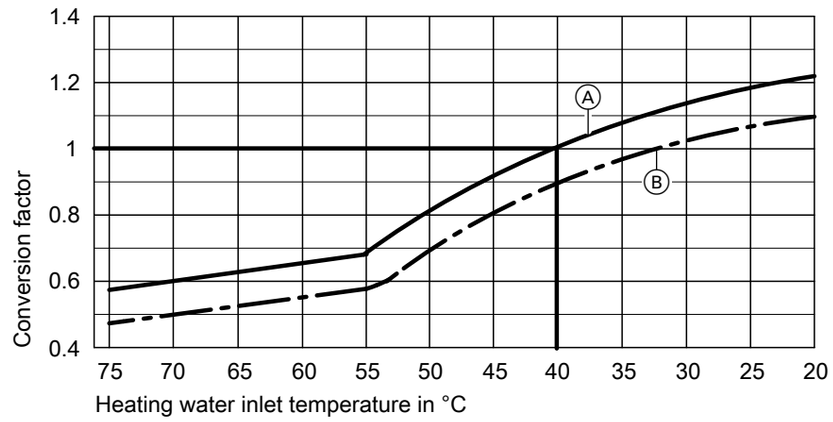
Part no. Z000 701, Z000 702, Z000 704, Z000 705, Z000 706, Z000 708, Z002 118 and Z002 120



Part no.	Curve
Z000 701 Z000 705	Ⓐ
Z000 702 Z000 706	Ⓑ
Z002 118 Z002 120	Ⓒ
Z000 704 Z000 708	Ⓓ

Output data

Vitotrans 300 for gas operation



Ⓐ Flue gas inlet temperature 200 °C
Ⓑ Flue gas inlet temperature 180 °C

Conversion of the output data
The output data of the Vitotrans 300 flue gas/water heat exchanger refers to a flue gas inlet temperature of 200 °C and a heating water inlet temperature into the heat exchanger of 40 °C.

For different conditions the output can be calculated by multiplying the given rated output by the conversion factor established from the diagram.

Boiler delivered condition

Boiler body with fitted boiler door and cleaning cover.
Mating flanges are fitted to all the connectors.
Adjustable feet are supplied in the combustion chamber.
Cleaning equipment can be found on top of the boiler.
Therm-Control is in the bag on the boiler door.

2 Box with thermal insulation
1 Box containing the boiler control unit and 1 bag with technical documentation

Boiler delivered condition (cont.)

1 Product pack (boiler coding card and Vitoplex 200 technical documentation)
1 Burner plate (from 150 kW)

■ Vitoplex 200, 90 to 270 kW:
Vitoflame 100 pressure-jet oil or gas burner, subject to order.
■ Vitoplex 200, 350 to 560 kW:
Suitable pressure-jet oil/gas burners are available separately from Weishaupt or ELCO (see pricelist). Delivery direct from Weishaupt or ELCO.

Control unit versions

For single boiler systems:
■ Without Vitocontrol control panel
Vitotronic 100 (type GC1)
For operation with a constant boiler water temperature or for weather-compensated operation in conjunction with a control panel (see below) or an external control unit.
Vitotronic 200 (type GW1)
For modulating boiler water temperature without mixer control
Vitotronic 300 (type GW2)
For modulating boiler water temperature with mixer control, for up to 2 heating circuits with mixer
■ With Vitocontrol control panel
Vitotronic 100 (type GC1) and **LON module** (accessories)
and
Vitocontrol control panel with the **Vitotronic 300-K** (type MW1S) for weather-compensated mode and mixer control, for up to 2 heating circuits with mixer and additional Vitotronic 200-H, type HK1S or HK3S for 1 or up to 3 heating circuits with mixer
or
Control panel with external control unit (on site)

For multi boiler systems (up to 4 boilers):
■ Without Vitocontrol control panel
Vitotronic 100 (type GC1) and **LON module** in conjunction with the **Vitotronic 300-K** (type MW1)
For modulating boiler water temperature (one boiler is supplied with the standard controls for a multi boiler system)
and
Vitotronic 100 (type GC1) and **LON module** for modulating boiler water temperature for every additional boiler in a multi boiler system
■ With Vitocontrol control panel
Vitotronic 100 (type GC1) and **LON module** (accessories) for modulating boiler water temperature for every boiler in a multi boiler system
and
Vitocontrol control panel with the Vitotronic 300-K (type MW1S) for multi a boiler system, weather-compensated operation and mixer control, for up to 2 heating circuits with mixer and additional Vitotronic 200-H, type HK1S or HK3S for 1 or up to 3 heating circuits with mixer
or
Control panel with external control unit (on site)

Boiler accessories

See pricelist and "Boiler accessories" datasheet.

Operating conditions with Vitotronic boiler control units

For water quality requirements, see the technical guide to this boiler.

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

Design information

Installation of a suitable burner

The burner must be suitable for the relevant rated output and the pressure drop on the hot gas side of the boiler (see burner manufacturer's specification).
The material of the burner head must be suitable for operating temperatures of at least 500 °C.

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

*3 *The technical guide "System examples" contains relevant examples for the installation of the Therm-Control start-up system.*
*4 *No requirements only in conjunction with Therm-Control.*

Design information (cont.)

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

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

Low water indicator

A low water indicator to EN 12828 is not required for Vitoplex 200 boilers up to 300 kW (except in attic heating centres), if the standard boiler control unit is fitted as per the installation instructions.

In the event of a water shortage due to a leak in the heating system and simultaneous burner operation, the burner control unit will be automatically shut down before the boiler and/or flue system reach unacceptably high temperatures.

Permissible flow temperatures

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

- Up to 110 °C
  CE designation:
  CE-0085 (90 to 350 kW) in accordance with the Efficiency Directive and
  CE-0085 in accordance with the Gas Appliances Directive
- Above 110 °C (up to 120 °C) (with individual test certification on request)
  CE designation:
  CE-0035 according to the Pressure Equipment Directive
  Additional safety equipment is required for operation with a safety temperature above 110 °C.
  – **90 and 120 kW** boilers must be supervised in accordance with the Health & Safety at Work Act [Germany] when operated with a safety temperature **above 110 °C**. In accordance with conformity assessment diagram no. 5 of the EU Pressure Equipment Directive, these boilers must be categorised as class IV.
  Prior to commissioning, this system must be tested by an authorised body (e.g. TÜV [Germany]).
  – **150 to 560 kW** boilers must be supervised in accordance with the Health & Safety at Work Act [Germany] when operated with a safety temperature **above 110 °C**. In accordance with conformity assessment diagram no. 5 of the EU Pressure Equipment Directive, these boilers must be categorised as class IV.
  The system must be tested prior to commissioning.
  – Annually – external inspection (inspection of the safety equipment and the water quality)
  – Every three years – internal inspection (as an alternative, a water pressure test is an option)
  – Every nine years – water pressure test (for max. test pressure, see the type plate)
  The test must be carried out by an authorised body (e.g. TÜV [Germany]).

Further information on design/engineering

See the technical guide to this boiler.

Approved quality

CE designation according to current EC Directives.

Qualitätsmarke der ÖVGW gem. Gütezeichenverordnung 1942 DRGBl. I für Erzeugnisse des Gas- und Wasserfachs.

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Viessmann Werke GmbH&Co KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

5728 770 GB