

VITOGAS 100-F Low temperature gas fired boiler 29 to 60 kW

Datasheet





VITOGAS 100-F Type GS1D

Low temperature gas fired boiler For modulating boiler water temperature With partially pre-mixing burner for natural gas and LPG With gas pressure limiter for low supply pressures Fully automatic

Benefits

- Standard efficiency: 83 % (H_s) / 92 % (H_i)
- Atmospheric gas fired boiler with partially pre-mixing burner
- High operational reliability with severely fluctuating mains pressures and mains power fluctuations, plus a long service life because of heating surfaces made from special cast iron with lamellar graphite and low heating surface load
- Partially pre-mixing stainless steel rod burner with Renox system (may be retrofitted) for reducing NO_x emissions
- Highly reliable and soft, low noise ignition through intermittent ignition system
- With factory-fitted gas pressure limiter for automatic restart after gas mains failure
- Easy installation because of low weight and compact design



Heating surface made from special cast iron for high operational reliability and a long service life



- A Highly effective thermal insulation
- $(\ensuremath{\mathbb{B}})$ Heating surfaces made from special cast iron
- © Partially pre-mixing stainless steel rod burner
- D Digital Vitotronic boiler control unit

Specification

Specification

Gas fired boiler, type B₁₁/B_{11 BS}, category II_{2ELL3 P}

Detection for the formation of the state of	1.14/		05	40	40	
Rated output	KW	29	35	42	48	60
Rated thermal load	kW	32.0	38.6	46.4	53.0	66.2
Heating surface	m ²	1.99	2.46	2.93	3.40	4.35
Il value of thermal insulation	M/m^2 . K	0.45	0.45	0.45	0.15	0.45
	VV/III · K	0.45	0.43	0.43	0.43	0.45
Product ID			C	E-0085 AS 02	297	
Gas supply pressure (nominal pressure)						
Natural das	mbar	20	20	20	20	20
IPG	mhar	30	30	30	30	30
	mbai					
Max. permissible gas supply pressure						
Natural gas	mbar	25	25	25	25	25
LPG	mbar	57.5	57.5	57.5	57.5	57.5
Total dimensions (height is given incl. 13 mm						
adjustable fast)						
adjustable feet)						
Length	mm	580	580	580	580	580
Total length c	mm	760	780	780	780	780
Width a	mm	596	706	796	886	1076
Total width b	mm	650	760	850	940	1130
		700	700	700	340	700
Height without control unit	mm	/88	/88	/ 88	788	/88
Height with control unit	mm	890	890	890	890	890
Height with flue pipe bend d	mm	1025	1025	1025	1095	1095
Plinth height	mm	250	250	250	250	250
Total weight	ka	140	164	100	211	253
	ку	142	104	100	211	201
Boller with thermal insulation, burner and boller con-						
trol unit						
Content Boiler water	litre	11.7	13.8	15.9	17.9	21.9
Parmissible operating pressure	har	3	3	3	2	3
	Dai	5	3	3	5	5
Boiler connections						
Boiler flow and return	G	11/2"	11⁄2"	11⁄2"	11⁄2"	11⁄2"
Drain	R	3/4"	3/4"	3/4"	3/4"	3/4"
Gas connection	P	1/."	1/."	1/."	1/."	1/."
	IX	/2	/2	/2	/2	/2
Connection values						
In relation to the max. load						
Natural gas E	m³/h	3.39	4.09	4.91	5.61	7.01
Natural das I I	m ³ /h	3 94	4 75	5 71	6.52	8 15
	ka/b	2.50	2.02	2 6 2	4 1 4	5.10
	кул	2.30	3.02	3.02	4.14	5.17
Flue gas parameters						
(calculation values for sizing the flue gas system to						
EN 13384)						
Elue das temperatures						
(and the second state of						
(gross values, measured at 20 °C compustion air						
temperature)						
50 °C boiler water temperature	°C	102	101	114	114	109
(actual values are significant for the sizing of the flue						
(uotaal valado alo olgimoant for the olzing of the had						
80 °C boiler water temperature	°C	118	113	130	130	122
(actual values for determining the application range						
of flue gas lines with max, permissible operating tem-						
neratures)						
Maaa flow rota						
Mass now rate						
Natural gas	kg/h	92	107	105	127	160
at CO ₂ content	%	5.0	5.2	6.5	6.1	6.0
LPG	ka/h	84	95	101	126	153
at CO ₂ content	%	6.2	67	7.6	6.9	7 1
De suite d desught	70 D-	0.2	0.1	7.0	0.0	
Required draught	Ра	3	3	3	3	3
	mbar	0.03	0.03	0.03	0.03	0.03
Flue gas connection	Ømm	150	150	150	180	180
Standard efficiency	0/_	83 /H \/02 /H.)				
	70	00 (11 _s)/32 (11 _i)				
IV/IR = / 5/00 C						
Standby heat loss at 60 °C boiler water temperature	%	1.1	1.0	0.9	0.8	0.8
Further connection dimensions						
Internal diameter of nine to expansion vessel	DN	20	20	20	20	20
	D	3/"	3/"	3/"	3/"	3/"
		74	74	74	74	74
Safety valve	DN	15	15	15	15	15
	R	1/2"	1/2"	1⁄2"	1⁄2"	3/4"
Blow-off line	DN	20	20	20	20	25
	R	3/,"	3/,"	3/,"	3/,"	

Specification (cont.)

Note

If the gas supply pressure exceeds the maximum permitted value, install a separate gas pressure governor upstream of the system.



A Plinth (accessories)E Drain and diaphragm expansion vessel

GA Gas connection

KR Boiler return KV Boiler flow SSI Draught hood

Dimensions

Rated output	kW	29	35	42	48	60
а	mm	596	706	796	886	1076
b	mm	650	760	850	940	1130
с	mm	760	780	780	780	780
d	mm	1012	1012	1012	1082	1082
е	mm	359	403	449	495	586
f	mm	291	357	401	445	544

Specification (cont.)



- B Vitocell 100-H/300-H; only possible for those combinations specified in the pricelist (for further specifications, see separate datasheet in register 17).
- E Drain and diaphragm expansion vessel

Positioning

Minimum clearances

Observe the given dimensions to ensure easy installation and maintenance.



Positioning

5822 390 GB

- Avoid air contamination through halogenated hydrocarbons (e. g. as in sprays, paints, solvents and cleaning agents)
- Avoid very dusty conditions
- Avoid high levels of humidity
- Protect against frost 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.

- GA Gas connection
- KR Boiler return
- KV Boiler flow
- SSI Draught hood

Specification (cont.)

Pressure drop on the heating water side

The Vitogas 100-F is only suitable for fully pumped hot water heating systems.



A Rated output 29 kW

B Rated output 35 and 42 kW

© Rated output 48 and 60 kW

Delivered condition

- Boiler with fitted thermal insulation and atmospheric premix burner for natural gas and LPG according to DVGW Code of Practice G 260 or local regulations.
- Transport handles are available for easier transportation, see pricelist
- The boiler is factory-fitted for natural gas E.
- A conversion kit for natural gas LL or LPG is supplied to order. The conversion kit for LPG includes a gas pressure limiter

Control unit versions

- Vitotronic 100 (type KC3 or KC4) for constant boiler water temperature
- Vitotronic 150 (type KB2) for modulating boiler water temperature
- Vitotronic 200 (type KW4 or KW5) for modulating boiler water temperature, with or without mixer control

- 1 product pack (boiler coding card and Vitogas 100-F technical documentation)
- 1 carton containing the boiler control unit and 1 bag with technical documentation
- Possible boiler/DHW cylinder combinations, see pricelist

Design information

Selection of rated output

Select a boiler according to the required heat demand including DHW heating.

The rated output for low temperature boilers, condensing boilers and multi-boiler systems may be higher than the calculated heat demand of the building in question.

System design

The boiler water temperature is limited to 75 °C.

The boiler water temperature and the flow temperature can be raised by adjusting the thermostat.

To minimise distribution losses, we recommend that you size the heat distribution system and the DHW heating system for a max. flow temperature of 70 $^{\circ}$ C.

Flue gas system

With draught in the flue gas system exceeding 10 Pa, we recommend the installation of a Vitoair combined draught stabiliser (for chimney installation) near the ceiling (see the separate datasheet in register 19).

Safety equipment

Equip these boilers with a type-tested safety value in accordance with EN 12828 for DHW heating systems with a safety temperature of up to 110 $^\circ\text{C}.$

This must be identified in accordance with TRD 721:

Heating circuits

For heating systems with plastic pipes, we recommend the use of impermeable pipes to prevent the infusion of oxygen through the pipe walls. Provide system separation in heating systems with permeable plastic pipes (DIN 4726). We supply a separate heat exchanger for this.

Plastic pipework for radiators

We also recommend the installation of a temperature limiter to limit the maximum temperature of plastic pipes in heating circuits with radiators.

Additional requirements for boilers with liquid gas operation when installed below ground level

According to TRF 1996 Vol. 2 – valid as of 1 September 1997 [Germany] – an external safety solenoid valve is no longer required when installing the Vitogas 100-F below ground level. However, the high safety standard derived from the use of an external safety solenoid valve has proved to be valuable. We therefore recommend the continued installation of an external safety solenoid valve when installing the Vitogas 100-F in rooms below ground level.

Flue gas monitor

The EC Gas Equipment Directive specifies the installation of a flue gas monitor for gas fired boilers between 29 and 50 kW, if the installation room is not sealed against other rooms of the accommodation or utility area and is not provided with adequate ventilation.

This does not apply if the installation room is separated from other rooms through thick walls and tightly fitting, self-closing doors or is adequately ventilated according to the "ventilation requirements" specified by the TRGI [Germany or by local ventilation regulations].

The efficiency of low temperature boilers remains constant over a wide range of boiler loads. It remains almost unchanged even if the output is twice as high as the heat demand.

- "H" up to 3.0 bar permissible operating pressure and max. 2700 kW rated output
- "D/G/H" for all other operating conditions

Underfloor heating circuit

Install a temperature limiter into the flow of the underfloor heating circuit to limit the maximum temperature. The underfloor heating circuit should be connected via a mixer. For this see the Vitoset technical guide, chapter "Control of underfloor heating systems". Observe DIN 18560-2.

Design information (cont.)

The flue gas monitoring system can also, e.g. on request of the building owner, be retrofitted in non-living spaces after the installation of the boiler.

Low water indicator

According to the EN 12828, special low water level protection can be omitted for boilers up to 300 kW, as long as heating can be reliably prevented when the water level is too low. Viessmann Vitogas 100-F boilers are equipped with type-tested

control thermostats and high limit safety cut-outs. Tests have verified that the burner will be automatically switched OFF in the event of water shortage due to a leak in the heating system and simultaneous burner operation, before the boiler or the flue gas system reach unacceptably high temperatures.

Application examples

Install a check valve as a gravity brake into the heating flow, to prevent uncontrolled heat entering the central heating system through gravity, if DHW heating has priority or during summer mode.

Without mixer

e.g. with Vitotronic 100, 150 or 200



A Heating circuit

B Spring-loaded check valve

- © Circulation pump
- (D) Safety equipment block, incl. air vent valve, safety valve and pressure gauge
- E Expansion vessel

Application examples (cont.)



- A Heating circuit
 B Spring-loaded check valve
- © Circulation pump

- D Safety equipment block, incl. air vent valve, safety valve and pressure gauge
- E Expansion vessel
- **F** DHW cylinder (indirect coil)

With four-way mixer for heating circuit control

e.g. with Vitotronic 200, type KW5 with extension kit for one heating circuit with mixer



- © Circulation pump
- D Safety equipment block, incl. air vent valve, safety valve and pressure gauge
- E Expansion vessel
- F Mixer-4 G Bypass
 - Only required for underfloor heating systems or low temperature heating systems where the heating circuit/heating circuit temperature is designed for a temperature differential of < 15 K.

(A) Heating circuit(B) Spring-loaded check valve

Application examples (cont.)



- A Heating circuit
- B Spring-loaded check valve
- © Circulation pump
 D Safety equipment block, incl. air vent valve, safety valve and pressure gauge
- E Expansion vessel
- F Mixer-4

G Bypass

Only required for underfloor heating systems or low temperature heating systems where the heating circuit/heating circuit temperature is designed for a temperature differential of < 15 K.

(H) DHW cylinder (indirect coil)

Underfloor heating with system separation



- (A) Underfloor heating circuit
- (B) Spring-loaded check valve
- © Circulation pump for underfloor heating circuit
- D Safety equipment block, incl. air vent valve, safety valve and pressure gauge
- E Expansion vessel
- Mixer-3
- G Circulation pump for heat exchanger
- Heat exchanger
- K Flow temperature sensor

Tested quality



VDE assessment with production monitoring

CE designation according to current EC Directives

5822 390 GB

VITOGAS 100-F

Printed on environmentally friendly, chlorine-free bleached paper

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