

Datasheet

For part no. and prices: see pricelist



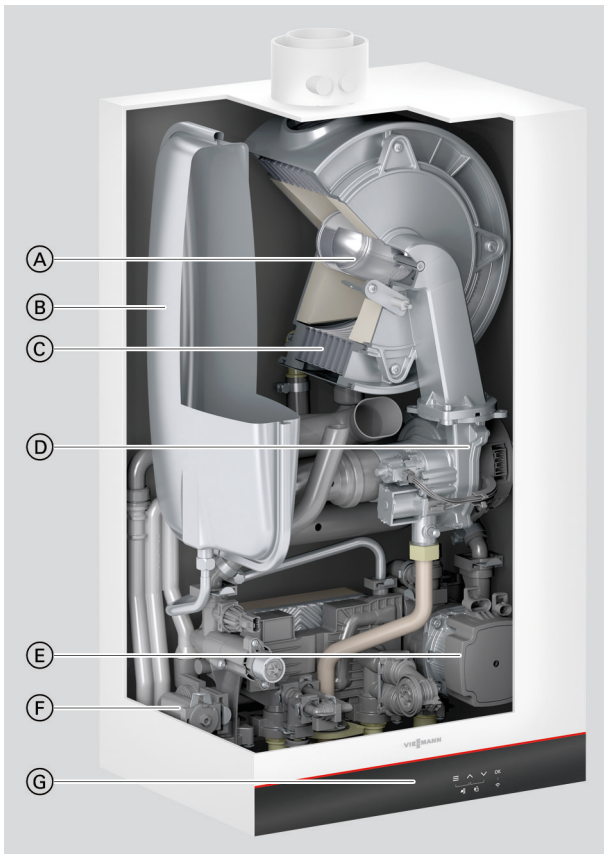
VITODENS 050-W Type B0KA, B0HA, BPKA

Wall mounted gas condensing boiler

3.2 to 25.0 kW

Natural gas and LPG version

Product description



- Ⓐ Modulating MatriX-Plus burner with intelligent Lambda Pro combustion controller for extremely clean combustion and quiet operation
- Ⓑ Integral diaphragm expansion vessel
- Ⓒ Inox-Radial heat exchanger made from stainless steel – for high operational reliability, a long service life and high heating output on a very small footprint
- Ⓓ Variable speed combustion air fan for quiet and economical operation
- Ⓔ Integral, variable speed high efficiency circulation pump
- Ⓕ Hydraulics
- Ⓖ Digital boiler control unit with 7-segment display

The MatriX-Plus burner and the stainless steel Inox-Radial heat exchanger ensure the high energy efficiency of this combination, as well as its long-term high heating convenience.

All sizes of the Vitodens 050-W are equipped with the automatic Lambda Pro combustion controller. Modulation range down to 1:8 (25 kW).

The integral, variable speed high efficiency circulation pump reduces power consumption by up to 70 %.

Recommended applications

- New build
- Modernisation

Benefits at a glance

- Seasonal central heating energy efficiency η_s up to 92 % (label A).
- Low cycle frequency, even with low heat demand, due to optimised pauses and a wide modulation range down to 1:8 (25 kW)
- Durable and efficient thanks to Inox-Radial stainless steel heat exchanger
- MatriX-Plus burner with Lambda Pro combustion controller for permanently high efficiency and clean combustion.
- Power saving, high efficiency circulation pump
- Straightforward operation via control unit with LED display and touch buttons
- Web-enabled through integral WiFi interface for operation and service via Viessmann apps, depending on the version

Delivered condition

Wall mounted gas condensing boiler with Inox-Radial heat exchanger, modulating MatriX-Plus burner for natural gas and LPG to DVGW Code of Practice G260, hydraulics and variable speed high efficiency circulation pump.

Weather-compensated or constant temperature control unit with integral WiFi interface.

Fully plumbed and wired. Colour of the epoxy-coated casing: Vito-pearlwhite.

Integral diaphragm expansion vessel (8 litre capacity).

Preset for operation with natural gas. Conversion within gas groups E/LL is not required. The conversion to LPG is made at the control unit (a conversion kit is not required). The gas condensing system boiler is suitable for operation with a hydrogen blend of up to 20 % by volume.

Note on multiple connection

*If multiple appliances are to be connected to a common flue system, the **multiple connection** version of the appliance will be required. Using appliances for individual connection, or operating a mix of appliances for individual and multiple connection, on a common flue system is **not permitted**.*

*The multiple connection version is already fitted with an internal back draught safety device. When installing with multiple connections, it is **essential** to order an additional back draught safety device for the boiler flue connection to each appliance.*

*The multiple connection version **cannot** be operated with LPG.*

Accessories required (order separately)

Vitodens installation directly on a wall

Pre-plumbing jig for surface mounting:

- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With gas shut-off valve with thermally activated safety shut-off valve

Valves/fittings for surface mounting:

- With valves/fittings
- With boiler drain & fill valve
- With gas shut-off valve with thermally activated safety shut-off valve

Product description (cont.)

Valves/fittings for flush mounting:

- With valves/fittings
- With boiler drain & fill valve
- With gas shut-off valve with thermally activated safety shut-off valve

Mounting frame for surface mounting (installed depth 90 mm):

- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With angle gas valve with thermally activated safety shut-off valve


Vitodens installation in front of a wall

Plumbing wall mounting frame (installed depth 110 mm):

- With fixings

A pre-plumbing jig or valves/fittings for surface mounting/flush mounting must be ordered separately for the plumbing wall mounting frame.

Tested quality

 CE designation according to current EU Directives

Meets the requirements for the "Blue Angel" ecolabel to RAL UZ 61.

Specification

Gas condensing system boiler

Gas boiler, type B and C, category I _{2N3P}			
Type		B0HA	
Rated heating output range (details to EN 15502)			
T _F /T _R = 50/30 °C			
Natural gas	kW	3.2 to 19.0	3.2 to 25.0
LPG	kW	3.2 to 19.0	3.2 to 25.0
T _F /T _R = 80/60 °C			
Natural gas	kW	2.9 to 17.0	2.9 to 22.5
LPG	kW	2.9 to 17.0	2.9 to 22.5
Rated heating output for DHW heating			
Natural gas	kW	2.9 to 17.3	2.9 to 22.8
LPG	kW	2.9 to 17.3	2.9 to 22.8
Rated heat input (Q_n)			
Natural gas	kW	3.0 to 18.0	3.0 to 23.6
LPG	kW	3.0 to 18.0	3.0 to 23.6
Rated heat input for DHW heating (Q_{nw})			
Natural gas	kW	3.0 to 18.2	3.0 to 24.0
LPG	kW	3.0 to 18.2	3.0 to 24.0
Product ID		CE-0063DL3422	
IP rating to EN 60529		IP X4 to EN 60529	
NO _x		6	6
Gas supply pressure			
Natural gas	mbar	20	20
	kPa	2	2
LPG	mbar	50	50
	kPa	5	5
Max. perm. gas supply pressure^{*1}			
Natural gas	mbar	13 to 25.0	13 to 25.0
	kPa	1.3 to 2.5	1.3 to 2.5
LPG	mbar	25 to 57.5	25 to 57.5
	kPa	2.5 to 5.75	2.5 to 5.75
Sound power level			
(to EN ISO 15036-1)			
– At partial load	dB(A)	33	33
– At rated heating output (DHW heating)	dB(A)	47	49
Power consumption		45	64
(in the delivered condition)			
Rated voltage	V	230	
Rated frequency	Hz	50	
Appliance fuse protection	A	4.0	
Backup fuse (power supply)	A	16	
Communication module (integral)			
WiFi frequency band	MHz	2400 to 2483.5	
Max. transmission power	dBm	20	
Low power radio frequency band	MHz	2400 to 2483.5	
Max. transmission power	dBm	10	
Supply voltage	V $\overline{=}$	24	
Power consumption	W	4	
Electronic temperature limiter setting (TN)	°C	91	
Electronic temperature limiter setting	°C	110	
Electronic flue gas temperature limiter setting	°C	110	
Permissible ambient temperature			
– During operation	°C	+5 to +40	
– During storage and transport	°C	-5 to +60	
Weight			
– Excl. heating water and packaging	kg	35	35
– Incl. heating water	kg	41	41
Water capacity (excl. diaphragm expansion vessel)	l	3.0	3.0
Max. flow temperature	°C	82	82
Max. flow rate	l/h	See residual head graph	
(Limit for the use of hydraulic separation)			
Nominal circulating water volume	l/h	752	988
At T _F /T _R = 80/60 °C			

*1 If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

Specification (cont.)

Gas boiler, type B and C, category I _{2N3P}			
Type	B0HA		
Rated heating output range (details to EN 15502)			
T _F /T _R = 50/30 °C			
Natural gas	kW	3.2 to 19.0	3.2 to 25.0
LPG	kW	3.2 to 19.0	3.2 to 25.0
T _F /T _R = 80/60 °C			
Natural gas	kW	2.9 to 17.0	2.9 to 22.5
LPG	kW	2.9 to 17.0	2.9 to 22.5
Diaphragm expansion vessel			
– Capacity	l	8	8
– Pre-charge pressure	bar	0.75	0.75
	kPa	75	75
Permiss. operating pressure	bar	3	3
	MPa	0.3	0.3
Connections (with connection accessories)			
– Boiler flow and return	G	¾	¾
– Cold water and DHW	G	½	½
Dimensions			
– Length	mm	300	300
– Width	mm	400	400
– Height	mm	700	700
Gas connection	R	¾	¾
Supply values			
Relative to the max. load and 1013 mbar/15 °C			
With gas			
Natural gas E	m ³ /h	1.88	2.48
Natural gas LL	m ³ /h	2.19	2.88
LPG	kg/h	1.4	1.83
Flue gas parameters			
Temperature (at a return temperature of 30 °C)			
– At rated heating output	°C	41	46
– At partial load (individual connection)	°C	38	38
Temperature (at a return temperature of 60 °C, for DHW heating)	°C	65	67
Overheating temperature	°C	120	
Available draught	Pa	250	250
	mbar	2.5	2.5
Available draught for B23P	Pa	261	473
	mbar	2.61	4.73
Max. amount of condensate	l/h	2.5	3.3
To DWA-A 251			
Condensate connection (hose nozzle)	Ø mm	20 to 24	20 to 24
Flue gas connection	Ø mm	60	60
Ventilation air connection	Ø mm	100	100
Standard seasonal efficiency [to DIN] at		Up to 98 (H _s) [gross cv]	
T _F /T _R = 40/30 °C	%		
Energy efficiency class		A	A

Note

The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar (101.3 kPa).

Specification (cont.)

Gas condensing combi boiler

Gas boiler, type B and C, category I _{2N3P}		B0KA, BPKA	
Type			
Rated heating output range (details to EN 15502) T _F /T _R = 50/30 °C			
Natural gas	kW	3.2 to 19.0	3.2 (7.0 ^{*2}) to 25.0
LPG	kW	3.2 to 19	3.2 to 25
T_F/T_R = 80/60 °C			
Natural gas	kW	2.9 to 17.0	2.9 (6.3 ^{*2}) to 22.5
LPG	kW	2.9 to 17	2.9 to 22.5
Rated heating output for DHW heating			
Natural gas	kW	2.9 to 25.4	2.9 (6.3 ^{*2}) to 30.0
LPG	kW	2.9 to 25.4	2.9 to 30
Rated heat input (Q_n)			
Natural gas	kW	3.0 to 18.0	3.0 (6.5 ^{*2}) to 23.6
LPG	kW	3.0 to 18.0	3.0 to 23.6
Rated heat input for DHW heating (Q_{nw})			
Natural gas	kW	3.0 to 26.7	3.0 (6.5 ^{*2}) to 31.5
LPG	kW	3.0 to 26.7	3.0 to 31.5
Product ID		CE-0063DL3422	
IP rating to EN 60529		IP X4 to EN 60529 B1BA: IP X5 to EN 60529	
NO _x		6	6
Gas supply pressure			
Natural gas	mbar	20	20
	kPa	2	2
LPG	mbar	50	50
	kPa	5	5
Max. perm. gas supply pressure^{*3}			
Natural gas	mbar	25	25
	kPa	2.5	2.5
LPG	mbar	25 to 57.5	25 to 57.5
	kPa	2.5 to 5.75	2.5 to 5.75
Sound power level (to EN ISO 15036-1)			
– At partial load		33	33
– At rated heating output (DHW heating)		52	53
Power consumption (in the delivered condition)		45	64
Rated voltage		230	
Rated frequency		50	
Appliance fuse protection		4	
Backup fuse (power supply)		16	
Communication module (integral)			
WiFi frequency band	MHz	2400 to 2483.5	
Max. transmission power	dBm	20	
Low power radio frequency band	MHz	2400 to 2483.5	
Max. transmission power	dBm	10	
Supply voltage	V $\overline{=}$	24	
Power consumption	W	4	
Electronic temperature limiter setting (TN)		91	
Electronic temperature cut-out setting		110	
Electronic flue gas temperature limiter setting		110	
Permissible ambient temperature			
– During operation		+5 to +40	
– During storage and transport		-5 to +60	
Weight			
– Excl. heating water and packaging		35	35
– Incl. heating water		41	41
Water capacity (excl. diaphragm expansion vessel)		3.0	3.0
Max. flow temperature		82	82
Max. flow rate (Limit for the use of hydraulic separation)		See residual head graphs	

^{*2} Appliances for multiple connection of type B0KA-[kW]-M

^{*3} If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.



Specification (cont.)

Gas boiler, type B and C, category I _{2N3P}		B0KA, BPKA	
Type			
Rated heating output range (details to EN 15502)			
T _F /T _R = 50/30 °C			
Natural gas	kW	3.2 to 19.0	3.2 (7.0 ^{*2}) to 25.0
LPG	kW	3.2 to 19	3.2 to 25
T _F /T _R = 80/60 °C			
Natural gas	kW	2.9 to 17.0	2.9 (6.3 ^{*2}) to 22.5
LPG	kW	2.9 to 17	2.9 to 22.5
Nominal circulating water volume			
At T _F /T _R = 80/60 °C		752	988
Diaphragm expansion vessel			
– Capacity	l	8	8
– Pre-charge pressure	bar	0.75	0.75
	kPa	75	75
Permiss. operating pressure			
	bar	3	3
	MPa	0.3	0.3
Connections (with connection accessories)			
– Boiler flow and return	G	¾	¾
– Cold water and DHW	G	½	½
Dimensions			
– Length	mm	300	300
– Width	mm	400	400
– Height	mm	700	700
Gas connection			
	R	¾	¾
Supply values			
Relative to the max. load and 1013 mbar/15 °C			
Natural gas E	m ³ /h	1.88	2.48
Natural gas LL	m ³ /h	2.19	2.88
LPG	kg/h	1.4	1.83
Flue gas parameters			
Temperature (at a return temperature of 30 °C)			
– At rated heating output	°C	41	46
– At partial load	°C	38	38
Temperature (at a return temperature of 60 °C, for DHW heating)			
	°C	65	67
Overheating temperature		120	
Mass flow rate (for DHW heating)			
Natural gas			
– At the max. rated heating output	kg/h	31.7	41.6
– At partial load	kg/h	5.6	5.6 (9.8)
Available draught (with individual connection)			
	Pa	250	250
	mbar	2.5	2.5
Available draught for B23P			
	Pa	597	473
	mbar	5.97	4.73
Max. amount of condensate			
To DWA-A 251		3.8	4.4
Condensate connection (hose nozzle)		20 to 24	
Flue gas connection		60	
Ventilation air connection		100	
Standard seasonal efficiency [to DIN] at			
T _F /T _R = 40/30 °C		Up to 98 (H _s) [gross cv]	
Energy efficiency class		A	

Note

The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar (101.3 kPa).

Specification (cont.)

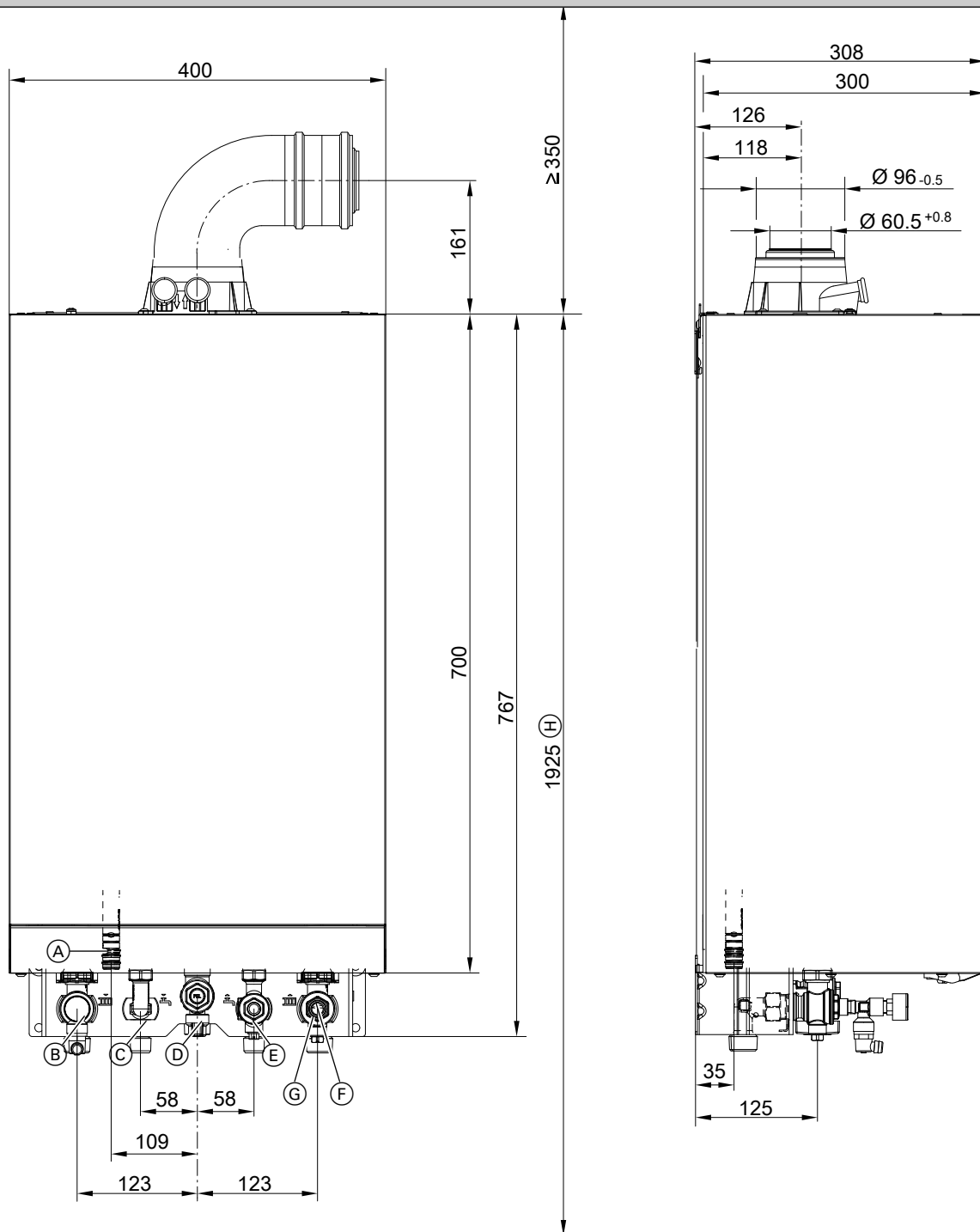


Illustration shows a gas condensing combi boiler

- | | |
|--|---|
| (A) Condensate drain | (E) Cold water (gas condensing combi boiler) |
| (B) Heating flow | Cylinder return (gas condensing system boiler) |
| (C) DHW (gas condensing combi boiler) | (F) Heating return |
| Cylinder flow (gas condensing system boiler) | (G) Filling/draining |
| (D) Gas connection | (H) Dimension for siting with DHW cylinder below the boiler |

Specification (cont.)

Note

This boiler (IP rating: IP X4) is approved for installation in wet rooms inside safety zone 1, to DIN VDE 0100. Exposure to jets of water must be prevented.

For open flue operation, the boiler may only be operated with a splash cover.

Observe the requirements of DIN VDE 0100.

Variable speed heating circuit pump

The integral circulation pump is a highly efficient pump with substantially lower power consumption than conventional pumps.

The pump speed and consequently the pump rate are controlled subject to the outside temperature and the switching times for heating mode or reduced mode. The control unit transmits the currently specified speeds to the circulation pump via a PWM signal.

The min. and max. speeds and the speed for reduced mode can be matched to the existing heating system via parameters at the control unit.

Setting (%) in group heating circuit 1:

- Min. speed: Parameter 1102.0
- Max. speed: Parameter 1102.1

Specification – circulation pump

Rated heating output	kW	19	25
Type		B0KA BPKA B0HA	B0KA BPKA B0HA
Circulation pump	Type	UPM3 15-60	UPM3 15-60
Rated voltage	V~	230	230
Power consumption			
– max.	W	60	60
– min.	W	2	2
– Delivered condition	W	21.9	34.3
Energy efficiency class		A	A
Energy efficiency index (EEI)		≤ 0.20	≤ 0.20

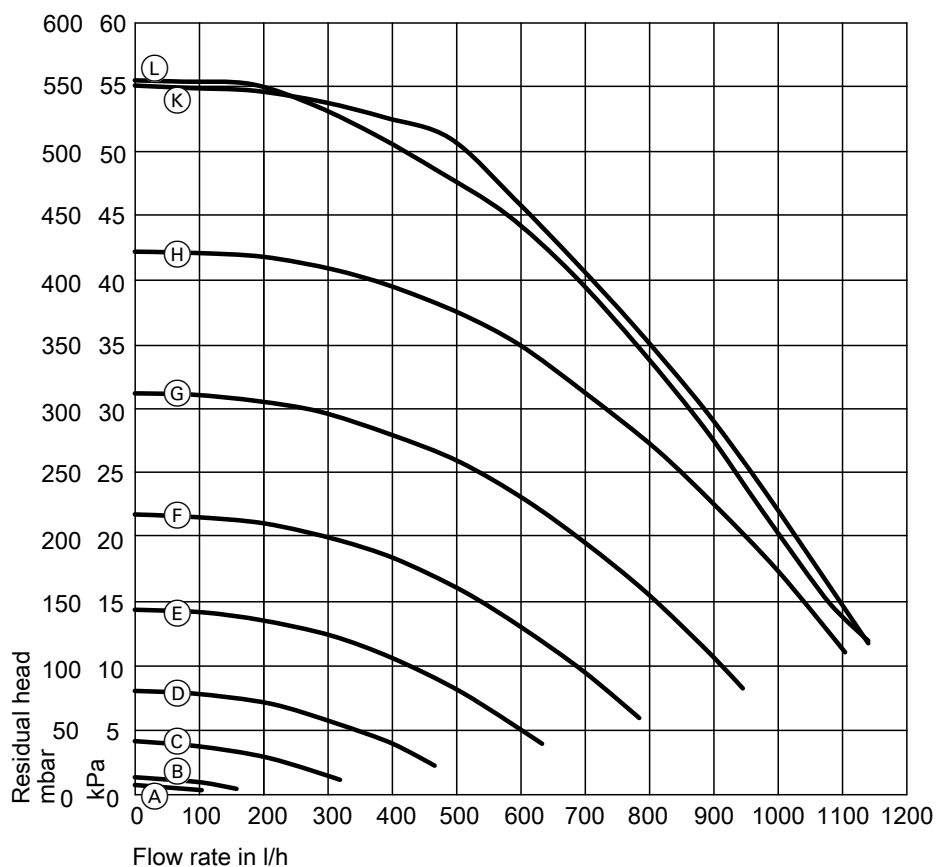
- In the delivered condition, the minimum pump rate and the maximum pump rate are set to the following values:

Rated heating output in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
19	40	100
25	40	100

- In conjunction with a low loss header, heating water buffer cylinder and heating circuits with mixer, the internal circulation pump runs at a constant speed.

Specification (cont.)

Residual head of integral circulation pump



(M) Upper operational limit (integral bypass opens)

Curve	Pump rate of circulation pump
(A)	10 %
(B)	20 %
(C)	30 %
(D)	40 %
(E)	50 %
(F)	60 %
(G)	70 %
(H)	80 %
(K)	90 %
(L)	100 %

Standby instantaneous water heater (gas condensing combi boiler)

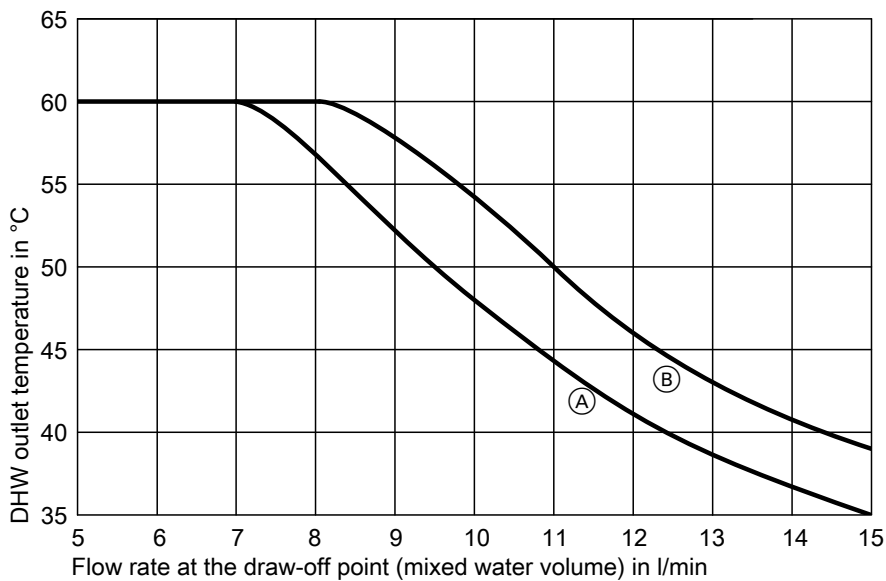
A standby instantaneous water heater is integrated into the Vitodens 050-W, type B0KA BPKA.

Output levels

Rated heating output, gas condensing combi boiler	kW	19.0	25.0
Continuous DHW output	kW	25.4	30.0
for DHW heating from 10 to 45 °C	l/h	666	764
Draw-off rate	l/min	3 to 12	3 to 14
Outlet temperature, adjustable	°C	10 to 60	10 to 60

Specification (cont.)

DHW temperature subject to flow rate



- (A) 19 kW
- (B) 25 kW

The graph illustrates the changes in the outlet temperature, subject to the flow rate at the draw-off point.

If a greater volume of water is required, cold water needs to be admixed, which reduces the outlet temperature.

The illustrated outlet temperature characteristics are based on a cold water inlet temperature of 10 °C.

Minimum clearances

Maintain a clearance of 700 mm in front of the Vitodens for maintenance purposes.

No maintenance clearances are required to the left or right of the Vitodens.

Subject to technical modifications.

Viessmann Climate Solutions SE
35108 Allendorf / Germany
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

6179188