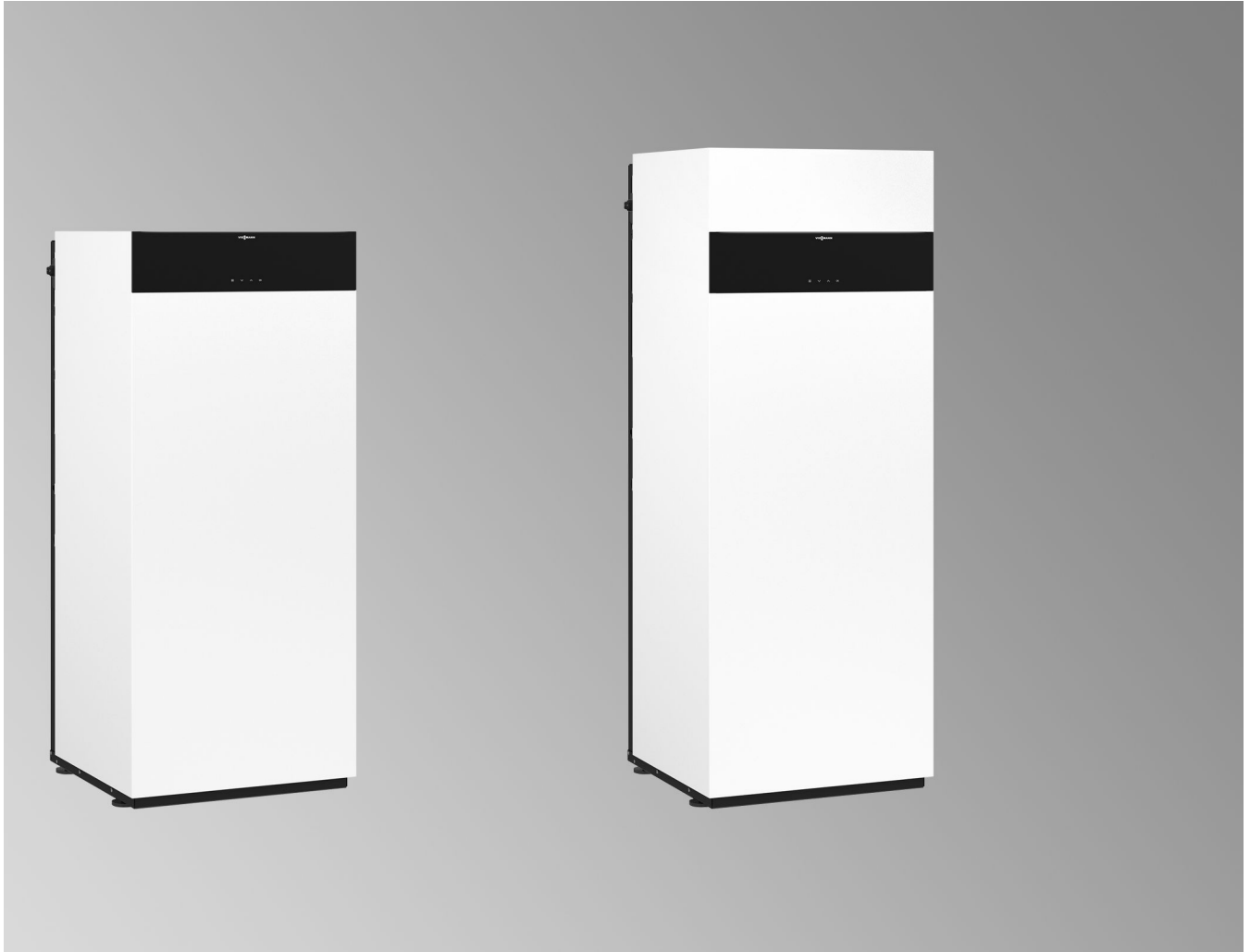


## Datasheet

For part no. and prices: see pricelist



### **VITODENS 222-F** Type B2TF

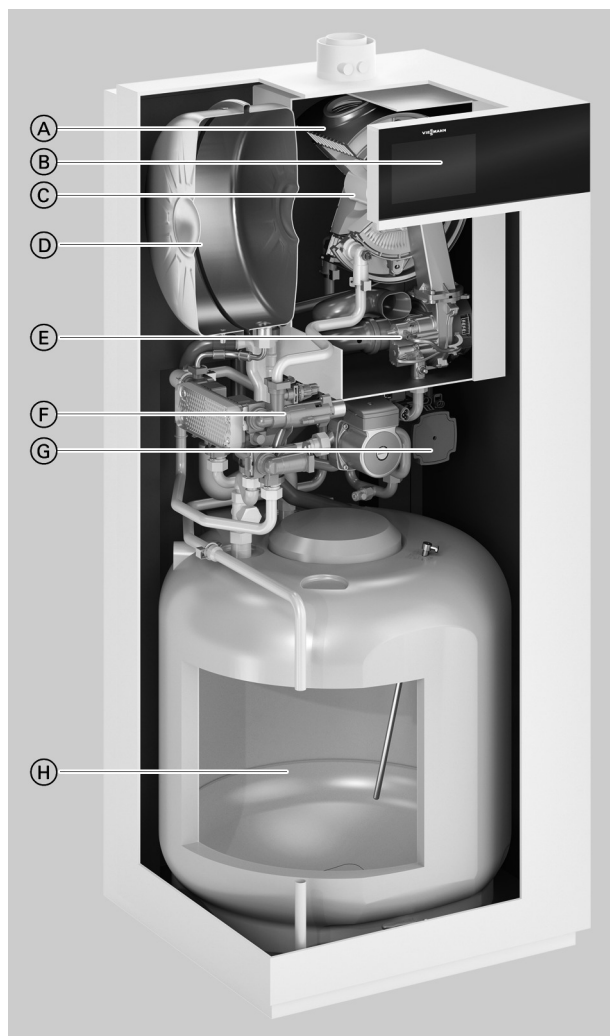
Gas condensing storage combi boiler  
1.9 to 32.0 kW  
For natural gas and LPG

### **VITODENS 222-F** Type B2SF

Gas condensing storage combi boiler  
1.9 to 32.0 kW  
For natural gas and LPG

## Benefits – type B2TF

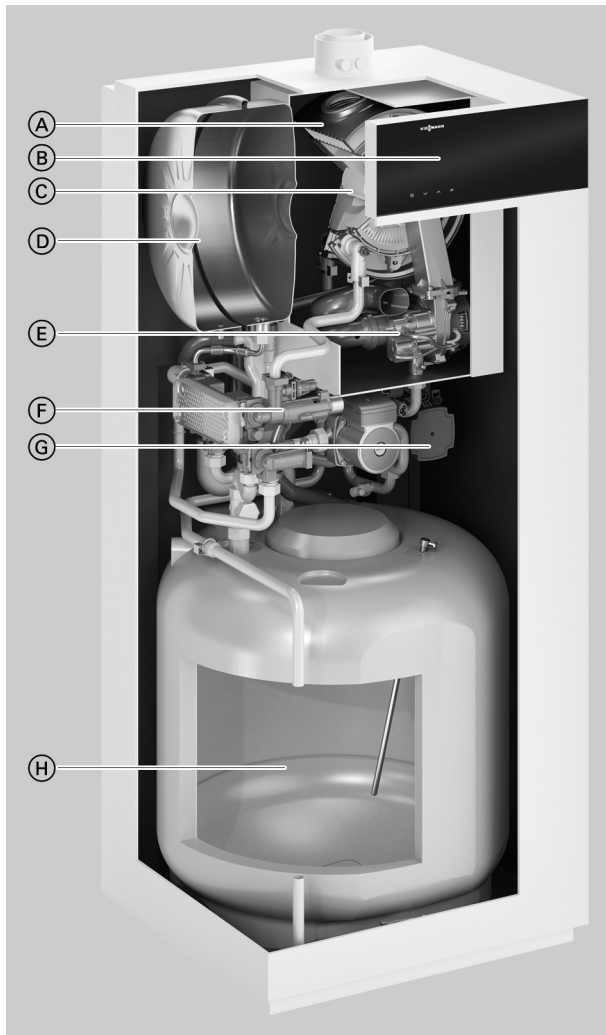
### Control unit with 7 inch screen



- Ⓐ 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
- Ⓑ Digital boiler control unit with colour touchscreen
- Ⓒ Modulating Matrix-Plus gas burner for extremely clean combustion
- Ⓓ Integral diaphragm expansion vessel
- Ⓔ Variable speed combustion air fan for quiet and economical operation
- Ⓕ Hydraulics
- Ⓖ Integral, variable speed high efficiency circulation pump
- Ⓗ DHW loading cylinder

## Benefits – type B2TF (cont.)

### Control unit with 3.5 inch screen



- (A) 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
- (B) Digital boiler control unit with black/white screen
- (C) Modulating MatriX-Plus gas burner for extremely clean combustion
- (D) Integral diaphragm expansion vessel
- (E) Variable speed combustion air fan for quiet and economical operation
- (F) Hydraulics
- (G) Integral, variable speed high efficiency circulation pump
- (H) DHW loading cylinder

The Vitodens 222-F storage combi boiler combines the benefits of the Vitodens 200-W with the high level of DHW convenience of a separate DHW cylinder.

Fitted with the MatriX-Plus gas burner and stainless steel Inox-Radial heat exchanger, the Vitodens 222-F offers top technology for energy efficiency and a high level of heating and DHW convenience over the long term. The Lambda Pro Plus combustion controller and the variable speed high efficiency circulation pump ensure permanently high efficiency, reliable operation and low power consumption. The integral DHW loading cylinder with 100 l capacity offers the same DHW convenience as a separate DHW cylinder approximately twice the size.

#### Recommended applications

- Installation in detached and terraced houses
- New build (e.g. prefabricated houses and developer projects): Installation in utility rooms and attics
- Modernisation: Replacement of gas system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders installed below.
- Replacement of boilers in various types of systems, including those with several heating circuits and underfloor heating

#### Benefits at a glance

##### Control unit with 7 inch screen

- Seasonal central heating energy efficiency  $\eta_s$  up to 94 % (label A).
- Low cycle frequency, even with low heat demand, due to optimised pauses and a wide modulation range down to 1:17
- Durable and efficient thanks to Inox-Radial stainless steel heat exchanger
- MatriX-Plus gas burner with Lambda Pro Plus combustion controller for permanently high efficiency and clean combustion.
- Power saving, high efficiency circulation pump
- Colour touchscreen with plain text and graphic display, commissioning assistant, energy consumption indicators and the option of operation from a mobile device
- Web-enabled through integral WiFi interface for operation and service via Viessmann app
- Assembly kit (accessories) with same dimensions and design as the boiler, for the connection of one regulated and one unregulated heating circuit

#### Benefits at a glance

##### Control unit with 3.5 inch screen

- Seasonal central heating energy efficiency  $\eta_s$  up to 94 % (label A).
- Low cycle frequency, even with low heat demand, due to optimised pauses and a wide modulation range down to 1:17
- Durable and efficient thanks to Inox-Radial stainless steel heat exchanger

## Benefits – type B2TF (cont.)

- MatriX-Plus gas burner with Lambda Pro Plus combustion controller for permanently high efficiency and clean combustion.
- Power saving, high efficiency circulation pump
- Black/white screen with plain text and graphic display, commissioning assistant, energy consumption indicators and the option of operation from a mobile device
- Web-enabled through integral WiFi interface for operation and service via Viessmann app
- Assembly kit (accessories) with same dimensions and design as the boiler, for the connection of one regulated and one unregulated heating circuit

### Delivered condition

Gas condensing boiler with Inox-Radial heat exchanger, modulating MatriX-Plus gas burner for natural gas and LPG to DVGW Code of Practice G260 [Germany], expansion vessel, variable speed high efficiency circulation pump and integral DHW loading cylinder. Fully plumbed and wired.

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

Colour of the epoxy-coated casing: White.

Integral diaphragm expansion vessel (18 l 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).

### Accessories required (order separately)

Surface mounting

- Connection set for surface mounting; upward connection or
- Connection set for surface mounting; connection to the left or right or
- Assembly kit with mixer

Flush mounting

- Connection set for flush mounting

### Tested quality



CE designation according to current EU Directives

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

## Specification – type B2TF

### Specification

Gas boiler, type B and C, category II <sub>2N3P</sub>		B2TF		
<b>Type</b>		B2TF		
<b>Rated heating output range (details to EN 15502)</b> T <sub>F</sub> /T <sub>R</sub> = 50/30 °C (P(50/30))				
Natural gas	kW	1.9 - 19	1.9 - 25	1.9 - 32
LPG	kW	2.5 - 19	2.5 - 25	2.5 - 32
<b>T<sub>F</sub>/T<sub>R</sub> = 80/60 °C (Pn(80/60))</b>				
Natural gas	kW	1.7 - 17.5	1.7 - 23	1.7 - 29.3
LPG	kW	2.2 - 17.5	2.2 - 23	2.2 - 29.3
<b>Rated heating output for DHW heating</b>				
Natural gas	kW	1.7 - 22	1.7 - 28.6	1.7 - 33.9
LPG	kW	2.2 - 22	2.2 - 28.6	2.2 - 33.9
<b>Rated heat input (Q<sub>n</sub>)</b>				
Natural gas	kW	1.8 - 17.8	1.8 - 23.4	1.8 - 29.9
LPG	kW	2.3 - 17.8	2.3 - 23.4	2.3 - 29.9
<b>Rated heat input for DHW heating (Q<sub>nw</sub>)</b>		22.7	29.5	34.9
<b>Product ID</b>		CE-0085CT0017		
<b>IP rating to EN 60529</b>		IP X4		
– In conjunction with assembly kit (accessories)		IP X1		
<b>Protection class</b>		I		
<b>NO<sub>x</sub></b>		6		
<b>Category</b>		6		
<b>Gas supply pressure</b>				
Natural gas	mbar	20	20	20
	kPa	2	2	2
LPG	mbar	50	50	50
	kPa	5	5	5
<b>Max. perm. gas supply pressure*1</b>				
Natural gas	mbar	25.0	25.0	25.0
	kPa	2.5	2.5	2.5
LPG	mbar	57.5	57.5	57.5
	kPa	5.75	5.75	5.75
<b>Sound power level</b> (to EN ISO 15036-1)				
– At partial load		dB(A)	38.8	38.8
– At rated heating output (DHW heating)		dB(A)	49.2	50.7
<b>Power consumption in the delivered condition (incl. circulation pump)</b>		W	54	68
<b>Rated voltage</b>		V	230	
Rated frequency		Hz	50	
Appliance fuse protection		A	6.3	
Backup fuse (power supply)		A	16	
<b>RF module (integral)</b>				
WiFi frequency band		MHz	2400 - 2483.5	
Max. transmitting power		dBm	17	
Low power radio frequency band		MHz	2400 - 2483.5	
Max. transmitting power		dBm	6	
Supply voltage		V DC	24	
Power consumption		W	4	
<b>Permissible ambient temperature</b>				
– During operation		°C	+5 to +35	
– During storage and transport		°C	-5 to +60	
<b>Electronic temperature limiter setting (TN)</b>		°C	91	
<b>Electronic temperature cut-out setting</b>		°C	110	
<b>Weight excl. heating water</b>		kg	111.5	
<b>Permiss. operating pressure, heating water side (PMS)</b>		bar	3	
		MPa	0.3	
<b>Weight</b>				
– Excl. heating water and DHW		kg	111.5	111.5
– Incl. heating water and DHW		kg		111.5
<b>Water capacity (excl. diaphragm expansion vessel)</b>		l	3.0	3.0
<b>Max. flow temperature</b>		°C	82	82
<b>Max. flow rate</b> (Limit for the use of hydraulic separation)		l/h	See residual head graphs	
<b>Nominal circulating water volume</b> At T <sub>F</sub> /T <sub>R</sub> = 80/60 °C		l/h	818	1076
				1374

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

## Specification – type B2TF (cont.)

Gas boiler, type B and C, category II <sub>2N3P</sub>		B2TF		
Type		B2TF		
<b>Rated heating output range (details to EN 15502)</b>				
$T_F/T_R = 50/30\text{ °C (P(50/30))}$				
Natural gas	kW	1.9 - 19	1.9 - 25	1.9 - 32
LPG	kW	2.5 - 19	2.5 - 25	2.5 - 32
$T_F/T_R = 80/60\text{ °C (Pn(80/60))}$				
Natural gas	kW	1.7 - 17.5	1.7 - 23	1.7 - 29.3
LPG	kW	2.2 - 17.5	2.2 - 23	2.2 - 29.3
<b>Expansion vessel</b>				
Capacity	l	18	18	18
Pre-charge pressure	bar	0.75	0.75	0.75
	kPa	75	75	75
<b>Permiss. operating pressure</b>	bar	3	3	3
	MPa	0.3	0.3	0.3
<b>Connections (with connection accessories)</b>				
Boiler flow and return	R	¾	¾	¾
Cold water and DHW	R	½	½	½
DHW circulation	R	½	½	½
<b>Dimensions</b>				
Length	mm	595	595	595
Width	mm	600	600	600
Height	mm	1400	1400	1400
<b>Gas connection (with connection accessories)</b>	R	½	½	½
<b>DHW loading cylinder</b>				
Capacity	l	100	100	100
Permiss. operating pressure (DHW side)	bar	10	10	10
	MPa	1	1	1
Continuous DHW output	kW	19.74	26.53	32.50
For DHW heating from 10 to 45 °C	l/h	484.80	648.80	793.80
Performance factor $N_L^{*2}$		1.4	2.1	2.6
Initial DHW output	l/10 min	163.70	196.20	215.50
For DHW heating from 10 to 45 °C				
<b>Supply values</b>				
Relative to the max. load and 1013 mbar/15 °C				
Natural gas E	m <sup>3</sup> /h	2.40	3.12	3.69
Natural gas LL	m <sup>3</sup> /h	2.79	3.63	4.29
LPG	kg/h	1.76	2.29	2.71
<b>Flue gas parameters</b>				
Temperature (at a return temperature of 30 °C)				
– At rated heating output	°C	41	46	59
– At partial load	°C	38	38	38
Temperature (at a return temperature of 60 °C)				
– At rated heating output	°C	67	72	77
Mass flow rate (for DHW heating)				
Natural gas				
– At rated heating output	kg/h	40.4	54.2	62.1
– At partial load	kg/h	3.2	3.2	3.2
LPG				
– At rated heating output	kg/h	39.8	53.2	61.1
– At partial load	kg/h	3.9	3.9	3.9
Available draught	Pa	250	250	250
	mbar	2.5	2.5	2.5
<b>Max. amount of condensate</b>	l/h	3.2	4.1	4.9
To DWA-A 251				
<b>Condensate connection (hose nozzle)</b>	Ø mm	20 - 24	20 - 24	20 - 24
<b>Flue gas connection</b>	Ø mm	60	60	60
<b>Ventilation air connection</b>	Ø mm	100	100	100
<b>Standard seasonal efficiency [to DIN] at</b>		Up to 98 (H <sub>s</sub> ) [gross cv]		
$T_F/T_R = 40/30\text{ °C}$	%			
<b>Energy efficiency class</b>				
– Heating		A	A	A
– DHW heating, draw-off profile XL		A	A	A

\*2 At 70 °C average boiler water temperature and cylinder storage temperature  $T_{cyl} = 60\text{ °C}$ .

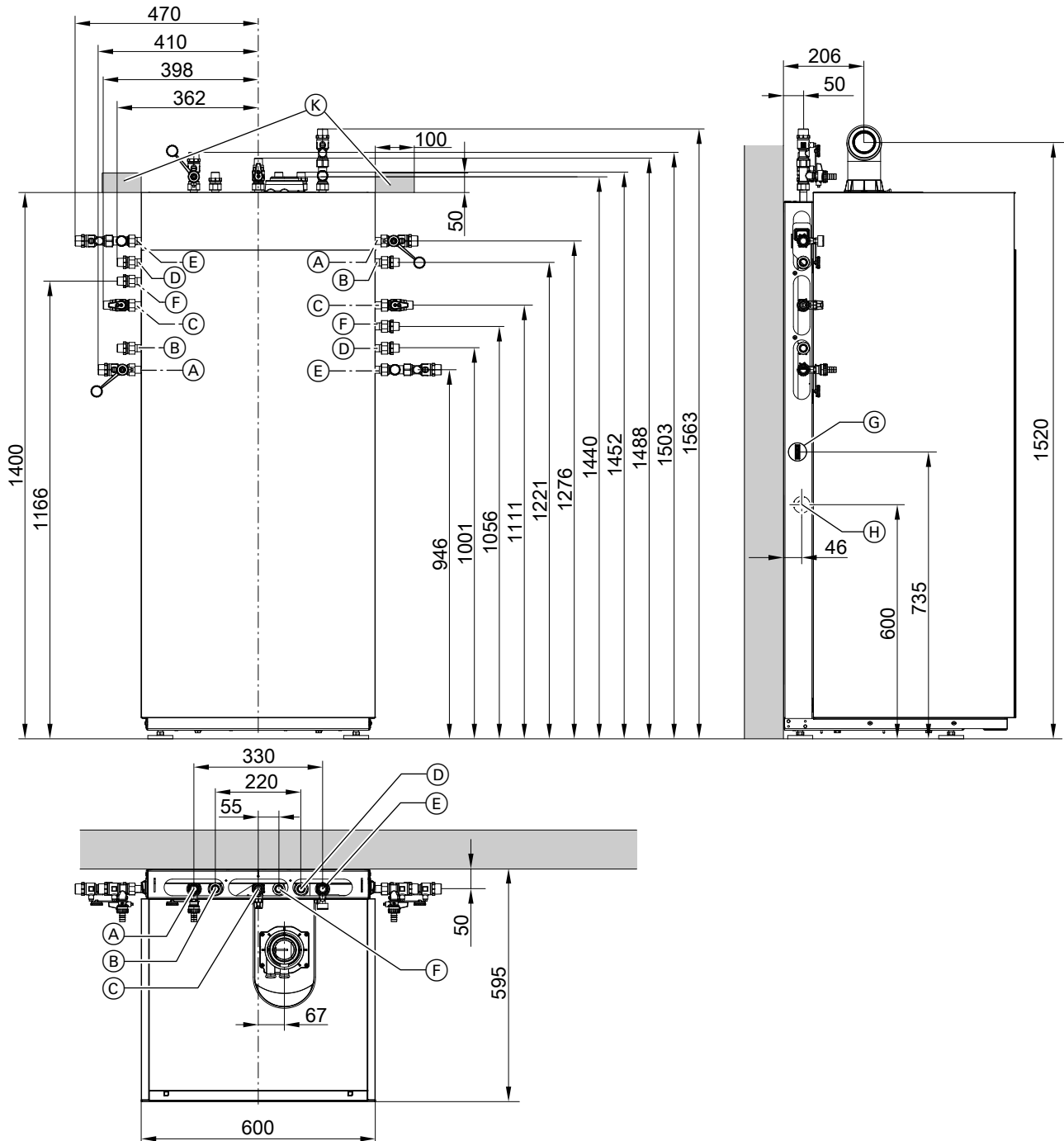
DHW performance factor  $N_L$  depends on cylinder storage temperature  $T_{cyl}$ .

Standard values:  $T_{cyl} = 60\text{ °C} \rightarrow 1.0 \times N_L$   $T_{cyl} = 55\text{ °C} \rightarrow 0.75 \times N_L$   $T_{cyl} = 50\text{ °C} \rightarrow 0.55 \times N_L$   $T_{cyl} = 45\text{ °C} \rightarrow 0.3 \times N_L$ .

## Specification – type B2TF (cont.)

### 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).



- (A) Heating flow R ¼
- (B) DHW R ½
- (C) Gas connection R ½
- (D) Cold water R ½
- (E) Heating return R ¾
- (F) DHW circulation R ½ (separate accessories)
- (G) External plug
- (H) Condensate drain to the side
- (K) Area for electrical cables (on-site junction box)

### Note

The dimensioned drawing shows an example of valves/fittings for surface mounting, upward connection and connection to the left/right.

Order the connection sets separately as accessories.

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## Specification – type B2TF (cont.)

### Note

The appliance is delivered fitted with a flexible power cable (1.5 m long). Lay the required power cables on site and route them into the boiler through the back.

### Note

All height dimensions have a tolerance of +15 mm on account of the adjustable feet.

### Siting information

Site the Vitodens 222-F with its back flush against the wall.

## Variable speed heating circuit pump in the Vitodens 222-F

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 regulated 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

- 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	60	70
25	60	85
32	60	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.

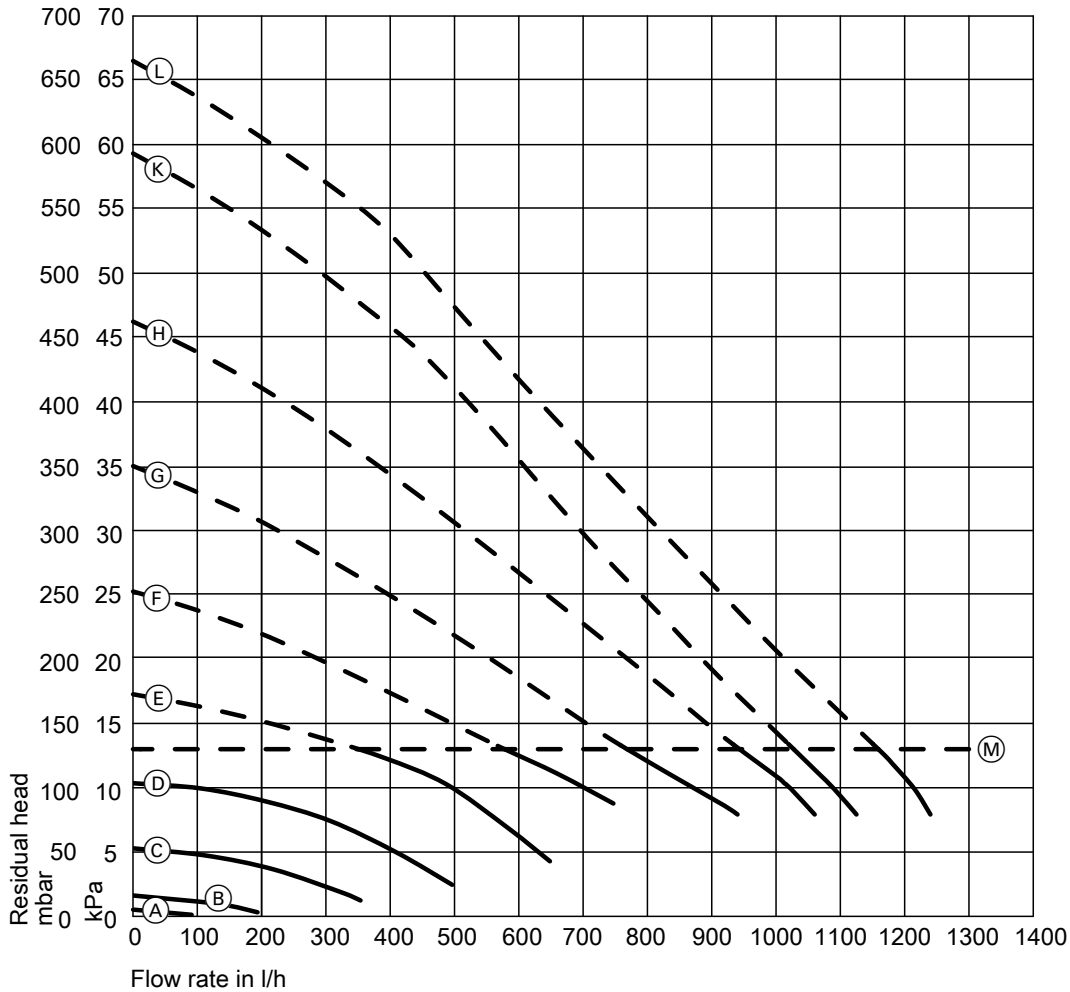
### Specification – circulation pump

Rated heating output	kW	19	25	32
Circulation pump	Type	UPM3 15-75	UPM3 15-75	UPM3 15-75
Rated voltage	V~	230	230	230
Power consumption				
– Max.	W	42	42	60
– Min.	W	2	2	2
– Delivered condition	W	28.1	42	60
Energy efficiency class		A	A	A
Energy efficiency index (EEI)		≤ 0.20	≤ 0.20	≤ 0.20



## Specification – type B2TF (cont.)

### Residual head of integral circulation pump



(M) Upper operational limit

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 %

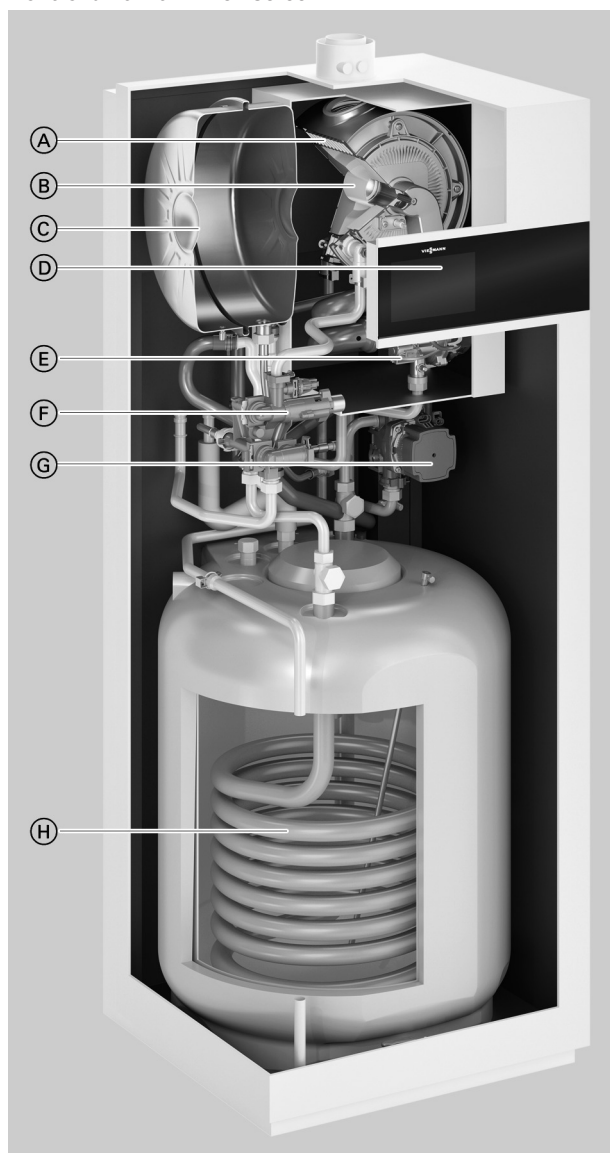
### Minimum clearances

Clearance for maintenance work and operating the ON/OFF switch:

- 700 mm in front of the boiler
- At least 100 mm to the left or right of the boiler for operating the ON/OFF switch

## Benefits – type B2SF

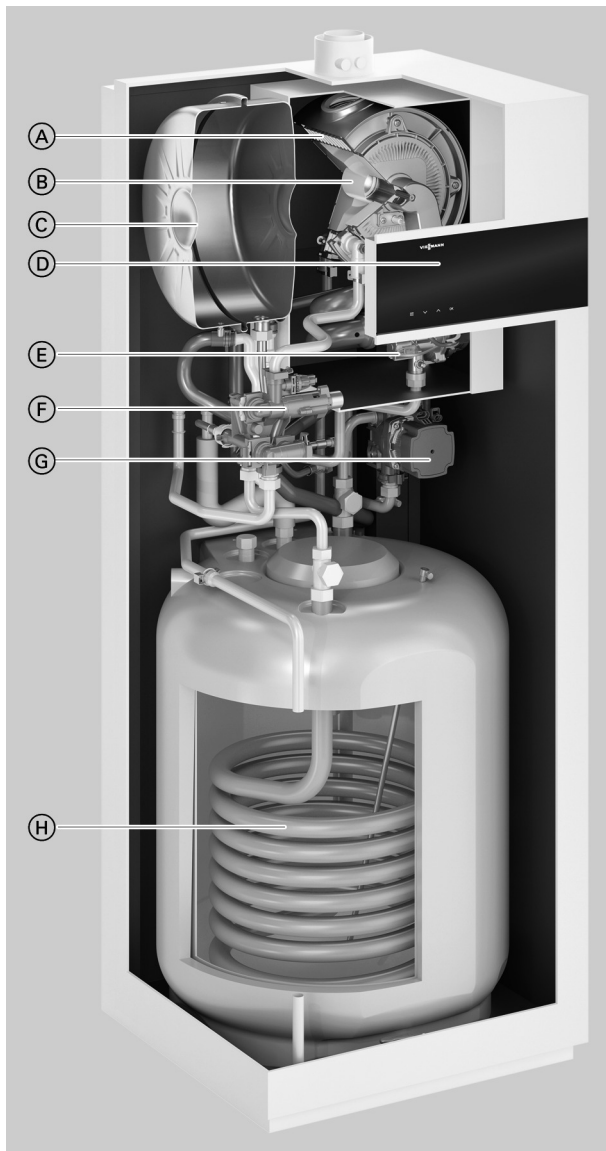
### Control unit with 7 inch screen



- Ⓐ 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
- Ⓑ Modulating Matrix-Plus gas burner for extremely clean combustion
- Ⓒ Integral diaphragm expansion vessel
- Ⓓ Digital boiler control unit with colour touchscreen
- Ⓔ Variable speed combustion air fan for quiet and economical operation
- Ⓕ Hydraulics
- Ⓖ Integral, variable speed high efficiency circulation pump
- Ⓗ DHW cylinder

## Benefits – type B2SF (cont.)

### Control unit with 3.5 inch screen



- Ⓐ 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
- Ⓑ Modulating MatriX-Plus gas burner for extremely clean combustion
- Ⓒ Integral diaphragm expansion vessel
- Ⓓ Digital boiler control unit with black/white screen
- Ⓔ Variable speed combustion air fan for quiet and economical operation
- Ⓕ Hydraulics
- Ⓖ Integral, variable speed high efficiency circulation pump
- Ⓗ DHW cylinder

The Vitodens 222-F storage combi boiler combines the benefits of the Vitodens 200-W with the high level of DHW convenience of a separate DHW cylinder.

Fitted with the MatriX-Plus gas burner and stainless steel Inox-Radial heat exchanger, the Vitodens 222-F offers top technology for energy efficiency and a high level of heating and DHW convenience over the long term. The Lambda Pro Plus combustion controller and the variable speed high efficiency circulation pump ensure permanently high efficiency, reliable operation and low power consumption. The Vitodens 222-F, type B2SF with integral 130 l cylinder with indirect coil is particularly suitable for hard water areas.

Due to its smooth surface the indirect coil is resistant to limescale deposits.

#### Recommended applications

- Installation in detached and terraced houses
- New build (e.g. prefabricated houses and developer projects): Installation in utility rooms and attics
- Modernisation: Replacement of gas system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders installed below.
- Replacement of boilers in various types of systems, including those with several heating circuits and underfloor heating

#### Benefits at a glance

##### Control unit with 7 inch screen

- Seasonal central heating energy efficiency  $\eta_s$  up to 94 % (label A).
- Low cycle frequency, even with low heat demand, due to optimised pauses and a wide modulation range down to 1:17
- Durable and efficient thanks to Inox-Radial stainless steel heat exchanger
- MatriX-Plus gas burner with Lambda Pro Plus combustion controller for permanently high efficiency and clean combustion.
- Power saving, high efficiency circulation pump
- Colour touchscreen with plain text and graphic display, commissioning assistant, energy consumption indicators and the option of operation from a mobile device
- Web-enabled through integral WiFi interface for operation and service via Viessmann app
- Assembly kit (accessories) with same dimensions and design as the boiler, for the connection of one regulated and one unregulated heating circuit

## Benefits – type B2SF (cont.)

### Benefits at a glance

Control unit with 3.5 inch screen

- Seasonal central heating energy efficiency  $\eta_s$  up to 94 % (label A).
- Low cycle frequency, even with low heat demand, due to optimised pauses and a wide modulation range down to 1:17
- Durable and efficient thanks to Inox-Radial stainless steel heat exchanger
- MatriX-Plus gas burner with Lambda Pro Plus combustion controller for permanently high efficiency and clean combustion.
- Power saving, high efficiency circulation pump
- Black/white screen with plain text and graphic display, commissioning assistant, energy consumption indicators and the option of operation from a mobile device
- Web-enabled through integral WiFi interface for operation and service via Viessmann app
- Assembly kit (accessories) with same dimensions and design as the boiler, for the connection of one regulated and one unregulated heating circuit

### Delivered condition

Gas condensing boiler with Inox-Radial heat exchanger, modulating MatriX-Plus gas burner for natural gas and LPG to DVGW Code of Practice G260 [Germany], expansion vessel, variable speed high efficiency circulation pump and integral DHW cylinder. Fully plumbed and wired.

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

Colour of the epoxy-coated casing: White.

Integral diaphragm expansion vessel (18 l 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).

### Accessories required (order separately)

Surface mounting

- Connection set for surface mounting; upward connection or
- Connection set for surface mounting; connection to the left or right or
- Assembly kit with mixer

Flush mounting

- Connection set for flush mounting

### Tested quality



CE designation according to current EU Directives

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

## Specification – type B2SF

### Specification

Gas boiler, type B and C, category II <sub>2N3P</sub>		B2SF			
<b>Type</b>		B2SF			
<b>Rated heating output range (details to EN 15502)</b>					
$T_F/T_R = 50/30\text{ °C}$					
Natural gas	kW	1.9 - 11.0	1.9 - 19.0	1.9 - 25.0	1.9 - 32.0
LPG	kW	2.5 - 11.0	2.5 - 19.0	2.5 - 25.0	2.5 - 32.0
$T_F/T_R = 80/60\text{ °C}$					
Natural gas	kW	1.7 - 10.1	1.7 - 17.5	1.7 - 23	1.7 - 29.3
LPG	kW	2.2 - 10.1	2.2 - 17.5	2.2 - 23	2.2 - 29.3
<b>Rated heating output for DHW heating</b>					
Natural gas	kW	1.7 - 17.4	1.7 - 22.0	1.7 - 28.6	1.7 - 33.9
LPG	kW	2.2 - 17.4	2.2 - 22.0	2.2 - 28.6	2.2 - 33.9
<b>Rated heat input (Q<sub>n</sub>)</b>					
Natural gas	kW	2.3 - 10.3	2.3 - 17.8	2.3 - 23.4	2.3 - 29.9
LPG	kW	2.3 - 10.3	2.3 - 17.8	2.3 - 23.4	2.3 - 29.9
<b>Rated heat input for DHW heating (Q<sub>nw</sub>)</b>		18.1	22.7	29.5	34.9
<b>Product ID</b>		CE-0085CT0017			
<b>IP rating to EN 60529</b>		IP X4			
– In conjunction with assembly kit (accessories)		IP X1			
<b>Protection class</b>		I			
<b>NO<sub>x</sub></b>	Category	6	6	6	6
<b>Gas supply pressure</b>					
Natural gas	mbar	20	20	20	20
	kPa	2	2	2	2
LPG	mbar	50	50	50	50
	kPa	5	5	5	5
<b>Max. perm. gas supply pressure<sup>*3</sup></b>					
Natural gas	mbar	25.0	25.0	25.0	25.0
	kPa	2.5	2.5	2.5	2.5
LPG	mbar	57.5	57.5	57.5	57.5
	kPa	5.75	5.75	5.75	5.75
<b>Sound power level</b>					
(to EN ISO 15036-1)					
– At partial load	dB(A)	38.8	38.8	38.8	38.8
– At rated heating output (DHW heating)	dB(A)	41.7	49.2	50.7	52

<sup>\*3</sup> If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

## Specification – type B2SF (cont.)

Gas boiler, type B and C, category II <sub>2N3P</sub>					
Type	B2SF				
<b>Rated heating output range (details to EN 15502)</b>					
T <sub>F</sub> /T <sub>R</sub> = 50/30 °C					
Natural gas	kW	1.9 - 11.0	1.9 - 19.0	1.9 - 25.0	1.9 - 32.0
LPG	kW	2.5 - 11.0	2.5 - 19.0	2.5 - 25.0	2.5 - 32.0
T <sub>F</sub> /T <sub>R</sub> = 80/60 °C					
Natural gas	kW	1.7 - 10.1	1.7 - 17.5	1.7 - 23	1.7 - 29.3
LPG	kW	2.2 - 10.1	2.2 - 17.5	2.2 - 23	2.2 - 29.3
<b>Power consumption</b> in the delivered condition (incl. circulation pump)	W	38	51	78	110
<b>Permissible ambient temperature</b>					
– During operation	°C	+5 to +35			
– During storage and transport	°C	-5 to +60			
<b>Rated voltage</b>	V	230			
Rated frequency	Hz	50			
Appliance fuse protection	A	6.3			
Backup fuse (power supply)	A	16			
<b>RF module (integral)</b>					
WiFi frequency band	MHz	2400 - 2483.5			
Max. transmitting power	dBm	17			
Low power radio frequency band	MHz	2400 - 2483.5			
Max. transmitting power	dBm	6			
Supply voltage	V DC	24			
Power consumption	W	4			
<b>Electronic temperature cut-out setting</b>	°C	110			
<b>Electronic temperature cut-out setting</b>	°C	110			
<b>Weight excl. heating water</b>	kg	132			
<b>Permiss. operating pressure, heating water side (PMS)</b>	bar	3			
	MPa	0.3			
<b>Permiss. operating pressure, DHW side (PWM)</b>	bar	10			
	MPa	1			
<b>Specific water flow rate</b>	l/h	20.66	21.58	20.64	21.78
<b>Max. DHW temperature</b>	°C	60			
<b>Weight excl. heating water</b>	kg	132			
<b>Permiss. operating pressure, heating water side (PMS)</b>	bar	3			
	MPa	0.3			
<b>Permiss. operating pressure, DHW side (PWM)</b>	bar	10			
	MPa	1			
<b>Weight</b>					
– Excl. heating water and DHW	kg	132	132	132	132
– Incl. heating water and DHW	kg				
<b>Heating water capacity (excl. diaphragm expansion vessel)</b>	l	3.0	3.0	3.0	3.0
<b>Max. flow temperature</b>	°C	82	82	82	82
<b>Max. flow rate</b> (Limit for the use of hydraulic separation)	l/h	See residual head graphs			
<b>Nominal circulating water volume</b> At T <sub>F</sub> /T <sub>R</sub> = 80/60 °C	l/h	473	818	1076	1374
<b>Expansion vessel</b>					
Capacity	l	18	18	18	18
Pre-charge pressure	bar	0.75	0.75	0.75	0.75
	kPa	75	75	75	75
<b>Permiss. operating pressure</b>	bar	3	3	3	3
	MPa	0.3	0.3	0.3	0.3
<b>Connections (with connection accessories)</b>					
Boiler flow and return	R	¾	¾	¾	¾
Cold water and DHW	R	½	½	½	½
DHW circulation	R	½	½	½	½
<b>Dimensions</b>					
Length	mm	595	595	595	595
Width	mm	600	600	600	600
Height	mm	1600	1600	1600	1600
<b>Gas connection (with connection accessories)</b>	R	½	½	½	½

## Specification – type B2SF (cont.)

Gas boiler, type B and C, category II <sub>2N3P</sub>					
Type	B2SF				
<b>Rated heating output range (details to EN 15502)</b>					
$T_F/T_R = 50/30\text{ °C}$					
Natural gas	kW	1.9 - 11.0	1.9 - 19.0	1.9 - 25.0	1.9 - 32.0
LPG	kW	2.5 - 11.0	2.5 - 19.0	2.5 - 25.0	2.5 - 32.0
$T_F/T_R = 80/60\text{ °C}$					
Natural gas	kW	1.7 - 10.1	1.7 - 17.5	1.7 - 23	1.7 - 29.3
LPG	kW	2.2 - 10.1	2.2 - 17.5	2.2 - 23	2.2 - 29.3
<b>DHW cylinder</b>					
Capacity	l	130	130	130	130
Permiss. operating pressure (DHW side)	bar	10	10	10	10
	MPa	1	1	1	1
Continuous DHW output	kW	17.11	21.30	24.00	25.01
For DHW heating from 10 to 45 °C	l/h	418.80	515.40	586.80	612.00
Performance factor $N_L^{*4}$		1.4	1.5	1.7	1.7
Initial DHW output	l/10 min	167.00	170.30	179.50	179.90
For DHW heating from 10 to 45 °C					
<b>Supply values</b>					
Relative to the max. load and 1013 mbar/15 °C					
Natural gas E	m <sup>3</sup> /h	1.92	2.40	3.12	3.69
Natural gas LL	m <sup>3</sup> /h	2.23	2.79	3.63	4.29
LPG	kg/h	1.41	1.76	2.29	2.71
<b>Flue gas parameters</b>					
Temperature (at a return temperature of 30 °C)					
– At rated heating output	°C	39	41	46	59
– At partial load	°C	38	38	38	38
Temperature (at a return temperature of 60 °C)					
	°C	65	67	72	77
Mass flow rate (for DHW heating)					
Natural gas					
– At rated heating output	kg/h	32.2	40.4	54.2	62.1
– At partial load	kg/h	3.2	3.2	3.2	3.2
LPG					
– At rated heating output	kg/h	30.6	39.8	53.2	61.1
– At partial load	kg/h	3.9	3.9	3.9	3.9
Available draught	Pa	250	250	250	250
	mbar	2.5	2.5	2.5	2.5
<b>Max. amount of condensate</b>	l/h	2.5	3.2	4.1	4.9
To DWA-A 251					
<b>Condensate connection (hose nozzle)</b>	Ø mm	20 - 24	20 - 24	20 - 24	20 - 24
<b>Flue gas connection</b>	Ø mm	60	60	60	60
<b>Ventilation air connection</b>	Ø mm	100	100	100	100
<b>Standard seasonal efficiency [to DIN] at</b>		Up to 98 (H <sub>s</sub> ) [gross cv]			
$T_F/T_R = 40/30\text{ °C}$	%				
<b>Energy efficiency class</b>					
– Heating		A	A	A	A
– DHW heating, draw-off profile XL		B	B	B	B

### Note

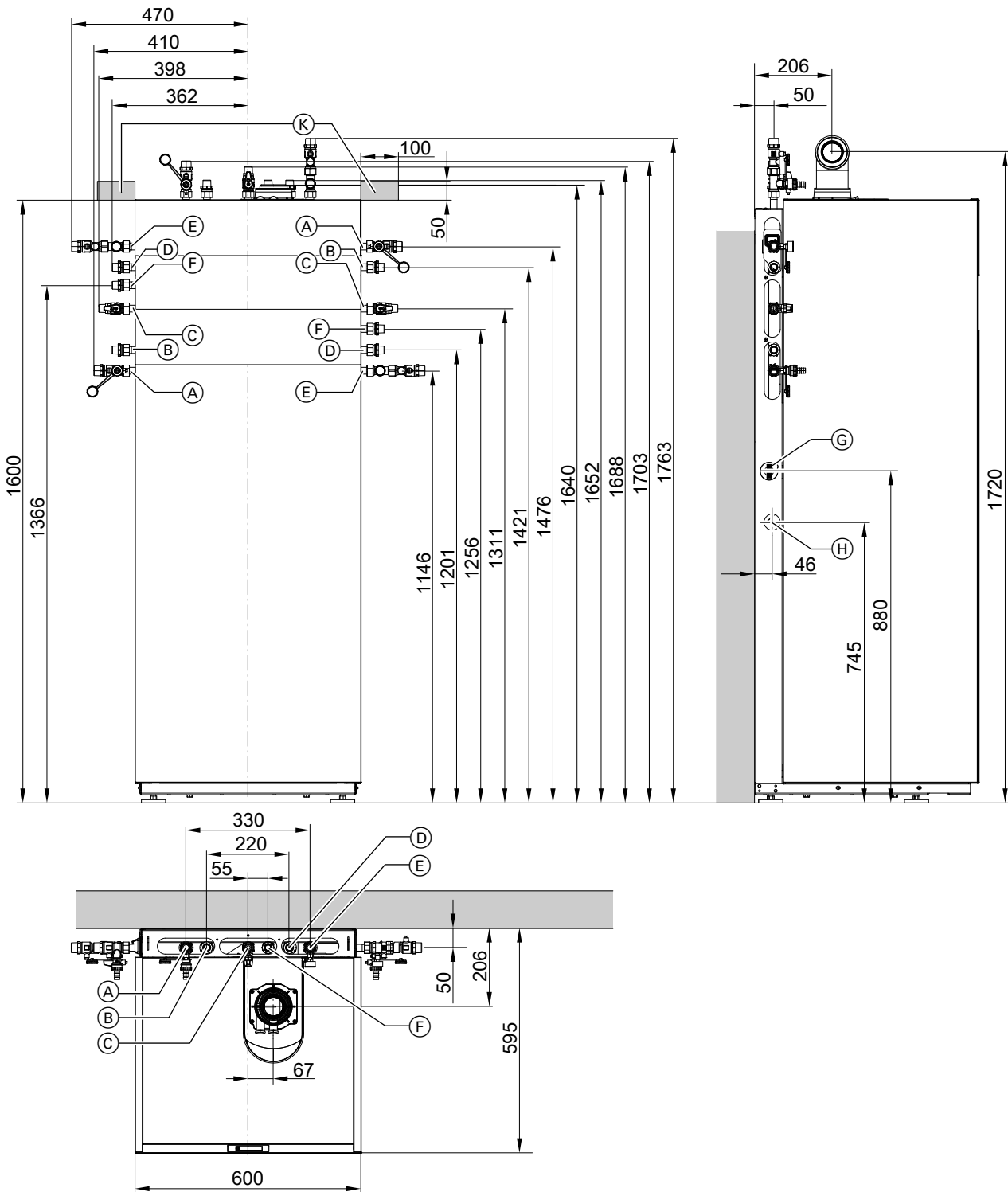
The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar (101.3 kPa).

\*4 At 70 °C average boiler water temperature and cylinder storage temperature  $T_{cyl} = 60\text{ °C}$ .

DHW performance factor  $N_L$  depends on cylinder storage temperature  $T_{cyl}$ .

Standard values:  $T_{cyl} = 60\text{ °C} \rightarrow 1.0 \times N_L$   $T_{cyl} = 55\text{ °C} \rightarrow 0.75 \times N_L$   $T_{cyl} = 50\text{ °C} \rightarrow 0.55 \times N_L$   $T_{cyl} = 45\text{ °C} \rightarrow 0.3 \times N_L$ .

Specification – type B2SF (cont.)



- (A) Heating flow R ¼
- (B) DHW R ½
- (C) Gas connection R ½
- (D) Cold water R ½
- (E) Heating return R ¼
- (F) DHW circulation R ½ (separate accessories)
- (G) External plug
- (H) Condensate drain to the side
- (K) Area for electrical cables (on-site junction box)

**Note**

The dimensioned drawing shows an example of valves/fittings for surface mounting, upward connection and connection to the left/right.

Order the connection sets separately as accessories.

**Note**

The appliance is delivered fitted with a flexible power cable (1.5 m long). Lay the required power cables on site and route them into the boiler through the back.

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## Specification – type B2SF (cont.)

### Note

All height dimensions have a tolerance of +15 mm on account of the adjustable feet.

### Siting information

Site the Vitodens 222-F with its back flush against the wall.

## Variable speed heating circuit pump in the Vitodens 222-F

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 regulated 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

- 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
11	60	60
19	60	70
25	60	85
32	60	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.

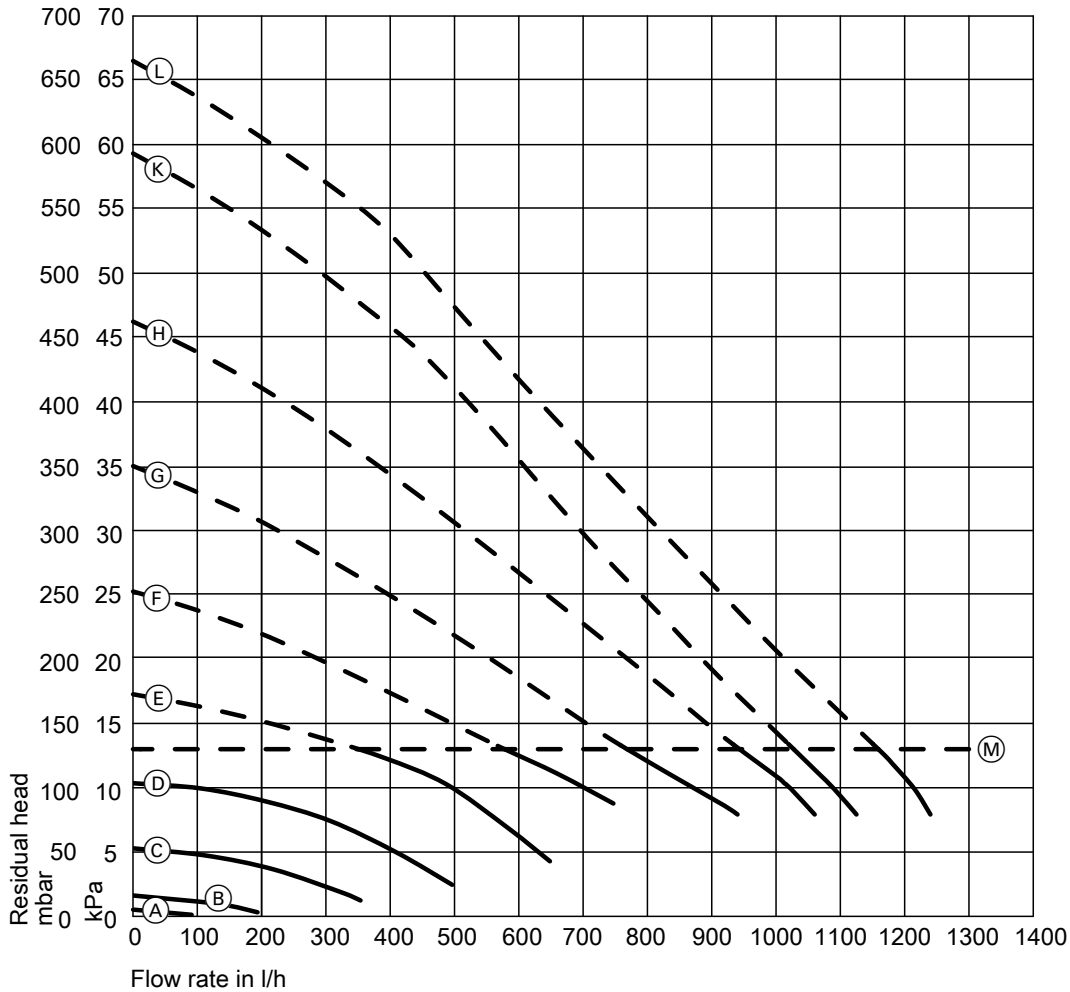
### Specification – circulation pump

Rated heating output	kW	11	19	25	32
Circulation pump	Type	UPM3 15-75	UPM3 15-75	UPM3 15-75	UPM3 15-75
Rated voltage	V~	230	230	230	230
Power consumption					
– Max.	W	60	60	60	60
– Min.	W	2	2	2	2
– Delivered condition	W	14.6	28.1	42.0	60.0
Energy efficiency class		A	A	A	A
Energy efficiency index (EEI)		≤ 0.20	≤ 0.20	≤ 0.20	≤ 0.20



## Specification – type B2SF (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 %

### Minimum clearances

Clearance for maintenance work and operating the ON/OFF switch:

- 700 mm in front of the boiler
- At least 100 mm to the left or right of the boiler for operating the ON/OFF switch

Subject to technical modifications.

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