

Datasheet

For part no. and prices: see pricelist



VITODENS 222-F Type B2TA

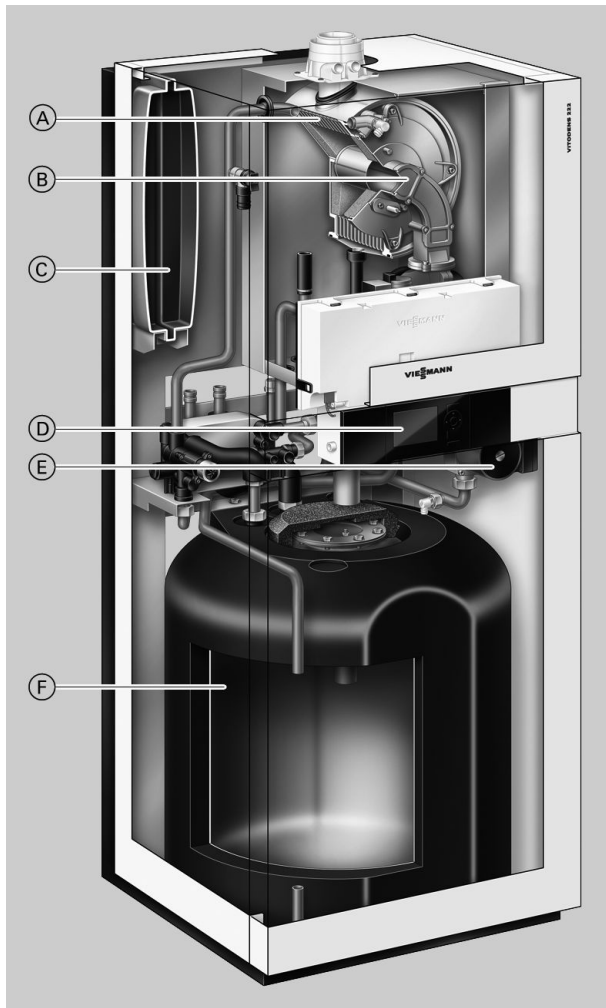
Gas condensing storage combi boiler,
3.2 to 35.0 kW
for natural gas and LPG

VITODENS 222-F Type B2SA

Gas condensing storage combi boiler,
3.2 to 26.0 kW
for natural gas and LPG

Benefits

Vitodens 222-F, type B2TA



- Ⓐ Stainless steel Inox-Radial heat exchanger for high operational reliability, a long service life and high heating output in the smallest space
- Ⓑ Modulating MatriX cylinder burner with intelligent Lambda Pro Control combustion controller for clean combustion and quiet operation
- Ⓒ Integral diaphragm expansion vessel
- Ⓓ Digital boiler control unit

- Ⓔ Integral, variable speed HE circulation pump
- Ⓕ DHW loading cylinder

The Vitodens 222-F gas condensing storage combi boiler is designed specifically for heating system modernisation projects and as a replacement for older gas boilers with cylinders installed below. With output up to 35 kW, this heating centre is designed for high DHW convenience.

The integral loading cylinder with 100 l capacity (up to 26 kW) or 130 l capacity (35 kW) offers the DHW convenience of a separate DHW cylinder with approximately twice that volume.

Like all Viessmann storage combi boilers, the Vitodens 222-F gas condensing boiler takes up little space: width and depth correspond to standard kitchen unit dimensions. The proven MatriX cylinder burner has a wide modulation range of up to 1:7 (35 kW). Together with the Lambda Pro Control combustion controller, it automatically adjusts itself to varying gas qualities and ensures a constantly high standard seasonal efficiency [to DIN] of 98 % (H_s) [gross cv].

Recommended applications

- Installation in detached and terraced houses
- New build (e.g. pre-fabricated houses and housing association projects): installation in utility rooms and attics
- Modernisation: Replacement of system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders below.

Benefits at a glance

- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv]/ 109 % (H_i) [net cv]
- Durable and efficient thanks to the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX gauze – resistant to high temperature loads
- High DHW convenience through enamelled loading cylinder with 100 l capacity (35 kW: 130 l capacity)
- Energy efficient HE circulation pump (A-rated)
- Easy to use Vitotronic control unit with plain text and graphic display
- The programming part of the control unit can also be fitted on a wall mounting base (accessory)
- Lambda Pro Control combustion controller for all gas types – saves on fees, with inspection interval extended to 3 years
- Universal connection sets for individual installation flush with the wall
- No lateral service clearance required
- Assembly kit (accessory) with the dimensions and design of the appliance for the connection of one regulated and one unregulated heating circuit

Specification

Vitodens 222-F, type B2TA

Gas boiler, types B and C, category II _{2N3P}					
Rated heating output range (to EN 677)		Values in () when operating with LPG P			
$T_F/T_R = 50/30\text{ °C}$	kW	3.2 (4.8) - 13.0	3.2 (4.8) - 19.0	5.2 (8.8) - 26.0	5.2 (8.8) - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	2.9 (4.3) - 11.8	2.9 (4.3) - 17.2	4.7 (8.0) - 23.5	4.7 (8.0) - 31.7
Rated heating output for DHW heating	kW	2.9 (4.3) - 16.0	2.9 (4.3) - 17.2	4.7 (8.0) - 29.3	4.7 (8.0) - 33.5
Rated heat input	kW	3.1 (4.5) - 16.7	3.1 (4.5) - 17.9	4.9 (8.3) - 30.5	4.9 (8.3) - 34.9
Product ID		CE-0085CN0050			
IP rating		IP X4D to EN 60529			
Gas supply pressure					
Natural gas	mbar	20	20	20	20
	kPa	2	2	2	2
LPG	mbar	50	50	50	50
	kPa	5	5	5	5
Max. permissible gas supply pressure ^{*1}					
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
Power consumption					
– In delivered condition	W	39	53	68	89
–Max.	W	102	105	154	166
Weight	kg	129	129	132	141
Heat exchanger content	l	1.8	1.8	2.4	2.8
Max. flow rate	l/h	1200	1200	1400	1600
(limit for the use of hydraulic separation)					
Nominal circulation water volume	l/h	507	739	1018	1361
at $T_F/T_R = 80/60\text{ °C}$					
Expansion vessel					
Content	l	12	12	12	12
Pre-charge pressure	bar	0.75	0.75	0.75	0.75
	kPa	75	75	75	75
Permiss. operating pressure (on the heating water side)					
	bar	3	3	3	3
	MPa	0.3	0.3	0.3	0.3
Connections (with connection accessories)					
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
Dimensions					
Length	mm	595	595	595	595
Width	mm	600	600	600	600
Height	mm	1425	1425	1425	1625
Gas connection (with connection accessories)	R	½	½	½	½
DHW loading cylinder					
Content	l	100	100	100	130
Permiss. operating pressure (DHW side)	bar	10	10	10	10
	MPa	1	1	1	1
Continuous DHW output	kW	17.2	17.2	29.3	33.5
for DHW heating from 10 to 45 °C	l/h	422	422	720	860
Performance factor N_L *2		1.8	1.8	3.0	4.8
DHW outlet output	l/10 min	182	182	230	273
for DHW heating from 10 to 45 °C					
Connection values					
relative to max. load					
with gas					
Natural gas E	m ³ /h	1.89	1.89	3.23	3.68
Natural gas LL	m ³ /h	2.20	2.20	3.75	4.30
LPG P	kg/h	1.40	1.40	2.38	2.73

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

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

The DHW performance factor N_L depends on the 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 (cont.)

Gas boiler, types B and C, category II _{2N3P}					
Rated heating output range (to EN 677)		Values in () when operating with LPG P			
T _F /T _R = 50/30 °C	kW	3.2 (4.8) - 13.0	3.2 (4.8) - 19.0	5.2 (8.8) - 26.0	5.2 (8.8) - 35.0
T _F /T _R = 80/60 °C	kW	2.9 (4.3) - 11.8	2.9 (4.3) - 17.2	4.7 (8.0) - 23.5	4.7 (8.0) - 31.7
Flue gas parameters^{*3}					
Flue gas category to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at a return temperature of 30 °C)					
– at rated heating output	°C	45	45	45	45
– at partial load	°C	35	35	35	35
Temperature (at a return temperature of 60 °C)					
	°C	68	68	68	70
Mass flow rate					
– for natural gas					
– at rated heating output (DHW heating)	kg/h	31.8	31.8	54.3	62.1
– at partial load	kg/h	5.5	5.5	8.7	8.7
– for LPG					
– at rated heating output (DHW heating)	kg/h	30.2	30.2	51.5	58.9
– at partial load	kg/h	7.6	7.6	14.0	14.0
Available draught					
	Pa	250	250	250	250
	mbar	2.5	2.5	2.5	2.5
Standard seasonal efficiency [to DIN] at					
T _F /T _R = 40/30 °C	%	up to 98 (H _s) [gross cv] / 109 (H _i) [net cv]			
Max. amount of condensate					
to DWA-A 251	l/h	2.3	2.5	4.3	4.9
Condensate connection (hose nozzle)		Ø mm	20-24	20-24	20-24
Flue gas connection		Ø mm	60	60	60
Ventilation air connection		Ø mm	100	100	100

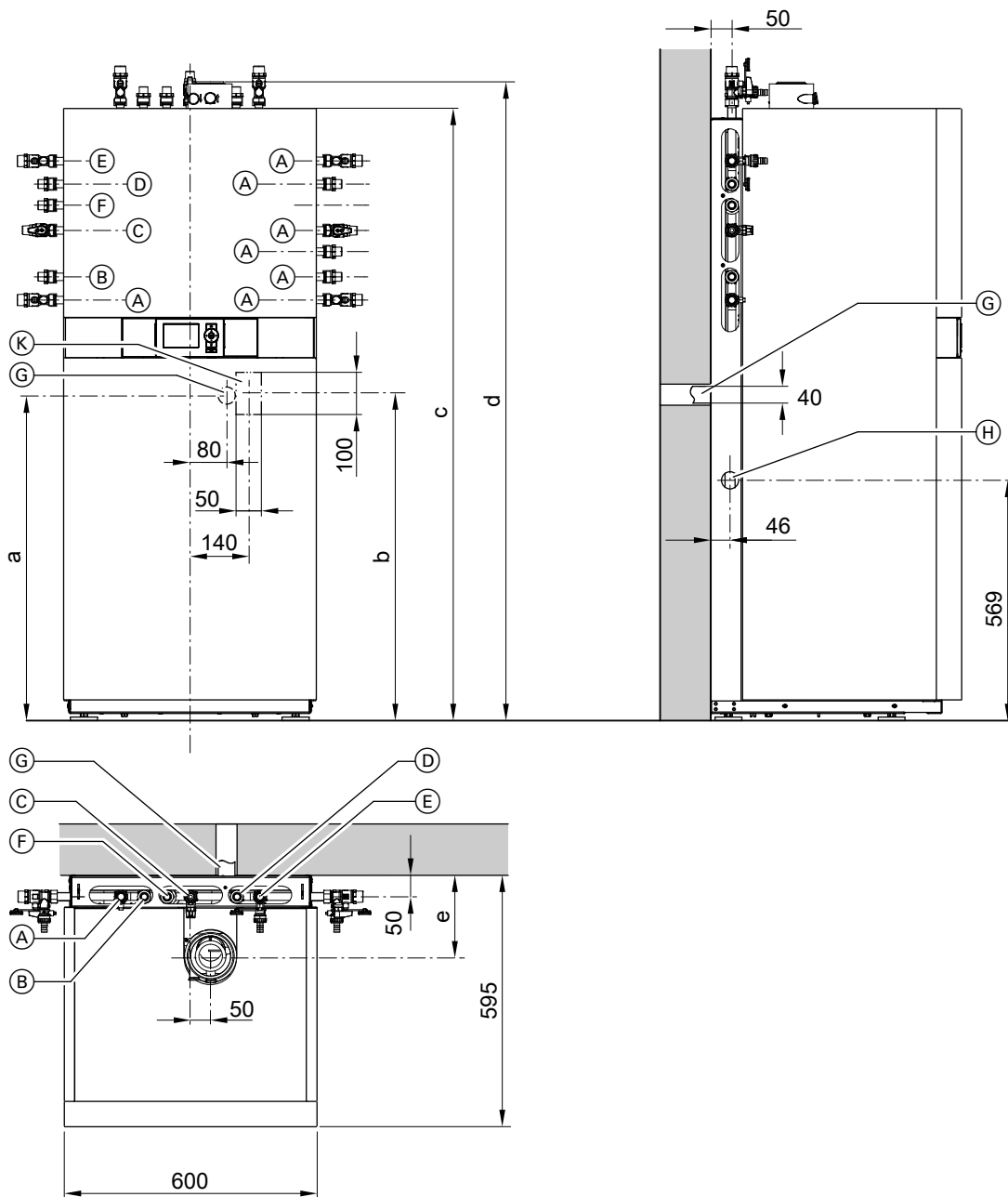
*3 Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

Specification (cont.)



- (A) Heating flow R $\frac{3}{4}$
- (B) DHW R $\frac{1}{2}$
- (C) Gas connection R $\frac{1}{2}$
- (D) Cold water R $\frac{1}{2}$
- (E) Heating return R $\frac{3}{4}$

- (F) DHW circulation R $\frac{1}{2}$ (separate accessory)
- (G) Condensate drain facing backwards into the wall
- (H) Condensate drain to the side
- (K) Wiring area

Rated heating output kW	a mm	b mm	c mm	d mm	e mm
13 to 19	745	750	1425	1465	201
26	745	750	1425	1465	224
35	945	950	1625	1665	224

Note

The dimensioned drawing shows example fittings for upward connection and connection to the left/right, for installation on finished walls. Order the connection sets separately as accessories.

For the dimensions of the individual connection sets, see the technical guide.

If using the connection set (for downward connection) with a pre-mounting bracket for installation on finished walls, maintain a wall clearance of 70 mm.

Note

All height dimensions have a tolerance of +15 mm due to the adjustable feet.

Specification (cont.)

Variable speed heating circuit pump in the Vitodens 222-F

The integral circulation pump is an HE 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 or reduced mode. The control unit transmits the current default settings via an internal databus to the circulation pump.

Individually match the minimum and maximum speeds plus the speed for reduced mode to the existing heating system using the control unit codes.

In the delivered condition, the minimum pump rate (coding address "E7") and the maximum pump rate (coding address "E6") are set to the following values:

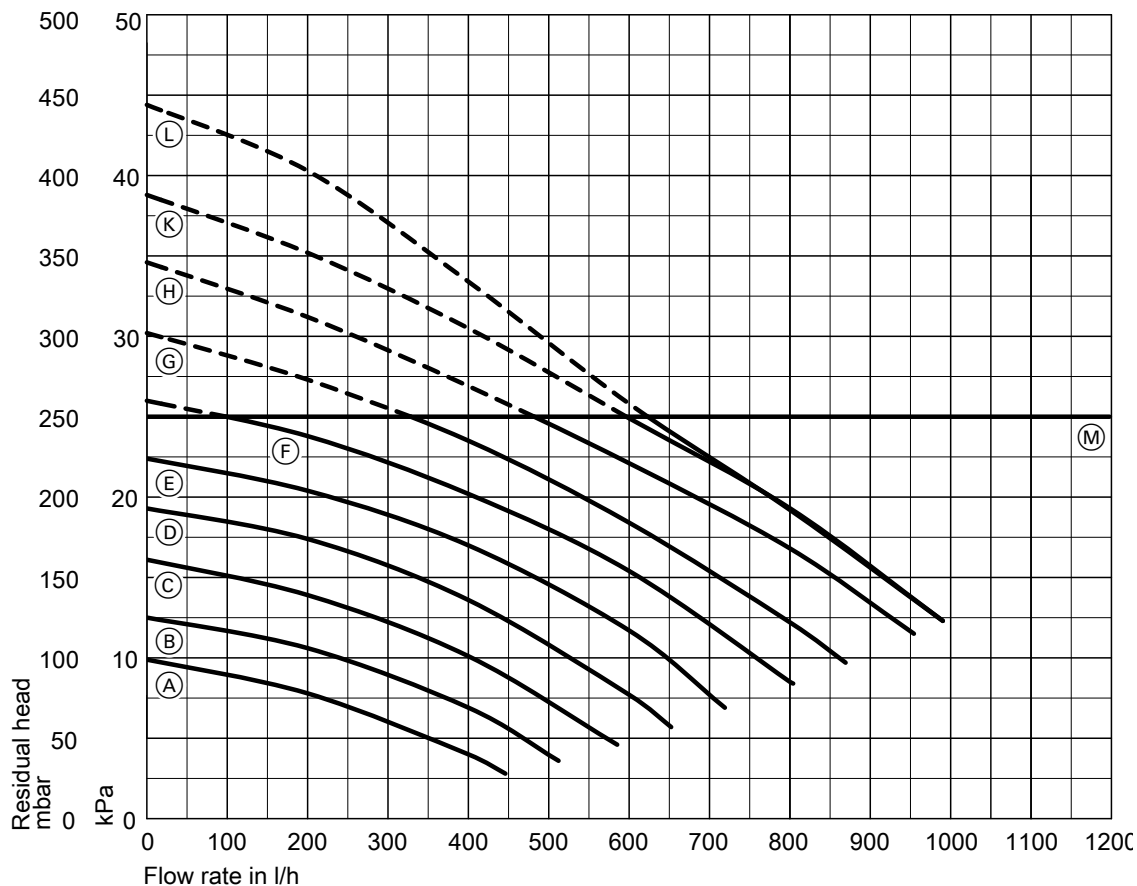
Rated heating output range in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
3.2-13	20	55
3.2-19	20	65
5.2-26	30	65
5.2-35	30	65

Specification – circulation pump

Rated heating output	kW	3.2-13	3.2-19	5.2-26	5.2-35
Circulation pump	Type	UPM2 15-50	UPM2 15-50	UPM2 15-70	UPM2 15-70
Rated voltage	V~	230	230	230	230
Power consumption					
– Max.	W	37	37	70	70
– Min.	W	6	6	6	6
– Delivered condition	W	20	25	35	40

Residual head values of the integral circulation pump

Vitodens 222-F, 3.2-19 kW

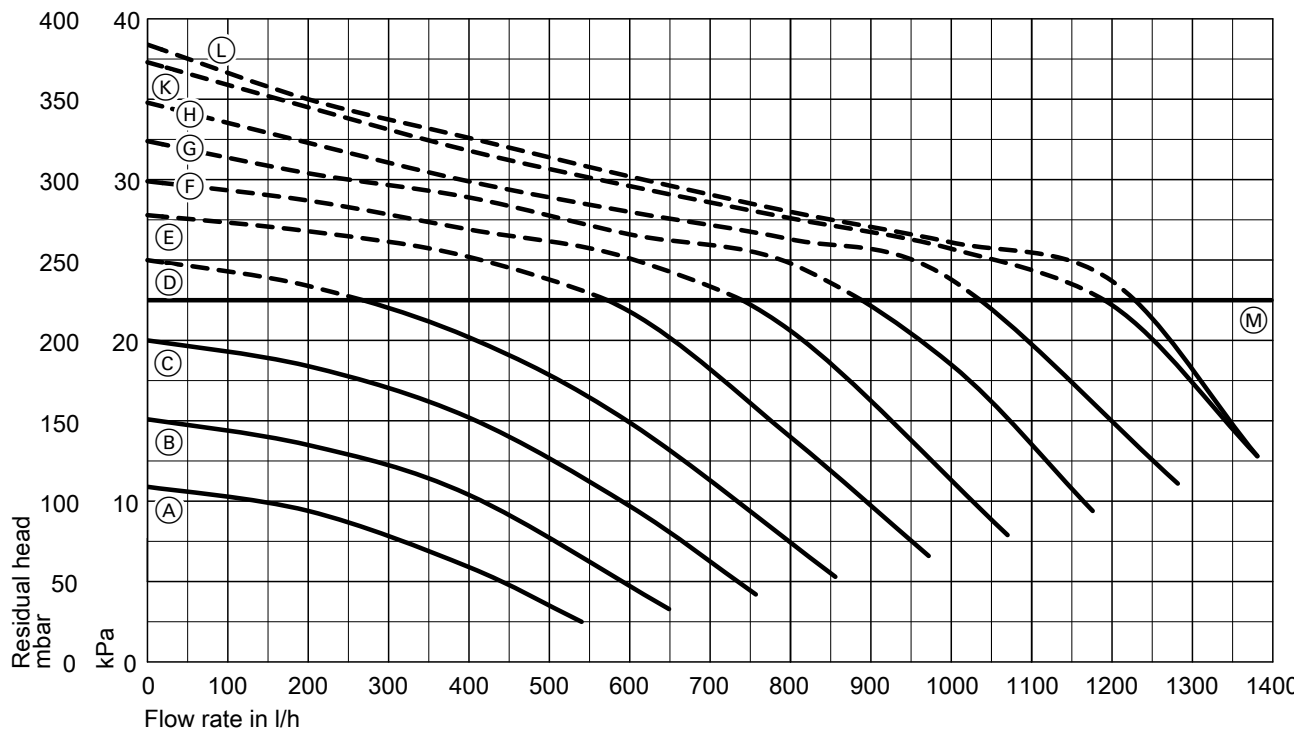


(M) Upper operational limit

Specification (cont.)

Curve	Pump rate, circulation pump	Coding address setting "E6"
Ⓐ	10 %	E6:010
Ⓑ	20 %	E6:020
Ⓒ	30 %	E6:030
Ⓓ	40 %	E6:040
Ⓔ	50 %	E6:050
Ⓕ	60 %	E6:060
Ⓖ	70 %	E6:070
Ⓗ	80 %	E6:080
Ⓚ	90 %	E6:090
Ⓛ	100 %	E6:100

Vitodens 222-F, 5.2-35 kW



(M) Upper operational limit

Curve	Pump rate, circulation pump	Coding address setting "E6"
Ⓐ	10 %	E6:010
Ⓑ	20 %	E6:020
Ⓒ	30 %	E6:030
Ⓓ	40 %	E6:040
Ⓔ	50 %	E6:050
Ⓕ	60 %	E6:060
Ⓖ	70 %	E6:070
Ⓗ	80 %	E6:080
Ⓚ	90 %	E6:090
Ⓛ	100 %	E6:100

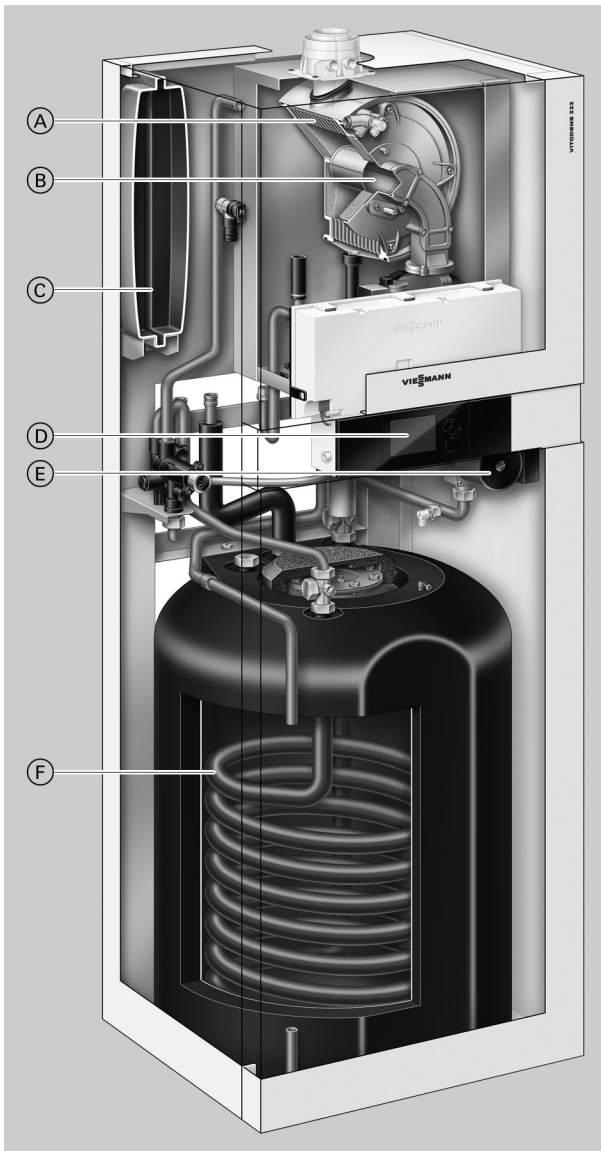
Minimum clearances

Area around the Vitodens for maintenance: min. 700 mm

Maintenance clearances to the l.h. or r.h. side of the Vitodens are **not** required.

Benefits

Vitodens 222-F, type B2SA



- Ⓐ Stainless steel Inox-Radial heat exchanger for high operational reliability, a long service life and high heating output in the smallest space
- Ⓑ Modulating MatriX cylinder burner with intelligent Lambda Pro Control combustion controller for clean combustion and quiet operation

- Ⓒ Integral diaphragm expansion vessel
- Ⓓ Digital boiler control unit
- Ⓔ Integral, variable speed HE circulation pump
- Ⓕ Internally heated DHW cylinder

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

Like all Viessmann storage combi boilers, the Vitodens 222-F gas condensing boiler takes up little space: width and depth correspond to standard kitchen unit dimensions. The proven MatriX cylinder burner with Lambda Pro Control combustion controller automatically adjusts itself to varying gas qualities and ensures a constantly high standard seasonal efficiency [to DIN] of 98 % (H_s) [gross cv].

The Vitodens 222-F, type B2SA, with its integral 130 l cylinder with internal indirect coil, is particularly suitable for hard water areas. The internal indirect coil with its smooth surface is not prone to attracting limescale deposits.

Recommended applications

- Installation in detached and terraced houses
- New build (e.g. pre-fabricated houses and housing association projects): installation in utility rooms and attics
- Modernisation: replacement of system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders installed below
- Use in areas with a water hardness of >20 °dH (3.58 mol/m³)

Benefits at a glance

- Standard seasonal efficiency [to DIN] up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv]
- Durable and efficient thanks to the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX gauze – resistant to high temperature loads
- Enamelled DHW cylinder with internal indirect coil and 130 l capacity (N_L factor up to 1.8)
- Energy efficient HE circulation pump (A-rated)
- Easy to use Vitotronic control unit with plain text and graphic display
- The programming part of the control unit can also be fitted on a wall mounting base (accessory)
- Lambda Pro Control combustion controller for all gas types – saves on fees, with inspection interval extended to 3 years
- Universal connection sets for individual installation flush with the wall
- No lateral service clearance required
- Assembly kit (accessory) with the dimensions and design of the appliance for the connection of one regulated and one unregulated heating circuit

Specification

Vitodens 222-F, type B2SA

Gas boiler, types B and C, category II _{2N3P}		Values in () when operating with LPG P		
Rated heating output range (to EN 677)				
$T_F/T_R = 50/30\text{ °C}$	kW	3.2 (4.8) - 13.0	3.2 (4.8) - 19.0	5.2 (8.8) - 26.0
$T_F/T_R = 80/60\text{ °C}$	kW	2.9 (4.3) - 11.8	2.9 (4.3) - 17.2	4.7 (8.0) - 23.7
Rated heating output for DHW heating		kW	2.9 (4.3) - 17.2	4.7 (8.0) - 23.7
Rated heat input		kW	3.1 (4.5) - 17.9	4.9 (8.3) - 24.7
Product ID		CE-0085CN0050		
IP rating		IP X4D to EN 60529		
Gas supply pressure				
Natural gas	mbar	20	20	20
	kPa	2	2	2
LPG	mbar	50	50	50
	kPa	5	5	5
Max. permissible gas supply pressure*⁴				
Natural gas	mbar	25.0	25.0	25.0
		2.5	2.5	2.5
LPG	mbar	57.5	57.5	57.5
		5.75	5.75	5.75
Power consumption				
– In delivered condition	W	39	53	68
– Max.	W	62	65	114
Weight		kg	139	142
Heat exchanger content		l	1.8	2.4
Max. flow rate		l/h	1200	1400
(limit for the use of hydraulic separation)				
Nominal circulation water volume		l/h	537	1018
at $T_F/T_R = 80/60\text{ °C}$				
Expansion vessel				
Content	l	12	12	12
Pre-charge pressure	bar	0.75	0.75	0.75
	kPa	75	75	75
Permiss. operating pressure (on the heating water side)		bar	3	3
		MPa	0.3	0.3
Connections (with connection accessories)				
Boiler flow and return	R	½	¾	¾
Cold water and DHW	R	½	½	½
DHW circulation	R	½	½	½
Dimensions				
Length	mm	595	595	595
Width	mm	600	600	600
Height	mm	1625	1625	1625
Gas connection (with connection accessories)		R	½	½
DHW cylinder				
Capacity	l	130	130	130
Permiss. operating pressure (DHW side)	bar	10	10	10
	MPa	1	1	1
Continuous DHW output	kW	17.2	17.2	23.7
for DHW heating from 10 to 45 °C	l/h	422	422	720
Performance factor N_L * ⁵		1.3	1.3	1.8
DHW outlet output	l/10 min	153	153	182
for DHW heating from 10 to 45 °C				
Connection values				
relative to max. load				
with gas				
Natural gas E	m ³ /h	1.89	1.89	2.61
Natural gas LL	m ³ /h	2.20	2.20	3.04
LPG P	kg/h	1.40	1.40	1.93

*⁴ If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

*⁵ At 70 °C average boiler water temperature and cylinder storage temperature $T_{cyl} = 60\text{ °C}$.

The DHW performance factor N_L depends on the 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 (cont.)

Gas boiler, types B and C, category II _{2N3P}		Values in () when operating with LPG P		
Rated heating output range (to EN 677)		3.2 (4.8) - 13.0	3.2 (4.8) - 19.0	5.2 (8.8) - 26.0
$T_F/T_R = 50/30$ °C	kW			
$T_F/T_R = 80/60$ °C	kW	2.9 (4.3) - 11.8	2.9 (4.3) - 17.2	4.7 (8.0) - 23.7
Flue gas parameters^{*3}				
Flue gas category to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at a return temperature of 30 °C)				
– at rated heating output	°C	45	45	45
– at partial load	°C	35	35	35
Temperature (at a return temperature of 60 °C)				
	°C	68	68	70
Mass flow rate				
– for natural gas				
– at rated heating output	kg/h	31.8	31.8	43.9
– at partial load	kg/h	5.5	5.5	8.7
– for LPG				
– at rated heating output	kg/h	30.2	30.2	41.7
– at partial load	kg/h	7.6	7.6	14.0
Available draught				
	Pa	250	250	250
	mbar	2.5	2.5	2.5
Standard seasonal efficiency [to DIN] at		up to 98 (H _s) [gross cv] / 109 (H _i) [net cv]		
$T_F/T_R = 40/30$ °C	%			
Max. amount of condensate				
to DWA-A 251	l/h	2.3	2.5	3.5
Condensate connection (hose nozzle)				
	Ø mm	20-24	20-24	20-24
Flue gas connection				
	Ø mm	60	60	60
Ventilation air connection				
	Ø mm	100	100	100

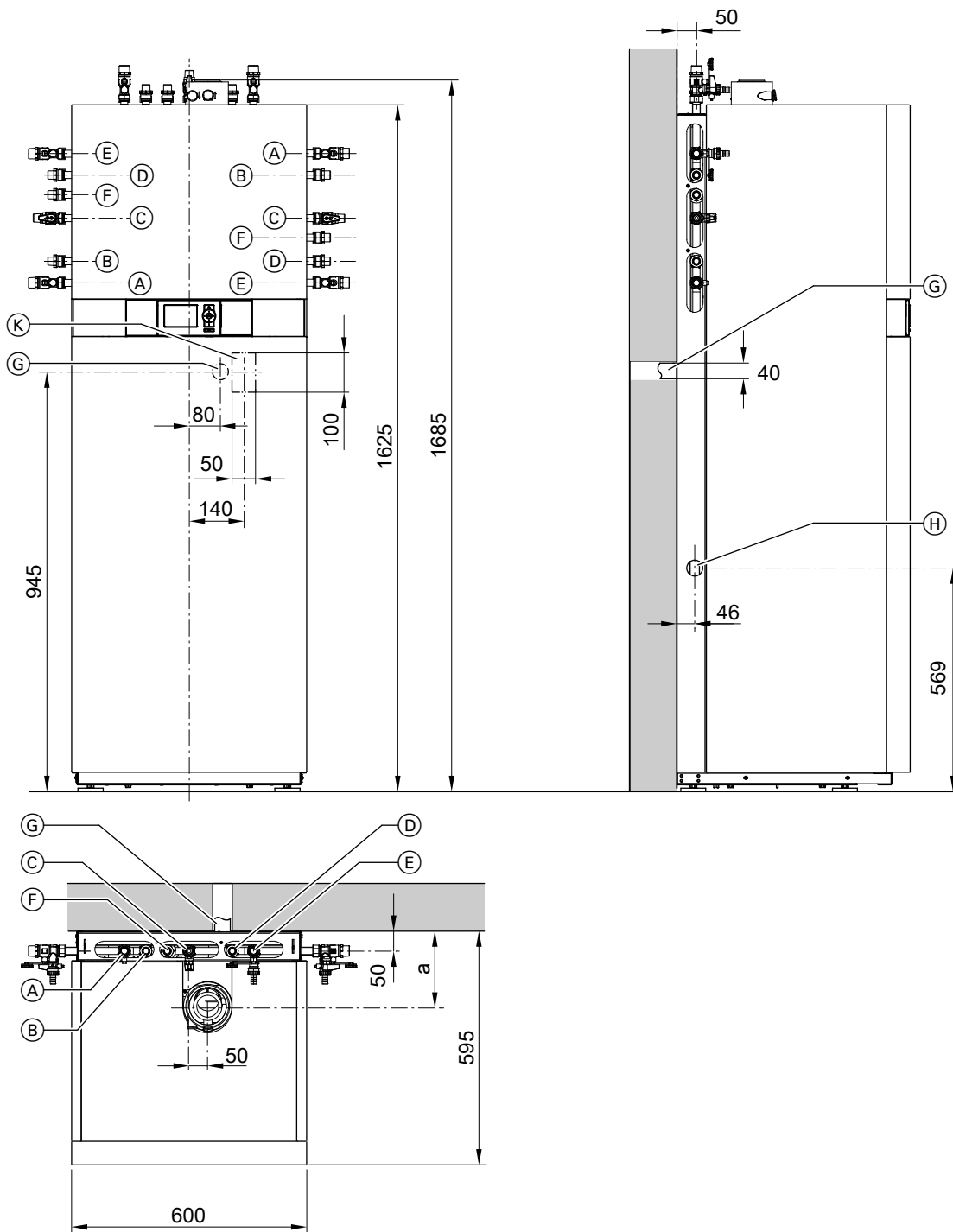
*3 Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

Specification (cont.)



- (A) Heating flow R $\frac{3}{4}$
- (B) DHW R $\frac{1}{2}$
- (C) Gas connection R $\frac{1}{2}$
- (D) Cold water R $\frac{1}{2}$
- (E) Heating return R $\frac{3}{4}$
- (F) DHW circulation R $\frac{1}{2}$ (separate accessory)
- (G) Condensate drain facing backwards into the wall
- (H) Condensate drain to the side
- (K) Wiring area

Note

The dimensioned drawing shows example fittings for upward connection and connection to the left/right, for installation on finished walls. Order the connection sets separately as accessories.

For the dimensions of the individual connection sets, see the engineering information.

If using the connection set (for downward connection) with a pre-mounting bracket for installation on finished walls, maintain a wall clearance of 70 mm.

Rated heating output kW	a mm
13 to 19	201
26	224

Note

All height dimensions have a tolerance of +15 mm due to the adjustable feet.

Specification (cont.)

Variable speed heating circuit pump in the Vitodens 222-F

The integral circulation pump is an HE 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 or reduced mode. The control unit transmits the current default settings via an internal databus to the circulation pump.

Individually match the minimum and maximum speeds plus the speed for reduced mode to the existing heating system using the control unit codes.

In the delivered condition, the minimum pump rate (coding address "E7") and the maximum pump rate (coding address "E6") are set to the following values:

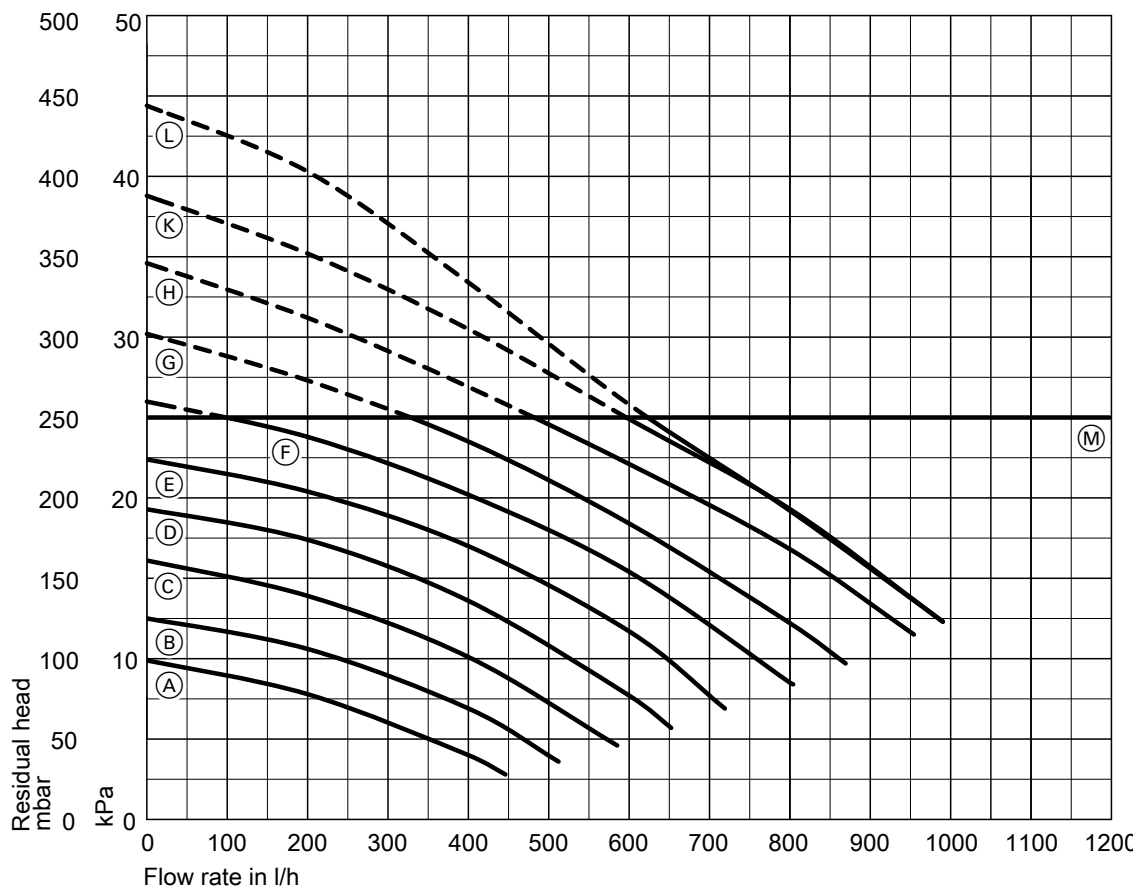
Rated heating output range in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
3.2-13	20	55
3.2-19	20	65
5.2-26	30	65

Specification – circulation pump

Rated heating output	kW	3.2-13	3.2-19	5.2-26
Circulation pump	Type	UPM2 15-50	UPM2 15-50	UPM2 15-70
Rated voltage	V~	230	230	230
Power consumption				
– Max.	W	37	37	70
– Min.	W	6	6	6
– Delivered condition	W	20	25	35

Residual head values of the integral circulation pump

Vitodens 222-F, 3.2-19 kW

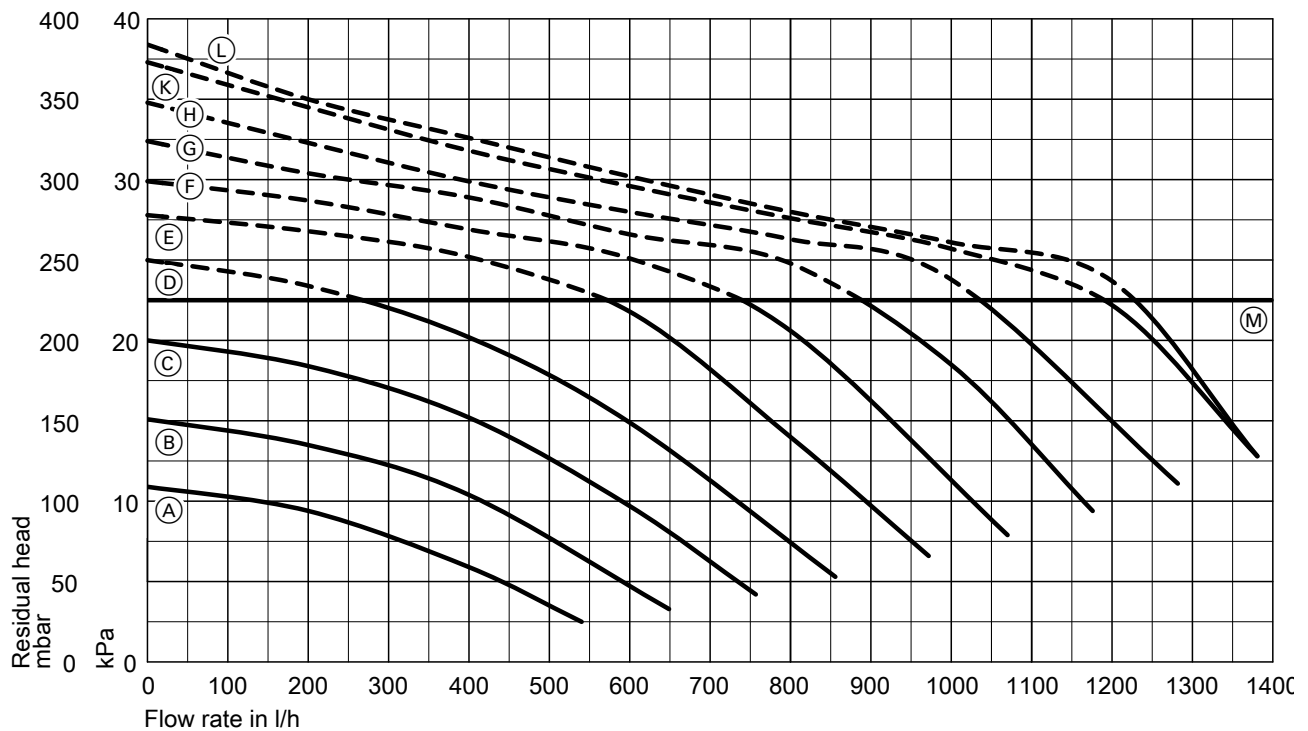


Ⓜ Upper operational limit

Specification (cont.)

Curve	Pump rate, circulation pump	Coding address setting "E6"
Ⓐ	10 %	E6:010
Ⓑ	20 %	E6:020
Ⓒ	30 %	E6:030
Ⓓ	40 %	E6:040
Ⓔ	50 %	E6:050
Ⓕ	60 %	E6:060
Ⓖ	70 %	E6:070
Ⓗ	80 %	E6:080
Ⓚ	90 %	E6:090
Ⓛ	100 %	E6:100

Vitodens 222-F, 5.2-26 kW



Ⓚ Upper operational limit

Curve	Pump rate, circulation pump	Coding address setting "E6"
Ⓐ	10 %	E6:010
Ⓑ	20 %	E6:020
Ⓒ	30 %	E6:030
Ⓓ	40 %	E6:040
Ⓔ	50 %	E6:050
Ⓕ	60 %	E6:060
Ⓖ	70 %	E6:070
Ⓗ	80 %	E6:080
Ⓚ	90 %	E6:090
Ⓛ	100 %	E6:100

Minimum clearances

Area around the Vitodens for maintenance: min. 700 mm

Maintenance clearances to the l.h. or r.h. side of the Vitodens are **not** required.

Subject to technical modifications.

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