



System-certified Condensing Appliances Gas • Condensing Appliances Oil

Product information

# Efficiency is a matter of the right planning



**Vaillant** Comfort for my home





# Introduction

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This document contains information relating to the product which is important for planning.

It starts with a presentation of the products together with their special attributes and a summary of features.

Then it moves onto the technical data and dimensioned drawings relevant to the design and planning process.

Any further information relating to the product group and relevant to planning is then included after the product presentations.

Hydraulic plans and connection diagrams can be found after the product information.

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# 1. Product information for ecoTEC exclusive .../1-7

## 1.1 Product combinations

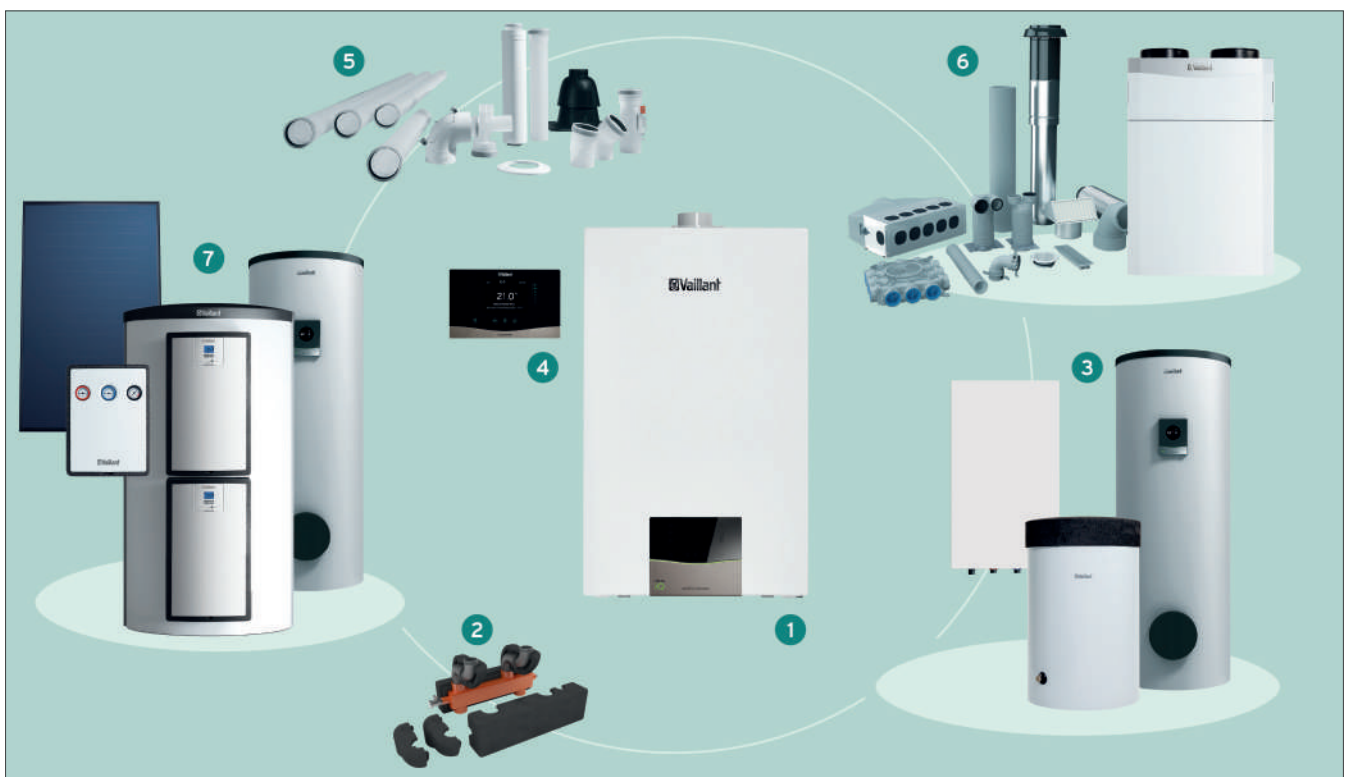


Fig. 1: Product combinations

Product combination overview for the ecoTEC exclusive .../1-7

	1	2	3	4	5	6	7	
	Boiler ecoTEC exclusive VC	Combi boiler ecoTEC exclusive VCW	Low loss header	Domestic hot water cylinder uniSTOR * actoSTOR **	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
 \* Only in conjunction with a boiler/\*\* Only in conjunction with a combi boiler



## 1.2 Product description for the ecoTEC exclusive VC 15 CS/1-7 to 30 CS/1-7



Fig. 2: ecoTEC exclusive VC

### 1.2.1 Special features

- Standard efficiency 98% (Hs)/109% (Hi)
- Modulation up to 1:10
- Self-adapting combustion regulation for compensating for fluctuations in gas quality and the preventative boiler analysis
- ioniDETECT combustion regulation system for all gas types
- High-quality design and compact unit dimensions for easily replacing the heating system
- Illuminated graphic display with operation via touch control elements
- Display for setting and monitoring internal unit functions and for operating the sensoDIRECT 710 single-circuit control

- Mobile remote control using the free sensoNET app
- Enhanced DIA system for simplified fault diagnostics
- Communication-enabled high-efficiency pump allows for the hydraulic balancing of the heating installation (can be funded in accordance with KfW)
- Comfort protection programme for a reliable heat supply

### 1.2.2 Potential applications

- Heating and domestic hot water generation (in combination with an indirectly heated cylinder)
- For new builds and modernising single-occupancy houses
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed operation with system-certified flue systems
- Operating with natural gas E, LL and liquefied petroleum gas

#### Note

A flue gas cascade is not possible.



### 1.2.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor, manometer, 10 litre expansion vessel, expansion relief valve, compression fitting gas connection
- Stainless steel integral condensation heat exchanger
- Integrated control of an external heating circuit pump/ circulation pump and a cylinder charging circuit
- Prioritising diverter valve
- sensoNET VR 921 Internet module can be ordered free of charge
- Illuminated graphic display with touch control elements
- Diagnostics interface integrated

Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VC 15 CS/1-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	
VC 20 CS/1-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	
VC 25 CS/1-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	
VC 30 CS/1-7	A+ (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	

Update 07  
New technical data

Technical data - General

	VC 15	VC 20	VC 25	VC 30
Designated country (designation in accordance with ISO 3166)	DE	DE	DE	DE
Approved gas boiler category	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>
CE PIN	0063CU3910	0063CU3910	0063CU3910	0063CU3910
Gas connection, boiler side	20 mm	20 mm	20 mm	20 mm
Flow/return heating connections, boiler side	G 3/4"	G 3/4"	G 3/4"	G 3/4"
Flow/return cylinder connections, boiler side	G 1/2 "	G 1/2 "	G 1/2 "	G 1/2 "
Domestic hot/cold water connections, boiler side	-	-	-	-
Expansion relief valve connection	15 mm	15 mm	15 mm	15 mm
Condensate discharge hose	19 mm	19 mm	19 mm	19 mm
Air/flue pipe connection	60/100 mm	60/100 mm	60/100 mm	80/125 mm
Gas connection pressure, G20 natural gas	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas connection pressure, G25 natural gas	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas connection pressure, G31 liquefied petroleum gas	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G20	2.2 m³/h	2.6 m³/h	2.7 m³/h	3.8 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G25	2.5 m³/h	3.0 m³/h	3.1 m³/h	4.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G31	0.8 m³/h	1.0 m³/h	1.1 m³/h	1.3 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G20	2.2 m³/h	2.6 m³/h	2.7 m³/h	3.8 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G25	2.5 m³/h	3.0 m³/h	3.1 m³/h	4.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G31	0.8 m³/h	1.0 m³/h	1.1 m³/h	1.3 m³/h
Min. flue gas temperature	35 °C	35 °C	35 °C	35 °C
Max. flue gas temperature	85 °C	85 °C	85 °C	85 °C
Approved unit types	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x
NOx class	6	6	6	6
NOx emission weighted	26.2 mg/kW-h	25.5 mg/kW-h	26.7 mg/kW-h	28.0 mg/kW-h
Weight (without packaging, without water)	34 kg	34 kg	34 kg	39 kg

Technical data - G20 output/heat input

	VC 15	VC 20	VC 25	VC 30
Nominal heat output range at 40/30 °C	2.9 to 16.7 kW	2.9 to 22.1 kW	2.9 to 27.4 kW	4.0 to 33.1 kW
Nominal heat output range at 50/30 °C	2.8 to 16.4 kW	2.8 to 21.0 kW	2.8 to 26.4 kW	3.8 to 32.5 kW
Nominal heat output range at 60/40 °C	2.7 to 15.8 kW	2.7 to 20.8 kW	2.7 to 25.9 kW	3.8 to 31.6 kW
Nominal heat output range at 80/60 °C	2.5 to 14.8 kW	2.5 to 19.7 kW	2.5 to 24.7 kW	3.5 to 30.0 kW
Max. heat input for heating	15.3 kW	20.4 kW	25.5 kW	30.6 kW
Heating min. heat input	2.7 kW	2.7 kW	2.7 kW	3.7 kW
Min. flue gas mass flow rate	1.27 g/s	1.20 g/s	1.25 g/s	1.72 g/s
Max. flue gas mass flow rate	9.66 g/s	12.54 g/s	11.91 g/s	14.78 g/s
Max. DHW heat output	20.0 kW	24.0 kW	27.5 kW	34.8 kW
DHW nominal heat input	20.4 kW	24.5 kW	28.3 kW	35.5 kW
Nominal heat input range for heating	2.7 to 15.3 kW	2.7 to 20.4 kW	2.7 to 25.5 kW	3.7 to 30.6 kW
Heating adjustment range	2.7 to 15.3 kW	2.7 to 20.4 kW	2.7 to 25.5 kW	3.7 to 30.6 kW

Update 07  
New technical data

Technical data - G25 output/heat input

	VC 15	VC 20	VC 25	VC 30
Nominal heat output range at 40/30 °C	2.9 to 16.7 kW	2.9 to 22.1 kW	2.9 to 27.4 kW	4.0 to 33.1 kW
Nominal heat output range at 50/30 °C	2.8 to 16.4 kW	2.8 to 21.0 kW	2.8 to 26.4 kW	3.8 to 32.5 kW
Nominal heat output range at 60/40 °C	2.7 to 15.8 kW	2.7 to 20.8 kW	2.7 to 25.9 kW	3.8 to 31.6 kW
Nominal heat output range P at 80/60 °C	2.5 to 14.8 kW	2.5 to 19.7 kW	2.5 to 24.7 kW	3.5 to 30.0 kW
Max. heat input for heating	15.3 kW	20.4 kW	25.5 kW	30.6 kW
Heating min. heat input	2.7 kW	2.7 kW	2.7 kW	3.7 kW
Min. flue gas mass flow rate	1.31 g/s	1.31 g/s	1.31 g/s	1.75 g/s
Max. flue gas mass flow rate	10.09 g/s	12.33 g/s	14.30 g/s	14.97 g/s
Max. DHW heat output	20.0 kW	24.0 kW	27.5 kW	34.8 kW
DHW nominal heat input	20.4 kW	24.5 kW	28.3 kW	35.5 kW
Nominal heat input range for heating	2.7 to 15.3 kW	2.7 to 20.4 kW	2.7 to 25.5 kW	3.7 to 30.6 kW
Heating adjustment range	2.7 to 15.3 kW	2.7 to 20.4 kW	2.7 to 25.5 kW	3.7 to 30.6 kW

Technical data - G31 output/heat input

	VC 15	VC 20	VC 25	VC 30
Nominal heat output range at 40/30 °C	5.2 to 16.7 kW	5.2 to 22.1 kW	5.2 to 27.4 kW	8.9 to 33.1 kW
Nominal heat output range at 50/30 °C	5.4 to 16.4 kW	5.4 to 21.0 kW	5.4 to 26.4 kW	8.4 to 32.5 kW
Nominal heat output range at 60/40 °C	5.2 to 15.8 kW	5.2 to 20.8 kW	5.2 to 25.9 kW	8.4 to 31.6 kW
Nominal heat output range at 80/60 °C	4.8 to 14.8 kW	4.8 to 19.7 kW	4.8 to 24.7 kW	7.8 to 30.0 kW
Max. heat input for heating	15.3 kW	20.4 kW	25.5 kW	30.6 kW
Heating min. heat input	5.2 kW	5.2 kW	5.2 kW	8.2 kW
Min. flue gas mass flow rate	2.43 g/s	2.43 g/s	2.43 g/s	4.2 g/s
Max. flue gas mass flow rate	10.13 g/s	12.14 g/s	13.46 g/s	15.6 g/s
Max. DHW heat output	20.0 kW	24.0 kW	25.4 kW	34.8 kW
DHW nominal heat input	20.4 kW	24.5 kW	26.2 kW	35.5 kW
Nominal heat input range for heating	5.2 to 15.3 kW	5.2 to 20.4 kW	5.2 to 25.5 kW	8.2 to 30.6 kW
Heating adjustment range	5.2 to 15.3 kW	5.2 to 20.4 kW	5.2 to 25.5 kW	8.2 to 30.6 kW

Technical data - Heating

	VC 15	VC 20	VC 25	VC 30
Max. flow temperature	85 °C	85 °C	85 °C	85 °C
Flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Max. operating pressure, heating	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Nominal circulation water volume based on $\Delta T = 20$ K	638 l/h	849 l/h	1,063 l/h	1,290 l/h
Remaining pump head at nominal circulation water volume	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)

Technical data - Electrics

	VC 15	VC 20	VC 25	VC 30
Nominal voltage/mains frequency	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Fuse	4 A	4 A	4 A	4 A
Max. power consumption in heating mode	81 W	59 W	91 W	80 W
Max. power consumption in domestic hot water mode	75 W	75 W	90 W	110 W
Electrical standby energy consumption	< 2 W	< 2 W	< 2 W	< 2 W
IP rating	IP X4 D	IP X4 D	IP X4 D	IP X4 D

## 1.2.4 Dimension drawing – ecoTEC exclusive VC 15 CS/1-7 to 30 CS/1-7

### Dimension drawing – ecoTEC exclusive VC 15 CS/1-7 to 30 CS/1-7

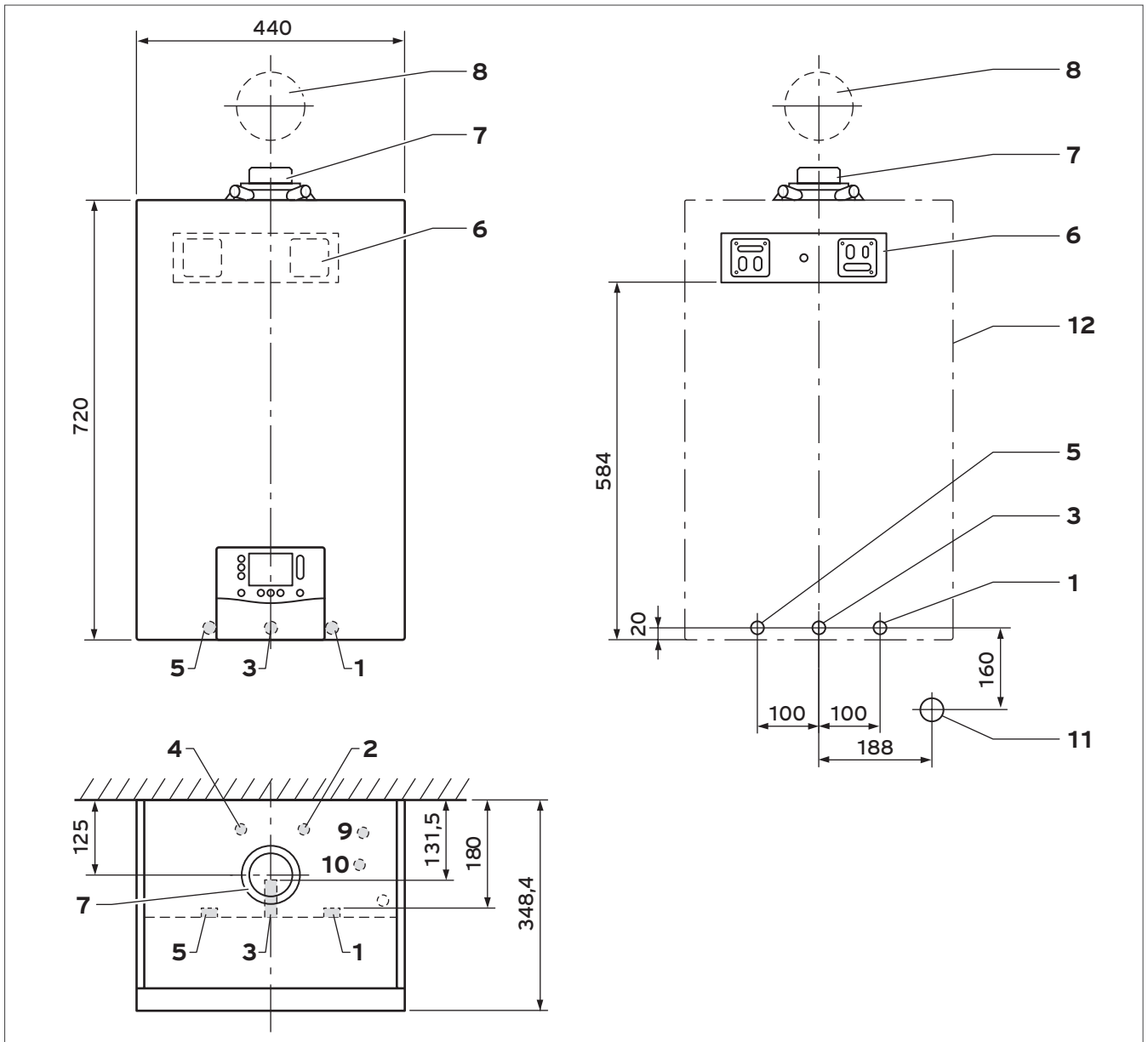


Fig. 3: Dimensions

- 1 G 3/4 heating return
- 2 Cylinder return
- 3 Gas connection, 20 × 1.5 diameter
- 4 Cylinder flow
- 5 G 3/4 heating flow
- 6 Unit mounting bracket
- 7 Air/flue pipe connection. 60/100 mm diameter or 80/125 mm diameter
- 8 Wall duct for air/flue pipe
- 9 Condensed water discharge connection, 20 diameter
- 10 Drain, 9 diameter
- 11 Tundish/siphon connection R 1
- 12 Upper edge of the casing

## 1.3 Product description for the ecoTEC exclusive VCW 25/36 CF/1-7



Fig. 4: ecoTEC exclusive VCW

### 1.3.1 Special features

- Standard efficiency 98% (Hs)/109% (Hi)
- Modulation up to 1:10
- Combi boiler with integrated domestic hot water generation operating on the flow-through principle
- Self-adapting combustion regulation for compensating for fluctuations in gas quality and the preventative boiler analysis
- ioniDETECT combustion regulation system for all gas types
- Enhanced heat exchanger concept for up to 8% increased domestic hot water comfort
- High-quality design and compact unit dimensions for easily replacing the heating system
- Illuminated graphic display with operation via touch control elements
- Display for setting and monitoring internal unit functions and for operating the sensoDIRECT 710 single-circuit control

- Mobile remote control using the free sensoNET app
- Enhanced DIA system for simplified fault diagnostics
- Communication-enabled high-efficiency pump allows for the hydraulic balancing of the heating installation (can be funded in accordance with KfW)
- Comfort protection programme for a reliable heat supply

### 1.3.2 Potential applications

- Heating and domestic hot water generation (flow-through principle)
- For new builds and modernising single-occupancy houses
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed operation with system-certified flue system
- Operating with natural gas E, LL

#### Note

A flue gas cascade is not possible.



### 1.3.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor, manometer, 10 litre expansion vessel, expansion relief valve, compression fitting gas connection
- Stainless steel integral condensation heat exchanger
- Integrated control of an external heating circuit pump/circulation pump and a cylinder charging circuit
- Prioritising diverter valve
- sensoNET VR 921 Internet module can be ordered free of charge
- Illuminated graphic display with touch control elements
- Diagnostics interface integrated

Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Order no.
VCW 25/36 CF/1-7	A (A+++ to D)	A (A+ to F)	Natural gas G20, G25	

Update 07  
New technical data

**Technical data - General**

	VCW 25/36
Designated country (designation in accordance with ISO 3166)	DE
Approved gas boiler category	I <sub>2N</sub>
CE PIN	0063CU3910
Gas connection, boiler side	20 mm
Flow/return heating connections, boiler side	G 3/4"
Flow/return cylinder connections, boiler side	-
Domestic hot/cold water connections, boiler side	G 3/4"
Expansion relief valve connection	15 mm
Condensate discharge hose	19 mm
Air/flue pipe connection	80/125 mm
Gas connection pressure, G20 natural gas	2.0 kPa (20.0 mbar)
Gas connection pressure, G25 natural gas	2.0 kPa (20.0 mbar)
Gas connection pressure, G31 liquefied petroleum gas	-
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G20	3.6 m <sup>3</sup> /h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G25	4.2 m <sup>3</sup> /h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G31	-
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G20	3.6 m <sup>3</sup> /h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G25	4.2 m <sup>3</sup> /h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G31	-
Min. flue gas temperature	35 °C
Max. flue gas temperature	85 °C
Approved unit types	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x
NOx class	6
NOx emission weighted	23.6 mg/kW·h
Weight (without packaging, without water)	43 kg

**Technical data - G20 output/heat input**

	VCW 25/36
Nominal heat output range at 40/30 °C	3.4 to 27.5 kW
Nominal heat output range at 50/30 °C	3.4 to 27.1 kW
Nominal heat output range at 60/40 °C	3.3 to 26.2 kW
Nominal heat output range at 80/60 °C	3.0 to 25.0 kW
Max. heat input for heating	25.5 kW
Heating min. heat input	3.2 kW
Min. flue gas mass flow rate	1.62 g/s
Max. flue gas mass flow rate	17.04 g/s
Max. DHW heat output	36.4 kW
DHW nominal heat input	34.3 kW
Nominal heat input range for heating	3.2 to 25.5 kW
Heating adjustment range	3.2 to 25.5 kW

**Technical data - G25 output/heat input**

	VCW 25/36
Nominal heat output range at 40/30 °C	3.4 to 27.5 kW
Nominal heat output range at 50/30 °C	3.4 to 27.1 kW
Nominal heat output range at 60/40 °C	3.3 to 26.2 kW
Nominal heat output range P at 80/60 °C	3.0 to 25.0 kW
Max. heat input for heating	25.5 kW
Heating min. heat input	3.2 kW
Min. flue gas mass flow rate	1.64 g/s
Max. flue gas mass flow rate	17.25 g/s
Max. DHW heat output	36.4 kW
DHW nominal heat input	34.3 kW
Nominal heat input range for heating	3.2 to 25.5 kW
Heating adjustment range	3.2 to 25.5 kW

**Technical data - Heating**

	VCW 25/36
Max. flow temperature	85 °C
Flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C
Max. operating pressure, heating	0.3 MPa (3.0 bar)
Nominal circulation water volume based on ΔT = 20 K	1,074 l/h
Remaining pump head at nominal circulation water volume	0.025 MPa (0.250 bar)

**Technical data - Domestic hot water**

	VCW 25/36
Start-up flow rate	2 l/min
Specific flow rate D (ΔT = 30 K) (EN 13203-1)	17.6 l/min
Permissible operating pressure	0.03 to 1.0 MPa (0.30 to 10.0 bar)
Required connection pressure	0.07 MPa (0.70 bar)
Domestic hot water temperature adjustment range	35 to 65 °C
Flow rate limiter	11.7 l/min
Classification in accordance with the total comfort factor (EN 13203-1)	* * *

**Technical data - Electrics**

	VCW 25/36
Nominal voltage/mains frequency	230 V/50 Hz
Permissible connected voltage	190 to 253 V
Fuse	4 A
Max. power consumption in heating mode	61 W
Max. power consumption in domestic hot water mode	115 W
Electrical standby energy consumption	< 2 W
IP rating	IP X4 D

### 1.3.4 Dimension drawing – ecoTEC exclusive VCW 25/36 CF/1-7

#### Dimension drawing - ecoTEC exclusive VCW 25/36 CF/1-7

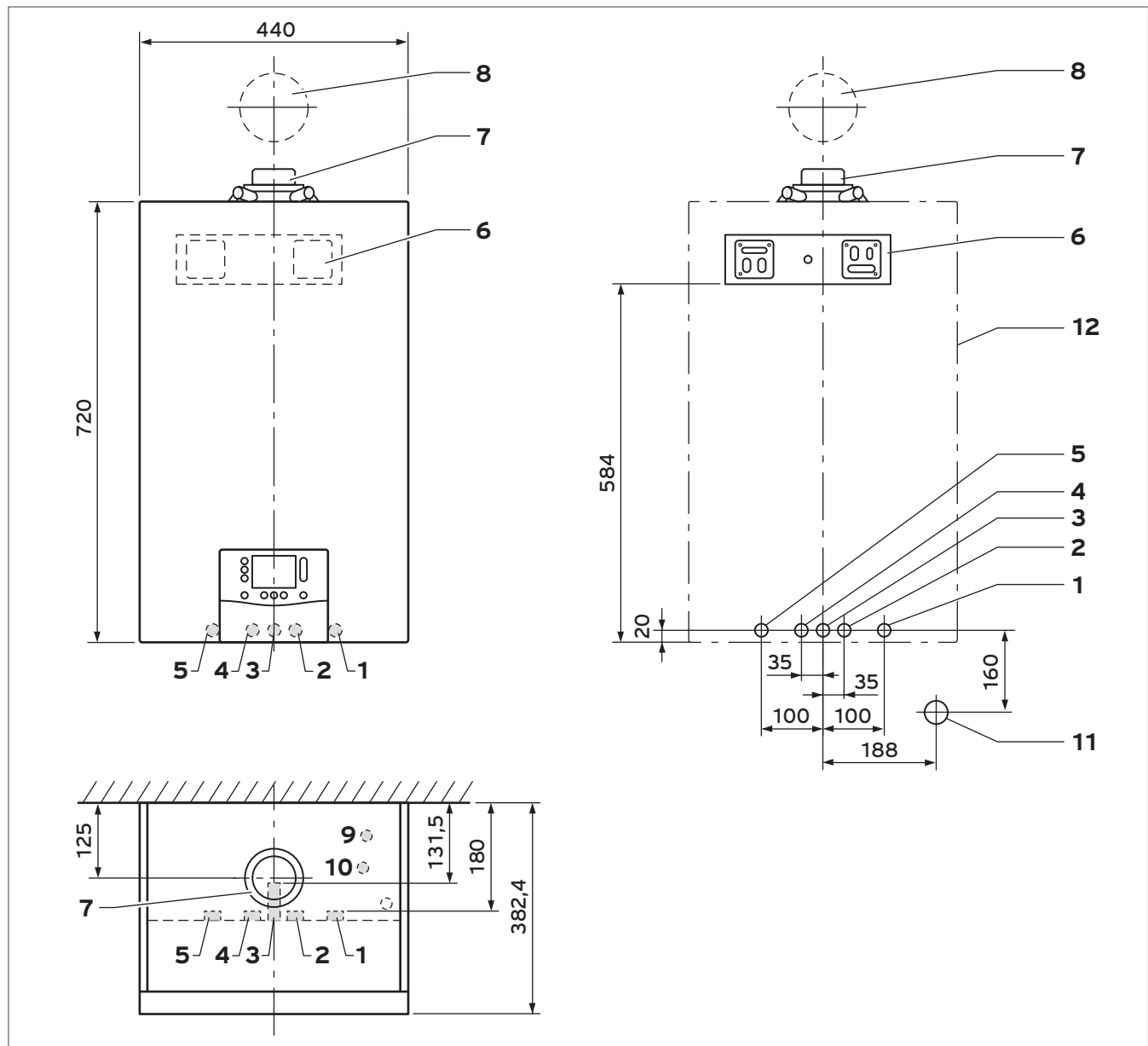


Fig. 5: Dimensions

- 1 G 3/4 heating return
- 2 G 3/4 cold water connection
- 3 Gas connection, 20 x 1.5 diameter
- 4 G 3/4 domestic hot water connection
- 5 G 3/4 heating flow
- 6 Unit mounting bracket
- 7 Air/flue pipe connection, 80/125 mm diameter
- 8 Wall duct for air/flue pipe
- 9 Condensed water discharge connection, 20 diameter
- 10 Drain, 9 diameter
- 11 Tundish/siphon connection R 1
- 12 Upper edge of the casing



## 1.4 Supplementary information for the ecoTEC exclusive VC 15 CS/1-7 to 30 CS/1-7 and VCW 25/36 CF/1-7

### 1.4.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

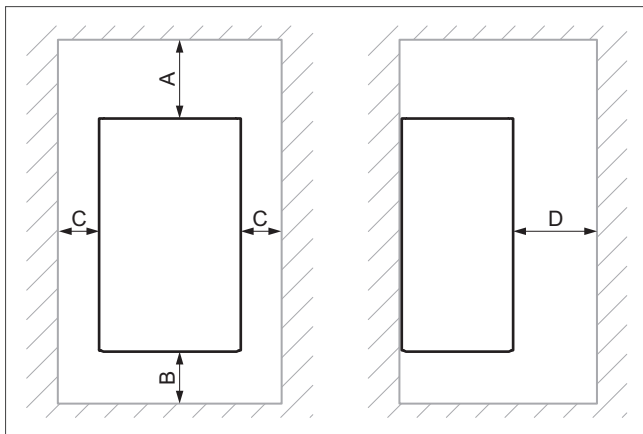


Fig. 6: Minimum clearances

	Minimum clearance
A	60/100 mm diameter air/flue pipe: 248 mm 80/80 mm diameter air/flue pipe: 220 mm 80/125 mm diameter air/flue pipe: 276 mm
B	160 mm
C	50 mm
D	500 mm

Update 07  
New Pump curve

### 1.4.2 Pump curve

Validity: VC 15 CS/1-7 OR VC 20 CS/1-7 OR VC 25/1-7

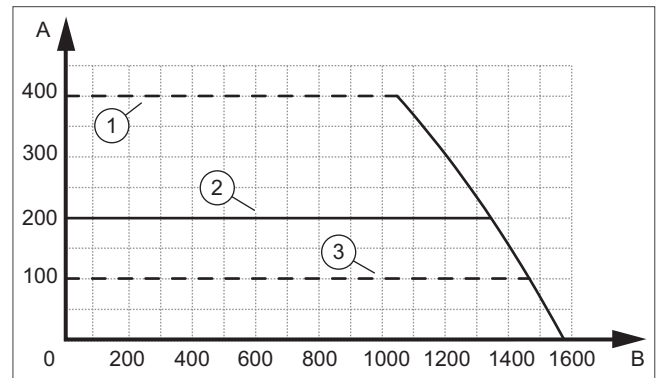


Fig. 7: Pump curve

Validity: VC 30 CS/1-7

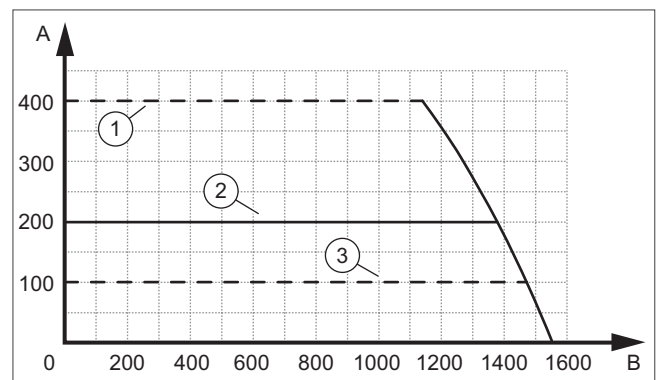


Fig. 8: Pump curve

Validity: VCW 25/36 CF/1-7

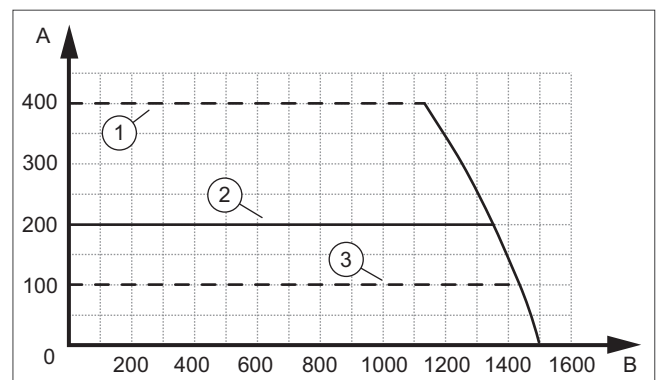


Fig. 9: Pump curve

- A Pressure [mbar]
- 1 Maximum pressure
- 2 Default setting
- B Flow rate [l/h]
- 3 Minimum pressure

## 1.5 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus				uniSTOR exclusive			uniSTOR plus			acto- STOR	
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)		VIH Q 75/2 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)		VIH R 500/3 BR (NL 21.0)
ecoTEC exclusive 2.5-30.0 kW	VC 15 CS/1-7	•	•	•	•	•	•	•	o	o	o	o	o	o	o	-
	VC 20 CS/1-7	•	•	•	•	•	•	•	•	o	o	•	o	o	o	-
	VC 25 CS/1-7	•	•	•	•	•	•	•	•	o	o	•	o	o	o	-
	VC 30 CS/1-7	•	•	•	•	•	•	o	•	•	•	•	•	•	•	-
	VCW 25/36 CF/1-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 1.6 Basic system diagrams and wiring diagrams

### 1.6.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)



## 1.7 Basic system diagrams and wiring diagrams

### 1.7.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
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2a	Domestic hot water heat pump
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2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 1.7.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020269126	ecoTEC exclusive VC	VRC 710 VR 921	–	1 HC	–	–	–	uniSTOR VIH R
0020280013	ecoTEC exclusive VC	VRT 380	–	1 HC	–	–	–	uniSTOR VIH Q 75/B
0020269132	ecoTEC exclusive VC	VRC 710 VR 921 Modul 2 aus 7	–	1 HC	Low loss header	–	–	uniSTOR VIH R
0020280010	ecoTEC exclusive VC	VRC 720 VR 92 VR 921 VR 71	2 UFH	1 HC	Low loss header	•	–	auroSTOR VIH S
0020269127	ecoTEC exclusive VCW	VRC 710 VR 921	–	1 HC	–	–	–	integrated
0020280014	ecoTEC exclusive VCW	VRT 380	–	1 HC	–	–	–	actoSTOR VIH QL 75/2 B





## 0020269126 - Wiring diagram

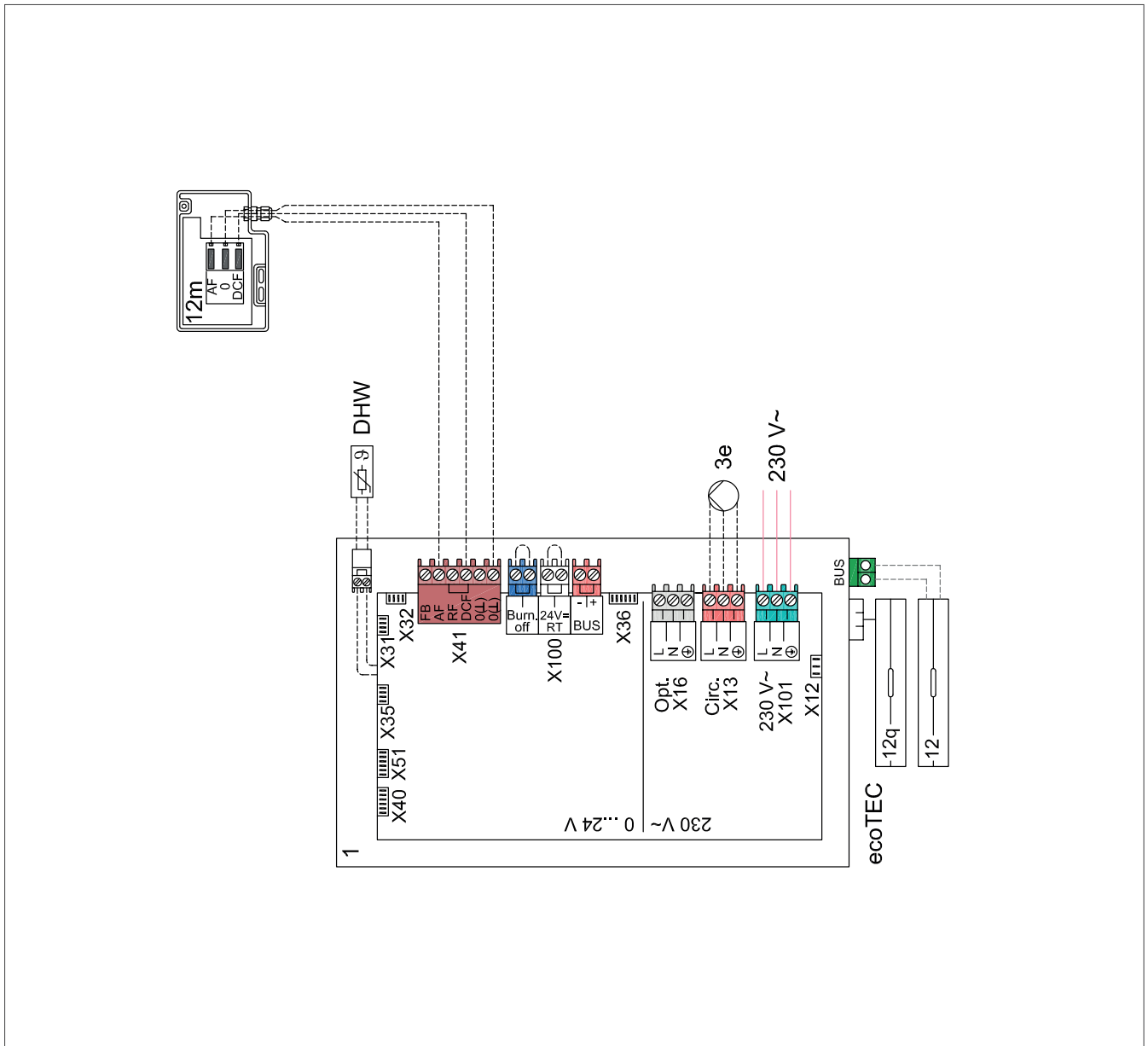


Fig 11: Wiring diagram

### Individual components

- ecoTEC VC
- uniSTOR VIH R
- VRC 710
- VR 921

0020280013 - Basic hydraulic diagram

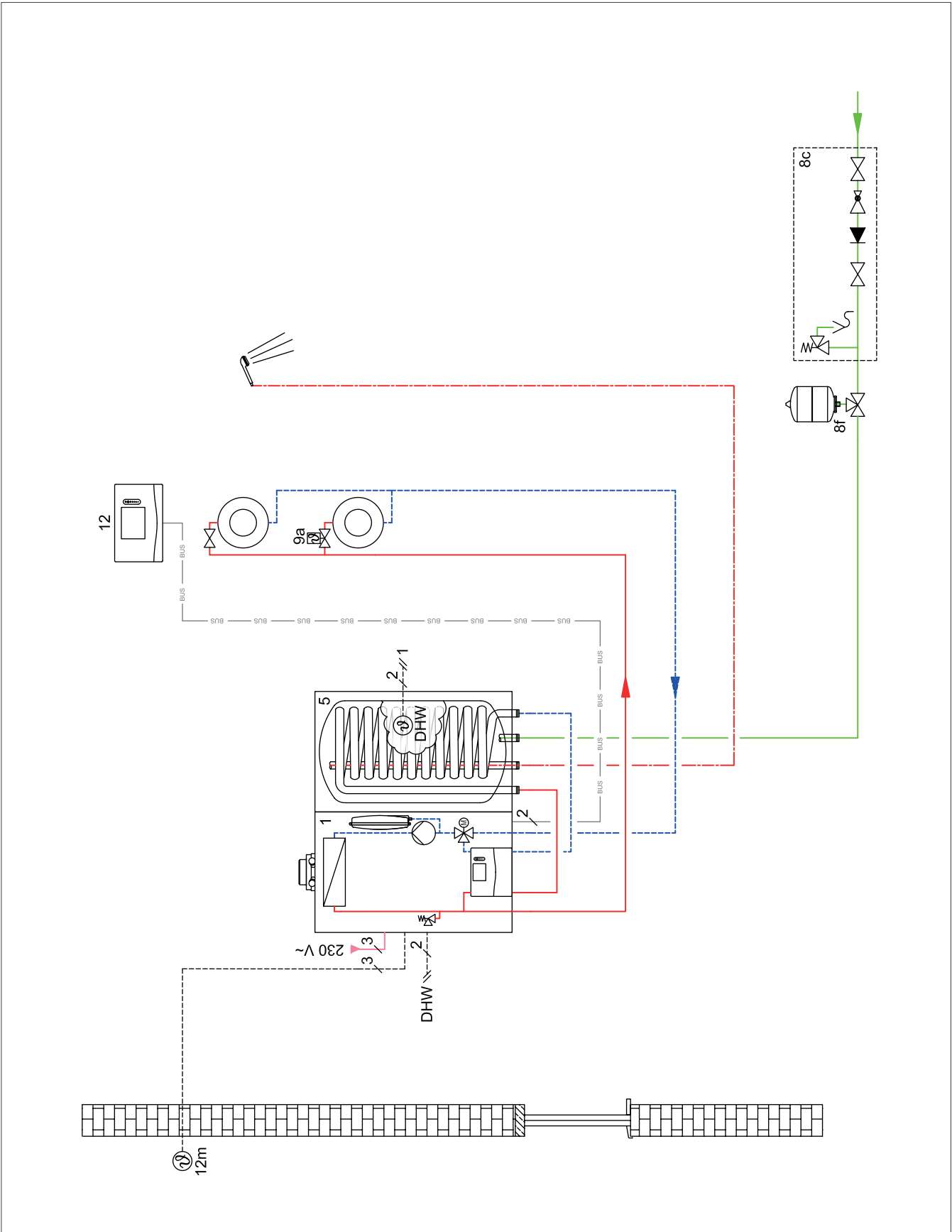


Fig 12: Basic hydraulic diagram

0020280013 - Wiring diagram

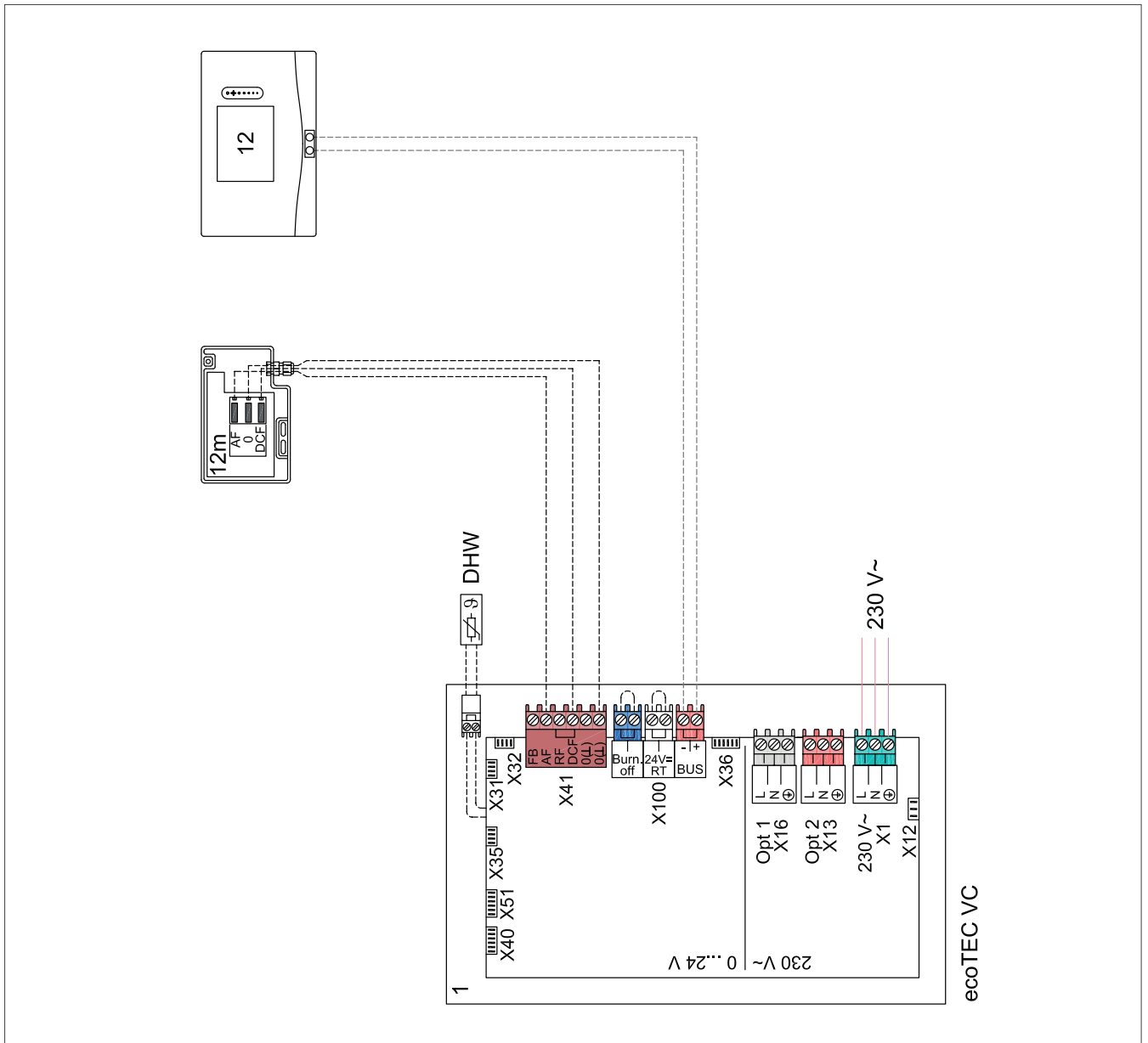


Fig 13: Wiring diagram

Individual components

- ecoTEC VC
- uniSTOR VIH Q 75/2 B
- VRT 380



0020269132 - Wiring diagram

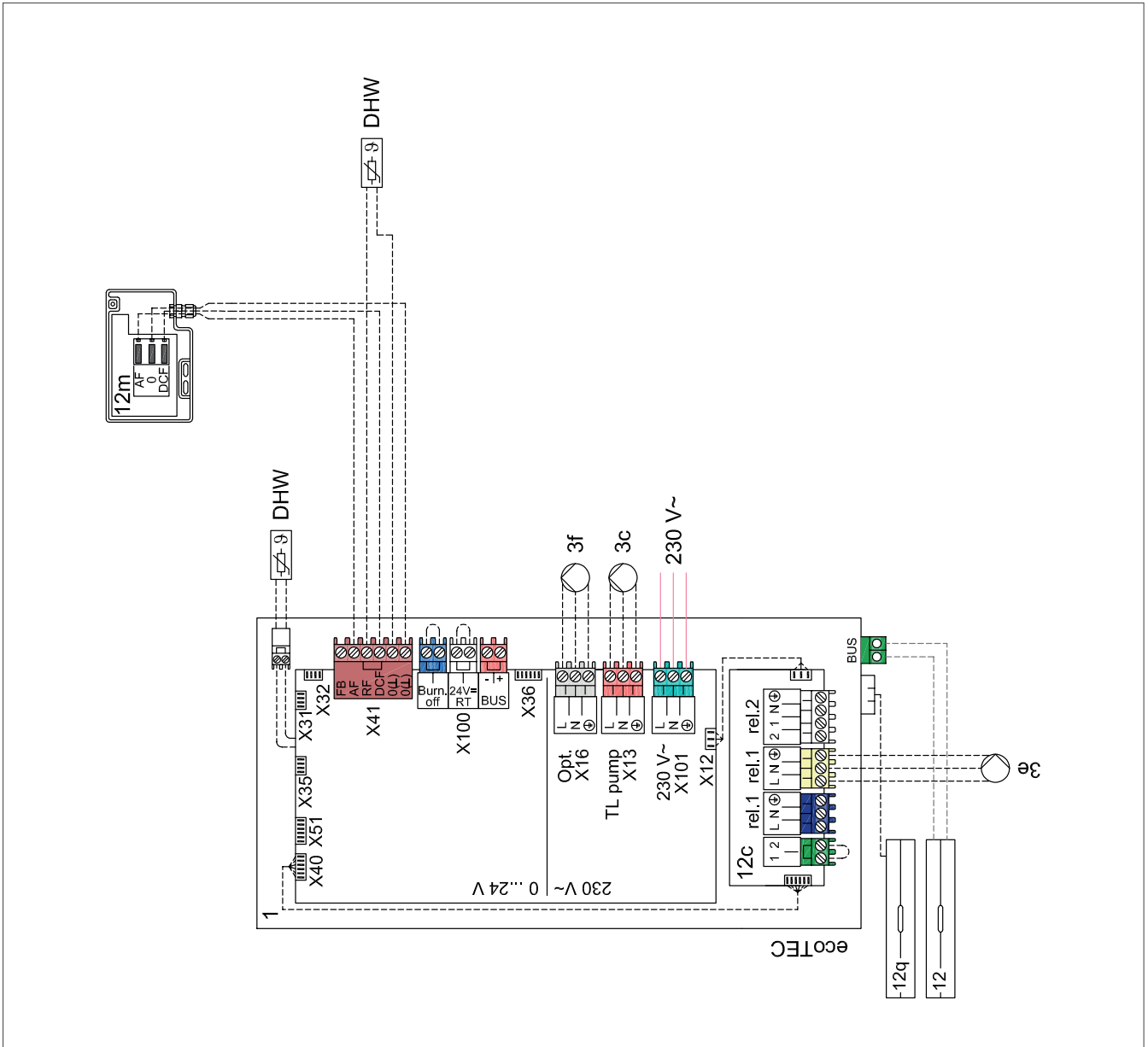


Fig 15: Wiring diagram

Individual components

- ecoTEC VC
- uniSTOR VIH R
- WH 27/40
- VRC 710
- VR 921
- Modul 2 aus 7

0020280010 - Basic hydraulic diagram

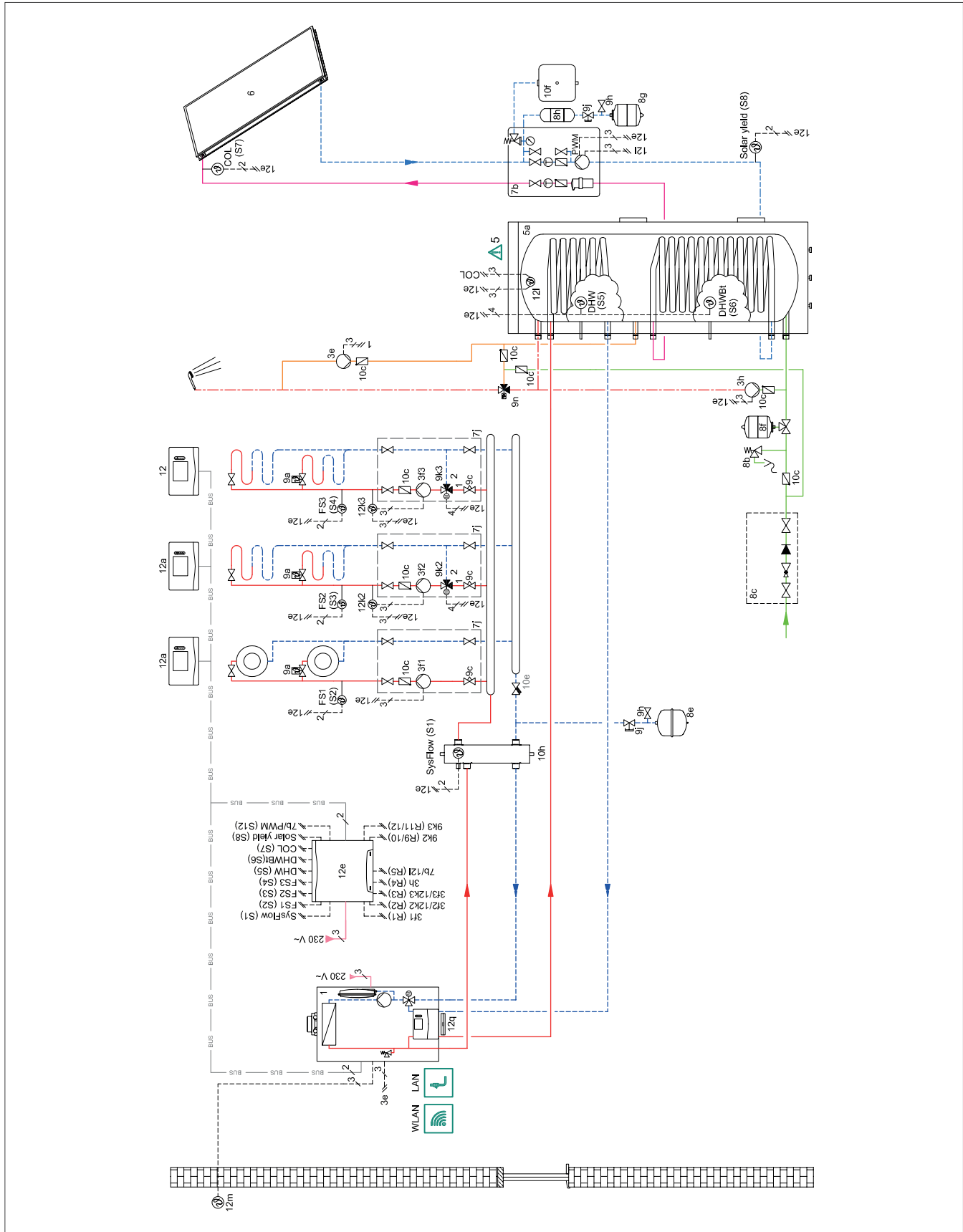


Fig 16: Basic hydraulic diagram





0020269127 - Basic hydraulic diagram

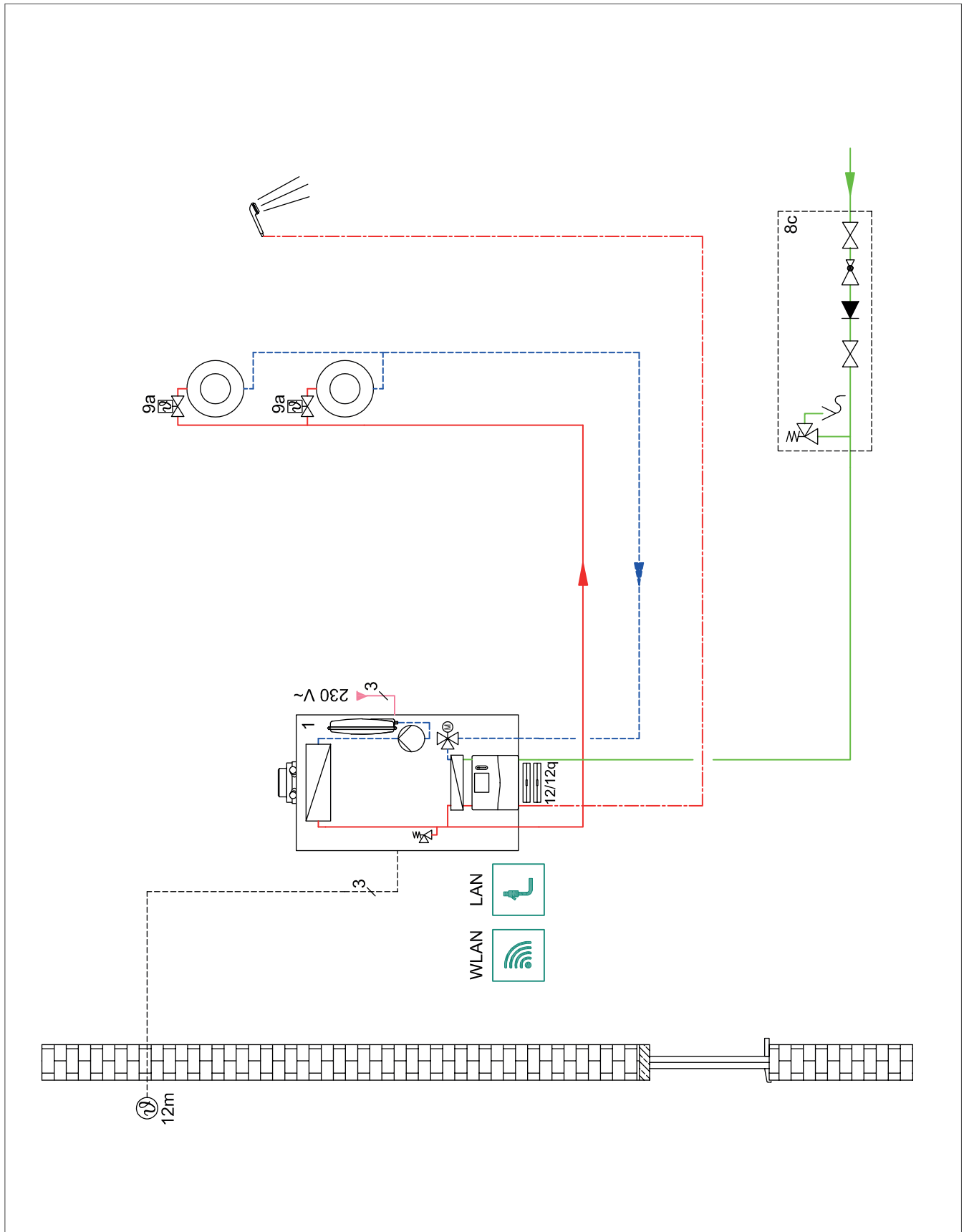


Fig 18: Basic hydraulic diagram

0020269127 - Wiring diagram

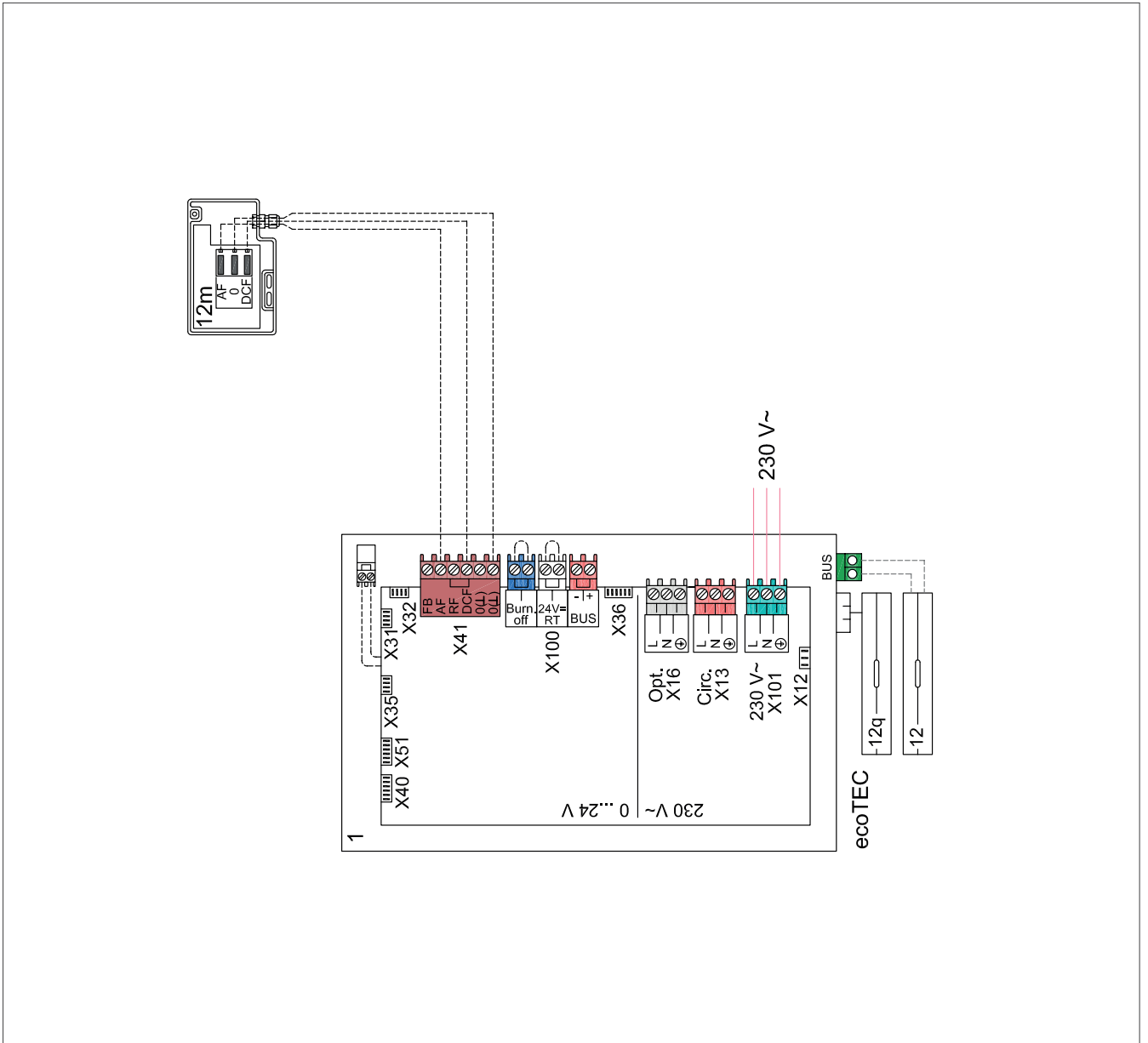


Fig 19: Wiring diagram

Individual components

- ecoTEC VCW
- VRC 710
- VR 921

0020280014 - Basic hydraulic diagram

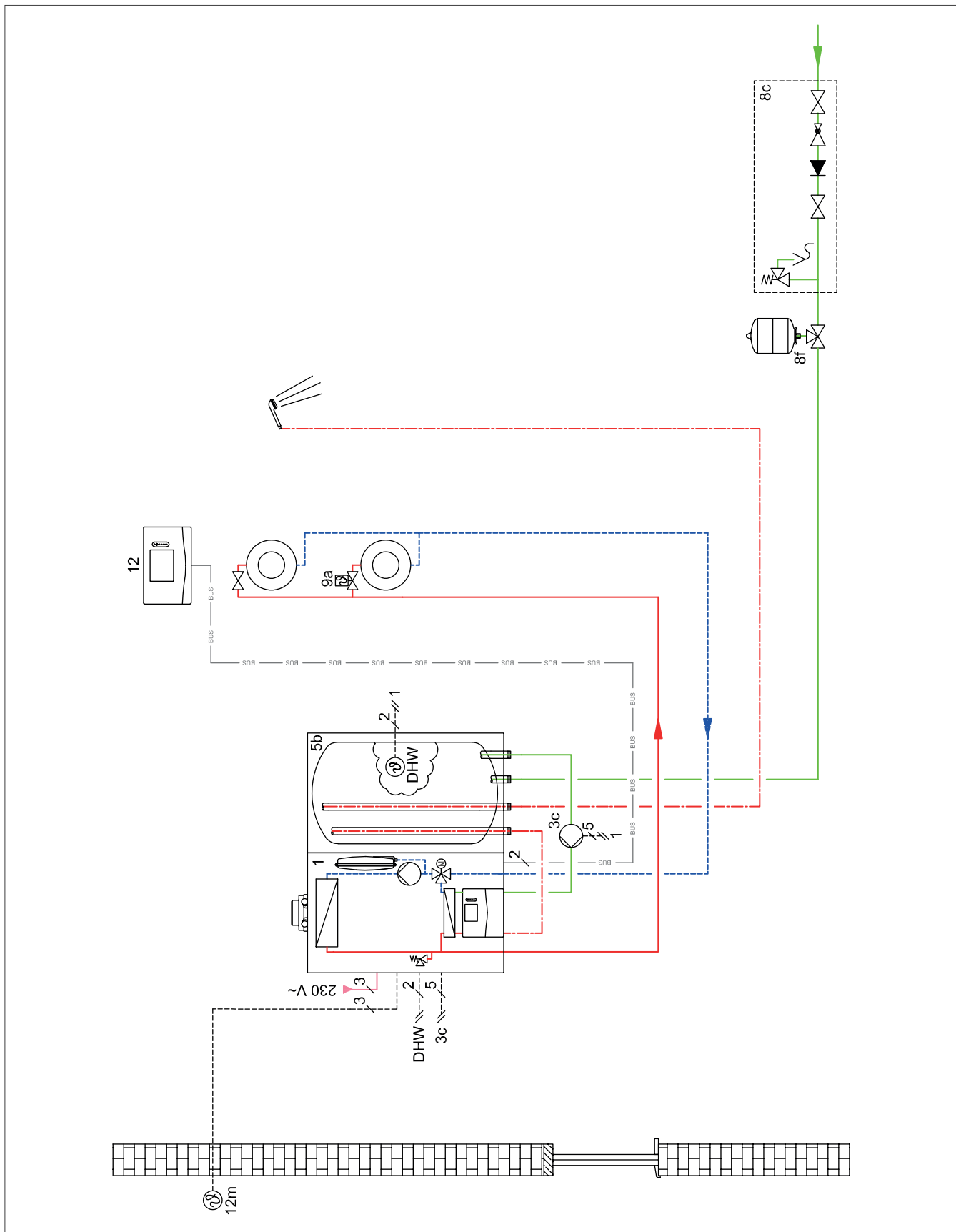


Fig 20: Basic hydraulic diagram

0020280014 - Wiring diagram

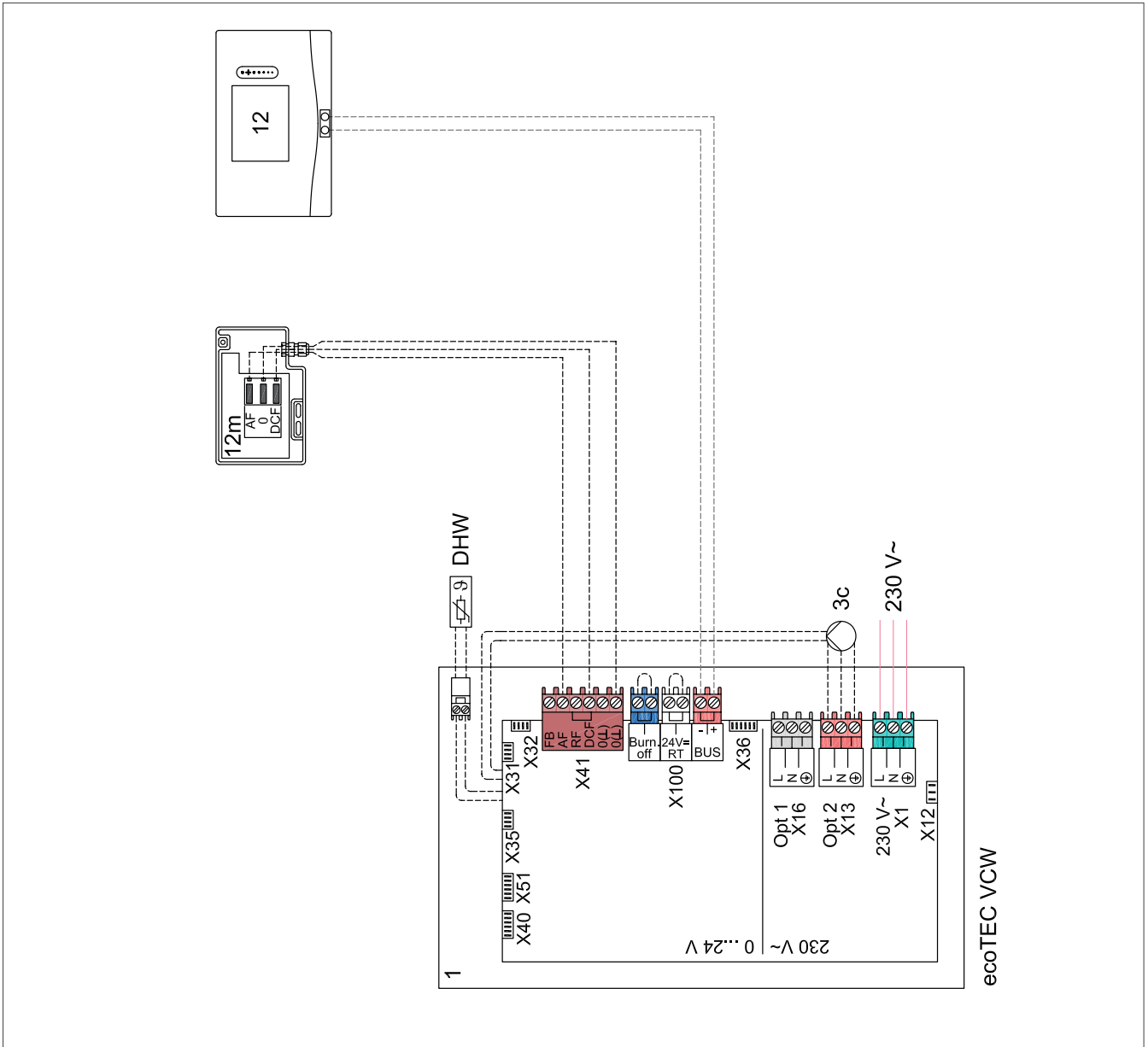


Fig 21: Wiring diagram

Individual components

- ecoTEC VCW
- actoSTOR VIH QL 75/2 B
- VRT 380





# 2. Product information for ecoTEC plus ... CS/1-5

## 2.8 Product combinations



Fig. 22: Product combinations

Product combination overview for the ecoTEC plus ... CS/1-5

		1		2	3		4	5	6	7
	Boiler ecoTEC plus VC	Combi boiler ecoTEC plus VCI	Combi boiler ecoTEC plus VCW	Low loss header	Domestic hot water cylinder uniSTOR	Domestic hot water cylinder actoSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	–	•	–	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•**	•***	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

\*\* Only in conjunction with a boiler

\*\* Only in conjunction with a combi boiler

## 2.9 Product description for the ecoTEC plus VC



Fig. 23: ecoTEC plus VC .. CS/1-5

### 2.9.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>2</sub>)
- **Modulation up to 1:8**
- Self-adapting combustion regulation for compensating for fluctuations in gas quality and the preventative boiler analysis
- ioniDETECT combustion regulation system
- Automatic partial load adjustment
- Aqua Condens System, cylinder charging control with condensing technology
- Aqua Power Plus up to 20% more domestic hot water output
- High-quality design and compact unit dimensions for easily replacing the heating system
- Horizontal hydraulic connections and comprehensive installation accessories for flexible use

- Illuminated graphic display with touch control elements
- Display for setting and monitoring internal unit functions and for operating the sensoDIRECT 710 single-circuit control
- Optional: Expansion using the VR 921 Internet module and the free-of-charge sensoNET app for mobile control operation
- Enhanced DIA system for simplified fault diagnostics
- Comfort protection programme for a reliable heat supply
- Can be combined with a solar system or a heat pump

### 2.9.2 Potential applications

- Compact unit for heating and domestic hot water generation
- Can be used for new builds and modernising houses
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed operation with system-certified flue systems
- **Operating with natural gas E, LL and liquefied petroleum gas**

#### Note

A flue gas cascade is not possible.



### 2.9.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor, manometer, 10 litre expansion vessel, expansion relief valve
- Stainless steel integral condensation heat exchanger
- Integrated control of an external heating circuit pump/circulation pump and a cylinder charging circuit (country-specific)
- Prioritising diverter valve
- Illuminated graphic display with touch control elements
- eBUS interface
- Diagnostics interface integrated
- sensoNET VR 921 Internet module can be ordered as an option

Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VC 10 CS/1-5	A (A+++ to D)	Natural gas G20, G25 Liquefied petroleum gas G31	
VC 15 CS/1-5	A (A+++ to D)	Natural gas G20, G25 Liquefied petroleum gas G31	
VC 20 CS/1-5	A (A+++ to D)	Natural gas G20, G25 Liquefied petroleum gas G31	
VC 25 CS/1-5	A (A+++ to D)	Natural gas G20, G25 Liquefied petroleum gas G31	
VC 30 CS/1-5	A (A+++ to D)	Natural gas G20, G25 Liquefied petroleum gas G31	



Update 07  
New technical data

Technical data - General

	VC 10	VC 15	VC 20	VC 25	VC 30
Designated country (designation in accordance with ISO 3166)	DE	DE	DE	DE	DE
Approved gas boiler category	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>
CE PIN	0063CU3910	0063CU3910	0063CU3910	0063CU3910	0063CU3910
Gas connection, boiler side	20 mm	20 mm	20 mm	20 mm	20 mm
Flow/return heating connections, boiler side	G 3/4 "	G 3/4 "	G 3/4 "	G 3/4 "	G 3/4 "
Flow/return cylinder connections, boiler side	G 1/2 "	G 1/2 "	G 1/2 "	G 1/2 "	G 1/2 "
Domestic hot/cold water connections, boiler side	-	-	-	-	-
Expansion relief valve connection	15 mm	15 mm	15 mm	15 mm	15 mm
Condensate discharge hose	19 mm	19 mm	19 mm	19 mm	19 mm
Air/flue pipe connection	60/100 mm	60/100 mm	60/100 mm	60/100 mm	80/125 mm
Gas connection pressure, G20 natural gas	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
Gas connection pressure, G25 natural gas	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
Gas connection pressure, G31 liquefied petroleum gas	5.0 kPa	5.0 kPa	5.0 kPa	5.0 kPa	5.0 kPa
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G20	2.2 m³/h	2.2 m³/h	2.6 m³/h	3.0 m³/h	3.8 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G25	2.5 m³/h	2.5 m³/h	3.0 m³/h	3.5 m³/h	4.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G31	0.8 m³/h	0.8 m³/h	1.0 m³/h	1.1 m³/h	1.5 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G20	2.2 m³/h	2.2 m³/h	2.6 m³/h	3.0 m³/h	3.8 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G25	2.5 m³/h	2.5 m³/h	3.0 m³/h	3.5 m³/h	4.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G31	0.8 m³/h	0.8 m³/h	1.0 m³/h	1.1 m³/h	1.5 m³/h
Min. flue gas temperature	35 °C	35 °C	35 °C	35 °C	35 °C
Max. flue gas temperature	85 °C	85 °C	85 °C	85 °C	85 °C
Approved unit types	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x
NOx class	6	6	6	6	6
NOx emission weighted	41.6 mg/kW-h	26.2 mg/kW-h	36.3 mg/kW-h	39.5 mg/kW-h	28.0 mg/kW-h
Weight (without packaging, without water)	34 kg	34 kg	34 kg	34 kg	36 kg

Technical data - G20 output/heat input

	VC 10	VC 15	VC 20	VC 25	VC 30
Nominal heat output range at 40/30 °C	3.4 to 11.0 kW	3.4 to 16.6 kW	3.4 to 22.1 kW	3.4 to 27.6 kW	4.5 to 33.1 kW
Nominal heat output range at 50/30 °C	3.4 to 10.9 kW	3.4 to 16.4 kW	3.4 to 21.0 kW	3.4 to 26.4 kW	4.5 to 33.3 kW
Nominal heat output range at 60/40 °C	3.2 to 10.4 kW	3.2 to 15.7 kW	3.2 to 20.9 kW	3.2 to 26.1 kW	4.2 to 31.3 kW
Nominal heat output range at 80/60 °C	3.0 to 9.9 kW	3.0 to 14.8 kW	3.0 to 19.7 kW	3.0 to 24.7 kW	4.0 to 29.9 kW
Max. heat input for heating	10.2 kW	15.3 kW	20.4 kW	25.5 kW	30.6 kW
Heating min. heat input	3.2 kW	3.2 kW	3.2 kW	3.2 kW	4.2 kW
Min. flue gas mass flow rate	1.43 g/s	1.51 g/s	1.51 g/s	1.49 g/s	1.96 g/s
Max. flue gas mass flow rate	9.66 g/s	9.66 g/s	12.79 g/s	14.37 g/s	17.70 g/s
Max. DHW heat output	20.0 kW	20.0 kW	24.0 kW	27.5 kW	34.8 kW
DHW nominal heat input	20.4 kW	20.4 kW	24.5 kW	28.3 kW	35.5 kW
Nominal heat input range for heating	3.2 to 10.2 kW	3.2 to 15.3 kW	3.2 to 20.4 kW	3.2 to 25.5 kW	4.2 to 30.6 kW
Heating adjustment range	10.2 kW	3.2 to 15.3 kW	3.2 to 20.4 kW	3.2 to 25.5 kW	4.2 to 30.6 kW

## Update 07

### New technical data

#### Technical data - G25 output/heat input

	VC 10	VC 15	VC 20	VC 25	VC 30
Nominal heat output range at 40/30 °C	3.4 to 11.0 kW	3.4 to 16.6 kW	3.4 to 22.1 kW	3.4 to 27.6 kW	4.5 to 33.1 kW
Nominal heat output range at 50/30 °C	3.4 to 10.9 kW	3.4 to 16.4 kW	3.4 to 21.0 kW	3.4 to 26.4 kW	4.5 to 33.3 kW
Nominal heat output range at 60/40 °C	3.2 to 10.4 kW	3.2 to 15.7 kW	3.2 to 20.9 kW	3.2 to 26.1 kW	4.2 to 31.3 kW
Nominal heat output range P at 80/60 °C	3.0 to 9.9 kW	3.0 to 14.8 kW	3.0 to 19.7 kW	3.0 to 24.7 kW	4.0 to 29.9 kW
Max. heat input for heating	10.2 kW	15.3 kW	20.4 kW	25.5 kW	30.6 kW
Heating min. heat input	3.2 kW	3.2 kW	3.2 kW	3.2 kW	4.2 kW
Min. flue gas mass flow rate	1.55 g/s	1.55 g/s	1.55 g/s	1.55 g/s	2.08 g/s
Max. flue gas mass flow rate	10.09 g/s	10.09 g/s	12.33 g/s	14.30 g/s	18.51 g/s
Max. DHW heat output	20.0 kW	20.0 kW	24.0 kW	27.5 kW	34.8 kW
DHW nominal heat input	20.4 kW	20.4 kW	24.5 kW	28.3 kW	35.5 kW
Nominal heat input range for heating	3.2 to 10.2 kW	3.2 to 15.3 kW	3.2 to 20.4 kW	3.2 to 25.5 kW	4.2 to 30.6 kW
Heating adjustment range	10.2 kW	3.2 to 15.3 kW	3.2 to 20.4 kW	3.2 to 25.5 kW	4.2 to 30.6 kW

#### Technical data - G31 output/heat input

	VC 10	VC 15	VC 20	VC 25	VC 30
Nominal heat output range at 40/30 °C	5.3 to 11.0 kW	5.2 to 16.6 kW	5.2 to 22.1 kW	5.5 to 27.6 kW	8.7 to 33.1 kW
Nominal heat output range at 50/30 °C	5.4 to 10.9 kW	5.4 to 16.4 kW	5.4 to 21.0 kW	5.4 to 26.4 kW	8.4 to 33.3 kW
Nominal heat output range at 60/40 °C	5.2 to 10.4 kW	5.2 to 15.7 kW	5.2 to 20.9 kW	5.2 to 26.1 kW	8.3 to 31.3 kW
Nominal heat output range at 80/60 °C	4.8 to 9.9 kW	4.8 to 14.8 kW	4.8 to 19.7 kW	4.8 to 24.7 kW	7.8 to 29.9 kW
Max. heat input for heating	10.2 kW	15.3 kW	20.4 kW	25.5 kW	30.6 kW
Heating min. heat input	5.2 kW	5.2 kW	5.2 kW	5.2 kW	8.2 kW
Min. flue gas mass flow rate	2.58 g/s	2.43 g/s	2.43 g/s	2.43 g/s	4.21 g/s
Max. flue gas mass flow rate	9.95 g/s	10.13 g/s	12.05 g/s	13.11 g/s	19.01 g/s
Max. DHW heat output	20.0 kW	20.0 kW	24.0 kW	25.4 kW	34.8 kW
DHW nominal heat input	20.4 kW	20.4 kW	24.5 kW	26.2 kW	35.5 kW
Nominal heat input range for heating	5.2 to 10.2 kW	5.2 to 15.3 kW	5.2 to 20.4 kW	5.2 to 25.5 kW	8.2 to 30.6 kW
Heating adjustment range	10.2 kW	5.2 to 15.3 kW	5.2 to 20.4 kW	5.2 to 25.5 kW	8.2 to 30.6 kW

#### Technical data - Heating

	VC 10	VC 15	VC 20	VC 25	VC 30
Max. flow temperature	85 °C	85 °C	85 °C	85 °C	85 °C
Flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Max. operating pressure, heating	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Nominal circulation water volume based on $\Delta T = 20 \text{ K}$	425 l/h	638 l/h	849 l/h	1,063 l/h	1,287 l/h
Remaining pump head at nominal circulation water volume	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)

#### Technical data - Electrics

	VC 10	VC 15	VC 20	VC 25	VC 30
Nominal voltage/mains frequency	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Fuse	4 A	4 A	4 A	4 A	4 A
Max. power consumption in heating mode	66 W	56 W	55 W	91 W	80 W
Max. power consumption in domestic hot water mode	75 W	75 W	75 W	90 W	110 W
Electrical standby energy consumption	< 2 W	< 2 W	< 2 W	< 2 W	< 2 W
IP rating	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D

### 2.9.4 Dimension drawing - ecoTEC plus VC 10 CS/1-5 to VC 30 CS/1-5

#### Dimension drawing - ecoTEC plus VC 10 CS/1-5 to VC 30 CS/1-5

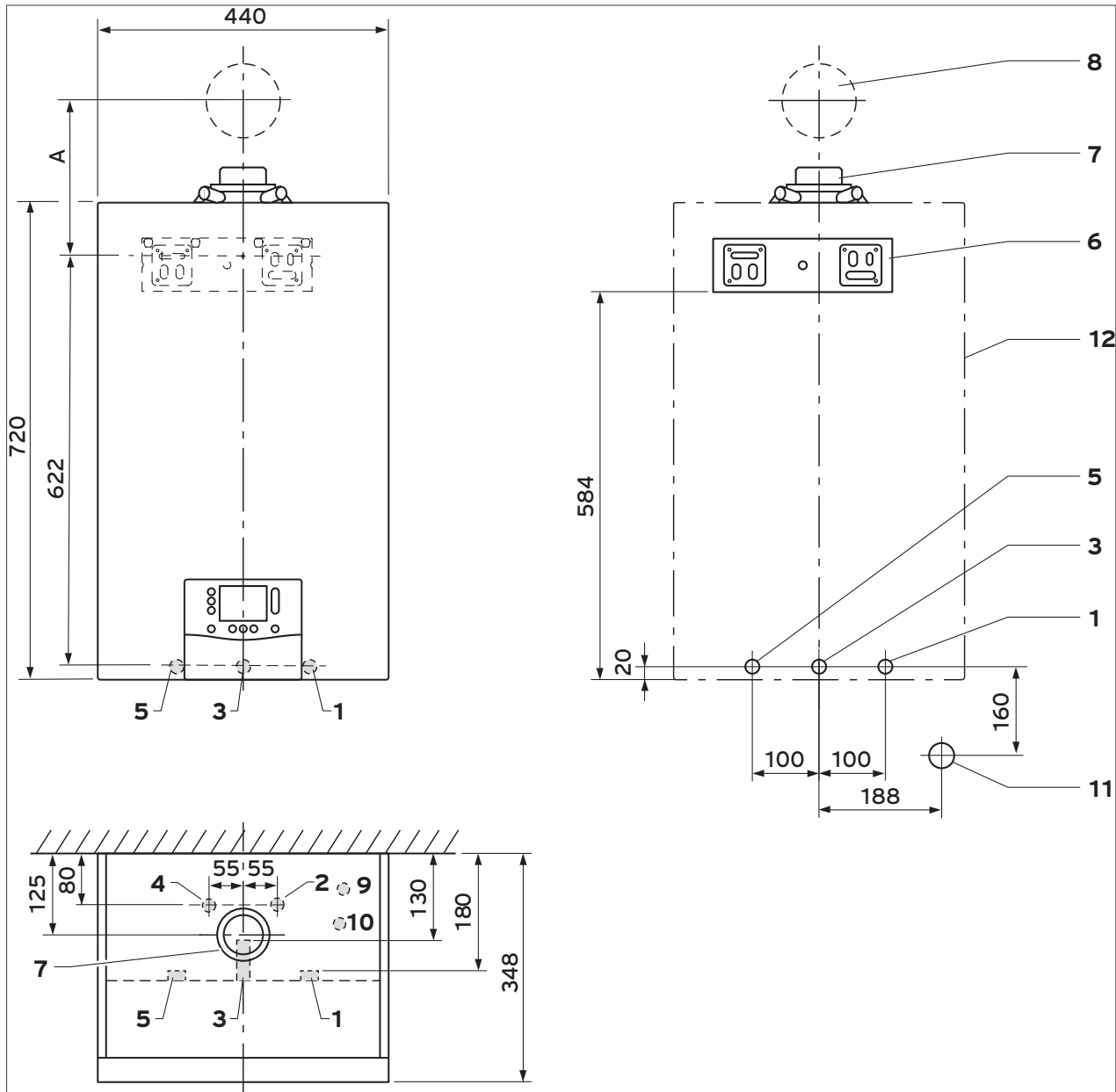


Fig. 24: Dimensions

- 1 G 3/4 heating return
- 2 Cylinder return
- 3 Gas connection, 20 × 1.5 diameter
- 4 Cylinder flow
- 5 G 3/4 heating flow
- 6 Unit mounting bracket
- 7 Air/flue pipe connection
- 8 Wall duct for air/flue pipe
- 9 Condensed water discharge connection, 20 diameter
- 10 Drain, 9 diameter
- 11 Tundish/siphon connection R 1
- 12 Upper edge of the casing

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	221
60/100 with 87° elbow and inspection opening, PP	221
80/125 with 87° elbow, PP	233
80/125 with inspection elbow, PP	258

## 2.10 Product description for the ecoTEC plus VCW



Fig. 25: ecoTEC plus VCW

### 2.10.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- **Modulation up to 1:8**
- Combi boiler with integrated domestic hot water generation operating on the flow-through principle
- Self-adapting combustion regulation for compensating for fluctuations in gas quality and the preventative boiler analysis
- ioniDETECT combustion regulation system
- Automatic partial load adjustment
- Aqua Power Plus up to 20% more domestic hot water output
- Aqua Comfort system plus, outlet temperature control and hot water without any waiting period
- Expanded domestic hot water function with fast response time between two draw-offs
- High-quality design and compact unit dimensions for easily replacing the heating system

- Illuminated graphic display with touch control elements
- Display for setting and monitoring internal unit functions and for operating the sensoDIRECT 710 single-circuit control
- Optional: Expansion using the VR 921 Internet module and the free-of-charge sensoNET app for mobile control operation
- Enhanced DIA system for simplified fault diagnostics
- Comfort protection programme for a reliable heat supply
- Can be combined with a solar system or a heat pump

### 2.10.2 Potential applications

- Compact unit for heating and domestic hot water generation (flow-through principle)
- For new builds and modernising houses and flats as well as multiple-flue configuration in flats (apartment building)
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed operation with system-certified flue system
- **Operating with natural gas E, LL and liquefied petroleum gas**

#### Note

A flue gas cascade is not possible.



### 2.10.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor, manometer, 10 litre expansion vessel, expansion relief valve
- Stainless steel integral condensation heat exchanger
- Stainless steel secondary heat exchanger
- Integrated control of an external heating circuit pump/circulation pump and a cylinder charging circuit (country-specific)
- Prioritising diverter valve
- sensoNET VR 921 Internet module can be ordered as an option
- Illuminated graphic display with touch control elements
- eBUS interface
- Diagnostics interface integrated

Type overview

Unit designation	Energy efficiency class		Gas type	Order no.
	Heating	Domestic hot water		
VCW 20/26 CS/1-5	A (A+++ to D)	A (A+ to F)	Natural gas G20, G25 Liquefied petroleum gas G31	
VCW 25/32 CS/1-5	A (A+++ to D)	A (A+ to F)	Natural gas G20, G25 Liquefied petroleum gas G31	

Update 07  
New technical data

Technical data - General

	VCW 20/26	VCW 25/32
Designated country (designation in accordance with ISO 3166)	DE	DE
Approved gas boiler category	II <sub>2N3P</sub>	II <sub>2N3P</sub>
CE PIN	0063CU3910	0063CU3910
Gas connection, boiler side	20 mm	20 mm
Flow/return heating connections, boiler side	G 3/4 "	G 3/4 "
Flow/return cylinder connections, boiler side	-	-
Domestic hot/cold water connections, boiler side	G 3/4 "	G 3/4 "
Expansion relief valve connection	15 mm	15 mm
Condensate discharge hose	19 mm	19 mm
Air/flue pipe connection	60/100 mm	60/100 mm
Gas connection pressure, G20 natural gas	2.0 kPa	2.0 kPa
Gas connection pressure, G25 natural gas	2.0 kPa	2.0 kPa
Gas connection pressure, G31 liquefied petroleum gas	5.0 kPa	5.0 kPa
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G20	2.8 m³/h	3.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G25	3.3 m³/h	4.0 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G31	1.1 m³/h	1.3 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G20	2.8 m³/h	3.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G25	3.3 m³/h	4.0 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G31	1.1 m³/h	1.3 m³/h
Min. flue gas temperature	35 °C	35 °C
Max. flue gas temperature	85 °C	85 °C
Approved unit types	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x
NOx class	6	6
NOx emission weighted	36.3 mg/kW-h	31.0 mg/kW-h
Weight (without packaging, without water)	36 kg	37 kg

Technical data - G20 output/heat input

	VCW 20/26	VCW 25/32
Nominal heat output range at 40/30 °C	3.4 to 22.1 kW	4.0 to 27.6 kW
Nominal heat output range at 50/30 °C	3.4 to 21.0 kW	3.8 to 27.0 kW
Nominal heat output range at 60/40 °C	3.2 to 20.9 kW	3.7 to 26.1 kW
Nominal heat output range at 80/60 °C	3.0 to 19.7 kW	3.5 to 25.0 kW
Max. heat input for heating	20.4 kW	25.5 kW
Heating min. heat input	3.2 kW	3.7 kW
Min. flue gas mass flow rate	1.51 g/s	1.68 g/s
Max. flue gas mass flow rate	13.83 g/s	17.89 g/s
Max. DHW heat output	25.7 kW	31.8 kW
DHW nominal heat input	26.5 kW	32.6 kW
Nominal heat input range for heating	3.2 to 20.4 kW	3.7 to 25.5 kW
Heating adjustment range	3.2 to 20.4 kW	3.7 to 25.5 kW

## Update 07

### New technical data

#### Technical data - G25 output/heat input

	VCW 20/26	VCW 25/32
Nominal heat output range at 40/30 °C	3.4 to 22.1 kW	4.0 to 27.6 kW
Nominal heat output range at 50/30 °C	3.4 to 21.0 kW	3.8 to 27.0 kW
Nominal heat output range at 60/40 °C	3.2 to 20.9 kW	3.7 to 26.1 kW
Nominal heat output range P at 80/60 °C	3.0 to 19.7 kW	3.5 to 25.0 kW
Max. heat input for heating	20.4 kW	25.5 kW
Heating min. heat input	3.2 kW	3.7 kW
Min. flue gas mass flow rate	1.55 g/s	1.80 g/s
Max. flue gas mass flow rate	13.34 g/s	16.47 g/s
Max. DHW heat output	25.7 kW	31.8 kW
DHW nominal heat input	26.5 kW	32.6 kW
Nominal heat input range for heating	3.2 to 20.4 kW	3.7 to 25.5 kW
Heating adjustment range	3.2 to 20.4 kW	3.7 to 25.5 kW

#### Technical data - G31 output/heat input

	VCW 20/26	VCW 25/32
Nominal heat output range at 40/30 °C	5.2 to 22.1 kW	8.7 to 27.6 kW
Nominal heat output range at 50/30 °C	5.4 to 21.0 kW	8.4 to 27.0 kW
Nominal heat output range at 60/40 °C	5.2 to 20.9 kW	8.3 to 26.1 kW
Nominal heat output range at 80/60 °C	4.8 to 19.7 kW	7.8 to 25.0 kW
Max. heat input for heating	20.4 kW	25.5 kW
Heating min. heat input	5.2 kW	8.2 kW
Min. flue gas mass flow rate	2.43 g/s	4.14 g/s
Max. flue gas mass flow rate	12.88 g/s	18.84 g/s
Max. DHW heat output	25.4 kW	31.8 kW
DHW nominal heat input	26.2 kW	32.6 kW
Nominal heat input range for heating	5.2 to 20.4 kW	8.2 to 25.5 kW
Heating adjustment range	5.2 to 20.4 kW	8.2 to 25.5 kW

#### Technical data - Heating

	VCW 20/26	VCW 25/32
Max. flow temperature	85 °C	85 °C
Flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C	30 to 80 °C
Max. operating pressure, heating	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Nominal circulation water volume based on $\Delta T = 20$ K	849 l/h	1,074 l/h
Remaining pump head at nominal circulation water volume	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)

Update 07  
New technical data

**Technical data - Domestic hot water**

	VCW 20/26	VCW 25/32
Start-up flow rate	2 l/min	2 l/min
Specific flow rate D ( $\Delta T = 30 \text{ K}$ ) (EN 13203-1)	12.2 l/min G31: 12.1 l/min	15.1 l/min
Permissible operating pressure	0.03 to 1.0 MPa (0.30 to 10.0 bar)	0.03 to 1.0 MPa (0.30 to 10.0 bar)
Required connection pressure	0.07 MPa (0.70 bar)	0.07 MPa (0.70 bar)
Domestic hot water temperature adjustment range	35 to 65 °C	35 to 65 °C
Flow rate limiter	8.7 l/min	10.4 l/min
Classification in accordance with the total comfort factor (EN 13203-1)	* * *	* * *

**Technical data - Electrics**

	VCW 20/26	VCW 25/32
Nominal voltage/mains frequency	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V
Fuse	4 A	4 A
Max. power consumption in heating mode	55 W	84 W
Max. power consumption in domestic hot water mode	75 W	95 W
Electrical standby energy consumption	< 2 W	< 2 W
IP rating	IP X4 D	IP X4 D

2.10.4 Dimension drawing - ecoTEC plus VCW 20/26 CS/1-5 and VCW 25/32 CS/1-5

Dimension drawing - ecoTEC plus VCW 20/26 CS/1-5 and VCW 25/32 CS/1-5

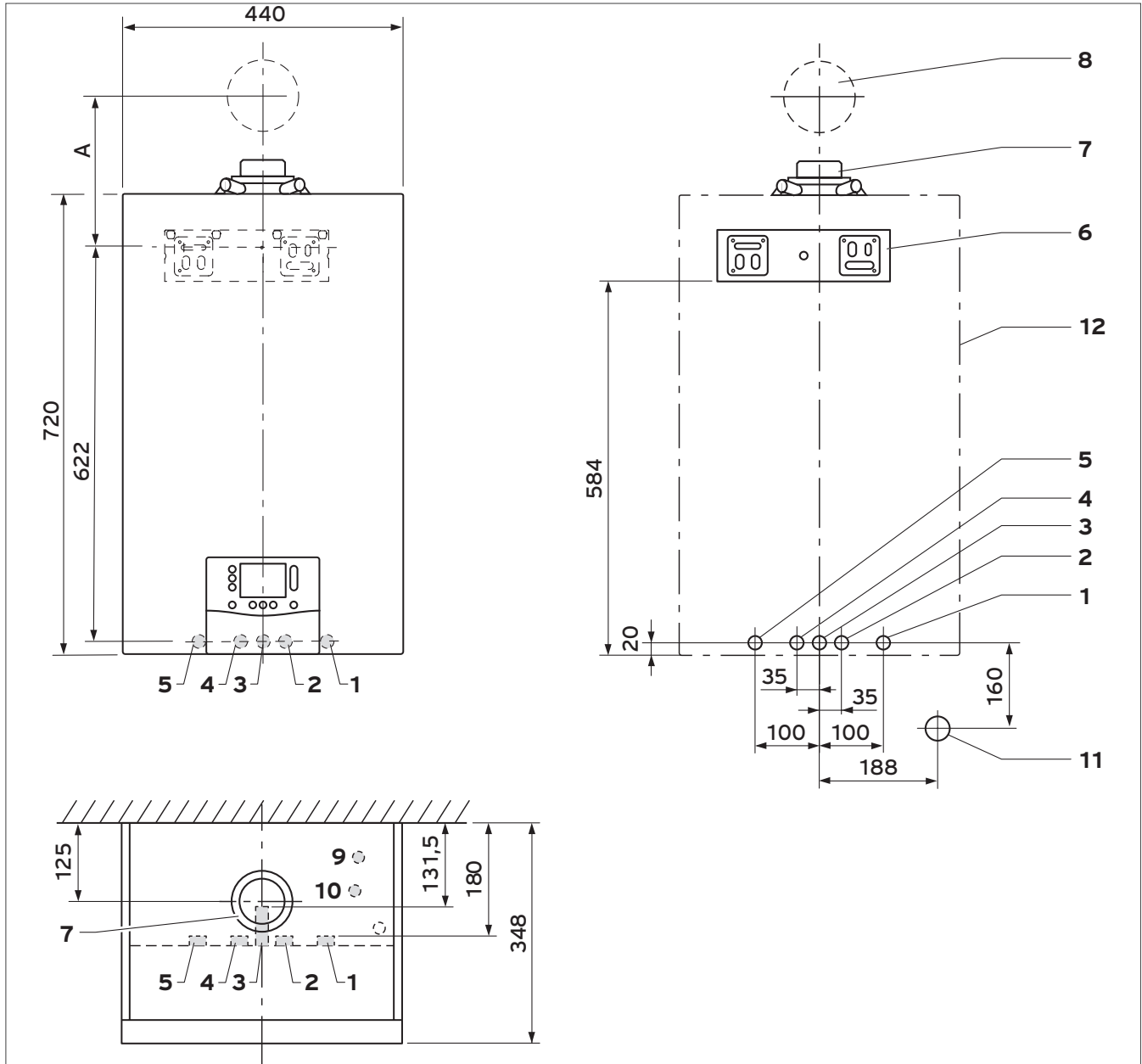


Fig. 26: Dimensions

- 1 G 3/4 heating return
- 2 G 3/4 cold water connection
- 3 Gas connection, 20 x 1.5 diameter
- 4 G 3/4 domestic hot water connection
- 5 G 3/4 heating flow
- 6 Unit mounting bracket
- 7 Air/flue pipe connection
- 8 Wall duct for air/flue pipe
- 9 Condensed water discharge connection, 20 diameter
- 10 Drain, 9 diameter
- 11 Tundish/siphon connection R 1
- 12 Upper edge of the casing

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	221
60/100 with 87° elbow and inspection opening, PP	221
80/125 with 87° elbow, PP	233
80/125 with inspection elbow, PP	258



## 2.11 Product description for the ecoTEC plus VCI



Fig. 27: ecoTEC plus VCI

### 2.11.1 Special features

- Standard efficiency 98% (H<sub>s</sub>)/109% (H<sub>i</sub>)
- **Modulation up to 1:8**
- Combi boiler with downstream shift-load cylinder for high domestic hot water comfort in the smallest of spaces
- Self-adapting combustion regulation for compensating for fluctuations in gas quality and the preventative boiler analysis
- ioniDETECT combustion regulation system
- Automatic partial load adjustment
- Aqua Power Plus up to 20% more domestic hot water output
- Aqua Comfort system plus, outlet temperature control and hot water without any waiting period
- High-quality design and compact unit dimensions for easily replacing the heating system
- Illuminated graphic display with touch control elements
- Display for setting and monitoring internal unit functions and for operating the sensoDIRECT 710 single-circuit control

- Optional: Expansion using the VR 921 Internet module and the free-of-charge sensoNET app for mobile control operation
- Enhanced DIA system for simplified fault diagnostics
- Comfort protection programme for a reliable heat supply
- Can be combined with a solar system or a heat pump

### 2.11.2 Potential applications

- Heating and domestic hot water generation (with a shift-load cylinder)
- For new builds and modernising single-occupancy houses and flats as well as multiple-flue configuration in flats (apartment building) with very limited space
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed operation with system-certified flue system
- **Operating with natural gas E, LL and liquefied petroleum gas**

#### Note

A flue gas cascade is not possible.



### 2.11.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor and manometer, 10 litre expansion vessel, expansion relief valve, 20 litre stainless steel cylinder, high-efficiency shift-load pump, TW expansion relief valve, 1 litre potable water expansion vessel, connection pipes and cylinder sensor
- Stainless steel secondary heat exchanger
- Integrated control of an external heating circuit pump/ circulation pump and a cylinder charging circuit (country-specific)
- Prioritising diverter valve
- sensoNET VR 921 Internet module can be ordered as an option
- Illuminated graphic display with touch control elements
- eBUS interface
- Diagnostics interface integrated

Type overview

Unit designation	Energy efficiency class		Gas type	Order no.
	Heating	Domestic hot water		
VCI 20/26 CS/1-5	A (A+++ to D)	A (A+ to F)	Natural gas G20, G25 Liquefied petroleum gas G31	
VCI 25/32 CS/1-5	A (A+++ to D)	A (A+ to F)	Natural gas G20, G25 Liquefied petroleum gas G31	

## Update 07

### New technical data

#### Technical data - General

	VCI 20/26	VCI 25/32
Designated country (designation in accordance with ISO 3166)	DE	DE
Approved gas boiler category	I <sub>2N</sub> , I <sub>3P</sub>	I <sub>2N</sub> , I <sub>3P</sub>
CE number	0063CU3910	0063CU3910
Gas connection, boiler side	20 mm	20 mm
Flow/return heating connections, boiler side	G 3/4 "	G 3/4 "
Flow/return cylinder connections, boiler side	G 1/2 "	G 1/2 "
Domestic hot/cold water connections, boiler side	G 3/4"	G 3/4"
Expansion relief valve connection	15 mm	15 mm
Condensate discharge hose	19 mm	19 mm
Air/flue pipe connection	60/100 mm	60/100 mm
Gas connection pressure, G20 natural gas	2.0 kPa	2.0 kPa
Gas connection pressure, G25 natural gas	2.0 kPa	2.0 kPa
Gas connection pressure, G31 natural gas	5.0 kPa	5.0 kPa
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G20	2.8 m³/h	3.4 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G20	2.8 m³/h	3.4 m³/h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	3.3 m³/h	4.0 m³/h
Gas flow rate at 15 °C and 1013 mbar (based on heating mode, if applicable), G25	3.3 m³/h	4.0 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (domestic hot water generation), G31	1.10 m³/h	1.30 m³/h
Max. gas volume based on 15 °C and 1013 mbar, dry gas (heating mode), G31	1.10 m³/h	1.30 m³/h
Min. flue gas temperature	35 °C	35 °C
Maximum flue gas temperature	85 °C	85 °C
Approved unit types	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x	B23(P), B33, B53(P), C13x, C33x, C43x, C53x, C83x, C93x
NOx class	6	6
NOx emission weighted	36.3 mg/kW-h	31.0 mg/kW-h
Weight (without packaging, without water)	55 kg	57 kg
Weight, when unit is ready for operation	82 kg	84 kg

#### Technical data - G20 power/load G20

	VCI 20/26	VCI 25/32
Nominal heat output range at 40/30 °C	3.4 to 22.1 kW	4.0 to 27.6 kW
Nominal heat output range at 50/30 °C	3.4 to 21.0 kW	3.8 to 27.0 kW
Nominal heat output range at 60/40 °C	3.2 to 20.9 kW	3.7 to 26.1 kW
Nominal heat output range at 80/60 °C	3.0 to 19.7 kW	3.5 to 25.0 kW
Max. heat input for heating	20.4 kW	25.5 kW
Heating min. heat input	3.2 kW	3.7 kW
Min. flue gas mass flow rate	1.51 g/s	1.68 g/s
Max. flue gas mass flow rate	13.83 g/s	17.89 g/s
Max. DHW heat output	25.7 kW	31.8 kW
Domestic hot water nominal heat input	26.5 kW	32.6 kW
Nominal heat input range for heating	3.2 to 20.4 kW	3.7 to 25.5 kW
Heating adjustment range	3.2 to 20.4 kW	3.7 to 25.5 kW

Update 07  
New technical data

Technical data - G25 power/load

	VCI 20/26	VCI 25/32
Nominal heat output range at 40/30 °C	3.4 to 22.1 kW	4.0 to 27.6 kW
Nominal heat output range at 50/30 °C	3.4 to 21.0 kW	3.8 to 27.0 kW
Nominal heat output range at 60/40 °C	3.2 to 20.9 kW	3.7 to 26.1 kW
Nominal heat output range at 80/60 °C	3.0 to 19.7 kW	3.5 to 25.0 kW
Max. heat input for heating	20.4 kW	25.5 kW
Heating min. heat input	3.2 kW	3.7 kW
Min. flue gas mass flow rate	1.55 g/s	1.80 g/s
Max. flue gas mass flow rate	13.34 g/s	16.47 g/s
Max. DHW heat output	25.7 kW	31.8 kW
Domestic hot water nominal heat input	26.5 kW	32.6 kW
Nominal heat input range for heating	3.2 to 20.4 kW	3.7 to 25.5 kW
Heating adjustment range	3.2 to 20.4 kW	3.7 to 25.5 kW

Technical data - Power/loading G31

	VCI 20/26	VCI 25/32
Nominal heat output range at 40/30 °C	5.2 to 22.1 kW	8.7 to 27.6 kW
Nominal heat output range at 50/30 °C	5.4 to 21.0 kW	8.4 to 27.0 kW
Nominal heat output range at 60/40 °C	5.2 to 20.9 kW	8.3 to 26.1 kW
Nominal heat output range at 80/60 °C	4.8 to 19.7 kW	7.8 to 25.0 kW
Max. heat input for heating	20.4 kW	25.5 kW
Heating min. heat input	5.2 kW	8.2 kW
Min. flue gas mass flow rate	2.43 g/s	4.14 g/s
Max. flue gas mass flow rate	12.88 g/s	18.84 g/s
Max. DHW heat output	25.4 kW	31.8 kW
Domestic hot water nominal heat input	26.2 kW	32.6 kW
Nominal heat input range for heating	5.2 to 20.4 kW	8.2 to 25.5 kW
Heating adjustment range	5.2 to 20.4 kW	8.2 to 25.5 kW

Technical data - Heating

	VCI 20/26	VCI 25/32
Maximum flow temperature	85 °C	85 °C
Max. flow temperature adjustment range (factory setting: 75 °C)	15 to 80 °C	15 to 80 °C
Maximum operating pressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Circulation water volume (with reference to $\Delta T = 20$ K)	849 l/h	1,074 l/h
Remaining pump head (at nominal circulation water volume)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)

Update 07  
New technical data

**Technical data - Domestic hot water mode**

	VCI 20/26	VCI 25/32
Lowest water volume	2 l/min	2 l/min
Specific flow rate D ( $\Delta T = 30\text{ K}$ ) (EN 13203-1)	15 l/min	18.5 l/min
Specific flow rate D ( $\Delta T = 30\text{ K}$ ) (EN 13203-1), G31	14.8 l/min	18.5 l/min
Permissible operating pressure	0.03 to 1.0 MPa (0.30 to 10.0 bar)	0.03 to 1.0 MPa (0.30 to 10.0 bar)
Required connection pressure	0.07 MPa (0.70 bar)	0.07 MPa (0.70 bar)
Domestic hot water output temperature range	35 to 65 °C	35 to 65 °C
Flow rate limiter	14 l/min	14 l/min
Classification of the domestic hot water comfort (EN 13203-1)	***	***
Cylinder capacity	20.0 l	20.0 l

**Technical data - Electrics**

	VCI 20/26	VCI 25/32
Electrical connection	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	4 A	4 A
Max. electrical power consumption for heating mode	55 W	84 W
Max. power consumption in domestic hot water mode	95 W	115 W
Standby electrical power consumption	< 2 W	< 2 W
IP rating	IP X4 D	IP X4 D

### 2.11.4 Dimension drawing - ecoTEC plus VCI 20/26 CS/1-5 and VCI 25/32 CS/1-5

#### Dimension drawing - ecoTEC plus VCI 20/26 CS/1-5 and VCI 25/32 CS/1-5

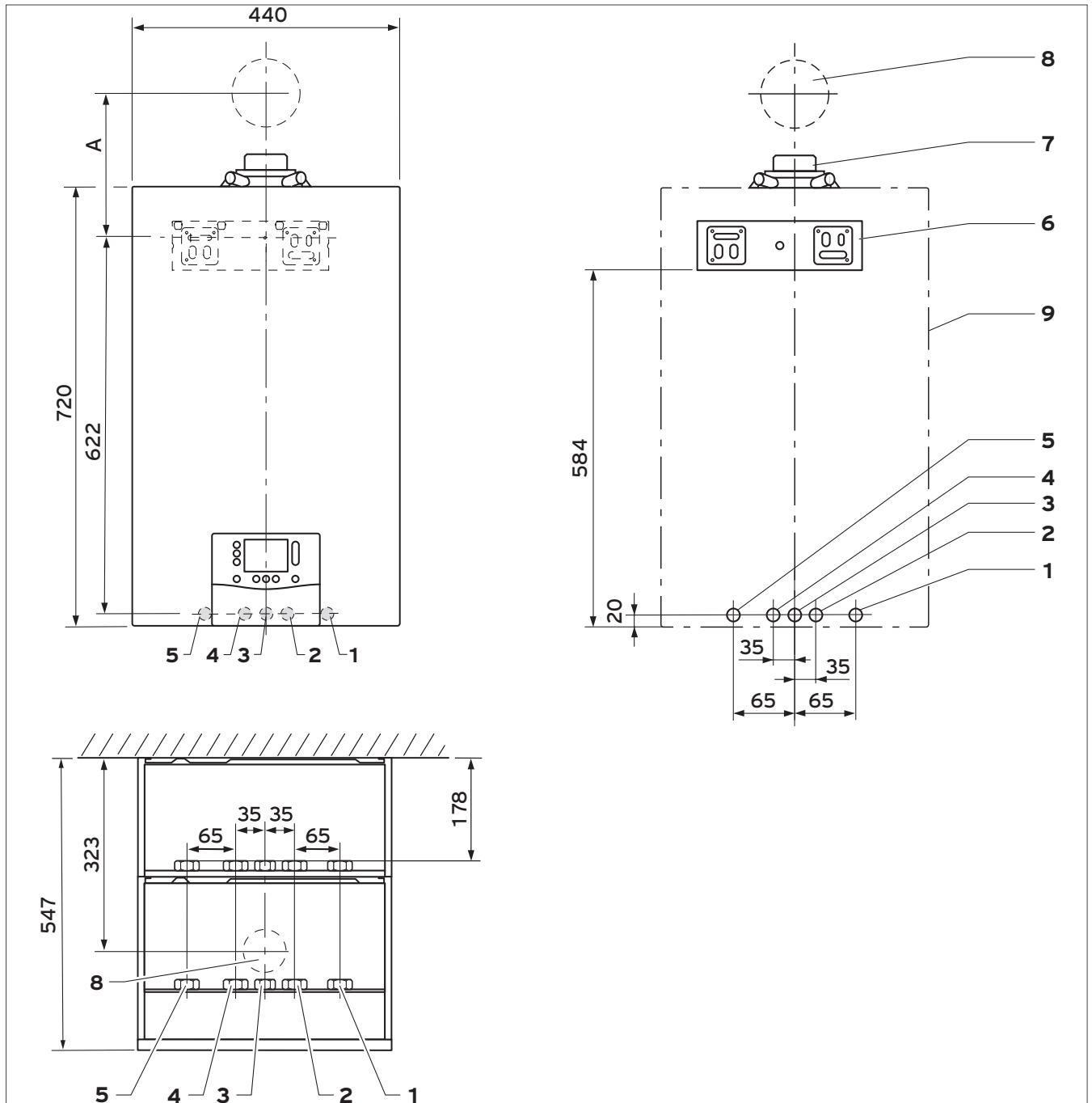


Fig. 28: Dimensions

- 1 G 3/4 heating return
- 2 G 3/4 cold water connection
- 3 Gas connection, 20 x 1.5 diameter
- 4 G 3/4 domestic hot water connection
- 5 G 3/4 heating flow
- 6 Unit mounting bracket
- 7 Air/flue pipe connection
- 8 Wall duct for air/flue pipe
- 9 Upper edge of the casing

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	223
60/100 with 87° elbow and inspection opening, PP	223
80/125 with 87° elbow, PP	233
80/125 with inspection elbow, PP	258

## 2.12 Supplementary information for the ecoTEC plus VC/VCW/VCI

### 2.12.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

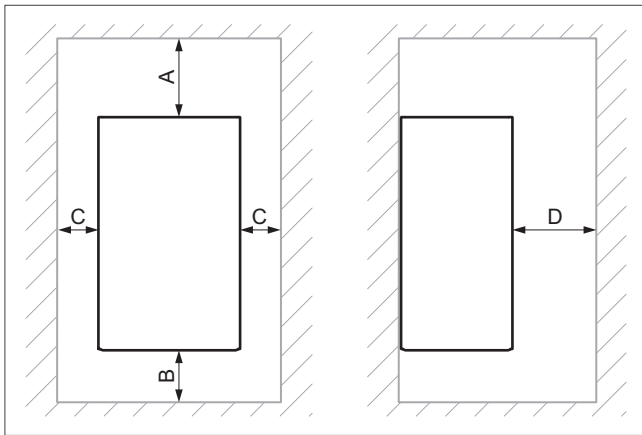


Fig. 29: Minimum clearances

	Minimum clearance
A	60/100 mm diameter air/flue pipe: 248 mm 80/80 mm diameter air/flue pipe: 220 mm 80/125 mm diameter air/flue pipe: 276 mm
B	160 mm
C	50 mm
D	500 mm

### 2.12.2 Pump curve

Validity: VC 10CS/1-5 (N-DE) OR VC 15CS/1-5 (N-DE) OR VC 20CS/1-5 (N-DE) OR VC 25CS/1-5 (N-DE) OR VCW 20/26CS/1-5 (N-DE)

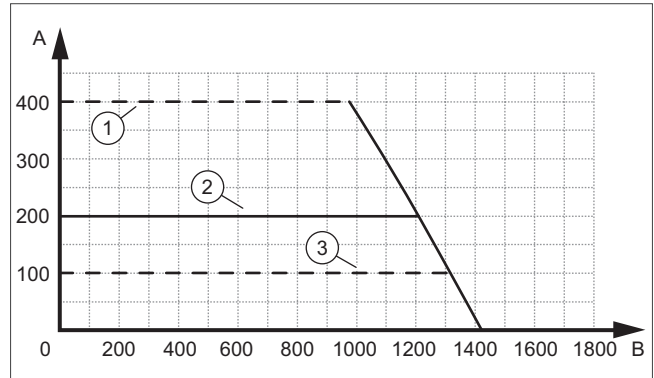


Fig. 30: Pump curve

- A Pressure [mbar]
- 1 Maximum pressure
- 2 Factory setting
- B Flow rate [l/h]
- 3 Minimum pressure

Validity: VC 30CS/1-5 (N-DE) OR VCW 25/32CS/1-5 (N-DE)

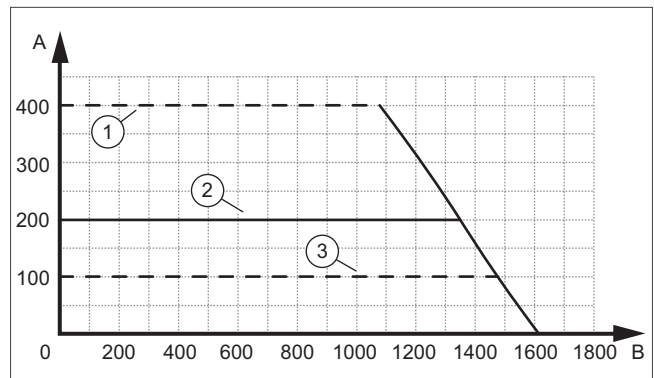


Fig. 31: Pump curve

- A Pressure [mbar]
- 1 Maximum pressure
- 2 Factory setting
- B Flow rate [l/h]
- 3 Minimum pressure

Update 07  
New Pump curve

Validity: VCI 20/26CS/1-5 (N-DE)

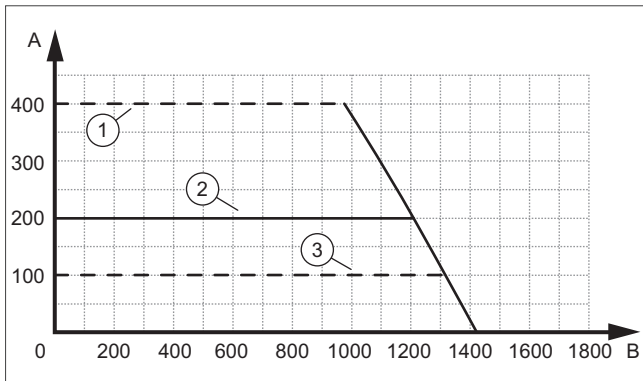


Fig. 32: Pump curve

- A Pressure [mbar]
- 1 Maximum pressure
- 2 Factory setting
- B Flow rate [l/h]
- 3 Minimum pressure

Validity: VCI 25/32CS/1-5 (N-DE)

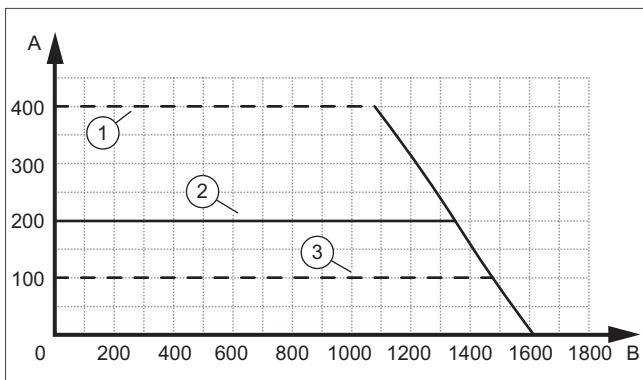


Fig. 33: Pump curve

- A Pressure [mbar]
- 1 Maximum pressure
- 2 Factory setting
- B Flow rate [l/h]
- 3 Minimum pressure

## 2.13 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus					uniSTOR exclusive			uniSTOR plus			actoSTOR		
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH Q 75/2 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH QL 75/2 B (NL 1.7)	VIH K 300 (NL 10.0)
ecoTEC plus xx - 30.0 kW	VC 10 CS/1-5	•	•	•	•	•	•	-	•	o	o	o	o	o	o	-	-	-
	VC 15 CS/1-5	•	•	•	•	•	•	-	•	o	o	o	o	o	o	-	-	-
	VC 20 CS/1-5	•	•	•	•	•	•	-	•	•	o	o	•	o	o	-	-	-
	VC 25 CS/1-5	•	•	•	•	•	•	-	•	•	o	o	•	o	o	-	-	-
	VC 30 CS/1-5	•	•	•	•	•	•	-	o	•	•	•	•	•	•	-	-	-
	VCW 20/26 CS/1-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-
	VCW 25/32 CS/1-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-

- Recommended
- o Recommended under certain circumstances
- Not recommended



## 2.14 Basic system diagrams and wiring diagrams

### 2.14.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 2.14.2 Overview of the basic system diagrams and wiring diagrams

Overview of the basic system diagrams and wiring diagrams

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020220683	ecoTEC plus VCW < 30 kW	VRT 380	–	1 HC	–	–	–	–
0020284725	ecoTEC plus VCW < 30 kW	VRC 710, VR 921, VR 50, VR 51	–	1 HC	–	–	–	–
0020222843	ecoTEC plus VCW < 30 kW	VRC 720	–	1 HC	–	–	–	–
0020222844	ecoTEC plus VCW < 30 kW	VRC 720, VR 71, VR 92	–	2 HC	–	–	–	–
0020222846	ecoTEC plus VC < 30 kW	VRC 720, VR 71, VR 92	–	2 HC	–	–	–	uniSTOR VIH R
0020220678	ecoTEC plus VC < 30 kW	VRC 720, VR 70	–	1 UFH	–	•	•	auroSTOR VIH S
0020212732	ecoTEC plus VC < 30 kW	VRC 720, VR 71, VR 92	3 UFH	–	Low loss header	–	–	uniSTOR VIH R
0020220310	ecoTEC plus VC < 30 kW	VRC 720, VR 71, VR 92, VR 32/3	3 UFH	–	Low loss header	–	–	uniSTOR VIH R

0020220683 - Basic hydraulic diagram

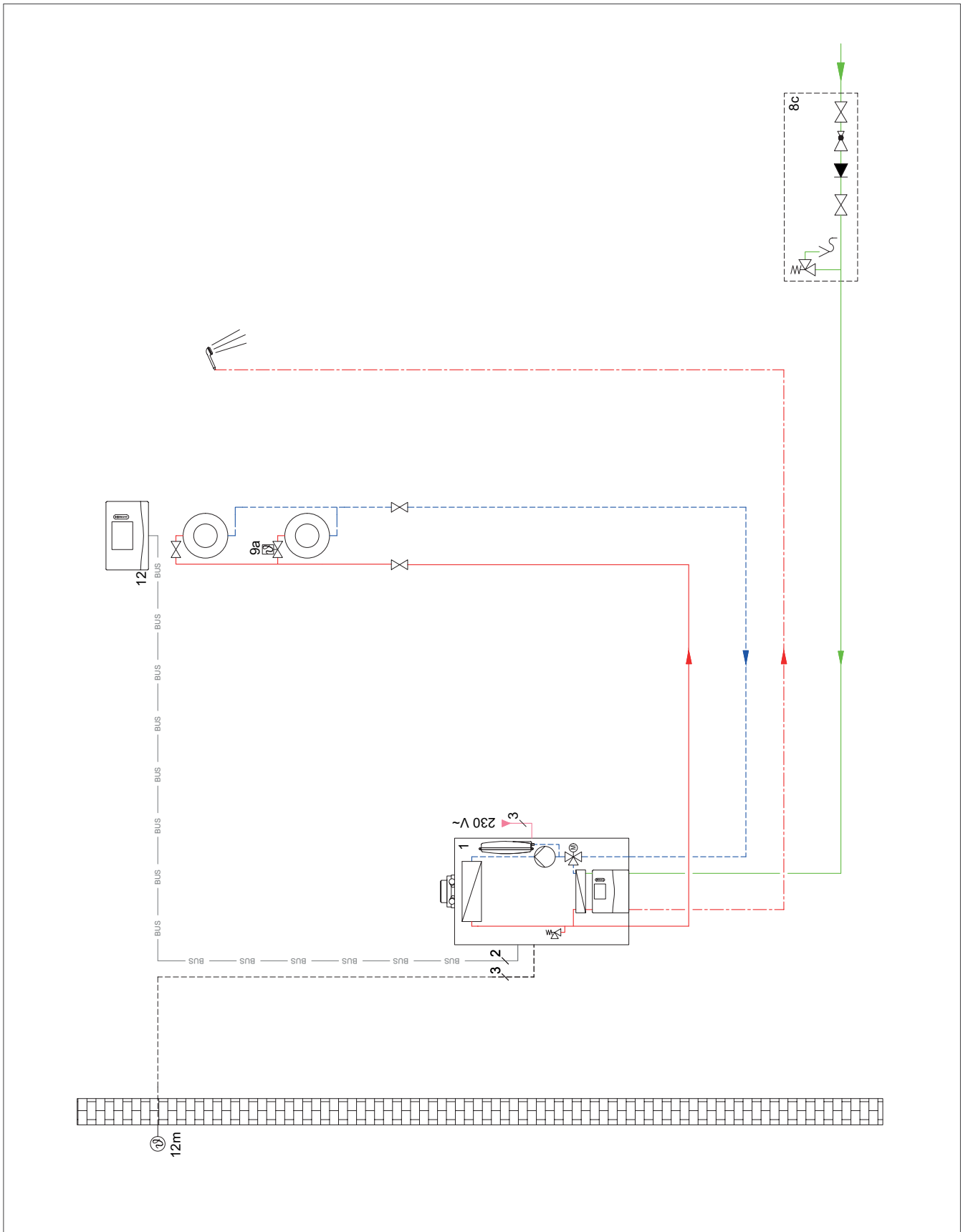


Fig 34: Basic hydraulic diagram

0020220683 - Wiring diagram

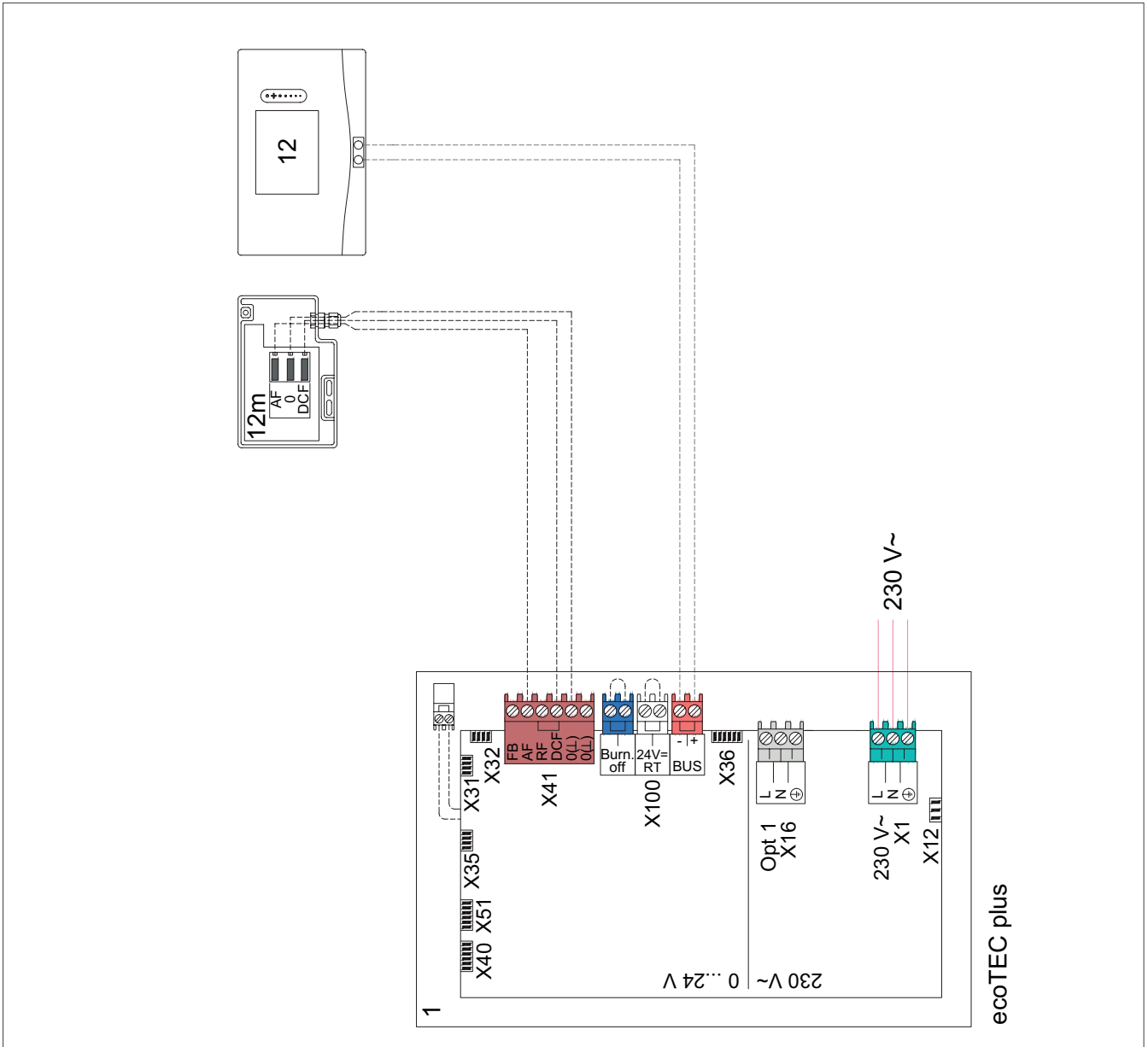


Fig 35: Wiring diagram

- Individual components**
- ecoTEC plus VCW < 30 kW
  - VRT 380

0020284725 - Basic hydraulic diagram

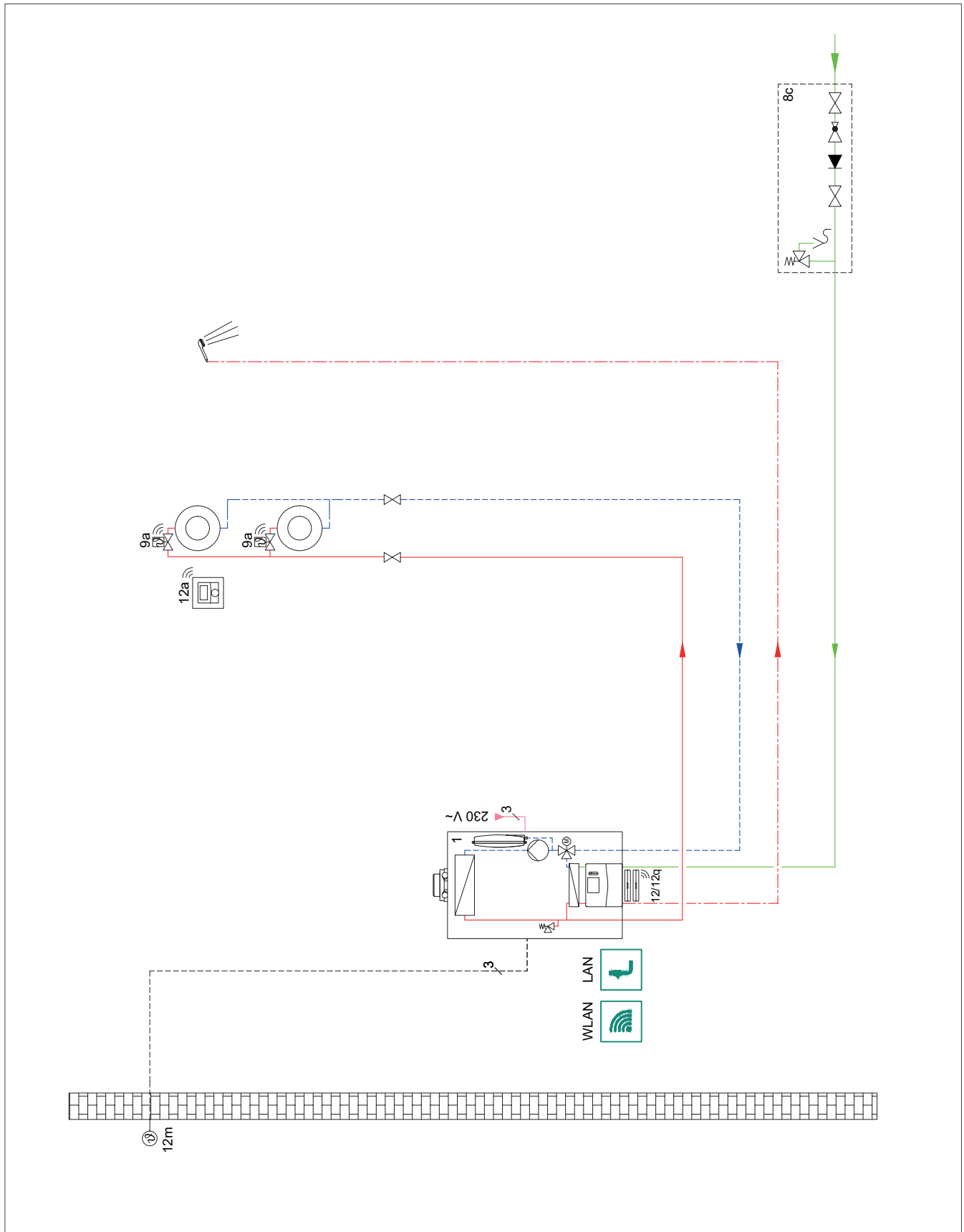


Fig 36: Basic hydraulic diagram

0020284725 - Wiring diagram

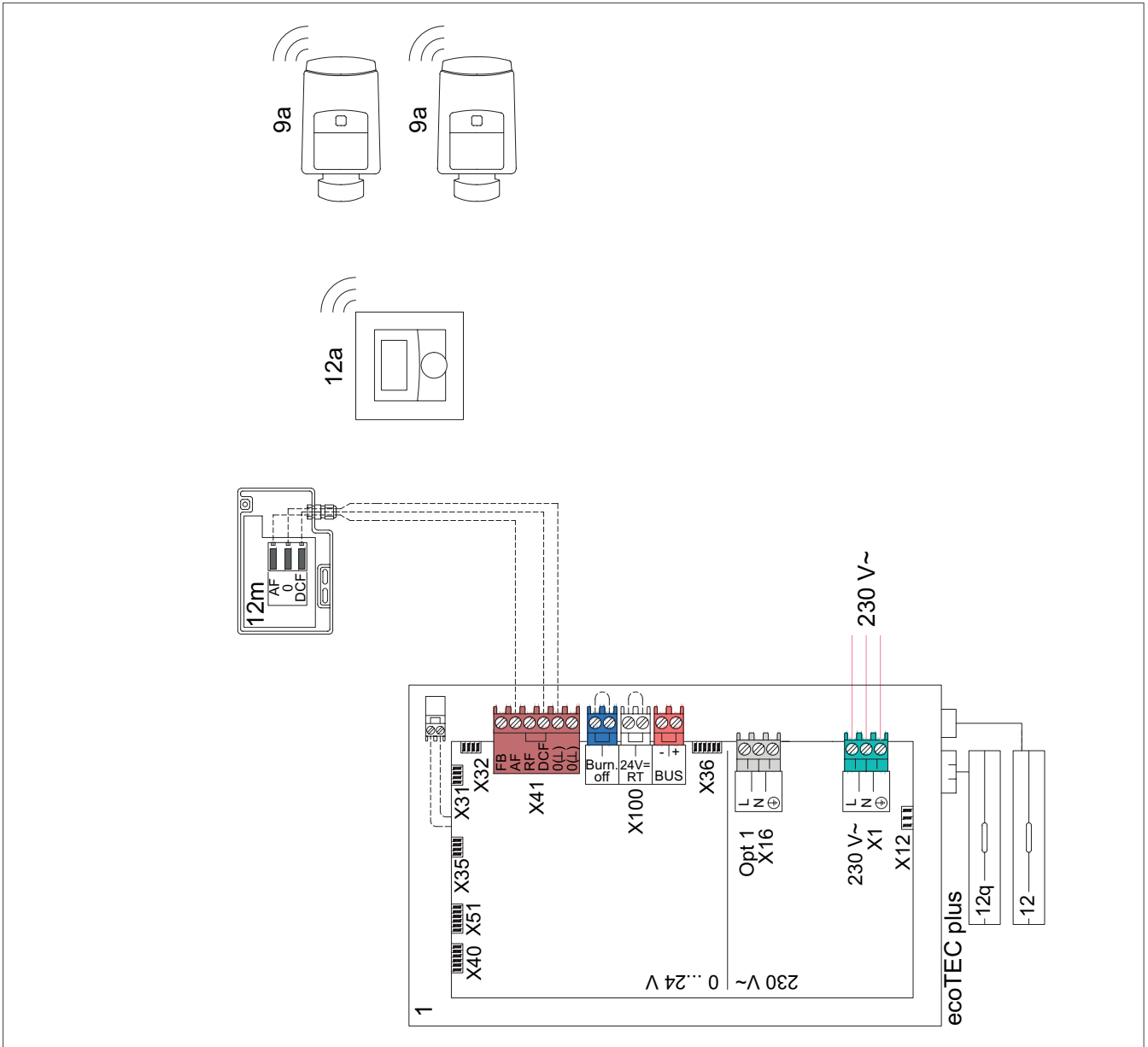


Fig 37: Wiring diagram

Individual components

- ecoTEC plus vCW < 30 kW
- VRC 710
- VR 921
- VR 50
- VR 51

0020222843 - Basic hydraulic diagram

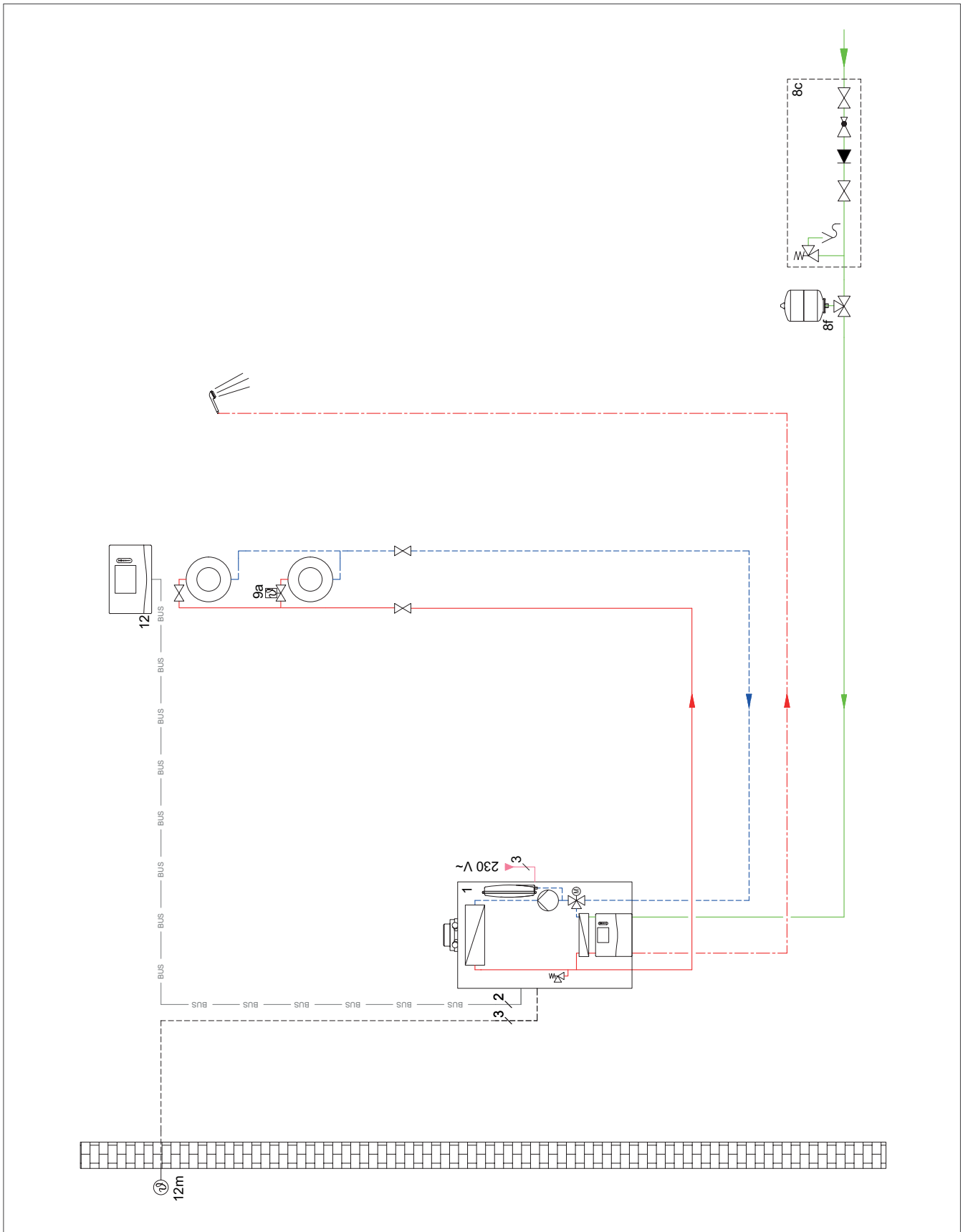


Fig 38: Basic hydraulic diagram



0020222843 - Wiring diagram

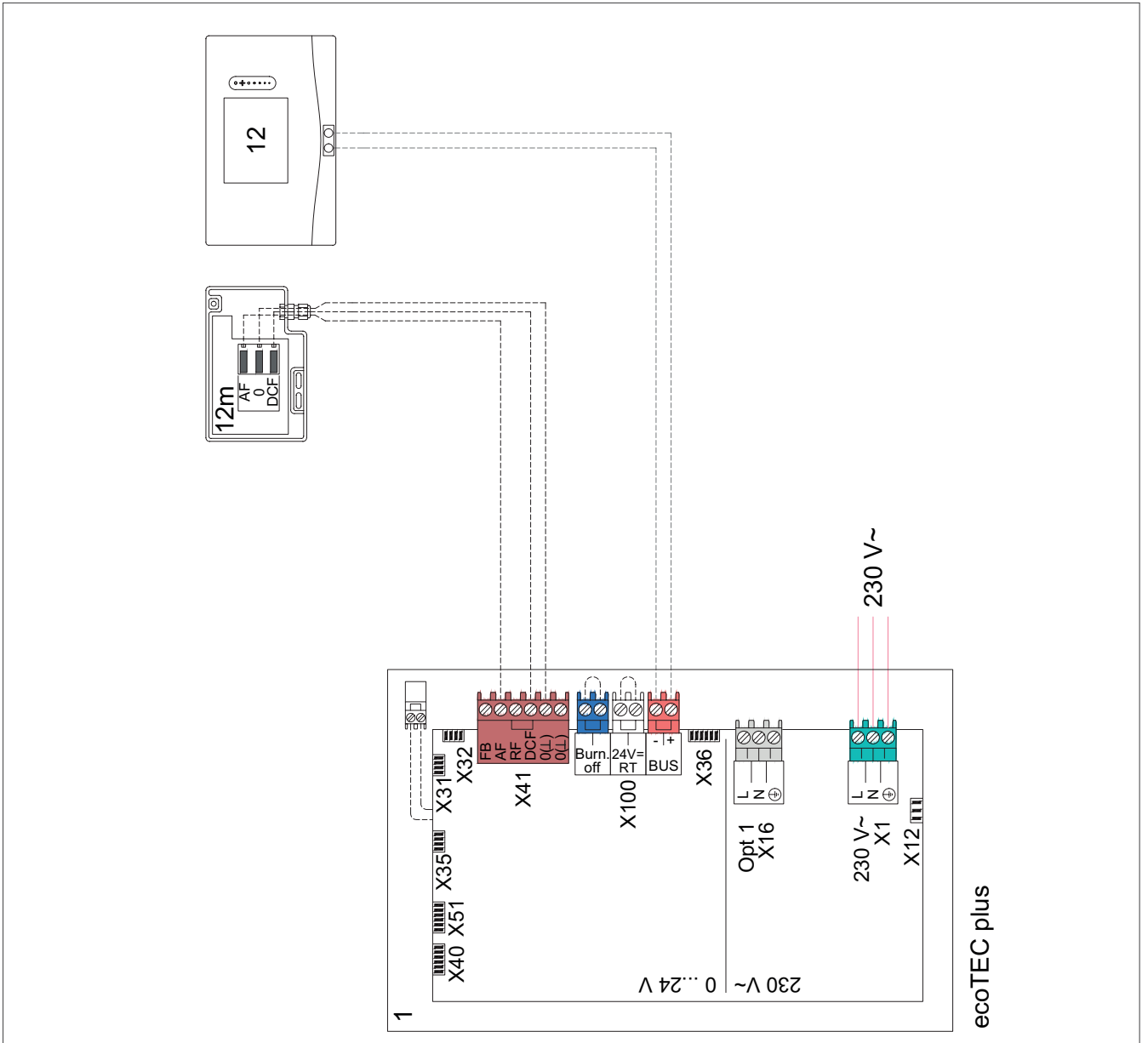


Fig 39: Wiring diagram

**Individual components**

- ecoTEC plus VCW < 30 kW
- VRC 720

**Setting**

VRC 720 System diagram setting: 1

0020222844 - Basic hydraulic diagram

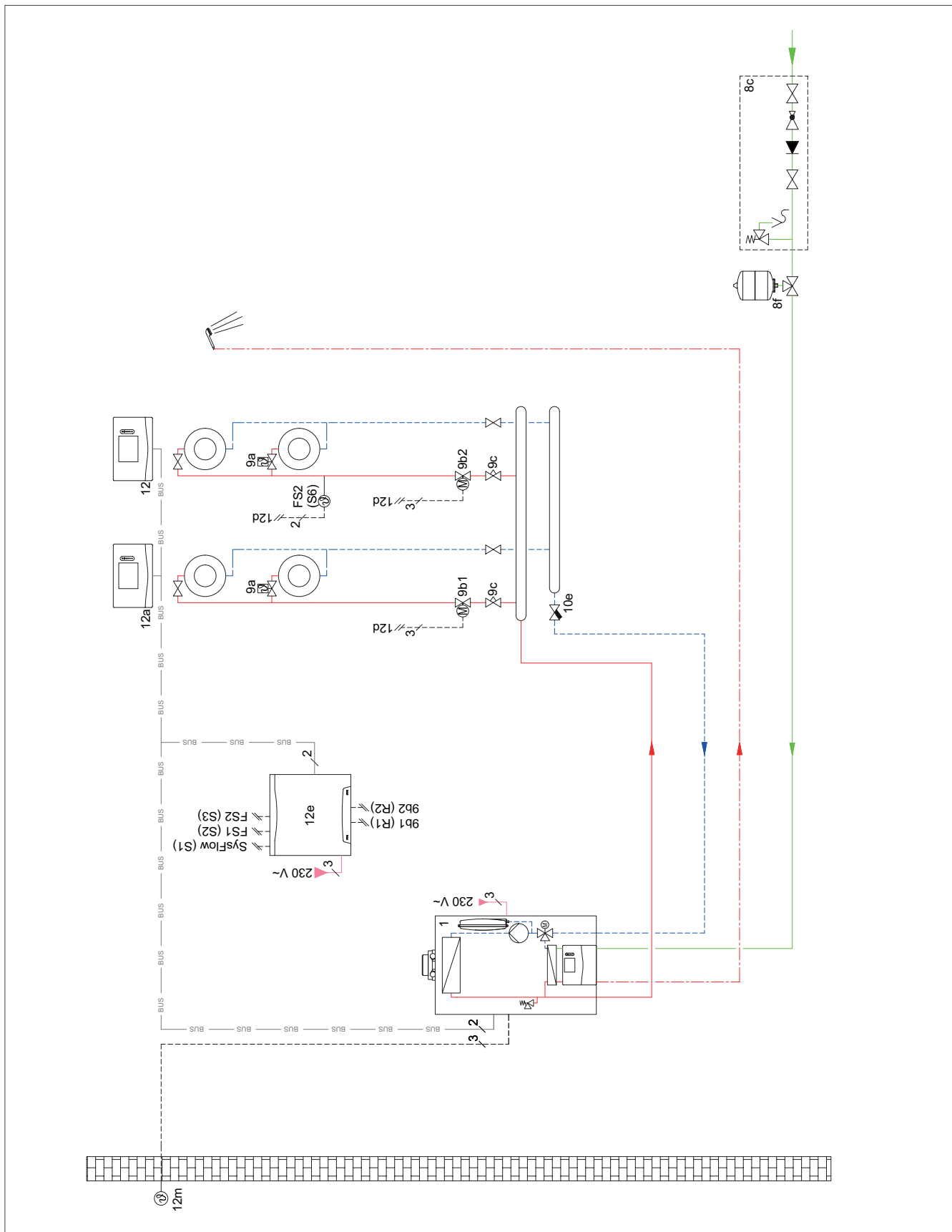


Fig 40: Basic hydraulic diagram

0020222844 - Wiring diagram

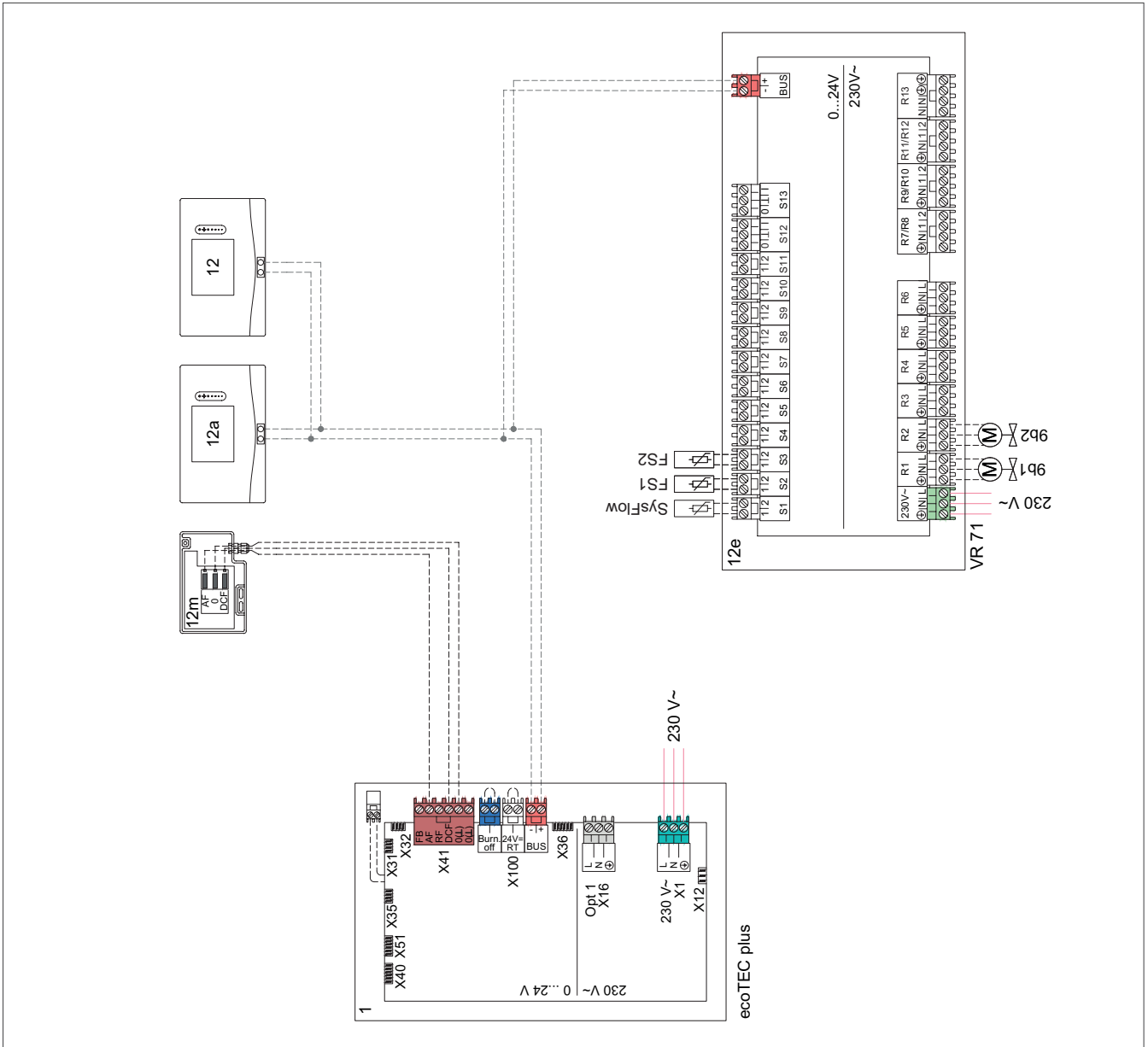


Fig 41: Wiring diagram

**Individual components**

- ecoTEC plus VCW < 30 kW
- VRC 720
- VR 71
- VR 92

**Setting**

- VRC 720 System diagram setting: 1
- FM 5 Module setting: 3

0020222846 - Basic hydraulic diagram

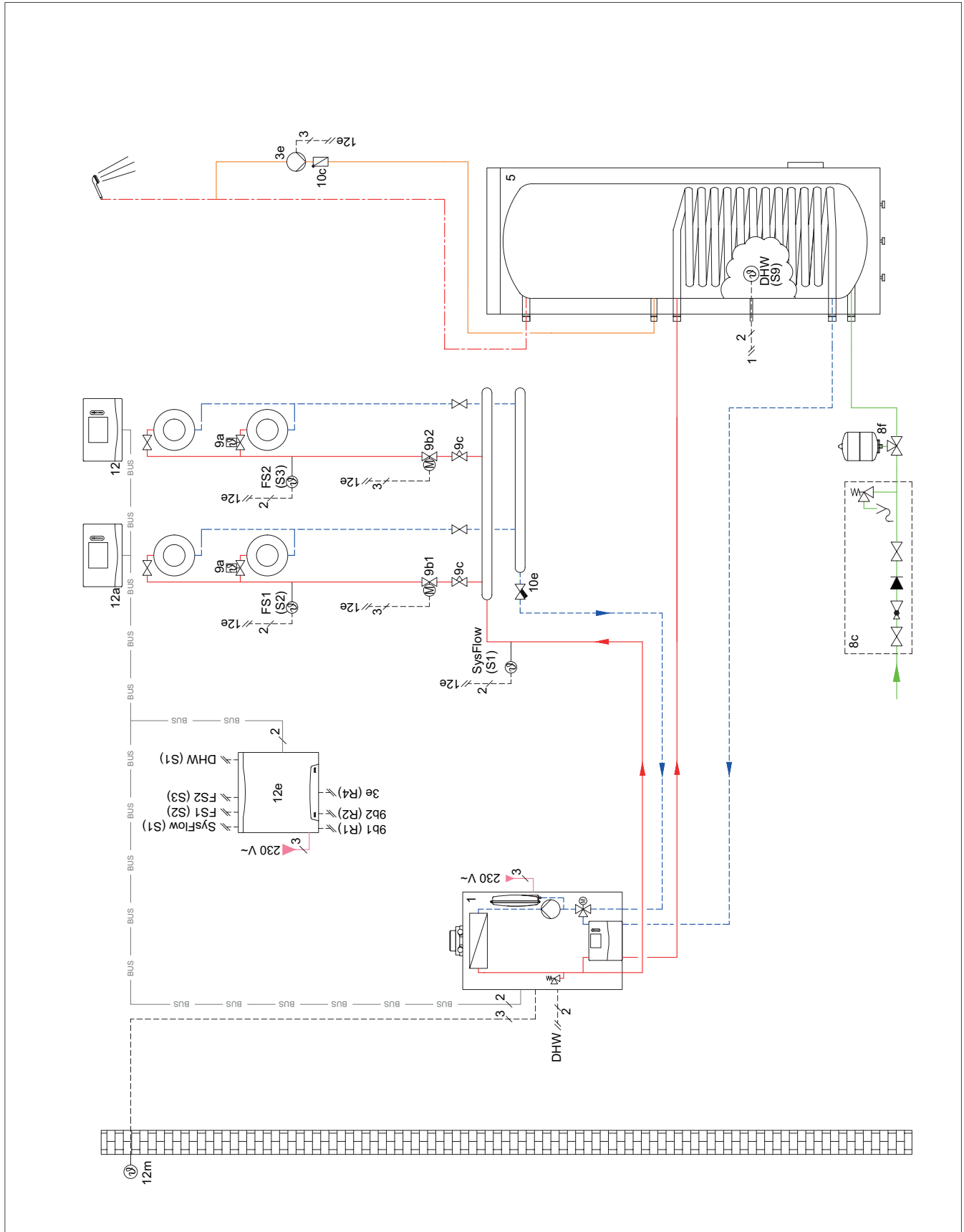


Fig 42: Basic hydraulic diagram

0020222846 - Wiring diagram

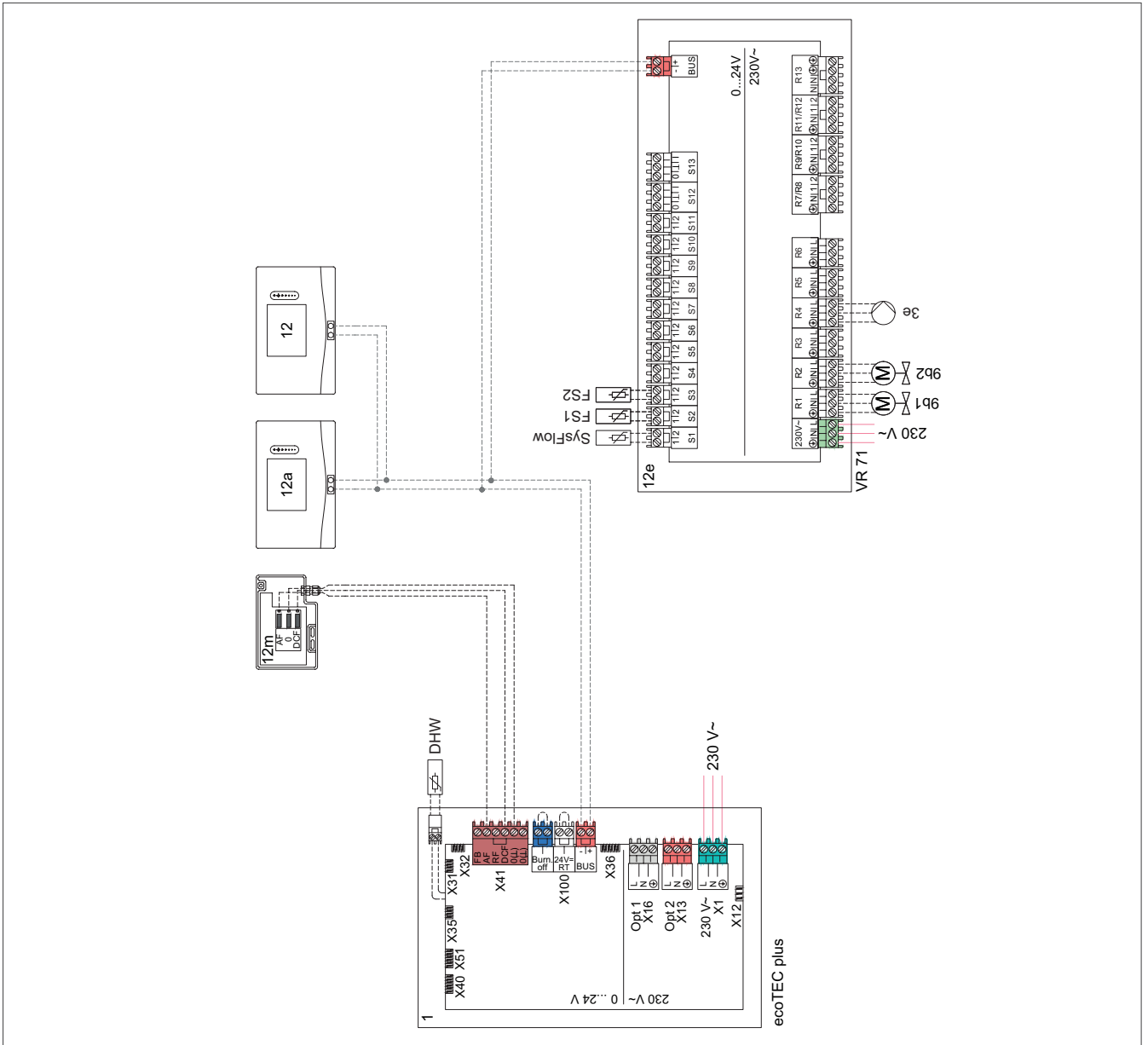


Fig 43: Wiring diagram

**Beschreibung Einzelkomponenten**

- ecoTEC plus VC < 30 kW
- uniSTOR VIH R
- VRC 720
- VR 71
- VR 92

**Setting**

VRC 720 System diagram setting: 1

FM 5 Module setting: 3

0020220678 - Basic hydraulic diagram

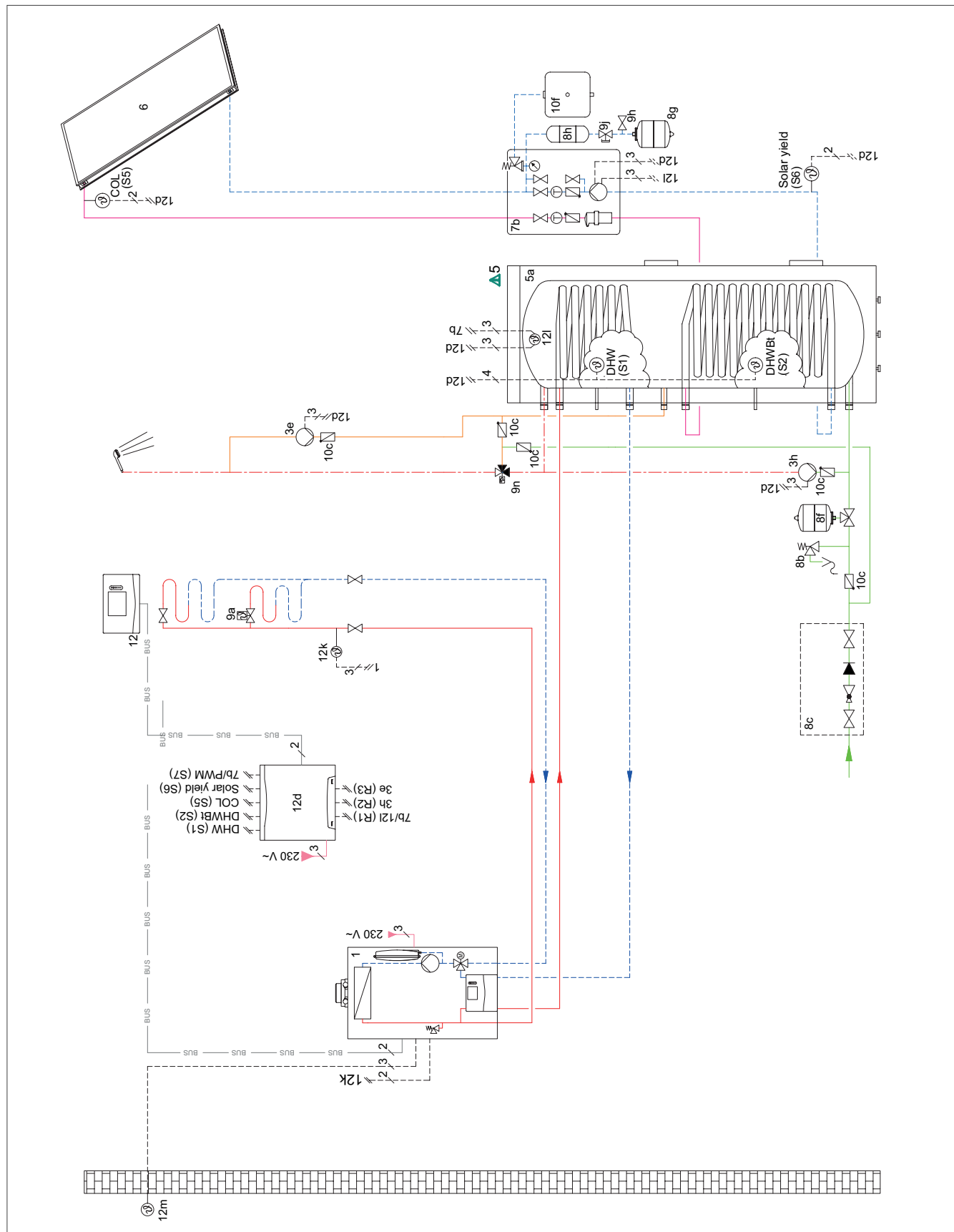


Fig 44: Basic hydraulic diagram

0020220678 - Wiring diagram

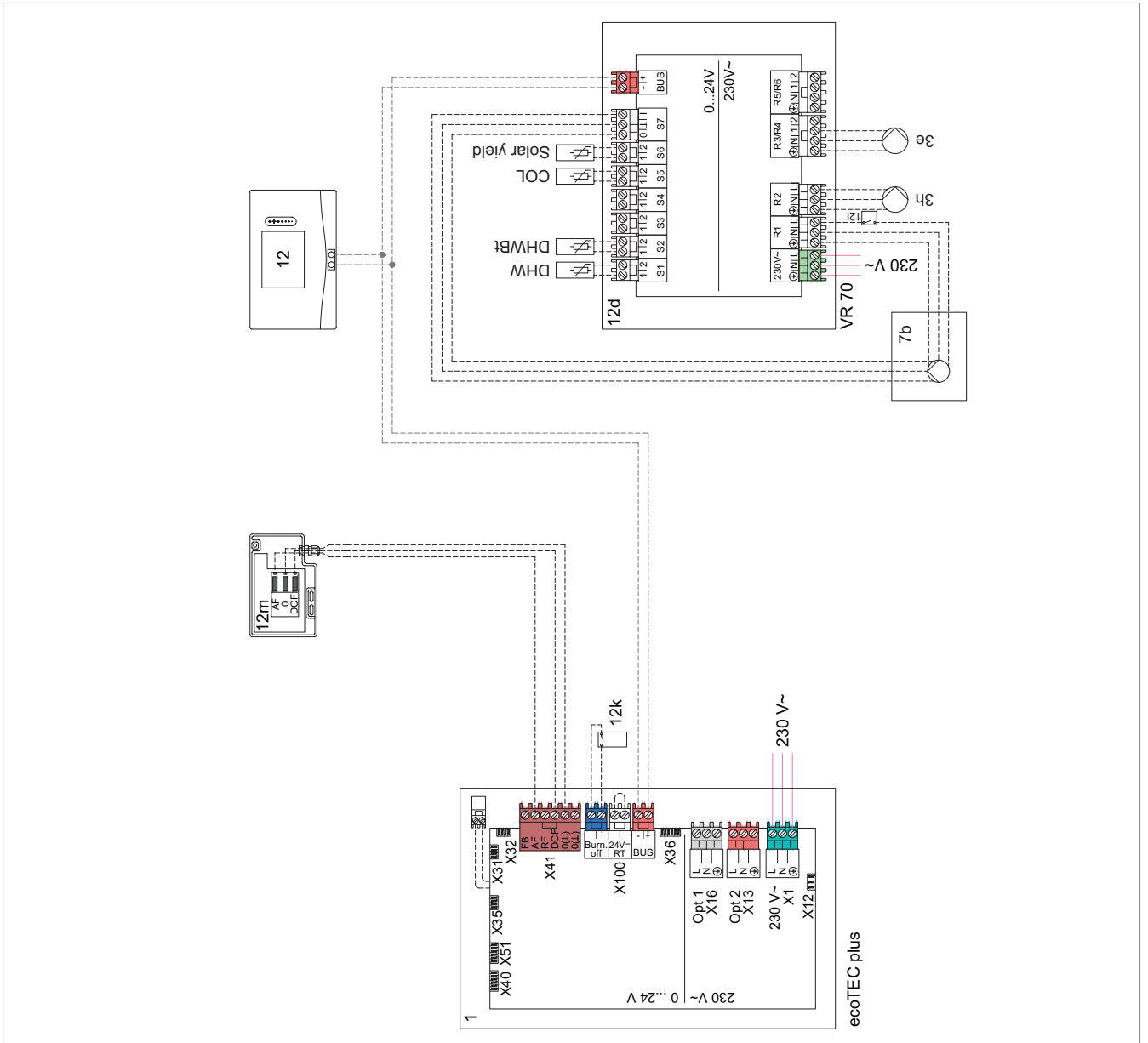


Fig 45: Wiring diagram

**Individual components**

- ecoTEC plus VC < 30 kW
- auroSTOR VIH S
- auroTHERM VFK / VTK
- auroFLOW VMS 70
- VRC 720
- VR 70

**Setting**

- VRC 720 System diagram setting: 1
- FM 3 Module setting: 6





0020212732 - Wiring diagram

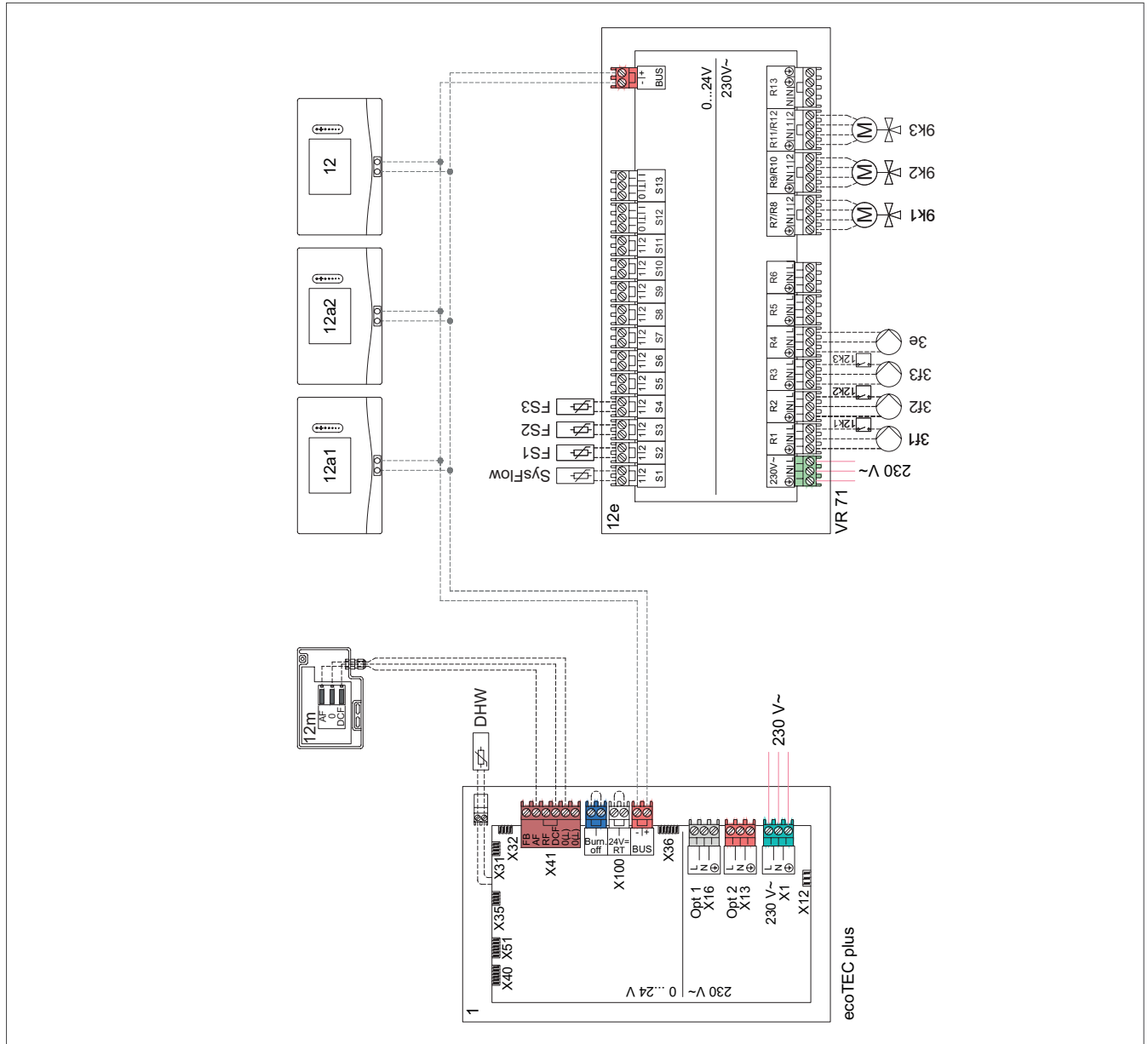


Fig 47: Wiring diagram

Individual components

- ecoTEC plus VC < 30 kW
- uniSTOR VIH R
- WH 24/40
- VRC 720
- VR 71
- VR 92

Setting

- VRC 720 System diagram setting: 1
- FM 3 Module setting: 3



## 0020220310 - Wiring diagram

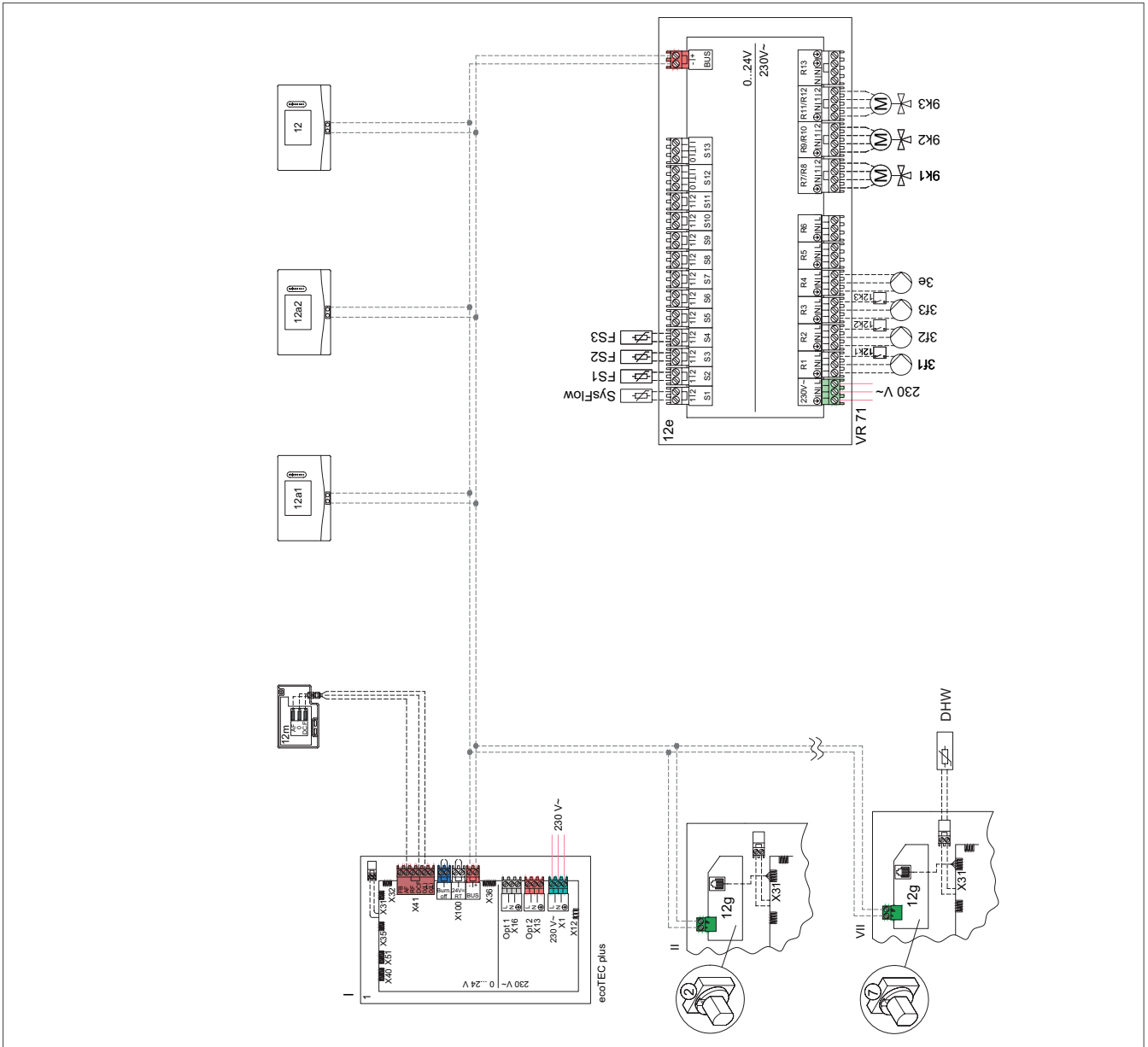


Fig 49: Wiring diagram

### Individual components

- ecotec plus VC < 30 kW
- uniSTOR VIH R
- auroTHERM VFK
- Low loss header
- VRC 720
- VR 71
- VR 92
- VR 32/3

### Setting

VRC 720 System diagram setting: 1

FM 5 Module setting: 3





# 3. Product information for ecoTEC intro .../1-1

## 3.1 Product combinations



Fig. 50: Product combinations

Product combination overview for the ecoTEC intro .../1-1

	1	2	3	4
	Combi boiler ecoTEC intro VMW	Low loss header	Control	Air/flue system
Heating and domestic hot water generation	•	•	•	•

• Recommended

## 3.2 Product description for the ecoTEC intro VMW 18/24 AS/1-1 and 24/28 AS/1-1



Fig. 51: ecoTEC intro VMW

### 3.2.1 Special features

- Standard efficiency 92% (Hs)/108% (Hi)
- Modulation 1:3 in heating mode
- Modulation 1:4 in domestic hot water mode
- Pneumatic gas-air mixture unit
- Electronically controlled high-efficiency pump
- Vertical pipe connections
- New unit design (display; control panel)
- Operating with natural gas E and LPG (conversion set available)

### 3.2.2 Potential applications

- Compact unit for heating and domestic hot water generation (flow-through principle)
- For new builds and modernising single-occupancy houses
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed modes with system-certified flue system

### 3.2.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor and pressure display, 8 litre expansion vessel
- Stainless steel integral condensation heat exchanger
- Integrated cylinder/domestic hot water control system with prioritising diverter valve
- DIA system with symbol display, illuminated
- eBUS interface

Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Product ID no.	Order no.
VMW 18/24 AS/1-1	A (A+++ to D)	A (A+ to F)	G20 natural gas G31 liquefied petroleum gas	CE-0063CU3005	
VMW 24/28 AS/1-1	A (A+++ to D)	A (A+ to F)	G20 natural gas G31 liquefied petroleum gas	CE-0063CU3005	

## Technical data - General

	VMW 18/24 AS/1-1	VMW 24/28 AS/1-1
Designated country (designation in accordance with ISO 3166)	IT (Italy)	IT (Italy)
Permissible gas categories	II2H3P	II2H3P
CE number	0063CU3005	0063CU3005
Product-side gas connection	1/2"	1/2"
Product-side flow/return heating connections	3/4"	3/4"
Expansion relief valve connection pipe (min.)	15 mm	15 mm
Condensate discharge hose (min.)	14.2 mm	14.2 mm
Gas connection pressure, G20 natural gas	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas connection pressure, liquefied petroleum gas G31	3.7 kPa (37.0 mbar)	3.7 kPa (37.0 mbar)
Maximum flue gas temperature	89 °C	89 °C
Min. gas volume flow at 15 °C and 1013 mbar, G20	0.66 m <sup>3</sup> /h	0.76 m <sup>3</sup> /h
Min. gas volume flow at 15 °C and 1013 mbar, G31	0.65 kg/h	0.56 kg/h
Max. gas volume flow at 15 °C and 1013 mbar (based on heating mode), G20	1.99 m <sup>3</sup> /h	2.59 m <sup>3</sup> /h
Max. gas volume flow at 15 °C and 1013 mbar (based on heating mode), G31	1.47 kg/h	1.91 kg/h
Max. gas volume flow at 15 °C and 1013 mbar (based on domestic hot water generation), G20	2.54 m <sup>3</sup> /h	2.96 m <sup>3</sup> /h
Max. gas volume flow at 15 °C and 1013 mbar (based on domestic hot water generation), G31	1.86 kg/h	2.18 kg/h
Permissible installation types	C13, C33, C43, C53, C83, C93, B23, B23P	C13, C33, C43, C53, C83, C93, B23, B23P
Nominal efficiency in partial load mode (30%)	107.8 %	108.2 %
NOx class	6	6
Nitrogen oxide emissions, NOx weighted (Hs) (G20)	27.11 mg/kW-h	32.40 mg/kW-h
CO emissions	137.2 ppm	121.7 ppm
Net weight	25.6 kg	26.5 kg

## Technical data - Power/load (G20)

	VMW 18/24 AS/1-1	VMW 24/28 AS/1-1
Nominal heat output range P at 50/30 °C	6.6 to 20.0 kW	7.7 to 25.9 kW
Nominal heat output range P at 60/40 °C	6.4 to 19.3 kW	7.5 to 25.1 kW
Nominal heat output range P at 80/60 °C	6.0 to 18.3 kW	6.9 to 23.9 kW
Nominal heat output range P at 75/55 °C	6.0 to 18.3 kW	6.9 to 23.9 kW
Max. heat input for domestic hot water (Qmax) (Hi)	24.0 kW	28.0 kW
Flue gas mass flow rate in heating mode at P min.	3.2 g/s	3.7 g/s
Flue gas mass flow rate in heating mode at P max.	8.9 g/s	11.6 g/s
Nominal heat input range for heating	6.2 to 18.8 kW	7.2 to 24.5 kW

## Technical data - Power/load (G31)

	VMW 18/24 AS/1-1	VMW 24/28 AS/1-1
Nominal heat output range P at 50/30 °C	9.0 to 20.0 kW	7.7 to 25.9 kW
Nominal heat output range P at 75/55 °C	8.1 to 18.3 kW	6.9 to 23.9 kW
Max. heat input for domestic hot water (Qmax)	24.0 kW	28.0 kW
Flue gas mass flow rate in heating mode at P min.	4.0 g/s	3.4 g/s
Flue gas mass flow rate in heating mode at P max.	9.1 g/s	11.8 g/s
Nominal heat input range for heating	8.4 to 18.8 kW	7.2 to 24.5 kW

### Technical data - Heating

	VMW 18/24 AS/1-1	VMW 24/28 AS/1-1
Maximum heating flow temperature (factory setting - D.71)	75 °C	75 °C
Maximum flow temperature adjustment range	30 to 75 °C	30 to 75 °C
Maximum operating pressure (MWP)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Nominal water flow ( $\Delta T = 20$ K)	788 l/h	1,029 l/h
Approximate value for the condensate volume during nominal load operation (pH value between 3.5 and 4.0) at 50/30 °C	1.89 l/h	2.46 l/h
Remaining pump head (at nominal circulation water volume)	0.027 MPa (0.270 bar)	0.017 MPa (0.170 bar)
Contents of the heating expansion vessel	8 l	8 l

### Technical data - Domestic hot water

	VMW 18/24 AS/1-1	VMW 24/28 AS/1-1
Minimum water flow	1.7 l/min	1.7 l/min
Specific flow rate D ( $\Delta T = 30$ K)	11.5 l/min	13.4 l/min
Permissible operating pressure	0.03 to 1 MPa (0.30 to 10 bar)	0.03 to 1 MPa (0.30 to 10 bar)
Recommended supply pressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Hot water comfort in accordance with the standard EN 13203	**	**
Flow rate limiter for cold water	8.0 l/min	10.0 l/min
Domestic hot water output temperature range	35 to 55 °C	35 to 55 °C

### Technical data - Electrics

	VMW 18/24 AS/1-1	VMW 24/28 AS/1-1
Electrical connection	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	195 to 253 V	195 to 253 V
Built-in fuse (slow-blow)	T2/2 A, 250 V	T2/2 A, 250 V
Maximum electrical power consumption	90 W	90 W
Standby electrical power consumption	1.7 W	1.7 W
IP rating	IPX5	IPX5



### 3.2.4 Dimension drawing

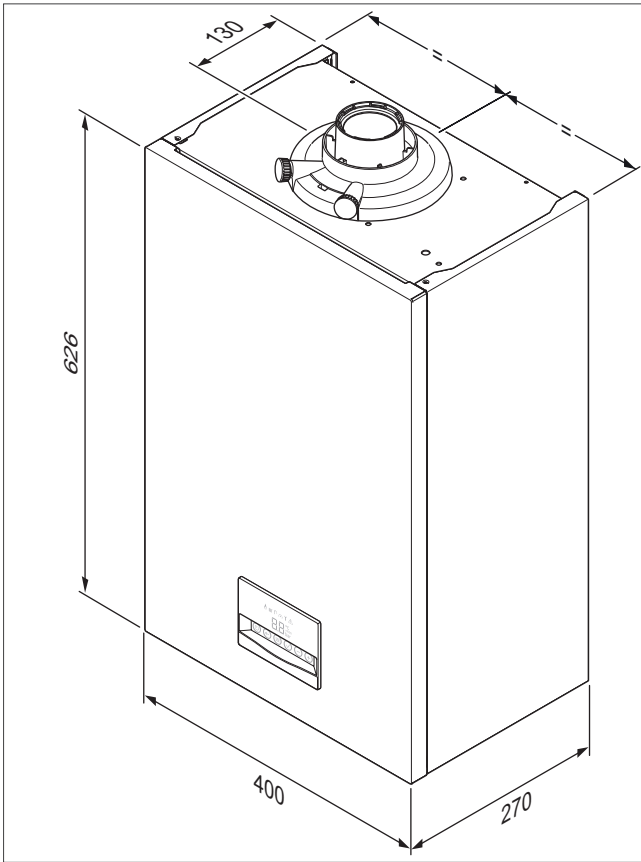


Fig. 52: Dimensions

### 3.2.5 Connecting gas and water

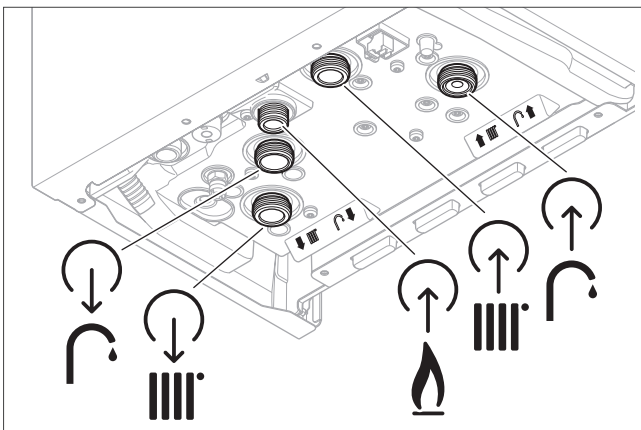


Fig. 53: Connecting gas and water

## 3.3 Supplementary information for the ecoTEC intro VMW 18/24 AS/1-1 and VMW 24/28 AS/1-1

### 3.3.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

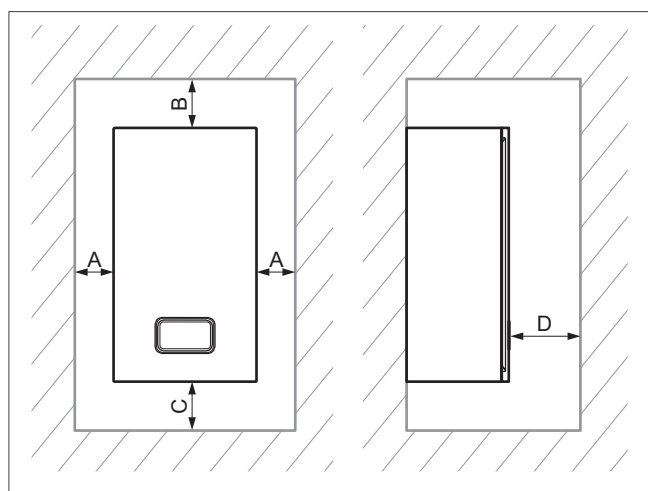


Fig. 54: Minimum clearances

#### Minimum clearances

Clearances			
A	B	C	D
≥ 0 mm	≥ 300 mm	≥ 300 mm	≥ 600 mm

### 3.3.2 Pump mode setting

The product is equipped with a stage-controlled high-efficiency pump. In the automatic operating mode (d.14 = 0), the pump stage is regulated in such a way that a constantly available pressure is guaranteed.

If required, you can manually set the pump mode to five fixed, selectable stages based on the maximum possible output. This switches the speed regulation off.

» To convert the pump output, change d.14 to the desired value.

### 3.3.3 Pump curve

Validity: VMW 18/24 AS/1-1 (H-IT) ecoTEC intro

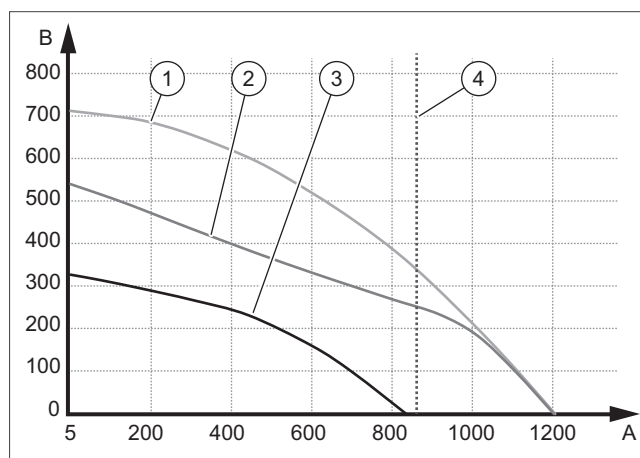


Fig. 55: Pump diagram

- 1 Max. pump speed, bypass valve closed
  - 2 Max. pump speed, bypass valve opened by 3/4 rotation(factory setting for the bypass valve)
  - 3 Min. pump speed, bypass valve opened by 3/4 rotation(factory setting for the bypass valve)
  - 4 Qmax ( $\Delta T = 20 \text{ }^\circ\text{C}$ )
- A Installation volume flow in l/h  
B Remaining pump head in hPa (mbar)

Validity: VMW 24/28 AS/1-1 (H-IT) ecoTEC intro

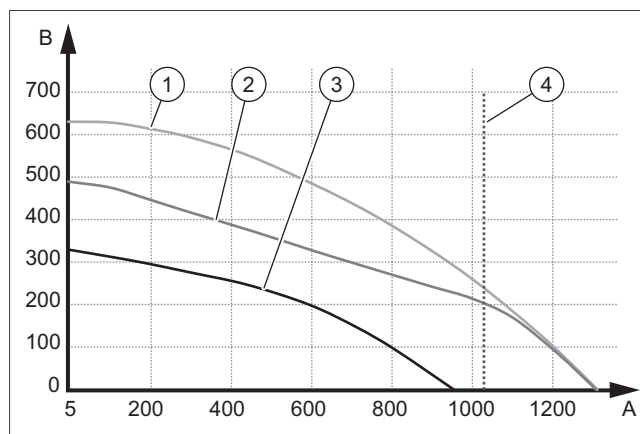


Fig. 56: Pump diagram

- 1 Max. pump speed, bypass valve closed
  - 2 Max. pump speed, bypass valve opened by 3/4 rotation(factory setting for the bypass valve)
  - 3 Min. pump speed, bypass valve opened by 3/4 rotation(factory setting for the bypass valve)
  - 4 Qmax ( $\Delta T = 20 \text{ }^\circ\text{C}$ )
- A Installation volume flow in l/h  
B Remaining pump head in hPa (mbar)



## 3.4 Basic system diagrams and wiring diagrams

### 3.4.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

### 3.4.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020280037	ecoTEC Intro VCW	VRT 250	–	1 HC	–	–	–	integrated
0020280038	ecoTEC Intro VCW	VRT 250	–	1 HC	–	•	–	auroSTEP VIH S1
0020280039	ecoTEC Intro VCW	eRELEX	–	1 HC	–	–	–	integrated
0020280040	ecoTEC Intro VCW	VRC 720 VR 921	–	1 HC	–	–	–	integrated
0020282553	ecoTEC Intro VCW	VRC 720 VR 92 VR 921 VR 71	1 FBH	1 HC	Hydraulische Weiche	–	–	integrated
0020282554	ecoTEC Intro VCW	VRT 380 VR 92 VR 66	–	2 HC	–	–	–	integrated

0020280037 - Basic hydraulic diagram

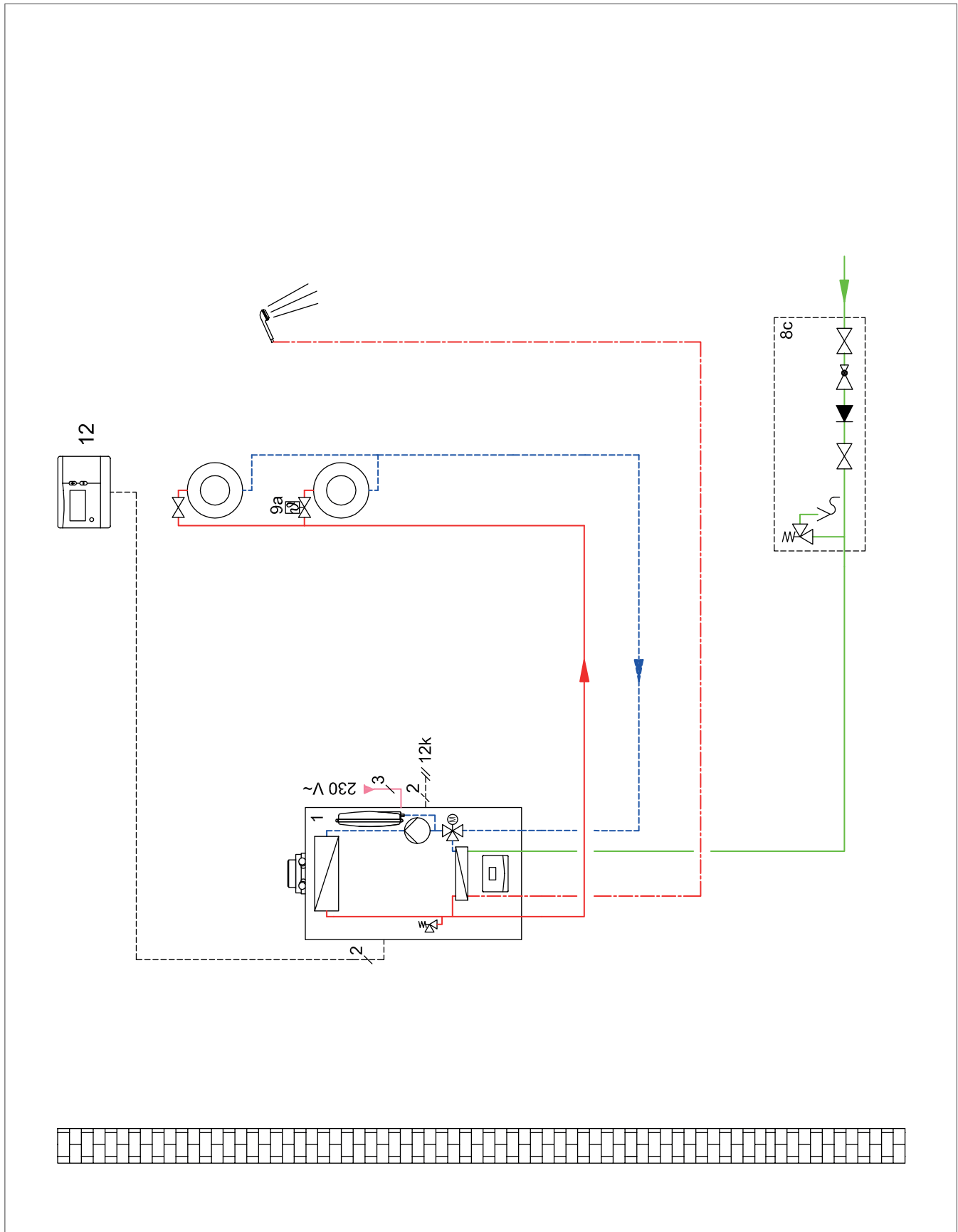


Abb 57: Basic hydraulic diagram

0020280037 - Wiring diagram

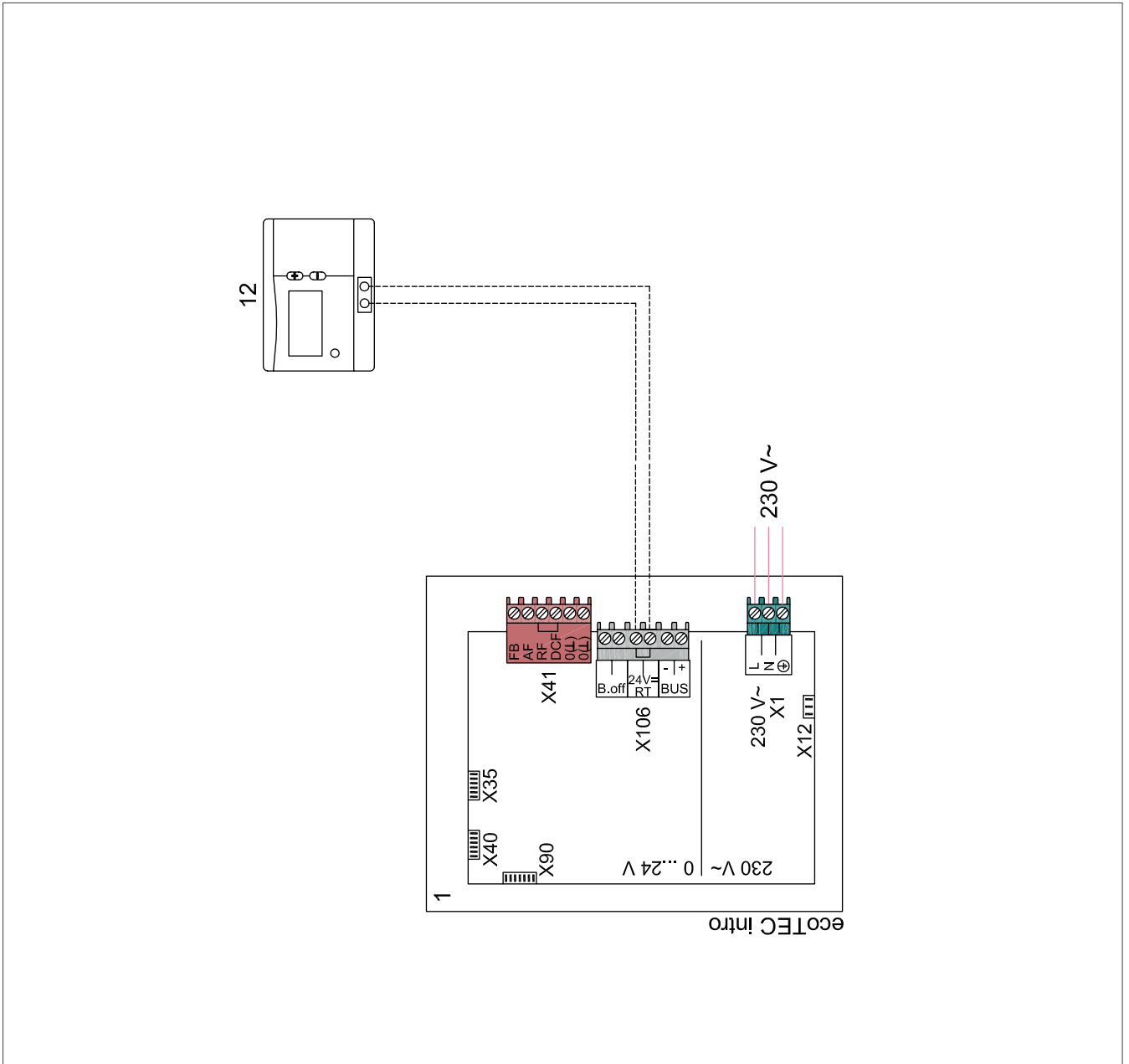


Abb 58: Wiring diagram

Individual components

- ecoTEC Intro VCW
- VRT 250





0020280038 - Wiring diagram

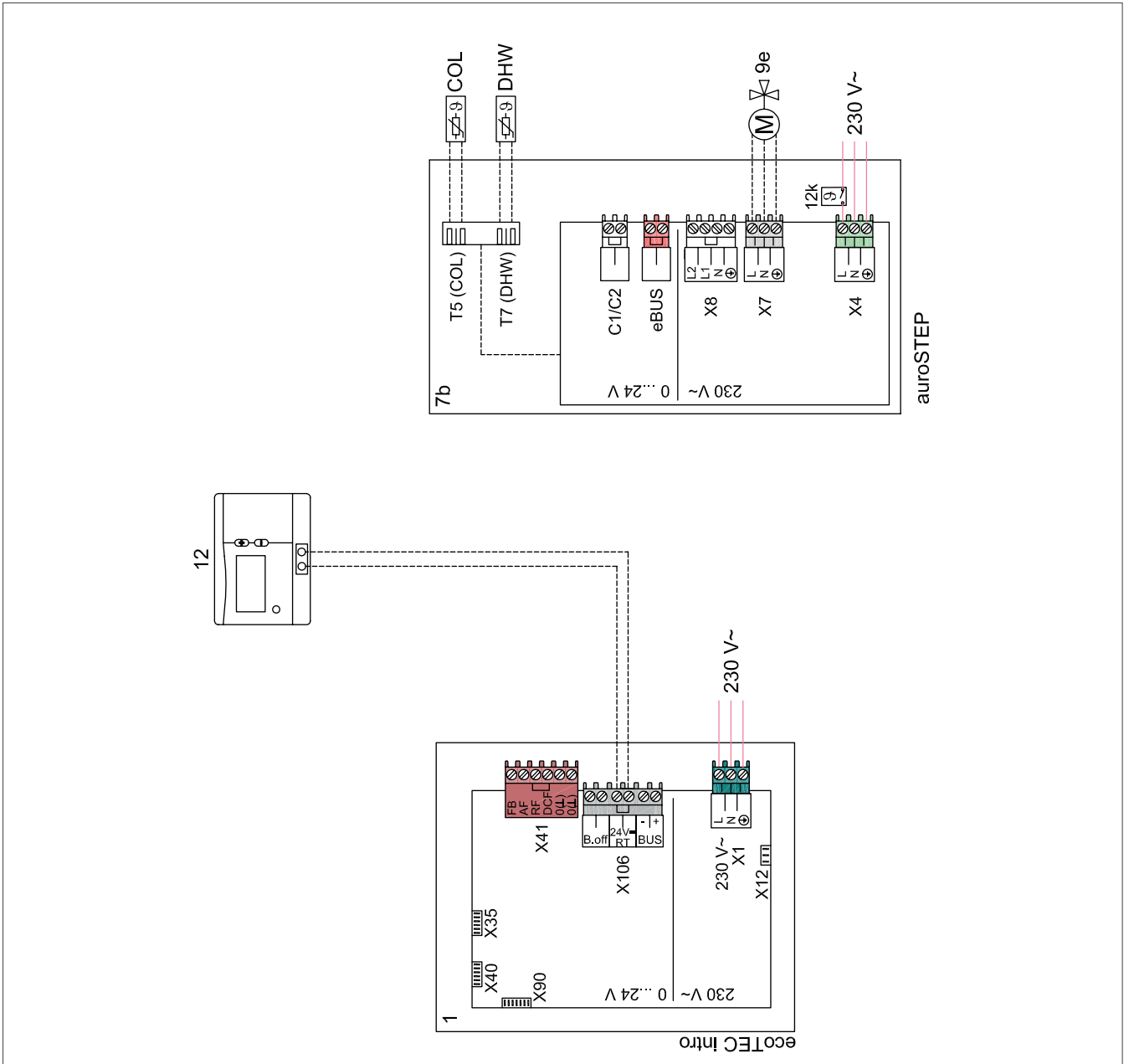


Abb 60: Wiring diagram

Individual components

- ecoTEC Intro VCV
- autoTHERM VFK
- autoSTEP VIH S1
- VRT 250





0020280040 - Basic hydraulic diagram

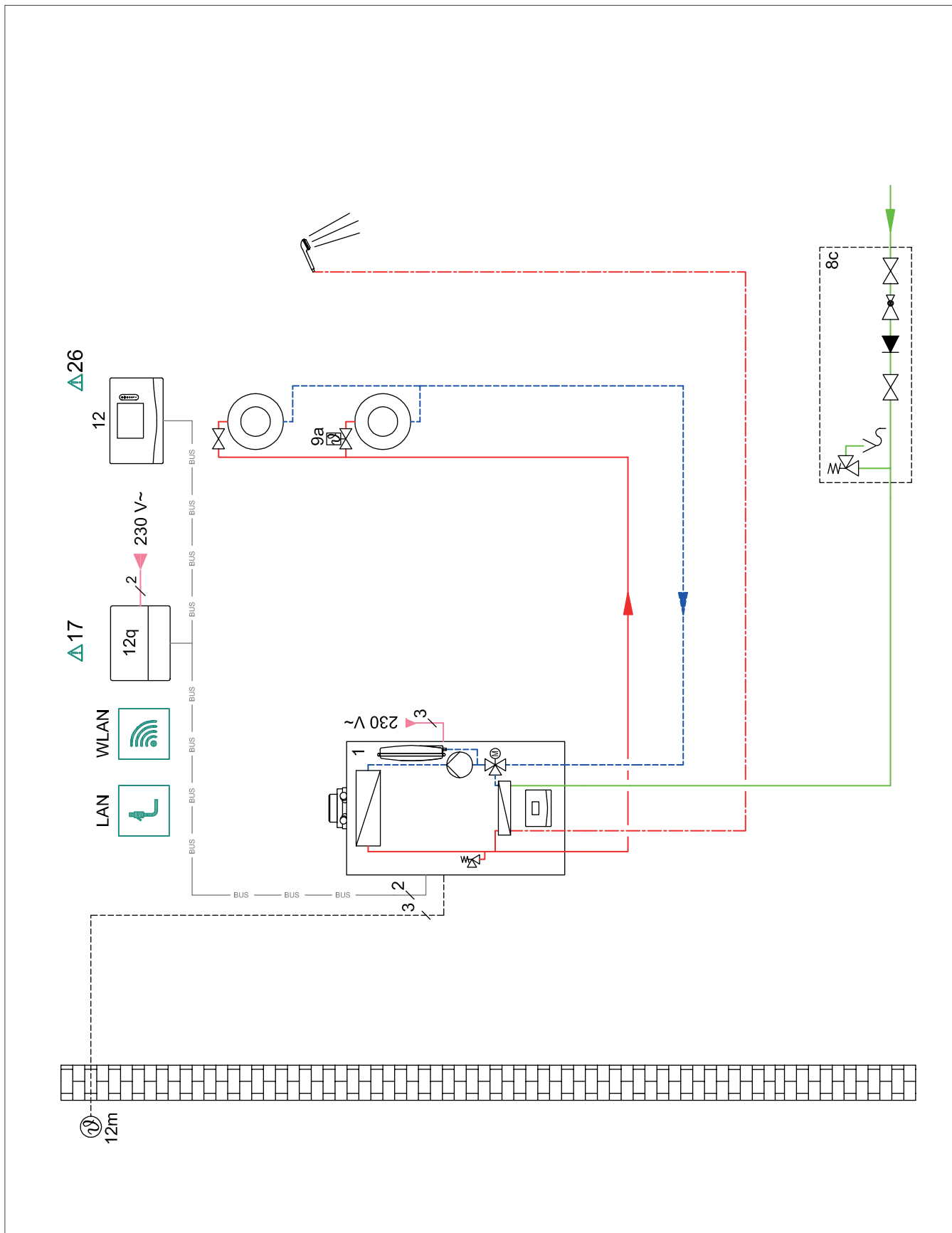


Abb 63: Basic hydraulic diagram

## 0020280040 - Wiring diagram

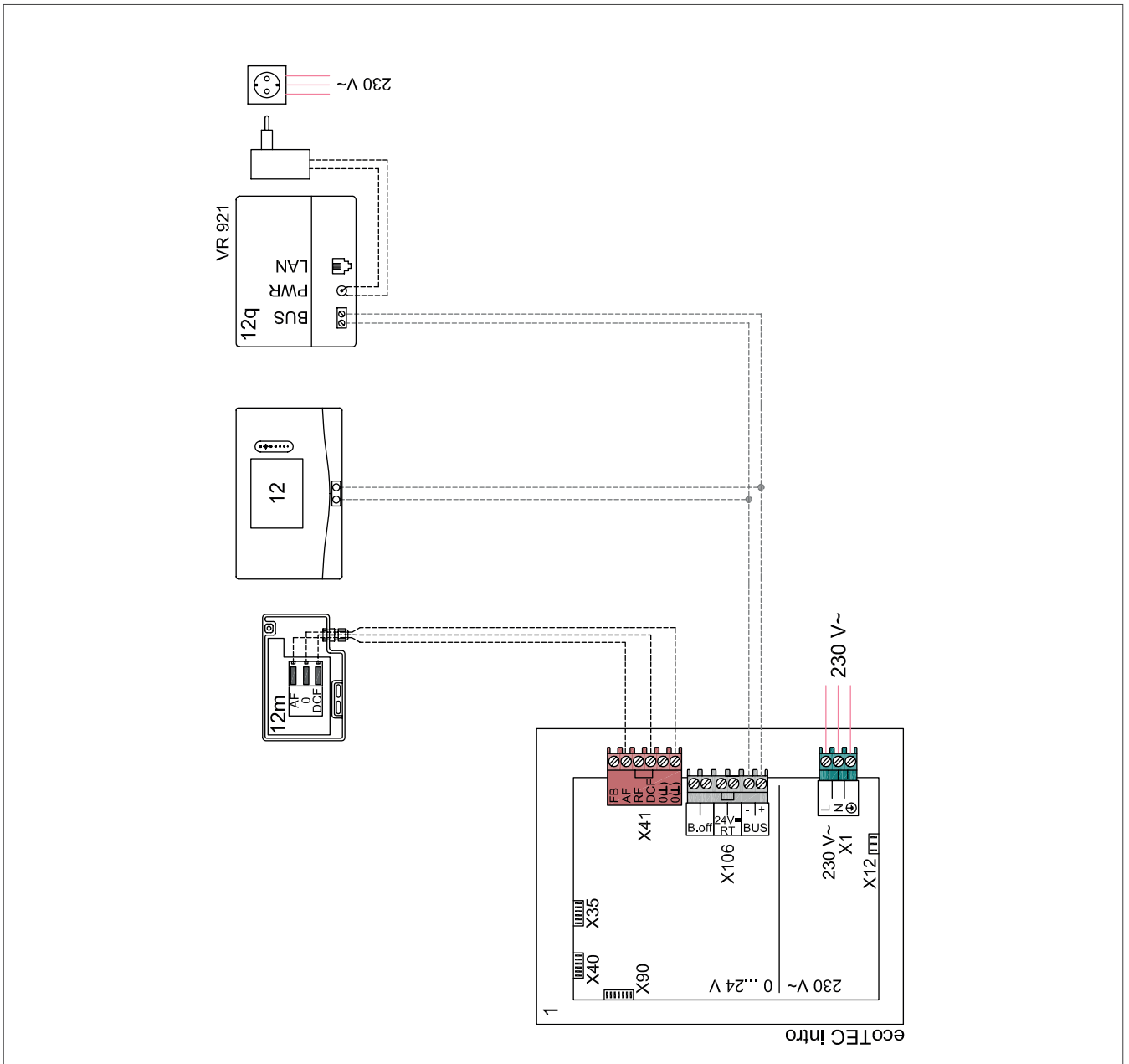


Abb 64: Wiring diagram

### Individual components

- ecoTEC Intro VCW
- VRC 720
- VR 921

### Setting

VRC 720 System diagram setting: 1

0020282553 - Basic hydraulic diagram

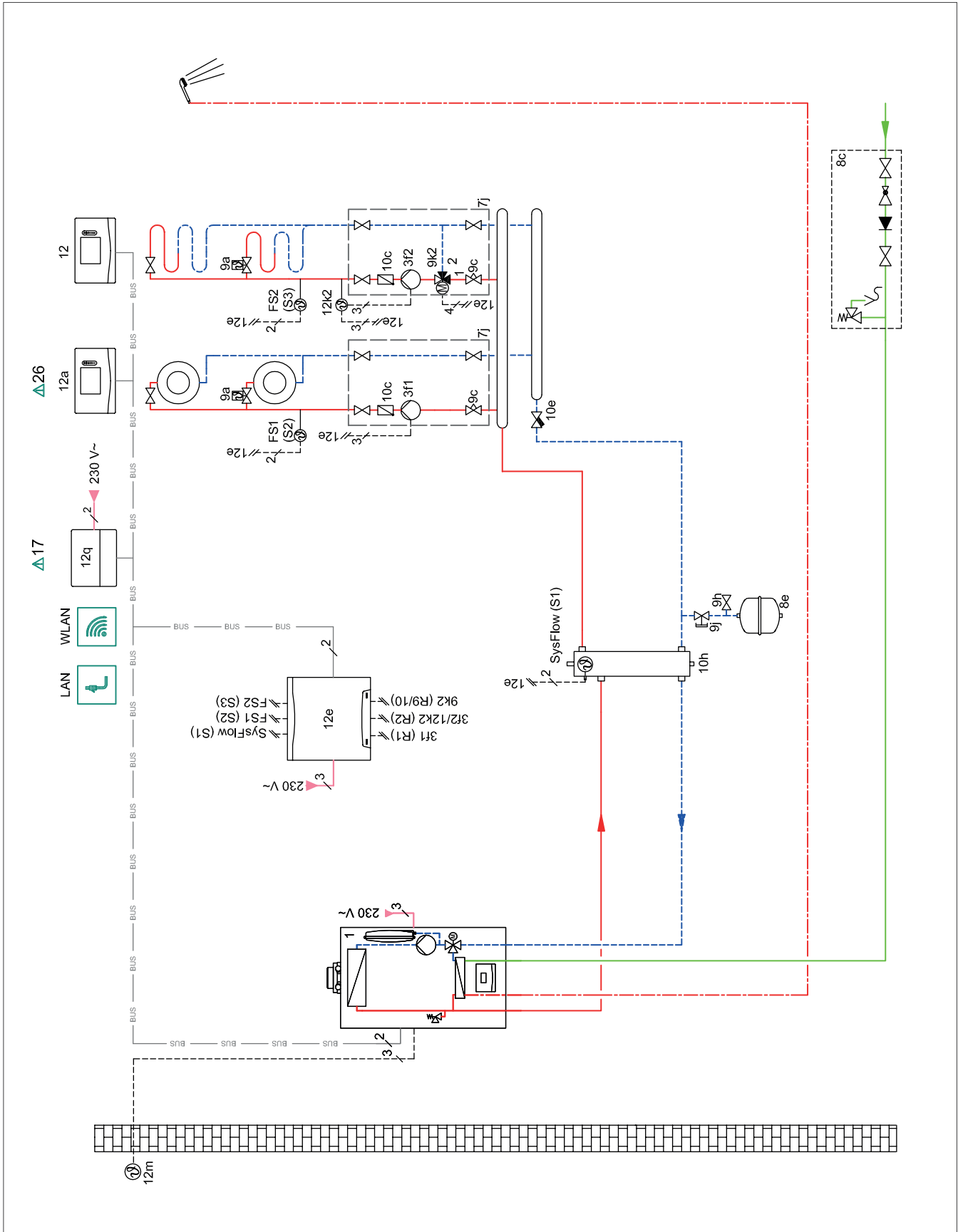


Abb 65: Basic hydraulic diagram

0020282553 - Wiring diagram

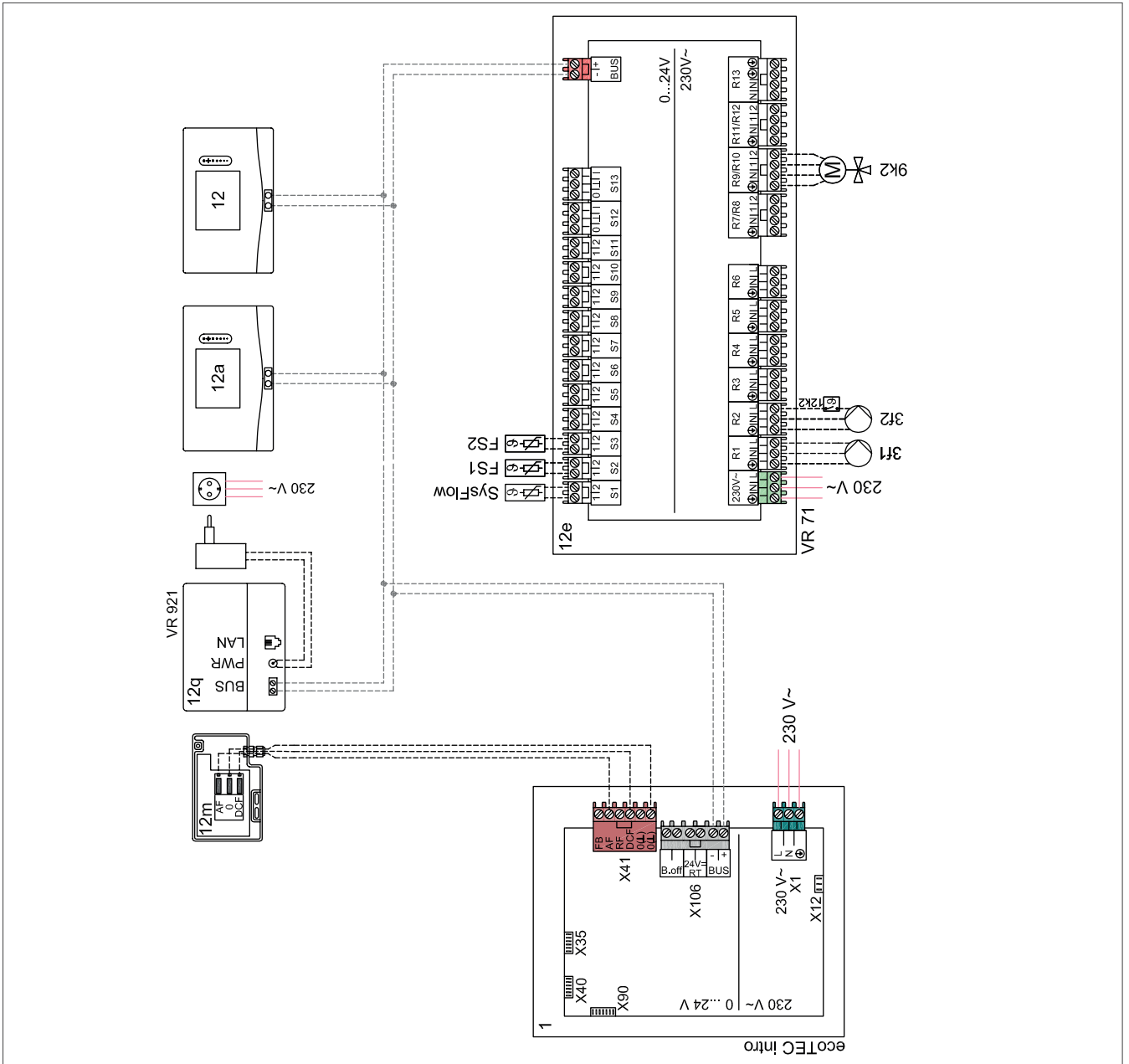


Abb 66: Wiring diagram

Individual components

- ecoTEC Intro VCW
- WH 27/40
- VRC 720
- VR 92
- VR 71
- VR 921

Setting

- VRC 720 System diagram setting: 1
- VR 71 Module setting: 3

0020282554 - Basic hydraulic diagram

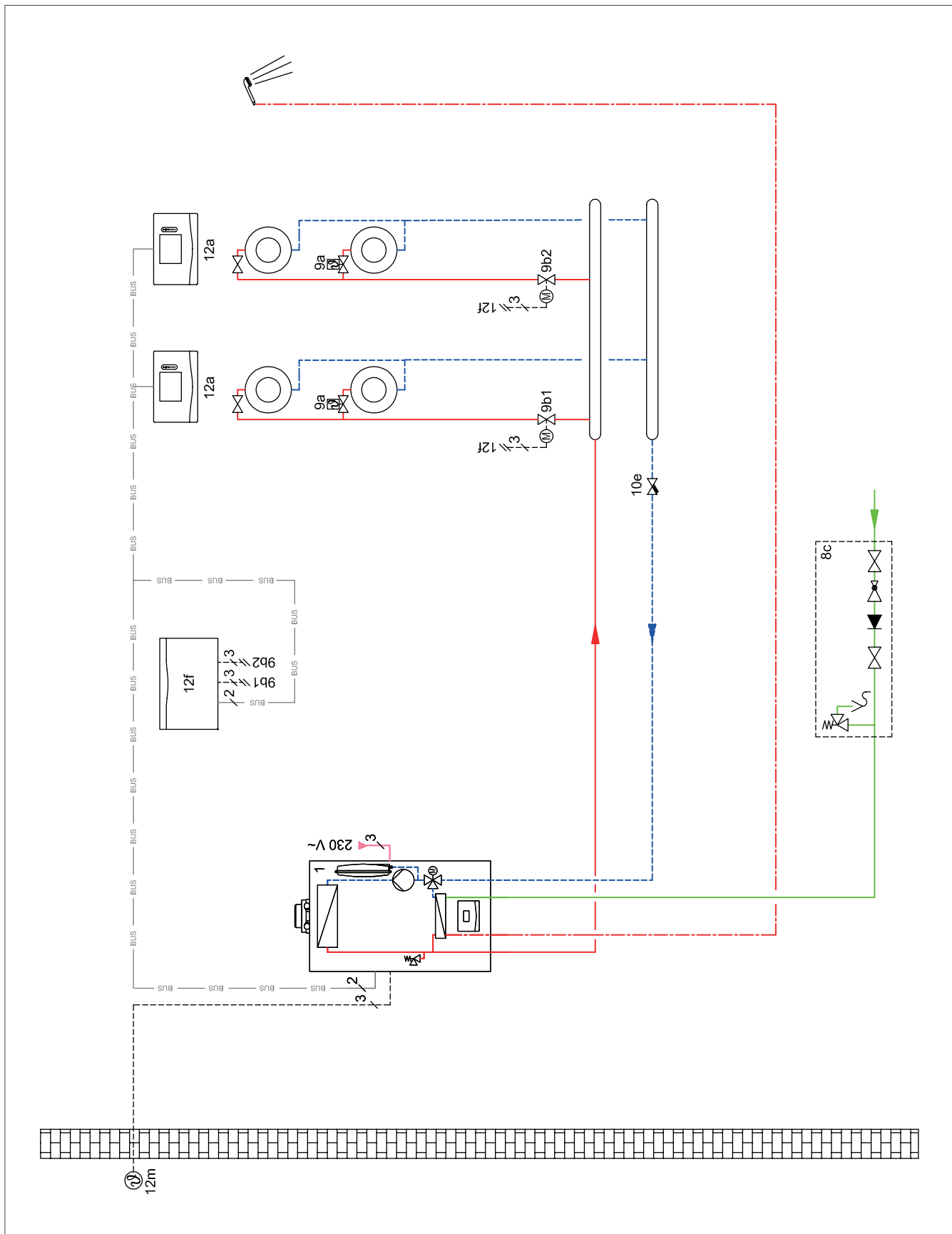


Abb 67: Basic hydraulic diagram



0020282554 - Wiring diagram



Abb 68: Wiring diagram

Individual components

- ecoTEC Intro VCV
- VRT 380
- VR 92
- VR 66





# 4. Product information for ecoTEC pro H VMW

## 4.1 Product combinations



Fig. 69: Product combinations

Product combination overview for the ecoTEC pro VMW

	1	2	3	4
	Combi boiler ecoTEC pro VMW	Low loss header	Control	Air/flue system
Heating and domestic hot water generation	•	•	•	•

• Recommended

## 4.2 Product description for the ecoTEC pro VMW 236/5-3 H



Fig. 70: ecoTEC pro VMW

### 4.2.1 Special features

- Standard efficiency 98% (Hs)/109% (Hi)
- Condensing combi boiler with a high-pressure flue connection
- Connecting to 50 mm flue systems
- Multiple-flue configuration possible in the flue, max. five units in one hearth
- Connection to flue up to 30 metres possible
- Electronically controlled high-efficiency pump
- Vertical pipe connections
- Operation with natural gas E

### 4.2.2 Potential applications

- Compact unit for heating and domestic hot water generation (flow-through principle)
- For new builds and modernising (replacing non-condensing boilers) apartment buildings
- For radiators and underfloor heating
- Open-flued or room-sealed operation with a system-certified flue system

### 4.2.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor and pressure display, 10 litre expansion vessel
- Stainless steel condensation heat exchanger
- Integrated cylinder/domestic hot water control system with prioritising diverter valve
- DIA system with symbol display, illuminated
- eBUS interface

Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Product ID no.	Order no.
VMW 236/5-3 H	A (A+++ to D)	A (A+ to F)	G20 natural gas	CE-0085CM0321	

## Technical data - General

	ecoTEC pro VMW 236/5-3 H (H-IT)
Designated country (designation in accordance with ISO 3166)	IT (Italy)
Approved unit category	I2H
Gas connection, boiler side	15 mm
Flow/return heating connections, boiler side	22 mm
Domestic hot and cold water connection, boiler side	G 3/4"
Expansion relief valve connection pipe (min.)	15 mm
Air/flue connection	60/100 mm
Condensate discharge pipe (min.)	19 mm
G20 natural gas flow pressure	2.0 kPa (20.0 mbar)
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	2.5 m³/h
Min. flue gas mass flow rate (G20)	2.47 g/s
Max. flue gas mass flow rate	10.6 g/s
Min. flue gas temperature	40 °C
Max. flue gas temperature	70 °C
Approved gas boiler types	C13, C33, C43, C53, C83, C93, B23, B53, B53p
30% efficiency	109.4 %
NOx class	6
Unit dimensions, width	440 mm
Unit dimensions, height	720 mm
Unit dimensions, depth	338 mm
Approx. net weight	33.5 kg

## Technical data - G20 power/loading G20

	ecoTEC pro VMW 236/5-3 H (H-IT)
Nominal heat output range P at 50/30 °C	5.7 to 24.9 kW
Nominal heat output range P at 80/60 °C	5.2 to 23.0 kW
Maximum heat output for domestic hot water generation	23.0 kW
Maximum heat input for domestic hot water generation	23.5 kW
Maximum heat input, heating side	23.5 kW
Minimum heat input	5.5 kW
Heating adjustment range	5 to 19 kW
Nominal heat input efficiency (stationary) at 40/30 °C	107.0 %
Nominal heat input efficiency (stationary) at 50/30 °C	106.0 %
Nominal heat input efficiency (stationary) at 60/40 °C	101.0 %
Nominal heat input efficiency (stationary) at 80/60 °C	98.0 %

## Technical data - Heating

	ecoTEC pro VMW 236/5-3 H (H-IT)
Maximum flow temperature	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C
Permissible total excess pressure	0.3 MPa (3.0 bar)
Circulation water volume (with reference to $\Delta T = 20$ K)	796 l/h
Approx. condensate quantity (pH 3.5 to 4.0) in heating mode, temp. 50/30 °C	1.9 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.025 MPa (0.250 bar)

### Technical data - Domestic hot water mode

	ecoTEC pro VMW 236/5-3 H (H-IT)
Lowest water volume	1.5 l/min
Water volume (at $\Delta T = 30\text{ K}$ )	11.0 l/min
Permitted excess pressure	1.0 MPa (10.0 bar)
Required connection pressure	0.035 MPa (0.350 bar)
Domestic hot water output temperature range	35 to 65 °C

### Technical data - Electrics

	ecoTEC pro VMW 236/5-3 H (H-IT)
Electric connection	230 V/50 Hz
Permissible connected voltage	190 to 253 V
Built-in fuse (slow-blow)	2 A
Min. electrical power consumption	35 W
Max. electrical power consumption	80 W
Standby electrical power consumption	< 2 W
IP rating	IP X4 D

## Dimensions

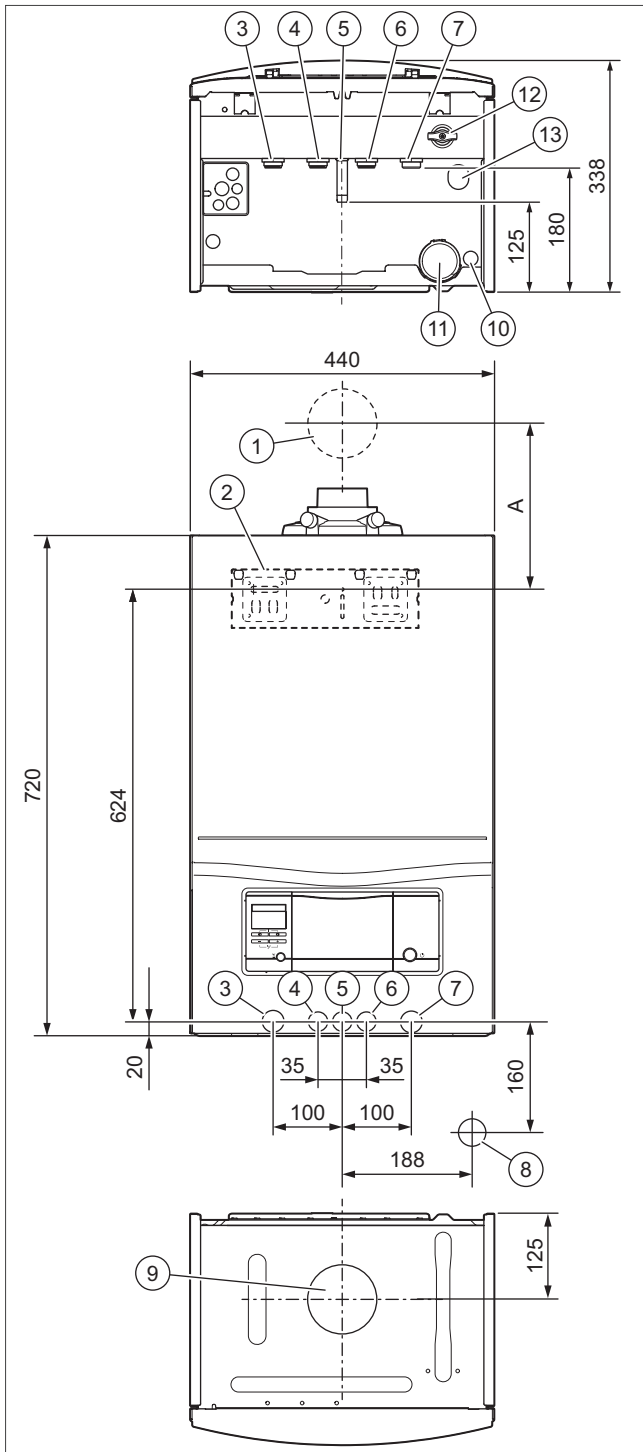


Fig. 71: Dimensions in mm

- 1 Air/flue pipe wall duct
- 2 Product bracket
- 3 Heating flow (22 × 1.5 diameter)
- 4 Domestic hot water connection (15 × 1.5 diameter)
- 5 Gas connection (15 × 1.5 diameter)
- 6 Cold water connection (15 × 1.5 diameter)
- 7 Heating return (22 × 1.5 diameter)
- 8 R1 tundish/condensate siphon connection
- 9 Air/flue pipe connection
- 10 Condensate discharge connection, 19 mm diameter
- 11 Condensate siphon
- 12 Filling device
- 13 Heating expansion relief valve drain pipework connection, 15 mm diameter

## 4.3 Supplementary information for the ecoTEC pro VMW 236/5-3 H

### 4.3.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

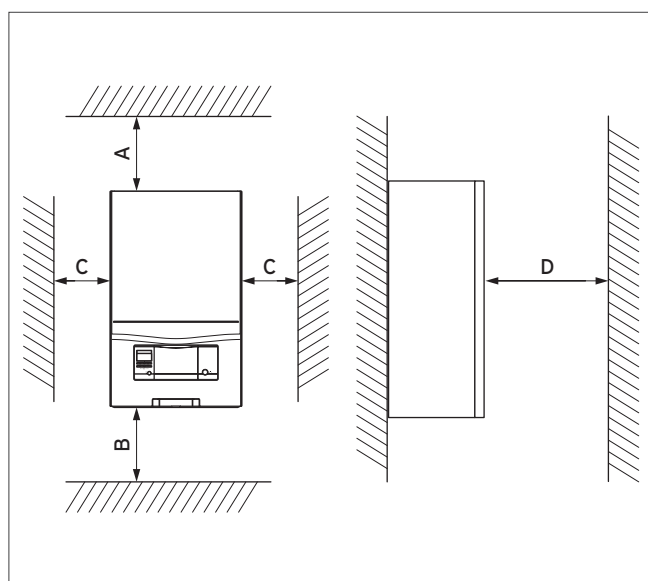


Fig. 72: Required minimum clearances/installation clearances

	Minimum clearance
A	165 mm: Air/flue pipe, 60/100 mm diameter 275 mm: Air/flue pipe, 80/125 mm diameter
B	180 mm; optimum approx. 250 mm
C	5 mm; optimum approx. 50 mm
D	500 mm in front of the heat generator to enable easy access for maintenance work (may be provided by an opening door).

### 4.3.2 Remaining pump head

#### Pump curves

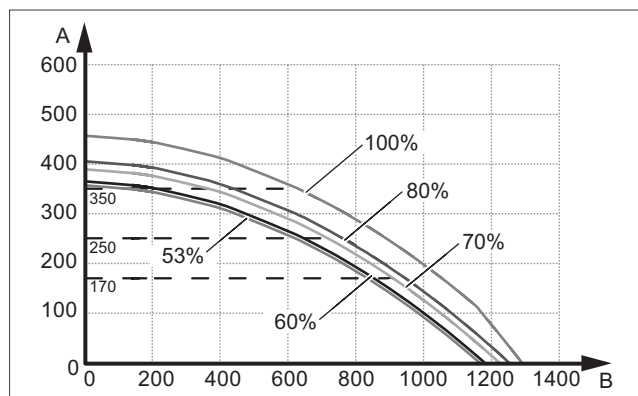


Fig. 73: Pump curve for VMW 236/5-3

- A Remaining feed head [hPa]
- B Flow rate [l/h]



## 4.4 Scope of delivery for air/flue pipes

### 4.4.1 Air/flue pipe, 60/100 mm diameter

0020220656 and 0020220657

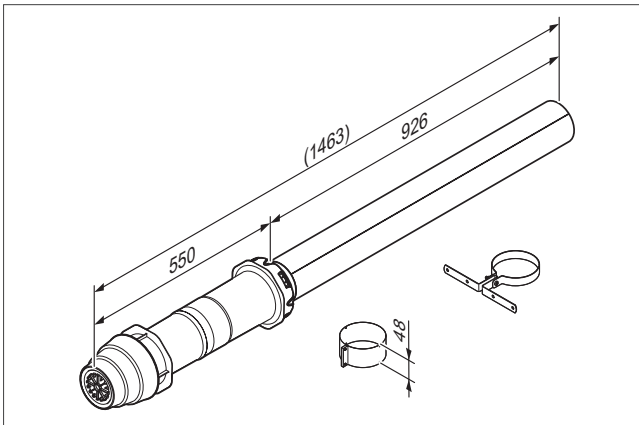


Fig. 74: 0020220656

0020219516

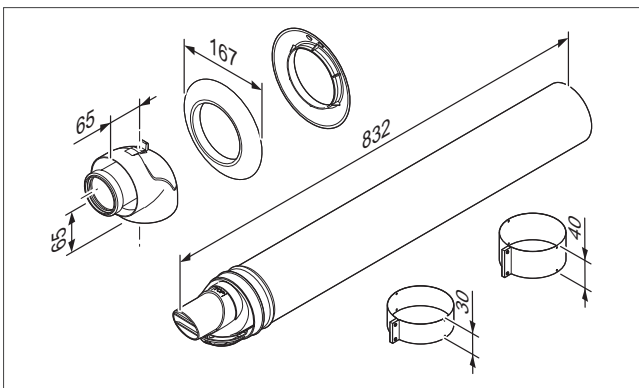


Fig. 75: 0020219516

303920

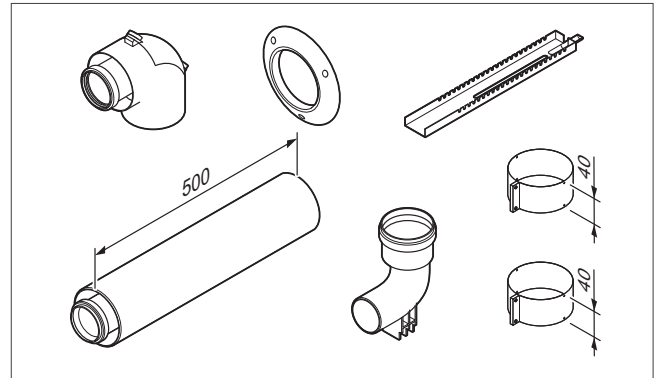


Fig. 76: 303920

0020077523

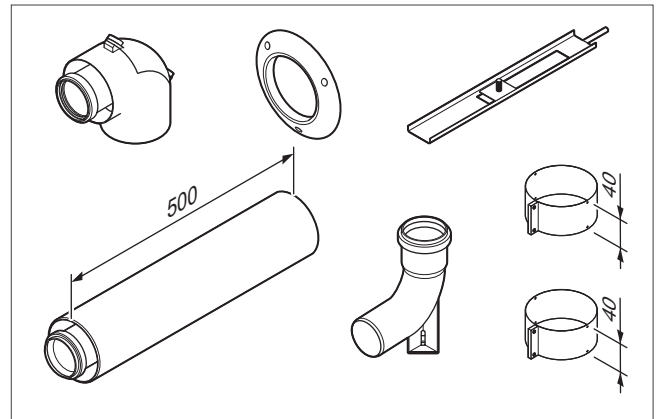


Fig. 77: 0020077523

303923

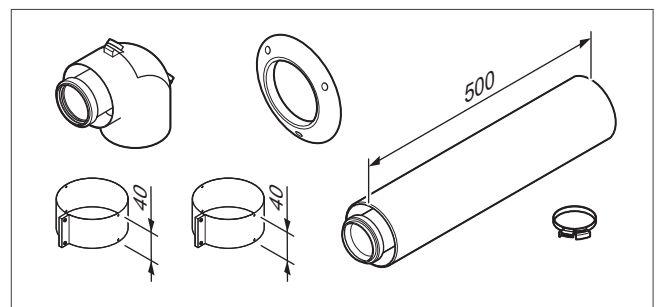


Fig. 78: 303923

#### 4.4.2 Air/flue pipe, 80/125 mm diameter

303200 and 303201

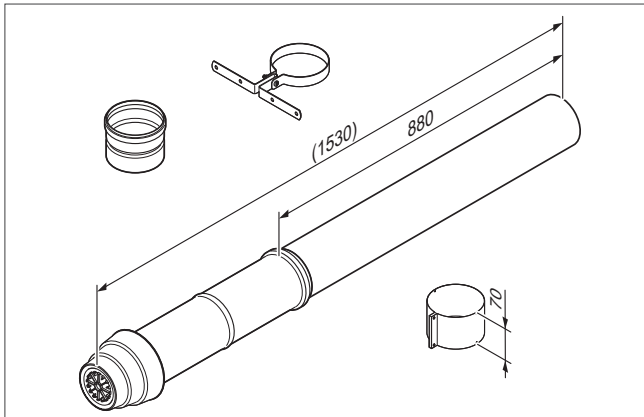


Fig. 79: 303200

#### 4.4.3 Air/flue pipe, 60/60 mm diameter

0020222518

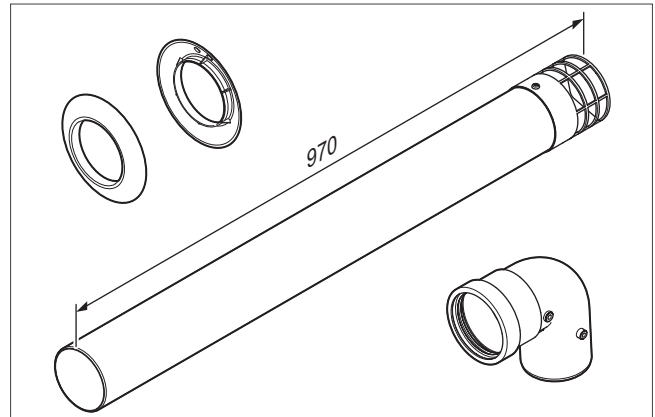


Fig. 82: 0020222518

303209

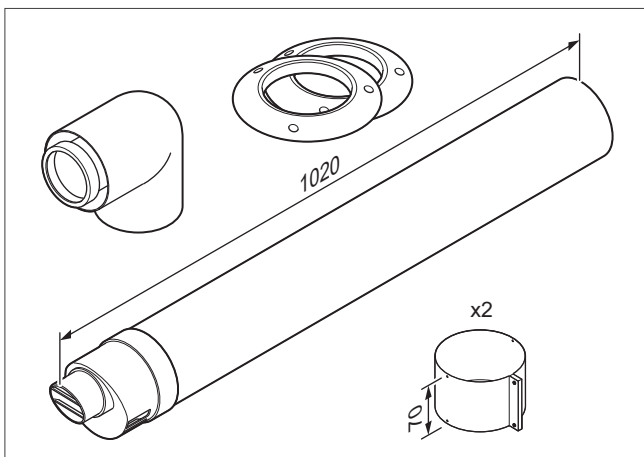


Fig. 80: 303209

0020222520

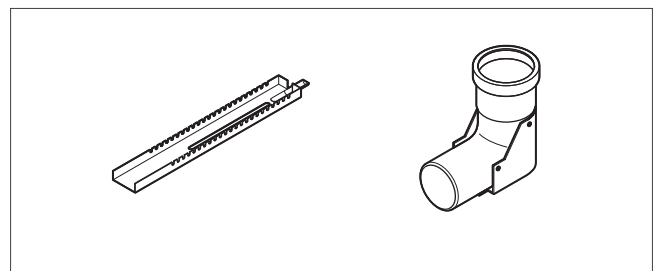


Fig. 83: 0020222520

0020021006

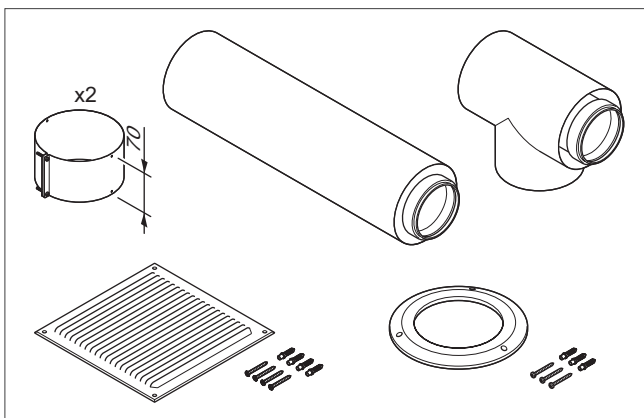


Fig. 81: 0020021006

#### 4.4.4 Air/flue pipe, 80/80 mm diameter

303265

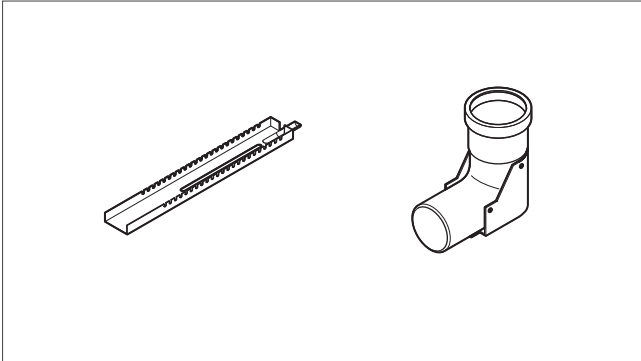


Fig. 84: 303265

#### 4.4.5 50 mm rigid air/flue pipe, 80/80 diameter

0010029363

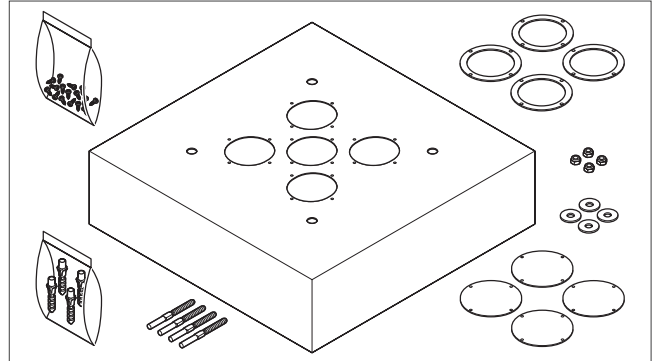


Fig. 86: 0010029363

303263 + 300941

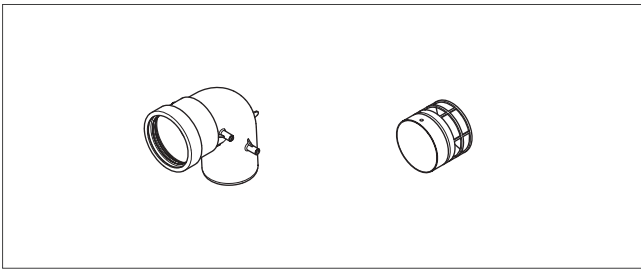


Fig. 85: 303263 + 300941

0010028098

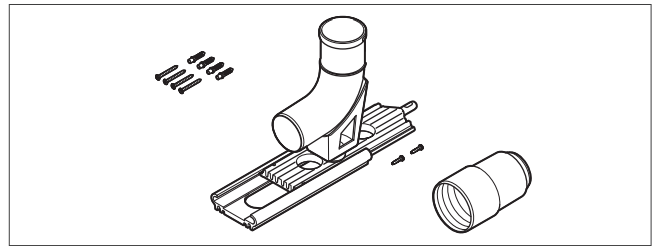


Fig. 87: 0010028098

## Overview of the accessories


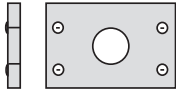
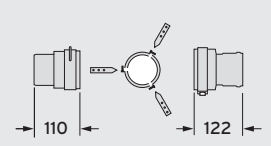










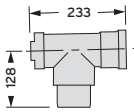
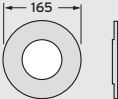
Figure	Description	Art.-No.
	Concentric shaft connection to exhaust pipe for negative pressure - supporting elbow 87° 60/50 diameter and support rail - Shaft cover PP 50 diameter - wall plate	0010028124
	Transitional wall sleeve	303840
	Basic elements for the metal shaft top	0020021008
	Spacer - ø 50 (10 pcs.)	0010028092
	Flexible flue gas duct 25 m (PP) - ø 50	0010028094
	Flexible flue gas duct 50 m (PP) - ø 50	0010028096
	Shaft cover plate, 100 diameter	0010028118
	Connector, 50 diameter with inspection flap	0010028120
	Set: Adapter for flexible duct, 80 mm diameter on 50 mm diameter for C53	0010028122
	Flexible connector - 50 diameter	0010028672

Figure	Description	Art.-No.
	Chimney top - 50 diameter (shunt)	0010028678
	Retainer with elbow, 60 diameter rigid onto 50 diameter flexible	0010028686
	Chimney top - 50 diameter (shunt, mixed)	0010029357
	Roof duct for flexible duct - 50 diameter	0010029359
	Roof duct for rigid pipe, 50 diameter	0010029361
	Chimney top - 50 diameter (Alsace)	0010029363
	Plug connection with flexible inspection flap, 50 mm diameter	0010029365
	Concentric shaft connection to rigid exhaust pipe 80 diameter - T-piece concentric 80/125 diameter PP with cleaning opening and air clamp - Extension 0,5 m and air clamp - supporting elbow 87° 80 diameter and support rail - Wall collar	303250
	Pipe clamp - 50 diameter (10 pcs.)	0010028100
	Adapter for rigid pipe, 80 mm diameter on 50 mm diameter	0010028106

Figure	Description	Art.-No.
	Extension, flue pipework (PP), 1.0 m, 50 mm diameter (10 pcs)	0010028114
	Extension, flue pipework (PP), 2.0 m, 50 mm diameter (12 pcs)	0010028116
	Clip with retainer for rigid pipe (10 pcs)	0010028112
	Inspection T-piece (PP), 87°	303264
	Wall collar	009477
without illustration	Connector for air/flue pipe	0020147470
without illustration	Transition piece (PP), 80 mm diameter to 60 mm diameter	0020222511
without illustration	Extension (PP), 0.5 m, 60 mm diameter	0020222512
without illustration	Extension (PP), 1.0 m, 60 mm diameter	0020222513
without illustration	Extension (PP), 2.0 m, 60 mm diameter	0020222514
without illustration	87° elbow (PP), 60 mm diameter	0020222515
without illustration	45° elbow, 60 mm diameter, 2 x	0020222516
without illustration	Flue gas pipe fastening with spacer	0020222522
without illustration	Flue gas pipe fastening	0020222523
without illustration	Shaft cover	0020222524
without illustration	Shaft closure	0020222521
without illustration	Extension (PP), 1.0 m, 60 mm diameter, with wind guard	0020222517



# 5. Product information for ecoTEC exclusive .../5-7

## 5.1 Product combinations



Fig. 88: Product combinations

Product combination overview for the ecoTEC exclusive .../5-7

	1	2	3	4	5	6	7	
	Boiler ecoTEC exclusive VC	Combi boiler ecoTEC exclusive VCW	Low loss header	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•**	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
 \*\* Only in conjunction with a boiler

## 5.2 ecoTEC exclusive VC 156/5-7 to 326/5-7 product description



Fig. 89: ecoTEC exclusive VC

### 5.2.1 Special features

- Standard efficiency 98% (Hs)/109% (Hi)
- Modulation up to 1:13
- Self-adaptive all-gas system for the compensation of fluctuations in gas quality and for preventative boiler analysis
- All-gas system for all gas types and for cost savings by extending the inspection interval to 3 years
- Electronically regulated high-efficiency pump with an expanded pump program (without a bypass valve)
- Modern unit design and small unit dimensions
- Especially efficient Green iQ mode

- Systems and statistics can be read quickly and easily thanks to the integrated VR 920 internet module
- Mobile remote control using the free VRC 700 app
- Operation with natural gas E or LL, bio natural gas and liquefied petroleum gas
- No gas conversion required as adjustment for the gas type takes place automatically
- Can be funded in accordance with proKlima

### 5.2.2 Potential applications

- Heating and hot water generation (in combination with an indirectly heated cylinder)
- For new builds and energy-optimised modernising in single- or multiple-occupancy houses
- For radiators and underfloor heating
- Space-saving installation in living areas
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed operation with a system-certified flue gas system

### 5.2.3 Equipment

- High-efficiency pump, water pressure sensor (volume flow sensor), differential pressure sensor and manometer, 10-litre expansion vessel, gas connection compression fitting
- Stainless steel integral condensation heat exchanger
- Integrated control of an external heating circuit pump/ circulation pump and a cylinder charging circuit
- All-gas sensor, air pressure sensor
- Prioritising diverter valve
- Integrated VR 920 Internet module
- DIA system with plain text display, illuminated

Type overview

Unit designation	Energy efficiency class Heating	Gas type	Product ID no.	Order no.
VC 156/5-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	CE-0085CM0320	
VC 216/5-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	CE-0085CM0320	
VC 246/5-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	CE-0085CM0320	
VC 276/5-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	CE-0085CM0320	
VC 326/5-7	A (A+++ to D)	Natural gas G20, G25 G31 liquefied petroleum gas	CE-0085CM0320	



## Technical data - General

	VC 156/5-7 (N-DE) ecoTEC exclusive	VC 216/5-7 (N-DE) ecoTEC exclusive	VC 246/5-7 (N-DE) ecoTEC exclusive	VC 276/5-7 (N-DE) ecoTEC exclusive	VC 326/5-7 (N-DE/DK) ecoTEC exclusive
Designated country (designation in accordance with ISO 3166)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)
Approved unit categories	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>	II <sub>2N3P</sub>
Gas connection, boiler side	20 x 1.0 mm	20 x 1.0 mm	20 x 1.0 mm	20 x 1.0 mm	20 x 1.0 mm
Flow/return heating connections, boiler side	22 x 1.5 mm	22 x 1.5 mm	22 x 1.5 mm	22 x 1.5 mm	22 x 1.5 mm
Hot and cold water connection, boiler side					
Expansion relief valve connection pipe (min.)	15 mm	15 mm	15 mm	15 mm	15 mm
Air/flue connection	60/100 mm	60/100 mm	60/100 mm	60/100 mm	80/125 mm
Condensate discharge pipe (min.)	19 mm	19 mm	19 mm	19 mm	19 mm
Gas connection pressure, G20 natural gas	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas connection pressure, G25 natural gas	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas connection pressure, G31 propane	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	1.9 m <sup>3</sup> /h	2.6 m <sup>3</sup> /h	2.6 m <sup>3</sup> /h	3.2 m <sup>3</sup> /h	3.5 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	2.3 m <sup>3</sup> /h	3.1 m <sup>3</sup> /h	3.1 m <sup>3</sup> /h	3.9 m <sup>3</sup> /h	4.3 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G31	1.4 kg/h	1.9 kg/h	1.88 kg/h	2.4 kg/h	2.59 kg/h
Min. flue gas mass flow rate (G20)	0.84 g/s	0.84 g/s	0.84 g/s	1.47 g/s	1.60 g/s
Min. flue gas mass flow rate (G25)	0.86 g/s	0.86 g/s	0.86 g/s	1.49 g/s	1.62 g/s
Min. flue gas mass flow rate (G31)	1.81 g/s	1.81 g/s	1.81 g/s	1.81 g/s	3.62 g/s
Max. flue gas mass flow rate	8.24 g/s	10.98 g/s	10.98 g/s	13.73 g/s	15.10 g/s
Min. flue gas temperature	40 °C	40 °C	40 °C	40 °C	40 °C
Max. flue gas temperature	65 °C	65 °C	65 °C	65 °C	65 °C
Approved gas boiler types	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x
30% efficiency	107.5 %	108.0 %	108.0 %	108.0 %	108.1 %
NOx class	6	6	6	6	6
Device Specific Number (DSN)	201	202	222	203	204
Unit dimensions, width	440 mm	440 mm	440 mm	440 mm	440 mm
Unit dimensions, height	720 mm	720 mm	720 mm	720 mm	720 mm
Unit dimensions, depth	338 mm	338 mm	338 mm	338 mm	372 mm
Approx. net weight	33 kg	33 kg	33 kg	34.5 kg	37 kg

### Technical data - Power/loading G20/G25

	VC 156/5-7 (N-DE) ecoTEC exclusive	VC 216/5-7 (N-DE) ecoTEC exclusive	VC 246/5-7 (N-DE) ecoTEC exclusive	VC 276/5-7 (N-DE) ecoTEC exclusive	VC 326/5-7 (N-DE/DK) ecoTEC exclusive
Nominal heat output range P at 50/30 °C	1.9 to 15.3 kW	1.9 to 21.6 kW	1.9 to 25.6 kW	3.4 to 26.7 kW	3.8 to 32.9 kW
Nominal heat output range P at 80/60 °C	1.7 to 14.2 kW	1.7 to 20.0 kW	1.7 to 23.9 kW	3.0 to 24.7 kW	3.4 to 30.6 kW
Maximum heat output for domestic hot water generation	18.0 kW	24.0 kW	24.0 kW	30.0 kW	33.0 kW
Maximum heat input for domestic hot water generation	18.2 kW	24.2 kW	24.2 kW	30.3 kW	33.3 kW
Maximum heat input, heating side	14.5 kW	20.4 kW	24.2 kW	25.3 kW	31.2 kW
Minimum heat input	1.9 kW	1.9 kW	1.9 kW	3.3 kW	3.6 kW
Heating adjustment range	2 to 15 kW	2 to 21 kW	2 to 24 kW	3 to 26 kW	4 to 32 kW

### Technical data - Power/loading G31

	VC 156/5-7 (N-DE) ecoTEC exclusive	VC 216/5-7 (N-DE) ecoTEC exclusive	VC 246/5-7 (N-DE) ecoTEC exclusive	VC 276/5-7 (N-DE) ecoTEC exclusive	VC 326/5-7 (N-DE/DK) ecoTEC exclusive
Nominal heat output range P at 50/30 °C	4.1 to 15.3 kW	4.1 to 21.6 kW	4.1 to 25.6 kW	4.2 to 26.7 kW	8.5 to 32.9 kW
Nominal heat output range P at 80/60 °C	3.6 to 14.2 kW	3.6 to 20.0 kW	3.6 to 23.9 kW	3.7 to 24.7 kW	7.6 to 30.6 kW
Maximum heat output for domestic hot water generation	18.0 kW	24.0 kW	24.0 kW	30.0 kW	33.0 kW
Maximum heat input for domestic hot water generation	18.2 kW	24.2 kW	24.2 kW	30.3 kW	33.3 kW
Maximum heat input, heating side	14.5 kW	20.4 kW	24.2 kW	25.3 kW	31.2 kW
Minimum heat input	4.0 kW	4.0 kW	4.0 kW	4.0 kW	8.0 kW

### Technical data - Heating

	VC 156/5-7 (N-DE) ecoTEC exclusive	VC 216/5-7 (N-DE) ecoTEC exclusive	VC 246/5-7 (N-DE) ecoTEC exclusive	VC 276/5-7 (N-DE) ecoTEC exclusive	VC 326/5-7 (N-DE/DK) ecoTEC exclusive
Maximum flow temperature	85 °C	85 °C	85 °C	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Permissible total excess pressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Minimum pressure for full operation	0.08 MPa (0.80 bar)	0.08 MPa (0.80 bar)	0.08 MPa (0.80 bar)	0.08 MPa (0.80 bar)	0.08 MPa (0.80 bar)
Expansion vessel capacity	10 l	10 l	10 l	10 l	10 l
Circulation water volume (with reference to $\Delta T = 20$ K)	609 l/h	859 l/h	1,029 l/h	1,064 l/h	1,314 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	1.45 l/h	2.04 l/h	2.42 l/h	2.52 l/h	3.12 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.020 MPa (0.200 bar)	0.020 MPa (0.200 bar)	0.020 MPa (0.200 bar)	0.020 MPa (0.200 bar)	0.015 MPa (0.150 bar)

## Technical data - Electrics

	VC 156/5-7 (N-DE) ecoTEC exclusive	VC 216/5-7 (N-DE) ecoTEC exclusive	VC 246/5-7 (N-DE) ecoTEC exclusive	VC 276/5-7 (N-DE) ecoTEC exclusive	VC 326/5-7 (N-DE/DK) ecoTEC exclusive
Electric connection	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	2 A	2 A	2 A	2 A	2 A
Min. electrical power consumption	23 W	30 W	31 W	29 W	36 W
Max. electrical power consumption for heating mode (nominal heat input)	51 W	62 W	62 W	62 W	81 W
Max. electrical power consumption for cylinder charging	67 W	81 W	81 W	80 W	85 W
Standby electrical power consumption	< 1.9 W	< 1.9 W	< 1.8 W	< 1.9 W	< 1.9 W
IP rating	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D

**Dimension drawing - ecoTEC exclusive VC 156/5-7 to 326/5-7**

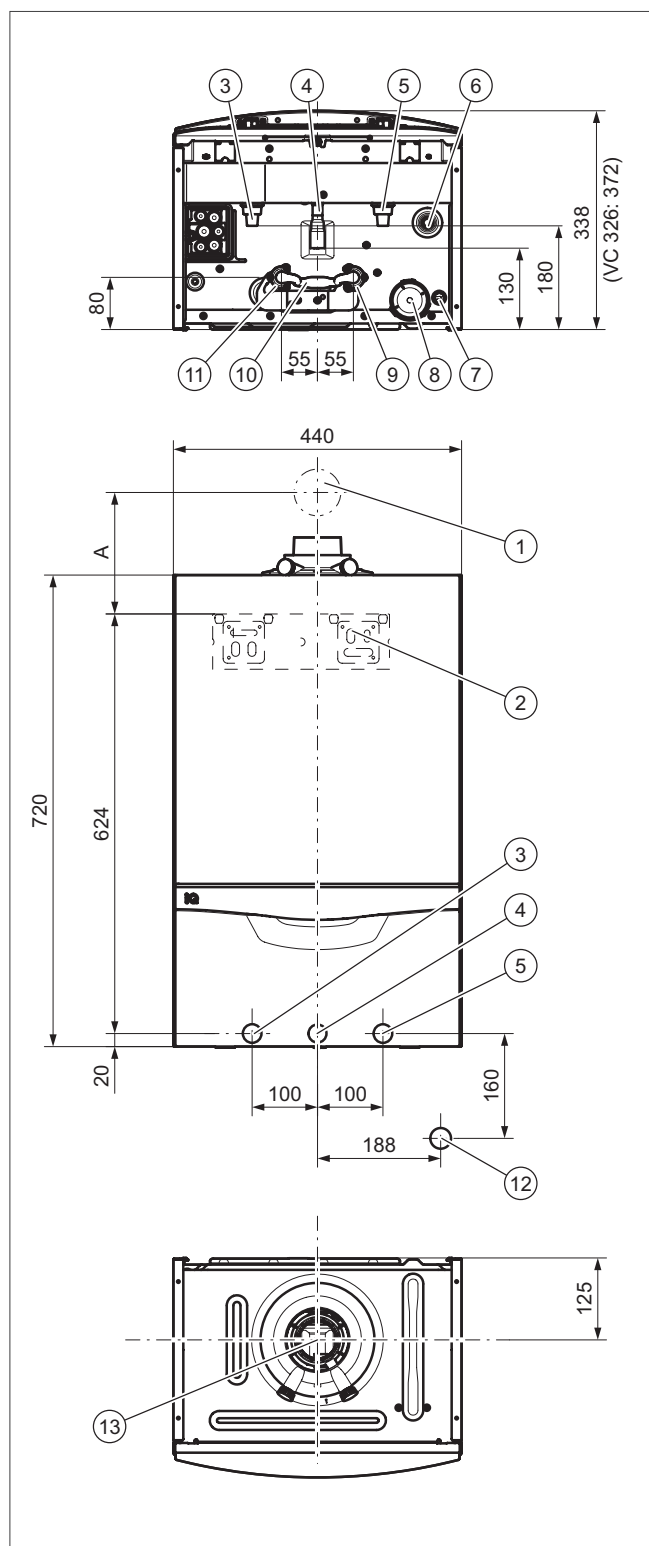


Fig. 90: Dimensions

- 1 Air/flue pipe wall duct
- 2 Product bracket
- 3 Heating flow (22 x 1.5 diameter)
- 4 Gas connection (20 x 1.0 diameter; VC 326/5-7: 20 x 2.0 diameter)
- 5 Heating return (22 x 1.5 diameter)
- 6 Drain pipework/heating expansion relief valve connection, 15 mm diameter
- 7 Condensate discharge connection, 19 mm diameter
- 8 Condensate siphon
- 9 Cylinder return, 15 mm diameter
- 10 Circulation section
- 11 Cylinder flow, 15 mm diameter
- 12 R1 tundish/condensate siphon connection
- 13 Air/flue pipe connection

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	223
60/100 with 87° elbow and inspection opening, PP	223
80/125 with 87° elbow, PP	241
80/125 with inspection T-piece, PP	258

## 5.3 Product description for ecoTEC exclusive VCW 266/5-7



Fig. 91: ecoTEC exclusive VCW

### 5.3.1 Special features

- Standard efficiency 98% (Hs)/109% (Hi)
- Modulation 1:10
- Self-adaptive all-gas system for the compensation of fluctuations in gas quality and for preventative boiler analysis
- All-gas system for all gas types and for cost savings by extending the inspection interval to 3 years
- Combi boiler with integrated domestic hot water generation operating on the flow-through principle
- Hot water comfort increase of up to 8% and simultaneous water withdrawal possible
- Electronically controlled high-efficiency pump with additional pump programmes (without a bypass valve)

- Especially efficient Green iQ mode
- Systems and statistics can be read quickly and easily thanks to the integrated VR 920 internet module
- Mobile remote control using the free VRC 700 app
- Operation with natural gas E or LL, bio natural gas and liquefied petroleum gas
- No gas conversion required as adjustment for the gas type takes place automatically
- Can be funded in accordance with proKlima

### 5.3.2 Potential applications

- Heating and hot water generation (flow-through principle)
- For new builds and modernising houses and flats as well as multiple-flue configuration in flats (apartment building)
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches
- Open-flued or room-sealed modes with system-certified flue gas system
- Operation with natural gas E or LL, bio natural gas and liquefied petroleum gas

### 5.3.3 Equipment

- High-efficiency pump
- Water pressure sensor (volume flow sensor), differential pressure sensor and manometer, 10 litre expansion vessel, expansion relief valve, gas connection compression fitting
- Stainless steel integral condensation heat exchanger
- Integrated control of an external heating circuit pump/circulation pump and a cylinder charging circuit
- All-gas sensor
- Integrated VR 920 Internet module
- DIA system with plain text display, illuminated

#### Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Product ID no.	Order no.
VCW 266/5-7	A (A+++ to D)	A (A+ to F)	Natural gas G20, G25 Liquefied petroleum gas G31	CE-0085CM0320	

## Technical data - General

	VCW 266/5-7 (N-DE) ecoTEC exclusive
Designated country (designation in accordance with ISO 3166)	DE (Germany)
Approved unit categories	II <sub>2N3P</sub>
Gas connection, boiler side	20 x 2.0 mm
Flow/return heating connections, boiler side	22 x 1.5 mm
Hot and cold water connection, boiler side	15 x 1.5 mm
Expansion relief valve connection pipe (min.)	15 mm
Air/flue connection	80/125 mm
Condensate discharge pipe (min.)	19 mm
Gas connection pressure, G20 natural gas	2.0 kPa (20.0 mbar)
Gas connection pressure, G25 natural gas	2.0 kPa (20.0 mbar)
Gas connection pressure, G31 propane	5.0 kPa (50.0 mbar)
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	3.5 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	4.0 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G31	2.54 kg/h
Min. flue gas mass flow rate (G20)	1.62 g/s
Min. flue gas mass flow rate (G25)	1.64 g/s
Min. flue gas mass flow rate (G31)	3.62 g/s
Max. flue gas mass flow rate	14.68 g/s
Min. flue gas temperature	40 °C
Max. flue gas temperature	65 °C
Approved gas boiler types	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x
30% efficiency	109.7 %
NOx class	6
Device Specific Number (DSN)	205
Unit dimensions, width	440 mm
Unit dimensions, height	720 mm
Unit dimensions, depth	406 mm
Approx. net weight	42.5 kg

## Technical data - Power/loading G20/G25

	VCW 266/5-7 (N-DE) ecoTEC exclusive
Nominal heat output range P at 50/30 °C	3.9 to 26.4 kW
Nominal heat output range P at 80/60 °C	3.4 to 24.6 kW
Maximum heat output for domestic hot water generation	35.3 kW
Maximum heat input for domestic hot water generation	32.7 kW
Maximum heat input, heating side	24.8 kW
Minimum heat input	3.6 kW
Heating adjustment range	3 to 26 kW

## Technical data - Power/loading G31

	VCW 266/5-7 (N-DE) ecoTEC exclusive
Nominal heat output range P at 50/30 °C	8.6 to 26.4 kW
Nominal heat output range P at 80/60 °C	7.6 to 24.6 kW
Maximum heat output for domestic hot water generation	35.3 kW
Maximum heat input for domestic hot water generation	32.7 kW
Maximum heat input, heating side	24.8 kW
Minimum heat input	8.0 kW

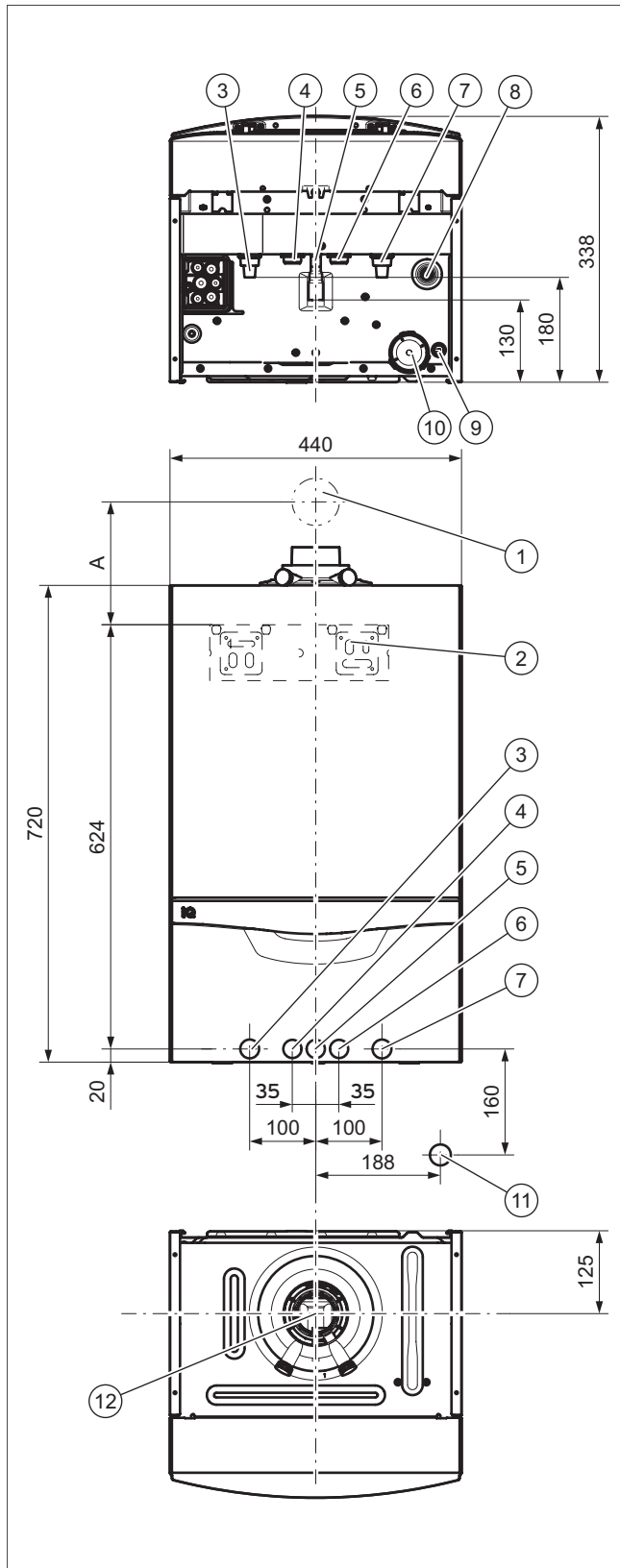
## Technical data - Heating

	VCW 266/5-7 (N-DE) ecoTEC exclusive
Maximum flow temperature	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C
Permissible total excess pressure	0.3 MPa (3.0 bar)
Minimum pressure for full operation	0.08 MPa (0.80 bar)
Expansion vessel capacity	10 l
Circulation water volume (with reference to ΔT= 20 K)	1,058 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	2.48 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.025 MPa (0.250 bar)

## Technical data - Electrics

	VCW 266/5-7 (N-DE) ecoTEC exclusive
Electric connection	230 V/50 Hz
Permissible connected voltage	190 to 253 V
Built-in fuse (slow-blow)	2 A
Min. electrical power consumption	41 W
Max. electrical power consumption for heating mode (nominal heat input)	79 W
Max. electrical power consumption for cylinder charging	89 W
Standby electrical power consumption	< 1.9 W
IP rating	IP X4 D

Dimension drawing - ecoTEC exclusive VCW 266/5-7



- 1 Wall duct for air/flue pipe
- 2 Product bracket
- 3 Heating flow
- 4 Domestic hot water connection
- 5 Gas connection
- 6 Cold water connection
- 7 Heating return
- 8 Connection for the heating expansion relief valve drain pipework
- 9 Condensate discharge connection
- 10 Condensate siphon
- 11 R1 tundish/condensate siphon connection
- 12 Air/flue pipe connection

Minimum clearance for a duct through a wall or into a shaft	A [mm]
80/125 with 87° elbow, PP	241
80/125 with inspection T-piece, PP	258

Fig. 92: Dimensions

## 5.4 Supplementary information for the ecoTEC exclusive VC 156/5-7 to 326/5-7 and VCW 266/5-7

### 5.4.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

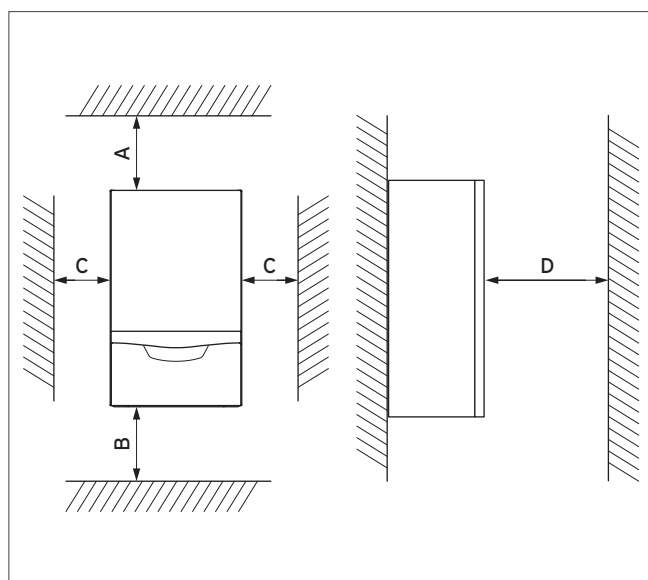


Fig. 93: Required minimum clearances/installation clearances

	Minimum clearance
A	165 mm: Air/flue pipe, 60/100 mm diameter 275 mm: Air/flue pipe, 80/125 mm diameter
B	180 mm; optimum approx. 250 mm
C	5 mm; optimum approx. 50 mm
D	500 mm in front of the heat generator to enable easy access for maintenance work (may be provided by an opening door).

### 5.4.2 Pump diagrams

Differential pressure specified under diagnostics code D.122. Factory setting: 200 hPa.

#### VC 156/5-7 pump characteristic

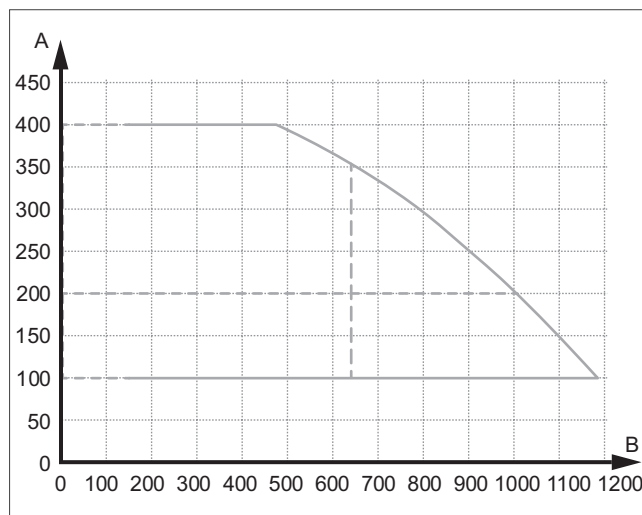


Fig. 94: VC 156/5-7 pump characteristic

- A Constant pressure regulation for the differential pressure level **D.122** [hPa (mbar)], factory setting marked
- B System volume flow [l/hr], nominal volume flow [20 K] marked

#### VC 216/5-7 pump characteristic

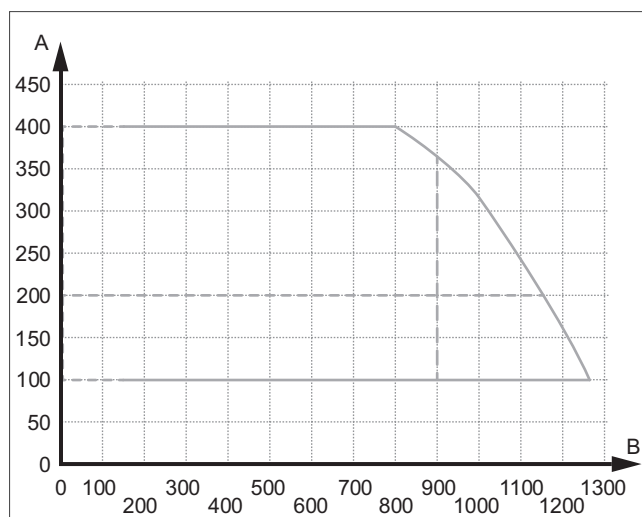


Fig. 95: VC 216/5-7 pump characteristic

- A Constant pressure regulation for the differential pressure level **D.122** [hPa (mbar)], factory setting marked
- B System volume flow [l/hr], nominal volume flow [20 K] marked



### VC 246/5-7, 276/5-7 pump characteristic

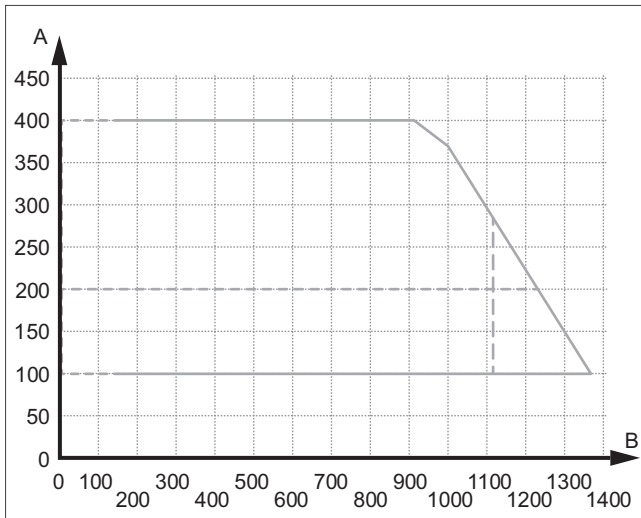


Fig. 96: VC 246/5-7, 276/5-7 pump characteristic

- A Constant pressure regulation for the differential pressure level **D.122** [hPa (mbar)], factory setting marked
- B System volume flow [l/hr], nominal volume flow [20 K] marked

### VCW 266/5-7 pump characteristic

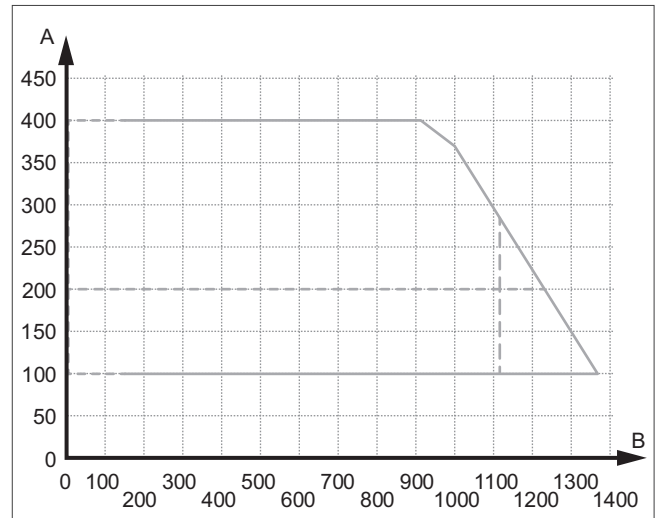


Fig. 98: VCW 266/5-7 pump characteristic

- A Constant pressure regulation for the differential pressure level **D.122** [hPa (mbar)], factory setting marked
- B System volume flow [l/hr], nominal volume flow [20 K] marked

### VC 326/5-7 pump characteristic

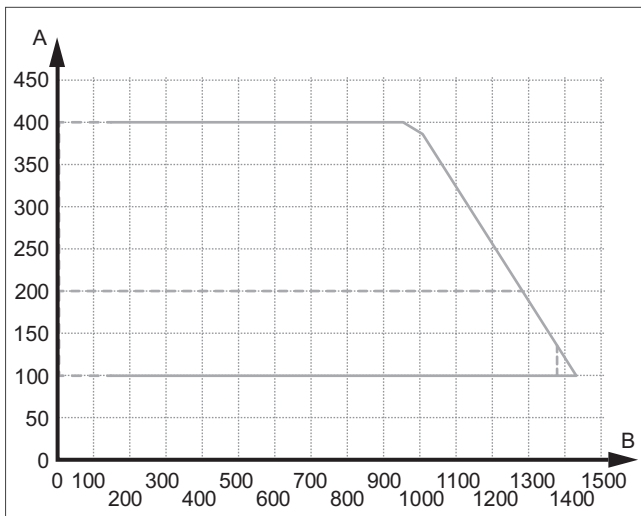


Fig. 97: VC 326/5-7 pump characteristic

- A Constant pressure regulation for the differential pressure level **D.122** [hPa (mbar)], factory setting marked
- B System volume flow [l/hr], nominal volume flow [20 K] marked

## 5.5 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus			uniSTOR exclusive			uniSTOR plus			actoSTOR		
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH K 300 (NL 10.0)
ecoTEC exclusive 1.7-30.6 kW	VC 156/5-7	•	•	•	•	•	•	•	o	o	o	o	o	o	-	-
	VC 216/5-7	•	•	•	•	•	•	•	•	o	o	•	o	o	-	-
	VC 246/5-7	•	•	•	•	•	•	•	•	o	o	•	o	o	-	-
	VC 276/5-7	•	•	•	•	•	•	o	•	o	o	•	o	o	-	-
	VC 326/5-7	•	•	•	•	•	•	-	•	•	•	•	•	•	-	-

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 5.6 Basic system diagrams and wiring diagrams

### 5.6.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module
7g	Heat recovery module

Number	Designation
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface
12c	2 in 7 multi-functional module

Number	Designation
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 5.6.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020187610	ecoTEC exclusive VC	VRC 700, Modul 2 aus 7	–	1 HC	Low loss header	–	–	uniSTOR VIH R
0020194183	ecoTEC exclusive VC	VRC 700, VR 70, VR 91	1 UFH	1 HC	Low loss header	–	–	uniSTOR VIH R
0020187609	ecoTEC exclusive VCW	VRC 700, VR 900	–	1 HC	–	–	–	–
0020235625	ecoTEC exclusive	VRC 700, VR 71	2 UFH, 1 HC	–	Low loss header	•	•	auroSTEP VPS RS

0020187610 - Basic hydraulic diagram

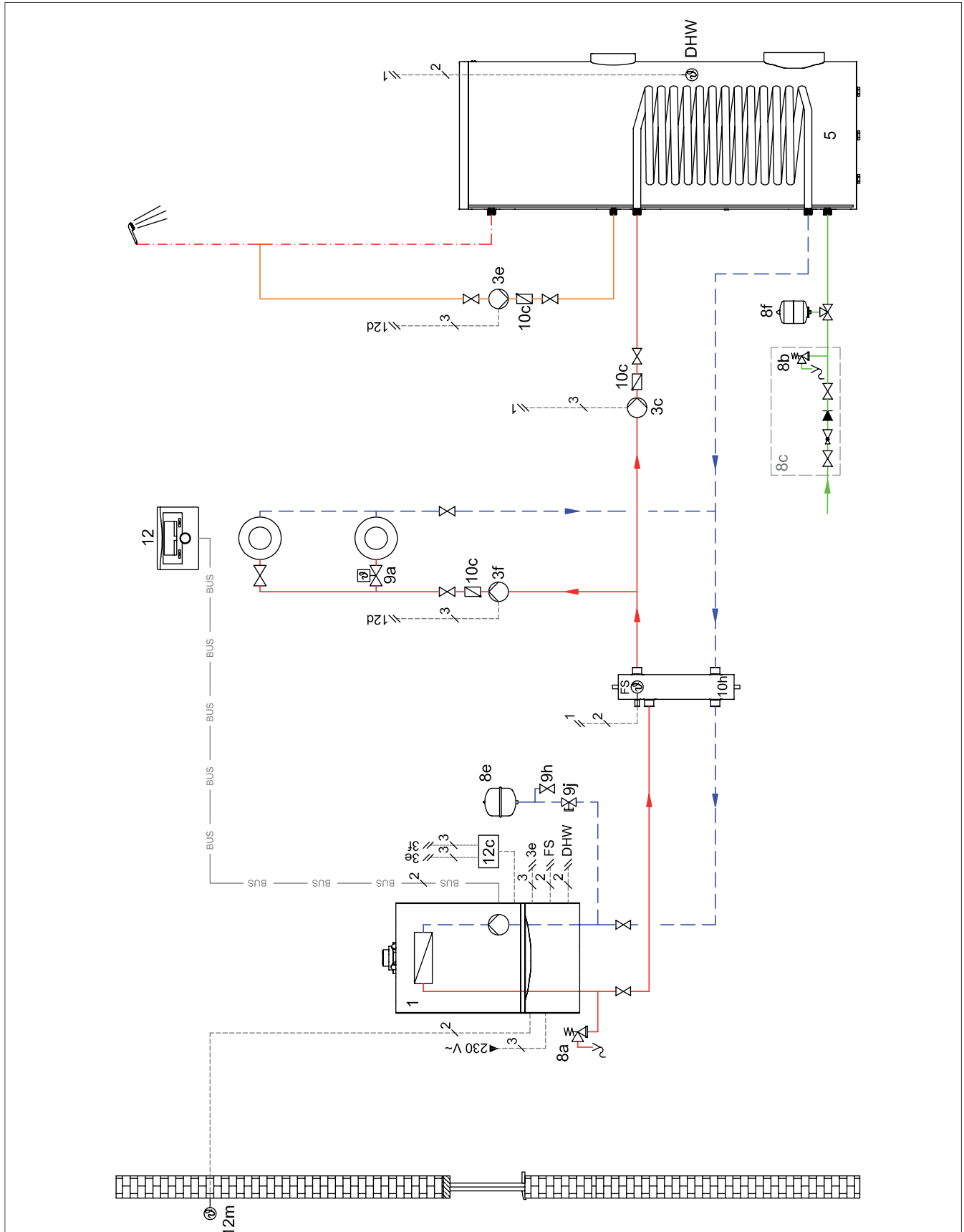


Fig. 99: Basic hydraulic diagram



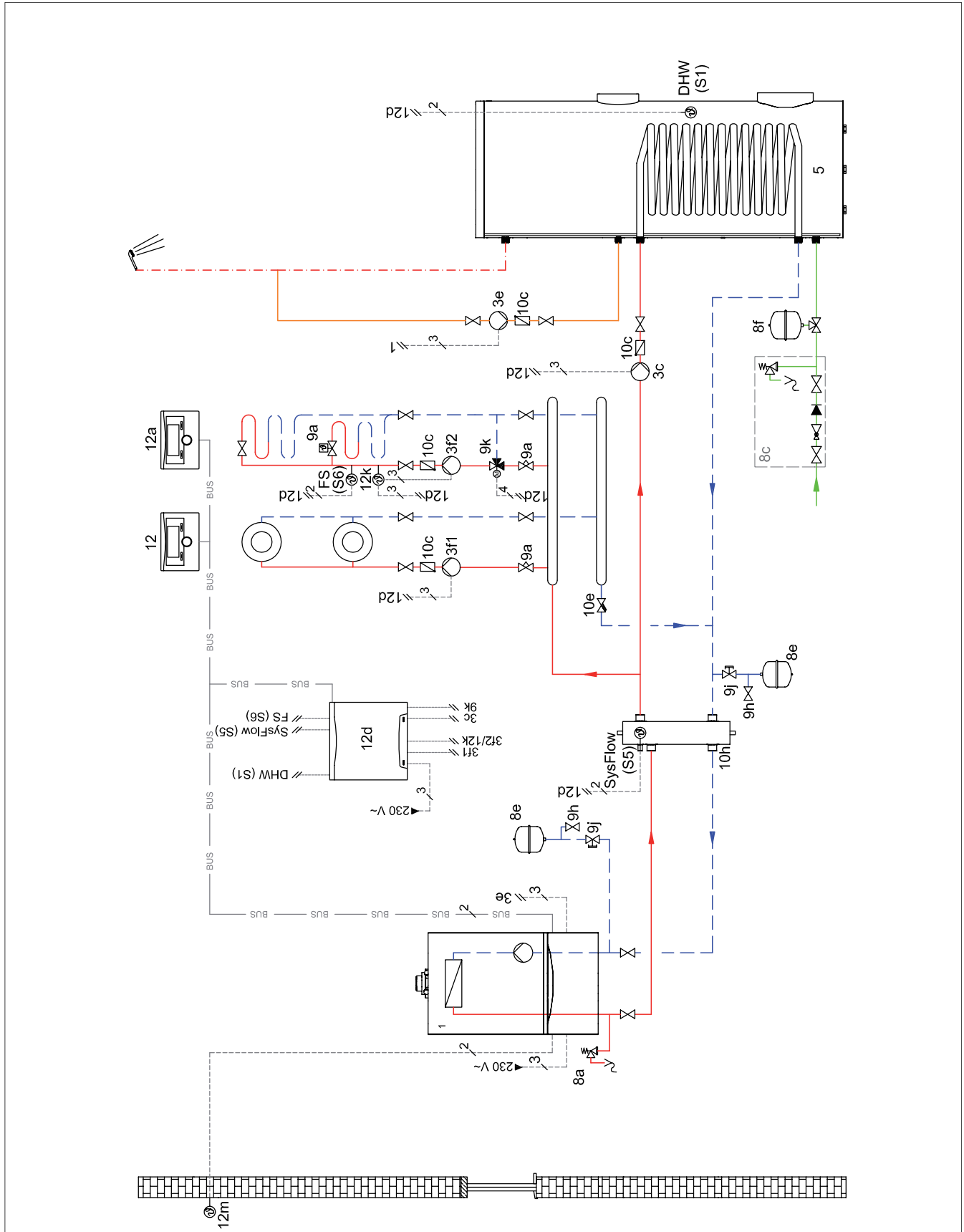


Fig. 101: Basic hydraulic diagram



## 0020194183 - Wiring diagram

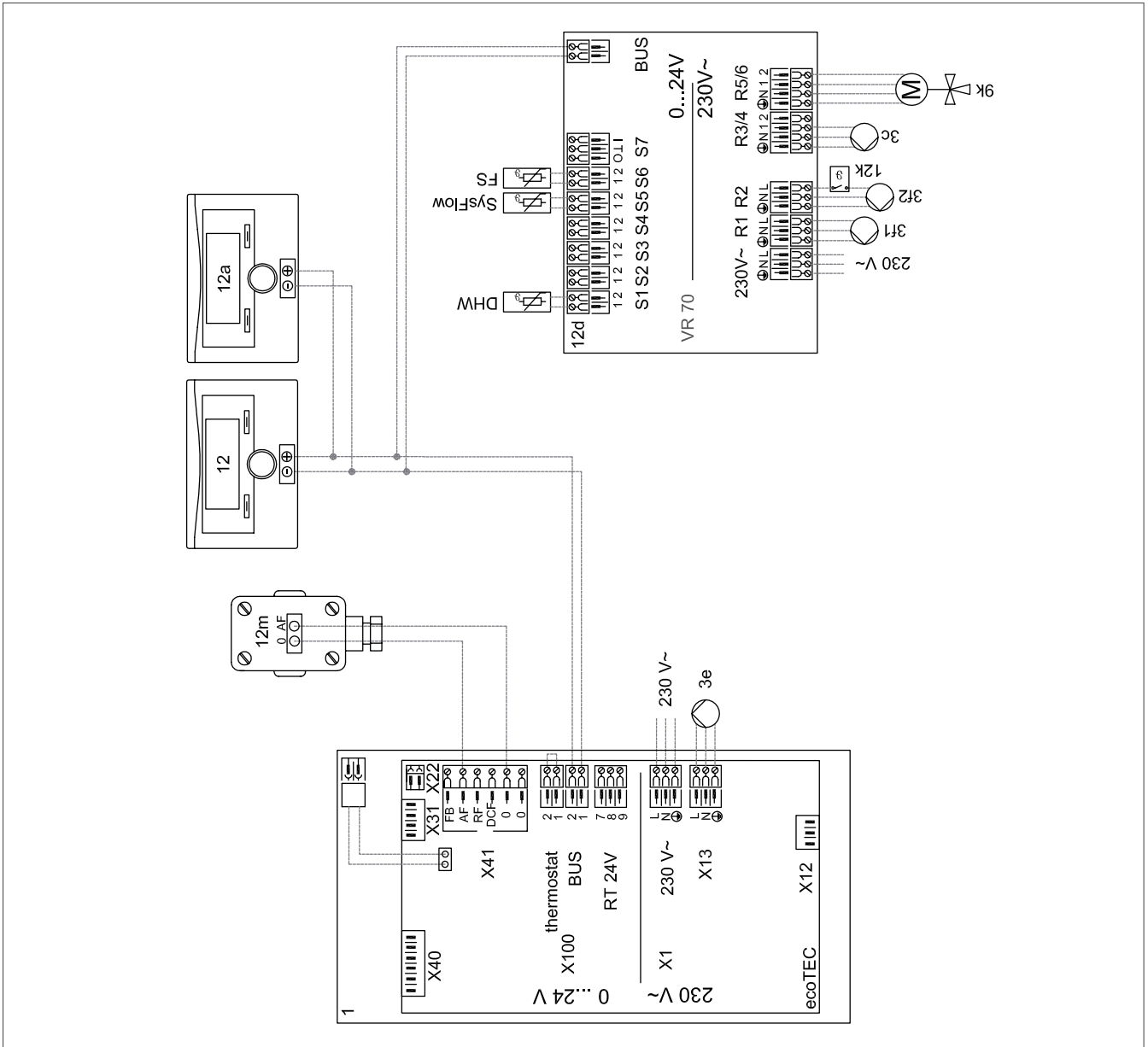


Fig. 102: Wiring diagram

### Description

Apartment buildings with two heating circuits. The pump heating circuit is non-mixed; the underfloor heating circuit is mixed. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

**Caution:** \*Integrated in the heat generator.

### Individual components

- ecoTEC exclusive 35 - 65 kW
- uniSTOR VIH R
- WH 27/40
- VRC 700
- VR 70
- VR 91

### Setting

VRC 700 System diagram setting: 2  
Module setting: 1

0020187609 - Basic hydraulic diagram

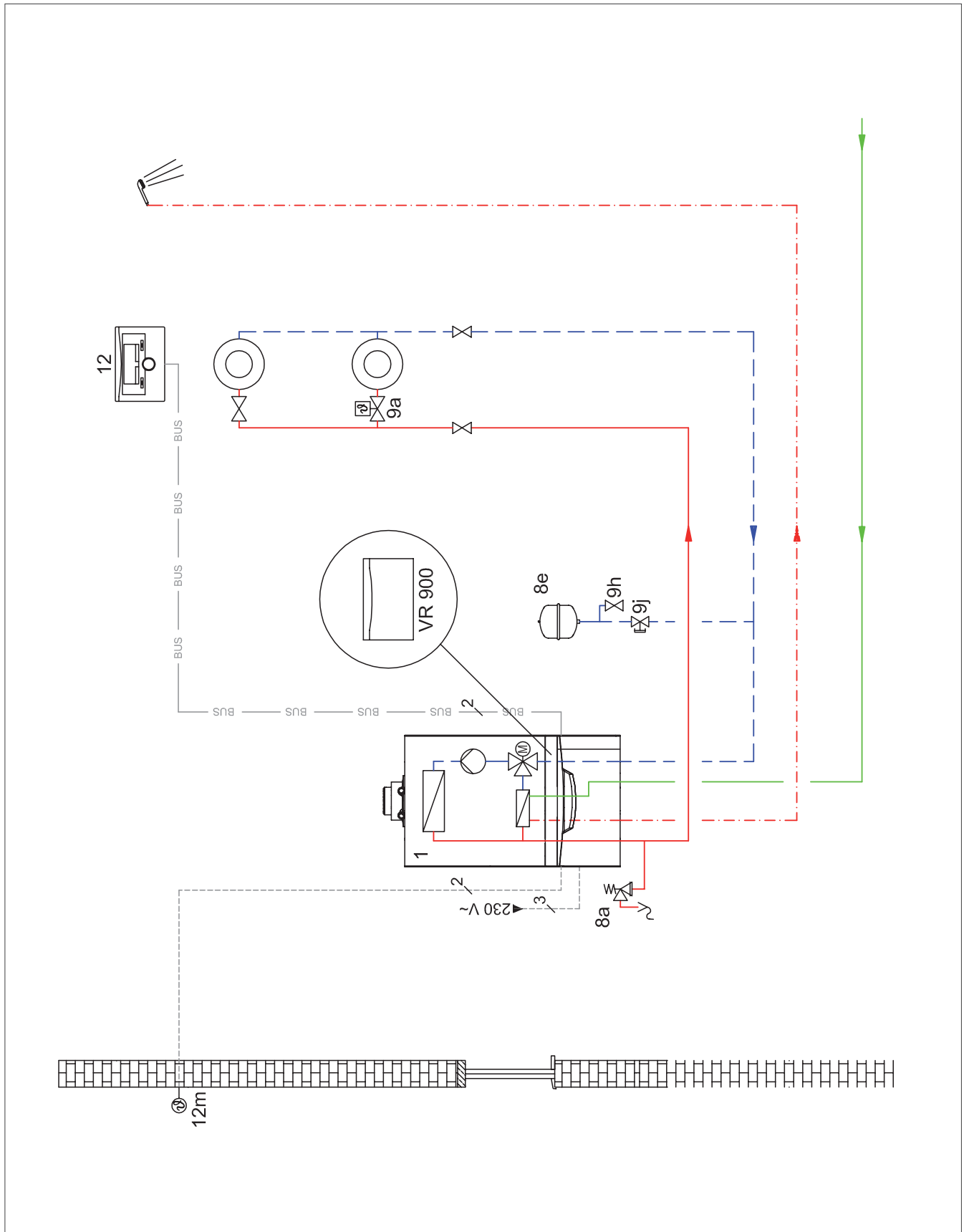


Fig. 103: Basic hydraulic diagram

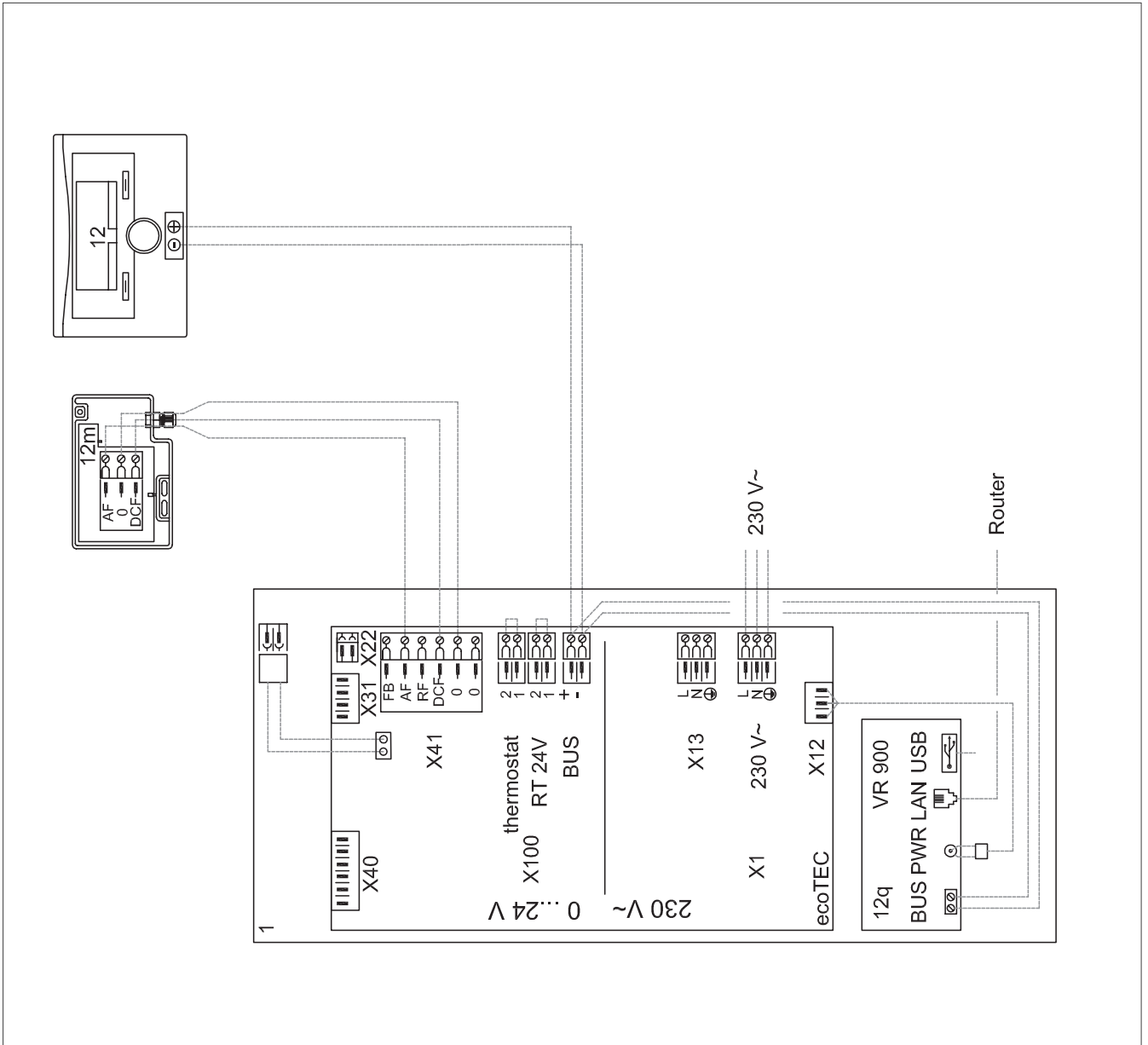


Fig. 104: Wiring diagram

**Description**

Single-occupancy houses or apartments with one heating circuit.  
 Hot water is generated by the heat generator without a domestic hot water cylinder.

**Individual components**

- ecoTEC exclusive VCW
- VRC 700
- VR 900

**Setting**

VRC 700 System diagram setting: 1



## 0020235625 - Wiring diagram

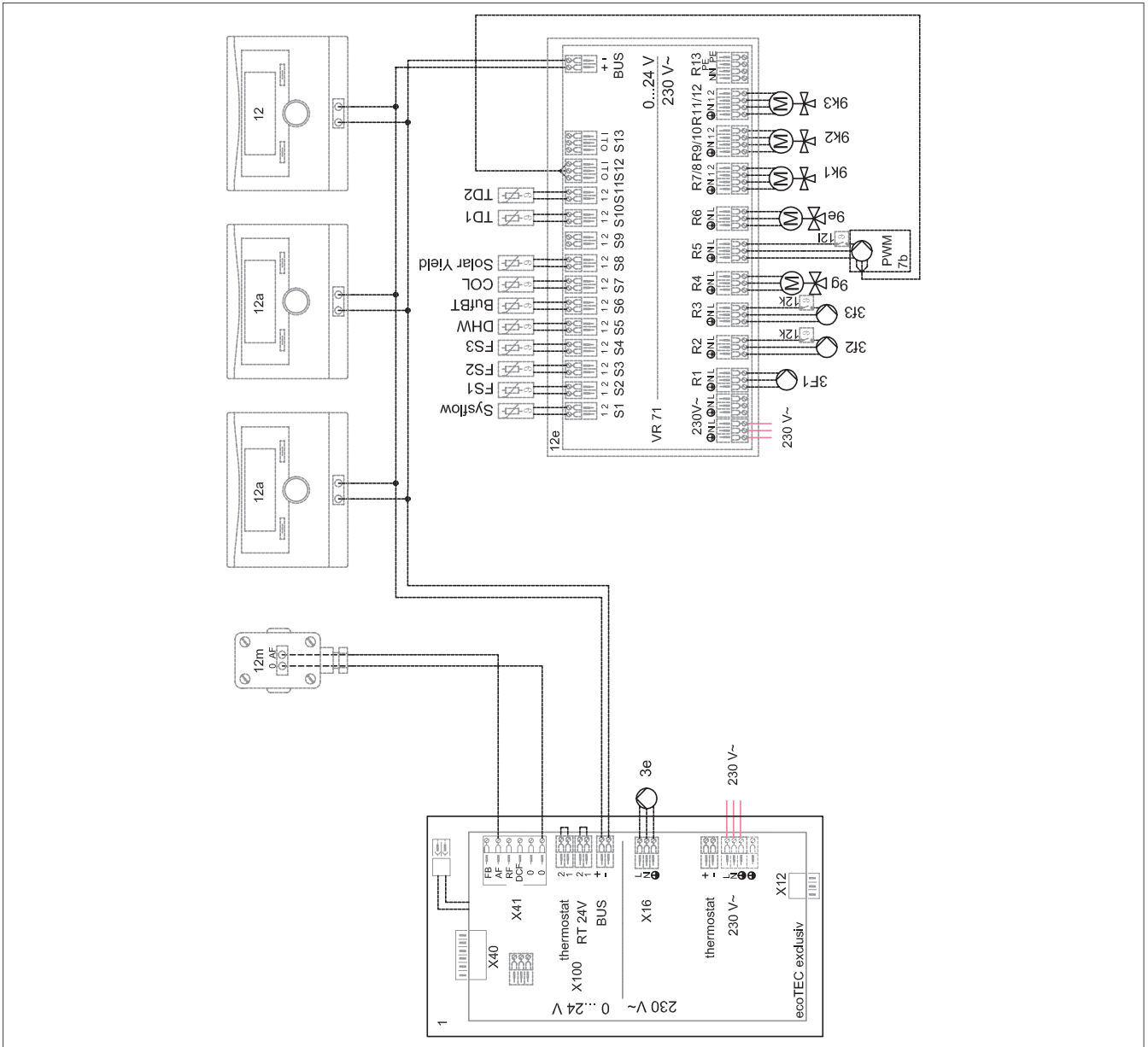


Fig. 106: Wiring diagram

### Description

Single-occupancy houses with two mixed heating circuits (underfloor heating) and one mixed radiator circuit.

The solar system supports the hot water and heating systems.

The buffer cylinder and solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** \*Integrated in the heat generator. To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position.

### Individual components

- ecoTEC exclusive < 30 kW
- auroSTEP VPS RS
- auroTHERM VFK
- WH 27/40
- Hydraulikblock
- VMS 70
- VRC 700
- VR 71

### Setting

VRC 700 System diagram setting: 2

VR 71 Module setting: 2





# 6. Product information for ecoTEC plus .../5-5 up to 31 kW

## 6.1 Product combinations



Fig. 107: Product combinations

Product combination overview for the ecoTEC plus .../5-5

	1			2	3	4	5	6	7
	Boiler ecoTEC plus VC	Combi boiler ecoTEC plus VCI	Combi boiler ecoTEC plus VCW	Low loss header	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	–	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•**	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
 \*\* Only in conjunction with a boiler

## 6.2 ecoTEC plus VC 146/5-5 to VC 306/5-5 product description



Fig. 108: ecoTEC plus VC 14-30 kW

### 6.2.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>i</sub>)
- Modulation range of 20-100%
- Electronic gas-air mixture
- Automatic partial load adjustment
- Multi-sensor system and comfort protection programme
- Aqua Condens System, cylinder charging control with condensing technology

- Aqua Power Plus up to 20% more domestic hot water output
- Intuitive-to-use unit display
- Horizontal hydraulic connections and comprehensive installation accessories for flexible use
- Can be used in multiple-flue configurations with up to ten units
- Can be combined with a solar system or a heat pump
- Operation with natural gas E or LL, bio natural gas and liquefied petroleum gas

### 6.2.2 Potential applications

- Heating and hot water generation (in combination with an indirectly heated cylinder)
- For new builds and modernising single-occupancy and dual-occupancy houses as well as multi-occupancy dwellings in flats (multiple-occupancy house)
- For radiators and underfloor heating
- Space-saving installation in living areas
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed modes with system-certified flue gas system

### 6.2.3 Equipment

- High-efficiency pump
- Water pressure sensor, flow sensor and pressure gauge, 10 litre expansion vessel, 1/2" SI valve
- Stainless steel integral condensation heat exchanger
- Integrated cylinder control with diverter valve
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to natural gas E or LL

#### Note

Liquid gas conversion kit available as a spare part.



#### Type overview

Unit designation	Energy efficiency class Heating	Gas type	Product ID no.	Order no.
VC 146/5-5 E VC 146/5-5 LL	A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas	CE-0085 CM 0321 CE-0085 CM 0321	
VC 206/5-5 E VC 206/5-5 LL VC 206/5-5 P	A (A+++ to D) A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas Liquefied petroleum gas G31	CE-0085 CM 0321 CE-0085 CM 0321 CE-0085 CM 0321	
VC 266/5-5 E VC 266/5-5 LL	A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas	CE-0085 CM 0321 CE-0085 CM 0321	
VC 306/5-5 E VC 306/5-5 LL	A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas	CE-0085 CM 0321 CE-0085 CM 0321	



## Technical data - General

	VC 146/5-5 (E-DE) ecoTEC plus	VC 146/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (E-DE) ecoTEC plus	VC 206/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (P-DE) ecoTEC plus
Designated country (designation in accordance with ISO 3166)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)
Approved unit categories	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Gas connection, boiler side	20 mm	20 mm	20 mm	20 mm	20 mm
Flow/return heating connections, boiler side	22 mm	22 mm	22 mm	22 mm	22 mm
Domestic hot and cold water connection, boiler side	-	-	-	-	-
Expansion relief valve connector (min.)	15 mm	15 mm	15 mm	15 mm	15 mm
Air/flue gas connection	60/100 mm	60/100 mm	60/100 mm	60/100 mm	60/100 mm
Condensate drain pipework (min.)	19 mm	19 mm	19 mm	19 mm	19 mm
G20 natural gas flow pressure	2.0 kPa (20.0 mbar)	-	2.0 kPa (20.0 mbar)	-	-
G25 natural gas flow pressure	-	2.0 kPa (20.0 mbar)	-	2.0 kPa (20.0 mbar)	-
G31 propane gas flow pressure	-	-	-	-	5.0 kPa (50.0 mbar)
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	1.7 m <sup>3</sup> /h	-	2.6 m <sup>3</sup> /h	-	-
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	-	2.1 m <sup>3</sup> /h	-	3.1 m <sup>3</sup> /h	-
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G31	-	-	-	-	1.9 m <sup>3</sup> /h
Min. flue gas mass flow rate (G20)	1.44 g/s	-	1.80 g/s	-	-
Min. flue gas mass flow rate (G25)	-	1.46 g/s	-	1.82 g/s	-
Min. flue gas mass flow rate (G31)	-	-	-	-	2.59 g/s
Max. flue gas mass rate	7.4 g/s	7.4 g/s	11.1 g/s	11.1 g/s	11.1 g/s
Min. flue gas temperature	40 °C	40 °C	40 °C	40 °C	40 °C
Max. flue gas temperature	70 °C	70 °C	70 °C	70 °C	70 °C
Approved gas-fired units	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x
30% efficiency	109.3 %	109.3 %	109.6 %	109.6 %	108 %
NOx class	6	6	6	6	6
Boiler dimension, width	440 mm	440 mm	440 mm	440 mm	440 mm
Boiler dimension, height	720 mm	720 mm	720 mm	720 mm	720 mm
Boiler dimension, depth	338 mm	338 mm	338 mm	338 mm	338 mm
Approx. net weight	33 kg	33 kg	33 kg	33 kg	33 kg

	VC 266/5-5 (E-DE) ecoTEC plus	VC 266/5-5 (LL-DE) ecoTEC plus	VC 306/5-5 (E-DE) ecoTEC plus	VC 306/5-5 (LL-DE) ecoTEC plus
Designated country (designation in accordance with ISO 3166)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)
Approved unit categories	II <sub>ZELL3P</sub>	II <sub>ZELL3P</sub>	II <sub>ZELL3P</sub>	II <sub>ZELL3P</sub>
Gas connection, boiler side	20 mm	20 mm	20 mm	20 mm
Flow/return heating connections, boiler side	22 mm	22 mm	22 mm	22 mm
Domestic hot and cold water connection, boiler side	-	-	-	-
Expansion relief valve connector (min.)	15 mm	15 mm	15 mm	15 mm
Air/flue gas connection	60/100 mm	60/100 mm	80/125 mm	80/125 mm
Condensate drain pipework (min.)	19 mm	19 mm	19 mm	19 mm
G20 natural gas flow pressure	2.0 kPa (20.0 mbar)	-	2.0 kPa (20.0 mbar)	-
G25 natural gas flow pressure	-	2.0 kPa (20.0 mbar)	-	2.0 kPa (20.0 mbar)
G31 propane gas flow pressure	-	-	-	-
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	3.2 m³/h	-	3.7 m³/h	-
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	-	3.9 m³/h	-	4.4 m³/h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G31	-	-	-	-
Min. flue gas mass flow rate (G20)	2.47 g/s	-	2.78 g/s	-
Min. flue gas mass flow rate (G25)	-	2.50 g/s	-	2.82 g/s
Min. flue gas mass flow rate (G31)	-	-	-	-
Max. flue gas mass rate	15.0 g/s	15.0 g/s	17.0 g/s	17.0 g/s
Min. flue gas temperature	40 °C	40 °C	40 °C	40 °C
Max. flue gas temperature	80 °C	80 °C	80 °C	80 °C
Approved gas-fired units	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x
30% efficiency	109.5 %	109.5 %	109.4 %	109.4 %
NOx class	6	6	6	6
Boiler dimension, width	440 mm	440 mm	440 mm	440 mm
Boiler dimension, height	720 mm	720 mm	720 mm	720 mm
Boiler dimension, depth	338 mm	338 mm	372 mm	372 mm
Approx. net weight	34.5 kg	34.5 kg	37 kg	37 kg

### Technical data - power/loading G20/25

	VC 146/5-5 (E-DE) ecoTEC plus	VC 146/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (E-DE) ecoTEC plus	VC 206/5-5 (LL-DE) ecoTEC plus
Nominal heat output range P at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	4.1 to 21.6 kW	4.1 to 21.6 kW
Nominal heat output range P at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Maximum heat output for hot water generation	16.0 kW	16.0 kW	24.0 kW	24.0 kW
Maximum heat input for hot water generation	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Maximum heat input, heating side	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input	3.2 kW	3.2 kW	4.0 kW	4.0 kW
Heating adjustment range	3 to 14 kW	3 to 14 kW	4 to 20 kW	4 to 20 kW
Nominal heat input efficiency (stationary) at 40/30 °C	108 %	108 %	108 %	108 %
Nominal heat input efficiency (stationary) at 50/30 °C	106 %	106 %	106 %	106 %
Nominal heat input efficiency (stationary) at 60/40 °C	101 %	101 %	101 %	101 %
Nominal heat input efficiency (stationary) at 80/60 °C	98 %	98 %	98 %	98 %

	VC 266/5-5 (E-DE) ecoTEC plus	VC 266/5-5 (LL-DE) ecoTEC plus	VC 306/5-5 (E-DE) ecoTEC plus	VC 306/5-5 (LL-DE) ecoTEC plus
Nominal heat output range P at 50/30 °C	5.7 to 27.2 kW	5.7 to 27.2 kW	6.4 to 32.5 kW	6.4 to 32.5 kW
Nominal heat output range P at 80/60 °C	5.2 to 25.0 kW	5.2 to 25.0 kW	5.8 to 30.0 kW	5.8 to 30.0 kW
Maximum heat output for hot water generation	30.0 kW	30.0 kW	34.0 kW	34.0 kW
Maximum heat input for hot water generation	30.6 kW	30.6 kW	34.7 kW	34.7 kW
Maximum heat input, heating side	25.5 kW	25.5 kW	30.6 kW	30.6 kW
Minimum heat input	5.5 kW	5.5 kW	6.2 kW	6.2 kW
Heating adjustment range	5 to 25 kW	5 to 25 kW	6 to 30 kW	6 to 30 kW
Nominal heat input efficiency (stationary) at 40/30 °C	108 %	108 %	107 %	107 %
Nominal heat input efficiency (stationary) at 50/30 °C	107 %	107 %	106 %	106 %
Nominal heat input efficiency (stationary) at 60/40 °C	101 %	101 %	101 %	101 %
Nominal heat input efficiency (stationary) at 80/60 °C	98 %	98 %	98 %	98 %

### Technical data - Power/loading G31

	VC 206/5-5 (P-DE) ecoTEC plus
Nominal heat output range P at 50/30 °C	5.5 to 21.2 kW
Nominal heat output range P at 80/60 °C	5.0 to 20.0 kW
Maximum heat output for hot water generation	24.0 kW
Maximum heat input for hot water generation	24.5 kW
Maximum heat input, heating side	20.4 kW
Minimum heat input	5.3 kW
Nominal heat input efficiency (stationary) at 40/30 °C	104 %
Nominal heat input efficiency (stationary) at 50/30 °C	104 %
Nominal heat input efficiency (stationary) at 60/40 °C	101 %
Nominal heat input efficiency (stationary) at 80/60 °C	98 %

## Technical data - Heating

	VC 146/5-5 (E-DE) ecoTEC plus	VC 146/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (E-DE) ecoTEC plus	VC 206/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (P-DE) ecoTEC plus
Maximum flow temperature	85 °C	85 °C	85 °C	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Permissible total overpressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Circulation water volume (with reference to $\Delta T = 20$ K)	602 l/h	602 l/h	860 l/h	860 l/h	860 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	1.4 l/h	1.4 l/h	2.0 l/h	2.0 l/h	2.0 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.022 MPa (0.220 bar)	0.022 MPa (0.220 bar)	0.022 MPa (0.220 bar)

	VC 266/5-5 (E-DE) ecoTEC plus	VC 266/5-5 (LL-DE) ecoTEC plus	VC 306/5-5 (E-DE) ecoTEC plus	VC 306/5-5 (LL-DE) ecoTEC plus
Maximum flow temperature	85 °C	85 °C	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Permissible total overpressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Circulation water volume (with reference to $\Delta T = 20$ K)	1,075 l/h	1,075 l/h	1,290 l/h	1,290 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	2.6 l/h	2.6 l/h	3.1 l/h	3.1 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.018 MPa (0.180 bar)	0.018 MPa (0.180 bar)	0.015 MPa (0.150 bar)	0.015 MPa (0.150 bar)

## Technical data - Electrics

	VC 146/5-5 (E-DE) ecoTEC plus	VC 146/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (E-DE) ecoTEC plus	VC 206/5-5 (LL-DE) ecoTEC plus	VC 206/5-5 (P-DE) ecoTEC plus
Electrical connection	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	2 A	2 A	2 A	2 A	2 A
Min. electrical power consumption	35 W	35 W	35 W	35 W	35 W
Max. electrical power consumption	60 W	60 W	80 W	80 W	80 W
Standby electrical power consumption	< 2 W	< 2 W	< 2 W	< 2 W	< 2 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D
Test symbol/registration no.	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321

	VC 266/5-5 (E-DE) ecoTEC plus	VC 266/5-5 (LL-DE) ecoTEC plus	VC 306/5-5 (E-DE) ecoTEC plus	VC 306/5-5 (LL-DE) ecoTEC plus
Electrical connection	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	2 A	2 A	2 A	2 A
Min. electrical power consumption	35 W	35 W	35 W	35 W
Max. electrical power consumption	85 W	85 W	90 W	90 W
Standby electrical power consumption	< 2 W	< 2 W	< 2 W	< 2 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D
Test symbol/registration no.	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321

Dimension drawing - ecoTEC plus VC 146/5-5 to VC 306/5-5

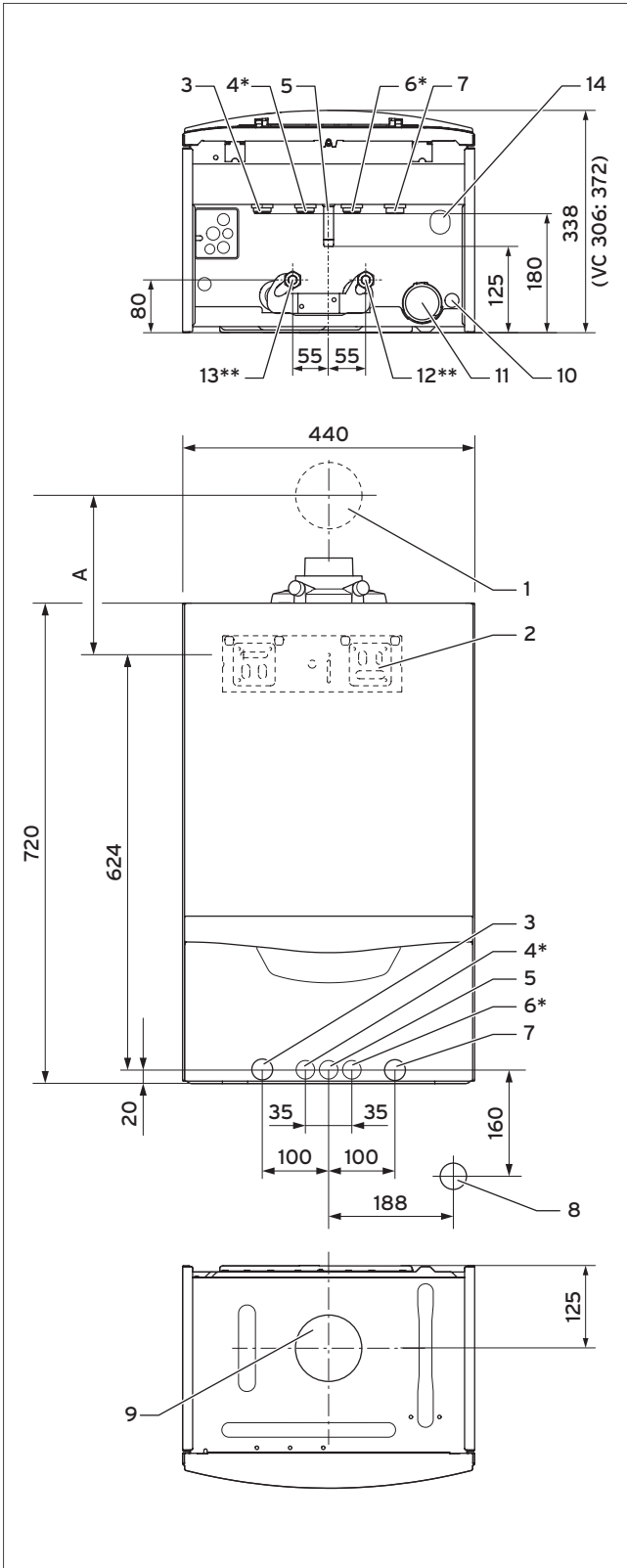


Fig. 109: Dimensions

- 1 Wall duct for air/flue pipe
- 2 Product bracket
- 3 Heating flow (22 × 1.5 diameter)
- 4 Not available
- 5 Gas connection (20 × 1.5 diameter)
- 6 Not available
- 7 Heating return (22 × 1.5 diameter)
- 8 R1 tundish/condensate siphon connection
- 9 Air/flue pipe connection
- 10 Condensate discharge connection, 19 mm diameter
- 11 Condensate siphon
- 12 Cylinder return
- 13 Cylinder flow
- 14 Drain pipework/heating expansion relief valve connection, 15 mm diameter

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	223
60/100 with 87° elbow and inspection opening, PP	223
80/125 with 87° elbow, PP	241
80/125 with inspection elbow, PP	258

## 6.3 ecoTEC plus VCW 206/5-5 and VCW 266/5-5 product description



Fig. 110: ecoTEC plus VCW 20-26 kW

### 6.3.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- Modulation up to 1:5
- Electronic gas-air mixture
- Automatic partial load adjustment
- Multi-sensor system and comfort protection programme
- Combi boiler with integrated domestic hot water generation operating on the flow-through principle
- Aqua Power Plus up to 20% more domestic hot water output

- Aqua Comfort system plus, outlet temperature control and hot water without any waiting period
- Intuitive-to-use unit display
- Horizontal hydraulic connections and comprehensive installation accessories for flexible use
- Can be used in multiple-flue configurations with up to ten units

### 6.3.2 Potential applications

- Heating and hot water generation (flow-through principle)
- For new builds and modernising houses and flats as well as multiple-flue configuration in flats (apartment building)
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches
- Open-flued or room-sealed modes with system-certified flue gas system
- Operation with natural gas E or LL, bio natural gas and liquefied petroleum gas

### 6.3.3 Equipment

- High-efficiency pump
- Water pressure sensor, flow sensor and pressure gauge, 10 litre expansion vessel, 1/2" SI valve
- Stainless steel integral condensation heat exchanger
- Integrated cylinder control with diverter valve
- Stainless steel secondary heat exchanger
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to natural gas E or LL

#### Note

Liquid gas conversion kit available as a spare part.



Type overview

Unit designation	Energy efficiency class		Gas type	Product ID no.	Order no.
	Heating	Domestic hot water			
VCW 206/5-5 E	A (A+++ to D)	A (A+ to F)	G20 natural gas	CE-0085 CM 0321	
VCW 206/5-5 LL	A (A+++ to D)	A (A+ to F)	G25 natural gas	CE-0085 CM 0321	
VCW 266/5-5 E	A (A+++ to D)	A (A+ to F)	G20 natural gas	CE-0085 CM 0321	
VCW 266/5-5 LL	A (A+++ to D)	A (A+ to F)	G25 natural gas	CE-0085 CM 0321	

## Technical data - General

	VCW 206/5-5 (E-DE) ecoTEC plus	VCW 206/5-5 (LL-DE) ecoTEC plus	VCW 206/5-5 (P-DE) ecoTEC plus	VCW 266/5-5 (E-DE) ecoTEC plus	VCW 266/5-5 (LL-DE) ecoTEC plus
Designated country (designation in accordance with ISO 3166)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)	DE (Germany)
Approved unit categories	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Gas connection, boiler side	20 mm	20 mm	20 mm	20 mm	20 mm
Flow/return heating connections, boiler side	22 mm	22 mm	22 mm	22 mm	22 mm
Domestic hot and cold water connection, boiler side	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"
Expansion relief valve connector (min.)	15 mm	15 mm	15 mm	15 mm	15 mm
Air/flue gas connection	60/100 mm	60/100 mm	60/100 mm	60/100 mm	60/100 mm
Condensate drain pipework (min.)	19 mm	19 mm	19 mm	19 mm	19 mm
G20 natural gas flow pressure	2.0 kPa (20.0 mbar)	-	-	2.0 kPa (20.0 mbar)	-
G25 natural gas flow pressure	-	2.0 kPa (20.0 mbar)	-	-	2.0 kPa (20.0 mbar)
G31 propane gas flow pressure	-	-	5.0 kPa (50.0 mbar)	-	-
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	2.6 m³/h	-	-	3.2 m³/h	-
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	-	3.1 m³/h	-	-	3.9 m³/h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G31	-	-	1.9 m³/h	-	-
Min. flue gas mass flow rate (G20)	1.80 g/s	-	-	2.47 g/s	-
Min. flue gas mass flow rate (G25)	-	1.82 g/s	-	-	2.47 g/s
Min. flue gas mass flow rate (G31)	-	-	2.59 g/s	-	-
Max. flue gas mass rate	12.0 g/s	12.0 g/s	12.0 g/s	15.0 g/s	15.0 g/s
Min. flue gas temperature	40 °C	40 °C	40 °C	40 °C	40 °C
Max. flue gas temperature	70 °C	70 °C	70 °C	80 °C	80 °C
Approved gas-fired units	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x
30% efficiency	109.6 %	109.6 %	108 %	109.5 %	109.5 %
NOx class	6	6	6	6	6
Boiler dimension, width	440 mm	440 mm	440 mm	440 mm	440 mm
Boiler dimension, height	720 mm	720 mm	720 mm	720 mm	720 mm
Boiler dimension, depth	338 mm	338 mm	338 mm	338 mm	338 mm
Approx. net weight	35 kg	35 kg	35 kg	36 kg	36 kg

### Technical data - power/loading G20/25

	VCW 206/5-5 (E-DE) ecoTEC plus	VCW 206/5-5 (LL-DE) ecoTEC plus	VCW 266/5-5 (E-DE) ecoTEC plus	VCW 266/5-5 (LL-DE) ecoTEC plus
Nominal heat output range P at 50/30 °C	4.1 to 21.6 kW	4.1 to 21.6 kW	5.7 to 27.2 kW	5.7 to 27.2 kW
Nominal heat output range P at 80/60 °C	3.8 to 20.0 kW	3.8 to 20.0 kW	5.2 to 25.0 kW	5.2 to 25.0 kW
Maximum heat output for hot water generation	24.0 kW	24.0 kW	30.0 kW	30.0 kW
Maximum heat input for hot water generation	24.5 kW	24.5 kW	30.6 kW	30.6 kW
Maximum heat input, heating side	20.4 kW	20.4 kW	25.5 kW	25.5 kW
Minimum heat input	4.0 kW	4.0 kW	5.5 kW	5.5 kW
Heating adjustment range	4 to 20 kW	4 to 20 kW	5 to 25 kW	5 to 25 kW
Nominal heat input efficiency (stationary) at 40/30 °C	108 %	108 %	108 %	108 %
Nominal heat input efficiency (stationary) at 50/30 °C	106 %	106 %	107 %	107 %
Nominal heat input efficiency (stationary) at 60/40 °C	101 %	101 %	101 %	101 %
Nominal heat input efficiency (stationary) at 80/60 °C	98 %	98 %	98 %	98 %

### Technical data - Power/loading G31

	VCW 206/5-5 (P-DE) ecoTEC plus
Nominal heat output range P at 50/30 °C	5.5 to 21.2 kW
Nominal heat output range P at 80/60 °C	5.0 to 20.0 kW
Maximum heat output for hot water generation	24.0 kW
Maximum heat input for hot water generation	24.5 kW
Maximum heat input, heating side	20.4 kW
Minimum heat input	5.3 kW
Nominal heat input efficiency (stationary) at 40/30 °C	104 %
Nominal heat input efficiency (stationary) at 50/30 °C	104 %
Nominal heat input efficiency (stationary) at 60/40 °C	101 %
Nominal heat input efficiency (stationary) at 80/60 °C	98 %



## Technical data - Heating

	VCW 206/5-5 (E-DE) ecoTEC plus	VCW 206/5-5 (LL-DE) ecoTEC plus	VCW 206/5-5 (P-DE) ecoTEC plus	VCW 266/5-5 (E-DE) ecoTEC plus	VCW 266/5-5 (LL-DE) ecoTEC plus
Maximum flow temperature	85 °C	85 °C	85 °C	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Permissible total overpressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Circulation water volume (with reference to $\Delta T = 20$ K)	860 l/h	860 l/h	860 l/h	1,075 l/h	1,075 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	2.0 l/h	2.0 l/h	2.0 l/h	2.6 l/h	2.6 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.022 MPa (0.220 bar)	0.022 MPa (0.220 bar)	0.022 MPa (0.220 bar)	0.018 MPa (0.180 bar)	0.018 MPa (0.180 bar)

## Technical data - Hot water handling mode

	VCW 206/5-5 (E-DE) ecoTEC plus	VCW 206/5-5 (LL-DE) ecoTEC plus	VCW 206/5-5 (P-DE) ecoTEC plus	VCW 266/5-5 (E-DE) ecoTEC plus	VCW 266/5-5 (LL-DE) ecoTEC plus
Lowest water volume	1.5 l/min	1.5 l/min	1.5 l/min	1.5 l/min	1.5 l/min
Water volume (at $\Delta T = 30$ K)	11.5 l/min	11.5 l/min	11.5 l/min	14.3 l/min	14.3 l/min
Permitted overpressure	1.0 MPa (10.0 bar)	1.0 MPa (10.0 bar)	1.0 MPa (10.0 bar)	1.0 MPa (10.0 bar)	1.0 MPa (10.0 bar)
Required connection pressure	0.035 MPa (0.350 bar)	0.035 MPa (0.350 bar)	0.035 MPa (0.350 bar)	0.035 MPa (0.350 bar)	0.035 MPa (0.350 bar)
Hot water output temperature range	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C

## Technical data - Electrics

	VCW 206/5-5 (E-DE) ecoTEC plus	VCW 206/5-5 (LL-DE) ecoTEC plus	VCW 206/5-5 (P-DE) ecoTEC plus	VCW 266/5-5 (E-DE) ecoTEC plus	VCW 266/5-5 (LL-DE) ecoTEC plus
Electrical connection	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	2 A	2 A	2 A	2 A	2 A
Min. electrical power consumption	35 W	35 W	35 W	35 W	35 W
Max. electrical power consumption	80 W	80 W	80 W	85 W	85 W
Standby electrical power consumption	< 2 W	< 2 W	< 2 W	< 2 W	< 2 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D
Test symbol/registration no.	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321	CE- 0085CM0321

**Dimension drawing - ecoTEC plus VCW 206/5-5 and VCW 266/5-5**

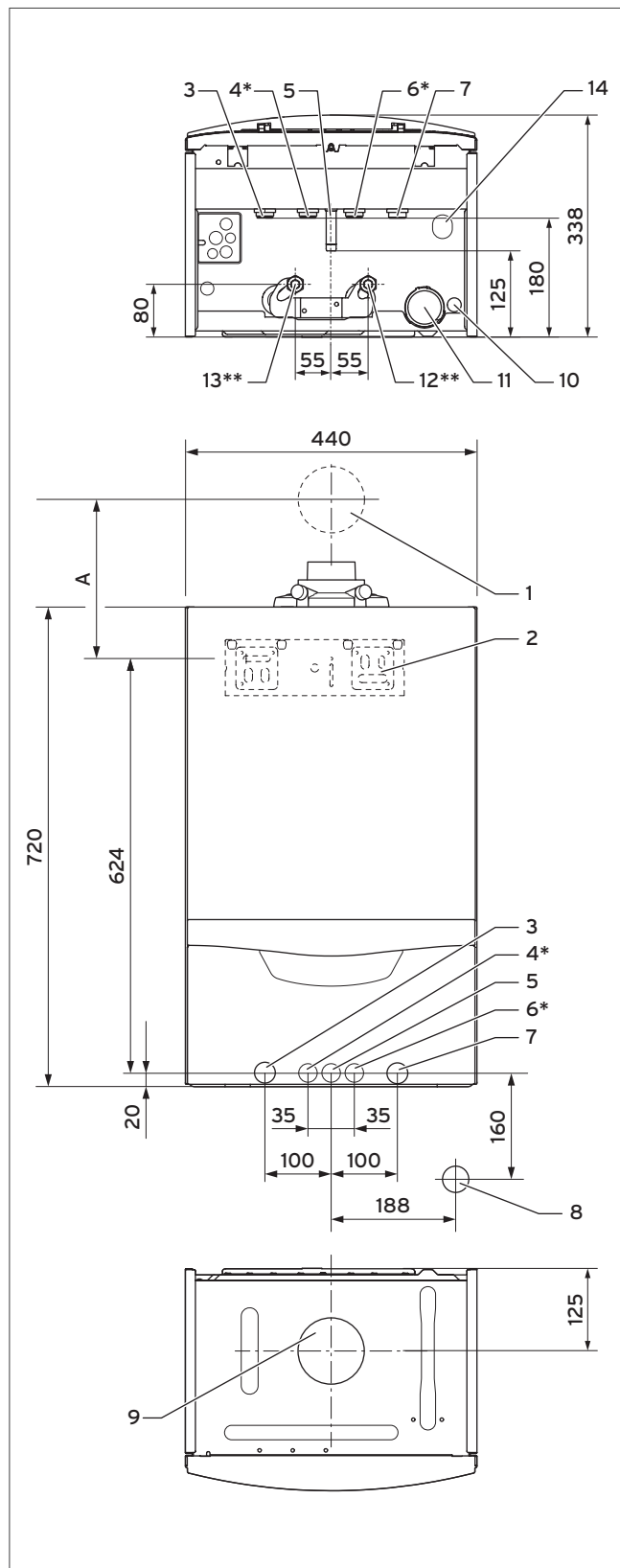


Fig. 111: Dimensions

- 1 Wall duct for air/flue pipe
  - 2 Unit mounting bracket
  - 3 Heating flow (22 × 1.5 diameter)
  - 4 Domestic hot water connection (15 × 1.5 diameter)
  - 5 Gas connection (15 × 1.5 diameter)
  - 6 Cold water connection (15 × 1.5 diameter)
  - 7 Heating return (22 × 1.5 diameter)
  - 8 R1 tundish/condensate siphon connection
  - 9 Air/flue pipe connection
  - 10 Condensate discharge connection, 19 mm diameter
  - 11 Condensate siphon
  - 12 Cylinder return, 15 mm diameter
  - 13 Cylinder flow, 15 mm diameter
  - 14 Drain pipework/heating expansion relief valve connection, 15 mm diameter
- \* VCW only  
\*\* VC only

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	223
60/100 with 87° elbow and inspection opening, PP	223
80/125 with 87° elbow, PP	241
80/125 with inspection T-piece, PP	258

## 6.4 ecoTEC plus VCI 206/5-5 and VCI 266/5-5 product description

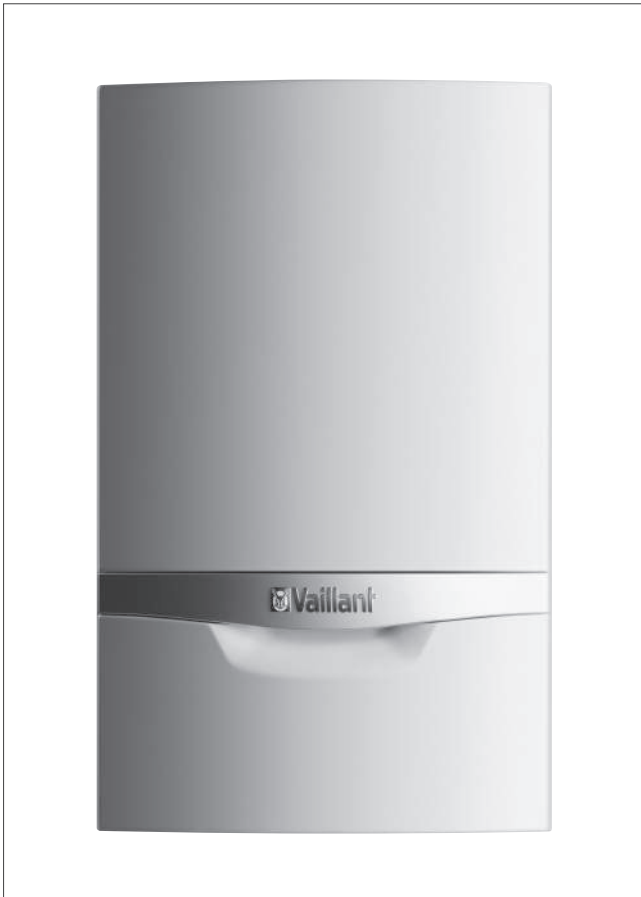


Fig. 112: ecoTEC plus VCI 20-26 kW

### 6.4.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- Modulation range of 20-100%
- Electronic gas-air mixture
- Automatic partial load adjustment
- Multi-sensor system and comfort protection programme
- Combi boiler with downstream shift-load cylinder for high domestic hot water comfort in the smallest of spaces (0.32 m<sup>2</sup> wall surface)
- Integrated domestic hot water generation via a stainless steel heat exchanger with Aqua Comfort system plus

- Aqua Power Plus up to 20% more domestic hot water output
- Aqua Comfort system plus, outlet temperature control and hot water without any waiting period
- Intuitive-to-use unit display
- Horizontal hydraulic connections and comprehensive installation accessories for flexible use
- Can be used in multiple-flue configurations with up to ten units

### 6.4.2 Potential applications

- Heating and hot water generation (with a shift-load cylinder)
- Ideal for new builds and modernising single-occupancy houses and flats as well as multi-occupancy dwellings (multiple-occupancy house) in flats with very limited space
- For radiators and underfloor heating
- Open-flued or room-sealed modes with system-certified flue gas system

### 6.4.3 Equipment

- High-efficiency pump
- Water pressure sensor, flow sensor and pressure gauge, 10 litre expansion vessel, 20 litre stainless steel cylinder, high-efficiency stratified charging pump, TW-SI valve, 1 litre drinking water expansion vessel, connection pipe and cylinder sensor
- Stainless steel integral condensation heat exchanger
- Stainless steel secondary heat exchanger
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to natural gas E or LL

#### Note

Liquid gas conversion kit available as a spare part.



#### Type overview

Unit designation	Energy efficiency class		Gas type	Product ID no.	Order no.
	Heating	Domestic hot water			
VCI 206/5-5 E VCI 206/5-5 LL	A (A+++ to D) A (A+++ to D)	A (A+ to F) A (A+ to F)	G20 natural gas G25 natural gas	CE-0085 CM 0321 CE-0085 CM 0321	
VCI 266/5-5 E VCI 266/5-5 LL	A (A+++ to D) A (A+++ to D)	A (A+ to F) A (A+ to F)	G20 natural gas G25 natural gas	CE-0085 CM 0321 CE-0085 CM 0321	

## Technical data - General

	VCI DE 206/5-5	VCI DE 266/5-5
Designated country (designation in accordance with ISO 3166)	DE (Germany)	DE (Germany)
Approved unit categories	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Gas connection, boiler side	20 mm	20 mm
Flow/return heating connections, boiler side	22 mm	22 mm
Domestic hot and cold water connection, boiler side	G 3/4"	G 3/4"
Expansion relief valve connector (min.)	15 mm	15 mm
Air/flue gas connection	60/100 mm	60/100 mm
Condensate drain pipework (min.)	19 mm	19 mm
G20 natural gas flow pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
G25 natural gas flow pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
G31 propane gas flow pressure	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G20	2.6 m³/h	3.2 m³/h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	3.1 m³/h	3.9 m³/h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), G31	1.9 m³/h	2.4 m³/h
Min. flue gas mass flow rate (G20)	1.80 g/s	2.47 g/s
Min. flue gas mass flow rate (G25)	1.82 g/s	2.50 g/s
Min. flue gas mass flow rate (G31)	2.40 g/s	2.90 g/s
Max. flue gas mass rate	12.0 g/s	15.0 g/s
Min. flue gas temperature	40 °C	40 °C
Max. flue gas temperature	79 °C	79 °C
Approved gas-fired units	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x	B23, B23P, B33, B33P, B53, B53P, C13x, C33x, C43x, C53x, C83x, C93x
30% efficiency	108 %	108 %
NOx class	6	6
Boiler dimension, width	440 mm	440 mm
Boiler dimension, height	720 mm	720 mm
Boiler dimension, depth	556 mm	556 mm
Approx. net weight	35 kg (heat generator) 20.5 kg (shift-load cylinder)	36 kg (heat generator) 20.5 kg (shift-load cylinder)

### Technical data - power/loading G20/25

	VCI DE 206/5-5	VCI DE 266/5-5
Nominal heat output range P at 50/30 °C	4.2 to 21.2 kW	5.7 to 26.5 kW
Nominal heat output range P at 80/60 °C	3.8 to 20.0 kW	5.2 to 25.0 kW
Maximum heat output for hot water generation	24.0 kW	30.0 kW
Maximum heat input for hot water generation	24.5 kW	30.6 kW
Maximum heat input, heating side	20.4 kW	25.5 kW
Minimum heat input	4.0 kW	5.5 kW
Heating adjustment range	4 to 20 kW	5 to 25 kW
Nominal heat input efficiency (stationary) at 40/30 °C	108 %	108 %
Nominal heat input efficiency (stationary) at 50/30 °C	106 %	107 %
Nominal heat input efficiency (stationary) at 60/40 °C	101 %	101 %
Nominal heat input efficiency (stationary) at 80/60 °C	98 %	98 %

### Technical data - Power/loading G31

	VCI DE 206/5-5	VCI DE 266/5-5
Nominal heat output range P at 50/30 °C	5.4 to 21.3 kW	6.5 to 26.2 kW
Nominal heat output range P at 80/60 °C	5.0 to 20.0 kW	6.0 to 25.0 kW
Maximum heat output for hot water generation	24.0 kW	30.0 kW
Maximum heat input for hot water generation	24.5 kW	30.6 kW
Maximum heat input, heating side	20.4 kW	25.5 kW
Minimum heat input	5.3 kW	6.4 kW
Nominal heat input efficiency (stationary) at 40/30 °C		
Nominal heat input efficiency (stationary) at 50/30 °C		
Nominal heat input efficiency (stationary) at 60/40 °C		
Nominal heat input efficiency (stationary) at 80/60 °C		

### Technical data - Heating

	VCI DE 206/5-5	VCI DE 266/5-5
Maximum flow temperature	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C
Permissible total overpressure	0.3 MPa (3.0 bar)	0.3 MPa (3.0 bar)
Circulation water volume (with reference to $\Delta T = 20$ K)	860 l/h	1,075 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	2.0 l/h	2.6 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.022 MPa (0.220 bar)	0.018 MPa (0.180 bar)

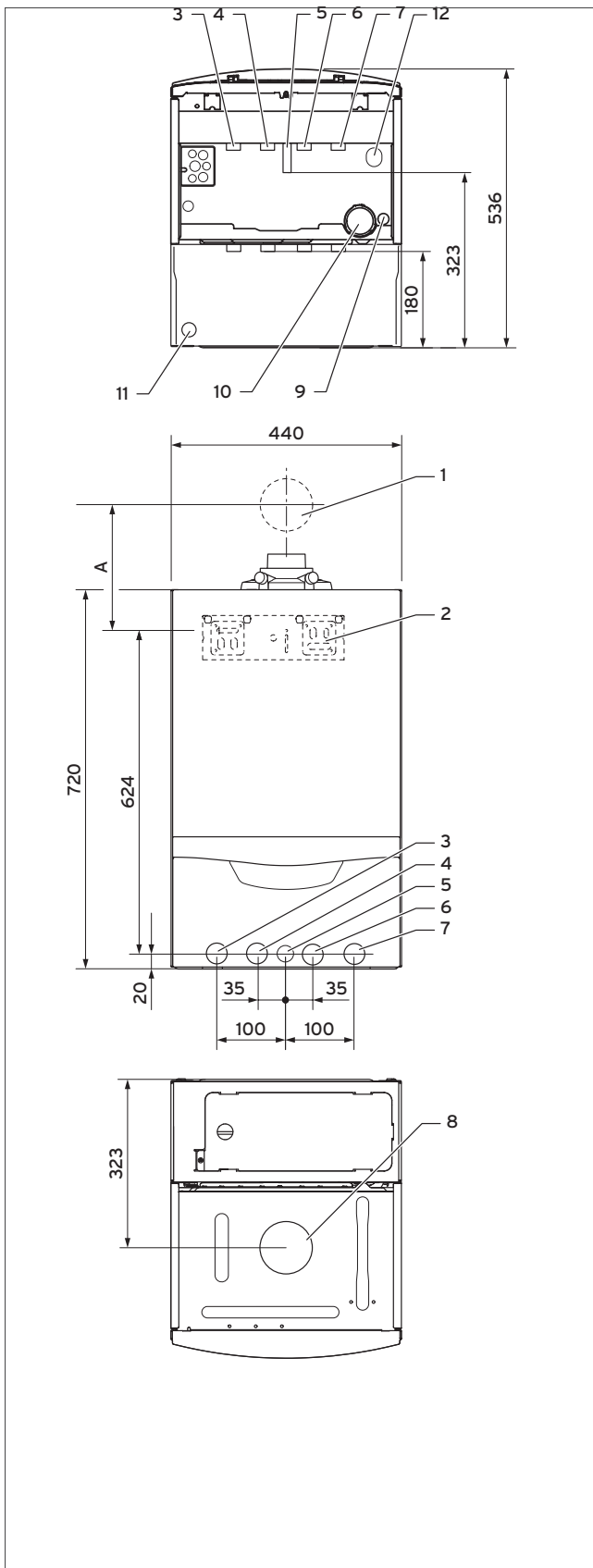
### Technical data - Hot water handling mode

	VCI DE 206/5-5	VCI DE 266/5-5
Lowest water volume	1.5 l/min	1.5 l/min
Water volume (at $\Delta T = 30$ K)	15.2 l/min	18 l/min
Permitted overpressure	1.0 MPa (10.0 bar)	1.0 MPa (10.0 bar)
Required connection pressure	0.035 MPa (0.350 bar)	0.035 MPa (0.350 bar)
Hot water output temperature range	35 to 65 °C	35 to 65 °C

### Technical data - Electrics

	VCI DE 206/5-5	VCI DE 266/5-5
Electrical connection	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	2 A	2 A
Min. electrical power consumption	35 W	35 W
Max. electrical power consumption	70 W (heat generator) 35 W (shift-load cylinder)	80 W (heat generator) 35 W (shift-load cylinder)
Standby electrical power consumption	< 2 W	< 2 W
Level of protection	IP X4 D	IP X4 D
Test symbol/registration no.	CE- 0085CM0321	CE- 0085CM0321

**Dimension drawing - ecoTEC plus VCI 206/5-5 and VCI 266/5-5**



- 1 Wall duct for air/flue pipe
- 2 Unit mounting bracket
- 3 Heating flow (22 × 1.5 diameter)
- 4 Domestic hot water connection (15 × 1.5 diameter)
- 5 Gas connection (15 × 1.5 diameter)
- 6 Cold water connection (15 × 1.5 diameter)
- 7 Heating return (22 × 1.5 diameter)
- 8 Air/flue pipe connection
- 9 Condensate discharge connection, 19 mm diameter
- 10 Condensate siphon
- 11 Shift-load cylinder expansion relief valve drain pipework connection, 15 mm diameter
- 12 Boiler expansion relief valve discharge pipe connection, 15 mm diameter

Minimum clearance for a duct through a wall or into a shaft	A [mm]
60/100 with 87° elbow, PP	223
60/100 with 87° elbow and inspection opening, PP	223
80/125 with 87° elbow, PP	241
80/125 with inspection T-piece, PP	258

Fig. 113: Dimensions

## 6.5 Supplementary information for the ecoTEC plus VC 146/5-5 to 306/5-5 and VCW/VCI 206/5-5 and 266/5-5

### 6.5.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

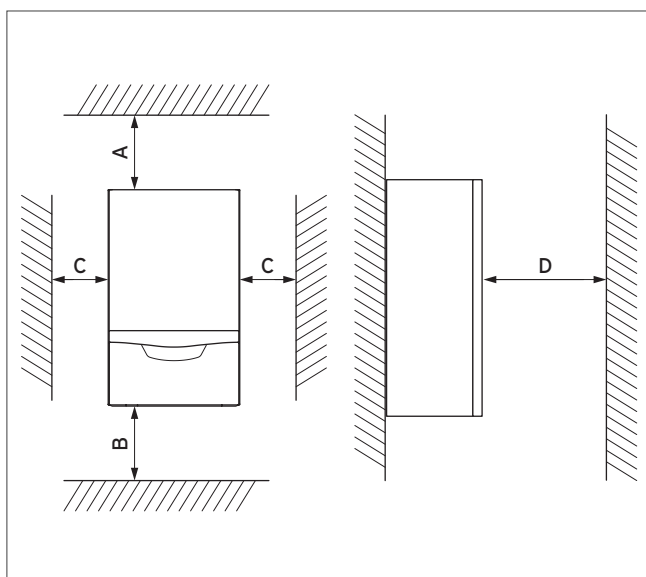


Fig. 114: Required minimum clearances/installation clearances

Minimum clearances

	Minimum clearance
A	165 mm: Air/flue pipe, 60/100 mm diameter 275 mm: Air/flue pipe, 80/125 mm diameter
B	180 mm; optimum approx. 250 mm
C	5 mm; optimum approx. 50 mm
D	500 mm in front of the heat generator to enable easy access for maintenance work (may be provided by an opening door).

### 6.5.2 Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The unit is fitted with a 1.0 m connection cable with a mains plug. The connection cable is fully wired into the unit at the factory.

When installing the unit in protective area classes 1 or 2, the mains connection must not be established using the standard connection cable with an earthed plug. Instead, the unit must be connected using a fixed connection and a partition with a contact opening of at least 3 mm (e.g. fuses or power switches). Directive VDE 0100 Part 701 must be observed.



### 6.5.3 Pump diagrams

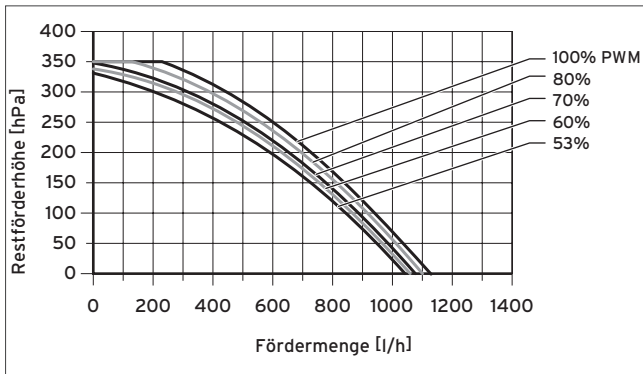


Fig. 115: VC 146/5-5 pump diagram

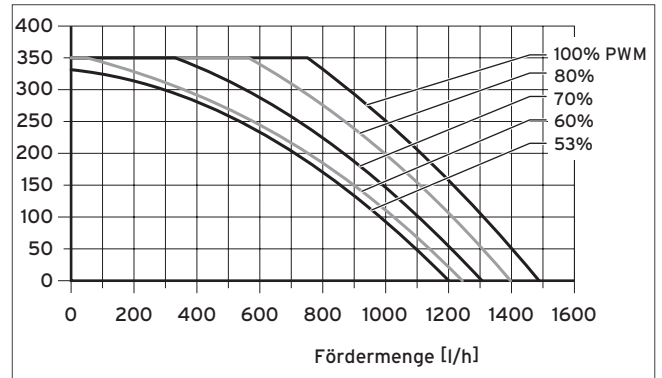


Fig. 117: VC/VCI/VCW 266/5-5 pump diagram

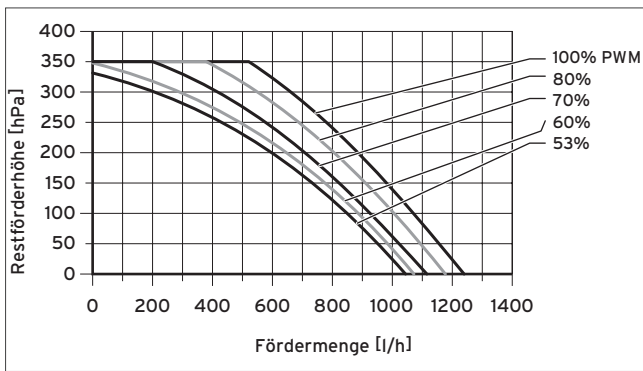


Fig. 116: VC/VCI/VCW 206/5-5 pump diagram

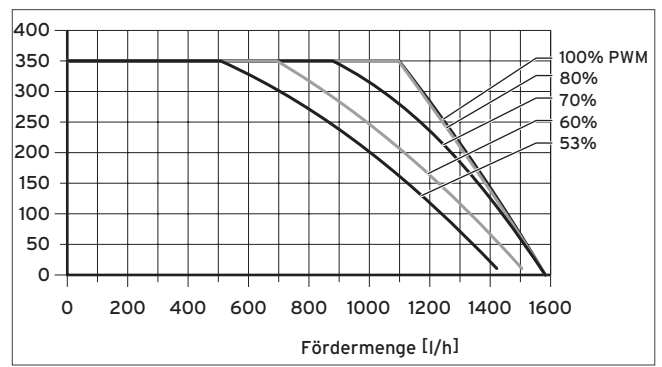


Fig. 118: Pump diagram for the VC 306/5-5

## 6.6 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus				uniSTOR exclusive			uniSTOR plus			actoSTOR	
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH K 300 (NL 10.0)
ecoTEC plus 3.1-30.0 kW	VC 146/5-5	•	•	•	•	•	•	•	o	o	o	o	o	o	-	-
	VC 206/5-5	•	•	•	•	•	•	•	•	o	o	•	o	o	-	-
	VC 266/5-5	•	•	•	•	•	•	•	•	o	o	•	o	o	-	-
	VC 306/5-5	o	•	•	o	•	•	-	•	•	•	•	•	•	-	-
	VCW 206/5-5	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-
	VCW 266/5-5	-	-	-	-	-	-	-	-	-	-	-	-	-	o	-

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 6.7 Basic system diagrams and wiring diagrams

### 6.7.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module
7g	Heat recovery module

Number	Designation
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface
12c	2 in 7 multi-functional module

Number	Designation
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 6.7.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020194216	ecoTEC plus VCW < 30 kW	VRC 700, VR 70, VR 91	2 UFH	–	Low loss header	–	–	–
0020184677	ecoTEC plus VC < 31 kW	VRC 700	–	1 HC	–	–	–	uniSTOR VIH R
0020194218	ecoTEC plus VC < 31 kW	VRC 700, VR 40, VR 70, VR 91	2 UFH	–	Low loss header	–	–	uniSTOR VIH R
0020212732	ecoTEC plus VC < 31 kW	VRC 700/4, VR 71, VR 91	3 UFH	–	Low loss header	–	–	uniSTOR VIH R
0020199564	ecoTEC plus VC < 31 kW	VRC 700, VR 70	1 UFH	–	Hydraulic block	•	•	auroSTOR VPS SC
0020223738	ecoTEC plus VC < 31 kW	VRC 700/4, VR 71, VR 91	2 UFH, 1 HC	–	Hydraulic block	•	•	auroSTOR VPS SC
0020181028	ecoTEC plus < 31 kW	VRC 700, VR 70	–	1 HC	–	•	–	auroSTOR VIH S
0020223739	ecoTEC plus VC < 31 kW	VRC 700/4, VR 71, VR 91	2 UFH, 1 HC	–	Low loss header	•	–	auroSTOR VIH S

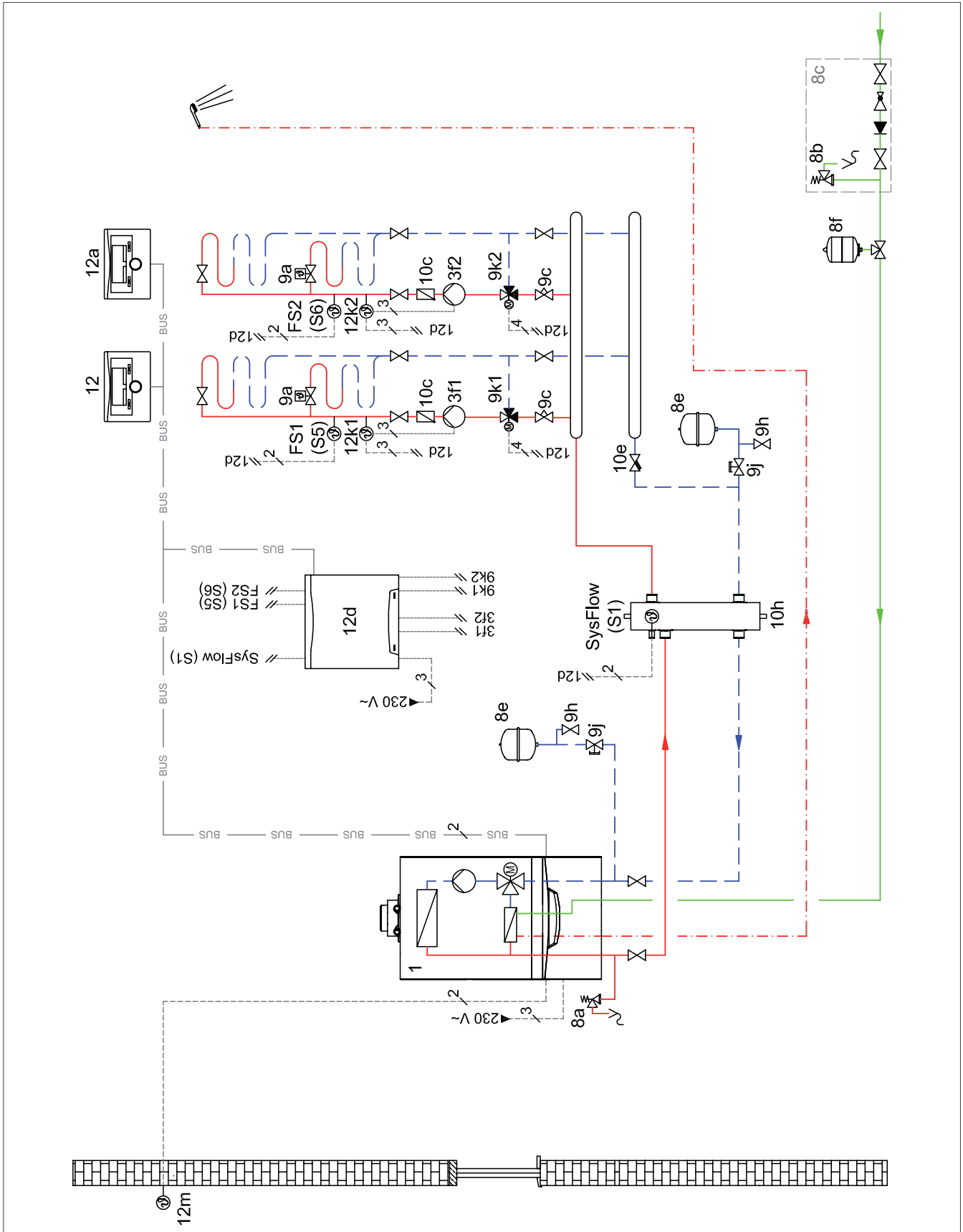


Fig. 119: Basic hydraulic diagram

## 0020194216 - Wiring diagram

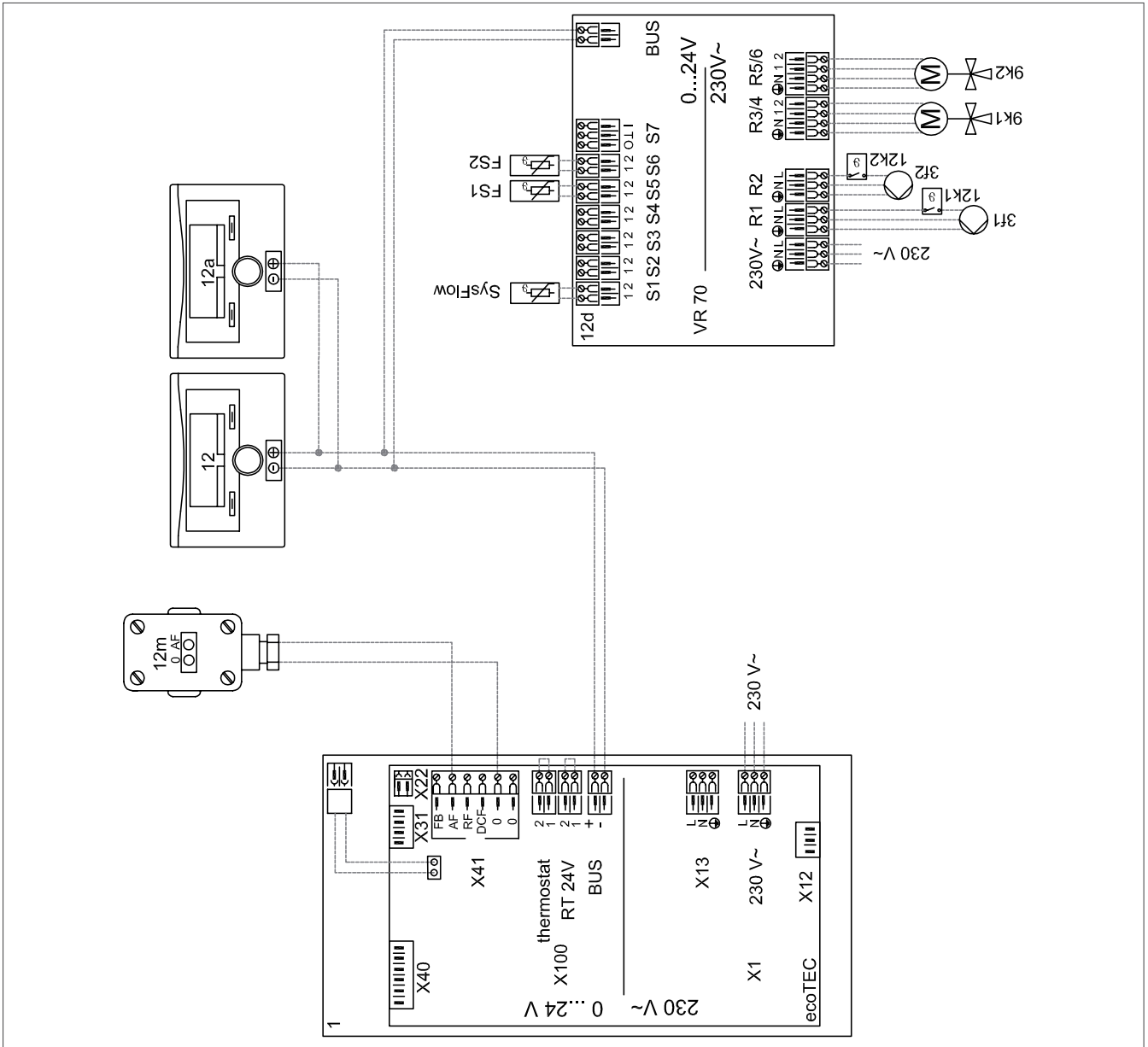


Fig. 120: Wiring diagram

### Description

Houses or apartment buildings with two mixed heating circuits (underfloor heating). Domestic hot water is generated by the heat generator without an additional domestic hot water cylinder.

**Caution:** \*Integrated in the heat generator.  
\*\*Optional, if the integrated expansion vessel is too small.

### Individual components

- ecoTEC plus VCW < 30 kW
- WH 27/40
- VRC 700
- VR 70
- VR 91

### Setting

VRC 700 System diagram setting: 2  
Module setting: 5





0020184677 - Wiring diagram

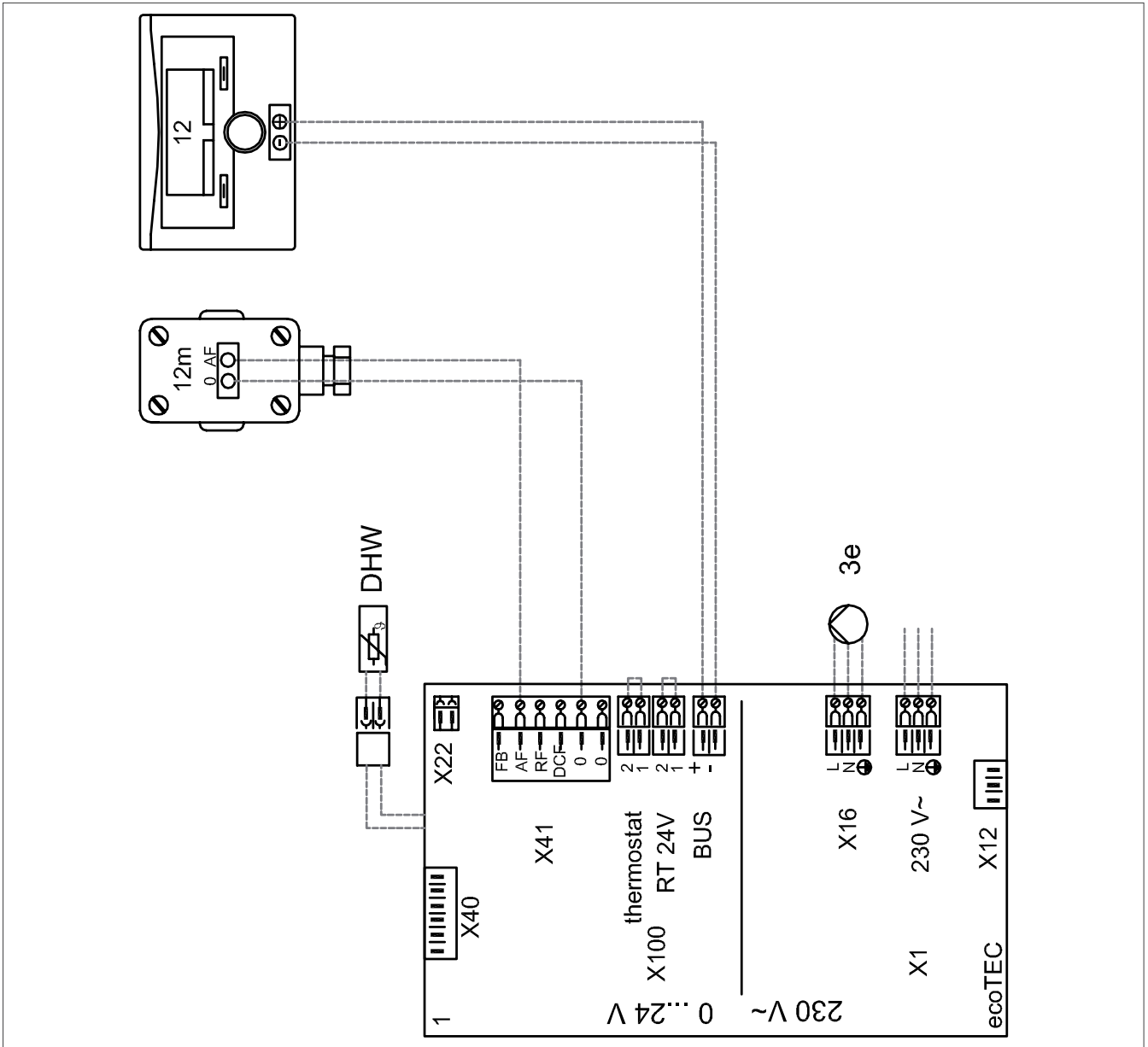


Fig. 122: Wiring diagram

**Description**

Single-occupancy houses with one heating circuit. The heating circuit is non-mixed. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

**Caution:** \*Integrated in the heat generator.  
 \*\*Optional, if the integrated expansion vessel is too small.

**Individual components**

- ecoTEC < 30 kW
- uniSTOR VIH R
- VRC 700

**Setting**

VRC 700 System diagram setting: 1

0020194218 - Basic hydraulic diagram

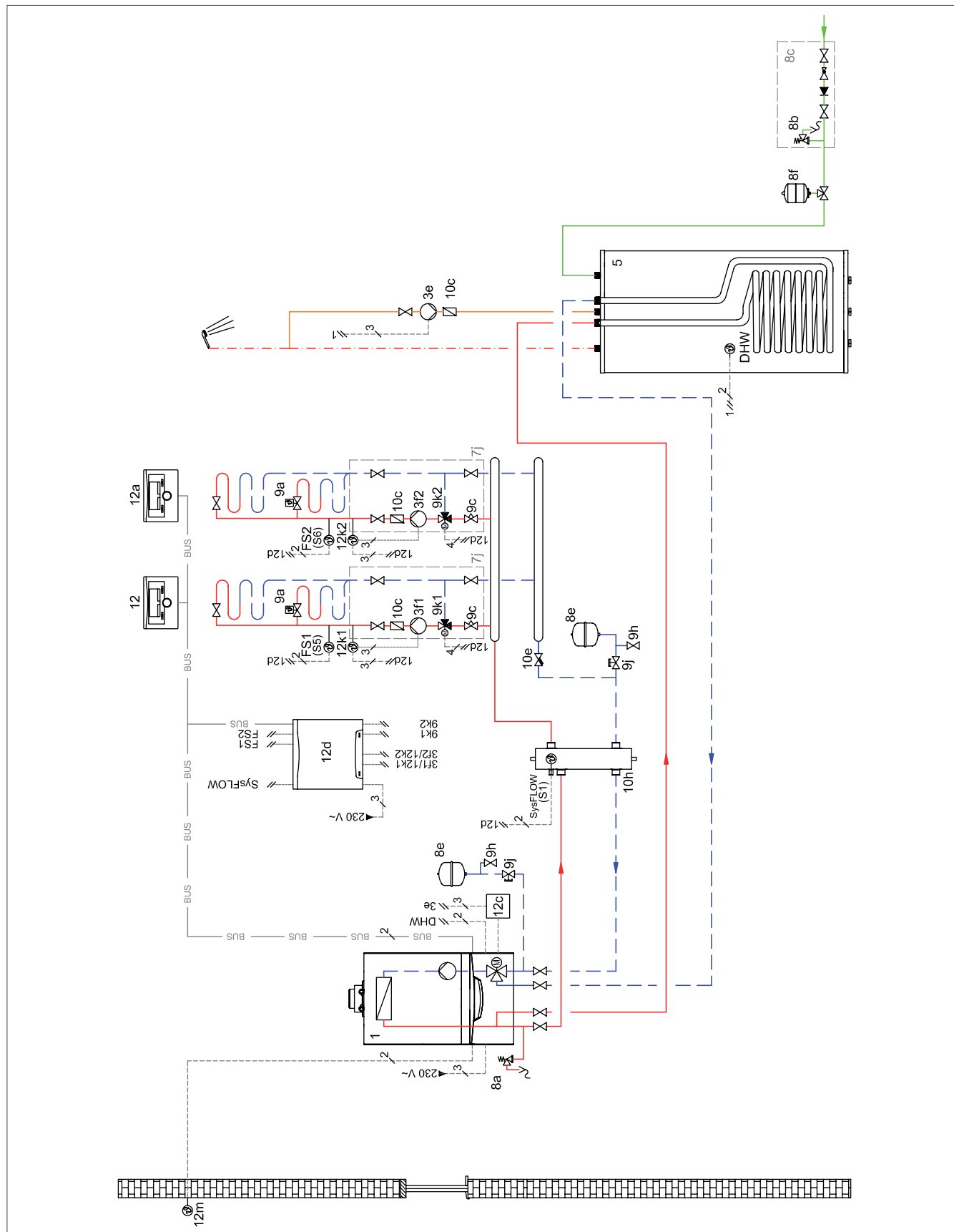


Fig. 123: Basic hydraulic diagram

## 0020194218 - Wiring diagram

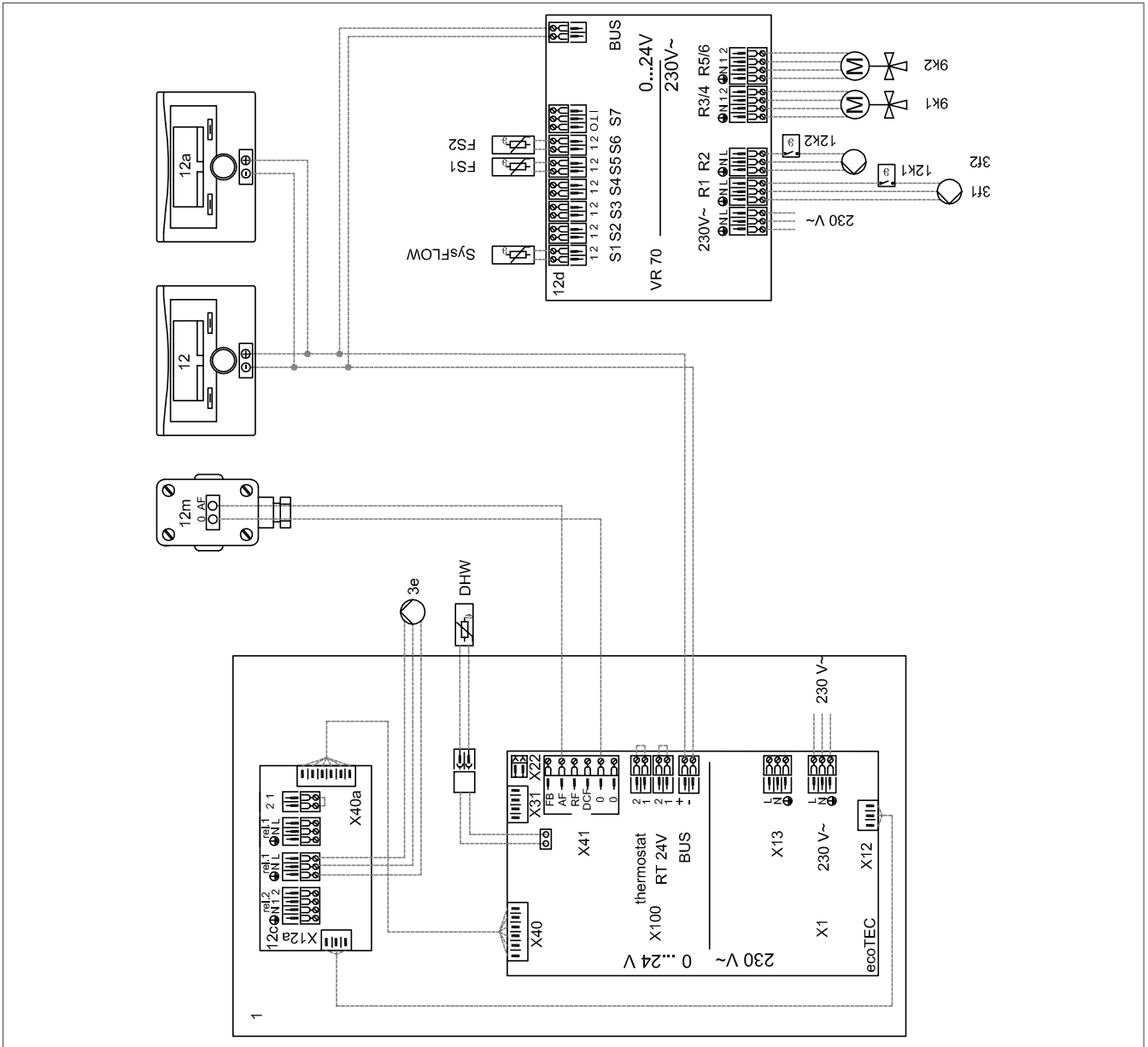


Fig. 124: Wiring diagram

### Description

Houses with two mixed heating circuit (underfloor heating). The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

**Caution:** \*Integrated in the heat generator. \*\*Optional, if the integrated expansion vessel is too small.

### Individual components

- ecoTEC plus VC < 30 kW
- uniSTOR VIH R
- WH 27/40
- VRC 700
- VR 70
- VR 40
- VR 91

### Setting

VRC 700 System diagram setting: 1

Module setting: 5

0020212732 - Basic hydraulic diagram

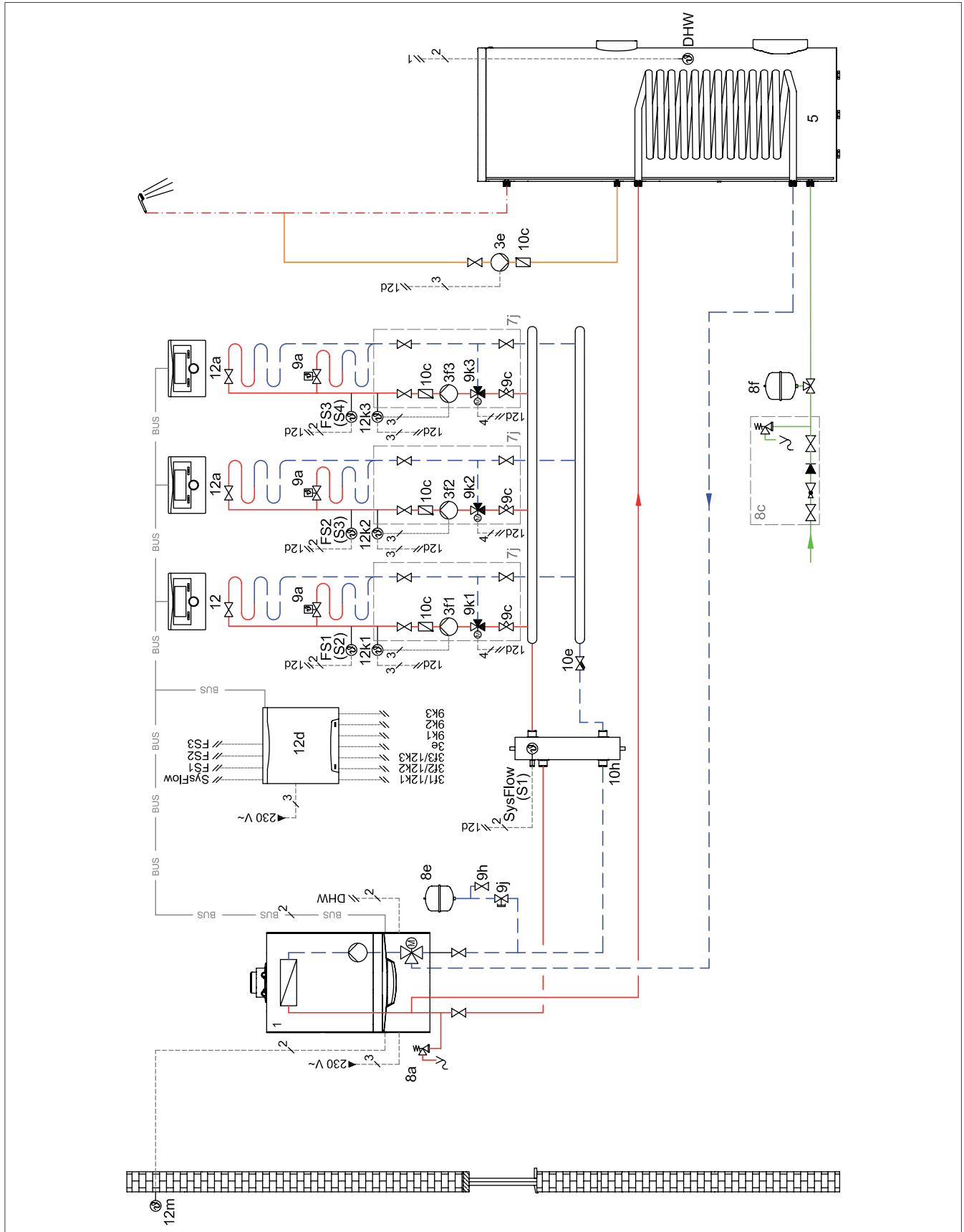


Fig. 125: Basic hydraulic diagram

## 0020212732 - Wiring diagram

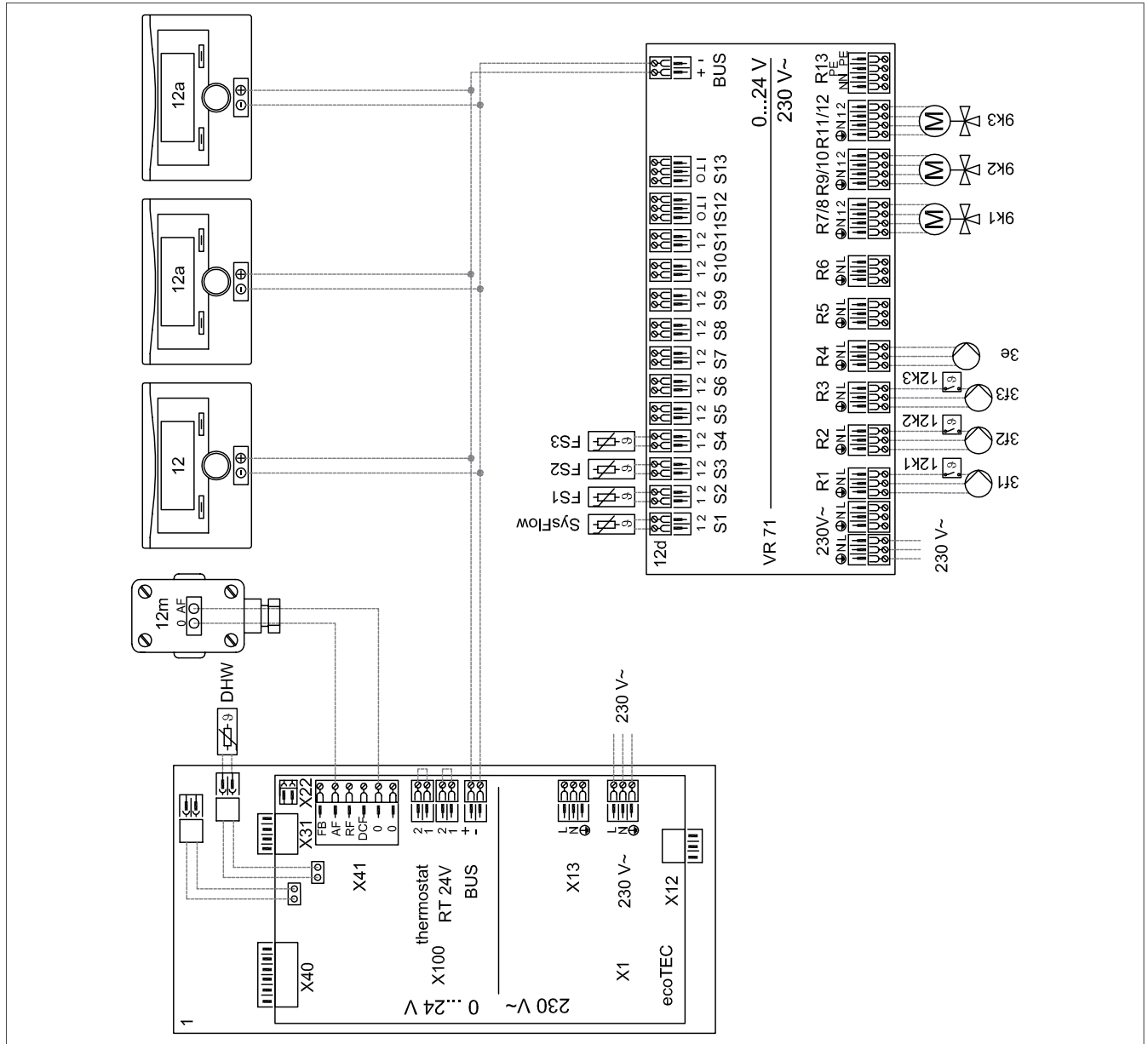


Fig. 126: Wiring diagram

### Description

Apartment buildings with different usage patterns. One non-mixed heating circuit (domestic hot water charging) and three non-mixed heating circuits (underfloor heating). The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

**Caution:** If an expansion vessel is not integrated in the heat generator, plans must be made for an additional expansion vessel in the hot-water charging circuit for the floor-standing boiler.

### Individual components

- ecoTEC plus VC < 30 kW
- uniSTOR VIH R
- WH 27/40
- VRC 700/4
- VR 71
- VR 91

### Setting

- VRC 700 System diagram setting: 1
- Module setting: 3

0020199564 - Basic hydraulic diagram

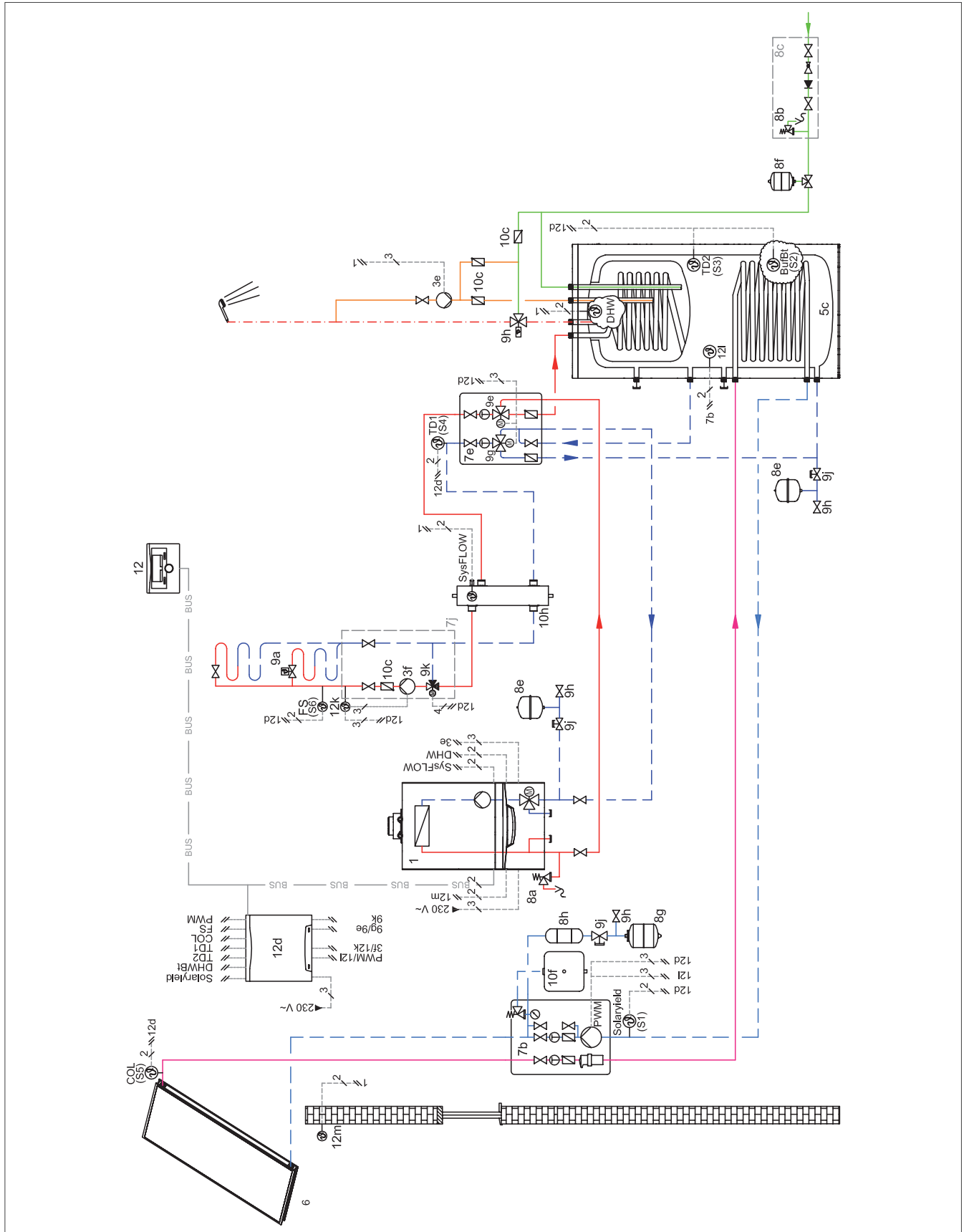


Fig. 127: Basic hydraulic diagram



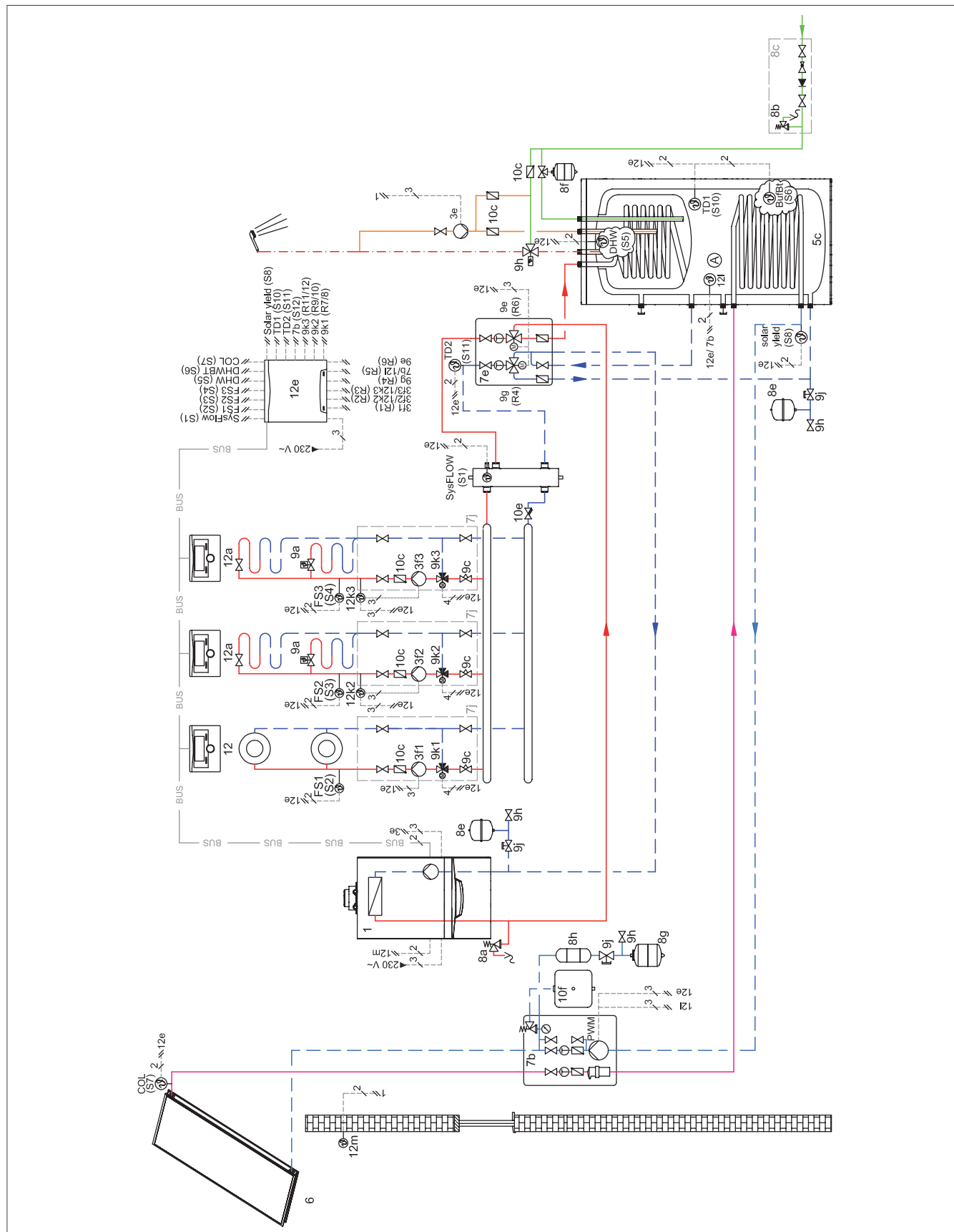


Fig. 129: Basic hydraulic diagram



## 0020223738 - Wiring diagram

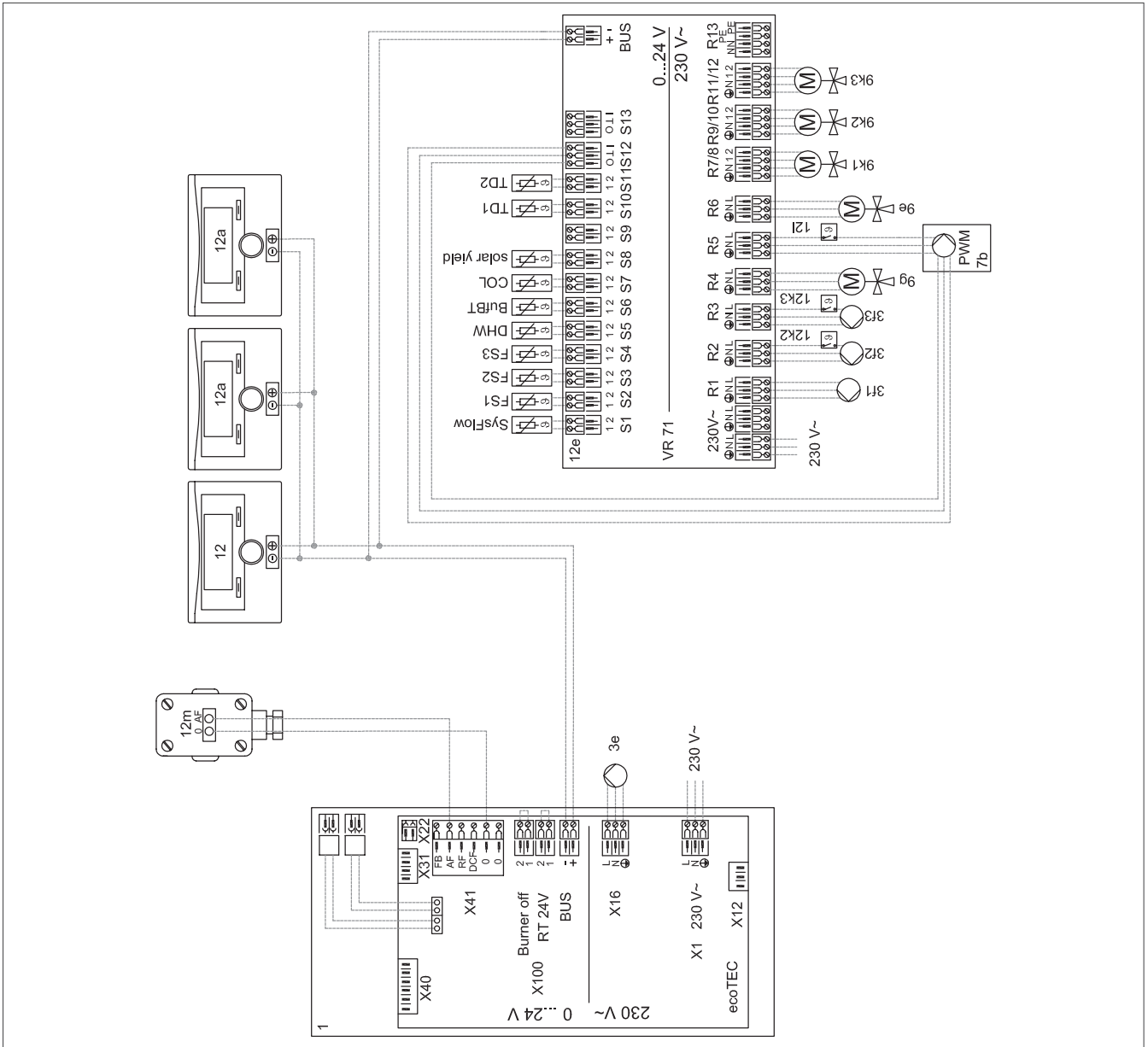


Fig. 130: Wiring diagram

### Description

Multiple-occupancy houses with three mixed heating circuits. The solar system supports the domestic hot water and heating systems. The buffer and solar cylinder must be designed in accordance with the applicable standards and regulations.

### Individual components

- ecoTEC plus VC < 31 kW
- auroSTOR VPS SC
- auroTHERM VFK
- VMS 70
- hydraulic block
- WH 27/40
- VRC 700/4
- VR 71
- VR 91

### Setting

VRC 700 System diagram setting: 2

Module setting: 2

0020181028 - Basic hydraulic diagram

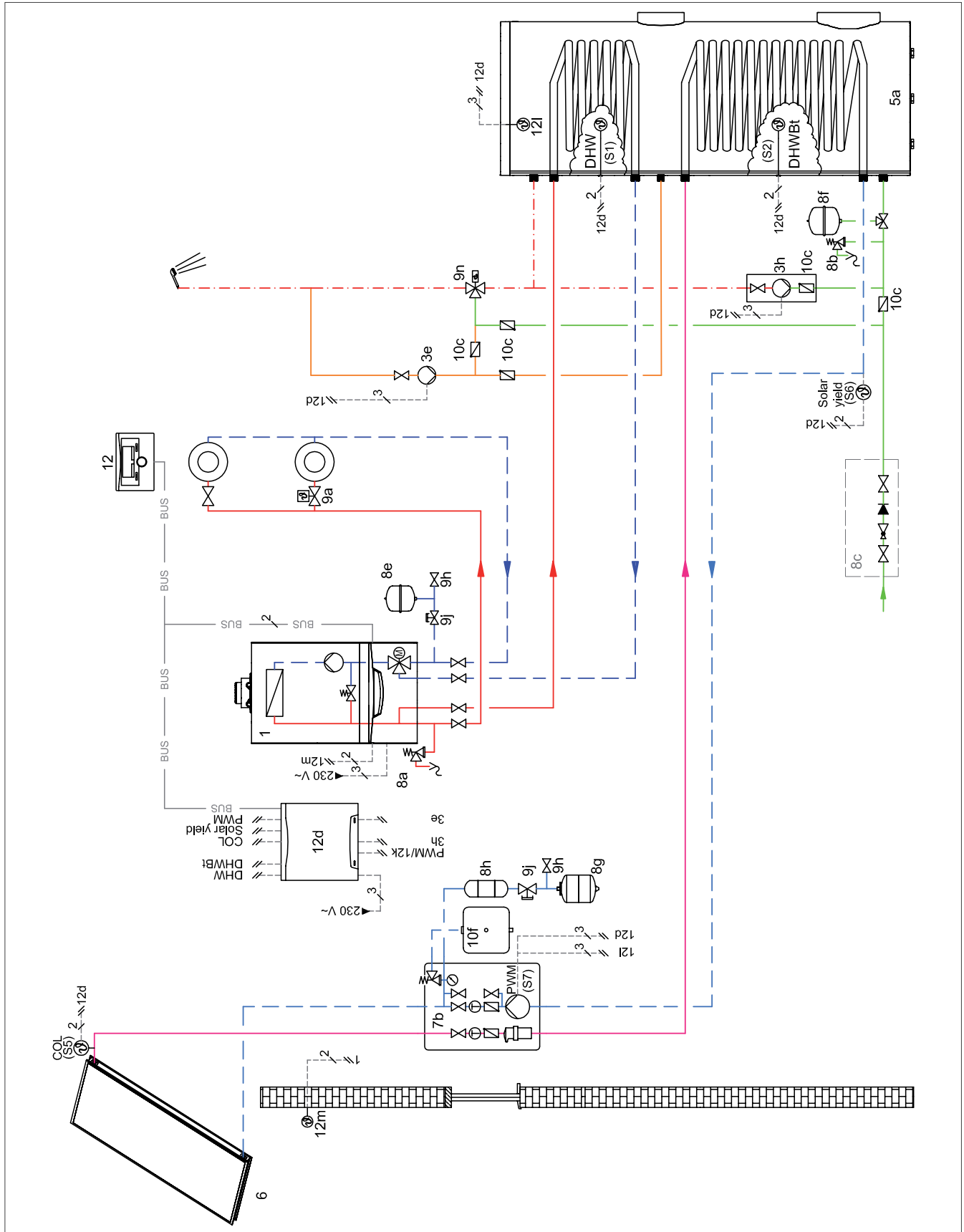


Fig. 131: Basic hydraulic diagram

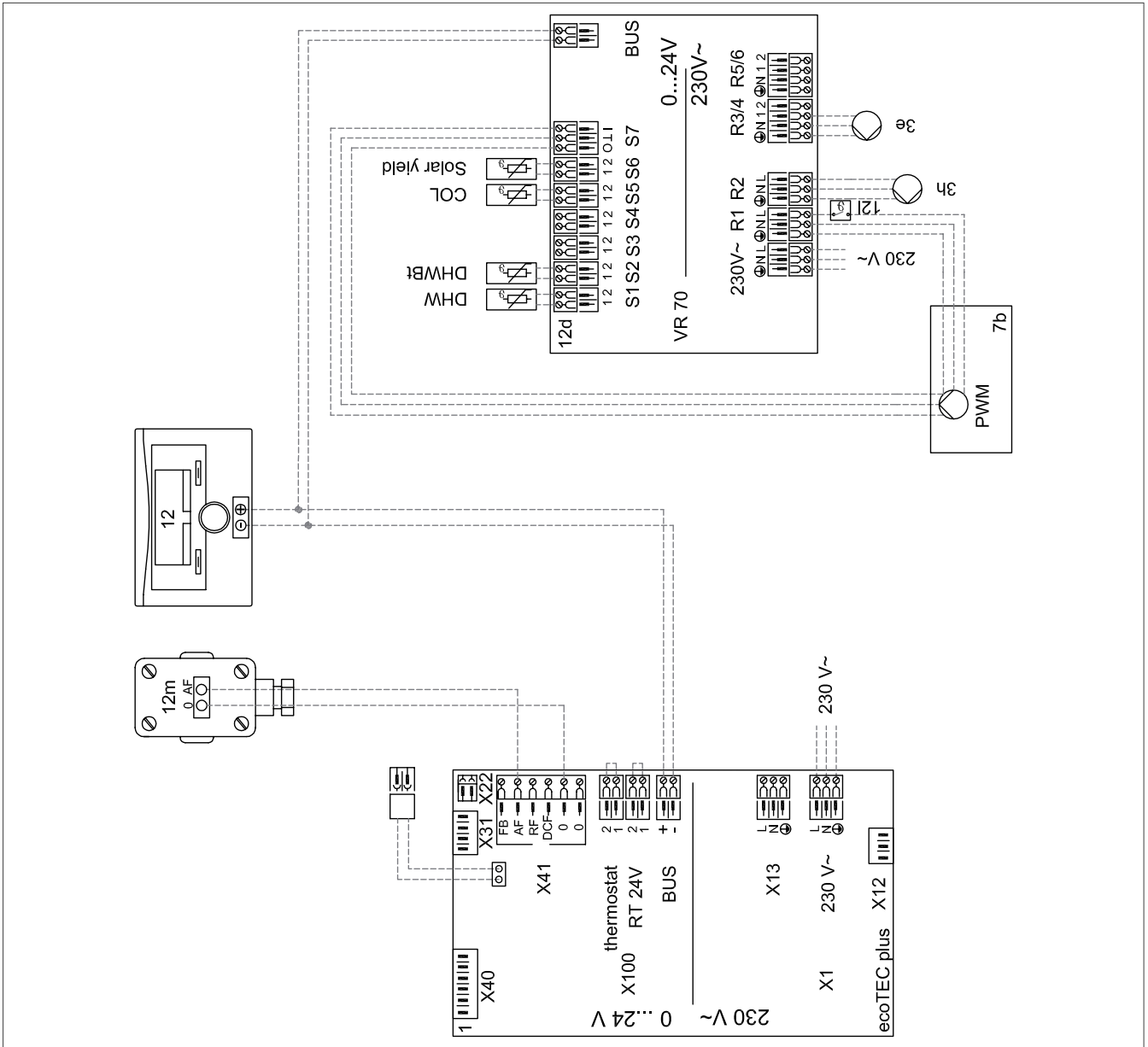


Fig. 132: Wiring diagram

**Description**

Single-occupancy houses with one heating circuit (radiator). The solar system supports the domestic hot water system. The solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** \*Integrated in the heat generator. To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position. If an expansion vessel is not integrated in the heat generator, plans must be made for an additional expansion vessel in the hot-water charging circuit for the floor-standing boiler.

**Individual components**

- ecoTEC plus VC < 30 kW
- auroSTOR VIH S
- auroTHERM VFK
- VMS 70
- VRC 700
- VR 70

**Setting**

VRC 700 System diagram setting: 1  
Module setting: 6

0020223739 - Basic hydraulic diagram

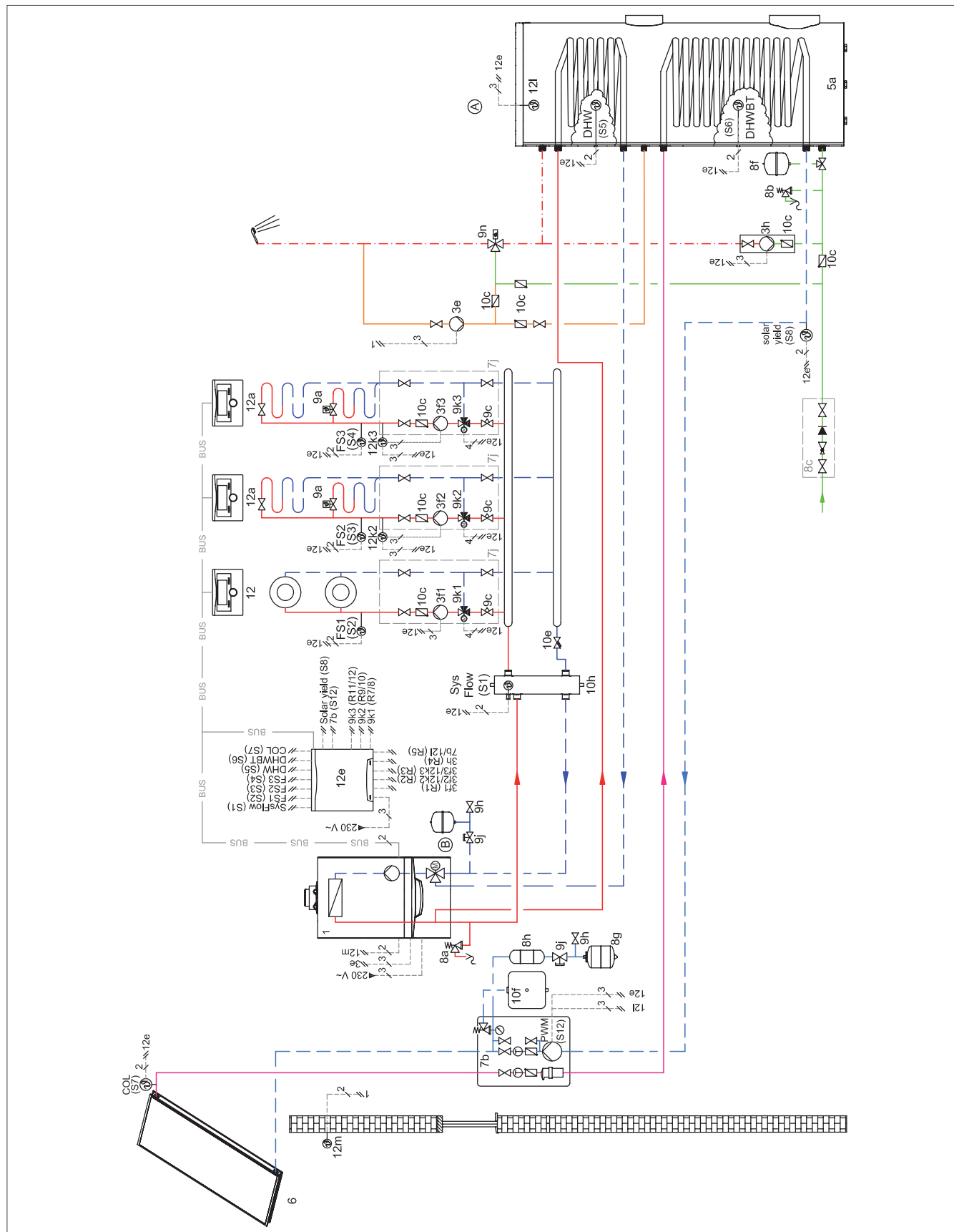


Fig. 133: Basic hydraulic diagram

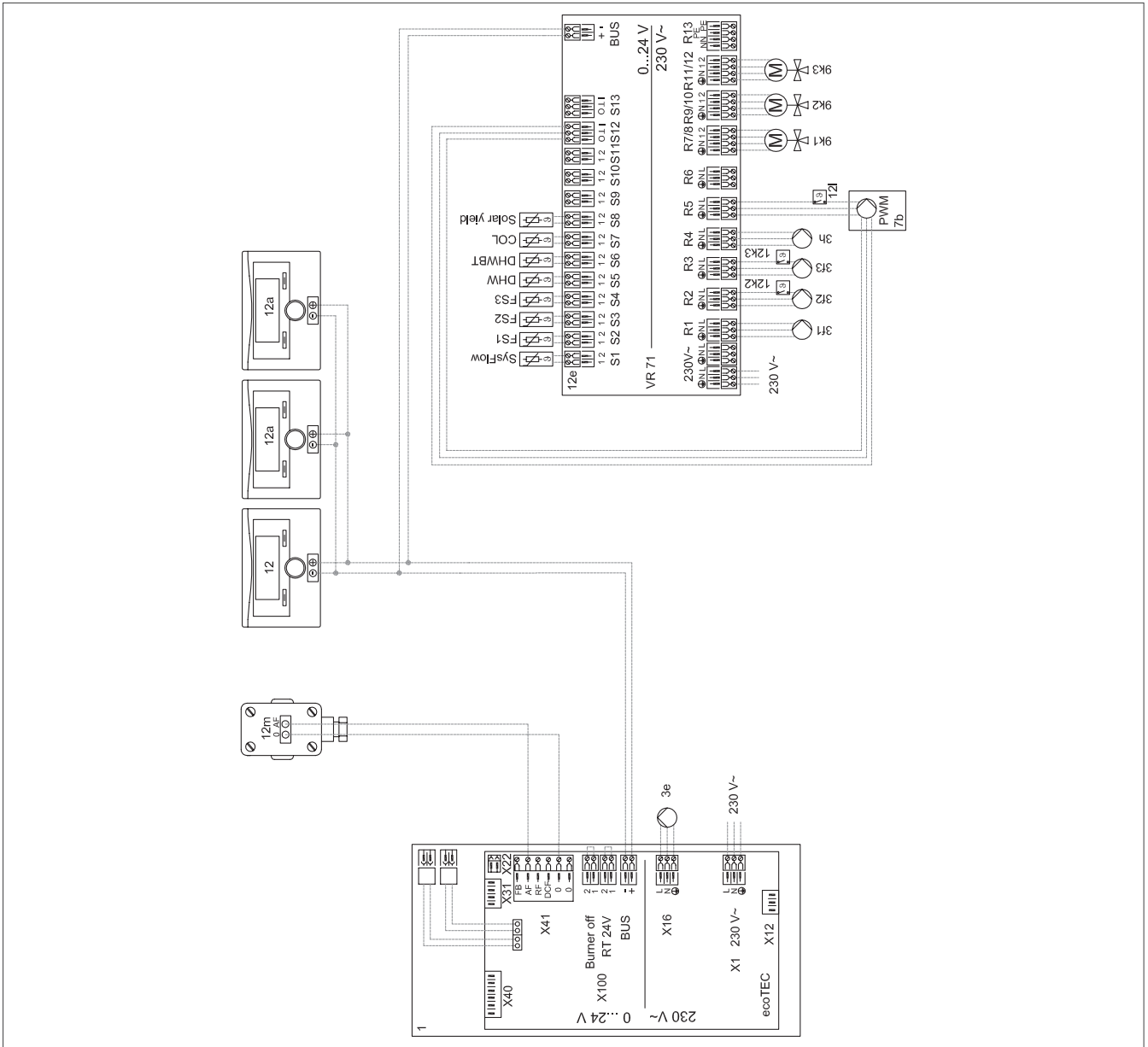


Fig. 134: Wiring diagram

**Description**

Apartment buildings with different usage patterns. The solar system supports the domestic hot water system. The solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** \*integrated in the heat generator. To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position. If an expansion vessel is not integrated in the heat generator, plans must be made for an additional expansion vessel in the hot-water charging circuit for the floor-standing boiler.

**Individual components**

- ecoTEC plus VC < 30 kW
- auroSTOR VIH S
- auroTHERM VFK
- WH 27/40
- VMS 70
- VRC 700/4
- VR 71
- VR 91

**Setting**

VRC 700 System diagram setting: 1  
Module setting: 2





# 7. Product information for ecoTEC plus .../5-5 31 to 63 kW

## 7.1 Product combinations



Fig. 135: Product combinations

Product combination overview for the ecoTEC plus .../5-5

	1 Boiler ecoTEC plus VC	2 Low loss header	3 Domestic hot water cylinder uniSTOR	4 Control	5 Air/flue system	6 Ventilation (optional)	7 Solar thermal energy (optional)
Heating only	•	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

## 7.2 Product description for the ecoTEC plus VC 406/5-5 to VC 636/5-5



Fig. 136: ecoTEC plus VC 40-63 kW

### 7.2.2 Potential applications

- For new builds and energy-optimised modernising in single- or dual-occupancy houses, business premises and industrial facilities
- For radiators and underfloor heating
- Low-cost installation as a roof heating centre or as a compact cascade system in boiler rooms
- Open-flued or room-sealed operation with a system-certified flue system

### 7.2.3 Equipment

- High-efficiency pump
- Integrated cylinder/domestic hot water control system with prioritising diverter valve
- Rainwater and condensate collecting device, rainwater drain hose
- Integrated air separator
- Water pressure sensor, manometer
- Stainless steel integral condensation heat exchanger
- eBUS interface
- DIA system with plain text display, illuminated
- Integration for Vaillant „Connectivity“ available as an option

#### Note

Liquefied petroleum gas conversion set available as a spare part.



### 7.2.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- Modulation up to 1:5
- Pneumatic gas-air mixture unit
- Unit hydraulics without a bypass valve
- Automatic partial load adjustment
- Intuitive-to-use unit display
- Automatic purging system for easily purging the unit
- Modern unit design and compact unit dimensions
- Vertical hydraulic connections and comprehensive installation accessories for flexible use
- Can be used as a cascade system with up to six units
- Can be funded in accordance with proKlima

#### Type overview

Unit designation	Energy efficiency class Heating	Gas type	Product ID no.	Order no.
VC 406/5-5 E VC 406/5-5 LL	A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas	CE-0063CS3428 CE-0063CS3428	
VC 476/5-5 E VC 476/5-5 LL	A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas	CE-0063CS3428 CE-0063CS3428	
VC 636/5-5 E VC 636/5-5 LL	A (A+++ to D) A (A+++ to D)	G20 natural gas G25 natural gas	CE-0063CS3428 CE-0063CS3428	



## Technical data - General

	VC 406/5-5 (E-DE)	VC 406/5-5 (LL-DE)
Gas category	I12ELL3P, I2E	I12ELL3P
Diameter of the gas pipe at the product outlet	25 mm	25 mm
Diameter at the outlet of the gas compression fitting, outside thread	1"	1"
Diameter of the heating pipe at the product outlet, outside thread	1 1/2"	1 1/2"
Diameter at the outlet of the heating connection, outside thread	1 1/2"	1 1/2"
Connection diameter of the expansion relief valve, inside thread	1"	1"
Air/flue connection	80/125 mm	80/125 mm
G20 gas flow pressure	2.0 kPa (20.0 mbar)	
G25 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
G31 gas flow pressure	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)
CE number (PIN)	CE-0063CS3428	CE-0063CS3428
Min. flue gas mass flow rate	3.9 g/s	3.9 g/s
Max. flue gas mass flow rate	17.0 g/s	17.1 g/s
Released system types	C13x, C33x, C43x, C53x, C93x, B23x, B23(P)x, B33x, B53x, B53(P)x	C13x, C33x, C43x, C53x, C93x, B23x, B23(P)x, B33x, B53x, B53(P)x
Min. flue gas temperature at P 50/30 °C	37 °C	37 °C
Max. flue gas temperature at P 50/30 °C	53 °C	53 °C
Min. flue gas temperature at P 80/60 °C	61 °C	61 °C
Max. flue gas temperature at P 80/60 °C	78 °C	78 °C
Nominal efficiency at 80/60 °C	98.2 %	98.2 %
Nominal efficiency at 50/30 °C	107.0 %	106.7 %
Nominal efficiency at 60/40 °C	103.6 %	104.2 %
Nominal efficiency in partial load mode (30%) at 40/30 °C	109.0 %	109.1 %
NOx class	6	6
Product dimensions, width	440 mm	440 mm
Product dimensions, depth	405 mm	405 mm
Product dimensions, height	720 mm	720 mm
Net weight	37.8 kg	37.8 kg
	VC 476/5-5 (E-DE)	VC 476/5-5 (LL-DE)
Gas category	I12ELL3P, I2E	I12ELL3P
Diameter of the gas pipe at the product outlet	25 mm	25 mm
Diameter at the outlet of the gas compression fitting, outside thread	1"	1"
Diameter of the heating pipe at the product outlet, outside thread	1 1/2"	1 1/2"
Diameter at the outlet of the heating connection, outside thread	1 1/2"	1 1/2"
Connection diameter of the expansion relief valve, inside thread	1"	1"
Air/flue connection	80/125 mm	80/125 mm
G20 gas flow pressure	2.0 kPa (20.0 mbar)	
G25 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
G31 gas flow pressure	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)
CE number (PIN)	CE-0063CS3428	CE-0063CS3428
Min. flue gas mass flow rate	3.9 g/s	3.9 g/s
Max. flue gas mass flow rate	20.3 g/s	20.3 g/s
Released system types	C13x, C33x, C43x, C53x, C93x, B23x, B23(P)x, B33x, B53x, B53(P)x	C13x, C33x, C43x, C53x, C93x, B23x, B23(P)x, B33x, B53x, B53(P)x
Min. flue gas temperature at P 50/30 °C	37 °C	37 °C

	VC 476/5-5 (E-DE)	VC 476/5-5 (LL-DE)
Max. flue gas temperature at P 50/30 °C	53 °C	53 °C
Min. flue gas temperature at P 80/60 °C	61 °C	61 °C
Max. flue gas temperature at P 80/60 °C	78 °C	78 °C
Nominal efficiency at 80/60 °C	97.5 %	97.5 %
Nominal efficiency at 50/30 °C	106.2 %	106.2 %
Nominal efficiency at 60/40 °C	103.2 %	103.2 %
Nominal efficiency in partial load mode (30%) at 40/30 °C	109.1 %	109.1 %
NOx class	6	6
Product dimensions, width	440 mm	440 mm
Product dimensions, depth	405 mm	405 mm
Product dimensions, height	720 mm	720 mm
Net weight	37.8 kg	37.8 kg
	VC 636/5-5 (E-DE)	VC 636/5-5 (LL-DE)
Gas category	II2ELL3P, I2E	II2ELL3P
Diameter of the gas pipe at the product outlet	25 mm	25 mm
Diameter at the outlet of the gas compression fitting, outside thread	1"	1"
Diameter of the heating pipe at the product outlet, outside thread	1 1/2"	1 1/2"
Diameter at the outlet of the heating connection, outside thread	1 1/2"	1 1/2"
Connection diameter of the expansion relief valve, inside thread	1"	1"
Air/flue connection	80/125 mm	80/125 mm
G20 gas flow pressure	2.0 kPa (20.0 mbar)	
G25 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
G31 gas flow pressure	5.0 kPa (50.0 mbar)	5.0 kPa (50.0 mbar)
CE number (PIN)	CE-0063CS3428	CE-0063CS3428
Min. flue gas mass flow rate	5.3 g/s	5.3 g/s
Max. flue gas mass flow rate	27.0 g/s	27.0 g/s
Released system types	C13x, C33x, C43x, C53x, C93x, B23x, B23(P)x, B33x, B53x, B53(P)x	C13x, C33x, C43x, C53x, C93x, B23x, B23(P)x, B33x, B53x, B53(P)x
Min. flue gas temperature at P 50/30 °C	37 °C	37 °C
Max. flue gas temperature at P 50/30 °C	61 °C	61 °C
Min. flue gas temperature at P 80/60 °C	65 °C	65 °C
Max. flue gas temperature at P 80/60 °C	78 °C	78 °C
Nominal efficiency at 80/60 °C	97.8 %	97.8 %
Nominal efficiency at 50/30 °C	105.9 %	105.9 %
Nominal efficiency at 60/40 °C	102.8 %	102.8 %
Nominal efficiency in partial load mode (30%) at 40/30 °C	109.5 %	109.5 %
NOx class	6	6
Product dimensions, width	440 mm	440 mm
Product dimensions, depth	473 mm	473 mm
Product dimensions, height	720 mm	720 mm
Net weight	47.2 kg	47.2 kg

### Technical data - Power/heat input (G20)

	VC 406/5-5 (E-DE)	VC 476/5-5 (E-DE)
Nominal heat output range P at 50/30 °C	8.7 to 40.7 kW	8.7 to 48.0 kW
Nominal heat output range P at 60/40 °C	8.5 to 39.4 kW	8.5 to 46.6 kW
Nominal heat output range P at 80/60 °C	7.8 to 37.3 kW	7.8 to 44.1 kW
Maximum heat input (Q max.)	38.0 kW	45.2 kW
Minimum heat input (Q min.)	8.1 kW	8.1 kW

	VC 636/5-5 (E-DE)
Nominal heat output range P at 50/30 °C	12.2 to 63.5 kW
Nominal heat output range P at 60/40 °C	11.8 to 61.7 kW
Nominal heat output range P at 80/60 °C	11.0 to 58.7 kW
Maximum heat input (Q max.)	60.0 kW
Minimum heat input (Q min.)	11.3 kW

### Technical data - Power/heat input (G25)

	VC 406/5-5 (E-DE)	VC 406/5-5 (LL-DE)
Effective output range (P) at 50/30 °C	8.8 to 40.5 kW	8.8 to 40.5 kW
Effective output range (P) at 80/60 °C	7.8 to 37.3 kW	7.8 to 37.3 kW
Maximum heat input - heating (Q max.)	38.0 kW	38.0 kW
Minimum heat input - heating (Q min.)	8.1 kW	8.1 kW

	VC 476/5-5 (E-DE)	VC 476/5-5 (LL-DE)
Effective output range (P) at 50/30 °C	8.7 to 48.0 kW	8.7 to 48.0 kW
Effective output range (P) at 80/60 °C	7.9 to 44.1 kW	7.9 to 44.1 kW
Maximum heat input - heating (Q max.)	45.2 kW	45.2 kW
Minimum heat input - heating (Q min.)	8.1 kW	8.1 kW

	VC 636/5-5 (E-DE)	VC 636/5-5 (LL-DE)
Effective output range (P) at 50/30 °C	12.2 to 63.5 kW	12.2 to 63.5 kW
Effective output range (P) at 80/60 °C	11.0 to 58.7 kW	11.0 to 58.7 kW
Maximum heat input - heating (Q max.)	60.0 kW	60.0 kW
Minimum heat input - heating (Q min.)	11.3 kW	11.3 kW

### Technical data - Power/heat input (G31)

	VC 406/5-5 (E-DE)	VC 406/5-5 (LL-DE)
Nominal heat output range P at 50/30 °C	8.6 to 39.5 kW	8.6 to 39.5 kW
Nominal heat output range P at 80/60 °C	7.8 to 37.1 kW	7.8 to 37.1 kW
Maximum heat input (Q max.)	38.0 kW	38.0 kW
Minimum heat input (Q min.)	8.1 kW	8.1 kW

	VC 476/5-5 (E-DE)	VC 476/5-5 (LL-DE)
Nominal heat output range P at 50/30 °C	8.6 to 46.6 kW	8.6 to 46.6 kW
Nominal heat output range P at 80/60 °C	7.8 to 44.0 kW	7.8 to 44.0 kW
Maximum heat input (Q max.)	45.2 kW	45.2 kW
Minimum heat input (Q min.)	8.1 kW	8.1 kW

	VC 636/5-5 (E-DE)	VC 636/5-5 (LL-DE)
Nominal heat output range P at 50/30 °C	12.0 to 62.1 kW	12.0 to 62.1 kW
Nominal heat output range P at 80/60 °C	11.1 to 58.4 kW	11.1 to 58.4 kW
Maximum heat input (Q max.)	60.0 kW	60.0 kW
Minimum heat input (Q min.)	11.3 kW	11.3 kW

## Technical data - Heating

	VC 406/5-5 (E-DE)	VC 406/5-5 (LL-DE)
Maximum heating flow temperature (default setting - D.71)	75 °C	75 °C
Range for the heating flow temperature control	30 to 80 °C	30 to 80 °C
Maximum permissible pressure (PMS)	0.4 MPa (4.0 bar)	0.4 MPa (4.0 bar)
Nominal water flow ( $\Delta T = 20$ K)	1,600 l/h	1,600 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	4.0 l/h	4.0 l/h
Maximum heat output (factory setting - D.000)	Auto	Auto

	VC 476/5-5 (E-DE)	VC 476/5-5 (LL-DE)
Maximum heating flow temperature (default setting - D.71)	75 °C	75 °C
Range for the heating flow temperature control	30 to 80 °C	30 to 80 °C
Maximum permissible pressure (PMS)	0.4 MPa (4.0 bar)	0.4 MPa (4.0 bar)
Nominal water flow ( $\Delta T = 20$ K)	1,900 l/h	1,900 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	4.5 l/h	4.5 l/h
Maximum heat output (factory setting - D.000)	Auto	Auto

	VC 636/5-5 (E-DE)	VC 636/5-5 (LL-DE)
Maximum heating flow temperature (default setting - D.71)	75 °C	75 °C
Range for the heating flow temperature control	30 to 80 °C	30 to 80 °C
Maximum permissible pressure (PMS)	0.4 MPa (4.0 bar)	0.4 MPa (4.0 bar)
Nominal water flow ( $\Delta T = 20$ K)	2,500 l/h	2,500 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	5.6 l/h	5.6 l/h
Maximum heat output (factory setting - D.000)	Auto	Auto

## Technical data - Electrics

	VC 406/5-5 (E-DE)	VC 406/5-5 (LL-DE)
Electric connection	230 V 50 Hz	230 V 50 Hz
Built-in fuse (slow-blow)	T4H/4A,250V	T4H/4A,250V
Maximum electrical power consumption	≤ 162 W	≤ 162 W
Standby electrical power consumption	1.8 W	1.8 W
IP rating	IPX4D	IPX4D
Permissible connected voltage	195 to 253 V	195 to 253 V

	VC 476/5-5 (E-DE)	VC 476/5-5 (LL-DE)
Electric connection	230 V 50 Hz	230 V 50 Hz
Built-in fuse (slow-blow)	T4H/4A,250V	T4H/4A,250V
Maximum electrical power consumption	≤ 162 W	≤ 162 W
Standby electrical power consumption	1.8 W	1.8 W
IP rating	IPX4D	IPX4D
Permissible connected voltage	195 to 253 V	195 to 253 V

	VC 636/5-5 (E-DE)	VC 636/5-5 (LL-DE)
Electric connection	230 V 50 Hz	230 V 50 Hz
Built-in fuse (slow-blow)	T4H/4A,250V	T4H/4A,250V
Maximum electrical power consumption	≤ 250 W	≤ 250 W
Standby electrical power consumption	1.8 W	1.8 W
IP rating	IPX4D	IPX4D
Permissible connected voltage	195 to 253 V	195 to 253 V

## Dimensions

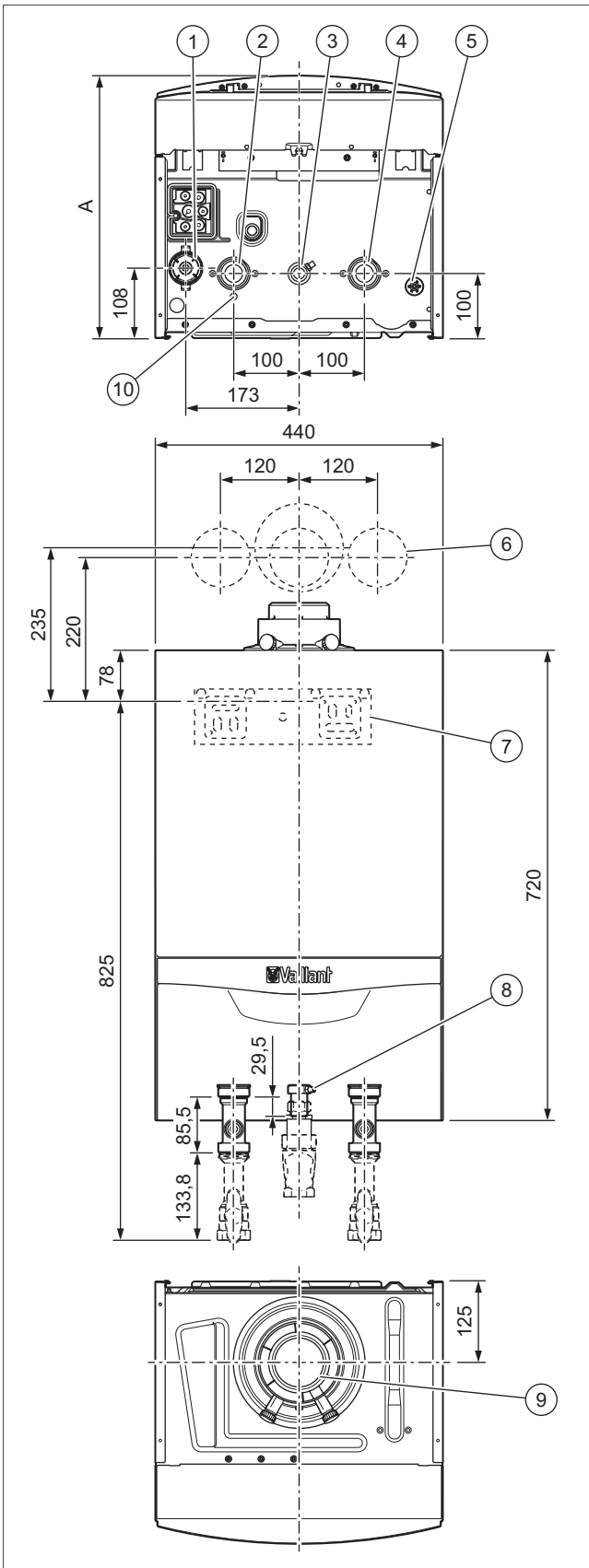


Fig. 137: Product dimensions and connection dimensions in mm

- 1 Condensate siphon
- 2 Heating flow connection
- 3 Gas connection
- 4 Heating return connection
- 5 Drain for the rainwater collecting device
- 6 Position of the holes for the flue system
- 7 Retainer for securing the product
- 8 Gas pressure connection
- 9 Connection for the air/flue pipe
- 10 Drain for the dynamic air separation system

### Dimension A

VC 406/5-5 (E-DE)	405 mm
VC 406/5-5 (LL-DE)	405 mm
VC 476/5-5 (E-DE)	405 mm
VC 476/5-5 (LL-DE)	405 mm
VC 636/5-5 (E-DE)	473 mm
VC 636/5-5 (LL-DE)	473 mm

## 7.3 Supplementary information for the ecoTEC plus VC 406/5-5 to 636/5-5

### 7.3.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

Side clearance is not a mandatory requirement.

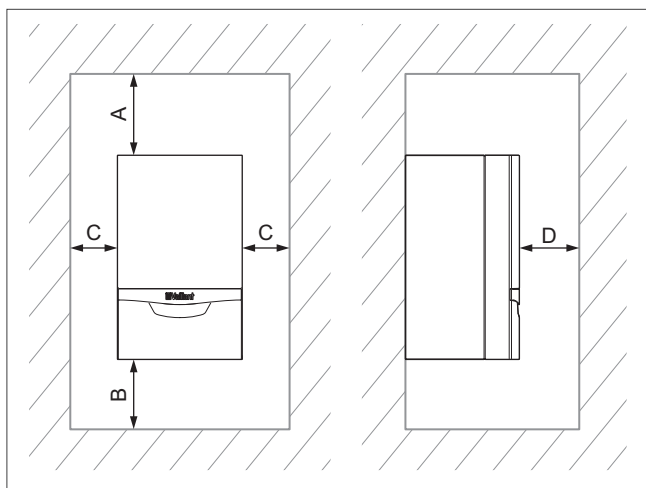


Fig. 138: Required minimum clearances/installation clearances

Required minimum clearances/installation clearances

	Minimum clearance
A	≥275 mm
B	≥180 mm; optimum dimension ≈ 250 mm
C	≥5 mm; optimum dimension ≈ 50 mm
D	≥500 mm The clearance in front of the product to facilitate easy access for maintenance work can be reduced to 5 mm if there is a door in front of the product

### 7.3.2 Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The unit is fitted with a 1.0 m connection cable with a mains plug. The connection cable is fully wired into the unit at the factory.

When installing the unit in protective area classes 1 or 2, the mains connection must not be established using the standard connection cable with an earthed plug. Instead, the unit must be connected using a fixed connection and a partition with a contact opening of at least 3 mm (e.g. fuses or power switches). Directive VDE 0100 Part 701 must be observed.

### 7.3.3 Product pump curve and operating range

**Validity:** VC 406/5-5 (E-DE) OR VC 406/5-5 (LL-DE) OR VC 476/5-5 (E-DE) OR VC 476/5-5 (LL-DE)

In order to guarantee that the product works without any problems, the flow rate is permanently monitored to determine the operating range.

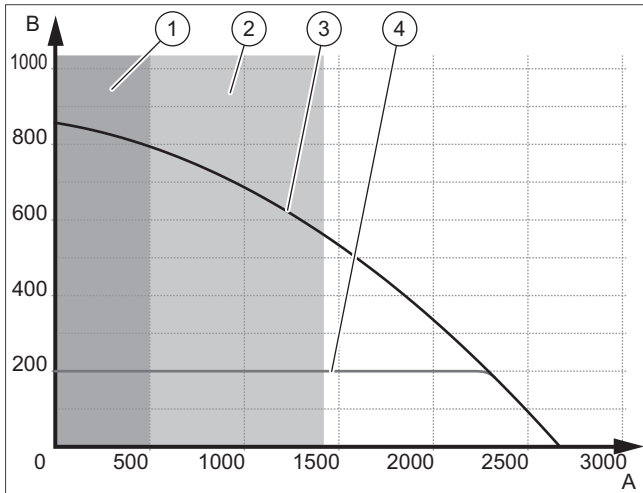


Fig. 139: Pump diagram

- 1 Flow range without operating the product
- 2 Operating range with limited flow temperature and power
- 3 Pump curve at 100% PWM
- 4  $\Delta P$  constant
- A Installation volume flow in l/h
- B Remaining pump head in hPa (mbar)

**Validity:** VC 636/5-5 (E-DE) OR VC 636/5-5 (LL-DE)

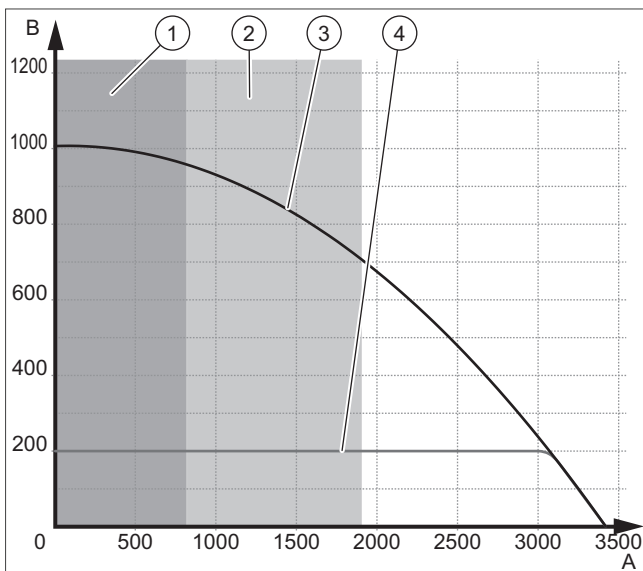


Fig. 140: Pump diagram

- 1 Flow range without operating the product
- 2 Operating range with limited flow temperature and power
- 3 Pump curve at 100% PWM
- 4  $\Delta P$  constant
- A Installation volume flow in l/h
- B Remaining pump head in hPa (mbar)

### 7.3.4 Cascade solution

ecoTEC plus VC 406/5-5, VC 476/5-5 and 636/5-5 can be cascaded as follows:

ecoTEC plus	Cascade output range (kW)				
	Two-unit cascade	Three-unit cascade	Four-unit cascade	Five-unit cascade	Six-unit cascade
VC 406/5-5	8.5-79	8.5-118	8.5-158	8.5-197	8.5-236
VC 476/5-5	8.5-93	8.5-140	8.5-186	8.5-233	8.5-280
VC 636/5-5	11.8-123	11.8-185	11.8-247	11.8-309	11.8-370

#### Dimensions in the ecoTEC plus' installation room

Bear the following points in mind during installation:

- An inspection T-piece must be installed after every diversion.
- The clearance between the support elbow's horizontal central axis and the ceiling in the installation room must amount to at least 200 mm.
- The first unit in the cascade must have a clearance (A) of at least 600 mm from the side panel.
- The flue pipework must be routed to the shaft with an upward gradient of at least 3% (5 cm/m) so that the condensate can flow off. The illustration opposite shows how to determine dimensions X and Y.
- The minimum clearance between the units amounts to 0.5 m.
- The maximum permitted clearance (B) between the units amounts to 1.5 m.
- At most, one 87° elbow or two 45° elbows may be placed between the two units.
- At most, two 87° elbows or four 45° elbows may be placed between the last unit and the shaft.



## Dimensions in the ecoTEC plus cascade installation room

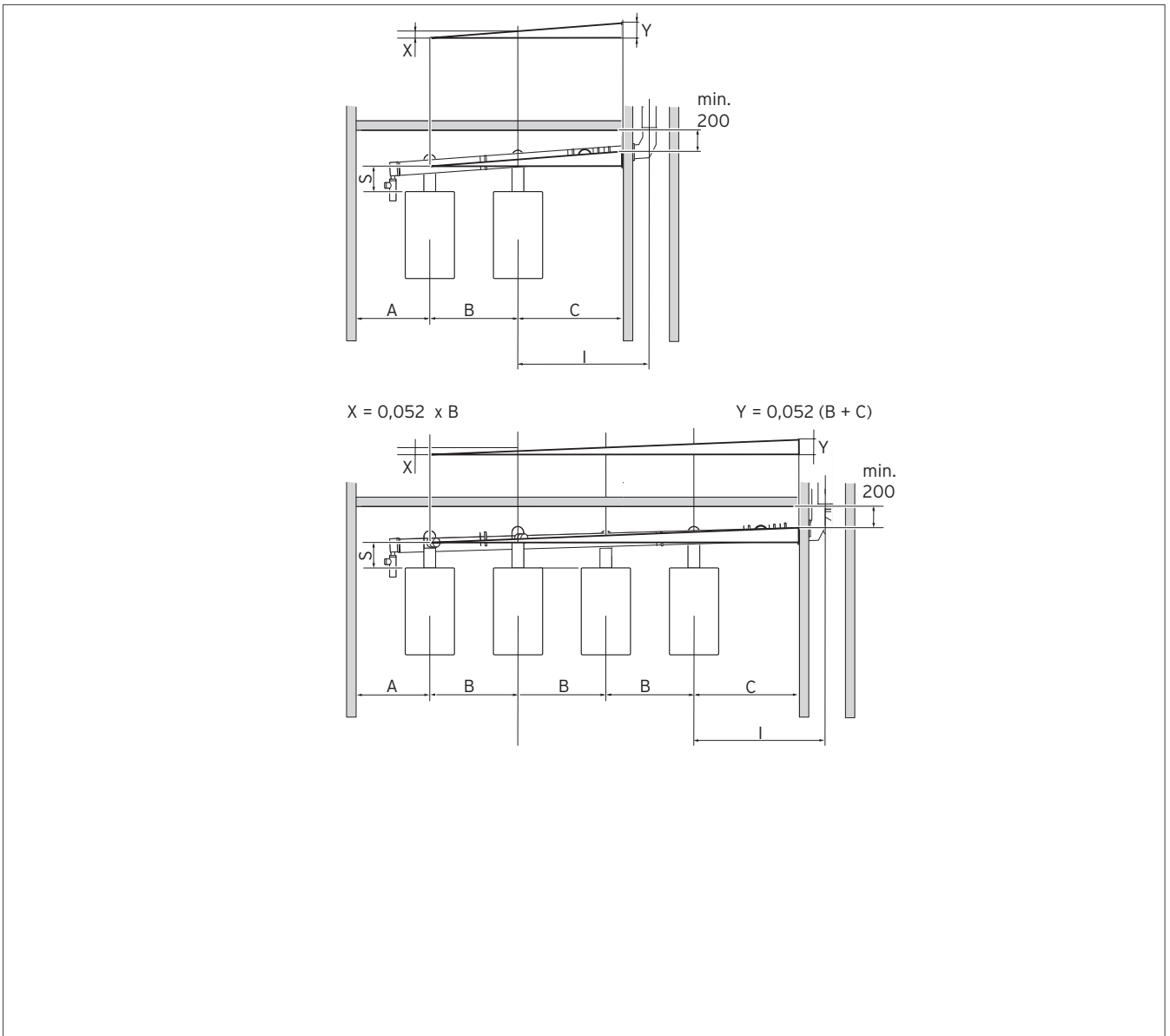


Fig. 141: Dimensions in the installation room

### Dimensions in the ecoTEC plus cascade installation room

Dimensions	ecoTEC plus	
	VC 406/5-5 and 476/5-5	VC 636/5-5
A	600 mm	600 mm
B	Without shortening: 676 mm; max. 1500 mm; max. one 87° elbow or two 45° elbows	Without shortening: 676 mm; max. 1500 mm; max. one 87° elbow or two 45° elbows
C	Min. 500 mm; max. two 87° elbows or four 45° elbows	Min. 500 mm; max. two 87° elbows or four 45° elbows
D	370 mm	390 mm
E	Min. 500 mm	Min. 500 mm
F	800 mm	820 mm
G	290 mm	290 mm
I	Max. 1800 mm	Max. 1800 mm
J	100 mm	100 mm
S	Max. 2000 mm; max. three 87° elbows	Max. 2000 mm; max. three 87° elbows

## Cascade systems

### Cascade solution

Basically, thanks to its use of several units, a cascade solution offers increased flexibility when supplying heat to a building. This flexibility is shown by a high modulation range for the complete system. Units are always only switched on and off according to requirements.

In addition, the cascade system from Vaillant offers further advantages when it comes to planning, installing and operating the system. For example, the cascade frame provides the option to install units in the room in single or multiple unit installations, irrespective of the load-bearing capacity of the surrounding walls.

- The system has a modular design and, as the heat demand in the building increases, it can be extended. This means that partial refurbishments of existing heating installations are also possible.
- Simple transport and installation of units and cascade accessories - even in the case of renovations - thanks to these being delivered in individual packaging units. This makes it easier to position the system parts, for example, in narrow stairways or doors, and they can be positioned with minimum personnel costs
- „Tailor-made“ heat demand; in the summer, individual units can be switched off completely.
- Large modulation range when compared with an individual heat generator
- High level of maintenance flexibility because maintenance work can be carried out on individual units without having to switch off the entire system.

### Hydraulic connection for the cascade system

The hydraulic connection between the cascade system and the heating installation occurs via a heat exchanger.

#### Note

When using a heat exchanger, it is not always necessary to treat the water in the unit circuit, unless otherwise specified by national regulations. The water must be treated on the system side.



### Installation options for the cascade system

You can implement the following types of installation when you use the installation frames:

- Installing the units in line
- Installing the units across a corner
- Installing the units back-to-back.



Fig. 142: Six-unit in-line cascade (set-up example without heat insulation)

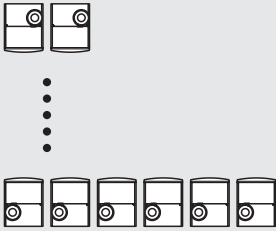
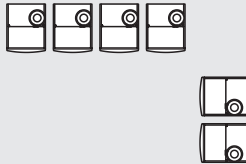
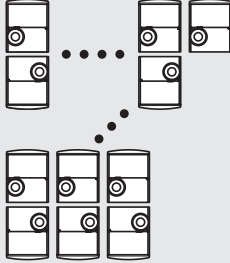


Fig. 143: Five-unit cascade around a corner (set-up example without heat insulation)



Fig. 144: Six-unit back-to-back cascade (set-up example without heat insulation)

Installation options for the cascade system

Installation options	In line	Corner solution	Back-to-back
			
Number of units	2 to 6	4 to 6	2 to 6
Type of installation			
Anchored to the wall	•	–	–
Anywhere in the room	•	•	•
Air/flue pipe			
Flue pipework in shaft	•	•	•
Flue pipework through the roof	•	•	•
Flue pipework on the façade	•	•	•

• = possible  
– = not possible

## 7.4 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus				uniSTOR exclusive			uniSTOR plus			actoSTOR	
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH K 300 (NL 10.0)
ecoTEC plus 7.8-63.0 kW	VC 406/5-5	o	•	•	o	•	•	-	•	•	•	•	•	•	-	-
	VC 476/5-5	-	-	•	-	-	•	-	•	•	•	•	•	•	-	-
	VC 636/5-5	-	-	o	-	-	o	-	•	•	•	•	•	•	-	-

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 7.5 Basic system diagrams and wiring diagrams

### 7.5.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 7.5.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020199451	ecoTEC plus < 35 kW	VRC 700, VR 70	1 UFH	–	–	•	•	allSTOR VPS
0020253233	ecoTEC plus VC 40 - 63 kW	–	–	1 HC	–	–	–	uniSTOR VIH R
0020253239	ecoTEC plus VC 40 - 63 kW	VRC 700, VR 70, VR 91	2 UFH	–	Low loss header	–	–	uniSTOR VIH R
0020259033	Kaskade ecoTEC plus VC 40 - 63 kW	VR 700, VR 71, VR 91	3 UFH	–	Low loss header	–	–	uniSTOR VIH R

0020199451 - Basic hydraulic diagram

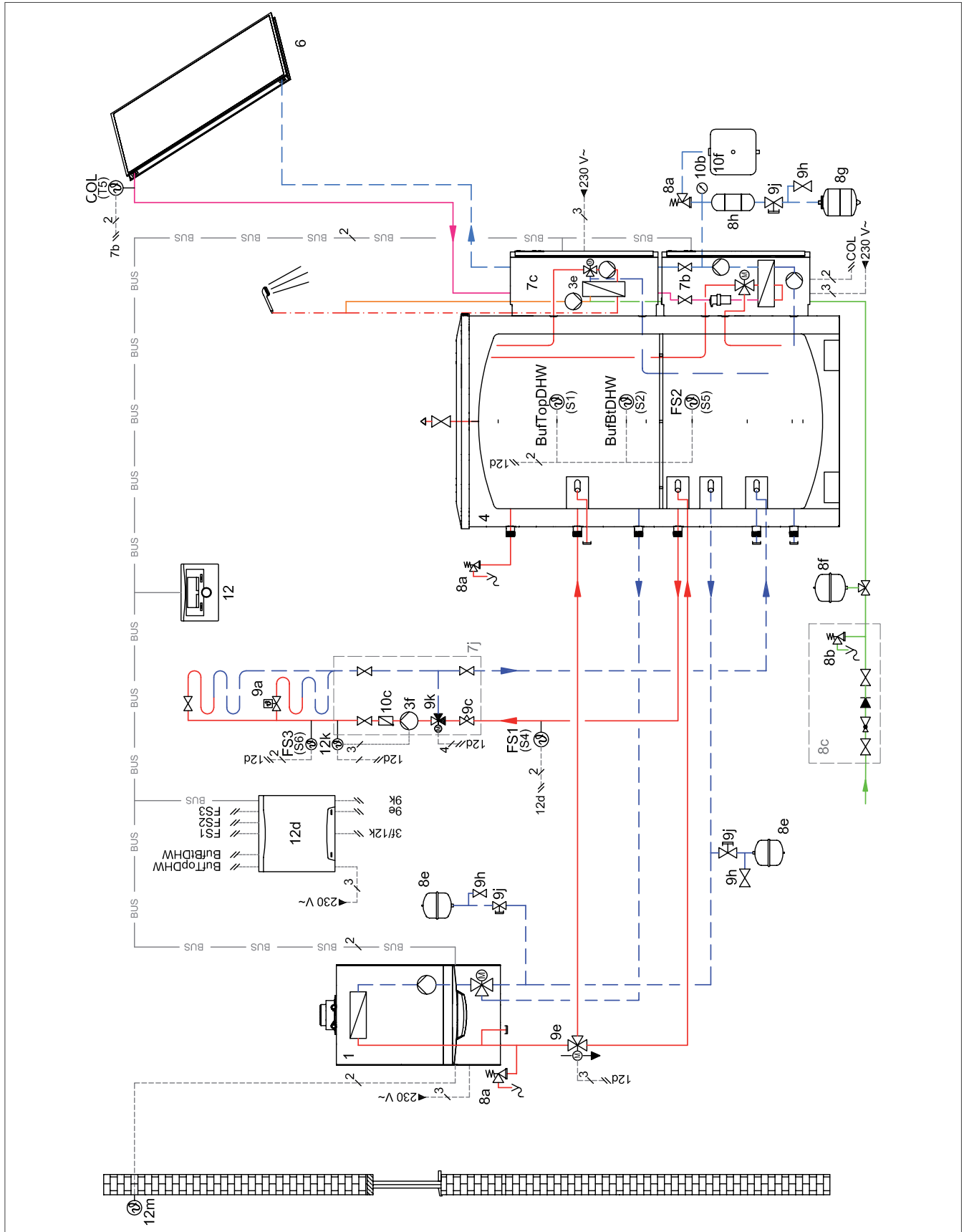


Fig. 145: Basic hydraulic diagram



## 0020199451 - Wiring diagram

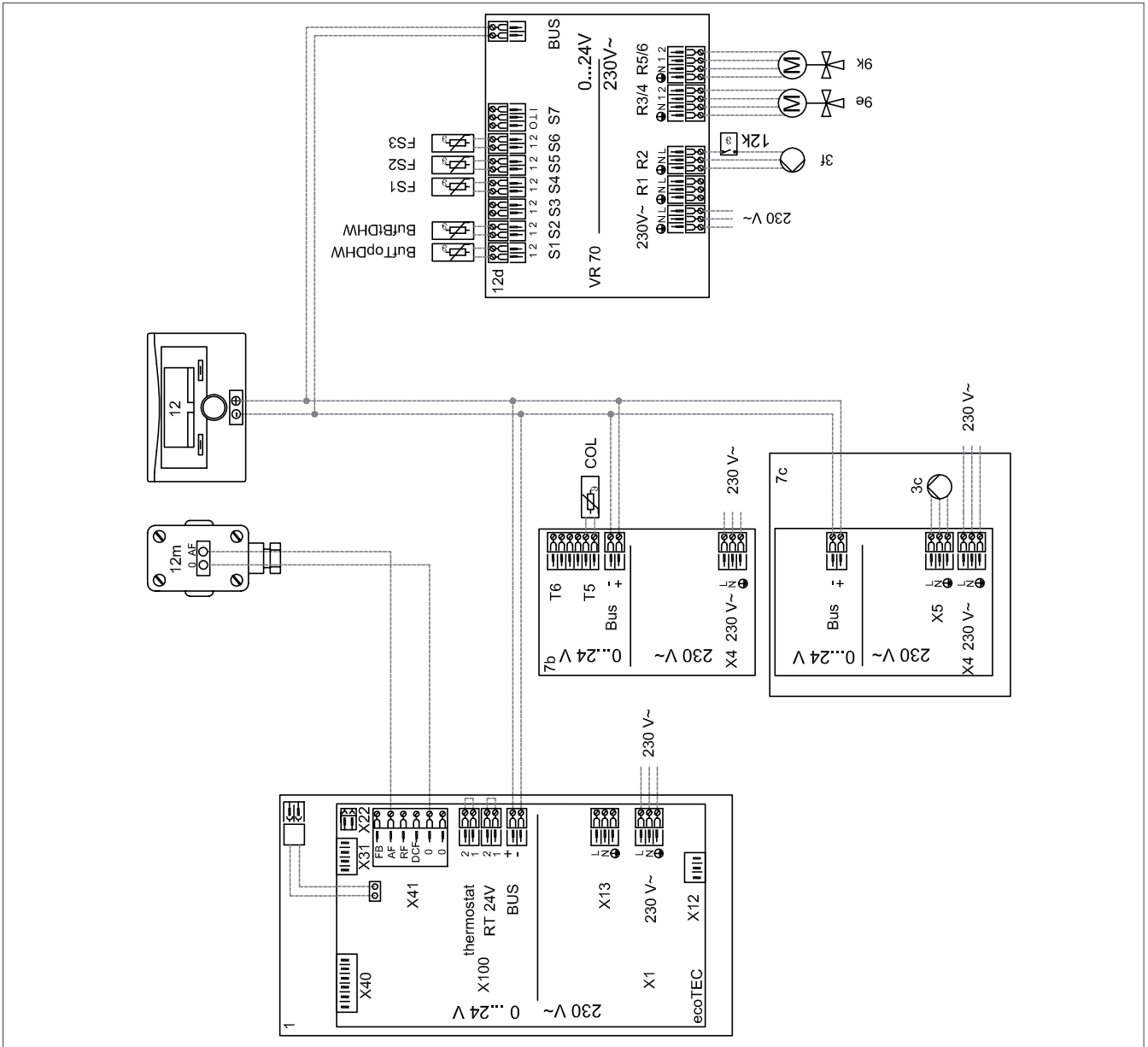


Fig. 146: Wiring diagram

### Description

Single-occupancy houses with one mixed heating circuit (underfloor heating). The solar system supports the domestic hot water and heating systems. The multi-functional cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** \* Integrated in the heat generator.

### Individual components

- ecoTEC plus VC < 35 kW
- allISTOR VPS
- auroTHERM VFK
- aquaFLOW VPM W
- auroFLOW VPM S
- VRC 700
- VR 70

### Setting

VRC 700 System diagram setting: 1  
Module setting: 3



0020253233 - Wiring diagram

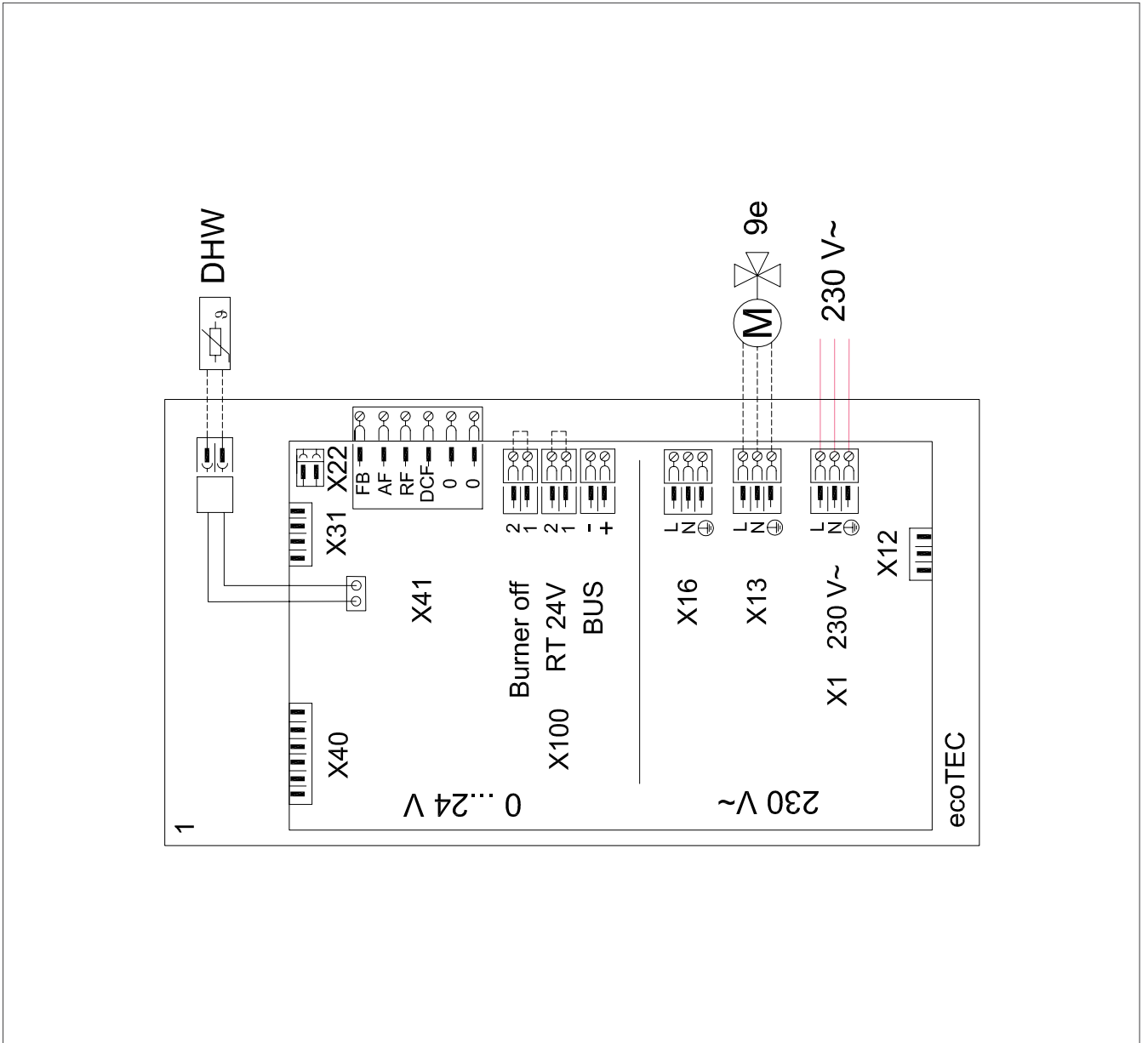


Fig. 148: Wiring diagram

- Individual components**
- ecoTEC plus VC 40 - 63 kW
  - uniSTOR VIH R

0020253239 - Basic hydraulic diagram

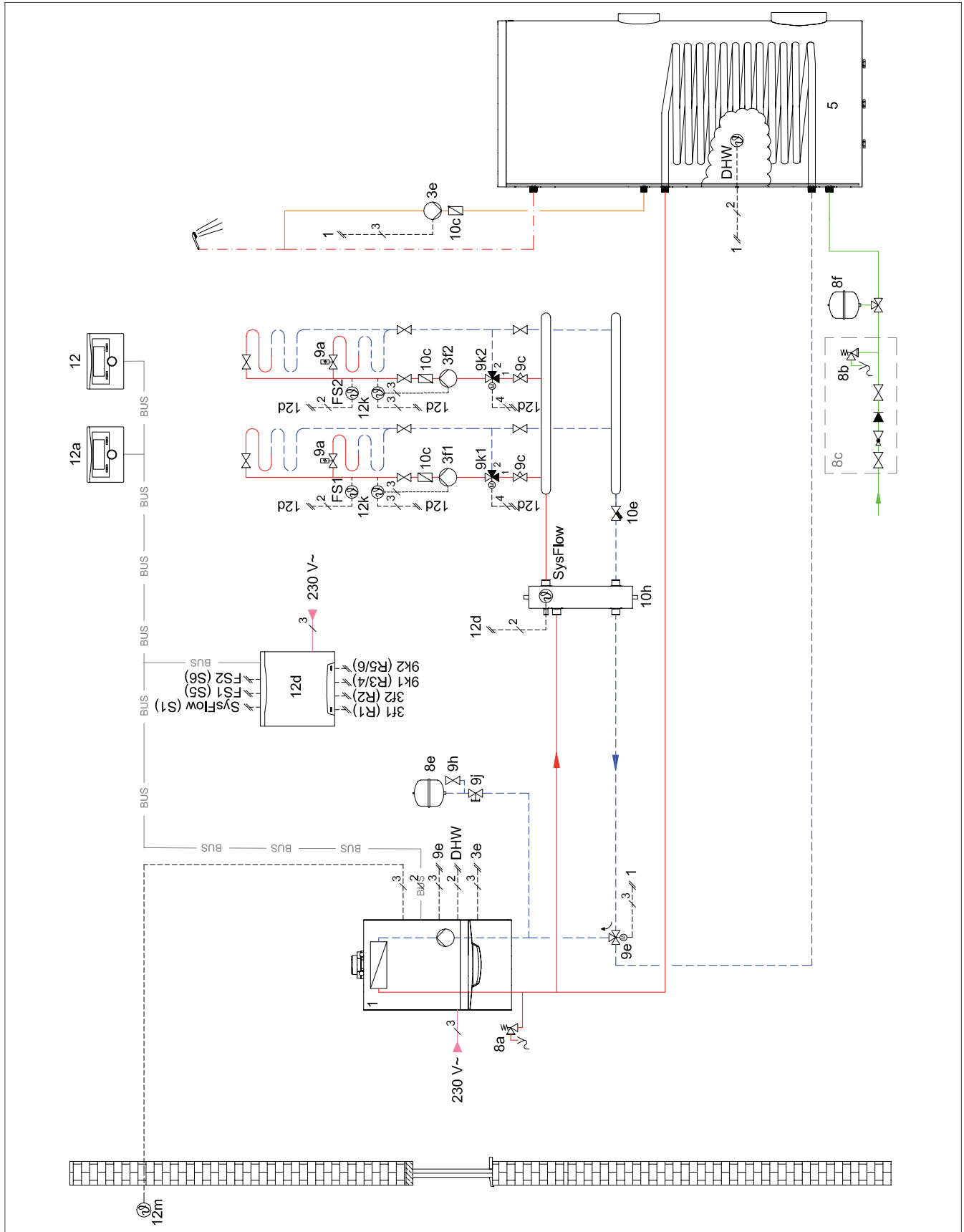


Fig. 149: Basic hydraulic diagram



0020259033 - Basic hydraulic diagram

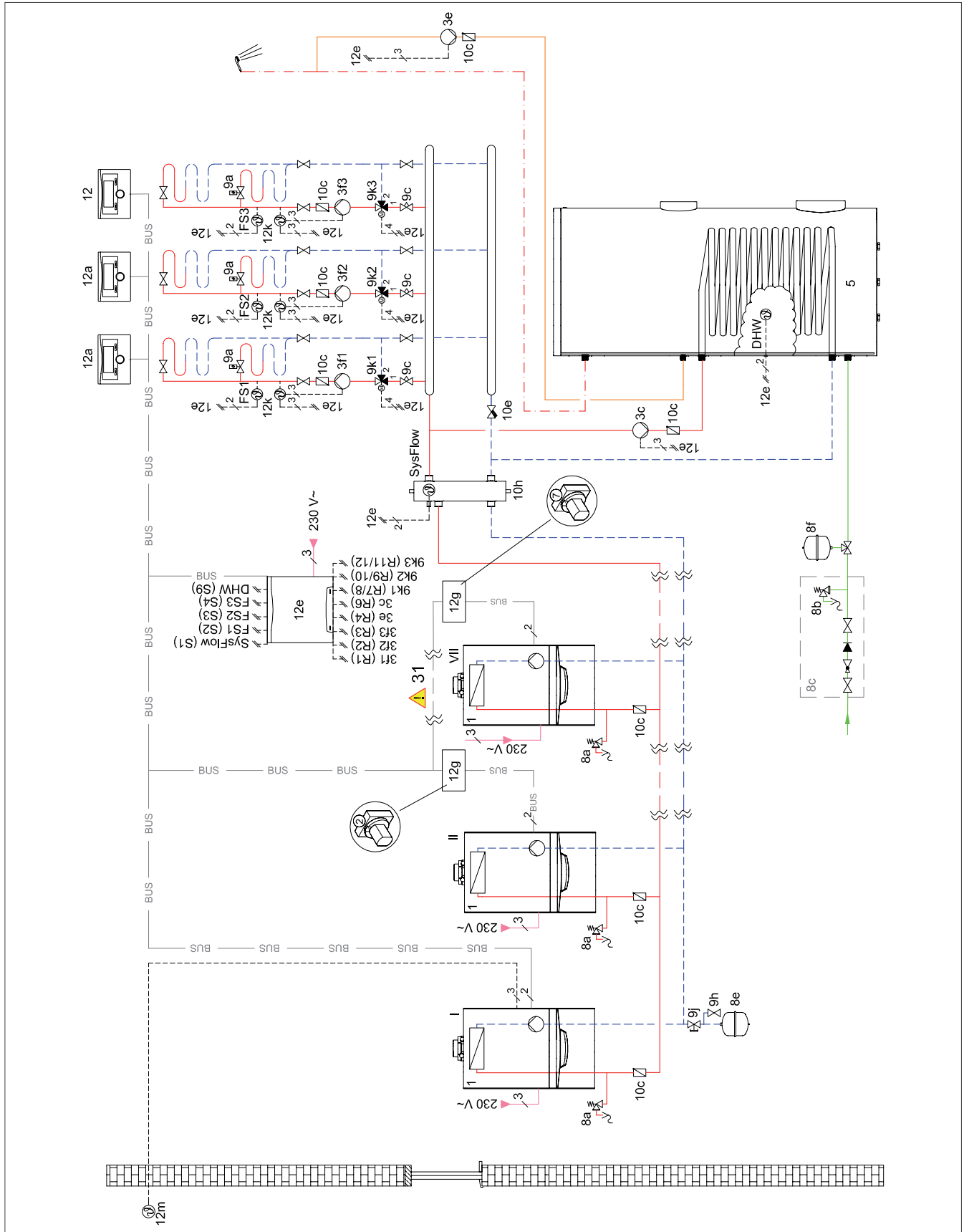


Fig. 151: Basic hydraulic diagram

## 0020259033 - Wiring diagram

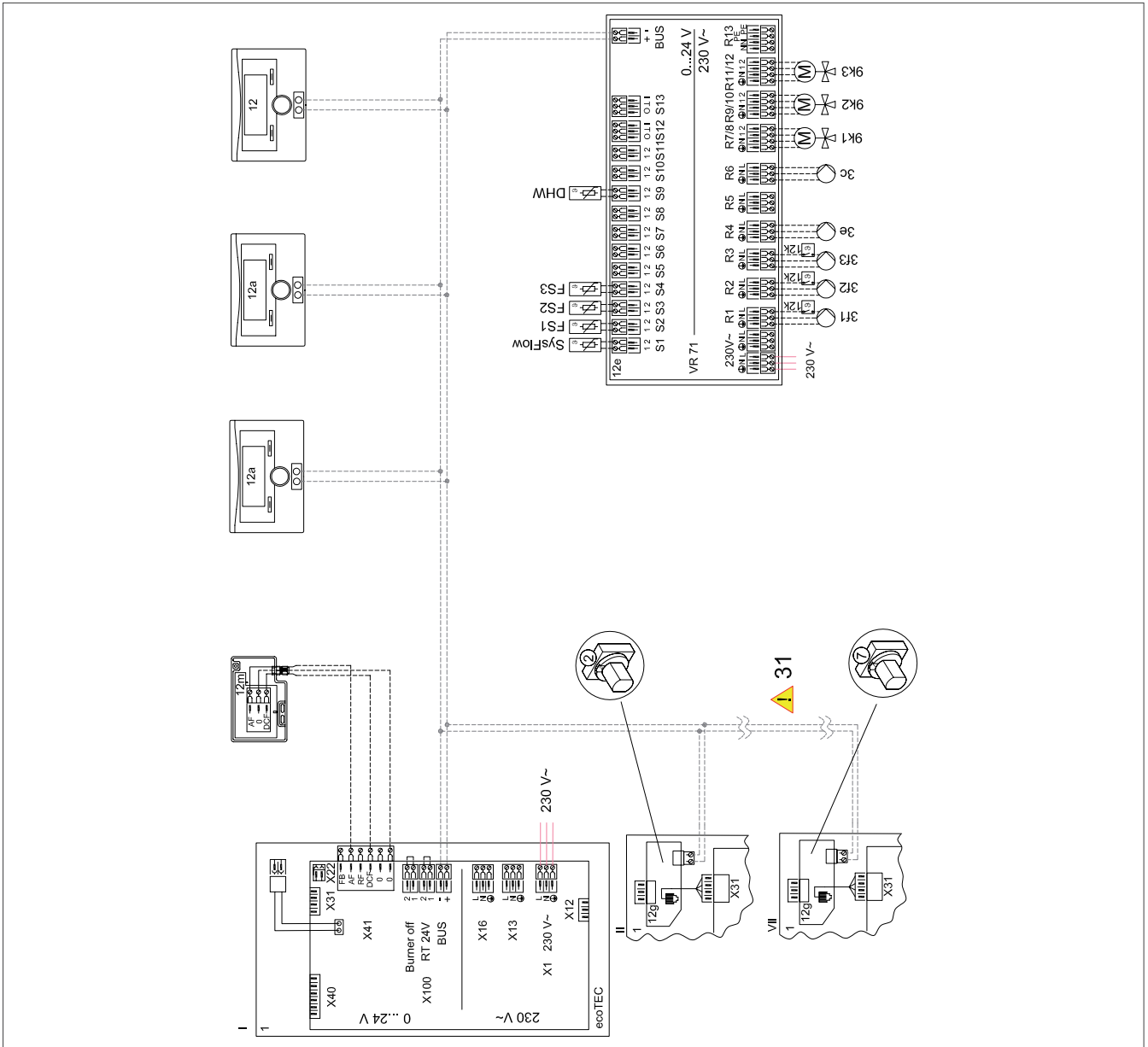


Fig. 152: Wiring diagram

### Note 31

The cascade can be configured with 1 to 7 heat generators.

### Individual components

- Kaskade ecoTEC plus VC 40 - 63 kW
- uniSTOR VIH R
- WH 40/280
- VRC 700
- VR 71
- VR 91

### Setting

VRC 700 System diagram setting: 2

Module setting: 3







# 8. Product information for ecoTEC plus .../5-5 bigger than 80 kW

## 8.1 Product combinations



Fig. 153: Product combinations

Product combination overview for the ecoTEC plus .../5-5

	1 Boiler ecoTEC plus VC	2 Heat exchanger	3 Domestic hot water cylinder uniSTOR	4 Control	5 Air/flue system	6 Cascade accessories (optional)	7 Ventilation (optional)	8 Solar thermal energy (optional)
Heating only	•	•	–	•	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

## 8.2 ecoTEC plus VC 806/5-5 to 1206/5-5 product description



Fig. 154: ecoTEC plus 80-120 kW

### 8.2.1 Special features

- Standard efficiency 99% (H<sub>2</sub>)/110% (H<sub>1</sub>)
- Modulation up to 1:5
- Efficient and robust gas-air mixture
- Automatic partial load adjustment
- Multi-sensor system for the automatic compensation of fluctuations in gas quality and the preventative boiler analysis
- Vertical hydraulic connections and comprehensive installation accessories for flexible use
- Flexible cascade formations, even in corners
- Cascading of up to six units (up to 720 kW) possible
- Perfect as a peak-load boiler in CHP systems

### 8.2.2 Potential applications

- Heating and hot water generation
- For new builds and modernising multiple-occupancy houses, public buildings and businesses, particularly as cascade solutions up to 720 kW
- For radiators and underfloor heating
- Simple hydraulic integration
- Optimal use of the space thanks to flexible cascade arrangement
- Open-flued or room-sealed operation with a system-certified flue gas system

### 8.2.3 Equipment

- High-efficiency stainless steel thermolayer heat exchanger
- Water pressure sensor
- Automatic air vent
- DIA system with plain text display, illuminated
- eBUS interface

#### Note

The ecoTEC plus VC 806/5-5 - VC 1206/5-5 must only be installed in installations that have system separation (plate heat exchanger). Liquefied petroleum gas conversion set available, see accessories.



Type overview

Unit designation	Gas type	Product ID no.	Order no.
VC 806/5-5 E VC 806/5-5 LL	G20 natural gas G25 natural gas	CE-0085 CM 0415 CE-0085 CM 0415	
VC 1006/5-5 E VC 1006/5-5 LL	G20 natural gas G25 natural gas	CE-0085 CM 0415 CE-0085 CM 0415	
VC 1206/5-5 E VC 1206/5-5 LL	G20 natural gas G25 natural gas	CE-0085 CM 0415 CE-0085 CM 0415	

## Technical data - General

	VC DE 806/5-5	VC DE 1006/5-5	VC DE 1206/5-5
Designated country (designation in accordance with ISO 3166)	DE (Germany)	DE (Germany)	DE (Germany)
Approval category	II <sub>ZELL3P</sub>	II <sub>ZELL3P</sub>	II <sub>ZELL3P</sub>
Gas connection, boiler side	R 1	R 1	R 1
Flow/return heating connections, boiler side	G 1 1/4"	G 1 1/4"	G 1 1/4"
G20 natural gas flow pressure	2.0 kPa	2.0 kPa	2.0 kPa
G25 natural gas flow pressure	2.0 kPa	2.0 kPa	2.0 kPa
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G20 (H <sub>i</sub> = 9.5 kWh/m <sup>3</sup> )	8.0 m <sup>3</sup> /h	10.1 m <sup>3</sup> /h	12.1 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (based on domestic hot water generation if applicable), G25	9.3 m <sup>3</sup> /h	11.7 m <sup>3</sup> /h	14.1 m <sup>3</sup> /h
Min. flue gas mass flow rate	6.9 g/s	8.9 g/s	10.6 g/s
Max. flue gas mass flow rate	34.4 g/s	43.6 g/s	52.5 g/s
Min. flue gas temperature	40 °C	40 °C	40 °C
Max. flue gas temperature	85 °C	85 °C	85 °C
Approved flue connections	C13(x), C33(x), C43(x), C53(x), C93(x), B23, B53, B53P	C13(x), C33(x), C43(x), C53(x), C93(x), B23, B53, B53P	C13(x), C33(x), C43(x), C53(x), C93(x), B23, B53, B53P
Additional approved flue connections	B23P	B23P	B23P
Permissible pressure difference in the flue pipe for installation type B23P as a single-flue configuration max.	150 Pa	200 Pa	200 Pa
Permitted pressure difference in the flue pipe for installation type B23P as cascade operation max.	50 Pa	50 Pa	50 Pa
Air/flue gas connection	110/160 mm	110/160 mm	110/160 mm
NOx class	6	6	6
NOx emissions	≤ 50 mg/kW-h	≤ 50 mg/kW-h	≤ 50 mg/kW-h
CO emissions	≤ 30 mg/kW-h	≤ 30 mg/kW-h	≤ 30 mg/kW-h
CO <sub>2</sub> content	9.0 vol%	9.0 vol%	9.0 vol%
Unit dimensions, width	480 mm	480 mm	480 mm
Unit dimensions, height	960 mm	960 mm	960 mm
Unit dimensions, depth	603 mm	603 mm	603 mm
Approx. net weight without pump group	68 kg	86 kg	90 kg

## Technical data - Output

	VC DE 806/5-5	VC DE 1006/5-5	VC DE 1206/5-5
Nominal heat output range at 50/30 °C	16.5 to 82.3 kW	20.7 to 102.8 kW	24.7 to 123.4 kW
Nominal heat output range at 60/40 °C	16.0 to 80.0 kW	20.0 to 100.0 kW	24.0 to 120.0 kW
Nominal heat output range at 80/60 °C	14.9 to 74.7 kW	18.7 to 93.3 kW	22.4 to 112.0 kW
Nominal efficiency (stationary) at 50/30 °C	108%	108%	108%
Nominal efficiency (stationary) at 60/40 °C	105%	105%	105%
Nominal efficiency (stationary) at 80/60 °C	98%	98%	98%
30% efficiency	109 %	109 %	109 %
Standard efficiency at 75/60 °C in accordance with DIN 4702-8	106%	106%	106%
Standard efficiency at 40/30 °C in accordance with DIN 4702-8	110%	110%	110%
Maximum heat input in heating mode (in relation to the net calorific value H <sub>i</sub> and pure heating mode)	76.2 kW	95.2 kW	114.3 kW
Maximum heat input during cylinder charging	76.2 kW	95.2 kW	114.3 kW
Minimum heat input (in relation to the net calorific value H <sub>i</sub> and pure heating mode)	15.2 kW	19.2 kW	22.9 kW

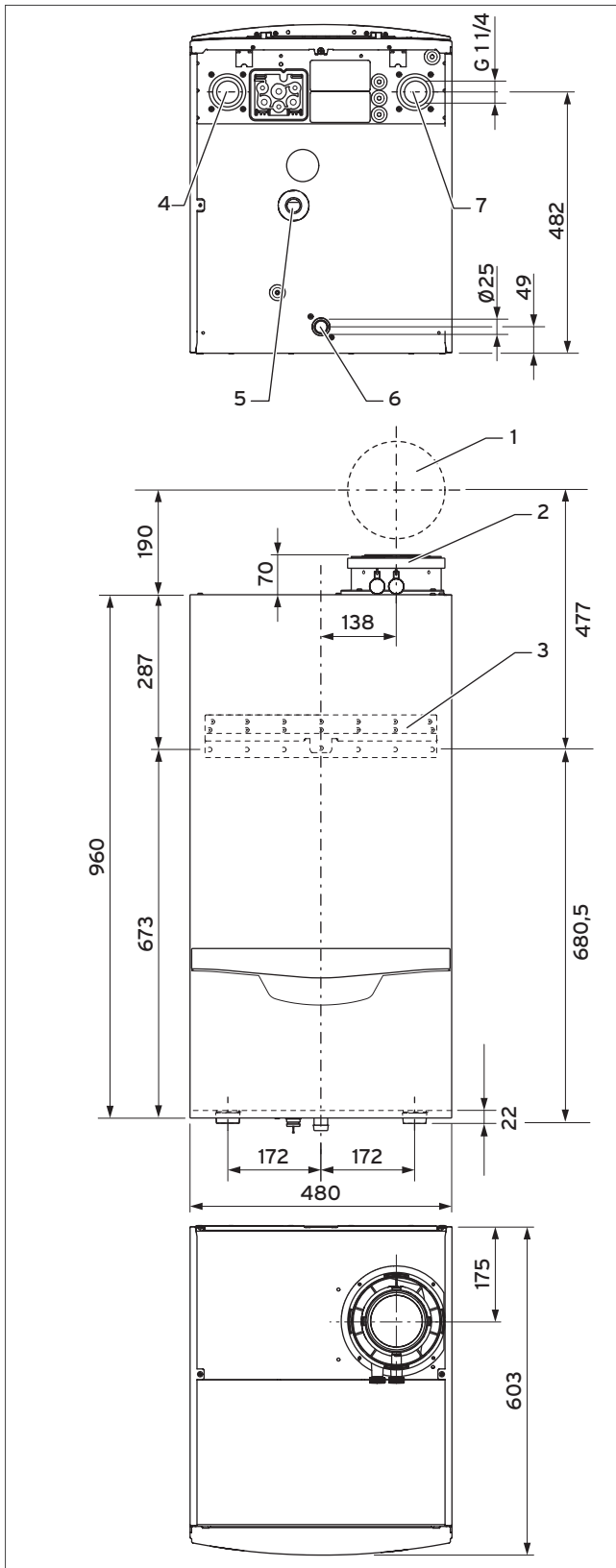
### Technical data - Heating

	VC DE 806/5-5	VC DE 1006/5-5	VC DE 1206/5-5
Maximum flow temperature (default setting: 75 °C)	85 °C	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 80 °C)	30 to 85 °C	30 to 85 °C	30 to 85 °C
Circulation water volume (with reference to $\Delta T= 23$ K)	2,990 l/h	3,740 l/h	4,485 l/h
Approx. condensate quantity (pH value 3.5 to 4.0) in heating mode 40/30 °C	12.8 l/h	16.0 l/h	19.2 l/h
Remaining feed head of the high-efficiency pump	0.025 MPa	0.050 MPa	0.042 MPa

### Technical data - Electrical

	VC DE 806/5-5	VC DE 1006/5-5	VC DE 1206/5-5
Electrical connection	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Built-in fuse (slow-blow)	4 A	4 A	4 A
Min. electrical power consumption	25 W	18 W	18 W
Max. electrical power consumption	122 W	160 W	160 W
Standby electrical power consumption	< 2 W	< 2 W	< 2 W
IP rating	IP X4 D	IP X4 D	IP X4 D
Test symbol/registration no.	CE- 0085CM0415	CE- 0085CM0415	CE- 0085CM0415

## Dimension drawing



- 1 Air/flue pipe wall duct
- 2 Air/flue pipe connection
- 3 Unit mounting bracket
- 4 Heating flow
- 5 Condensate siphon connection
- 6 Gas connection
- 7 Heating return

Fig. 155: Product dimensions and connection dimensions in mm

## 8.3 Supplementary information for the ecoTEC plus VC 806/5-5 to 1206/5-5

### 8.3.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the table are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

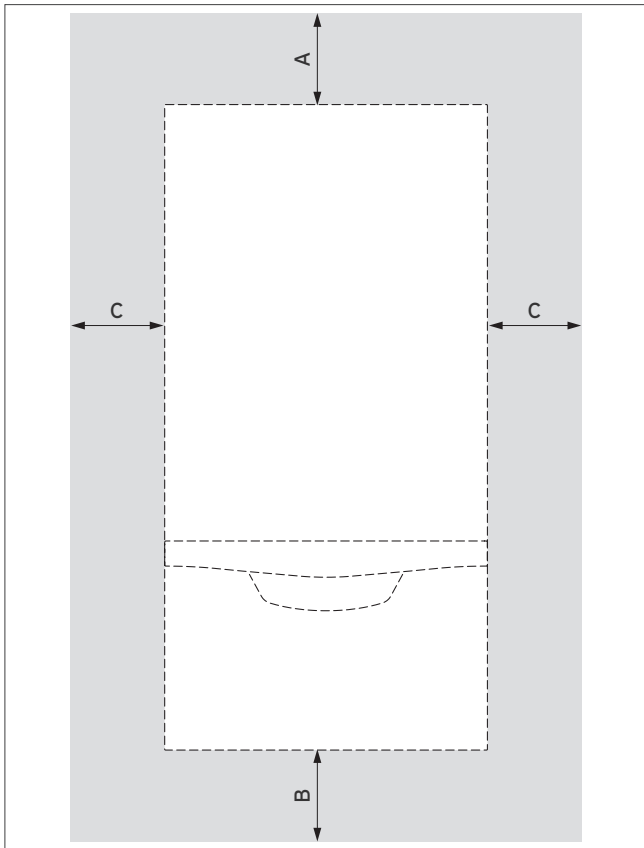


Fig. 156: Required minimum clearances/installation clearances

	Minimum clearance
A	350 mm (air/flue pipe 110/160 mm diameter) at least 450 mm in a cascade installation
B	400 mm
C	Not absolutely necessary; the side sections can be removed, e.g. for light maintenance or repair work, from 200 mm and over.

### 8.3.2 Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The unit is fitted with a 1.0 m connection cable with a mains plug. The connection cable is fully wired into the unit at the factory.

When installing the unit in protective area classes 1 or 2, the mains connection must not be established using the standard connection cable with an earthed plug. Instead, the unit must be connected using a fixed connection and a partition with a contact opening of at least 3 mm (e.g. fuses or power switches). Directive VDE 0100 Part 701 must be observed.

The following remaining feed heads are available at the unit flow in the case of high-efficiency pump groups:

Remaining feed heads for the high-efficiency pump groups

Power	Remaining feed head
80 kW	240 mbar
100 kW	380 mbar
120 kW	360 mbar

If a heat exchanger is used to hydraulically partition the system, the following pressure losses must be maintained (rated water volume when  $\Delta T = 20 \text{ K}$ ):

Pressure losses for the high-efficiency pump groups

Power	Pressure loss
< 120 kW	86 mbar
In conjunction with the hydraulic cascade	
< 240 kW	96 mbar
< 360 kW	76 mbar
< 480 kW	82 mbar
< 600 kW	87 mbar
< 720 kW	92 mbar

### 8.3.3 Cascade systems

#### Cascade solution

Basically, thanks to its use of several units, a cascade solution offers increased flexibility when supplying heat to a building. This flexibility is shown by a high modulation range for the complete system. Units are always only switched on and off according to requirements.

In addition, the cascade system from Vaillant offers further advantages when it comes to planning, installing and operating the system. For example, the cascade frame provides the option to install units in the room in single or multiple unit installations, irrespective of the load-bearing capacity of the surrounding walls.

- The system has a modular design and, as the heat demand in the building increases, it can be extended. This means that partial refurbishments of existing heating installations are also possible.
- Simple transport and installation of units and cascade accessories - even in the case of renovations - thanks to these being delivered in individual packaging units. This makes it easier to position the system parts, for example, in narrow stairways or doors, and they can be positioned with minimum personnel costs
- „Tailor-made“ heat demand; in the summer, individual units can be switched off completely.
- Large modulation range when compared with an individual heat generator
- High level of maintenance flexibility because maintenance work can be carried out on individual units without having to switch off the entire system.

#### Hydraulic connection for the cascade system

The hydraulic connection between the cascade system and the heating installation occurs via a heat exchanger.

#### Note

When using a heat exchanger, it is not always necessary to treat the water in the unit circuit, unless otherwise specified by national regulations. The water must be treated on the system side.



#### Installation options for the cascade system

You can implement the following types of installation when you use the installation frames:

- Installing the units in line
- Installing the units across a corner
- Installing the units back-to-back



Fig. 157: Six-unit in-line cascade (set-up example without heat insulation)

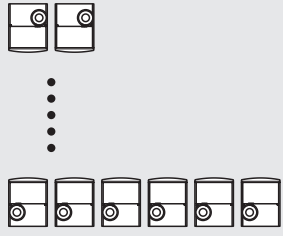
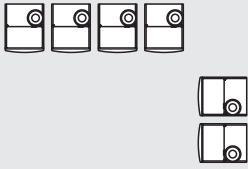
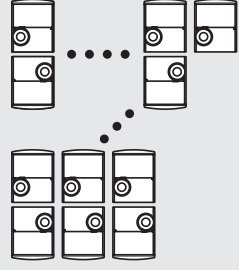


Fig. 158: Five-unit cascade around a corner (set-up example without heat insulation)



Fig. 159: Six-unit back-to-back cascade (set-up example without heat insulation)

Installation options for the cascade system

Installation options	In line	Corner solution	Back-to-back
			
Number of units	2 to 6	4 to 6	2 to 6
Type of installation			
Anchored to the wall	•	–	–
Anywhere in the room	•	•	•
Air/flue pipe			
Flue pipework in shaft	•	•	•
Flue pipework through the roof	•	•	•
Flue pipework on the façade	•	•	•

• = possible  
 – = not possible



## 8.4 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus			uniSTOR exclusive			uniSTOR plus			actoSTOR		
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH K 300 (NL 10.0)
ecoTEC plus 80.0-120.0 kW	VC 806/5-5	-	-	-	-	-	-	-	•	•	•	•	•	•	-	-
	VC 1006/5-5	-	-	-	-	-	-	-	•	•	•	•	•	•	-	-
	VC 1206/5-5	-	-	-	-	-	-	-	•	•	•	•	•	•	-	-

- Recommended
- Recommended under certain circumstances
- Not recommended

## 8.5 Basic system diagrams and wiring diagrams

### 8.5.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump

Number	Designation
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit

Number	Designation
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/ motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool

Number	Designation
12	System control
12a	Remote control unit
12b	Heat pump appliance interface
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 8.5.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020194209	ecoTEC plus 80 - 120 kW	VRC 700, VR 70, VR 91	1 UFH	1 HC	PHE C	–	–	uniSTOR VIH R
0020184676	ecoTEC plus 80 - 120 kW	VRC 630, VR 80, VR 60, VR 32	2 UFH, 1 HC	–	PHE C	–	–	uniSTOR VIH R
0020212762	ecoTEC plus 80 - 120 kW	VRC 700/4, VR 71, VR 91, VR 32	2 UFH, 1 HC	–	PHE C	–	–	uniSTOR VIH R

0020194209 - Basic hydraulic diagram

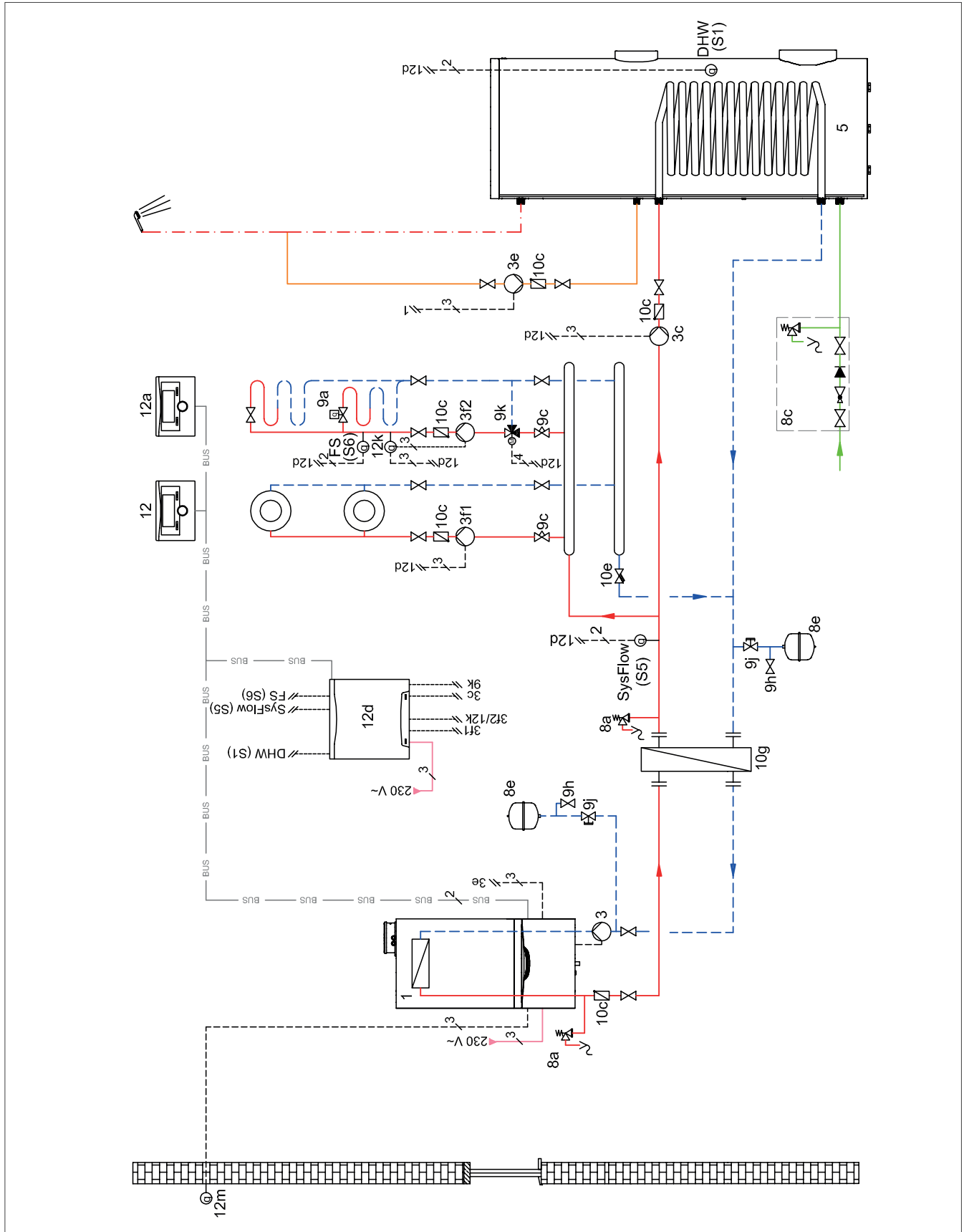


Fig. 160: Basic hydraulic diagram



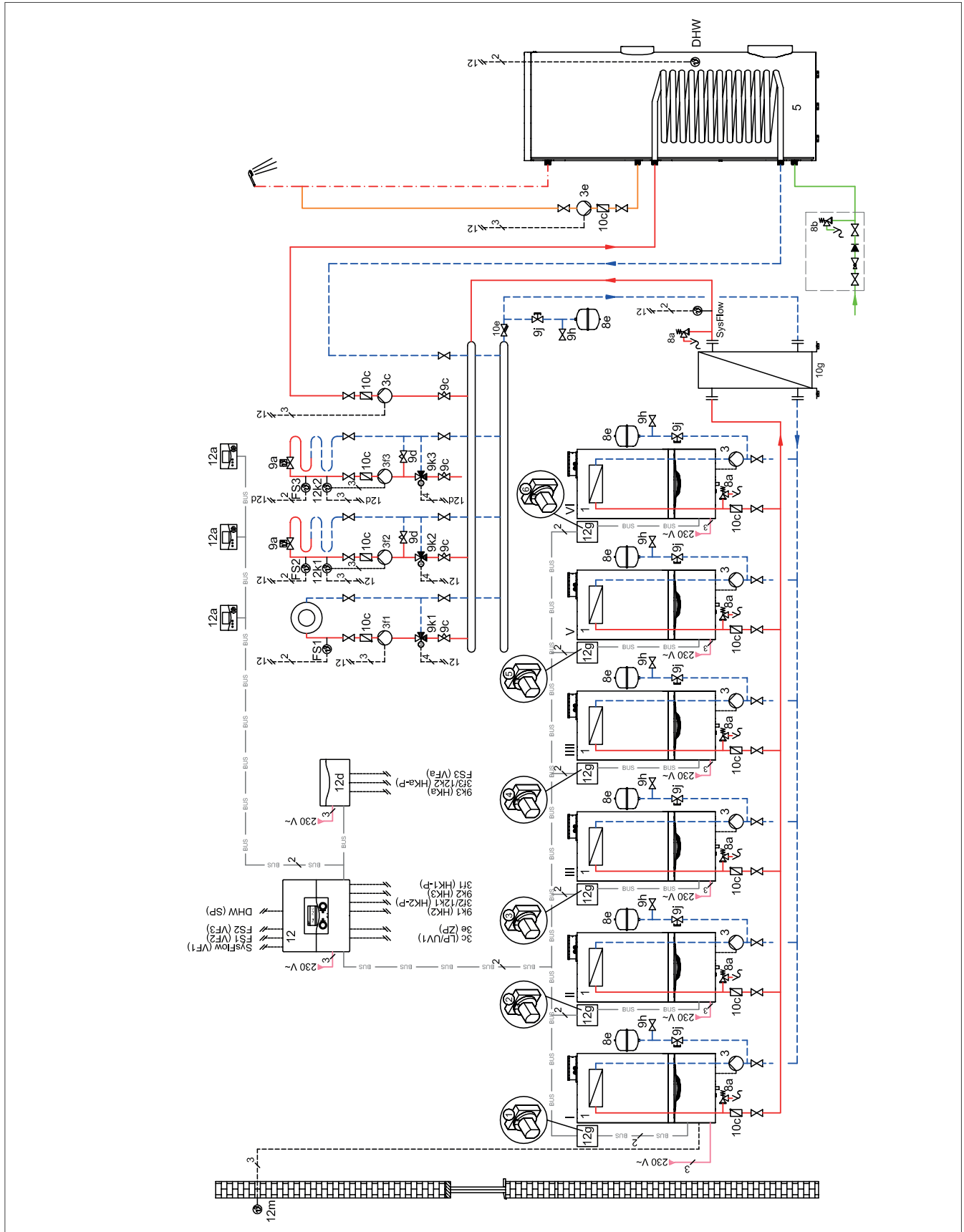


Fig. 162: Basic hydraulic diagram

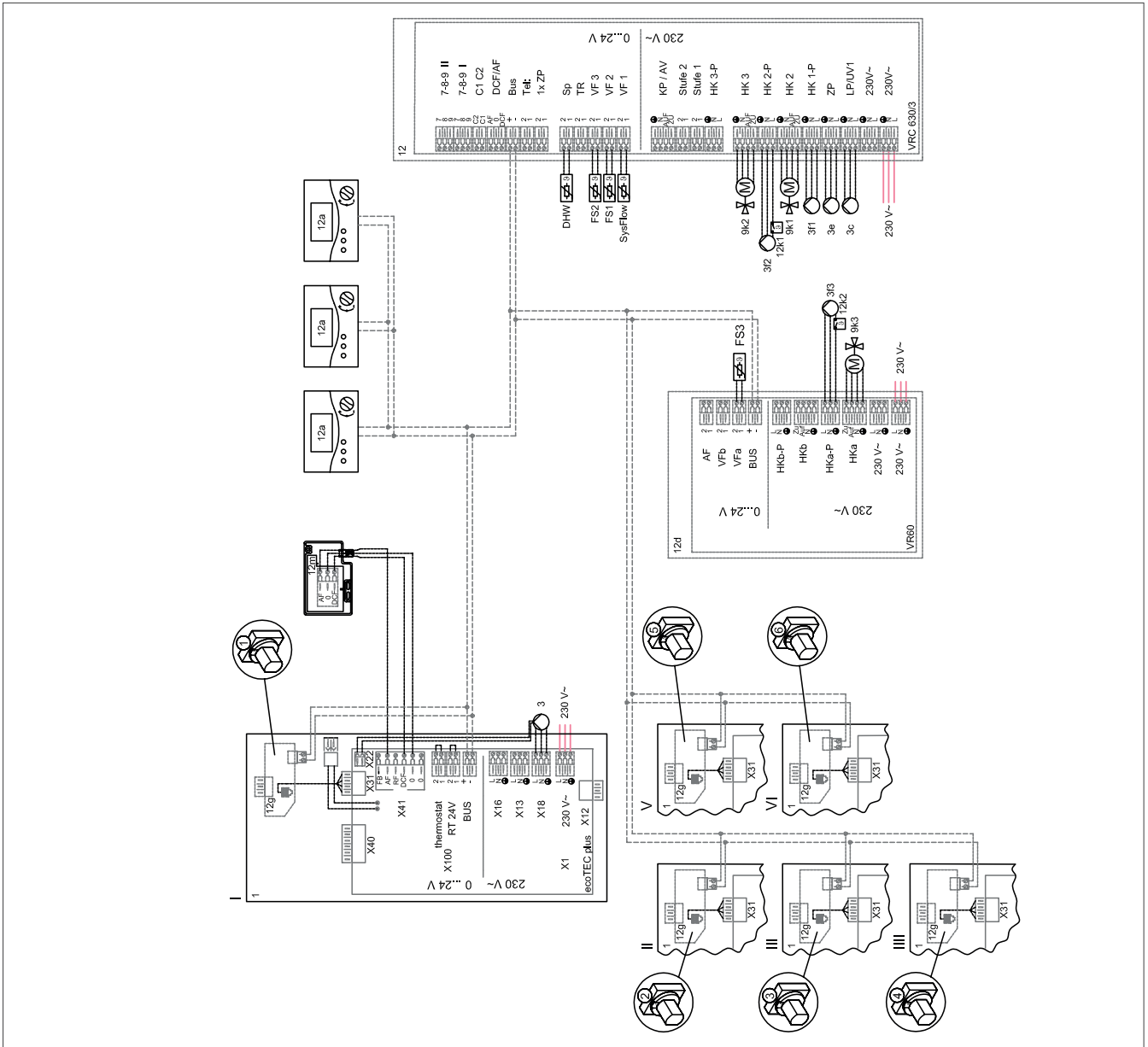


Fig. 163: Wiring diagram

### Description

Commercial buildings or multiple-occupancy houses with different usage patterns. Different design of heating circuits. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Three mixed heating circuits.

### Individual components

- ecoTEC plus VC 80 - 120 kW (cascade)
- uniSTOR VIH R
- PHE C
- VRC 630
- VR 80
- VR 60
- VR 32

0020212762 - Basic hydraulic diagram

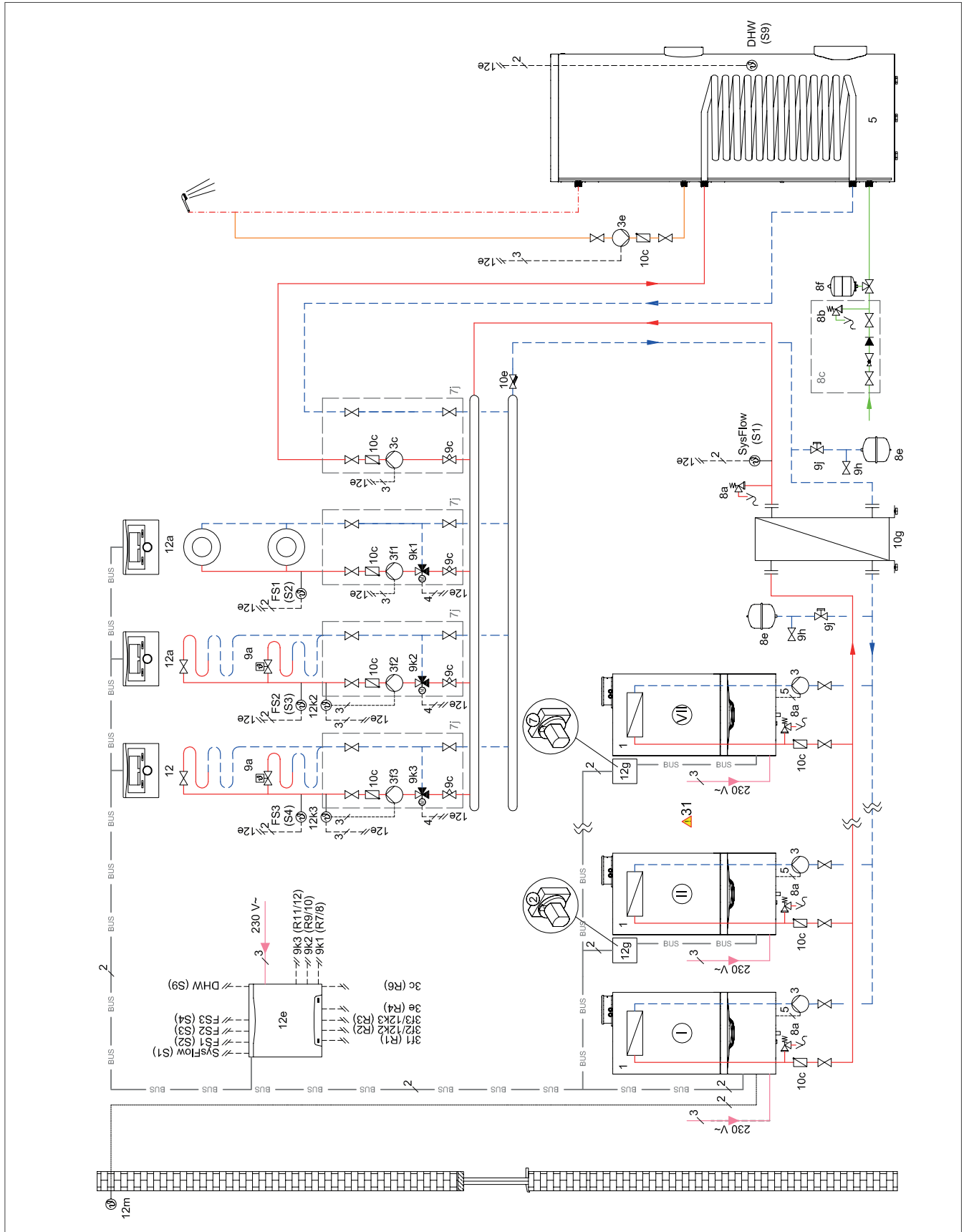


Fig. 164: Basic hydraulic diagram









# 9. Product information for ecoTEC pro .../5-3

## 9.1 Product combinations



Fig. 166: Product combinations

Product combination overview for the ecoTEC pro .../5-3

	1	2	3	4	5	6	7	
	Boiler ecoTEC pro VC	Combi boiler ecoTEC pro VCW	Low loss header	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•**	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
 \*\* Only in conjunction with a boiler

## 9.2 ecoTEC pro VC product description



Fig. 167: ecoTEC pro

### 9.2.1 Special features

- Standard degree of utilisation 98% (H<sub>s</sub>)/108% (H<sub>t</sub>)
- Modulation range of 25-100%
- Pneumatic gas-air mixture unit
- Adaptive partial load adjustment
- Improved multi-sensor system
- Aqua Condens System, cylinder charging control with condensing technology
- New, intuitive-to-use unit operator control panel
- Vertical hydraulic connections
- Can be combined with a solar system or a heat pump
- Operating with natural gas E, LL

### 9.2.2 Potential applications

- Heating and hot water generation (in combination with an indirectly heated cylinder)
- For new builds and modernising single-occupancy and dual-occupancy houses as well as multi-occupancy dwellings in flats (multiple-occupancy house)
- For radiators and underfloor heating
- Space-saving installation in living areas
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed modes with system-certified flue gas system

### 9.2.3 Equipment

- High-efficiency pump
- Water pressure sensor, flow sensor and pressure gauge, 10 litre expansion vessel, 1/2" SI valve
- Stainless steel integral condensation heat exchanger
- Integrated cylinder control with diverter valve
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to natural gas E or LL

#### Note

Liquid gas conversion kit available as a spare part.



Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VC 246/5-3 (E-BE) ecoTEC pro	A (A+++ - D)	G20 natural gas G25 natural gas	

## Technical data - General

	VC 246/5-3 (E-BE) ecoTEC pro
Designated country (designation in accordance with ISO 3166)	BE (Belgium)
Approved unit categories	I <sub>2E(S)</sub>
Gas connection, boiler side	15 mm
Flow/return heating connections, boiler side	22 mm
Domestic hot and cold water connection, boiler side	G 3/4"
Expansion relief valve connector (min.)	15 mm
Condensate drain pipework (min.)	19 mm
G20 natural gas flow pressure	2.0 kPa
G25 natural gas flow pressure	2.5 kPa
Gas flow rate at 15 °C and 1013 mbar (based on hot water generation, if applicable), G20	2.5 m <sup>3</sup> /h
Min. flue gas mass rate	3.0 g/s
Max. flue gas mass rate	10.6 g/s
Min. flue gas temperature	40 °C
Max. flue gas temperature	80 °C
Approved gas boiler types	B23, B33, B33P, C13, C33, C43, C53, C83, C93
30% efficiency	109.4 %
NOx class	6
Boiler dimension, width	440 mm
Boiler dimension, height	720 mm
Boiler dimension, depth	338 mm
Approx. net weight	35 kg

## Technical data - G20 power/loading G20

	VC 246/5-3 (E-BE) ecoTEC pro
Nominal heat output range P at 50/30 °C	7.0 to 24.8 kW
Nominal heat output range P at 80/60 °C	6.2 to 23.0 kW
Maximum heat output for hot water generation	23.0 kW
Maximum heat input for hot water generation	23.5 kW
Maximum heat input, heating side	23.5 kW
Minimum heat input	6.6 kW
Heating adjustment range	6 to 19 kW
Nominal heat input efficiency (stationary) at 40/30 °C	107.0 %
Nominal heat input efficiency (stationary) at 50/30 °C	106.0 %
Nominal heat input efficiency (stationary) at 60/40 °C	101.0 %
Nominal heat input efficiency (stationary) at 80/60 °C	98.0 %

## Technical data - Power/loading G25

	VC 246/5-3 (E-BE) ecoTEC pro
Nominal heat output range P at 50/30 °C	5.8 to 20.3 kW
Nominal heat output range P at 80/60 °C	5.1 to 23.0 kW
Maximum heat output for domestic hot water generation	18.8 kW
Maximum heat input for domestic hot water generation	19.2 kW
Maximum heat input, heating side	19.2 kW
Minimum heat input	5.4 kW
Nominal heat input efficiency (stationary) at 40/30 °C	107.0 %
Nominal heat input efficiency (stationary) at 50/30 °C	106.0 %
Nominal heat input efficiency (stationary) at 60/40 °C	101.0 %
Nominal heat input efficiency (stationary) at 80/60 °C	98.0 %

## Technical data - Heating

	VC 246/5-3 (E-BE) ecoTEC pro
Maximum flow temperature	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C
Permissible total overpressure	0.3 MPa
Circulation water volume (with reference to ΔT= 20 K)	796 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	1.9 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.025 MPa

## Technical data - Electrics

	VC 246/5-3 (E-BE) ecoTEC pro
Electrical connection	230 V/50 Hz
Permissible connected voltage	190 to 253 V
Built-in fuse (slow-blow)	2 A
Min. electrical power consumption	40 W
Max. electrical power consumption	80 W
Standby electrical power consumption	< 2 W
Level of protection	IP X4 D
Test symbol/registration no.	CE- 0085CM0321

## Dimension drawing - ecoTEC pro BE

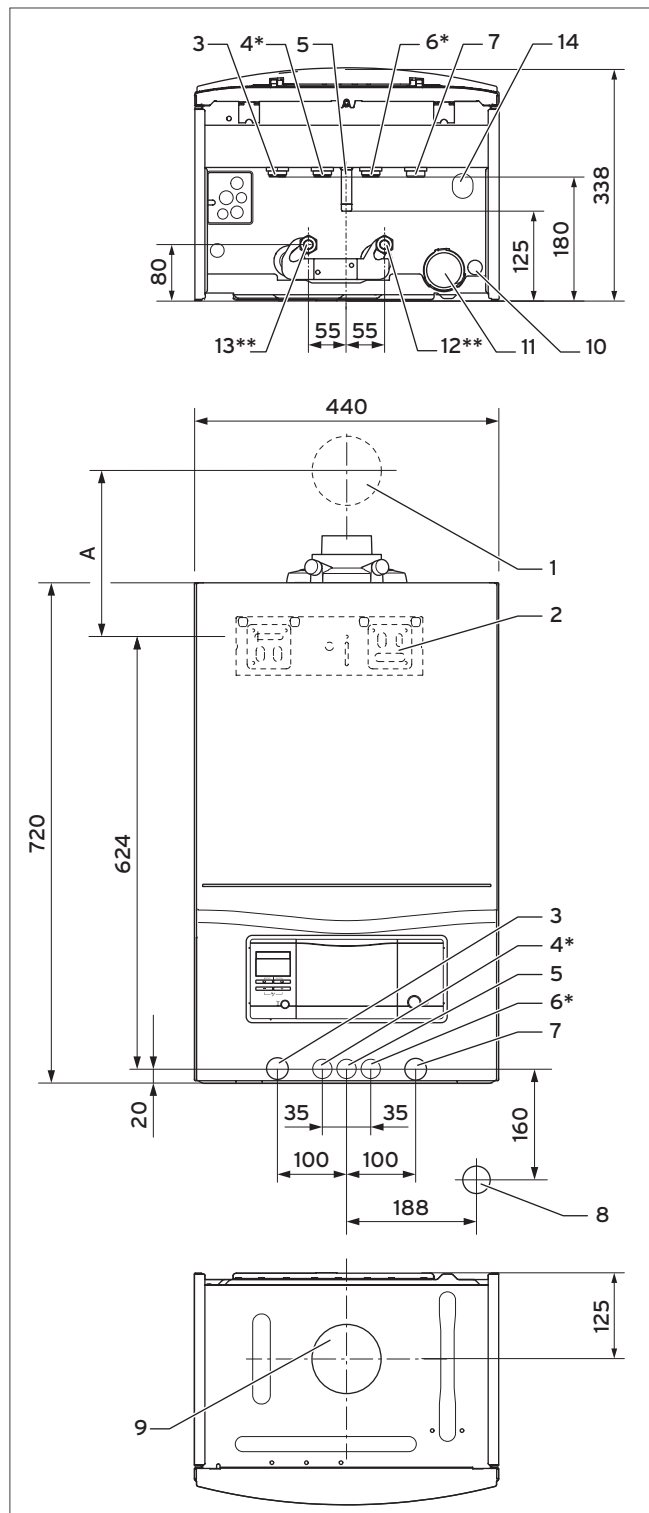


Fig. 168: Dimensions in mm

- 1 Air/flue pipe wall duct
  - 2 Unit mounting bracket
  - 3 Heating flow (22 × 1.5 diameter)
  - 4 G 3/4" domestic hot water connection
  - 5 Gas connection (15 × 1.5 diameter)
  - 6 G 3/4" cold water connection
  - 7 Heating return (22 × 1.5 diameter)
  - 8 R1 tundish/condensate siphon connection
  - 9 Air/flue pipe connection
  - 10 Condensate discharge connection, 19 mm diameter
  - 11 Condensate siphon
  - 12 G 3/4" cylinder return
  - 13 G 3/4" cylinder flow
  - 14 Heating expansion relief valve drain pipework connection, 15 mm diameter
- \* Only products with integrated domestic hot water generation  
 \*\* Only products with heating mode only

Consult the installation template to find the dimension A.

## 9.3 ecoTEC pro VCW product description



Fig. 169: ecoTEC pro

### 9.3.1 Special features

- Standard degree of utilisation 98% (H<sub>2</sub>)/108% (H<sub>1</sub>)
- Modulation range of 25-100%
- Pneumatic gas-air mixture unit
- Adaptive partial load adjustment
- Improved multi-sensor system
- Combination unit with integrated hot water generation operating on the flow-through principle
- Warm start
- New, intuitive-to-use unit operator control panel
- Vertical hydraulic connections
- Can be combined with a solar system or a heat pump
- Operating with natural gas E, LL

### 9.3.2 Potential applications

- Heating and hot water generation (flow-through principle)
- For new builds and modernising houses and flats as well as multiple-flue configuration in flats (apartment building)
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches
- Open-flued or room-sealed modes with system-certified flue gas system
- Operation with natural gas E or LL, bio natural gas and liquefied petroleum gas

### 9.3.3 Equipment

- High-efficiency pump
- Water pressure sensor, flow sensor and pressure gauge, 10 litre expansion vessel, 1/2" SI valve
- Stainless steel integral condensation heat exchanger
- Integrated cylinder control with diverter valve
- Stainless steel secondary heat exchanger
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to natural gas E or LL

#### Note

Liquid gas conversion kit available as a spare part.



#### Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Order no.
VCW 246/5-3 (E-BE) ecoTEC pro	A (A+++ - D)	A (A+ - F)	G20 natural gas G25 natural gas	
VCW 286/5-3 (E-BE) ecoTEC pro	A (A+++ - D)	A (A+ - F)	G20 natural gas G25 natural gas	

## Technical data - General

	VCW 246/5-3 (E-BE) ecoTEC pro	VCW 286/5-3 (E-BE) ecoTEC pro
Designated country (designation in accordance with ISO 3166)	BE (Belgium)	BE (Belgium)
Approved unit categories	I <sub>2E(S)</sub>	I <sub>2E(S)</sub>
Gas connection, boiler side	15 mm	15 mm
Flow/return heating connections, boiler side	22 mm	22 mm
Domestic hot and cold water connection, boiler side	G 3/4"	G 3/4"
Expansion relief valve connector (min.)	15 mm	15 mm
Condensate drain pipework (min.)	19 mm	19 mm
G20 natural gas flow pressure	2.0 kPa	2.0 kPa
G25 natural gas flow pressure	2.5 kPa	2.5 kPa
Gas flow rate at 15 °C and 1013 mbar (based on hot water generation, if applicable), G20	2.5 m³/h	3.0 m³/h
Min. flue gas mass rate	3.0 g/s	3.6 g/s
Max. flue gas mass rate	10.6 g/s	13.0 g/s
Min. flue gas temperature	40 °C	40 °C
Max. flue gas temperature	80 °C	80 °C
Approved gas boiler types	B23, B33, B33P, C13, C33, C43, C53, C83, C93	B23, B33, B33P, C13, C33, C43, C53, C83, C93
30% efficiency	109.4 %	109.4 %
NOx class	6	6
Boiler dimension, width	440 mm	440 mm
Boiler dimension, height	720 mm	720 mm
Boiler dimension, depth	338 mm	338 mm
Approx. net weight	35 kg	36 kg

## Technical data - G20 power/loading G20

	VCW 246/5-3 (E-BE) ecoTEC pro	VCW 286/5-3 (E-BE) ecoTEC pro
Nominal heat output range P at 50/30 °C	7.0 to 24.8 kW	8.6 to 25.9 kW
Nominal heat output range P at 80/60 °C	6.2 to 23.0 kW	7.5 to 24.0 kW
Maximum heat output for hot water generation	23.0 kW	28.0 kW
Maximum heat input for hot water generation	23.5 kW	28.6 kW
Maximum heat input, heating side	23.5 kW	24.5 kW
Minimum heat input	6.6 kW	8.0 kW
Heating adjustment range	6 to 19 kW	8 to 24 kW
Nominal heat input efficiency (stationary) at 40/30 °C	107.0 %	107.0 %
Nominal heat input efficiency (stationary) at 50/30 °C	106.0 %	106.0 %
Nominal heat input efficiency (stationary) at 60/40 °C	101.0 %	101.0 %
Nominal heat input efficiency (stationary) at 80/60 °C	98.0 %	98.0 %

## Technical data - Power/loading G25

	VCW 246/5-3 (E-BE) ecoTEC pro	VCW 286/5-3 (E-BE) ecoTEC pro
Nominal heat output range P at 50/30 °C	5.8 to 20.3 kW	7.0 to 21.2 kW
Nominal heat output range P at 80/60 °C	5.1 to 18.8 kW	6.1 to 19.6 kW
Maximum heat output for domestic hot water generation	18.8 kW	23.0 kW
Maximum heat input for domestic hot water generation	19.2 kW	23.5 kW
Maximum heat input, heating side	19.2 kW	20.0 kW
Minimum heat input	5.4 kW	6.5 kW
Nominal heat input efficiency (stationary) at 40/30 °C	107.0 %	107.0 %
Nominal heat input efficiency (stationary) at 50/30 °C	106.0 %	106.0 %
Nominal heat input efficiency (stationary) at 60/40 °C	101.0 %	101.0 %
Nominal heat input efficiency (stationary) at 80/60 °C	98.0 %	98.0 %

## Technical data - Heating

	VCW 246/5-3 (E-BE) ecoTEC pro	VCW 286/5-3 (E-BE) ecoTEC pro
Maximum flow temperature	85 °C	85 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C
Permissible total overpressure	0.3 MPa	0.3 MPa
Circulation water volume (with reference to ΔT= 20 K)	796 l/h	1,032 l/h
Approx. condensate rate (pH value 3.5 to 4.0) in 50/30 °C heating mode	1.9 l/h	2.5 l/h
Remaining feed head of pump (at nominal circulation water volume)	0.025 MPa	0.025 MPa

## Technical data - Hot water handling mode

	VCW 246/5-3 (E-BE) ecoTEC pro	VCW 286/5-3 (E-BE) ecoTEC pro
Lowest water volume	1.5 l/min	1.5 l/min
Water volume (at ΔT = 30 K)	11.0 l/min	13.4 l/min
Permitted overpressure	1.0 MPa	1.0 MPa
Required connection pressure	0.035 MPa	0.035 MPa
Hot water output temperature range	35 to 65 °C	35 to 65 °C



## Technical data - Electrics

	VCW 246/5-3 (E-BE) ecoTEC pro	VCW 286/5-3 (E-BE) ecoTEC pro
Electrical connection	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow)	2 A	2 A
Min. electrical power consumption	40 W	40 W
Max. electrical power consumption	80 W	85 W
Standby electrical power consumption	< 2 W	< 2 W
Level of protection	IP X4 D	IP X4 D
Test symbol/registration no.	CE- 0085CM0321	CE- 0085CM0321

## Dimension drawing - ecoTEC pro BE

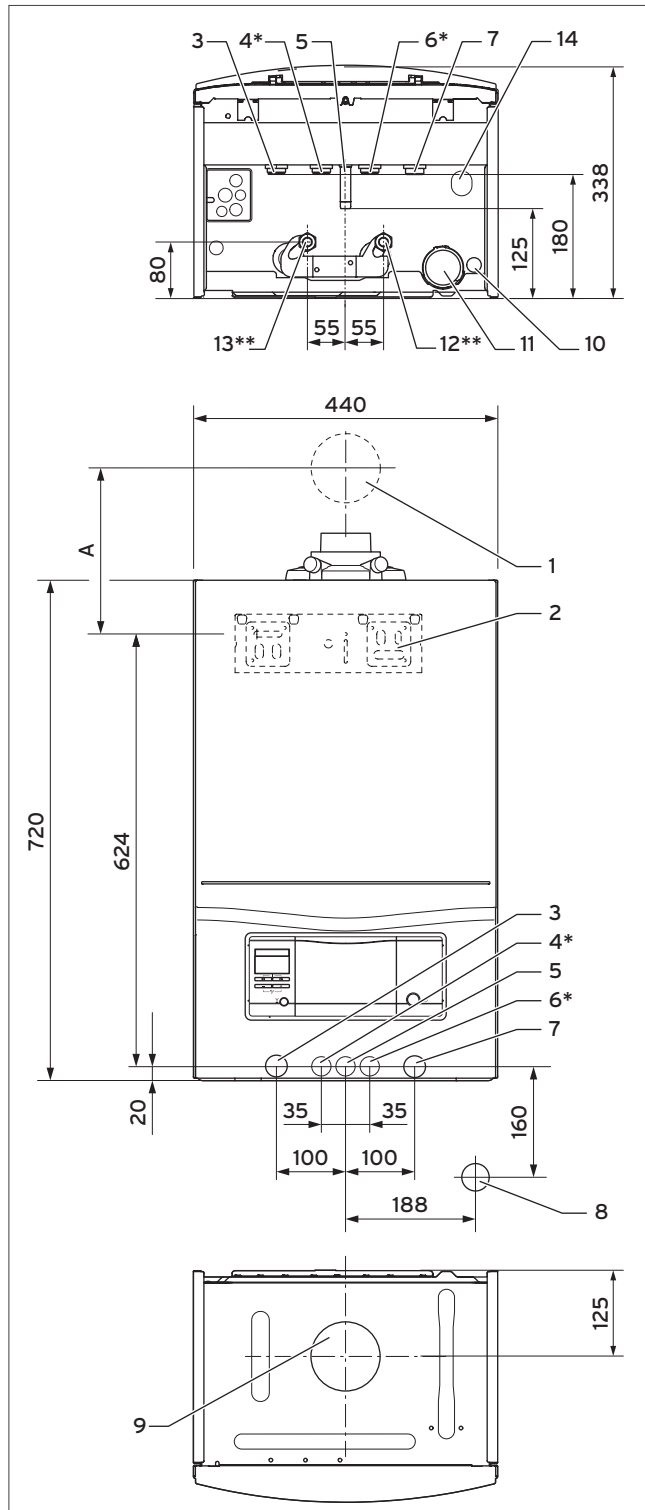


Fig. 170: Dimensions in mm

- 1 Air/flue pipe wall duct
- 2 Unit mounting bracket
- 3 Heating flow (22 × 1.5 diameter)
- 4 G 3/4" domestic hot water connection
- 5 Gas connection (15 × 1.5 diameter)
- 6 G 3/4" cold water connection
- 7 Heating return (22 × 1.5 diameter)
- 8 R1 tundish/condensate siphon connection
- 9 Air/flue pipe connection
- 10 Condensate discharge connection, 19 mm diameter
- 11 Condensate siphon
- 12 G 3/4" cylinder return
- 13 G 3/4" cylinder flow
- 14 Heating expansion relief valve drain pipework connection, 15 mm diameter

\* Only products with integrated domestic hot water generation

\*\* Only products with heating mode only

Consult the installation template to find the dimension A.

## 9.4 Supplementary information for the ecoTEC pro VC and VCW

### 9.4.1 Supplementary information for ecoTEC pro VC and VCW

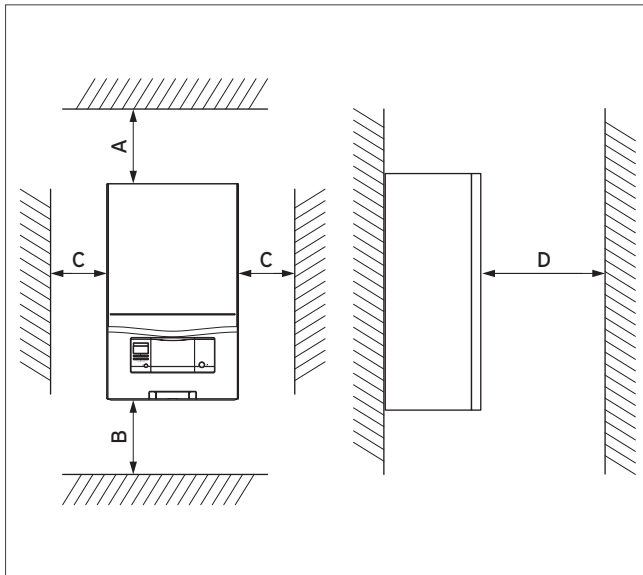


Fig. 171: Minimum clearances

	Minimum clearance
A	165 mm: Air/flue pipe, 60/100 mm diameter 275 mm: Air/flue pipe, 80/125 mm diameter
B	180 mm; optimum approx. 250 mm
C	5 mm; optimum approx. 50 mm
D	500 mm in front of the heat generator to enable easy access for maintenance work (may be provided by an opening door).

It is not necessary to maintain a clearance between the product and components made of combustible materials that go beyond the minimum clearances.

### Pump characteristic line for VC 186, VC 246, VC 256, VCW 226, VCW 246, VCW 286

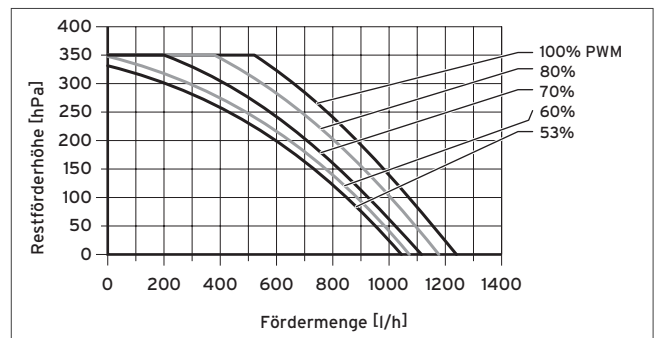


Fig. 172: Pump characteristic line for VC 186, VC 246, VC 256, VCW 226, VCW 246, VCW 286





# 10. Product information ecoTEC pure .../7-2

## 10.1 Product combinations



Fig. 173: Product combinations

	1	2	3	4	5	6	7	
	Boiler ecoTEC pure VC	Combi boiler ecoTEC pure VCW	Low loss header	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•**	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
\*\* Only in conjunction with a boiler

## 10.2 ecoTEC pure VC product description



Fig. 174: ecoTEC pure VC

### 10.2.1 Special features

- Standard degree of utilisation 98% (H<sub>s</sub>)/109% (H<sub>t</sub>)
- Pneumatic gas-air mixture unit
- Electronically controlled high-efficiency pump with additional pump programmes
- For TR market only: Standard pump (single-stage)
- Vertical pipe connections
- New unit design (display; control panel)
- Operating with natural gas E or LL and LPG liquid gas (conversion kit available)

### 10.2.2 Potential applications

- Heating and hot water generation (in combination with an indirectly heated cylinder)
- For radiators and underfloor heating
- Space-saving installation in living areas
- Low-cost installation as a roof heating centre

### 10.2.3 Equipment

- High-efficiency pump
- Water pressure sensor, pressure display and 8-litre expansion vessel
- Stainless steel integral condensation heat exchanger
- Integrated cylinder control with diverter valve
- DIA system with symbol display, illuminated
- eBUS interface

#### Note

Liquid gas conversion kit available as an optional accessory.



#### Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VC 186/7-2	A (A+++ - D)	G20 natural gas G25 natural gas	
VC 256/7-2	A (A+++ - D)	G20 natural gas G25 natural gas	

**Note**

For products with heating mode only, the technical data for the hot water is only relevant if a domestic hot water cylinder is connected to the product.

**Technical data - Heating**

	VC 256/7-2 (E-BE)	VC 186/7-2 (E-BE)
Maximum flow temperature	85 °C	85 °C
Max. flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C	30 to 80 °C
Maximum permissible pressure (PMS)	0.3 MPa	0.3 MPa
Nominal water flow ( $\Delta T = 20$ K)	1,038 l/h	797 l/h
Remaining pump head (at nominal circulation water volume), bypass closed	0.014 MPa	0.024 MPa
Remaining pump head (at nominal circulation water volume), bypass in factory-set position	0.025 MPa	0.043 MPa
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	2.48 l/h	1.87 l/h
Expansion vessel capacity	8.0 l	8.0 l
Maximum heat output (factory setting - d.00)	Auto	Auto

**Technical data - G20**

	VC 256/7-2 (E-BE)	VC 186/7-2 (E-BE)
Effective output range (P) at 50/30 °C	8.1 to 26.4 kW	7.0 to 20.1 kW
Effective output range (P) at 80/60 °C	7.3 to 24.1 kW	6.4 to 18.5 kW
Heat output range - domestic hot water or cylinder reheating (P)	7.5 to 28.1 kW	6.6 to 24.3 kW
Maximum heat input - heating (Q max.)	24.8 kW	18.7 kW
Minimum heat input - heating (Q min.)	7.6 kW	6.6 kW
Maximum heat input - Domestic hot water or cylinder reheating (Q max.)	28.5 kW	24.4 kW
Minimum heat input - Domestic hot water or cylinder reheating (Q min.)	7.6 kW	6.6 kW

**Technical data - G25**

	VC 256/7-2 (E-BE)	VC 186/7-2 (E-BE)
Effective output range (P) at 50/30 °C	6.6 to 21.6 kW	5.7 to 16.5 kW
Effective output range (P) at 80/60 °C	5.9 to 19.8 kW	5.3 to 15.1 kW
Heat output range - domestic hot water or cylinder reheating (P)	6.1 to 23.0 kW	5.4 to 19.8 kW
Maximum heat input - heating (Q max.)	20.3 kW	15.3 kW
Minimum heat input - heating (Q min.)	6.2 kW	5.4 kW
Maximum heat input - Domestic hot water or cylinder reheating (Q max.)	23.3 kW	20.0 kW
Minimum heat input - Domestic hot water or cylinder reheating (Q min.)	6.2 kW	5.4 kW

### Technical data - Domestic hot water

	VC 256/7-2 (E-BE)	VC 186/7-2 (E-BE)
Minimum water flow	-	-
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	-	-
Specific flow rate ( $\Delta T = 35$ K)	-	-
Minimum permissible pressure	0.03 MPa	0.03 MPa
Maximum permissible pressure (PMW)	1 MPa	1 MPa
Temperature range	45 to 60 °C	45 to 60 °C
Flow rate limiter for cold water	-	-
Hot water comfort in accordance with the standard EN 13203	-	-

### Technical data - General

	VC 256/7-2 (E-BE)	VC 186/7-2 (E-BE)
Gas category	I2E(S)	I2E(S)
Diameter of the gas pipe	1/2"	1/2"
Diameter of the heating pipe	3/4"	3/4"
Diameter of the domestic hot water pipe	3/4"	3/4"
Expansion relief valve connector (min.)	15.0 mm	15.0 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa	2.0 kPa
G25 gas supply pressure	2.5 kPa	2.5 kPa
Gas flow at P max. - domestic hot water (G20)	3.0 m <sup>3</sup> /h	2.6 m <sup>3</sup> /h
CE number (PIN)	CE-0063CR3775	CE-0063CR3775
Flue gas mass flow rate in heating mode at P min.	3.6 g/s	3.1 g/s
Flue gas mass flow rate in heating mode at P max.	11.8 g/s	8.9 g/s
Flue gas mass flow rate in domestic hot water mode at P max.	13.6 g/s	11.6 g/s
Released system types	B23, B33, C13, C33, C43, C53, C83, C93	B23, B33, C13, C33, C43, C53, C83, C93
Min. flue gas temperature	41 °C	44 °C
Max. flue gas temperature	95 °C	85 °C
Nominal efficiency at 80/60 °C	97.3 %	98.9 %
Nominal efficiency at 50/30 °C	106.4 %	107.5 %
Partial load nominal efficiency (30%)	108.0 %	107.4 %
NOx class	6	6
Product dimensions, width	440 mm	440 mm
Product dimensions, depth	338 mm	338 mm
Product dimensions, height	720 mm	720 mm
Net weight	30.0 kg	30.0 kg
Weight when filled with water	32.4 kg	32.4 kg

### Technical data - Electrics

	VC 256/7-2 (E-BE)	VC 186/7-2 (E-BE)
Electric connection	230 V 50 Hz	230 V 50 Hz
Built-in fuse (slow-blow)	T2/2A,250V	T2/2A,250V
Max. electrical power consumption	110 W	100 W
Standby electrical power consumption	1.8 W	1.6 W
Level of protection	IPX4D	IPX4D
Permissible connected voltage	190 to 253 V	190 to 253 V



## 10.3 ecoTEC pure VCW product description



Fig. 175: ecoTEC pure VCW

### 10.3.1 Special features

- Standard degree of utilisation 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- Pneumatic gas-air mixture unit
- Electronically controlled high-efficiency pump with additional pump programmes
- For TR market only: Standard pump (single-stage)
- Vertical pipe connections
- New unit design (display; control panel)
- Operating with natural gas E or LL and LPG liquid gas (conversion kit available)

### 10.3.2 Potential applications

- Heating and central domestic hot water generation (flow-through principle) in households
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches

### 10.3.3 Equipment

- High-efficiency pump
- Water pressure sensor, volume flow sensor and pressure display, 8-litre expansion vessel
- Stainless steel integral condensation heat exchanger
- Integrated cylinder/domestic hot water control system with prioritising diverter valve
- DIA system with symbol display, illuminated
- eBUS interface

#### Note

Liquid gas conversion kit available as an optional accessory.



#### Type overview

Unit designation	Energy efficiency class		Gas type	Order no.
	Heating	Domestic hot water		
VCW 226/7-2	A (A+++ - D)	A (A+ - F)	G20 natural gas G25 natural gas	
VCW 286/7-2	A (A+++ - D)	A (A+ - F)	G20 natural gas G25 natural gas	

**Note**

For products with heating mode only, the technical data for the hot water is only relevant if a domestic hot water cylinder is connected to the product.

**Technical data - Heating**

	VCW 286/7-2 (E-BE)	VCW 226/7-2 (E-BE)
Maximum flow temperature	85 °C	85 °C
Max. flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C	30 to 80 °C
Maximum permissible pressure (PMS)	0.3 MPa	0.3 MPa
Nominal water flow ( $\Delta T = 20$ K)	1,038 l/h	797 l/h
Remaining pump head (at nominal circulation water volume), bypass closed	0.014 MPa	0.024 MPa
Remaining pump head (at nominal circulation water volume), bypass in factory-set position	0.025 MPa	0.043 MPa
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	2.48 l/h	1.87 l/h
Expansion vessel capacity	8.0 l	8.0 l
Maximum heat output (factory setting - d.00)	Auto	Auto

**Technical data - G20**

	VCW 286/7-2 (E-BE)	VCW 226/7-2 (E-BE)
Effective output range (P) at 50/30 °C	8.1 to 26.4 kW	7.0 to 20.1 kW
Effective output range (P) at 80/60 °C	7.3 to 24.1 kW	6.4 to 18.5 kW
Heat output range - domestic hot water or cylinder reheating (P)	7.5 to 28.1 kW	6.6 to 24.3 kW
Maximum heat input - heating (Q max.)	24.8 kW	18.7 kW
Minimum heat input - heating (Q min.)	7.6 kW	6.6 kW
Maximum heat input - Domestic hot water or cylinder reheating (Q max.)	28.5 kW	24.4 kW
Minimum heat input - Domestic hot water or cylinder reheating (Q min.)	7.6 kW	6.6 kW

**Technical data - G25**

	VCW 286/7-2 (E-BE)	VCW 226/7-2 (E-BE)
Effective output range (P) at 50/30 °C	6.6 to 21.6 kW	5.7 to 16.5 kW
Effective output range (P) at 80/60 °C	5.9 to 19.8 kW	5.3 to 15.1 kW
Heat output range - domestic hot water or cylinder reheating (P)	6.1 to 23.0 kW	5.4 to 19.8 kW
Maximum heat input - heating (Q max.)	20.3 kW	15.3 kW
Minimum heat input - heating (Q min.)	6.2 kW	5.4 kW
Maximum heat input - Domestic hot water or cylinder reheating (Q max.)	23.3 kW	20.0 kW
Minimum heat input - Domestic hot water or cylinder reheating (Q min.)	6.2 kW	5.4 kW

### Technical data - Domestic hot water

	VCW 286/7-2 (E-BE)	VCW 226/7-2 (E-BE)
Minimum water flow	1.7 l/min	1.7 l/min
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	13.5 l/min	11.5 l/min
Specific flow rate ( $\Delta T = 35$ K)	11.6 l/min	9.9 l/min
Minimum permissible pressure	0.03 MPa	0.03 MPa
Maximum permissible pressure (PMW)	1 MPa	1 MPa
Temperature range	35 to 60 °C	35 to 60 °C
Flow rate limiter for cold water	10.0 l/min	8.0 l/min
Hot water comfort in accordance with the standard EN 13203	**	**

### Technical data - General

	VCW 286/7-2 (E-BE)	VCW 226/7-2 (E-BE)
Gas category	I2E(S)	I2E(S)
Diameter of the gas pipe	1/2"	1/2"
Diameter of the heating pipe	3/4"	3/4"
Diameter of the domestic hot water pipe	3/4"	3/4"
Expansion relief valve connector (min.)	15.0 mm	15.0 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa	2.0 kPa
G25 gas supply pressure	2.5 kPa	2.5 kPa
Gas flow at P max. - domestic hot water (G20)	3.0 m <sup>3</sup> /h	2.6 m <sup>3</sup> /h
CE number (PIN)	CE-0063CR3775	CE-0063CR3775
Flue gas mass flow rate in heating mode at P min.	3.6 g/s	3.1 g/s
Flue gas mass flow rate in heating mode at P max.	11.8 g/s	8.9 g/s
Flue gas mass flow rate in domestic hot water mode at P max.	13.6 g/s	11.6 g/s
Released system types	B23, B33, C13, C33, C43, C53, C83, C93	B23, B33, C13, C33, C43, C53, C83, C93
Min. flue gas temperature	41 °C	44 °C
Max. flue gas temperature	95 °C	85 °C
Nominal efficiency at 80/60 °C	97.3 %	98.9 %
Nominal efficiency at 50/30 °C	106.4 %	107.5 %
Partial load nominal efficiency (30%)	108.0 %	107.4 %
NOx class	6	6
Product dimensions, width	440 mm	440 mm
Product dimensions, depth	338 mm	338 mm
Product dimensions, height	720 mm	720 mm
Net weight	30.8 kg	30.8 kg
Weight when filled with water	33.5 kg	33.5 kg

### Technical data - Electrics

	VCW 286/7-2 (E-BE)	VCW 226/7-2 (E-BE)
Electric connection	230 V 50 Hz	230 V 50 Hz
Built-in fuse (slow-blow)	T2/2A,250V	T2/2A,250V
Max. electrical power consumption	110 W	100 W
Standby electrical power consumption	1.8 W	1.6 W
Level of protection	IPX4D	IPX4D
Permissible connected voltage	190 to 253 V	190 to 253 V

# 10.4 Supplementary information for the ecoTEC pure

## 10.4.1 Supplementary information for the ecoTEC pure and ecoTEC sustain

### Minimum clearances

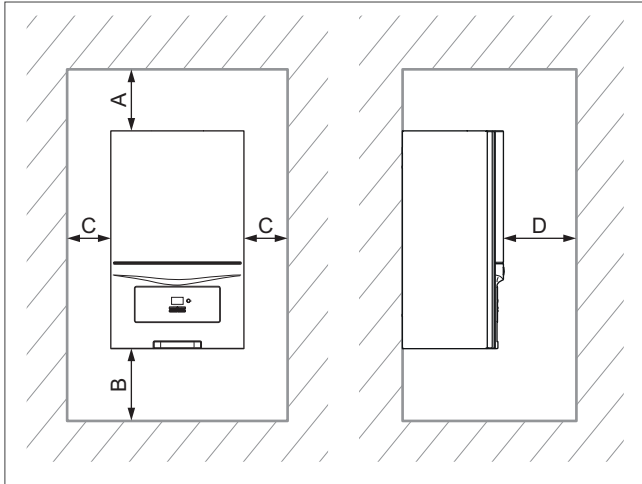


Fig. 176: Minimum clearances

Minimum clearances

	Minimum clearance
A	165 mm: Flue pipe, 60/100 mm diameter 275 mm: Flue pipe, 80/125 mm diameter 300 mm: Air/flue pipe 80/80 mm diameter
B	180 mm; optimum approx. 250 mm
C	5 mm; optimum approx. 50 mm
D	500 mm clearance in front of the heat generator to enable easy access for maintenance work (the same as a door opening).

### Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The unit is fitted with a 1.0 m connection cable with a mains plug. The connection cable is fully wired into the unit at the factory (country-specific).

When installing the unit in protective area classes 1 or 2, the mains connection must not be established using the standard connection cable with an earthed plug. Instead, the unit must be connected using a fixed connection and a partition with a contact opening of at least 3 mm (e.g. fuses or power switches). Directive VDE 0100 Part 701 must be observed.

### Remaining pump head

### Pump curve

Validity: VC 256/7-2 (E-BE) OR VCW 226/7-2 (E-BE) OR VCW 286/7-2 (E-BE) OR VC 186/7-2 (E-BE)

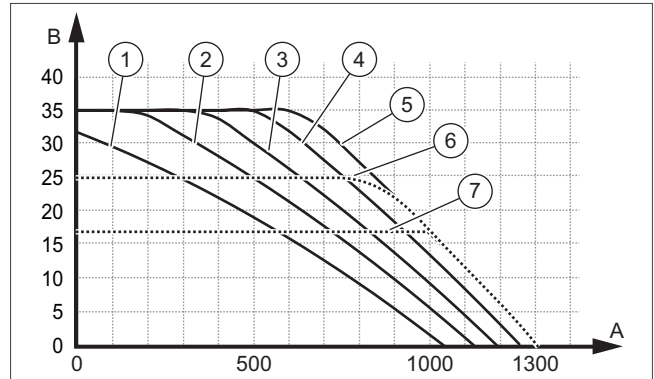


Fig. 177: Pump curve

- 1 PWM 65%
- 2 PWM 73%
- 3 PWM 80%
- 4 PWM 88%
- 5 PWM 95 to 100%
- 6 Saturation 25 kPa
- 7 Saturation 17 kPa
- A Flow rate in circuit (l/h)
- B Available pressure (kPa)

## 10.5 Basic system diagrams and wiring diagrams

### 10.5.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer

Number	Designation
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump

Number	Designation
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 10.5.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020241351	ecoTEC pure VC	VRC 700/4, VR 70, VR 91	1 UFH	1 HC	Low loss header WH 27 / 40	–	–	uniSTOR VIH R
0020241357	ecoTEC pure VC	VRC 700/4, VR 71, VR 91	3 UFH	–	Low loss header WH 27 / 40	–	–	uniSTOR VIH R
0020241352	ecoTEC pure VCW	VRC 700/4	–	1 HC	–	–	–	VCW
0020241355	ecoTEC pure VCW	VRC 700/4, VR 70, VR 91	2 UFH	–	Low loss header WH 27 / 40	–	–	VCW
0020241356	ecoTEC pure VCW	–	–	1 HC	–	auroTHERM vFK	–	auroSTEP VCW

0020241351 - Basic hydraulic diagram

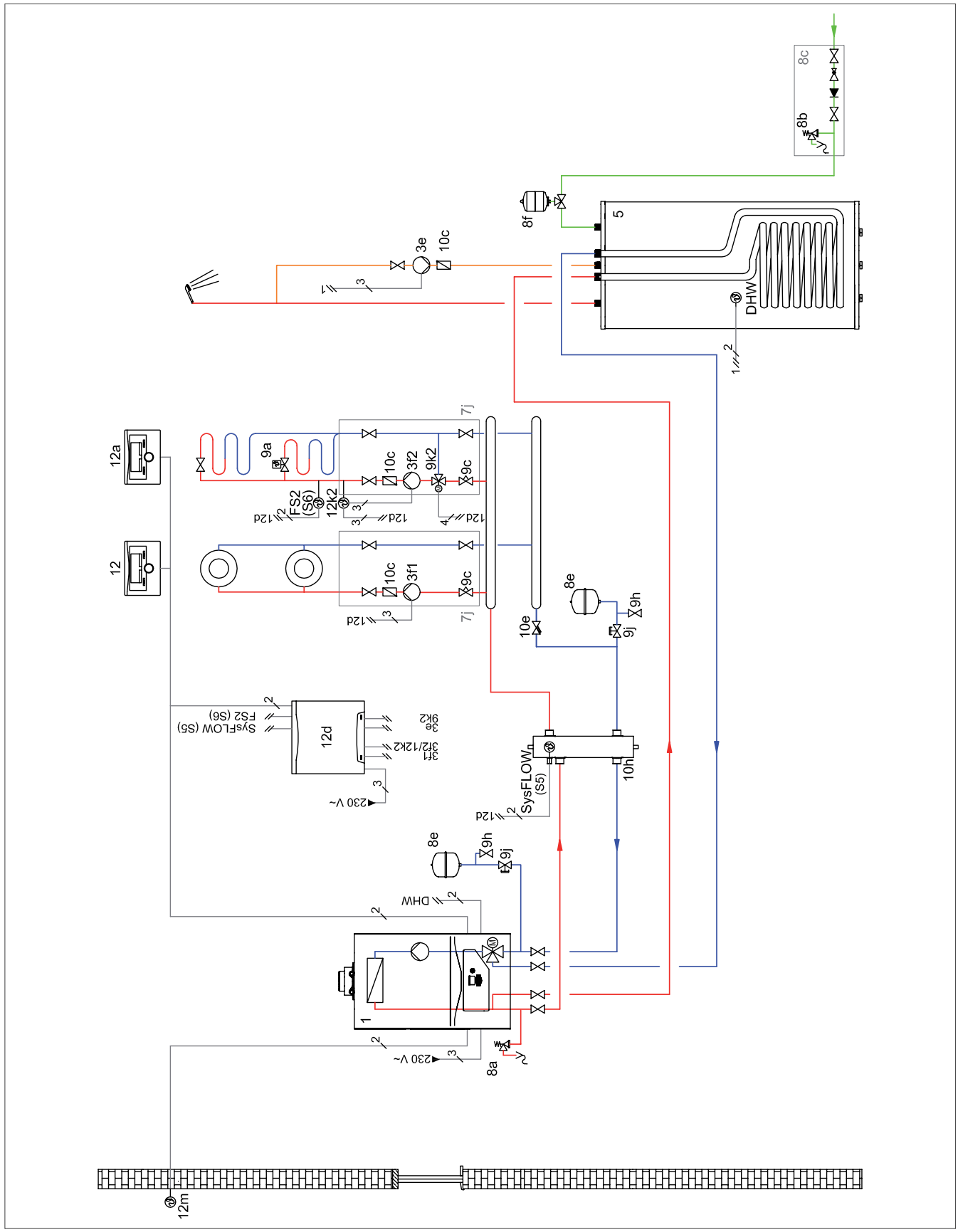


Fig. 178: Basic hydraulic diagram



## 0020241351 - Wiring diagram

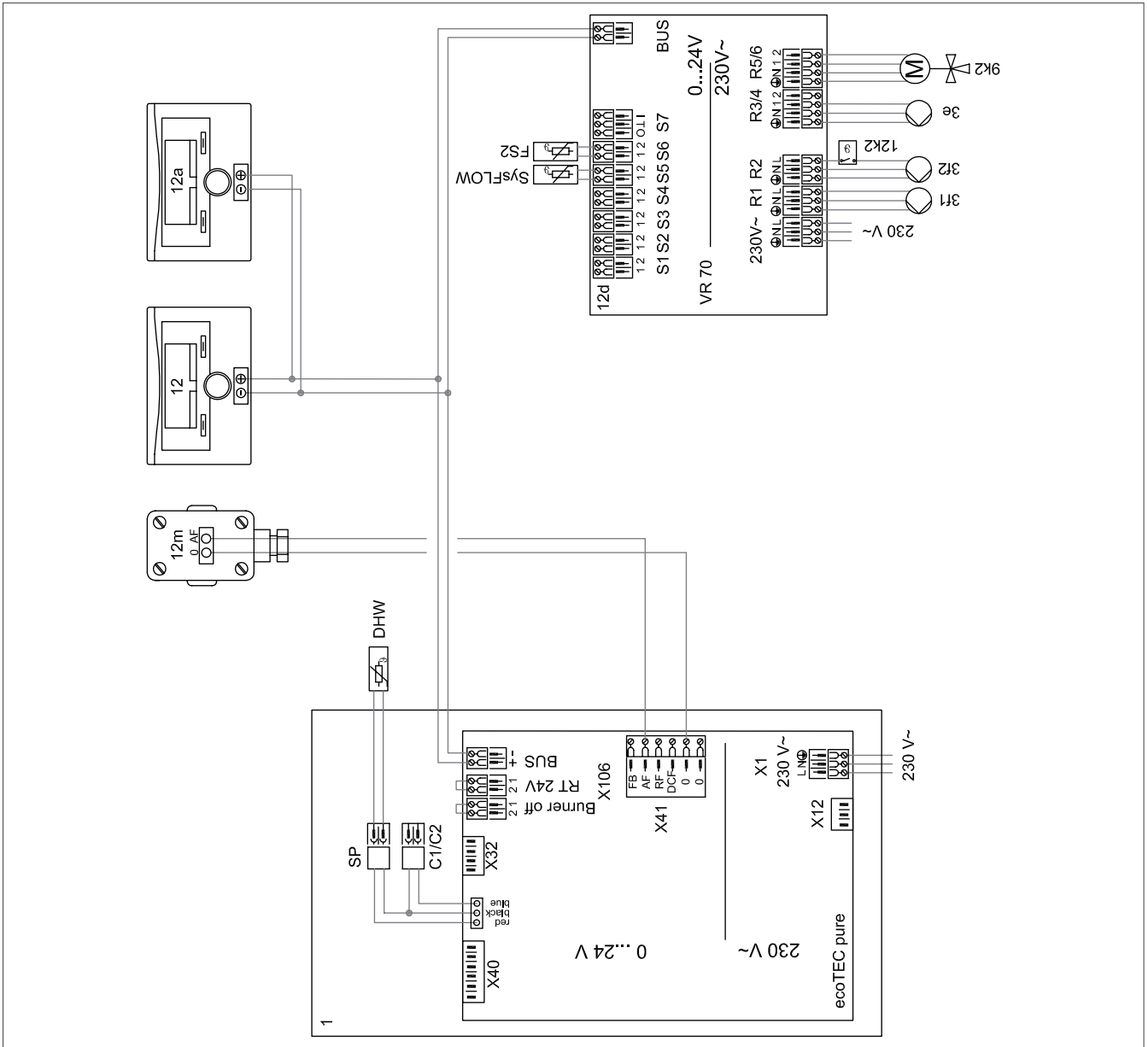


Fig. 179: Wiring diagram

### Description

Single-occupancy houses with two heating circuits. One mixed heating circuit and one non-mixed heating circuit. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

**Caution:** If an expansion vessel is not integrated in the heat generator, plans must be made for an additional expansion vessel in the hot-water charging circuit for the floor-standing boiler.

### Individual components

- ecoTEC pure VC
- uniSTOR VIH R
- WH 27/40
- VRC 700/4
- VR 70
- VR 91

### Setting

- VRC 700/4 System diagram setting: 1
- VR 70 Module setting: 1



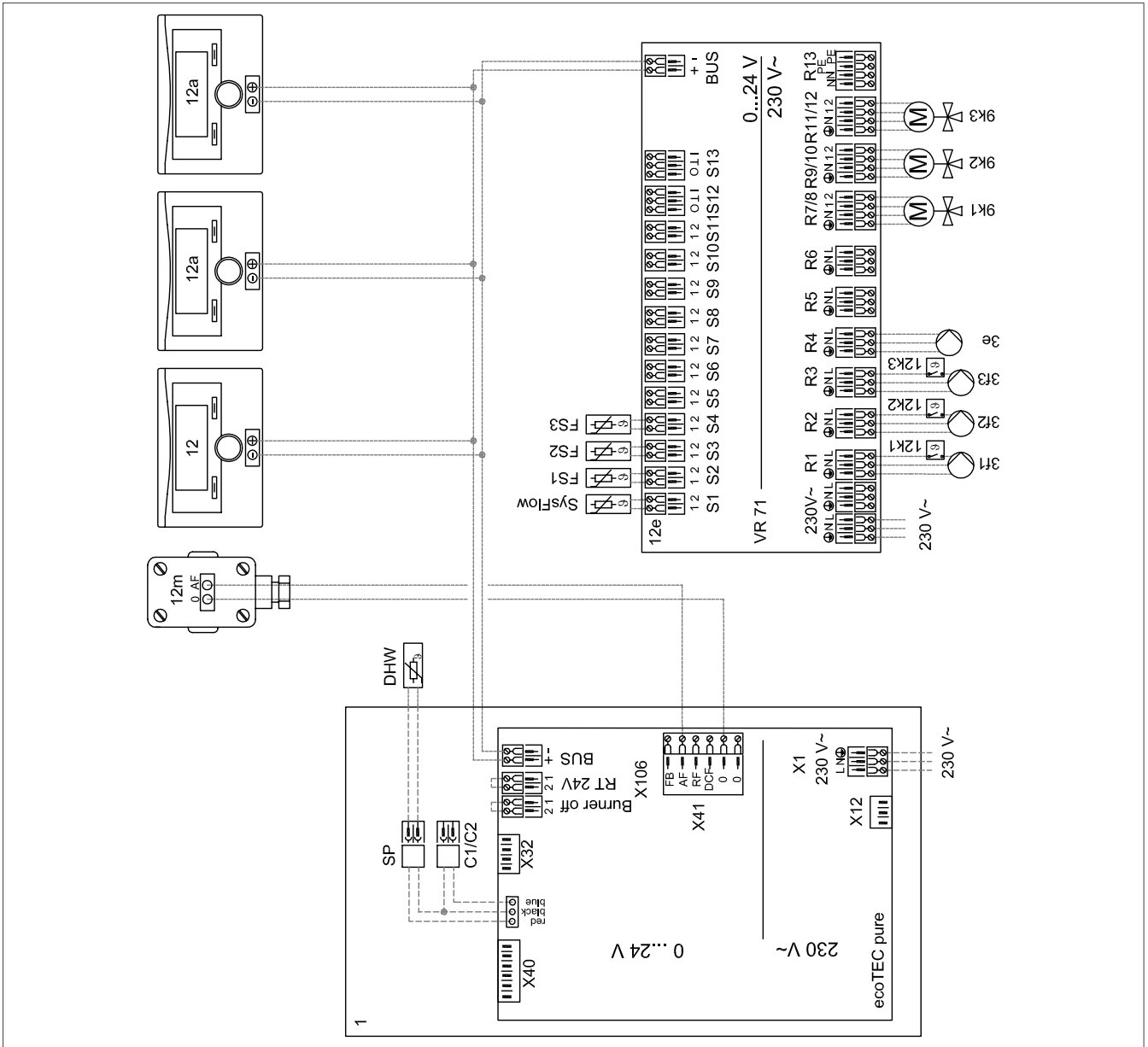


Fig. 181: Wiring diagram

**Description**

Multiple-occupancy houses with three mixed heating circuits. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

**Caution:** if an expansion vessel is not integrated in the heat generator, plans must be made for an additional expansion vessel in the hot-water charging circuit for the floor-standing boiler.

**Individual components**

- ecoTEC pure VC
- uniSTOR VIH R
- WH 27/40
- VRC 700/4
- VR 71
- VR 91

**Setting**

- VRC 700/4 System diagram setting: 1
- VR 71 Module setting: 3

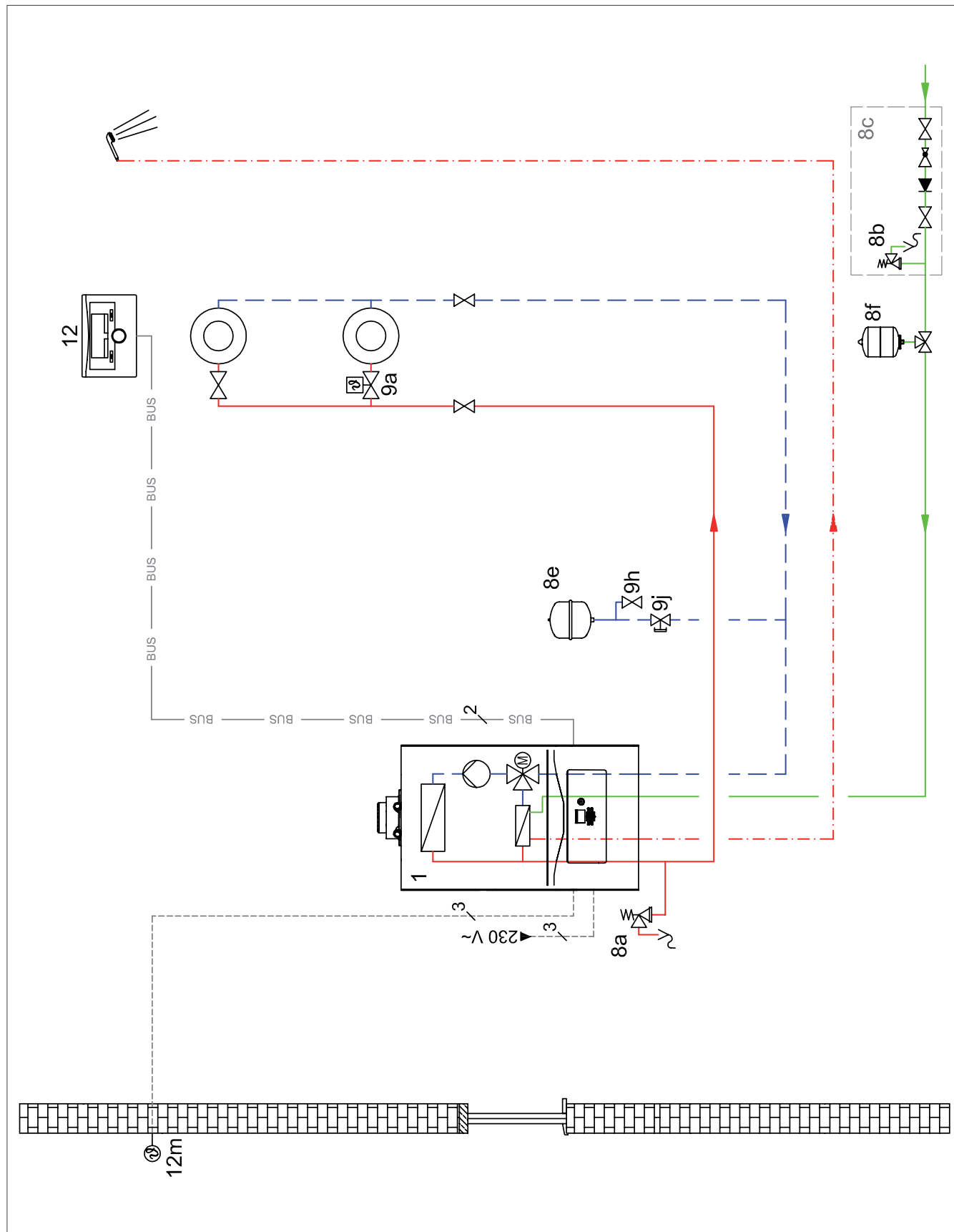


Fig. 182: Basic hydraulic diagram

## 0020241352 - Wiring diagram

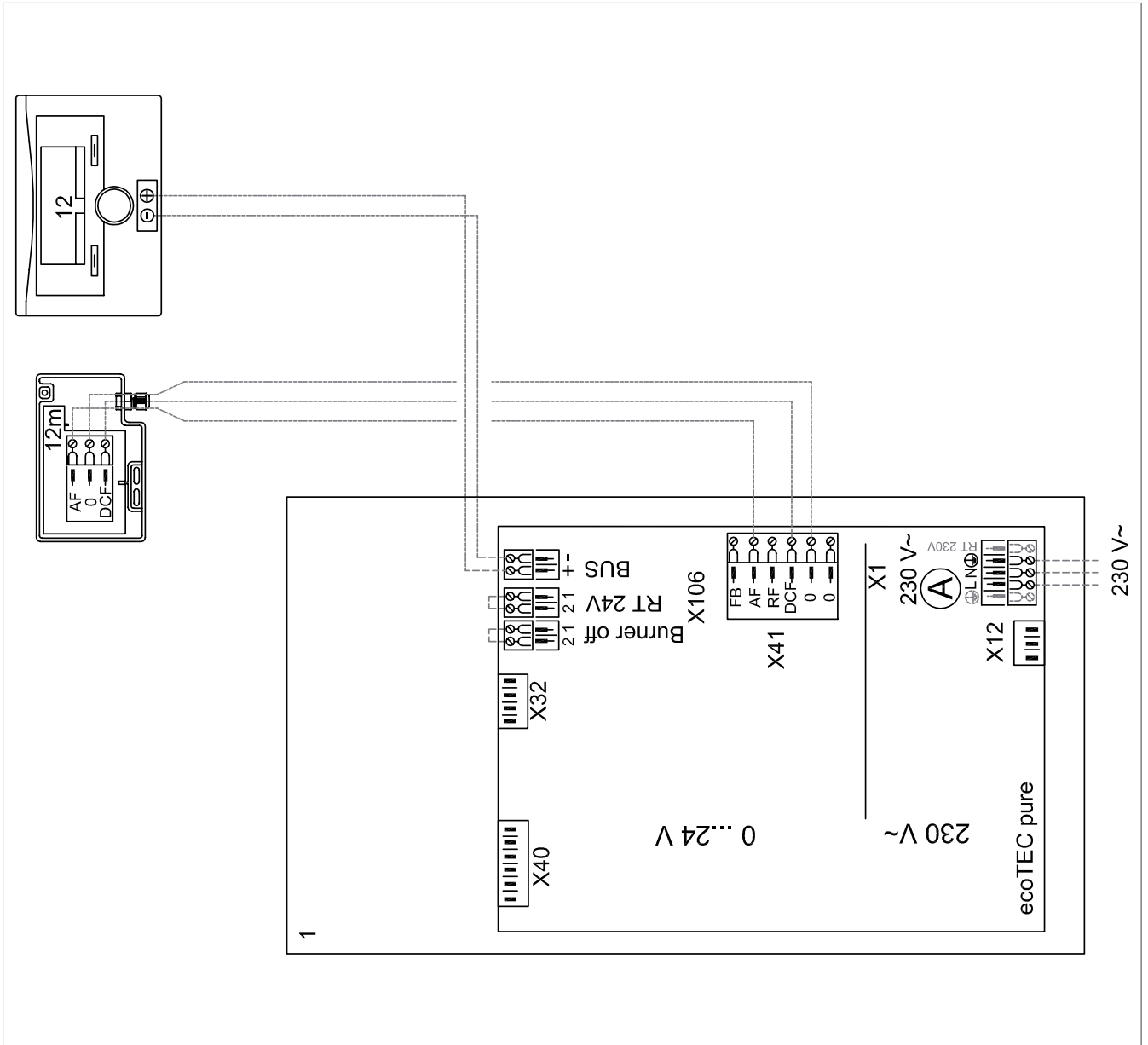


Fig. 183: Wiring diagram

### Description

Single-occupancy house or apartment with just one heating circuit. One non-mixed heating circuit. Domestic hot water is generated by the heat generator using the through-flow principle without a domestic hot water cylinder.

### Individual components

- ecoTEC pure VCW
- VRC 700/4

### Setting

VRC 700/4 System diagram setting: 1

0020241355 - Basic hydraulic diagram

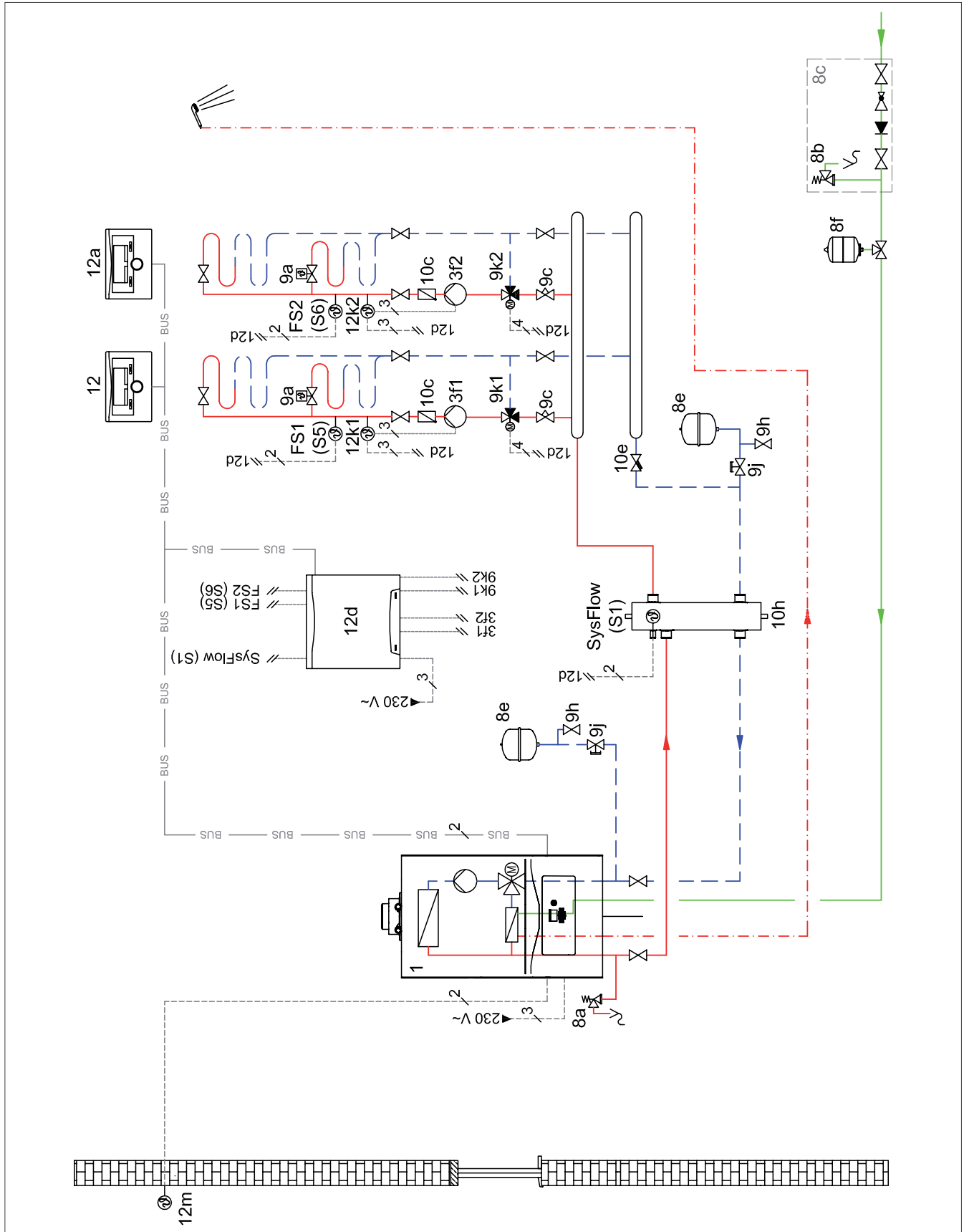


Fig. 184: Basic hydraulic diagram

## 0020241355 - Wiring diagram

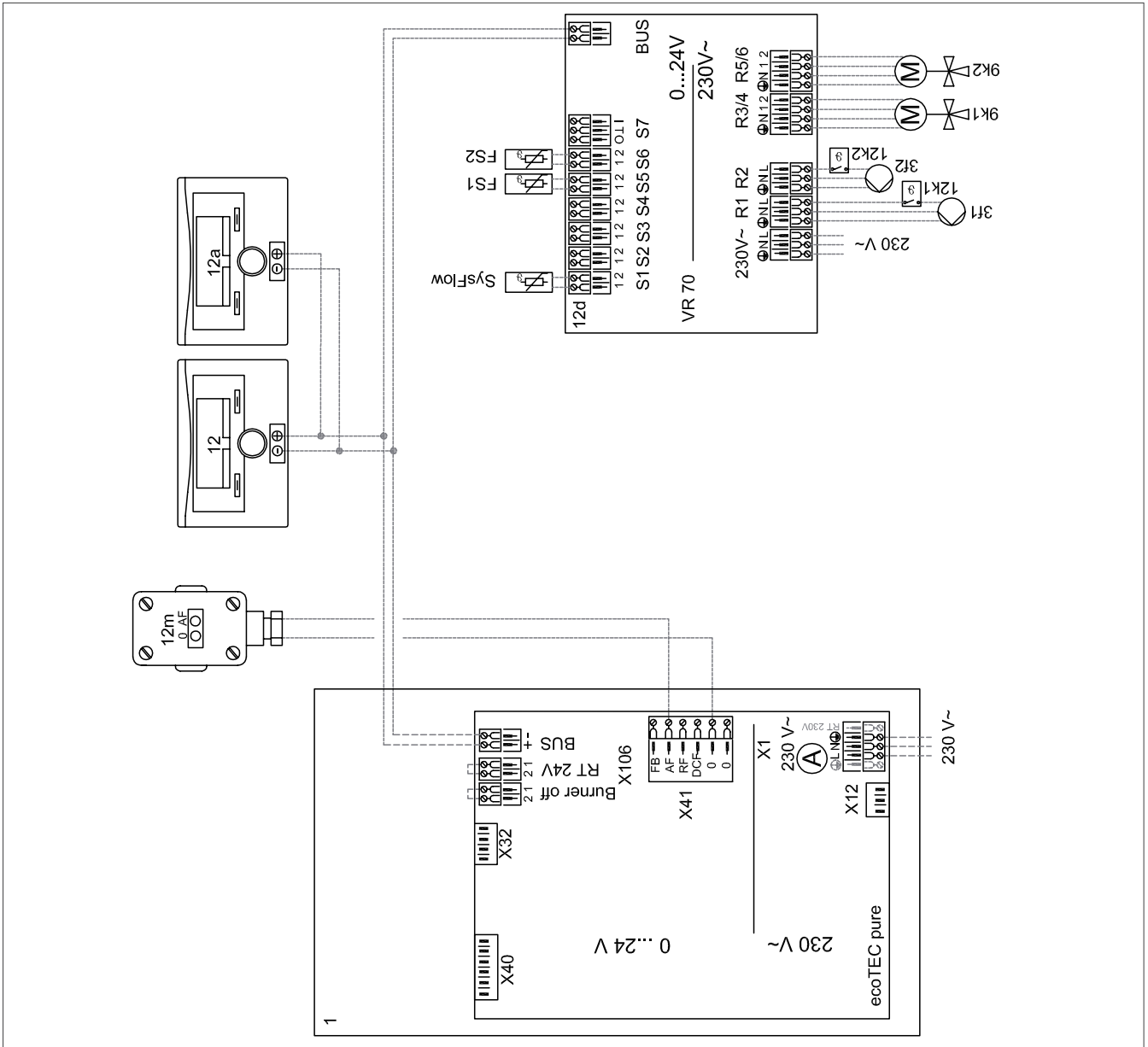


Fig. 185: Wiring diagram

### Description

Single- or multiple-occupancy houses with two mixed underfloor heating circuits. Domestic hot water is generated by the heat generator using the through-flow principle without a domestic hot water cylinder.

### Individual components

- ecoTEC pure VCW
- WH 27/40
- VRC 700/4
- VR 70
- VR 91

### Setting

VRC 700/4 System diagram setting: 1

VR 70 Module setting: 5





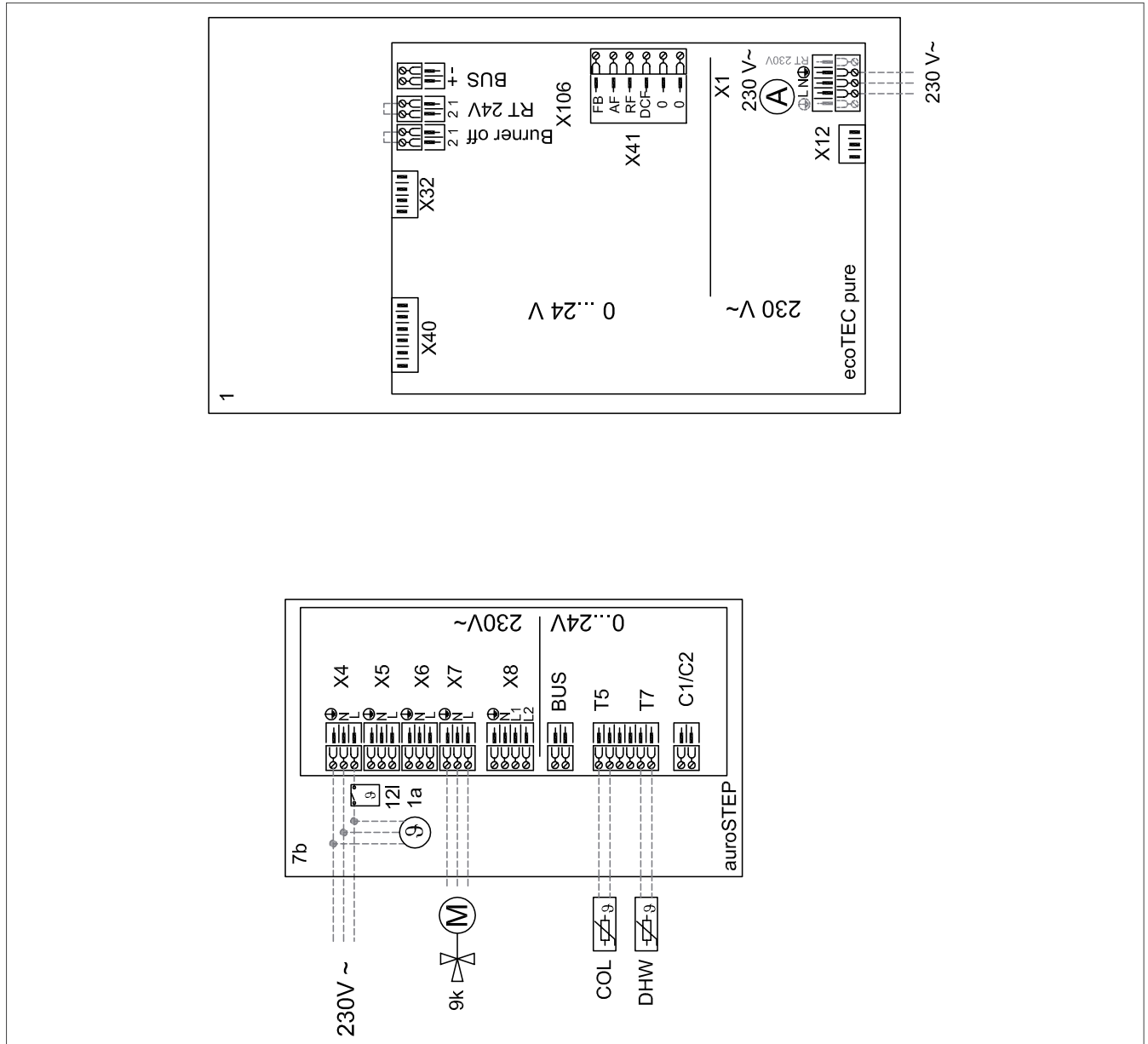


Fig. 187: Wiring diagram

**Description**

Single-occupancy houses with one non-mixed heating circuit. The heat generator is used for the heating circuit and domestic hot water.

The solar system supports the domestic hot water system.

The solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** The system meets the requirements in terms of hygiene as set out by DIN 1988-200 2015-5 (anti-legionella function) with only one integrated electric heater or with a system temperature of  $\geq 60$  °C.

**Caution:** \*integrated in the heat generator. Please also use this basic diagram for drain-back system technology without the positions: 9j; 9h; 8g in the solar circuit.

**Individual components**

- ecoTEC pure VCW
- auroTERM VFK
- auroSTEP
- VMS 8 / VMS 8D





# 11. Product information ecoFIT .../6-3

## 11.1 Product combinations



Fig 188: Product combinations

	1				2	3	4	5	6	7
	Combi boiler ecoFIT pure VUW	Boiler ecoFIT pure VU	Combi boiler ecoFIT sustain VUW	Boiler ecoFIT pure VU (open vent)	Low loss header	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	–	•	–	•	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•	•**	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

\*\* Only in conjunction with a boiler

## 11.2 Product description for ecoFIT pure VUW (combi)



Fig 189: ecoFIT pure VUW (combi)

### Potential applications

- Heating and hot water generation (flow-through principle)
- For new builds and modernising single-occupancy and dual-occupancy houses as well as multi-occupancy dwellings in flats (multiple-occupancy house)
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches
- Open-flued or room-sealed modes with system-certified flue gas systems

### Equipment

- High-efficiency pump
- High-quality aluminium heat exchanger
- Condensate siphon
- Water pressure sensor, volume flow sensor, pressure gauge, 8 litre expansion vessel, 1/2" SI valve
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to E or LL natural gas
- Room thermostats as wired or radio-based control system and app-based control system
- Range of accessories, including spacers and pipe kit

### Special features

- Standard degree of utilisation 98% (H<sub>s</sub>)/109% (H<sub>i</sub>)
- Energy efficiency class A
- Modulation range of 20 - 100%
- Pneumatic gas-air mixture unit
- High-quality lightweight aluminium heat exchanger
- Adaptive partial load adjustment
- Improved multi-sensor system
- Warm start function
- Aqua Power Plus up to 20% more domestic hot water output
- New, intuitive-to-use unit operator control panel
- Horizontal hydraulic connections for installation accessories in the unit housing and flexible use for modernisation
- Operation with natural gas E or LL, biomethane and liquid gas

### Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Order no.
VUW 256/6-3 (H-GB) ecoFIT pure 825	A (A+++ - D)	A (A+ - F)	G20 natural gas	
VUW 306/6-3 (H-GB) ecoFIT pure 830	A (A+++ - D)	A (A+ - F)	G20 natural gas	
VUW 356/6-3 (H-GB) ecoFIT pure 835	A (A+++ - D)	A (A+ - F)	G20 natural gas	

## Technical data - General

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Gas category	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>
Diameter of the gas pipe	1/2 inch	1/2 inch	1/2 inch
Diameter of the heating connections	3/4 inch	3/4 inch	3/4 inch
Expansion relief valve connection pipe (min.)	15 mm	15 mm	15 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas flow at P max. - hot water (G20)	2.7 m³/h	3.2 m³/h	3.8 m³/h
Gas flow at P max. - heating mode (G20)	1.9 m³/h	2.7 m³/h	2.7 m³/h
Gas flow at P min. (G20)	0.540 m³/h	0.646 m³/h	0.762 m³/h
CE number (PIN)	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646
SAP 2009/2012 annual efficiency (%)	89.6	89.6	89.7
Flue gas mass rate in heating mode at P min.	2.34 g/s	2.80 g/s	3.30 g/s
Flue gas mass rate in heating mode at P max.	8.3 g/s	11.5 g/s	11.6 g/s
Flue gas mass rate in hot water handling mode at P max.	11.6 g/s	13.8 g/s	16.1 g/s
Flue gas temperature (80 °C/60 °C) at P max.	60 °C	77 °C	82 °C
Flue gas temperature (80 °C/60 °C) at P min.	55 °C	55 °C	56 °C
Flue gas temperature (50 °C/30 °C) at P max.	51 °C	62 °C	56 °C
Flue gas temperature (50 °C/30 °C) at P min.	34 °C	35 °C	37 °C
Flue gas temperature in hot water handling mode	69 °C	68 °C	75 °C
Flue gas temperature when overheating	105 °C	95 °C	104 °C
Released system types	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53
Nominal efficiency at 80/60 °C	98.8 %	98.8 %	99.2 %
Nominal efficiency at 50/30 °C	104.0 %	104.0 %	104.0 %
Nominal efficiency at 40/30 °C	106.0 %	106.0 %	106.0 %
Nominal efficiency in partial load operation (30%) at 40/30 °C	109.8 %	109.7 %	109.9 %
NOx class	6	6	6
Product dimensions, width	390 mm	390 mm	390 mm
Product dimensions, depth	295 mm	295 mm	295 mm
Product dimensions, height	702 mm	702 mm	702 mm
Net weight	32 kg	33 kg	33 kg
Weight when filled with water	36 kg	38 kg	38 kg

## Technical data - G20 power/loading G20

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Maximum heat output	18 kW	25 kW	25 kW
Effective output range (P) at 40/30 °C	5.4 to 19.5 kW	6.5 to 27.0 kW	7.6 to 27.2 kW
Effective output range (P) at 50/30 °C	5.3 to 19.1 kW	6.3 to 26.5 kW	7.5 to 26.7 kW
Effective output range (P) at 80/60 °C	5.1 to 18.3 kW	6.1 to 25.4 kW	7.2 to 25.5 kW
Domestic hot water heat output (P)	5.0 to 25.2 kW	6.0 to 30.0 kW	7.1 to 35.0 kW
Maximum heat input - heating (Q max.)	18.4 kW	25.5 kW	25.7 kW
Minimum heat input - heating (Q min.)	5.1 kW	6.1 kW	7.2 kW
Maximum heat input - hot water (Q max.)	25.7 kW	30.6 kW	35.7 kW
Minimum heat input - hot water (Q min.)	5.1 kW	6.1 kW	7.2 kW

### Technical data - Heating

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Max. flow temperature adjustment range (default setting: 75 °C)	10 to 80 °C	10 to 80 °C	10 to 80 °C
Maximum permissible pressure	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)
Nominal water flow ( $\Delta T = 20$ K)	788 l/h	1,094 l/h	1,102 l/h
Nominal water flow ( $\Delta T = 30$ K)	525 l/h	729 l/h	876 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.84 l/h	2.55 l/h	2.57 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 20$ K)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.018 MPa (0.180 bar)

### Technical data - Domestic hot water

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	12.1 l/min	14.2 l/min	16.5 l/min
Continuous flow rate ( $\Delta T = 35$ K)	622 l/h	730 l/h	849 l/h
Specific flow rate ( $\Delta T = 35$ K)	10.4 l/min	12.2 l/min	14.1 l/min
Minimum permissible pressure	0.03 MPa (0.30 bar)	0.03 MPa (0.30 bar)	0.03 MPa (0.30 bar)
Maximum permissible pressure	1 MPa (10 bar)	1 MPa (10 bar)	1 MPa (10 bar)
Recommended pressure	0.2 MPa (2.0 bar)	0.2 MPa (2.0 bar)	0.2 MPa (2.0 bar)
Temperature range	35 to 60 °C	35 to 60 °C	35 to 60 °C
Maximum water flow rate	8.0 l/min	10.0 l/min	12.0 l/min

### Technical data - Electrics

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Electrical connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V
Max. electrical power consumption	87 W	87 W	98 W
Standby electrical power consumption	2 W	2 W	3 W
IP rating	IPX4D	IPX4D	IPX4D

Dimensioned drawing ecoFIT pure VUW (Combi)

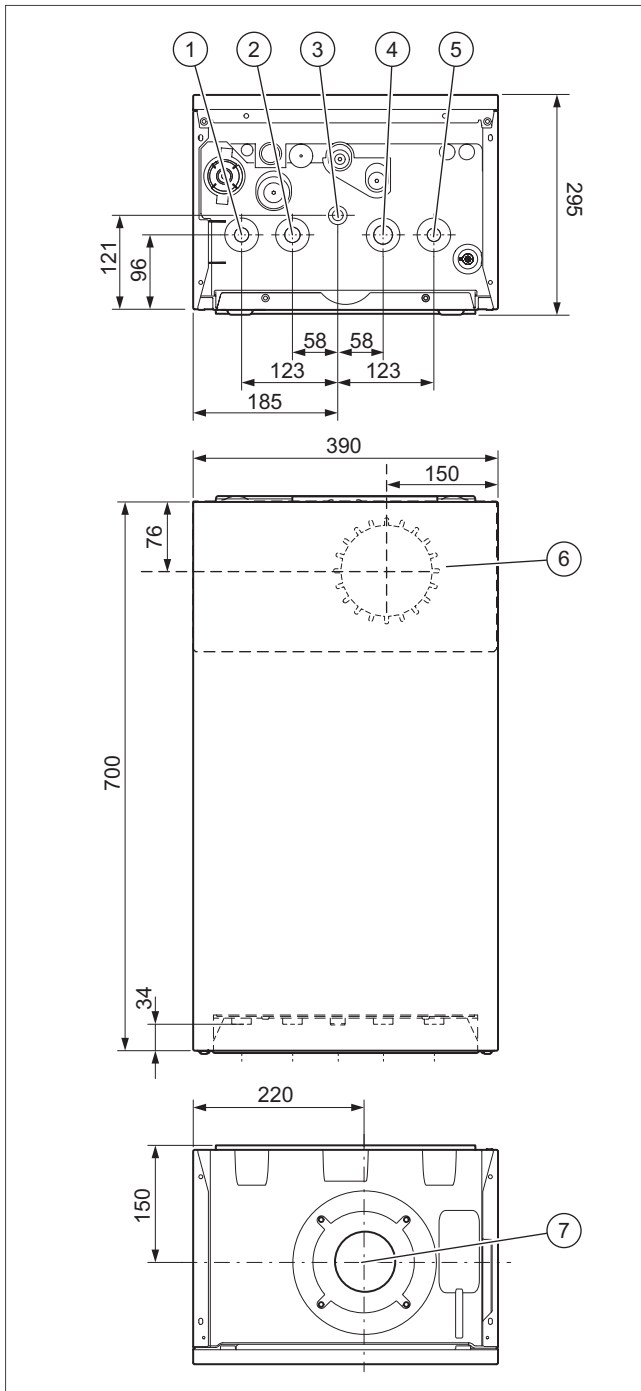


Fig 190: Dimensions

- 1 Heating flow
- 2 Domestic hot water connection
- 3 Gas connection
- 4 Cold water connection
- 5 Heating return
- 6 Rear air/flue connection
- 7 Top air/flue connection

## 11.3 Product information for ecoFIT pure VU (System)



Fig 191: ecoFIT pure VU (system)

### Potential applications

- Heating and hot water generation (in combination with an indirectly heated cylinder)
- For new builds and modernising single-occupancy and dual-occupancy houses as well as multi-occupancy dwellings in flats (multiple-occupancy house)
- For radiators and underfloor heating
- Space-saving installation in living areas

### Equipment

- High-efficiency pump
- High-quality aluminium heat exchanger
- Condensate siphon
- Water pressure sensor, volume flow sensor, pressure gauge, 8 litre expansion vessel, 1/2" SI valve
- Integrated cylinder control with diverter valve
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to E or LL natural gas
- Room thermostats as wired or radio-based control system and app-based control system
- Range of accessories, including spacers and pipe kit

### Special features

- Standard degree of utilisation 98% (H<sub>s</sub>)/109% (H<sub>t</sub>)
- Energy efficiency class A
- Modulation range of 20 - 100%
- Pneumatic gas-air mixture unit
- High-quality lightweight aluminium heat exchanger
- Adaptive partial load adjustment
- Improved multi-sensor system
- Aqua Condens System, cylinder charging control with condensing technology
- New, intuitive-to-use unit operator control panel
- Horizontal hydraulic connections for installation accessories in the unit housing and flexible use for modernisation
- Operation with natural gas E or LL, biomethane and liquid gas

Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VU 126/6-3 (H-GB) ecoFIT pure 612	A (A+++ - D)	G20 natural gas	
VU 156/6-3 (H-GB) ecoFIT pure 615	A (A+++ - D)	G20 natural gas	
VU 186/6-3 (H-GB) ecoFIT pure 618	A (A+++ - D)	G20 natural gas	
VU 256/6-3 (H-GB) ecoFIT pure 625	A (A+++ - D)	G20 natural gas	
VU 306/6-3 (H-GB) ecoFIT pure 630	A (A+++ - D)	G20 natural gas	



## Technical data - General

	VU 126/6-3 (H-GB)	VU 156/6-3 (H-GB)	VU 186/6-3 (H-GB)	VU 256/6-3 (H-GB)	VU 306/6-3 (H-GB)
Gas category	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>
Diameter of the gas pipe	1/2 inch	1/2 inch	1/2 inch	1/2 inch	1/2 inch
Diameter of the heating connections	3/4 inch	3/4 inch	3/4 inch	3/4 inch	3/4 inch
Expansion relief valve connection pipe (min.)	15 mm	15 mm	15 mm	15 mm	15 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm	21.5 mm	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas flow at P max. - hot water (G20)	1.6 m <sup>3</sup> /h	1.9 m <sup>3</sup> /h	2.7 m <sup>3</sup> /h	3.2 m <sup>3</sup> /h	3.8 m <sup>3</sup> /h
Gas flow at P max. - heating mode (G20)	1.3 m <sup>3</sup> /h	1.6 m <sup>3</sup> /h	1.9 m <sup>3</sup> /h	2.7 m <sup>3</sup> /h	3.2 m <sup>3</sup> /h
Gas flow at P min. (G20)	0.476 m <sup>3</sup> /h	0.480 m <sup>3</sup> /h	0.533 m <sup>3</sup> /h	0.648 m <sup>3</sup> /h	0.762 m <sup>3</sup> /h
CE number (PIN)	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646
SAP 2009/2012 annual efficiency (%)	89.8	89.8	89.7	89.7	89.8
Flue gas mass rate in heating mode at P min.	2.06 g/s	2.08 g/s	2.31 g/s	2.81 g/s	3.30 g/s
Flue gas mass rate in heating mode at P max.	5.5 g/s	6.9 g/s	8.3 g/s	11.5 g/s	13.8 g/s
Flue gas mass rate in hot water handling mode at P max.	6.9 g/s	8.3 g/s	11.6 g/s	13.8 g/s	16.1 g/s
Flue gas temperature (80 °C/60 °C) at P max.	55 °C	55 °C	60 °C	77 °C	82 °C
Flue gas temperature (80 °C/60 °C) at P min.	55 °C	55 °C	55 °C	55 °C	56 °C
Flue gas temperature (50 °C/30 °C) at P max.	43 °C	48 °C	51 °C	62 °C	56 °C
Flue gas temperature (50 °C/30 °C) at P min.	32 °C	32 °C	34 °C	35 °C	37 °C
Flue gas temperature in hot water handling mode	71 °C	71 °C	69 °C	68 °C	75 °C
Flue gas temperature when overheating	105 °C	105 °C	105 °C	95 °C	104 °C
Released system types	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53
Nominal efficiency at 80/60 °C	99.1 %	98.9 %	98.8 %	98.8 %	99.2 %
Nominal efficiency at 50/30 °C	104.0 %	104.0 %	104.0 %	104.0 %	104.0 %
Nominal efficiency at 40/30 °C	106.0 %	106.0 %	106.0 %	106.0 %	106.0 %
Nominal efficiency in partial load operation (30%) at 40/30 °C	109.9 %	109.9 %	109.8 %	109.8 %	109.8 %
NOx class	6	6	6	6	6
Product dimensions, width	390 mm	390 mm	390 mm	390 mm	390 mm
Product dimensions, depth	295 mm	295 mm	295 mm	295 mm	295 mm
Product dimensions, height	702 mm	702 mm	702 mm	702 mm	702 mm
Net weight	31 kg	31 kg	31 kg	32 kg	32 kg
Weight when filled with water	35 kg	35 kg	35 kg	36 kg	36 kg

## Technical data - G20 power/loading G20

	VU 126/6-3 (H-GB)	VU 156/6-3 (H-GB)	VU 186/6-3 (H-GB)	VU 256/6-3 (H-GB)	VU 306/6-3 (H-GB)
Maximum heat output	12 kW	15 kW	18 kW	25 kW	30 kW
Effective output range (P) at 40/30 °C	4.8 to 13.0 kW	4.8 to 16.2 kW	5.3 to 19.5 kW	6.5 to 27.0 kW	7.6 to 32.4 kW
Effective output range (P) at 50/30 °C	4.7 to 12.8 kW	4.7 to 15.9 kW	5.2 to 19.1 kW	6.4 to 26.5 kW	7.5 to 31.8 kW
Effective output range (P) at 80/60 °C	4.5 to 12.2 kW	4.5 to 15.2 kW	5.0 to 18.3 kW	6.1 to 25.4 kW	7.1 to 30.2 kW
Domestic hot water heat output (P)	4.4 to 15.0 kW	4.4 to 18.0 kW	4.9 to 25.2 kW	6.0 to 30.0 kW	7.1 to 35.0 kW
Maximum heat input - heating (Q max.)	12.3 kW	15.3 kW	18.4 kW	25.5 kW	30.6 kW
Minimum heat input - heating (Q min.)	4.5 kW	4.5 kW	5.0 kW	6.1 kW	7.2 kW
Maximum heat input - hot water (Q max.)	15.3 kW	18.4 kW	25.7 kW	30.6 kW	35.7 kW
Minimum heat input - hot water (Q min.)	4.5 kW	4.5 kW	5.0 kW	6.1 kW	7.2 kW

## Technical data - Heating

	VU 126/6-3 (H-GB)	VU 156/6-3 (H-GB)	VU 186/6-3 (H-GB)	VU 256/6-3 (H-GB)	VU 306/6-3 (H-GB)
Max. flow temperature adjustment range (default setting: 75 °C)	10 to 80 °C	10 to 80 °C	10 to 80 °C	10 to 80 °C	10 to 80 °C
Maximum permissible pressure	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)
Nominal water flow ( $\Delta T = 20$ K)	530 l/h	655 l/h	788 l/h	1,094 l/h	1,102 l/h
Nominal water flow ( $\Delta T = 30$ K)	353 l/h	436 l/h	525 l/h	729 l/h	876 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.23 l/h	1.53 l/h	1.84 l/h	2.55 l/h	3.06 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 20$ K)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)

## Technical data - Electrics

	VU 126/6-3 (H-GB)	VU 156/6-3 (H-GB)	VU 186/6-3 (H-GB)	VU 256/6-3 (H-GB)	VU 306/6-3 (H-GB)
Electrical connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V
Max. electrical power consumption	75 W	81 W	87 W	87 W	104 W
Standby electrical power consumption	2 W	2 W	2 W	2 W	2 W
IP rating	IPX4D	IPX4D	IPX4D	IPX4D	IPX4D

Dimension drawing for the ecoFIT pure VU (System)

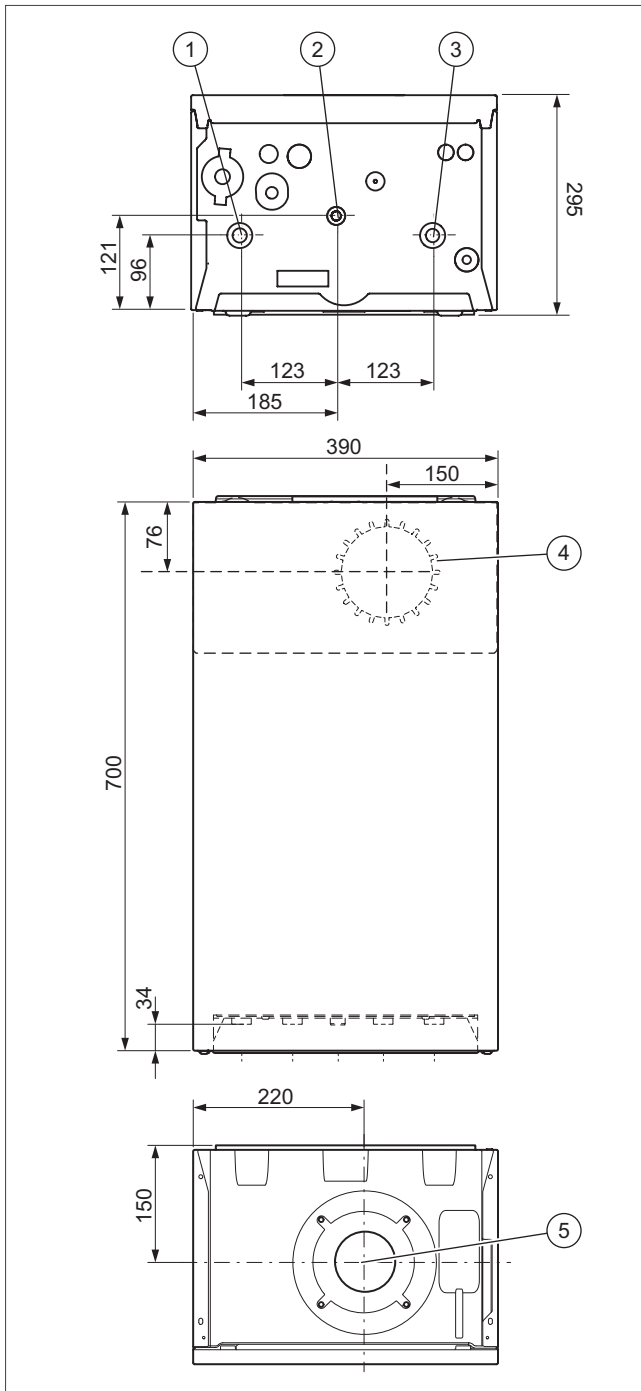


Fig 192: Dimensions

- 1 Heating flow
- 2 Gas connection
- 3 Heating return
- 4 Rear air/flue pipe connection
- 5 Top air/flue pipe connection

## 11.4 Product description for ecoFIT sustain VUW (combi)



Fig 193: ecoFIT sustain VUW (combi)

### Potential applications

- Heating and hot water generation (flow-through principle)
- For new builds and modernising single-occupancy and dual-occupancy houses as well as multi-occupancy dwellings in flats (multiple-occupancy house)
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches
- Open-flued or room-sealed modes with system-certified flue gas systems

### Equipment

- High-efficiency pump
- High-quality aluminium heat exchanger
- Condensate siphon
- Water pressure sensor, volume flow sensor, pressure gauge, 8 litre expansion vessel, 1/2" SI valve
- DIA system with plain text display, illuminated
- eBUS interface
- Integrated control option for an external heating, cylinder-charging or circulation pump
- Enclosed conversion kit for switching to E or LL natural gas
- Room thermostats as wired or radio-based control system and app-based control system
- Range of accessories, including spacers and pipe kit

### Special features

- Standard degree of utilisation 98% (H<sub>s</sub>)/109% (H<sub>i</sub>)
- Energy efficiency class A
- Modulation range of 20 - 100%
- Pneumatic gas-air mixture unit
- High-quality lightweight aluminium heat exchanger
- Flow and return sensor
- Warm start function
- Aqua Power Plus up to 20% more domestic hot water output
- New, intuitive-to-use unit operator control panel
- Horizontal hydraulic connections for installation accessories in the unit housing and flexible use for modernisation
- Operation with natural gas E or LL, biomethane and liquid gas

### Type overview

Unit designation	Energy efficiency class Heating	Energy efficiency class Domestic hot water	Gas type	Order no.
VUW 256/6-3 (H-GB) ecoFIT sustain 825	A (A+++ - D)	A+ (A - F)	G20 natural gas	
VUW 306/6-3 (H-GB) ecoFIT sustain 830	A (A+++ - D)	A+ (A - F)	G20 natural gas	
VUW 356/6-3 (H-GB) ecoFIT sustain 835	A (A+++ - D)	A+ (A - F)	G20 natural gas	

## Technical data - General

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Gas category	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>
Diameter of the gas pipe	1/2 inch	1/2 inch	1/2 inch
Diameter of the heating connections	3/4 inch	3/4 inch	3/4 inch
Expansion relief valve connection pipe (min.)	15 mm	15 mm	15 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas flow at P max. - hot water (G20)	2.7 m <sup>3</sup> /h	3.2 m <sup>3</sup> /h	3.8 m <sup>3</sup> /h
Gas flow at P max. - heating mode (G20)	1.9 m <sup>3</sup> /h	1.9 m <sup>3</sup> /h	1.9 m <sup>3</sup> /h
Gas flow at P min. (G20)	0.540 m <sup>3</sup> /h	0.646 m <sup>3</sup> /h	0.762 m <sup>3</sup> /h
CE number (PIN)	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646
SAP 2009/2012 annual efficiency (%)	89.3	89.3	89.3
Flue gas mass rate in heating mode at P min.	2.34 g/s	2.80 g/s	3.30 g/s
Flue gas mass rate in heating mode at P max.	8.3 g/s	8.3 g/s	8.3 g/s
Flue gas mass rate in hot water handling mode at P max.	11.6 g/s	13.8 g/s	16.1 g/s
Flue gas temperature (80 °C/60 °C) at P max.	60 °C	77 °C	86 °C
Flue gas temperature (80 °C/60 °C) at P min.	55 °C	55 °C	56 °C
Flue gas temperature (50 °C/30 °C) at P max.	51 °C	62 °C	60 °C
Flue gas temperature (50 °C/30 °C) at P min.	34 °C	35 °C	37 °C
Flue gas temperature in hot water handling mode	69 °C	68 °C	75 °C
Flue gas temperature when overheating	105 °C	95 °C	104 °C
Released system types	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53
Nominal efficiency at 80/60 °C	99.6 %	99.6 %	99.6 %
Nominal efficiency at 50/30 °C	104.0 %	104.0 %	104.0 %
Nominal efficiency at 40/30 °C	106.0 %	106.0 %	106.0 %
NOx class	6	6	6
Product dimensions, width	390 mm	390 mm	390 mm
Product dimensions, depth	295 mm	295 mm	295 mm
Product dimensions, height	702 mm	702 mm	702 mm
Net weight	32 kg	33 kg	33 kg
Weight when filled with water	36 kg	37 kg	37 kg

## Technical data - G20 power/loading G20

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Maximum heat output	18 kW	25 kW	25 kW
Effective output range (P) at 40/30 °C	5.4 to 19.5 kW	6.5 to 19.5 kW	7.6 to 19.5 kW
Effective output range (P) at 50/30 °C	5.3 to 19.1 kW	6.3 to 19.1 kW	7.5 to 19.1 kW
Effective output range (P) at 80/60 °C	5.1 to 18.3 kW	6.1 to 18.3 kW	7.2 to 18.3 kW
Domestic hot water heat output (P)	5.0 to 25.2 kW	6.0 to 30.0 kW	7.1 to 35.0 kW
Maximum heat input - heating (Q max.)	18.4 kW	18.4 kW	18.4 kW
Minimum heat input - heating (Q min.)	5.1 kW	6.1 kW	7.2 kW
Maximum heat input - hot water (Q max.)	25.7 kW	30.6 kW	35.7 kW
Minimum heat input - hot water (Q min.)	5.1 kW	6.1 kW	7.2 kW

### Technical data - Heating

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Max. flow temperature adjustment range (default setting: 75 °C)	10 to 80 °C	10 to 80 °C	10 to 80 °C
Maximum permissible pressure	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)
Nominal water flow ( $\Delta T = 20$ K)	788 l/h	788 l/h	788 l/h
Nominal water flow ( $\Delta T = 30$ K)	525 l/h	525 l/h	525 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.84 l/h	1.84 l/h	1.84 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 20$ K)	0.025 MPa (0.250 bar)	0.025 MPa (0.250 bar)	0.018 MPa (0.180 bar)

### Technical data - Domestic hot water

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	12.1 l/min	14.2 l/min	16.5 l/min
Continuous flow rate ( $\Delta T = 35$ K)	622 l/h	730 l/h	849 l/h
Specific flow rate ( $\Delta T = 35$ K)	10.4 l/min	12.2 l/min	14.1 l/min
Minimum permissible pressure	0.03 MPa (0.30 bar)	0.03 MPa (0.30 bar)	0.03 MPa (0.30 bar)
Maximum permissible pressure	1 MPa (10 bar)	1 MPa (10 bar)	1 MPa (10 bar)
Recommended pressure	0.2 MPa (2.0 bar)	0.2 MPa (2.0 bar)	0.2 MPa (2.0 bar)
Temperature range	35 to 60 °C	35 to 60 °C	35 to 60 °C
Maximum water flow rate	8.0 l/min	10.0 l/min	12.0 l/min

### Technical data - Electrics

	VUW 256/6-3 (H-GB)	VUW 306/6-3 (H-GB)	VUW 356/6-3 (H-GB)
Electrical connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V
Max. electrical power consumption	87 W	87 W	98 W
Standby electrical power consumption	2 W	2 W	3 W
IP rating	IPX4D	IPX4D	IPX4D

Dimension drawing for the ecoFIT sustain VUW (combi)

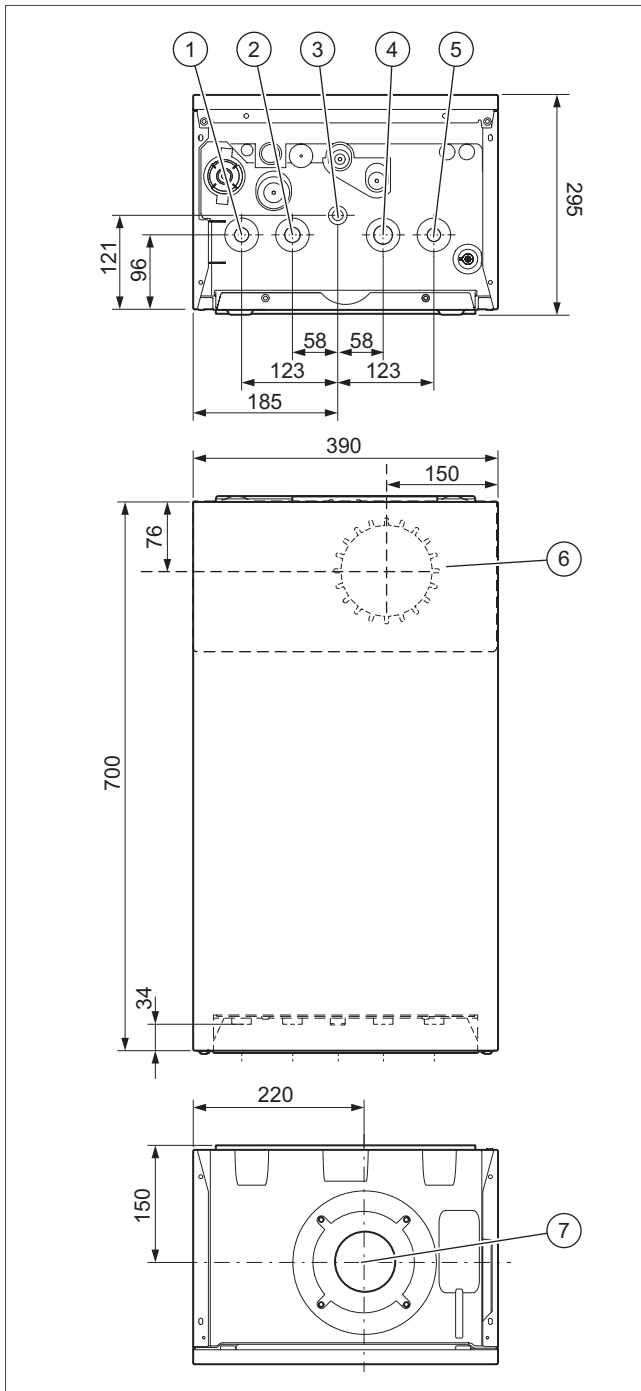


Fig 194: Dimensions

- 1 Heating flow
- 2 Domestic hot water connection
- 3 Gas connection
- 4 Cold water connection
- 5 Heating return
- 6 Rear air/flue connection
- 7 Top air/flue connection

## 11.5 Product information for ecoFIT pure open vent



Fig 195: ecoFIT pure VU (open vent)

### Potential applications

- For new builds and modernising single-occupancy and dual-occupancy houses as well as multi-occupancy dwellings in flats (multiple-occupancy house)
- For radiators and underfloor heating
- Space-saving installation in living areas

### Equipment

- High-quality aluminium heat exchanger
- Condensate siphon
- Water pressure sensor, volume flow sensor and manometer
- DIA system with plain text display, illuminated
- eBUS interface
- Enclosed conversion kit for switching to E or LL natural gas
- Room thermostats as wired or radio-based control system and app-based control system
- Range of accessories, including spacers and pipe kit

### Special features

- Standard degree of utilisation 98% (H<sub>s</sub>)/109% (H<sub>t</sub>)
- Energy efficiency class A
- Modulation range of 20 - 100%
- Pneumatic gas-air mixture unit
- High-quality lightweight aluminium heat exchanger
- Adaptive partial load adjustment
- Improved multi-sensor system
- New, intuitive-to-use unit operator control panel
- Horizontal hydraulic connections for installation accessories in the unit housing and flexible use for modernisation
- Operation with natural gas E or LL, biomethane and liquid gas

Type overview

Unit designation	Energy efficiency class	Gas type	Order no.
VU 126/6-3 OV (H-GB) ecoFIT pure 412	A (A+++ - D)	G20 natural gas	
VU 156/6-3 OV (H-GB) ecoFIT pure 415	A (A+++ - D)	G20 natural gas	
VU 186/6-3 OV (H-GB) ecoFIT pure 418	A (A+++ - D)	G20 natural gas	
VU 256/6-3 OV (H-GB) ecoFIT pure 425	A (A+++ - D)	G20 natural gas	
VU 306/6-3 OV (H-GB) ecoFIT pure 430	A (A+++ - D)	G20 natural gas	
VU 356/6-3 OV (H-GB) ecoFIT pure 435	A (A+++ - D)	G20 natural gas	



## Technical data - General

	VU 126/6-3 OV (H-GB)	VU 156/6-3 OV (H-GB)	VU 186/6-3 OV (H-GB)	VU 256/6-3 OV (H-GB)
Gas category	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>	I <sub>2H</sub>
Diameter of the gas pipe	1/2 inch	1/2 inch	1/2 inch	1/2 inch
Diameter of the heating connections	3/4 inch	3/4 inch	3/4 inch	3/4 inch
Expansion relief valve connection pipe (min.)	15 mm	15 mm	15 mm	15 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas flow at P max. - hot water (G20)	1.6 m <sup>3</sup> /h	1.9 m <sup>3</sup> /h	2.7 m <sup>3</sup> /h	3.2 m <sup>3</sup> /h
Gas flow at P max. - heating mode (G20)	1.3 m <sup>3</sup> /h	1.6 m <sup>3</sup> /h	1.9 m <sup>3</sup> /h	2.7 m <sup>3</sup> /h
Gas flow at P min. (G20)	0.480 m <sup>3</sup> /h	0.480 m <sup>3</sup> /h	0.533 m <sup>3</sup> /h	0.648 m <sup>3</sup> /h
CE number (PIN)	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646	CE-0063CP3646
SAP 2009/2012 annual efficiency (%)	89.8	89.8	89.7	89.7
Flue gas mass rate in heating mode at P min.	2.08 g/s	2.08 g/s	2.31 g/s	2.81 g/s
Flue gas mass rate in heating mode at P max.	5.5 g/s	6.9 g/s	8.3 g/s	11.5 g/s
Flue gas mass rate in hot water handling mode at P max.	6.9 g/s	8.3 g/s	11.6 g/s	13.8 g/s
Flue gas temperature (80 °C/60 °C) at P max.	55 °C	55 °C	60 °C	77 °C
Flue gas temperature (80 °C/60 °C) at P min.	55 °C	55 °C	55 °C	55 °C
Flue gas temperature (50 °C/30 °C) at P max.	43 °C	48 °C	51 °C	62 °C
Flue gas temperature (50 °C/30 °C) at P min.	32 °C	32 °C	34 °C	35 °C
Flue gas temperature in hot water handling mode	71 °C	71 °C	69 °C	68 °C
Flue gas temperature when overheating	105 °C	105 °C	105 °C	95 °C
Released system types	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53	C13, C33, C43, C53
Nominal efficiency at 80/60 °C	99.1 %	98.9 %	98.8 %	98.8 %
Nominal efficiency at 50/30 °C	104.0 %	104.0 %	104.0 %	104.0 %
Nominal efficiency at 40/30 °C	106.0 %	106.0 %	106.0 %	106.0 %
Nominal efficiency in partial load operation (30%) at 40/30 °C	109.9 %	109.9 %	109.8 %	109.7 %
NOx class	6	6	6	6
Product dimensions, width	375 mm	375 mm	375 mm	375 mm
Product dimensions, depth	295 mm	295 mm	295 mm	295 mm
Product dimensions, height	602 mm	602 mm	602 mm	602 mm
Net weight	22 kg	22 kg	22 kg	22 kg
Weight when filled with water	26 kg	26 kg	26 kg	26 kg

	VU 306/6-3 OV (H-GB)	VU 356/6-3 OV (H-GB)
Gas category	I <sub>2H</sub>	I <sub>2H</sub>
Diameter of the gas pipe	1/2 inch	1/2 inch
Diameter of the heating connections	3/4 inch	3/4 inch
Expansion relief valve connection pipe (min.)	15 mm	15 mm
Condensate discharge pipe (min.)	21.5 mm	21.5 mm
G20 gas supply pressure	2.0 kPa (20.0 mbar)	2.0 kPa (20.0 mbar)
Gas flow at P max. - hot water (G20)	3.8 m <sup>3</sup> /h	3.8 m <sup>3</sup> /h
Gas flow at P max. - heating mode (G20)	3.2 m <sup>3</sup> /h	3.8 m <sup>3</sup> /h
Gas flow at P min. (G20)	0.756 m <sup>3</sup> /h	0.762 m <sup>3</sup> /h
CE number (PIN)	CE-0063CP3646	CE-0063CP3646
SAP 2009/2012 annual efficiency (%)	89.8	-
Flue gas mass rate in heating mode at P min.	3.27 g/s	3.30 g/s

	VU 306/6-3 OV (H-GB)	VU 356/6-3 OV (H-GB)
Flue gas mass rate in heating mode at P max.	13.8 g/s	16.1 g/s
Flue gas mass rate in hot water handling mode at P max.	16.1 g/s	16.1 g/s
Flue gas temperature (80 °C/60 °C) at P max.	86 °C	90 °C
Flue gas temperature (80 °C/60 °C) at P min.	56 °C	56 °C
Flue gas temperature (50 °C/30 °C) at P max.	60 °C	62 °C
Flue gas temperature (50 °C/30 °C) at P min.	37 °C	37 °C
Flue gas temperature in hot water handling mode	75 °C	75 °C
Flue gas temperature when overheating	104 °C	104 °C
Released system types	C13, C33, C43, C53	C13, C33, C43, C53
Nominal efficiency at 80/60 °C	99.2 %	97.5 %
Nominal efficiency at 50/30 °C	104.0 %	100.2 %
Nominal efficiency at 40/30 °C	106.0 %	106.0 %
Nominal efficiency in partial load operation (30%) at 40/30 °C	109.8 %	108.5 %
NOx class	6	6
Product dimensions, width	375 mm	375 mm
Product dimensions, depth	295 mm	295 mm
Product dimensions, height	602 mm	602 mm
Net weight	22 kg	23 kg
Weight when filled with water	27 kg	28 kg

### Technical data - G20 power/load G20

	VU 126/6-3 OV (H-GB)	VU 156/6-3 OV (H-GB)	VU 186/6-3 OV (H-GB)
Maximum heat output	12 kW	15 kW	18 kW
Effective output range (P) at 40/30 °C	4.8 to 13.0 kW	4.8 to 16.2 kW	5.3 to 19.5 kW
Effective output range (P) at 50/30 °C	4.7 to 12.8 kW	4.7 to 15.9 kW	5.2 to 19.1 kW
Effective output range (P) at 80/60 °C	4.5 to 12.2 kW	4.5 to 15.2 kW	5.0 to 18.3 kW
Domestic hot water heat output (P)	4.4 to 15.0 kW	4.4 to 18.0 kW	4.9 to 25.2 kW
Maximum heat input - heating (Q max.)	12.3 kW	15.3 kW	18.4 kW
Minimum heat input - heating (Q min.)	4.5 kW	4.5 kW	5.0 kW
Maximum heat input - hot water (Q max.)	15.3 kW	18.4 kW	25.7 kW
Minimum heat input - hot water (Q min.)	4.5 kW	4.5 kW	5.0 kW

	VU 256/6-3 OV (H-GB)	VU 306/6-3 OV (H-GB)	VU 356/6-3 OV (H-GB)
Maximum heat output	25 kW	30 kW	35 kW
Effective output range (P) at 40/30 °C	6.5 to 27.0 kW	7.6 to 32.4 kW	7.6 to 37.8 kW
Effective output range (P) at 50/30 °C	6.4 to 26.5 kW	7.4 to 31.8 kW	7.0 to 35.8 kW
Effective output range (P) at 80/60 °C	6.1 to 25.4 kW	7.1 to 30.2 kW	7.2 to 34.8 kW
Domestic hot water heat output (P)	6.0 to 30.0 kW	7.0 to 35.0 kW	7.1 to 35.0 kW
Maximum heat input - heating (Q max.)	25.6 kW	30.6 kW	35.7 kW
Minimum heat input - heating (Q min.)	6.1 kW	7.1 kW	7.2 kW
Maximum heat input - hot water (Q max.)	30.6 kW	35.7 kW	35.7 kW
Minimum heat input - hot water (Q min.)	6.1 kW	7.1 kW	7.2 kW

## Technical data - Heating

	VU 126/6-3 OV (H-GB)	VU 156/6-3 OV (H-GB)	VU 186/6-3 OV (H-GB)
Max. flow temperature adjustment range (default setting: 75 °C)	10 to 80 °C	10 to 80 °C	10 to 80 °C
Maximum permissible pressure	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)
Nominal water flow ( $\Delta T = 20$ K)	530 l/h	655 l/h	788 l/h
Nominal water flow ( $\Delta T = 30$ K)	353 l/h	436 l/h	525 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.23 l/h	1.53 l/h	1.84 l/h

	VU 256/6-3 OV (H-GB)	VU 306/6-3 OV (H-GB)	VU 356/6-3 OV (H-GB)
Max. flow temperature adjustment range (default setting: 75 °C)	10 to 80 °C	10 to 80 °C	10 to 80 °C
Maximum permissible pressure	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)	0.25 MPa (2.50 bar)
Nominal water flow ( $\Delta T = 20$ K)	1,094 l/h	1,313 l/h	1,535 l/h
Nominal water flow ( $\Delta T = 30$ K)	729 l/h	876 l/h	1,023 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	2.55 l/h	3.06 l/h	3.65 l/h

## Technical data - Electrics

	VU 126/6-3 OV (H-GB)	VU 156/6-3 OV (H-GB)	VU 186/6-3 OV (H-GB)
Electrical connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V
Max. electrical power consumption	23 W	29 W	35 W
Standby electrical power consumption	2 W	2 W	2 W
IP rating	IPX4D	IPX4D	IPX4D

	VU 256/6-3 OV (H-GB)	VU 306/6-3 OV (H-GB)	VU 356/6-3 OV (H-GB)
Electrical connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T2/2A, 250V	T2/2A, 250V	T2/2A, 250V
Max. electrical power consumption	35 W	44 W	50 W
Standby electrical power consumption	2 W	2 W	2 W
IP rating	IPX4D	IPX4D	IPX4D

Dimension drawing for the ecoFIT pure VU (open vent)

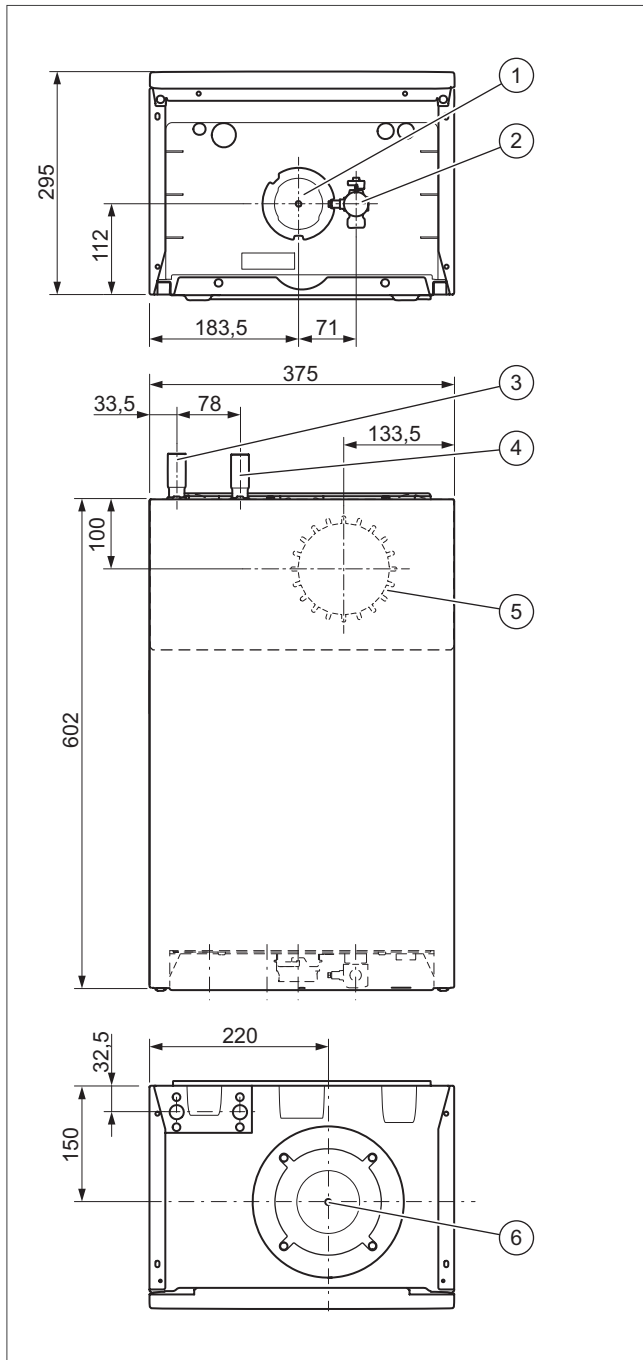


Fig 196: Dimensions

- 1 Condensate discharge
- 2 Gas connection
- 3 Heating return
- 4 Heating flow
- 5 Connection on the back of the air/flue pipe
- 6 Connection on the top of the air/flue pipe



# 12. Product information ecoTEC pro CN .../5-3

## 12.1 Product combinations



Fig. 197: Product combinations

Produktkombinationsübersicht ecoTEC pro CN .../5-3

	1	2	3	4	5	6	7	
	Boiler ecoTEC pro VU CN	Combi boiler ecoTEC pro VUV CN	Low loss header	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	–	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•**	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
\*\* Only in conjunction with a boiler

## 12.2 ecoTEC pro VU CN product description



Fig. 198: ecoTEC pro CN

### Special features

- Modulation range of 25-100%
- Pneumatic gas-air mixture unit
- Adaptive partial load adjustment
- Improved multi-sensor system
- Aqua Condens System, cylinder charging control with condensing technology
- New, intuitive-to-use unit operator control panel
- Vertical hydraulic connections
- Can be combined with a solar system or a heat pump
- Operation with natural gas E

### Potential applications

- Heating and hot water generation (in combination with an indirectly heated cylinder)
- For new builds and modernising single-occupancy and dual-occupancy houses
- For radiators and underfloor heating
- Space-saving installation in living areas
- Low-cost installation as a roof heating centre
- Room-sealed operation with system-certified flue gas installation

### Equipment

- Water pressure sensor, 10 litre expansion vessel, 1/2" expansion relief valve
- Stainless steel integral condensation heat exchanger
- Integrated cylinder control with diverter valve
- DIA system with illuminated plain text display, including Chinese characters
- eBUS interface
- Integrated function for actuating an external heating or cylinder charging pump

### Type overview

Unit designation	Gas type	Order no.
LN1GBQ25-VU CN 246/6-2	Natural gas T12	
LN1GBQ29-VU CN 286/6-2	Natural gas T12	
LN1GBQ35-VU CN 346/6-2	Natural gas T12	

## 12.3 ecoTEC pro VUW CN product description



Fig. 199: ecoTEC pro CN

### Potential applications

- Heating and hot water generation (flow-through principle)
- For new builds and modernising single-occupancy houses and flats
- For radiators and underfloor heating
- Space-saving installation in living areas and in the tightest of niches
- Room-sealed operation with system-certified flue gas installation

### Equipment

- Volume flow sensor, 10 litre expansion vessel, 1/2" expansion relief valve
- Stainless steel integral condensation heat exchanger
- Stainless steel secondary heat exchanger
- DIA system with illuminated plain text display, including Chinese characters
- eBUS interface
- Integrated function for actuating an external heating pump

### Special features

- Modulation range of 25-100%
- Pneumatic gas-air mixture unit
- Adaptive partial load adjustment
- Improved multi-sensor system
- Combination unit with integrated hot water generation operating on the flow-through principle
- New, intuitive-to-use unit operator control panel
- Vertical hydraulic connections
- Operation with natural gas E

Type overview

Unit designation	Gas type	Order no.
LL1GBQ25-VUW CN 246/6-2	Natural gas T12	
LL1GBQ29-VUW CN 286/6-2	Natural gas T12	
LL1GBQ35-VUW CN 346/6-2	Natural gas T12	

## 12.3.1 Technical data

### Technical data - General

	LN1GBQ25-VU CN 246/6-2 (H-CN)	LN1GBQ29-VU CN 286/6-2 (H-CN)	LN1GBQ35-VU CN 346/6-2 (H-CN)	LL1GBQ25- VUW CN 246/6-2 (H-CN)	LL1GBQ29- VUW CN 286/6-2 (H-CN)	LL1GBQ35- VUW CN 346/6-2 (H-CN)
Designated country (designation in accordance with ISO 3166)	CN (China)	CN (China)	CN (China)	CN (China)	CN (China)	CN (China)
Approved unit categories	12T	12T	12T	12T	12T	12T
Gas connection, boiler side	G 1/2"	G 1/2"	G 1/2"	G 1/2"	G 1/2"	G 1/2"
Flow/return heating connections, boiler side	G 3/4 "	G 3/4 "	G 3/4 "	G 3/4 "	G 3/4 "	G 3/4 "
Domestic hot and cold water connection, boiler side	G 1/2"	G 1/2"	G 1/2"	G 1/2"	G 1/2"	G 1/2"
Expansion relief valve connection pipe (min.)	19 mm	19 mm	19 mm	19 mm	19 mm	19 mm
Air/flue connection	60/100 mm	60/100 mm	60/100 mm	60/100 mm	60/100 mm	60/100 mm
Condensate discharge pipe (min.)	19 mm	19 mm	19 mm	19 mm	19 mm	19 mm
12T natural gas flow pressure	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
Gas connection at 15 °C and 1013 mbar (based on domestic hot water generation, if applicable), 12T	2.69 m³/h	3.11 m³/h	3.75 m³/h	2.69 m³/h	3.11 m³/h	3.75 m³/h
Min. flue gas mass flow rate (12T)	2.87 g/s	3.5 g/s	3.53 g/s	2.87 g/s	3.5 g/s	3.5 g/s
Max. flue gas mass flow rate	10.6 g/s	12.4 g/s	15.0 g/s	10.6 g/s	12.4 g/s	15.0 g/s
Min. flue gas temperature	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Max. flue gas temperature	85 °C	85 °C	85 °C	85 °C	85 °C	85 °C
Approved gas boiler types	C13, C33	C13, C33	C13, C33	C13, C33	C13, C33	C13, C33
30% efficiency	106 %	106 %	106 %	106 %	106 %	106 %
NOx class	5	5	5	5	5	5
Unit dimensions, width	440 mm	440 mm	440 mm	440 mm	440 mm	440 mm
Unit dimensions, height	720 mm	720 mm	720 mm	720 mm	720 mm	720 mm
Unit dimensions, depth	336 mm	336 mm	374 mm	336 mm	336 mm	374 mm
Approx. net weight	32.5 kg	34 kg	37 kg	33.5 kg	35.5 kg	39.5 kg

### Technical data - Power/loading 12T

	LN1GBQ25-VU CN 246/6-2 (H-CN)	LN1GBQ29-VU CN 286/6-2 (H-CN)	LN1GBQ35-VU CN 346/6-2 (H-CN)	LL1GBQ25- VUW CN 246/6-2 (H-CN)	LL1GBQ29- VUW CN 286/6-2 (H-CN)	LL1GBQ35- VUW CN 346/6-2 (H-CN)
Nominal heat output range P at 50/30 °C	6.9 to 26 kW	8.5 to 30 kW	8.5 to 36 kW	6.9 to 26 kW	8.5 to 30 kW	8.5 to 36 kW
Nominal heat output range P at 80/60 °C	6.5 to 24 kW	8 to 28 kW	8 to 34 kW	6.5 to 24 kW	8 to 28 kW	8 to 34 kW
Maximum heat output for domestic hot water generation				24 kW	28 kW	34 kW
Maximum heat input for domestic hot water generation				25.4 kW	29.4 kW	35.4 kW
Maximum heat input, heating side	25.4 kW	29.4 kW	35.4 kW	25.4 kW	29.4 kW	35.4 kW
Minimum heat input	6.7 kW	8.3 kW	8.3 kW	6.7 kW	8.3 kW	8.3 kW
Heating adjustment range	6.5 to 24 kW	8 to 28 kW	8 to 34 kW	6.5 to 24 kW	8 to 28 kW	8 to 34 kW



## Technical data - Heating

	LN1GBQ25-VU CN 246/6-2 (H-CN)	LN1GBQ29-VU CN 286/6-2 (H-CN)	LN1GBQ35-VU CN 346/6-2 (H-CN)	LL1GBQ25- VUW CN 246/6-2 (H-CN)	LL1GBQ29- VUW CN 286/6-2 (H-CN)	LL1GBQ35- VUW CN 346/6-2 (H-CN)
Maximum flow temperature	80 °C	80 °C	80 °C	80 °C	80 °C	80 °C
Max. flow temperature adjustment range (factory setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Permissible total excess pressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Expansion vessel capacity	10 l	10 l	10 l	10 l	10 l	10 l
Circulation water volume (with reference to $\Delta T = 20$ K)	1,029 l/h	1,200 l/h	1,457 l/h	1,029 l/h	1,200 l/h	1,457 l/h
Approx. condensate quantity (pH value 3.5 to 4.0) in heating mode 40/30 °C	2.5 l/h	2.9 l/h	3.5 l/h	2.5 l/h	2.9 l/h	3.9 l/h
Remaining pump head (at nominal circulation water volume)	0.022 MPa	0.013 MPa	0 MPa	0.022 MPa	0.011 MPa	0 MPa

## Technical data - Domestic hot water mode

	LL1GBQ25-VUW CN 246/6-2 (H-CN)	LL1GBQ29-VUW CN 286/6-2 (H-CN)	LL1GBQ35-VUW CN 346/6-2 (H-CN)
Lowest water volume	1.7 l/min	1.7 l/min	1.7 l/min
Water volume (at $\Delta T = 30$ K)	11.3 l/min	13.0 l/min	16.0 l/min
Permitted excess pressure	1.0 MPa	1.0 MPa	1.0 MPa
Required connection pressure	0.050 MPa	0.050 MPa	0.050 MPa
Domestic hot water output temperature range	35 to 65 °C	35 to 65 °C	35 to 65 °C

## Technical data - Electrics

	LN1GBQ25-VU CN 246/6-2 (H-CN)	LN1GBQ29-VU CN 286/6-2 (H-CN)	LN1GBQ35-VU CN 346/6-2 (H-CN)	LL1GBQ25- VUW CN 246/6-2 (H-CN)	LL1GBQ29- VUW CN 286/6-2 (H-CN)	LL1GBQ35- VUW CN 346/6-2 (H-CN)
Electrical connection	220 V/50 Hz	220 V/50 Hz	220 V/50 Hz	220 V/50 Hz	220 V/50 Hz	220 V/50 Hz
Permissible connected voltage	187 to 253 V	187 to 253 V	187 to 253 V	187 to 253 V	187 to 253 V	187 to 253 V
Built-in fuse (slow-blow)	2 A	2 A	2 A	2 A	2 A	2 A
Min. electrical power consumption	107.5 W	110.4 W	113.2 W	107.5 W	110.4 W	113.2 W
Max. electrical power consumption	132 W	143 W	150 W	132 W	143 W	150 W
Standby electrical power consumption	< 4 W	< 4 W	< 4 W	< 4 W	< 4 W	< 4 W
IP rating	IP X4	IP X4	IP X4	IP X4	IP X4	IP X4

**Dimension drawing**

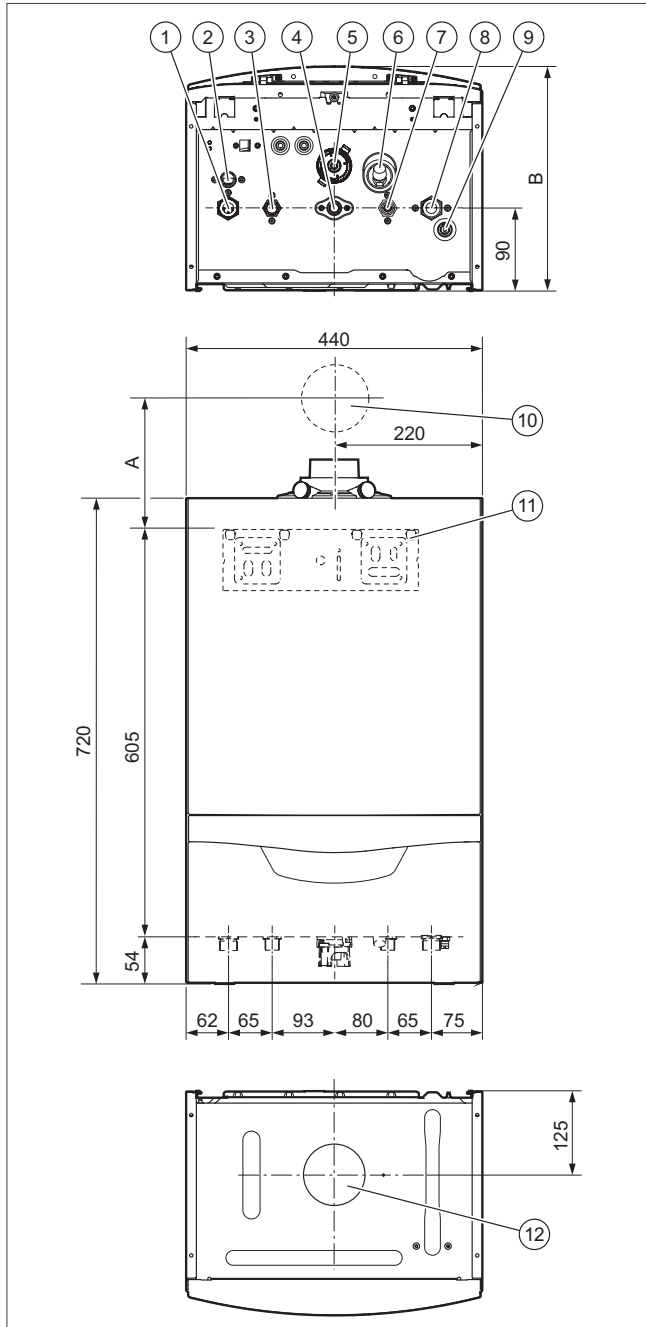


Fig. 200: Dimensions in mm

- 1 Heating flow (22 × 1.5 diameter)
  - 2 Discharge pipe connection (1/2" diameter) on the expansion relief valve
  - 3 Hot water connection\*/cylinder flow\*\* (15 × 1.5 diameter)
  - 4 Gas connection (15 × 1.5 diameter)
  - 5 Condensate siphon
  - 6 Filling device
  - 7 Cold water connection\*/cylinder return\*\* (15 × 1.5 diameter)
  - 8 Heating return (22 × 1.5 diameter)
  - 9 Drain valve
  - 10 Flue pipe wall duct
  - 11 Product holder
  - 12 Flue pipe connection
- \* Combination units only  
 \*\* Boilers only

Consult the installation template that is supplied to find the dimension A.

The product's installation depth B can be found in the technical data.

**12.3.2 Additional information for the ecoTEC pro CN**

**Minimum clearances**

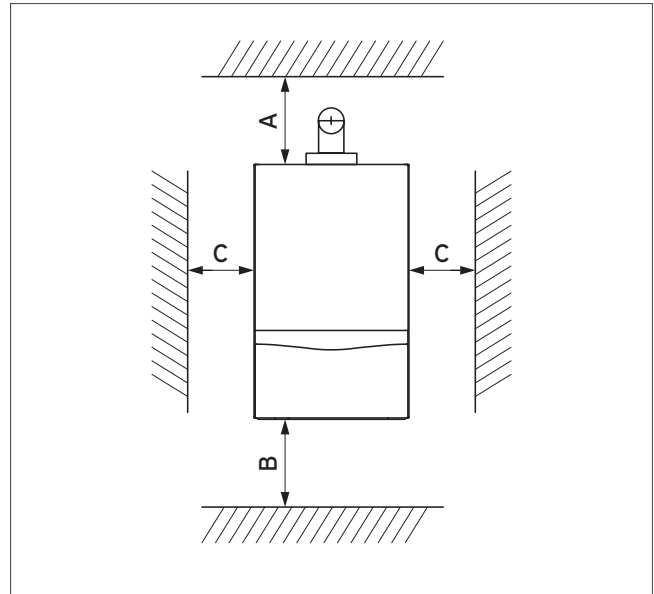


Fig. 201: Minimum clearances

	Minimum clearance
A	165 mm: Air/flue pipe, 60/100 mm diameter
B	180 mm; optimum approx. 250 mm
C	5 mm; optimum approx. 50 mm

**Clearance from combustible components**

It is not necessary to maintain a clearance between the product and components made of combustible materials that go beyond the minimum clearances.

## 12.4 Basic system diagrams and wiring diagrams

### 12.4.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 12.4.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020224751	ecoTEC pro CN 24 - 34 kW	VRC 700	–	1 HC	–	–	–	VUW
0020224754	ecoTEC pro CN 24 - 34 kW	VRC 700	–	1 HC	–	–	–	uniSTOR VIH R
0020224757	ecoTEC pro CN 24 - 34 kW	VRC 700, VR 70, FR 91	1 UFH	1 HC	Low loss header WH 27 / 40	–	–	uniSTOR VIH R

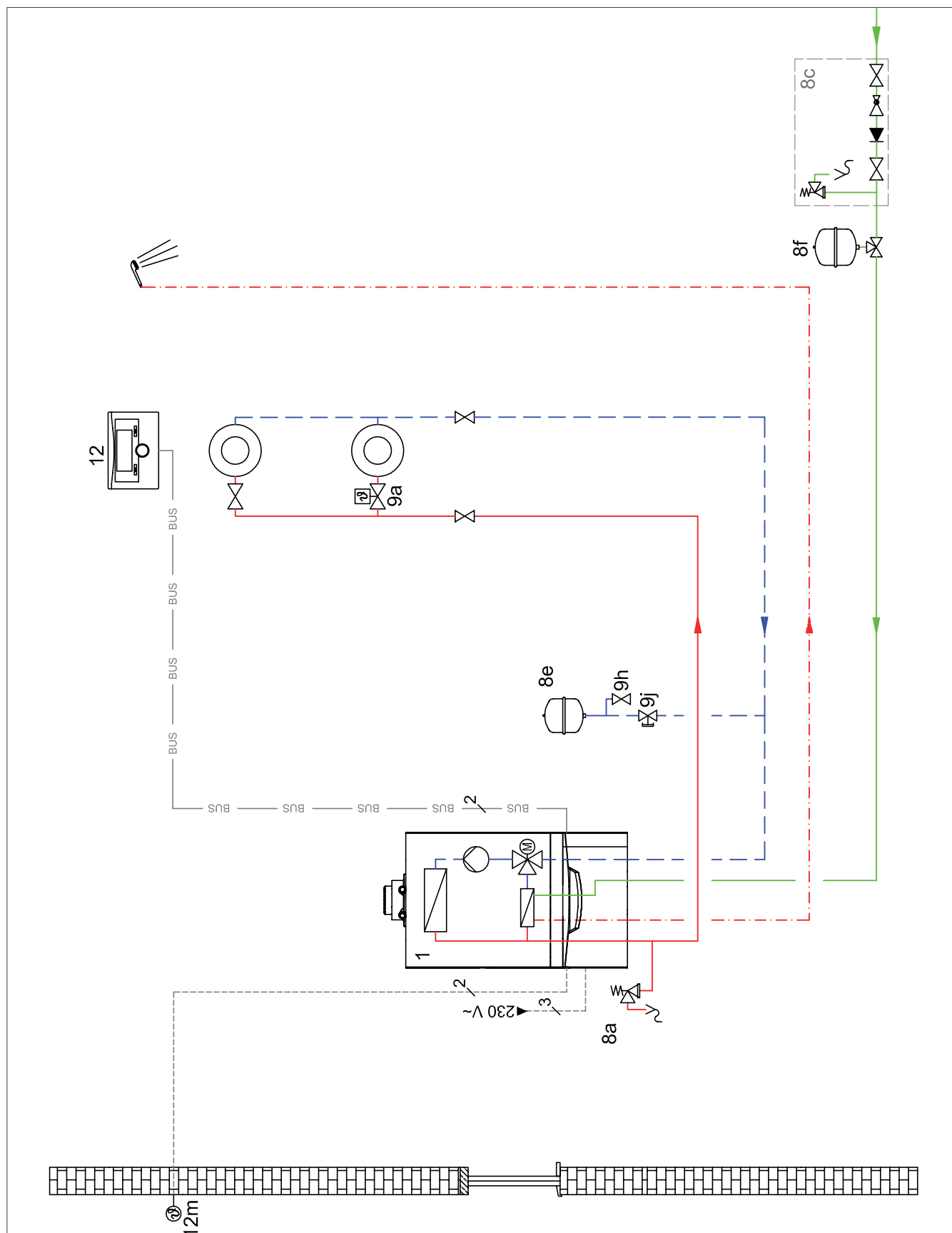


Fig. 202: Basic hydraulic diagram

0020224751 - Wiring diagram

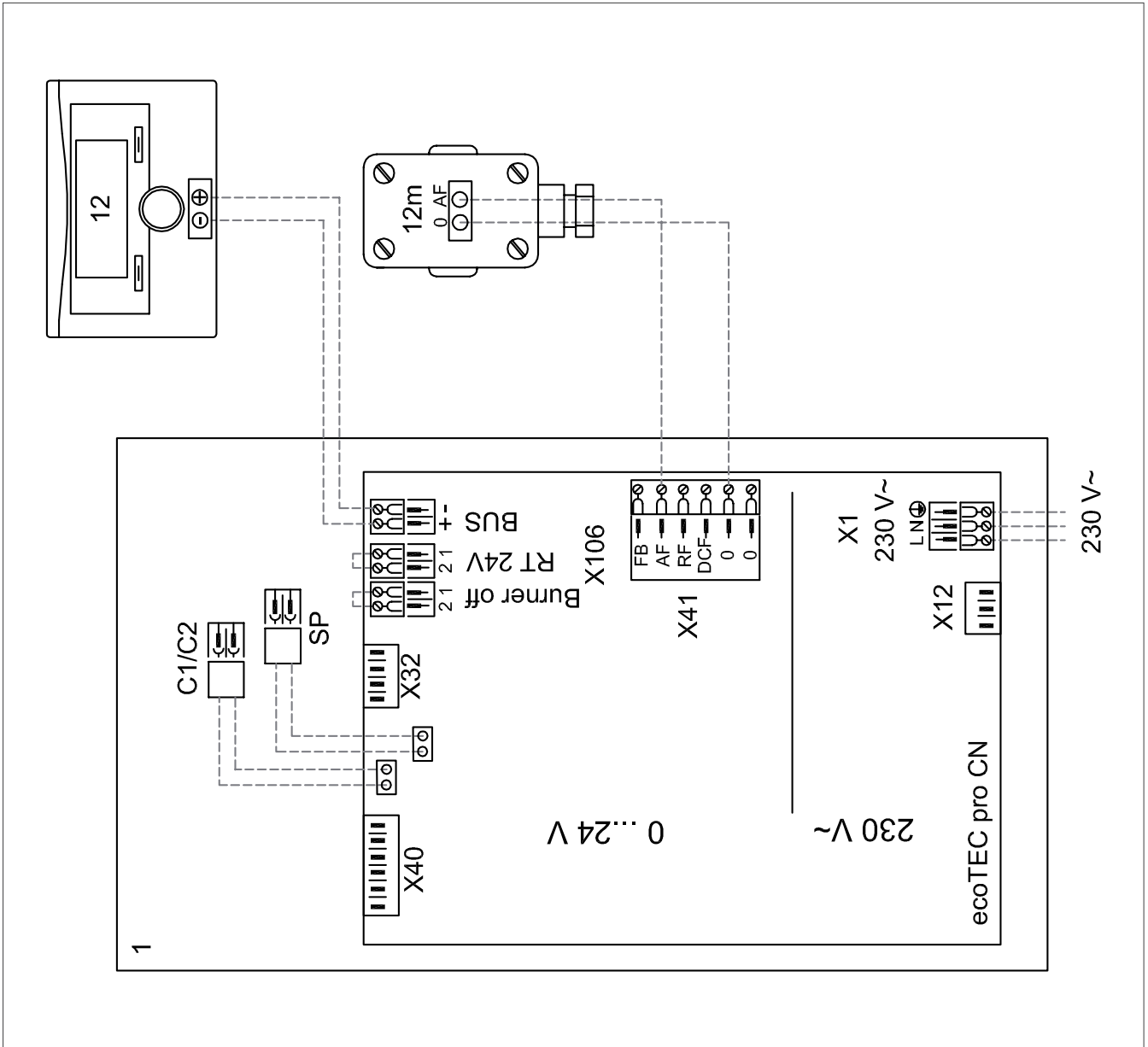


Fig. 203: Wiring diagram

**Description**

Single-occupancy houses or apartments with one heating circuit.

Hot water is generated by the heat generator without a domestic hot water cylinder.

**Individual components**

- ecoTEC pro CN 24 - 34 kW
- VRC 700

**Setting**

VRC 700 System diagram setting: 1

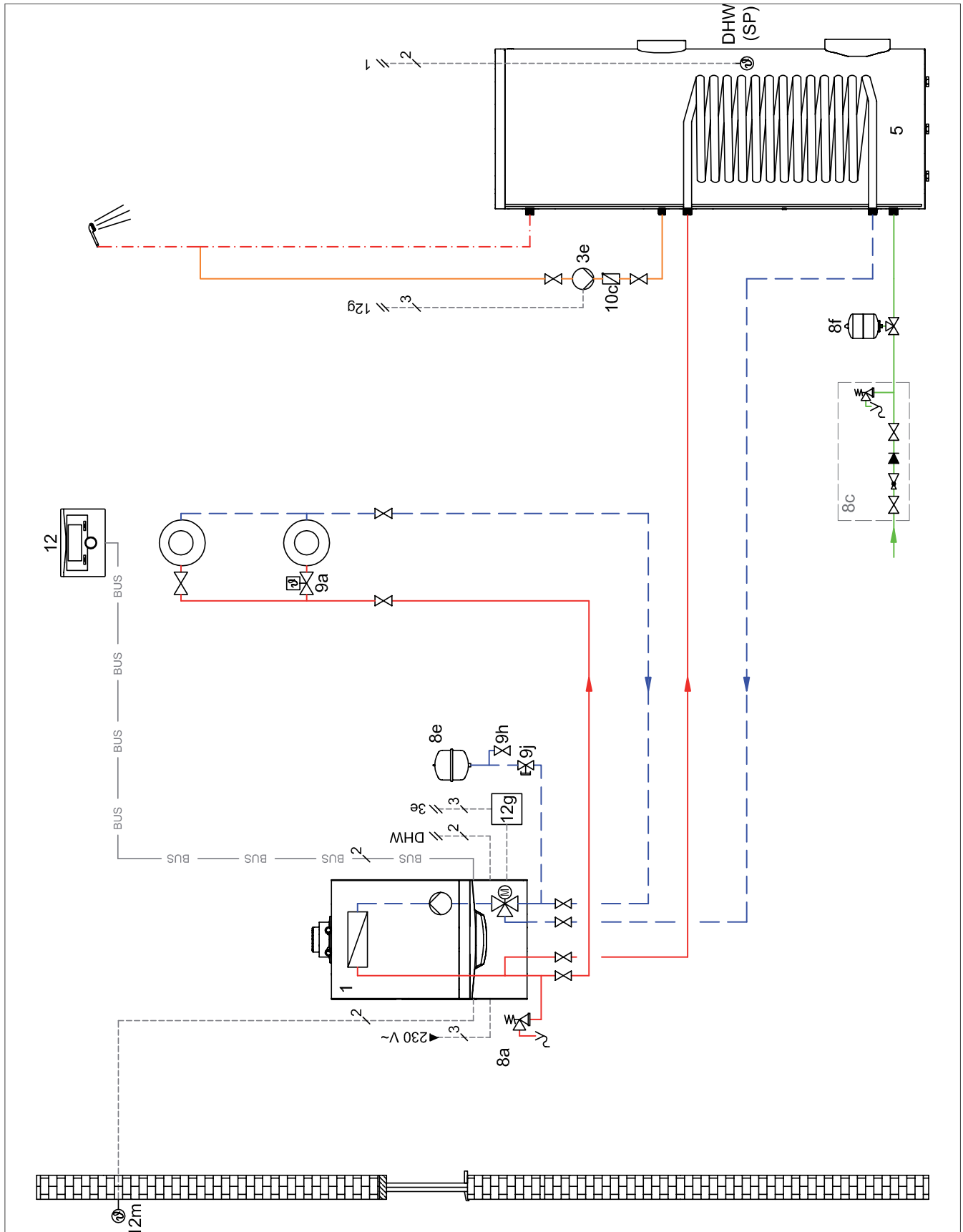


Fig. 204: Basic hydraulic diagram



## 0020224754 - Wiring diagram

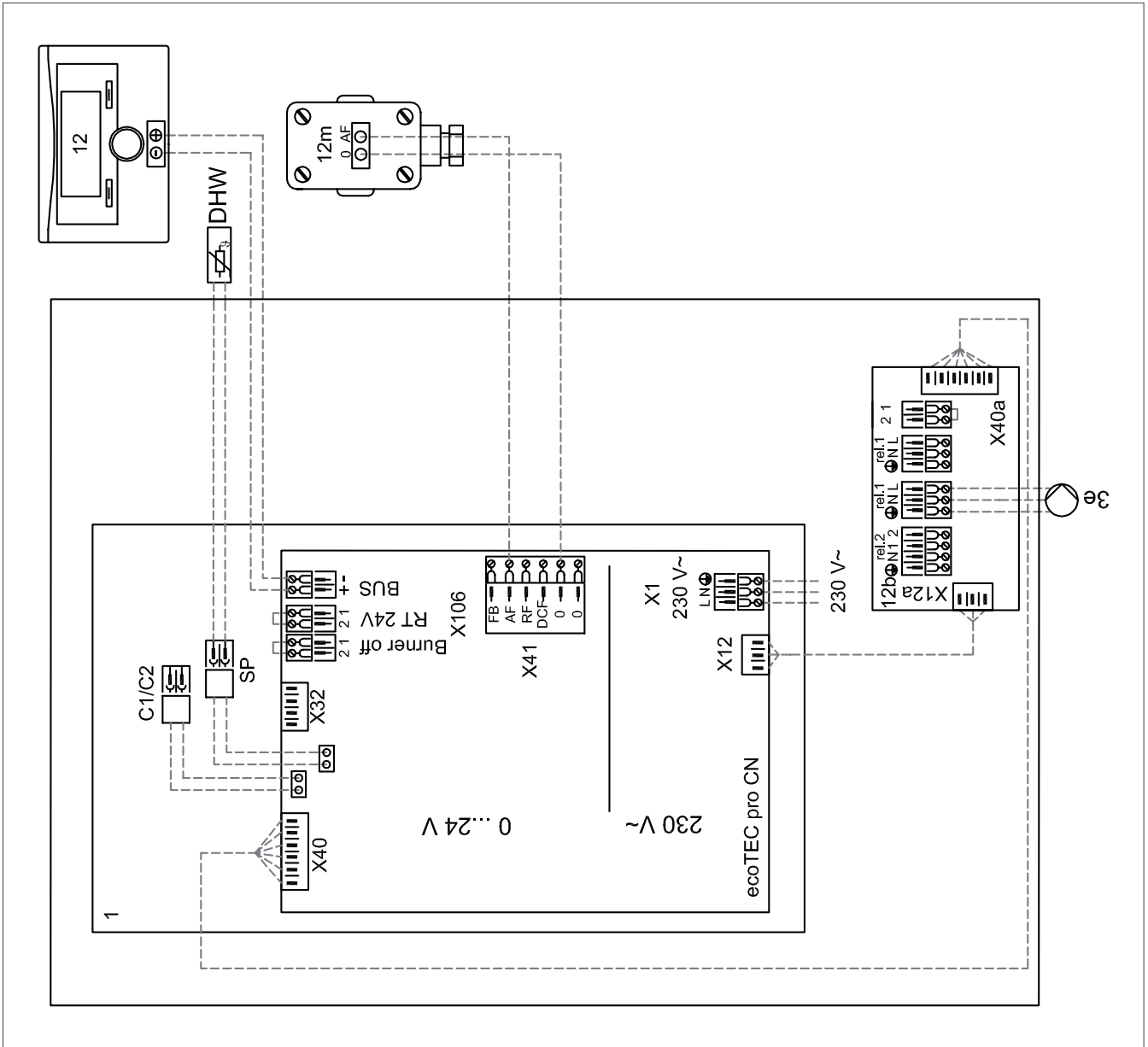


Fig. 205: Wiring diagram

### Description

Single-occupancy houses with one non-mixed heating circuit.

The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations.

Hot water is generated by the heat generator.

### Individual components

- ecoTEC pro CN 24 - 34 kW
- uniSTOR VIH R
- 2 in 7 module
- VCR 700

### Setting

VRC 700 System diagram setting: 1

0020224757 - Basic hydraulic diagram

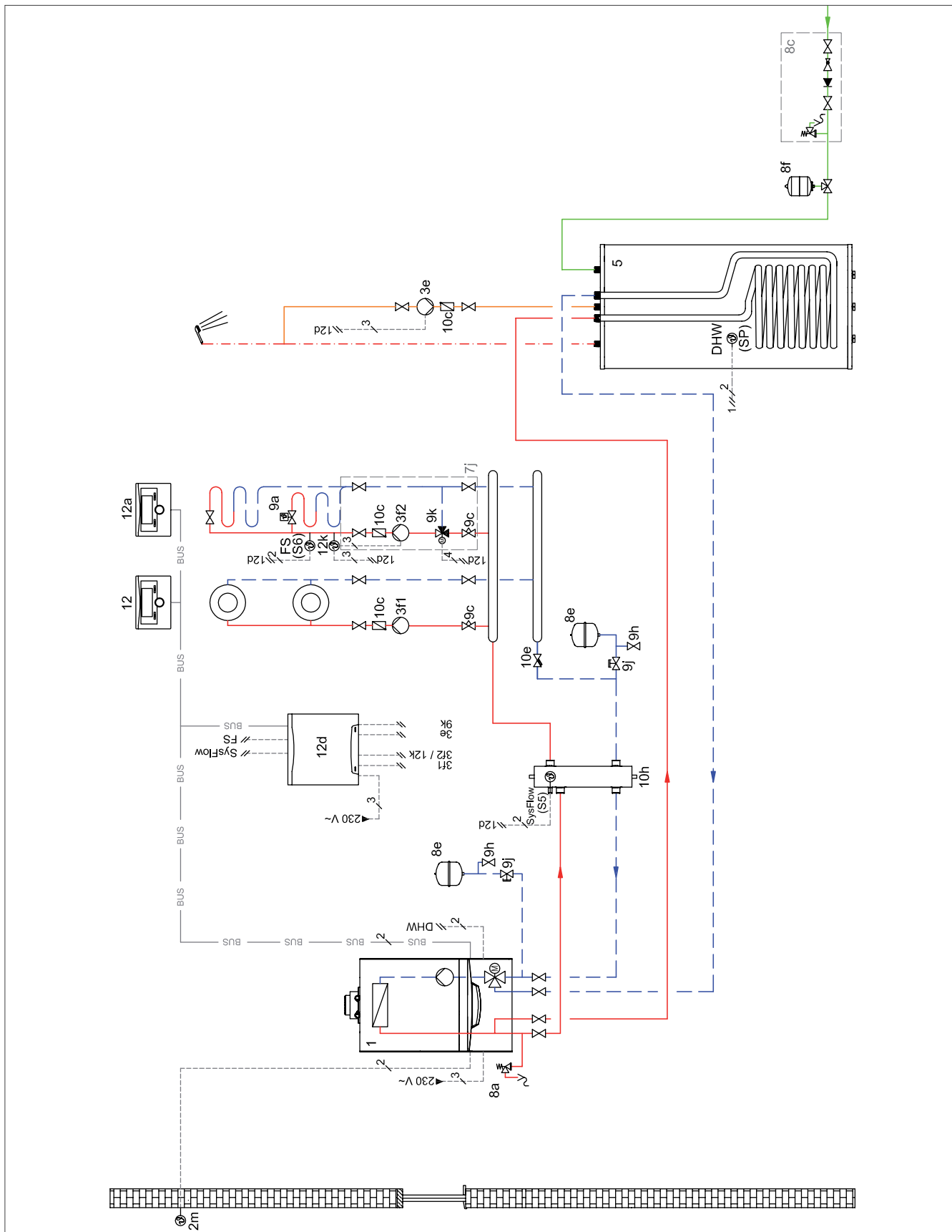


Fig. 206: Basic hydraulic diagram

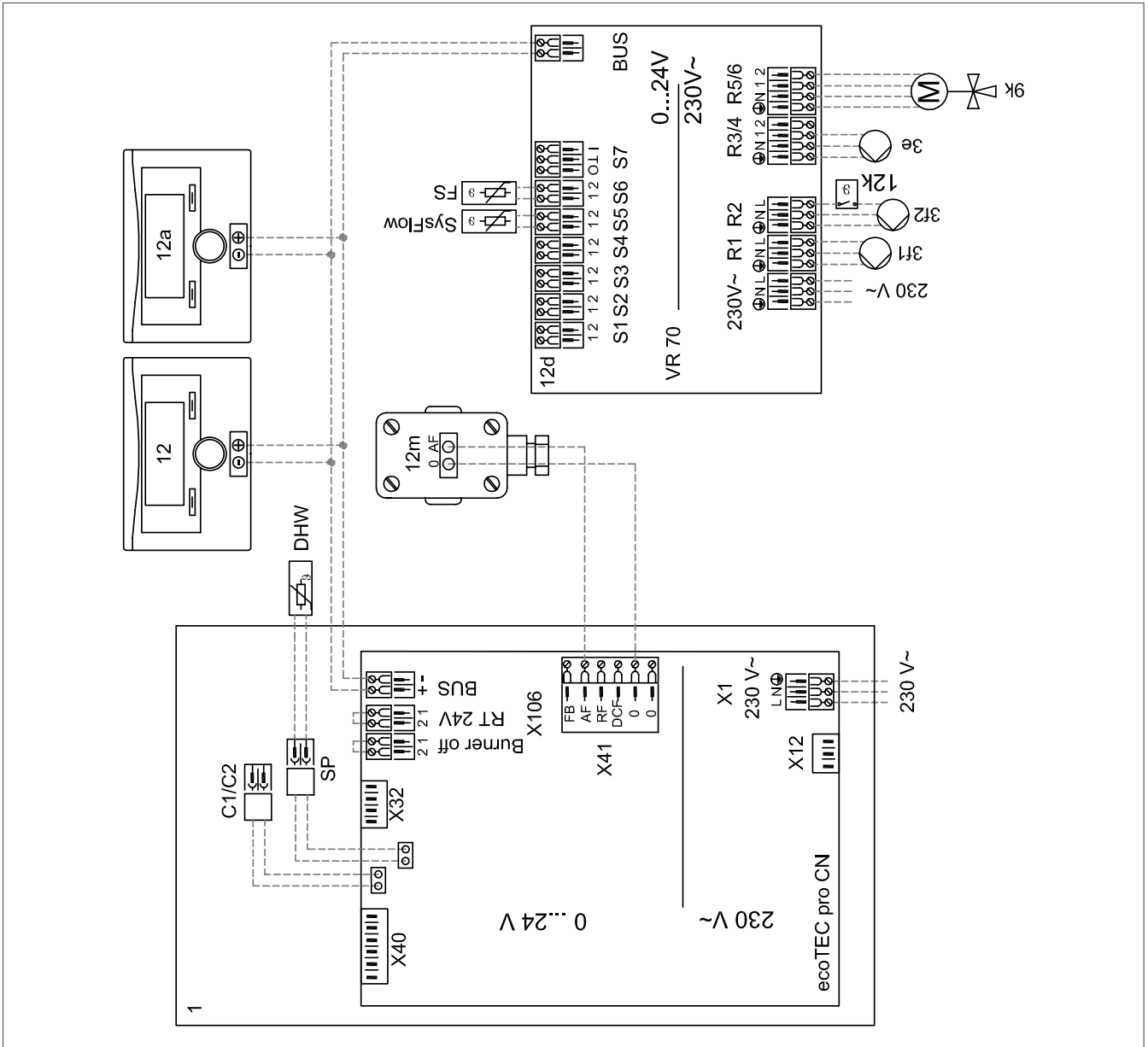


Fig. 207: Wiring diagram

**Description**

Single-occupancy houses with two heating circuits. One non-mixed and mixed heating circuit.

The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations.

Hot water is generated by the heat generator.

**Caution:** If an expansion vessel is not integrated in the heat generator, plans must be made for an additional expansion vessel in the hot-water charging circuit for the floor-standing boiler.

**Individual components**

- ecoTEC pro CN 24 - 34 kW
- uniSTOR VIH R
- WH 27 / 40
- VCR 700
- VR 70
- VR 91

**Setting**

- VRC 700 System diagram setting: 1
- VR 70 Module setting: 1





# 13. Product information ecoCOMPACT and auroCOMPACT

## 13.1 Product combinations



Fig. 208: Product combinations

Product combination overview for the ecoCOMPACT/auroCOMPACT

	1				2	4	5	6	7
	Compact unit ecoCOMPACT VCC	Compact unit ecoCOMPACT VSC	Compact unit auroCOMPACT VSC D	Compact unit auroCOMPACT VSC S	Low loss header	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	•	–	–	•	•	•	•	–
Heating and domestic hot water generation	–	–	•	•	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

## 13.2 Product information for the ecoCOMPACT VCC



Fig. 209: ecoCOMPACT VCC 20-26 kW

### Potential applications

- Compact unit for heating and hot water generation
- For new builds and modernising single-occupancy and dual-occupancy houses up to 400 m<sup>2</sup> (VCC 206/4-5) or single-occupancy to triple-occupancy houses as well as multi-occupancy in multiple-occupancy houses with high peak hot water requirements (VCC 266/4-5)
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic, living area or cellar, particularly suitable for installation in niches
- Fast, space-saving installation using the prefabricated pre-installation jig
- Open-flued or room-sealed operation with a system-certified flue gas system

### Equipment

- High-efficiency pump for heating and cylinder charging
- Water pressure sensor, volume flow sensor, prioritising diverter valve, 1/2" expansion relief valve and 15 litre expansion vessel
- Stainless steel integral condensation heat exchanger
- Integrated hot water coiled tube cylinder (150 litre) with magnesium protection anode
- Integrated cylinder control
- DIA system with plain text display, illuminated
- Condensate siphon with outlet hose
- Enclosed conversion set for switching to natural gas E or LL

### Note

Liquid gas conversion set available as a spare part.



### Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- Modulation up to 1:5
- Multi-sensor system and comfort protection programme
- Aqua Power Plus for up to 20% more domestic hot water output
- Aqua Condens System, cylinder charging control with condensing technology
- Domestic hot water coiled tube cylinder N<sub>L</sub> up to 2.7
- SplitMountingConcept for easy positioning in two parts
- Compact unit dimensions
- Can be used in multiple-flue configurations with up to ten units

### Type overview

Unit designation	Energy efficiency class		Gas type	Order no.
	Heating	Domestic hot water		
VCC 206/4-5 150	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25 G31 liquefied petroleum gas	
VCC 266/4-5 150	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25 G31 liquefied petroleum gas	

**Validity: Germany AND Austria**

### Technical data - Heating

	VCC_206-4-5_150	VCC_266-4-5_150
Maximum heating flow temperature	80 °C	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C
Maximum permissible pressure	0.3 MPa	0.3 MPa
Nominal water flow ( $\Delta T = 20$ K)	861 l/h	1,077 l/h
Nominal water flow ( $\Delta T = 30$ K)	574 l/h	718 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.82 l/h	2.87 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 30$ K)	0.029 MPa	0.029 MPa

### Technical data - G20 power/loading G20

	VCC_206-4-5_150	VCC_266-4-5_150
Effective output range (P) at 50/30 °C	4.3 to 21.5 kW	5.9 to 27.1 kW
Effective output range (P) at 80/60 °C	3.8 to 20.0 kW	5.2 to 25 kW
Hot water heat output range (P)	3.8 to 24.0 kW	5.2 to 30 kW
Maximum heat input - heating (Q)	20.4 kW	25.5 kW
Minimum heat input - heating (Q)	4.0 kW	5.5 kW
Maximum heat input - hot water (Q)	24.5 kW	30.6 kW
Minimum heat input - hot water (Q)	4.0 kW	5.5 kW

### Technical data - Power/loading G25

	VCC_206-4-5_150	VCC_266-4-5_150
Effective output range (P) at 50/30 °C	4.3 to 21.5 kW	5.9 to 27.1 kW
Effective output range (P) at 80/60 °C	3.8 to 20.0 kW	5.2 to 25 kW
Hot water heat output range (P)	3.8 to 24.0 kW	5.2 to 30 kW
Maximum heat input - heating (Q)	20.4 kW	25.5 kW
Minimum heat input - heating (Q)	4.0 kW	5.5 kW
Maximum heat input - hot water (Q)	24.5 kW	30.6 kW
Minimum heat input - hot water (Q)	4.0 kW	5.5 kW

### Technical data - Power/loading G31

	VCC_206-4-5_150	VCC_266-4-5_150
Effective output range (P) at 50/30 °C	5.6 to 21.5 kW	6.8 to 27.1 kW
Effective output range (P) at 80/60 °C	5.0 to 20.0 kW	6 to 25 kW
Hot water heat output range (P)	5.0 to 24.0 kW	6 to 30 kW
Maximum heat input - heating (Q)	20.4 kW	25.5 kW
Minimum heat input - heating (Q)	5.3 kW	6.4 kW
Maximum heat input - hot water (Q)	24.5 kW	30.6 kW
Minimum heat input - hot water (Q)	5.3 kW	6.4 kW

### Technical data - Domestic hot water

	VCC_206-4-5_150	VCC_266-4-5_150
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	24.7 l/min	26.2 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	2.4	2.7
Continuous flow rate ( $\Delta T = 35$ K)	591 l/h	738 l/h
Specific flow rate ( $\Delta T = 35$ K)	21.2 l/min	22.5 l/min
Maximum permissible pressure	1 MPa	1 MPa
Temperature range	35 to 65 °C	35 to 65 °C
Cylinder capacity	141 l	141 l

### Technical data - General

		VCC_206-4-5_150	VCC_266-4-5_150
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		2.59 m <sup>3</sup> /h	3.24 m <sup>3</sup> /h
Gas flow at P max. - hot water (G25)		3.01 m <sup>3</sup> /h	3.76 m <sup>3</sup> /h
CE number (PIN)		1312C05870	1312C05871
Smoke mass flow in heating mode at P min.		1.8 g/s	2.5 g/s
Smoke mass flow in heating mode at P max.		9.2 g/s	11.5 g/s
Smoke mass flow in hot water handling mode at P max.		11.0 g/s	13.8 g/s
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %
Nominal efficiency at 60/40 °C		101.9 %	103 %
Nominal efficiency at 50/30 °C		105.4 %	106.5 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %
NOx class		5	5
Boiler dimension, width		599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm
Boiler dimension, height		1,640 mm	1,640 mm
Net weight		140 kg	142 kg
Weight when filled with water		286 kg	288 kg

### Technical data - Electrics

	VCC_206-4-5_150	VCC_266-4-5_150
Electric connection	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250	T4A/250
Max. electrical power consumption	105 W	105 W
Standby electrical power consumption	2.1 W	2.1 W
Level of protection	IP X4 D	IP X4 D



### Dimension drawing for the ecoCOMPACT VCC

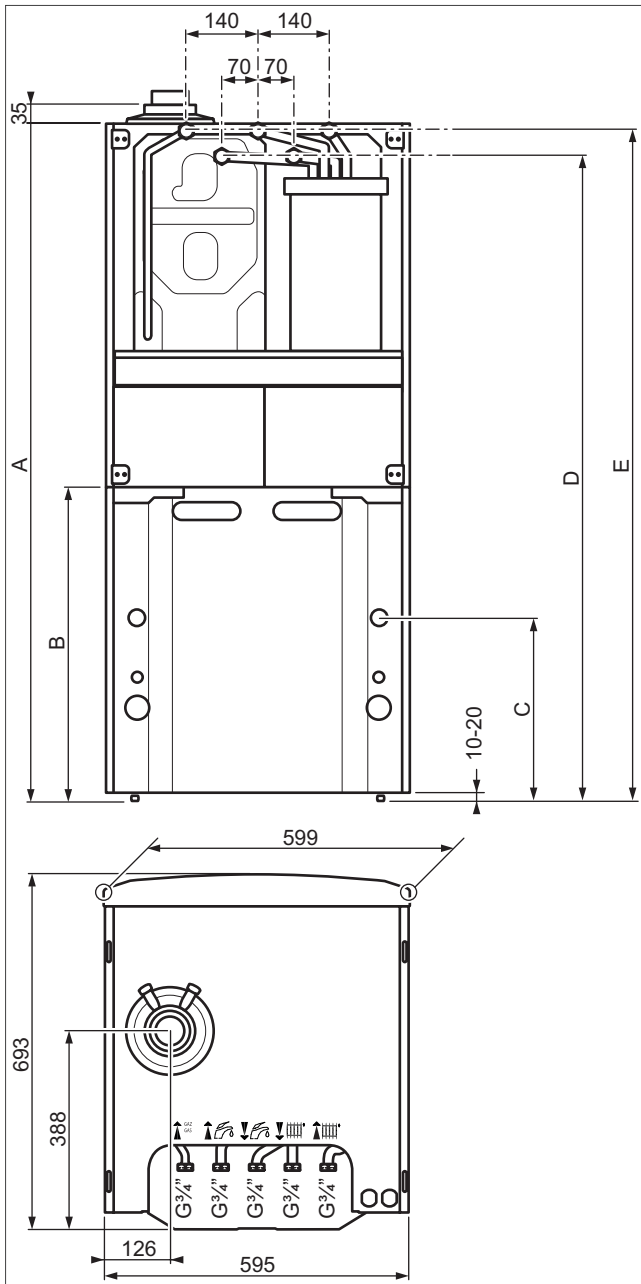


Fig. 210: Unit dimensions

### Unit dimensions

	150L
Dimension (A)	1,640 mm
Dimension (B)	941 mm
Dimension (C)	770 mm
Dimension (D)	1,577 mm
Dimension (E)	1,627 mm

## 13.3 Product information for the ecoCOMPACT VSC



Abb 211: ecoCOMPACT VSC 14-26 kW

### Special features

- Standard efficiency 98% (H<sub>s</sub>)/109% (H<sub>2</sub>)
- Modulation up to 1:5
- Multi-sensor system and comfort protection programme
- Aqua Power Plus up to 20% more domestic hot water output

- Aqua Condens System, cylinder charging control with condensing technology
- Hot water shift-load cylinder N<sub>L</sub> up to 7.3
- SplitMountingConcept for easy positioning in two parts
- Compact unit dimensions
- Can be used in multiple-flue configurations with up to ten units

### Potential applications

- Compact unit for heating and hot water generation
- For new builds and modernising single-occupancy and dual-occupancy houses up to 400 m<sup>2</sup> (VSC 146-206/4-5) or single-occupancy to triple-occupancy houses as well as multi-occupancy in multiple-occupancy houses with high peak hot water requirements (VSC 266/4-5 200)
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic, living area or cellar, particularly suitable for installation in niches
- Fast, space-saving installation using the prefabricated pre-installation jig
- Open-flued or room-sealed modes with system-certified flue gas systems

### Equipment

- High-efficiency pump for heating and cylinder charging
- Water pressure sensor, volume flow sensor, prioritising diverter valve, 1/2" expansion relief valve and 15 litre expansion vessel
- Stainless steel integral condensation heat exchanger
- Stainless steel secondary heat exchanger
- Integrated hot water shift-load cylinder (90, 150, 200 litre) with magnesium protection anode
- Integrated cylinder control
- DIA system with plain text display, illuminated
- Condensate siphon with outlet hose
- Enclosed conversion set for switching to natural gas E or LL

### Note

Liquid gas conversion set available as a spare part.



Type overview

Unit designation	Energy efficiency class		Gas type	Order no.
	Heating	Domestic hot water		
VSC 146/4-5 90	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 146/4-5 150	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 146/4-5 150 (LL)	A (A+++ - D)	A (A+ - F)	G25 natural gas	
VSC 146/4-5 200	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 206/4-5 90	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 206/4-5 90 (LL)	A (A+++ - D)	A (A+ - F)	G25 natural gas	
VSC 206/4-5 150	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 206/4-5 150 (LL)	A (A+++ - D)	A (A+ - F)	G25 natural gas	
VSC 206/4-5 200	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 266/4-5 150	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	
VSC 266/4-5 200	A (A+++ - D)	A (A+ - F)	Natural gas G20, G25	

## Technical data - Heating

**Validity: Germany OR Austria**

	VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200	VSC 206/4-5 90	VSC 206/4-5 150
Maximum heating flow temperature	80 °C	80 °C	80 °C	80 °C	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Maximum permissible pressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Nominal water flow ( $\Delta T = 20$ K)	603 l/h	603 l/h	603 l/h	861 l/h	861 l/h
Nominal water flow ( $\Delta T = 30$ K)	402 l/h	402 l/h	402 l/h	574 l/h	574 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.467 l/h	1.467 l/h	1.467 l/h	1.82 l/h	1.82 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 30$ K)	0.035 MPa	0.035 MPa	0.035 MPa	0.029 MPa	0.029 MPa

	VSC 206/4-5 200	VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)	VSC 206/4-5 90 (LL)
Maximum heating flow temperature	80 °C	80 °C	80 °C	80 °C	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Maximum permissible pressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Nominal water flow ( $\Delta T = 20$ K)	861 l/h	1,077 l/h	1,077 l/h	603 l/h	861 l/h
Nominal water flow ( $\Delta T = 30$ K)	574 l/h	718 l/h	718 l/h	402 l/h	574 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.82 l/h	2.87 l/h	2.87 l/h	1.467 l/h	1.82 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 30$ K)	0.029 MPa	0.029 MPa	0.029 MPa	0.035 MPa	0.029 MPa

	VSC 206/4-5 150 (LL)
Maximum heating flow temperature	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C
Maximum permissible pressure	0.3 MPa
Nominal water flow ( $\Delta T = 20$ K)	861 l/h
Nominal water flow ( $\Delta T = 30$ K)	574 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.82 l/h
$\Delta P$ heating at nominal flow ( $\Delta T = 30$ K)	0.029 MPa

## Technical data - G20 power/loading G20

**Validity: Germany OR Austria**

	VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200	VSC 206/4-5 90	VSC 206/4-5 150
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	3.3 to 15.2 kW	4.3 to 21.5 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.0 to 16.0 kW	3.0 to 16.0 kW	3.0 to 16.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW

	VSC 206/4-5 200	VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)	VSC 206/4-5 90 (LL)
Effective output range (P) at 50/30 °C	4.3 to 21.5 kW	5.9 to 27.1 kW	5.9 to 27.1 kW	3.3 to 15.2 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.8 to 20.0 kW	5.2 to 25 kW	5.2 to 25 kW	3.0 to 14.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.8 to 24.0 kW	5.2 to 30 kW	5.2 to 30 kW	3.0 to 16.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	20.4 kW	25.5 kW	25.5 kW	14.3 kW	20.4 kW
Minimum heat input - heating (Q)	4.0 kW	5.5 kW	5.5 kW	3.2 kW	4.0 kW
Maximum heat input - hot water (Q)	24.5 kW	30.6 kW	30.6 kW	16.3 kW	24.5 kW
Minimum heat input - hot water (Q)	4.0 kW	5.5 kW	5.5 kW	3.2 kW	4.0 kW

	VSC 206/4-5 150 (LL)
Effective output range (P) at 50/30 °C	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.8 to 20.0 kW
Hot water heat output range (P)	3.8 to 24.0 kW
Maximum heat input - heating (Q)	20.4 kW
Minimum heat input - heating (Q)	4.0 kW
Maximum heat input - hot water (Q)	24.5 kW
Minimum heat input - hot water (Q)	4.0 kW

## Technical data - Power/loading G25

Validity: Germany

	VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200	VSC 206/4-5 90	VSC 206/4-5 150
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	3.3 to 15.2 kW	4.3 to 21.5 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Domestic hot water heat output range (P)	3.0 to 16.0 kW	3.0 to 16.0 kW	3.0 to 16.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW
Maximum heat input - domestic hot water (Q)	16.3 kW	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Minimum heat input - domestic hot water (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW

	VSC 206/4-5 200	VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)	VSC 206/4-5 90 (LL)
Effective output range (P) at 50/30 °C	4.3 to 21.5 kW	5.9 to 27.1 kW	5.9 to 27.1 kW	3.3 to 15.2 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.8 to 20.0 kW	5.2 to 25 kW	5.2 to 25 kW	3.0 to 14.0 kW	3.8 to 20.0 kW
Domestic hot water heat output range (P)	3.8 to 24.0 kW	5.2 to 30 kW	5.2 to 30 kW	3.0 to 16.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	20.4 kW	25.5 kW	25.5 kW	14.3 kW	20.4 kW
Minimum heat input - heating (Q)	4.0 kW	5.5 kW	5.5 kW	3.2 kW	4.0 kW
Maximum heat input - domestic hot water (Q)	24.5 kW	30.6 kW	30.6 kW	16.3 kW	24.5 kW
Minimum heat input - domestic hot water (Q)	4.0 kW	5.5 kW	5.5 kW	3.2 kW	4.0 kW

	VSC 206/4-5 150 (LL)
Effective output range (P) at 50/30 °C	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.8 to 20.0 kW
Domestic hot water heat output range (P)	3.8 to 24.0 kW
Maximum heat input - heating (Q)	20.4 kW
Minimum heat input - heating (Q)	4.0 kW
Maximum heat input - domestic hot water (Q)	24.5 kW
Minimum heat input - domestic hot water (Q)	4.0 kW

## Technical data - Power/loading G31

**Validity: Germany OR Austria**

	VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200	VSC 206/4-5 90	VSC 206/4-5 150
Effective output range (P) at 50/30 °C	5.6 to 15.2 kW	5.6 to 15.2 kW	5.6 to 15.2 kW	5.6 to 21.5 kW	5.6 to 21.5 kW
Effective output range (P) at 80/60 °C	5.0 to 14.0 kW	5.0 to 14.0 kW	5.0 to 14.0 kW	5.0 to 20.0 kW	5.0 to 20.0 kW
Hot water heat output range (P)	5.0 to 16.0 kW	5.0 to 16.0 kW	5.0 to 16.0 kW	5.0 to 24.0 kW	5.0 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	5.3 kW	5.3 kW	5.3 kW	5.3 kW	5.3 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	5.3 kW	5.3 kW	5.3 kW	5.3 kW	5.3 kW

	VSC 206/4-5 200	VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)	VSC 206/4-5 90 (LL)
Effective output range (P) at 50/30 °C	5.6 to 21.5 kW	6.8 to 27.1 kW	6.8 to 27.1 kW	5.6 to 15.2 kW	5.6 to 21.5 kW
Effective output range (P) at 80/60 °C	5.0 to 20.0 kW	6 to 25 kW	6 to 25 kW	5.0 to 14.0 kW	5.0 to 20.0 kW
Hot water heat output range (P)	5.0 to 24.0 kW	6 to 30 kW	6 to 30 kW	5.0 to 16.0 kW	5.0 to 24.0 kW
Maximum heat input - heating (Q)	20.4 kW	25.5 kW	25.5 kW	14.3 kW	20.4 kW
Minimum heat input - heating (Q)	5.3 kW	6.4 kW	6.4 kW	5.3 kW	5.3 kW
Maximum heat input - hot water (Q)	24.5 kW	30.6 kW	30.6 kW	16.3 kW	24.5 kW
Minimum heat input - hot water (Q)	5.3 kW	6.4 kW	6.4 kW	5.3 kW	5.3 kW

	VSC 206/4-5 150 (LL)
Effective output range (P) at 50/30 °C	5.6 to 21.5 kW
Effective output range (P) at 80/60 °C	5.0 to 20.0 kW
Hot water heat output range (P)	5.0 to 24.0 kW
Maximum heat input - heating (Q)	20.4 kW
Minimum heat input - heating (Q)	5.3 kW
Maximum heat input - hot water (Q)	24.5 kW
Minimum heat input - hot water (Q)	5.3 kW

## Technical data - Domestic hot water

**Validity: Germany OR Austria**

	VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200	VSC 206/4-5 90	VSC 206/4-5 150
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	20.5 l/min	27.5 l/min	30.3 l/min	24.4 l/min	32.9 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	1.6	3.4	5.5	2.3	4.5
Continuous flow rate ( $\Delta T = 35$ K)	394 l/h	394 l/h	394 l/h	591 l/h	591 l/h
Specific flow rate ( $\Delta T = 35$ K)	17.6 l/min	23.6 l/min	26.0 l/min	20.9 l/min	28.2 l/min
Maximum permissible pressure	1 MPa	1 MPa	1 MPa	1 MPa	1 MPa
Temperature range	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C
Cylinder capacity	89.1 l	150.8 l	196.5 l	89.1 l	150.8 l

	VSC 206/4-5 200	VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)	VSC 206/4-5 90 (LL)
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	38.4 l/min	35.1 l/min	41.7 l/min	27.5 l/min	24.4 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	6.3	4.8	7.3	3.4	2.3
Continuous flow rate ( $\Delta T = 35$ K)	591 l/h	738 l/h	738 l/h	394 l/h	591 l/h
Specific flow rate ( $\Delta T = 35$ K)	32.9 l/min	30.1 l/min	35.7 l/min	23.6 l/min	20.9 l/min
Maximum permissible pressure	1 MPa	1 MPa	1 MPa	1 MPa	1 MPa
Temperature range	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C
Cylinder capacity	196.5 l	150.8 l	196.5 l	150.8 l	89.1 l

	VSC 206/4-5 150 (LL)
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	32.9 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	4.5
Continuous flow rate ( $\Delta T = 35$ K)	591 l/h
Specific flow rate ( $\Delta T = 35$ K)	28.2 l/min
Maximum permissible pressure	1 MPa
Temperature range	35 to 65 °C
Cylinder capacity	150.8 l

## Technical data - General

### Validity: Germany OR Austria

		VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		1.72 m <sup>3</sup> /h	1.72 m <sup>3</sup> /h	1.72 m <sup>3</sup> /h
Gas flow at P max. - hot water (G25)		2.00 m <sup>3</sup> /h	2.00 m <sup>3</sup> /h	2.00 m <sup>3</sup> /h
CE number (PIN)		1312C05870	1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.5 g/s	1.5 g/s	1.5 g/s
Smoke mass flow in heating mode at P max.		6.4 g/s	6.4 g/s	6.4 g/s
Smoke mass flow in hot water handling mode at P max.		7.3 g/s	7.3 g/s	7.3 g/s
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		103.1 %	103.1 %	103.1 %
Nominal efficiency at 50/30 °C		106.5 %	106.5 %	106.5 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm	693 mm
Boiler dimension, height		1,320 mm	1,640 mm	1,880 mm
Net weight		108 kg	124 kg	137 kg
Weight when filled with water		202 kg	279 kg	338 kg

		VSC 206/4-5 90	VSC 206/4-5 150	VSC 206/4-5 200
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		2.59 m <sup>3</sup> /h	2.59 m <sup>3</sup> /h	2.59 m <sup>3</sup> /h
Gas flow at P max. - hot water (G25)		3.01 m <sup>3</sup> /h	3.01 m <sup>3</sup> /h	3.01 m <sup>3</sup> /h
CE number (PIN)		1312C05870	1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.8 g/s	1.8 g/s	1.8 g/s
Smoke mass flow in heating mode at P max.		9.2 g/s	9.2 g/s	9.2 g/s
Smoke mass flow in hot water handling mode at P max.		11.0 g/s	11.0 g/s	11.0 g/s
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P



		VSC 206/4-5 90	VSC 206/4-5 150	VSC 206/4-5 200
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		101.9 %	101.9 %	101.9 %
Nominal efficiency at 50/30 °C		105.4 %	105.4 %	105.4 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm	693 mm
Boiler dimension, height		1,320 mm	1,640 mm	1,880 mm
Net weight		108 kg	124 kg	140 kg
Weight when filled with water		202 kg	279 kg	341 kg

		VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		3.24 m³/h	3.24 m³/h	1.72 m³/h
Gas flow at P max. - hot water (G25)		3.76 m³/h	3.76 m³/h	2.00 m³/h
CE number (PIN)		1312C05871	1312C05871	1312C05870
Smoke mass flow in heating mode at P min.		2.5 g/s	2.5 g/s	1.5 g/s
Smoke mass flow in heating mode at P max.		11.5 g/s		
Smoke mass flow in hot water handling mode at P max.		13.8 g/s	13.8 g/s	7.41 g/s
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		103 %	103 %	103.1 %
Nominal efficiency at 50/30 °C		106.5 %	106.5 %	106.5 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm	693 mm
Boiler dimension, height		1,640 mm	1,880 mm	1,640 mm
Net weight		126 kg	141 kg	124 kg
Weight when filled with water		282 kg	342 kg	279 kg

		VSC 206/4-5 90 (LL)	VSC 206/4-5 150 (LL)
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm

		VSC 206/4-5 90 (LL)	VSC 206/4-5 150 (LL)
Gas supply pressure (G20)		2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		2.59 m³/h	2.59 m³/h
Gas flow at P max. - hot water (G25)		3.01 m³/h	3.01 m³/h
CE number (PIN)		1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.9 g/s	1.9 g/s
Smoke mass flow in heating mode at P max.		9.3 g/s	9.3 g/s
Smoke mass flow in hot water handling mode at P max.		11.13 g/s	11.13 g/s
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %
Nominal efficiency at 60/40 °C		101.9 %	101.9 %
Nominal efficiency at 50/30 °C		105.4 %	105.4 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %
NOx class		5	5
Boiler dimension, width		599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm
Boiler dimension, height		1,320 mm	1,640 mm
Net weight		108 kg	124 kg
Weight when filled with water		202 kg	279 kg

## Technical data - Electrics

	VSC 146/4-5 90	VSC 146/4-5 150	VSC 146/4-5 200	VSC 206/4-5 90	VSC 206/4-5 150
Electric connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250	T4A/250	T4A/250	T4A/250	T4A/250
Max. electrical power consumption	80 W	80 W	80 W	105 W	105 W
Standby electrical power consumption	2.1 W	2.1 W	2.1 W	2.1 W	2.1 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D

	VSC 206/4-5 200	VSC 266/4-5 150	VSC 266/4-5 200	VSC 146/4-5 150 (LL)	VSC 206/4-5 90 (LL)
Electric connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250	T4A/250	T4A/250	T4A/250	T4A/250
Max. electrical power consumption	105 W	105 W	105 W	80 W	105 W
Standby electrical power consumption	2.1 W	2.1 W	2.1 W	2.1 W	2.1 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D

	VSC 206/4-5 150 (LL)
Electric connection	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250
Max. electrical power consumption	105 W
Standby electrical power consumption	2.1 W
Level of protection	IP X4 D

### Dimension drawing for the ecoCOMPACT VSC

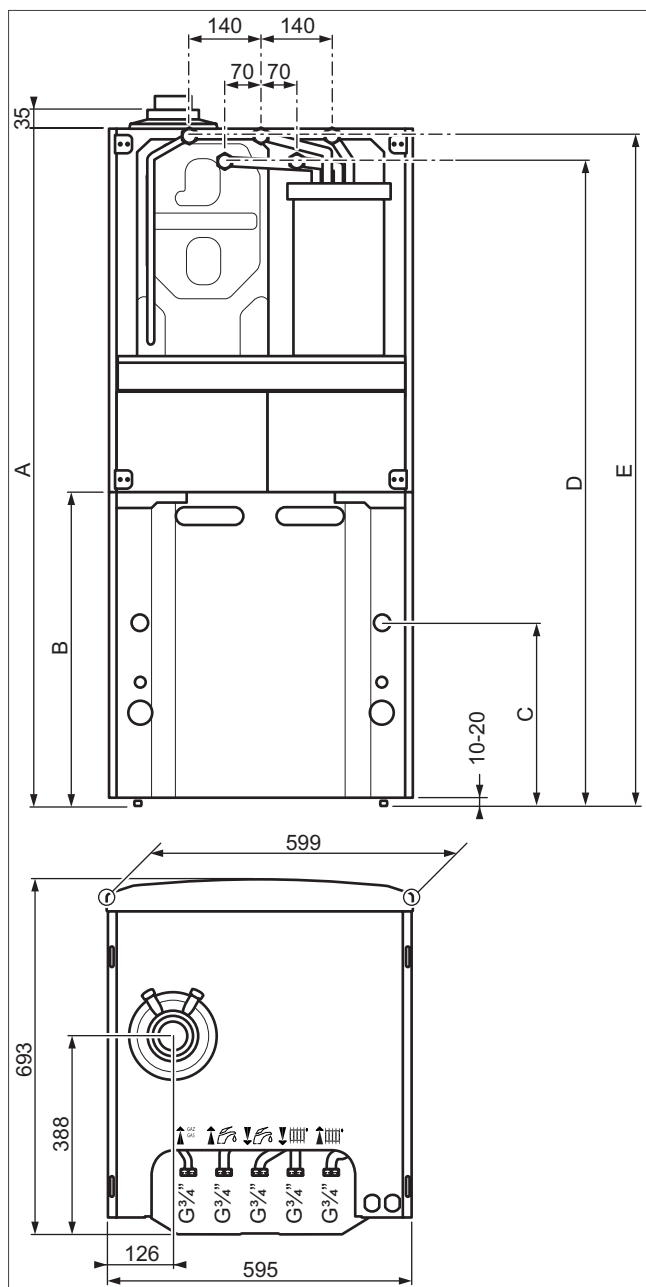


Abb 212: Unit dimensions

### Unit dimensions

	90L	150L	200L
Dimension (A)	1,320 mm	1,640 mm	1,880 mm
Dimension (B)	614 mm	941 mm	1,182 mm
Dimension (C)	450 mm	770 mm	1,010 mm
Dimension (D)	1,255 mm	1,577 mm	1,816 mm
Dimension (E)	1,305 mm	1,627 mm	1,866 mm

## 13.4 Product description for auroCOMPACT VSC S solar-gas condensing systems



Fig. 213: auroCOMPACT VSC S

### 13.4.1 Special features

- Standard efficiency 98% (H<sub>s</sub>)/109% (H<sub>i</sub>)
- Modulation up to 1:5
- Multi-sensor system and comfort protection programme
- Aqua Power Plus for up to 20% more domestic hot water output
- Aqua Condens System, cylinder charging control with condensing technology
- Hot water shift-load cylinder including capacity to use solar energy N<sub>L</sub> 2.0

- Self-optimising solar pump group with high-efficiency pump
- Up to three VFK solar flat plate collectors can be connected
- Solar-thermal drinking water disinfection
- SplitMountingConcept for easy positioning in two parts
- Compact unit dimensions

### 13.4.2 Potential applications

- Compact unit for heating and hot water generation
- Can be used for new builds and modernising single-occupancy houses
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed modes with system-certified flue gas systems
- Can be optimally combined with flat collectors

### 13.4.3 Equipment

- Integrated DHW shift-load cylinder (150 l, 190 l) and solar heat exchanger, stainless-steel secondary heat exchanger, high-efficiency cylinder charging and heating pump
- Water pressure sensor, volume flow sensor, collector temperature sensor, prioritising diverter valve, 1/2" expansion relief valve and 15 litre expansion vessel
- Modulating high-efficiency solar pump
- Stainless steel integral condensation heat exchanger
- Integrated solar control
- Combined solar expansion vessel including protection vessel (6 l/18 l), solar collecting vessel (4.8 l/7.5 l) and solar expansion relief valve (6 bar)
- Volume flow sensor and manometer for the solar circuit
- Thermostatic mixing valve (scald protection)
- Manual air separator system for the solar circuit
- Bypass valve
- Enclosed conversion set for switching to natural gas E or LL

#### Note

Liquid gas conversion set available as a spare part.



Type overview

Unit designation	Energy efficiency class		Order no.
	Heating	Domestic hot water	
VSC S 146/4-5 150	A (A+++ to D)	A (A+ to F)	
VSC S 146/4-5 150 LL	A (A+++ to D)	A (A+ to F)	
VSC S 146/4-5 190	A (A+++ to D)	A (A+ to F)	
VSC S 206/4-5 150	A (A+++ to D)	A (A+ to F)	
VSC S 206/4-5 150 LL	A (A+++ to D)	A (A+ to F)	
VSC S 206/4-5 190	A (A+++ to D)	A (A+ to F)	

Validity: Germany AND Austria

### Technical data - Heating

	VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150	VSC S 206/4-5 190
Maximum heating flow temperature	80 °C	80 °C	80 °C	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Maximum permissible pressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Nominal water flow (ΔT = 20 K)	603 l/h	603 l/h	861 l/h	861 l/h
Nominal water flow (ΔT = 30 K)	402 l/h	402 l/h	574 l/h	574 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.467 l/h	1.467 l/h	1.82 l/h	1.82 l/h
ΔP heating at nominal flow (ΔT = 30 K)	0.035 MPa	0.035 MPa	0.029 MPa	0.029 MPa

	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Maximum heating flow temperature	80 °C	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C
Maximum permissible pressure	0.3 MPa	0.3 MPa
Nominal water flow (ΔT = 20 K)	603 l/h	861 l/h
Nominal water flow (ΔT = 30 K)	402 l/h	574 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.467 l/h	1.82 l/h
ΔP heating at nominal flow (ΔT = 30 K)	0.035 MPa	0.029 MPa

### Technical data - G20 power/loading G20

	VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150	VSC S 206/4-5 190
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	4.3 to 21.5 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.0 to 16.0 kW	3.0 to 16.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	3.2 kW	4.0 kW	4.0 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	3.2 kW	3.2 kW	4.0 kW	4.0 kW

	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.0 to 16.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	4.0 kW
Maximum heat input - hot water (Q)	16.3 kW	24.5 kW
Minimum heat input - hot water (Q)	3.2 kW	4.0 kW

### Technical data - Power/loading G25

	VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150	VSC S 206/4-5 190
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	4.3 to 21.5 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.0 to 16.0 kW	3.0 to 16.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	3.2 kW	4.0 kW	4.0 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	3.2 kW	3.2 kW	4.0 kW	4.0 kW

	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.0 to 16.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	4.0 kW
Maximum heat input - hot water (Q)	16.3 kW	24.5 kW
Minimum heat input - hot water (Q)	3.2 kW	4.0 kW

### Technical data - Power/loading G31

	VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150	VSC S 206/4-5 190
Effective output range (P) at 50/30 °C	5.6 to 15.2 kW	5.6 to 15.2 kW	5.6 to 21.5 kW	5.6 to 21.5 kW
Effective output range (P) at 80/60 °C	5.0 to 14.0 kW	5.0 to 14.0 kW	5.0 to 20.0 kW	5.0 to 20.0 kW
Hot water heat output range (P)	5.0 to 16.0 kW	5.0 to 16.0 kW	5.0 to 24.0 kW	5.0 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	5.3 kW	5.3 kW	5.3 kW	5.3 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	5.3 kW	5.3 kW	5.3 kW	5.3 kW

	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Effective output range (P) at 50/30 °C	5.6 to 15.2 kW	5.6 to 21.5 kW
Effective output range (P) at 80/60 °C	5.0 to 14.0 kW	5.0 to 20.0 kW
Hot water heat output range (P)	5.0 to 16.0 kW	5.0 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	20.4 kW
Minimum heat input - heating (Q)	5.3 kW	5.3 kW
Maximum heat input - hot water (Q)	16.3 kW	24.5 kW
Minimum heat input - hot water (Q)	5.3 kW	5.3 kW

## Technical data - Domestic hot water

	VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150	VSC S 206/4-5 190
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	18.8 l/min	19.5 l/min	21.5 l/min	24.1 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	1.3	1.5	1.8	2.0
Continuous flow rate ( $\Delta T = 35$ K)	394 l/h	394 l/h	591 l/h	591 l/h
Specific flow rate ( $\Delta T = 35$ K)	16.1 l/min	16.7 l/min	18.4 l/min	20.7 l/min
Maximum permissible pressure	1 MPa	1 MPa	1 MPa	1 MPa
Temperature range	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C
Cylinder capacity	141 l	188 l	141 l	188 l

	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	18.8 l/min	21.5 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	1.3	1.8
Continuous flow rate ( $\Delta T = 35$ K)	394 l/h	591 l/h
Specific flow rate ( $\Delta T = 35$ K)	16.1 l/min	18.4 l/min
Maximum permissible pressure	1 MPa	1 MPa
Temperature range	35 to 65 °C	35 to 65 °C
Cylinder capacity	141 l	141 l

## Technical data - General

		VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		1.72 m <sup>3</sup> /h	1.72 m <sup>3</sup> /h	2.59 m <sup>3</sup> /h
Gas flow at P max. - hot water (G25)		2.00 m <sup>3</sup> /h	2.00 m <sup>3</sup> /h	3.01 m <sup>3</sup> /h
CE number (PIN)		1312C05870	1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.5 g/s	1.5 g/s	1.8 g/s
Smoke mass flow in heating mode at P max.		6.4 g/s	6.4 g/s	9.2 g/s
Smoke mass flow in hot water handling mode at P max.		7.3 g/s	7.3 g/s	11.0 g/s
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		103.1 %	103.1 %	101.9 %
Nominal efficiency at 50/30 °C		106.5 %	106.5 %	105.4 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm	693 mm
Boiler dimension, height		1,640 mm	1,880 mm	1,640 mm
Net weight		160 kg	176 kg	160 kg
Weight when filled with water		305 kg	368 kg	305 kg

		VSC S 206/4-5 190	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Gas category	Austria	II <sub>2H3P</sub>	II <sub>2H3P</sub>	II <sub>2H3P</sub>
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
Gas flow at P max. - hot water (G20)		2.59 m <sup>3</sup> /h	1.72 m <sup>3</sup> /h	2.59 m <sup>3</sup> /h
Gas flow at P max. - hot water (G25)		3.01 m <sup>3</sup> /h	2.00 m <sup>3</sup> /h	3.01 m <sup>3</sup> /h
CE number (PIN)		1312C05870	1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.8 g/s	1.5 g/s	1.9 g/s
Smoke mass flow in heating mode at P max.		9.2 g/s	6.5 g/s	9.3 g/s
Smoke mass flow in hot water handling mode at P max.		11.0 g/s	7.41 g/s	11.13 g/s
Released system types	Austria	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P	C13, C33, C43, C53, C83, C93, B23P, B33P, B53P
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		101.9 %	103.1 %	101.9 %
Nominal efficiency at 50/30 °C		105.4 %	106.5 %	105.4 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm	693 mm
Boiler dimension, height		1,880 mm	1,640 mm	1,640 mm
Net weight		176 kg	160 kg	160 kg
Weight when filled with water		368 kg	305 kg	305 kg

## Technical data - Electrics

	VSC S 146/4-5 150	VSC S 146/4-5 190	VSC S 206/4-5 150	VSC S 206/4-5 190
Electric connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250	T4A/250	T4A/250	T4A/250
Max. electrical power consumption	175 W	175 W	175 W	175 W
Standby electrical power consumption	4.2 W	4.2 W	4.2 W	4.2 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D

	VSC S 146/4-5 150 (LL)	VSC S 206/4-5 150 (LL)
Electric connection	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250	T4A/250
Max. electrical power consumption	175 W	175 W
Standby electrical power consumption	4.2 W	4.2 W
Level of protection	IP X4 D	IP X4 D



### 13.4.4 Dimension drawing for the auroCOMPACT VSC S

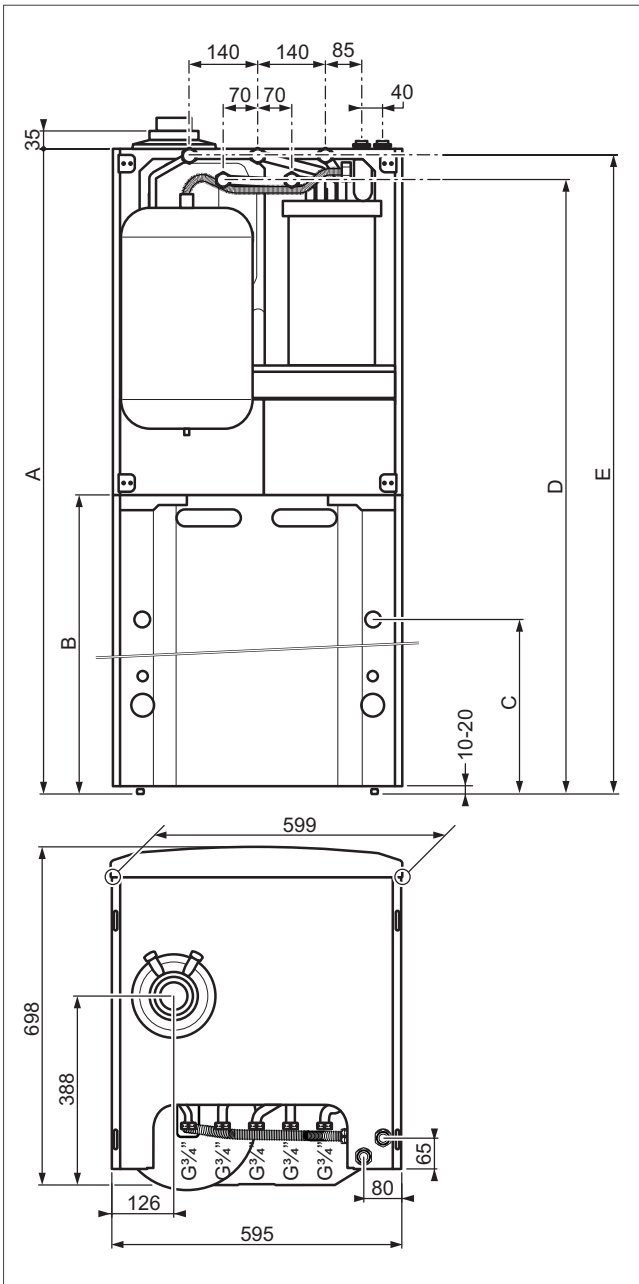


Fig. 214: Unit dimensions

#### Unit dimensions

	150L	190L
Dimension (A)	1,640 mm	1,880 mm
Dimension (B)	941 mm	1,182 mm
Dimension (C)	770 mm	1,010 mm
Dimension (D)	1,577 mm	1,816 mm
Dimension (E)	1,627 mm	1,866 mm

## 13.5 Product description for auroCOMPACT VSC D solar-gas condensing systems



Fig. 215: auroCOMPACT VSC D

### 13.5.1 Special features

- Standard efficiency 98% (H<sub>2</sub>)/109% (H<sub>1</sub>)
- For return-driven solar systems
- Modulation up to 1:5
- Multi-sensor system and comfort protection programme
- Aqua Power Plus for up to 20% more domestic hot water output
- Aqua Condens System, cylinder charging control with condensing technology
- Hot water shift-load cylinder including capacity to use solar energy N<sub>L</sub> 2.0

- Self-optimising solar pump group with high-efficiency pump
- auroCOMPACT VSC D .../4-5 150: Max. two VFK 135/140 VD solar flat plate collectors
- auroCOMPACT VSC D .../4-5 190: Max. three VFK 135/140 VD solar flat plate collectors
- Solar-thermal drinking water disinfection
- SplitMountingConcept for easy positioning in two parts
- Compact unit dimensions

### 13.5.2 Potential applications

- Compact unit for heating and hot water generation
- Can be used for new builds and modernising single-occupancy houses
- For radiators and underfloor heating
- Freely selectable installation site, e.g. in the attic or living area
- Low-cost installation as a roof heating centre
- Open-flued or room-sealed modes with system-certified flue gas systems
- Can be optimally combined with flat collectors

### 13.5.3 Equipment

- Integrated DHW shift-load cylinder (150 l, 190 l) and solar heat exchanger, stainless-steel secondary heat exchanger, high-efficiency cylinder charging and heating pump
- Water pressure sensor, volume flow sensor, collector temperature sensor, prioritising diverter valve, 1/2" expansion relief valve, 15 l expansion vessel and a brine expansion vessel
- Modulating high-efficiency solar pump
- Stainless steel integral condensation heat exchanger
- Integrated solar control
- Solar collecting vessel (4.8 l) and solar expansion relief valve (5 bar)
- Thermostatic mixing valve (scald protection)
- Magnesium protection anode
- Enclosed conversion set for switching to natural gas E or LL

#### Note

Liquid gas conversion set available as a spare part.



Unit designation	Energy efficiency class		Order no.
	Heating	Domestic hot water	
VSC D 146/4-5 150	A (A+++ to D)	A (A+ to F)	
VSC D 146/4-5 150 (LL)	A (A+++ to D)	A (A+ to F)	
VSC D 146/4-5 190	A (A+++ to D)	A (A+ to F)	
VSC D 206/4-5 150	A (A+++ to D)	A (A+ to F)	
VSC D 206/4-5 150 (LL)	A (A+++ to D)	A (A+ to F)	
VSC D 206/4-5 190	A (A+++ to D)	A (A+ to F)	

## Technical data - Heating

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190	VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Maximum heating flow temperature	80 °C	80 °C	80 °C	80 °C	80 °C	80 °C
Max. flow temperature adjustment range (default setting: 75 °C)	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C	30 to 80 °C
Maximum permissible pressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Maximum heat output (factory setting - D.000)	10 kW	10 kW	10 kW	15 kW	15 kW	15 kW
Nominal water flow (ΔT = 20 K)	603 l/h	603 l/h	603 l/h	861 l/h	861 l/h	861 l/h
Nominal water flow (ΔT = 30 K)	402 l/h	402 l/h	402 l/h	574 l/h	574 l/h	574 l/h
Approximate value for the condensate volume (pH value between 3.5 and 4.0) at 50/30 °C	1.467 l/h	1.467 l/h	1.467 l/h	1.82 l/h	1.82 l/h	1.82 l/h
ΔP heating at nominal flow (ΔT = 30 K)	0.035 MPa	0.035 MPa	0.035 MPa	0.029 MPa	0.029 MPa	0.029 MPa

## Technical data - G20 power/loading G20

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190	VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	3.3 to 15.2 kW	4.3 to 21.5 kW	4.3 to 21.5 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Hot water heat output range (P)	3.0 to 16.0 kW	3.0 to 16.0 kW	3.0 to 16.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	14.3 kW	20.4 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW	4.0 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	16.3 kW	24.5 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW	4.0 kW

## Technical data - Power/loading G25

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190	VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Effective output range (P) at 50/30 °C	3.3 to 15.2 kW	3.3 to 15.2 kW	3.3 to 15.2 kW	4.3 to 21.5 kW	4.3 to 21.5 kW	4.3 to 21.5 kW
Effective output range (P) at 80/60 °C	3.0 to 14.0 kW	3.0 to 14.0 kW	3.0 to 14.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW	3.8 to 20.0 kW
Domestic hot water heat output range (P)	3.0 to 16.0 kW	3.0 to 16.0 kW	3.0 to 16.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW	3.8 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	14.3 kW	20.4 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW	4.0 kW
Maximum heat input - domestic hot water (Q)	16.3 kW	16.3 kW	16.3 kW	24.5 kW	24.5 kW	24.5 kW
Minimum heat input - domestic hot water (Q)	3.2 kW	3.2 kW	3.2 kW	4.0 kW	4.0 kW	4.0 kW

### Technical data - Power/loading G31

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190	VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Effective output range (P) at 50/30 °C	5.6 to 15.2 kW	5.6 to 15.2 kW	5.6 to 15.2 kW	5.6 to 21.5 kW	5.6 to 21.5 kW	5.6 to 21.5 kW
Effective output range (P) at 80/60 °C	5.0 to 14.0 kW	5.0 to 14.0 kW	5.0 to 14.0 kW	5.0 to 20.0 kW	5.0 to 20.0 kW	5.0 to 20.0 kW
Hot water heat output range (P)	5.0 to 16.0 kW	5.0 to 16.0 kW	5.0 to 16.0 kW	5.0 to 24.0 kW	5.0 to 24.0 kW	5.0 to 24.0 kW
Maximum heat input - heating (Q)	14.3 kW	14.3 kW	14.3 kW	20.4 kW	20.4 kW	20.4 kW
Minimum heat input - heating (Q)	5.3 kW	5.3 kW	5.3 kW	5.3 kW	5.3 kW	5.3 kW
Maximum heat input - hot water (Q)	16.3 kW	16.3 kW	16.3 kW	24.5 kW	24.5 kW	24.5 kW
Minimum heat input - hot water (Q)	5.3 kW	5.3 kW	5.3 kW	6.4 kW	6.4 kW	6.4 kW

### Technical data - Domestic hot water

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190	VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Specific flow rate (D) ( $\Delta T = 30$ K) in accordance with EN 13203	18.8 l/min	18.8 l/min	19.5 l/min	21.7 l/min	21.7 l/min	22.9 l/min
Output characteristic figure in accordance with the standard DIN 4708 (NL)	1.3	1.3	1.5	1.8	1.8	2.0
Continuous flow rate ( $\Delta T = 35$ K)	394 l/h	394 l/h	394 l/h	591 l/h	591 l/h	591 l/h
Specific flow rate ( $\Delta T = 35$ K)	16.0 l/min	16.0 l/min	16.0 l/min	24.0 l/min	24.0 l/min	24.0 l/min
Maximum permissible pressure	1 MPa	1 MPa	1 MPa	1 MPa	1 MPa	1 MPa
Temperature range	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C	35 to 65 °C
Cylinder capacity	141 l	141 l	188 l	141 l	141 l	188 l

### Technical data - General

		VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
CE number (PIN)		1312C05870	1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.5 g/s	1.5 g/s	1.5 g/s
Smoke mass flow in heating mode at P max.		6.4 g/s	6.4 g/s	6.4 g/s
Smoke mass flow in hot water handling mode at P max.		7.3 g/s	7.3 g/s	7.3 g/s
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		103.1 %	103.1 %	103.1 %
Nominal efficiency at 50/30 °C		106.5 %	106.5 %	106.5 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190
Boiler dimension, depth	693 mm	693 mm	693 mm
Boiler dimension, height	1,640 mm	1,640 mm	1,880 mm
Net weight	153 kg	153 kg	167 kg
Weight when filled with water	299 kg	299 kg	356 kg

		VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Gas category	Germany	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
Diameter of the gas pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Diameter of the heating pipe		G 3/4 inch	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)		24 mm	24 mm	24 mm
Condensed water discharge pipe (min.)		24 mm	24 mm	24 mm
Gas supply pressure (G20)		2 kPa	2 kPa	2 kPa
Gas supply pressure (G25)		2 kPa	2 kPa	2 kPa
CE number (PIN)		1312C05870	1312C05870	1312C05870
Smoke mass flow in heating mode at P min.		1.8 g/s	1.8 g/s	1.8 g/s
Smoke mass flow in heating mode at P max.		9.2 g/s	9.2 g/s	9.2 g/s
Smoke mass flow in hot water handling mode at P max.		11.0 g/s	11.0 g/s	11.0 g/s
Released system types	Germany	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P	C13x, C33x, C43x, C53x, C83x, C93x, B23P, B33P, B53P
Nominal efficiency at 80/60 °C		98 %	98 %	98 %
Nominal efficiency at 60/40 °C		101.9 %	101.9 %	101.9 %
Nominal efficiency at 50/30 °C		105.4 %	105.4 %	105.4 %
Efficiency in partial load operation (30%) at 40/30 °C		108 %	108 %	108 %
NOx class		5	5	5
Boiler dimension, width		599 mm	599 mm	599 mm
Boiler dimension, depth		693 mm	693 mm	693 mm
Boiler dimension, height		1,640 mm	1,640 mm	1,880 mm
Net weight		153 kg	153 kg	167 kg
Weight when filled with water		299 kg	299 kg	356 kg

## Technical data - Electrics

	VSC D 146/4-5 150	VSC D 146/4-5 150 (LL)	VSC D 146/4-5 190	VSC D 206/4-5 150	VSC D 206/4-5 150 (LL)	VSC D 206/4-5 190
Electric connection	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Built-in fuse (slow-blow)	T4A/250	T4A/250	T4A/250	T4A/250	T4A/250	T4A/250
Max. electrical power consumption	150 W	150 W	150 W	175 W	175 W	175 W
Standby electrical power consumption	4.2 W	4.2 W	4.2 W	4.2 W	4.2 W	4.2 W
Level of protection	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D	IP X4 D

### 13.5.4 Dimension drawing for the auroCOMPACT VSC D

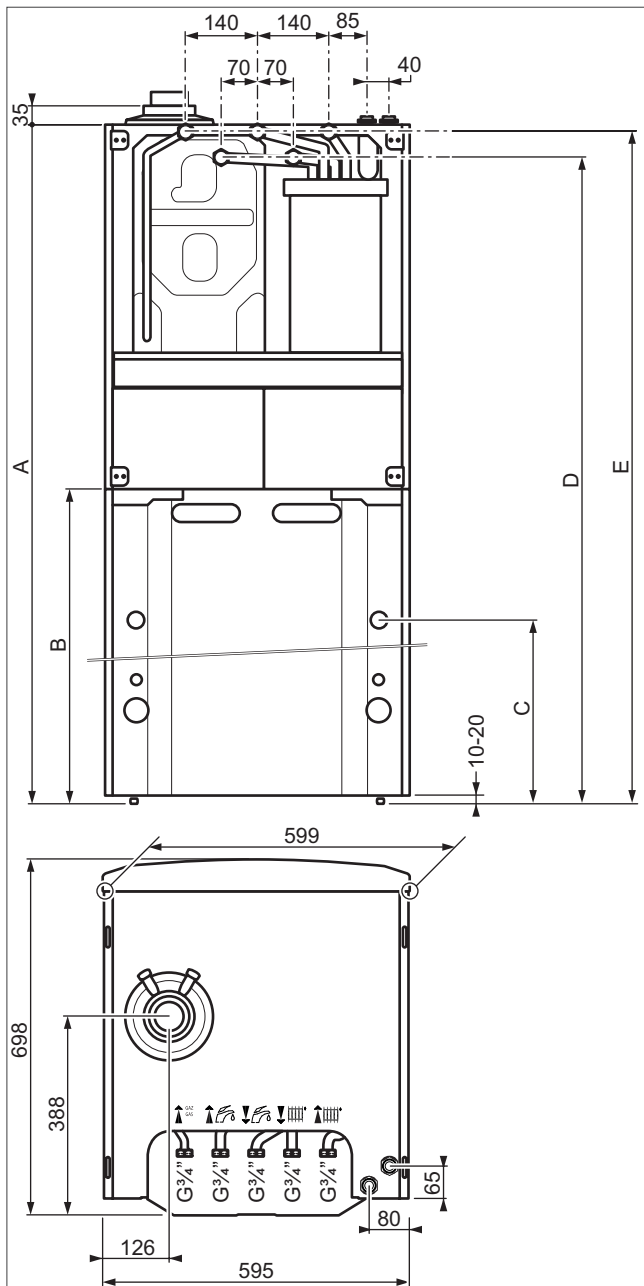


Fig. 216: Unit dimensions

#### Unit dimensions

	150L	190L
Dimension (A)	1,640 mm	1,880 mm
Dimension (B)	941 mm	1,182 mm
Dimension (C)	770 mm	1,010 mm
Dimension (D)	1,577 mm	1,816 mm
Dimension (E)	1,627 mm	1,866 mm

## 13.6 Supplementary information for the ecoCOMPACT and auroCOMPACT

### 13.6.1 Required minimum clearances/installation clearances

No clearance is required between the unit and components made of or with combustible elements as the nominal heat output of the unit never exceeds the maximum permissible temperature of 85 °C (minimum clearance from the wall of 5 mm).

The minimum clearance required for installation is to be taken from the following graphics.

However, care must be taken that sufficient clearance remains beside the unit in order to safely position the drain hose above the tundish. The drain must be visible.

Depending on the door stop, a wall clearance of at least 20 mm should be maintained in order to guarantee that the door in the casing can be opened properly.

If installing a circulation pump, side clearance must be provided on the right-hand side of the unit.

Sufficient side clearance must be provided on at least one side of the unit in order to facilitate access for maintenance and repair work.

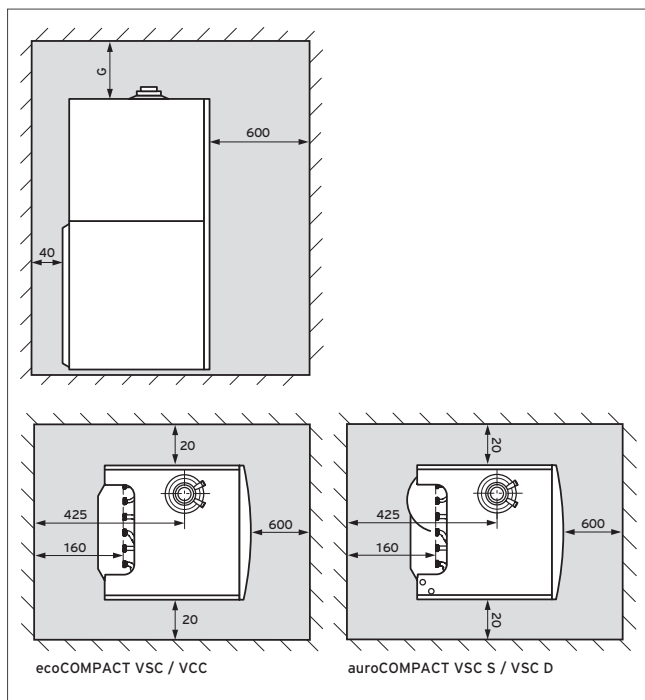


Fig. 217: Required minimum clearances/installation clearances

Flue pipe	G
Diameter 60/100	165
Diameter 80/125	275

### 13.6.2 Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The mains feed must be connected via a fixed connection and a partition that has a minimum contact opening of 3 mm (e.g. fuses, power switches). The unit is equipped with System ProE connectors for easier wiring and is wired ready for connection. The mains feed and all other connection cables (e.g. for the room temperature controller) can be connected to the corresponding System ProE connectors provided. Directive VDE 0100 Part 701 must be observed.

### 13.6.3 Pump diagrams

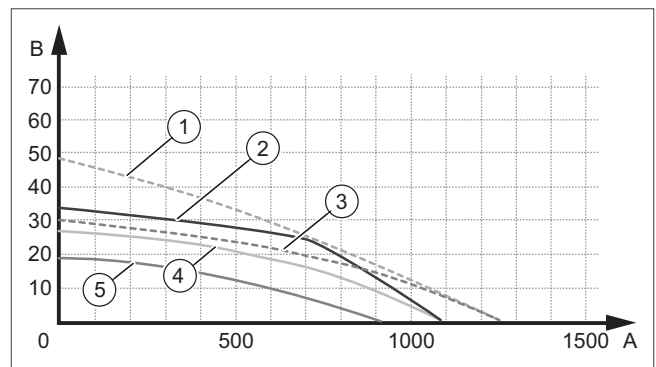


Fig. 218: VSC (S) and VCC pump diagram - 14 kW and 20 kW

- 1 Bypass closed/PWM 100% code 8
  - 2 Bypass closed/PWM 66% code 0
  - 3 Default setting/PWM 100% code 8
  - 4 Default setting/PWM 66% code 0
  - 5 Bypass open/PWM 54% code 0
- A Throughput in circuit (l/h)  
B Available pressure (kPa)

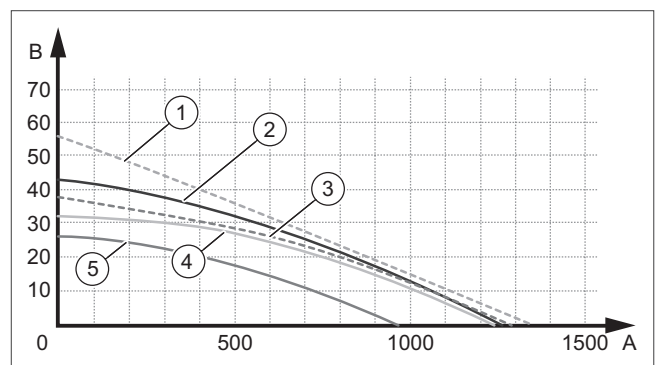


Fig. 219: VSC and VCC pump diagram - 26 kW

- 1 Bypass closed/PWM 100% code 8
  - 2 Bypass closed/PWM 66% code 0
  - 3 Default setting/PWM 100% code 8
  - 4 Default setting/PWM 66% code 0
  - 5 Bypass open/PWM 54% Code 0
- A Throughput in circuit (l/h)  
B Available pressure (kPa)

#### 13.6.4 Information on planning and the auroCOMPACT environment

- 150 or 190 litres are available for the solar stratification, meaning that collector surfaces with a net area of more than 4.7 m<sup>2</sup> or 7.05 m<sup>2</sup> are not advised. The **auroCOMPACT** with a cylinder volume of 190 litres can, depending on the alignment of the roof, be combined with up to three **auroTHERM** or **auroTHERM plus** solar flat plate collectors; the **auroCOMPACT** with a cylinder volume of 150 litres can be combined with a maximum of two **auroTHERM** or **auroTHERM plus** collectors.
- When installing in the roof area, the installation of a 5-litre protection vessel or a solar expansion vessel with an integrated protection vessel is required to protect the expansion vessel from overheating. Otherwise, there is a risk that the expansion vessel diaphragm will be destroyed by thermal overload when the system is at a standstill and the vapour front moves in the direction of the expansion vessel.
- The pipes must only be insulated using materials designed for solar applications. Do not use a normal Armaflex - use the solar design.



## 13.7 Basic system diagrams and wiring diagrams

### 13.7.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

### 13.7.2 Overview of the basic hydraulic and wiring diagrams

The basic hydraulic and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020185682	ecoCOMPACT	VRC 700	–	1 HC	–	–	–	Integrated cylinder
0020194217	ecoCOMPACT	VRC 700, VR 70, VR 91	2 UFH	–	Low loss header	–	–	Integrated cylinder
0020194184	auroCOMPACT	VRC 700, VR 70, VR 91	1 UFH	1 HC	Low loss header	•	–	Integrated cylinder
0020194188	auroCOMPACT	VRC 700	–	1 HC	–	•	–	Integrated cylinder



0020185682 - Wiring diagram

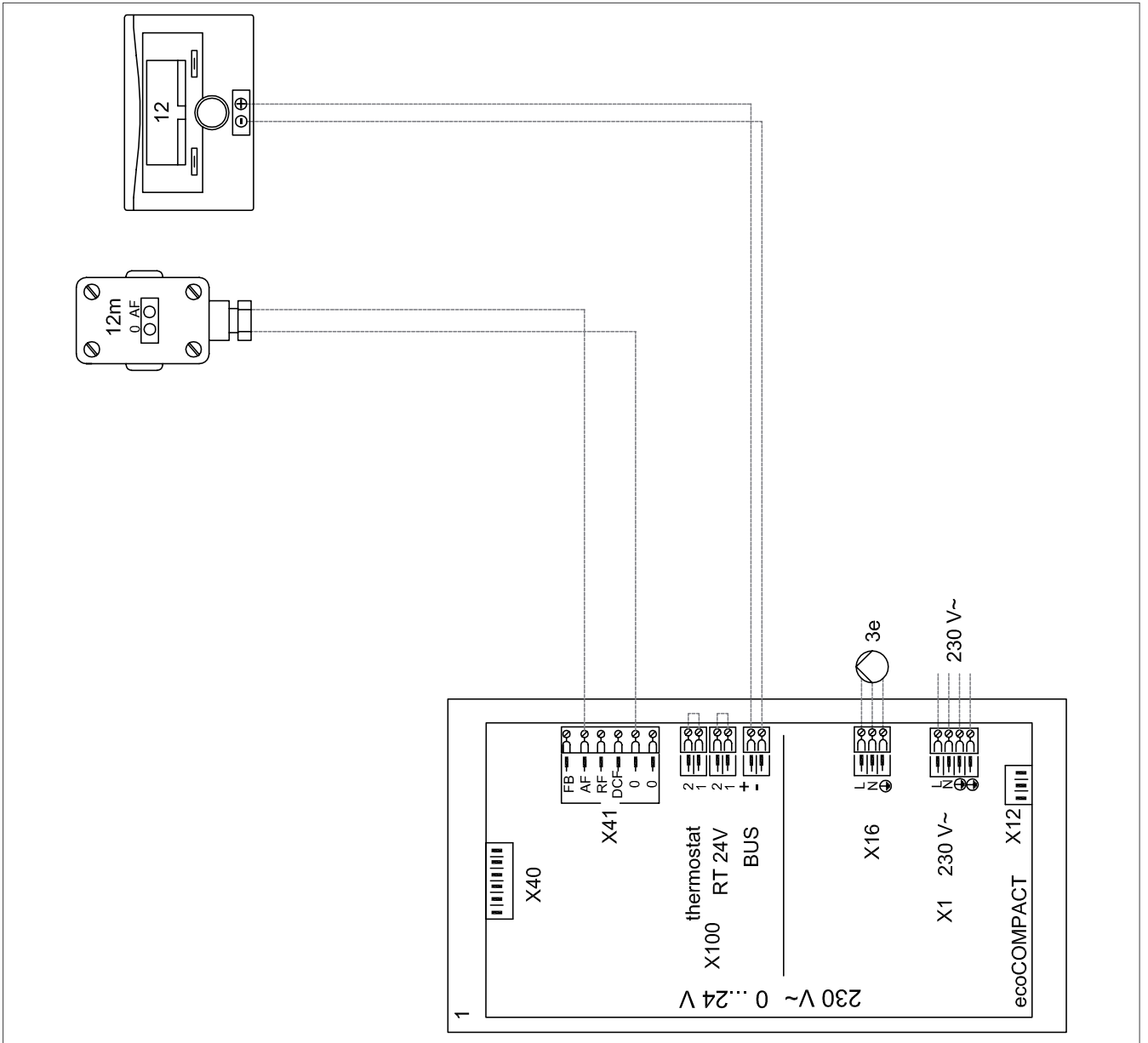


Fig. 221: Wiring diagram

**Description**

Single-occupancy houses with one heating circuit. Hot water is generated by the heat pump.

**Individual components**

- ecoCOMPACT
- VRC 700

**Setting**

VRC 700 System diagram setting: 1

0020194217 - Basic hydraulic diagram

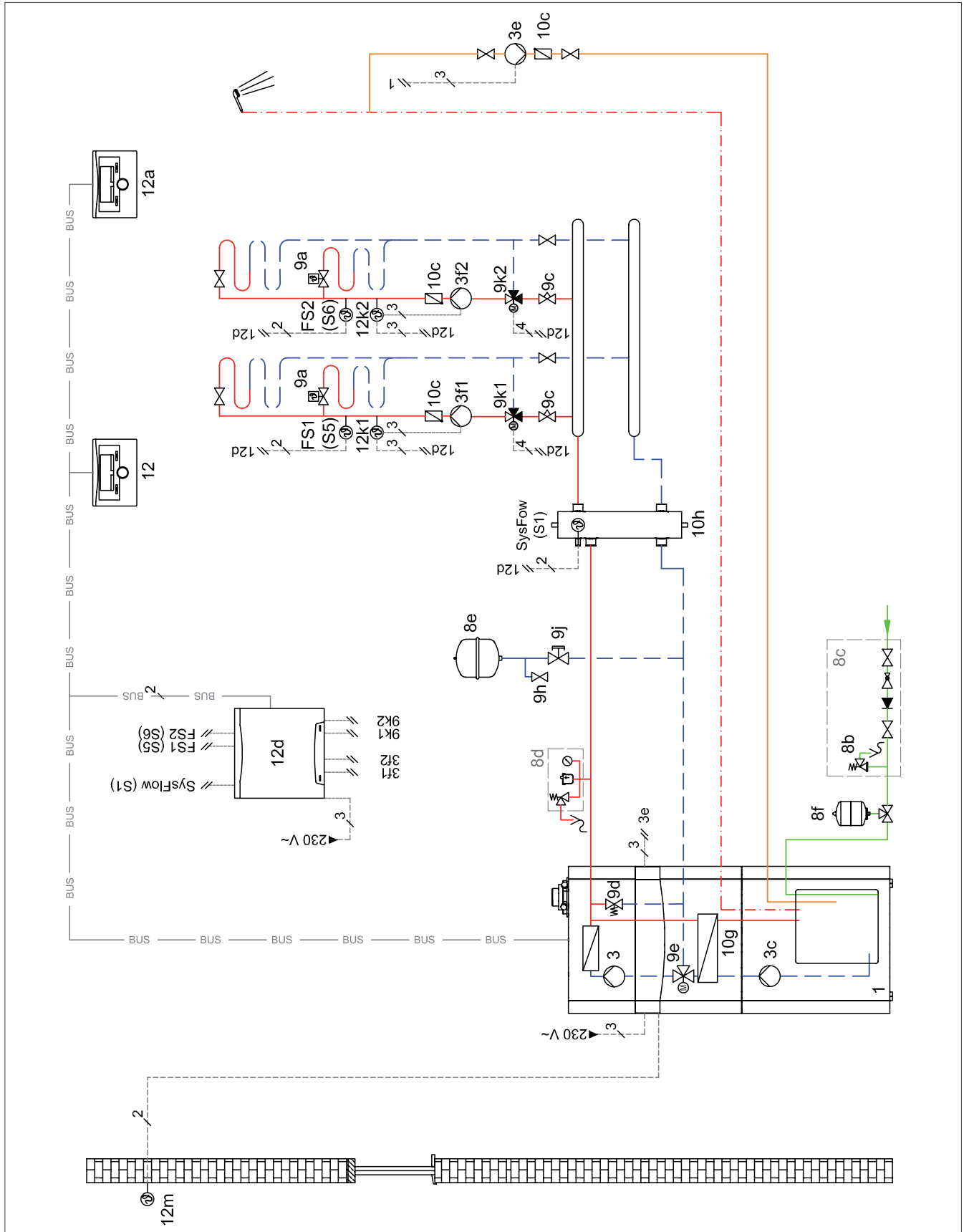


Fig. 222: Basic hydraulic diagram

## 0020194217 - Wiring diagram

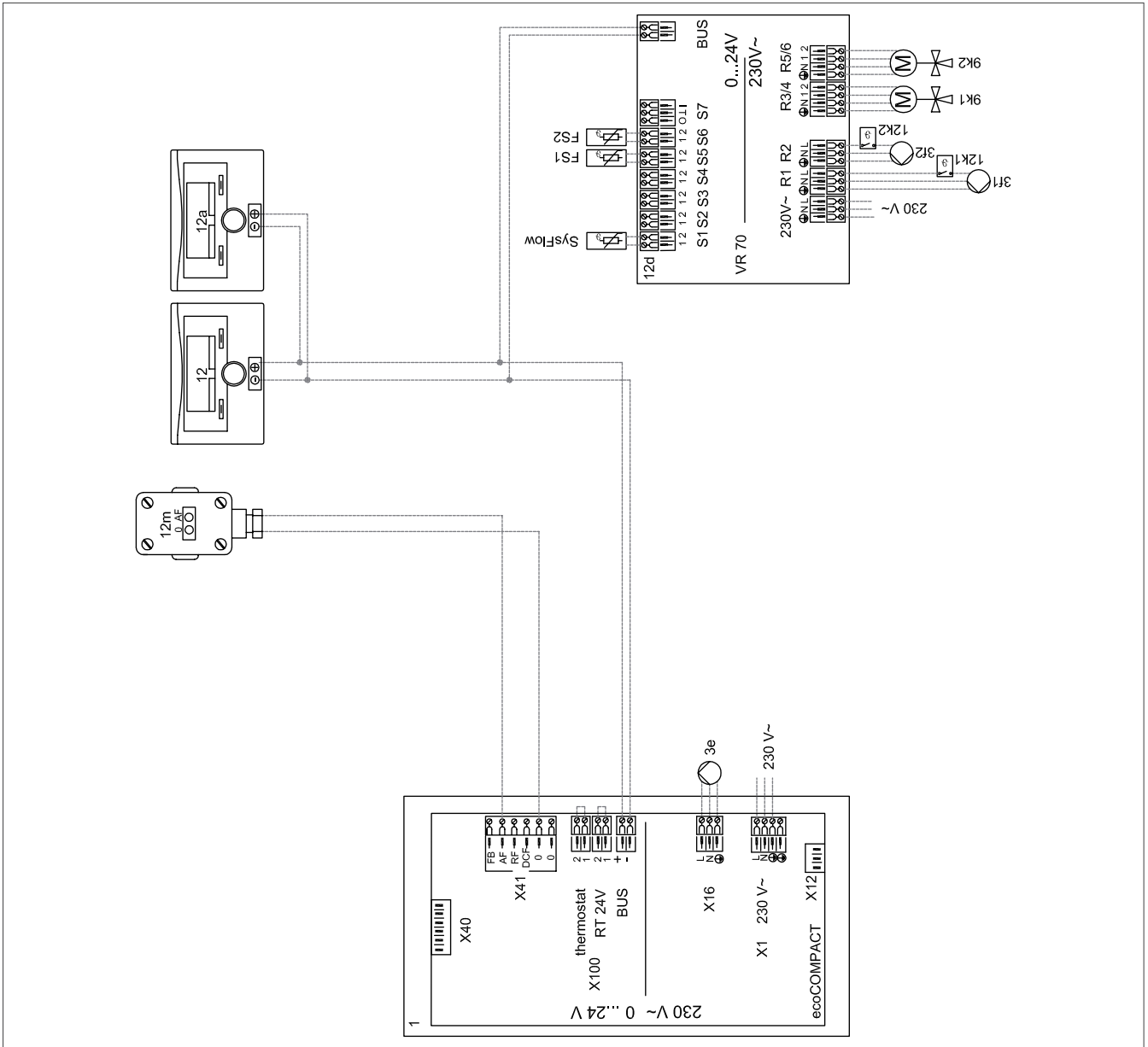


Fig. 223: Wiring diagram

### Description

Single-occupancy houses with two heating circuits. Hot water is generated by the heat generator, which also supports the heating system.

### Individual components

- ecoCOMPACT
- VRC 700
- VR 70
- VR 91
- WH 27/40

### Setting

VRC 700 System diagram setting: 1

VR 70 Module setting: 5

0020194184 - Basic hydraulic diagram

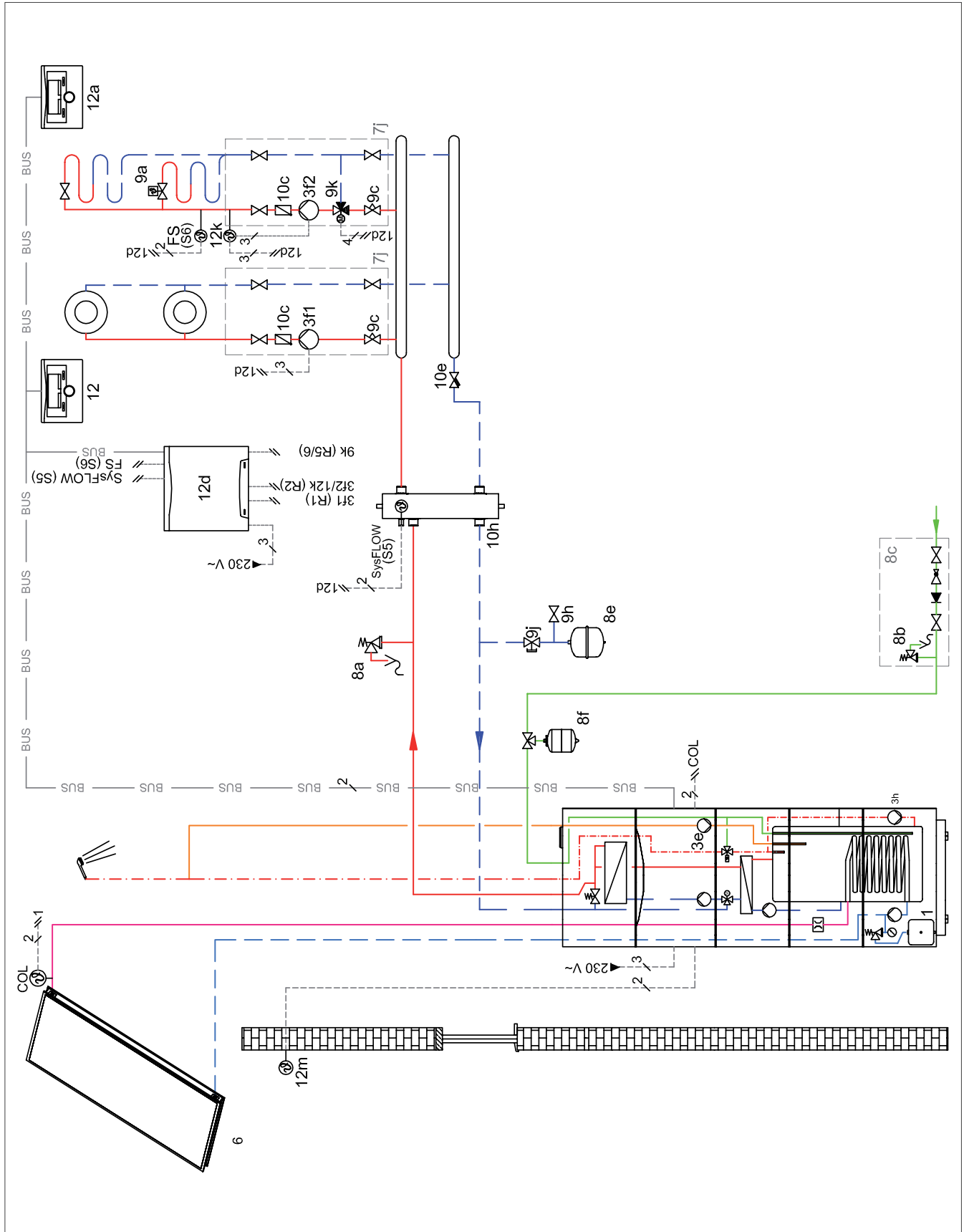


Fig. 224: Basic hydraulic diagram





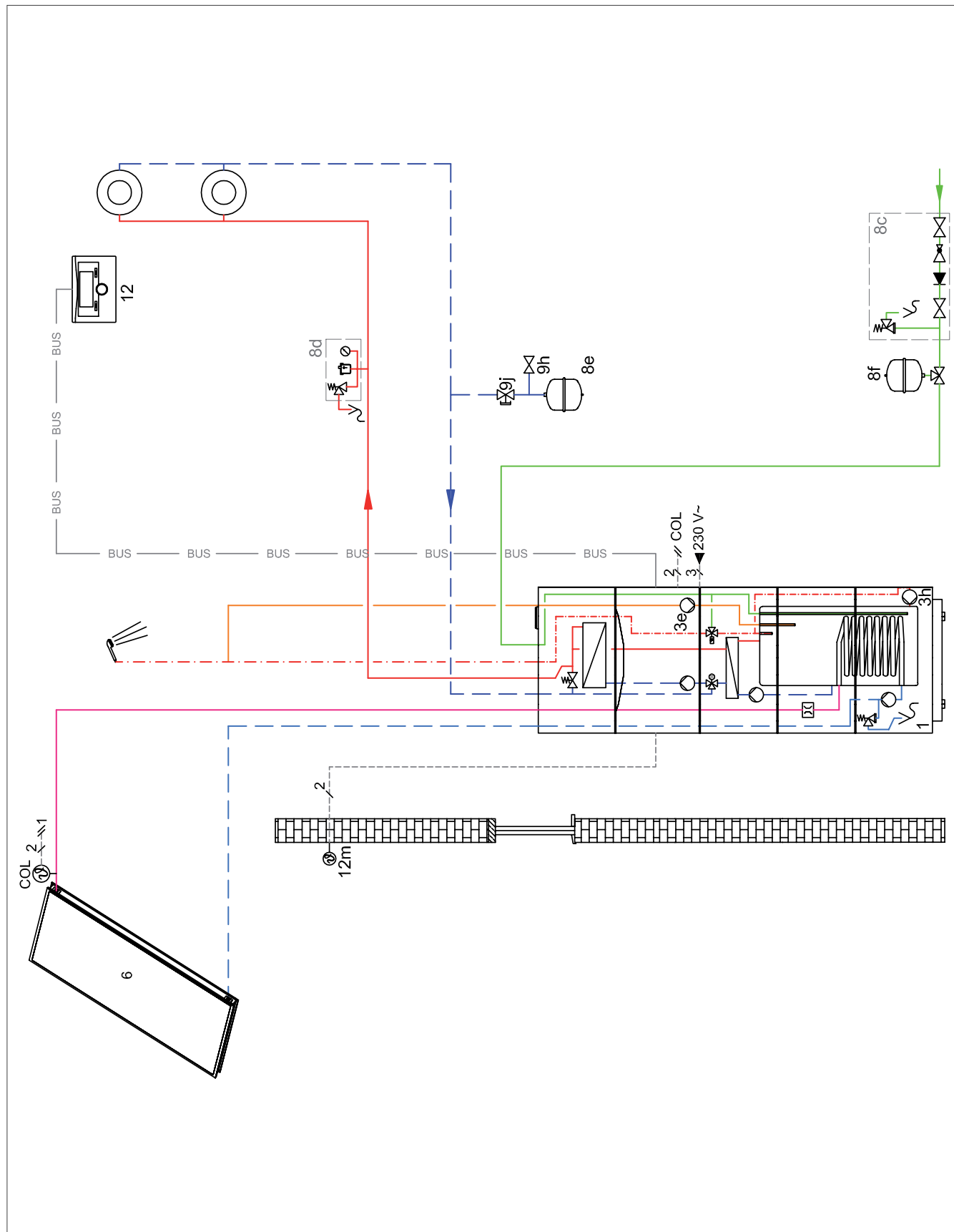


Fig. 226: Basic hydraulic diagram

## 0020194188 - Wiring diagram

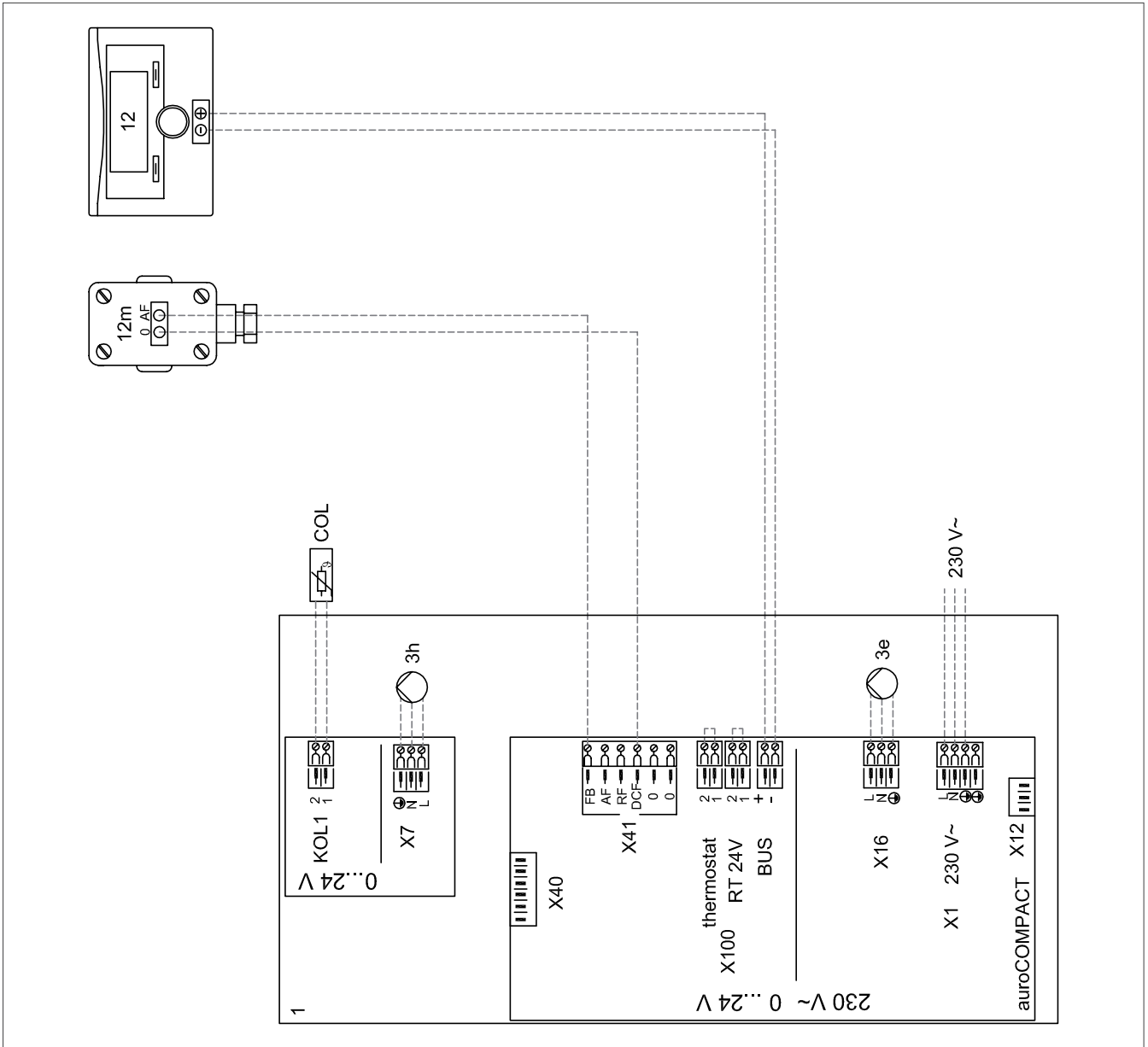


Fig. 227: Wiring diagram

### Description

Single-occupancy houses with one heating circuit.

Hot water is generated by the heat generator, which also supports the heating system.

The solar system supports hot water generation only.

### Individual components

- auroCOMPACT
- auroTHERM plus
- VRC 700

### Setting

VRC 700 System diagram setting: 1





# 14. Product information ecoVIT exclusiv .../4 and ecoVIT .../5

## 14.1 Product combinations



Fig. 228: Product combinations

	1		3		4	5	6	7
	Boiler ecoVIT exclusive VKK	Boiler ecoVIT VKK	Domestic hot water cylinder actoSTOR	Domestic hot water cylinder uniSTOR	Control	Air/flue system	Ventilation (optional)	Solar thermal energy (optional)
Heating only	•	•	–	–	•	•	•	•
Heating and domestic hot water generation	•	•	•**	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended  
\*\* Only in conjunction with a boiler

## 14.2 ecoVIT exclusive VKK 226/4 to VKK 656/4 product description



Fig. 229: ecoVIT exclusive gas-fired condensing boiler

### Potential applications

- For new builds and modernising single-occupancy and multiple-occupancy houses
- Priority should be given to use in cellars or multi-purpose rooms
- Heating and hot water generation (in combination with directly heated cylinders or actoSTOR VIH K 300 shift-load cylinders with the adapted design)
- Suitable for radiators and underfloor heating
- Open-flued or room-sealed operation possible

### Equipment

- Stainless steel heat exchanger
- Water pressure sensor
- DIA system with plain text display, illuminated
- Connection for external accessories (e.g. cylinder charging pump, circulation pump, heating circuit pump) is integrated

### Note

Liquefied petroleum gas conversion set 0020099409 available as a spare part



### Special features

- Standard efficiency of 98% (H<sub>s</sub>)/109% (H<sub>i</sub>)
- Modulation up to 1:5
- Stainless steel floor-standing condensing boiler with countercurrent flow flue pipework
- Innovative stainless steel smooth-pipe heat exchanger
- Large water capacity
- Aqua Condens System, cylinder charging control with condensing technology
- Compact casing design with removable side sections

### Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VKK 226/4-E	A (A+++ - D)	G20 natural gas	
VKK 226/4-LL	A (A+++ - D)	G25 natural gas	
VKK 286/4-E	A (A+++ - D)	G20 natural gas	
VKK 286/4-LL	A (A+++ - D)	G25 natural gas	
VKK 366/4-E	A (A+++ - D)	G20 natural gas	
VKK 366/4-LL	A (A+++ - D)	G25 natural gas	
VKK 476/4-E	A (A+++ - D)	G20 natural gas	
VKK 476/4-LL	A (A+++ - D)	G25 natural gas	
VKK 656/4-E	A (A+++ - D)	G20 natural gas	
VKK 656/4-LL	A (A+++ - D)	G25 natural gas	

## Technical data - General

	VKK 226/4-H	VKK 226/4-L	VKK 286/4-H	VKK 286/4-L	VKK 366/4-H	VKK 366/4-L
Designated country (designation in accordance with ISO 3166)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)
Approved unit categories	II <sub>ZELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>ZELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>ZELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>ZELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>ZELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>ZELL3P</sub> (DE), II <sub>2H3P</sub> (AT)
Gas connection, boiler side	R 3/4 inch	R 3/4 inch	R 3/4 inch	R 3/4 inch	R 3/4 inch	R 3/4 inch
Flow/return heating connections, boiler side	Rp1	Rp1	Rp1	Rp1	Rp1	Rp1
Air/flue connection	80/125 mm	80/125 mm	80/125 mm	80/125 mm	80/125 mm	80/125 mm
Condensate discharge pipe (min.)	21 mm	21 mm	21 mm	21 mm	21 mm	21 mm
G20 natural gas flow pressure	2 kPa		2 kPa		2 kPa	
G25 natural gas flow pressure		2.5 kPa		2.5 kPa		2.5 kPa
G31 liquid gas flow pressure	5 kPa	5 kPa	5 kPa	5 kPa	5 kPa	5 kPa
Gas flow rate at 15 °C and 1013 mbar (G20)	2.3 m <sup>3</sup> /h		2.9 m <sup>3</sup> /h		3.7 m <sup>3</sup> /h	
Gas flow rate at 15 °C and 1013 mbar (G25)		2.7 m <sup>3</sup> /h		3.3 m <sup>3</sup> /h		4.3 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (G31)	1.7 m <sup>3</sup> /h	1.7 m <sup>3</sup> /h	2.1 m <sup>3</sup> /h	2.1 m <sup>3</sup> /h	2.7 m <sup>3</sup> /h	2.7 m <sup>3</sup> /h
Min. flue gas mass flow rate (G20)	3.9 g/s		4.2 g/s		5.3 g/s	
Max. flue gas mass flow rate (G20)	10.0 g/s		12.2 g/s		15.8 g/s	
Min. flue gas temperature (at tv/tr = 80/60 °C)	62 °C	62 °C	62 °C	62 °C	62 °C	62 °C
Max. flue gas temperature (at tv/tr = 80/60 °C)	70 °C	70 °C	75 °C	75 °C	75 °C	75 °C
Approved gas boiler types	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P
Nominal efficiency (stationary) at 80/60 °C	97.11 %	97.11 %	96.98 %	96.98 %	97.34 %	97.34 %
Nominal efficiency (stationary) at 60/40 °C	102.0 %	102.0 %	102.0 %	102.0 %	102.0 %	102.0 %
Nominal efficiency (stationary) at 50/30 °C	104.0 %	104.0 %	104.0 %	104.0 %	104.0 %	104.0 %
Nominal efficiency (stationary) at 40/30 °C	107.0 %	107.0 %	107.0 %	107.0 %	107.0 %	107.0 %
30% efficiency	108.12 %	108.12 %	107.51 %	107.51 %	107.68 %	107.68 %
Standard efficiency (when set to nominal heat output, DIN 4702, T8) at 75/60 °C	107.0 %	107.0 %	107.0 %	107.0 %	107.0 %	107.0 %
Standard efficiency (when set to nominal heat output, DIN 4702, T8) at 40/30 °C	109.0 %	109.0 %	109.0 %	109.0 %	109.0 %	109.0 %
NOx class	6	6	6	6	6	6
NOx emissions	49.30 mg/kW-h	49.30 mg/kW-h	51.53 mg/kW-h	51.53 mg/kW-h	43.20 mg/kW-h	43.20 mg/kW-h
CO emissions	11 mg/kW-h	11 mg/kW-h	8 mg/kW-h	8 mg/kW-h	5 mg/kW-h	5 mg/kW-h
Boiler dimensions, width	570 mm	570 mm	570 mm	570 mm	570 mm	570 mm
Boiler dimensions, height	1,257 mm	1,257 mm	1,257 mm	1,257 mm	1,257 mm	1,257 mm
Boiler dimensions, depth	691 mm	691 mm	691 mm	691 mm	691 mm	691 mm
Approx. net weight	100 kg	100 kg	100 kg	100 kg	110 kg	110 kg
Ready for operation weight approx.	210 kg	210 kg	235 kg	235 kg	255 kg	255 kg

	VKK 476/4-H	VKK 476/4-L	VKK 656/4-H	VKK 656/4-L
Designated country (designation in accordance with ISO 3166)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)	DE (Germany), AT (Austria)
Approved unit categories	II <sub>2ELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>2ELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>2ELL3P</sub> (DE), II <sub>2H3P</sub> (AT)	II <sub>2ELL3P</sub> (DE), II <sub>2H3P</sub> (AT)
Gas connection, boiler side	R 3/4 inch	R 3/4 inch	R 3/4 inch	R 3/4 inch
Flow/return heating connections, boiler side	Rp1	Rp1	Rp1	Rp1
Air/flue connection	80/125 mm	80/125 mm	80/125 mm	80/125 mm
Condensate discharge pipe (min.)	21 mm	21 mm	21 mm	21 mm
G20 natural gas flow pressure	2 kPa		2 kPa	
G25 natural gas flow pressure		2.5 kPa		2.5 kPa
G31 liquid gas flow pressure	5 kPa	5 kPa	5 kPa	5 kPa
Gas flow rate at 15 °C and 1013 mbar (G20)	4.8 m <sup>3</sup> /h		6.6 m <sup>3</sup> /h	
Gas flow rate at 15 °C and 1013 mbar (G25)		5.5 m <sup>3</sup> /h		7.6 m <sup>3</sup> /h
Gas flow rate at 15 °C and 1013 mbar (G31)	3.5 m <sup>3</sup> /h	3.5 m <sup>3</sup> /h	4.8 m <sup>3</sup> /h	4.8 m <sup>3</sup> /h
Min. flue gas mass flow rate (G20)	6.9 g/s		9.2 g/s	
Max. flue gas mass flow rate (G20)	20.3 g/s		27.8 g/s	
Min. flue gas temperature (at tV/tR = 80/60 °C)	62 °C	62 °C	62 °C	62 °C
Max. flue gas temperature (at tV/tR = 80/60 °C)	75 °C	75 °C	85 °C	85 °C
Approved gas boiler types	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P	C13x, C33x, C43x, C53x, C83x, C93x, B23, B33, B33P
Nominal efficiency (stationary) at 80/60 °C	97.2 %	97.2 %	98.03 %	98.03 %
Nominal efficiency (stationary) at 60/40 °C	102.0 %	102.0 %	102.0 %	102.0 %
Nominal efficiency (stationary) at 50/30 °C	104.0 %	104.0 %	104.0 %	104.0 %
Nominal efficiency (stationary) at 40/30 °C	107.0 %	107.0 %	107.0 %	107.0 %
30% efficiency	108.34 %	108.34 %	108.37 %	108.37 %
Standard efficiency (when set to nominal heat output, DIN 4702, T8) at 75/60 °C	107.0 %	107.0 %	107.0 %	107.0 %
Standard efficiency (when set to nominal heat output, DIN 4702, T8) at 40/30 °C	109.0 %	109.0 %	109.0 %	109.0 %
NOx class	6	6	6	6
NOx emissions	49.60 mg/kW-h	49.60 mg/kW-h	55.6 mg/kW-h	55.6 mg/kW-h
CO emissions	7 mg/kW-h	7 mg/kW-h	6 mg/kW-h	6 mg/kW-h
Boiler dimensions, width	570 mm	570 mm	570 mm	570 mm
Boiler dimensions, height	1,257 mm	1,257 mm	1,257 mm	1,257 mm
Boiler dimensions, depth	691 mm	691 mm	691 mm	691 mm
Approx. net weight	120 kg	120 kg	120 kg	120 kg
Ready for operation weight approx.	320 kg	320 kg	320 kg	320 kg



### Technical data - Power/load (G20)

	VKK 226/4-H	VKK 286/4-H	VKK 366/4-H	VKK 476/4-H	VKK 656/4-H
Nominal heat output range P at 80/60 °C	6.3 to 21.3 kW	7.7 to 26.2 kW	10.0 to 34.0 kW	12.8 to 43.6 kW	17.8 to 60.1 kW
Nominal heat output range P at 60/40 °C	6.6 to 22.4 kW	8.1 to 27.5 kW	10.5 to 35.7 kW	13.5 to 46.0 kW	18.7 to 63.2 kW
Nominal heat output range P at 50/30 °C	6.8 to 22.9 kW	8.2 to 28.1 kW	10.7 to 36.4 kW	13.7 to 46.8 kW	19.0 to 64.5 kW
Nominal heat output range P at 40/30 °C	7.0 to 23.5 kW	8.5 to 28.9 kW	11.0 to 37.5 kW	14.1 to 48.2 kW	19.6 to 66.3 kW
Maximum heat input, heating side	22.0 kW	27.0 kW	35.0 kW	45.0 kW	62.0 kW
Minimum heat input	6.5 kW	7.9 kW	10.3 kW	13.2 kW	18.3 kW

### Technical data - Power/load (G25)

	VKK 226/4-L	VKK 286/4-L	VKK 366/4-L	VKK 476/4-L	VKK 656/4-L
Nominal heat output range P at 80/60 °C	6.3 to 21.3 kW	7.7 to 26.2 kW	11.0 to 34.0 kW	12.8 to 43.6 kW	17.8 to 60.1 kW
Nominal heat output range P at 60/40 °C	6.6 to 22.4 kW	8.1 to 27.5 kW	10.5 to 35.7 kW	13.5 to 46.0 kW	18.7 to 63.2 kW
Nominal heat output range P at 50/30 °C	6.8 to 22.9 kW	8.2 to 28.1 kW	10.7 to 36.4 kW	13.7 to 46.8 kW	19.0 to 64.5 kW
Nominal heat output range P at 40/30 °C	7.0 to 23.5 kW	8.5 to 28.9 kW	11.0 to 37.5 kW	14.1 to 48.2 kW	19.6 to 66.3 kW
Maximum heat input, heating side	22.0 kW	27.0 kW	35.0 kW	45.0 kW	62.0 kW
Minimum heat input	6.5 kW	7.9 kW	10.3 kW	13.2 kW	18.3 kW

### Technical data - Power/load (G31)

	VKK 226/4-H	VKK 226/4-L	VKK 286/4-H	VKK 286/4-L	VKK 366/4-H	VKK 366/4-L
Nominal heat output range P at 80/60 °C	9.6 to 21.3 kW	9.6 to 21.3 kW	13.1 to 26.2 kW	13.1 to 26.2 kW	15.2 to 34.0 kW	15.2 to 34.0 kW
Nominal heat output range P at 60/40 °C	10.1 to 22.4 kW	10.1 to 22.4 kW	13.8 to 27.5 kW	13.8 to 27.5 kW	16.0 to 35.7 kW	16.0 to 35.7 kW
Nominal heat output range P at 50/30 °C	10.3 to 22.9 kW	10.3 to 22.9 kW	14.0 to 28.1 kW	14.0 to 28.1 kW	16.3 to 36.4 kW	16.3 to 36.4 kW
Nominal heat output range P at 40/30 °C	10.6 to 23.5 kW	10.6 to 23.5 kW	14.4 to 28.9 kW	14.4 to 28.9 kW	16.8 to 37.5 kW	16.8 to 37.5 kW
Maximum heat input, heating side	22.0 kW	22.0 kW	27.0 kW	27.0 kW	35.0 kW	35.0 kW
Minimum heat input	9.9 kW	9.9 kW	13.5 kW	13.5 kW	15.7 kW	15.7 kW

	VKK 476/4-H	VKK 476/4-L	VKK 656/4-H	VKK 656/4-L
Nominal heat output range P at 80/60 °C	19.6 to 43.6 kW	19.6 to 43.6 kW	21.1 to 60.1 kW	21.1 to 60.1 kW
Nominal heat output range P at 60/40 °C	20.6 to 46.0 kW	20.6 to 46.0 kW	22.1 to 63.2 kW	22.1 to 63.2 kW
Nominal heat output range P at 50/30 °C	21.0 to 46.8 kW	21.0 to 46.8 kW	22.6 to 64.5 kW	22.6 to 64.5 kW
Nominal heat output range P at 40/30 °C	21.6 to 48.2 kW	21.6 to 48.2 kW	23.2 to 66.3 kW	23.2 to 66.3 kW
Maximum heat input, heating side	45.0 kW	45.0 kW	62.0 kW	62.0 kW
Minimum heat input	20.2 kW	20.2 kW	21.7 kW	21.7 kW

## Technical data - Heating

	VKK 226/4-H	VKK 226/4-L	VKK 286/4-H	VKK 286/4-L	VKK 366/4-H	VKK 366/4-L
Max. flow temperature adjustment range (default setting: 75 °C)	40 to 85 °C	40 to 85 °C	40 to 85 °C	40 to 85 °C	40 to 85 °C	40 to 85 °C
Permissible total overpressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Floor-standing boiler capacity	100 l	100 l	100 l	100 l	89 l	89 l
Circulation water volume (with reference to $\Delta T= 20\text{ K}$ )	860 l/h	860 l/h	1,160 l/h	1,160 l/h	1,505 l/h	1,505 l/h
Pressure loss (with reference to $\Delta T= 20\text{ K}$ )	0.00035 MPa	0.00035 MPa	0.0006 MPa	0.0006 MPa	0.0010 MPa	0.0010 MPa
Condensate volume at heating mode 40/30 °C	2.2 l/h	2.2 l/h	3.0 l/h	3.0 l/h	3.5 l/h	3.5 l/h
Heating standby losses per day (heating 70 °C)	3.4 kWh	3.4 kWh	3.4 kWh	3.4 kWh	3.4 kWh	3.4 kWh

	VKK 476/4-H	VKK 476/4-L	VKK 656/4-H	VKK 656/4-L
Max. flow temperature adjustment range (default setting: 75 °C)	40 to 85 °C	40 to 85 °C	40 to 85 °C	40 to 85 °C
Permissible total overpressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Floor-standing boiler capacity	85 l	85 l	85 l	85 l
Circulation water volume (with reference to $\Delta T= 20\text{ K}$ )	1,935 l/h	1,935 l/h	2,650 l/h	2,650 l/h
Pressure loss (with reference to $\Delta T= 20\text{ K}$ )	0.0017 MPa	0.0017 MPa	0.0043 MPa	0.0043 MPa
Condensate volume at heating mode 40/30 °C	4.2 l/h	4.2 l/h	7.1 l/h	7.1 l/h
Heating standby losses per day (heating 70 °C)	3.4 kWh	3.4 kWh	3.4 kWh	3.4 kWh

## Technical data - Electrics

	VKK 226/4-H	VKK 226/4-L	VKK 286/4-H	VKK 286/4-L	VKK 366/4-H	VKK 366/4-L
Rated voltage	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow, H or D)	4 A	4 A	4 A	4 A	4 A	4 A
Max. electrical power consumption	30 W	30 W	33 W	33 W	38 W	38 W
Standby electrical power consumption	6 W	6 W	6 W	6 W	6 W	6 W
IP rating	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Unit protection class	Class I	Class I	Class I	Class I	Class I	Class I
Test symbol/registration no.	CE-0085BU0038	CE-0085BU0038	CE-0085BU0038	CE-0085BU0038	CE-0085BU0038	CE-0085BU0038

	VKK 476/4-H	VKK 476/4-L	VKK 656/4-H	VKK 656/4-L
Rated voltage	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow, H or D)	4 A	4 A	4 A	4 A
Max. electrical power consumption	40 W	40 W	134 W	134 W
Standby electrical power consumption	6 W	6 W	6 W	6 W
IP rating	IP 00	IP 00	IP 00	IP 00
Unit protection class	Class I	Class I	Class I	Class I
Test symbol/registration no.	CE-0085BU0038	CE-0085BU0038	CE-0085BU0038	CE-0085BU0038

ecoVIT exclusive VKK 226/4 to VKK 656/4 dimension drawing

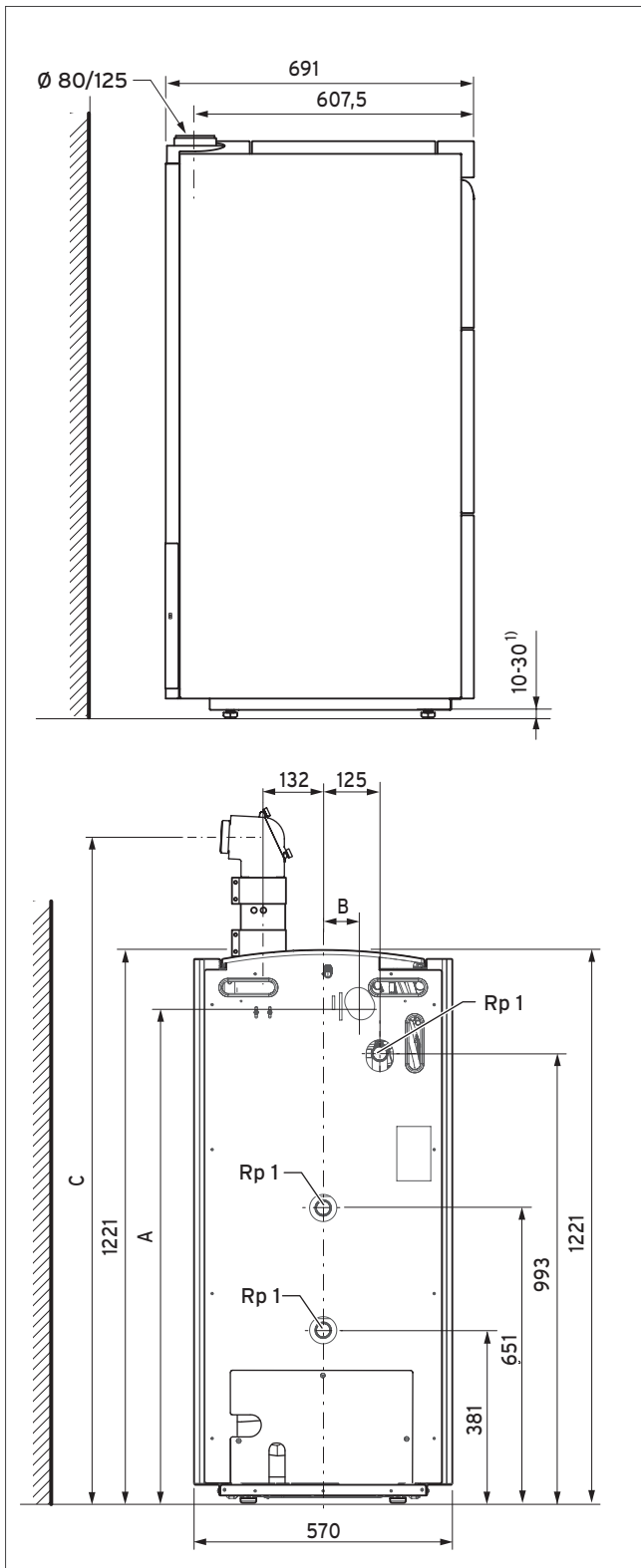


Fig. 230: Product dimensions and connection dimensions in mm

## 14.2.1 Supplementary information for ecoVIT exclusive VKK 226/4 to VKK 656/4

### Required minimum clearances/installation clearances

You must ensure that there is sufficient clearance behind and beside the unit in order to position the condensed water discharge pipe safely above a drain or, if required, to connect a condensed water feed pump. The drain must be visible.

Use the height-adjustable feet to adjust the floor-standing gas-fired boiler horizontally in order to ensure that the condensed water drains from the condensate tray.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

### Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The mains feed must be connected via a fixed connection and a partition that has a minimum contact opening of 3 mm (e.g. fuses, power switches).

Directive VDE 0100 Part 701 must be observed.

The unit is equipped with System ProE connectors for easier wiring and is wired ready for connection. The mains feed and all other connection cables (e.g. for the room temperature controller) can be connected to the corresponding System ProE connectors provided.

Access to the main switch must be guaranteed at all times and the point of access must not be covered or blocked, allowing the unit to be turned off if a fault occurs.

When planning a boiler system, the recognised rules of good engineering practice (e.g. TRGI gas installations) must be observed.

A two-pole emergency switch which interrupts the power supply to the burner in the case of an emergency must be installed outside of the installation room where gas combustion locations have a total nominal heat output over 100 kW. A sign with the message „Emergency switch - combustion“ must be placed next to the emergency switch.

### Direct feed underfloor heating

A direct feed to an oxygen-diffusion-tight underfloor heating system is possible. However, a mixer should be provided when the underfloor heating circuit is combined with a domestic hot water cylinder. This avoids excessively high temperatures in the heating flow over a longer period - required by the high water capacity of the boiler - after the cylinder is charged.

In the case of an underfloor heating system which is not oxygen-diffusion-tight, a system partition with a mixer must be provided on-site.

### ecoVIT exclusive VKK 656/4 waterside resistance

During system planning or pump design, the increased waterside resistance of the VKK 656 must be taken into account in advance.

Resistance at  $\Delta T$  of 20 K = 43 mbar.

In comparison, the VKK 286 has a waterside resistance of 6 mbar at  $\Delta T$  of 20 K.

### No solar function

As opposed to the predecessor models, ecoVIT .../4 boilers require an additional solar control in order to carry out a solar function. The controls which can be used in the system, depending on the specific requirements and equipment, are:

- VRC 700(f)/4 with VR 70 or VR 71
- auroMATIC 620/3
- auroMATIC 570

## 14.3 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus				uniSTOR exclusive			uniSTOR plus			actoSTOR	
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH K 300 (NL 10.0)
ecoVIT exclusive 6.6 - 63.2 kW	VKK 226/4	•	•	•	•	•	•	-	•	o	o	•	o	o	-	•
	VKK 286/4	o	•	•	o	•	•	-	•	o	o	•	o	o	-	•
	VKK 366/4	o	o	•	o	o	•	-	•	•	•	•	•	•	-	•
	VKK 476/4	-	-	o	-	-	o	-	•	•	•	•	•	•	-	•
	VKK 656/4	-	-	o	-	-	o	-	•	•	•	•	•	•	-	•

- Recommended
- o Recommended under certain circumstances
- Not recommended



## 14.4 Product description for ecoVIT VKK 186/5 to VKK 486/5



Fig. 231: ecoVIT gas-fired floor-standing condensing boiler

### 14.4.1 Special features

- Modulation 1:3
- Stainless steel floor-standing condensing boiler with countercurrent-flow flue gas pipes
- Innovative stainless steel smooth-pipe heat exchanger
- Compact casing design with removable side sections
- Large water capacity

### 14.4.2 Potential applications

- For new builds and modernising single-occupancy and multiple-occupancy houses
- Priority should be given to use in cellars or multi-purpose rooms
- Heating and hot water generation
- Suitable for radiators and underfloor heating
- Open-flued or room-sealed operation possible

### 14.4.3 Equipment

- Stainless steel heat exchanger
- Water pressure sensor
- Installation area for Vaillant weather-compensated heating control
- Ready for connection to the system-certified Vaillant air/flue pipes
- DIA system with plain text display, illuminated

#### Note

Liquefied petroleum gas conversion set  
0020232065 for VKK 186/5 and VKK 486/5,  
0020234076 for VKK 256/5 and  
0020234077 for VKK 356/7  
available as a spare part.



Type overview

Unit designation	Energy efficiency class Heating	Gas type	Order no.
VKK 186/5	A (A+++ - D)	Natural gas G20, G25	
VKK 256/5	A (A+++ - D)	Natural gas G20, G25	
VKK 356/5	A (A+++ - D)	Natural gas G20, G25	
VKK 486/5	A (A+++ - D)	Natural gas G20, G25	

## Technical data - General

	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Height	1,255 to 1,275 mm	1,255 to 1,275 mm	1,255 to 1,275 mm	1,255 to 1,275 mm
Width	570 mm	570 mm	570 mm	570 mm
Depth	700 mm	700 mm	700 mm	700 mm
Weight with packaging	96 kg	96 kg	112 kg	112 kg
Weight	86 kg	86 kg	102 kg	102 kg
Weight, ready for operation	186 kg	186 kg	197 kg	197 kg
Heating water content	100 l	100 l	95 l	95 l
Heating connections	1"	1"	1"	1"
Gas connections	3/4"	3/4"	3/4"	3/4"
Condensate connection (hose, inner diameter)	21 mm	21 mm	21 mm	21 mm
Air/flue gas connection	80/125 mm	80/125 mm	80/125 mm	80/125 mm
Permissible installation types	C13, C33, C43, C53, C83, C93, B23, B33, B53P	C13, C33, C43, C53, C83, C93, B23, B33, B53P	C13, C33, C43, C53, C83, C93, B23, B33, B53P	C13, C33, C43, C53, C83, C93, B23, B33, B53P
Category (BE)	I <sub>2E(S)</sub>	I <sub>2E(S)</sub>	I <sub>2E(S)</sub>	I <sub>2E(S)</sub>
Category (DE)	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>	II <sub>2ELL3P</sub>
G20 connection pressure (BE)	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
G20 connection pressure (DE)	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
G25 connection pressure (BE)	2.5 kPa	2.5 kPa	2.5 kPa	2.5 kPa
G25 connection pressure (DE)	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
G31 connection pressure (DE)	5.0 kPa	5.0 kPa	5.0 kPa	5.0 kPa
G20 gas flow rate, at 15 °C and 1013 mbar	1.9 m³/h	2.6 m³/h	3.7 m³/h	5.0 m³/h
G25 gas flow rate, at 15 °C and 1013 mbar	2.2 m³/h	3.1 m³/h	4.3 m³/h	5.9 m³/h
G31 gas flow rate, at 15 °C and 1013 mbar (DE)	0.7 m³/h	1.0 m³/h	1.4 m³/h	2.0 m³/h
Venturi designation	053	053	051	051
G20 flue gas mass flow rate	2.6 to 8.5 g/s	3.3 to 11.8 g/s	4.8 to 16.2 g/s	6.5 to 21.7 g/s
Flue gas temperature 80/60 °C	30 to 70 °C	30 to 80 °C	30 to 75 °C	35 to 85 °C
Nominal CO <sub>2</sub> , natural gas (min. load)	8.9 vol. %	8.9 vol. %	8.9 vol. %	8.9 vol. %
Nominal CO <sub>2</sub> , natural gas (max. load)	9.2 vol. %	9.2 vol. %	9.2 vol. %	9.2 vol. %
Nominal CO <sub>2</sub> , liquefied petroleum gas (min. load)	9.8 vol. %	10.0 vol. %	10.0 vol. %	10.0 vol. %
Nominal CO <sub>2</sub> , liquefied petroleum gas (max. load)	10.2 vol. %	10.2 vol. %	10.2 vol. %	10.2 vol. %
NOx class	6	6	6	6
NOx emissions (EN15502)	44.7 mg/kW-h	47.6 mg/kW-h	46.7 mg/kW-h	49.4 mg/kW-h
CO emission at Qn	10 mg/kW-h	11 mg/kW-h	10 mg/kW-h	19 mg/kW-h
Efficiency at nominal heat input Qn (stationary), 80/60 °C	97.02 %	97.18 %	96.64 %	97.04 %
Efficiency at nominal heat input Qn (stationary), 60/40 °C	105.2 %	100.5 %	104.0 %	105.0 %
Efficiency at nominal heat input Qn (stationary), 50/30 °C	106.3 %	105.8 %	107.1 %	107.2 %
Efficiency at nominal heat input Qn (stationary), 40/30 °C	107.4 %	104.1 %	106.4 %	107.3 %
Efficiency at heat input Qa (stationary), 80/60 °C	95.5 %	97.0 %	96.7 %	96.9 %
Efficiency at heat input Qmin (stationary), 80/60 °C	93.3 %	96.1 %	96.0 %	96.7 %
Efficiency at heat input Qmin (stationary), 60/40 °C	105.2 %	100.8 %	105.1 %	103.7 %



	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Efficiency at heat input Q <sub>min</sub> (stationary), 50/30 °C	107.9 %	110.5 %	107.2 %	107.8 %
Efficiency at heat input Q <sub>min</sub> (stationary), 40/30 °C	110.2 %	106.5 %	106.9 %	106.5 %
Partial load efficiency at 30% of nominal heat input Q <sub>n</sub>	107.54 %	107.19 %	107.15 %	107.78 %
Partial load efficiency at 30% of average heat input Q <sub>a</sub>	106.4 %	106.2 %	105.7 %	106.3 %
Sound power level at Q <sub>n</sub>	55.7 dB(A)	57.4 dB(A)	56.1 dB(A)	59.5 dB(A)
Sound power level at Q <sub>min</sub>	32.1 dB(A)	35.3 dB(A)	38.2 dB(A)	36.9 dB(A)

### Technical data – G20 power/load G20

For a 10 m concentric flue system with a diameter of 80/125 mm and two 87° elbows, open-flued

	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Min. heat output P <sub>min</sub> at 80/60 °C	5.0 kW	7.2 kW	10.1 kW	13.9 kW
Min. heat output P <sub>min</sub> at 60/40 °C	5.7 kW	7.6 kW	11.0 kW	14.9 kW
Min. heat output P <sub>min</sub> at 50/30 °C	5.8 kW	8.3 kW	11.3 kW	15.5 kW
Min. heat output P <sub>min</sub> at 40/30 °C	6.0 kW	8.0 kW	11.2 kW	15.3 kW
Nominal heat output P <sub>n</sub> at 80/60 °C	17.2 kW	24.3 kW	33.3 kW	47.2 kW
Nominal heat output P <sub>n</sub> at 60/40 °C	18.9 kW	25.1 kW	36.4 kW	50.4 kW
Nominal heat output P <sub>n</sub> at 50/30 °C	19.1 kW	26.5 kW	37.5 kW	51.5 kW
Nominal heat output P <sub>n</sub> at 40/30 °C	19.3 kW	26.0 kW	37.3 kW	51.5 kW
Maximum nominal heat input: Q <sub>max</sub>	18.0 kW	25.0 kW	35.0 kW	48.0 kW
Minimum nominal heat input: Q <sub>min</sub>	5.4 kW	7.5 kW	10.5 kW	14.4 kW

### Technical data – Power/loading G31

For a 10 m concentric flue system with a diameter of 80/125 mm and two 87° elbows, open-flued

	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Min. heat output P <sub>min</sub> at 80/60 °C	5.9 kW	7.3 kW	10.4 kW	14.5 kW
Min. heat output P <sub>min</sub> at 60/40 °C	6.3 kW	7.9 kW	10.9 kW	14.9 kW
Min. heat output P <sub>min</sub> at 50/30 °C	6.5 kW	8.1 kW	11.2 kW	15.5 kW
Min. heat output P <sub>min</sub> at 40/30 °C	6.4 kW	8.0 kW	11.2 kW	15.3 kW
Nominal heat output P <sub>n</sub> at 80/60 °C	19.3 kW	22.7 kW	33.0 kW	43.3 kW
Nominal heat output P <sub>n</sub> at 60/40 °C	21.2 kW	25.1 kW	36.4 kW	47.0 kW
Nominal heat output P <sub>n</sub> at 50/30 °C	21.0 kW	24.4 kW	34.6 kW	46.7 kW
Nominal heat output P <sub>n</sub> at 40/30 °C	21.4 kW	26.0 kW	37.3 kW	48.2 kW
Maximum nominal heat input: Q <sub>max</sub>	20.0 kW	23.5 kW	33.0 kW	45.0 kW
Minimum nominal heat input: Q <sub>min</sub>	6.0 kW	7.6 kW	10.5 kW	14.5 kW

## Technical data - Heating

	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Max. flow temperature adjustment range (default setting: 75 °C)	40 to 85 °C	40 to 85 °C	40 to 85 °C	40 to 85 °C
Maximum operating pressure	0.3 MPa	0.3 MPa	0.3 MPa	0.3 MPa
Circulation water volume (with reference to $\Delta T= 20$ K)	735 l/h	1,040 l/h	1,430 l/h	1,990 l/h
Pressure loss at nominal circulation water volume	0.8 kPa	1.2 kPa	1.6 kPa	3 kPa
Condensate volume at 50/30 °C	2.9 l/h	4.0 l/h	5.7 l/h	7.7 l/h
Heating standby losses 30 K	30 W/%	30 W/%	30 W/%	30 W/%
Heating standby losses 30 K	30 W	30 W	30 W	30 W
Nominal heating input range G31	6.0 to 20.0 kW	7.6 to 23.5 kW	10.5 to 33.0 kW	14.5 to 45.0 kW

## Technical data - Electrics

	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Rated voltage	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Electr. power consumption at $Q_n$	28 W	48 W	48 W	66 W
Electr. power consumption at $Q_{min}$	14 W	14 W	15 W	16 W
Electr. power consumption in standby mode	3 W	3 W	3 W	3 W
IP rating	IP 00	IP 00	IP 00	IP 00
Protection class	II	II	II	II
Built-in fuse	T2	T2	T2	T2

## Technical data - Ecodesign Directive

	ecoVIT VKK 186/5 (E-DE) R1	ecoVIT VKK 256/5 (E-DE) R1	ecoVIT VKK 356/5 (E-DE) R1	ecoVIT VKK 486/5 (E-DE) R1
Nominal heat output	18.0 kW	25.0 kW	35.0 kW	48.0 kW
Seasonal efficiency of room heating	90.5 %	90.7 %	90.3 %	91.2 %
Useful heat at full heating output and for high-temperature systems	17.2 kW	24.3 kW	33.3 kW	47.2 kW
Useful heat at 30% of the nominal heat output and for low-temperature systems	3.7 kW	5.2 kW	7.2 kW	9.9 kW
Efficiency at nominal heat output and for high-temperature systems (based on gross calorific value)	86.0 %	87.5 %	85.7 %	88.6 %
At 30% of the nominal heat output and for low-temperature systems (based on gross calorific value)	95.8 %	95.6 %	95.2 %	95.7 %
Electrical auxiliary energy requirement at full load	0.033 kW	0.047 kW	0.05 kW	0.075 kW
Electrical auxiliary energy requirement at partial load	0.014 kW	0.014 kW	0.015 kW	0.016 kW
Electrical auxiliary energy requirement in standby mode	0.003 kW	0.003 kW	0.003 kW	0.003 kW
Standby heat losses	0.03 kW	0.03 kW	0.03 kW	0.03 kW
Pilot burner gas consumption	0 kW	0 kW	0 kW	0 kW

#### 14.4.4 Dimension drawing for ecoVIT VKK 186/5 to VKK 486/5

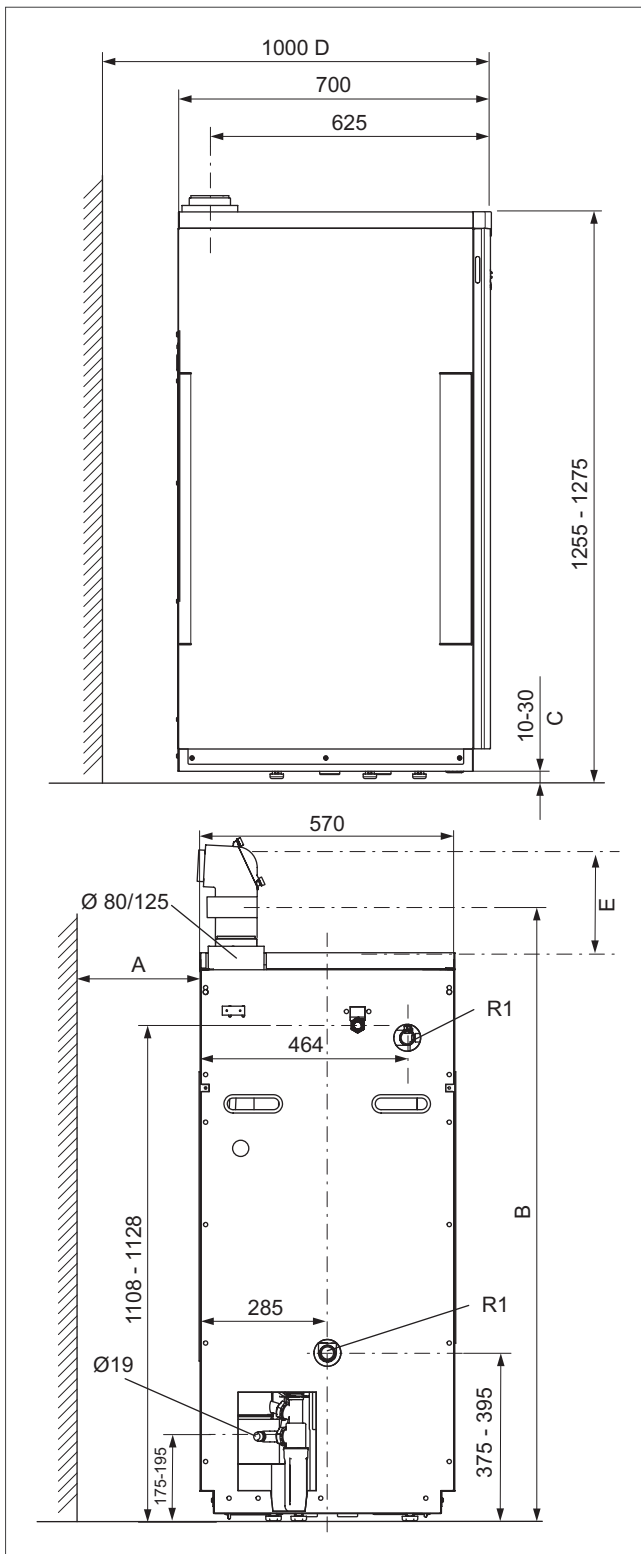


Fig. 232: Product dimensions and connection dimensions in mm

- A Min. 500 mm
- B Min. 1365 mm (flue connection and adapter with measurement opening)
- C Feet, height-adjustable by 20 mm
- D Required wall clearance 300 mm for the pipe group and condensate pump accessories
- E Min. 500 mm

## 14.5 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus				uniSTOR exclusive			uniSTOR plus			actoSTOR	
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)		VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)
ecoVIT 6.6 - 63.2 kW	VKK 186/5	o	o	o	o	o	o	-	o	o	o	o	o	o	-	•
	VKK 256/5	o	o	o	o	o	o	-	o	o	o	o	o	o	-	•
	VKK 356/5	o	o	o	o	o	o	-	o	o	o	o	o	o	-	•
	VKK 486/5	-	-	o	-	-	o	-	o	o	o	o	o	o	-	•

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 14.6 Basic system diagrams and wiring diagrams

### 14.6.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block

Number	Designation
7f	Decoupler module
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit

Number	Designation
12b	Heat pump appliance interface
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway
Electrics	
BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 14.6.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020194198	ecoVIT exclusiv	VRC 700, VR 70, VR 91	1 UFH	1 HC	–	–	–	allSTOR VPS
0020235623	ecoVIT exclusiv	VRC 700, VR 70	1 UFH	–	–	•	•	auroSTOR VPS RS
0020194213	ecoVIT exclusiv	VRC 700, VR 70	1 UFH	–	–	•	•	allSTOR VPS
0020223721	ecoVIT	VR 700, Modul 2 bis 7	–	1 HC	–	–	–	uniSTOR VIH R
0020223724	ecoVIT	VRC 700, VR 70	–	1 HC	–	•	–	auroSTOR VIH S

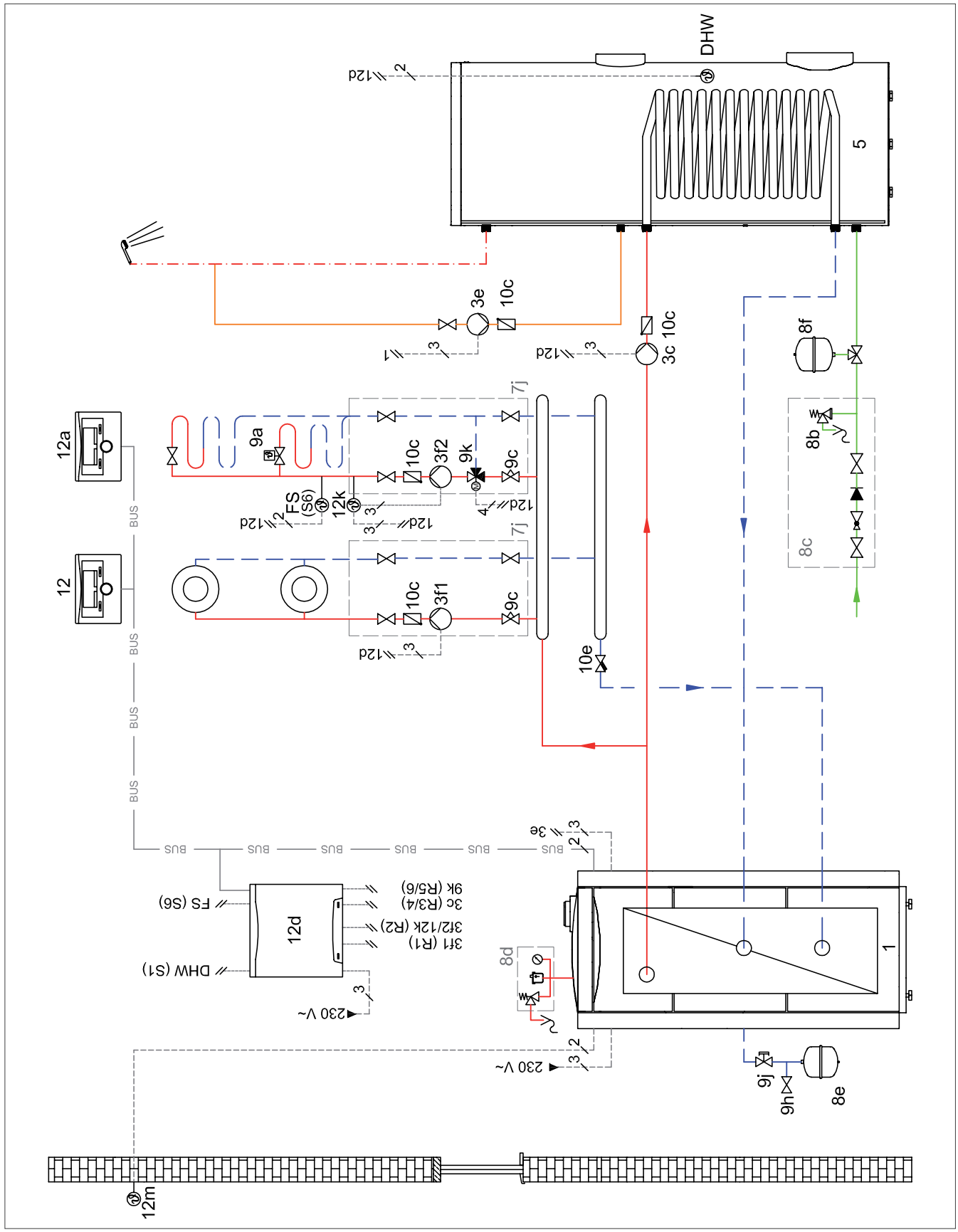


Fig. 233: Basic hydraulic diagram







## 0020235623 - Wiring diagram

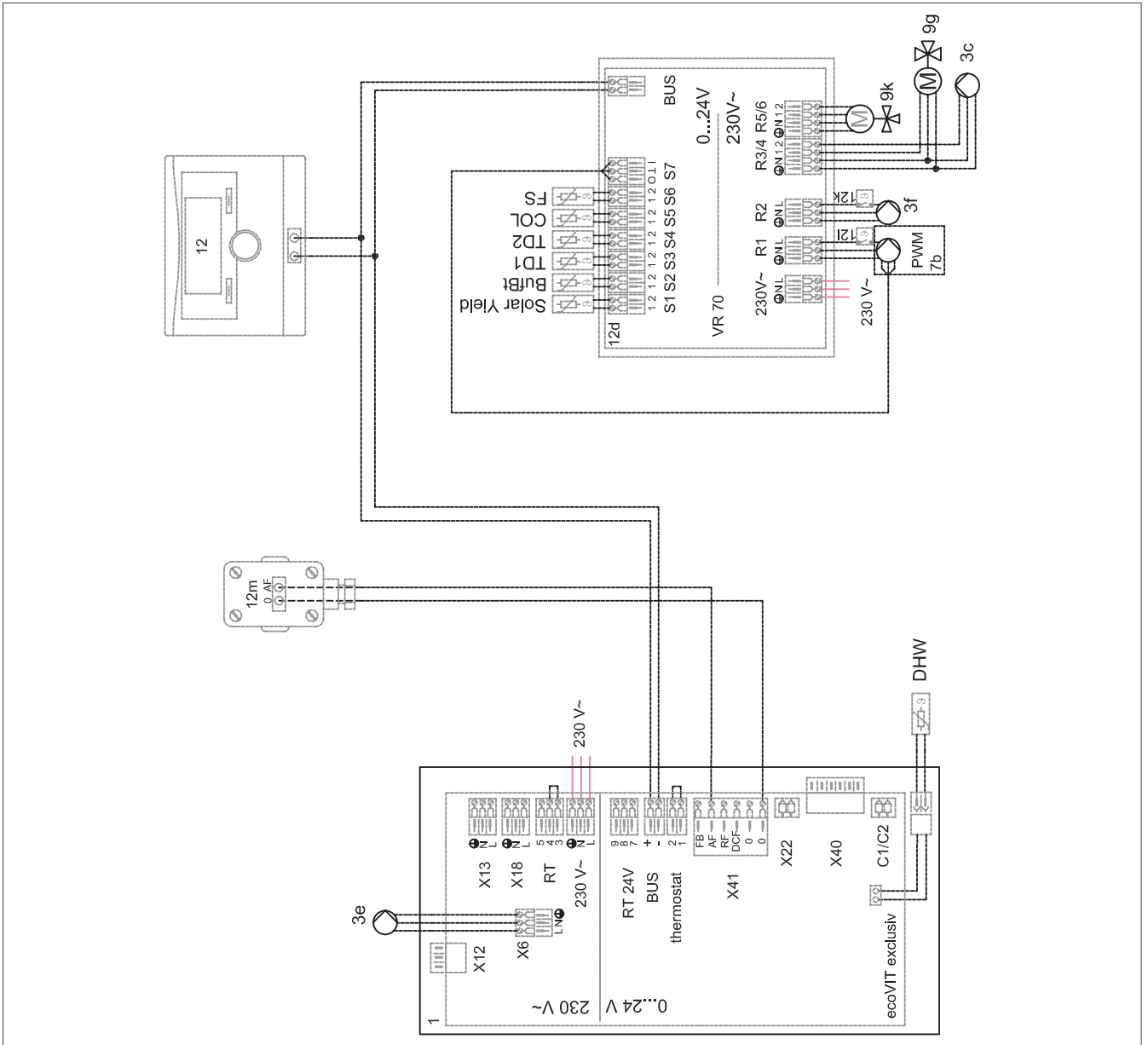


Fig. 236: Wiring diagram

### Description

Single-occupancy houses with one mixed heating circuit (underfloor heating).

The solar system supports the domestic hot water and heating systems.

The solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** \*Integrated in the heat generator. To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position.

### Individual components

- ecoVIT exclusiv
- auroSTOR VPS RS
- auroTHERM VFK
- VMS 70
- VRC 700
- VR 70

### Setting

VRC 700 System diagram setting: 2

Module setting: 12

0020194213 - Basic hydraulic diagram

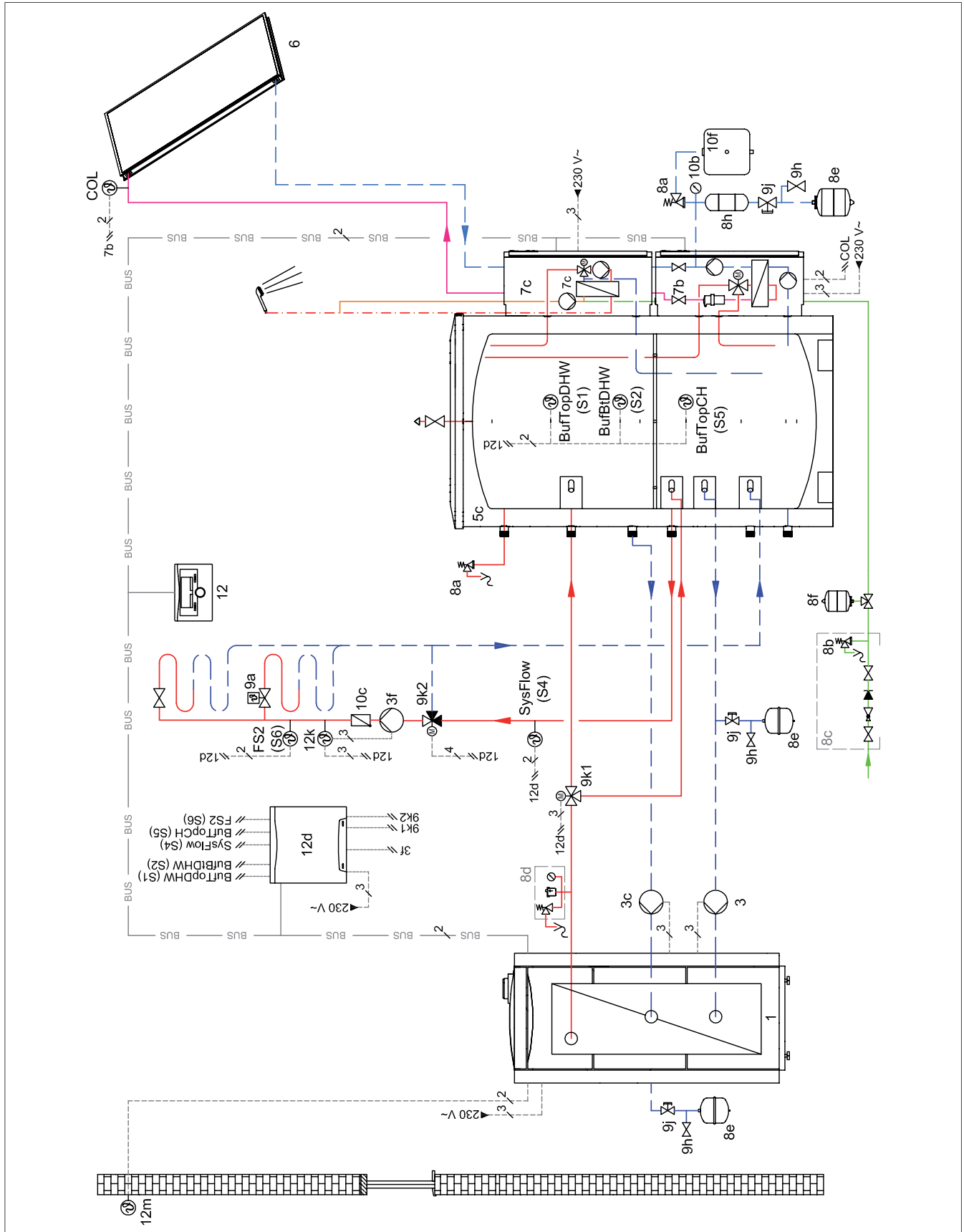


Fig. 237: Basic hydraulic diagram

## 0020194213 - Wiring diagram

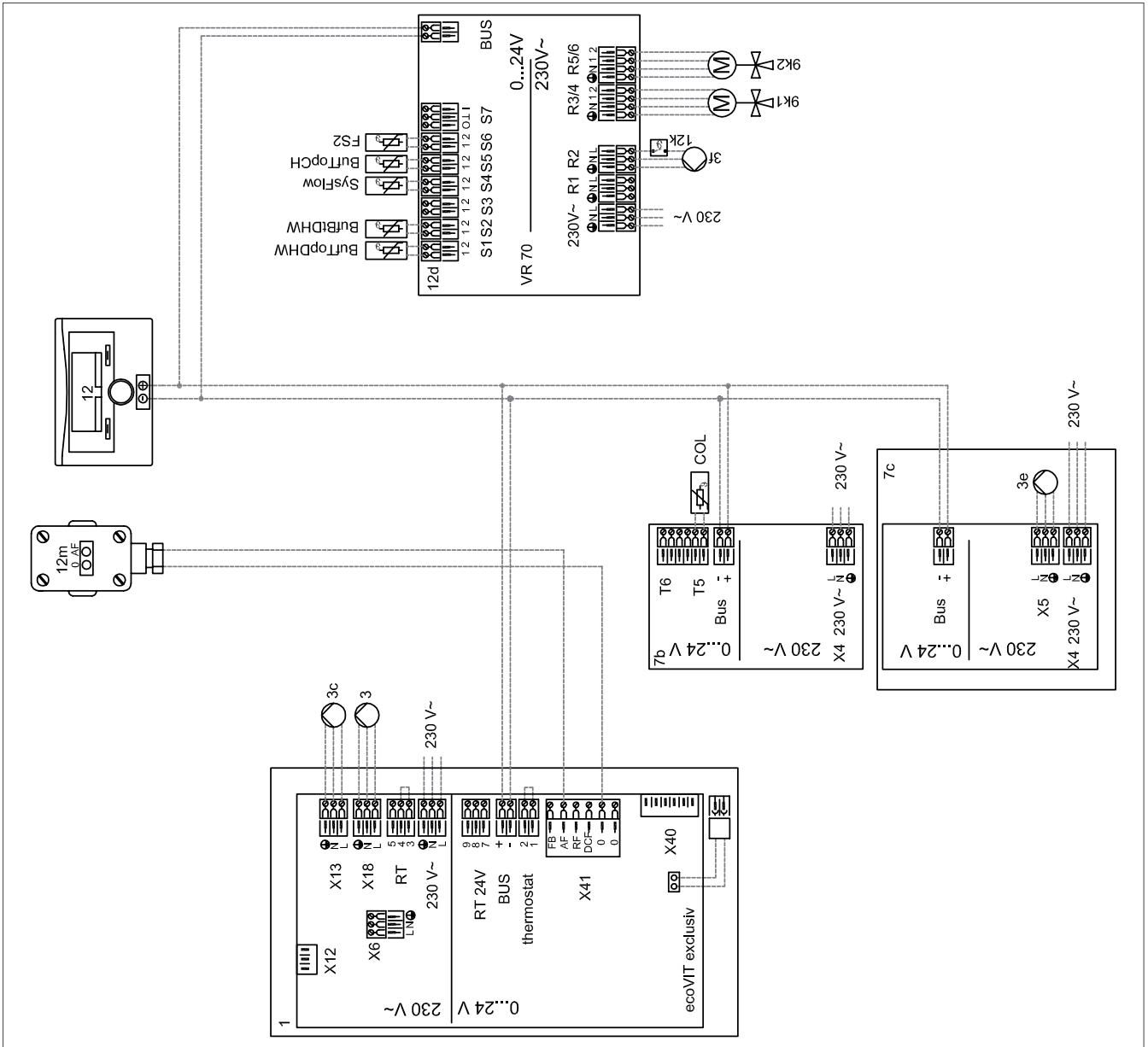


Fig. 238: Wiring diagram

### Description

Single-occupancy houses with one mixed heating circuit (underfloor heating). The solar system supports the domestic hot water and heating systems. The multi-functional cylinder must be designed in accordance with the applicable standards and regulations.

### Individual components

- ecoVIT exclusiv VKK
- allSTOR VPS
- auroTHERM VFK
- aquaFLOW VPM W
- auroFLOW VPM S
- VRC 700
- VR 70

### Setting

VRC 700 System diagram setting: 1

Module setting: 3

0020223721 - Basic hydraulic diagram

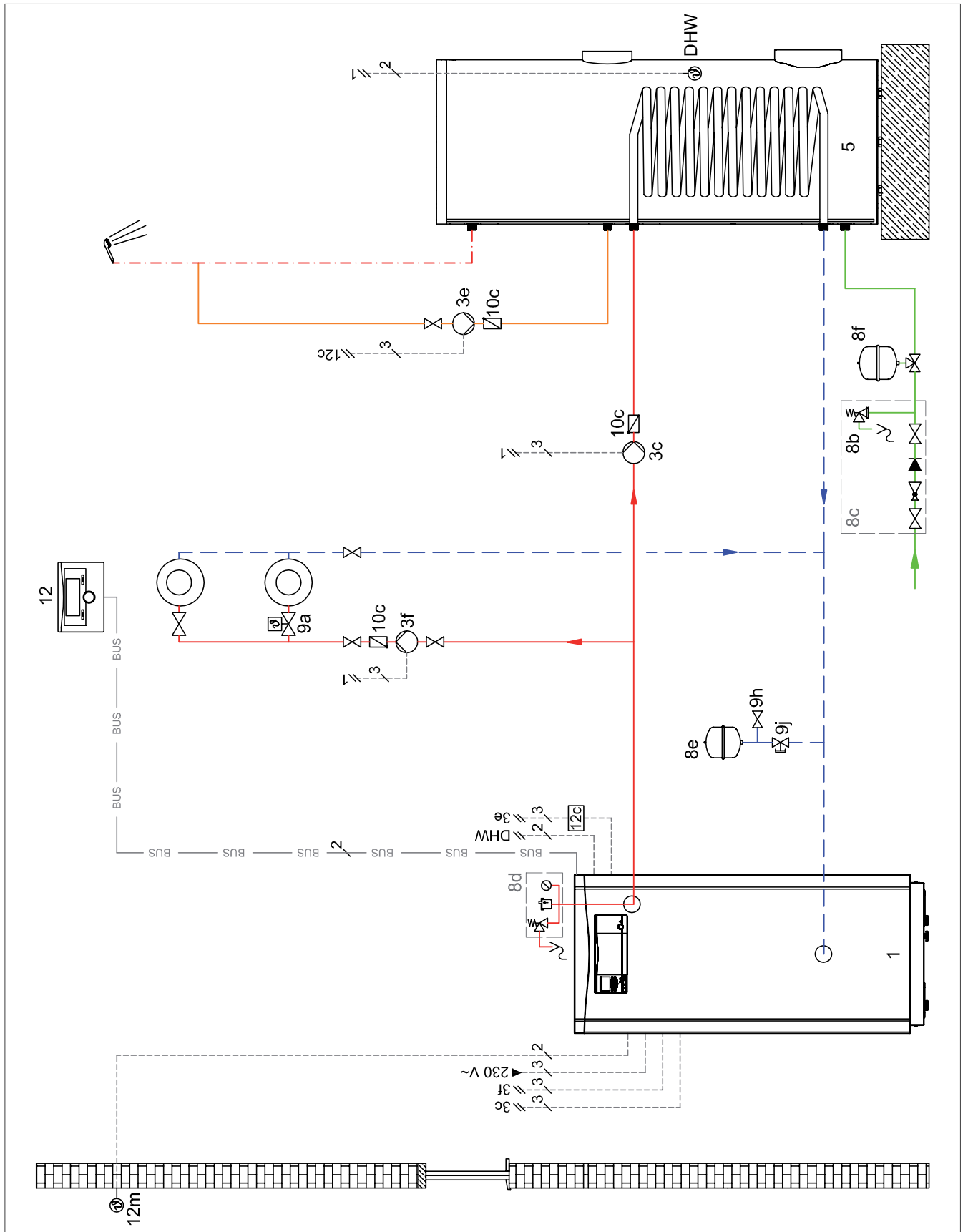


Fig. 239: Basic hydraulic diagram

## 0020223721 - Wiring diagram

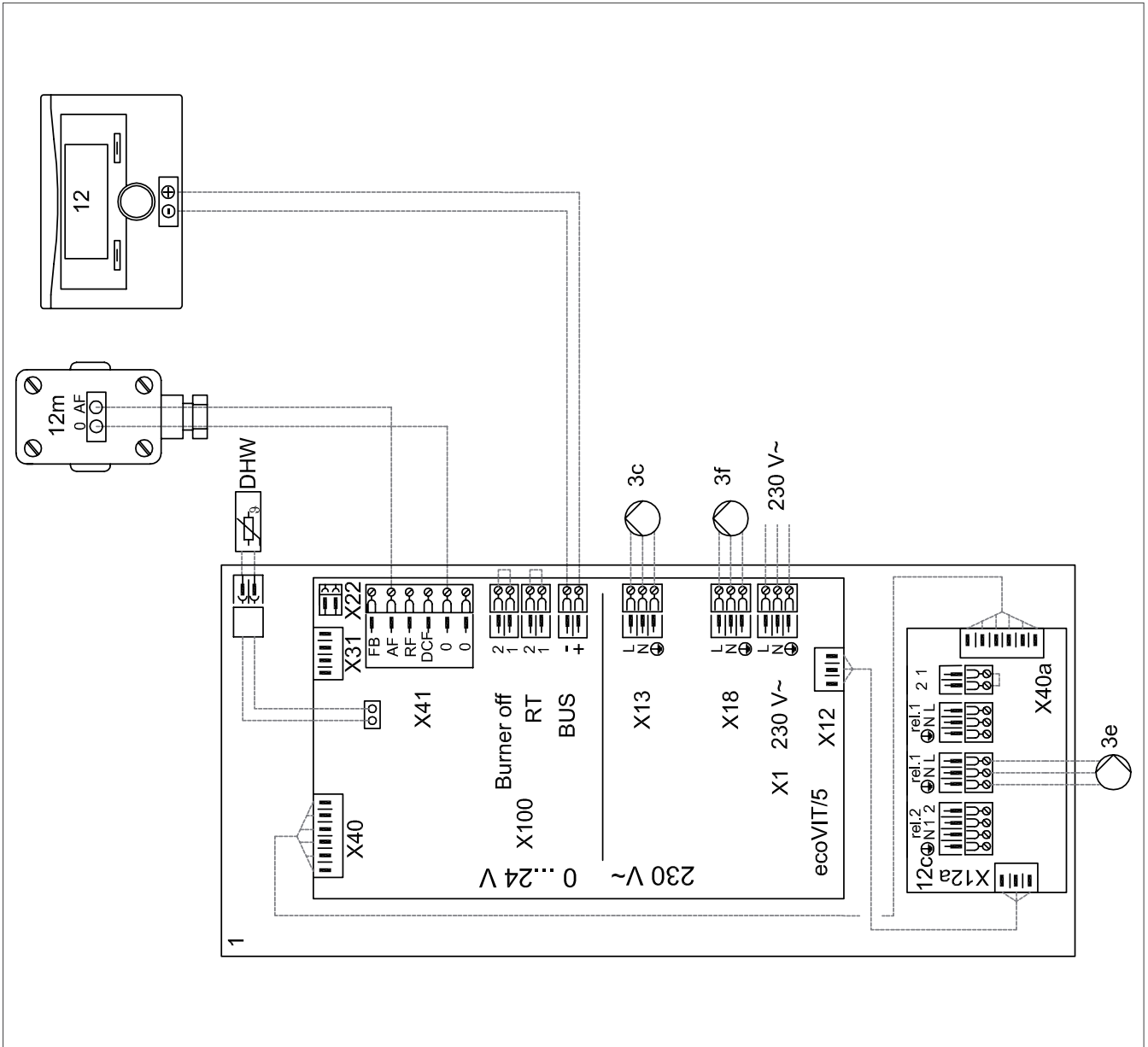


Fig. 240: Wiring diagram

### Description

Houses or apartment buildings with one heating profile and one pump heating circuit. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

### Individual components

- ecoVIT VKK
- uniSTOR VIH R
- VRC 700
- Module 2 bis 7

### Setting

VRC 700 System diagram setting: 1

0020223724 - Basic hydraulic diagram

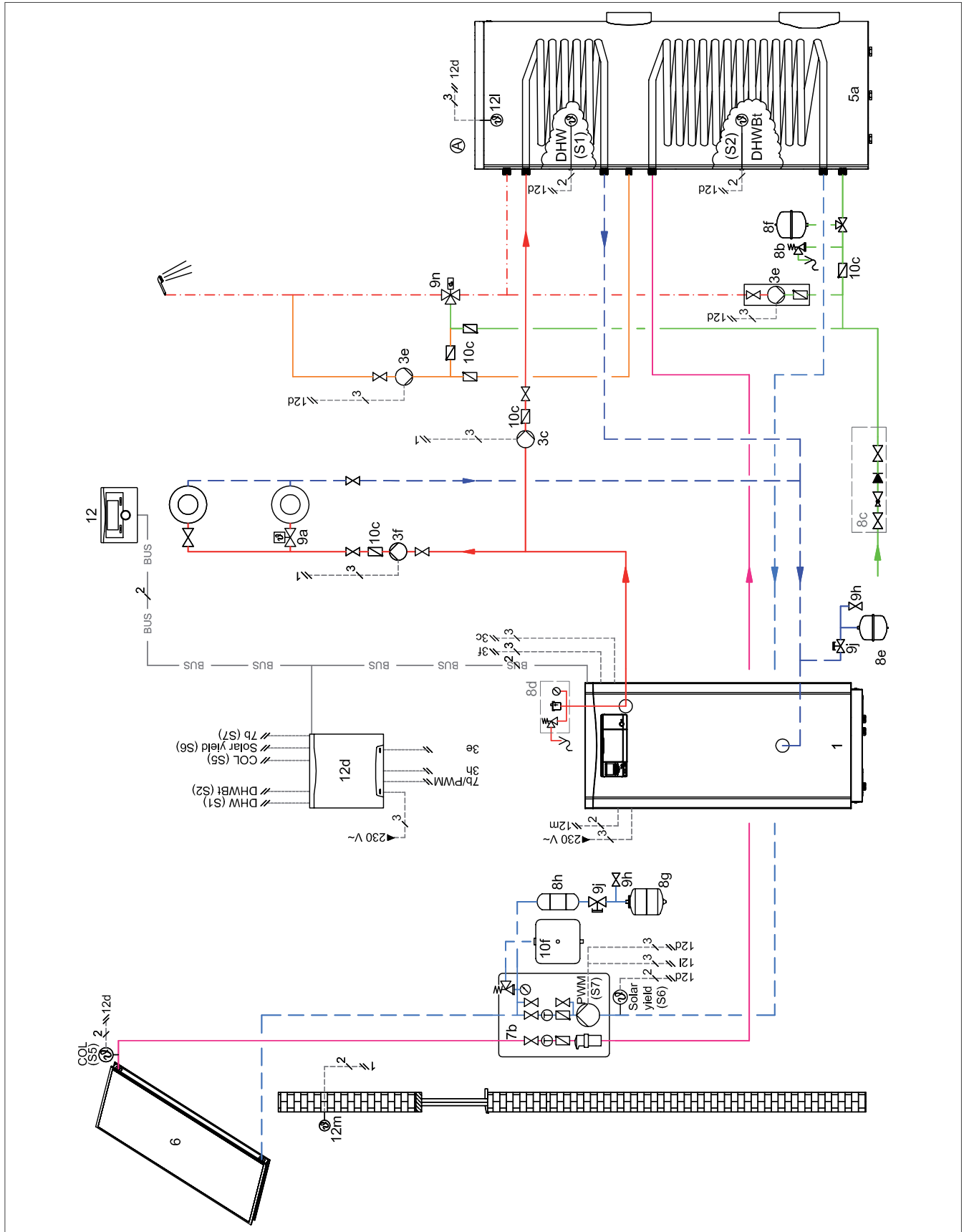


Fig. 241: Basic hydraulic diagram



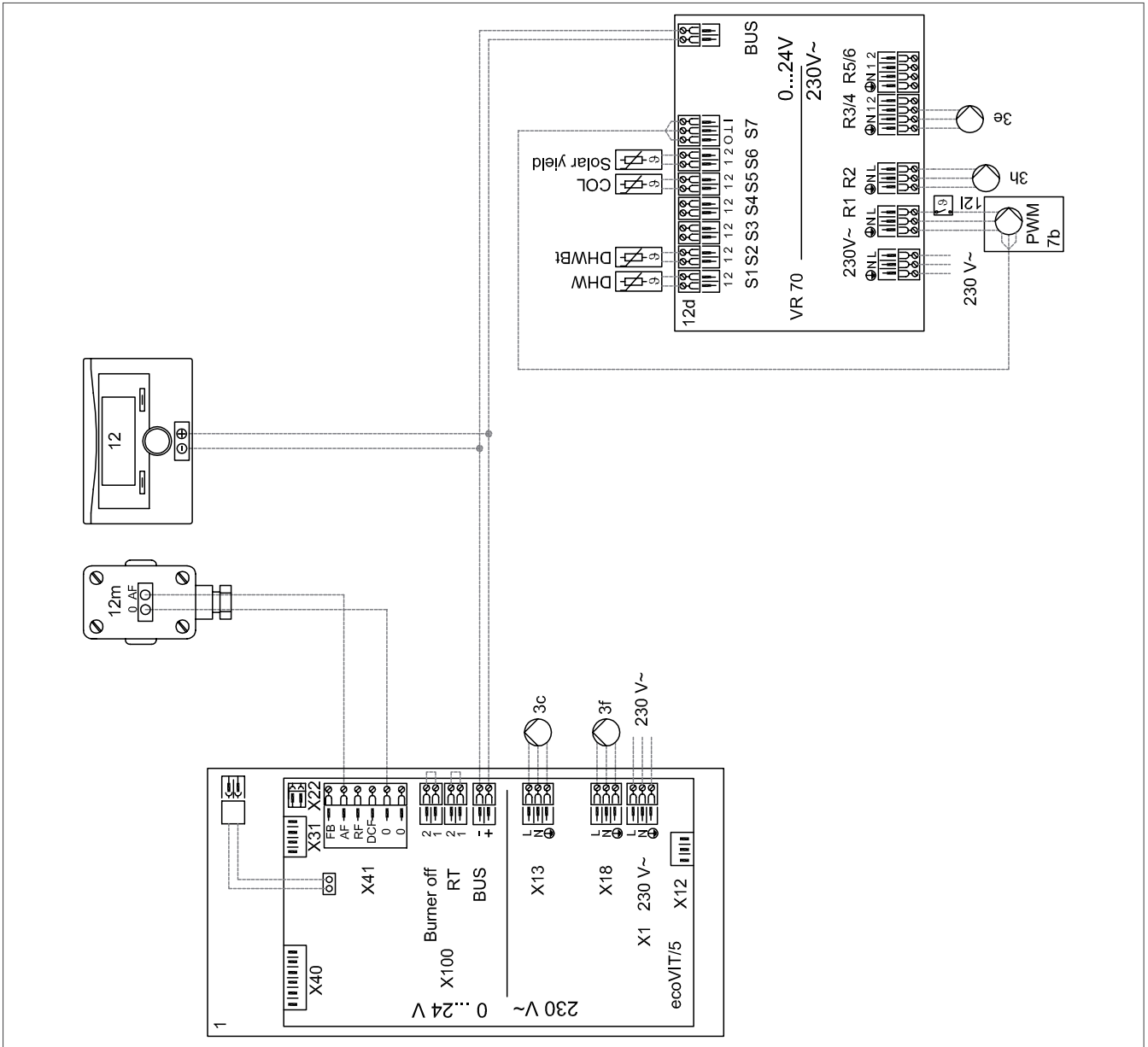


Fig. 242: Wiring diagram

**Description**

Single-occupancy houses with one direct heating circuit. The solar system supports the domestic hot water system. The solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position.

**Individual components**

- ecoVIT VKK
- auroSTOR VIH S
- auroTHERM VFK
- VMS 70
- VRC 700
- VR 70

**Setting**

VRC 700 System diagram setting: 1

Module setting: 6





# 15. Product information ecoCRAFT exclusiv .../3-E

## 15.1 Product combinations



Fig. 243: Product combinations

Product combination overview for the ecoCRAFT exclusiv .../3-E

	1 Boiler ecoCRAFT exclusiv VKK	3 Domestic hot water cylinder uniSTOR	4 Control	5 Air/flue system	6 Ventilation (optional)	7 Solar thermal energy (optional)
Heating only	•	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

## 15.2 ecoCRAFT exclusive VKK 806/3 to VKK 2806/3 product description



Fig. 244: ecoCRAFT exclusive gas-fired floor-standing condensing boiler

### 15.2.2 Potential applications

- For new builds and modernising large multiple-occupancy houses and commercial property
- The low flue gas and dew point temperatures make it especially suitable for heat distribution systems with a system temperature of 75/60 °C
- Can be installed in cellars and roof heating centres (fits through any door), fast removal
- Heating and hot water generation (in combination with directly heated cylinders or actoSTOR shift-load cylinders)
- Suitable for radiators and underfloor heating
- Open-flued and room-sealed operation
- A system-certified air/flue gas system from Vaillant, available in the sizes 130/160/200 mm for the corresponding boiler dimensions
- Unit designs can be converted from natural gas E to natural gas LL

### 15.2.3 Equipment

- Fully premixed stainless steel modulating surface burner
- Gas/air combined control system with electronically controlled fan
- DIA system with plain text display, illuminated
- Connection for external accessories (e.g. cylinder charging pump, circulation pump, heating circuit pump) is integrated

#### Note

The use of a low loss header must be considered to guarantee the minimum water circulation in the boiler.



### 15.2.1 Special features

- Standard efficiency 99% (H<sub>s</sub>)/110% (H<sub>p</sub>)
- Modulation up to 1:5
- Gas-fired floor-standing condensing boiler as a complete unit
- Extremely low emissions and optimum energy efficiency
- Operational reliability thanks to Vaillant's comfort protection
- Easy transport and good positioning due to the compact dimensions and low weight

Type overview

Unit designation	Gas type	Order no.
VKK 806/3-E-HL	Natural gas G20, G25	
VKK 1206/3-E-HL	Natural gas G20, G25	
VKK 1606/3-E-HL	Natural gas G20, G25	
VKK 2006/3-E-HL	Natural gas G20, G25	
VKK 2406/3-E-HL	Natural gas G20, G25	
VKK 2806/3-E-HL	Natural gas G20, G25	

## 15.2.4 Technical data

### Technical data - General

	VKK 806/3-E-HL	VKK 1206/3-E-HL	VKK 1606/3-E-HL	VKK 2006/3-E-HL	VKK 2406/3-E-HL	VKK 2806/3-E-HL
Designated country (designation in accordance with ISO 3166)	DE (Germany); AT (Austria); BE (Belgium); CH (Switzerland)	DE (Germany); AT (Austria); BE (Belgium); CH (Switzerland)	DE (Germany); AT (Austria); BE (Belgium); CH (Switzerland)	DE (Germany); AT (Austria); BE (Belgium); CH (Switzerland)	DE (Germany); AT (Austria); BE (Belgium); CH (Switzerland)	DE (Germany); AT (Austria); BE (Belgium); CH (Switzerland)
Approved gas boiler categories	I <sub>2H</sub> (AT, CH); I <sub>2ELL</sub> (DE); I <sub>2E(R)B</sub> (BE)	I <sub>2H</sub> (AT, CH); I <sub>2ELL</sub> (DE); I <sub>2E(R)B</sub> (BE)	I <sub>2H</sub> (AT, CH); I <sub>2ELL</sub> (DE); I <sub>2E(R)B</sub> (BE)	I <sub>2H</sub> (AT, CH); I <sub>2ELL</sub> (DE); I <sub>2E(R)B</sub> (BE)	I <sub>2H</sub> (AT, CH); I <sub>2ELL</sub> (DE); I <sub>2E(R)B</sub> (BE)	I <sub>2H</sub> (AT, CH); I <sub>2ELL</sub> (DE); I <sub>2E(R)B</sub> (BE)
Gas connection, boiler side	R 1 1/2 inch	R 1 1/2 inch	R 1 1/2 inch	R 1 1/2 inch	R 1 1/2 inch	R 1 1/2 inch
Flow/return heating connections, boiler side	R 2 inch	R 2 inch	R 2 inch	R 2 inch	R 2 inch	R 2 inch
Flue pipe diameter	150 mm	150 mm	150 mm	200 mm	200 mm	200 mm
Supply air pipe diameter	130 mm	130 mm	130 mm	130 mm	130 mm	130 mm
Condensate discharge pipe (min.)	21 mm	21 mm	21 mm	21 mm	21 mm	21 mm
Natural gas flow pressure (G20)	2 kPa	2 kPa	2 kPa	2 kPa	2 kPa	2 kPa
Natural gas flow pressure (G25) DE	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa	2.0 kPa
Natural gas flow pressure (G25) BE, FR	2.5 kPa	2.5 kPa	2.5 kPa	2.5 kPa	2.5 kPa	2.5 kPa
Gas flow rate at 15 °C and 1013 mbar, (G20)	8.5 m³/h	12.3 m³/h	16.9 m³/h	21.2 m³/h	25.4 m³/h	29.6 m³/h
Min. flue gas mass flow rate (G20)	6.3 g/s	10.0 g/s	12.2 g/s	19.9 g/s	21.7 g/s	23.5 g/s
Max. flue gas mass flow rate (G20)	35.4 g/s	51.2 g/s	70.7 g/s	88.4 g/s	106.1 g/s	123.8 g/s
Min. flue gas temperature (at tV/tR = 80/60 °C)	62 °C	62 °C	62 °C	62 °C	62 °C	62 °C
Max. flue gas temperature (at tV/tR = 80/60 °C)	60 to 70 °C	60 to 70 °C	60 to 70 °C	60 to 70 °C	60 to 70 °C	60 to 70 °C
Unit type	B23; B23P; B53; C33; C43; C53; C83; C93	B23; B23P; B53; C33; C43; C53; C83; C93	B23; B23P; B53; C33; C43; C53; C83; C93	B23; B23P; B53; C33; C43; C53; C83; C93	B23; B23P; B53; C33; C43; C53; C83; C93	B23; B23P; B53; C33; C43; C53; C83; C93
Nominal efficiency (stationary) at 80/60 °C	97.8 %	97.8 %	97.8 %	98.4 %	98.4 %	98.4 %
Nominal efficiency (stationary) at 60/40 °C	100.5 %	100.5 %	100.5 %	100.5 %	100.5 %	100.5 %
Nominal efficiency (stationary) at 50/30 °C	103.0 %	103.0 %	103.0 %	103.0 %	103.0 %	103.0 %
Nominal efficiency (stationary) at 40/30 °C	105.1 %	105.1 %	105.1 %	105.1 %	105.1 %	105.1 %
30% efficiency	108.4 %	108.4 %	108.4 %	108.2 %	108.2 %	108.2 %
Standard efficiency (when set to nominal heat output, DIN 4702, T8) at 75/60 °C	106.0 %	106.0 %	106.0 %	106.0 %	106.0 %	106.0 %
Standard efficiency (when set to nominal heat output, DIN 4702, T8) at 40/30 °C	110.0 %	110.0 %	110.0 %	110.0 %	110.0 %	110.0 %
Remaining feed pressure (does not apply for cascade systems)	100.0 Pa	100.0 Pa	150.0 Pa	150.0 Pa	150.0 Pa	150.0 Pa
NOx class	6	6	6	6	6	6
NOx emissions	33.93 mg/kW-h	41.76 mg/kW-h	41.76 mg/kW-h	41.76 mg/kW-h	41.76 mg/kW-h	41.76 mg/kW-h
CO emissions	<20 mg/kWh	<20 mg/kWh	<20 mg/kWh	<20 mg/kWh	<20 mg/kWh	<20 mg/kWh
Nominal CO <sub>2</sub> (G20/G25)	9.1 to 9.3 vol. %	9.1 to 9.3 vol. %	9.1 to 9.3 vol. %	9.1 to 9.3 vol. %	9.1 to 9.3 vol. %	9.1 to 9.3 vol. %
Unit dimensions, width	695 mm	695 mm	695 mm	695 mm	695 mm	695 mm
Unit dimensions, height	1,285 mm	1,285 mm	1,285 mm	1,285 mm	1,285 mm	1,285 mm
Unit dimensions, depth	1,240 mm	1,240 mm	1,240 mm	1,550 mm	1,550 mm	1,550 mm
Approx. net weight	200 kg	220 kg	235 kg	275 kg	295 kg	310 kg
Ready for operation weight approx.	210 kg	235 kg	255 kg	300 kg	320 kg	340 kg

### Technical data - Power/loading G20/G25

	VKK 806/3-E-HL	VKK 1206/3-E-HL	VKK 1606/3-E-HL	VKK 2006/3-E-HL	VKK 2406/3-E-HL	VKK 2806/3-E-HL
Nominal heat output range P at 80/60 °C	13.6 to 78.2 kW	21.3 to 113.4 kW	26.2 to 156.5 kW	43.1 to 196.8 kW	47.0 to 236.2 kW	51.0 to 275.5 kW
Nominal heat output range P at 60/40 °C	14.1 to 80.4 kW	22.1 to 116.5 kW	27.1 to 160.8 kW	44.2 to 201.0 kW	48.2 to 241.2 kW	52.3 to 281.4 kW
Nominal heat output range P at 50/30 °C	14.4 to 82.4 kW	22.7 to 119.4 kW	27.8 to 164.8 kW	45.3 to 206.0 kW	49.4 to 247.2 kW	53.6 to 288.4 kW
Nominal heat output range P at 40/30 °C	14.7 to 84.1 kW	23.1 to 121.8 kW	28.4 to 168.2 kW	46.2 to 210.2 kW	50.4 to 252.2 kW	54.7 to 294.3 kW
Maximum heat input, heating side	80.0 kW	115.9 kW	160.0 kW	200.0 kW	240.0 kW	280.0 kW
Minimum heat input	14.0 kW	22.0 kW	27.0 kW	44.0 kW	48.0 kW	52.0 kW

### Technical data - Heating

	VKK 806/3-E-HL	VKK 1206/3-E-HL	VKK 1606/3-E-HL	VKK 2006/3-E-HL	VKK 2406/3-E-HL	VKK 2806/3-E-HL
Max. flow temperature adjustment range (default setting: 80 °C)	35 to 85 °C	35 to 85 °C	35 to 85 °C	35 to 85 °C	35 to 85 °C	35 to 85 °C
Permissible total excess pressure	0.6 MPa	0.6 MPa	0.6 MPa	0.6 MPa	0.6 MPa	0.6 MPa
Floor-standing boiler capacity (without connection piece)	5.74 l	8.07 l	10.4 l	12.73 l	15.05 l	17.37 l
Circulation water volume (with reference to $\Delta T= 20$ K)	3.44 m <sup>3</sup> /h	4.99 m <sup>3</sup> /h	6.88 m <sup>3</sup> /h	8.60 m <sup>3</sup> /h	10.33 m <sup>3</sup> /h	12.05 m <sup>3</sup> /h
Pressure loss (with reference to $\Delta T= 20$ K)	0.008 MPa	0.0085 MPa	0.009 MPa	0.0095 MPa	0.01 MPa	0.0105 MPa
Condensate volume at heating mode 40/30 °C	13 l/h	20 l/h	27 l/h	34 l/h	40 l/h	47 l/h
Heating standby losses per day (heating 70 °C)	<0.4%	<0.4%	<0.4%	<0.4%	<0.4%	<0.4%

### Technical data - Electrics

	VKK 806/3-E-HL	VKK 1206/3-E-HL	VKK 1606/3-E-HL	VKK 2006/3-E-HL	VKK 2406/3-E-HL	VKK 2806/3-E-HL
Rated voltage	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Permissible connected voltage	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V	190 to 253 V
Built-in fuse (slow-blow, H or D)	4 A	4 A	4 A	4 A	4 A	4 A
Max. electrical power consumption	260 W	260 W	320 W	320 W	320 W	320 W
Standby electrical power consumption	8 W	8 W	8 W	8 W	8 W	8 W
IP rating	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Unit protection class	Class I	Class I	Class I	Class I	Class I	Class I
Test symbol/registration no.	CE-0063BS3740; ÖVGW reg. no. G 2.918; SVGW reg. no. 08-024-4	CE-0063BS3740; ÖVGW reg. no. G 2.918; SVGW reg. no. 08-024-4	CE-0063BS3740; ÖVGW reg. no. G 2.918; SVGW reg. no. 08-024-4	CE-0063BS3740; ÖVGW reg. no. G 2.918; SVGW reg. no. 08-024-4	CE-0063BS3740; ÖVGW reg. no. G 2.918; SVGW reg. no. 08-024-4	CE-0063BS3740; ÖVGW reg. no. G 2.918; SVGW reg. no. 08-024-4
Test symbol/registration no.	CE-0063BS3740	CE-0063BS3740	CE-0063BS3740	CE-0063BS3740	CE-0063BS3740	CE-0063BS3740

## 15.2.5 Dimensions

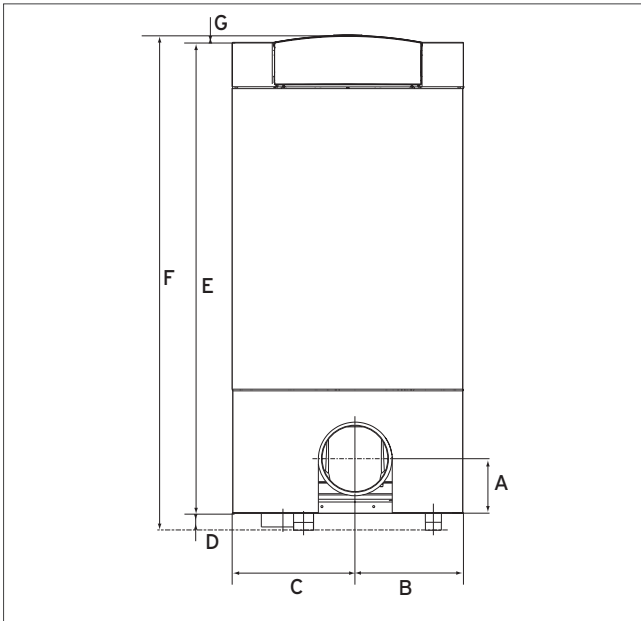


Fig. 245: Dimensions in mm

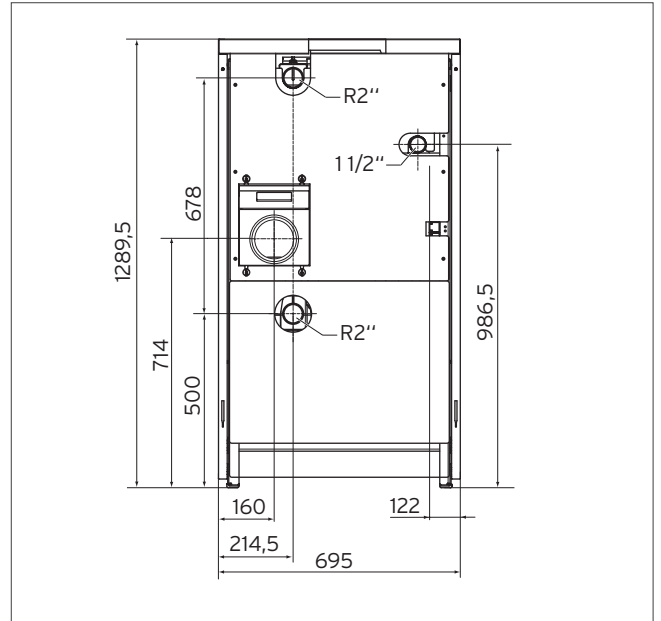


Fig. 246: Product dimensions in mm

Product dimensions in mm

Item	VKK 806/3 - 1606/3	VKK 2006/3 - 2806/3
A	165	165
B	326	326
C	369	369
D	50	50
E	1168	1478
F	1270	1580
G	22	22

## 15.3 Supplementary information for ecoCRAFT exclusive VKK 806/3 to VKK 2806/3

### 15.3.1 Required minimum clearances/installation clearances

The minimum clearances and installation clearances listed in the illustration are required for the installation/assembly of the unit as well as for carrying out future maintenance work.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

We recommend that ecoCRAFT exclusive gas-fired condensing boilers are placed on foundations that are 5-10 cm high.

Remove the boiler casing before positioning in order to protect it against possible damage.

Various openings for retaining and lifting are now accessible on the unit to simplify the transportation process. The boiler may also be moved using a fork-lift truck, as a constructional space has been provided for this purpose.

Ensure that the boiler is positioned as level as possible with a pitch angle under 45°, as otherwise shear forces can cause damage to the frame structure. Note the following table of dimensions as well.

Boiler dimensions with and without casing

ecoCRAFT /3 boiler dimensions	VKK 806/3-E VKK 1206/3-E VKK 1606/3-E	VKK 2006/3-E VKK 2406/3-E VKK 2806/3-E
With casing		
Floor height up to casing upper edge without height adjustment	1285	1285
Casing height with height adjustment up to casing upper edge	1305	1305
Width	695	695
Depth (without flap, without connection to rear)	1168	1478
Depth (with flap, with connections to rear)	1240	1550
Without casing		
Height (without upper casing)	1245	1245
Width (without side casing) including lugs	680	680
Depth (without front casing, minus piping) without electronics box	1035	1341
Depth (without front casing, including piping) without electronics box	1085	1391
Depth (without front casing, minus piping) with electronics box	1145	1451
Depth (without front casing, including piping) with electronics box	1195	1501

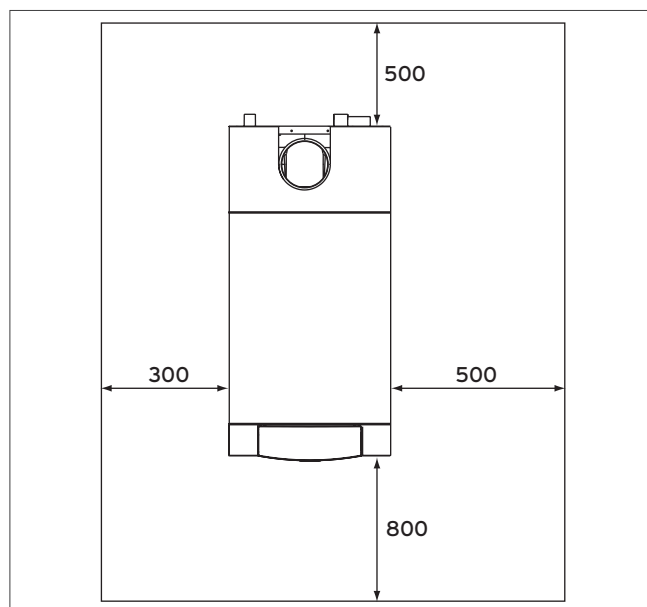


Fig. 247: Required minimum clearances/installation clearances



### 15.3.2 Maintaining a minimum circulation water volume in the heat exchanger

The gas-fired floor-standing condensing boilers must have a sufficient volume of heating water circulating through them. If a minimum circulation water volume is not maintained, the temperature spread in the heat exchanger becomes too great and the boiler switches off.

To guarantee the necessary circulation water volume, a boiler circuit pump can be used together with a low loss header, buffer cylinder or heat exchanger. However, a low loss header is not absolutely necessary (see „Operation with no low loss header“).

Suitable boiler circuit pumps and low loss headers can be drawn from the following table.

It is recommended to install a line strainer upstream of the boiler circuit pump and the boiler in the installation. This must be flushed clean of dirt and sludge, particularly in the case of existing installations. Otherwise, deposits of contaminants may form in the gas-fired floor-standing condensing boiler and in the boiler circuit pump, causing localised overheating, corrosion and noises. System separation must be carried out for underfloor heating with plastic piping that is not diffusion-tight. Damage caused by failure to observe the measures specified above is not covered by the warranty.

Pump and low loss header selection

ecoCRAFT exclusiv	Unit	VKK 806/3-E	VKK 1206/3-E	VKK 1606/3-E	VKK 2006/3-E	VKK 2406/3-E	VKK 2806/3-E
Minimum volume of circulating water ( $\Delta T = 25 \text{ K}$ )	m <sup>3</sup> /h	2,75	3,99	5,50	6,87	8,25	9,62
Pump feed head at operating point	m	1.5	1.6	1.7	1.8	1.9	2.0
<b>High-efficiency boiler circuit pump</b>							
Speed-controlled (accessory)	Order no.	0020180027	0020180027	0020180027	0020180028	0020180028	0020180028
Installed length	mm	180	180	180	220	220	220 (30 mm adaptor enclosed)
Connection	-	G 2	G 2	G 2	DN 40	DN 40	DN 40
<b>On-site boiler circuit pump</b>							
Example: Grundfos	-	UPS 32-30 F	UPS 32-30 F	UPS 40-30 F	UPS 32-60 F	UPS 40-60/2 F	UPS 40-60/2 F
Installed length	mm	220	220	250	220	250	250
Connection	-	DN 32/PN 6	DN 32/PN 6	DN 40/PN 6	DN 32/PN 6	DN 40/PN 6	DN 40/PN 6
Stage, selected	-	Medium	Medium	Medium	Max.	Medium	Medium
<b>Low loss header (accessory)</b>	Type	WH 95	WH 160	WH 160	WH 280	WH 280	WH 280
	Order no.	306 721	306 726	306 726	306 725	306 725	306 725

### 15.3.3 Operation without low loss header

The ecoCRAFT exclusive can also be operated without a low loss header. However, when planning the installation, the following minimum circulating water volumes must be ensured and maintained.

Minimum circulating water volumes

ecoCRAFT exclusiv	Nominal heat loading in kW	Min. nominal heat loading in kW	Max. starting output in %	Max. starting output in kW	Circulation in m <sup>3</sup> /h at nominal output ( $\Delta T = 25 \text{ K}$ )	Circulation in m <sup>3</sup> /h at min. output	Circulation in m <sup>3</sup> /h at max. starting output
VKK 806/3-E	80	14	48	38,4	2,75	0,48	1,32
VKK 1206/3-E	115,9	22	45	52,2	3,99	0,76	1,79
VKK 1606/3-E	160	27	35	56,0	5,50	0,93	1,93
VKK 2006/3-E	200	44	39	78,0	6,88	1,51	2,68
VKK 2406/3-E	240	48	36	86,4	8,25	1,65	2,97
VKK 2806/3-E	280	52	34	95,2	9,63	1,79	3,27

### 15.3.4 Cascade solution for ecoCRAFT

Vaillant ecoCRAFT exclusives allow for cascade solutions up to 720 kW.

Cascade output range

ecoCRAFT exclusiv	Cascade output range (kW)	
	Two-unit cascade	Three-unit cascade
VKK 806/3-E	14,1 - 160	14,1 - 240
VKK 1206/3-E	22,1 - 240	22,1 - 360
VKK 1606/3-E	27,1 - 320	27,1 - 480
VKK 2006/3-E	44,2 - 400	44,2 - 600
VKK 2406/3-E	48,2 - 480	48,2 - 720
VKK 2806/3-E	52,3 - 560	-

When installing and connecting a cascade system, it is important to note any important aspects relating to hydraulic integration in the heat distribution network of a heating installation, to the intelligent control system for energy-efficient and needs-oriented management of the units and to the flue system.

Vaillant offers a complete range of cascade accessories for the construction of cascade systems. These include low loss headers, weather-compensated controls for cascading operation, as well as a special flue system for cascade systems with two or three gas-fired floor-standing condensing boilers.

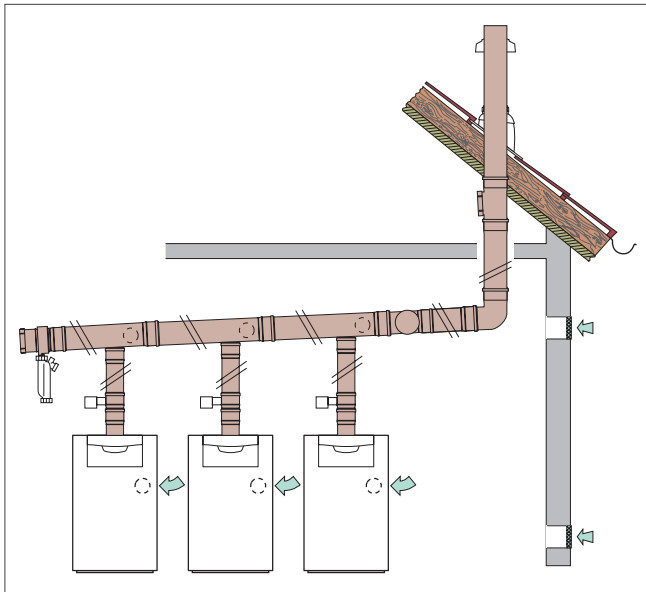


Fig. 248: Flue ecoCRAFT cascade

#### Cascade flue gas system

- System-certified and approved flue components for an excess pressure cascade system with up to three units of the same type and power (a maximum of three VKK 2406/3-Es and two VKK 2806/3-Es can be used in a cascade)
- For open-flued operation

- Three pipe systems are used for ecoCRAFT cascade systems:
  - Rigid 160 mm diameter flue pipework (PP), only for connecting to the flue gas collector
  - Rigid 200 mm diameter flue pipework (PP)
  - Rigid 250 mm diameter flue pipework (PP)
- Simple length adaptation
- Maximum possible flue pipe length: 50 m

Detailed information on the flue gas systems and combustion air supply can be found in the section „Air/flue systems“.

#### Dimensions in the ecoCRAFT cascades' installation room

The room height is determined by the cascade headroom and the height for the required 50 mm/m downward gradient of the horizontal flue pipework and the required installation room of 200 mm.

Bear the following points in mind during installation:

- Maximum pipe lengths between two products:  $\leq 2.0$  m
- Maximum pipe lengths between the last product and the vertical part:  $\leq 3.0$  m
  - plus two 87° elbows (or two 45° elbows)
  - plus support elbow
- Each additional extension of 1 m reduces the height by 5 m
- Each additional 87° elbow reduces the height by 5 m
- Maximum pipe lengths between the product and horizontal flue gas collector:  $\leq 0.5$  m
  - plus one elbow

Dimensions	ecoCRAFT exclusive cascades
A	160/200 diameter: 282 mm / 160/250 diameter: 307 mm 200/200 diameter: 422 mm / 200/250 diameter: 447 mm
B <sub>min</sub>	D + 700 mm
B <sub>max</sub>	2000 mm
C	700 mm
D	$\geq 500$ mm
E	1530 mm
F	G + 0.055 x B
G	250 mm (as supplied)
H	160/200 diameter: 165 mm / 160/250 diameter: 165 mm 200/200 diameter: 364 mm / 200/250 diameter: 364 mm

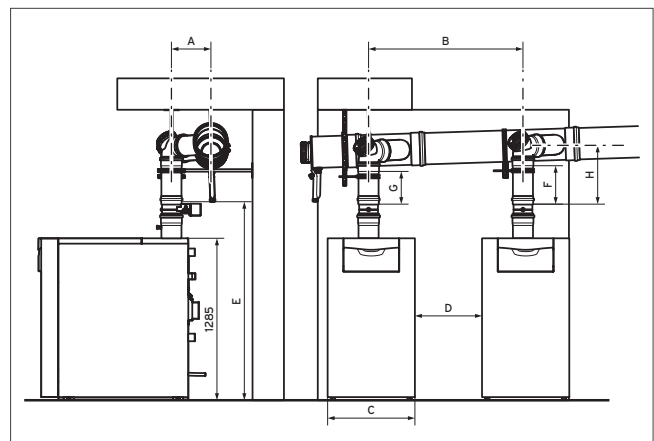


Fig. 249: Dimensions in the installation room

### Safety circuit for ecoCRAFT cascades

Additional safety measures and components are required for the flue gas cascades (in excess pressure, open-flued).

The safe operation of the ecoCRAFT cascade system is only assured with the accessories mentioned below. As a safety measure for the open-flued operation of the cascade system, one **motorised flue non-return flap**, one **2 in 7 multi-functional module** and one **electronics box with an integrated time relay** must be ordered for each boiler as well.

A motorised flue non-return flap must be installed in each section of the unit's flue pipework. These prevent flue gas from flowing back into the installation room through units that are not in operation.

The multi-functional modules are integrated into the boilers' electronics boxes. The electronics boxes with integrated time relays are installed outside of the boiler and wired according to the wiring diagram.

The motorised flue non-return flap is connected to the unit's electronics via the 2 in 7 multi-functional module. When the unit starts up, the flap starts and the closing is monitored by the end switch. The flue non-return flap is installed directly at the unit outlet.

The time relay is required to allow the operation of the other boiler while the flue non-return flap is closed (by spring force). If a flue non-return flap is not closed when the preset delay period ends, another boiler is locked (three-unit cascade).

### Hydraulic integration

Hydraulic integration is particularly important for energy-efficient operation of a cascade system. Only balanced hydraulic conditions guarantee even heat distribution and avoidance of unpleasant noise in the line system (see the system planning).

### Control system

The cascade systems are equipped with the weather-compensated VRC 700 multi-circuit and cascade control. Once a second heat generator is installed, the VR 32 modulating bus coupler is also required.

The VRC 700 was specially designed for the cascade control systems of modulating gas-fired condensing boilers and, as well as the display for maintenance intervals and faults, comes with the option to configure the separate heating circuits individually.

### 15.3.5 Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The mains feed must be connected via a fixed connection and a partition that has a minimum contact opening of 3 mm (e.g. fuses, power switches).

Directive VDE 0100 Part 701 must be observed.

The unit is equipped with System ProE connectors for easier wiring and is wired ready for connection. The mains feed and all other connection cables (e.g. for the room temperature controller) can be connected to the corresponding System ProE connectors provided

## 15.4 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus			uniSTOR exclusive			uniSTOR plus			actoSTOR		
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH K 300 (NL 10.0)
ecoCRAFT exclusiv 14.1 - 281.4 kW	VKK 806/3-E	-	-	-	-	-	-	-	•	•	•	•	•	•	-	-
	VKK 1206/3-E	-	-	-	-	-	-	-	•	•	•	•	•	•	-	-
	VKK 1606/3-E	-	-	-	-	-	-	-	o	o	o	o	o	o	-	-
	VKK 2006/3-E	-	-	-	-	-	-	-	o	o	o	o	o	o	-	-
	VKK 2406/3-E	-	-	-	-	-	-	-	o	o	o	o	o	o	-	-
	VKK 2806/3-E	-	-	-	-	-	-	-	o	o	o	o	o	o	-	-

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 15.5 Basic system diagrams and wiring diagrams

### 15.5.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 15.5.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020205402	ecoCRAFT exclusiv	VRC 700, VR 70, VR 91	1 UFH	1 HC	Low loss header	–	–	uniSTOR VIIH R
0020220873	ecoCRAFT exclusiv	calorMATIC 630, 2x VR 90	1 UFH 1 HC	1 HC	Low loss header	–	–	uniSTOR VIH R
0020220872	2 pcs ecoCRAFT exclusiv	calorMATIC 630, 2x VR 60	6 HC	1 HC	Low loss header	–	–	–

0020205402 - Basic hydraulic diagram

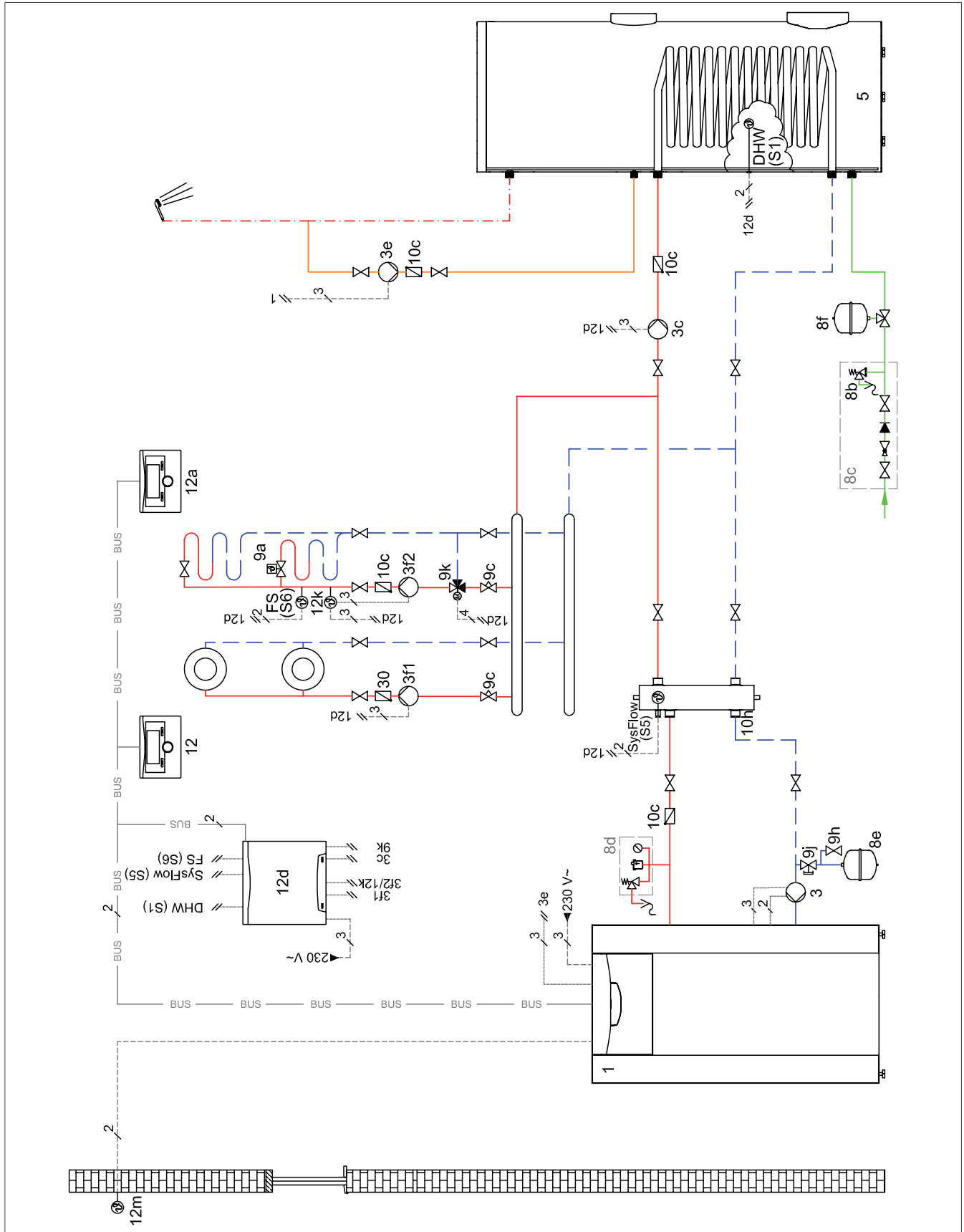


Fig. 250: Basic hydraulic diagram



## 0020205402 - Wiring diagram

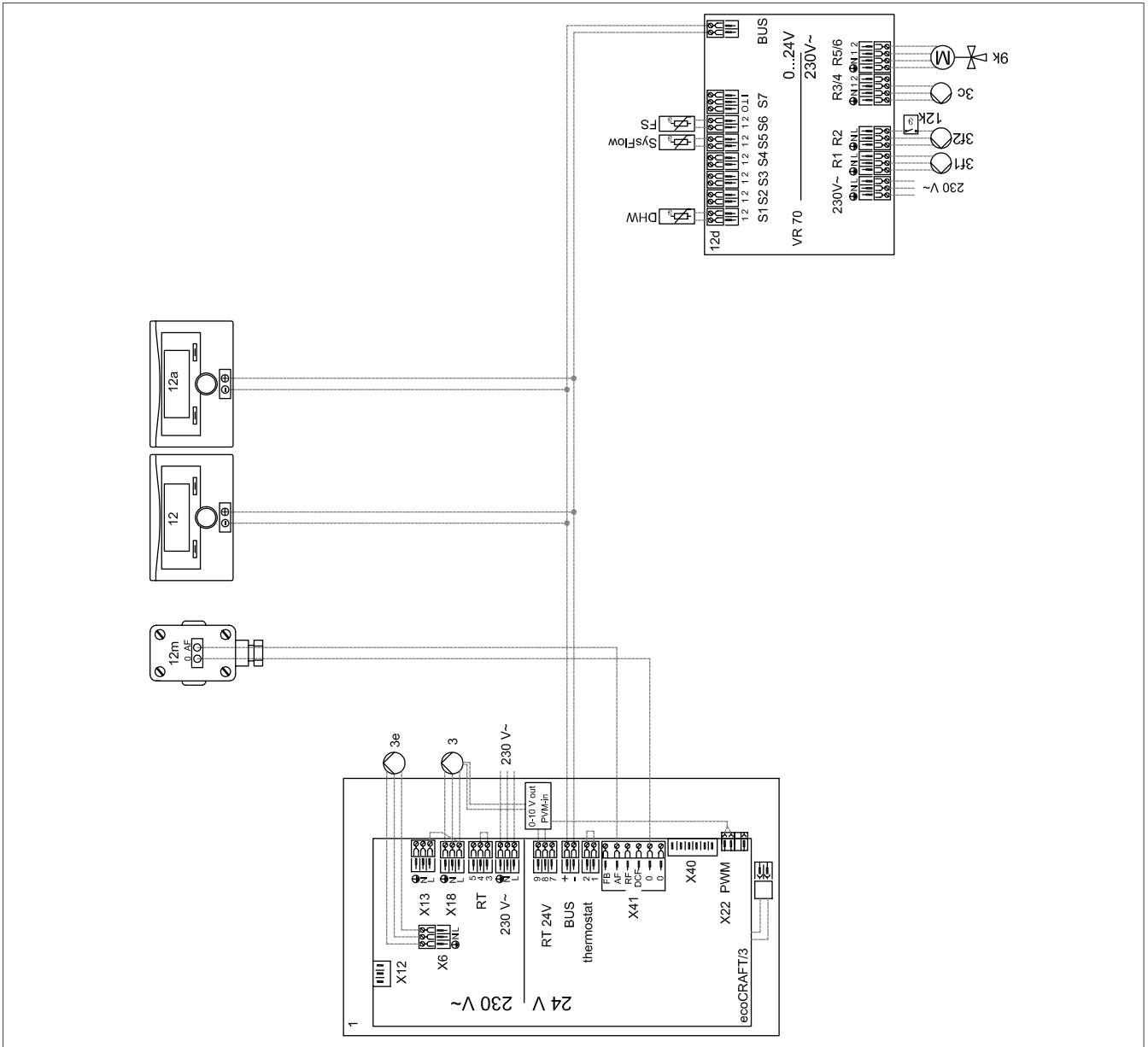


Fig. 251: Wiring diagram

### Description

Apartment buildings with two heating circuits. The pump heating circuit is non-mixed; the underfloor heating circuit is mixed. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

### Individual components

- ecoCRAFT exclusiv
- uniSTOR VIH R
- WH 27/40
- VRC 700
- VR 70
- VR 91

### Setting

System diagram setting: 2

Module setting: 1



## 0020220873 - Wiring diagram

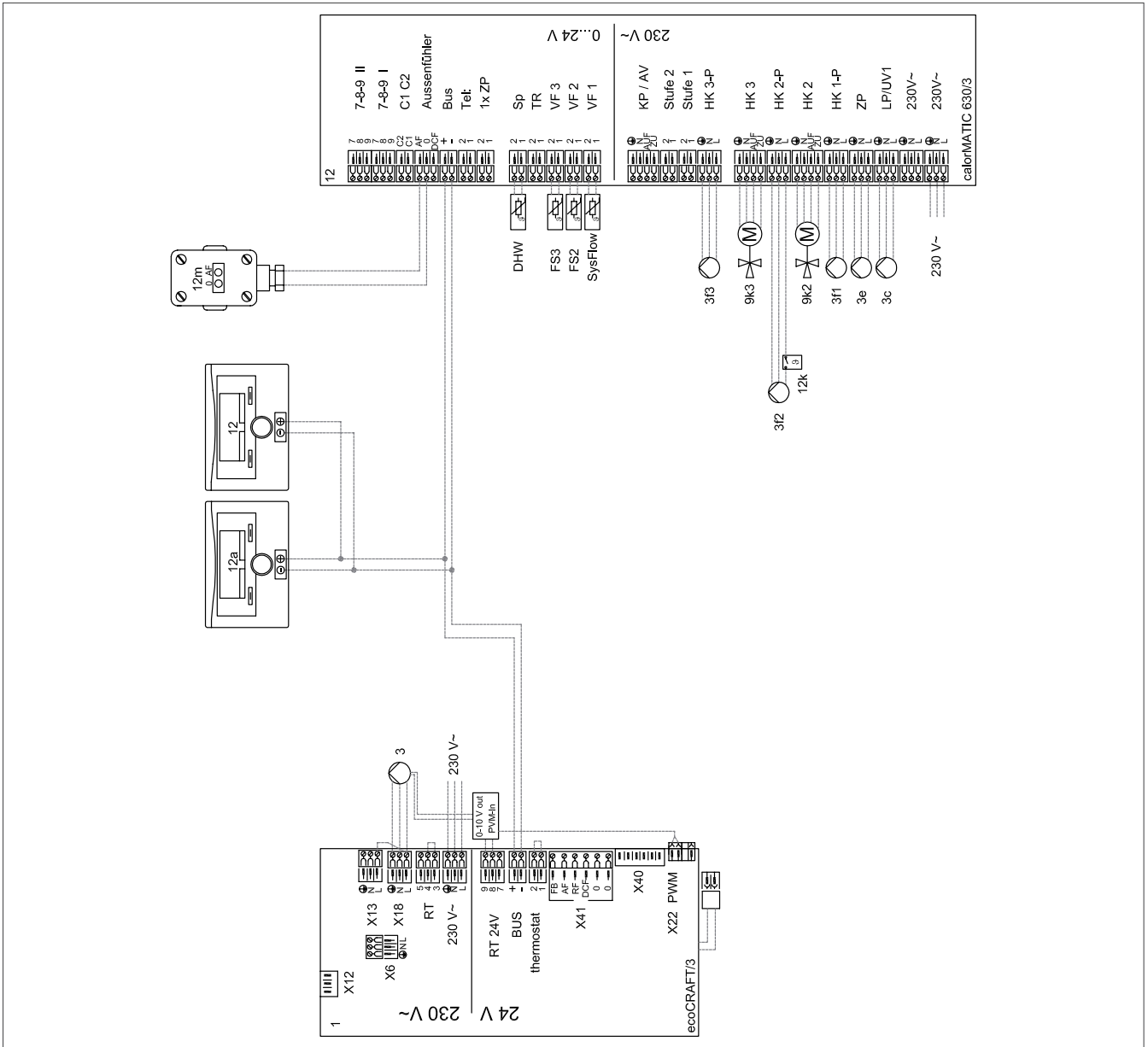


Fig. 253: Wiring diagram

### Description

Apartment buildings with three heating circuits. The cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

### Individual components

- ecoCRAFT exclusiv
- calorMATIC 630
- 2x VR 90
- WH
- uniSTOR VIH R

0020220872 - Basic hydraulic diagram

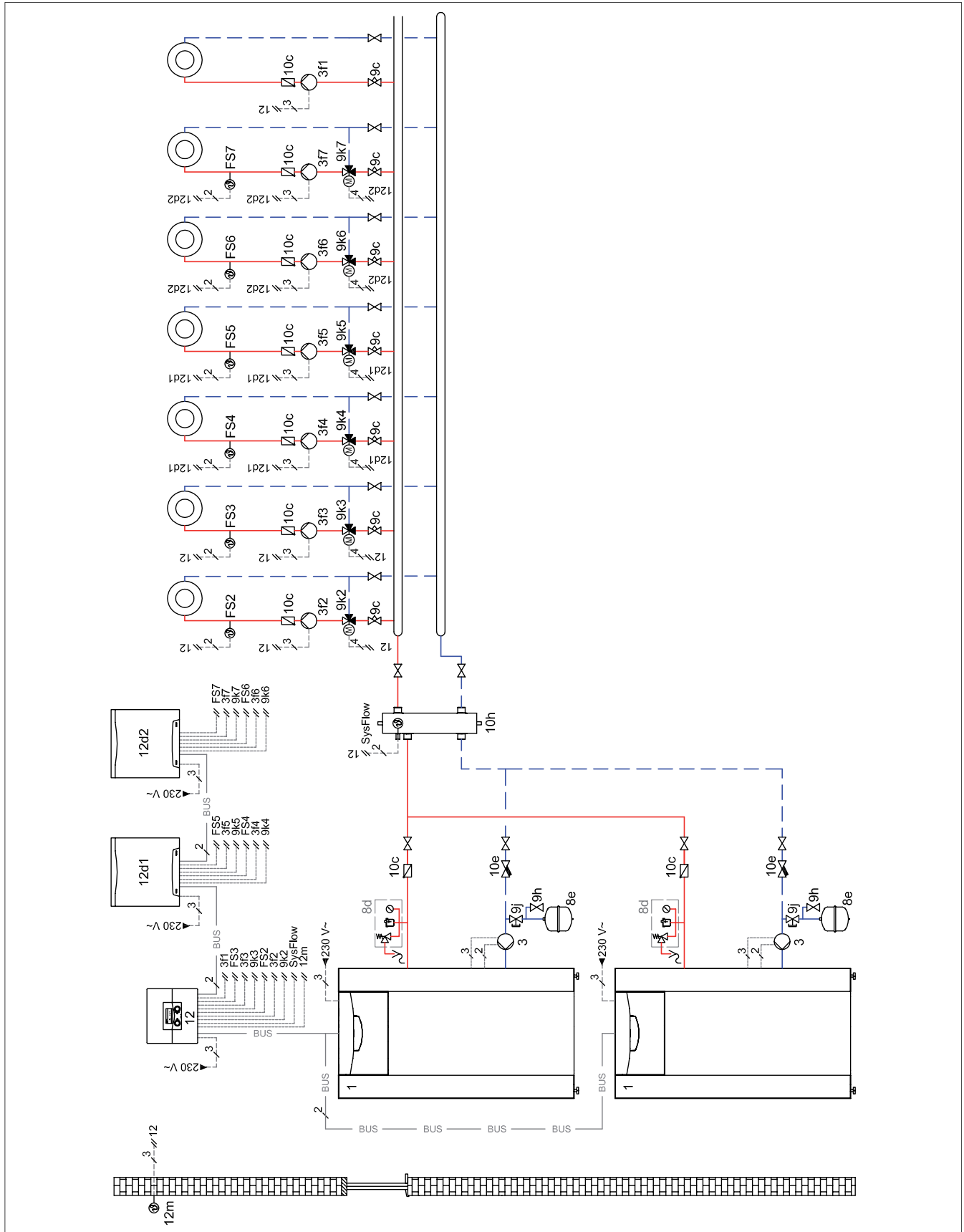


Fig. 254: Basic hydraulic diagram

## 0020220872 - Wiring diagram

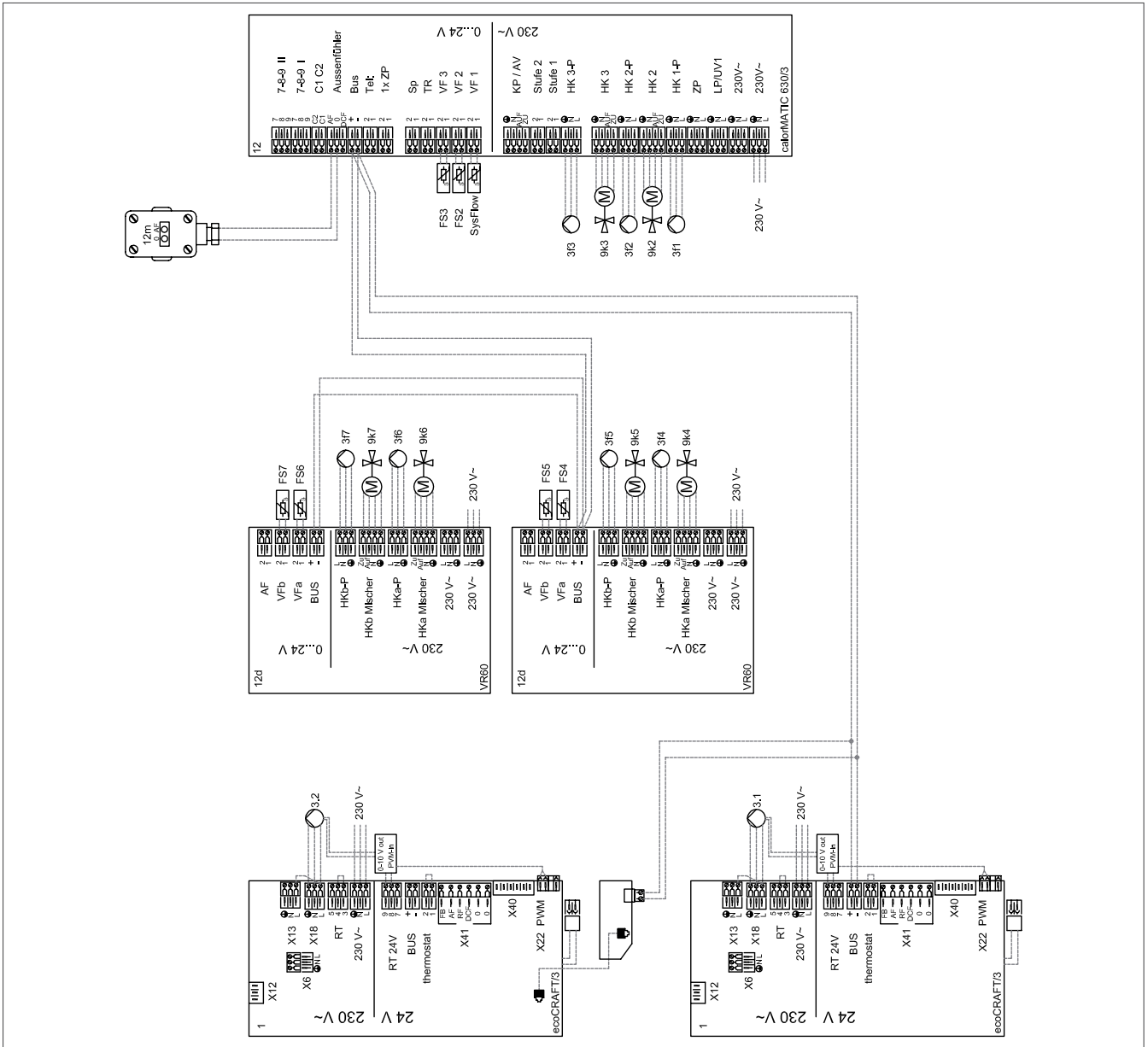


Fig. 255: Wiring diagram

### Description

Apartment buildings with seven heating circuits and different usage patterns.

### Individual components

- 2x ecoCRAFT exclusiv
- calorMATIC 630
- 2x VR 60
- WH





# 16. Product information icoVIT exclusiv .../3-7

## 16.1 Product combinations



Fig. 256: Product combinations

Product combination overview for the icoVIT exclusiv .../3-7

	1 Boiler icoVIT exclusiv VKO	3 Domestic hot water cylinder actoSTOR	Domestic hot water cylinder uniSTOR	4 Control	5 Air/flue system	6 Ventilation (optional)	7 Solar thermal energy (optional)
Heating only	•	–	–	•	•	•	•
Heating and domestic hot water generation	•	•	•	•	•	•	•

• Recommended / ◦ Recommended under certain circumstances / – Not recommended

## 16.2 icoVIT exclusive VKO 156/3-7 to VKO 356/3-7 product description



Fig. 257: icoVIT exclusive oil-fired floor-standing condensing boiler

### 16.2.1 Special features

- Standard efficiency 99% (H<sub>s</sub>)/105% (H<sub>i</sub>)
- Efficient 2-stage burner technology
- The pre-installed silencer ensures quiet combustion
- Innovative stainless steel smooth-pipe heat exchanger
- Large water capacity
- Aqua Condens system, cylinder charging with condensing technology
- Compact casing design with removable side sections

### 16.2.2 Equipment

- Stainless steel heat exchanger
- Water pressure sensor
- DIA system with plain text display, illuminated
- Connection for external accessories (e.g. cylinder charging pump, circulation pump, heating circuit pump) is integrated

#### Type overview

Unit designation	Energy efficiency class Heating	Fuel	Order no.
VKO 156/3-7	A (A+++ to D)	Standard extra-light heating oil	
VKO 256/3-7	A (A+++ to D)	Low-sulphur extra-light heating oil	
VKO 356/3-7	A (A+++ to D)	Extra-light heating oil with the addition of up to 20% FAME (EN 14 213) and/or 5% rape oil (DIN V 51 605)	



## Technical data

Designation	Unit	VKO 156/3-7	VKO 256/3-7	VKO 356/3-7
Burner type		Modular (two-stage)		21.0 to 35.0
Input power (Q <sub>b</sub> )	kW	10.5 to 15.0	16.0 to 24.0	22.05/36.75
Nominal heat output range (at 40/30 °C)	kW	11.1/15.8	16.9/25.3	21.9/36.6
Nominal heat output range (at 50/30 °C)	kW	11.0/15.75	16.8/25.2	20.6/34.3
Nominal heat output range (at 80/60 °C)	kW	10.3/14.7	15.7/23.5	101.5
Standard efficiency (at 75/60 °C) determined according to → DIN 4702 -8	%	102	102	104.5
Standard efficiency (at 40/30 °C) determined according to → DIN 4702 -8	%	105	105	104.5
<b>Flue gas values</b>				
Flue gas temperature in heating mode 40/30 °C according to → DIN EN 13384 -1	°C	30 to 35	30 to 35	39
Max. flue gas temperature 80/60 °C according to → DIN EN 13384 -1	°C	57	57	70
Max. flue gas mass flow rate	kg/h	16.1/23.0	24.6/36.9	32.2/53.7
NO <sub>x</sub> class		3		3
NO <sub>x</sub> emission (N-corrected)	mg/kWh	76/95	89/94	76/95
CO emissions	mg/kWh	20/19	14/25	24/23
Condensate volume at 40/30 °C, max.	l/h	1.1	1.7	2.5
pH value (in the case of sulphurous heating oil), approx.		2		2
<b>Hydraulic values</b>				
Flow temperature	°C	20 to 85 (factory setting: 75 °C)		
Permissible operating pressure	bar	3		4
Water-side resistance ΔT = 20 K	mbar	< 5	<10	<13
Water side resistance ΔT = 10 K	mbar	<20	<25	<52
<b>Gas flow rate</b>				
Electrical connection	V / Hz	230/50		230/50
Max. electrical power consumption (without heating pump)	W	180	220	225
Power consumption (standby)	W	6		6
IP rating		IP 20		IP 20
<b>Connections</b>				
Heating flow/return, cylinder return	"	Rp 1		Rp 1
Condensate discharge	Diameter mm	21		21
Filling/draining device	"	DN15		DN15
Air/flue connection	DN	80/125		80/125
<b>Dimensions/weight</b>				
Height (including adapter with external test openings)	mm	1272 (1382)		1272 (1382)
Width	mm	570		720
Depth	mm	700		850
Complete unit mounting weight	kg	159		193
Burner without complete flange weight	kg	9.15	9.15	10.4
Complete flange weight	kg	2.5	2.8	5.3
Water content	l	85		127
Complete unit operating weight	kg	244		320
<b>Combustion chamber</b>				
Oil-fired condensing technology				
Combustion chamber height	mm	580		580
Combustion chamber diameter	mm	181		260
Combustion chamber volume	m <sup>3</sup>	0.059		0.123

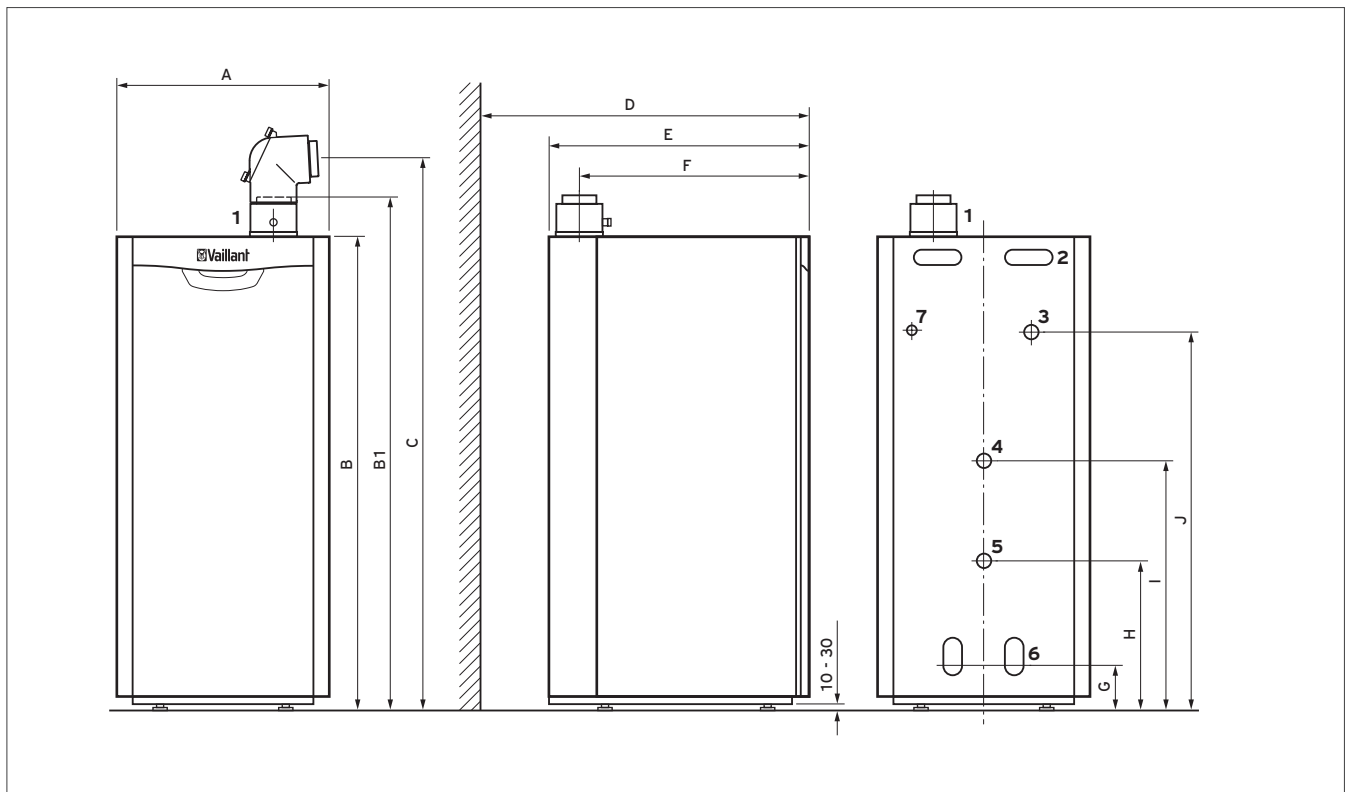


Fig. 258: icoVIT exclusive oil-fired floor-standing condensing boiler dimension drawing

- 1 Air/flue connection 80/125
- 2 Recessed handles
- 3 R1 heating flow connection
- 4 R1 cylinder return connection
- 5 R1 heating return connection
- 6 Openings for the condensate discharge hose
- 7 Opening for the outdoor air supply's condensate discharge hose

icoVIT exclusive dimensions and connection dimensions

Unit type	A	B	B1	C	D	E	F	G	H	I	J
VKO 156/3-7 and VKO 256/3-7	570	1272	1382	1465	1000	700	619	118	403	672	1014
VKO 356/3-7	720	1272	1382	1465	1150	850	769	138	485	755	1056

Dimensions in mm

## 16.3 Supplementary information for icoVIT exclusive VKO 156/3-7 to VKO 356/3-7

### 16.3.1 Required minimum clearances/installation clearances

You must ensure that there is sufficient clearance behind and beside the unit in order to position the condensate discharge pipe safely above a drain or, if required, to connect a condensate feed pump. The drain must be visible.

Use the height-adjustable feet to adjust the oil-fired floor-standing condensing boiler horizontally in order to ensure that the condensate drains from the condensate tray.

Sufficient space for the maintenance of the flue gas collector is required on the right-hand side.

No clearance is required between the unit and components made of combustible elements as the maximum permissible temperature of 85 °C is never exceeded by the nominal heat output of the unit.

### 16.3.2 Installation in protective areas/special features relating to electrical connections or protection

The rated voltage of each line in the mains must be 230 V; with mains voltages over 253 V and below 190 V, the unit may not function properly.

The mains feed must be connected via a fixed connection and a partition that has a minimum contact opening of 3 mm (e.g. fuses, power switches).

Directive VDE 0100 Part 701 must be observed.

The unit is equipped with System ProE connectors for easier wiring and is wired ready for connection. The mains feed and all other connection cables (e.g. for the room temperature controller) can be connected to the corresponding System ProE connectors provided

Access to the main switch must be guaranteed at all times and the point of access must not be covered or blocked, allowing the unit to be turned off if a fault occurs.

### 16.3.3 Direct feed underfloor heating

A direct feed to an oxygen-diffusion-tight underfloor heating system is possible. However, a mixer should be provided when the underfloor heating circuit is combined with a domestic hot water cylinder. This avoids excessively high temperatures in the heating flow over a longer period - required by the high water capacity of the boiler - after the cylinder is charged.

In the case of an underfloor heating system which is not oxygen-diffusion-tight, a system partition with a mixer must be provided on-site.

### 16.3.4 Cascade solution for icoVIT

Cascade systems significantly widen the range of possible applications for the Vaillant icoVIT exclusive oil-fired floor-standing condensing boiler.

Heating outputs of up to 70 kW (in a cascade of two) can be created by interconnecting individual units.

Vaillant offers a complete range of cascade accessories for the construction of cascade systems. These include low loss headers, weather-compensated controls for cascading operation, as well as a special flue system for interconnecting individual units in a cascade.

Cascades with icoVIT exclusive oil-fired condensing boilers are ideal for renovation measures in apartment buildings, public buildings or commercially used buildings.

Cascade output range

icoVIT exclusiv	Cascade output range (kW)
	Two-unit cascade
VKO 256/3-7	17 - 50
VKO 356/3-7	22 - 70

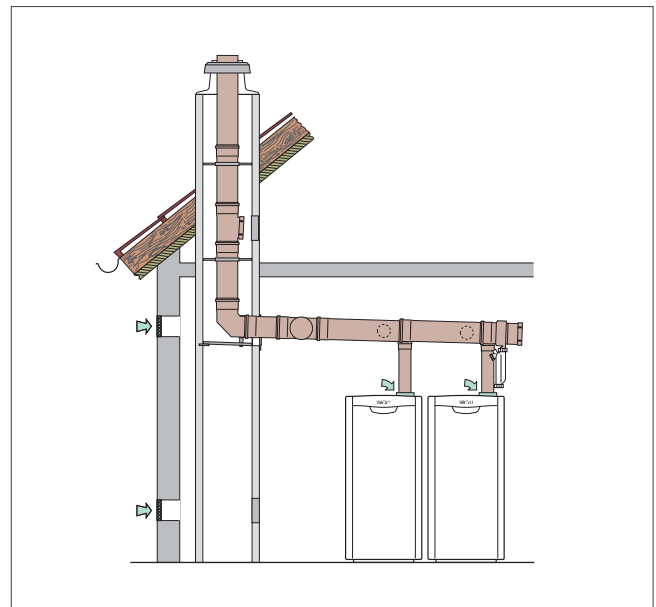


Fig. 259: icoVIT cascade air/flue pipe

#### Cascade flue gas system

- System-certified and approved flue gas components for excess pressure cascade systems with up to two units of the same type with the same output rating
- For open-flued operation
- Robust plastic pipes, one nominal diameter only (130 mm) for all cascade solutions
- Simple length adaptation
- Maximum possible flue pipe length: 30 m

Detailed information on the flue gas systems and combustion air supply can be found in the section „Air/flue systems“.

## 16.4 Vaillant domestic hot water cylinders - Overview

		uniSTOR exclusive			uniSTOR plus				uniSTOR exclusive			uniSTOR plus			actoSTOR	
		VIH R 120/6 H (NL 1.4)	VIH R 150/6 H (NL 2.2)	VIH R 200/6 H (NL 3.8)	VIH R 120/6 B (NL 1.4)	VIH R 150/6 B (NL 2.2)	VIH R 200/6 B (NL 3.8)		VIH Q 75 B (NL 1.0)	VIH R 300/3 MR (NL 9.0)	VIH R 400/3 MR (NL 15.0)	VIH R 500/3 MR (NL 21.0)	VIH R 300/3 BR (NL 9.0)	VIH R 400/3 BR (NL 15.0)	VIH R 500/3 BR (NL 21.0)	VIH QL 75 B (NL 1.5)
icoVIT exclusiv 14.8 - 35.7 kW	VKO 156/3-7	•	•	○	•	•	○	-	○	○	-	○	○	-	-	•
	VKO 256/3-7	•	•	•	•	•	•	-	○	○	-	○	○	-	-	•
	VKO 356/3-7	○	•	•	○	•	•	-	•	•	-	•	•	-	-	•

- Recommended
- Recommended under certain circumstances
- Not recommended

## 16.5 Basic system diagrams and wiring diagrams

### 16.5.1 Key for basic system diagrams and wiring diagrams

Number	Designation
1	Heat generator
1a	Domestic hot water back-up boiler
1b	Heating back-up boiler
1c	Heating/domestic hot water back-up boiler
1d	Solid fuel boiler with manual feed
2	Heat pump
2a	Domestic hot water heat pump
2b	Air/brine heat exchanger
2c	Refrigerant-split heat pump outdoor unit
2d	Refrigerant-split heat pump indoor unit
2e	Ground water module
2f	Passive cooling module
3	Heat generator circulation pump
3a	Swimming pool circulation pump
3b	Cooling circuit pump
3c	Cylinder charging pump
3d	Well pump
3e	Circulation pump
3f	Heating pump
3g	Heat source circulation pump
3h	Anti-legionella pump
3i	Heat exchanger pump
4	Buffer cylinder
5	Monovalent domestic hot water cylinder
5a	Bivalent domestic hot water cylinder
5b	Shift-load cylinder
5c	Combi cylinder (tank in tank)
5d	Multi-functional buffer cylinder
5e	uniTOWER
6	Solar collector (thermal)
7a	Heat pump brine filling unit
7b	Solar pump station
7c	Domestic hot water station
7d	Heat interface unit
7e	Hydraulic block
7f	Decoupler module

Number	Designation
7g	Heat recovery module
7h	Heat exchanger module
7i	2-zone module
7j	Pump group
8a	Expansion relief valve
8b	Potable water expansion relief valve
8c	Safety group - drinking water connection
8d	Boiler safety group
8e	Heating diaphragm expansion vessel
8f	Domestic hot water diaphragm expansion vessel
8g	Solar/brine diaphragm expansion vessel
8h	Solar protection vessel
8i	Thermal safety assembly
9a	Single-room temperature control valve (thermostatic/motorised)
9b	Zone valve
9c	Flow regulator valve
9d	Bypass valve
9e	Domestic hot water generation prioritising diverter valve
9f	Cooling prioritising diverter valve
9g	Diverter valve
9h	Filling/draining cock
9i	Purging valve
9j	Tamper-proof capped valve
9k	3-port mixing valve
9l	Cooling 3-port mixing valve
9m	Increase in return for 3-port mixing valve
9n	Thermostatic mixing valve
9o	Flow meter (TacoSetter)
9p	Cascade valve
10a	Thermometer
10b	Manometer
10c	Non-return valve
10d	Air separator
10e	Line strainer with magnetite separator
10f	Solar/brine collecting vessel
10g	Heat exchanger
10h	Low loss header
10i	Flexible connections
11a	Fan coil
11b	Swimming pool
12	System control
12a	Remote control unit
12b	Heat pump appliance interface

Number	Designation
12c	2 in 7 multi-functional module
12d	Wiring centre/mixer module
12e	Main expansion module
12f	Wiring centre
12g	eBUS bus coupler
12h	Solar control
12i	External control
12j	Cut-off relay
12k	Limit thermostat
12l	Cylinder temperature cut-out
12m	Outdoor temperature sensor
12n	Flow switch
12o	eBUS power supply unit
12p	Radio receiver unit
12q	Internet gateway

#### Electrics

BufTop	Top temperature sensor of buffer cylinder
BufBt	Bottom temperature sensor of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopCH	Top temperature sensor for heating section of buffer cylinder
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
C1/C2	Enable cylinder charging/buffer charging
COL	Collector temperature sensor
DEM	External heating demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBT	Bottom cylinder temperature sensor (DHW cylinder)
ESCO	Energy supply company switching contact
FS	Flow temperature sensor/swimming pool sensor
MO	Multi-function output
MI	Multi-function input
PWM	PWM signal for pump
PV	PV interface to PV inverter
RT	Room thermostat
SCA	Cooling signal
SG	Transmission system operator interface
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD	Temperature sensor for a DT control system
TEL	Switch contact for remote control
TR	Isolating circuit with switching floor-standing boiler

Components that are used multiple times (x) are numbered consecutively (x1, x2, ..., xn)

## 16.5.2 Overview of the basic system diagrams and wiring diagrams

The basic system and wiring diagrams for the product group are shown below.

Basic system diagram	Heat generator	Control system	Heating circuits		System separation	Solar system		Domestic hot water
			regulated	direct		Domestic hot water	Heating	
0020220723	icoVIT exclusiv	VRC 700	–	1 HC	–	–	–	uniSTOR VIH R
0020220724	icoVIT exclusiv	VRC 700, VR 70, VR 91	1 UFH	1 HC	–	–	–	uniSTOR VIH R
0020220726	icoVIT exclusiv	VRC 700, VR 70	–	1 HC	–	•	–	auroSTOR VIH S
0020220722	icoVIT exclusiv	VR 700, VR 70	1 UFH	–	–	•	•	auroSTOR VPS SC
0020220725	icoVIT exclusiv	VRC 700, VR 70	1 UFH	–	–	•	•	allSTOR VPS

0020220723 - Basic hydraulic diagram

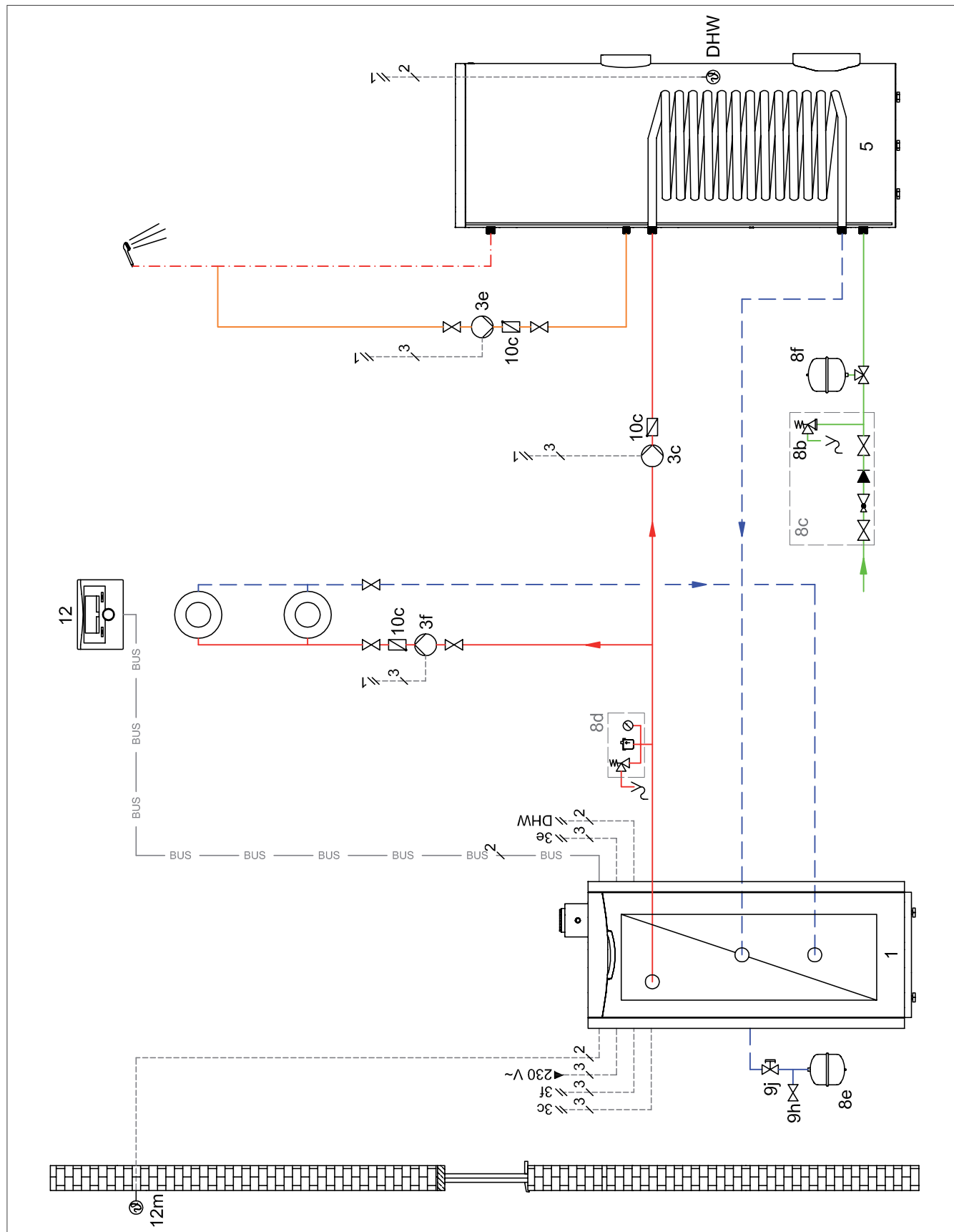


Fig. 260: Basic hydraulic diagram



0020220723 - Wiring diagram

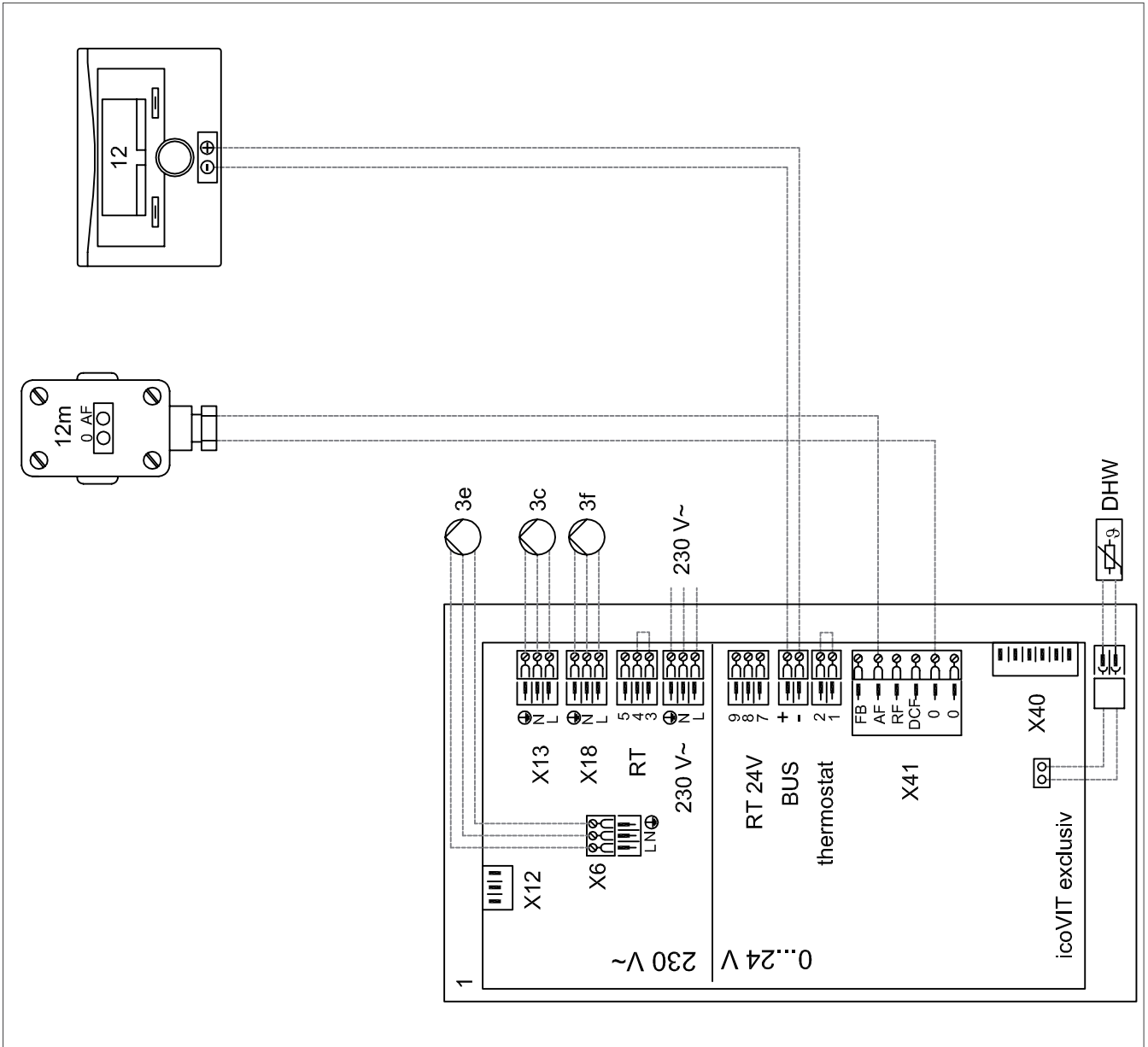


Fig. 261: Wiring diagram

**Description**

Houses or apartment buildings with one heating profile and one pump heating circuit. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Domestic hot water is generated by the heat generator.

**Individual components**

- icoVIT exclusiv
- unISTOR VIH R
- VRC 700

**Setting**

VRC 700 System diagram setting: 1

0020220724 - Basic hydraulic diagram

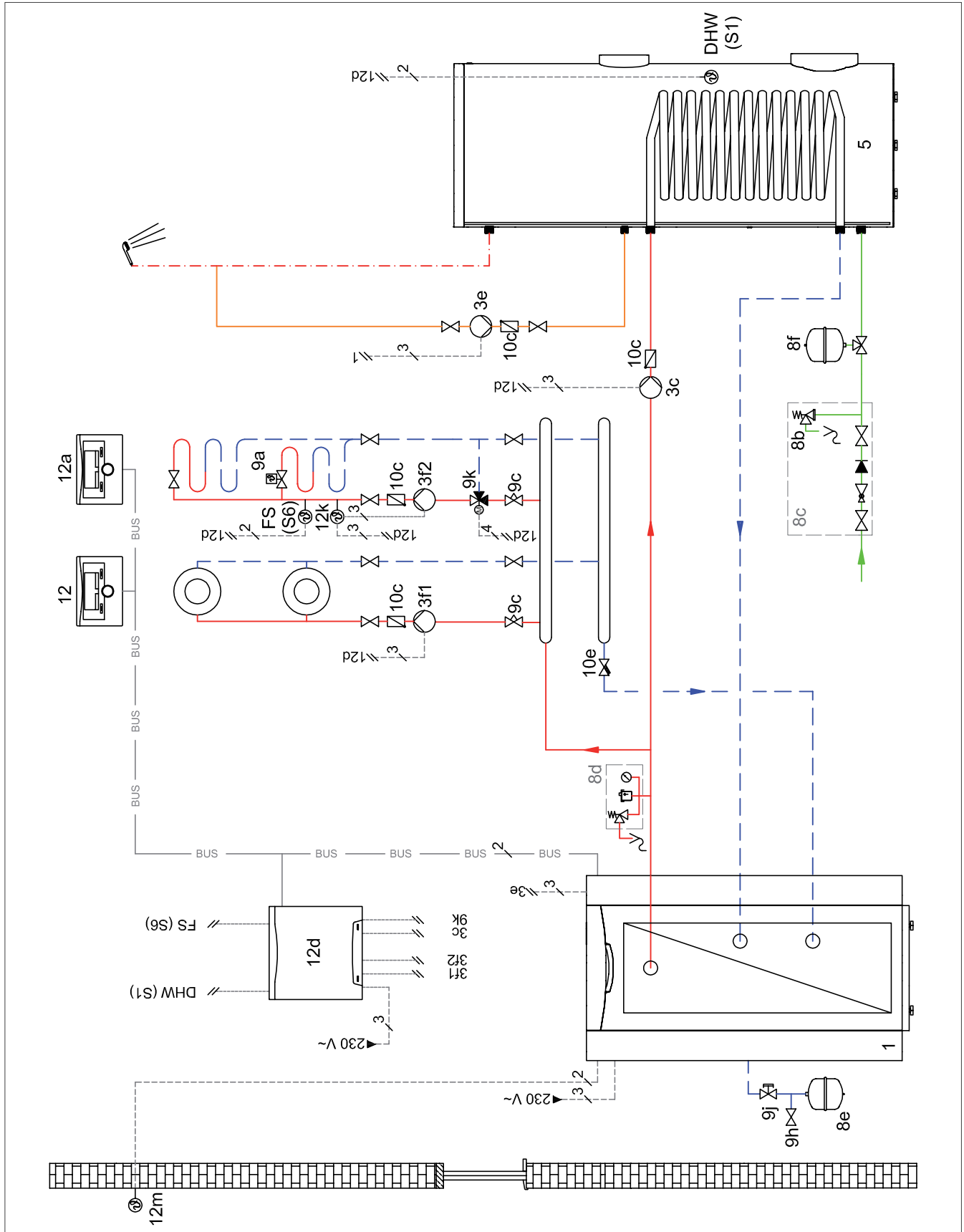


Fig. 262: Basic hydraulic diagram

## 0020220724 - Wiring diagram

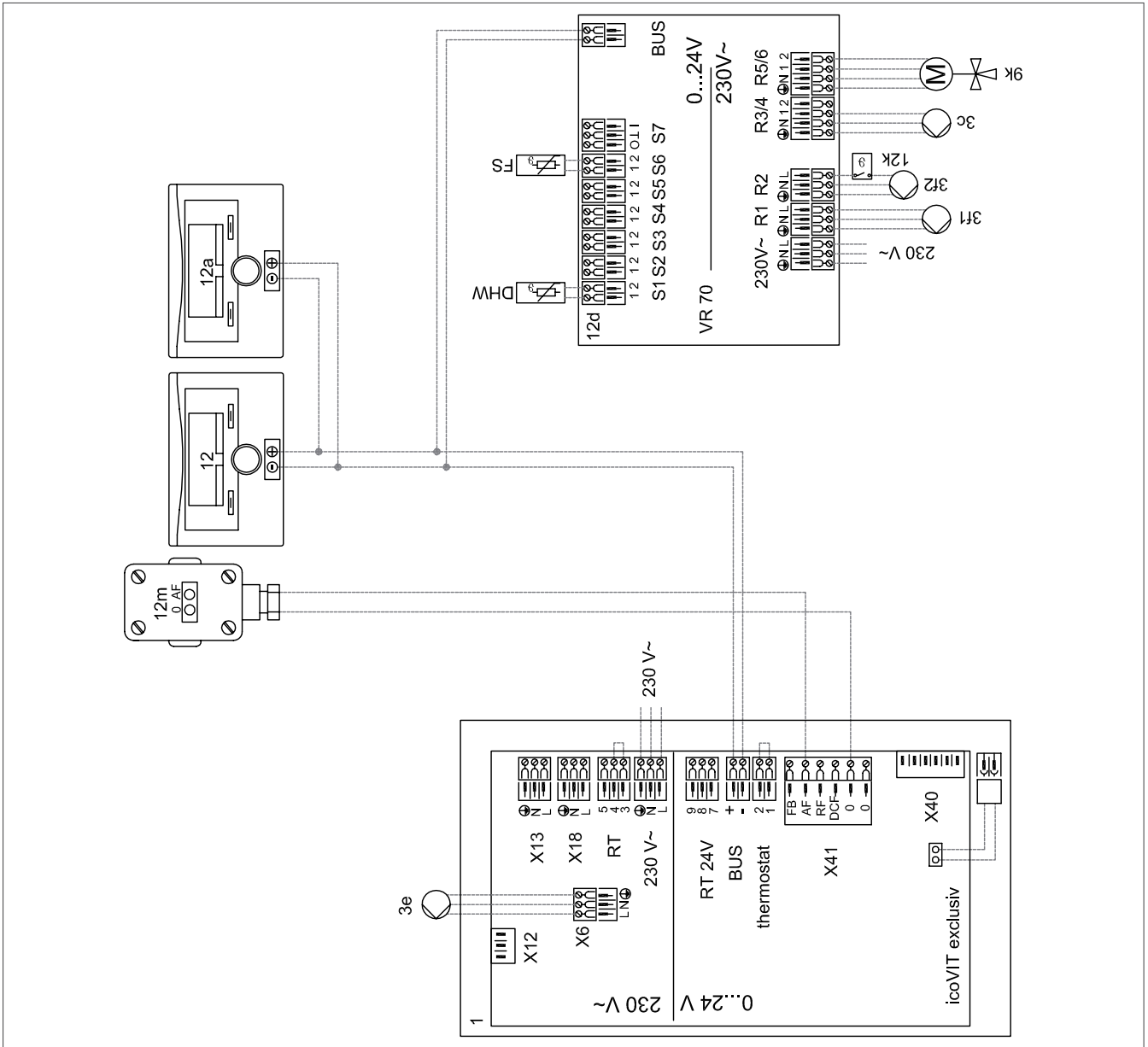


Fig. 263: Wiring diagram

### Description

Apartment buildings with different usage patterns. The pump heating circuit is non-mixed; the underfloor heating circuit is mixed. The domestic hot water cylinder must be designed in accordance with the applicable standards and regulations. Hot water is generated by the heat generator.

### Individual components

- icoVIT exclusiv
- uniSTOR VIH R
- VRC 700
- VR 70
- VR 91

### Setting

VRC 700 System diagram setting: 2

Module setting: 1

0020220726 - Basic hydraulic diagram

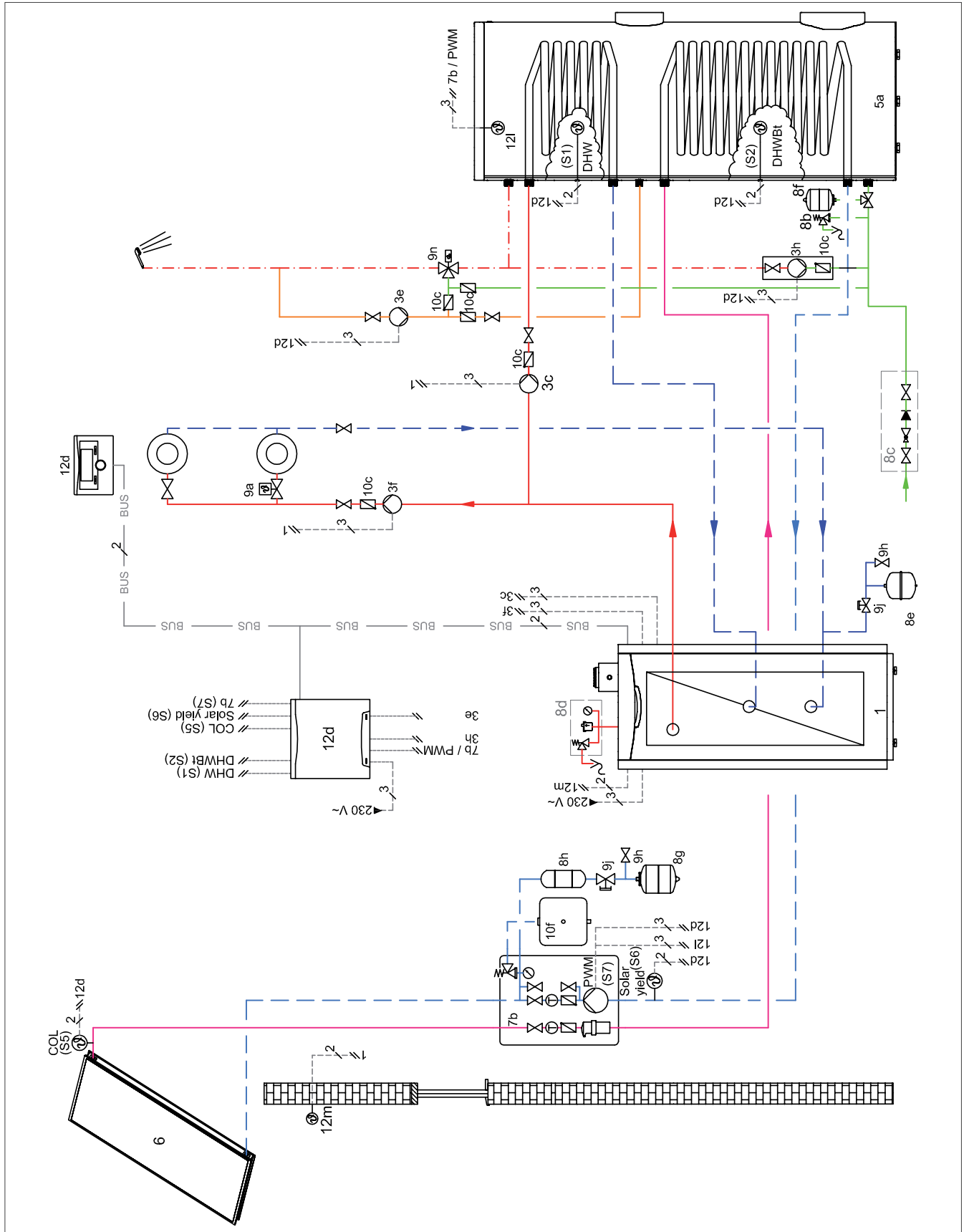


Fig. 264: Basic hydraulic diagram

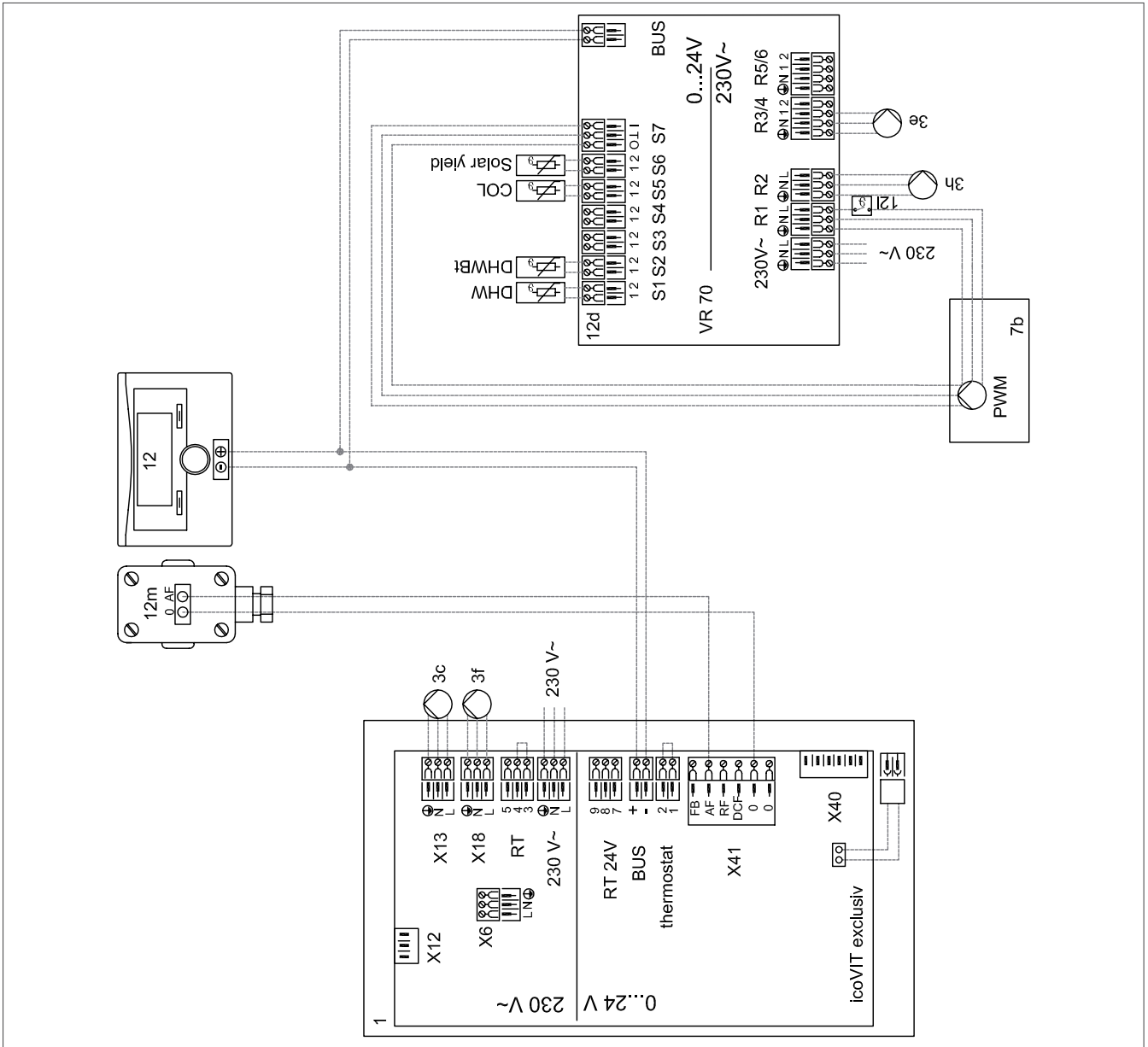


Fig. 265: Wiring diagram

**Description**

Single-occupancy houses with one direct heating circuit. The solar system supports the domestic hot water system. The solar cylinder must be designed in accordance with the applicable standards and regulations. Caution: To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position.

**Individual components**

- icoVIT exclusiv
- auroSTOR VIH S
- auroTHERM VFK
- VMS 70
- VRC 700
- VR 70

**Setting**

VRC 700 System diagram setting: 1  
 Module setting: 6

0020220722 - Basic hydraulic diagram

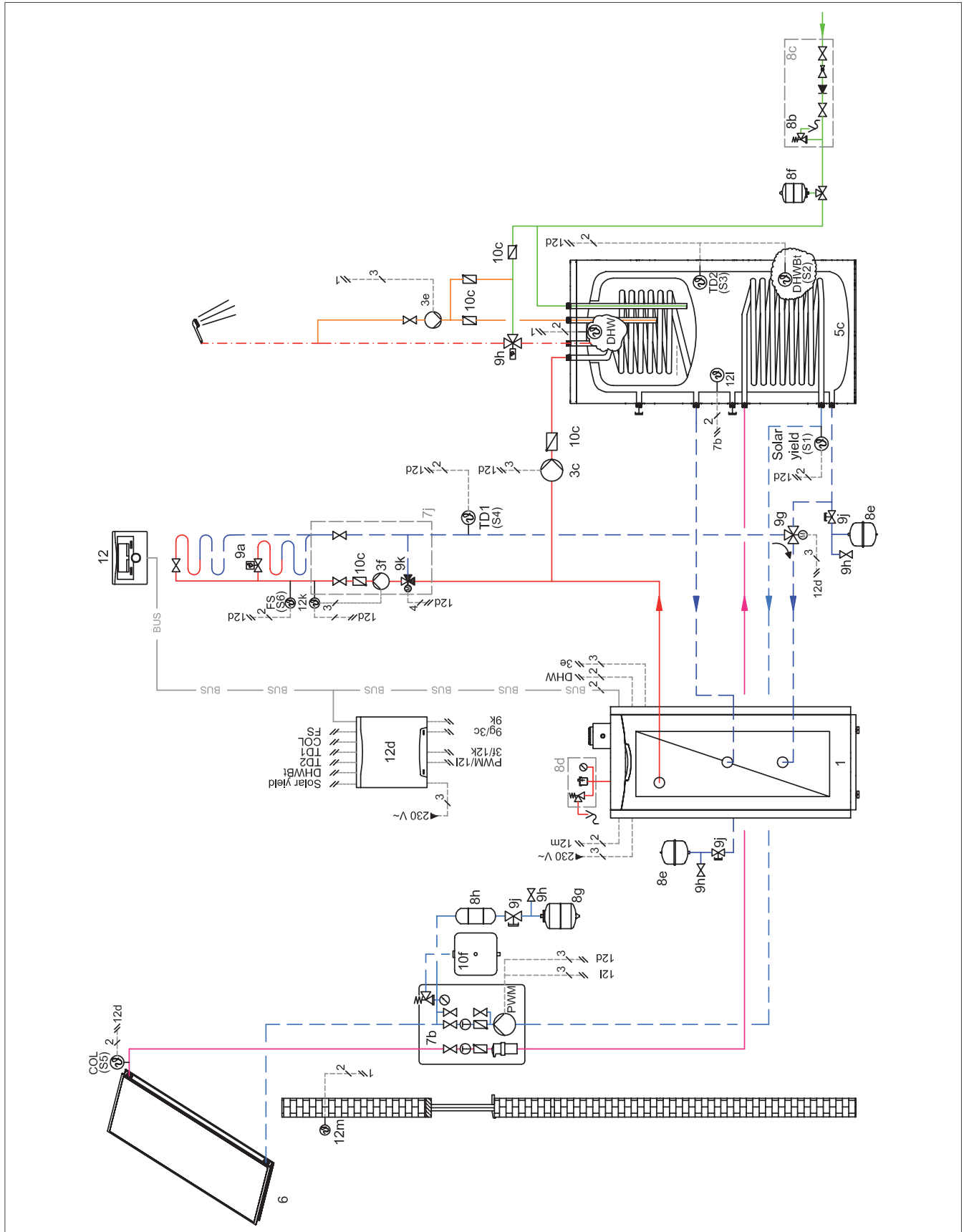


Fig. 266: Basic hydraulic diagram

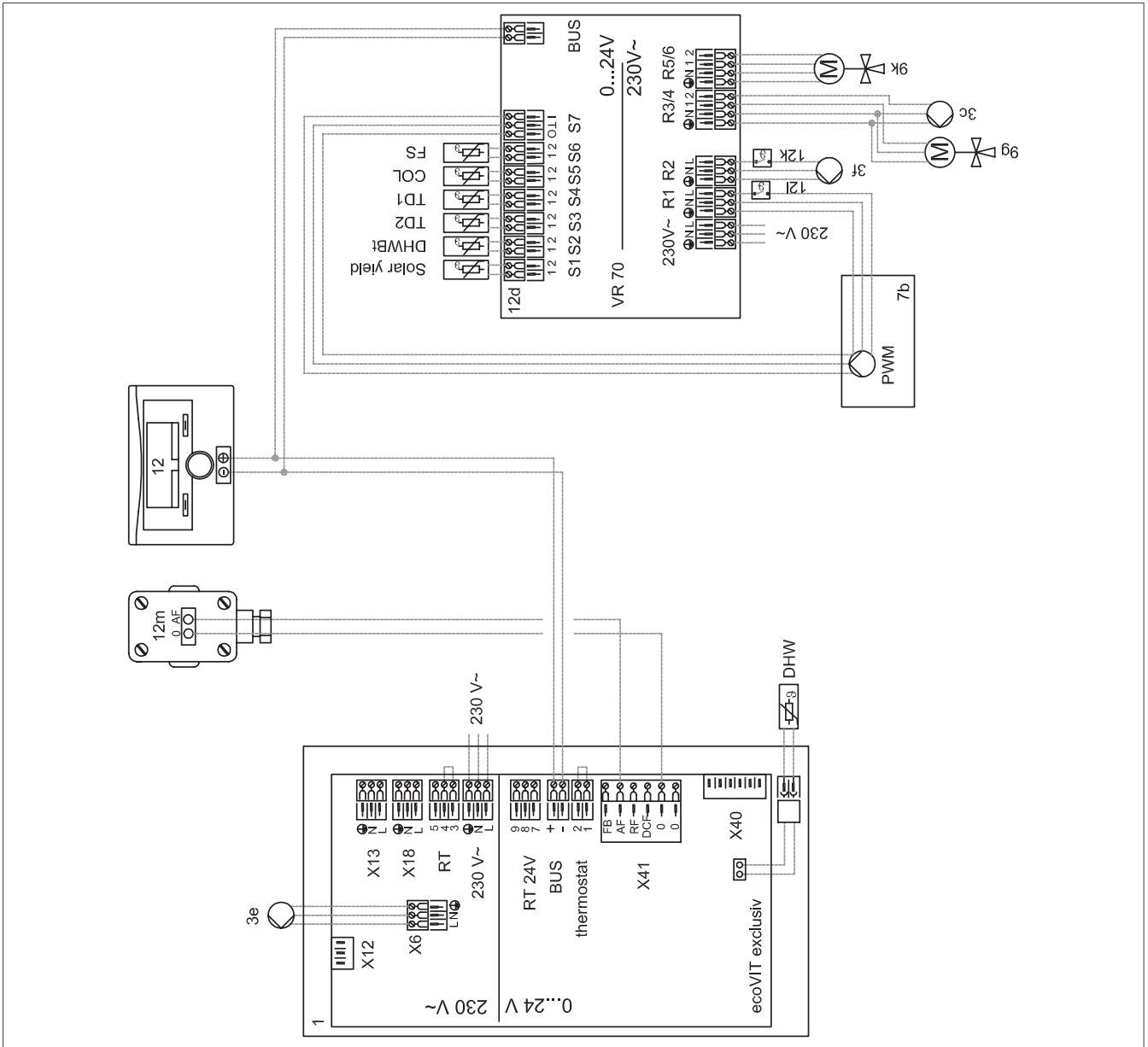


Fig. 267: Wiring diagram

### Description

Single-occupancy houses with one mixed heating circuit (underfloor heating). The solar system supports the domestic hot water and heating systems. The solar cylinder must be designed in accordance with the applicable standards and regulations.

**Caution:** \*integrated in the heat generator. To avoid temperatures above 100 °C, install the sensor for the overheating protection thermostat in an appropriate position.

### Individual components

- icoVIT exclusiv
- auroSTOR VPS SC
- auroTHERM VFK
- VMS 70
- VRC 700
- VR 70

### Setting

VRC 700 System diagram setting: 2

Module setting: 12

0020220725 - Basic hydraulic diagram

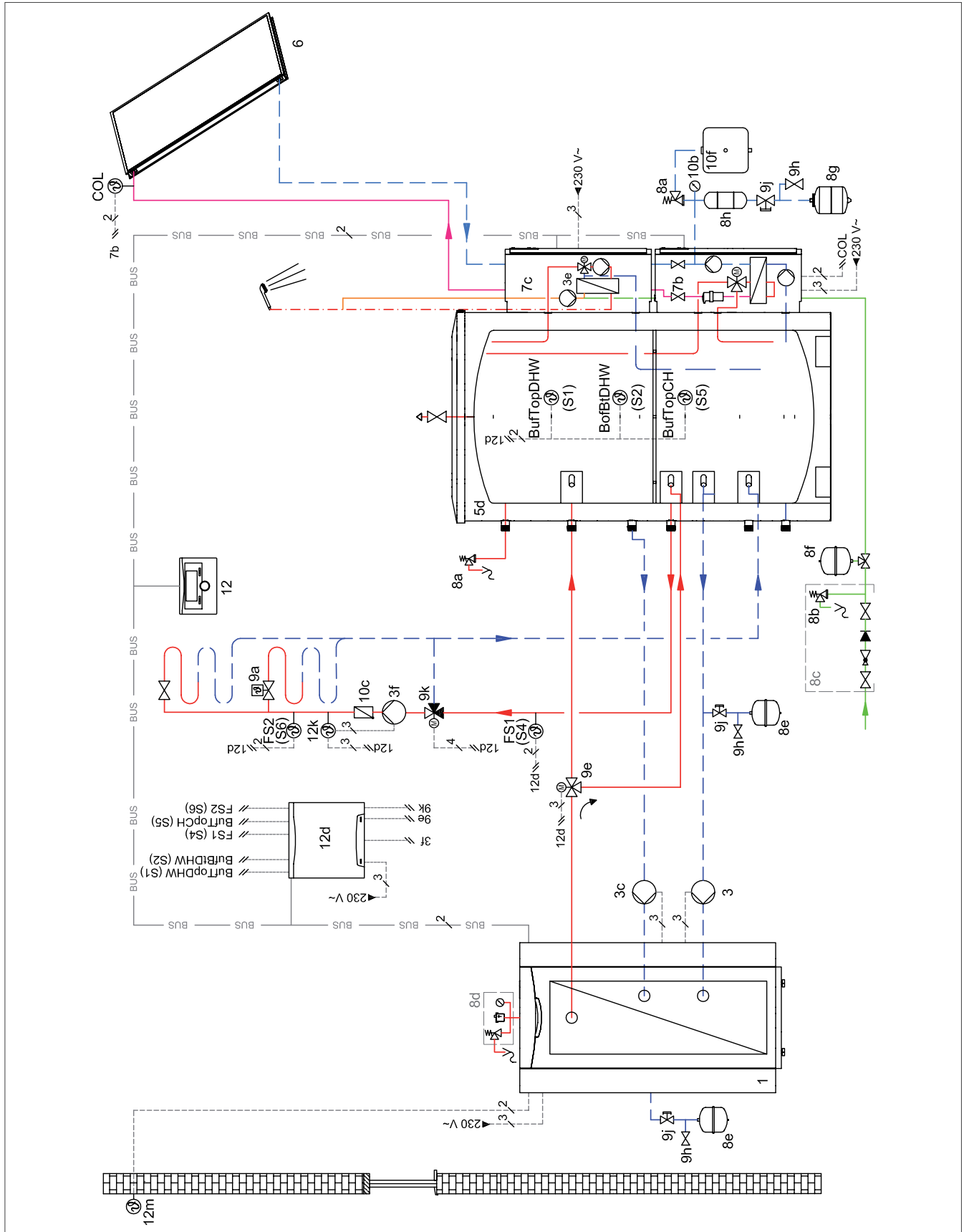


Fig. 268: Basic hydraulic diagram



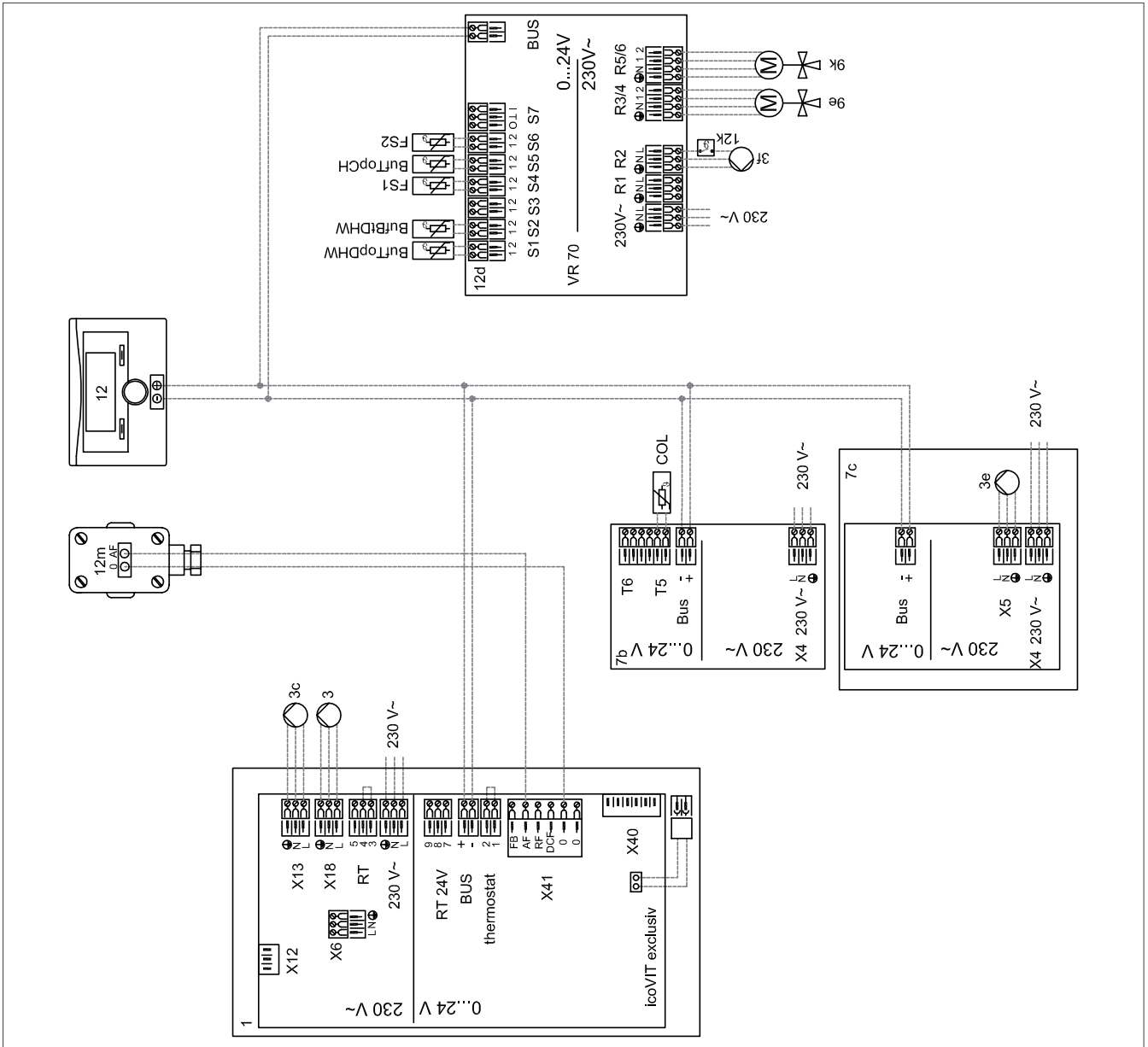


Fig. 269: Wiring diagram

**Description**

Single-occupancy houses with one mixed heating circuit (underfloor heating). The solar system supports the domestic hot water and heating systems. The multi-functional cylinder must be designed in accordance with the applicable standards and regulations.

**Individual components**

- icoVIT exclusiv
- allSTOR VPS
- auroTHERM VFK
- aquaFLOW VPM W
- auroFLOW VPM S
- VRC 700
- VR 70

**Setting**

VRC 700 System diagram setting: 1  
Module setting: 3





# Planning information for condensing appliances

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Additional, cross-product information that helps to plan and install the system successfully can be found in:

- Air/flue gas systems
  - Cascade systems
  - Domestic hot water cylinder
  - System accessories
  - Control technology
-

# 17. Air/flue systems

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An air/flue system is the system that is downstream from the heat generator and that ensures that the combustion air is supplied and the flue gases are diverted away.

The correct design and measurements of the flue system are required to operate a heating installation safely and cost-efficiently.

This is made easier by the fact that all Vaillant gas-fired condensing boilers are system-certified, i.e. the floor-standing boiler and air/flue system are tested and approved together. Instead of complicated calculations, it is therefore sufficient to adjust an air/flue system that is approved with the boiler to the individual conditions on-site.

You can find additional information in the planning module for flue systems for gas-fired condensing boilers:

0020301009 Planning Module DE

0020301010 Planning Module EN

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## Update 07 New chapter

The gas-fired boilers from the Vaillant Group are system-certified in accordance with the EU Gas Appliances Regulation (EU) 2016/426, which is directly applicable in the EU member states.

This means that every gas-fired boiler together with the respective precisely defined air/flue systems has been tested and approved as a uniform gas-fired boiler.

Accordingly, the gas-fired boiler bears a CE marking that covers both system parts. However, this only applies for the tested combinations, not simultaneously for their individual parts. A boiler that is only system-certified in such a combination therefore does not have its own valid approval and CE marking, and must therefore only be installed with the air/flue components that are supplied by the manufacturer and are tested specifically for the corresponding application.

The use of air/flue components that have not been tested and approved for the gas-fired boiler will result in the entire system losing its approval, meaning it may no longer be commissioned. In this case, it is irrelevant whether existing air/flue systems are approved in accordance with other regulations or they bear a CE marking in accordance with the EU regulation on construction products.

Apart from their system certification with a specific air/flue system, the gas-fired boilers from Vaillant do not have their own approval as a gas-fired boiler in accordance with the Gas Appliances Regulation.

Combination with other air/flue systems that are not system-certified with the unit is only possible in the unit types B23, B23p, C43, C83, C(10)3, C(12)3 laid down by the EN 1749 and Gas Appliances Regulation, where this is covered by the system definition for the respective Vaillant gas-fired boiler. All other installation situations are not tested and are therefore not permitted.

You can find additional information about the topic of system certification in our separate planning module for system-certified air/flue systems.

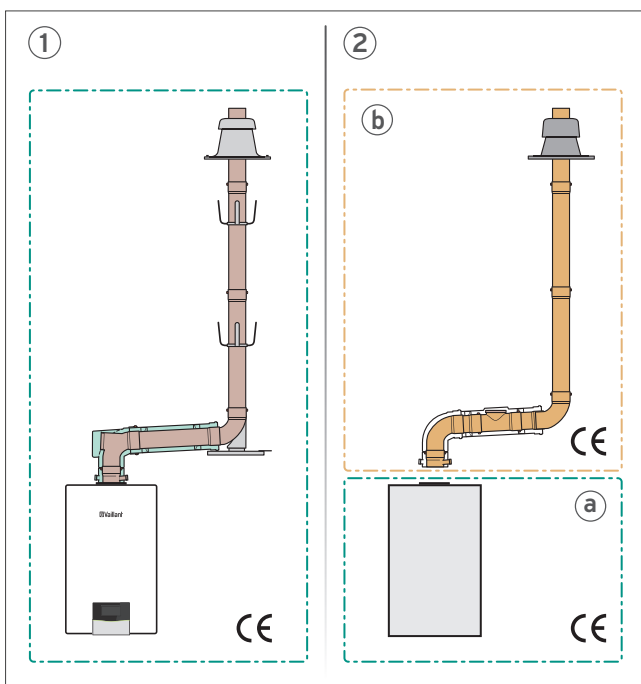


Fig. 270: Comparison: System certification and combined system

- 1 For a system used at Vaillant - the gas-fired boiler and air/flue components are tested and approved within a system limit together as a uniform gas-fired boiler
- 2 For a system not permitted at Vaillant (note the exceptions) - combination of gas-fired boiler (a) with its own approval in accordance with Gas Appliances Regulation and air/flue components (b) in accordance with the regulation on construction products



# 18. Cascade systems

## 18.1 Planning cascade systems

### Cascade solution

Basically, thanks to its use of several units, a cascade solution offers increased flexibility when supplying heat to a building. This flexibility is shown by a high modulation range for the complete system. Units are always only switched on and off according to requirements.

In addition, the cascade system from Vaillant offers further advantages when it comes to planning, installing and operating the system. For example, the cascade frame provides the option to install units in the room in single or multiple unit installations, irrespective of the load-bearing capacity of the surrounding walls.

- The system has a modular design and, as the heat demand in the building increases, it can be extended. This means that partial refurbishments of existing heating installations are also possible.
- Simple transport and installation of units and cascade accessories - even in the case of renovations - thanks to these being delivered in individual packaging units. This makes it easier to position the system parts, for example, in narrow stairways or doors, and they can be positioned with minimum personnel costs
- „Tailor-made“ heat demand; in the summer, individual units can be switched off completely.
- Large modulation range when compared with an individual heat generator
- High level of maintenance flexibility because maintenance work can be carried out on individual units without having to switch off the entire system.

### Accessories for cascade systems

For the ecoTEC plus 406/5-5 to 1206/5-5, Vaillant provides a comprehensive range of accessories for installing cascade systems.

The customised range of accessories makes it possible to set up a cascade system that has the following advantages:

- Simple installation of the system
- High level of operational reliability in the event of faults or maintenance work
- Compact, space-saving solutions

### Installation options for the cascade system

You can implement the following types of installation when you use the installation frames:

- Installing the units in line
- Installing the units across a corner
- Installing the units back-to-back.



Fig. 271: Six-unit in-line cascade (set-up example without heat insulation)

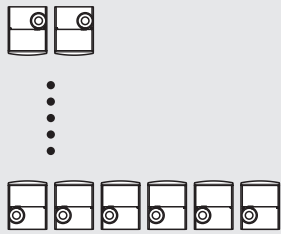
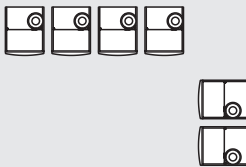
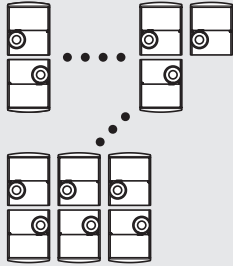


Fig. 272: Five-unit cascade around a corner (set-up example without heat insulation)



Fig. 273: Six-unit back-to-back cascade (set-up example without heat insulation)

### Installation options for the cascade system

Installation options	In line	Corner solution	Back-to-back
			
Number of units	2 to 6	4 to 6	2 to 6
Type of installation			
Anchored to the wall	•	–	–
Anywhere in the room	•	•	•
Air/flue pipe			
Flue pipework in shaft	•	•	•
Flue pipework through the roof	•	•	•
Flue pipework on the façade	•	•	•

• = possible  
– = not possible

### Planning the installation room

#### Note

It must be noted that the cascade system is always operated as open-flued.

For this reason, when planning the system, ensure that the combustion air is removed from the installation room.

Accordingly, the local boiler-room regulations are to be observed.



A cascade system can consist of two to six ecoTEC plus units of the same output range.

After determining the heat demand, the required output is distributed among the number of units in the cascade.

When planning the installation room, you must observe the system's dimensions. The required room height is then determined by the cascade headroom and the height for the required horizontal flue pipework downward gradient of approx. 62 mm per metre and the required installation clearance of 200 mm.

### Installing the units in line

The base frames for installing in line can be installed anywhere in the room with the help of the supplied support feet.

Using the existing holes, you have the option to secure the frame either to the floor or to the wall (if they have suitable load-bearing capacity).

Particularly when renovating existing heating installations, ground installation enables a high level of flexibility with regard to the connection options for connection to existing piping.

This means that an ecoTEC plus unit that is installed anywhere in the room can be easily connected to the heating piping that comes from behind and is for a replaced floor-standing boiler. This therefore reduces the effort required for adapting the existing piping.

A cascade frame on the wall is used if the load-bearing capacity of the wall is not sufficient for bearing the weight of the units.



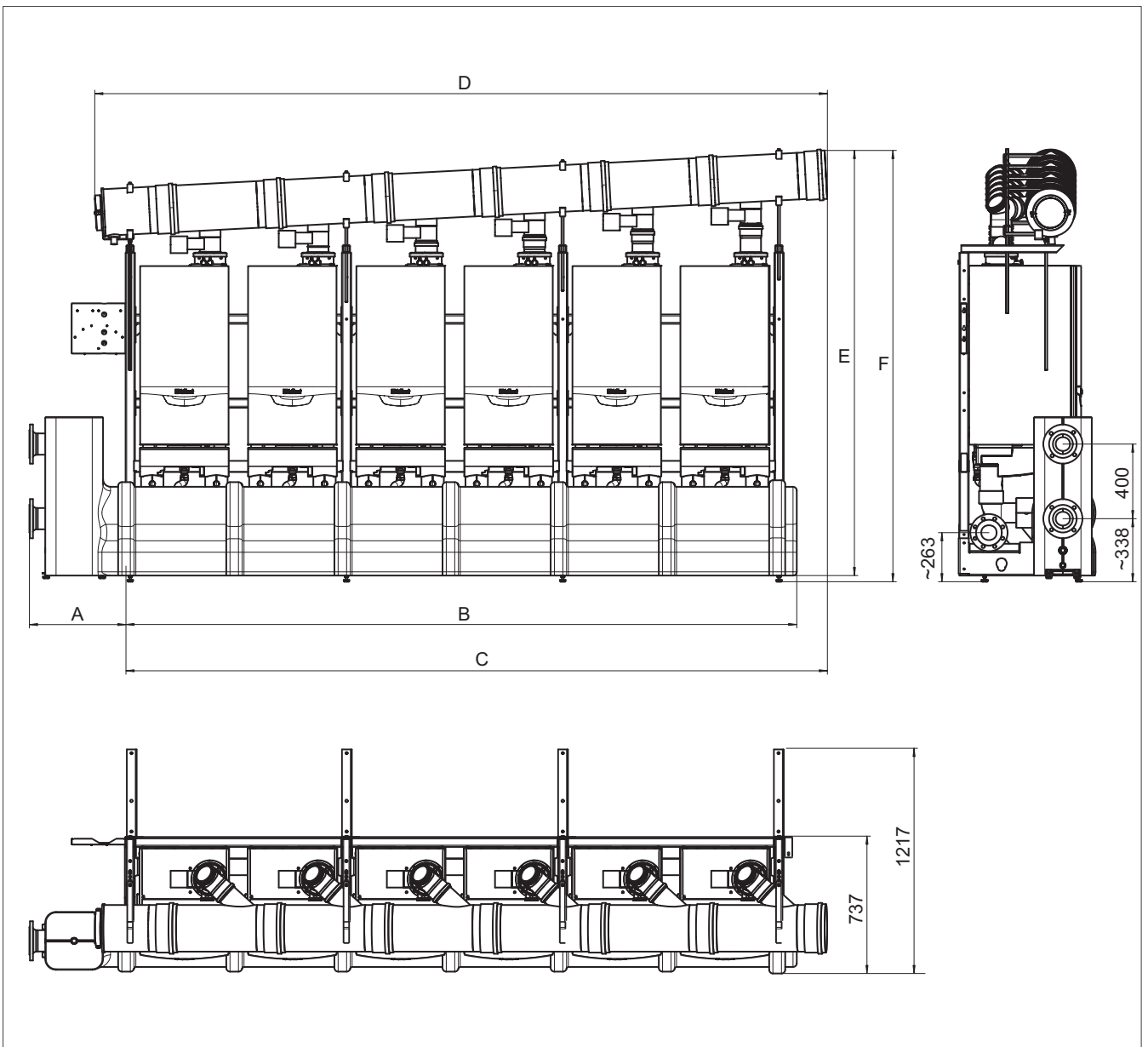


Fig. 274: Connecting up to six ecoTEC plus units in line

Dimensions of the system when installing units in line

Approx. dimension [mm]	Number of units				
	2	3	4	5	6
B	1278	1858	2438	3018	3598
C	1421	2022	2602	3181	3762
D	1610	2190	2770	3349	3930
E	2119	2149	2224	2254	2284
F	2152	2182	2257	2287	2317

Dimension A: Depending on the low loss header/heat exchanger that is selected

### Installing the units around corners (L-shaped)

When installing units around corners (L-shaped), all units are installed on the frame and positioned freely anywhere in the room. The two lines of units are connected using an adapted elbow set for corner installation (gas, flow and return elbows) from the range of accessories.

Cascade solutions can be created for four to six units.

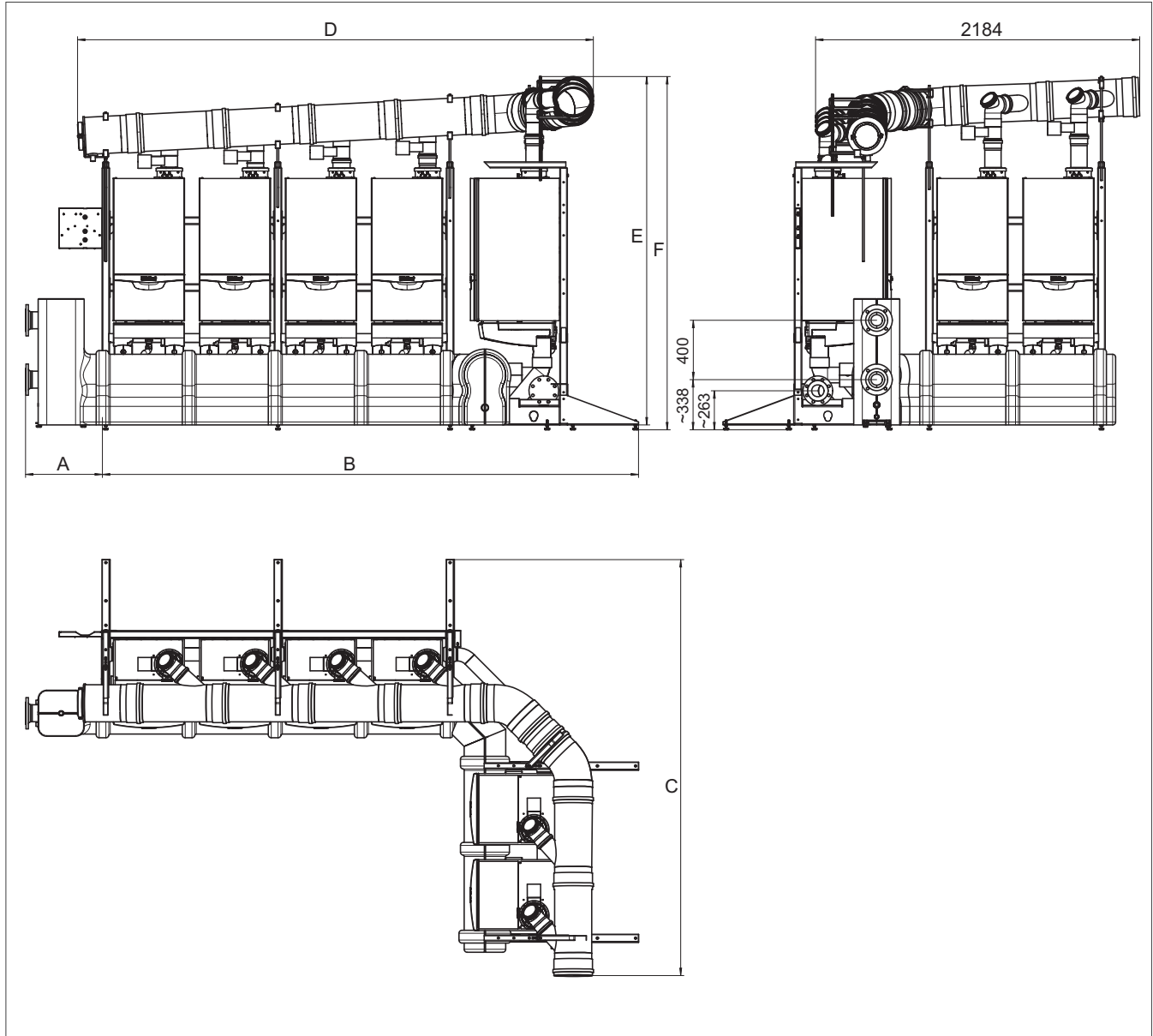


Fig. 275: Connecting six ecoTEC plus units in an L-shape (around the corner), flue pipework running upwards to the right

Dimensions of the system when installed around the corner with the flue gas pipe running upwards to the right

Approx. dimension [mm]	Number of units (flue gas pipe running upwards to the right)		
	4	5	6
B	2453	3033	3613
C	2802	2802	2802
D	2316	2896	3476
E	2287	2317	2347
F	2320	2350	2380

Dimension A: Depending on the low loss header/heat exchanger that is selected

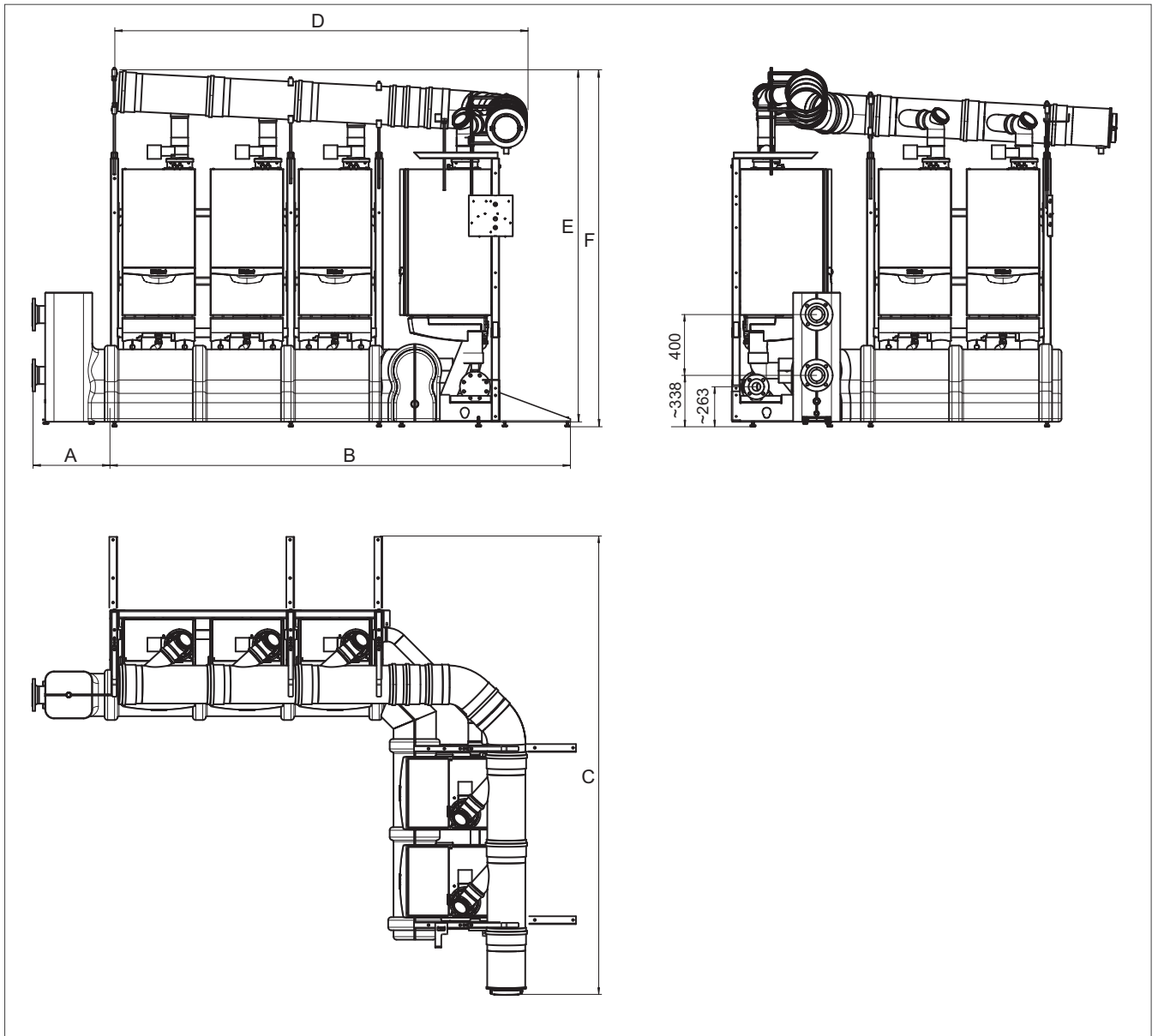


Fig. 276: Connecting six ecoTEC plus units in an L-shape (around the corner), flue pipework running upwards to the left

Dimensions of the system when installed around the corner with the flue gas pipe running upwards to the left

Approx. dimension [mm]	Number of units (flue gas pipe running upwards to the left)		
	4	5	6
B	2453	3033	3613
C	3011	3011	3011
D	2226	2806	3386
E	2297	2327	2357
F	2330	2360	2390

Dimension A: Depending on the low loss header/heat exchanger that is selected

### Installing the units back-to-back on installation frames

For back-to-back installation of the units, combinations of two to six units can be created. In this case, an uneven number of units (three or five units) is also possible. These units must only be installed on frames.

A one-unit cascade base frame is also available for the combination of two units in back-to-back cascade (see the overview of the accessories).

A special connection accessory is available for the hydraulic connection of the rear units.

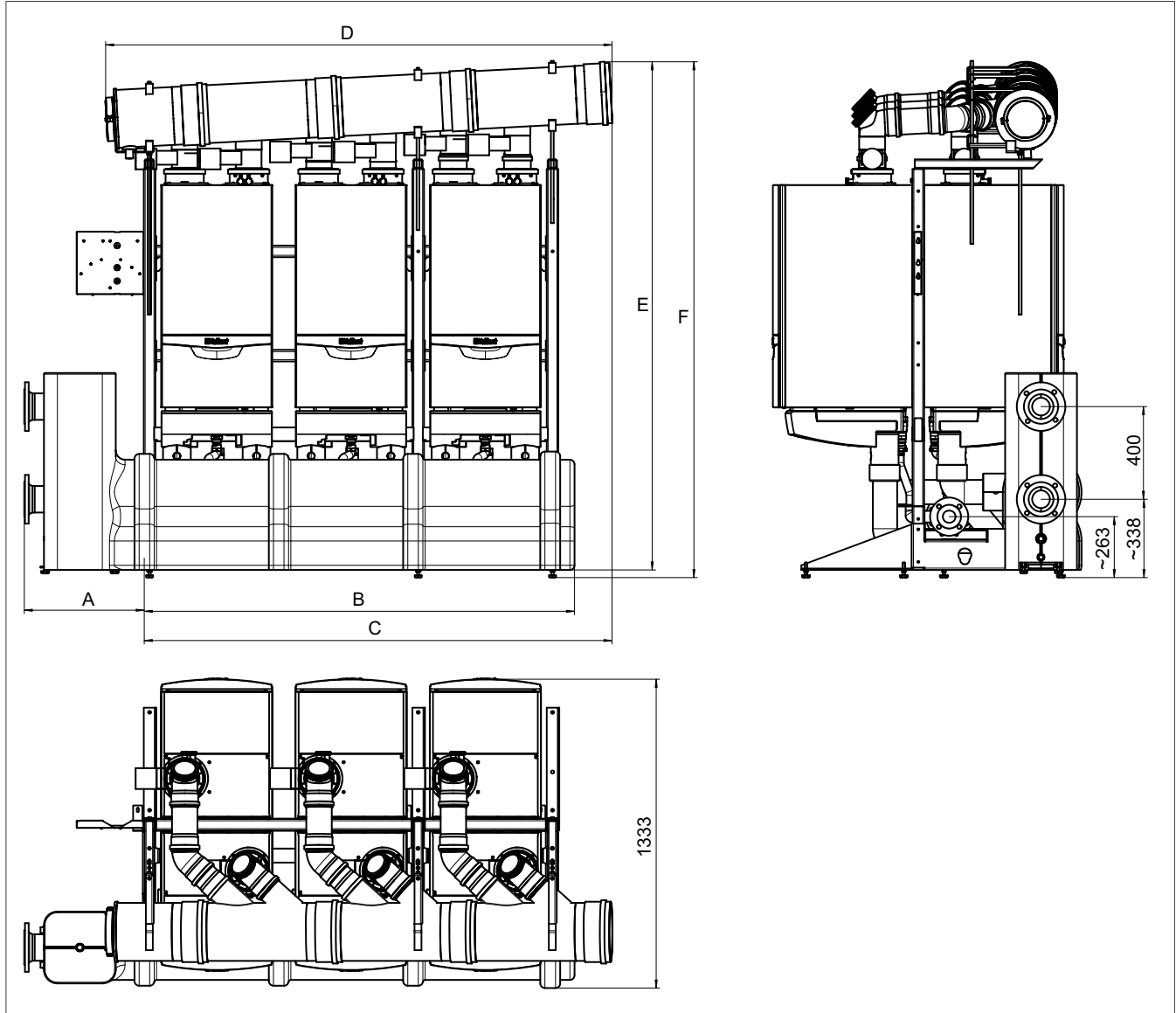


Fig. 277: Connecting up to six ecoTEC plus units back-to-back

Dimensions of the system when installing units back-to-back

Approx. dimension [mm]	Number of units (flue pipe running upwards to the right)				
	2	3	4	5	6
B	698	1278	1278	1858	1858
C	860	1440	1440	2020	2020
D	1027	1607	1607	2187	2187
E	2133	2163	2163	2193	2193
F	2166	~2196	~2196	~2226	~2226

Dimension A: Depending on the low loss header/heat exchanger that is selected

## 18.2 Accessories for the cascade solution

On the cascade frames, the units can be installed beside each other or back-to-back. The frames are equipped with flow and return header lines. This means that the cascade can be easily installed and extended.



Fig. 278: One-unit cascade base frame with hydraulic components



Fig. 280: Two-unit cascade base frame with hydraulic components



Fig. 279: One-unit cascade extension frame with hydraulic components



Fig. 281: Two-unit cascade extension frame with hydraulic components

In addition to the cascade frames, other accessories are required for the hydraulic and gas connections for the individual units.

The following tables provide an overview of the type and quantity of required accessories.

When selecting the cascade accessories, note that different base and extension frames are available, depending on the nominal heat output of the entire system.

Up to a total nominal heat output of 400 kW, cascade frames with DN 65 header lines and suitable accessories are used (see Table 1).

As of a total nominal heat output of over 400 kW, frames with DN 100 header lines are used. These are summarised in Table 2.

An overview of the required connection accessories for the individual units is contained in Table 3.

The complete overview of the cascade accessories is contained in Table 4 and Table 5.

### Required cascade accessories for a total nominal heat output of < 400 kW

	Designation	Article number (DE only)	Number required for a two-unit back-to-back cascade	Number required for a two-unit in-line cascade	Number required for each additional unit
<b>Base frames and header lines</b>	One-unit cascade base frame with hydraulic components (DN 65)	0020159414	1	–	
	Two-unit cascade base frame with hydraulic components (DN 65)	0020159415	–	1	
	Two-unit gas header line (DN 50)	0020153175	–	1	
	Blind flange (DN 50)	0020151835	1	1	
	HT pipe (DN 50)	On-site	1 m with two outlets		1 m with one outlet
<b>Extension frames and header lines</b>	One-unit cascade extension frame with hydraulic components (DN 65)	0020159416	–	–	1 <sup>1)</sup>
	Two-unit cascade extension frame with hydraulic components (DN 65)	0020159417	–	–	1 <sup>2)</sup>
	One-unit gas header line (DN 50)	0020153174	1	–	1
	HT pipe (DN 50)	On-site	1 m with two outlets		1 m with one outlet

<sup>1)</sup> To be used if only one unit is being added to the cascade

<sup>2)</sup> To be used if only two units are being added to the cascade

### Required cascade accessories for a total nominal heat output of > 400 kW

	Designation	Article number (DE only)	Number required for a two-unit cascade	Number required for each additional unit
<b>Base frames and header lines</b>	Two-unit cascade base frame with hydraulic components (DN 100)	0020159419	1	
	Two-unit gas header line (DN 80)	0020153177	1	
	Blind flange (DN 80)	0020151836	1	
	HT pipe (DN 50)	On-site	1 m with two outlets	
<b>Extension frames and header lines</b>	One-unit cascade extension frame with hydraulic components (DN 100)	0020159420		1 <sup>1)</sup>
	Two-unit cascade extension frame with hydraulic components (DN 100)	0020159421		1 <sup>2)</sup>
	One-unit gas header line (DN 80)	0020153176		1
	HT pipe (DN 50)	On-site		1 m with one outlet

<sup>1)</sup> To be used if only one unit is being added to the cascade

<sup>2)</sup> To be used if only two units are being added to the cascade

### Required cascade accessories for connecting the units

If the units in the cascade are connected in line, you require the installation sets (flow/return and gas) to connect a front unit.

When extending a „back-to-back“ cascade system, a „front“ installation set is required for the front unit. The units at the back must each be connected using a „rear“ installation set.

	Designation	Art. no.	Number required for each unit in line (front)	Number required for each unit at the back (rear)
<b>Connection accessories for each unit</b>	Gas installation set for cascade (in line - front unit)	0020151839 (< 80 kW) 0020151841 (> 80 kW)	1	–
	Gas installation set for cascade (rear unit)	0020151845 (< 80 kW) 0020151847 (> 80 kW)	–	1
	Gas ball valve, 1" passage	300849	1	1
	Heating installation set for cascade (in line - front unit)	0020151823 0020151827 0020151822	1	–
	Heating installation set for cascade (rear unit)	0020151825 0020151830 0020151824	–	1
	Surface-mounted installation set for ecoTEC plus VC 806/5-5 <b>or</b> Surface-mounted installation set for ecoTEC plus VC 1006 - 1206/5-5	0020106070 0020106060	1	1
	Heat insulation cover for surface-mounted installation set for ecoTEC plus	0020138349	1	1
	VC installation set (two service valves G 1 1/2 x Rp 1 1/4)	0020059560	1	1
	Heat insulation covers for VC installation set	0020106195	1	1
	Expansion relief valve Rp 1" up to 3 bar Expansion relief valve Rp 1" up to 4 bar Expansion relief valve Rp 1" up to 6 bar	0020106056 0020106057 0020106058	1	1
	Heat insulation element - flow/return - for ecoTEC plus cascade hydraulics	0020151853		1

Overview of the features of the cascade frames

Accessories	Cascade frames consisting of		
<b>One-unit cascade base frame</b>			
	Set 1	Frame for hydraulic cascade	0020151805
	Set 9	Frame extension for 1/2 units for hydraulic cascade	0020151813
	Set 11	Foot for hydraulic cascade	0020151815
	Set 14	Hydraulic extension for 1/2 DN 65 units for hydraulic cascade < 400 kW	0020151818
	Set 15	Hydraulic extension for 1/2 DN 100 units for hydraulic cascade > 400 kW	0020151819
	Set 12	DN 65 hydraulic basic module for hydraulic cascade < 400 kW	0020151816
	Set 13	DN 100 hydraulic basic module for hydraulic cascade > 400 kW	0020151817
<b>One-unit cascade extension frame</b>			
	Set 9	Frame extension for 1/2 units for hydraulic cascade	0020151813
	Set 14	Hydraulic extension for 1/2 DN 65 units for hydraulic cascade < 400 kW	0020151818
	Set 15	Hydraulic extension for 1/2 DN 100 units for hydraulic cascade > 400 kW	0020151819
<b>Two-unit cascade base frame</b>			
	Set 1	Frame for hydraulic cascade	0020151805
	Set 10	Frame extension for 2/4 units for hydraulic cascade	0020151814
	Set 11	Foot for hydraulic cascade	0020151815
	Set 16	Hydraulic extension for 2/4 DN 65 units for hydraulic cascade < 400 kW	0020151820
	Set 17	Hydraulic extension for 2/4 DN 100 units for hydraulic cascade > 400 kW	0020151821
	Set 12	DN 65 hydraulic basic module for hydraulic cascade < 400 kW	0020151816
	Set 13	DN 100 hydraulic basic module for hydraulic cascade > 400 kW	0020151817
<b>Two-unit cascade extension frame</b>			
	Set 10	Frame extension for 2/4 units for hydraulic cascade	0020151814
	Set 16	Hydraulic extension for 2/4 DN 65 units for hydraulic cascade < 400 kW	0020151820
	Set 17	Hydraulic extension for 2/4 DN 100 units for hydraulic cascade > 400 kW	0020151821



Overview of accessories for the cascade system

Accessories	Description	Order no.
<b>Gas connection accessories</b>		
	<p><b>Gas ball valve, 1" passage</b></p>	<p>300849</p>
	<p><b>INT gas ball valve</b></p>	<p>009299</p>
	<p><b>Gas installation set for cascade of ecoTEC plus VC 406 - 636/5-5 units (installation type: In line)</b></p>	<p>0020151839</p>
	<p><b>Gas installation set for cascade of ecoTEC plus VC 406 - 636/5-5 units (installation type: Back-to-back)</b></p>	<p>0020151845</p>
	<p><b>Gas installation set for cascade of ecoTEC plus VC 806 - 1206/5-5 units (installation type: In line)</b>                      For connecting an ecoTEC plus VC 806 - 1206/5-5 unit from the cascade frame to the DN 50 or DN 80 gas header line (only for the installation type: In line); consists of gas connection pipe with 1 1/2" thread, 1 1/2" x 1" reduction, 1 1/2" gas flow monitor</p>	<p>0020151841</p>





Accessories	Description	Order no.
	<p><b>Gas installation set for cascade of ecoTEC plus VC 806 - 1206/5-5 units (installation type: Back-to-back)</b></p> <p>For connecting an ecoTEC plus VC 806 - 1206/5-5 unit from the cascade frame to the DN 50 or DN 80 gas header line (only for the installation type: Back-to-back); consists of gas connection pipe with 1 1/2" thread, 90° 1 1/2" x 1" elbow, 1 1/2" gas flow monitor</p>	0020151847
	<p><b>Gas installation set for cascade of ecoTEC plus VC 806 - 1206/5-5; suitable for gas ball valve 009299 without thermal isolator device (installation type: In line)</b></p> <p>For connecting an ecoTEC plus VC 806 - 1206/5-5 unit from the cascade frame to the DN 50 or DN 80 gas header line; comprising a gas connection pipe with 1 1/2" thread, 1 1/2" x 1" reduction, 1 1/2" gas flow monitor</p>	0020151838
	<p><b>Gas installation set for cascade of ecoTEC plus VC 806 - 1206/5-5; suitable for gas ball valve 009299 without thermal isolator device (installation type: Back-to-back)</b></p> <p>For connecting an ecoTEC plus VC 806 - 1206/5-5 unit from the cascade frame to the DN 50 or DN 80 gas header line; comprising a gas connection pipe with 1 1/2" thread, 90° 1 1/2" x 1" elbow, 1 1/2" gas flow monitor</p>	0020151844
	<p><b>One-unit DN 50 gas header line (heat output up to 400 kW)</b></p> <p>For one-unit cascade base or extension frame (with flow/return DN 65/100) incl. seals, plugs and screwed connections for connecting one or two ecoTEC plus VC 806 - 1206/5-5 units (installation type: Back-to-back)</p>	0020153174 (DE)/0020107866 (INT)
	<p><b>One-unit DN 80 gas header line (heat output from 400 kW)</b></p> <p>For one-unit cascade base or extension frame (with flow/return DN 65/100) incl. seals, plugs and screwed connections for connecting one or two ecoTEC plus VC 806 - 1206/5-5 units (installation type: Back-to-back)</p>	0020153176 (DE)/0020107869 (INT)
	<p><b>Two-unit DN 50 gas header line (heat output up to 400 kW)</b></p> <p>For two-unit cascade base or extension frame (with flow/return DN 65/100) incl. seals, plugs and screwed connections for connecting two to four ecoTEC plus VC 806 - 1206/5-5 units (installation type: In line or back-to-back)</p>	0020153175 (DE)/0020107867 (INT)
	<p><b>Two-unit DN 80 gas header line (heat output from 400 kW)</b></p> <p>For two-unit cascade base or extension frame (with flow/return DN 65/100) incl. seals, plugs and screwed connections for connecting two to four ecoTEC plus VC 806 - 1206/5-5 units (installation type: In line or back-to-back)</p>	0020153177 (DE)/0020107870 (INT)
	<p><b>DN 50 blind flange DN 80 blind flange</b></p> <p>For DN 50/DN 80 gas header line incl. seal and screwed connections, 1 pc required for cascade of ecoTEC plus units</p>	0020151835 0020151836
	<p><b>(Gas) DN 80 extension for 90° cascade corner installation</b></p> <p>1 x DN 80 elbow, 90° incl. seals and screwed connections for individual and space-saving corner installation of the ecoTEC plus cascade. The elbow can be used after each base frame for ecoTEC plus cascade systems with the DN 80 gas header line</p>	0020151837

Accessories	Description	Order no.
<b>Heating connection accessory</b>		
	<p><b>Surface-mounted installation set for ecoTEC plus VC 806/5-5</b>  Comprising: 1/1/2" horizontal connection pipes for boiler, high-efficiency pump (efficiency class A), 1/2" filling/draining cocks, connection for R 1" expansion relief valve and R 1" expansion vessel  Heat insulation cover (energy conservation ordinance (EnEV)) article number 0020138349 for installations set available separately</p>	0020106070
	<p><b>Surface-mounted installation set for ecoTEC plus VC 1006-1206/5-5</b>  Comprising: 1/1/2" horizontal connection pipes for boiler, high-efficiency pump (efficiency class A), 1/2" filling/draining cocks, connection for R 1" expansion relief valve and R 1" expansion vessel  Heat insulation cover (energy conservation ordinance (EnEV)) article number 0020138349 for installations set available separately</p>	0020106060
No figure	<p><b>Surface-mounted installation set for ecoTEC plus VC 806-1206/5-5 (INT)</b>  Comprising: 1/1/2" horizontal connection pipes for boiler, modulating pump, 1/2" filling/draining cocks, connection for R 1" expansion relief valve and R 1" expansion vessel, heat insulation cover (energy conservation ordinance) article number 0020138349 for installation set available separately</p>	0020106189
	<p><b>VC installation set</b>  For ecoTEC exclusive VC 356/4-7 to 656/4-7, ecoTEC plus VC 806 - 1206/5-5, 2 service valves G 1 1/2 x Rp 1 1/4. Expansion with bypass valve (0020059561) for VC 356/4-7, if no low loss header is used for single-circuit systems  Heat insulation covers (energy conservation ordinance (EnEV)) article number 0020106195 for installations set available separately</p>	0020059560 GB, FR, BE: Included in the scope of delivery
	<p><b>High-efficiency boiler circuit pump (efficiency class A)</b>  Optional for ecoTEC plus VC 1006/5-5, 1206/5-5, incl. connection cable and insulation (energy conservation ordinance (EnEV))  Only required if no surface-mounted installation set (article number 0020106060) is used.</p>	0020106065
	<p><b>High-efficiency boiler circuit pump (efficiency class A)</b>  Optional for ecoTEC plus VC 806/5-5, incl. connection cable and insulation (energy conservation ordinance (EnEV))  Only required if no surface-mounted installation set (article number 0020106070) is used.</p>	0020106073

Accessories	Description	Order no.
	<p><b>Heating installation set (flow/return) for cascade of ecoTEC plus VC 406 - 636/5-5; applicable for connection to the front (in line and back-to-back)</b>            To connect an ecoTEC plus VC 406 - 636/5-5 from the cascade frame to flow/return DN 65/DN 100 collection pipes; applicable for connection to the front (in line and back-to-back)            Comprising flow/return connection pipes with 1 1/2" thread, 1 1/2" compression fittings, seals, insulation (energy conservation ordinance (EnEV))</p>	0020151823 0020151827
	<p><b>Heating installation set (flow/return) for cascade of ecoTEC plus VC 406 - 636/5-5 units; applicable for a backwards connection</b>            To connect an ecoTEC plus VC 406 - 636/5-5 from the cascade frame to flow/return DN 65/DN 100 collection pipes; applicable for a backwards connection            Comprising flow/return connection pipes with 1 1/2" thread, 1 1/2" non-return flaps, 1 1/2" compression fittings, seals, insulation (energy conservation ordinance (EnEV))</p>	0020151825 0020151830
	<p><b>Heating installation set (flow/return) for cascade of ecoTEC plus VC 806 - 1206/5-5; applicable for connection to the front (in line and back-to-back)</b>            To connect an ecoTEC plus VC 806 - 1206/5-5 from the cascade frame to flow/return DN 65/DN 100 collection pipes; applicable for connection to the front (in line and back-to-back)            Comprising flow/return connection pipes with 1 1/2" thread, 1 1/2" compression fittings, seals, insulation (energy conservation ordinance (EnEV))</p>	0020151822
	<p><b>Heating installation set (flow/return) for cascade of ecoTEC plus VC 806 - 1206/5-5 units; applicable for a backwards connection</b>            To connect an ecoTEC plus VC 806 - 1206/5-5 from the cascade frame to flow/return DN 65/DN 100 collection pipes; applicable for a backwards connection            Comprising flow/return connection pipes with 1 1/2" thread, 1 1/2" non-return flaps, 1 1/2" compression fittings, seals, insulation (energy conservation ordinance (EnEV))</p>	0020151824
	<p><b>DN 100 extension (flow/return) for 90° cascade corner installation (installation type: In line)</b>            2 x DN 100 elbows, 90° incl. seals and screwed connections for the individual and space-saving corner installation of the ecoTEC plus cascade            The elbow set can be used after each base frame for ecoTEC plus cascade systems with the DN 100 collector and distributor dimension (only for installation type: In line)</p>	0020151834
<b>Safety devices</b>		
	<p><b>Expansion relief valve Rp 1" up to 3 bar</b>  <b>Expansion relief valve Rp 1" up to 4 bar</b>  <b>Expansion relief valve Rp 1" up to 6 bar</b>            For installation set for ecoTEC plus VC 806- 1206/5-5</p>	0020106056 0020106057 0020106058 GB, FR, BE: Included in the scope of delivery

Accessories	Description	Order no.
<b>Condensate discharge</b>		
	<p><b>Condensate neutraliser up to 450 kW</b> Plastic vessel with neutralisation medium Incl. DN 20 drain hose, DN 20 feed hose, small parts and granules</p>	009730
	<p><b>Condensate neutraliser with condensed water feed pump up to 360 kW</b> Incl. DN 20 drain hose, DN 20 feed hose, small parts and granules</p>	0020106190
	<p><b>Fault message cable for condensate neutraliser with condensed water feed pump up to 360 kW</b> For forwarding the fault message to each unit in a cascade of ecoTEC plus VC 806 - 1206/5-5 units As of the second unit, one fault message cable is required for each unit</p>	0020106191
<b>Heat insulation</b>		
	<p><b>Heat insulation covers (energy conservation ordinance (EnEV)) for installation set 0020059560</b> 2 pcs, black</p>	0020106195
	<p><b>Heat insulation covers (energy conservation ordinance (EnEV)) for surface-mounted installation set for ecoTEC plus VC 806/5-5 - 1206/5-5</b> Heat insulation covers (multi-section) in EPP (black) for EnEV-compliant heat insulation with a high-quality appearance for the surface-mounted installation set for the ecoTEC plus VC 806/5-5 - 1206/5-5; simple and tool-free installation directly below the unit</p>	0020138349

Accessories	Description	Order no.
	<p><b>Heat insulation element - flow/return for ecoTEC plus cascade hydraulics</b> Heat insulation element (multi-section) in EPP (black) for EnEV-compliant heat insulation with a high-quality appearance for the cascade manifold and collection pipes (DN 65 and DN 100) incl. cable outlets to the units One element is sufficient for each cascade base or extension frame. For second base and extension frames, two insulating elements are required in each case. Suitable for the following installation types: In line and back-to-back</p>	0020151853
	<p><b>Heat insulation element - end cap for ecoTEC plus cascade hydraulics</b> Heat insulation element (two-part) in EPP (black) for a conclusion of the EnEV-compliant heat insulation for cascade manifolds and collection pipes One element is sufficient for each cascade of ecoTEC plus units</p>	0020151854
	<p><b>Heat insulation element - low loss header for a cascade of ecoTEC plus units</b> Heat insulation element (two-part) in EPP (black) for EnEV-compliant heat insulation with a high-quality appearance for the low loss header for the cascade of ecoTEC plus units; ready for direct connection to the flow/return heat insulation element, suitable for WHC 110, 160, 280, 350; optional left-hand or right-hand installation of the low loss header</p>	0020151855
	<p><b>Heat insulation element - flow/return corner installation for ecoTEC plus cascade system</b> Heat insulation element (multi-section) in EPP (black) for EnEV-compliant heat insulation with a high-quality appearance of the elbow set for cascade manifolds and collection pipes in 90° corner installation (DN 100); ready for bilateral connection to the flow/return heat insulation element</p>	0020151856


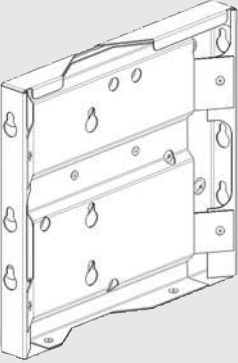
Accessories	Description	Order no.
<b>Low loss headers</b>		
	<p><b>WHC 110 low loss header for an ecoTEC plus cascade system</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, 9.5 m³/h, DN 65 connection, height-adjustable, incl. magnetite filter and sensor</p>	0020107874
	<p><b>WHC 160 low loss header for an ecoTEC plus cascade system</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, 15 m³/h, DN 65 connection, height-adjustable, incl. magnetite filter and sensor</p>	0020107875
	<p><b>WHC 280 low loss header for an ecoTEC plus cascade system</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, 21 m³/h, DN 100 connection, height-adjustable, incl. magnetite filter and sensor</p>	0020151859
	<p><b>WHC 350 low loss header for an ecoTEC plus cascade system</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, 25 m³/h, DN 100 connection, height-adjustable, incl. magnetite filter and sensor</p>	0020107876



Accessories	Description	Order no.
<b>Plate heat exchanger for cascade systems and connection accessories</b>		
	<p><b>PHE C 240-40 plate heat exchanger for ecoTEC plus cascades</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, up to 240 kW, DN 65 connection, height-adjustable</p>	0020137070
	<p><b>PHE C 360-70 plate heat exchanger for ecoTEC plus cascades</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, up to 400 kW, DN 65 connection, height-adjustable</p>	0020137071
	<p><b>PHE C 480-90 plate heat exchanger for ecoTEC plus cascades</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, up to 480 kW, DN 80 connection, height-adjustable</p>	0020137072
	<p><b>PHE C 600-120 plate heat exchanger for ecoTEC plus cascades</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, up to 600 kW, DN 80 connection, height-adjustable</p>	0020137073
	<p><b>PHE C 720-170 plate heat exchanger for ecoTEC plus cascades</b>  Dimensions and connections specially adapted to the Vaillant cascade concept, up to 720 kW, DN 80 connection, height-adjustable</p>	0020137074



Accessories	Description	Order no.
	<p><b>Connection pipes for connecting to a DN 65 heat exchanger</b>  <b>Connection pipes for connecting to a DN 80 heat exchanger</b>  Two DN 65 or DN 80 pipes, incl. seals and screwed connections for connecting the flow/return DN 65/DN 80 collection pipes to a heat exchanger</p>	0020107886 0020107887
	<p><b>Connection pipes for connecting to a DN 65 heat exchanger (ISPESL group IT)</b>  <b>Connection pipes for connecting to a DN 80 heat exchanger (ISPESL group IT)</b>  Two DN 65 or DN 80 pipes, incl. seals and screwed connections for connecting the flow/return DN 65/DN 80 collection pipes to a heat exchanger</p>	0020151851 0020151852
	<p><b>ISPESL component set</b>  Comprising: Safety pressure limiter with manual reset, safety cut-out, thermometer, manometer, pipe with damper, ISPESL-compliant isolation valve, cylinder dry pocket, expansion relief valve</p>	0020072437

Accessories	Description	Order no.
<b>Other accessories</b>		
	<p><b>Additional bracket for air/flue system cascade of ecoTEC plus units</b>  Additional bracket for air/flue system cascade of ecoTEC plus units, DN 160 to DN 250 for securing to the cascade frame incl. all required fixing elements</p>	0020107879
	<p><b>Additional bracket for control in the cascade of ecoTEC plus units</b>  Additional bracket for the simple and fast securing of controls (e.g. calorMATIC 470, auroMATIC 620/3 or calorMATIC 630) to the side of the cascade frame, incl. fixing material</p>	0020151861

To make optimal use of the available space in the installation room, there is also the option to install the cascade system around a corner.

To install the units around a corner, similar frames and accessories can be combined, as is the case when installing in line.

To connect the units around a corner, suitable flow and return collection pipes are available along with a corner connection for the gas line and suitable thermal insulation elements.



Fig. 282: Accessory extension for corner installation

Accessory extension for corner installation

Description	Art. no.	Total nominal heat output < 400 kW	Total nominal heat output > 400 kW
(VL/RL) DN 100 extension for 90° corner installation	0020151834	•	•
(Gas) DN 80 extension for 90° corner installation	0020151837	•	•



# 19. Domestic hot water cylinder

## 19.1 Product overview for the domestic hot water cylinder



Fig. 283: Indirectly heated domestic hot water cylinder and shift-load cylinder - product overview

Indirectly heated domestic hot water cylinder and shift-load cylinder - product overview

		Shift-load cylinder	Indirectly heated	Wall-hung cylinder	Upright cylinder	Mono-valent	Heating pressure rating	Domestic hot water pressure rating
<b>actoSTOR</b>								
1	VIH QL 75 B	•	–	•	–	•	–	10 bar
2	VIH QL 75/2 B	•	–	•	–	•	–	10 bar
3	VIH K 300	•	–	–	•	•	4 bar	10 bar
<b>uniSTOR</b>								
4	VIH Q 75 B	–	•	•	–	•	10 bar	10 bar
5	VIH Q 75/2	–	•	•	–	•	10 bar	10 bar
6	VIH R 750 - 2000VIH Q 75/2	–	•	–	•	•	7 bar	7 bar
<b>uniSTOR exclusive</b>								
7	VIH R 120/6 H - 200/6 H	–	•	–	•	•	10 bar	10 bar
8	VIH R 300/3 MR - 500/3 MR	–	•	–	•	•	10 bar	10 bar
<b>uniSTOR plus</b>								
7	VIH R 120/6 B - 200/6 B	–	•	–	•	•	10 bar	10 bar
8	VIH R 300/3 BR - 500/3 BR	–	•	–	•	•	10 bar	10 bar
9	VIH R 750/2 - 2000/2	–	•	–	•	•	10 bar	10 bar

## 19.2 Product overview for the buffer cylinder with domestic hot water station



Fig. 284: Buffer cylinder with domestic hot water station - product overview

Buffer cylinder with domestic hot water station - product overview

		Multi-functional cylinder	Domestic hot water station	Wall-hung/installed on the cylinder	Floor-standing	Pump	Heating pressure rating	Domestic hot water pressure rating
	<b>allSTOR exclusive</b>							
1	VPS 300/3-7 - 2000/3-7	•	–	–	•	–	3 bar	–
	<b>allSTOR plus</b>							
2	VPS 300/3-5 - 2000/3-5	•	–	–	•	–	3 bar	–
2	VPS 800/4-5 - 2000/4-5	•	–	–	•	–	6 bar	–
	<b>aguaFLOW exclusive</b>							
3	VPM 20/25/2 W - 40/45/2 W	–	•	•	–	–	3 bar	10 bar
	<b>aguaFLOW plus</b>							
4	VPM 60/3 W - VPM 135/3 W	–	•	–	•	Stage-wise	10 bar	10 bar
4	VPM 45/3 W - VPM 180/3 W	–	•	–	•	Modulating	10 bar	10 bar

Vaillant domestic hot water cylinder - overview up to NL 21

		uniSTOR exclusive/plus			uniSTOR		uniSTOR exclusive/plus			actoSTOR			
		VIH R 120/6 H / B (NL 1.4)	VIH R 150/6 H / B (NL 2.2)	VIH R 200/6 H / B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH Q 75/2 B (NL 1.0)	VIH R 300/3 MR / BR (NL 9.0)	VIH R 400/3 MR / BR (NL 15.0)	VIH R 500/3 MR / BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH QL 75/2 B (NL 1.7)	VIH K 300 (NL 10.0)	
<b>Gas-fired wall-hung boilers</b>	ecoTEC exclusive 2.8-32.5 kW	VC 15 CS/1-7	•	•	•	-	•	o	o	o	-	-	-
		VC 20 CS/1-7	•	•	•	-	•	•	o	o	-	-	-
		VC 25 CS/1-7	•	•	•	-	•	•	o	o	-	-	-
		VC 30 CS/1-7	•	•	•	-	o	•	•	•	-	-	-
		VCW 25/36 CF/1-7	-	-	-	-	-	-	-	-	-	•	-
	ecoTEC exclusive 1.9-32.9 kW	VC 156/5-7	•	•	•	•	-	o	o	o	-	-	-
		VC 216/5-7	•	•	•	•	-	•	o	o	-	-	-
		VC 246/5-7	•	•	•	•	-	•	o	o	-	-	-
		VC 276/5-7	•	•	•	o	-	•	o	o	-	-	-
		VC 326/5-7	•	•	•	-	-	•	•	•	-	-	-
	ecoTEC pure 6.9-20.1 kW	VC 146/7-2	•	•	•	o	-	o	o	o	-	-	-
		VCW 206/7-2	-	-	-	-	-	-	-	-	•	-	-
	ecoTEC plus PEEC 3.2-30.6 kW	VC 10 CS/1-5	•	•	•	-	•	o	o	o	-	-	-
		VC 15 CS/1-5	•	•	•	-	•	o	o	o	-	-	-
		VC 20 CS/1-5	•	•	•	-	•	•	o	o	-	-	-
		VC 25 CS/1-5	•	•	•	-	•	•	o	o	-	-	-
		VC 30 CS/1-5	•	•	•	-	o	•	•	•	-	-	-
		VCW 20/26 CS/1-5	-	-	-	-	-	-	-	-	-	•	-
	ecoTEC plus 3.2-120.0 kW	VCW 25/32 CS/1-5	-	-	-	-	-	-	-	-	-	•	-
		VC 146/5-5	•	•	•	o	-	o	o	o	-	-	-
		VC 206/5-5	•	•	•	•	-	•	o	o	-	-	-
		VC 266/5-5	•	•	•	o	-	•	o	o	-	-	-
		VC 306/5-5	o	•	•	-	-	•	•	•	-	-	-
		VC 406/5-5	o	•	•	-	-	•	•	•	-	-	-
		VC 476/5-5	-	-	•	-	-	•	•	•	-	-	-
		VC 636/5-5	-	-	o	-	-	•	•	•	-	-	-
		VC 806/5-5	-	-	-	-	-	•	•	•	-	-	-
VC 1006/5-5		-	-	-	-	-	•	•	•	-	-	-	
VC 1206/5-5		-	-	-	-	-	•	•	•	-	-	-	
VCW 206/5-5	-	-	-	-	-	-	-	-	•	-	-		
VCW 266/5-5	-	-	-	-	-	-	-	-	o	-	-		

- Recommended
- o Recommended under certain circumstances
- Not recommended

			uniSTOR exclusive/plus			uniSTOR		uniSTOR exclusive/plus			actoSTOR		
			VIH R 120/6 H / B (NL 1.4)	VIH R 150/6 H / B (NL 2.2)	VIH R 200/6 H / B (NL 3.8)	VIH Q 75 B (NL 1.0)	VIH Q 75/2 B (NL 1.0)	VIH R 300/3 MR / BR (NL 9.0)	VIH R 400/3 MR / BR (NL 15.0)	VIH R 500/3 MR / BR (NL 21.0)	VIH QL 75 B (NL 1.5)	VIH QL 75/2 B (NL 1.7)	VIH K 300 (NL 10.0)
<b>Gas-fired floor-standing boiler</b>	ecoVIT exclusive 6.6-63.2 kW	VKK 226/4	•	•	•	-	-	•	o	o	-	-	•
		VKK 286/4	o	•	•	-	-	•	o	o	-	-	•
		VKK 366/4	o	o	•	-	-	•	•	•	-	-	•
		VKK 476/4	-	-	o	-	-	•	•	•	-	-	•
		VKK 656/4	-	-	o	-	-	•	•	•	-	-	•
	ecoVIT 5.8-51.5 kW	VKK 186/5	o	o	o	-	-	o	o	o	-	-	-
		VKK 256/5	o	o	o	-	-	o	o	o	-	-	-
		VKK 356/5	o	o	o	-	-	o	o	o	-	-	-
	ecoCRAFT exclusiv 14.1-281.4 kW	VKK 486/5	-	-	o	-	-	o	o	o	-	-	-
		VKK 806/3-E	-	-	-	-	-	•	•	•	-	-	-
		VKK 1206/3-E	-	-	-	-	-	-	•	•	-	-	-
		VKK 1606/3-E	-	-	-	-	-	o	o	o	-	-	-
		VKK 2006/3-E	-	-	-	-	-	o	o	o	-	-	-
		VKK 2406/3-E	-	-	-	-	-	o	o	o	-	-	-
VKK 2806/3-E		-	-	-	-	-	o	o	o	-	-	-	
<b>Oil-fired floor-standing boiler</b>	icoVIT exclusiv 14.8-35.7 kW	VKO 156/3-7	•	•	o	-	-	o	o	-	-	-	•
		VKO 256/3-7	•	•	•	-	-	o	o	-	-	-	•
		VKO 356/3-7	o	•	•	-	-	•	•	-	-	-	•

- Recommended
- o Recommended under certain circumstances
- Not recommended



Vaillant domestic hot water cylinder - overview up to NL 31 to 57

			uniSTOR plus 7 bar				uniSTOR plus 10 bar			
			VIH R 750 (NL 22)	VIH R 1000 (NL 38)	VIH R 1500 (NL 42)	VIH R 2000 (NL 65)	VIH R 750/2 (NL 31)	VIH R 1000/2 (NL 39)	VIH R 1500/2 (NL 48)	VIH R 2000/2 (NL 57)
<b>Gas-fired wall-hung boilers</b>	ecoTEC plus 7.8-120.0 kW	VC 406/5-5	-	-	-	-	-	-	-	-
		VC 476/5-5	-	-	-	-	-	-	-	-
		VC 636/5-5	•	-	-	-	-	-	-	-
		VC 806/5-5	•	•	-	-	•	o	-	-
		VC 1006/5-5	•	•	•	-	•	•	•	•
<b>Gas-fired floor-standing boiler</b>	ecoVIT exclusive 6.6-63.2 kW	VC 1206/5-5	•	•	•	•	•	•	•	•
		VKK 226/4	-	-	-	-	-	-	-	-
		VKK 286/4	-	-	-	-	-	-	-	-
		VKK 366/4	-	-	-	-	-	-	-	-
		VKK 476/4	-	-	-	-	-	-	-	-
	ecoVIT 5.8-51.5 kW	VKK 656/4	•	-	-	-	-	-	-	-
		VKK 186/5	-	-	-	-	-	-	-	-
		VKK 256/5	-	-	-	-	-	-	-	-
		VKK 356/5	-	-	-	-	-	-	-	-
		VKK 486/5	-	-	-	-	-	-	-	-
	ecoCRAFT exclusiv 14.1-281.4 kW	VKK 806/3-E	•	•	-	-	•	o	-	-
		VKK 1206/3-E	•	•	•	•	•	•	•	•
		VKK 1606/3-E	o	o	o	o	o	o	o	o
		VKK 2006/3-E	o	o	o	o	o	o	o	o
		VKK 2406/3-E	o	o	o	o	o	o	o	o
VKK 2806/3-E		o	o	o	o	o	o	o	o	

- Recommended
- o Recommended under certain circumstances
- Not recommended

## 19.3 uniSTOR VIH Q 75 B product description



Fig. 285: uniSTOR VIH QB 75 B

### Equipment

- Domestic hot water cylinder with high-quality enamelling
- Magnesium protection anode
- Powder-coated casing (white)
- Premium-quality PU foam thermal insulation
- Internal pipe heat exchanger
- Circulation connection
- Impressed current anode (order no. 302042) available as an accessory
- Cylinder piping set for horizontal installation (order no. 0020152956) available as an accessory
- Casing element (two pieces, order no. 0020152968) available as an accessory

### Special features

- Wall-hung, indirect domestic hot water cylinder
- Technology and design adapted to ecoTEC plus
- All connections routed downwards and out
- White powder-coated casing
- Matching connection piping available as an accessory

### Potential applications

- Indirectly heated cylinder with 68 l capacity for centralised domestic hot water supply to provide a high level of hot water comfort in small spaces
- For combination with the ecoTEC plus VC 146/5-5, 206/5-5 and 266/5-5;
- Cylinder control system and connection piping are configured accordingly

### Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH Q 75 B	B (A+ to F)	68	0010015978

**To be ordered separately:** VC boiler from the ecoTEC plus series, safety group and control system

## Technical data

	Unit	VIH Q 75 B
<b>Weight</b>		
Net weight	kg	55
Weight (ready for operation)	kg	123
<b>Hydraulic connection</b>		
Cold/hot water connection	–	R 3/4
Flow and return connection	–	R 3/4
<b>Domestic hot water cylinder output data</b>		
Nominal capacity	l	68
Inner vessel	Steel, enamelled, with magnesium protection anode	
Max. operating pressure (hot water)	MPa (bar)	1 (10)
Max. permitted hot water temperature	°C	85
Continuous hot water output (80 °C flow temperature)	kW (l/h)	30.0 (738)
Continuous hot water output (70 °C flow temperature)	kW (l/h)	23.0 (566)
Continuous hot water output (60 °C flow temperature)	kW (l/h)	16.7 (411)
Standby energy consumption	KWh/24 hrs	0.9
Output characteristic figure NL * (60 °C cylinder temperature)	N <sub>L (60 °C)</sub>	0.7
Output characteristic figure NL * (70 °C cylinder temperature)	N <sub>L (70 °C)</sub>	1.0
Hot water output * (60 °C cylinder temperature)	l/10 min	122
Hot water output * (70 °C cylinder temperature)	l/10 min	143
Specific flow rate (30 K) (60 °C cylinder temperature)	l/min	14.2
Specific flow rate (30 K) (70 °C cylinder temperature)	l/min	16.7
Specific flow rate (45 K) (60 °C cylinder temperature)	l/min	9.5
Specific flow rate (45 K) (70 °C cylinder temperature)	l/min	11.1
Heat-up time from 10 to 60 °C	min	12
Heat-up time from 10 to 70 °C	min	17
Minimum power transmitted by the pipe coil (80 °C flow temperature; 60 °C cylinder temperature)	kW	11
Maximum power transmitted by the pipe coil (80 °C flow temperature; 10 °C cylinder temperature)	kW	37
<b>Heating circuit output data</b>		
Nominal heating medium volume flow	m <sup>3</sup> /h	1.3
Pressure loss at nominal heating medium volume flow	MPa (mbar)	0.008 (80)
Maximum operating pressure (heating)	MPa (bar)	1.0 (10)
Maximum hot water flow temperature	°C	110
Heating area of the heat exchanger	m <sup>2</sup>	0.85
Heating water of the heat exchanger	l	3.5
* Flow volume flow: 1.3 m <sup>3</sup> /h; flow temperature: 80 °C		

### Connection dimensions, next to each other

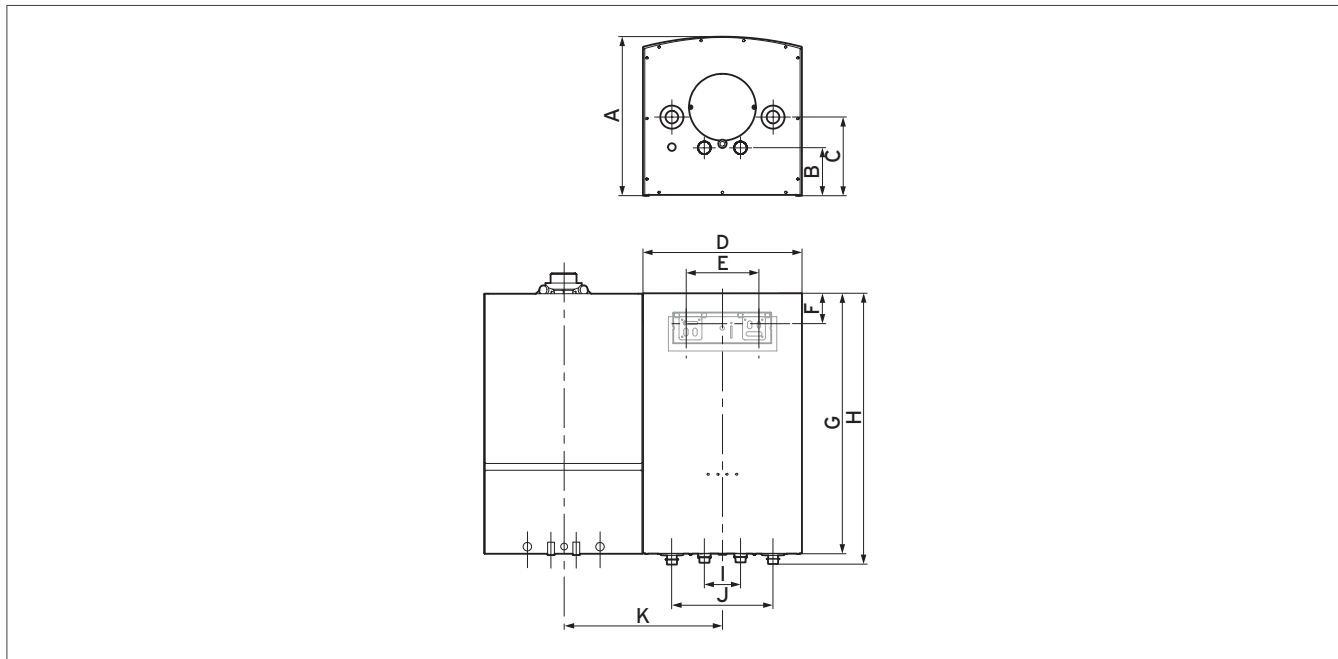


Fig. 286: VIH Q 75 B connection dimensions

A	B	C	D	E	F	G	H	I	J	K
440	132	217	440	200	80	720	746	100	280	440

### Connection dimensions, on top of each other

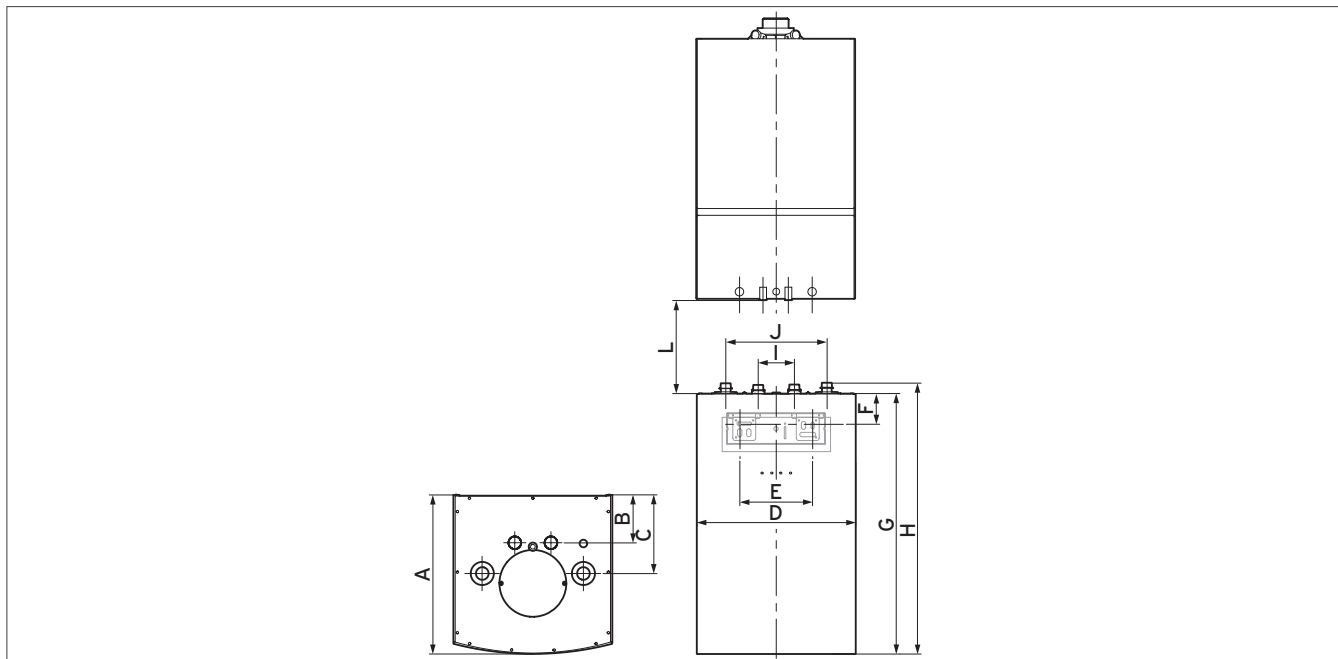


Fig. 287: VIH Q 75 B connection dimensions

A	B	C	D	E	F	G	H	I	J	L
440	132	217	440	200	80	720	746	100	280	350

## Continuous output diagram

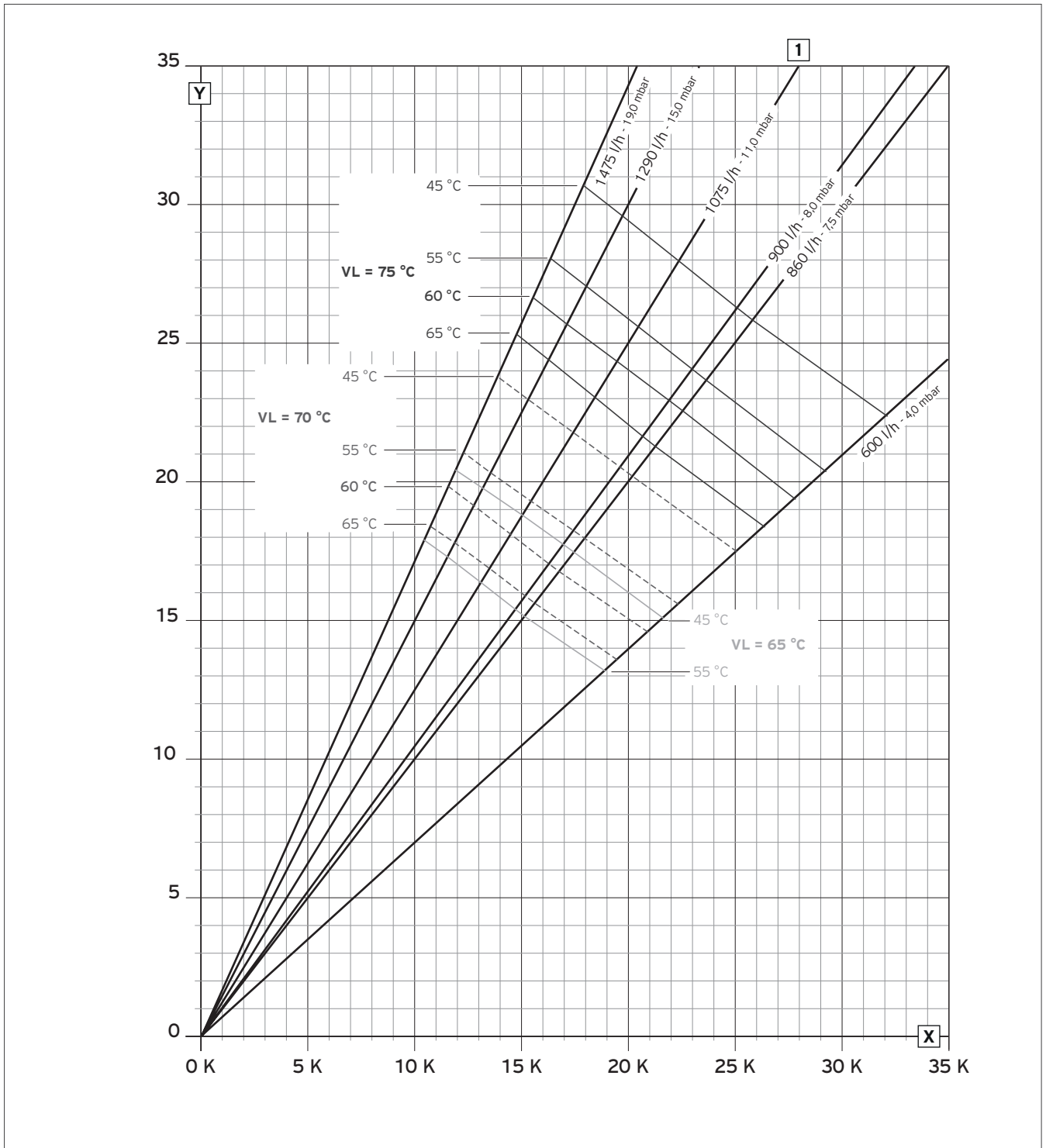


Fig. 288: Continuous output diagram for the cylinder design

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

## 19.4 uniSTOR VIH Q 75 /2 B product description

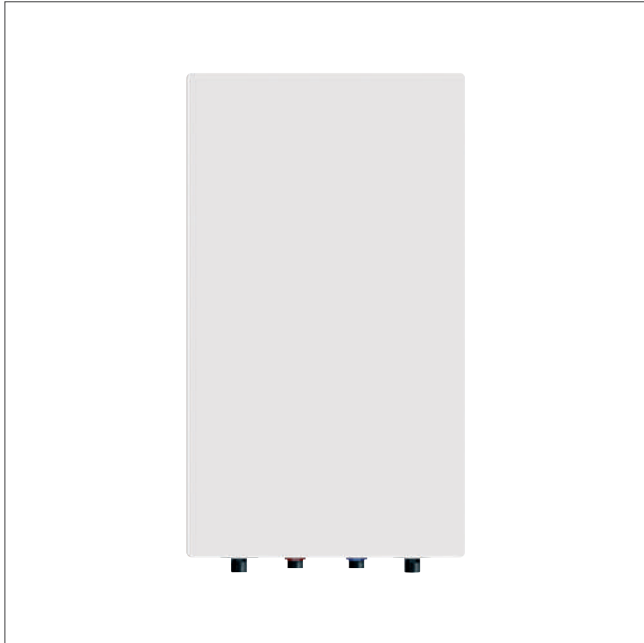


Fig. 289: uniSTOR VIH Q 75/2 B

### Equipment

- Domestic hot water cylinder with high-quality enamelling
- Magnesium protection anode
- Powder-coated casing (white)
- Premium-quality PU foam heat insulation
- Internal pipe heat exchanger
- Circulation connection
- Cylinder piping set for horizontal installation (order no. 0020152956) available as an accessory
- Casing element (two pieces, order no. 0010025343) available as an accessory
- Casing element (1 pc, order no. 0010025347) available as an accessory
- 92 mm spacer frame (1 pc, order no. 0010025341) available as an accessory

### Special features

- Wall-hung, indirect domestic hot water cylinder
- Potable water side (cylinder and heat exchanger) with high-quality enamelling and magnesium protection anode
- Premium-quality PU foam heat insulation
- Technology adapted to the ecoTEC exclusive .../1-7
- Perfectly suitable piping sets available

### Potential applications

- Indirectly heated cylinder with 68 l capacity for centralised domestic hot water supply to provide a high level of hot water comfort in small spaces
- For combinations with ecoTEC exclusive VC 15 CS/1-7, 20 CS/1-7, 25 CS/1-7 and 30 CS/1-7
- Cylinder control system and connection piping are configured accordingly

### Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH Q 75/2 B	B (A+ to F)	68	0010025313

**To be ordered separately:** VC boiler from the ecoTEC exclusive series, safety assembly and control system

## Technical data

	Unit	VIH Q 75/2 B
<b>(1) Weight</b>		
(2) Empty weight	kg	52
(3) Weight, installed/filled	kg	125
<b>(4) Hydraulic connection</b>		
(5) Domestic hot/cold water connection	–	R 3/4
(6) Flow/return connection	–	R 3/4
<b>(7) Domestic hot water cylinder performance data</b>		
(8) Nominal capacity	l	68
(9) Inner vessel	(10) Steel, enamelled, with magnesium protection anode	
(11) Max. operating pressure (domestic hot water)	MPa (bar)	1 (10)
(12) Max. permitted domestic hot water temperature	°C	85
(13) Continuous domestic hot water output at 60 °C	kW (l/h)	16.7 (411)
(15) Standby energy consumption	KWh/24 h	0.9
(16) Output characteristic figure NL (60 °C cylinder temperature, 20 kW heat source)	$N_{L(60\text{ °C}/20\text{ kW})}$	0.4
(17) Output characteristic figure NL (65 °C cylinder temperature, 25 kW heat source)	$N_{L(65\text{ °C}/25\text{ kW})}$	0.7
(18) Output characteristic figure NL (70 °C cylinder temperature, 30 kW heat source)	$N_{L(70\text{ °C}/30\text{ kW})}$	1.0
(19) Domestic hot water output (65 °C cylinder temperature, 25 kW heat source)	l/10 min	133
(19) Specific flow rate ( $\Delta T=30\text{ K}$ (45 K), 60 °C cylinder temperature)	l/min	13.0 (8.7)
(21) Specific flow rate ( $\Delta T=30\text{ K}$ (45 K), 25 kW)	l/min	–
(22) Heat-up time from 10 to 60 °C/max. 30 kW	min	12
(23) $V_{40}$ volume	l	87.9
<b>(24) Heating circuit performance data</b>		
(25) Nominal heating medium volume flow	m <sup>3</sup> /h	1.3
(26) Pressure loss at nominal heating medium volume flow	MPa (mbar)	0.008 (80)
(27) Max. operating pressure	MPa (bar)	1.0 (10)
(28) Max. heating water flow temperature	°C	110
(29) Heating area of the heat exchanger	m <sup>2</sup>	0.85
(30) Heating water of the heat exchanger	l	3.5

## Product dimensions and connection dimensions

### Cylinder connection dimensions, next to each other

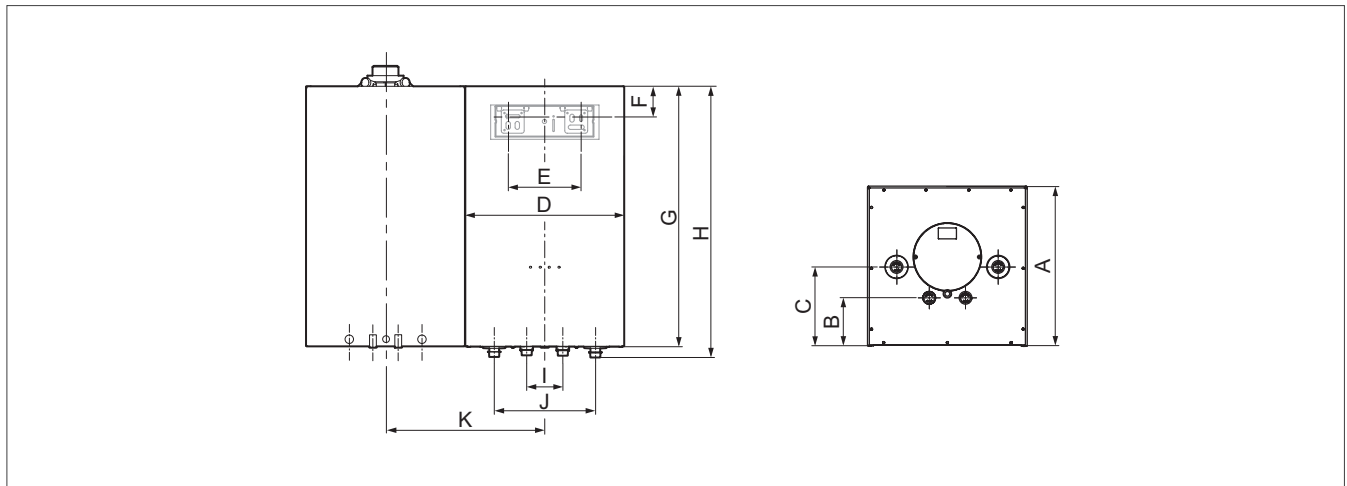


Fig. 290: Connection dimensions

A	B	C	D	E	F	G	H	I	J	K
440	132	217	440	200	80	720	746	100	280	440

### Cylinder connection dimensions, on top of each other

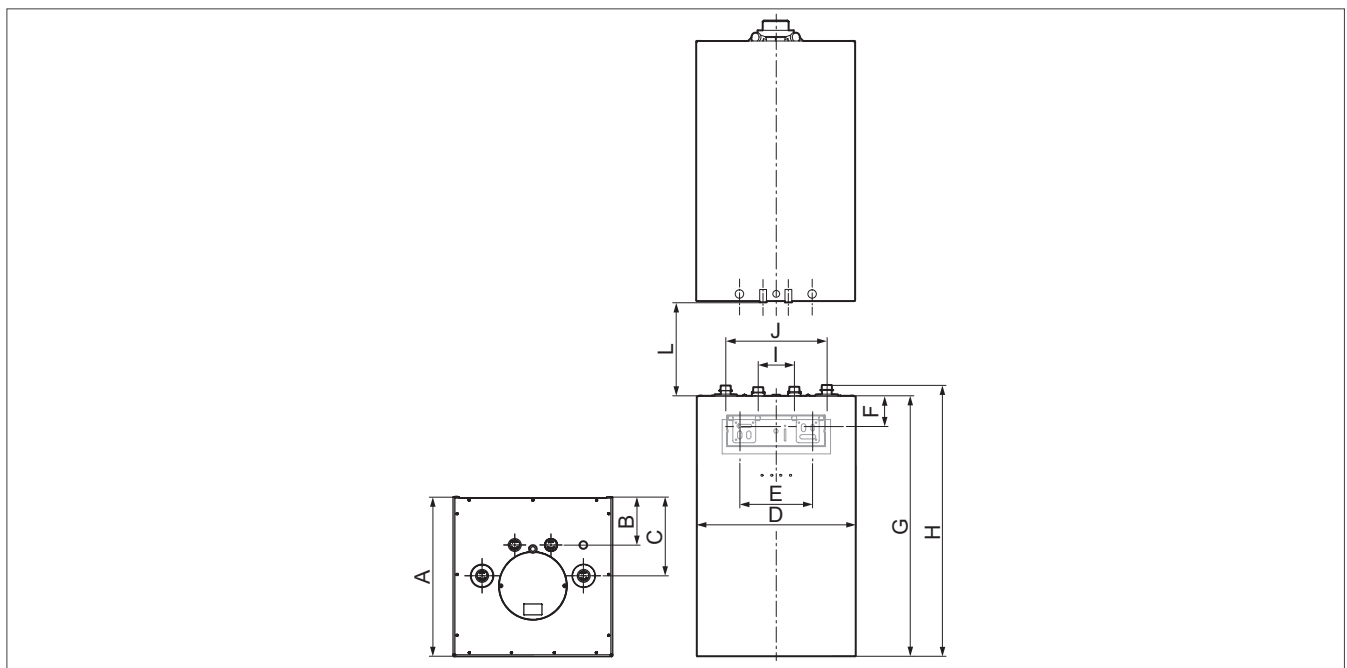


Fig. 291: Connection dimensions

A	B	C	D	E	F	G	H	I	J	L
440	132	217	440	200	80	720	746	100	280	350



## Connections

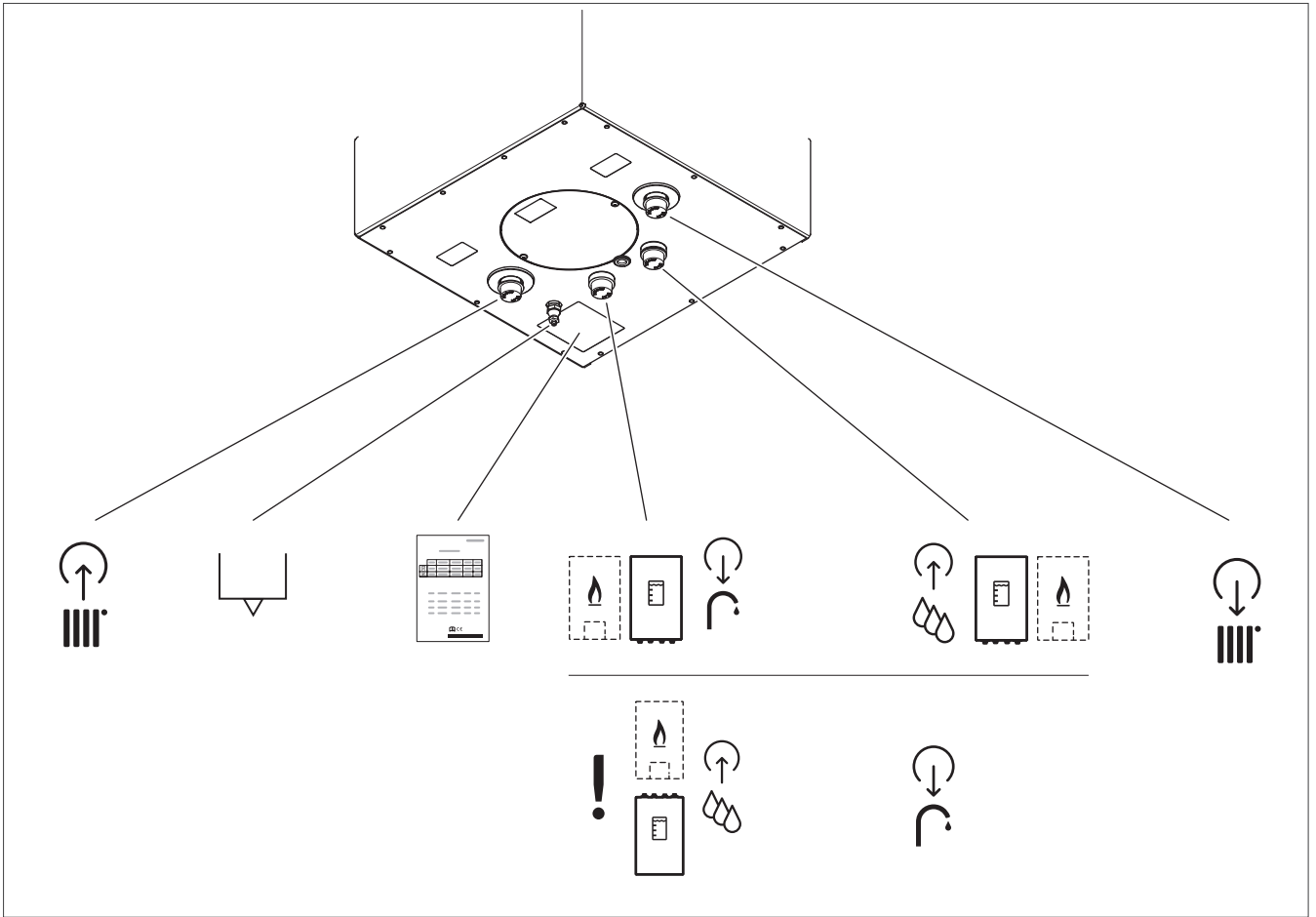


Fig. 292: VIH Q 75/2 B connections

Continuous output diagramContinuous output diagram

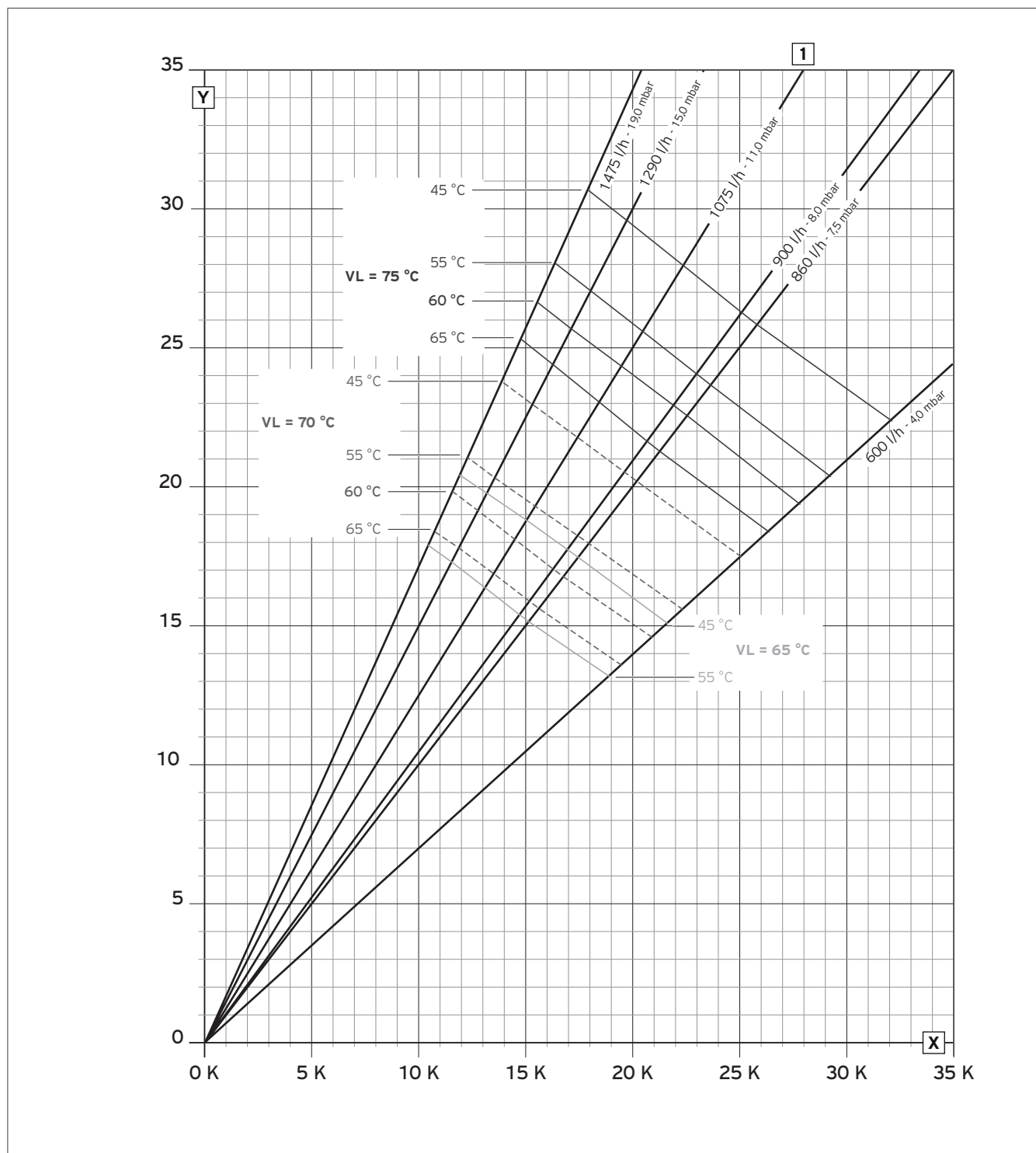


Fig. 293: Continuous output diagram for the cylinder design

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

## 19.5 actoSTOR VIH QL 75 B product description



Fig. 294: actoSTOR VIH QL 75 B

Can be installed on the left or right

### Special features

- Wall-hung hot water shift-load cylinder for installing on the right or left of an **ecoTEC plus** VCW unit
- Technology and design configured to the **ecoTEC plus** VCW
- All connections routed downwards and out
- White powder-coated casing
- Matching connection piping incl. insulation and 105 mm spacer frame for spacing the **ecoTEC plus** are included in the scope of delivery

### Potential applications

- Shift-load cylinder with 72 l capacity for installing on the right or left of an **ecoTEC plus** VCW unit
- For centralised domestic hot water supply to provide a high level of hot water comfort in small spaces
- Only for combination with the **ecoTEC plus** VCW 206/5-5 and 266/5-5;
- Cylinder control system and connection piping are configured accordingly and included in the scope of delivery

### Equipment

- Domestic hot water cylinder with high-quality enamelling
- Magnesium protection anode
- Premium-quality PU foam thermal insulation
- Impressed current anode (order no. 302042) available as an accessory
- Casing for installation under the cylinder and the **ecoTEC plus** unit is included in the accessories (order no. 0020152968)

Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH QL 75 B Installation on the left	B (A+ to F)	72	0020228376
VIH QL 75 B Installation on the right	B (A+ to F)	72	0020228375

**To be ordered separately:** VCW boiler from the **ecoTEC plus** series, safety group and control system

## Technical data

	Unit	VIH QL 75/2 B
<b>Dimensions/weight</b>		
Net weight	kg	50
Weight (ready for operation)	kg	115
<b>Hydraulic connection</b>		
Cold/domestic hot water connection	–	R 3/4
Flow/return connection	–	R 3/4
<b>Domestic hot water cylinder output data</b>		
Nominal capacity	l	72
Inner vessel	–	Steel, enamelled, with magnesium protection anode
Max. operating pressure (domestic hot water)	MPa (bar)	1 (10)
Max. permitted domestic hot water temperature	°C	75
Continuous domestic hot water output	kW	Corresponds to the domestic hot water output of the combi boiler
Standby energy consumption	kWh/24 hrs	0.9
Hot water output (35 K) * (30 kW combi boiler)	l/10 min	170
Hot water output (35 K) * (24 kW combi boiler)	l/10 min	152
Hot water output (35 K) * (18 kW combi boiler)	l/10 min	134
Output characteristic figure NL (35 K) ** (30 kW combi boiler)	$N_{L(30\text{ kW})}$	1.5
Output characteristic figure NL (35 K) ** (24 kW combi boiler)	$N_{L(24\text{ kW})}$	1.2
Output characteristic figure NL (35 K) ** (18 kW combi boiler)	$N_{L(18\text{ kW})}$	0.8
Specific flow rate (30 K) *** (30 kW combi boiler)	l/min <sub>(30 kW)</sub>	19.9
Specific flow rate (30 K) *** (24 kW combi boiler)	l/min <sub>(24 kW)</sub>	17.7
Specific flow rate (30 K) *** (18 kW combi boiler)	l/min <sub>(18 kW)</sub>	15.6
Specific flow rate (45 K) *** (30 kW combi boiler)	l/min <sub>(30 kW)</sub>	13.3
Specific flow rate (45 K) *** (24 kW combi boiler)	l/min <sub>(24 kW)</sub>	11.8
Specific flow rate (45 K) *** (18 kW combi boiler)	l/min <sub>(18 kW)</sub>	10.4
Heat-up time from 10 to 65 °C (30 kW combi boiler)	min	10.8
Heat-up time from 10 to 65 °C (24 kW combi boiler)	min	13.5
Heat-up time from 10 to 65 °C (18 kW combi boiler)	min	18.0
* Cylinder thermostat: 60 °C, combi boiler: 65 °C		
** Calculated using draw-off at peak times		
*** Calculated from the domestic hot water output for the relevant temperature boost		

## Connection dimensions

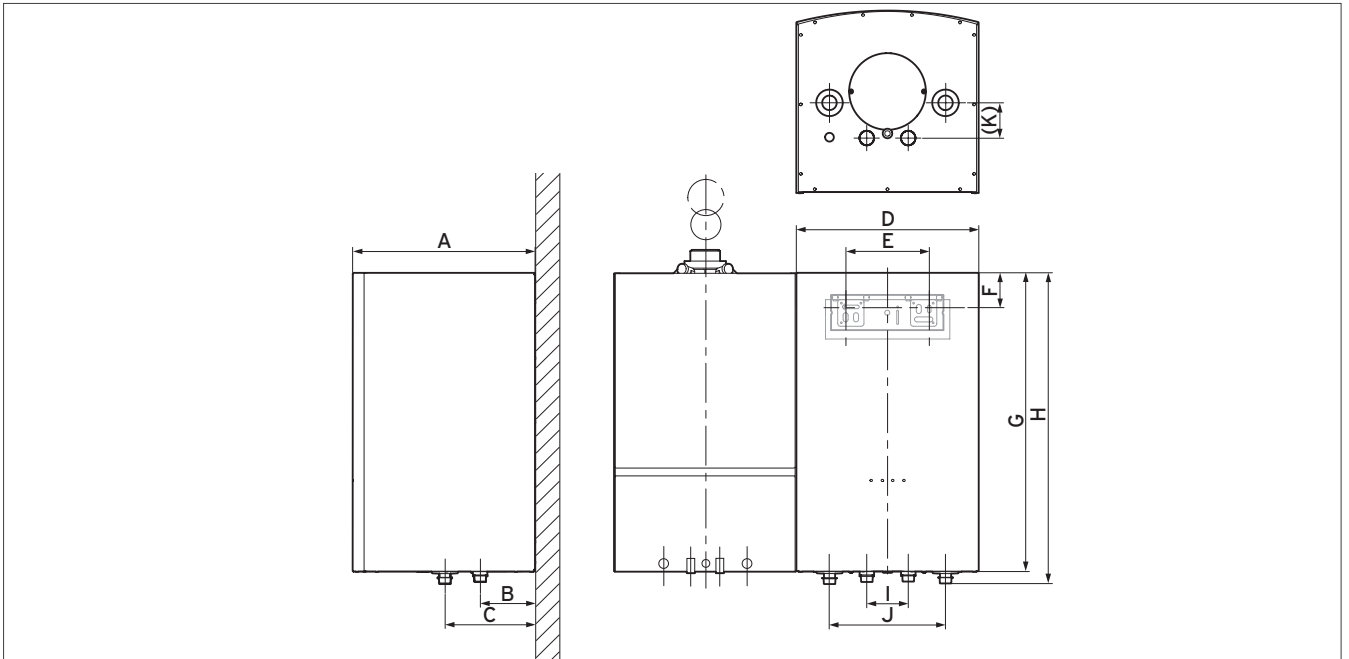


Fig. 295: VIH QL 75B connection dimensions

A	B	C	D	E	F	G	H	I	J	K
440	132	217	440	200	82	720	750	100	280	85

## Continuous output diagram

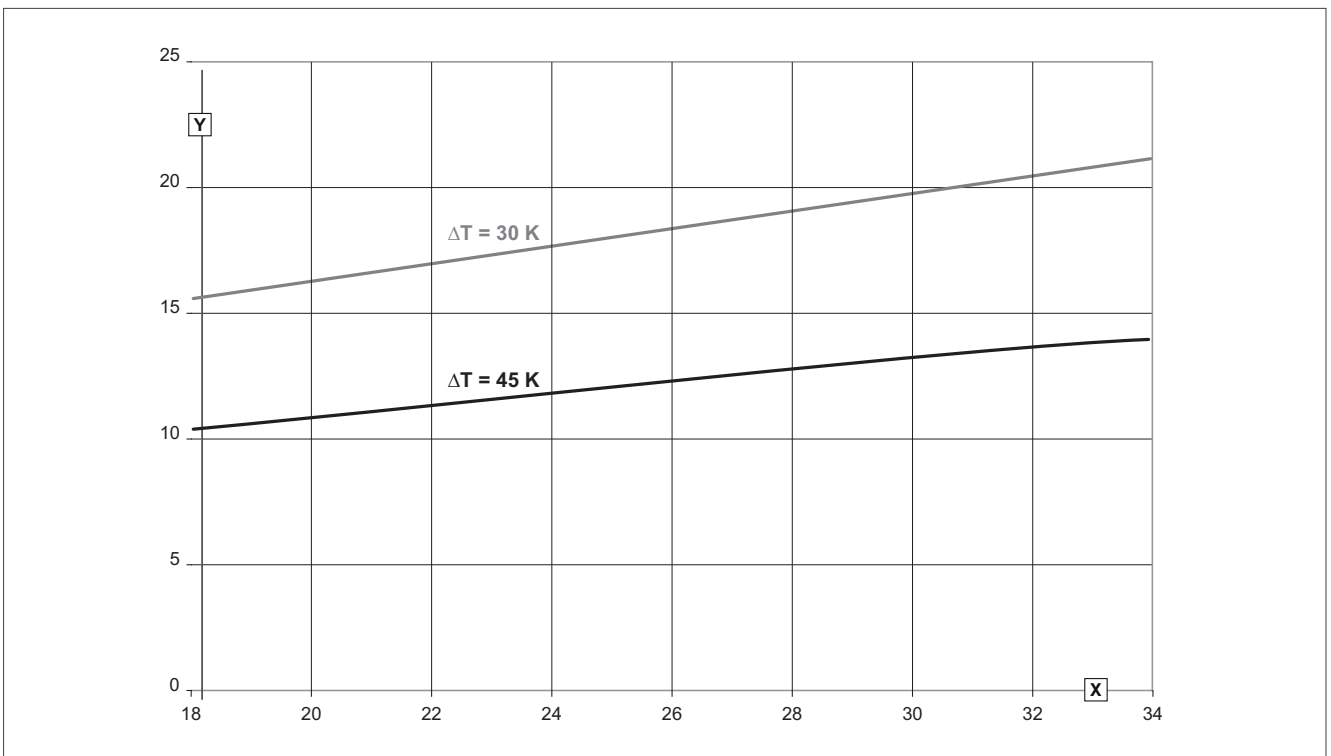


Fig. 296: Continuous output diagram for the cylinder design

- Y Heating medium flow in l/min
- X Combi boiler heat output in kW

## 19.6 actoSTOR VIH QL 75/2 B product description

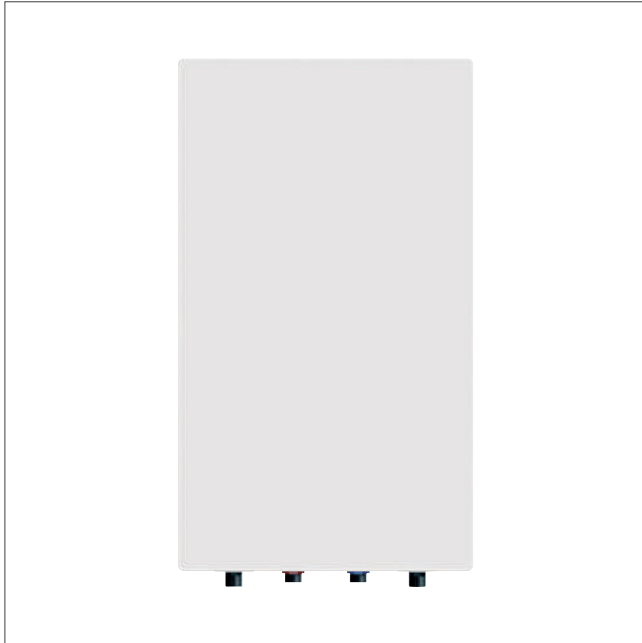


Fig. 297: actoSTOR VIH QL 75/2 B

Can be installed on the left or right

### Special features

- Wall-hung hot water shift-load cylinder for installing on the right or left
- Potable water side (cylinder and heat exchanger) with high-quality enamelling and magnesium protection anode
- Premium-quality PU foam heat insulation
- Technology and design adapted to ecoTEC exclusive VCW 25/36 CF/1-7 gas-fired condensing boilers
- Complete cylinder charging connection set included in the scope of delivery
- Can be retrofitted on an ecoTEC exclusive VCW 25/36 CF/1-7 that has already been installed

### Potential applications

- Shift-load cylinder with 72 l capacity for installing on the right or left of an ecoTEC exclusive VCW 25/36 CF/1-7
- For centralised domestic hot water supply to provide a high level of hot water comfort in small spaces
- Cylinder control system and connection piping are configured accordingly and included in the scope of delivery

### Equipment

- Domestic hot water cylinder with high-quality enamelling
- Magnesium protection anode
- Powder-coated casing (white)
- Premium-quality PU foam heat insulation
- Casing element (two pieces, order no. 0010025343) available as an accessory

Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH QL 75/2 B Installation on the left	B (A+ to F)	72	0010029869
VIH QL 75/2 B Installation on the right	B (A+ to F)	72	0010029868

**To be ordered separately:** VCW boiler from the ecoTEC exclusive VCW 25/36 CF/1-7 series, safety assembly and control system

## Technical data

	Unit	VIH QL 75/2 B
<b>(1) Weight</b>		
(2) Empty weight	kg	37
(3) Weight, installed/filled	kg	110
<b>(4) Hydraulic connection</b>		
(5) Domestic hot/cold water connection	–	R 3/4
(6) Flow/return connection	–	R 3/4
<b>(7) Domestic hot water cylinder performance data</b>		
(8) Nominal capacity	l	72
(9) Inner vessel	(10) Steel, enamelled, with magnesium protection anode	
(11) Max. operating pressure (domestic hot water)	MPa (bar)	1 (10)
(12) Max. permitted domestic hot water temperature	°C	85
(13) Continuous domestic hot water output at 60 °C	kW (l/h)	(14) = combi boiler domestic hot water output
(15) Standby energy consumption	KWh/24 h	0,9
(16) Output characteristic figure NL (60 °C cylinder temperature, 20 kW heat source)	$N_{L(60\text{ °C}/20\text{ kW})}$	1.0
(17) Output characteristic figure NL (65 °C cylinder temperature, 25 kW heat source)	$N_{L(65\text{ °C}/25\text{ kW})}$	1.2
(18) Output characteristic figure NL (70 °C cylinder temperature, 30 kW heat source)	$N_{L(70\text{ °C}/30\text{ kW})}$	1.5
(19) Domestic hot water output (65 °C cylinder temperature, 25 kW heat source)	l/10 min	172
(19) Specific flow rate ( $\Delta T=30\text{ K}$ (45 K), 60 °C cylinder temperature)	l/min	–
(21) Specific flow rate ( $\Delta T=30\text{ K}$ (45 K), 25 kW)	l/min	18.1 (12.0)
(22) Heat-up time from 10 to 60 °C/max. 30 kW	min	9.8
(23) $V_{40}$ volume	l	–
<b>(24) Heating circuit performance data</b>		
(25) Nominal heating medium volume flow	m <sup>3</sup> /h	1.3
(26) Pressure loss at nominal heating medium volume flow	MPa (mbar)	–
(27) Max. operating pressure	MPa (bar)	–
(28) Max. heating water flow temperature	°C	–
(29) Heating area of the heat exchanger	m <sup>2</sup>	–
(30) Heating water of the heat exchanger	l	–

## Product dimensions and connection dimensions

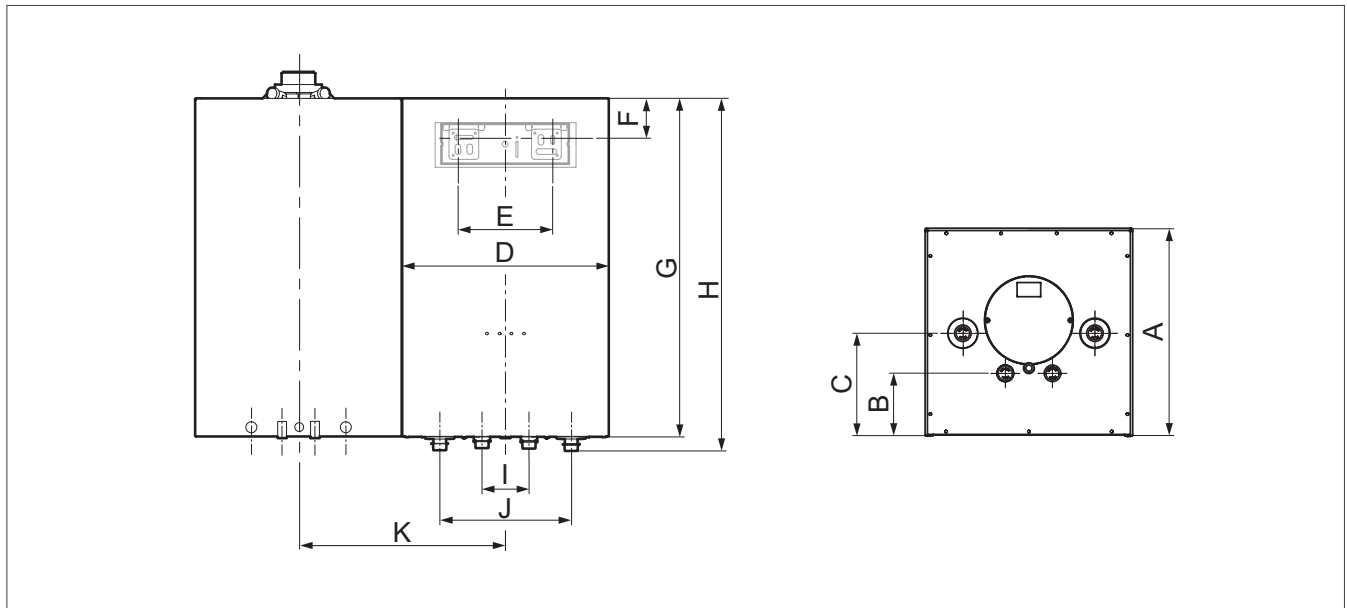


Fig. 298: Connection dimensions

A	B	C	D	E	F	G	H	I	J	K
440	132	217	440	200	80	720	746	100	280	440

## VIH QL 75/2 B connections

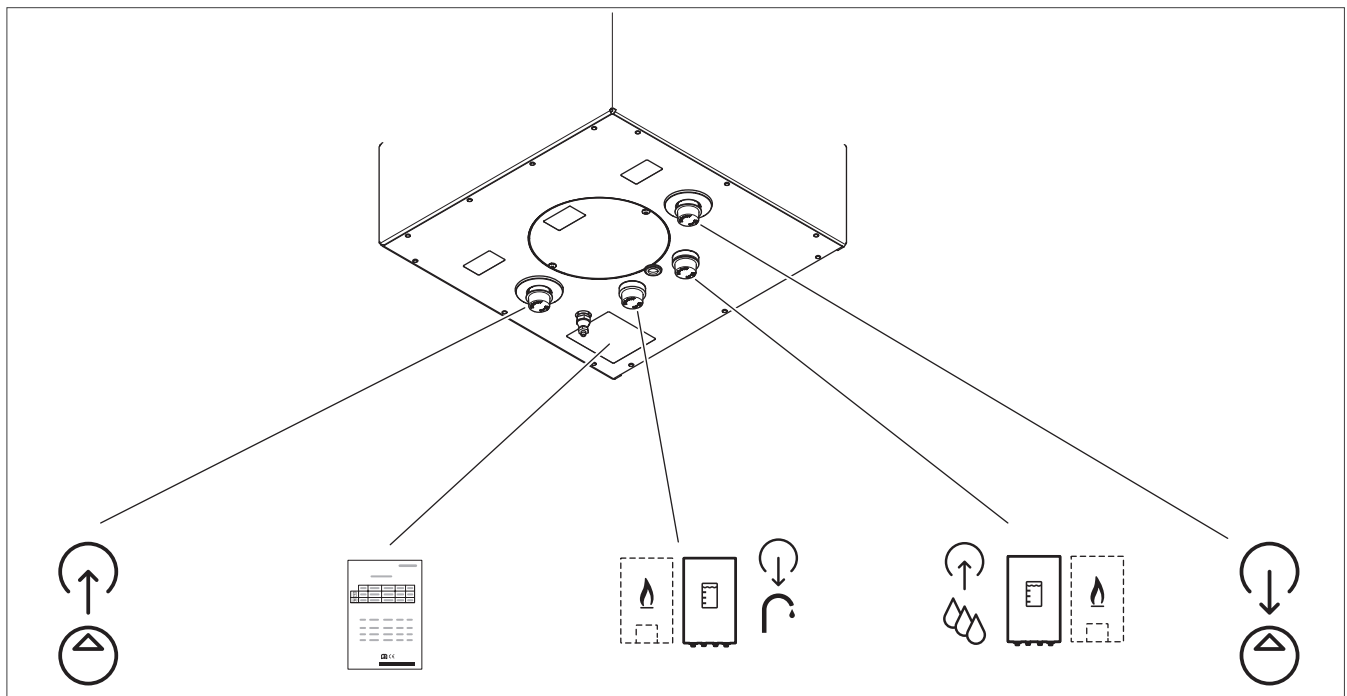


Fig. 299: VIH QL 75/2 B connections



### Continuous output diagram

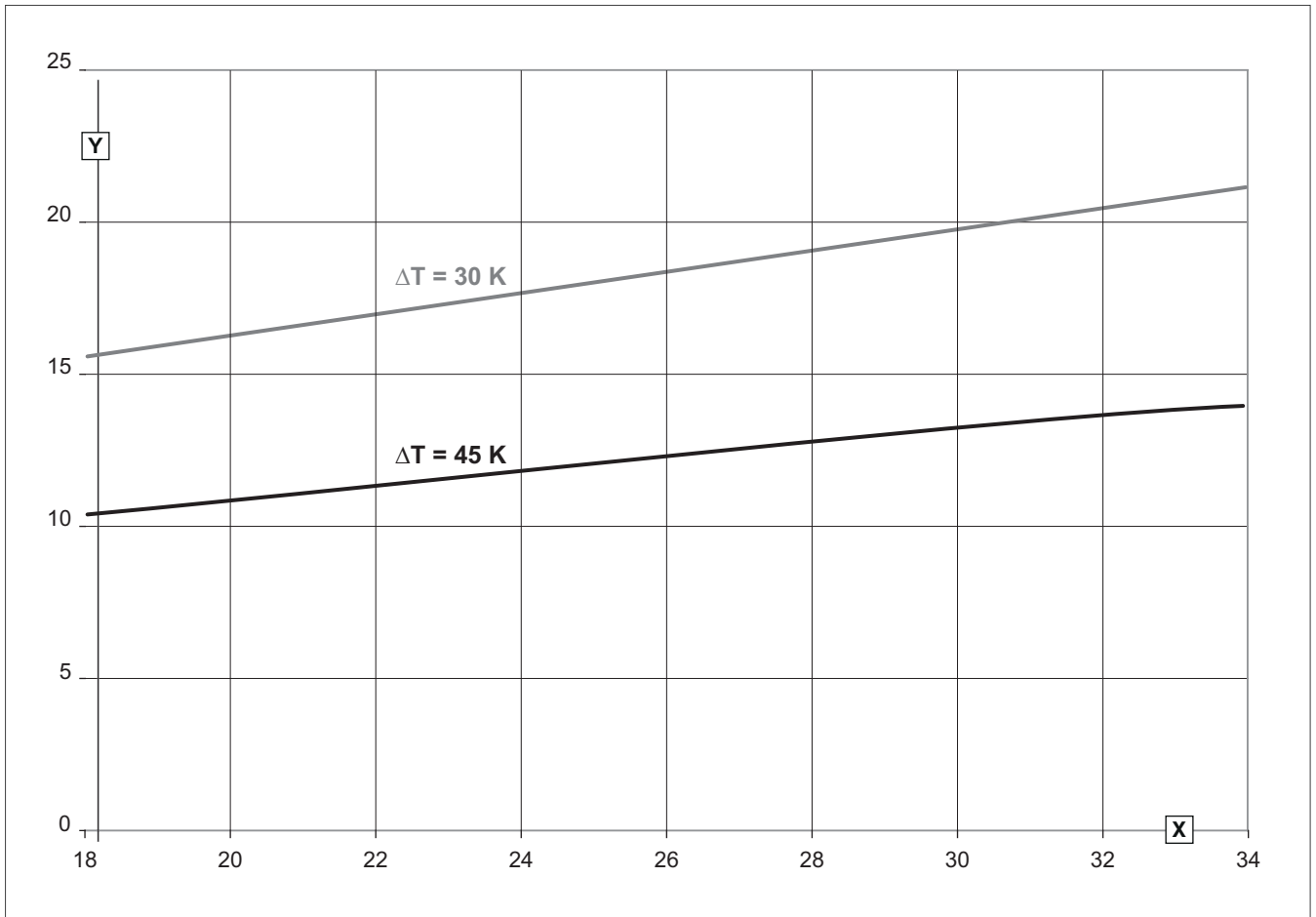


Fig. 300: Continuous output diagram for the cylinder design

- Y Heating medium flow in l/min
- X Combi boiler heat output in kW

## 19.7 uniSTOR exclusive/plus VIH R 120/6 H/B to VIH R 200/6 H/B product description

### uniSTOR exclusive VIH R 120/6 H to VIH R 200/6 H



Fig. 301: uniSTOR exclusive VIH R .../6 H

### Potential applications

- Indirectly heated cylinder with 120, 150 or 200 litre capacity for providing a centralised domestic hot water supply in flats and houses
- In combination with ecoTEC/atmoTEC:
- Can be arranged below the VC units (VIH R 120 and VIH R 150 only).
- Cylinder control system and connection piping are configured accordingly.
- In combination with geoTHERM:
- Can only be combined with geoTHERM VWS 36/4.1.

### Equipment

- Domestic hot water cylinder with high-quality enamelling
- Magnesium protection anode
- Highly innovative combination of vacuum and thermal insulation
- Internal pipe heat exchanger
- Drain valve
- Non-return valve
- Circulation connection
- Impressed current anode (order no. 302 042) available as an accessory
- Adjustable screw-on feet

### Special features

- Indirectly heated domestic hot water cylinder
- Technology configured to gas-fired wall-hung boilers and floor-standing boilers
- Highly innovative combination of vacuum and thermal insulation minimises energy supply costs
- All connections routed upwards and out
- White casing
- Matching connection piping available as an accessory
- Insulation and casing top for insulating and covering the piping on the cylinder

### Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH R 120/6 H	A+ (A+ to F)	117	0010015928
VIH R 150/6 H	A+ (A+ to F)	144	0010015929
VIH R 200/6 H	A+ (A+ to F)	184	0010015930

## uniSTOR plus VIH R 120/6 B to VIH R 200/6 B



Fig. 302: uniSTOR plus VIH R .../6 B

### Special features

- Indirectly heated domestic hot water cylinder
- Technology configured to gas-fired wall-hung boilers and floor-standing boilers
- All connections routed upwards and out
- Matching piping set available

### Potential applications

- Indirectly heated cylinder with 120, 150 or 200 litre capacity for providing a centralised domestic hot water supply in flats and houses
- In combination with ecoTEC/atmoTEC:
- Can be arranged below the VC units (VIH R 120 and VIH R 150 only).
- Cylinder control system and connection piping are configured accordingly.
- In combination with geoTHERM:
- Can only be combined with geoTHERM VWS 36/4.1.

### Equipment

- Domestic hot water cylinder with high-quality enamelling
- Magnesium protection anode
- Premium-quality PU foam thermal insulation
- Internal pipe heat exchanger
- Drain valve
- Non-return valve
- Circulation connection
- Impressed current anode (order no. 302 042) available as an accessory
- Adjustable screw-on feet
- Casing top in accessories (order no. 0020174083)

### Pressure loss in the heating coil

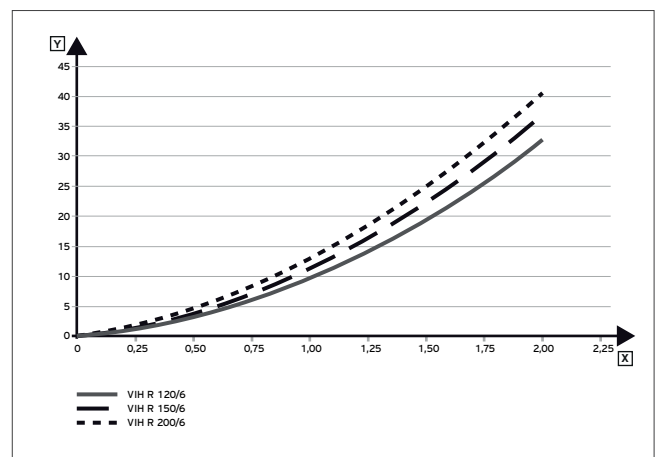


Fig. 303: Pressure loss in the heating coil

- X Heating medium flow in m³/h  
Y Pressure losses in mbar

Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH R 120/6 B	B (A+ to F)	117	0010016414
VIH R 150/6 B	B (A+ to F)	144	0010015947
VIH R 200/6 B	B (A+ to F)	184	0010015948

**uniSTOR exclusive VIH R 120/6 H to VIH R 200/6 H dimension drawing**

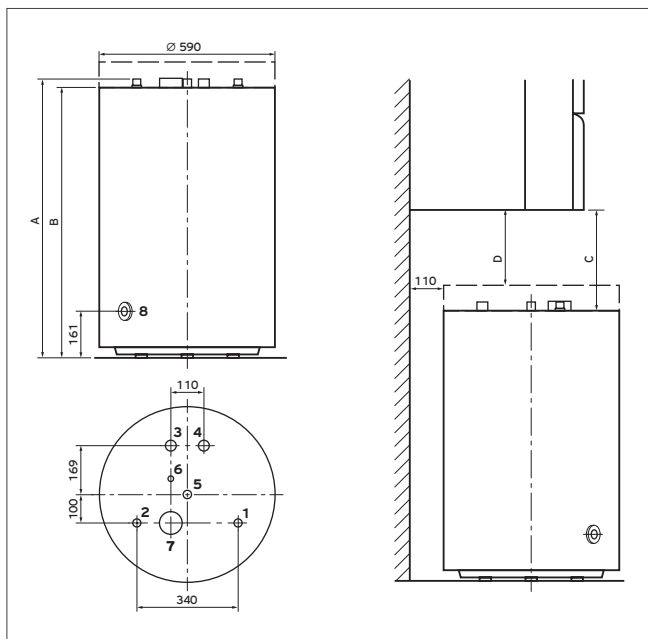


Fig. 304: Dimension drawing

- 1 R 3/4 cold water connection
- 2 R 3/4 hot water connection
- 3 R 3/4 cylinder flow
- 4 R 3/4 cylinder return
- 5 R 3/4 circulation connection
- 6 Temperature sensor cylinder dry pocket
- 7 Protection anode
- 8 Drain cock

Unit type	A	B	C		D
VIH R 120	853	822	ecoTEC exclusive	345	210
			ecoTEC plus	338	203
VIH R 150	988	955	ecoTEC exclusive	210	75
			ecoTEC plus	203	68
VIH R 200	1206	1174	- <sup>1)</sup>		

Dimensions in mm

<sup>1)</sup> The size of the VIH R 200 cylinder means that it cannot be fitted under the gas-fired wall-hung boiler.

**uniSTOR plus VIH R 120/6 B to VIH R 200/6 B dimension drawing**

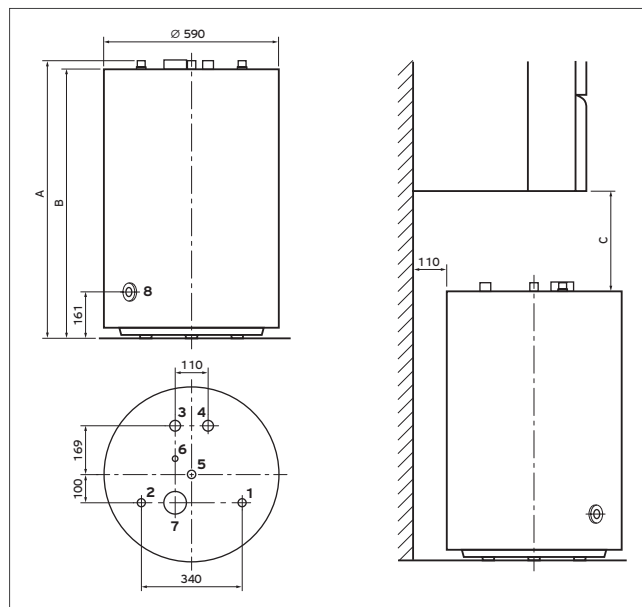


Fig. 305: Dimension drawing

- 1 R 3/4 cold water connection
- 2 R 3/4 hot water connection
- 3 R 3/4 cylinder flow
- 4 R 3/4 cylinder return
- 5 R 3/4 circulation connection
- 6 Temperature sensor cylinder dry pocket
- 7 Protection anode
- 8 Drain cock

Unit type	A	B	C	
VIH R 120	853	822	ecoTEC exclusive	345
			ecoTEC plus	338
VIH R 150	988	955	ecoTEC exclusive	230
			ecoTEC plus	223
VIH R 200	1206	1174	- <sup>1)</sup>	

Dimensions in mm

<sup>1)</sup> The size of the VIH R 200 cylinder means that it cannot be fitted under the gas-fired wall-hung boiler.

## Technical data

	Unit	VIH R 120/6	VIH R 150/6	VIH R 200/6
<b>Weight</b>				
Net weight	kg	68	79	97
Weight (ready for operation)	kg	185	223	281
<b>Hydraulic connection</b>				
Cold/hot water connection	–		R 3/4	
Flow and return connection	–		R 1	
Circulation connection	–		R 3/4	
<b>Domestic hot water cylinder output data</b>				
Nominal capacity	l	117	144	184
Inner vessel		Enamelled steel with protection anode		
Max. operating pressure (hot water)	MPa (bar)	1 (10)	1 (10)	1 (10)
Max. permitted hot water temperature	°C	85	85	85
Continuous hot water output * (45 °C draw-off temperature)	kW (l/h)	21.4 (527)	27.4 (674)	33.7 (829)
Continuous hot water output * (50 °C draw-off temperature)	kW (l/h)	19.0 (409)	26.7 (575)	33.1 (713)
Continuous hot water output * (55 °C draw-off temperature)	kW (l/h)	17.7 (339)	25.5 (488)	30.2 (578)
Standby energy consumption (VIH R ... H types)	KWh/24 hrs	0.62	0.63	0.69
Standby energy consumption (VIH R ... M types)	KWh/24 hrs	0.74	0.77	0.83
Standby energy consumption (VIH R ... B types)	KWh/24 hrs	0.96	1.13	1.34
Standby energy consumption (VIH R ... BR types)	KWh/24 hrs	1.1	1.3	1.4
Output characteristic figure NL * (50 °C cylinder temperature)	N <sub>L</sub> (50 °C)	0.9	1.4	2.7
Output characteristic figure NL * (55 °C cylinder temperature)	N <sub>L</sub> (55 °C)	1.2	1.8	3.3
Output characteristic figure NL * (60 °C cylinder temperature)	N <sub>L</sub> (60 °C)	1.4	2.2	3.8
Output characteristic figure NL * (65 °C cylinder temperature)	N <sub>L</sub> (65 °C)	1.6	2.5	4.4
Hot water output * (50 °C cylinder temperature)	l/10 min	137	166	222
Hot water output * (55 °C cylinder temperature)	l/10 min	155	186	244
Hot water output * (60 °C cylinder temperature)	l/10 min	163	199	261
Hot water output * (65 °C cylinder temperature)	l/10 min	176	217	279
Specific flow rate (30 K) * (50 °C cylinder temperature)	l/min	16.0	19.4	25.9
Specific flow rate (30 K) * (55 °C cylinder temperature)	l/min	18.1	21.7	28.5
Specific flow rate (30 K) * (60 °C cylinder temperature)	l/min	19.0	23.2	30.5
Specific flow rate (30 K) * (65 °C cylinder temperature)	l/min	20.5	25.3	32.6
Specific flow rate (45 K) * (50 °C cylinder temperature)	l/min	10.7	12.9	17.3
Specific flow rate (45 K) * (55 °C cylinder temperature)	l/min	12.1	14.5	19.0
Specific flow rate (45 K) * (60 °C cylinder temperature)	l/min	12.7	15.5	20.3
Specific flow rate (45 K) * (65 °C cylinder temperature)	l/min	13.7	16.9	21.7
Heat-up time from 10 to 50 °C *	min	15.8	18.8	20.8
Heat-up time from 10 to 55 °C *	min	19.0	22.5	25.0
Heat-up time from 10 to 60 °C *	min	23.3	27.5	30.8
Heat-up time from 10 to 65 °C *	min	28.5	33.8	37.5
Minimum power transmitted by the pipe coil (80 °C flow temperature; 60 °C cylinder temperature)	kW	11.1	12.9	14.8
Minimum power transmitted by the pipe coil (80 °C flow temperature; 10 °C cylinder temperature)	kW	30.9	35.9	41.4
<b>Heating circuit output data</b>				
Nominal heating medium volume flow	m <sup>3</sup> /h	1.4	1.4	1.4
Pressure loss at nominal heating medium volume flow	MPa (mbar)	0.0017 (17)	0.002 (20)	0.0022 (22)
Maximum operating pressure (heating)	MPa (bar)	1 (10)	1 (10)	1 (10)
Max. heating water flow temperature **	°C	110	110	110
Heating area of the heat exchanger	m <sup>2</sup>	0.7	0.9	1.0
Heating water of the heat exchanger	l	4.8	5.7	6.8
* Flow temperature 80 °C				
** The maximum heating water flow temperature is 100 °C in units with a display for the magnesium protection anode.				

Continuous output diagrams

VIH R 120/6

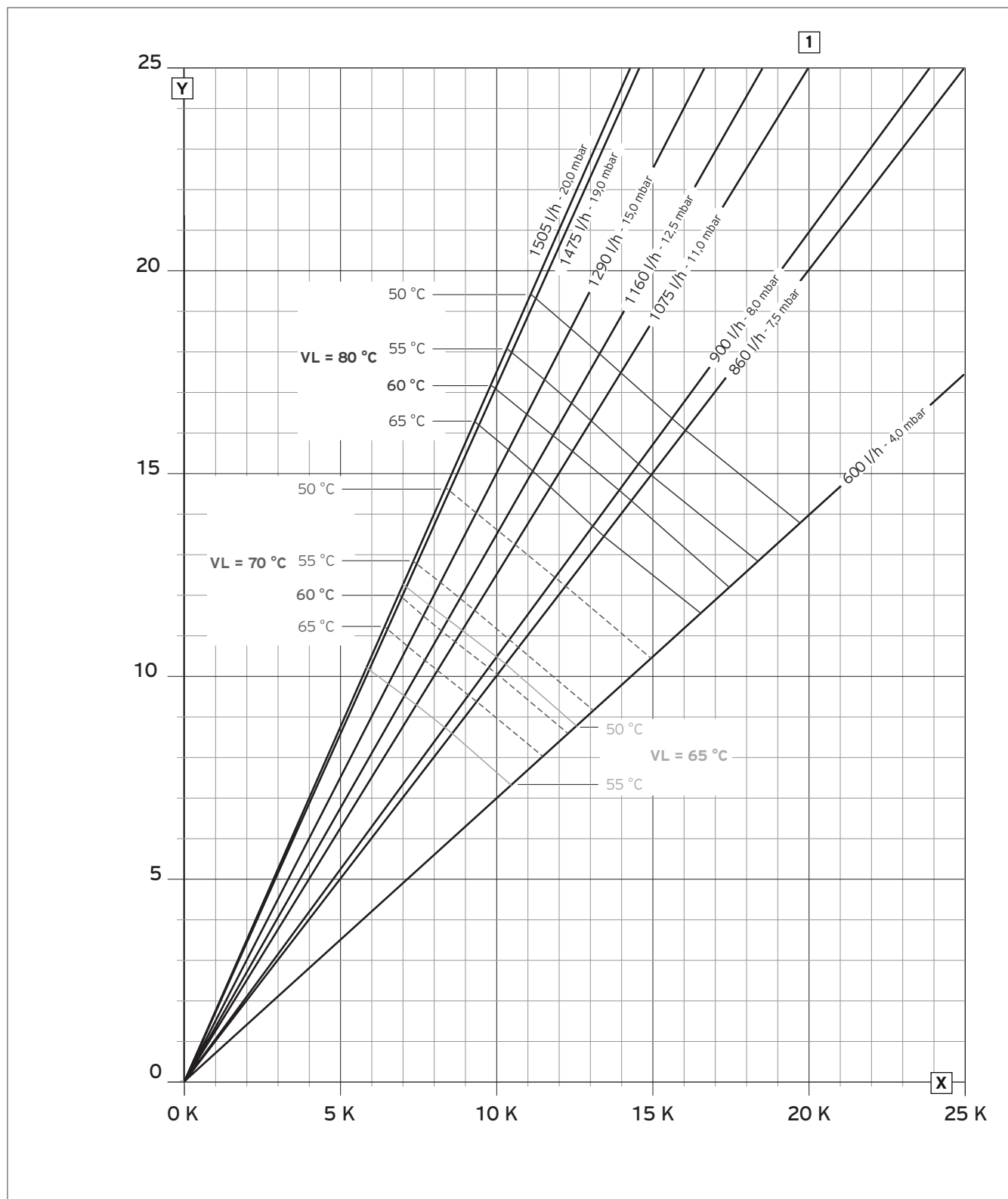


Fig. 306: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 120/6

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

## Continuous output diagram

VIH R 150/6

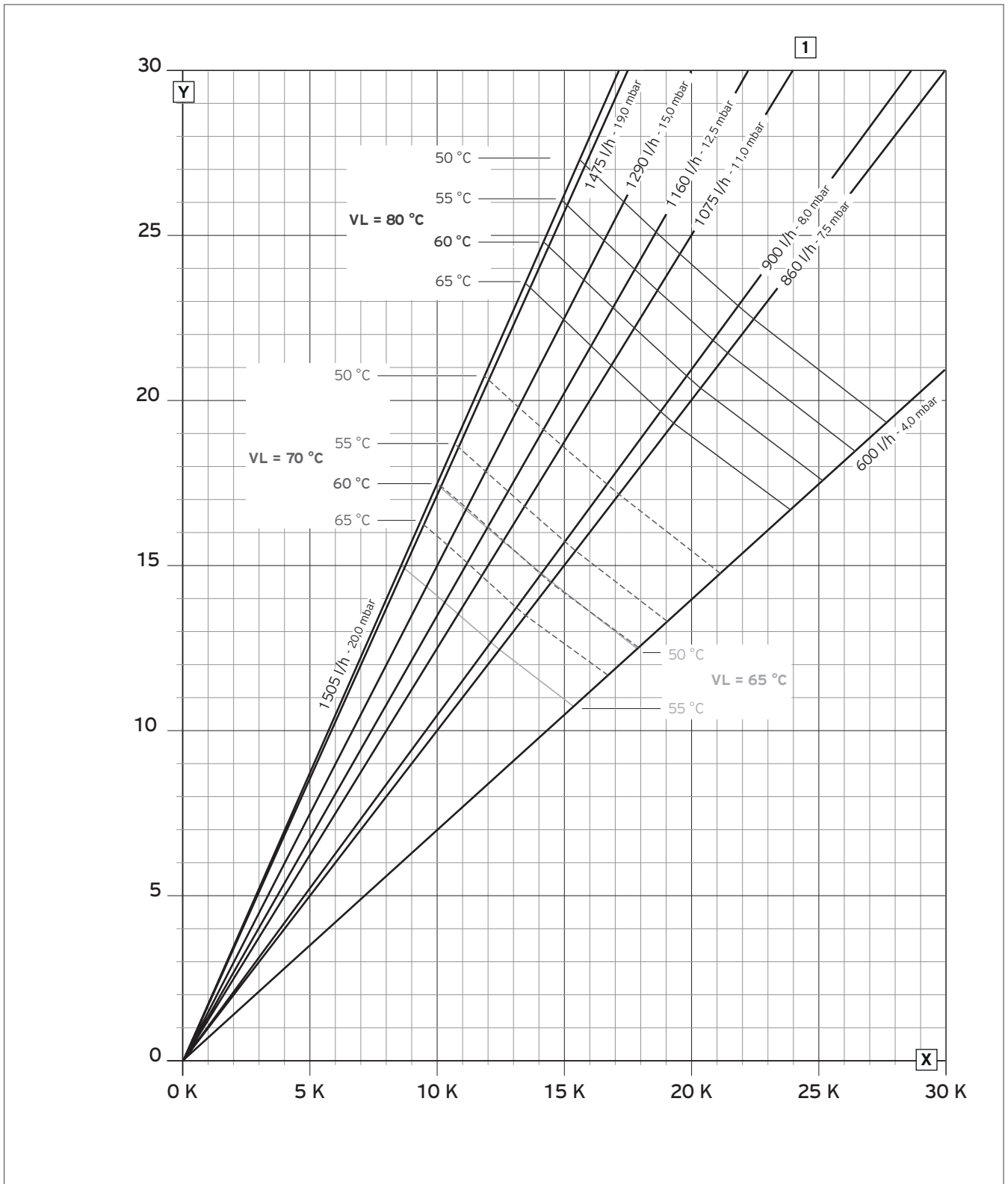


Fig. 307: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 150/6

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

## Continuous output diagram

VIH R 200/6

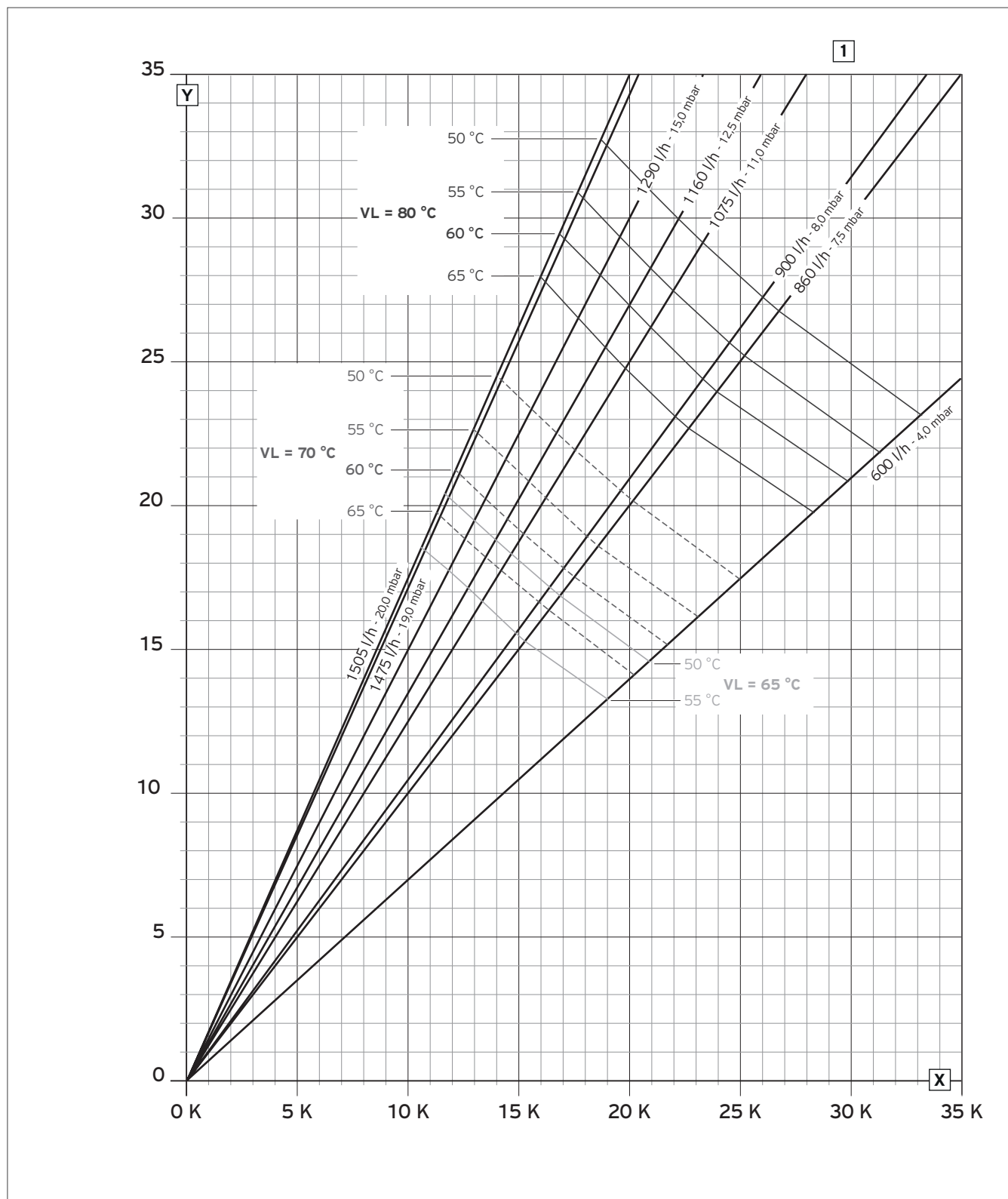


Fig. 308: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 200/6

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h



## 19.8 Product description for uniSTOR exclusive VIH R 300/3 MR - VIH R 500/3 MR



Fig. 309: uniSTOR exclusive VIH R 300/3 MR - 500/3 MR

### Equipment

- High-quality vacuum heat insulation
- Integrated external current anode
- Pipe coil heat exchanger
- Cleaning eye/flange for electrical immersion heater
- Circulation connection
- Transport straps enclosed

### Special features

- Bears the Green iQ label
- Monovalent domestic hot water cylinder, indirectly heated
- Potable water side (cylinder and heat exchanger) with high-quality enamelling
- Digital cylinder display (temperature, cylinder charging and fault messages)
- Easy to carry to installation site thanks to removable heat insulation

### Potential applications

Indirect domestic hot water cylinder, enamelled for corrosion protection, for group or centralised supply at a mains over-pressure of up to 10 bar.

Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH R 300/3 MR	A (A+ to F)	294	0010020661
VIH R 400/3 MR	A (A+ to F)	398	0010020662
VIH R 500/3 MR	A (A+ to F)	490	0010020663

## Technical data

### Technical data - general

	VIH R 300/3 MR	VIH R 400/3 MR	VIH R 500/3 MR
Nominal capacity	294 l	398 l	490 l
Domestic hot water capacity of the heating coil for the heating circuit	9.9 l	10.9 l	15.2 l
Maximum pressure of the heating coil during operation	1 MPa	1 MPa	1 MPa
Operating pressure	1 MPa	1 MPa	1 MPa
Maximum temperature of the heating circuit	110 °C	110 °C	110 °C
Maximum hot water temperature	85 °C	85 °C	85 °C
Energy efficiency class	A	A	A
Standby energy consumption per 24 hrs	1.16 kWh	1.22 kWh	1.31 kWh
Heating coil pressure loss (heating circuit)	0.0058 MPa	0.0066 MPa	0.00162 MPa
Heating coil surface (heating circuit)	1.5 m <sup>2</sup>	1.7 m <sup>2</sup>	2.3 m <sup>2</sup>
Volume of the mixing water at 40 °C (V <sub>40</sub> ) (heating circuit)	473 l	578 l	742 l
Net weight	115 kg	149 kg	186 kg
Weight filled ready for operation	419 kg	557 kg	691 kg

### Technical data - Electrics

	VIH R 300/3 MR	VIH R 400/3 MR	VIH R 500/3 MR
Electrical connection for the power supply unit	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz
IP rating	XX	XX	XX

### Technical data - Material

	VIH R 300/3 MR	VIH R 400/3 MR	VIH R 500/3 MR
Cylinder material	Black steel (S235JR)	Black steel (S235JR)	Black steel (S235JR)
Corrosion protection	Enamel with external current protection anode		
Insulation material	Polyurethane + vacuum panel		
Insulation thickness	95 mm	100 mm	100 mm
Propellant for insulating material	1233zd(E)	1233zd(E)	1233zd(E)
Ozone depletion potential ODP	WP 1	WP 1	WP 1

### Technical data - VIH R output

	VIH R 300/3 MR	VIH R 400/3 MR	VIH R 500/3 MR
Output characteristic figure NL (50 °C)	6.7	10.1	16.4
Output characteristic figure NL (55 °C)	7.9	12.0	18.9
Output characteristic figure NL (60 °C)	9.0	15.0	21.0
Output characteristic figure NL (65 °C)	11.0	15.6	22.3
Output characteristic figure NL (70 °C)	11.6	15.7	23.4
Continuous domestic hot water output (heating circuit) (60 °C 35 K)	24.8 kW	27.1 kW	38.0 kW
Continuous domestic hot water output (heating circuit) (70 °C 35 K)	33.6 kW	36.8 kW	51.5 kW
Continuous domestic hot water output (heating circuit) (80 °C 35 K)	42.1 kW	46.0 kW	64.5 kW
Continuous domestic hot water output (heating circuit) (60 °C 35 K)	611 l/h	668 l/h	936 l/h
Continuous domestic hot water output (heating circuit) (70 °C 35 K)	827 l/h	904 l/h	1,268 l/h
Continuous domestic hot water output (heating circuit) (80 °C 35 K)	1,035 l/h	1,130 l/h	1,586 l/h
Domestic hot water output (50 °C)	342 l/10 min	520 l/10 min	536 l/10 min
Domestic hot water output (55 °C)	371 l/10 min	459 l/10 min	587 l/10 min
Domestic hot water output (60 °C)	396 l/10 min	517 l/10 min	623 l/10 min

	VIH R 300/3 MR	VIH R 400/3 MR	VIH R 500/3 MR
Domestic hot water output (65 °C)	439 l/10 min	528 l/10 min	644 l/10 min
Domestic hot water output (70 °C)	451 l/10 min	530 l/10 min	662 l/10 min
Specific flow rate Delta (50 °C 30 K)	39.9 l/min	49.0 l/min	62.5 l/min
Specific flow rate Delta (55 °C 30 K)	43.3 l/min	53.6 l/min	68.5 l/min
Specific flow rate Delta (60 °C 30 K)	46.2 l/min	60.3 l/min	72.7 l/min
Specific flow rate Delta (65 °C 30 K)	51.2 l/min	61.6 l/min	75.1 l/min
Specific flow rate Delta (70 °C 30 K)	52.6 l/min	61.8 l/min	77.2 l/min
Nominal heating medium volume flow for the heating circuit	1.81 m³/h	1.93 m³/h	2.79 m³/h

### Dimension drawing and connection dimensions

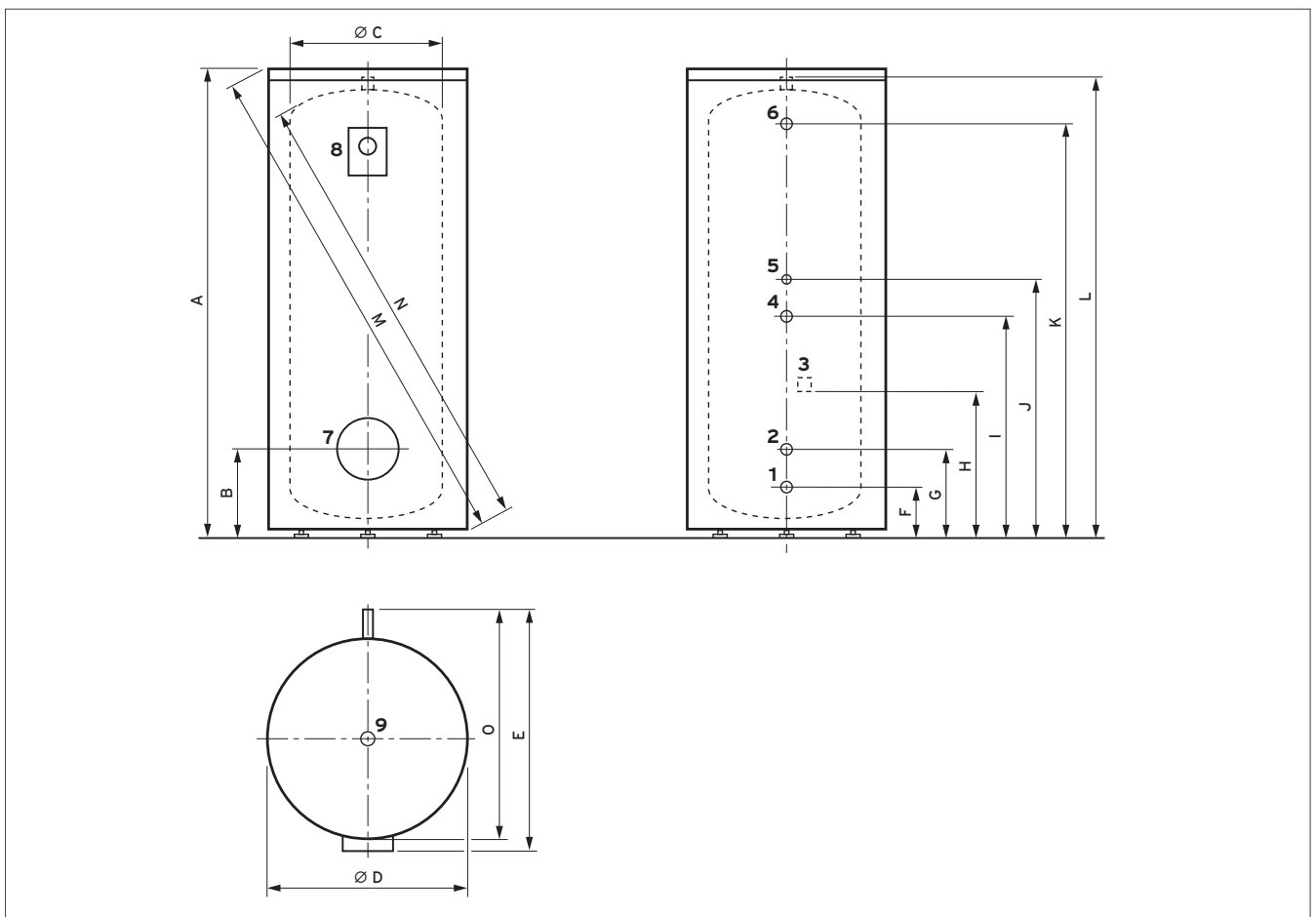


Fig. 310: Dimension drawing

- |                              |                                 |
|------------------------------|---------------------------------|
| 1 Cold water connection      | 6 Domestic hot water connection |
| 2 Heating return             | 7 Inspection opening            |
| 3 Heating sensor removal tab | 8 Thermometer                   |
| 4 Heating flow               | 9 Protection anode              |
| 5 Circulation                |                                 |

Unit type	A	B	C (∅)	D (∅)	E	F	G	H	I	J	K	L	M	N	O
VIH R 300/3 MR	1929	313	500	690	775	168	250	522	955	1059	1636	1773	2049	1850	725
VIH R 400/3 MR	1633	357	650	850	930	208	294	522	849	924	1294	1471	1841	1565	880
VIH R 500/3 MR	1933	357	650	850	930	208	294	522	1049	1124	1594	1771	2112	1850	880

Dimensions in mm

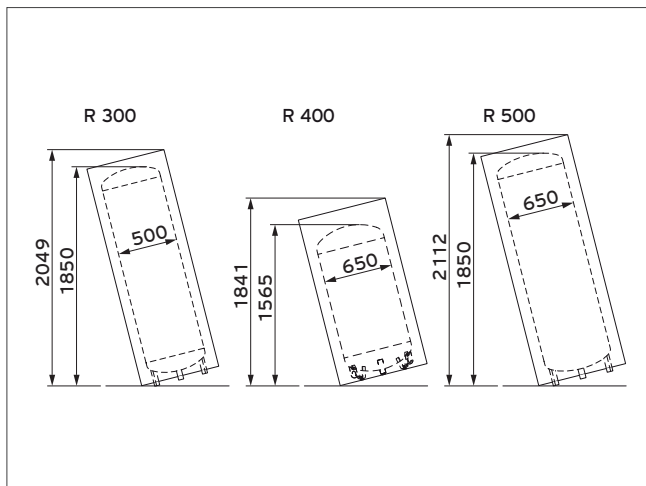


Fig. 311: Tilt dimensions

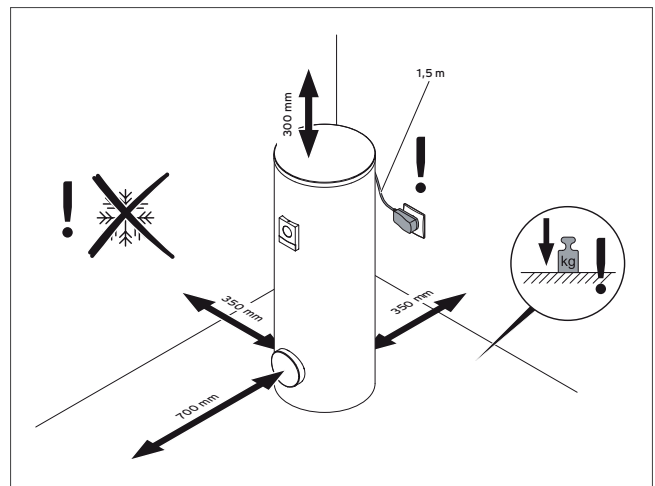


Fig. 312: Minimum clearances

### Pressure loss in the uniSTOR VIH R 300-500 heating coil

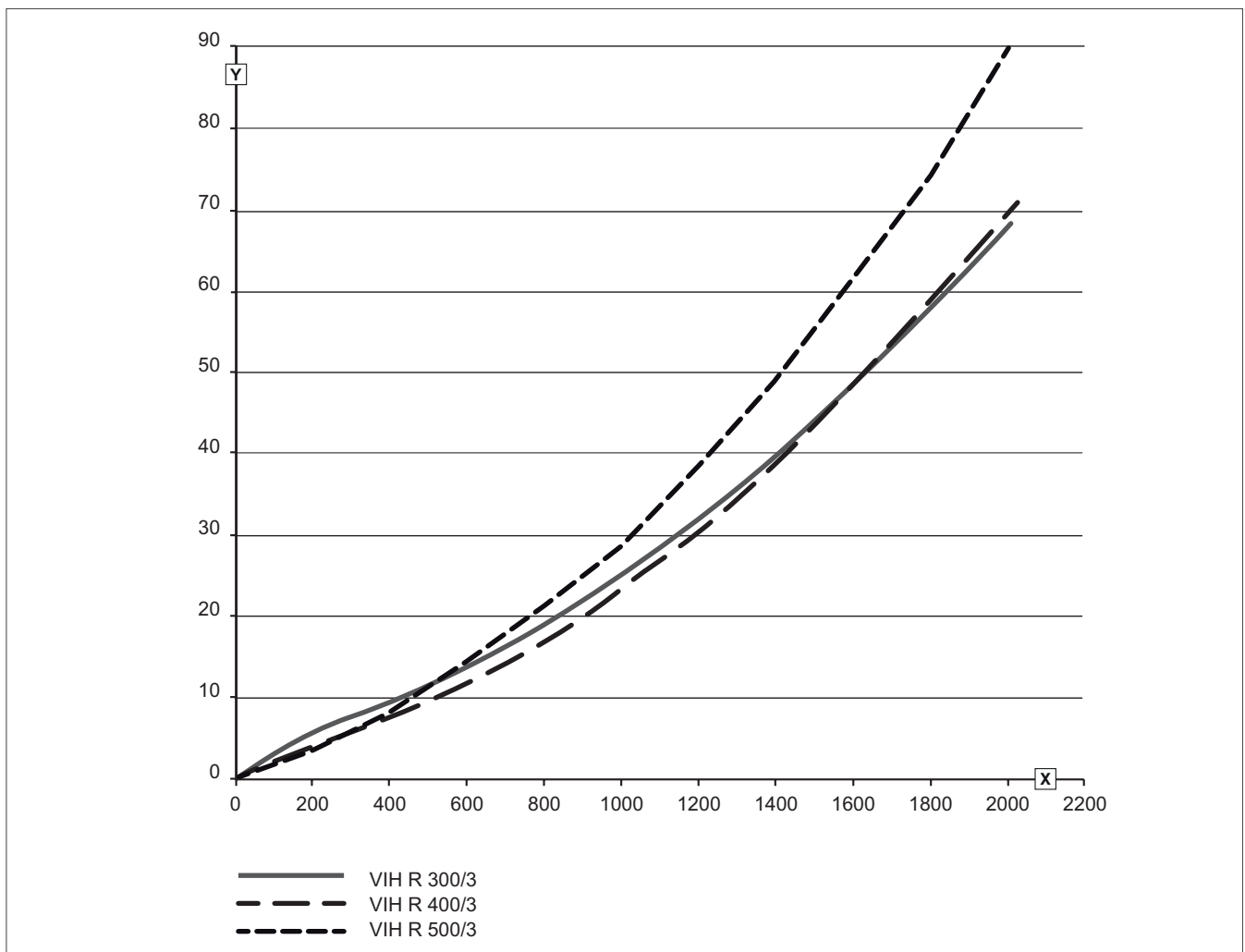


Fig. 313: Pressure loss in the uniSTOR VIH R 300-500 heating coil

X Heating medium flow V in l/h  
 Y Pressure loss in the heating coil in mbar

## 19.9 Product description for uniSTOR plus VIH R 300/3 BR - VIH R 500/3 BR



Fig. 314: uniSTOR plus VIH R 300/3 BR - 500/3 BR

### Equipment

- Removable outer casing
- Magnesium protection anode
- Pipe coil heat exchanger
- Cleaning eye/flange for electrical immersion heater
- Circulation connection
- Transport straps enclosed
- Cylinder is firmly embedded

### Special features

- Monovalent domestic hot water cylinder, indirectly heated
- Potable water side (cylinder and heat exchanger) with high-quality enamelling
- Analogue cylinder temperature display
- Lowest heat losses thanks to the high-quality heat insulation

### Potential applications

Indirect domestic hot water cylinder, enamelled for corrosion protection, for group or centralised supply at a mains over-pressure of up to 10 bar.

Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH R 300/3 BR	B (A+ to F)	294	0010020639
VIH R 400/3 BR	B (A+ to F)	398	0010020640
VIH R 500/3 BR	B (A+ to F)	490	0010020641

## Technical data

### Technical data - general

	VIH R 300/3 BR	VIH R 400/3 BR	VIH R 500/3 BR
Nominal capacity	294 l	398 l	490 l
Domestic hot water capacity of the heating coil for the heating circuit	9.9 l	10.9 l	15.2 l
Maximum pressure of the heating coil during operation	1 MPa	1 MPa	1 MPa
Operating pressure	1 MPa	1 MPa	1 MPa
Maximum temperature of the heating circuit	110 °C	110 °C	110 °C
Maximum hot water temperature	85 °C	85 °C	85 °C
Energy efficiency class	B	B	B
Standby energy consumption per 24 hrs	1.40 kWh	1.52 kWh	1.78 kWh
Heating coil pressure loss (heating circuit)	0.0058 MPa	0.0066 MPa	0.00162 MPa
Heating coil surface (heating circuit)	1.5 m <sup>2</sup>	1.7 m <sup>2</sup>	2.3 m <sup>2</sup>
Volume of the mixing water at 40 °C (V <sub>40</sub> ) (heating circuit)	473 l	578 l	742 l
Net weight	103 kg	136 kg	170 kg
Weight filled ready for operation	407 kg	544 kg	675 kg

### Technical data - Material

	VIH R 300/3 BR	VIH R 400/3 BR	VIH R 500/3 BR
Cylinder material	Black steel (S235JR)	Black steel (S235JR)	Black steel (S235JR)
Corrosion protection	Enamel with magnesium protection anode		
Insulation material	Polyurethane	Polyurethane	Polyurethane
Insulation thickness	75 mm	70 mm	70 mm
Propellant for insulating material	HFO-1233zd(E)	HFO-1233zd(E)	HFO-1233zd(E)
Ozone depletion potential ODP	WP 1	WP 1	WP 1

### Technical data - VIH R output

	VIH R 300/3 BR	VIH R 400/3 BR	VIH R 500/3 BR
Output characteristic figure NL (50 °C)	6.7	10.1	16.4
Output characteristic figure NL (55 °C)	7.9	12.0	18.9
Output characteristic figure NL (60 °C)	9.0	15.0	21.0
Output characteristic figure NL (65 °C)	11.0	15.6	22.3
Output characteristic figure NL (70 °C)	11.6	15.7	23.4
Continuous domestic hot water output (heating circuit) (60 °C 35 K)	24.8 kW	27.1 kW	38.0 kW
Continuous domestic hot water output (heating circuit) (70 °C 35 K)	33.6 kW	36.8 kW	51.5 kW
Continuous domestic hot water output (heating circuit) (80 °C 35 K)	42.1 kW	46.0 kW	64.5 kW
Continuous domestic hot water output (heating circuit) (60 °C 35 K)	611 l/h	668 l/h	936 l/h
Continuous domestic hot water output (heating circuit) (70 °C 35 K)	827 l/h	904 l/h	1,268 l/h
Continuous domestic hot water output (heating circuit) (80 °C 35 K)	1,035 l/h	1,130 l/h	1,586 l/h
Domestic hot water output (50 °C)	342 l/10 min	520 l/10 min	536 l/10 min
Domestic hot water output (55 °C)	371 l/10 min	459 l/10 min	587 l/10 min
Domestic hot water output (60 °C)	396 l/10 min	517 l/10 min	623 l/10 min
Domestic hot water output (65 °C)	439 l/10 min	528 l/10 min	644 l/10 min
Domestic hot water output (70 °C)	451 l/10 min	530 l/10 min	662 l/10 min
Specific flow rate Delta (50 °C 30 K)	39.9 l/min	49.0 l/min	62.5 l/min
Specific flow rate Delta (55 °C 30 K)	43.3 l/min	53.6 l/min	68.5 l/min
Specific flow rate Delta (60 °C 30 K)	46.2 l/min	60.3 l/min	72.7 l/min
Specific flow rate Delta (65 °C 30 K)	51.2 l/min	61.6 l/min	75.1 l/min
Specific flow rate Delta (70 °C 30 K)	52.6 l/min	61.8 l/min	77.2 l/min
Nominal heating medium volume flow for the heating circuit	1.81 m <sup>3</sup> /h	1.93 m <sup>3</sup> /h	2.79 m <sup>3</sup> /h

## Dimension drawing and connection dimensions

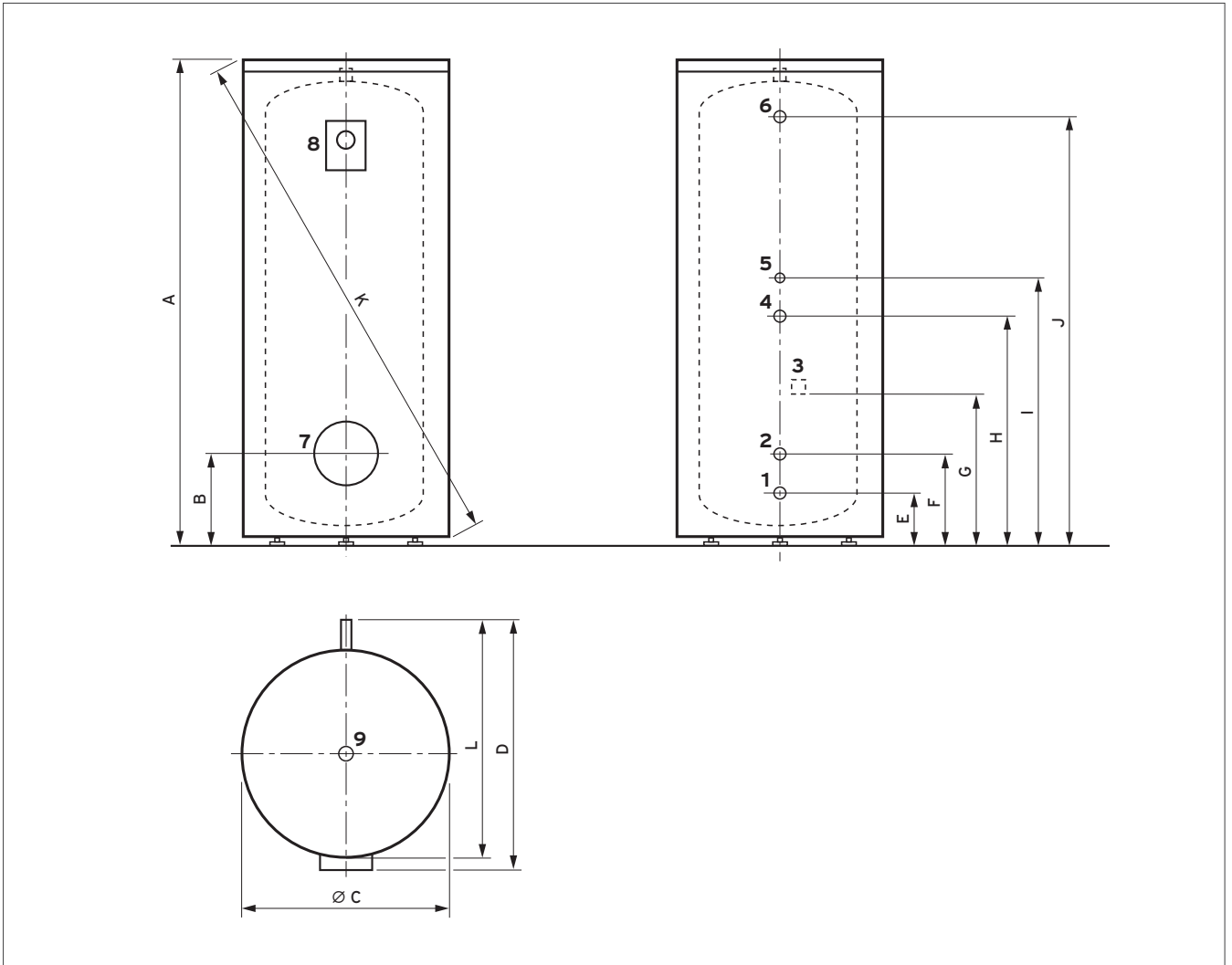


Fig. 315: Dimension drawing

- 1 Cold water connection
- 2 Heating return
- 3 Heating sensor removal tab
- 4 Heating flow
- 5 Circulation
- 6 Domestic hot water connection
- 7 Inspection opening
- 8 Thermometer
- 9 Protection anode

Unit type	A	B	C (Ø)	D	E	F	G	H	I	J	K	L
VIH R 300/3 BR	1804	313	650	755	168	250	522	955	1059	1636	1903	705
VIH R 400/3 BR	1502	357	790	900	208	294	522	849	924	1294	1684	850
VIH R 500/3 BR	1802	357	790	900	208	294	522	1049	1124	1594	1954	850

Dimensions in mm

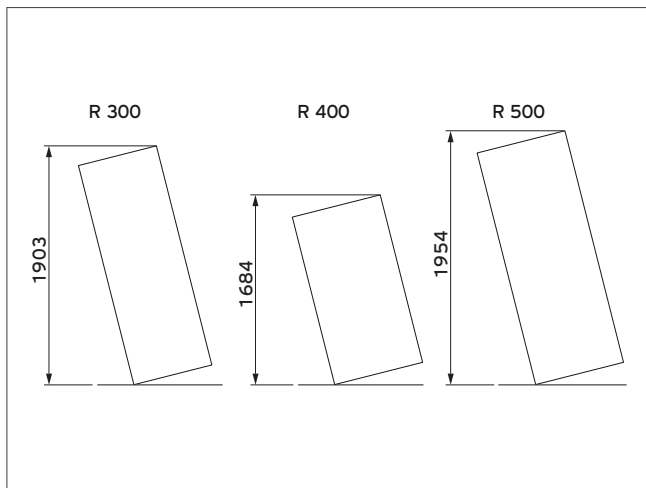


Fig. 316: Tilt dimensions

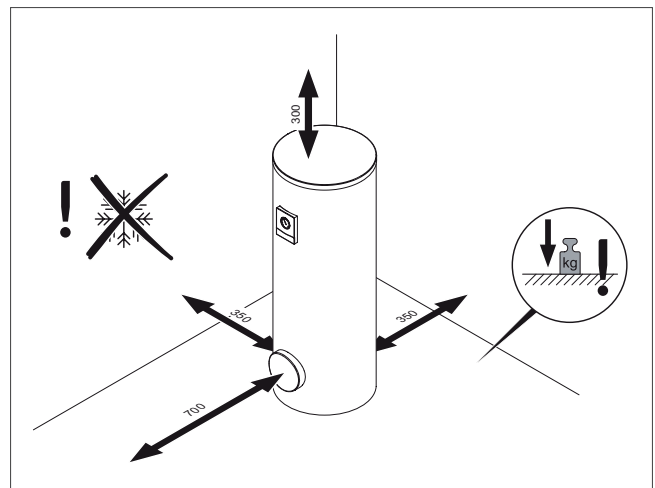


Fig. 317: Minimum clearances

### Pressure loss in the uniSTOR VIH R 300-500 heating coil

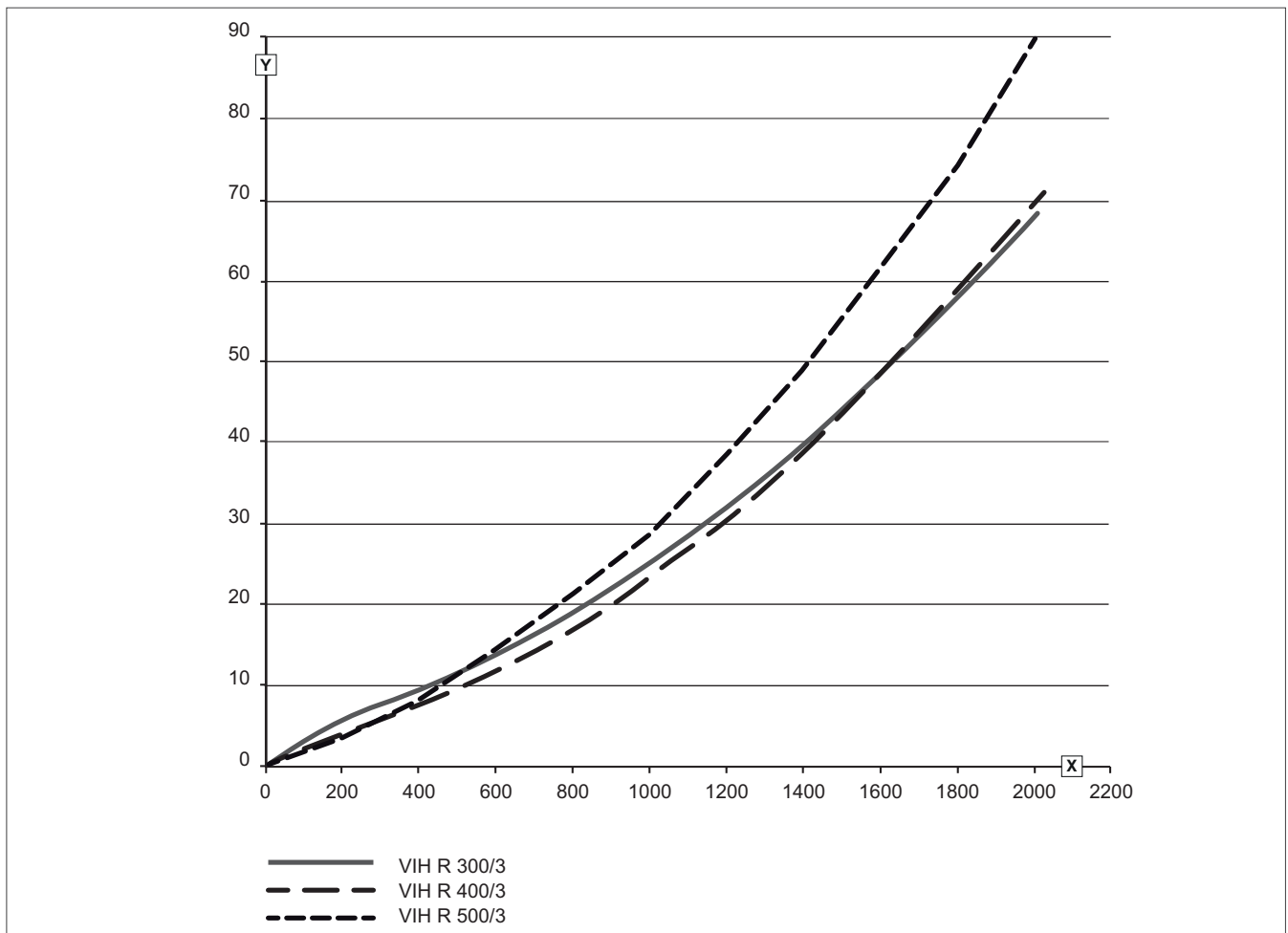


Fig. 318: Pressure loss in the uniSTOR VIH R 300-500 heating coil

X Heating medium flow V in l/h  
 Y Pressure loss in the heating coil in mbar



## 19.10 actoSTOR VIH K 300 product description



Fig. 319: actoSTOR VIH K 300

Type overview

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VIH K 300	B (A+ to F)	150	305 945

### Special features

- Upright hot water shift-load cylinder as an auxiliary cylinder to **ecoVIT** and **icoVIT** units
- Maintenance-free thanks to impressed current anode (as standard)
- Low standby energy consumption
- High-power plate heat exchanger made from stainless steel
- Gross calorific value utilisation in cylinder charging mode
- Quick recharging

### Potential applications

- Recommended for supplying large buildings and multiple-occupancy houses
- Design compatible with the **ecoVIT**
- Flexibility when planning, easy to assemble and install

### Equipment

- Ready for connection to an **ecoVIT** gas-fired condensing boiler or an **icoVIT** oil-fired condensing boiler
- Hot water shift-load cylinder (150 l)
- Cylinder sensor integrated in the **actoSTOR**
- Cylinder set available as an accessory (order no. 305 980)
- Carrying handles
- Circulation connection
- Adjustable cylinder feet
- ActoNomic: The efficient patented stratified charging process

## Technical data

Value	Units	actoSTOR VIH K 300 with ecoViT exclusive				
		VKK 226	VKK 286	VKK 366	VKK 476	VKK 656
Nominal cylinder capacity	l	150	150	150	150	150
Max. operating pressure on the hot water side	bar	10	10	10	10	10
Max. permitted hot water temperature	°C	85	85	85	85	85
Hot water output	l/10 min	312	317	322	362	419
Continuous hot water output at a heating water temperature of 85/65 °C	kW (l/h)	24.2 (602)	27.0 (672)	34.4 (856)	44.5 (1078)	60.2 (1498)
Specific flow rate (D value)	l/min	3.0	36.0	37.0	38.0	51.5
Standby energy loss ( $\Delta T = 45$ K)	kWh/24 h	1.47	1.47	1.47	1.47	1.47
Output characteristic figure $N_L$	$N_L$	5.5	6.0	6.3	7.5	10
Max. operating pressure on the heating side	bar	4	4	4	4	4
Max. heating water flow temperature	°C	90	90	90	90	90
Nominal heating medium flow rate	m <sup>3</sup> /h	2.3	2.3	2.3	2.3	2.3
Pressure loss at nominal heating medium flow rate	mbar	300	300	300	300	300
Continuous output ( $v_{Cyl} = 10/45$ °C, $v_{Heat} = 75/60$ °C; 2.3 m <sup>3</sup> /h)	kW (l/h)	24.2 (602)	27.0 (672)	34.4 (856)	45.5 (1078)	60.2 (1498)
Hot and cold water connection	Thread	G1	G1	G1	G1	G1
Heating flow and return connection	Thread	G1	G1	G1	G1	G1
Circulation connection	Thread	G 3/4	G 3/4	G 3/4	G 3/4	G 3/4
Cylinder dimensions						
Height	mm	1221	1221	1221	1221	1221
Width	mm	570	570	570	570	570
Depth	mm	691	691	691	691	691
Weight when empty	kg	90	90	90	90	90
Weight when ready for operation	kg	245	245	245	245	245

Value	Units	actoSTOR VIH K 300 with icoViT exclusive		
		VKO 156/3-7	VKO 256/3-7	VKO 356/3-7
Nominal cylinder capacity	l	150	150	150
Max. operating pressure on the hot water side	bar	10	10	10
Max. permitted hot water temperature	°C	85	85	85
Hot water output	l/10 min	261	314	324
Continuous hot water output at a heating water temperature of 85/65 °C	kW (l/h)	15.1 (375)	24.5 (605)	34.4 (820)
Specific flow rate (D value)	l/min	27.0	34.0	35.0
Standby energy loss ( $\Delta T = 40$ K)	kWh/24 h	1.47	1.47	1.47
Output characteristic figure $N_L$	$N_L$	3.8	5.6	6.0
Max. operating pressure on the heating side	bar	4	4	4
Max. heating water flow temperature	°C	90	90	90
Nominal heating medium flow rate	m <sup>3</sup> /h	2.3	2.3	2.3
Pressure loss at nominal heating medium flow rate	mbar	300	300	300
Continuous output ( $v_{Cyl} = 10/45$ °C, $v_{Heat} = 75/60$ °C; 2.3 m <sup>3</sup> /h)	kW (l/h)	15.1 (375)	24.5 (605)	34.4 (820)
Hot and cold water connection	Thread	G1	G1	G1
Heating flow and return connection	Thread	G1	G1	G1
Circulation connection	Thread	G 3/4	G 3/4	G 3/4
Cylinder dimensions				
Height	mm	1221	1221	1221
Width	mm	570	570	570
Depth	mm	691	691	691
Weight when empty	kg	90	90	90
Weight when ready for operation	kg	245	245	245

## Dimension drawing

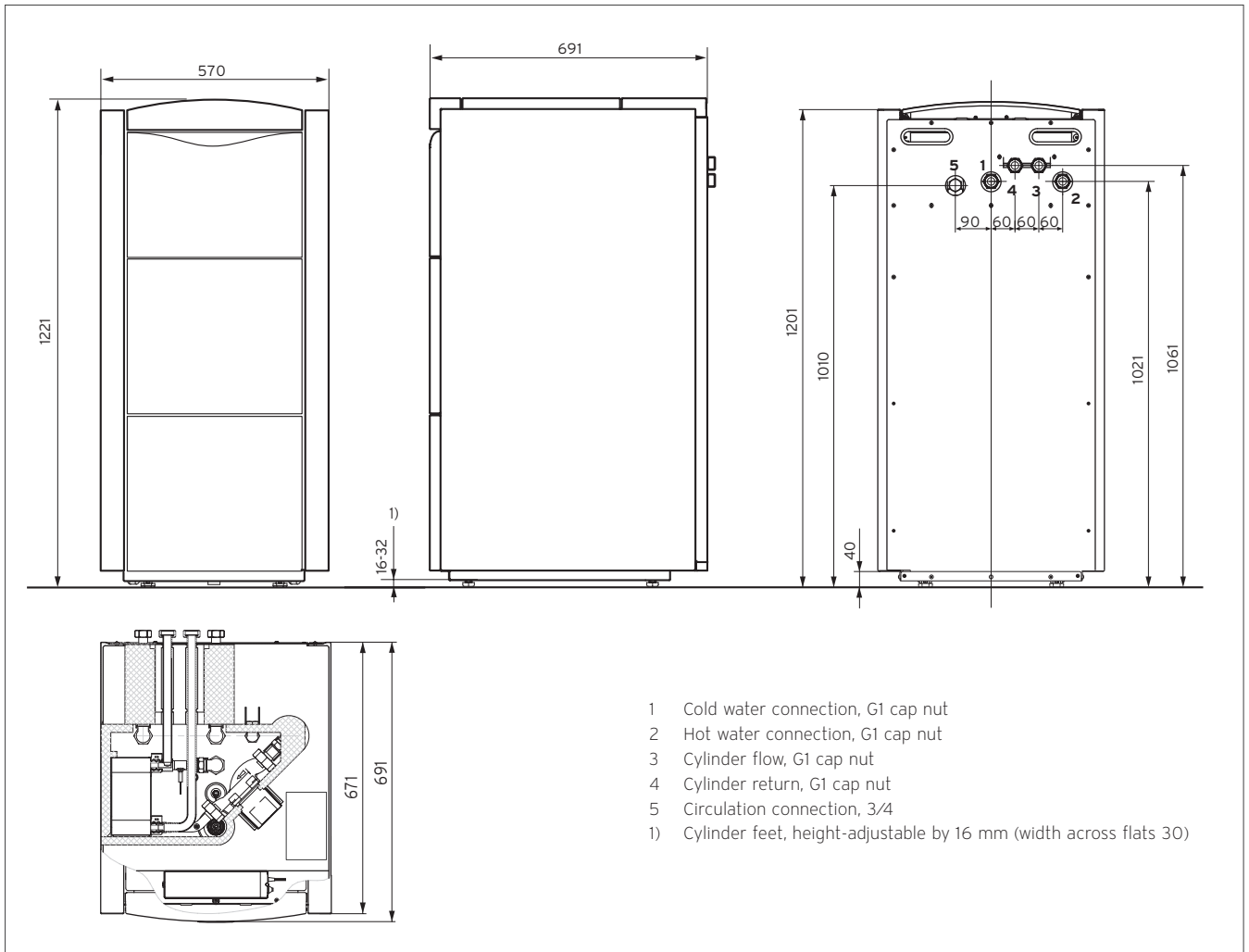


Fig. 320: Dimension drawing

The **actoSTOR VIH K 300** can be installed up to 50 cm from the **ecoVIT/icoVIT**. The electrical lines and the cylinder set can be used within this distance.

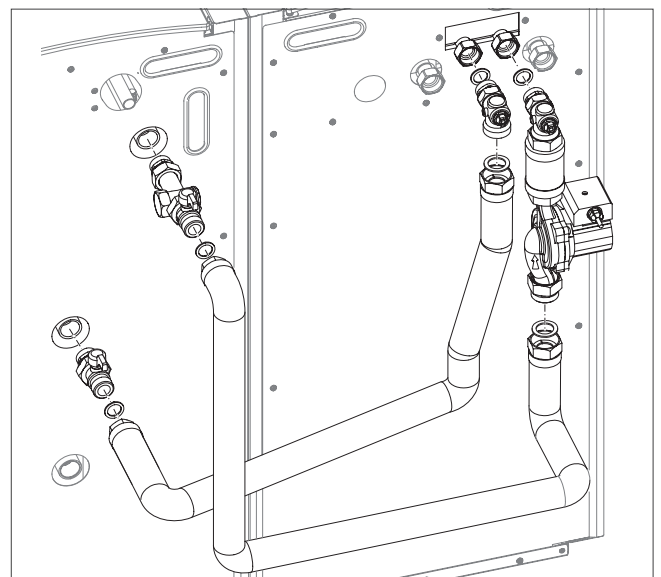


Fig. 321: Cylinder set

### Continuous output diagram

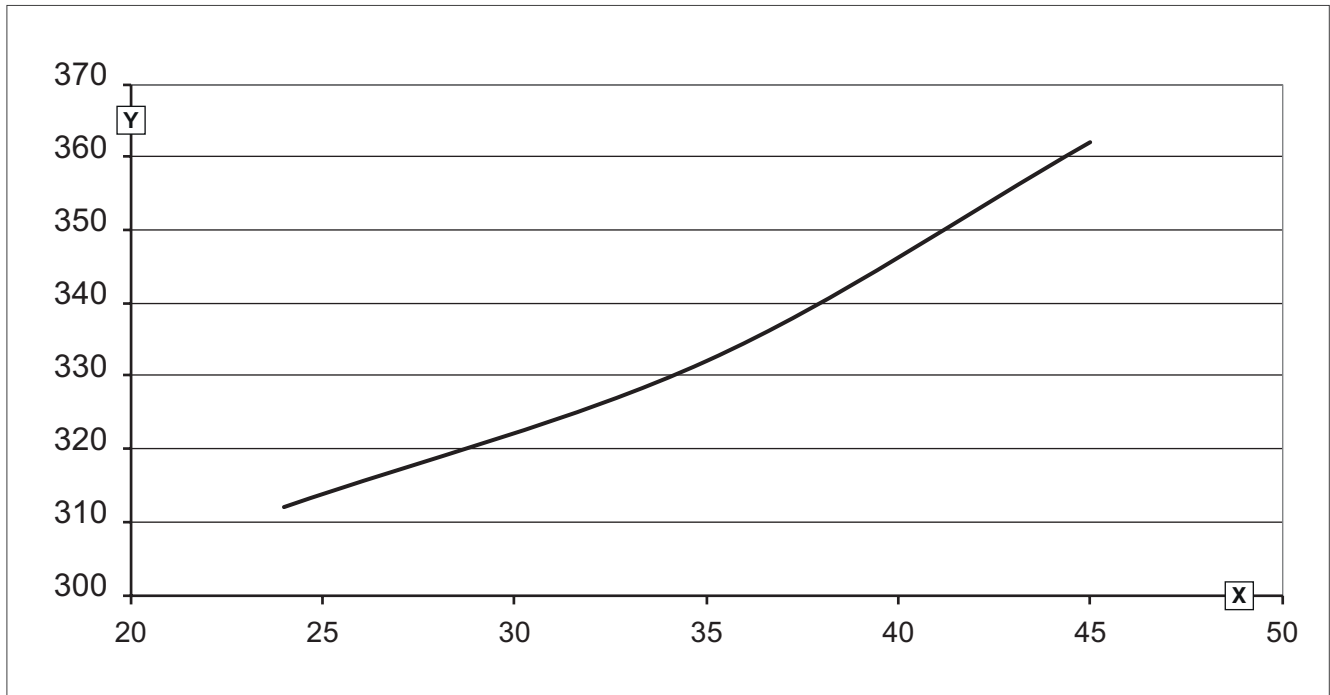


Fig. 322: Continuous output diagram for cylinder dimensioning - actoSTOR VIH K 300 with ecoVIT

- X Heating output in kW
- Y Hot water output in l/10 min

## 19.11 Product description of the uniSTOR domestic hot water cylinder models VIH R 750 to 2000 (up to 7 bar)



Fig. 323: uniSTOR VIH R 750 to 2000 (up to 7 bar)

Type overview

Unit designation	Article number
VIH R 750	0010014931
VIH R 1000	0010014932
VIH R 1500	0010014933
VIH R 2000	0010014934

### Special features

- Monovalent domestic hot water cylinder, indirectly heated
- High continuous hot water output

### Product equipment

- Domestic hot water cylinder with high-quality enamelling
- High-quality heat insulation fleece
- Magnesium protection anode (750 and 1000 l) or external current anode (1500 and 2000 l)
- Pipe heat exchanger
- Inspection opening
- Circulation connection
- Option to connect to electrical heating rod

### Potential applications

Indirectly heated domestic hot water cylinder for hot water supply, for group or centralised supply at a mains overpressure of up to 7 bar.

Domestic hot water cylinders are usually heated to approx. 80 °C. In areas where the water is very hard, we recommend heating the cylinder to no more than 60 °C; this is to avoid the increased risk of limescale formation and the frequent maintenance that this entails.

### Design

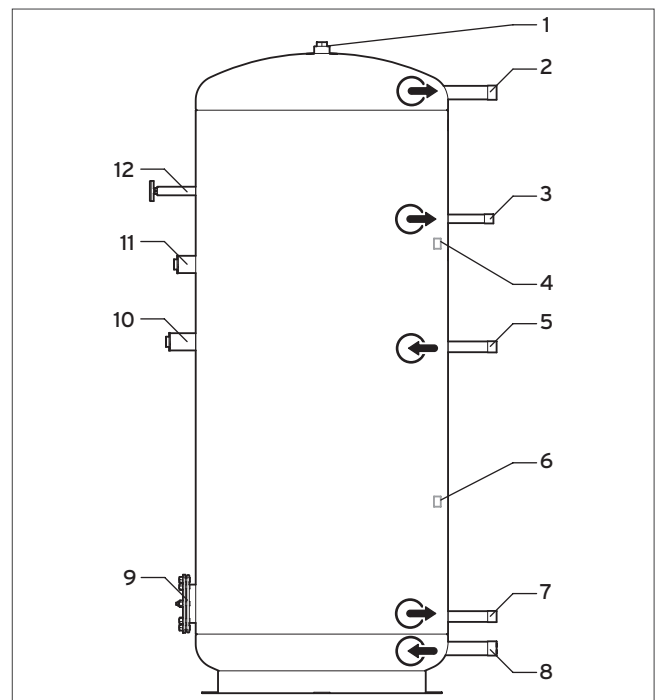


Fig. 324: Domestic hot water cylinder connections

- 1 Magnesium protection anode connection (VIH R 750 and VIH R 1000 only)
- 2 Hot water connection
- 3 Secondary circulation line connection
- 4 Upper sensor strap
- 5 Solar supply pipe connection
- 6 Lower sensor strap
- 7 Solar return connection
- 8 Cold water connection
- 9 Inspection opening
- 10 Optional heating rod connection
- 11 External current anode connection (VIH R 1500 and VIH R 2000 only)
- 12 Thermometer connection

The cylinder is equipped with external heat insulation. The cylinder vessel is made of enamelled steel. The heating coils that transfer the heat are located inside the vessel. For additional corrosion protection, the vessel has two magnesium protection anodes (cylinder with 750 l and 1000 l) or two external current anodes (cylinder with 1500 l and 2000 l).

The following can be used as an option

- Circulation pump to increase the hot water comfort, particularly at more distant draw-off points
- Immersion heater (6 kW/400 V)

### Minimum clearances

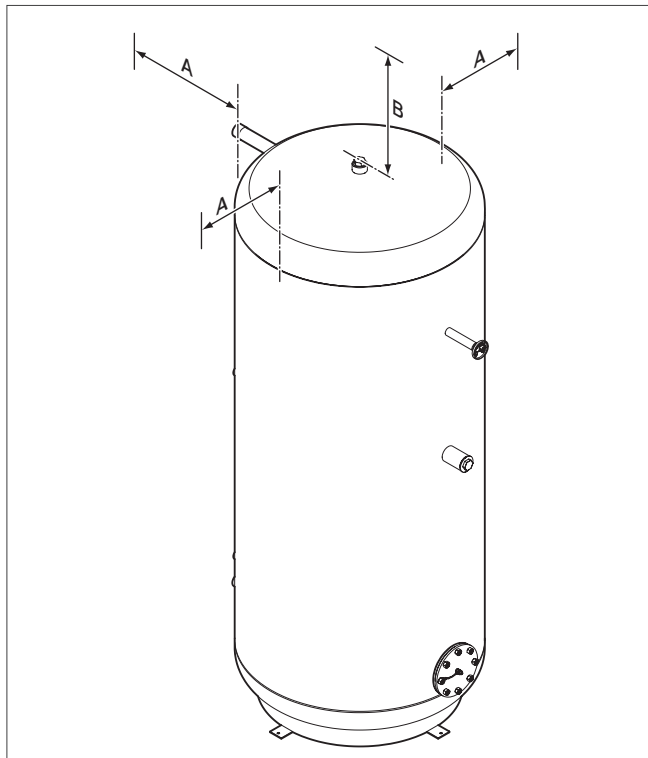


Fig. 325: Required minimum clearances

During installation, ensure that there is sufficient clearance to the walls (A) and the ceiling (B).

- Rear wall clearance A: 250 mm
- Side clearance A: 250 mm
- Ceiling clearance B: 350 mm

### Tilt dimensions

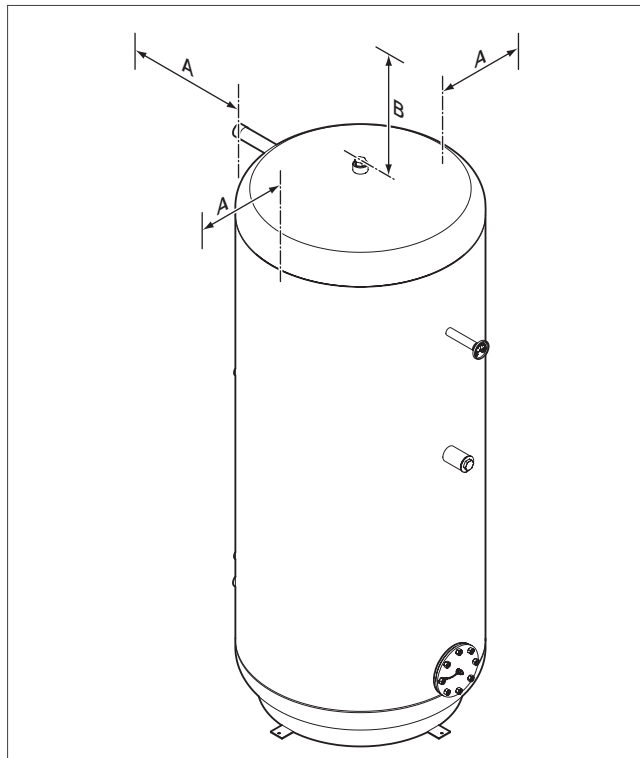


Fig. 326: Tilt dimension

When selecting the installation room, note the tilt dimension of the cylinder.

Type designation	Tilt dimension A [mm]
VIH R 750	1800
VIH R 1000	2070
VIH R 1500	2090
VIH R 2000	2420

## Technical data

	Unit	VIH R 750	VIH R 1000	VIH R 1500	VIH R 2000
<b>Collector surface/weight</b>					
Collector surface of suitable collectors	m <sup>2</sup>	11 ... 16	14 ... 20	21 ... 30	28 ... 40
Net weight	kg	198	233	351	446
Weight (ready for operation)	kg	945	1107	1693	2355
<b>Hydraulic connection</b>					
Cold/domestic hot water connection	-	R 1 1/4		R 1 1/2	
Solar flow/return connection	-	R1			
Circulation connection	-	R 3/4			
<b>Cylinder output data</b>					
Contents	l	747	875	1342	1909
Inner vessel	-	Steel, enamelled, with 2 magnesium protection anodes		Steel, enamelled, with 2 external current anodes	
Maximum operating pressure (cylinder)	MPa (bar)	0.7 (7)			
Maximum permissible operating temperature	°C	95			
Continuous domestic hot water output *	kWh	65	77	97	118
	l/h	1596	1891	2382	2898
Continuous domestic hot water output **	kWh	34	40	51	62
	l/h	835	982	1252	1523
10-minute output ***	l/10 min	716	1200	1285	1524
Standby energy consumption	kWh/24 hrs	2.26	2.45	3.15	4.35
Output characteristic figure NL ***	-	22	38	42	65
<b>Heating circuit output data</b>					
Heating area of the heat exchanger	m <sup>2</sup>	2.25	3.0	4.0	5.0
* Post-heating temperature 80 °C, draw-off temperature 45°C, cold water inlet temperature 10 °C					
** Post-heating temperature 60 °C, draw-off temperature 45 °C, cold water inlet temperature 10 °C					
*** Post-heating temperature 80 °C, cylinder temperature 60 °C, draw-off temperature 45 °C, cold water inlet temperature 10 °C					

## Dimensions and connection dimensions

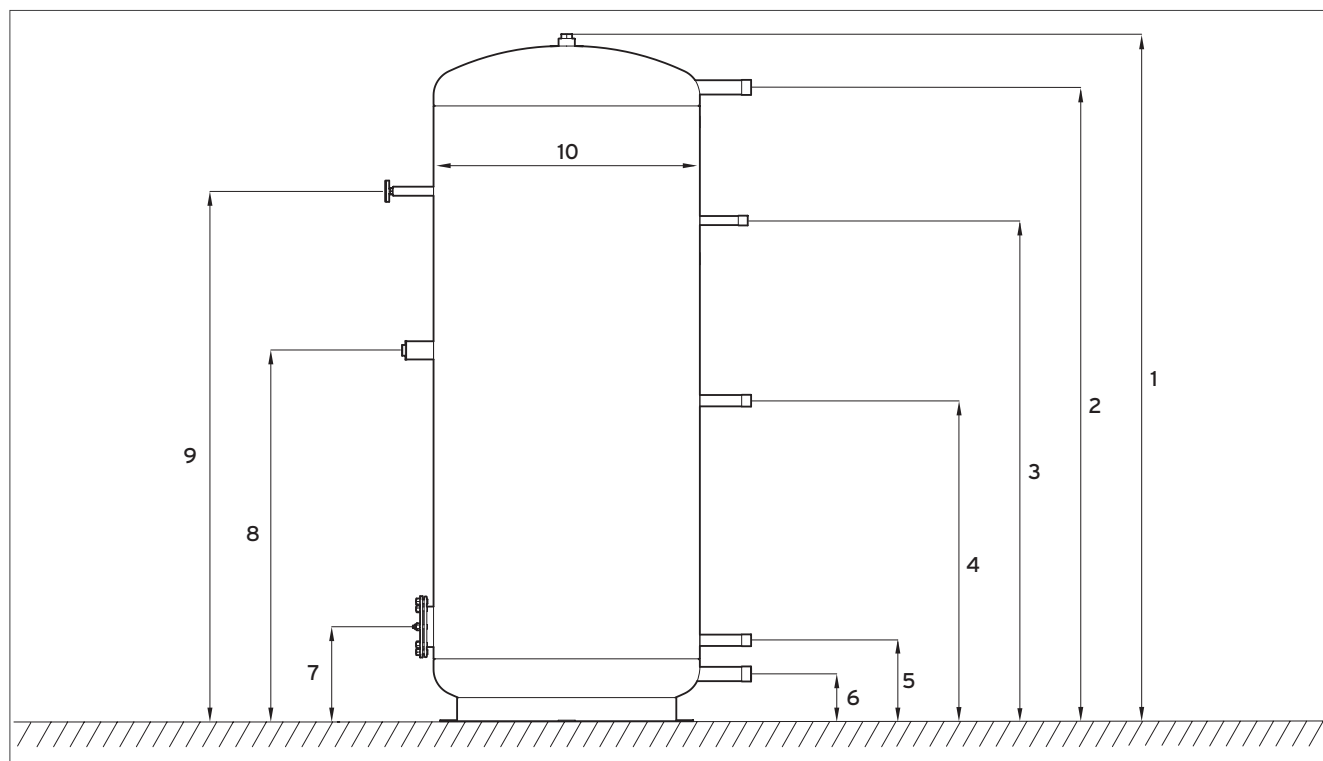


Fig. 327: VIH R dimensions and connection dimensions

Dimension	Unit	Tolerance	VIH R 750	VIH R 1000	VIH R 1500	VIH R 2000
1	mm	± 10	1755	2025	2020	2355
2	mm	± 10	1600	1880	1800	2135
3	mm	± 10	1207	1485	1460	1800
4	mm	± 10	690	950	1175	1360
5	mm	± 10	240	240	300	350
6	mm	± 10	140	140	190	240
7	mm	± 10	280	280	460	510
8	mm	± 10	880	1100	1230	1420
9	mm	± 10	1472	1572	1480	1690
10	mm	± 10	790	790	1000	1100



## 19.12 Product description of the uniSTOR VIH R 750/2 up to 2000/2 domestic hot water cylinder (up to 10 bar)



Fig. 328: uniSTOR VIH R 750/2 up to 2000/2 (up to 10 bar)

### Type overview

Unit designation	Article number
VIH R 750/2	0010039304
VIH R 1000/2	0010039305
VIH R 1500/2	0010039306
VIH R 2000/2	0010039307

### Special features

- Monovalent domestic hot water cylinder, indirectly heated
- High continuous hot water output

### Product equipment

- Domestic hot water cylinder with high-quality enamelling
- High-quality heat insulation fleece
- Magnesium protection anode (750 and 1000 l) or external current anode (1500 and 2000 l)
- Pipe heat exchanger
- Inspection opening
- Circulation connection
- Option to connect to electrical heating rod

### Potential applications

Indirect domestic hot water cylinder for domestic hot water supply, for group or centralised supply at a mains overpressure of up to 10 bar.

Domestic hot water cylinders are usually heated to approx. 80 °C. In areas where the water is very hard, we recommend heating the cylinder to no more than 60 °C; this is to avoid the increased risk of limescale formation and the frequent maintenance that this entails.

### Description of the unit

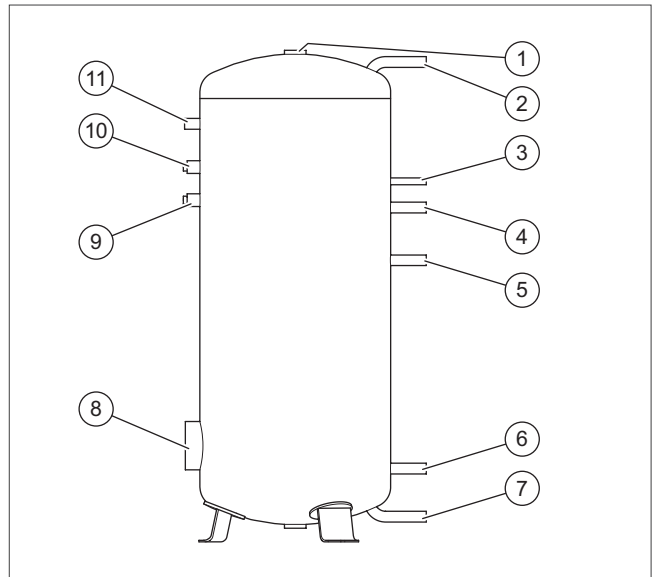


Fig. 329: Product design

- 1 External current anode connection\*
  - 2 Domestic hot water connection
  - 3 Secondary return pipe connection
  - 4 Heating flow connection from the heat generator
  - 5 Sensor pocket
  - 6 Heating return connection to the heat generator
  - 7 Cold water connection
  - 8 Inspection opening/connection for the electric back-up heater
  - 9 Second magnesium protection anode\*\*
  - 10 Magnesium protection anode\*\*
  - 11 Thermometer connection
- \* VIH R 1500/2000 only  
\*\* VIH R 750/1000 only

**Domestic hot water cylinder minimum clearances**

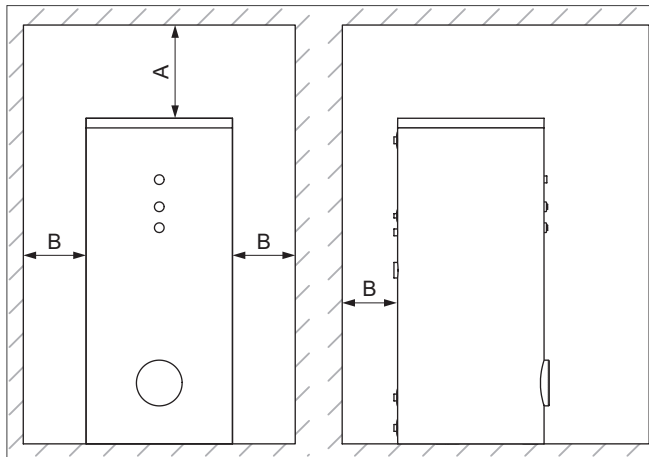


Fig. 330: Domestic hot water cylinder minimum clearances

- A Clearance to the ceiling
- B Clearance to walls

During installation, ensure that there is sufficient clearance to the ceiling (A) and the walls (B).

- Ceiling clearance A: 400 mm
- Side clearance B: 250 mm
- Rear wall clearance B: 250 mm

**Tilt dimensions**

**Domestic hot water cylinder tilt dimensions**

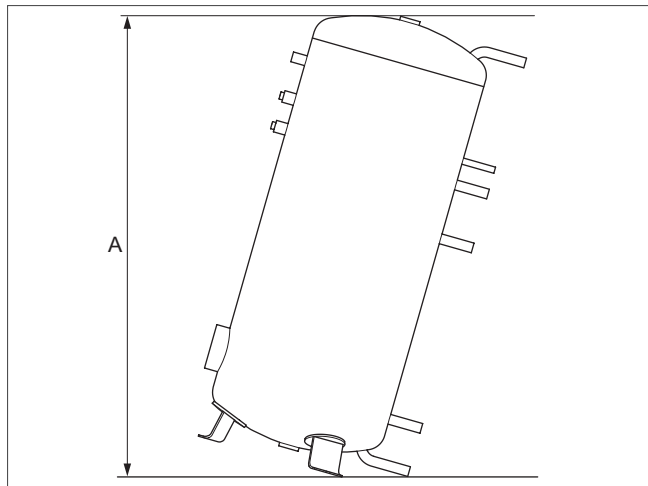


Fig. 331: Domestic hot water cylinder tilt dimensions

- A Tilt dimension

When selecting the installation room, note the tilt dimension of the cylinder.

Type designation	Tilt dimension A [mm]	
	Without heat insulation	With heat insulation
VIH R 750/2	2106	2254
VIH R 1000/2	2159	2320
VIH R 1500/2	2361	2551
VIH R 2000/2	2351	2581

Update 07  
New product uniSTOR VIH R

Technical data

	VIH R 750/2	VIH R 1000/2	VIH R 1500/2	VIH R 2000/2
Nominal capacity	744 l	970 l	1,500 l	2,000 l
Outer diameter of the cylinder (without heat insulation)	750 mm	850 mm	1,000 mm	1,200 mm
Outer diameter of the cylinder (with heat insulation)	960 mm	1,065 mm	1,230 mm	1,440 mm
Height (incl. purging valve)	1,937 mm	1,962 mm	2,128 mm	2,039 mm
Height (incl. purging valve + heat insulation)	2,035 mm	2,060 mm	2,230 mm	2,140 mm
Net weight	210 kg	272 kg	469 kg	763 kg
Total weight	954 kg	1,242 kg	1,969 kg	2,763 kg
Material of the cylinder and the connections	Steel	Steel	Steel	Steel
IP rating	2 x magnesium protection anode	2 x magnesium protection anode	1 x external current anode	1 x external current anode
Operating pressure	≤ 1.0 MPa	≤ 1.0 MPa	≤ 1.0 MPa	≤ 1.0 MPa
Maximum domestic hot water temperature	95 °C	95 °C	95 °C	95 °C
Temperature loss	123 W	142 W	171 W	188 W
Spiral immersion heater flow	3 m <sup>3</sup> /h	3 m <sup>3</sup> /h	3 m <sup>3</sup> /h	3 m <sup>3</sup> /h
Operating pressure of the spiral immersion heaters	≤ 1.6 MPa	≤ 1.6 MPa	≤ 1.6 MPa	≤ 1.6 MPa
Maximum flow temperature of the spiral immersion heater	110 °C	110 °C	110 °C	110 °C

Update 07  
 New product uniSTOR VIH R  
 Dimensions and connection dimensions

VIH R .../2 connection dimensions

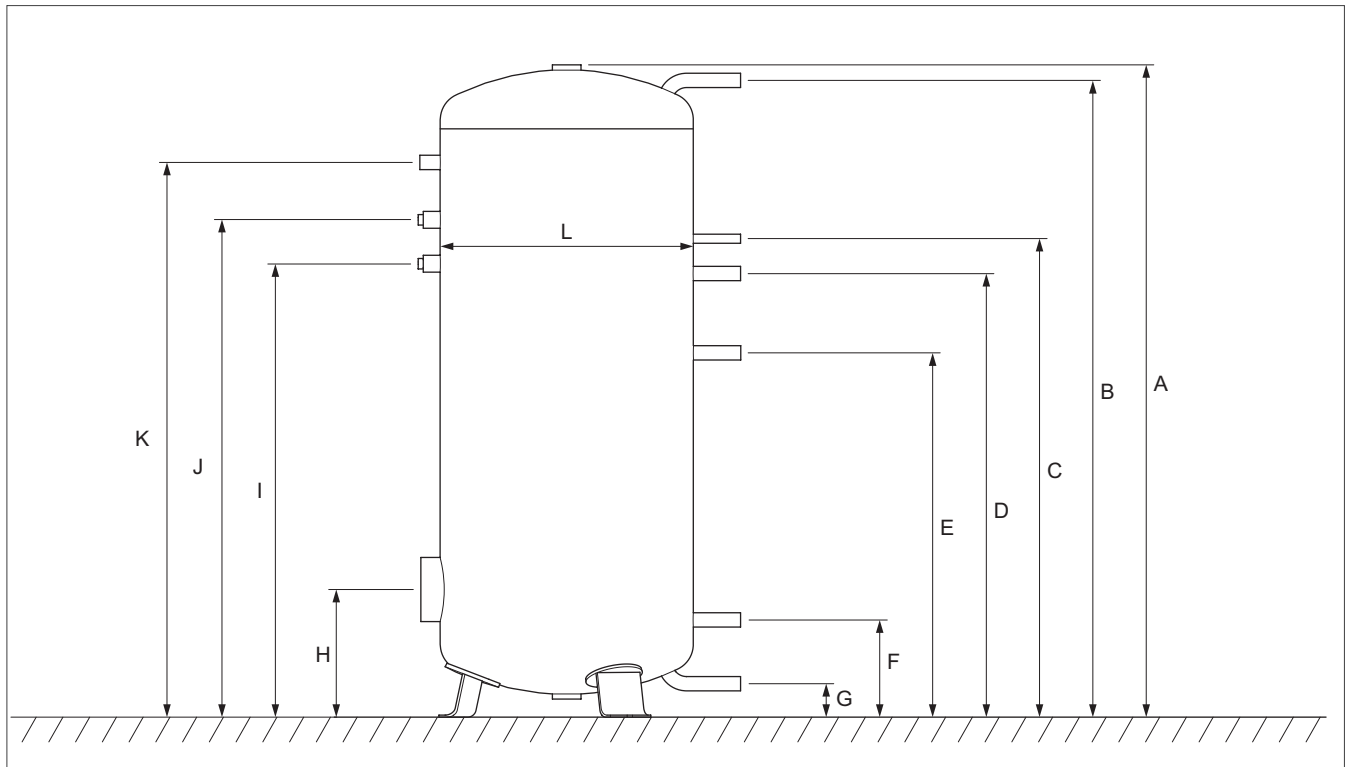


Fig. 332: Domestic hot water cylinder connection dimensions

Dimension	Unit	Tolerance	VIH R 750/2	VIH R 1000/2	VIH R 1500/2	VIH R 2000/2
A	mm	± 5	1937	1962	2128	2039
B	mm	± 5	1890	1905	2049	1933
C	mm	± 5	1422	1494	1660	1670
D	mm	± 5	1319	1327	1543	1568
E	mm	± 5	1084	1092	1140	1175
F	mm	± 5	293	301	333	358
G	mm	± 5	105	106	105	118
H	mm	± 5	383	391	412	443
I	mm	± 5	1348	1386	-	-
J	mm	± 5	1476	1516	-	-
K	mm	± 5	1648	1676	1782	1648
L	mm	± 5	750 diameter	850 diameter	1000 diameter	1200 diameter

Continuous output diagram - uniSTOR VIH R 750/2

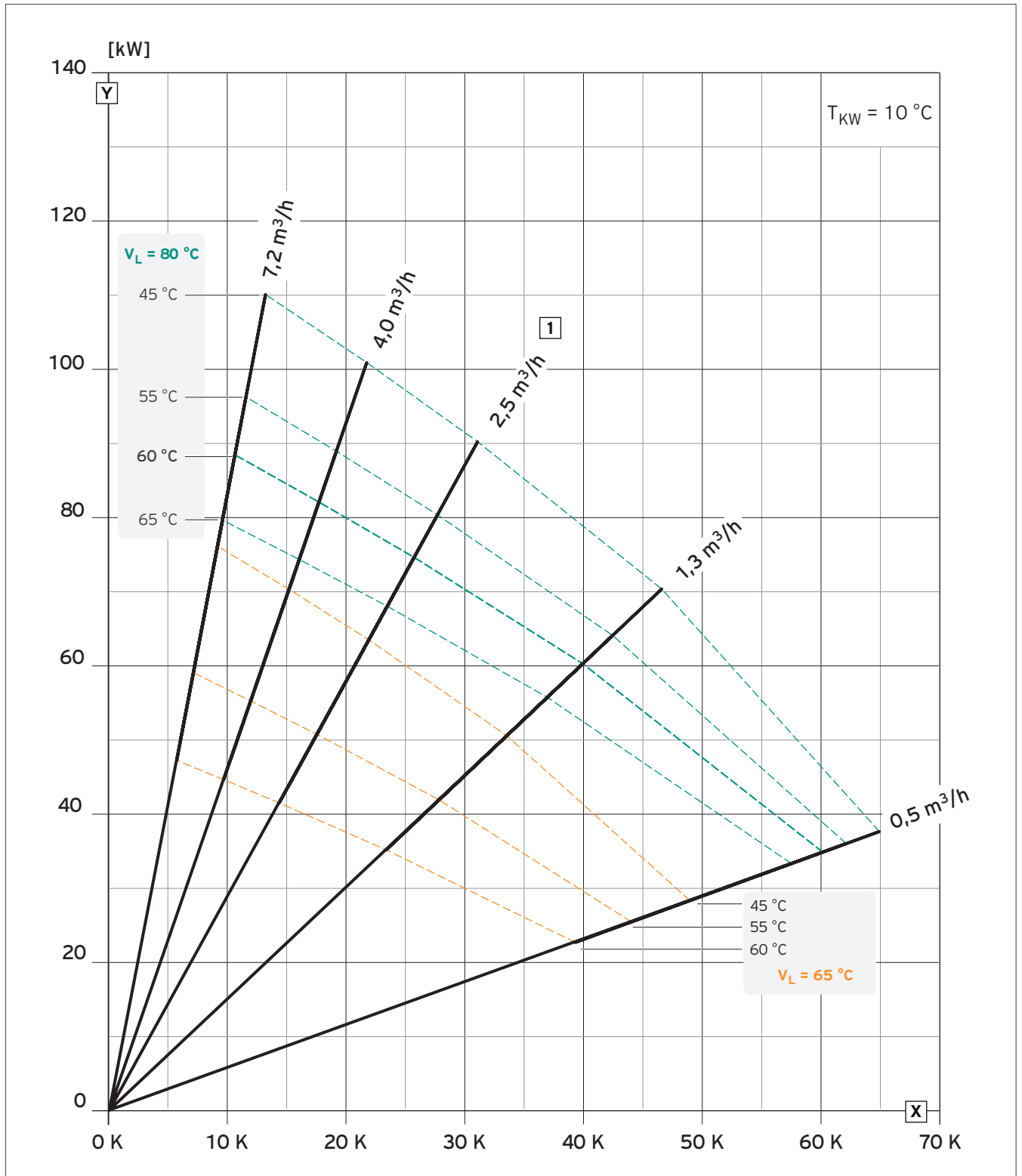


Fig. 333: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 750/2

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

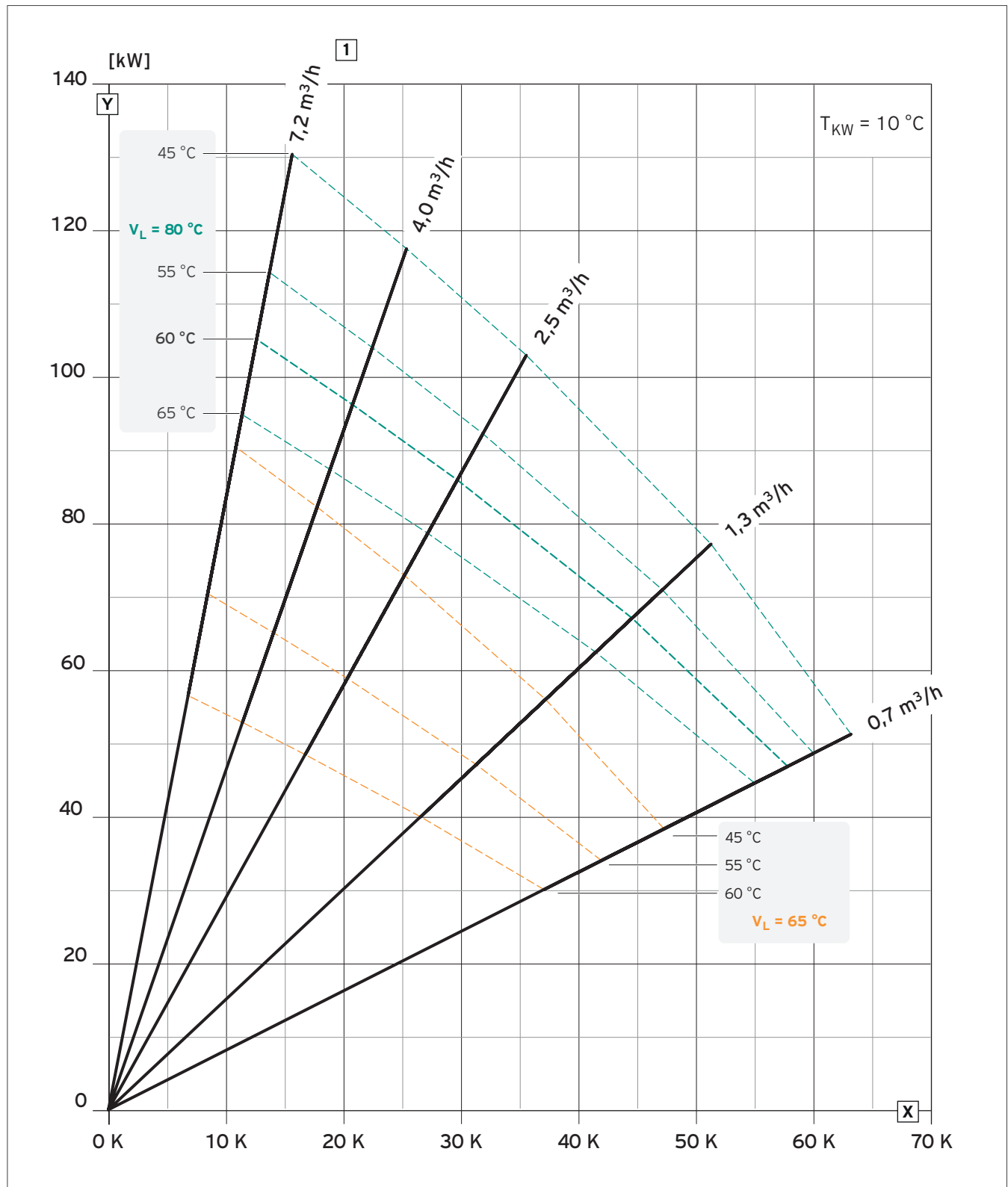


Fig. 334: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 1000/2

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

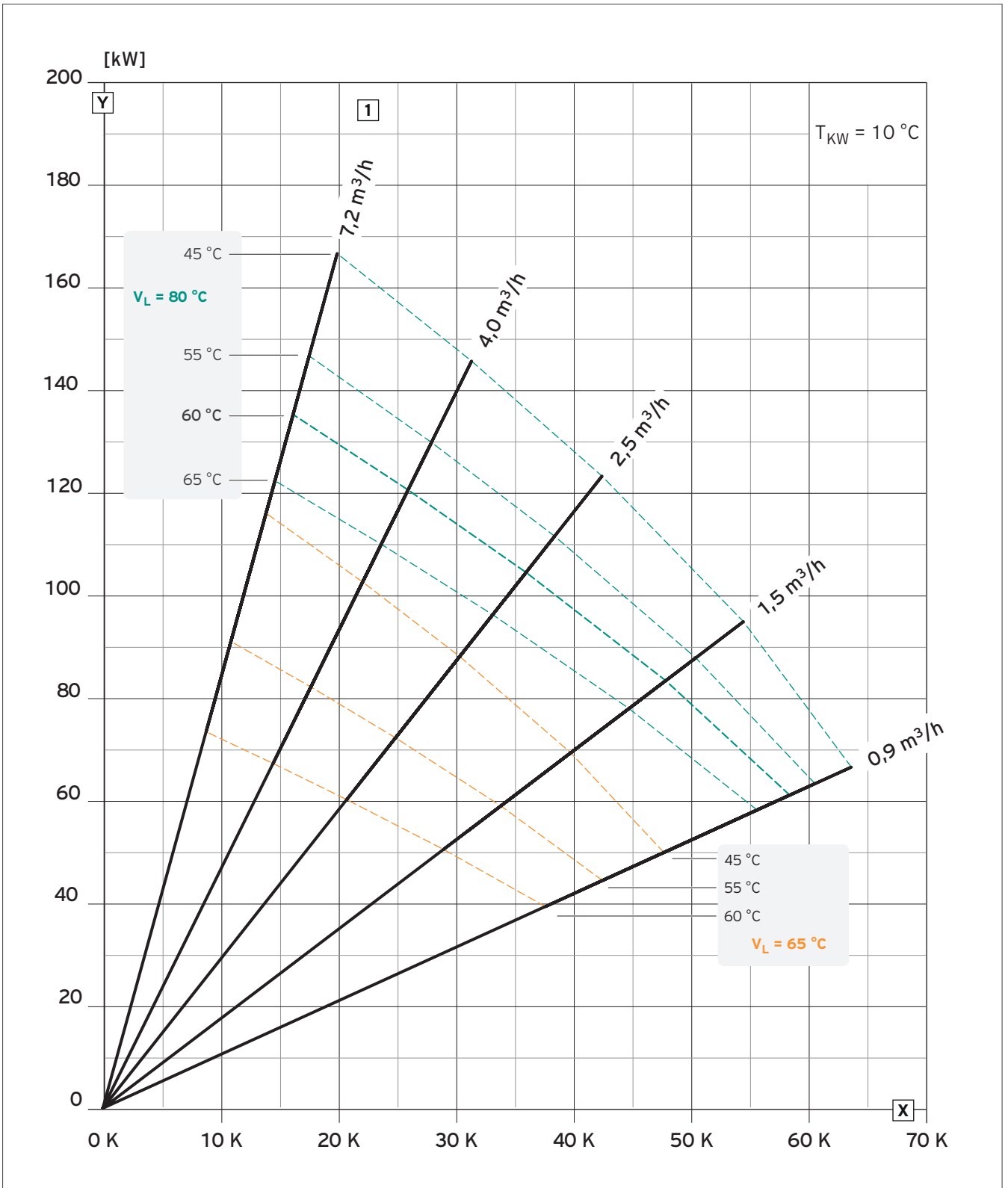


Fig. 335: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 1500/2

- X  $\Delta t$  heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h

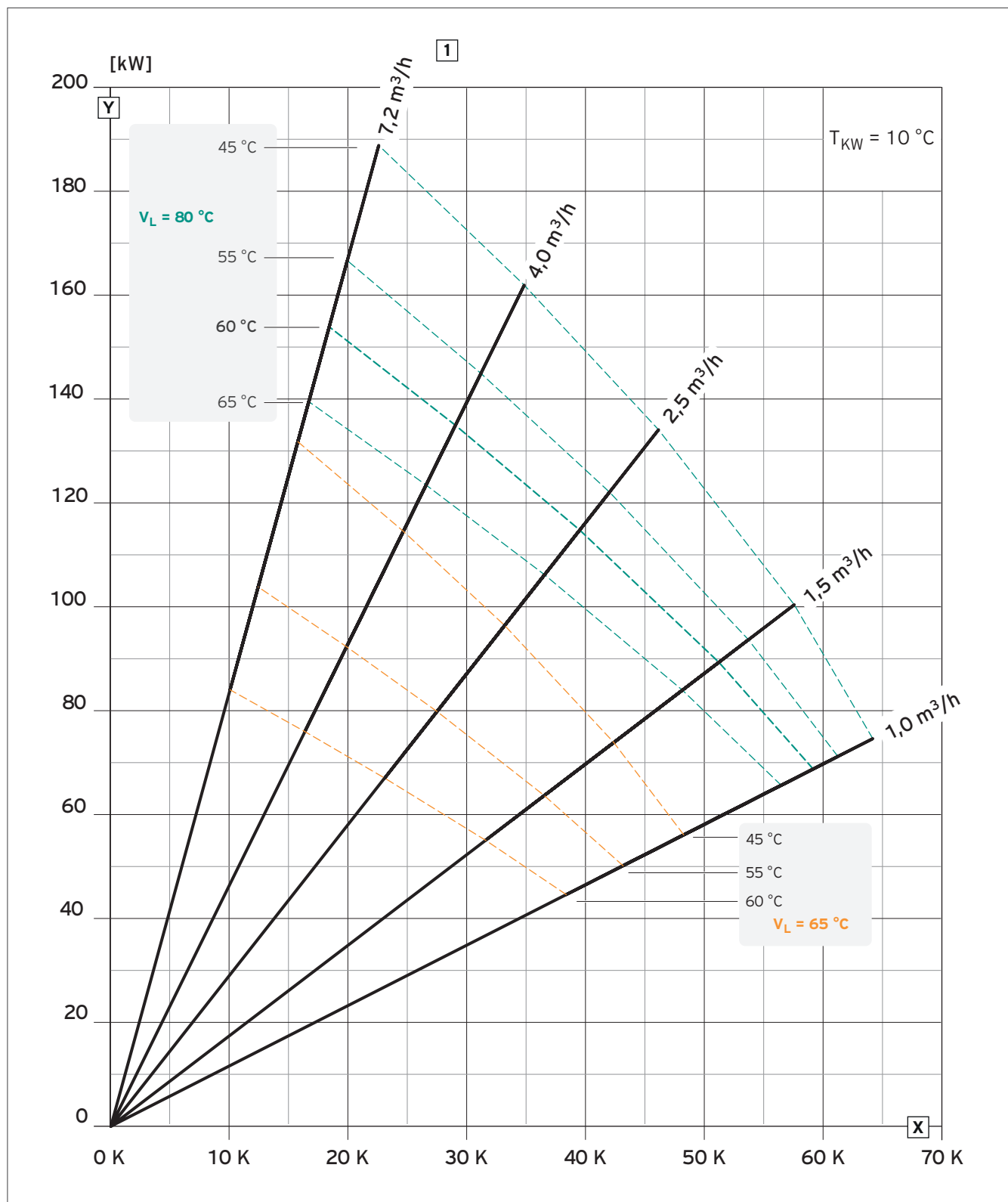


Fig. 336: Continuous output diagram for cylinder dimensioning - uniSTOR VIH R 2000/2

- X Δt heating medium flow in K
- Y Continuous output in kW
- 1 Heating medium flow in l/h



Update 07

New accessories for uniSTOR VIH R

Accessories - immersion heater for uniSTOR plus

Figure	Description	Can be used for:								Article number
		VIH R 750/2	VIH R 1000/2	VIH R 1500/2	VIH R 2000/2	VIH RW 750/2	VIH RW 1000/2	VIH RW 1500/2	VIH RW 2000/2	
	<p><b>Immersion heater - 7.5 kW heat output</b></p> <ul style="list-style-type: none"> <li>- 7.5 kW / 3N ~ 400 V</li> <li>- 1 1/2" screw-in thread</li> <li>- Safety cut-out secured</li> </ul>	-	-	-	-	•	•	-	-	0010040068
	<p><b>Immersion heater - 16 kW heat output</b></p> <ul style="list-style-type: none"> <li>- 16 kW / 3N ~ 400 V</li> <li>- Three output levels (8, 11 or 16 kW)</li> <li>- DN 180 flange connection</li> <li>- Safety cut-out secured</li> </ul>	•	•	•	•	-	•	•	•	0010040069
	<p><b>Immersion heater - 19 kW heat output</b></p> <ul style="list-style-type: none"> <li>- 19 kW / 3N ~ 400 V</li> <li>- Three output levels (9, 12.7 or 19 kW)</li> <li>- DN 180 flange connection</li> <li>- Safety cut-out secured</li> </ul>	-	•	•	•	-	•	•	•	0010040070
	<p><b>Immersion heater - 25 kW heat output</b></p> <ul style="list-style-type: none"> <li>- 25 kW / 3N ~ 400 V</li> <li>- Three output levels (12.5, 18.8 or 25 kW)</li> <li>- DN 180 flange connection</li> <li>- Safety cut-out secured</li> </ul>	-	•	•	•	-	•	•	•	0010040071
	<p><b>Immersion heater - 35 kW heat output</b></p> <ul style="list-style-type: none"> <li>- 35 kW / 3N ~ 400 V</li> <li>- Three output levels (17.5, 24.6 or 35 kW)</li> <li>- DN 180 flange connection</li> <li>- Safety cut-out secured</li> </ul>	-	-	•	•	-	-	-	-	0010040072

## 19.13 Product description for the allSTOR exclusive VPS 300/3-7 to 2000/3-7



Fig. 337: allSTOR VPS 300/3-7 to VPS 2000/3-7

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VPS 300/3-7	B (A+ to F)	303	0010015112
VPS 500/3-7	B (A+ to F)	491	0010015113
VPS 800/3-7	B (A+ to F)	778	0010015114
VPS 1000/3-7	B (A+ to F)	962	0010015115
VPS 1500/3-7	B (A+ to F)	1505	0010015116
VPS 2000/3-7	B (A+ to F)	1917	0010015117

### Special features

- Compact buffer shift-load cylinder for combining various energy sources, such as solar, heat pump, wood, oil, gas or CHP
- Hygienic potable water preparation via the domestic hot water station that is suitable for flange mounting
- Additional solar pump station that is suitable for flange mounting for solar domestic hot water generation and heating support
- Easy to carry to the installation site; the heat insulation has not been prefit
- Split heat insulation (two-part up to 1000 l, three-part 1500 l and 2000 l)

- Optional thermal insulation caps for unused connections
- Tail lift from 500 l with pallet truck

### Possible application

The multi-functional cylinder is supplied via various heat generators and/or a solar charging system. It is used as a buffer cylinder for heating water and provides heat energy to various consumers, such as domestic hot water stations, heating circuits, swimming pools, etc.

### Equipment

- Steel buffer shift-load cylinder
- Baffle plates and control units for optimum stratification
- Highly efficient thermal insulation (140 mm for 300 l-1000 l, 200 mm for 1500 l and 2000 l) made from polyester fibre fleece
- Circulation pump as an accessory
- 8 surface mount sensor straps
- 15 charging and discharging connections for individual cylinder zones
- One sleeve for purging

#### Note

To prevent corrosion and depositions (scale) in the cylinder, you must observe VDI 2035 T1 and T2. This VDI contains, among other things, information about the water hardness level that must be maintained.



#### Note

The connections are designed so that the following maximum volume flows are permitted for allSTOR exclusive and allSTOR plus:

allSTOR VPS 300/3 and VPS 500/3: 8 m<sup>3</sup>/h  
 allSTOR VPS 800/3 and VPS 1000/3: 15 m<sup>3</sup>/h  
 allSTOR VPS 1500/3 and VPS 2000/3: 30 m<sup>3</sup>/h



## Minimum clearances

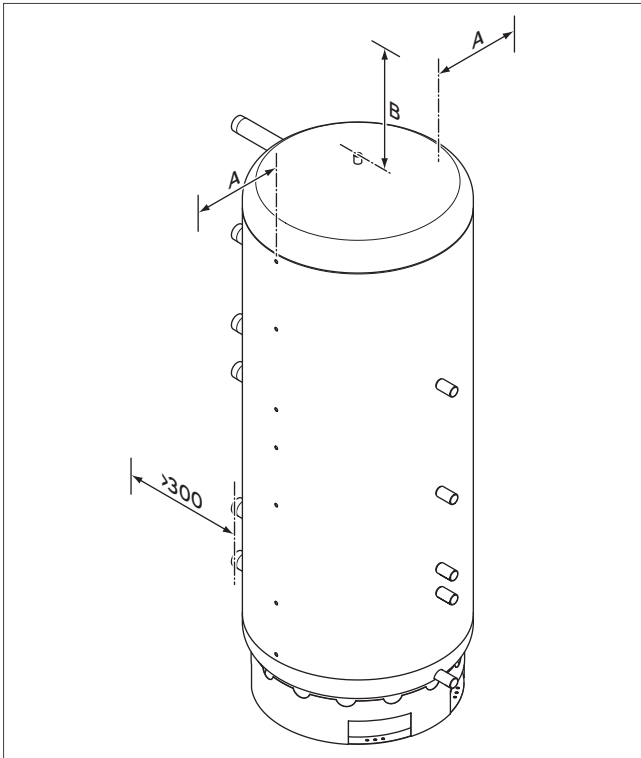


Fig. 338: Required minimum clearances

Type designation	Side clearance A [mm]	Ceiling clearance B [mm]
VPS 300/3	350	350
VPS 500/3	450	
VPS 800/3	500	
VPS 1000/3	500	
VPS 1500/3	600	
VPS 2000/3	650	

Take into consideration the height and position of the pipe-lines when installing the domestic hot water station and solar loading module.

## Technical data

Description	Unit	Tolerance	VPS 300/3	VPS 500/3	VPS 800/3	VPS 1000/3	VPS 1500/3	VPS 2000/3
Cylinder tank capacity	l	± 2	303	491	778	962	1505	1917
Perm. system overpressure (heating side)	MPa (bar)	–	0.3 (3)					
Heating water temperature	°C	–	95					
Cylinder tank outer diameter (without heat insulation)	mm	± 2	500	650	790	790	1000	1100
Cylinder tank outer diameter (with heat insulation)	mm	± 10	780	930	1070	1070	1400	1500
Cylinder tank depth (incl. heat insulation and connections)	mm	± 10	828	978	1118	1118	1448	1548
Cylinder tank height (incl. purging valve and positioning ring)	mm	± 10	1735	1715	1846	2226	2205	2330
Buffer cylinder height (incl. heat insulation)	mm	± 10	1833	1813	1944	2324	2362	2485
Cylinder tank weight (empty)	kg	± 10	70	90	130	145	210	240
Cylinder tank weight (full)	kg	± 10	373	581	908	1107	1715	2157
Tilt measurement	mm	± 20	1734	1730	1870	2243	2253	2394
Standby energy consumption	kWh/24 hrs	–	< 1.7	< 2.0	< 2.4	< 2.5	< 2.9	< 3.3

## Product dimensions and connection dimensions

### Dimension drawing

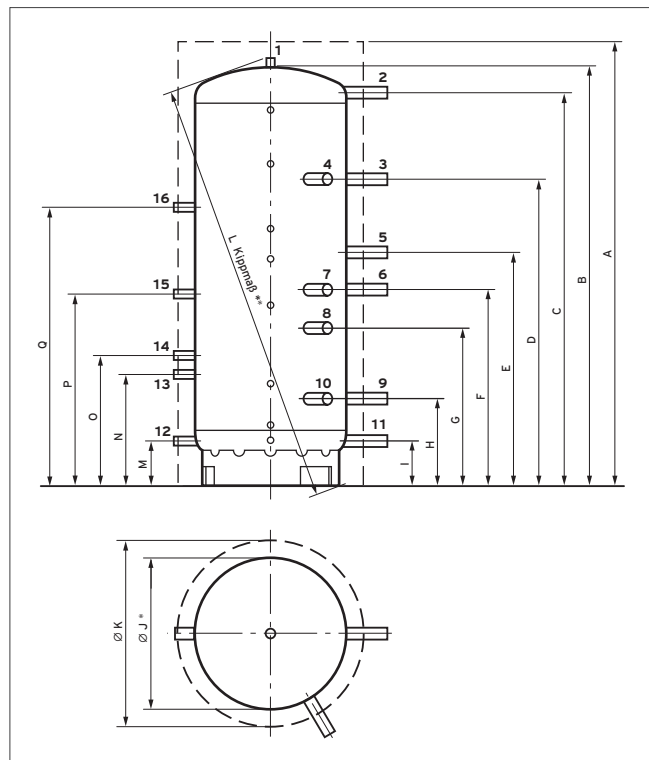


Fig. 339: Dimension drawing

- 01 Opening for purging valve
- 02 Heating water flow for domestic hot water station in the case of wall-mounting/flow or return for cascade
- 03 Boiler flow for hot water demand
- 04 Boiler flow for hot water demand
- 05 Boiler return for hot water demand
- 06 Boiler flow for heating water demand/heating circuit flow
- 07 Boiler flow for heating water demand/heating circuit flow
- 08 Boiler return for hot water demand
- 09 Boiler return for domestic hot water demand/heating circuit return
- 10 Boiler return for heating water demand/heating circuit return
- 11 Heating water return for domestic hot water station in the case of wall-mounting/flow or return for cascade
- 12 Heating water return for the solar charging system (VPS/3-E only)
- 13 Heating water flow for the solar charging system for low temperatures (VPS/3-E only)
- 14 Heating water flow for the solar charging system for high temperatures (VPS/3-E only)
- 15 Heating water return for the domestic hot water station (VPS/3-E only)
- 16 Heating water flow for the domestic hot water station (VPS/3-E only)

Unit type	A	B	C	D	E	F	G	H	I	J diameter	K diameter	L	M	N	O	P	Q
VPS 300/3	1833	1720	1617	1210	920	744	574	365	130	500	780	1734	130	480	580	900	1350
VPS 500/3	1813	1700	1570	1230	930	750	579	394	190	650	930	1730	190	540	640	960	1410
VPS 800/3	1944	1832	1670	1330	1020	820	636	421	231	790	1070	1870	231	581	681	1001	1451
VPS 1000/3	2324	2215	2051	1598	1220	1020	822	451	231	790	1070	2243	231	581	681	1001	1451
VPS 1500/3	2362	2190	1973	1573	1227	1000	797	521	291	1000	1400	2253	291	641	741	1061	1511
VPS 2000/3	2485	2313	2080	1656	1201	1008	803	551	298	1100	1500	2394	298	648	748	1068	1518

Dimensions in mm, all dimensions  $\pm 10$  mm, \*  $\pm 2$  mm, \*\*  $\pm 20$  mm

## Connection sizes

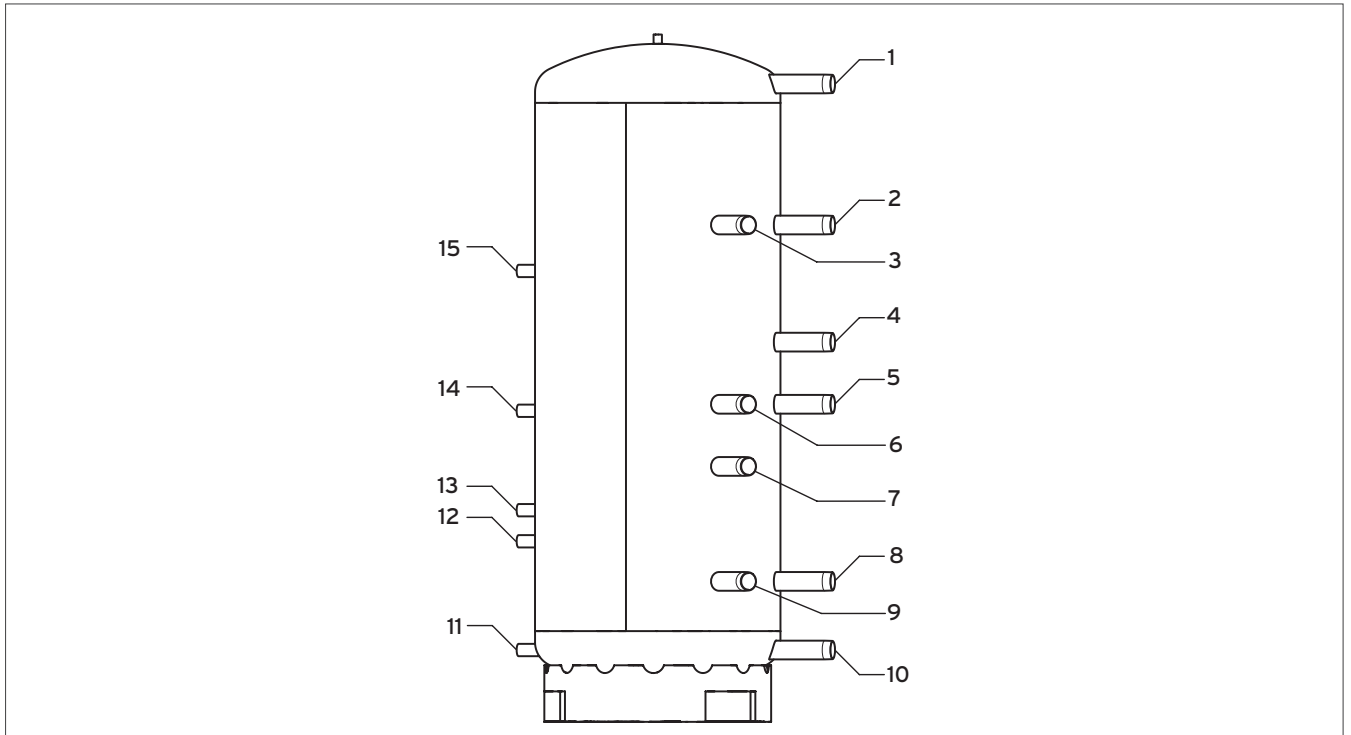


Fig. 340: Buffer cylinder connections

	Domestic hot water station	Solar loading module	Rear connections
	Item no. 14, 15	Item no. 11, 12, 13	Item no. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
VPS 300/3			R 1 1/2
VPS 500/3			R 2
VPS 800/3	DN 25 G 1 IG	DN 25 G 1 IG	R 2 1/2
VPS 1000/3			
VPS 1500/3			
VPS 2000/3			

## 19.14 Product description for the allSTOR plus VPS 300/3-5 up to 2000/3-5 (3 bar system pressure)



Fig. 341: allSTOR VPS 300/3-5 to VPS 2000/3-5

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VPS 300/3-5	B (A+ to F)	303	0010015118
VPS 500/3-5	B (A+ to F)	491	0010015119
VPS 800/3-5	B (A+ to F)	778	0010015120
VPS 1000/3-5	B (A+ to F)	962	0010015121
VPS 1500/3-5	B (A+ to F)	1505	0010015122
VPS 2000/3-5	B (A+ to F)	1917	0010015123

### Special features

- Compact buffer shift-load cylinder for combining various energy sources, such as solar, heat pump, wood, oil, gas or CHP
- Cascading up to 6000 l is possible
- Easy to carry to the installation site; the heat insulation has not been prefit
- Split heat insulation (two-part up to 1000 l, three-part 1500 l and 2000 l)
- Optional thermal insulation caps for unused connections

### Possible application

The multi-functional cylinder is supplied via various heat generators and/or a solar loading module. It is used as a buffer cylinder for heating water and provides heat energy to various consumers, such as domestic hot water stations, heating circuits, swimming pools, etc. It can be used at a system pressure up to 3 bar.

### Equipment

- Steel buffer shift-load cylinder
- Flow damper for optimum stratification
- Highly efficient thermal insulation (140 mm for 300 l-1000 l, 200 mm for 1500 l and 2000 l) made from polyester fibre fleece
- Circulation pump as an accessory
- 8 surface mount sensor straps
- 10 charging and discharging connections for individual cylinder zones
- One sleeve for purging

#### Note

To prevent corrosion and depositions (scale) in the cylinder, you must observe VDI 2035 T1 and T2. This VDI contains, among other things, information about the water hardness level that must be maintained.



#### Note

The connections are designed so that the following **maximum volume flows** are permitted for allSTOR exclusive and allSTOR plus:

- allSTOR VPS 300/3 and VPS 500/3: 8 m<sup>3</sup>/h
- allSTOR VPS 800/3 and VPS 1000/3: 15 m<sup>3</sup>/h
- allSTOR VPS 1500/3 and VPS 2000/3: 30 m<sup>3</sup>/h



## Minimum clearances

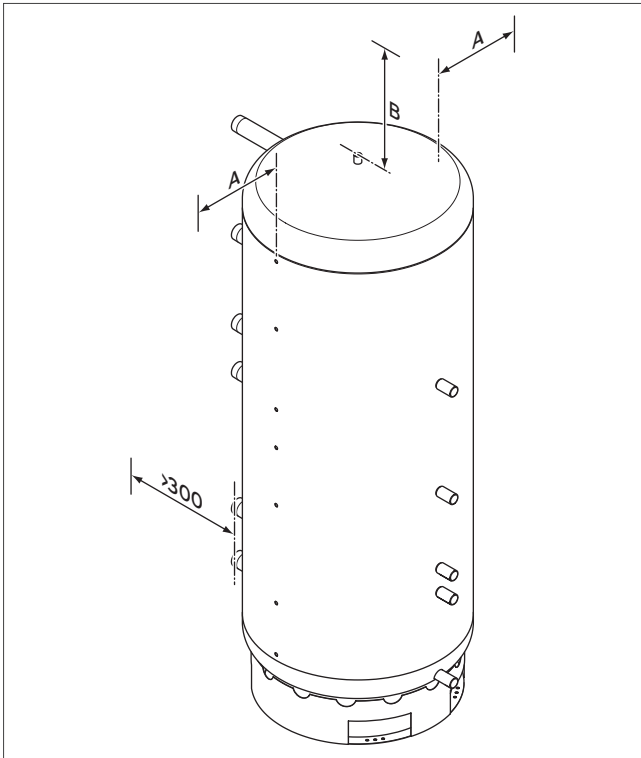


Fig. 342: Required minimum clearances

Type designation	Side clearance A [mm]	Ceiling clearance B [mm]
VPS 300/3	350	350
VPS 500/3	450	
VPS 800/3	500	
VPS 1000/3	500	
VPS 1500/3	600	
VPS 2000/3	650	

## Technical data

Description	Unit	Tolerance	VPS 300/3	VPS 500/3	VPS 800/3	VPS 1000/3	VPS 1500/3	VPS 2000/3
Cylinder tank capacity	l	± 2	303	491	778	962	1505	1917
Perm. system overpressure (heating side)	MPa (bar)	–	0.3 (3)					
Heating water temperature	°C	–	95					
Cylinder tank outer diameter (without heat insulation)	mm	± 2	500	650	790	790	1000	1100
Cylinder tank outer diameter (with heat insulation)	mm	± 10	780	930	1070	1070	1400	1500
Cylinder tank depth (incl. heat insulation and connections)	mm	± 10	828	978	1118	1118	1448	1548
Cylinder tank height (incl. purging valve and positioning ring)	mm	± 10	1735	1715	1846	2226	2205	2330
Buffer cylinder height (incl. heat insulation)	mm	± 10	1833	1813	1944	2324	2362	2485
Cylinder tank weight (empty)	kg	± 10	70	90	130	145	210	240
Cylinder tank weight (full)	kg	± 10	373	581	908	1107	1715	2157
Tilt measurement	mm	± 20	1734	1730	1870	2243	2253	2394
Standby energy consumption	kWh/24 hrs	–	< 1.7	< 2.0	< 2.4	< 2.5	< 2.9	< 3.3

## Product dimensions and connection dimensions

### Dimension drawing

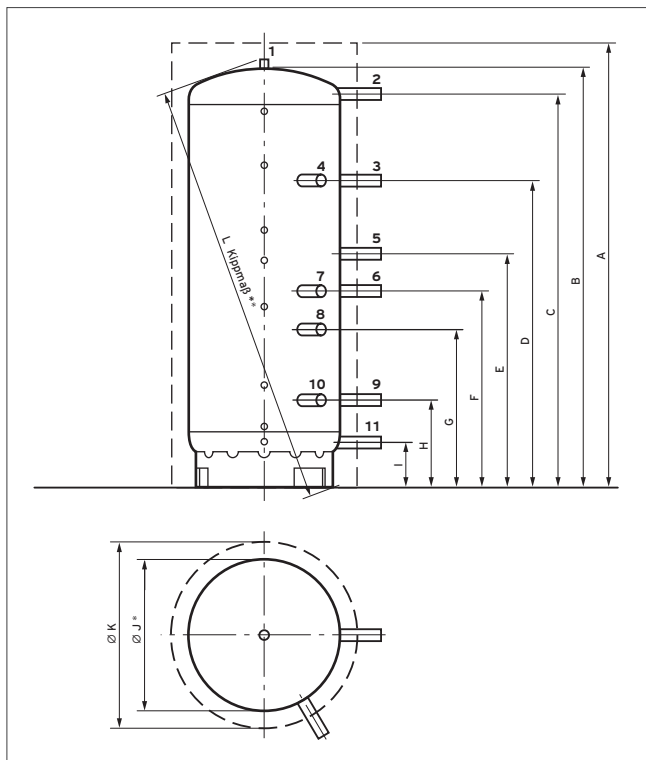


Fig. 343: Dimension drawing

- 01 Opening for purging valve
- 02 Heating water flow for domestic hot water station in the case of wall-mounting/flow or return for cascade
- 03 Boiler flow for hot water demand
- 04 Boiler flow for hot water demand
- 05 Boiler return for hot water demand
- 06 Boiler flow for heating water demand/heating circuit flow
- 07 Boiler flow for heating water demand/heating circuit flow
- 08 Boiler return for hot water demand
- 09 Boiler return for domestic hot water demand/heating circuit return
- 10 Boiler return for heating water demand/heating circuit return
- 11 Heating water return for domestic hot water station in the case of wall-mounting/flow or return for cascade

Unit type	A	B	C	D	E	F	G	H	I	J diameter	K diameter	L
VPS 300/3	1833	1720	1617	1210	920	744	574	365	130	500	780	1734
VPS 500/3	1813	1700	1570	1230	930	750	579	394	190	650	930	1730
VPS 800/3	1944	1832	1670	1330	1020	820	636	421	231	790	1070	1870
VPS 1000/3	2324	2215	2051	1598	1220	1020	822	451	231	790	1070	2243
VPS 1500/3	2362	2190	1973	1573	1227	1000	797	521	291	1000	1400	2253
VPS 2000/3	2485	2313	2080	1656	1201	1008	803	551	298	1100	1500	2394

Dimensions in mm, all dimensions  $\pm 10$  mm, \*  $\pm 2$  mm, \*\*  $\pm 20$  mm



## Connection sizes

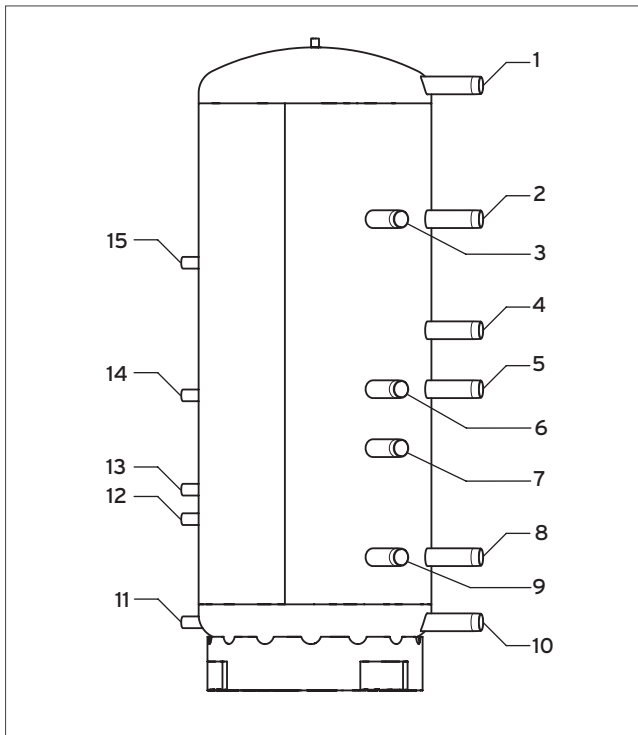


Fig. 344: Buffer cylinder connections

	Domestic hot water station	Solar loading module	Rear connections
	Item no. 14, 15	Item no. 11, 12, 13	Item no. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
VPS 300/3			R 1 1/2
VPS 500/3			R 2
VPS 800/3	DN 25 G 1 IG	DN 25 G 1 IG	R 2 1/2
VPS 1000/3			
VPS 1500/3			
VPS 2000/3			

Update 07  
New product allSTOR plus 6 bar

## 19.15 Product description for the allSTOR plus VPS 800/4-5 up to 2000/4-5 (6 bar system pressure)



Fig. 345: allSTOR VPS 800/4-5 to VPS 2000/4-5

Unit designation	ErP label (range)	Cylinder capacity in l	Order no.
VPS 800/4-5	B (A+ to F)	778	0010039300
VPS 1000/4-5	B (A+ to F)	962	0010039301
VPS 1500/4-5	B (A+ to F)	1505	0010039302
VPS 2000/4-5	B (A+ to F)	1917	0010039303

### Special features

- Compact buffer shift-load cylinder for combining various energy sources, such as solar, heat pump, wood, oil, gas or CHP
- Cascading up to 6000 l is possible
- Easy to carry to the installation site; the heat insulation has not been prefit
- Split heat insulation (two-part up to 1000 l, three-part 1500 l and 2000 l)
- Optional thermal insulation caps for unused connections

### Possible application

The multi-functional cylinder is supplied via various heat generators and/or a solar loading module. It is used as a buffer cylinder for heating water and provides heat energy to various consumers, such as domestic hot water stations, heating circuits, swimming pools, etc. It can be used at a system pressure up to 6 bar.

### Equipment

- Steel buffer shift-load cylinder
- Flow damper for optimum stratification
- Highly efficient heat insulation (140 mm for 800 l + 1000 l, 200 mm for 1500 l and 2000 l) made from polyester fibre fleece
- Circulation pump as an accessory
- 8 surface mount sensor straps
- 10 charging and discharging connections for individual cylinder zones
- One sleeve for purging

### Note

To prevent corrosion and depositions (scale) in the cylinder, you must observe VDI 2035 T1 and T2. This VDI contains, among other things, information about the water hardness level that must be maintained.



### Product description

The product intermediately stores the heating water from one or more heat generators in a heating system. A domestic hot water station for generating domestic hot water can also be connected.

Update 07  
 New product allSTOR plus 6 bar  
 Product design

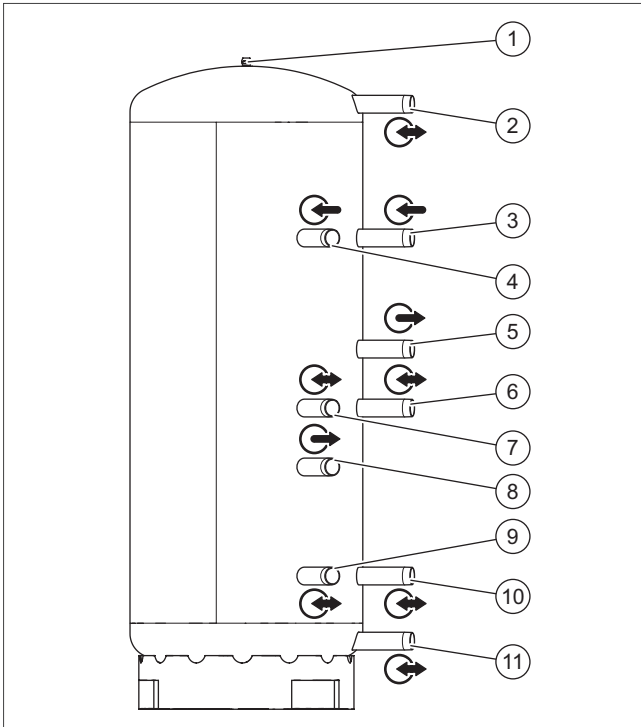


Fig. 346: Product design

- 1 Opening for purging valve
- 2 Heating water flow for domestic hot water station
- 3 Boiler flow for domestic hot water demand
- 4 Boiler flow for domestic hot water demand
- 5 Boiler return for domestic hot water demand
- 6 Boiler flow for heating water demand/heating circuit flow
- 7 Boiler flow for heating water demand/heating circuit flow
- 8 Boiler return for heating water demand
- 9 Boiler return for domestic hot water demand/heating circuit return
- 10 Boiler return for heating water demand/heating circuit return
- 11 Heating water return for domestic hot water station

Positions of the sensor straps

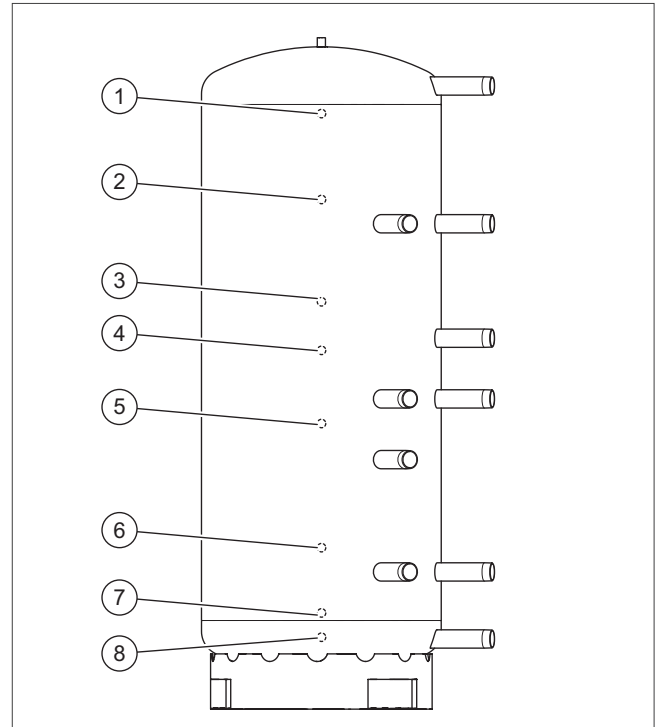


Fig. 347: Buffer cylinder sensor straps

1-8 Sensor straps 1-8

Minimum clearances

Type designation	Clearance [mm]		
	To the sides	To the rear	Upwards
VPS 800/4-5	500	300	350
VPS 1000/4-5	500		
VPS 1500/4-5	600		
VPS 2000/4-5	650		

Update 07  
New product allSTOR plus 6 bar

Technical data

	VPS 800/4-5	VPS 1000/4-5	VPS 1500/4-5	VPS 2000/4-5
Nominal capacity	773 l	961 l	1,496 l	1,907 l
Outer diameter of the cylinder (without heat insulation)	790 mm	790 mm	1,000 mm	1,100 mm
Outer diameter of the cylinder (with heat insulation)	1,070 mm	1,070 mm	1,400 mm	1,500 mm
Height (incl. purging valve)	1,846 mm	2,226 mm	2,205 mm	2,330 mm
Height (incl. purging valve + heat insulation)	1,944 mm	2,324 mm	2,362 mm	2,485 mm
Net weight	117 kg	132 kg	207 kg	242 kg
Total weight	890 kg	1,093 kg	1,703 kg	2,149 kg
Connections	R 2"	R 2"	R 2 1/2"	R 2 1/2"
Material of the cylinder and the connections	Steel	Steel	Steel	Steel
Operating pressure	0.1 to 0.6 MPa	0.1 to 0.6 MPa	0.1 to 0.6 MPa	0.1 to 0.6 MPa
Maximum operating temperature	95 °C	95 °C	95 °C	95 °C
Standby energy consumption	< 2.4 kWh/24 h	< 2.5 kWh/24 h	< 2.9 kWh/24 h	< 3.3 kWh/24 h

Connection dimensions

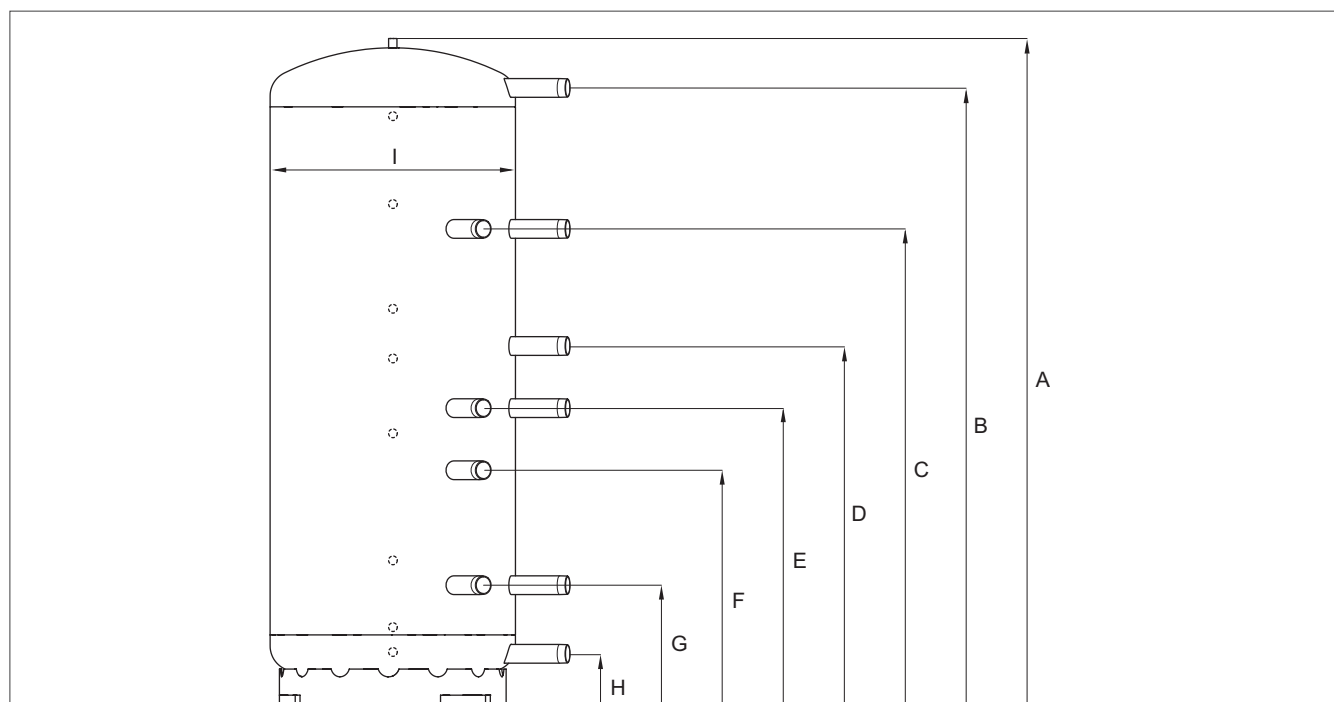


Fig. 348: Buffer cylinder connection dimensions

Dimension	Unit	Tolerance	VPS 800/4-5	VPS 1000/4-5	VPS 1500/4-5	VPS 2000/4-5
A	mm	± 10	1832	2212	2190	2313
B	mm	± 10	1670	2051	1973	2080
C	mm	± 10	1330	1598	1573	1656
D	mm	± 10	1020	1220	1227	1201
E	mm	± 10	820	1020	1000	1008
F	mm	± 10	636	822	797	803
G	mm	± 10	421	451	521	551
H	mm	± 10	231	231	291	298
I	mm	± 2	790 diameter	790 diameter	1000 diameter	1100 diameter

Update 07  
New product allSTOR plus 6 bar  
Tilt dimension

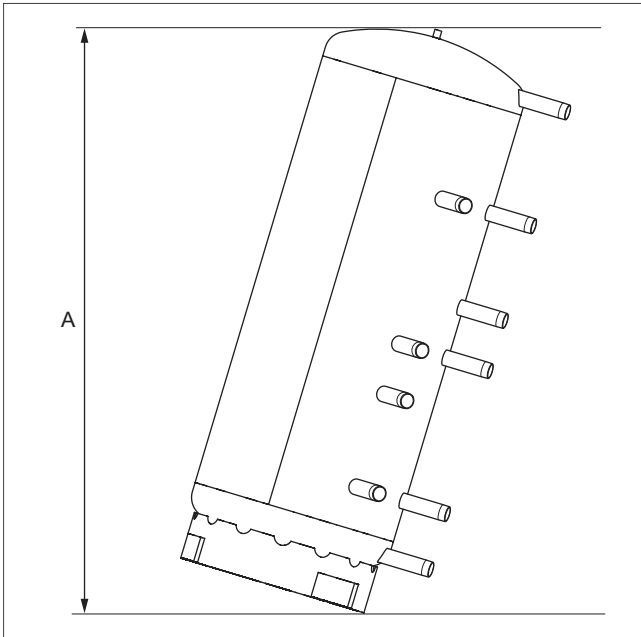


Fig. 349: Buffer cylinder tilt dimension

A Tilt dimension

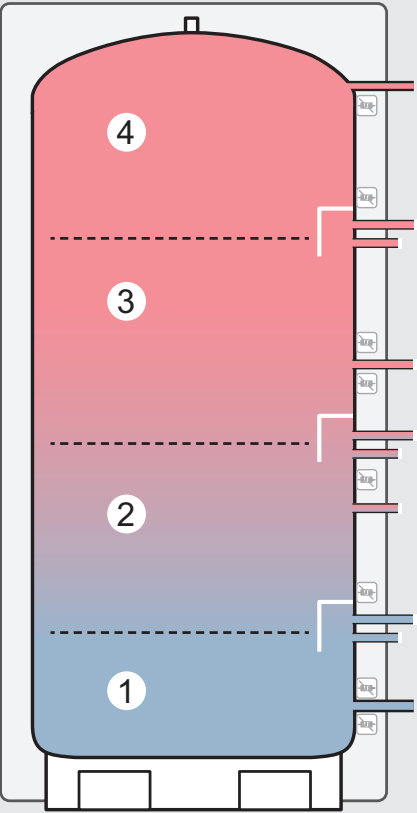
When planning the installation site, adhere to the dimensions below.

Type designation	Tilt dimension A [mm]
VPS 800/4-5	1890
VPS 1000/4-5	2263
VPS 1500/4-5	2273
VPS 2000/4-5	2414

Update 07  
 New product allSTOR plus 6 bar

Temperature zones and water volume

The following overview shows the water volume in the individual zones of the buffer cylinder. You can use this information to estimate whether the water volume is sufficient for the planned heating circuits and the domestic hot water generation or whether a second buffer cylinder must be planned.

Zone	Proportion of the zone [%]	Water volume per zone [l]			
		VPS 800/4-5	VPS 1000/4-5	VPS 1500/4-5	VPS 2000/4-5
	Approx. 30 %	204.06	257.40	400.87	516.16
	Approx. 30 %	248.06	281.53	448.61	612.09
	Approx. 25 %	194.75	277.16	375.52	432.64
	Approx. 15 %	129.39	144.43	271.31	344.23
<b>Total:</b>	<b>100%</b>	<b>776.26</b>	<b>960.52</b>	<b>1496.31</b>	<b>1905,12</b>

This results in the following maximum total output for the heating circuits:

- VPS 800: 15 m<sup>3</sup>/h
- VPS 1000: 15 m<sup>3</sup>/h
- VPS 1500: 30 m<sup>3</sup>/h
- VPS 2000: 30 m<sup>3</sup>/h

### 19.15.1 Product description for the aquaFLOW exclusive VPM 20/25/2 W to VPM 40/45/2 W domestic hot water station



Fig. 350: aquaFLOW exclusive domestic hot water station

Unit designation	Order no.
VPM 20/25/2 W	0010014311
VPM 30/35/2 W	0010014312
VPM 40/45/2 W	0010014313

#### Special features

- Hygienic potable water heating using the flow-through principle
- Can be installed directly on the allSTOR exclusive VPS/3 multi-functional cylinder using Plug & Play or can be wall-mounted
- Wall installation also possible using a wall console
- Various potential applications in combination with the Vaillant buffer cylinders
- It is also possible to operate it without an additional control
- Optional anti-legionella function to thermally disinfect domestic hot water and circulation pipe networks in the event of set specifications (time, disinfection temperature and duration) via a suitable system control
- A cascade solution of up to four aquaFLOW exclusive units is possible

#### Potential applications

The domestic hot water station is used to heat potable water to the exact desired temperature.

Potable water is guided via a plate heat exchanger using the flow-through principle. The DHW draw-off point is detected via an integrated volume flow sensor. The minimum draw-off quantity is:

- VPM 20/25/2 W: 2 l/min,
- VPM 30/35/2 W: 2 l/min and for
- VPM 40/45/2 W: 3.5 l/min.

#### Equipment

- Stainless steel plate heat exchanger
- Specially formed plate structure for preventing scale depositions
- EPP shell thermal insulation
- Integrated volume flow sensor
- High-efficiency pump
- eBUS interface
- Circulation pump as an accessory
- Wall consoles (also for cascade; order no. 0010014300 and/or 0010014301 and/or 0010013303)
- Unit mounting bracket for a station (order no. 0010018543)

#### Note

To prevent corrosion and depositions (scale) in the station's heat exchanger, you must observe VDI 2035 T1 and T2. This VDI contains, among other things, information about the water hardness level that must be maintained.

Depending on the quality and condition of the potable water, high potable water temperatures may lead to scale depositions on the potable water side of the heat exchanger.

If a max. potable water outlet temperature of 60 °C is set, the potable water hardness may be up to 15 °dH.

From a water hardness of 15 °dH or at a higher selected outlet temperature, we recommend that you use a potable water softener in order to guarantee that the domestic hot water station works correctly and to guarantee the quality of the potable water.

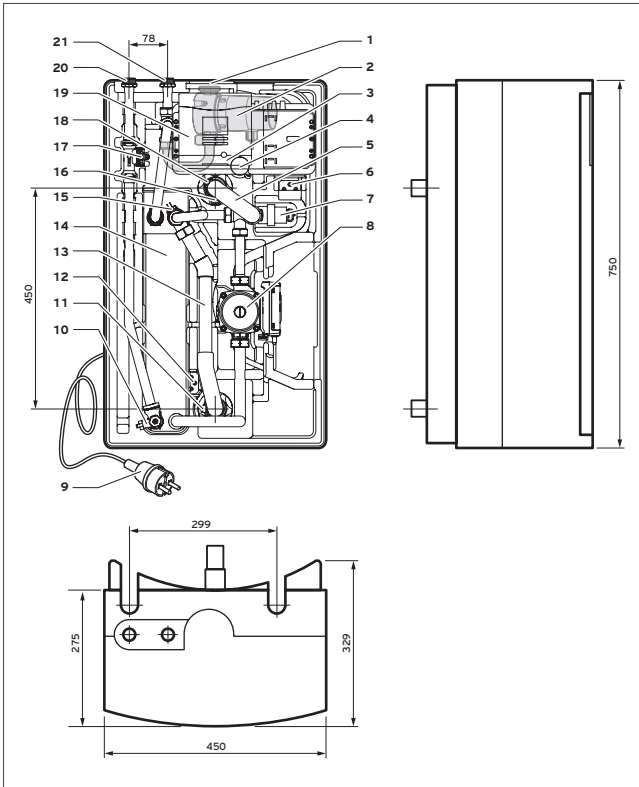


## Technical data

Description	Unit	VPM 20/25/2 W	VPM 30/35/2 W	VPM 40/45/2 W
<b>Hot water output</b>				
For hot water at 60 °C	l/min	20	30	40
Max. output characteristic figure *	–	3	5	9.5
Nominal output	kW	49	73	97
For hot water at 65 °C	l/min	25	35	45
Max. output characteristic figure *	–	4 **	7 ***	11.5
Nominal output	kW	60	85	109
<b>Temperatures</b>				
Temperature range	°C	40 ... 60		
Temperature for anti-legionella programme	°C	70		
<b>Electrical connection</b>				
Rated voltage	V, Hz	230, 50		
Station power consumption	W	25 ... 93		
Circulation pump power consumption	W	25		
<b>Pressure</b>				
Remaining feed head on the heating side	MPa (mbar)	0.15 (150)	0.1 (100)	0.15 (150)
Operating pressure on the heating side	MPa (bar)	0.3 (3)		
Operating pressure on the water side	MPa (bar)	1 (10)		
<b>Dimensions</b>				
Height	mm	750		
Width	mm	450		
Depth if installed on the buffer cylinder	mm	275		
Weight	kg	16	16	19
<b>Hydraulic connection</b>				
Cold water, circulation, hot water		DN 20, G 3/4, flat-sealing		
Hot water flow and return		DN 25, G 1, PTFE seal		
* Measured in accordance with DIN 4708-3: At a hot water temperature of 45 °C, a cold water temperature of 10 °C and a cylinder temperature of 65 °C. The data for systems with heat pumps and pellet boilers can be found in the corresponding planning information.				



## Dimension drawing



- 01 Circulation pump connection (optional)
- 02 Circulation pump
- 03 Panel
- 04 Cable duct
- 05 Buffer circuit flow
- 06 Bracket for safety screw
- 07 Mixer
- 08 Buffer circuit circulation pump
- 09 Mains plug
- 10 Hot water temperature sensor
- 11 Stop valve return
- 12 Bracket for safety screw
- 13 Buffer circuit return
- 14 Plate heat exchanger
- 15 Buffer circuit return temperature sensor
- 16 Stop valve flow
- 17 Flow rate sensor
- 18 Buffer circuit flow temperature sensor
- 19 Controller
- 20 Hot water connection
- 21 Cold water connection

Fig. 351: Dimension drawing

## Pressure loss

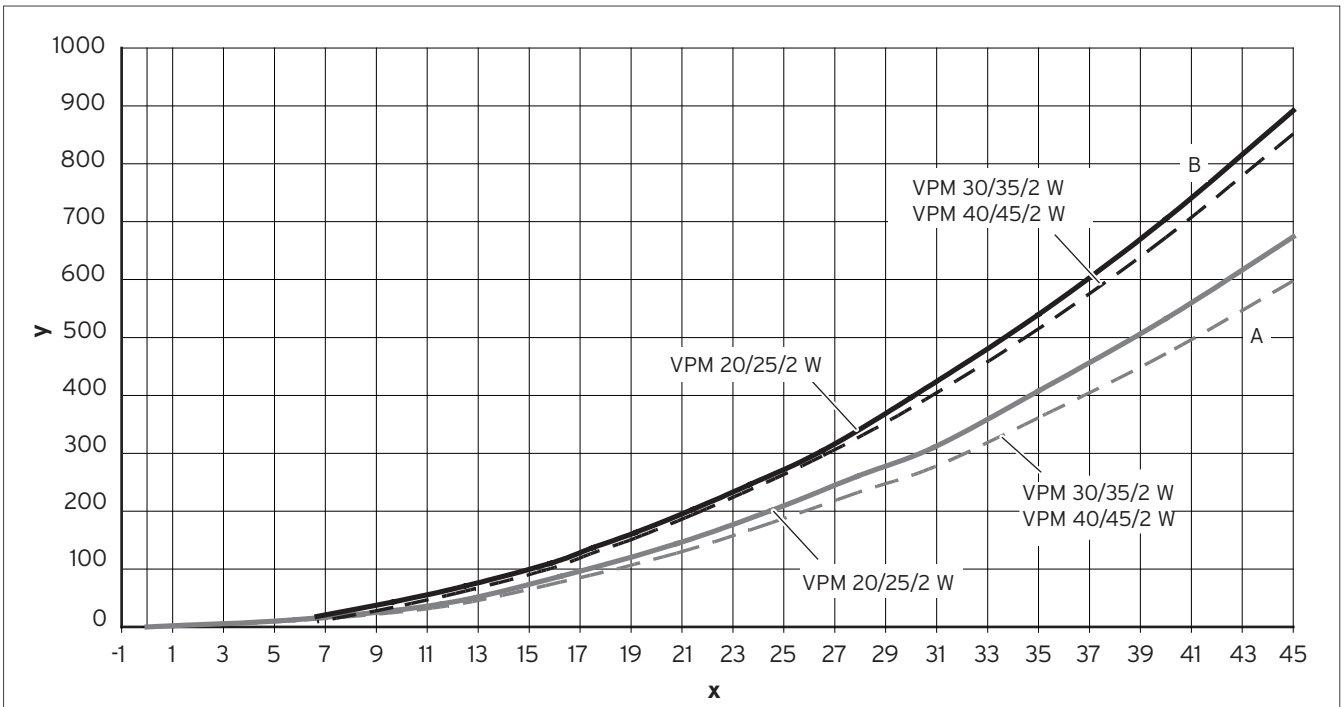


Fig. 352: VPM W pressure loss

x Flow rate [l/min]  
y Pressure loss [mbar]

A Drinking water  
B Heating

### VPM 20/25/2 W power levels

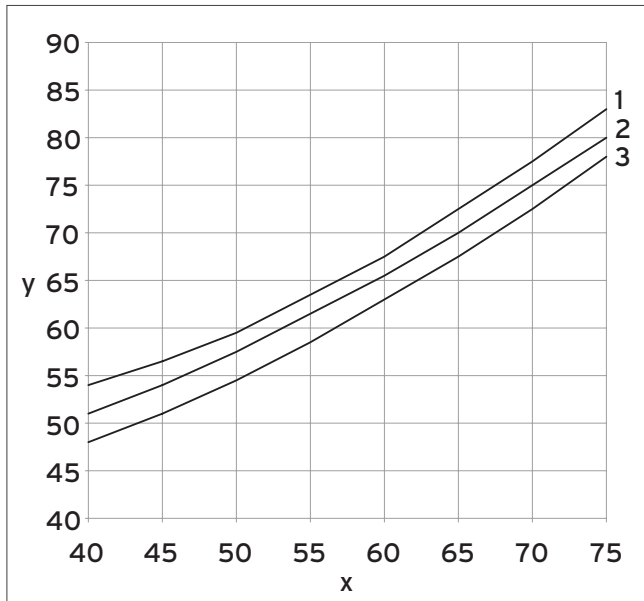


Fig. 353: VPM 20/25/2 W power levels

x Hot water target value [°C]  
y Buffer cylinder target value [°C]

### VPM 40/45/2 W power levels

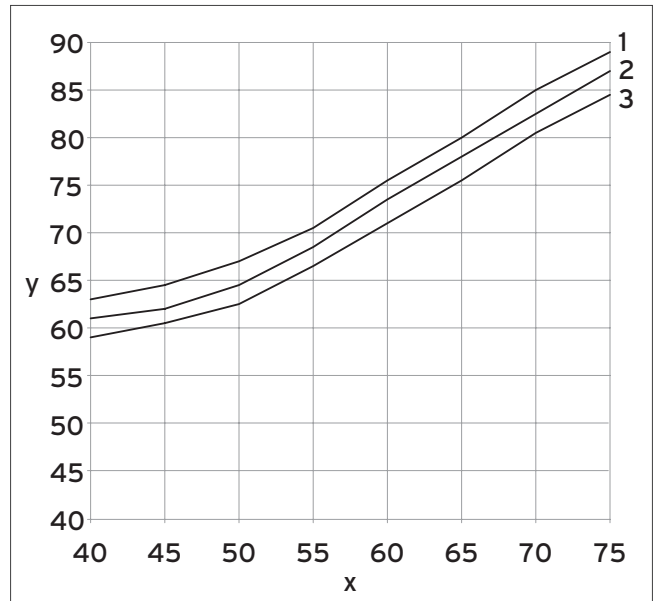


Fig. 355: VPM 40/45/2 W power levels

x Hot water target value [°C]  
y Buffer cylinder target value [°C]

### VPM 30/35/2 W power levels

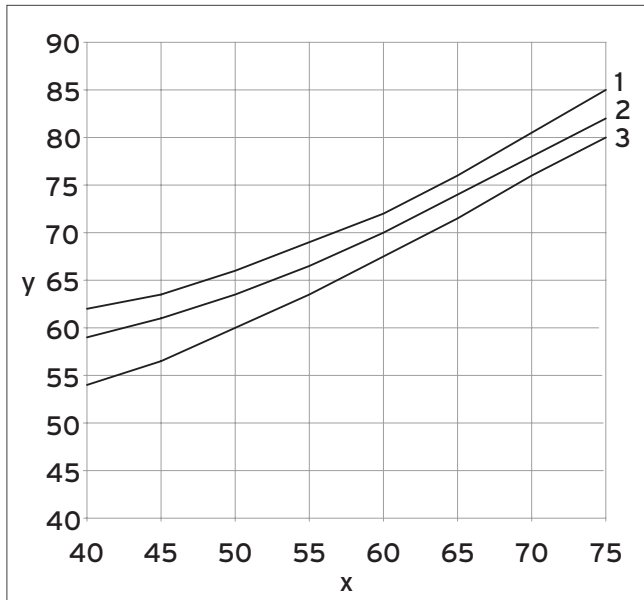


Fig. 354: VPM 30/35/2 W power levels

x Hot water target value [°C]  
y Buffer cylinder target value [°C]

## 19.16 Product description for the aquaFLOW plus VPM 45/3 W up to VPM 180/3 W domestic hot water stations



Fig. 356: aquaFLOW plus domestic hot water station

### Type overview

Unit designation	Order no. (Germany)
VPM 60/3 W	0010039313
VPM 90/3 W	0010039314
VPM 135/3 W	0010039315
VPM 45/3 W mod. pump	0010039317
VPM 60/3 W mod. pump	0010039318
VPM 90/3 W mod. pump	0010039319
VPM 135/3 W mod. pump	0010039320
VPM 180/3 W mod. pump	0010039321

### Special features

- Hygienic heating of potable water using the counter-flow principle
- Various potential applications in combination with the Vaillant buffer cylinders
- Optional anti-legionella function to thermally disinfect domestic hot water and circulation pipe networks in the event of set specifications (time, disinfection temperature and duration) via the integrated control
- Screwed-in plate heat exchanger made from stainless steel with large exchanger surface areas and low water content to quickly transfer heat energy to the potable water
- Complete with EPP lining insulation
- Operating pressure: 10 bar
- Autonomous operation possible thanks to the integrated control
- Remote access via the Modbus RTU RS 485 protocol

### Potential applications

The domestic hot water station is used to heat potable water to the exact desired temperature.

The potable water is guided via a plate heat exchanger using the counter-flow principle. The minimum draw-off quantity at a domestic hot water temperature of 45 °C, a cold water temperature of 10 °C and a cylinder temperature of 65 °C is as follows:

### Modulating high-efficiency pump

- VPM 45/3 W mod. pump: 40 l/min
- VPM 60/3 W mod. pump: 60 l/min
- VPM 90/3 W mod. pump: 90 l/min
- VPM 135/3 W mod. pump: 135 l/min
- VPM 180/3 W mod. pump: 180 l/min

### Staged high-efficiency pump

- VPM 60/3 W: 60 l/min
- VPM 90/3 W: 90 l/min
- VPM 135/3 W: 135 l/min

### Equipment

- Screwed-in stainless steel plate heat exchanger
- Specially formed plate structure for preventing scale depositions
- EPP shell thermal insulation
- Modulating high-efficiency pump (country-specific)
- Staged high-efficiency pump (country-specific)
- Modbus interface RTU RS 485 protocol

### Note

To prevent corrosion and depositions (scale) in the station's heat exchanger, you must observe VDI 2035 T1 and T2. This VDI contains, among other things, information about the water hardness level that must be maintained.

Depending on the quality and condition of the potable water, high potable water temperatures may lead to scale depositions on the potable water side of the heat exchanger.

If a max. potable water outlet temperature of 60 °C is set, the potable water hardness may be up to 15 °dH.

From a water hardness of 15 °dH or at a higher selected outlet temperature, we recommend that you use a potable water softener in order to guarantee that the domestic hot water station works correctly and to guarantee the quality of the potable water.



Update 07  
New product aguaFLOW 10 bar

Technical data

General information

	VPM 60/3 W Fix Pump	VPM 90/3 W Fix Pump	VPM 135/3 W Fix Pump	VPM 45/3 W Mod pump	VPM 60/3 W Mod pump	VPM 90/3 W Mod pump	VPM 135/3 W Mod pump	VPM 180/3 W Mod pump
Height	1,023 mm	1,023 mm	1,364 mm	1,023 mm	1,023 mm	1,023 mm	1,364 mm	1,364 mm
Width	340 mm	340 mm	340 mm	340 mm	340 mm	340 mm	340 mm	340 mm
Depth	528 mm	528 mm	743 mm	528 mm	528 mm	528 mm	743 mm	743 mm
Weight	52 kg	53 kg	136 kg	51 kg	52 kg	61 kg	146 kg	151 kg
Hydraulic connections (heating side/ domestic hot water side)	1 1/4 " / 1 1/4 "	1 1/4 " / 1 1/4 "	1 1/2 " / 2 "	1 1/4 " / 1 1/4 "	1 1/4 " / 1 1/4 "	1 1/4 " / 1 1/4 "	1 1/2 " / 2 "	1 1/2 " / 2 "

Technical data

	VPM 60/3 W Fix Pump	VPM 90/3 W Fix Pump	VPM 135/3 W Fix Pump	VPM 45/3 W Mod pump	VPM 60/3 W Mod pump	VPM 90/3 W Mod pump	VPM 135/3 W Mod pump	VPM 180/3 W Mod pump
Temperature range: Heating side	2 to 95 °C	2 to 95 °C	2 to 95 °C	2 to 95 °C	2 to 95 °C	2 to 95 °C	2 to 95 °C	2 to 95 °C
Temperature range: Domestic hot water side	2 to 85 °C	2 to 85 °C	2 to 85 °C	2 to 85 °C	2 to 85 °C	2 to 85 °C	2 to 85 °C	2 to 85 °C
Anti-legionella function temperature	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C

Electrics

	VPM 60/3 W Fix Pump	VPM 90/3 W Fix Pump	VPM 135/3 W Fix Pump	VPM 45/3 W Mod pump	VPM 60/3 W Mod pump	VPM 90/3 W Mod pump	VPM 135/3 W Mod pump	VPM 180/3 W Mod pump
Rated voltage	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz
Power consumption (max.)	200 W	200 W	315 W	320 W	320 W	320 W	310 W	310 W
Amperage (max.)	1.8 A	1.8 A	1.8 A	1.8 A	1.8 A	1.8 A	1.8 A	1.8 A

Operating pressure

	VPM 60/3 W Fix Pump	VPM 90/3 W Fix Pump	VPM 135/3 W Fix Pump	VPM 45/3 W Mod pump	VPM 60/3 W Mod pump	VPM 90/3 W Mod pump	VPM 135/3 W Mod pump	VPM 180/3 W Mod pump
Operating pressure (heating side)	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar
Operating pressure (domestic hot water side)	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar

Update 07  
 New product aguaFLOW 10 bar  
 Dimensions

VPM 45-90 W

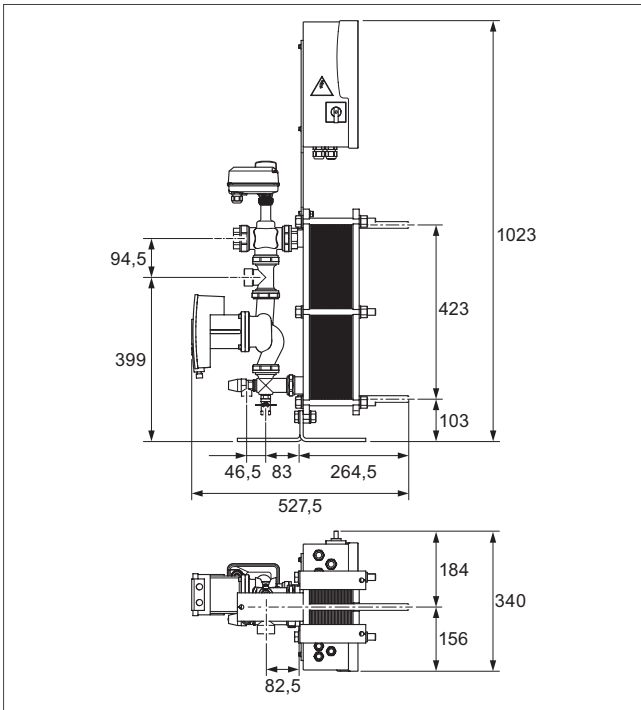


Fig. 357: Dimensions

VPM 135/180 W

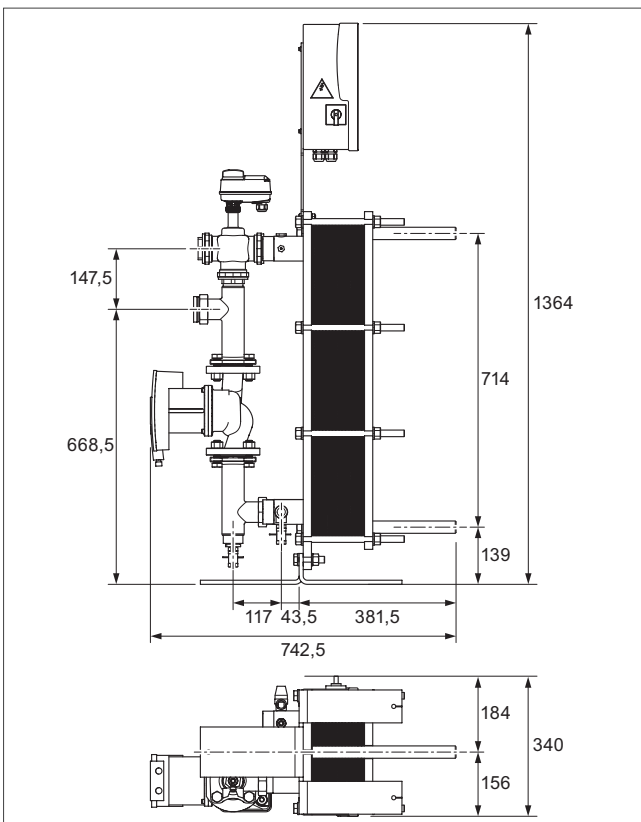


Fig. 358: Dimensions

Connection dimensions

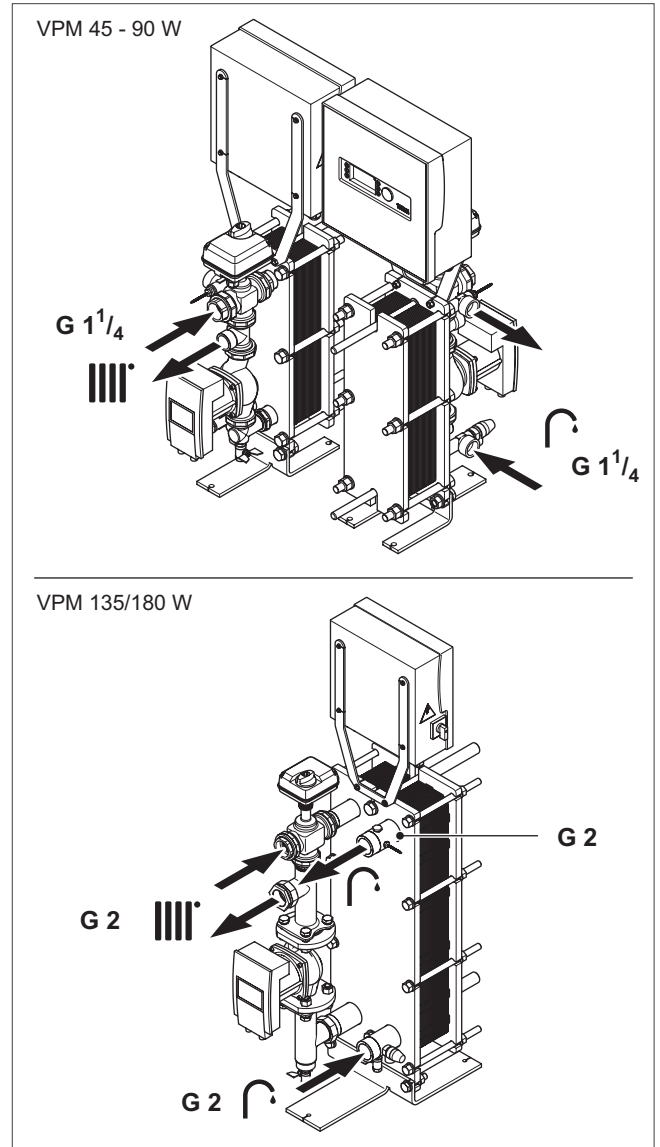


Fig. 359: Connections and connection dimensions

Update 07  
 New product aguaFLOW 10 bar  
 Pump diagrams

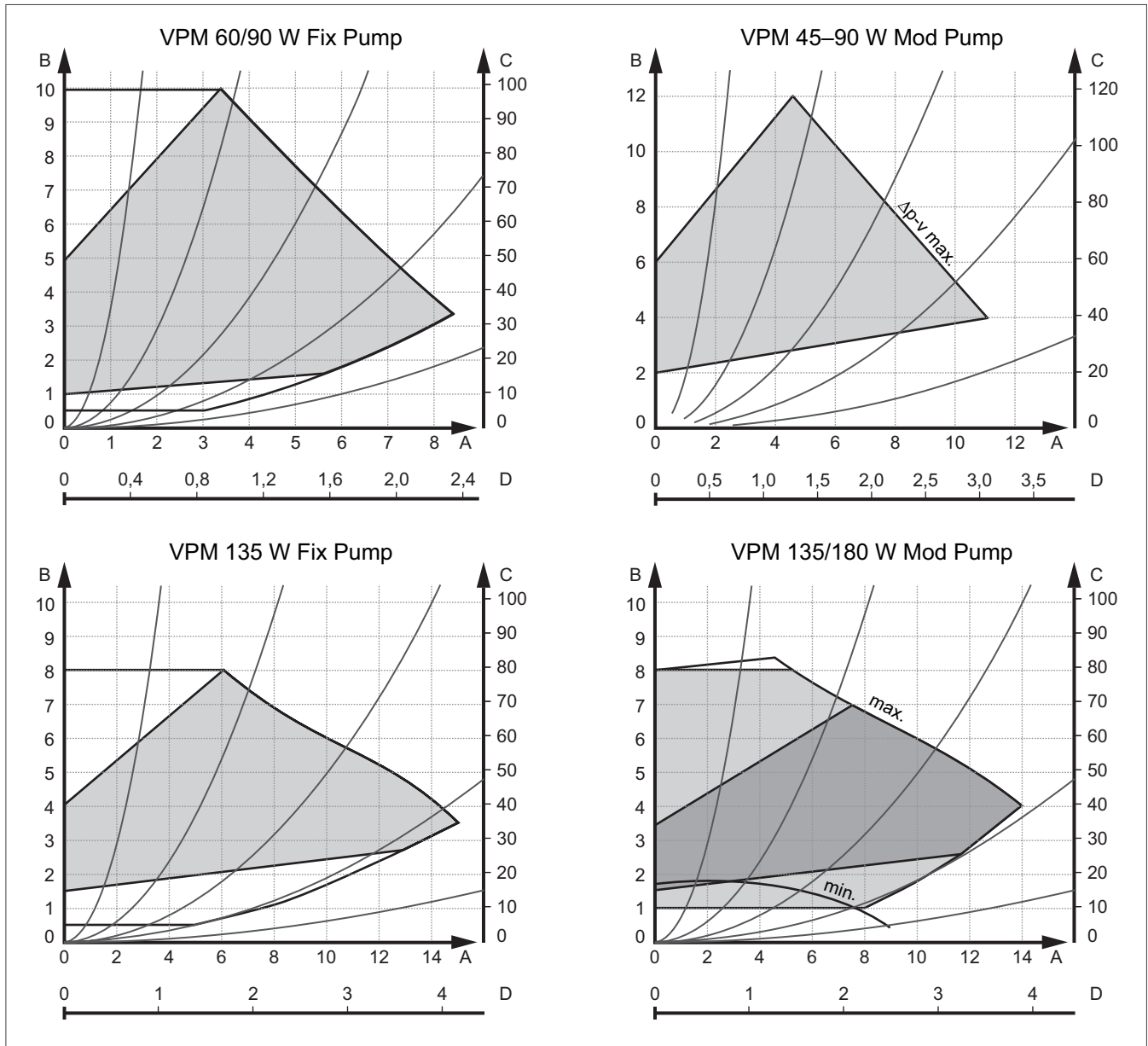


Fig. 360: Pump diagram

- A Flow rate [m<sup>3</sup>/h]
- B Pressure level [m]
- C Pressure level [kPa]
- D Flow rate [l/s]

Update 07  
New accessories for aquaFLOW 10 bar

Accessories

Figure	Description	Article number
	<p><b>Aluminium-laminated insulation for higher fire protection requirements</b></p> <p>Can be used for VPM 135 - 180/3 W</p>	0010040065
	<p><b>Circulation set with pump</b></p> <p>Can be used for VPM 45 - 60 - 90/3 W</p> <ul style="list-style-type: none"> <li>- Non-return valve</li> <li>- Connection pipe</li> <li>- Connection fittings</li> <li>- 1 1/4" brass connection T-piece</li> <li>- 1 1/4"-1" union connection</li> </ul>	0010040066
	<p><b>Circulation set with pump</b></p> <p>Can be used for VPM 135 - 180/3 W</p> <ul style="list-style-type: none"> <li>- Non-return valve</li> <li>- Connection pipe</li> <li>- Connection fittings</li> <li>- 2" brass connection T-piece</li> <li>- 1 1/4" union connection</li> </ul>	0010040067

**Dimensioning table**

In the table on the following double page you will find the data you need for the dimensioning of the domestic hot water station and - if desired - the buffer cylinder.

The following conditions apply:

	Unit	Value
Safety factor	-	1,5
Tapping time	min	10
Reload time	min	45

Update 07  
New design overview

	Primary side		Secondary side				Primary side			
	TvL	Flow rate	Output warm water	Cold water inlet temperature	DHW temperature	Flow rate DHW	TRL	$\Delta T_{Prim}$	V <sub>Prim</sub>	
	°C	m <sup>3</sup> /h	kW	°C	°C	l/min	°C	K	l/min	
VPM W 60 fix pump	65	5,4	147	10	45	60,2	41,6	23,4	90,0	
VPM W 90 fix pump	65	6,8	220	10	45	90,2	37,2	27,8	113,3	
VPM W 135 fix pump	65	10,9	330	10	45	135,2	39,0	26,0	181,7	
VPM W 45 mod pump	65	5,2	110	10	45	45,1	46,8	18,2	86,7	
VPM W 60 mod pump	65	6,0	147	10	45	60,2	43,9	21,1	100,0	
VPM W 90 mod pump	65	7,9	220	10	45	90,2	41,1	23,9	131,7	
VPM W 135 mod pump	65	10,9	330	10	45	135,2	39,0	26,0	181,7	
VPM W 180 mod pump	65	12,6	440	10	45	180,3	35,0	30,0	210,0	
VPM W 60 fix pump	65	5,4	100	10	55	31,9	49,1	15,9	90,0	
VPM W 90 fix pump	65	6,8	155	10	55	49,4	45,4	19,6	113,3	
VPM W 135 fix pump	65	10,9	225	10	55	71,7	47,3	17,7	181,7	
VPM W 45 mod pump	65	5,2	77	10	55	24,5	52,3	12,7	86,7	
VPM W 60 mod pump	65	6,0	100	10	55	31,9	50,7	14,3	100,0	
VPM W 90 mod pump	65	7,9	155	10	55	49,4	48,1	16,9	131,7	
VPM W 135 mod pump	65	10,9	225	10	55	71,7	47,3	17,7	181,7	
VPM W 180 mod pump	65	12,6	320	10	55	102,0	43,2	21,8	210,0	
VPM W 60 fix pump	70	5,4	131	10	55	41,8	49,1	20,9	90,0	
VPM W 90 fix pump	70	6,8	198	10	55	63,1	45,0	25,0	113,3	
VPM W 135 fix pump	70	10,9	295	10	55	94,0	46,7	23,3	181,7	
VPM W 45 mod pump	70	5,2	102	10	55	32,5	53,1	16,9	86,7	
VPM W 60 mod pump	70	6,0	131	10	55	41,8	51,2	18,8	100,0	
VPM W 90 mod pump	70	7,9	198	10	55	63,1	48,4	21,6	131,7	
VPM W 135 mod pump	70	10,9	295	10	55	94,0	46,7	23,3	181,7	
VPM W 180 mod pump	70	12,6	405	10	55	129,1	42,4	27,6	210,0	
VPM W 60 fix pump	70	5,4	107	10	60	30,7	53,0	17,0	90,0	
VPM W 90 fix pump	70	6,8	164	10	60	47,0	49,3	20,7	113,3	
VPM W 135 fix pump	70	10,9	242	10	60	69,4	50,9	19,1	181,7	
VPM W 45 mod pump	70	5,2	82	10	60	23,5	56,4	13,6	86,7	
VPM W 60 mod pump	70	6,0	107	10	60	30,7	54,7	15,3	100,0	
VPM W 90 mod pump	70	7,9	164	10	60	47,0	52,2	17,8	131,7	
VPM W 135 mod pump	70	10,9	242	10	60	69,4	50,9	19,1	181,7	
VPM W 180 mod pump	70	12,6	342	10	60	98,1	46,7	23,3	210,0	
VPM W 60 fix pump	80	5,4	190	10	55	60,6	49,7	30,3	90,0	
VPM W 90 fix pump	80	6,8	275	10	55	87,7	45,2	34,8	113,3	
VPM W 135 fix pump	80	10,9	420	10	55	133,9	46,9	33,1	181,7	
VPM W 45 mod pump	80	5,2	150	10	55	47,8	55,2	24,8	86,7	
VPM W 60 mod pump	80	6,0	190	10	55	60,6	52,8	27,2	100,0	
VPM W 90 mod pump	80	7,9	275	10	55	87,7	50,1	29,9	131,7	
VPM W 135 mod pump	80	10,9	420	10	55	133,9	46,9	33,1	181,7	
VPM W 180 mod pump	80	12,6	560	10	55	178,5	41,8	38,2	210,0	
VPM W 60 fix pump	80	5,4	172	10	60	49,3	52,6	27,4	90,0	
VPM W 90 fix pump	80	6,8	253	10	60	72,6	48,0	32,0	113,3	
VPM W 135 fix pump	80	10,9	382	10	60	109,6	49,9	30,1	181,7	
VPM W 45 mod pump	80	5,2	135	10	60	38,7	57,7	22,3	86,7	
VPM W 60 mod pump	80	6,0	172	10	60	49,3	55,4	24,6	100,0	
VPM W 90 mod pump	80	7,9	253	10	60	72,6	52,5	27,5	131,7	
VPM W 135 mod pump	80	10,9	382	10	60	109,6	49,9	30,1	181,7	
VPM W 180 mod pump	80	12,6	520	10	60	149,2	44,5	35,5	210,0	



	Temp. buffer cylinder: 65 °C		Temp. buffer cylinder: 80 °C		Min. heating power (for reloading the buffer cylinder)	Heating power (for reloading the buffer cylinder safety factor)	Tapping volume in 10 min (at 45 °C)	NL-Value
	Min. volume buffer cylinder (at TvL)	Volume buffer cylinder (with safety factor)	Min. volume buffer cylinder (at TvL)	Volume buffer cylinder (with safety factor)				
	Liter	Liter	Liter	Liter	kW	kW	Liter/10 min	-
	1035	1553	631	946	37,6	56,4	602	<b>19,9</b>
	1303	1955	847	1270	56,2	84,3	902	<b>39,8</b>
	2089	3134	1325	1988	84,3	126,5	1352	<b>75,3</b>
	997	1495	546	819	28,1	42,2	451	<b>11,7</b>
	1150	1725	672	1008	37,6	56,4	602	<b>19,9</b>
	1514	2271	931	1396	56,2	84,3	902	<b>39,8</b>
	2089	3134	1325	1988	84,3	126,5	1352	<b>75,3</b>
	2415	3623	1610	2416	112,4	168,7	1803	<b>115,8</b>
	1035	1553	533	799	25,6	38,3	410	<b>9,7</b>
	1303	1955	738	1107	39,6	59,4	635	<b>22,5</b>
	2089	3134	1132	1698	57,5	86,3	922	<b>41,3</b>
	997	1495	458	686	19,7	29,5	316	<b>5,7</b>
	1150	1725	562	843	25,6	38,3	410	<b>9,7</b>
	1514	2271	802	1202	39,6	59,4	635	<b>22,5</b>
	2089	3134	1132	1698	57,5	86,3	922	<b>41,3</b>
	2415	3623	1432	2147	81,8	122,7	1311	<b>71,8</b>
	1035	1553	700	1049	33,5	50,2	537	<b>16,2</b>
	1303	1955	931	1397	50,6	75,9	811	<b>33,6</b>
	2089	3134	1461	2192	75,4	113,1	1209	<b>63,3</b>
	997	1495	626	939	26,1	39,1	418	<b>10,1</b>
	1150	1725	750	1125	33,5	50,2	537	<b>16,2</b>
	1514	2271	1034	1551	50,6	75,9	811	<b>33,6</b>
	2089	3134	1461	2192	75,4	113,1	1209	<b>63,3</b>
	2415	3623	1773	2660	103,5	155,3	1660	<b>102,5</b>
	1035	1553	652	978	27,3	41,0	438	<b>11,1</b>
	1303	1955	879	1319	41,9	62,9	672	<b>24,7</b>
	2089	3134	1371	2056	61,8	92,8	992	<b>46,4</b>
	997	1495	574	860	21,0	31,4	336	<b>6,5</b>
	1150	1725	696	1044	27,3	41,0	438	<b>11,1</b>
	1514	2271	970	1456	41,9	62,9	672	<b>24,7</b>
	2089	3134	1371	2056	61,8	92,8	992	<b>46,4</b>
	2415	3623	1691	2536	87,4	131,1	1402	<b>79,5</b>
	1035	1553	1035	1553	48,6	72,8	779	<b>31,4</b>
	1303	1955	1303	1955	70,3	105,4	1127	<b>56,7</b>
	2089	3134	2089	3134	107,3	161,0	1721	<b>108,2</b>
	997	1495	997	1495	38,3	57,5	615	<b>21,3</b>
	1150	1725	1150	1725	48,6	72,8	779	<b>31,4</b>
	1514	2271	1514	2271	70,3	105,4	1127	<b>56,7</b>
	2089	3134	2089	3134	107,3	161,0	1721	<b>108,2</b>
	2415	3623	2415	3623	143,1	214,7	2295	<b>163,5</b>
	1035	1553	1035	1553	44,0	65,9	705	<b>26,7</b>
	1303	1955	1303	1955	64,7	97,0	1037	<b>49,8</b>
	2089	3134	2089	3134	97,6	146,4	1565	<b>94,0</b>
	997	1495	997	1495	34,5	51,8	553	<b>17,1</b>
	1150	1725	1150	1725	44,0	65,9	705	<b>26,7</b>
	1514	2271	1514	2271	64,7	97,0	1037	<b>49,8</b>
	2089	3134	2089	3134	97,6	146,4	1565	<b>94,0</b>
	2415	3623	2415	3623	132,9	199,3	2131	<b>147,3</b>



# 20. System accessories

Vaillant offers an extensive range of accessories for every kind of installation.

This section describes the Vaillant accessories that may be required when using a Vaillant system with condensing technology.

The accessories are categorised by:

**Accessories for heat distribution**

**Accessories for system separation**

**Accessories for the heat generator**

**Accessories for domestic hot water generation**

**Accessories for unit installation**

All accessories are clearly explained.

Accessories relevant to planning are described (if required) with their dimensions and technical data.

You can find further accessories in the current price list.

## 20.1 Overview of the pipe groups

Heating circuits		Non-regulated heating circuit Without mixer	Regulated heating circuit With mixer			
Heat generator		Pipe group with high efficiency pump m = 3.3 m <sup>3</sup> /h remaining feed head 6.2 m	Pipe group with high efficiency pump m = 3.3 m <sup>3</sup> /h KVs = 2.5 m <sup>3</sup> /h remaining feed head 6.2 m	Pipe group with high efficiency pump m = 3.3 m <sup>3</sup> /h KVs = 6.3 m <sup>3</sup> /h remaining feed head 6.2 m	Pipe group with high efficiency pump m = 3.3 m <sup>3</sup> /h KVs = 8.0 m <sup>3</sup> /h remaining feed head 6.2 m	
Gas-fired wall-hung boilers	ecoTEC exclusive 2,8 - 32,5 kW	VC 15 CS/1-7	•	•	•	•
		VC 20 CS/1-7	•	•	•	•
		VC 25 CS/1-7	•	•	•	•
		VC 30 CS/1-7	•	•	•	•
		VCW 25/36 CF/1-7	•	•	•	•
	ecoTEC exclusiv(e) 1,9 - 65,7 kW	VC 156/5-7	•	•	•	•
		VC 216/5-7	•	•	•	•
		VC 246/5-7	•	•	•	•
		VC 276/5-7	•	•	•	•
		VC 326/5-7	•	•	•	•
		VCW 266/5-7	•	•	•	•
	ecoTEC plus xx - xx kW	VC 10 CS/1-5	•	•	•	•
		VC 20 CS/1-5	•	•	•	•
		VC 30 CS/1-5	•	•	•	•
		VCW 20/26 CS/1-5	•	•	•	•
	ecoTEC plus 3,2 - 120,0 kW	VC 146/5-5	•	•	•	•
		VC 206/5-5	•	•	•	•
		VC 266/5-5	•	•	•	•
		VC 306/5-5	•	•	•	•
		VC 406/5-5	•	•	•	•
		VC 476/5-5	•	•	•	•
		VC 636/5-5	•	•	•	•
		VC 806/5-5	–	–	–	–
		VC 1006/5-5	–	–	–	–
		VC 1206/5-5	–	–	–	–
		VCI 206/5-5	•	•	•	•
		VCI 266/5-5	•	•	•	•
		VCW 206/5-5	•	•	•	•
		VCW 266/5-5	•	•	•	•

- Recommended
- Not recommended

Heating circuits			Non-regulated heating circuit Without mixer	Regulated heating circuit With mixer			
Heat generator			Pipe group with high efficiency pump m = 3.3 m³/h remaining feed head 6.2 m	Pipe group with high efficiency pump m = 3.3 m³/h KVs = 2.5 m³/h remaining feed head 6.2 m	Pipe group with high efficiency pump m = 3.3 m³/h KVs = 6.3 m³/h remaining feed head 6.2 m	Pipe group with high efficiency pump m = 3.3 m³/h KVs = 8.0 m³/h remaining feed head 6.2 m	
Gas-fired compact boilers, floor-standing	ecoCOMPACT 3.3-26.3 kW	VSC 146/4-5 90	•	•	•	•	
		VSC 146/4-5 150	•	•	•	•	
		VSC 146/4-5 200	•	•	•	•	
		VSC 206/4-5 90	•	•	•	•	
		VSC 206/4-5 150	•	•	•	•	
		VSC 206/4-5 200	•	•	•	•	
		VSC 266/4-5 150	•	•	•	•	
		VSC 266/4-5 200	•	•	•	•	
		VCC 206/4-5 150	•	•	•	•	
	VCC 266/4-5 150	•	•	•	•		
	auroCOMPACT 3.3-20.8 kW	VSC S 146/4-5 150	•	•	•	•	
		VSC S 146/4-5 190	•	•	•	•	
		VSC S 206/4-5 150	•	•	•	•	
		VSC S 206/4-5 190	•	•	•	•	
		VSC D 146/4-5 150	•	•	•	•	
		VSC D 146/4-5 190	•	•	•	•	
		VSC D 206/4-5 150	•	•	•	•	
	Gas-fired floor-standing boiler	ecoVIT exclusive 6.6 - 63.2 kW	VKK 226/4	•	•	•	•
VKK 286/4			•	•	•	•	
VKK 366/4			•	•	•	•	
VKK 476/4			•	•	•	•	
VKK 656/4			•	•	•	•	
ecoVIT 6.0-51.5 kW		VKK 186/5	•	•	•	•	
		VKK 256/5	•	•	•	•	
		VKK 356/5	•	•	•	•	
		VKK 486/5	•	•	•	•	
		ecoCRAFT exclusiv 14.1 - 281.4 kW	VKK 806/3-E	•	•	•	•
			VKK 1206/3-E	•	•	•	•
			VKK 1606/3-E	•	•	•	•
			VKK 2006/3-E	•	•	•	•
VKK 2406/3-E	•		•	•	•		
Oil-fired boiler	icoVIT exclusiv 14.8 - 35.7 kW	VKK 2806/3-E	•	•	•	•	
		VKO 156/3-7	•	•	•	•	
		VKO 256/3-7	•	•	•	•	
		VKO 356/3-7	•	•	•	•	

• Recommended  
- Not recommended

## 20.2 Accessories for heat distribution

### Pipe group with high-efficiency pump, without mixer

Order no. 0020191817

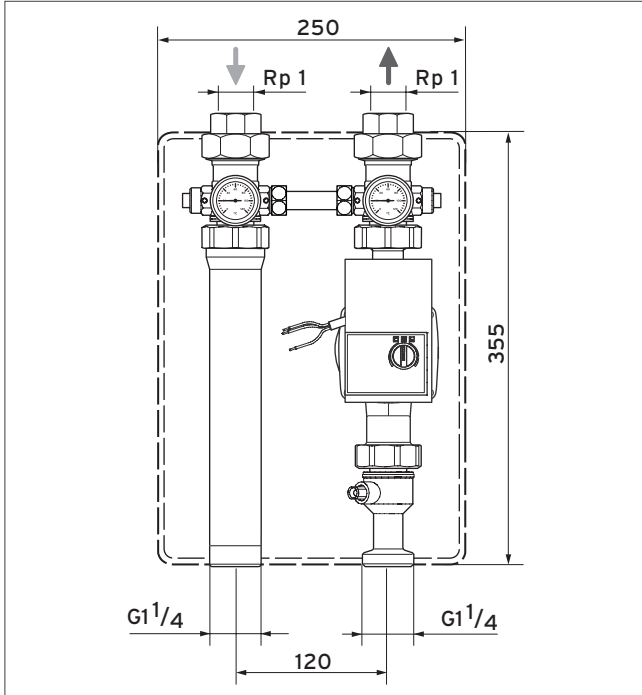


Fig 361: Pipe group dimension drawing

### Pump diagrams

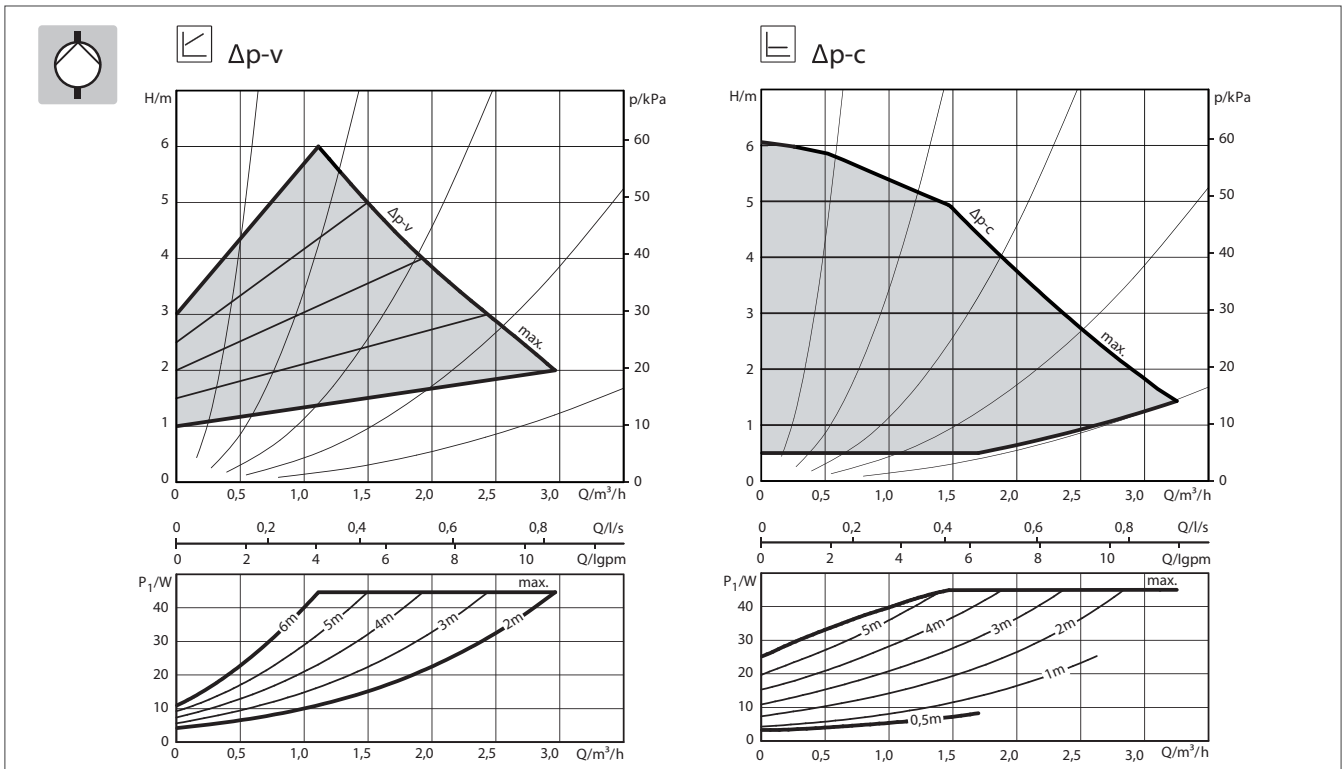


Fig 362: Pump diagrams, order no. 0020191817

### Pipe group with high-efficiency pump and 3-port mixing valve

Order no. 0020191813, 0020191814, 0020191788

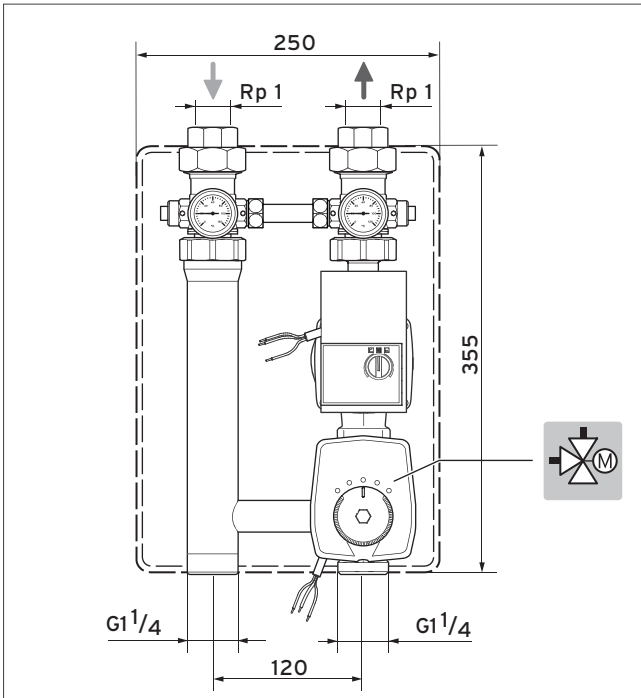


Fig 363: Pipe group dimension drawing

### Technical data

	Mixer	$K_{vs}$
0020191814	Rp 1/2	2.5
0020191813	Rp 3/4	6.3
0020191788	Rp 1	8.0

### Pressure loss diagrams

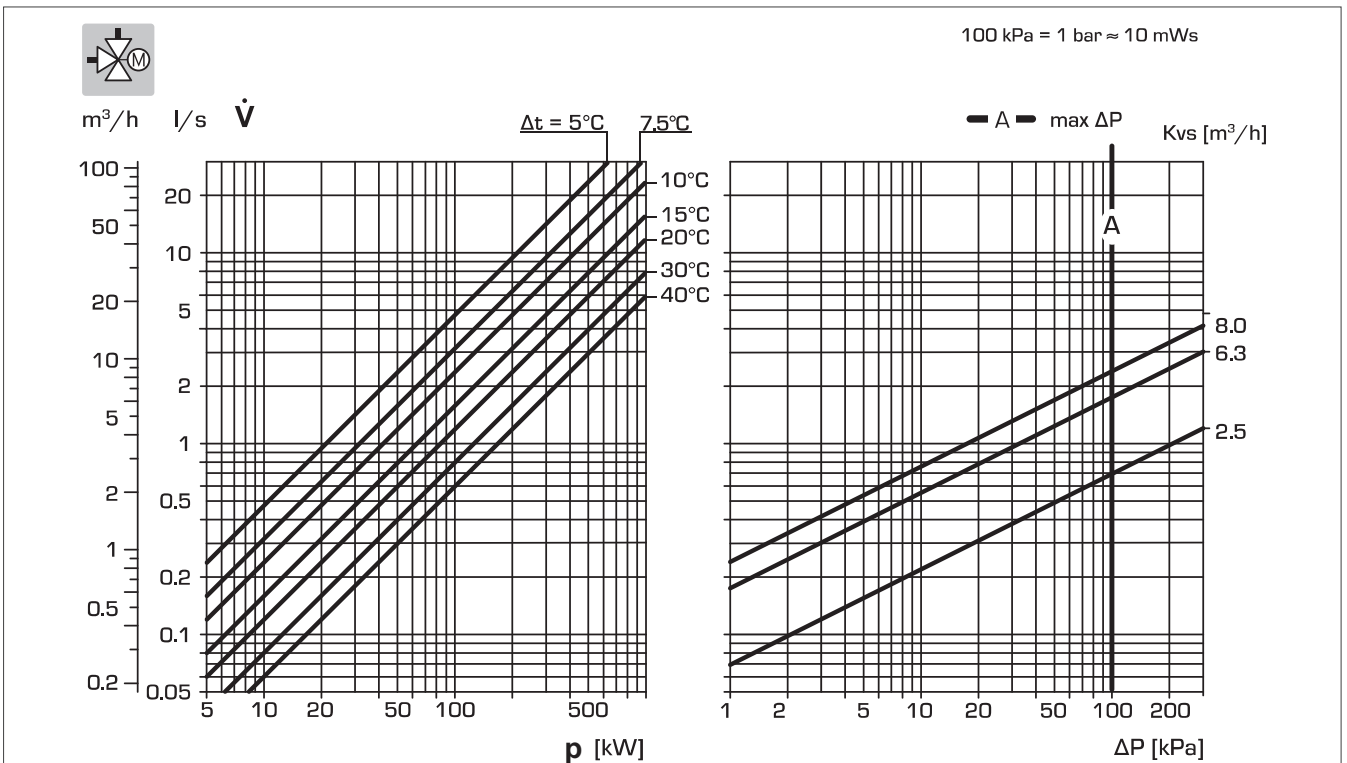


Fig 364: Pressure loss diagrams, order no. 0020191813, 0020191814, 0020191788

### 3-port diverter valve

Order no. 0020036743

Choice of R 1 or G 1 1/4 connection, 230 V,  $K_{vs}=7.7$



Fig 365: 3-port diverter valve

1 x 3-port diverter valve with motor, 1 x connection cable with Molex connector, 3 x 28 mm connection pipes with support sleeves, 3 x G 1 1/4 union nuts with flat seals.

Can be used for **allISTOR exclusive**, **allISTOR plus**, **flexoTHERM exclusive**.

### Pressure loss diagram

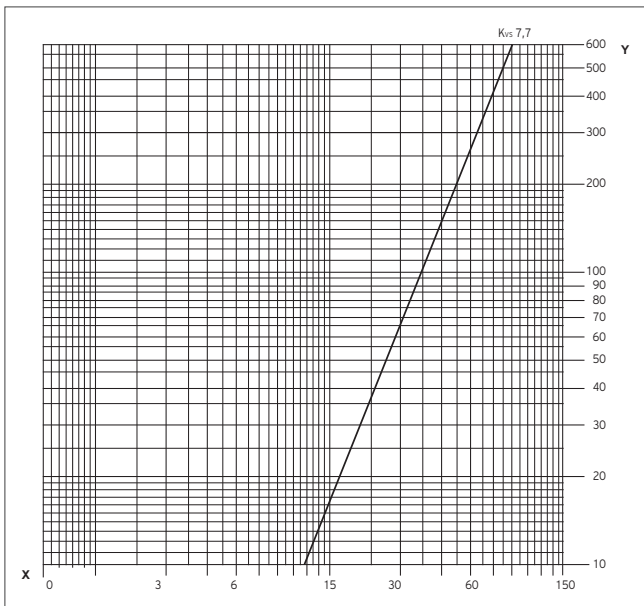


Fig 366: 3-port valve pressure loss diagram

Y Pressure loss [mbar]  
X Flow rate [l/min]

### Distribution manifold for two pipe groups

Order no. 307556

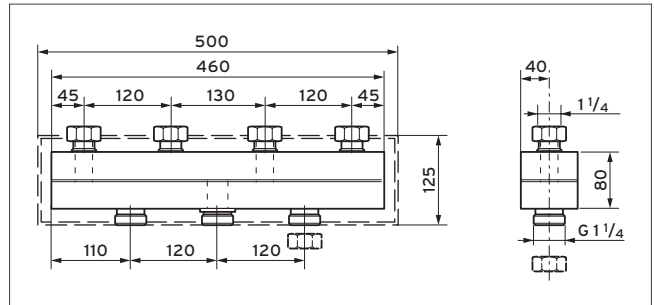


Fig 367: Distribution manifold for two pipe groups

Fully preconfigured to connect two pipe groups (with or without a 3-port mixing valve), with heat insulation.

### Technical data

	Unit	307556
Thermal insulation cover		EPP
Permissible operating temperature	°C	-20 to 110
Max. permissible operating pressure	bar	6
Weight	kg	6.3

### Pressure loss

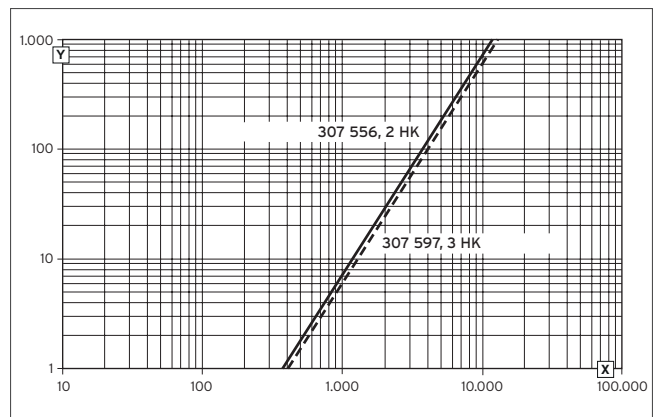


Fig 368: Pressure loss

Y Pressure loss in mbar  
X Volume flow l/h



## Distribution manifold for three pipe groups

Order no. 307597

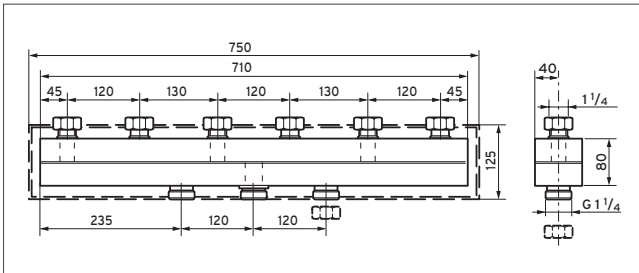


Fig 369: Distribution manifold for three pipe groups

Fully preconfigured to connect three pipe groups (with or without a 3-port mixing valve), with heat insulation.

### Technical data

	Unit	307597
Thermal insulation cover		EPP
Permissible operating temperature	°C	-20 to 110
Max. permissible operating pressure	bar	6
Weight	kg	9.2

### Pressure loss

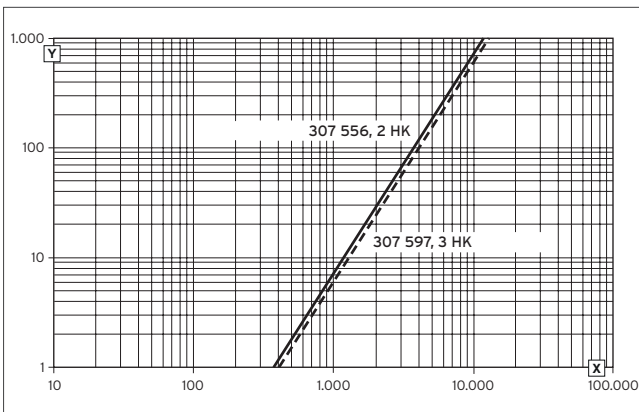


Fig 370: Pressure loss

- Y Pressure loss in mbar
- X Volume flow l/h

## 20.3 Accessories for system separation

### Hydraulic connection for the cascade system

The hydraulic connection between the cascade system and the heating installation is possible as follows:

- Separation by low loss header
- System separation by heat exchanger

#### Note

When using the system separation, it is not always necessary to treat the water in the unit circuit, unless otherwise specified by national regulations. The water must be treated on the system side.



### Hydraulic isolation by means of a low loss header

To easily connect the cascade system to the heating installation, four low loss headers are available.

The dimensions and connections have been adapted to the Vaillant cascade concept.

The low loss headers are equipped with a magnetite filter and sensor.

With connection dimensions of DN 65 and DN 100, the low loss headers have each been prepared for simple connection to the header lines in the cascade system.

The low loss headers are specially designed for the cascade system. Select the low loss header using the volume flow on the heat generator side in the relevant cascade system.



Fig 371: Low loss headers for connecting the cascade system

### System separation by a heat exchanger

Five plate heat exchangers are available to easily connect the cascade system to the heating installation. The dimensions and connections have been adapted to the Vaillant cascade concept.

With connection dimensions of DN 65 and DN 100, the plate heat exchangers have each been prepared for simple connection to the header lines in the cascade system.

Suitable connection pipes are available for connecting the plate heat exchangers to the header pipes (see the overview of the accessories).

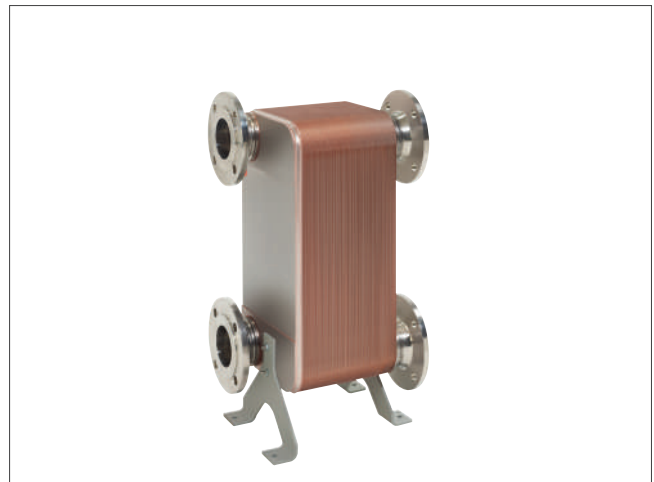


Fig 372: System separation by a heat exchanger

### Low loss headers

With reference to the following diagrams, you can use

- the heat output to be transferred,
- the temperature difference and
- the volume flow

to select the appropriate low loss header.

The technical data for all our low loss headers is listed on the following pages.

### Diagram for calculating the volume flow with a specified power and temperature difference (WH 27 - WH 95)

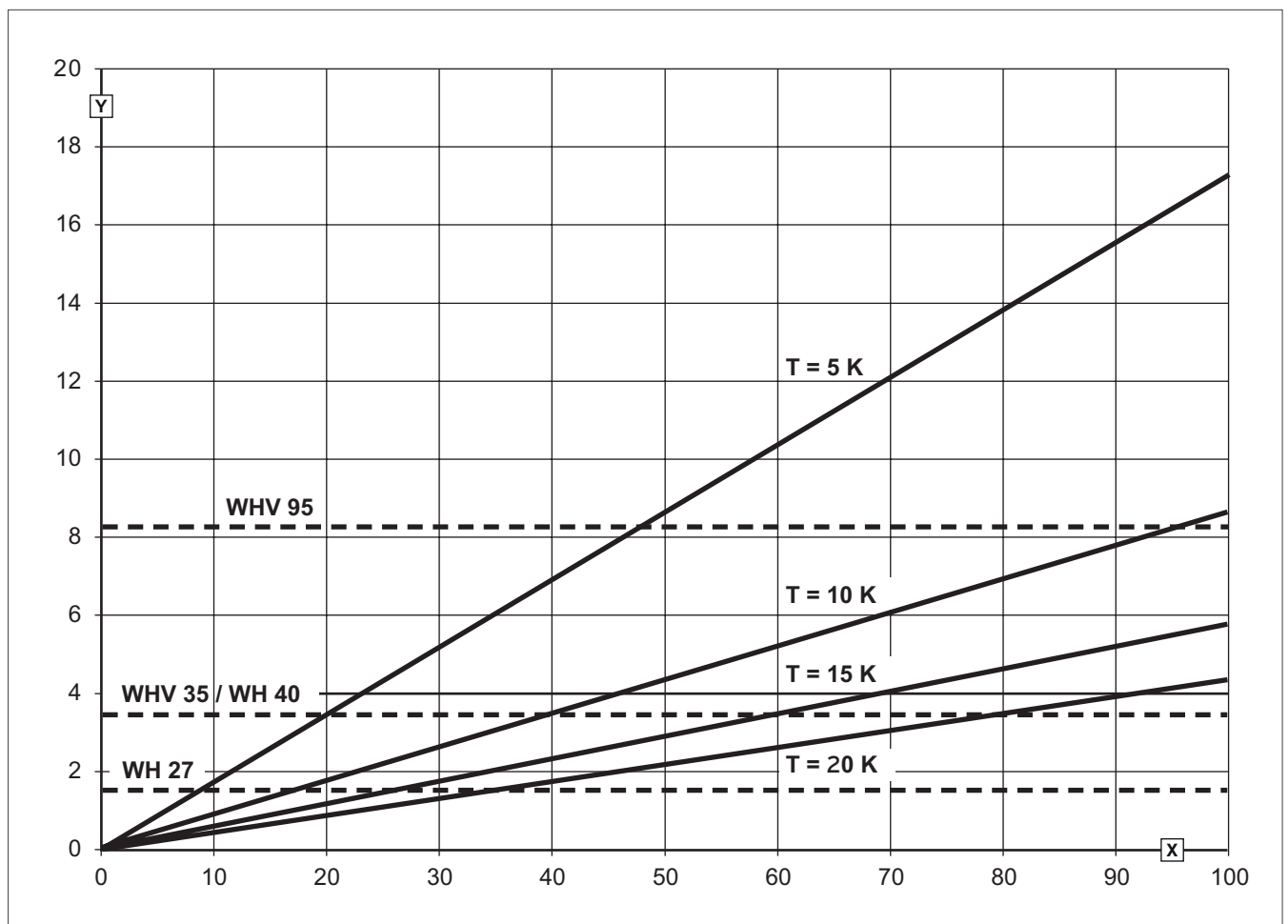


Fig 373: Diagram for calculating the volume flow with a specified power and temperature difference (WH 27 - WH 95)

Y Water flow rate in m<sup>3</sup>/h

X Heat output in kW

Diagram for calculating the volume flow with a specified power and temperature difference (WH 27 - WH 95)

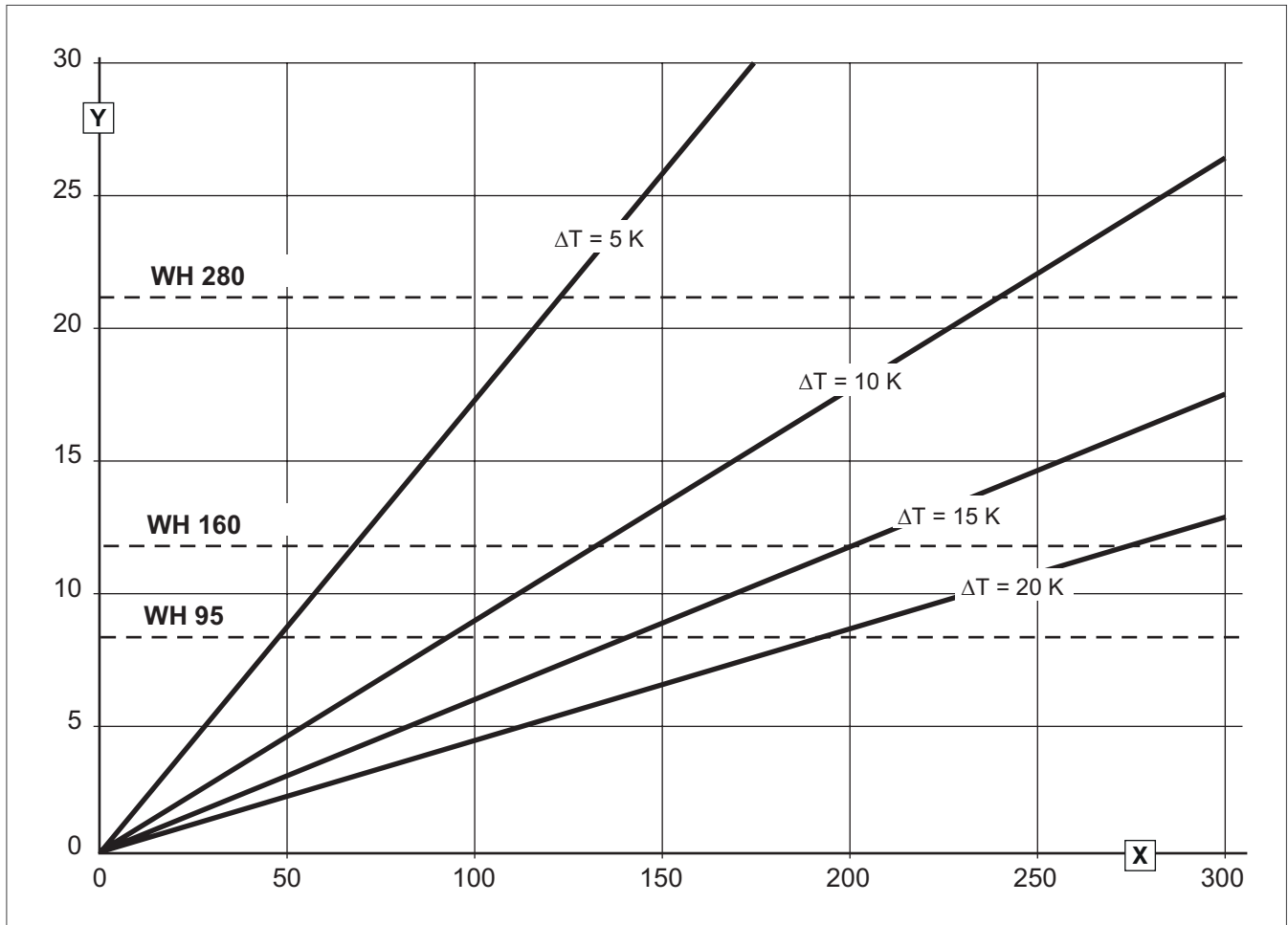


Fig 374: Diagram for calculating the volume flow with a specified power and temperature difference (WH 95 - WH 280)

- Y Water flow rate in m³/h
- X Heat output in kW

Diagram for calculating the volume flow with a specified power and temperature difference (WH 27 - WH 95)

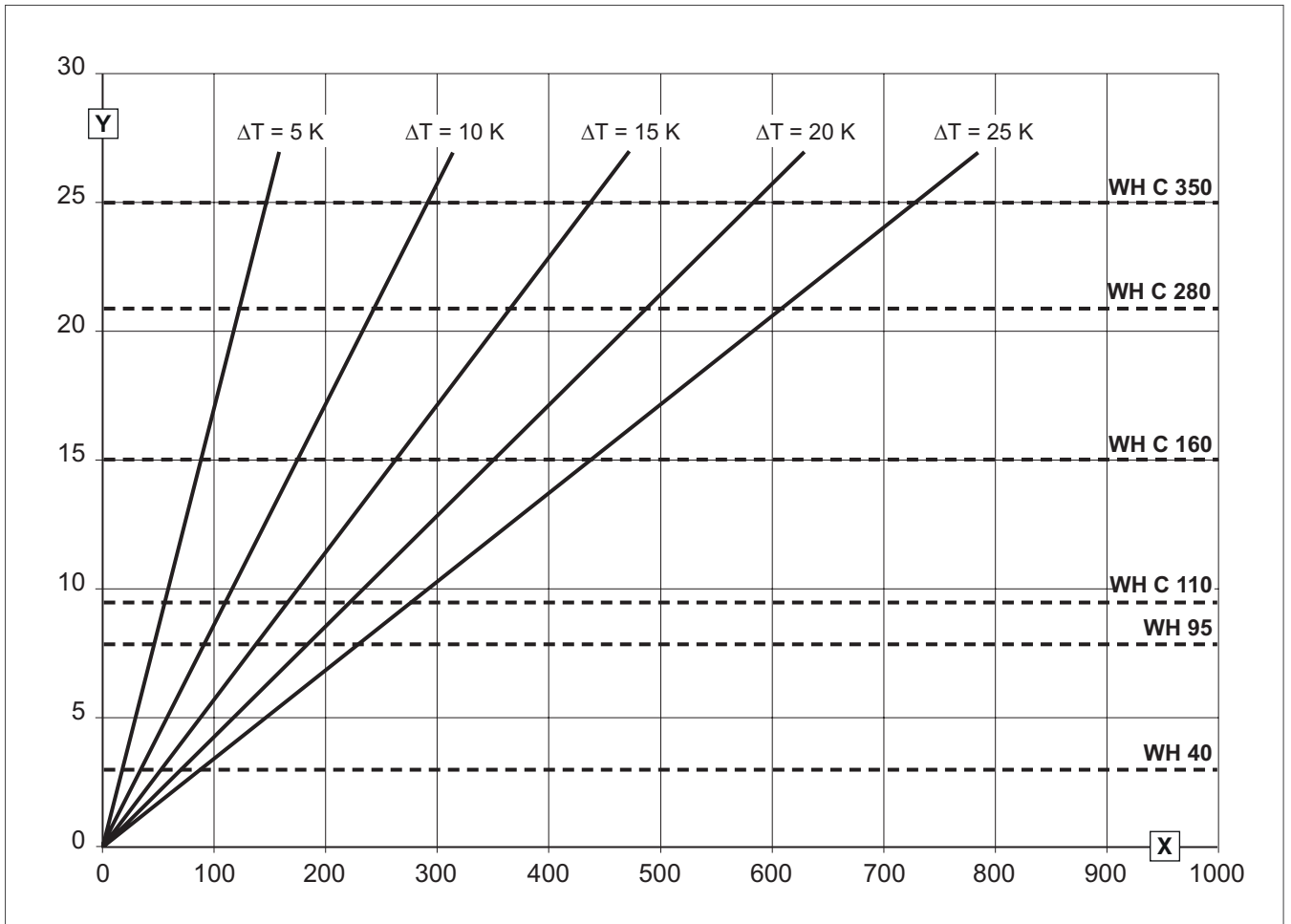


Fig 375: Diagram for calculating the volume flow with a specified power and temperature difference (WH 40 - WH 3501)

- Y Water flow rate in m³/h
- X Heat output in kW

### WH 27 low loss header, diagonal

Order no. 306727

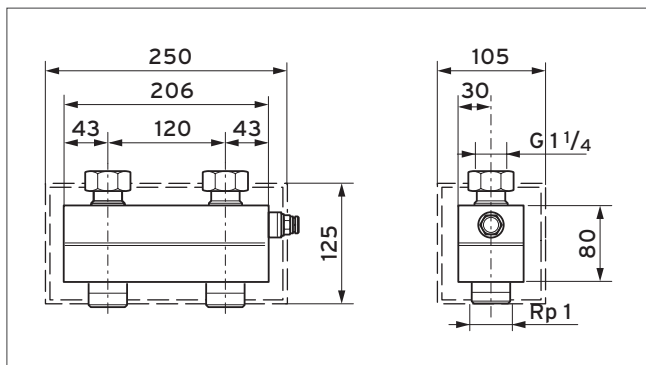


Fig 376: WH 27 low loss header, diagonal

Low loss header including heat insulation; suitable for installing under Vaillant pipe groups.

**Note**  
Order the VR 10 standard sensor (306787) as well.



Technical data, order no. 306727

	Unit	306727
Water flow	m <sup>3</sup> /h	2.72
Primary connection		Rp 1
Secondary connection		G 1 1/4

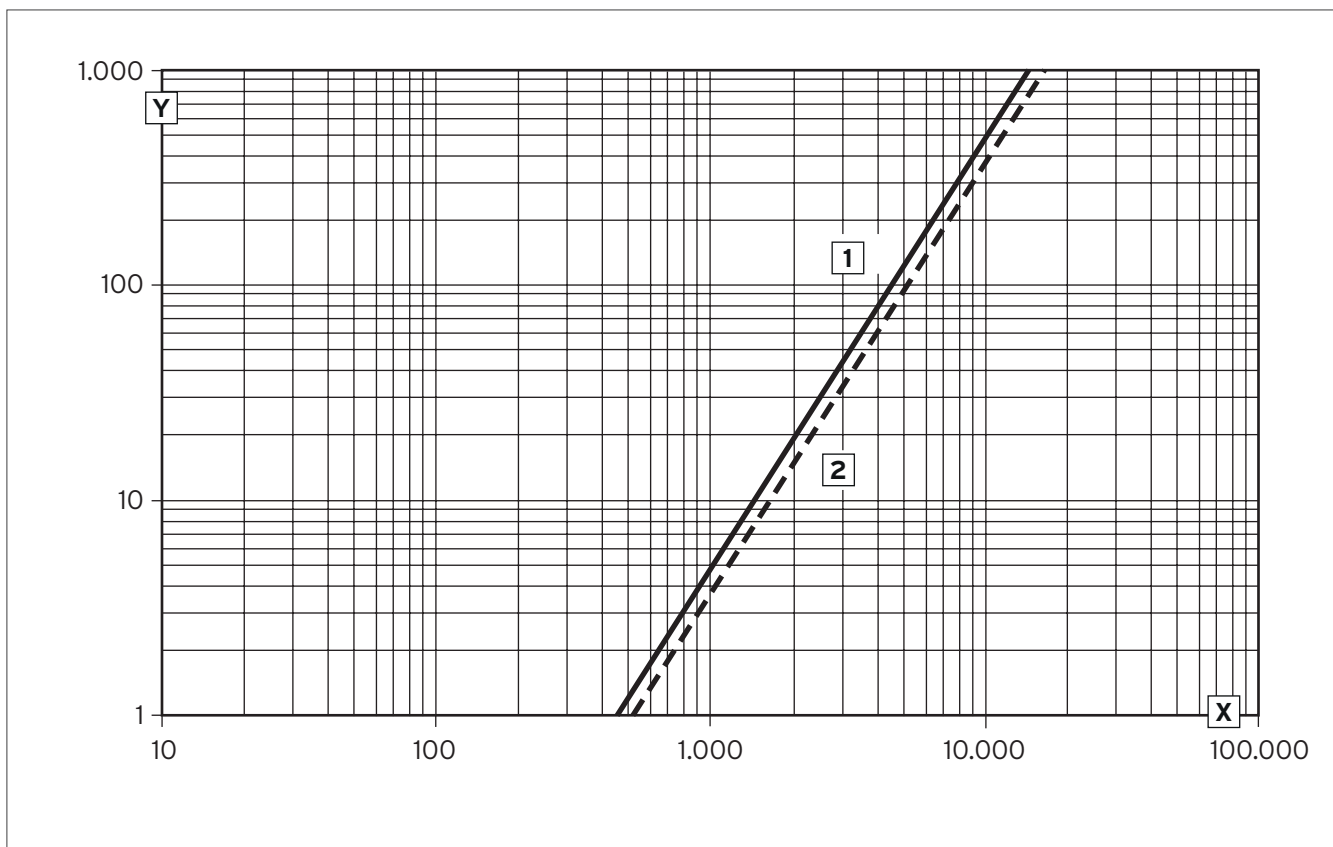


Fig 377: Pressure loss

- Y Pressure loss in mbar
- X Volume flow l/h
- 1 Secondary pressure loss
- 2 Primary pressure loss

### WHV 35 distribution manifold

Order no. 0020042429

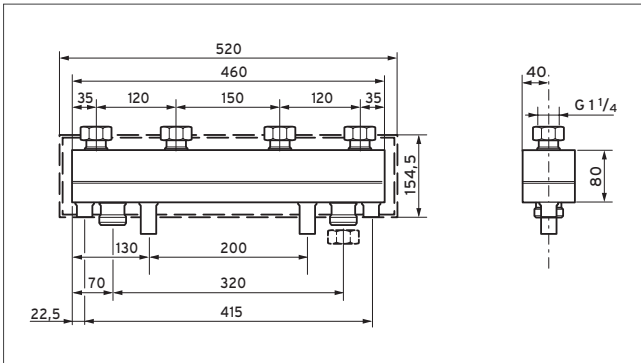


Fig 378: WHV 35 distribution manifold

Distribution manifold for two pipe groups with integrated low loss header (3.5 m<sup>3</sup>/h).

Fully preconfigured to connect two pipe groups (with or without a 3-port mixing valve), with heat insulation and sensor.

Technical data, order no. 0020042429

	Unit	0020042429
Water flow	m <sup>3</sup> /h	3.5
Primary connection		G 1 1/4
Secondary connection		G 1 1/4

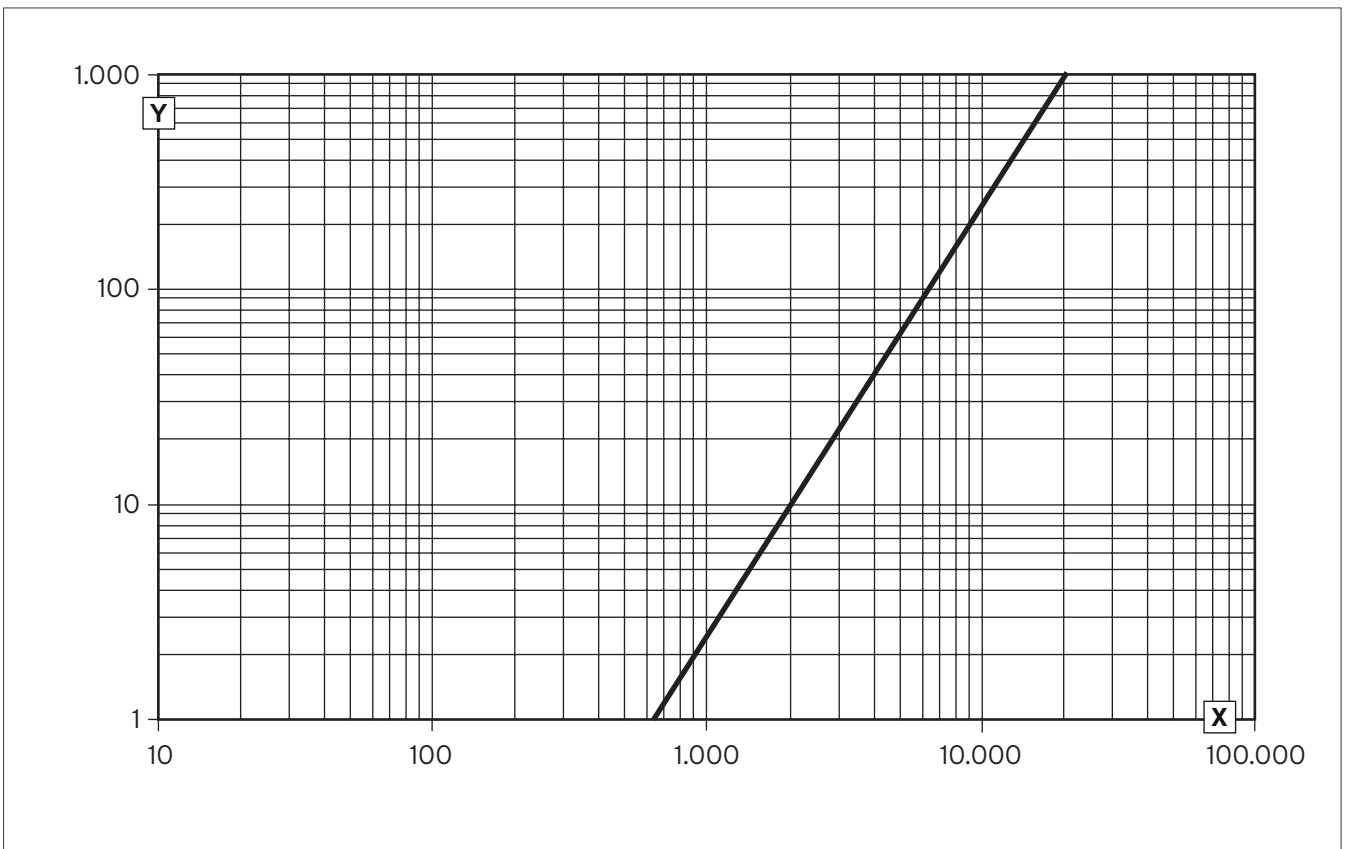


Fig 379: Pressure loss

Y Pressure loss in mbar

X Volume flow l/h

## WH 40 low loss header

Order no. 306720

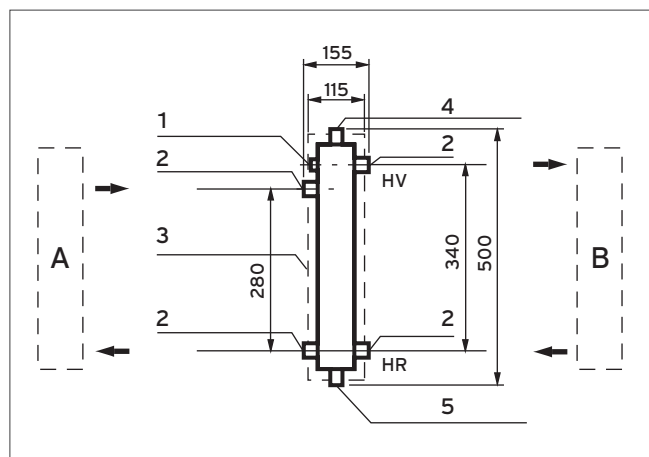


Fig 380: WH 40 low loss header

- A Heat generation circuit
- B Heat consumption circuit
- 1 Rp 1/2 temperature sensor connection
- 2 Rp 1 1/4 connections
- 3 Thermal insulation
- 4 Rp 3/8 purging connection
- 5 Rp 3/8 draining connection

### Low loss header including heat insulation and sensor.

Technical data, order no. 306720

	Unit	306720
Water flow	m <sup>3</sup> /h	3.5
Primary connection		Rp 1 1/4
Secondary connection		Rp 1 1/4
Compression		PN 6

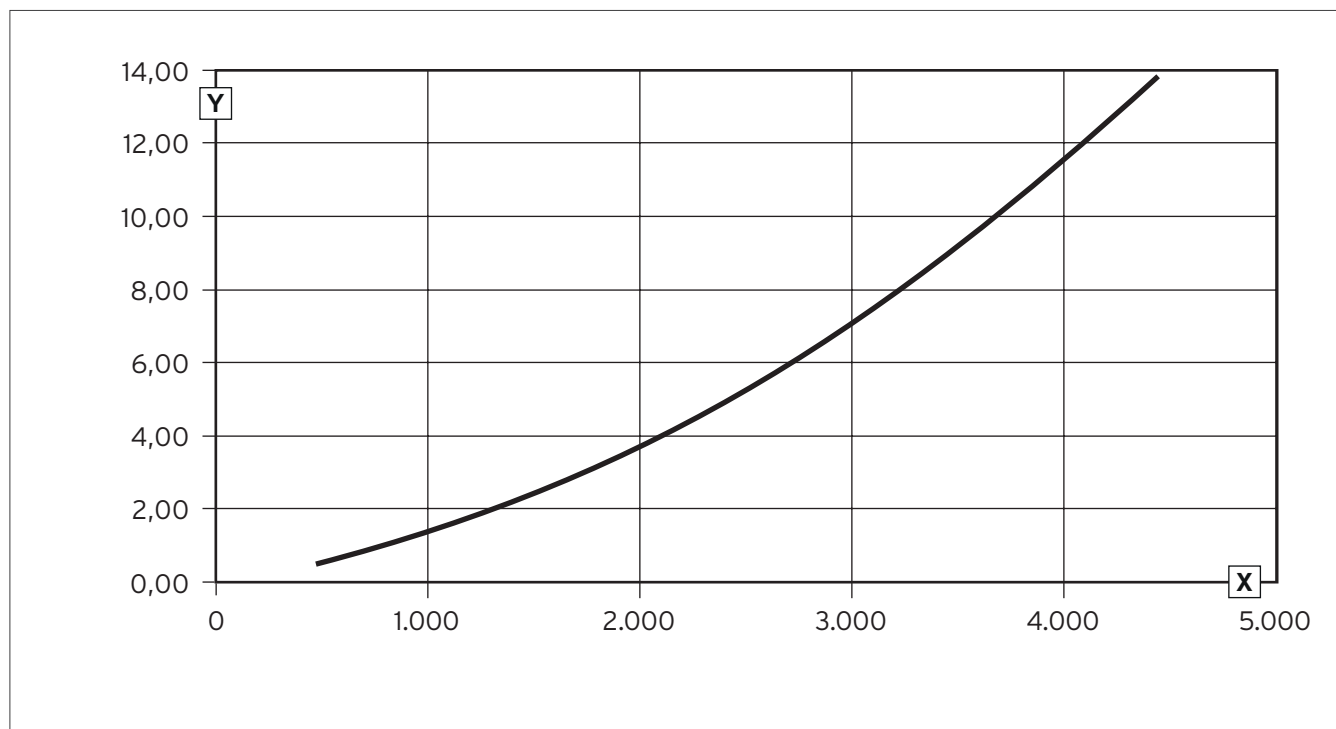


Fig 381: Pressure loss

- Y Pressure loss in mbar
- X Volume flow l/h



## WH 40-2 low loss header

Order no. 0020248932

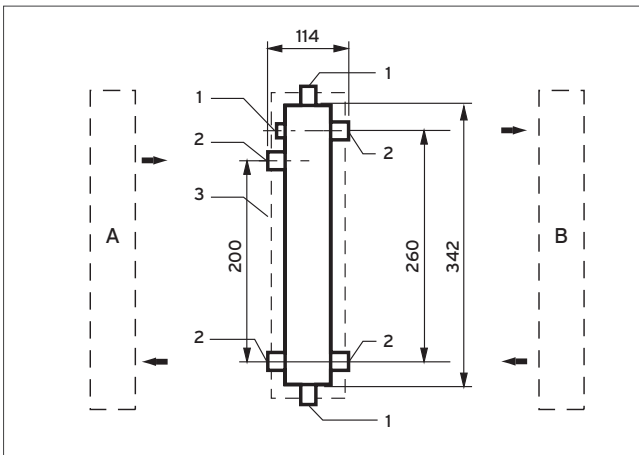


Fig 382: WH 40-2 low loss header

- A Heat generator circuit
- B Heat consumption circuit
- 1 Rp 1/2 temperature sensor connections
- 2 Rp 1 1/4 connections
- 3 Heat insulation

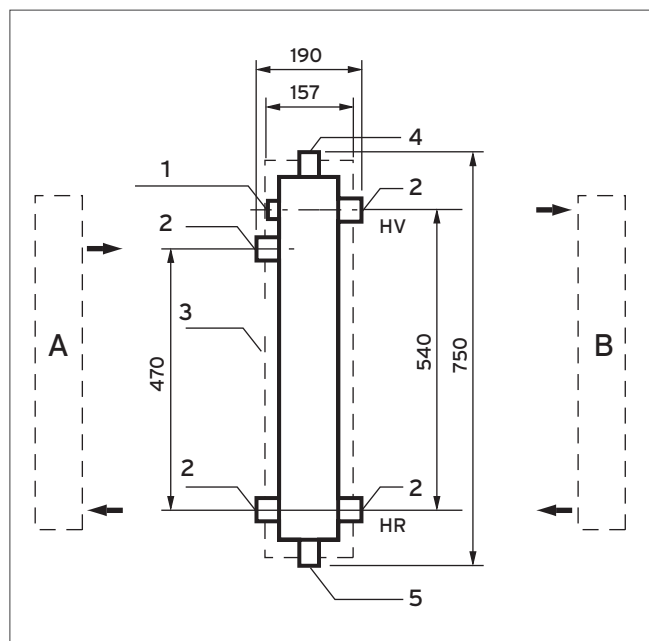
### Low loss header including heat insulation and sensor.

#### Technical data

	Unit	WH 40-2
Water flow rate	m <sup>3</sup> /h	3.5
Primary connection		Rp 1 1/4
Secondary connection		Rp 1 1/4
Compression		PN 6

### WH 95 low loss header

Order no. 306721



- A Heat generation circuit
- B Heat consumption circuit
- 1 Rp 1/2 temperature sensor connection
- 2 Rp 2 connections
- 3 Thermal insulation
- 4 Rp 3/8 purging connection
- 5 Rp 3/8 draining connection

#### Low loss header including heat insulation and sensor.

Technical data, order no. 306721

	Unit	306721
Water flow	m <sup>3</sup> /h	8
Primary connection		Rp 2
Secondary connection		Rp 2
Compression		PN 6

Fig 383: WH 95 low loss header

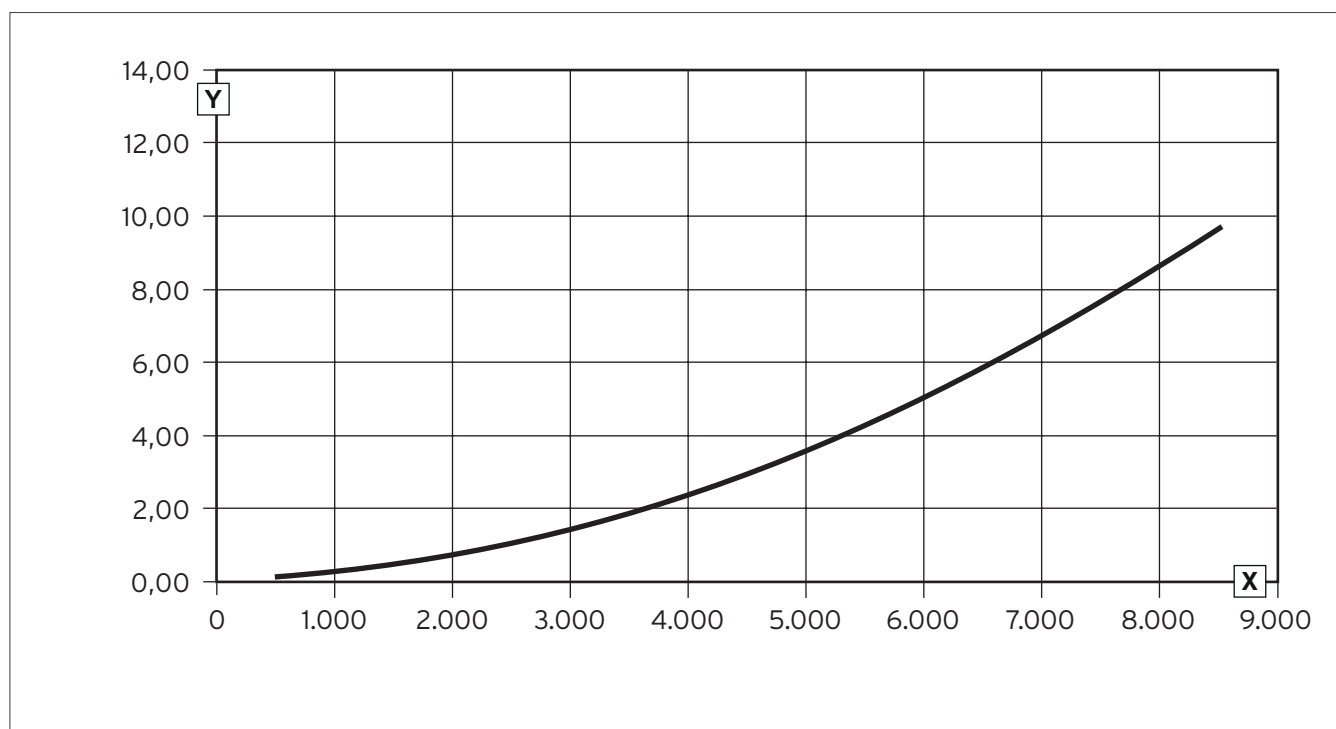


Fig 384: Pressure loss

- Y Pressure loss in mbar
- X Volume flow l/h

**WH 160, WH 280 low loss header**

Order no. 306726, 306725

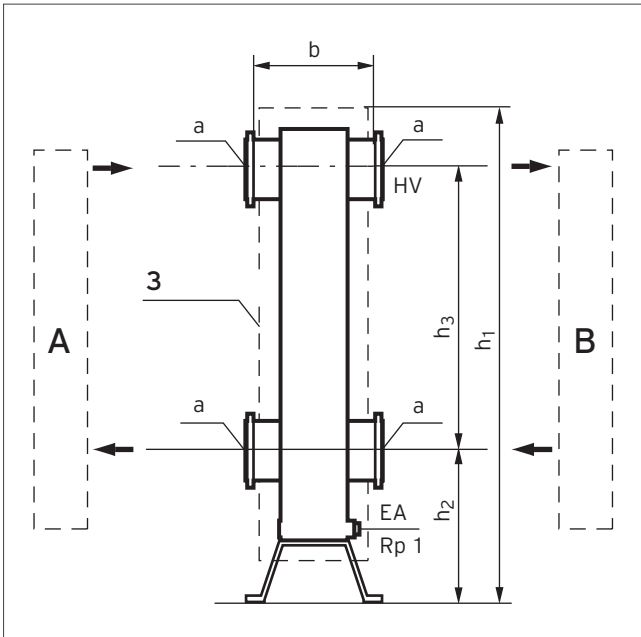


Fig 385: WH 160, WH 280 low loss header

- A Heat generator circuit
- B Heat consumption circuit

**Low loss header including heat insulation and sensor.**

Technical data, order no. 306725, 306726

	Unit	306726 WH 160	306725 WH 280
Water flow	m <sup>3</sup> /h	12	21
Primary connection (a)	-	DN 65	DN 80
Secondary connection (a)	-	DN 65	DN 80
Compression	-	PN 6	PN 6
b	mm	520	600
h	mm	1259	1269
h <sub>2</sub>	mm	269	239
h <sub>3</sub>	mm	900	930

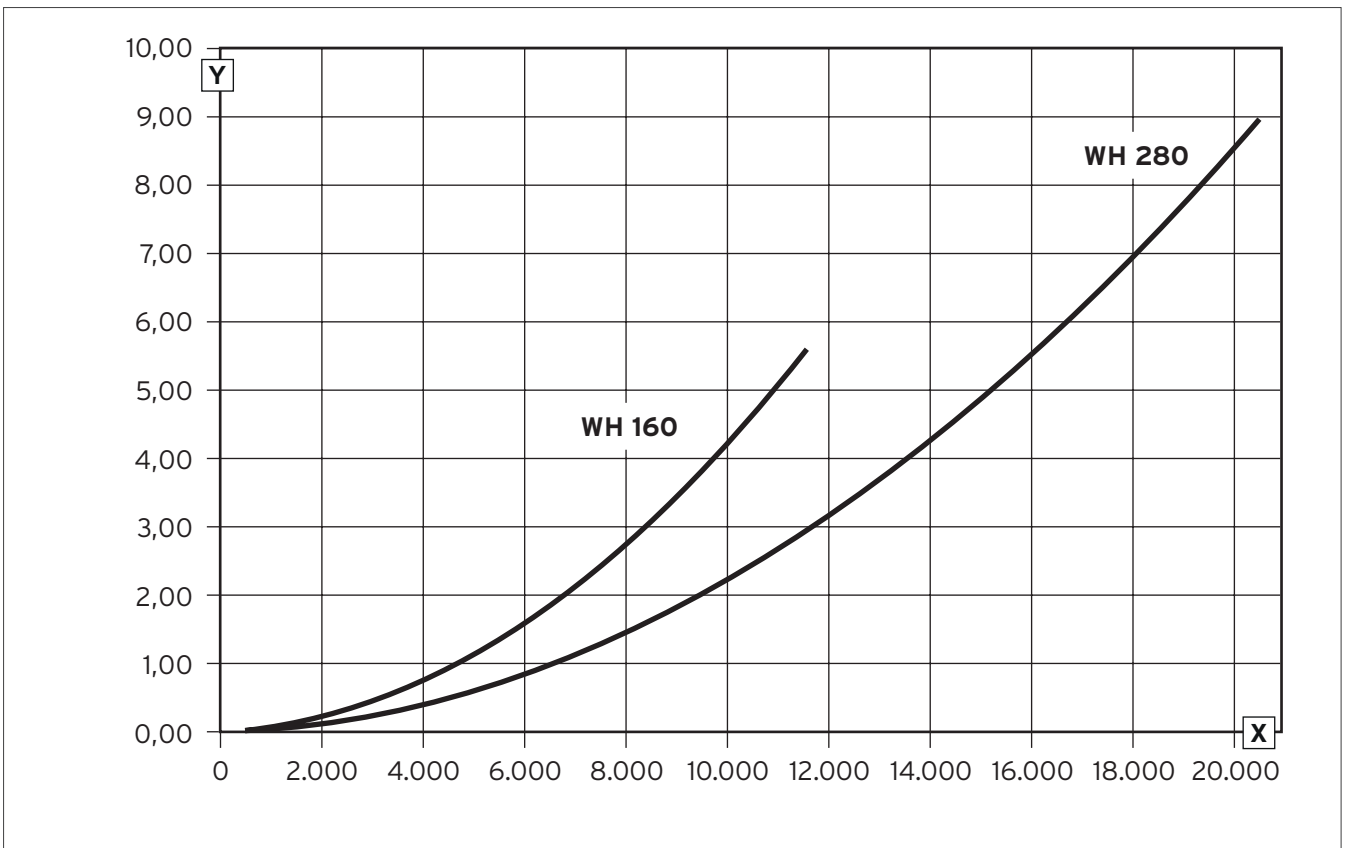
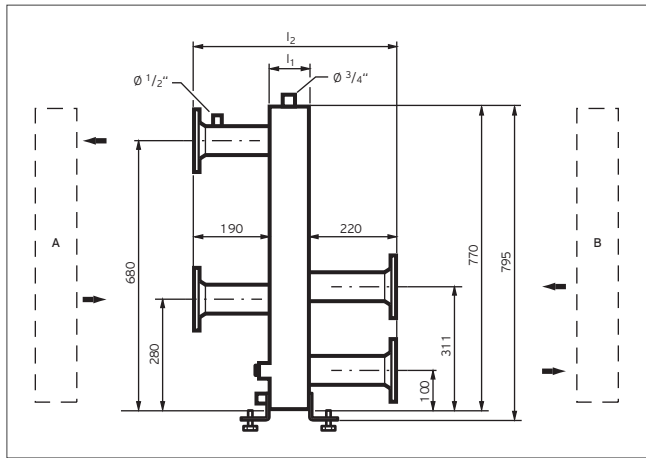


Fig 386: Pressure loss

- Y Pressure loss in mbar
- X Volume flow l/h

**WHC 110 - WHC 350 low loss header**

Order no. 0020107874, 0020107875, 0020151859, 0020107876



- A Heat consumption circuit
- B Heat generation circuit

Low loss header including heat insulation and sensor.

Fig 387: WHC 110 - WHC 350 low loss header

Technical data, order no. 0020107874, 0020107875, 0020151859, 0020107876

	Unit	WHC 110 0020107874	WHC 160 0020107875	WHC 280 0020151859	WHC 350 0020107876
Water flow	m <sup>3</sup> /h	9.5	12	21	25
$l_1$	mm	100	120	160	200
$l_2$	mm	510	510	510	510
Pressure loss	mbar	2.15	3.0	3.6	2.5
Max. heat flow (20 K)	kW	220	280	490	675

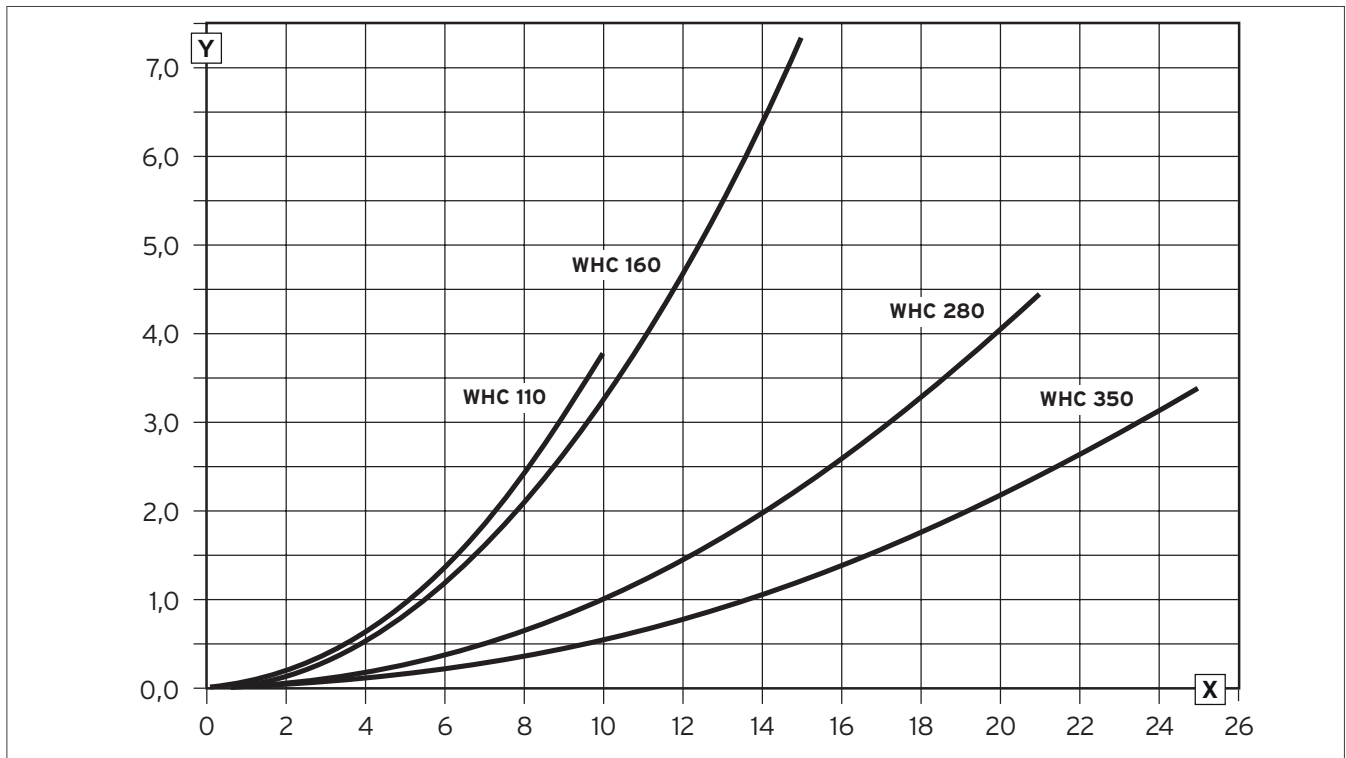


Fig 388: Pressure loss

Y Pressure loss in mbar

X Volume flow l/h

## PHE S plate heat exchanger

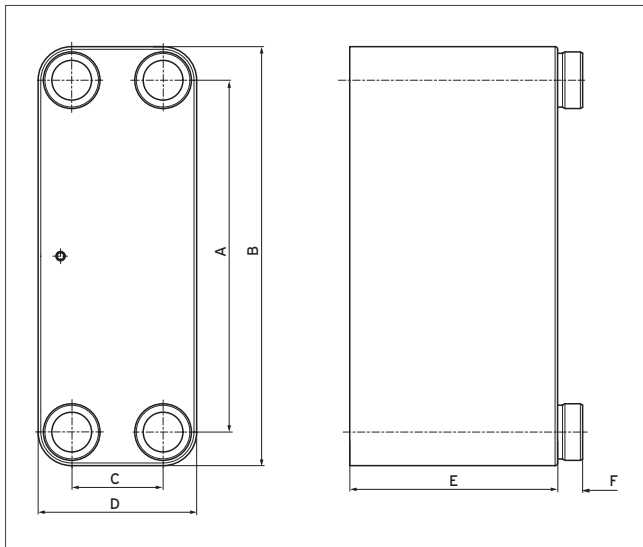


Fig 389: PHE S heat exchanger

Transferable output: 120 kW.

### Type overview

Type designation	Article number
PHE S 120-70	0020137069

### Dimensions

Dimension	Unit	PHE S 120-70
A	mm	281
B	mm	335
C	mm	73
D	mm	124
E	mm	166
F	mm	20

### Technical data table

	Unit	PHE S 120-70	PHE C 240-40	PHE C 360-70	PHE C 480-90	PHE C 600-120	PHE C 720-170
Material	–	Stainless steel					
Connection	–	1 1/4 " screw connection	Flange connection				
Weight	kg	10.70	40.80	57.00	70.92	87.12	114.12
Plates	–	70	40	70	90	120	170
Volume (primary side)	l	2.21	4.20	7.51	9.72	13.04	18.56
Volume (secondary side)	l	2.28	4.42	7.74	9.95	13.26	18.79
Operating temperature	°C	-196 ... +200					
Max. operating pressure	MPa (bar)	3.0 (30)	0.6 (6)				

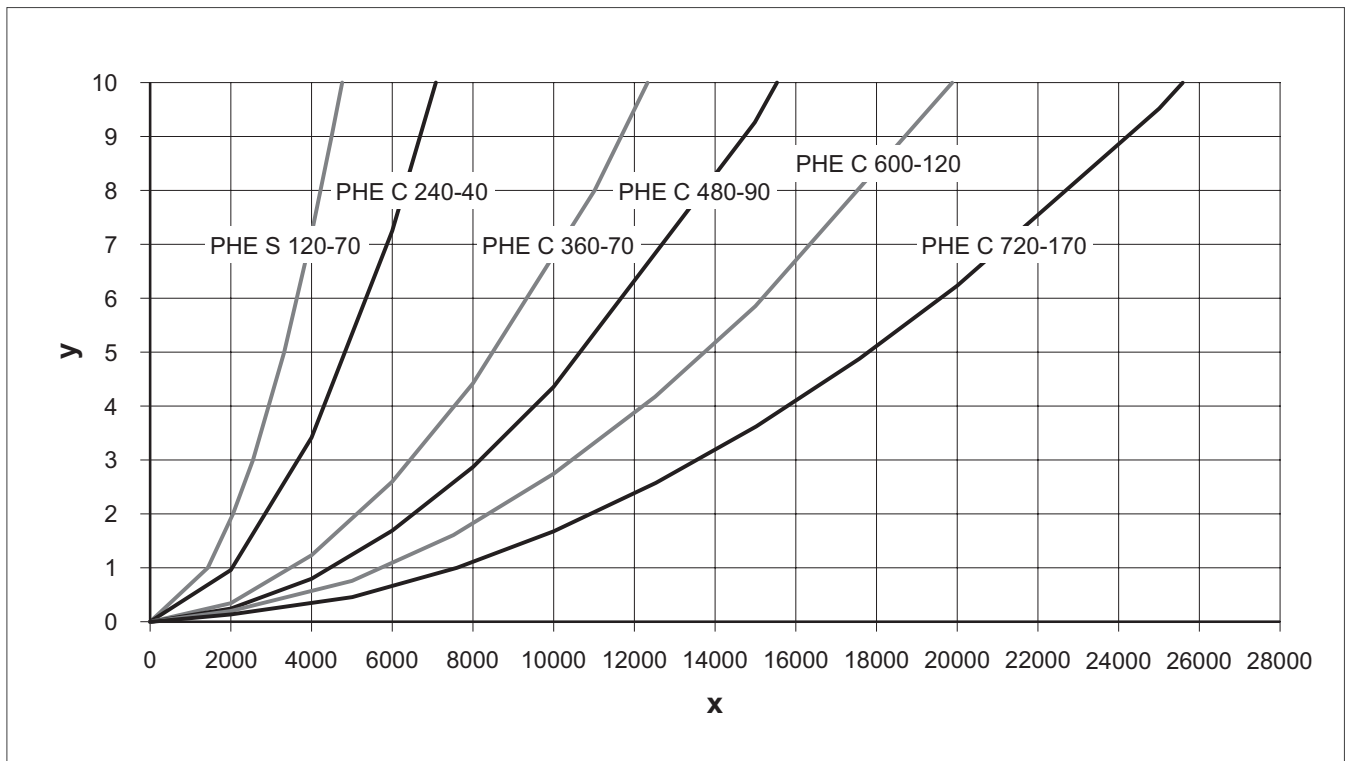


Fig 390: Primary side pressure loss

Y Pressure loss in kPa  
 X Mass flow in kg/h

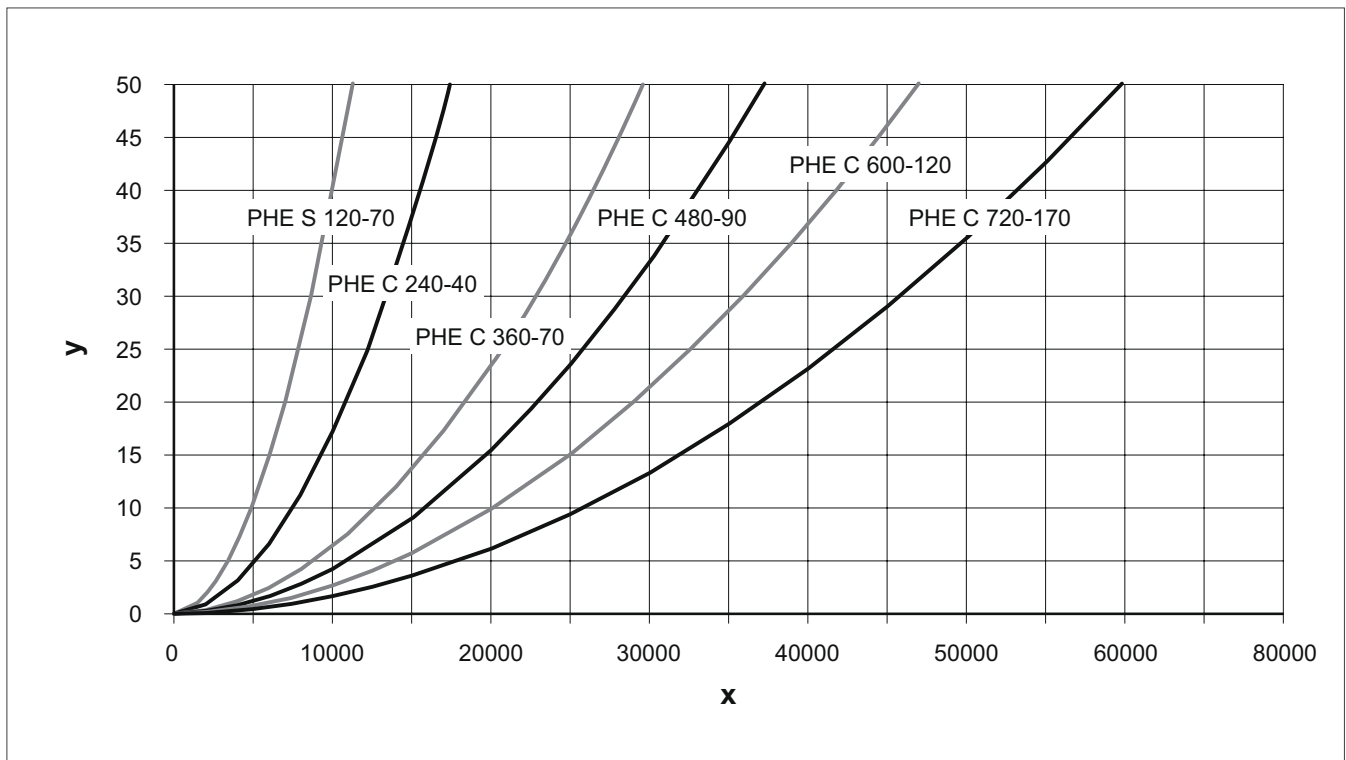


Fig 391: Secondary side pressure loss

Y Pressure loss in kPa  
 X Mass flow in kg/h

## PHE C plate heat exchanger

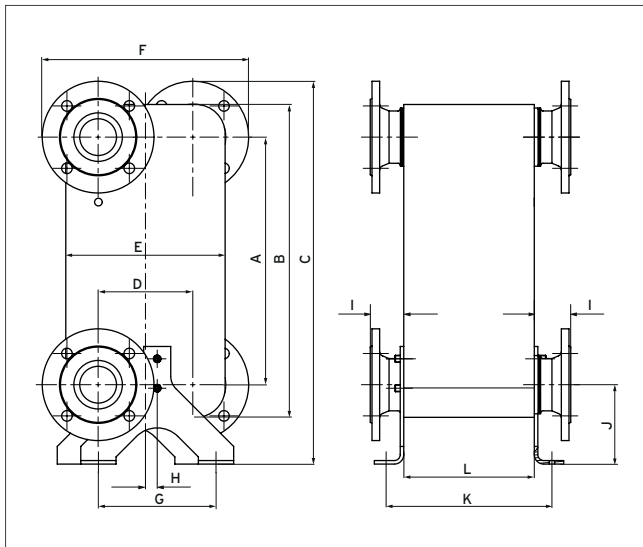


Fig 392: PHE C heat exchanger

Transferable output: 240-720 kW.

### Type overview

Type designation	Article number
PHE C 240-40	0020137070
PHE C 360-70	0020137071
PHE C 480-90	0020137072
PHE C 600-120	0020137073
PHE C 720-170	0020137074

### Dimensions

Unit	Unit	A	B	C	D	E	F	G	H	I	J	K	L
PHE C 240-40	mm	421	532	636	161	271	321	200	20	86	135	175	105
PHE C 360-70	mm											246	176
PHE C 480-90	mm			651			351			62		292	222
PHE C 600-120	mm											362	292
PHE C 700-170	mm											479	409

### Technical data table

	Unit	PHE S 120-70	PHE C 240-40	PHE C 360-70	PHE C 480-90	PHE C 600-120	PHE C 720-170
Material	-	Stainless steel					
Connection	-	1 1/4 " screw connection	Flange connection				
Weight	kg	10.70	40.80	57.00	70.92	87.12	114.12
Plates	-	70	40	70	90	120	170
Volume (primary side)	l	2.21	4.20	7.51	9.72	13.04	18.56
Volume (secondary side)	l	2.28	4.42	7.74	9.95	13.26	18.79
Operating temperature	°C	-196 ... +200					
Max. operating pressure	MPa (bar)	3.0 (30)	0.6 (6)				

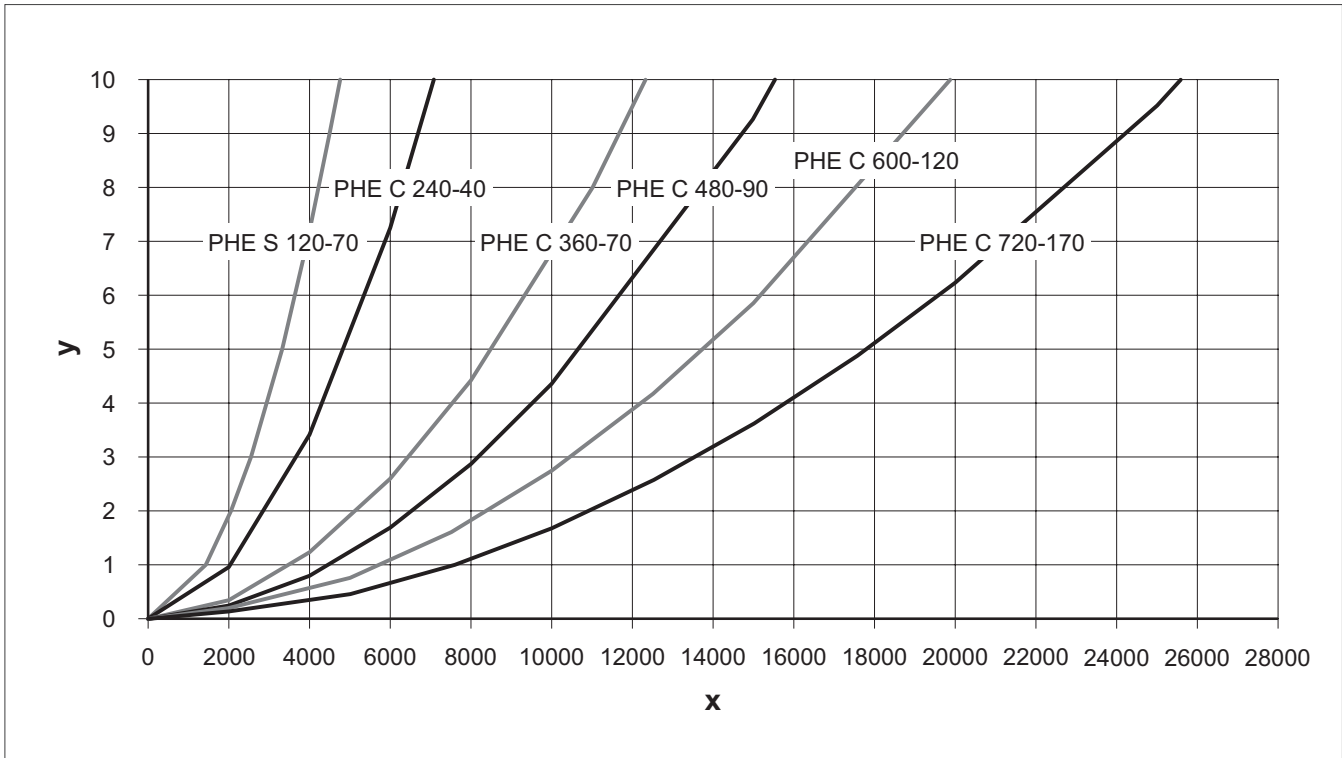


Fig 393: Primary side pressure loss

Y Pressure loss in kPa  
X Mass flow in kg/h

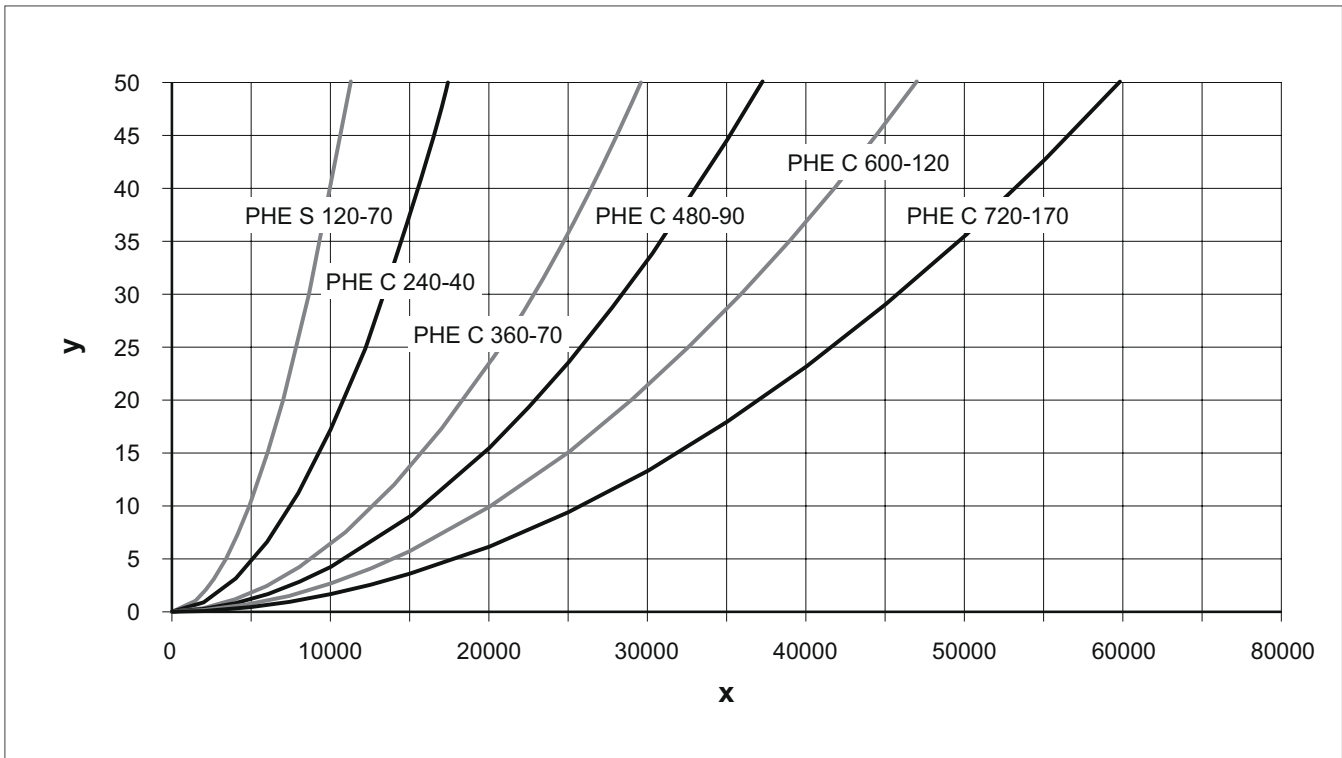


Fig 394: Secondary side pressure loss

Y Pressure loss in kPa  
X Mass flow in kg/h



## 20.4 Accessories for the heat generator

Order no. 0020106065 and 0020106073



Fig 395: High-efficiency boiler circuit pump

Optional high-efficiency boiler circuit pump (efficiency class A) for the **ecoTEC plus** incl. connection cable and insulation (Energy Saving Ordinance).

Only required if an surface-mounted installation set, article no. 0020106060 or 0020106070, is not being used.

Technical data

	0020106065	0020106073
Can be used for the	ecoTEC plus VC 1006/5-5 VC 1206/5-5	ecoTEC plus VC 806/5-5

### Pump diagrams

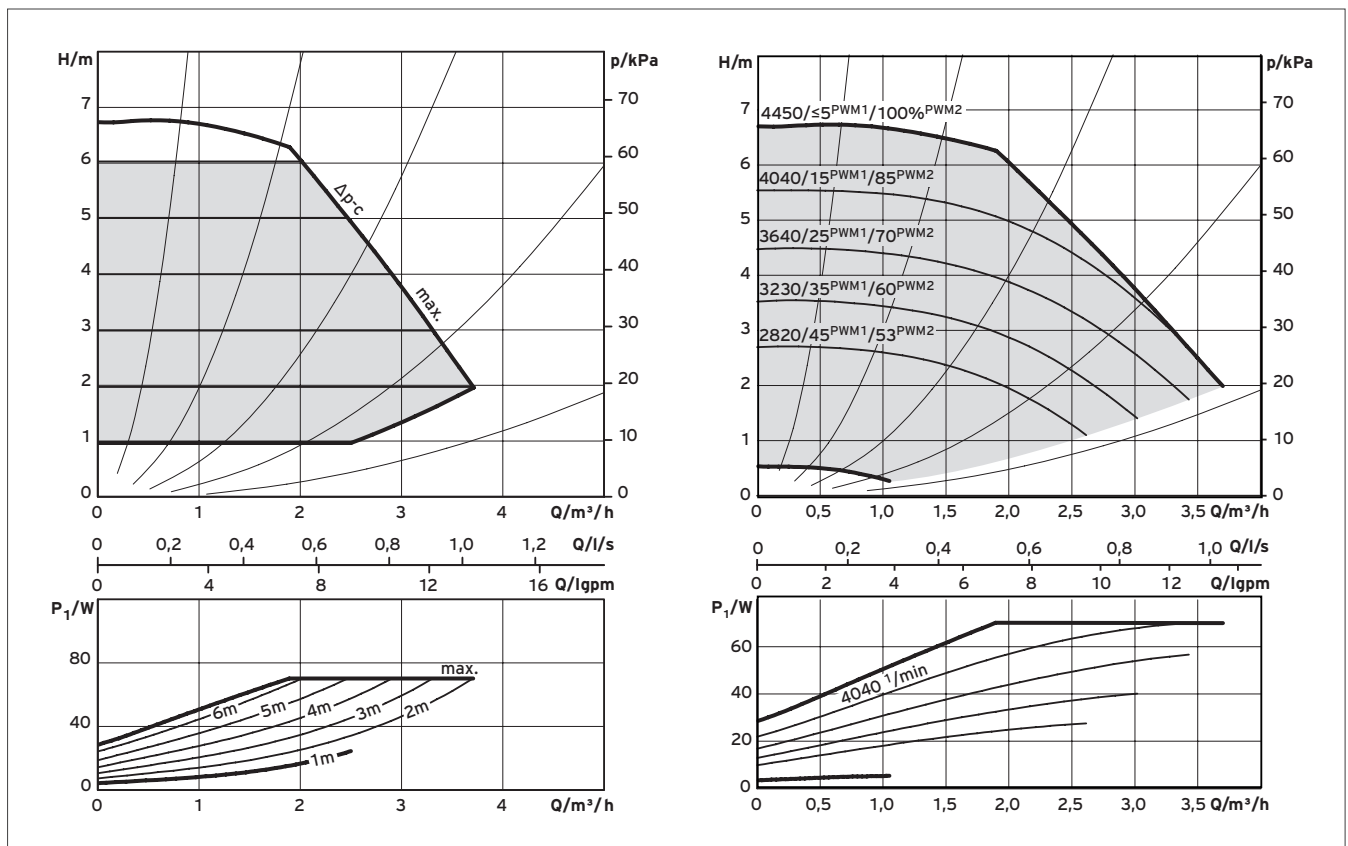


Fig 396: Pump diagram 0020106073

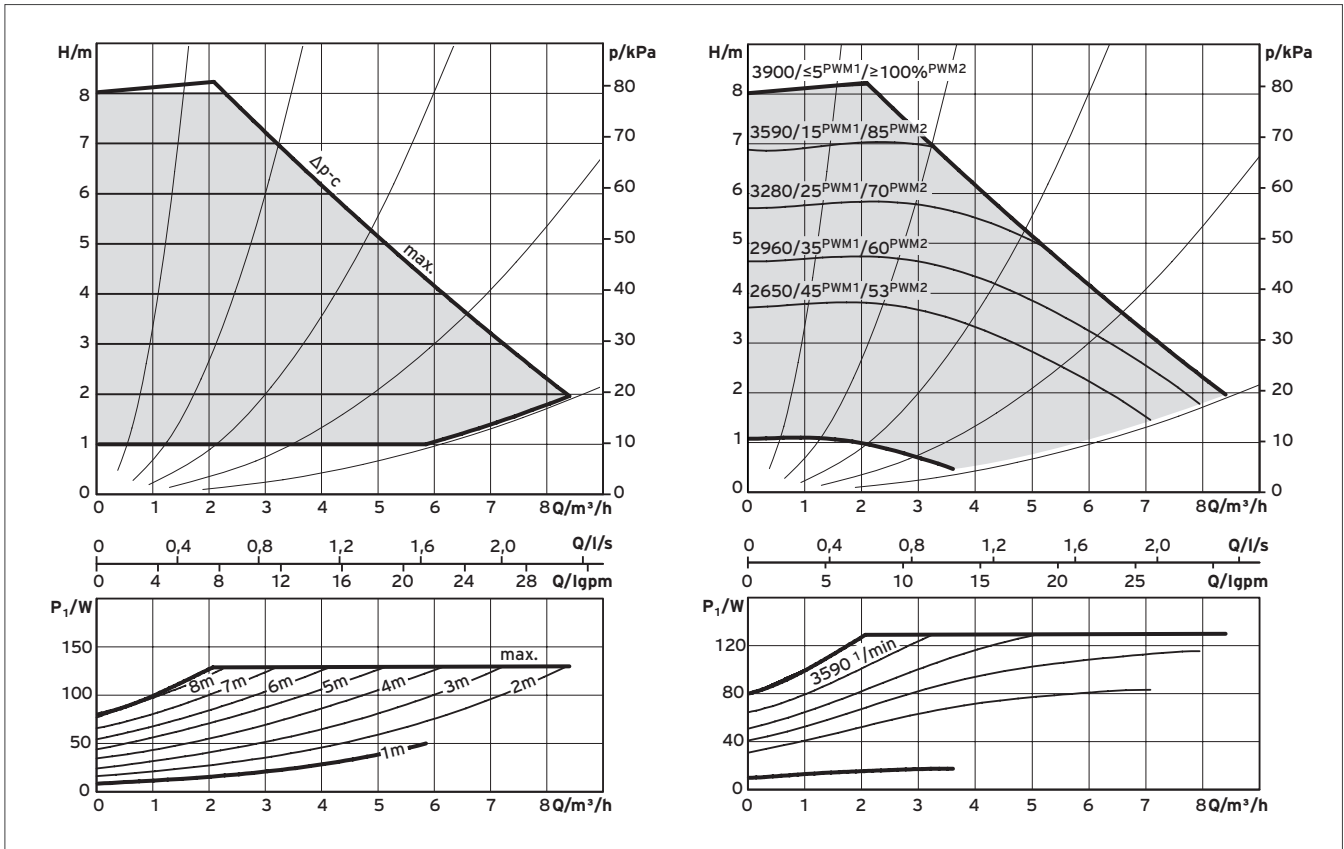


Fig 397: Pump diagram 0020106065

Order no. 0020180027 and 0020180028

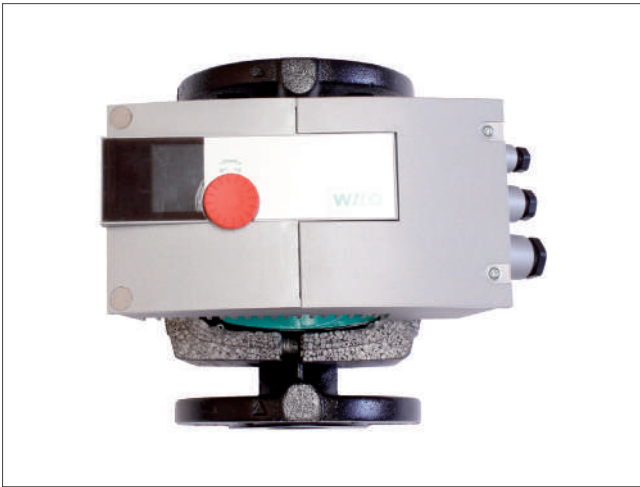


Fig 398: High-efficiency boiler circuit pump

Technical data

	0020180027	0020180028
Can be used for the	ecoTEC CRAFT VKK 806/3, VKK 1206/3, VKK 1606/3	ecoTEC CRAFT VKK 2006/3, VKK 2406/3, VKK 2806/3-E

Pump diagrams

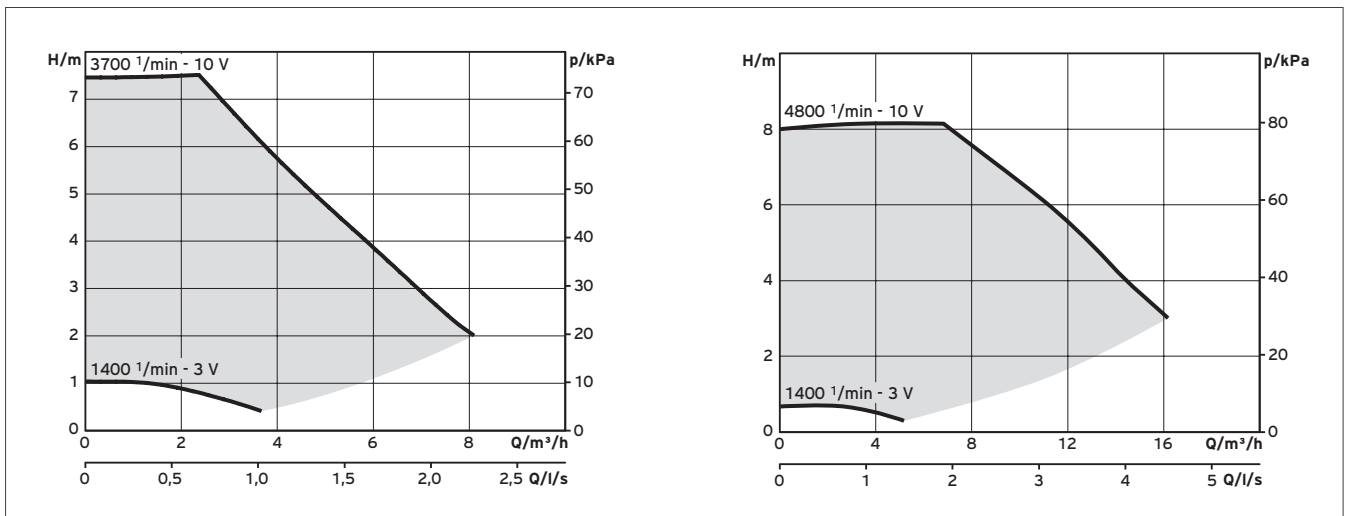





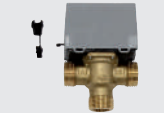







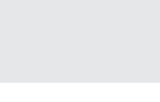


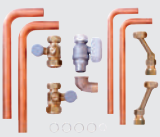


Fig 399: Pump diagrams 0020180027, 0020180028




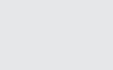

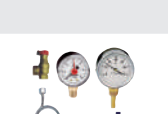

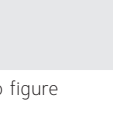
## 20.5 Accessories for hot water generation

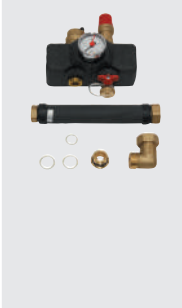


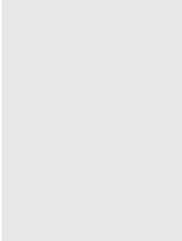
Accessories	Description	Order no.
<b>Hot water connection accessories</b>		
	VC cylinder retrofitting kit for the <b>ecoTEC plus/ecoTEC exclusive</b> , over plaster/grout, consisting of: Cylinder sensor, heating-side piping (22 x 1.5 mm), service valves with G 3/4 screwed connections, gas-side piping (15 x 1.5 mm), R 1/2 gas valve, R 3/4 cylinder flow and return connection x 15 mm compression joint, pipes can be shortened	0020201898
	VC installation set for replacing an old installation with the <b>ecoTEC plus</b> in existing installation systems with cylinder, grout, consisting of: Heating-side piping with G 3/4 x 22 mm service valves with angled compression joint incl. G 3/4 x R 3/4 extensions, gas-side piping with R 1/2 x 15 mm gas valve with R 1/2 angled compression joint, 15 mm dia. pipe connection to cylinder incl. R 1/2 compression joints, pipes can be shortened; existing installation accessories must be removed.	0020201902
	Safety group for cold water connection and mains overpressure up to 10 bar, for cylinders up to 200 l capacity, consisting of: Stop cock, 10 bar expansion relief valve, integrated return flow prevention, tundish and connection piece	0020042427
	Anti-legionella set, consisting of: Anti-legionella pump, connection pipes, connection fittings, brass connection T-piece with integrated return flow prevention Optional installation set with pump and connection pipes to ensure that the entire contents of the cylinder are thermally disinfected <b>Note: Only suitable for auroCOMPACT VSC S .../4-5.</b>	0020170501
	Cylinder charging set, consisting of: Diverter valve, incl. connection accessories, can be used for the VC 356/4-7 <b>Note: Bypass valve (0020059561) required, must be ordered in addition</b>	0020059562
	Diverter valve with motor, connection cable, can be used for the: <b>ecoTEC exclusive, ecoTEC plus</b> VC 146 - 316, <b>ecoTEC plus</b> VC 806 - 1206 <b>Note: Is required to provide a hydraulic connection between a cylinder and a VC boiler; can also be used to switch heating circuits on or off.</b>	009462

Accessories	Description	Order no.
	Circulation set with pump: With return flow prevention, connection pipe, connection fittings, brass G 3/4" - G 3/4" connection T-piece, coupling with integrated return flow prevention, cut-off for VSC, VCC, VSC S, pipe set with pump for circulation connection on the back of the unit, can be used for the: <b>auroCOMPACT, ecoCOMPACT</b>	0020170503
	Drinking water expansion vessel installation set, 8-litre flow-through, 3/4" connection fittings, G 3/4" flexible connection pipes, EPS padding, can be used for the: <b>auroCOMPACT, ecoCOMPACT</b> <b>Note: For VSC S 4-5 only: The drinking water expansion vessel installation set cannot be used when installing an installation set for a non-controlled heating circuit (order no.: 0020170507) or an expansion set for a controlled heating circuit (order no.: 0020170508).</b>	0020180979

## 20.6 Accessories for unit installation

Accessories	Description	Order no.
<b>Gas connection accessories</b>		
	R/Rp 3/4 gas ball valve, corner, with fire protection device	300845
	R/Rp 1 gas ball valve, corner, with fire protection device	300846
	Rp 3/4 gas ball valve, passage, with fire protection device	300848
	Rp 1 gas ball valve, passage, with fire protection device	300849
<b>Heat generator connection accessories</b>		
	VC installation set, consisting of: 2x G 1 1/2 x Rp 1 1/4 service valves, expansion with bypass valve (0020059561) for VC 356/4-7, for single-circuit systems where a low loss header is not used. For <b>ecoTEC exclusive</b> VC 356/4-7 to 656/4-7.	0020059560
	Thermal insulation covers (EnEV): 2 pcs, black. For installation set 0020059560.	0020106195
	VCW installation set for the <b>ecoTEC plus</b> on on-site installation systems, new installation, consisting of: Heating-side service valves with G 3/4 screwed connection, R 1/2 gas valve with 15/18/22 mm gas pipe, R 1/2 cold- and domestic hot water-side connections with cold water shut-off <b>Note: When calculating the gas line system in accordance with DVGW-TRGI, apply the pressure loss in a 1/2" corner gas valve for the gas valve and an extension for the gas pipe.</b>	0020201895
	Installation set for connecting gas-fired compact boilers to on-site piping, consisting of: 3/4" service valves, R/Rp 1/2" corner gas valve, 1/2" combined filling and emptying valve, 3 bar expansion relief valve, ability to connect an internal drinking water expansion vessel. Can be used for the <b>auroCOM-PACT</b> and <b>ecoCOMPACT</b> .	0020170491
	Rp 3/4 bypass valve, can be adjusted from 100 to 350 mbar for the <b>ecoTEC exclusive</b> VC 356/4-7. <b>Note: Only for use in single-circuit systems where a low loss header is not installed.</b>	0020059561

Accessories	Description	Order no.
	Over-plaster installation set for the <b>ecoTEC plus</b> VC 806/5-5, consisting of: 1/1/2" horizontal connection piping to the boiler, high-efficiency pump, 1/2" filling/draining cocks, connection for R 1" expansion relief valve and R 1 expansion vessel. Thermal insulation cover (Energy Saving Ordinance (EnEV)) article no. 0020138349 for installation set available separately.	0020106070
	Over-plaster installation set for the <b>ecoTEC plus</b> VC 1006-1206/5-5, consisting of: 1/1/2" horizontal connection piping to the boiler, high-efficiency pump, 1/2" filling/draining cocks, connection for R 1" expansion relief valve and R 1" expansion vessel. Thermal insulation cover (Energy Saving Ordinance (EnEV)) article no. 0020138349 for installation set available separately.	0020106060
<b>Safety equipment</b>		
	Rp 1/2" expansion relief valve: Up to 3.0 bar, TÜV component identification. SV. 90-856.H.50.3 < 50 kW. <b>Note: Not for ecoTEC plus.</b>	009318
	Rp 3/4 expansion relief valve: Up to 3.0 bar, TÜV component identification. SV. 03-557.H.100 < 50 kW.	0020014446
	Rp 1" expansion relief valve: Up to 3 bar, for <b>ecoTEC plus</b> VC 806 - 1206/5-5 installation set.	0020106056
	Rp 1" expansion relief valve: Up to 4 bar, for <b>ecoTEC plus</b> VC 806 - 1206/5-5 installation set.	0020106057
	Rp 1" expansion relief valve: Up to 6 bar, for <b>ecoTEC plus</b> VC 806 - 1206/5-5 installation set.	0020106058
	ISPEL component set, consisting of: Safety pressure limiter with manual reset, safety cut-out, thermometer, manometer, pipe with damper, ISPEL-compliant isolation valve, cylinder dry pocket, expansion relief valve. <b>Note: Not available for Germany.</b>	0020072437
No figure	ISPEL component set, consisting of: 2-way valve, 3-way valve, flat seals. <b>Note: Not available for Germany.</b>	0020112159
No figure	ISPEL individual pipe: For IT only. <b>Note: Not available for Germany.</b>	0020106206

Accessories	Description	Order no.
	Rp 1/2 boiler safety group for <b>ecoVIT</b> up to 50 kW, fully preassembled, consisting of: Boiler safety group (≤ 65 kW), 3 bar to 50 kW expansion relief valve (Rp 1/2), removable EPP insulating cover, manometer, automatic air vent, filling device, 3/4" sealing ring, connection pipe with insulation and 3/4" and 1" union nuts, 1" sealing ring (2 pcs), brass connection bracket with 1" union nut, G 1 x R 3/4 adapter nipple with O-ring (enclosure)	307591
	Rp 3/4 boiler safety group for <b>ecoVIT VKK 656</b> , fully preassembled, consisting of: Boiler safety group (≤ 65 kW), 3 bar to 65 kW expansion relief valve (Rp 3/4), 90° bracket (Rp 1 - R 1), EPP insulation (two-part), 230 mm pipe insulation, 45° bracket (Rp 1 - R 1), T-piece (R 1 - Rp 1 - Rp 1), 1" steel pipe (250 mm), manometer, automatic air vent	0020060830
	Boiler safety group: Fully preassembled with manometer, automatic air vent (both with automatic isolator device), 3 bar to 80 kW 3/4" combined filling and emptying valve and expansion relief valve, incl. connection pipe and heat insulation. Can be used for the VKK 806/3-E.	0020060828
	Boiler safety group: Fully preassembled with manometer, automatic air vent (both with automatic isolator device), 3 bar to 200 kW 14" combined filling and emptying valve and expansion relief valve, incl. connection pipe and heat insulation. Can be used for the VKK 1206/3-E, VKK 1606/3-E, VKK 2006/3-E.	0020060829

Accessories	Description	Order no.
<b>Neutralisation and system protection</b>		
	Neutralisation device up to 35 kW Vertical installation to the condensate discharge (3/4" outside thread). For installation in metallic lines (steel, copper). Annual replacement required.	0020247275
	<b>ecoLEVEL</b> condensed water pump with 0.5 l tank volume: For pumping away condensed water if natural drainage is not possible. 230/50 V/Hz electrical connection, weight 1.8 kg, volume flow: 150 l/h, Connections: 1.15 m inlet hose, 24 mm diameter; 6.0 m outlet hose, 10 mm diameter	306287
	Neutralisation device with condensed water feed pump up to 200 kW Incl. DN 20 drain hose, DN 20 feed hose, small parts and granules	301374
	Neutralisation device with condensed water feed pump up to 360 kW Incl. DN 20 drain hose, DN 20 feed hose, small parts and granules	0020106190
	Neutralisation device up to 450 kW: Plastic container with neutralisation medium incl. DN 20 drain hose, DN 20 feed hose, small parts and granules	009730
<b>Other</b>		
	Tundish to connect to the overflow line: R 1 tundish with siphon and collar	000376

# 21. Control technology

## 21.1 Product description for the sensoCOMFORT VRC 720



Fig 400: sensoCOMFORT 720

### Technical data

Rated voltage	9 to 24 V $\overline{---}$
Rated surge voltage	330 V
Pollution degree	2
Rated current	< 50 mA
Supply line cross-section	0.75 to 1.5 mm <sup>2</sup>
IP rating	IP 20
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 60 °C
Current room air hum.	35 to 95 %
Mode of operation	Type 1
Height	109 mm
Width	175 mm
Depth	26 mm

### Special features

- Weather-compensated eBUS control with TFT graphic display
- Comfortable sensoApp control for Android and iOS (VR 921 Internet module required)
- Intuitive operation without the need for prior knowledge using touch control elements
- Fast start-up and system configuration thanks to guided questions in the installation assistant
- Can be used for domestic hot water generation (cylinder charging) without an additional module and in a non-regulated heating circuit
- Can be added to with VR 70 and VR 71 modules
- triVAL parameter for optimising the efficiency of the hybrid system
- Moisture sensor control in conjunction with the geoTHERM VWL... 5/4, flexoTHERM VWF... 7/4, flexoCOMPACT VWF... 8/4 and aroTHERM for humidity prevention in cooling mode
- Integrated actuation of Vaillant recoVAIR ventilation units
- Integrated actuation of hybrid systems
- Cascade system of up to seven conventional (gas/oil) eBUS heat generators of the same type and output for heating and domestic hot water
- Cascade system of up to seven heat pumps (flexoTHERM or aroTHERM) of the same type and output for heating, cooling and domestic hot water. A back-up boiler (eBUS boiler) can also be incorporated
- **External cooling mode: A heat or cooling demand is specified for the VRC 720/2 via an external control**

### Equipment

- Adaptive heat curve
- Room temperature modulation for adjusting the flow temperature
- TFT graphic display (70 x 53 mm)
- Weekly programme
- Time programme for heating, cooling, domestic hot water and circulation
- „Days away from home“ function
- Ventilation function
- One-time cylinder charging outside of time programming
- Thermal disinfection
- Anti-legionella function for bivalent solar cylinders
- Flexible screed-drying function
- Graphical solar yield, environmental yield and power consumption indicator
- EEBus ready (VR 921 Internet module required)
- **Isolating circuit in cascade mode**

### Potential applications

- Can be used with a VR 71 main wiring centre as a solar control (up to 3 x regulated heating circuits)
- Can be used with a VR 70 wiring centre (1 x direct and 1 x non-regulated heating circuit)
- Up to nine heating circuits can be used (1 x VR 71 + 3 x VR 70)
- VR 92 remote control can be added
- For all Vaillant boilers with an eBUS interface
- A control can be used for renewable energies and conventional heating equipment with an eBUS interface
- A VR 32/3 bus coupler is required to integrate a recoVAIR ventilation unit or a hybrid unit
- To cascade conventional (gas/oil) heat generators with eBUS electronics and the flexoTHERM heat pump, a VR 32/3 is required for every heat generator from the second one onwards
- To cascade the aroTHERM heat pump, a VR 32 B is required for every heat pump from the second one onwards

#### Note

For underfloor heating, a VRC 9642 surface-mounted thermostat is also required for the underfloor heating circuit.



### sensocomFORT VRC 720 and control module combinations

The following combinations are possible:

- VR 71 and optional 1 to 3 x VR 92f

or

- VR 71 and 1 to 3 x VR 70 and optional 1 to 4 x VR 92
- Maximum number of VR 92 remote controls:
  - Without VPM W and without VPM S: Maximum 4 x VR 92
  - With VPM W and without VPM S: Maximum 4 x VR 92
  - With VPM W and with VPM S: Maximum 4 x VR 92



## 21.2 Product description for the sensoCOMFORT VRC 720f



Fig 401: sensoCOMFORT 720f

### Technical data

#### System control

Battery type	LR06
Rated surge voltage	330 V
Frequency band	868.0 to 868.6 MHz
Max. transmission power	< 25 mW
Range outdoors	≤ 100 m
Range indoors	≤ 25 m
Pollution degree	2
IP rating	IP 20
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 45 °C
Current room air hum.	35 to 95 %
Mode of operation	Type 1
Height	109 mm
Width	175 mm
Depth	27 mm

#### Radio receiver unit

Rated voltage	9 to 24 V $\overline{\text{---}}$
Rated current	< 50 mA
Rated surge voltage	330 V
Frequency band	868.0 to 868.6 MHz
Max. transmission power	< 25 mW
Range outdoors	≤ 100 m
Range indoors	≤ 25 m
Pollution degree	2
IP rating	IP 21
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 60 °C
Rel. room humidity	35 to 90 %
Supply line cross-section	0.75 to 1.5 mm <sup>2</sup>
Height	115.0 mm
Width	142.5 mm
Depth	26.0 mm

#### Special features

- Weather-compensated radio eBUS control with TFT graphic display
- Comfortable sensoApp control for Android and iOS (VR 921 Internet module required)
- Intuitive operation without the need for prior knowledge using touch control elements
- Fast start-up and system configuration thanks to guided questions in the installation assistant
- Can be used for domestic hot water generation (cylinder charging) without an additional module and in a non-regulated heating circuit
- Can be added to with VR 70 and VR 71 modules
- triVAL parameter for optimising the efficiency of the hybrid system
- Humidity sensor control in conjunction with the geoTHERM VWL... 5/4, flexoTHERM VWF... 7/4, flexoCOMPACT VWF... 8/4 and aroTHERM for humidity prevention in cooling mode
- Integrated actuation of Vaillant recoVAIR ventilation units
- Integrated actuation of hybrid systems
- Cascade system of up to seven conventional (gas/oil) eBUS heat generators of the same type and output for heating and domestic hot water
- Cascade system of up to seven heat pumps (flexoTHERM or aroTHERM) of the same type and output for heating, cooling and domestic hot water. A back-up boiler (eBUS boiler) can also be incorporated.
- External cooling mode: A heat or cooling demand is specified for the VRC 720f/2 via an external control

## Update 07

### New product update

#### Equipment

- Adaptive heat curve
- Room temperature modulation for adjusting the flow temperature
- TFT graphic display (70 x 53 mm)
- Weekly programme
- Time programme for heating, cooling, domestic hot water and circulation
- „Days away from home“ function
- Ventilation function
- One-time cylinder charging outside of time programming
- Thermal disinfection
- Anti-legionella function for bivalent solar cylinders
- Flexible screed-drying function
- Graphical solar yield, environmental yield and power consumption indicator
- EEBus ready (VR 921 Internet module required)
- Isolating circuit in cascade mode

#### Potential applications

- Can be used with a VR 71 main wiring centre as a solar control (up to 3 x regulated heating circuits)
- Can be used with a VR 70 wiring centre (1 x direct and 1 x non-regulated heating circuit)
- Up to nine heating circuits can be used (1 x VR 71 + 3 x VR 70)
- VR 92f remote control can be added
- For all Vaillant boilers with an eBUS interface
- A control can be used for renewable energies and conventional heating equipment with an eBUS interface
- A VR 32/3 bus coupler is required to integrate a recoVAIR ventilation unit or a hybrid unit
- To cascade conventional (gas/oil) heat generators with eBUS electronics and the flexoTHERM heat pump, a VR 32/3 is required for every heat generator from the second one onwards
- To cascade the aroTHERM heat pump, a VR 32 B is required for every heat pump from the second one onwards

#### Note

For underfloor heating, a VRC 9642 surface-mounted thermostat is also required for the underfloor heating circuit.



#### sensocomFORT VRC 720f and control module combinations

The following combinations are possible:

- VR 71 and optional 1 to 2 x VR 92f

or

- VR 71 and 1 to 3 x VR 70 and optional 1 to 2 x VR 92f
- Maximum number of VR 92f remote controls:
  - Without VPM W and without VPM S: Maximum 2 x VR 92f
  - With VPM W and without VPM S: Maximum 2 x VR 92f
  - With VPM W and with VPM S: Maximum 2 x VR 92f

## 21.3 Product description for the VR 71 main wiring centre



Fig 402: VR 71 main wiring centre

VR 71 main wiring centre: Order no. 0020184846

### Technical data

Rated voltage	230 V AC
Mains frequency	50 Hz
Total current	≤ 6.3 A
Rated surge voltage	2,500 V
Max. extra-low voltage (ELV)	24 V DC
Safety extra-low voltage (SELV)	24 V DC
Mode of operation	Type 1.B.C.Y
Connection type	Y
IP rating	IP 20
Protection class	I
Pollution degree	2
Environmental temperature	0 to 60 °C
Relative humidity	20 to 95 %
Height	293 mm
Width	277 mm
Depth	68 mm

The VR 71 main wiring centre is used to expand the VRC 720(f) system control.

In addition to the system control, two VR 92(f) remote controls can be connected. This set-up enables ErP class VIII to be achieved (increases the efficiency of the system by 5%).

Using the main wiring centre makes it possible to set/select the following functions:

Each configuration corresponds to a defined connection assignment of the FM5 functional module.

Configuration of the FM5 functional module

Configuration	System property	Mixed heating circuits
1	Solar heating and/or domestic hot water support with two solar cylinders	Max. 2
2	Solar heating and/or domestic hot water support with one solar cylinder	Max. 3
3	3 x mixed heating circuits	Max. 3
6	<b>a I STOR</b> multi-functional buffer cylinder and domestic hot water station	Max. 3

If a FM3 functional module is installed, the system has one mixed and one non-mixed heating circuit.

The potential configuration (FM3) corresponds to a defined terminal assignment for the FM3 functional module.

If the FM3 and FM5 functional modules are installed in a system, each additional installed FM3 functional module adds two mixed heating circuits to the system.

The potential configuration (FM3+FM5) corresponds to a defined terminal assignment for the FM3 functional module.

Connecting the actuators to the FM5 functional module

Configuration	R1	R2	R3	R4	R5	R6	R7/R8	R9/R10	R11/R12	R13
1	3f1	3f2	9gSolar	MA	3j	3c/9e	9k1op/9k1cl	9k2op/9k2cl	-	-
2	3f1	3f2	3f3	MA	3j	3c/9e	9k1op/9k1cl	9k2op/9k2cl	9k3op/9k3cl	-
3	3f1	3f2	3f3	MA	-	3c/9e	9k1op/9k1cl	9k2op/9k2cl	9k3op/9k3cl	-
6	3f1	3f2	3f3	MA	9gSolar	3c/9e	9k1op/9k1cl	9k2op/9k2cl	9k3op/9k3cl	-

Connecting the sensors to the FM5 functional module

Configuration	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
1	SysFlow	FS1	FS2	DHWBt2	DHW	DHWBt	COL	Solar yield	DEM2	TD1	TD2	PWM	-
2	SysFlow	FS1	FS2	FS3	DHW	DHWBt	COL	Solar yield	-	TD1	TD2	PWM	-
3	SysFlow	FS1	FS2	FS3	BufBt	DEM1	DEM2	DEM3	DHW	-	-	-	-
6	SysFlow	FS1	FS2	FS3	BufBt	BufBtCH	BufTop-DHW	BufBt-DHW	DEM1	DEM2	DEM3	-	-

Meaning of the abbreviations

Abbreviation	Meaning
3c	Cylinder charging pump
3f[x]	Heating pump
3j	Solar pump
9e	Diverter valve for potable water
9gSolar	Solar diverter valve
9k[x]	3-port mixing valve
BufBt	Bottom buffer cylinder temperature sensor
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
COL	Collector temperature sensor
DEM[x]	External heat demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBt	Bottom cylinder temperature sensor (domestic hot water cylinder)
DHWBt2	Cylinder temperature sensor (second solar cylinder)
FS[x]	Flow temperature sensor for heating circuit/swimming pool sensor
MA	Multi-function output
PWM	PWM signal for pump
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD1, TD2	Temperature sensor for a differential temperature control

## Sensor assignment

Sensor assignment for the FM5 functional module

Configuration	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
1	VR 10	VR 10	VR 10	VR 10	VR 10	VR 10	VR 11	VR 10	-	VR 10	VR 10	-	-
2	VR 10	VR 10	VR 10	VR 10	VR 10	VR 10	VR 11	VR 10	-	VR 10	VR 10	-	-
3	VR 10	VR 10	VR 10	VR 10	VR 10	-	-	-	VR 10	VR 10	-	-	-
6	VR 10	VR 10	VR 10	VR 10	VR 10	VR 10	VR 10	VR 10	-	-	-	VR 10	-

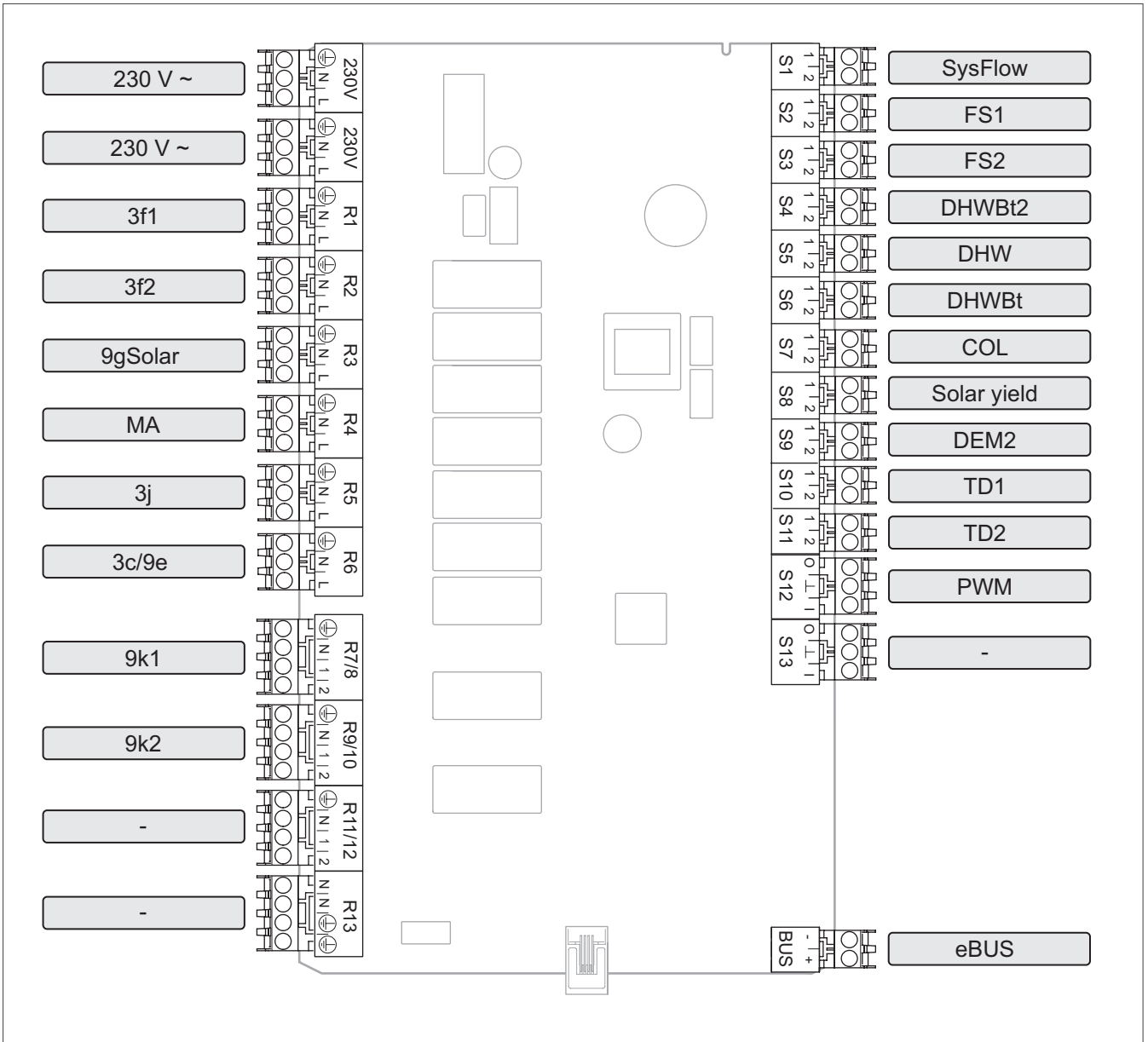


Fig 403: Configuration 1

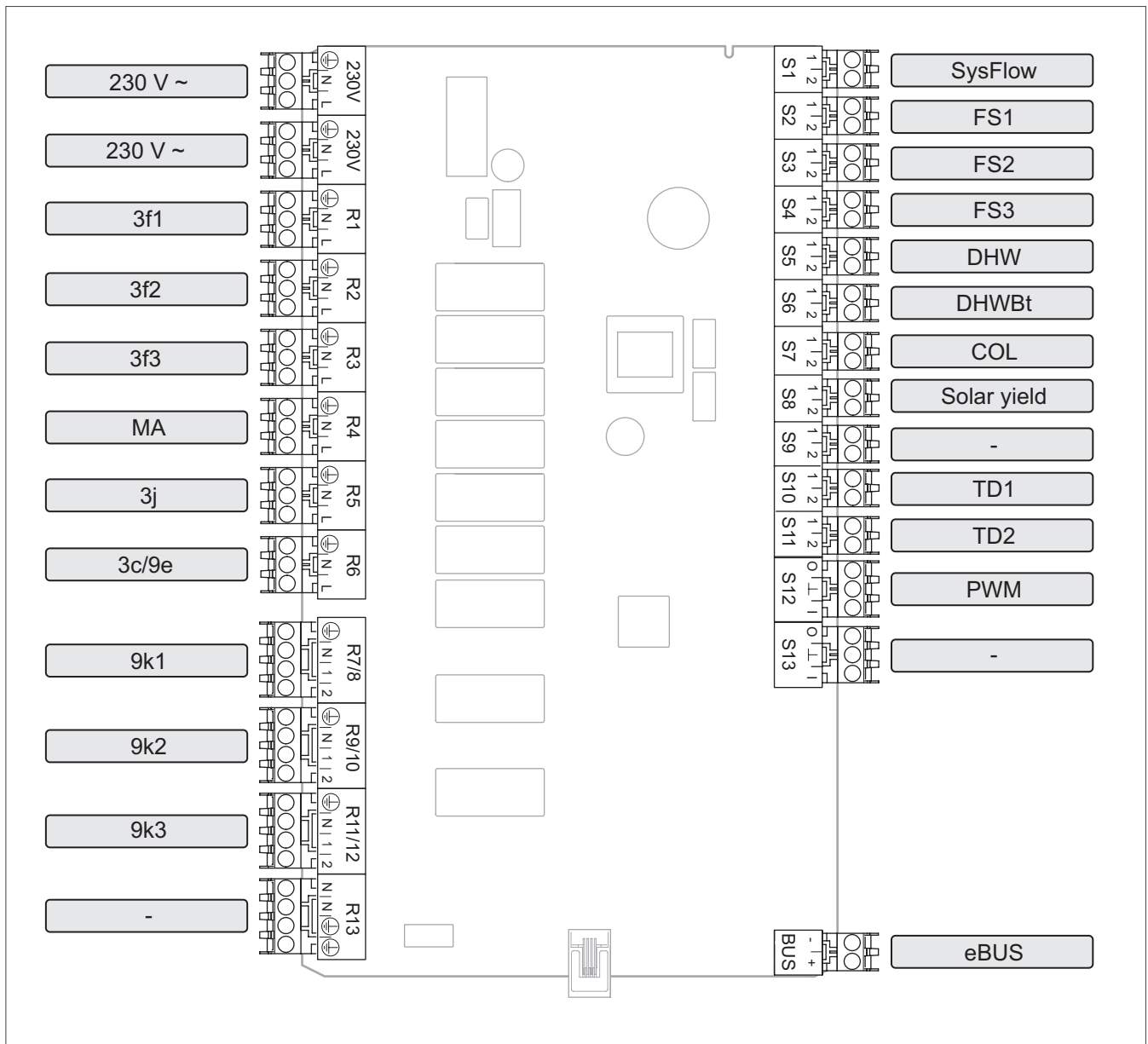


Fig 404: Configuration 2

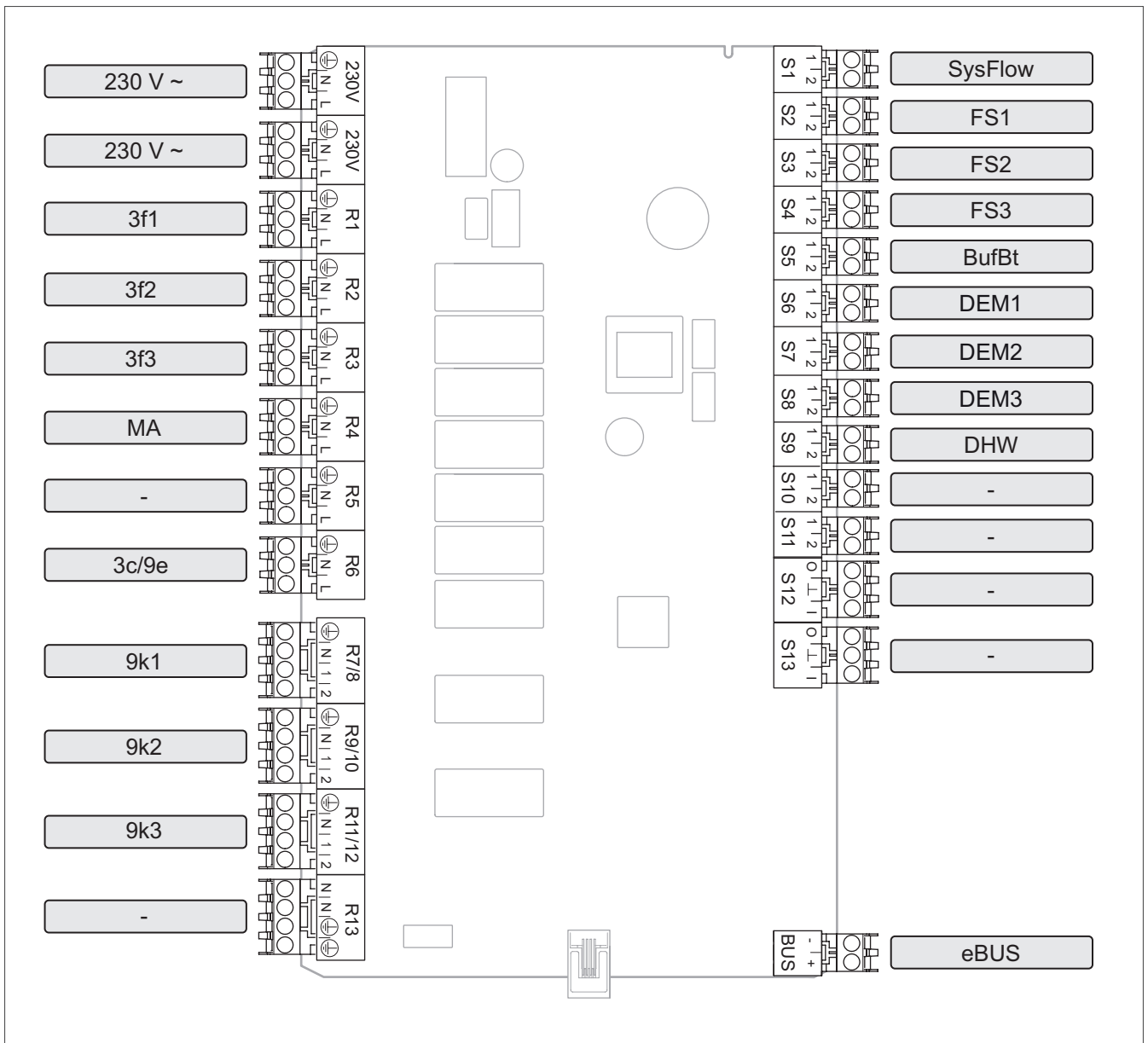


Fig 405: Configuration 3

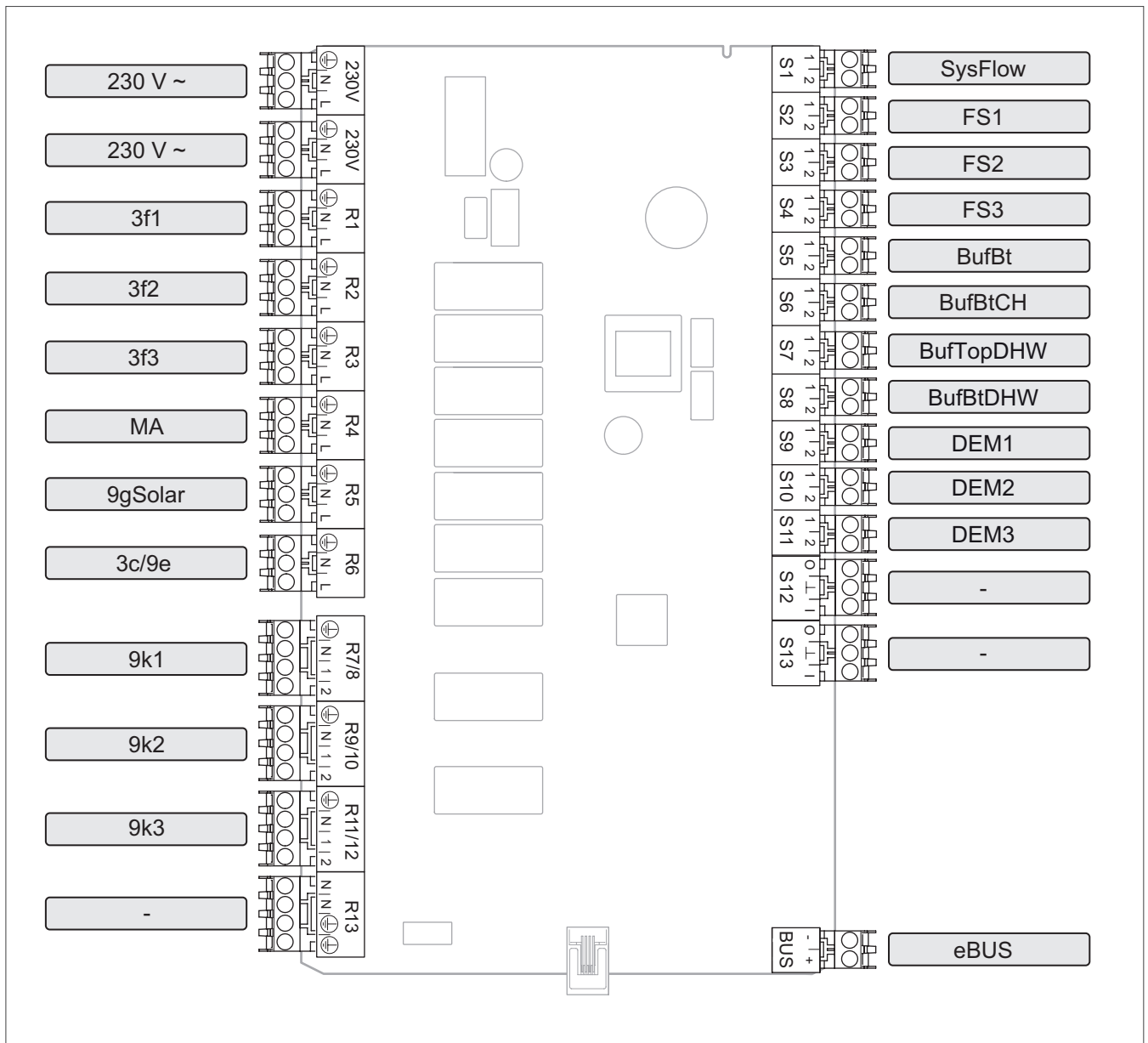


Fig 406: Configuration 6



You can use the table to check the selected combination of the basic system diagram code and the configuration of functional modules.

Combinations of basic system diagram and configuration of functional modules

System- schema- Code:	System	Without FM5, without FM3	With FM3	With FM5						With FM5 + Max. 3 x FM3
				Configuration						
				1	2	1	2	3	6	
		Solar domestic hot water generation		Solar heating support						
For conventional heat generators										
1	Gas-/oil-fired boiler	x	x <sup>1)</sup>	x	x	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Gas-/oil-fired boiler, cascade	-	-	-	-	-	-	x <sup>1)</sup>	-	x
2	Gas-/oil-fired boiler	-	x <sup>1)</sup>	-	-	x	x	x <sup>1)</sup>	-	x
	Gas-/oil-fired boiler, cascade	-	-	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
For heat pump systems										
8	Monoenergetic heat pump system	x	x <sup>1)</sup>	x	x	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Hybrid system	x	-	-	-	-	-	-	-	-
9	Hybrid system	-	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
	Cascade of heat pumps	-	-	-	-	-	-	x <sup>1)</sup>	-	x
10	Mono-energy heat pump system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
	Hybrid system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
11	Mono-energy heat pump system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	x	x	-	-	x <sup>1)</sup>	-	x
12	Hybrid system	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
13	Hybrid system with heat exchanger <sup>2)</sup>	-	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
16	Hybrid system with heat exchanger <sup>2)</sup>	-	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Cascade of heat pumps	-	-	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Mono-energy heat pump system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x

- x: Combination possible
- : Combination not possible
- 1) Buffer management possible
- 2) E.g. **VWZ MWT**

## 21.4 Product description for the VR 70 wiring centre



Fig 407: VR 70 wiring centre

VR 70 wiring centre: Order no. 0020184843

### Technical data

Rated voltage	230 V AC
Mains frequency	50 Hz
Total current	≤ 4 A
Rated surge voltage	2,500 V
Max. extra-low voltage (ELV)	24 V DC
Safety extra-low voltage (SELV)	24 V DC
Mode of operation	Type 1.B.C.Y
Connection type	Y
IP rating	IP 20
Protection class	I
Pollution degree	2
Environmental temperature	0 to 60 °C
Relative humidity	20 to 95 %
Height	293 mm
Width	277 mm
Depth	68 mm

The VR 70 wiring centre is used to expand the functions of the VRC 720(f) system control using the VR 71 main wiring centre.

The VR 70 wiring centre can be used to control an additional two heating circuits.

Up to 3 x VR 70 wiring centres can be combined with the VR 71 main wiring centre. Up to 9 x regulated heating circuits are therefore possible (1 x VR 71 + 3 x VR 70).

This module enables VR 92(f) remote controls to be connected to the system.

If a FM3 functional module is installed, the system has one mixed and one non-mixed heating circuit.

The potential configuration (FM3) corresponds to a defined terminal assignment for the FM3 functional module.

If the FM3 and FM5 functional modules are installed in a system, each additional installed FM3 functional module adds two mixed heating circuits to the system.

The potential configuration (FM3+FM5) corresponds to a defined terminal assignment for the FM3 functional module.

### Connecting the actuators and sensors to the FM3 functional module

Configuration	R1	R2	R3/R4	R5/R6	S1	S2	S3	S4	S5	S6	S7
FM3+FM5	3fa	3fb	9kaop/9kacl	9kbop/9kbcl	-	DEMa	DEMb	-	FSa	FSb	-
FM3	3f1	3f2	MA	9k2op/9k2cl	BufBt/DHW	DEM1	DEM2	-	SysFlow	FS2	-

### Meaning of the abbreviations

Abbreviation	Meaning
3c	Cylinder charging pump
3f[x]	Heating pump
3j	Solar pump
9e	Diverter valve for potable water
9gSolar	Solar diverter valve
9k[x]	3-port mixing valve
BufBt	Bottom buffer cylinder temperature sensor
BufBtCH	Bottom temperature sensor for heating section of buffer cylinder
BufBtDHW	Bottom temperature sensor for DHW section of buffer cylinder
BufTopDHW	Top temperature sensor for DHW section of buffer cylinder
COL	Collector temperature sensor
DEM[x]	External heat demand for the heating circuit
DHW	Cylinder temperature sensor
DHWBt	Bottom cylinder temperature sensor (domestic hot water cylinder)
DHWBt2	Cylinder temperature sensor (second solar cylinder)
FS[x]	Flow temperature sensor for heating circuit/swimming pool sensor
MA	Multi-function output
PWM	PWM signal for pump
Solar yield	Solar yield sensor
SysFlow	System temperature sensor
TD1, TD2	Temperature sensor for a differential temperature control

### Sensor assignment

#### Sensor assignment for the FM3 functional module

Configuration	S1	S2	S3	S4	S5	S6	S7
FM3+FM5	-	-	-	-	VR 10	VR 10	-
FM3	VR 10	-	-	-	VR 10	VR 10	-

### Configuration FM3 (VR 70)

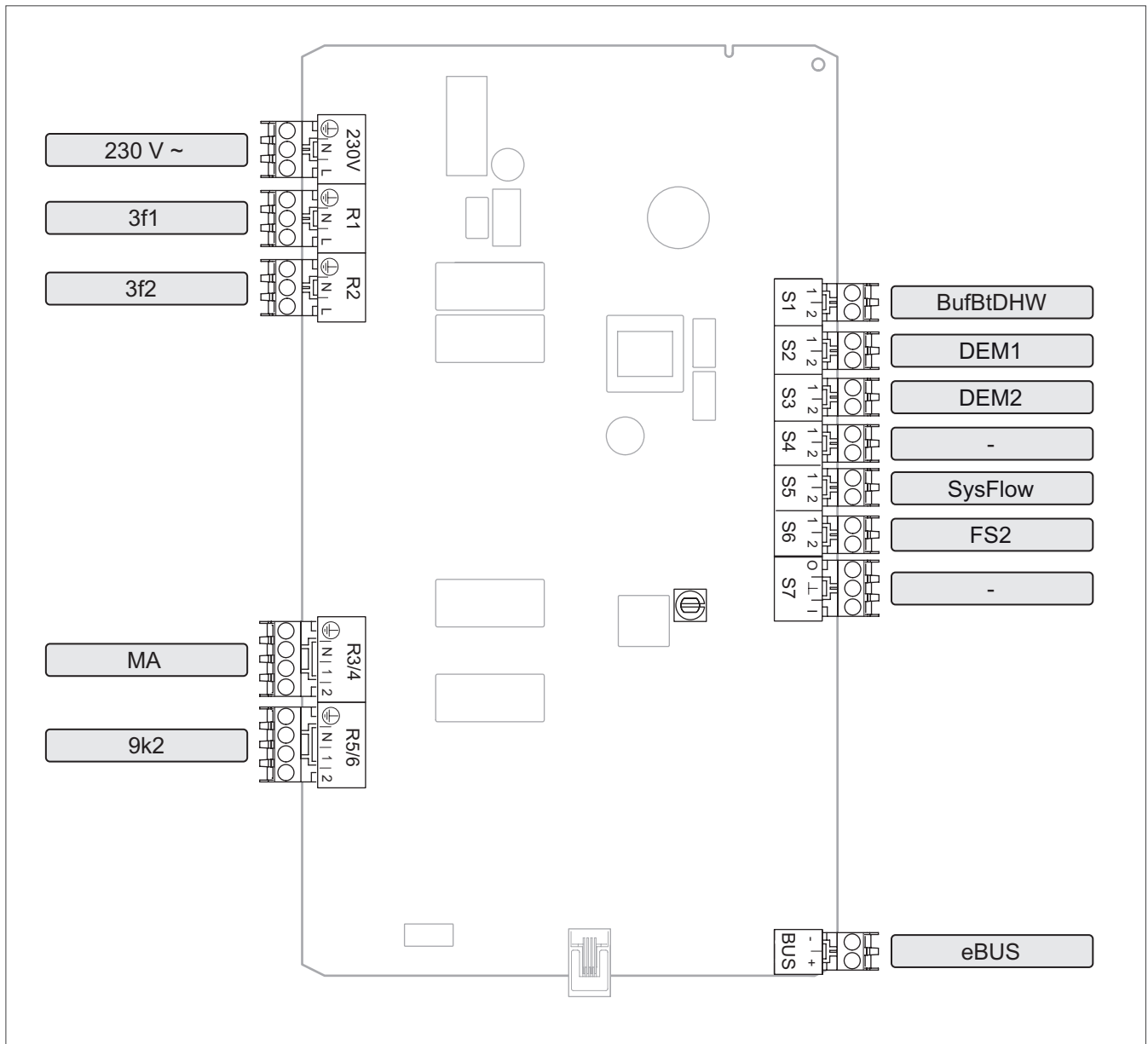


Fig 408: Configuration FM3 (VR 70)

### Configuration FM3 (VR 70) + FM5 (VR 71)

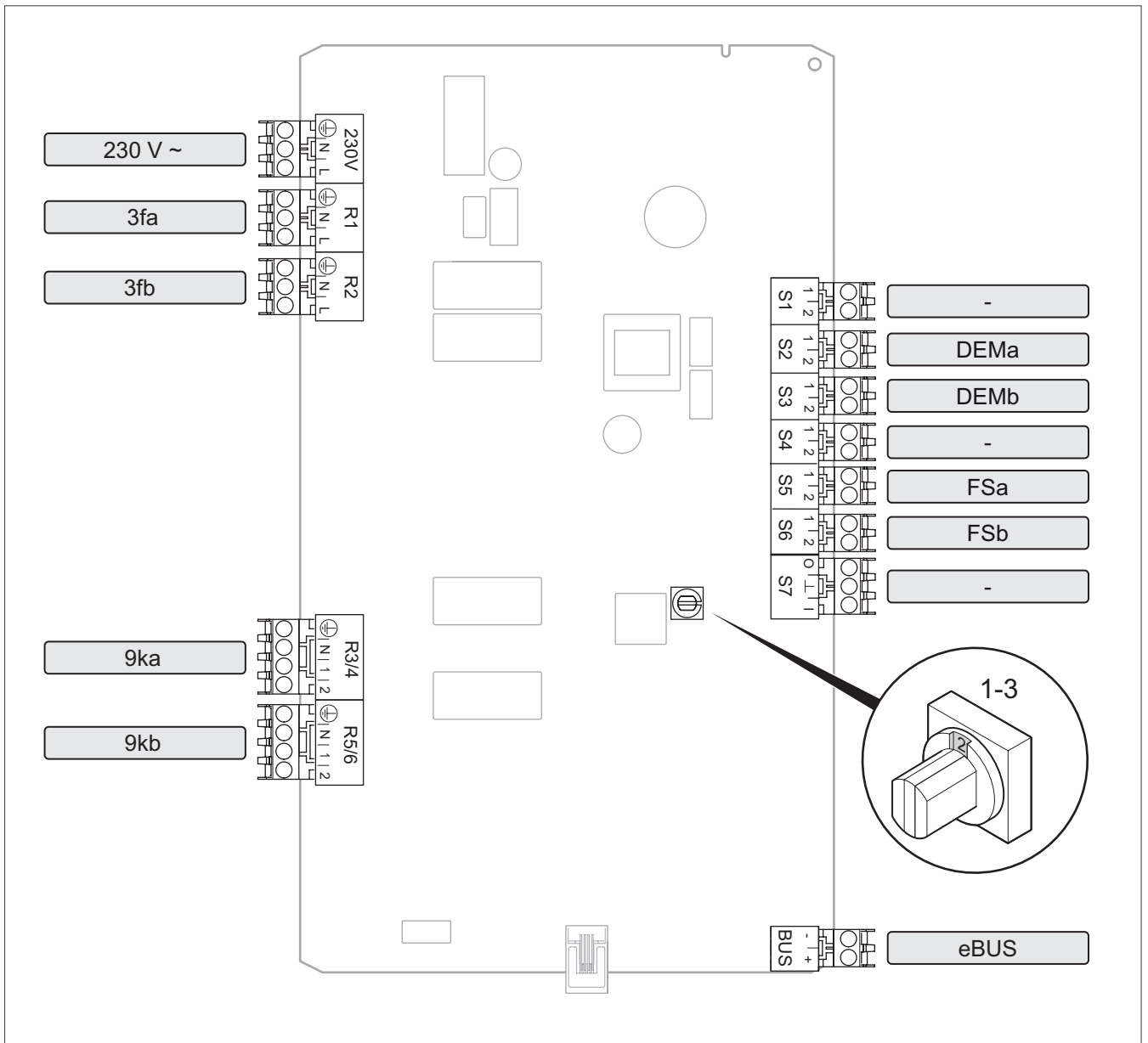


Fig 409: Configuration FM3 (VR 70) + FM5 (VR 71)

You can use the table to check the selected combination of the basic system diagram code and the configuration of functional modules.

Combinations of basic system diagram and configuration of functional modules

System- schema- Code:	System	Without FM5, without FM3	With FM3	With FM5						With FM5 + Max. 3 x FM3
				Configuration						
				1	2	1	2	3	6	
				Solar domestic hot water generation		Solar heating support				
For conventional heat generators										
1	Gas-/oil-fired boiler	x	x <sup>1)</sup>	x	x	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Gas-/oil-fired boiler, cascade	-	-	-	-	-	-	x <sup>1)</sup>	-	x
2	Gas-/oil-fired boiler	-	x <sup>1)</sup>	-	-	x	x	x <sup>1)</sup>	-	x
	Gas-/oil-fired boiler, cascade	-	-	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
For heat pump systems										
8	Monoenergetic heat pump system	x	x <sup>1)</sup>	x	x	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Hybrid system	x	-	-	-	-	-	-	-	-
9	Hybrid system	-	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
	Cascade of heat pumps	-	-	-	-	-	-	x <sup>1)</sup>	-	x
10	Mono-energy heat pump system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
	Hybrid system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
11	Mono-energy heat pump system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	x	x	-	-	x <sup>1)</sup>	-	x
	Hybrid system	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
13	Hybrid system with heat exchanger <sup>2)</sup>	-	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	-	x
16	Hybrid system with heat exchanger <sup>2)</sup>	-	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Cascade of heat pumps	-	-	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x
	Mono-energy heat pump system with heat exchanger <sup>2)</sup>	x	x <sup>1)</sup>	-	-	-	-	x <sup>1)</sup>	x <sup>1)</sup>	x

x: Combination possible

-: Combination not possible

1) Buffer management possible

2) E.g. **VWZ MWT**

## 21.5 sensoDIRECT 710 product description



Fig 410: sensoDIRECT 710

### Technical data

Rated voltage	9-24 V $\overline{\text{---}}$
Rated surge voltage	330 V
Pollution degree	2
Rated current	< 50 mA
Cross-section of the connection cable	0.75 to 1.5 mm <sup>2</sup>
IP rating	IP 21
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 60 °C
Current room air hum.	35 to 90 %
Mode of operation	Type 1
Height	117 mm
Width	142 mm
Depth	30 mm

### Special features

- Weather-compensated eBUS control
- Comfortable sensoApp control for Android and iOS (sensoNET VR 921 ecoTEC exclusive /1-7 Internet module required)
- Intuitive operation without the need for prior knowledge using the TFT graphic display on the ecoTEC exclusive /1-7 with touch control elements
- Fast start-up and system configuration thanks to guided questions in the installation assistant
- Tool-free installation on the ecoTEC exclusive /1-7

### Equipment

- Weekly programme
- Time programme for heating circuits, cylinder charging circuit and circulation circuit
- Holiday programme
- One-time cylinder charging outside of time programming
- Flexible screed-drying function

### Potential applications

- Can only be used in conjunction with ecoTEC exclusive /1-7
- Can be used for 1 x direct heating circuit and optional domestic hot water generation
- ambiSENSE single-room temperature control can be added

#### Note

Can only be used in conjunction with ecoTEC exclusive /1-7



## 21.6 VRC 700/6 product description



Fig 411: VRC 700/6

### Technical data

Technical data	Unit	VRC 700/6
Operating voltage U <sub>max</sub> .	V	24
Control power consumption	mA	< 50
Maximum permissible environmental temperature	°C	60
Relative room humidity	%	20 - 95
Supply line cross-section	mm <sup>2</sup>	0.75 - 1.5
Dimensions with wall-mounting casing:		
Height	mm	115
Width	mm	147
Depth	mm	50
IP rating	-	IP 20
Protection class for the control	-	III
Order no.	-	0020266797

### Special features

- Weather-compensated eBUS control with plain text display
- Convenient operation via an app for Android and iOS (VR 920 Internet module required)
- Intuitive operation without the need for prior knowledge
- Fast start-up and system configuration thanks to guided questions in the installation assistant
- Can be used for domestic hot water generation (cylinder charging) without an additional module and in a non-regulated heating circuit
- Can be added to with VR 70 and VR 71 modules
- triVAL parameter for optimising the efficiency of the hybrid system
- Moisture sensor control in conjunction with the geoTHERM VWL... 5/4, flexoTHERM VWF... 7/4, flexoCOMPACT VWF... 8/4 and aroTHERM for humidity prevention in cooling mode
- Integrated actuation of Vaillant recoVAIR ventilation units (recoVAIR, recoCOMPACT and versoTHERM with versoVAIR)
- Integrated actuation of hybrid systems
- Cascade system of up to seven conventional (gas/oil) eBUS heat generators of the same type and output for heating and domestic hot water
- Cascade system of up to seven heat pumps (flexoTHERM or aroTHERM) of the same type and output for heating, cooling and domestic hot water. A back-up boiler (eBUS boiler) can also be incorporated
- Second solar cylinder possible

### Equipment

- Adaptive heating curve
- Room temperature modulation for adjusting the flow temperature
- Extra-wide, illuminated plain text display
- Weekly programme
- Time programme for heating circuits, cylinder charging circuit and circulation circuit
- Holiday programme
- Ventilation function
- Party function
- One-time cylinder charging outside of time programming
- Thermal disinfection
- Anti-legionella function for bivalent solar cylinders
- Screed-drying function
- Graphical solar yield, environmental yield and power consumption indicator
- EEBus ready (VR 920 Internet module required)
- KNX (ise smart connect KNX Vaillant gateway required. Available from ise GmbH)



### Potential applications

- Can be used as a solar control with the VR 70 wiring centre and solar module (one direct/regulated heating circuit)
- When used with the VR 71 wiring centre and solar module, can be used as a solar control (three regulated heating circuits)
- Can be used with up to nine regulated heating circuits
- For all Vaillant boilers with an eBUS interface
- A control can be used for ventilation, renewable energies and conventional heating equipment with an eBUS interface
- A VR 32/3 bus coupler is required to integrate a recoVAIR ventilation unit or a hybrid unit
- To cascade conventional (gas/oil) heat generators with eBUS electronics and the flexoTHERM heat pump, a VR 32/3 is required for every heat generator from the second one onwards
- To cascade the aroTHERM heat pump, a VR 32 B is required for every heat pump from the second one onwards
- To cascade the aroTHERM split heat pump, a VR 32/3 is required for every heat pump from the second one onwards

#### Note

For underfloor heating, a VRC 9642 surface-mounted thermostat is also required for the underfloor heating circuit.



### VRC 700/6 and control module combinations

The following combinations are possible:

- VR 70 and optional 1 x VR 91

or

- VR 71 and optional 1 to 3 x VR 91f

or

- VR 71 and 1 to 3 x VR 70 and optional 1 to 8 x VR 91

- Maximum number of VR 91 remote controls:

- Without VPM W and without VPM S: Maximum 8 x VR 91
- With VPM W and without VPM S: Maximum 7 x VR 91
- With VPM W and with VPM S: Maximum 6 x VR 91

## 21.7 VRC 700f/4 product description



Fig 412: VRC 700f/4

### Technical data

Technical data	Unit	VRC 700f/4
Battery type		LR06
Transmission frequency	MHz	868
Transmission power	mW	≤ 10
Range outdoors	m	≤ 100
Range indoors	m	≤ 25
Maximum permissible environmental temperature	°C	60
Relative room humidity	%	35 ... 90
Dimensions with wall-mounting casing:		
Height	mm	115
Width	mm	147
Depth	mm	50
IP rating	-	IP 20
Protection class for controls	-	III
Order no.	-	0020218359

Technical data	Unit	Radio receiver unit
Max. operating voltage	V	24
Power consumption	mA	< 50
Connection cable cross-section	mm <sup>2</sup>	0.75 - 1.5
Transmission frequency	MHz	868
Transmission power	mW	≤ 10
Range outdoors	m	≤ 100
Range indoors	m	≤ 25
Maximum permissible environmental temperature	°C	60
Relative room humidity	%	35 ... 90
Dimensions with wall-mounting casing:		
Height	mm	115
Width	mm	147
Depth	mm	50

### Special features

- Weather-compensated radio eBUS control with plain text display
- Convenient operation via an app for Android and iOS (only possible with the VR 920 Internet module)
- Intuitive operation without the need for prior knowledge
- Fast start-up and system configuration thanks to guided questions in the installation assistant
- Can be used for domestic hot water generation (cylinder charging) without an additional module and in a non-regulated heating circuit
- Can be added to with VR 70 and VR 71 modules
- triVAL parameter for optimising the efficiency of the hybrid system
- Moisture sensor control in conjunction with the geoTHERM VWL... 5/4; flexoTHERM VWF... 7/4; flexoCOMPACT VWF... 8/4 and aroTHERM for humidity prevention in cooling mode
- Integrated actuation of Vaillant recoVAIR ventilation units
- Integrated actuation of hybrid systems
- Cascade system of up to seven conventional (gas/oil) eBUS heat generators of the same type and output for heating and domestic hot water
- Cascade system of up to seven heat pumps (flexoTHERM or aroTHERM) of the same type and output for heating and domestic hot water. A back-up boiler (eBUS boiler) can also be incorporated.

### Equipment

- Adaptive heating curve
- Room temperature modulation for adjusting the flow temperature
- Weekly programme
- Extra-wide, illuminated plain text display
- Time programme for heating circuits, cylinder charging circuit and circulation circuit
- Holiday programme
- Ventilation function
- Party function
- One-time cylinder charging outside of time programming
- Thermal disinfection
- Anti-legionella function for bivalent solar cylinders
- Screed-drying function
- Graphical solar yield indicator, environmental yield and energy consumption indicator
- EEBus ready (VR 920 Internet module required)
- KNX (ise smart connect KNX Vaillant gateway required. Available from ise GmbH)

### Potential applications

- Can be used as a solar control with the VR 70 wiring centre and solar module (one direct/regulated heating circuit)
- Can be used as a solar control with the VR 71 wiring centre and solar module (three regulated heating circuits)
- Can be used with up to three regulated heating circuits
- For all Vaillant boilers with an eBUS interface
- A control can be used for ventilation, renewable energies and conventional heating technology with an eBUS interface
- A VR 32/3 bus coupler is required to integrate a recoVAIR ventilation unit or a hybrid unit
- To cascade conventional (gas/oil) heat generators with eBUS electronics and the flexoTHERM heat pump, a VR 32/3 is required for every heat generator from the second one onwards
- To cascade the aroTHERM heat pumps, a VR 32 B is required for every heat pump from the second one onwards

#### Note

For underfloor heating, a VRC 9642 surface-mounted thermostat is also required for the underfloor heating circuit.



### VRC 700f/4 and control module combinations

The following combinations are possible:

- VR 70 and optional 1 x VR 91f

or

- VR 71 and optional 1 to 3 x VR 91f

## 21.8 VR 70 mixer and solar module product description



Fig 413: VR 70 mixer and solar module

VR 70 mixer and solar module: Order no. 0020184843

The mixer and solar module expands the functions of the VRC 700(f) and VRC 720.

This module enables a VR 91(f) and VR 92 remote control unit to be connected to the system.

Using the wiring centre makes it possible to set/select the following functions:

- Conf. 1: One non-mixed heating circuit, one mixed heating circuit and domestic hot water cylinder charging
- Conf. 3: Multi-functional buffer cylinder with one non-mixed and one mixed heating circuit
- Conf. 5: Two mixed heating circuits added
- Conf. 6: Solar domestic hot water generation with one non-mixed heating circuit
- Conf. 12: Solar heating support with one mixed heating circuit

### Note

A VR 11 (collector sensor) must be used for the „COL“ sensor; all other sensors require a VR 10 (standard sensor).



VR 70 configuration - configuring the actuator outputs and sensor inputs

Conf. VR 70	Assigning the actuator outputs						Assigning the sensor inputs						
	R1	R2	R3	R4	R5	R6	S1	S2	S3	S4	S5	S6	S7
1	HC1P	HC2P	MA	–	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	DHW1/ Buf <sub>Bt</sub>	DEM1	DEM2	–	Sys <sub>Flow</sub> / Buf <sub>Top</sub>	FS2	–
3	MA	HC2P	LP/3WV	–	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	Buf <sub>TopDHW</sub>	Buf <sub>BtDHW</sub>	Buf <sub>BtCH</sub>	Sys <sub>Flow</sub>	Buf <sub>TopCH</sub>	FS2	–
5	HC1P	HC2P	HC1 <sub>op</sub>	HC1 <sub>cl</sub>	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	Sys <sub>Flow</sub>	DEM1	DEM2	–	FS1	FS2	–
6	COLP	LegP	MA	–	ZV1	–	DHW1	DHW <sub>Bt</sub>	–	Sys <sub>Flow</sub>	COL	Solar yield	PWM
12	COLP	HC1P	TDO	3WV	HC1 <sub>op</sub>	HC1 <sub>cl</sub>	Solar yield	Buf <sub>Bt</sub>	TD1	TD2	COL	FS1	PWM

Key

HC1P/HC2P/HC3P	Heating pump for heating circuit 1/2/3
HC1 <sub>cl</sub> /HC2 <sub>cl</sub> /HC3 <sub>cl</sub>	Close mixer for heating circuit 1/2/3
HC1 <sub>op</sub> /HC2 <sub>op</sub> /HC3 <sub>op</sub>	Open mixer for heating circuit 1/2/3
DEM1/DEM2/DEM3	External heating switch-off for heating circuit 1/2/3
FS1/FS2/FS3	Flow temperature sensor for heating circuit 1/2/3
MA	Multi-function output
DHW1	Cylinder temperature sensor
DHW <sub>Top</sub>	Top cylinder temperature sensor for DHW cylinder
DHW <sub>Bt</sub>	Bottom cylinder temperature sensor for DHW cylinder
Sys <sub>Flow</sub>	System flow temperature (low loss header)
ZV1	Zone valve for zone 1
Buf <sub>Top</sub>	Top cylinder sensor for the buffer cylinder
Buf <sub>Bt</sub>	Bottom cylinder sensor for the buffer cylinder
Buf <sub>TopDHW</sub>	Top cylinder sensor for the DHW section of the allSTOR buffer cylinder
Buf <sub>BtDHW</sub>	Bottom cylinder sensor for the DHW section of the allSTOR buffer cylinder
Buf <sub>TopCH</sub>	Top cylinder sensor for the heating section of the allSTOR buffer cylinder
Buf <sub>BtCH</sub>	Bottom cylinder sensor for the heating section of the allSTOR buffer cylinder
TD1/TD2	1st/2nd temperature sensor for a ΔT control system
TDO	Output for an actuator for a ΔT control system
LP/3WV	Charging pump or 3-port valve switch to DHW cylinder
COLP1	Collector pump
COL1	Collector temperature sensor
LegP	Anti-legionella pump
Yield	Solar yield sensor
PWM1	PWM actual value input/target value output of the PWM pump 1 (only in combination with the VMS 70 solar pump station)

Settings for the basic system diagram and VR 70 configuration

VRC 700(f) and VRC 720 configuration: Basic system diagram		Configuring the VR 70					
		No VR 70/71	1	3	5	6	12
1	<b>System with gas- or oil-fired boiler</b> Domestic hot water control via the boiler, i.e. cylinder sensor and cylinder charging pump connected to the boiler		Two heating circuits	allSTOR exclusive	2 x mixed heating circuits	Solar domestic hot water generation	Solar heating support
		One direct heating circuit	One direct and/or one mixed heating circuit	One direct and/or one mixed heating circuit	Up to two mixed heating circuits	One direct heating circuit	1 x mixed heating circuit
	<b>System with gas- or oil-fired boiler + solar domestic hot water generation</b> Domestic hot water control via the VRC 700(f)/VRC 720, i.e. cylinder sensor and cylinder charging pump connected to the VR 70/VR 71	•	• Buffer management possible	/	•	/	/
2	<b>System with gas- or oil-fired boiler + solar domestic hot water generation</b> Domestic hot water control via the VRC 700(f)/VRC 720, i.e. cylinder sensor and cylinder charging pump connected to the VR 70/VR 71	/	/	• Buffer management possible	/	•	/
6	<b>3 kW hybrid system</b> (alternative mode of operation) Domestic hot water from back-up boiler only	/	•	/	/	/	•
7	<b>3 kW hybrid system</b> (parallel mode of operation) With two circuits/zones Domestic hot water from back-up boiler only	•	•	/	/	/	/
8	<b>Monoenergetic heat pump system</b> Back-up boiler requires the pump in the heat pump Domestic hot water via a heat pump and back-up heater	/	•	• Buffer management possible	•	•	/
	<b>Simple hybrid system</b> Back-up boiler requires the pump in the heat pump Domestic hot water from back-up boiler only	•	/	/	/	/	/
9	<b>Simple hybrid system</b> Back-up boiler requires the pump in the heat pump Domestic hot water from back-up boiler only	/	• Buffer management possible	/	•	/	/
10	<b>Monoenergetic heat pump system with system separation</b> Back-up boiler requires the pump from the heat exchanger module Domestic hot water from heat pump only	•	• Buffer management possible	/	•	/	/
	<b>Simple hybrid system with system separation</b> Back-up boiler requires the pump from the heat exchanger module Domestic hot water from back-up boiler only	•	• Buffer management possible	/	•	/	/
11	<b>Monoenergetic heat pump system with system separation</b> Back-up boiler requires the pump in the heat pump Domestic hot water via a heat pump and back-up boiler	•	• Buffer management possible	/	•	•	/

- Setting possible
- / Settings not possible

Update 07  
New product update

VRC 700(f) and VRC 720 configuration: Basic system diagram		No VR 70/71	Configuring the VR 70				
			1	3	5	6	12
12	<b>Full hybrid system</b> Back-up boiler does not require the pump in the heat pump Domestic hot water via a heat pump and back-up boiler (Domestic hot water partially controlled by the boiler)	/	• Buffer management possible	/	•	/	/
13	<b>Full hybrid system with system separation</b> Back-up boiler does not require the pump in the heat pump Domestic hot water via a heat pump and back-up boiler (Domestic hot water partially controlled by the boiler)	/	• Buffer management possible	/	•	/	/
16	<b>Full hybrid system with system separation as an option</b> Back-up boiler does not require the pump in the heat pump Domestic hot water via a heat pump and back-up boiler (Domestic hot water control via VRC 700(f)/VRC 720)	/	• Buffer management possible	• Buffer management possible	/	/	/
	<b>Monoenergetic heat pump system with system separation</b> Back-up boiler requires the pump from the heat exchanger module Domestic hot water via a heat pump and back-up boiler	/	• Buffer management possible	• Buffer management possible	/	/	/

• Setting possible  
/ Settings not possible

Assigning basic system diagrams to heat generators

Basic system diagram	Heat generator
1, 2	Conventional heat generator
6, 7, 8, 9	geoTHERM 3 kW heat pump
8, 9, 12, 16	flexoTHERM/flexoCOMPACT heat pump
8, 9, 12, 16	versoTHERM heat pump
8, 9, 12, 16	recoCOMPACT heat pump
8, 9, 10, 11, 12, 13, 16	aroTHERM (Split), aroTHERM plus heat pump

If you are cascading the VR 70 mixer and solar modules, the individual modules must be assigned their own unique addresses using the address switch:

- VR 70, address 1 = address switch to 1
- VR 70, address 2 = address switch to 2
- VR 70, address 3 = address switch to 3

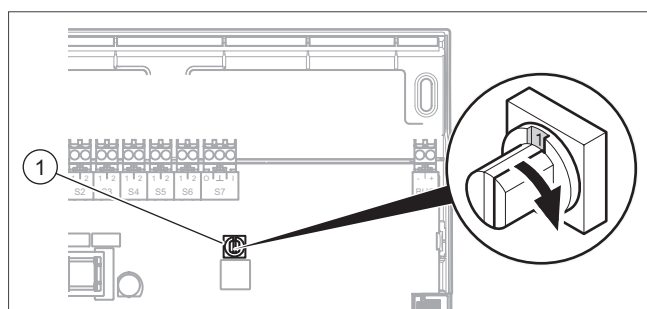


Fig 414: Setting the bus address

1 Address switch

## 21.9 VR 71 mixer and solar module product description



Fig 415: VR 71 mixer and solar module

VR 71 mixer and solar module: Order no. 0020184846

The VR 71 mixer and solar module is used to expand the VRC 700(f) control.

Two VR 91 (f) and VR 92 remote control units can also be connected. This set-up enables ErP class VIII to be achieved (increases the efficiency of the system by 5%).

Using the wiring centre makes it possible to set/select the following functions:

- Conf. 1: Solar domestic hot water generation and two solar cylinders with two mixed heating circuits
- Conf. 1: Solar heating support and two solar cylinder with three mixed heating circuits
- Conf. 2: Solar domestic hot water generation with three mixed heating circuits
- Conf. 2: Solar heating support with three mixed heating circuits
- Conf. 3: Three mixed heating circuits added
- Conf. 6: Multi-functional buffer cylinder with three mixed heating circuits



VR 71 configuration - configuring the sensor inputs

Conf. VR 71	Assigning the sensor inputs												
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
1	Sys <sub>Flow</sub>	FS1	FS2	DHW <sub>Bt2</sub>	DHW <sub>Top1</sub>	DHW <sub>Bt1</sub>	COL1	Yield	DEM2	TD1	TD2	PWM1	–
2	Sys <sub>Flow</sub>	FS1	FS2	FS3	DHW <sub>Top</sub>	DHW <sub>Bt</sub>	COL1	Yield	–	TD1	TD2	PWM1	–
3	Sys <sub>Flow</sub> / Buf <sub>Top</sub>	FS1	FS2	FS3	Buf <sub>Bt</sub>	DEM1	DEM2	DEM3	DHW1	–	–	–	–
6	Sys <sub>Flow</sub> / Buf <sub>Top</sub>	FS1	FS2	FS3	Buf <sub>TopCH</sub>	Buf <sub>BtCH</sub>	Buf <sub>TopDHW</sub>	Buf <sub>BtDHW</sub>	DEM1	DEM2	DEM3	DHW <sub>Bt2</sub>	–

VR 71 configuration - configuring the actuator outputs

Conf. VR 71	Assigning the actuator outputs											
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
1	HC1P	HC2P	UV <sub>Solar</sub>	MO	COLP1	LP/3WV	HC1 <sub>op</sub>	HC1 <sub>cl</sub>	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	–	–
2	HC1P	HC2P	HC3P	MO	COLP1	LP/3WV	HC1 <sub>op</sub>	HC1 <sub>cl</sub>	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	HC3 <sub>op</sub>	HC3 <sub>cl</sub>
3	HC1P	HC2P	HC3P	MO	–	LP/3WV	HC1 <sub>op</sub>	HC1 <sub>cl</sub>	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	HC3 <sub>op</sub>	HC3 <sub>cl</sub>
6	HC1P	HC2P	HC3P	MO	UV <sub>Solar</sub>	LP/3WV	HC1 <sub>op</sub>	HC1 <sub>cl</sub>	HC2 <sub>op</sub>	HC2 <sub>cl</sub>	HC3 <sub>op</sub>	HC3 <sub>cl</sub>

Key

HC1P/HC2P/HC3P	Heating pump for heating circuit 1/2/3
HC1 <sub>cl</sub> /HC2 <sub>cl</sub> /HC3 <sub>cl</sub>	Close mixer for heating circuit 1/2/3
HC1 <sub>op</sub> /HC2 <sub>op</sub> /HC3 <sub>op</sub>	Open mixer for heating circuit 1/2/3
DEM1/DEM2/DEM3	External heating switch-off for heating circuit 1/2/3
FS1/FS2/FS3	Flow temperature sensor for heating circuit 1/2/3
MO	Multi-function output
DHW1	Cylinder temperature sensor
DHW <sub>Top</sub>	Top cylinder temperature sensor for DHW cylinder
DHW <sub>Bt</sub>	Bottom cylinder temperature sensor for DHW cylinder
Sys <sub>Flow</sub>	System flow temperature (low loss header)
ZV1	Zone valve for zone 1
Buf <sub>Top</sub>	Top cylinder sensor for the buffer cylinder
Buf <sub>Bt</sub>	Bottom cylinder sensor for the buffer cylinder
Buf <sub>TopDHW</sub>	Top cylinder sensor for the DHW section of the allSTOR buffer cylinder
Buf <sub>BtDHW</sub>	Bottom cylinder sensor for the DHW section of the allSTOR buffer cylinder
Buf <sub>TopCH</sub>	Top cylinder sensor for the heating section of the allSTOR buffer cylinder
Buf <sub>BtCH</sub>	Bottom cylinder sensor for the heating section of the allSTOR buffer cylinder
TD1/TD2	1st/2nd temperature sensor for a ΔT control system
TDO	Output for an actuator for a ΔT control system
LP/3WV	Charging pump or 3-port valve switch to DHW cylinder
COLP1	Collector pump
COL1	Collector temperature sensor
LegP	Anti-legionella pump
Yield	Solar yield sensor
UV <sub>Solar</sub>	Solar cylinder diverter valve
PWM1	PWM actual value input/target value output of the PWM pump 1 (only in combination with the VMS 70 solar pump station)

Settings for the basic system diagram and VR 71 configuration

VRC 700(f) and VRC 720 configuration: Basic system diagram		No VR 70/71		VR 71 configuration				
				1	2	3	6	
			Solar domestic hot water generation and two solar cylinders	Solar heating support and two solar cylinders	Solar domestic hot water generation	Solar heating support	3 x mixed heating circuits	allSTOR exclusive
		One direct heating circuit	Up to two mixed heating circuits	Up to three mixed heating circuits				
1	<b>System with gas- or oil-fired boiler</b> <b>Domestic hot water control via the boiler</b> , i.e. cylinder sensor and cylinder charging pump connected to the boiler	•	/	/	/	/	• Buffer management possible	/
	<b>System with gas- or oil-fired boiler + solar domestic hot water generation</b> <b>Domestic hot water control via the VRC 700(f)/VRC 720</b> , i.e. cylinder sensor and cylinder charging pump connected to the VR 70/VR 71	/	•	/	•	/	/	• Buffer management possible
2	<b>System with gas- or oil-fired boiler</b> <b>Domestic hot water control via the VRC 700(f)/VRC 720</b> , i.e. cylinder sensor and cylinder charging pump connected to the VR 70/VR 71	/	/	•	/	•	• Buffer management possible	/
6	<b>3 kW hybrid system</b> (alternative mode of operation) Domestic hot water from back-up boiler only	•	/	/	/	/	/	/
7	<b>3 kW hybrid system</b> (parallel mode of operation) With two circuits/zones Domestic hot water from back-up boiler only	/	/	/	/	/	/	/
8	<b>Monoenergetic heat pump system</b> Back-up boiler requires the pump in the heat pump Domestic hot water via a heat pump and back-up heater	•	•	/	•	/	• Buffer management possible	• Buffer management possible
	<b>Simple hybrid system</b> Back-up boiler requires the pump in the heat pump Domestic hot water from back-up boiler only	•	/	/	/	/	/	/
9	<b>Simple hybrid system</b> Back-up boiler requires the pump in the heat pump Domestic hot water from back-up boiler only	/	/	/	/	/	• Buffer management possible	/
10	<b>Monoenergetic heat pump system with system separation</b> Back-up boiler requires the pump from the heat exchanger module Domestic hot water from heat pump only	•	/	/	/	/	• Buffer management possible	/
	<b>Simple hybrid system with system separation</b> Back-up boiler requires the pump from the heat exchanger module Domestic hot water from back-up boiler only	•	/	/	/	/	• Buffer management possible	/
11	<b>Monoenergetic heat pump system with system separation</b> Back-up boiler requires the pump in the heat pump Domestic hot water via a heat pump and back-up boiler	•	•	/	•	/	• Buffer management possible	/

- Setting possible
- / Settings not possible

Update 07  
New product update

VRC 700(f) and VRC 720 configuration: Basic system diagram		No VR 70/71	VR 71 configuration					
			1		2		3	6
12	<b>Full hybrid system</b> Back-up boiler does not require the pump in the heat pump Domestic hot water via a heat pump and back-up boiler (Domestic hot water partially controlled by the boiler)	/	/	/	/	/	• Buffer management possible	/
13	<b>Full hybrid system with system separation</b> Back-up boiler does not require the pump in the heat pump Domestic hot water via a heat pump and back-up boiler (Domestic hot water partially controlled by the boiler)	/	/	/	/	/	• Buffer management possible	/
16	<b>Full hybrid system with system separation as an option</b> Back-up boiler does not require the pump in the heat pump Domestic hot water via a heat pump and back-up boiler (Domestic hot water control via VRC 700(f)/VRC 720)	/	/	/	/	/	• Buffer management possible	• Buffer management possible
	<b>Monoenergetic heat pump system with system separation</b> Back-up boiler requires the pump from the heat exchanger module Domestic hot water via a heat pump and back-up boiler	•	/	/	/	/	• Buffer management possible	• Buffer management possible

- Setting possible
- / Settings not possible

### Assigning basic system diagrams to heat generators

Assigning basic system diagrams to heat generators

Basic system diagram	Heat generator
1, 2	Conventional heat generator
6, 7, 8, 9	geoTHERM 3 kW heat pump
8, 9, 12, 16	flexoTHERM/flexoCOMPACT heat pump
8, 9, 12, 16	versoTHERM heat pump
8, 9, 12, 16	recoCOMPACT heat pump
8, 9, 10, 11, 12, 13, 16	aroTHERM (Split), aroTHERM plus heat pump

## 21.10 Product description for the eRELAX



Fig 416: eRELAX

### Technical data

Technical data	Unit	eRELAX
Operating voltage	V	3 x 1.5 (AAA)
Battery life	a	Approx. 2
Level of protection	–	IP 20
Protection class for the control	–	III
Maximum permissible ambient temperature	°C	≤ 50
Adjustable temperature range	°C	7 ... 30
Transmission frequency Thermostat - communication unit	MHz	868
Order no.	–	0020197222

### Special features

- Convenient operation thanks to the app control for Android and iOS
- Intuitive operation without the need for prior knowledge
- E-paper display
- Plug & Play using the installation assistant in the app
- Self-learning PID algorithm (automatic determination of the heat-up time based on the outdoor temperature, heat losses from the heating and the building's thermal characteristics in order to offer the right level of comfort at the required time)
- Radio control can be set up anywhere in the room or can be wall-mounted
- Modulating actuation of the heating system
- Compatible with the Amazon Echo voice control and IFTTT (if this then that)

### Equipment

- Weather-compensated using online weather data
- Can be accessed free-of-charge from several mobile end devices
- Comfort safety function
- Adaptive heat curve

### Features of the eRELAX app:

- Setting time periods, operating programmes and target values for heating and domestic hot water
- Displaying the actual values for heating and domestic hot water
- Party mode
- Away mode with time programming
- Display the status of the installation
- Historic heat curve and energy monitoring (ecoTEC exclusive)

### Potential applications

- Only for wall-hung and floor-standing gas-fired heating systems with eBUS interface.
- No support for solar systems or heat pumps.
- In combination with a domestic hot water cylinder
- For a non-regulated heating circuit including domestic hot water cylinder charging
- Ideal for the flat

### Note

Prerequisites: Functioning WLAN, DHCP-compatible router/Internet connection, iOS (version 8 or higher) or Android (version 4 or higher) smartphone or tablet.



## 21.11 Product description for the sensoHOME VRT 380 room temperature control

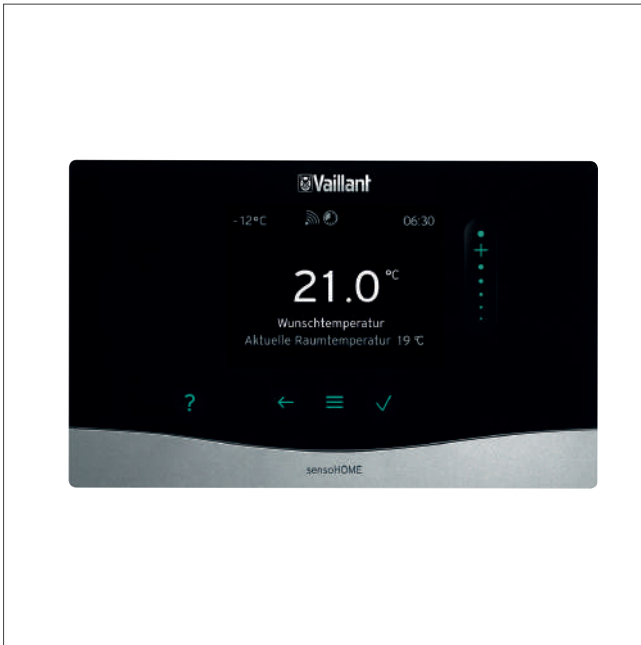


Fig 417: sensoHOME 380

### Special features

- Room temperature control
- TFT graphic display with touch control elements
- Convenient sensoApp control for Android and iOS (VR 921 Internet module required)
- Fast start-up using installation assistants
- Time programme assistant for the end user

### Equipment

- eBUS interface
- Weekly planner for heating, domestic hot water and circulation
- Anti-legionella function
- „Days away from home“ function

### Potential applications

- For all Vaillant gas-fired boilers with an eBUS interface
- In combination with a domestic hot water cylinder
- 1 x direct heating circuit

### Technical data - System control

Rated voltage	9 to 24 V $\overline{\text{---}}$
Rated surge voltage	330 V
Pollution degree	2
Rated current	< 50 mA
Supply line cross-section	0.75 to 1.5 mm <sup>2</sup>
IP rating	IP 20
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 60 °C
Current room air hum.	35 to 95 %
Mode of operation	Type 1
Height	109 mm
Width	175 mm
Depth	26 mm

## 21.12 Product description for the sensoHOME VRT 380f radio room temperature control



Fig 418: sensoHOME 380f

### Technical data

#### Control

Battery type	LRO6
Rated surge voltage	330 V
Frequency band	868.0 to 868.6 MHz
Max. transmission power	< 25 mW
Range outdoors	≤ 100 m
Range indoors	≤ 25 m
Pollution degree	2
IP rating	IP 20
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 60 °C
Current room air hum.	35 to 95 %
Mode of operation	Type 1
Height	109 mm
Width	175 mm
Depth	27 mm

#### Radio receiver unit

Rated voltage	9 to 24 V $\overline{\text{---}}$
Rated current	< 50 mA
Rated surge voltage	330 V
Frequency band	868.0 to 868.6 MHz
Max. transmission power	< 25 mW
Range outdoors	≤ 100 m
Range indoors	≤ 25 m
Pollution degree	2
IP rating	IP 21
Protection class	III
Temperature for the ball pressure test	75 °C
Maximum permitted environmental temperature	0 to 60 °C
Rel. room humidity	35 to 90 %
Supply line cross-section	0.75 to 1.5 mm <sup>2</sup>
Height	115.0 mm
Width	142.5 mm
Depth	26.0 mm

#### Special features

- Wireless room temperature control
- TFT graphic display with touch control elements
- Convenient sensoApp control for Android and iOS (VR 921 Internet module required)
- Fast start-up using installation assistants
- Time programme assistant for the end user

#### Equipment

- eBUS interface
- Weekly planner for heating, domestic hot water and circulation
- Anti-legionella function
- „Days away from home“ function

#### Potential applications

- For all Vaillant gas-fired boilers with an eBUS interface
- In combination with a domestic hot water cylinder
- 1 x direct heating circuit

## 21.13 VRT 350 product description



Fig 419: VRT 350

### Special features

- Digital room temperature control with plain text display
- Intuitive operation without the need for prior knowledge
- Easy-to-read, illuminated plain text display
- Fast start-up using installation assistants
- Weekly programme
- Summer function
- Party function
- Holiday programme
- Switches between summer/winter time automatically
- One-time cylinder charging outside of time programming
- Intelligent hot water programmes that are coupled with heating mode
- 1 day away from home/at-home function

### Equipment

- 1x basic station
- 1x wall-mounting base

### Potential applications

- For all Vaillant boilers with an eBUS interface (except for heat pumps)
- In combination with a domestic hot water cylinder

### Technical data

Technical data	Unit	calorMATIC 350
Operating voltage U <sub>max</sub> .	V	24
Controller current consumption	mA	< 50
Maximum permissible ambient temperature	°C	50
Supply line cross-section	mm <sup>2</sup>	0.75 ... 1.5
Dimensions with wall-mounting casing:		
Height	mm	97
Width	mm	147
Depth	mm	50
Level of protection	-	IP 20
Protection class for the controller	-	III
Order no.	-	0020124472

## 21.14 Product description for VRT 332



Fig 420: VRT 332

### Special features

- Digital room temperature control with plain text display
- Intuitive operation without the need for prior knowledge
- Easy-to-read, illuminated plain text display
- Fast start-up using installation assistants
- Weekly programme
- Party function
- Holiday programme

### Equipment

- 1x basic station
- 1x wall-mounting base

### Potential applications

- For all Vaillant boilers with a 7-8-9 interface
- For simple systems without a domestic hot water cylinder

### Note

A switching time programme cannot be set for domestic hot water.



### Technical data

Technical data	Unit	calorMATIC 332
Operating voltage U <sub>max</sub> .	V	24
Controller current consumption	mA	< 50
Maximum permissible ambient temperature	°C	50
Supply line cross-section	mm <sup>2</sup>	0.75 ... 1.5
Dimensions with wall-mounting casing:		
Height	mm	97
Width	mm	147
Depth	mm	50
Level of protection	-	IP 20
Protection class for the controller	-	III
Order no.	-	0020124465





## 21.15 Control accessories


Combination options for controls with additional modules

Accessories	Weather-compensated (radio) multi-circuit and cascade control	
	VRC 700 VRC 700f/4	sensoCOMFORT VRC 720 sensoCOMFORT VRC 720f
VR 70 wiring centre (FM3) 		<ul style="list-style-type: none"> <li>• Connection via eBUS</li> </ul>
VR 71 main wiring centre (FM5) 		<ul style="list-style-type: none"> <li>• Connection via eBUS</li> </ul>
VR 91(f) remote control 	<ul style="list-style-type: none"> <li>• VR 91 connection via eBUS</li> <li>• VR 91f connection via radio</li> </ul>	–
VR 92(f) remote control 	–	<ul style="list-style-type: none"> <li>• VR 92 connection via eBUS</li> <li>• VR 92f connection via radio</li> </ul>
Multi-functional accessories for the "2 in 7" module 		<ul style="list-style-type: none"> <li>• Wiring centre for additional connections</li> <li>• Direct connection to the heat generator</li> </ul>
VR 32/3 bus coupler 		<ul style="list-style-type: none"> <li>• This is required as of the second heat generator in cascade solutions</li> </ul>

- can be used
- cannot be used



Accessories	Weather-compensated (radio) multi-circuit and cascade control	
	VRC 700 VRC 700f/4	sensoCOMFORT VRC 720 sensoCOMFORT VRC 720f
VR 39 additional module 	<ul style="list-style-type: none"> <li>• Transmission module for the 7-8-9/eBUS interface Only in connection with VRC Installation in the electronics box of the heat generator Cannot be used with wiring centres</li> </ul>	–
<b>Remote diagnostics and app control process</b>		
VR 920 Internet module 	<ul style="list-style-type: none"> <li>•</li> </ul>	–



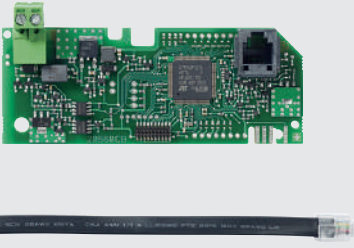


- can be used
- cannot be used



Weather-compensated (radio) multi-circuit and cascade control		
Accessories	VRC 700 VRC 700f/4	sensoCOMFORT VRC 720 sensoCOMFORT VRC 720f
sensoNET VR 921	•	•
		



• can be used  
– cannot be used

Accessories for the VRC, sensoCOMFORT



Accessories	Order no.	
	<p><b>VR 71 main wiring centre</b>  <b>Special features</b>            Flexible extension module            eBUS interface  <b>Product equipment</b>            Main wiring centre            VR 10 (4x) standard sensor            VR 11 (1) collector sensor  <b>Potential applications</b>            2 x mixed heating circuits and solar heating support and/or domestic hot water generation with 2 x solar cylinders or            3 x mixed heating circuits and solar heating support and/or domestic hot water generation with 1 x solar cylinder or            Three mixed heating circuits or            Three mixed heating circuits in conjunction with a buffer cylinder  <b>Can be used for sensoCOMFORT 720 and sensoCOMFORT 720f</b></p>	0020184846
	<p><b>VR 70 wiring centre (FM3)</b>  <b>Special features</b>            Flexible extension module            eBUS interface  <b>Product equipment</b>            Wiring centre            VR 10 (2x) standard sensor  <b>Potential applications</b>            If an FM3 functional module is installed, the system has 1 x mixed and 1 x non-mixed heating circuit.            If the FM3 and FM5 functional modules are installed in a system, each additional installed FM3 functional module (maximum three) adds two mixed heating circuits to the system.  <b>Can be used for sensoCOMFORT 720 and sensoCOMFORT 720f</b></p>	0020184843

	Accessories	Order no.
	<p><b>VR 71 mixer and solar module for adding three mixing circuits</b></p> <p><b>Special features</b> Flexible extension module eBUS interface</p> <p><b>Product equipment</b> Mixer and solar module VR 10 (4x) standard sensor VR 11 (1) collector sensor</p> <p><b>Potential applications</b> Two mixed heating circuits and two solar cylinders in conjunction with solar domestic hot water generation or Three mixed heating circuits and two solar cylinders in conjunction with solar heating support or Three mixed heating circuits in conjunction with solar domestic hot water generation or Three mixed heating circuits in conjunction with solar heating support or Three mixed heating circuits or Three mixed heating circuits in conjunction with a buffer cylinder Can be used for VRC 700 and VRC 700f/4</p>	0020184846
	<p><b>VR 70 mixer and solar module for adding two mixing circuits or a solar system with one regulated heating circuit</b></p> <p><b>Special features</b> Flexible extension module eBUS interface</p> <p><b>Product equipment</b> Mixer and solar module VR 10 (2x) standard sensor</p> <p><b>Potential applications</b> One non-regulated and one regulated heating circuit or One regulated heating circuit in conjunction with a buffer cylinder (allSTOR VPS exclusive) or Two regulated heating circuits or One non-regulated heating circuit with solar domestic hot water generation or One regulated heating circuit with solar heating support Can be used for VRC 700 and VRC 700f/4</p> <p><b>Note:</b> <b>A VR 11 collector sensor is required when using a thermal solar system.</b></p>	0020184843
	<p><b>VR 39 additional module</b></p> <p><b>Special features</b> Wiring centre for connecting an existing or new Vaillant heat generator with a 7-8-9 interface, bidirectionally to an eBUS control Can be installed in the electronics box</p> <p><b>Product equipment</b> Plug-in module Connection cable</p> <p><b>Potential applications</b> Can be used for the VRC 700</p> <p><b>Note:</b> <b>Cannot be used with wiring centres.</b></p>	0020139898
	<p><b>VR 91 remote control unit for controlling a heating zone or a heating circuit</b> Can be used for the VRC 700</p> <p>Wired remote control for a zone (room temperature control by setting the target value) or a heating circuit in combination with the VRC 700 control. Zone assignment: One zone can be assigned to a VR 91. The controls must be installed in the relevant room; the thermostat function must also be switched on when using the VRC 700. The controls set the temperatures for the zones.</p>	0020171333
	<p><b>VR 91f remote control unit for controlling a heating zone or a heating circuit</b> Can be used for the VRC 700f(4)</p> <p>Wireless remote control for a zone (room temperature control by setting the target value) or a heating circuit in combination with the VRC 700f(4) control. Zone assignment: One zone can be assigned to a VR 91f. The controls must be installed in the relevant room; the thermostat function must also be switched on when using the VRC 700(4). The controls set the temperatures for the zones.</p>	0020231565


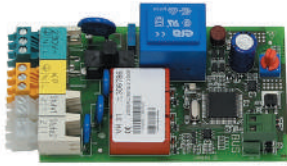

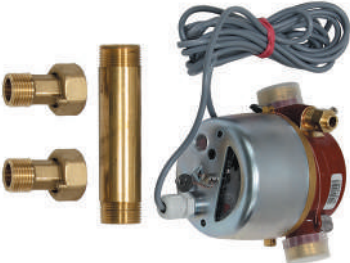

	Accessories	Order no.
	<p><b>VR 92 remote control unit for controlling a heating zone or a heating circuit</b>            Can be used for the sensoCOMFORT            Wired remote control for a zone (room temperature control by setting the target value) or a heating circuit in combination with the VRC 720 control. Zone assignment: One zone can be assigned to a VR 92. Up to four VR 92 units can be connected in a system. The controls must be installed in the relevant room; the thermostat function must also be switched on when using the VRC 720. The controls set the temperatures for the zones.</p>	0020260923
	<p><b>VR 92f remote control unit for controlling a heating zone or a heating circuit</b>            Can be used for sensoCOMFORT VRC 720f            Wireless remote control for a zone (room temperature control by setting the target value) or a heating circuit in combination with the VRC 720f control. Zone assignment: One zone can be assigned to a VR 92f. Up to two VR 92f units can be connected in a system. The controls must be installed in the relevant room; the thermostat function must also be switched on when using the VRC 720f. The controls set the temperatures for the zones.</p>	0020260938

	Accessories	Order no.
	<p><b>VR 920 Internet module</b>  <b>Special features</b>            Access to the Vaillant profiDIALOG remote diagnostics portal for eBUS-enabled heat generators as of 2007            Remote parameter setting on, analysing and alerting from one to six separate boilers that are connected to a common Vaillant eBUS control and the VR 38 eBUS power supply unit            Remote parameter setting on, analysing and alerting multi-circuit heating installations with eBUS controller            Radio communication (868 MHz) with ambiSENSE thermostat possible            Communication via EEBUS with the SMA Sunny Home Manager</p> <p><b>Potential applications</b>            For all Vaillant heat generators with eBUS interface as of 2007            Compatible control for the profiDIALOG remote diagnostics portal: All VRC 700, auroMATIC 620/3, integrated energy balance control (geoTHERM VWS) eBUS controls            Up to six boilers can be integrated with the VR 38 eBUS power supply unit</p>	0020252922
	<p><b>sensonet VR 921</b>  <b>Special features</b>            Access to the Vaillant profiDIALOG remote diagnostics portal for eBUS-enabled heat generators as of 2007            Remote parameter setting on, analysing and alerting from one to six separate boilers that are connected to a common Vaillant eBUS control and the VR 38 eBUS power supply unit            Remote parameter setting on, analysing and alerting multi-circuit heating installations with eBUS controller            Radio communication (868 MHz) with ambiSENSE thermostat possible            Communication via EEBUS with the SMA Sunny Home Manager</p> <p><b>Potential applications</b>            For all Vaillant heat generators with eBUS interface as of 2007            Compatible control for the profiDIALOG remote diagnostics portal: All sensoCOMFORT 720, sensoDIRECT 710, VRC 700(f), auroMATIC 620, integrated energy balance control (geoTHERM VWS) eBUS controls            Up to six boilers can be integrated with the VR 38 eBUS power supply unit</p>	0020260962


Accessories for the auroMATIC 620/3 or integrated system control

	Accessories	Order no.
	<p><b>VR 60/3 mixer module for expanding the system by two controlled heating circuits</b>  <b>Equipment</b>            The mixer module consists of the mixer module and two VR 10 standard sensors</p> <p><b>Special features</b>            eBUS interface            Programming the heating-circuit-specific connections via the central unit (auroMATIC 620/3), optionally using a VR 90/3 or VR 80 remote control unit that can be connected to each heating circuit            Regulated heating circuits individually configurable for fixed value controlling, increase in return flow or use as a cylinder charging circuit</p> <p><b>Possible application</b>            A maximum of six mixer modules can be used in one system.            Can be used for auroMATIC 620/3, geoTHERM integrated system control, energy balance control.</p>	306782
	<p><b>VR 80 remote control unit for changing the operating mode</b>  <b>Special features</b>            eBUS interface            Operating mode switching            For controlling a heating circuit within a VRT control system remotely</p> <p><b>Possible application</b>            A maximum of eight remote control units (VR 80 or VR 90/3) can be used in one system.            Can be used for auroMATIC 620/3, geoTHERM integrated system control, energy balance control.</p>	306766




	Accessories	Order no.
	<p><b>VR 90/3 remote control unit and room temperature modulation with plain text display</b></p> <p><b>Special features</b>  For controlling a heating circuit within a VRT control system remotely  Ability to program all the settings specific to the heating circuit(s)  Can be used for room temperature modulation eBUS interface</p> <p><b>Possible application</b>  A maximum of eight remote control units (VR 80 and VR 90/3) can be used in one system.  Can be used for auroMATIC 620/3, geoTHERM integrated system control, energy balance control.</p>	0020040079
	<p><b>VR 32/3 modulating eBUS bus coupler</b>  For cascading heat generators with eBUS interface  Can be used for the sensoCOMFORT VRC 720, VRC 700, auroMATIC 620, VWS 36/4.1, aroTHERM split</p> <p><b>Note:</b>  <b>With two or more heat generators, a bus coupler is required.</b></p>	0020139895
	<p><b>VR 32 B modulating eBUS bus coupler for the aroTHERM cascade system</b>  Can be used for sensoCOMFORT VRC 720, VRC 700(f) in conjunction with an aroTHERM cascade system</p> <p><b>Note:</b>  <b>As of the second aroTHERM heat pump, a bus coupler must be used.</b></p>	0020235465
	<p><b>Cascade relay for motorised flue non-return flap</b>  Time relay for actuating the motorised flue non-return flap for ecoCRAFT.. /3-E in Vaillant flue gas cascade systems (up to three units can be cascaded) For installing outside the heat generator</p> <p><b>Product equipment</b>  Splashproof wall-mounting casing (IP X 4)  Mounting rail incl. for relay and grommets  Adjustable time relay  Installation material</p> <p><b>Possible application</b>  As an accessory for the ecoCRAFT VKK /3-E in Vaillant flue gas cascade systems with a motorised flue non-return flap; can be used for the ecoCRAFT exclusive.</p> <p><b>Note</b>When creating a cascade system, each ecoCRAFT exclusive VKK /3-E requires a motorised flue non-return flap and a cascade relay for the motorised flue non-return flap.<sup>Note</sup>  <b>When creating a cascade system, each ecoCRAFT exclusive VKK /3-E requires a motorised flue non-return flap and a cascade relay for the motorised flue non-return flap.</b></p>	0020150855

	Accessories	Order no.
	<p><b>VR 30/3 modulating bus coupler</b>  For cascading modulating heat generators  Maximum of eight modulating bus couplers  <b>Note:</b>  <b>With three or more heat generators, a bus coupler must be used.</b>  <b>Cannot be used with Vaillant boilers that have eBUS interfaces.</b></p>	0020139894
	<p><b>VR 31 switching bus coupler for cascading heat generators</b>  For all Vaillant switching heat generators with a 3-4-5 interface</p>	306786
	<p><b>VR 55 wall-mounting base</b>  As an accessory for mounting the energy balance control on the wall as a remote control unit, including a cover plate for the wall-mounting casing.</p>	306790
	<p><b>Volume flow sensor for measuring heat</b>  Can be used for the auroMATIC 620  <b>Note:</b>  <b>Not required in allSTOR stations.</b></p>	0020095183
	<p><b>VR 11 collector temperature sensor</b>  As an accessory for the auroMATIC to connect a second collector field or solid fuel boiler</p>	306788



	Accessories	Order no.
	<p><b>Cut-off relay for two-unit cascade</b> Can be used for geoTHERM VWS &gt; 20 kW</p>	0020084114

General control system accessories

	Accessories	Order no.
	<p><b>VR 10 standard sensor</b> Can be used as a flow temperature sensor (surface-mounted sensor) or an immersion sensor Can be used for sensoCOMFORT, auroMATIC, VRT 370 (f), VRT 350, VRT 332, VRC 700 and integrated control</p>	306787
	<p><b>VRC 9642 surface-mounted thermostat with switching contact and enclosed strap fastening</b> Adjustment range + 10 to + 90 °C, contact loading 230 V, switching differential (static) 5 K, can be used for sensoCOMFORT, auroMATIC 620, VRT 370 (f), VRC 700 <b>Note:</b> <b>Required for underfloor heating.</b></p>	009642
	<p><b>2 in 7 multi-functional module</b> Option for actuating "2 in 7" functions (can be installed in the electronics box) circulation pump/external heating pump, cylinder charging pump, external solenoid valve, operating/fault display, extraction hood, flue non-return flap/response. Can be used for the atmoTEC exclusive, atmoTEC plus, auroCOMPACT, ecoCOMPACT, ecoCRAFT exclusive, ecoTEC exclusive, ecoTEC plus VC 146 - 316, ecoTEC plus VCI, ecoTEC plus VCW, ecoVIT exclusive, icoVIT exclusive, flexoTHERM <b>Note:</b> <b>Can only be used with Vaillant boilers that have eBUS electronics.</b></p>	0020017744

	Accessories	Order no.
	<p><b>VR 40 installation box</b> To install a 2 in 7 multi-functional module in an ecoTEC exclusive /1-7. Can be used for the ecoTEC exclusive /1-7</p>	0010025486
	<p><b>VR 36 additional module (eBUS adapter) for an existing control (3-4-5 interface)</b> For connecting a non-eBUS-enabled control (3-4-5 interface) to an eBUS unit; for installation in the electronics box. Can be used for the atmoTEC exclusive, atmoTEC plus, ecoTEC exclusive VC 156 - 326, ecoTEC plus</p>	0020117036
	<p><b>VR 37 additional module (eBUS adapter) for an existing control (7-8-9 interface, analogue)</b> For connecting a non-eBUS-enabled control (7-8-9 interface) to an eBUS unit; for installation in the electronics box. Can be used for the atmoTEC exclusive, atmoTEC plus, ecoTEC exclusive VC 156 - 326, ecoTEC plus</p>	0020139835
	<p><b>VR 38 additional module with eBUS power supply unit for increasing the eBUS power supply</b> The VR 38 power supply unit must be installed when connecting multiple installations - consisting of an eBUS heat generator and an eBUS control - to the VR 920 communication module. Each heat generator requires a VR 32/3 bus coupler. Up to six systems can be connected. To be used when cascading up to four domestic hot water stations, in combination with a buffer cylinder, if an eBUS control (VRS 620/X) is not connected. An independent system can be created. Can be used for the VR 920</p>	0020139836
	<p><b>Anti-legionella pump connection cable</b> Can be used to connect the external anti-legionella pump to the integrated control in the VMS 8 solar pump station</p>	0020183366





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