Installation and Service Instructions

for use by heating contractor

Pellet boiler, with Ecotronic weather-compensated, digital boiler and heating circuit control unit
Heating input: 44 MBH to 193 MBH
13 kW to 57 kW

VITOLIGNO 300-C

Product may not be exactly as shown

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Please file in Service Binder

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation and service. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

- **Product documentation**
  Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

  ▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Safety Requirements".*

- **Warranty**
  Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

- **Licensed professional heating contractor**
  The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

  ▶*Please see section entitled "Important Regulatory and Installation Requirements".*

- **Contaminated air**
  Air contaminated by chemicals can cause by-products in the combustion process, which are poisonous to inhabitants and destructive to Viessmann equipment.

  ▶*For a listing of chemicals which cannot be stored in or near the boiler room, please see subsection entitled "Mechanical Room".*

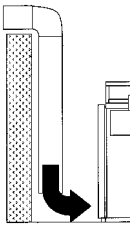
- **Advice to owner**
  Once the installation work is complete, the heating contractor must familiarize the system operator/ ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service. Refer to the Service and Maintenance Instructions for details.

- **Carbon monoxide**
  Improper installation, adjustment, service and/or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas.

  ▶*For information pertaining to the proper installation, adjustment, service and maintenance of this equipment to avoid formation of carbon monoxide, refer to the "Safety" section.*

- **Fresh air**
  This equipment requires fresh air for safe operation and must be installed ensuring provisions for adequate combustion and ventilation air exist.

  ▶*For information pertaining to the fresh air requirements of this product, refer to the"Combustion Air Supply" section.*

- **Equipment venting**
  Never operate boiler without an installed venting system. An improper venting system can cause carbon monoxide poisoning.

  ▶*For information pertaining to venting and chimney requirements, refer to the "Safety" section. All products of combustion must be safely vented to the outdoors.*

⚠ WARNING

Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow manufacturer's maintenance schedule of the boiler contained in the "Service and Maintenance Instructions".

Safety Instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.

WARNING

Warnings draw your attention to the presence of potential hazards or important product information.

▶ Indicates an imminently hazardous situation which, if not avoided, could result in death, serious injury or substantial product/property damage.

CAUTION

Cautions draw your attention to the presence of potential hazards or important product information.

▶ Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product / property damage.

IMPORTANT

▶ Helpful hints for installation, operation or maintenance which pertain to the product.

▶

▶ This symbol indicates to note additional information

▶ This symbol indicates that other instructions must be referenced.

Note: Viessmann Manufacturing Company Inc. reserves the right to make product changes or updates without notice and will not be held liable for typographical errors or omissions in the product literature.

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Important Regulatory and Installation Requirements

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT".

Codes

The installation of this unit shall be in accordance with local codes. In the absence of local codes, use: CSA B365 (latest edition) Installation Code for Solid-Fuel Burning Appliances and Equipment, NFPA-211 (latest edition) Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances.

All electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/NFPA 70 where required by the authority having jurisdiction.

Mechanical room

Ensure the mechanical room complies with the requirements listed in this manual. See section entitled Mechanical Room.

Working on the equipment

The installation, adjustment, service, and maintenance of this boiler must be done by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water boilers. There are no user serviceable parts on the boiler, or control.

Ensure main power supply to equipment, the heating system, and all external controls have been deactivated. Take precautions to avoid accidental activation of power during service work.

Technical literature

Literature applicable to all aspects of the Vitoligno 300-C wood-fired boiler:

- Installation and Service Instructions
- Operating Instructions
- Wiring Diagram

▶ *Please carefully read this manual prior to attempting installation. Any warranty is null and void if these instructions are not followed.*

Failure to follow these instructions could result in property damage, injury or loss of life. Contact your local building and/or fire officials about installations, restrictions and inspection requirements.

For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.

We offer frequent installation and service seminars to familiarize our partners with our products. Please inquire.

▶ *The completeness and functionality of field supplied electrical controls and components must be verified by the heating contractor. These include low-water cut-offs, flow switches (if used), staging controls, pumps, motorized valves, air vents, thermostats, etc.*

▶ *Save and leave all literature at the installation site and advise the system operator/ultimate owner where the literature can be found. Contact Viessmann for additional copies.*

▶ *This product comes with several safety instruction labels attached.*
Do not remove!
Contact Viessmann immediately if replacement labels are required.

Product Information

Viessmann solid-fuel boiler may only be installed and serviced by trained personnel.

Wood pellet fired hot water boiler for operation primarily with modulating boiler water temperatures in closed loop forced circulation hot water heating systems.

The Vitoligno 300-C is a fully automatic wood pellet boiler. The boiler has an efficiency of up to 85% when converting pellets into heat.

The wood pellet boiler offers a wide spectrum of applications – from low energy houses to buildings with a higher heat demand.
Modulation of 1:3 leads to low consumption and clean combustion under partial load conditions. A ceramic ignition unit consumes little power, whilst innovative combustion technology featuring dual combustion control with lambda probe and flue gas temperature sensor keeps dust values low.

The Vitoligno 300-C offers versatile and flexible fuel supply system options for almost any application. Pellets are supplied to the boiler either via a flexible screw conveyor or a vacuum system. Thanks to its compact design, it is suitable for installation in rooms with low ceiling heights. Versions with pellet supply via a vacuum system are supplied with a pellet hopper with integral suction turbine and capacity for one-day operation. The wood pellet boiler is convenient to use and is partially automated. The automated features include ignition, heat exchanger cleaning, the self-cleaning rotary finned grate and fully automatic removal of ash. The mobile ash box only needs emptying once or twice a year. Due to the sealed ash box, ash removal is also clean and stress-free.

Operating the boiler is easy with the weather-compensated digital Ecotronic control unit. The integral Ecotronic controls up to four heating circuits with mixing valve. The Ecotronic controls boilers with pellet supply, heating circuits and the tank temperature.
The clear display, with graphic capability and multiple line plain text user prompts, provides intuitive operation and easy adjustment of all relevant parameters.
In combination with a solar thermal system, current solar data is also shown on the display.

The Vitotrol 350-C (accessory) control unit extension enables the wood pellet boiler to be operated from the living space as well. With the 5" (125 mm) color touchscreen display in 16:9 format, operation couldn't be easier. The Vitotrol 350-C enables remote control of the boiler with all relevant adjustment options and display of all relevant information about the boiler and the heating water buffer tank. Optionally, the Vitotrol 350-C can be used not only as a remote controller but also as a cascade controller. Up to four boilers can be connected in a cascade. Additionally, one oil/gas boiler can be enabled via the master boiler. The most important control circuits of the cascade system can be displayed and operated.
The heat-up condition of the buffer tank is displayed.

Maximum allowable working pressure (water).....45 psi

Maximum water temperature.....230°F (110°C)

Maximum boiler temperature.....203°F (95°C)

This boiler does not require a flow switch.

WARNING

Exposing the boiler to pressures and temperatures in excess of those listed will result in damages and will render the warranty null and void.

Codes and standards

CSA B366.1-M91
Solid Fuel Fired Central Heating Appliances

CSA C.22.2 NO. 3-M1988 (latest edition)
Electrical Features of Fuel Burning Equipment

UL2523
Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters and Boilers

CSA B365 (latest edition)
Installation Code for Solid Fuel Burning Appliances and Equipment

ASME section IV boilers and pressure vessels

Applicability

CAUTION

The boiler serial number must be provided when ordering replacement parts. Some replacement parts may not reverse compatible with previous versions.

IMPORTANT

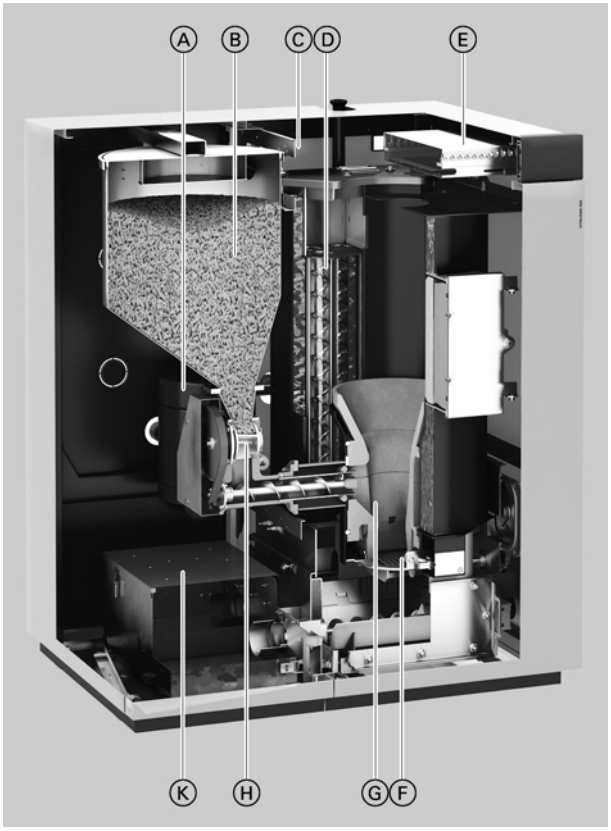
When ordering replacement parts, provide either the 16-digit boiler serial number (on the bar code label) or the 12-digit ASME/NB serial number correlate to each other. Providing either serial number is sufficient.

Model No.	**Serial No.**
300-C, 32	7673002 □□□□□□□□□

Model No.	**Serial No.**
300-C, 48	7673003 □□□□□□□□□

Legend

Ⓐ Integral suction turbine (version with vacuum system)
Ⓑ Pellet hopper (version with vacuum system only)
Ⓒ Variable speed flue gas fan for modulating operation
Ⓓ Automatic heat exchanger cleaning
Ⓔ Ecotronic control unit with user prompts
Ⓕ Self-cleaning rotary finned grate made from stainless steel
Ⓖ Combustion chamber made from high temperature-resistant ceramics
Ⓗ Rotary lock valve for 100% burn-back protection
Ⓚ Automatic ash removal with mobile ash box



Intended Use

The appliance is only intended to be installed and operated in sealed unvented heating systems that comply with local codes (in absence of local codes use CSA B365 (latest edition) "Installation Code for Solid Burning Appliances and Equipment", in Canada NFPA-211 (latest edition), 'standard for chimneys, fireplaces, vents, and solid fuel burning appliances' in the USA, with attention paid to the associated installation, service and operating instructions.

It is only designed for the heating of heating water that is of potable water quality. Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer in each individual case.

Incorrect usage or operation of the appliance (e.g. the appliance being operated for longer periods when open) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation air paths are sealed) or if other fuels than those intended for this appliance are used.

Mechanical Room

During the early stages of designing a new home, we recommend that proper consideration be given to constructing a separate mechanical room dedicated to the wood pellet fired heating equipment and domestic hot water storage tank(s), as well as method and location of wood pellet storage facility.

The boiler must be located in a heated indoor area, near a floor drain, and as close as possible to a wall. Whenever possible, install the boiler near an outside wall so that it is easy to duct the venting system to the boiler.

Ensure that the boiler location does not interfere with the proper circulation of combustion and ventilation air of other fuel burning equipment within the mechanical room (if applicable).

The maximum room temperature of the mechanical room where the boiler is located must not exceed 95°F (35°C).

Installation area conditions

WARNING

Incorrect ambient conditions can lead to damage to the heating system and put safe operation at risk.

- Ensure ambient temperatures are higher than 32°F (0°C) and lower than 95°F (35°C).
- Prevent the air from becoming contaminated by halogenated hydrocarbons (e.g. as contained in paint solvents or cleaning fluids) and excessive dust (e.g. through grinding or polishing work). Combustion air for the heating process, and ventilation of the boiler room must be free of corrosive contaminants. To that end, any boiler must be installed in an area that has no chemical exposure. The list to the right indicates the main, currently known sources.
- Avoid continuously high levels of humidity (e.g. through frequent drying of laundry).
- Never close existing ventilation openings.

WARNING

If you notice fire coming from the appliance, call the fire department immediately! Do not attempt to extinguish the fire unless qualified to do so.

Sources of combustion and ventilation air contaminants

Areas likely to contain contaminants:

- New building construction
- Swimming pools
- Remodelling areas, hobby rooms
- Garages with workshops
- Furniture refinishing areas
- Dry cleaning/laundry areas and establishments
- Auto body shops
- Refrigeration repair shops
- Metal fabrication plants
- Plastic manufacturing plants
- Photo processing plants
- Beauty salons

Products containing contaminants:

- Chlorine-type bleaches, detergents and cleaning solvents found in household laundry rooms
- Paint and varnish removers
- Hydrochloric acid, muriatic acid
- Chlorine-based swimming pool chemicals
- Spray cans containing chlorofluorocarbons
- Chlorinated waxes and cleaners
- Cements and glues
- Refrigerant leaks
- Calcium chloride used for thawing
- Sodium chloride used for water softening salt
- Permanent wave solutions
- Adhesives used to fasten building products and other similar items
- Antistatic fabric softeners used in clothes dryers

WARNING

Fire causes a risk of burns and explosion!
- **Shut down the boiler**
- **Use a tested fire extinguisher, class ABC.**

WARNING

Suffocation hazard due to carbon monoxide produced during incomplete combustion due to lack of combustion air. Ensure an adequate supply of fresh air. Never cover or close vents.

Wood Fuel Requirements

The Vitoligno 300-C is only suitable for burning wood pellet fuels listed below.

A prerequisite for approval is of a fuel by Viessmann is the approval for the fuel by the responsible public authorities.

Warranty claims for Viessmann Biomass boilers are excluded if the following fuel conditions are not met.

IMPORTANT

If different fuels are used, Viessmann will not assume any liability for the functioning or service life of the boiler plant. Refer to the "Warranty" section in the General Terms and Conditions of Delivery.

- **Burn wood pellets only**
- **Do not use chemicals or fluids to start fire.**
- **Do not burn garbage, gasoline, naphtha, engine oil, or other inappropriate materials.**

Principles of Pellet Combustion

What are wood pellets?

Wood pellets are made from 100 percent natural wood remnants. This raw material is waste matter created by the wood industry in large volumes through planing or sawing. Wood remnants are compressed under high pressure and formed into pellets, i.e. pressed into a cylindrical shape. The raw material is stored and transported under completely dry conditions. System users should also ensure completely dry storage conditions. This is the only way to guarantee optimum and effective combustion.

Pellet requirements

It is recommended that the pellets used comply with the requirements of the Pellet Fuel Institute (PFI - Standard or PFI - Premium) and/or CANPlus grade A1 and/or CAN/CSA - ISO 17225 Part 2 Standard.

Requirement		**PFI - Standard**	**CANPlus-A1**	**Specification as per CAN/CSA ISO 17225-2 Grade A1**
Diameter		0.230 - 0.285 in. (5.84 - 7.25 mm)	0.236 ± 0.039 in. (6 ± 1 mm)	D06
Length		A maximum of 1% may be longer than 1.5 in. (38 mm)	A maximum of 1% may be longer than 1.7 in. (40 mm), but no longer than 1.77 in. (45 mm)	0.125 to 1.575 in. (3.15 to 40 mm)
Bulk density in delivered condition	lb/cuft (kg/m³)	38-48 (608-769)	37-47 (600 to 750)	(BD600)
Net calorific value in the delivered condition	MJ/kg kWh/kg	-- --	≥ 16.5 ≥ 4.6	Q16.5 Q4.6
Water content in delivered condition	m-%	≤ 10	≥ 10	M10
Fines content in the delivered condition	m-%	≤ 1	≤ 1	F1.0
Mechanical strength in the delivered condition	m-%	≥ 95	≤ 97.5	DU 97.5
Ash content, free from water	%		≤ 0.7	A0.7
Ash softening temperature This value is only binding for pellets certified to CANPlus. It indicates the temperature at which the wood ash is deformed and can therefore cause fusions in the combustion chamber.	°F (°C)	-- --	≤2200 (≤ 1200)	-- --
Chlorine content, free from water	m-%	≤ 300 ppm	≤ 0.02	C10.2
Sulphur content, free from water	m-%	--	≤ 0.04	S0.04
Nitrogen content, free from water	m-%	--	≤ 0.3	N0.03

m-% = percentage by mass

Consequence of overstepping particle size:

- Increased maintenance because of a substantially higher risk of malfunction
- Shortened service life of the conveyor augers and drives

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Pellet Quality Characteristics

High quality pellets:
- Smooth shiny surface
- Uniform length
- Low proportion of dust
- Sink in water

Low quality pellets:
- Cracked rough surface
- Widely varying length
- High proportion of dust
- Float in water

Carbon Monoxide

⚠ WARNING

The operator/ultimate owner is required to have the heating boiler and controls checked, as a minimum once per year, by the original installer or by a competent heating contractor familiar with the equipment. Defects must be corrected immediately.

For Safe operation

We recommend that you frequently:

- Check for debris which could obstruct the flow of flue gases. The vent or chimney must not be blocked. A blocked or partially blocked vent or chimney can cause flue gases to leak into the structure. Flue gases leaking into the house can cause injury or death. Blocked or partially blocked chimneys must have the blockage removed by a qualified heating contractor.
- Check the pressure gage for correct system (water) pressure. Check for water on the floor from the discharge pipe of the pressure relief valve or any other pipe, pipe joint, valve or air vent.
- Check for moisture, water, or appearance of rust on the flue gas pipes, their joints as well as vent dampers, or side wall vent terminals (if so equipped).
- Ensure that nothing is obstructing the flow of combustion and ventilation air and no chemicals, garbage, gasoline, combustible materials, flammable vapors and liquids are stored (not even temporarily) in the vicinity of the boiler.
- DO NOT allow unsupervised children near the boiler.

Service/inspection of the boiler and the system must be performed on a regular basis. Maintenance, service and cleaning are specified in these instructions
Before the heating season begins, it is recommended that the boiler be serviced by a qualified heating contractor.

Installation Examples

General

The schematics on the following pages are to be seen as guidelines only. They further do not display all system varieties, safety devices, or concepts possible. Specific system layouts may be further discussed with the local Viessmann sales representative office.

Clearances

A minimum of 2 in. (51 mm) circumferential clearance from non-insulated hot water pipes to combustible construction must be maintained. In cases where the pipes are insulated with pipe insulation of appropriate and sufficient thickness and insulation values, the above clearance may be reduced to 0 in. (0 mm) (refer to local codes).

⚠ CAUTION

For underfloor heating applications, an additional immersion or strap-on aquastat must be installed in the low temperature underfloor loop (downstream of the mixing valve) to de-energize the pump and/or boiler to prevent overheating. High water temperatures can damage concrete slabs.

IMPORTANT

The examples on the following pages depict possible piping layouts of the Vitoligno 300-C boiler equipped with Viessmann System Technology.
For boiler and tank combinations, please install only feasible combinations listed in the Viessmann Price List.

Please note that the following examples are simplified conceptual drawings only!
Piping and necessary componentry must be field verified.
A low water cut-off (LWCO) must be installed where required by local codes.
Proper installation and functionality in the field is the responsibility of the heating contractor.

⚠ WARNING

If a DHW storage tank other than a Viessmann Vitocell 100 or 300 tank is used, the installer must verify proper operation of the Viessmann DHW tank temperature sensor with the original manufacturer of the tank. Viessmann strongly recommends the installation of a temperature tempering valve in the DHW supply line.

IMPORTANT

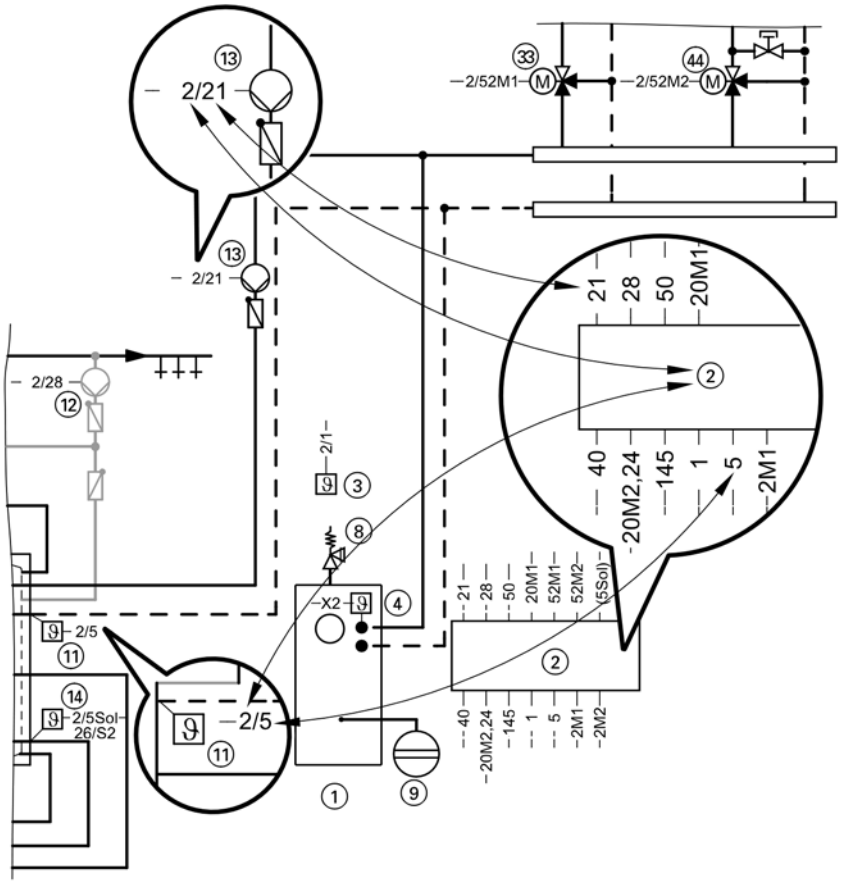
DHW supply and return piping between boiler DHW connections and the Viessmann DHW tank connections, shall be a minimum of 1¼ in. pipe size. This will ensure the residual head of the field supplied pump is fully utilized to overcome the resistance of the DHW heat exchanger coil and to provide sufficient water flow to the boiler heat exchanger.

In non-Viessmann DHW tank applications, perform, in addition to the above, accurate calculations for DHW tank coil pressure drop versus boiler pump (field supplied) residual head to ensure sufficient water flow to the boiler heat exchanger. Failure to heed the above instructions may cause boiler short-cycling and inadequate DHW supply.

Note: In the following piping layout examples all pumps are field supplied.

Installation Examples *(continued)*

Explanatory notes on the diagrams
Numbering of the technical components and the electrical connections.



System Layout 1

Applications
DHW heating by solar thermal system and pellet boiler, central heating by pellet boiler.

Heating the heating water buffer tank
The boiler is started when a heat demand is issued to heat the heating circuits. If the temperature at top boiler start sensor ⑤ falls below the set value determined by the control unit of solid fuel boiler ②, solid fuel boiler ① starts up. Boiler circuit pump ⑯ delivers the heating water to the heating water buffer tank. Any heat not absorbed by heating circuits ㊵/㊿/㊿/㊿ is stored in the heating water buffer tank. Heating of the heating water buffer tank is stopped as soon as bottom buffer tank temperature sensor ⑥ exceeds the set value determined by the solid fuel boiler control unit.

Low temperature protection package
Solid fuel boiler ① requires a minimum return temperature. When boiler circuit pump ⑯ is running, the valve of return low temperature protection package ⑰ opens the route from the central heating return to boiler ① in line with the increasing return temperature and closes the route from the boiler supply to the boiler return (bypass).

Heating by heating water buffer tank
The heat required to heat heating circuits ㊵/㊿/㊿/㊿ is taken from heating water buffer tank ㉚ via heating circuit pumps ㊶/㊿/㊿/㊿. The respective supply temperatures are controlled to their set value in weather-compensated mode via 3-way mixing valves ㊸/㊿/㊿/㊿.

Heating circuit control with mixing valves
The set supply temperature of every heating circuit is determined by the following parameters:
outdoor temperature, set room temperature, operating mode and heating curve. The supply temperature of mixing valve circuits ㊵/㊿/㊿/㊿ is controlled by incremental opening and closing of mixing valves ㊸/㊿/㊿/㊿.

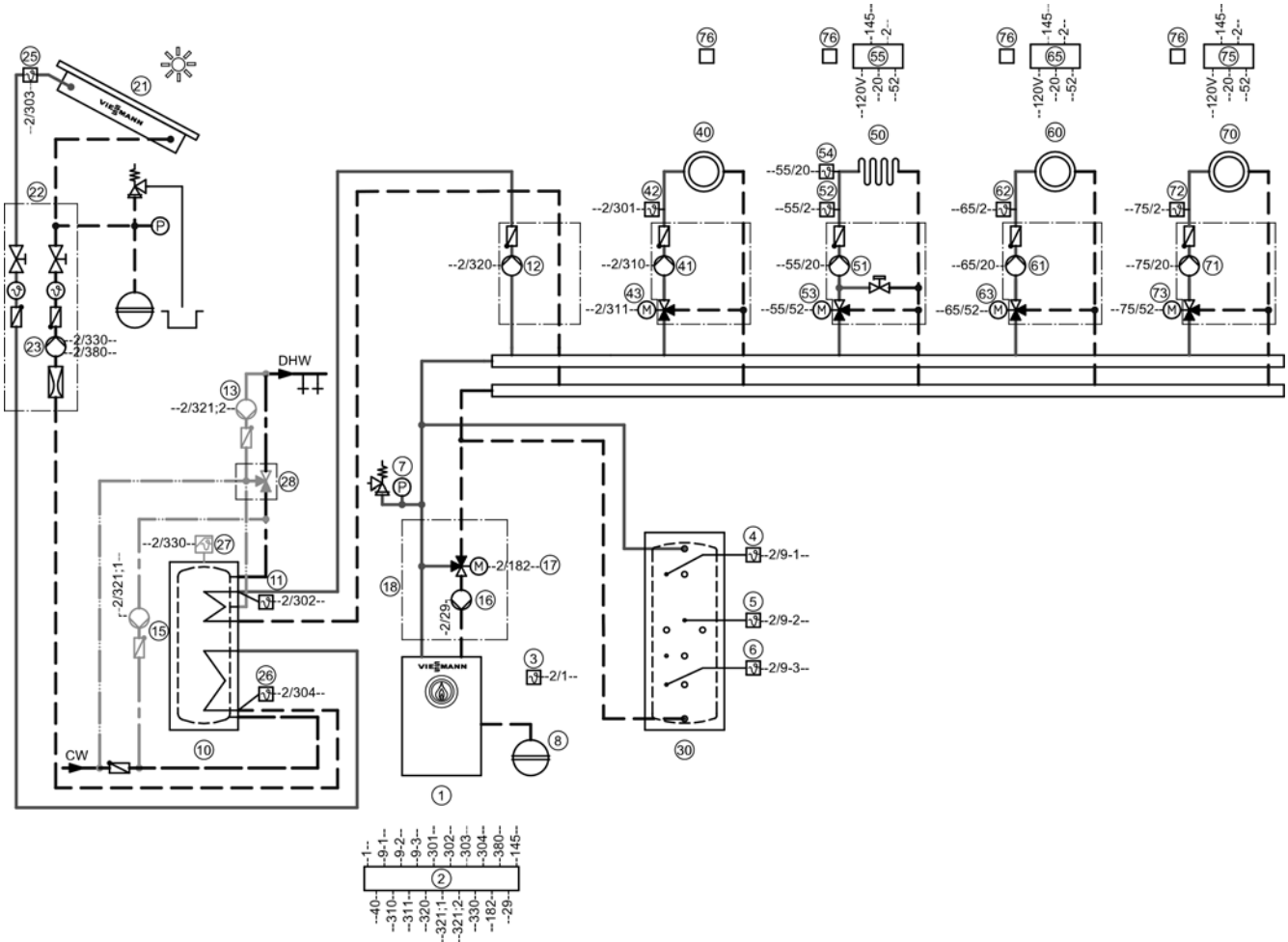
DHW heating by solid fuel boiler
If the set temperature for DHW determined by solid fuel boiler control unit ② is undershot at tank temperature sensor ⑪ DHW heating is activated. As soon as the buffer tank temperature is sufficiently high, DHW circulation pump for tank heating ⑫ is started. To activate tank priority control, the mixing valves in the heating circuits can be closed and the heating circuit pumps switched off. The type and extent of priority control is adjustable.

Heating the dual mode DHW tank with solar energy
If the temperature differential between collector temperature sensor ㉕ and return temperature sensor ㉖ (bottom tank temperature sensor) exceeds the set start temperature differential, speed-controlled solar circuit pump ㉓ is started and the dual mode DHW tank is heated up. If the temperature differentials reach their shutdown thresholds, the solar circuit pump is switched off accordingly. When the set temperature selected at the solar control unit is reached at bottom reference temperature sensor ㉖, solar heating of the dual mode DHW tank is stopped.

System Layout 1 *(continued)*

Hydraulic installation

Note: This scheme is a general example without shut-off valves or safety equipment. This does not replace the need for on-site engineering.



System Layout 1 *(continued)*

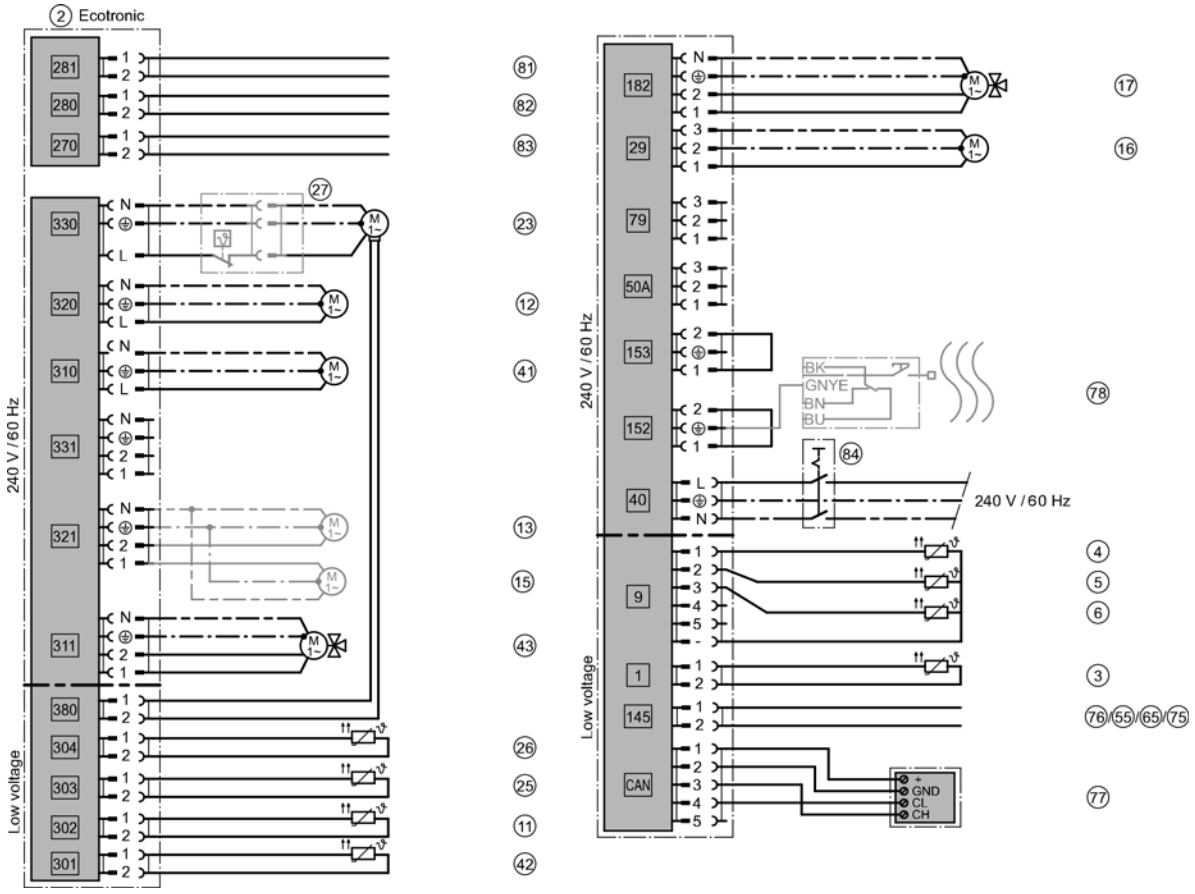
Equipment required	
Pos.	**Description**
	Heat source
①	Vitoligno 300-C with
②	Ecotronic
③	Outdoor temperature sensor ATS
④	Buffer tank temperature sensor PTS, top
⑤	Buffer tank temperature sensor PTS, centre
⑥	Buffer tank temperature sensor PTS, bottom
⑦	Safety equipment
⑧	Expansion vessel
⑯	Boiler circuit pump KKP
⑰	Return mixing valve - low temperature protection package
⑱	Low temperature protection package
	DHW heating by boiler
⑩	Dual mode DHW tank
⑪	Tank temperature sensor STS
⑫	DHW pump for tank heating UPSB
⑬	DHW recirculation pump ZP
⑮	Circulation pump for transfer of heat
	DHW heating by solar thermal system
㉑	**Solar collectors**
㉒	Solar Divicon
㉓	Solar circuit pump R1
㉔	Set of temperature sensors for solar circuit
㉕	– Collector temperature sensor KOL
㉖	– Tank temperature sensor SOL
㉗	High limit safety cut-out HLSC
㉘	DHW tempering valve
㉚	**Heating water buffer tank**
㊵	**Heating circuit I**
㊶	Heating circuit, comprising: Heating circuit pump HKP M1 (heating circuit I) and... 3-way mixing valve
㊷	Stap on supply temperature sensor
㊸	Mixing valve motor M1
㊿	**Heating circuit II**
㊶	Heating circuit distributor assembly, comprising: Heating circuit pump HKP M2 (heating circuit II) and... 3-way mixing valve

System Layout 1 *(continued)*

Equipment required	
Pos.	**Description**
⑤⓪	**Heating circuit II** *(continued)*
⑤②	Strap on temperature sensor
⑤③	Mixing valve motor M2
⑤④	Temperature limiter to restrict the maximum temperature of underfloor heating systems – Version with immersion sensor – Version with contact sensor
⑥⓪	**Heating circuit III**
⑥①	Heating circuit, comprising: Heating circuit pump HKP M3 (heating circuit III) and… 3-way mixing valve
⑥②	Strap on temperature sensor
⑥③	Mixing valve motor M3
⑦⓪	**Heating circuit IIII**
⑦①	Heating circuit distributor assembly, comprising: Heating circuit pump HKP M4 (heating circuit IIII) and… 3-way mixing valve
⑦②	Strap on temperature sensor
⑦③	Mixing valve motor M4
	Accessories
⑦⑥	Vitotrol 200A (max. two Vitotrol 200A per Ecotronic) or… Vitotrol 300A (max. one Vitotrol 300A per Ecotronic) or…
⑦⑦	Vitotrol 350
⑦⑧	Low water cutoff
⑦⑨	KM BUS distributor
⑧①	Output feedback
⑧②	External default output
⑧③	External demand
⑧④	ON/OFF switch

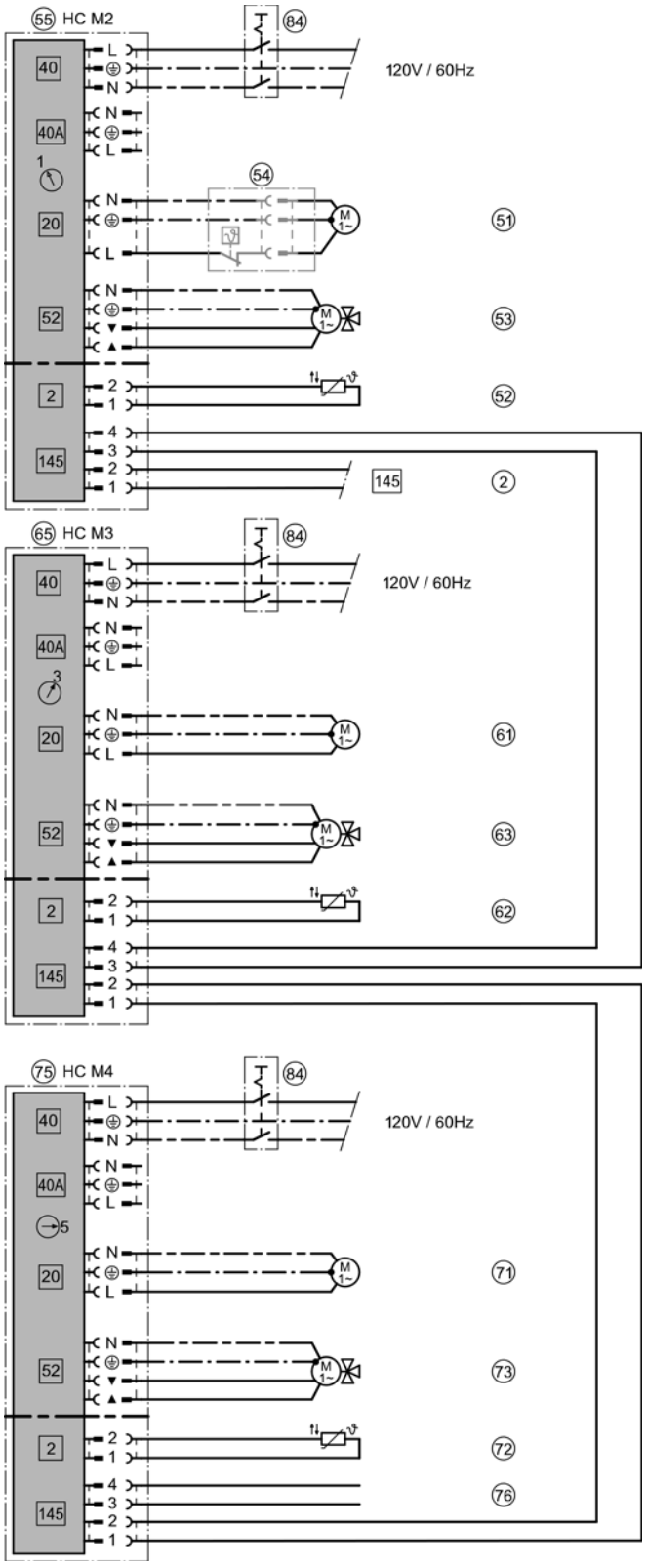
System Layout 1 *(continued)*

Electrical installation



System Layout 1 *(continued)*

Electrical installation *(continued)*



System Layout 2

Applications
DHW heating and central heating by pellet boiler

Heating the heating water buffer tank
The boiler is started when a heat demand is issued to heat the heating circuits. If the temperature at top boiler start sensor ① falls below the set value determined by the control unit of solid fuel boiler ②, solid fuel boiler ① starts up. Boiler circuit pump ⑯ delivers the heating water to the heating water buffer tank. Any heat not absorbed by heating circuits ㊵/㊿ is stored in the heating water buffer tank. Heating of the heating water buffer tank is stopped as soon as bottom buffer tank temperature sensor ⑥ exceeds the set value determined by the solid fuel boiler control unit.

Low temperature protection package
Solid fuel boiler ① requires a minimum return temperature. When boiler circuit pump ⑯ is running, the valve of return low temperature protection package ⑰ opens the route from the central heating return to boiler ① in line with the increasing return temperature and closes the route from the boiler supply to the boiler return (bypass).

Heating by heating water buffer tank
The heat required to heat heating circuits ㊵/㊿ is taken from heating water buffer tank ㉚ via heating circuit pumps ㊶/㊶. The respective supply temperatures are controlled to their set value in weather-compensated mode via 3-way mixing valves ㊸/㊸.

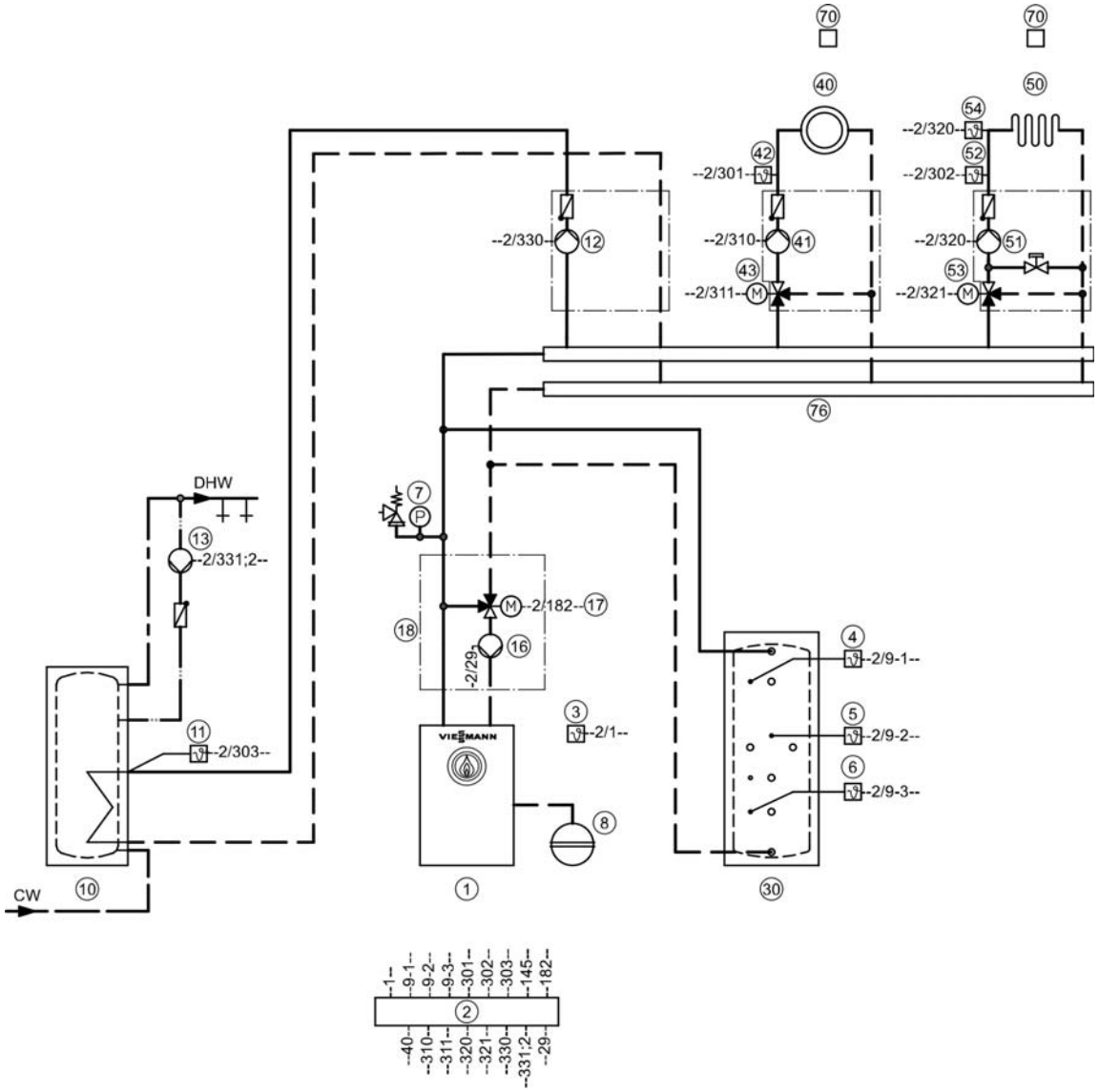
Heating circuit control with mixing valves
The set supply temperature of every heating circuit is determined by the following parameters: outdoor temperature, set room temperature, operating mode and heating curve. The supply temperature of mixing valve circuits ㊵/㊿ is controlled by incremental opening and closing of mixing valves ㊸/㊸.

DHW heating by solid fuel boiler
When the set temperature for DHW determined by solid fuel boiler control unit ② is undershot at tank temperature sensor ⑪, DHW heating is activated. As soon as the buffer tank temperature is sufficiently high, DHW circulation pump for tank heating ⑫ is started. To activate tank priority control, the mixing valves in the heating circuits can be closed and the heating circuit pumps switched off.
The type and extent of priority control is adjustable.

System Layout 2 *(continued)*

Hydraulic installation

Note: This scheme is a general example without shut-off valves or safety equipment. This does not replace the need for on-site engineering.

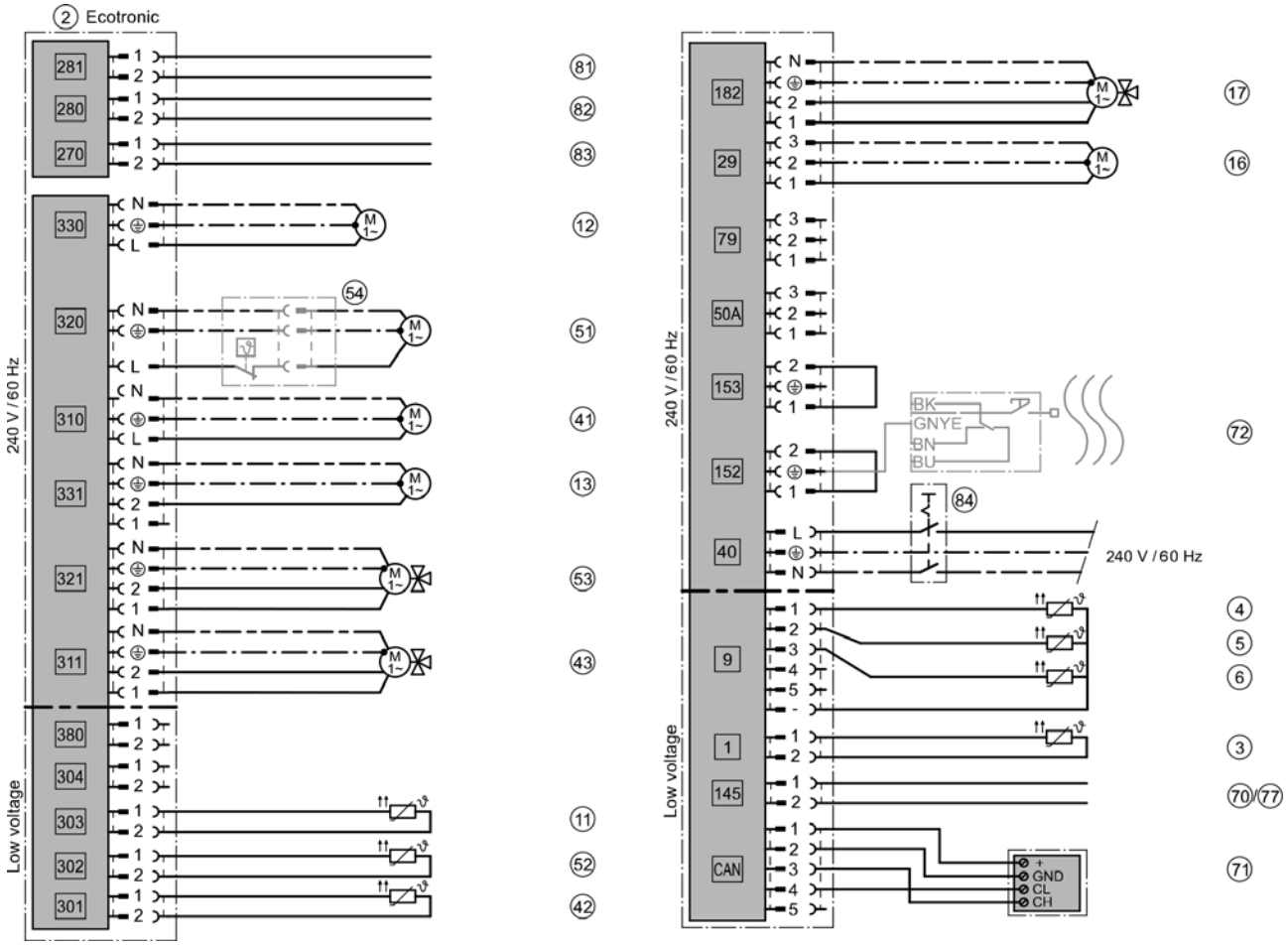


System Layout 2 *(continued)*

Equipment required	
Pos.	**Description**
	Heat source
①	Vitoligno 300-C with
②	Ecotronic
③	Outdoor temperature sensor ATS
④	Buffer tank temperature sensor PTS, top
⑤	Buffer tank temperature sensor PTS, centre
⑥	Buffer tank temperature sensor PTS, bottom
⑦	Safety equipment block with safety valve
⑧	Expansion vessel
⑯	Boiler circuit pump KKP
⑰	Return mixing valve - low temperature protection package
⑱	Low temperature protection package
	DHW heating by boiler
⑩	DHW tank
⑪	Tank temperature sensor STS
⑫	DHW pump for tank heating UPSB
⑬	DHW recirculation pump ZP
㉚	**Heating water buffer tank**
㊵	**Heating circuit I**
㊶	Heating circuit pump HKP M1 (heating circuit I) and... 3-way mixing valve
㊷	Strap on temperature sensor
㊸	Mixing valve motor M1
㊿	**Heating circuit II**
(51)	Heating circuit distributor assembly, comprising: Heating circuit pump HKP M2 (heating circuit II) and... 3-way mixing valve
(52)	Strap on temperature sensor
(53)	Mixing valve motor M2
(54)	Temperature limiter to restrict the maximum temperature of underfloor heating systems – Version with immersion sensor – Version with contact sensor
	Accessories
(70)	Vitotrol 200A (max. two Vitotrol 200A per Ecotronic) or... Vitotrol 300A (max. one Vitotrol 300A per Ecotronic) or...
(71)	Vitotrol 350
(72)	Low water cutoff
(77)	KM BUS distributor
(81)	Output feedback
(82)	External default output
(83)	External default output
(84)	ON/OFF switch

System Layout 2 *(continued)*

Electrical installation



System Layout 3

Applications
DHW heating and central heating backup by the solar thermal system; DHW and central heating by the pellet boiler.

Heating the heating water buffer tank
The boiler is started when a heat demand is issued to heat the heating circuits. If the temperature at top boiler start sensor ⑤ falls below the set value determined by the control unit of solid fuel boiler ②, solid fuel boiler ① starts up. Boiler circuit pump ⑯ delivers the heating water to the heating water buffer tank. Any heat not absorbed by heating circuits ㊵/㊿ is stored in the heating water buffer tank. Heating of the heating water buffer tank is stopped as soon as bottom buffer tank temperature sensor ⑥ exceeds the set value determined by the solid fuel boiler control unit.

Low temperature protection package
Solid fuel boiler ① requires a minimum return temperature. When boiler circuit pump ⑯ is running, the valve of return low temperature protection package ⑰ opens the route from the central heating return to boiler ① in line with the increasing return temperature and closes the route from the boiler supply to the boiler return (bypass).

Heating by heating water buffer tank
The heat required to heat heating circuits ㊵/㊿ is taken from heating water buffer tank ⑩ via heating circuit pumps ㊶/㊶. The respective supply temperatures are controlled to their set value in weather-compensated mode via 3-way mixing valves ㊸/㊸.

Heating circuit control with mixing valves
The set supply temperature of every heating circuit is determined by the following parameters: outdoor temperature, set room temperature, operating mode and heating curve. The supply temperature of mixing valve circuits ㊵/㊿ is controlled by incremental opening and closing of mixing valves ㊸/㊸.

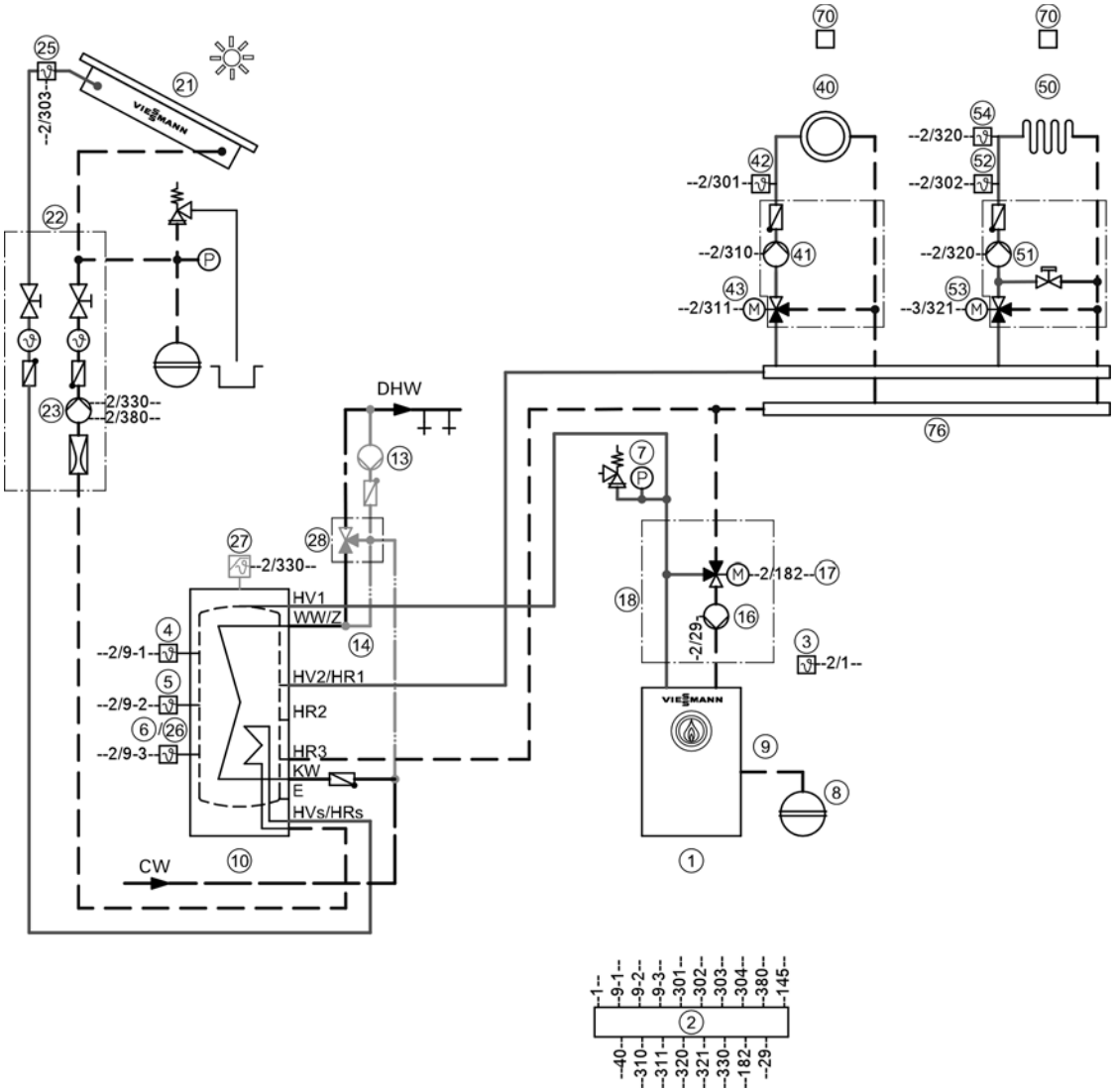
DHW heating by solid fuel boiler
The boiler is started when a heat demand is issued for DHW heating. If the temperature at top buffer tank temperature sensor ④ falls below the set value determined by the control unit of solid fuel boiler ②, solid fuel boiler ① starts up. Boiler circuit pump ⑯ delivers the heating water to the heating water buffer tank. Heating of the heating water buffer tank is stopped as soon as bottom buffer tank temperature sensor ⑥ reaches the shutdown temperature.

Heating of the heating water buffer tank with solar energy
If the temperature differential between collector temperature sensor ㉕ and return temperature sensor ㉖ (bottom buffer tank temperature sensor) exceeds the set start temperature differential, speed-controlled solar circuit pump ㉓ is started and the heating water buffer tank is heated up. If the temperature differentials reach their shutdown thresholds, the solar circuit pump is switched off accordingly. When the set temperature selected at the solar control unit is reached at bottom reference temperature sensor ㉖, solar heating of the heating water buffer tank is stopped.

System Layout 3 *(continued)*

Hydraulic installation

Note: This scheme is a general example without shut-off valves or safety equipment. This does not replace the need for on-site engineering.

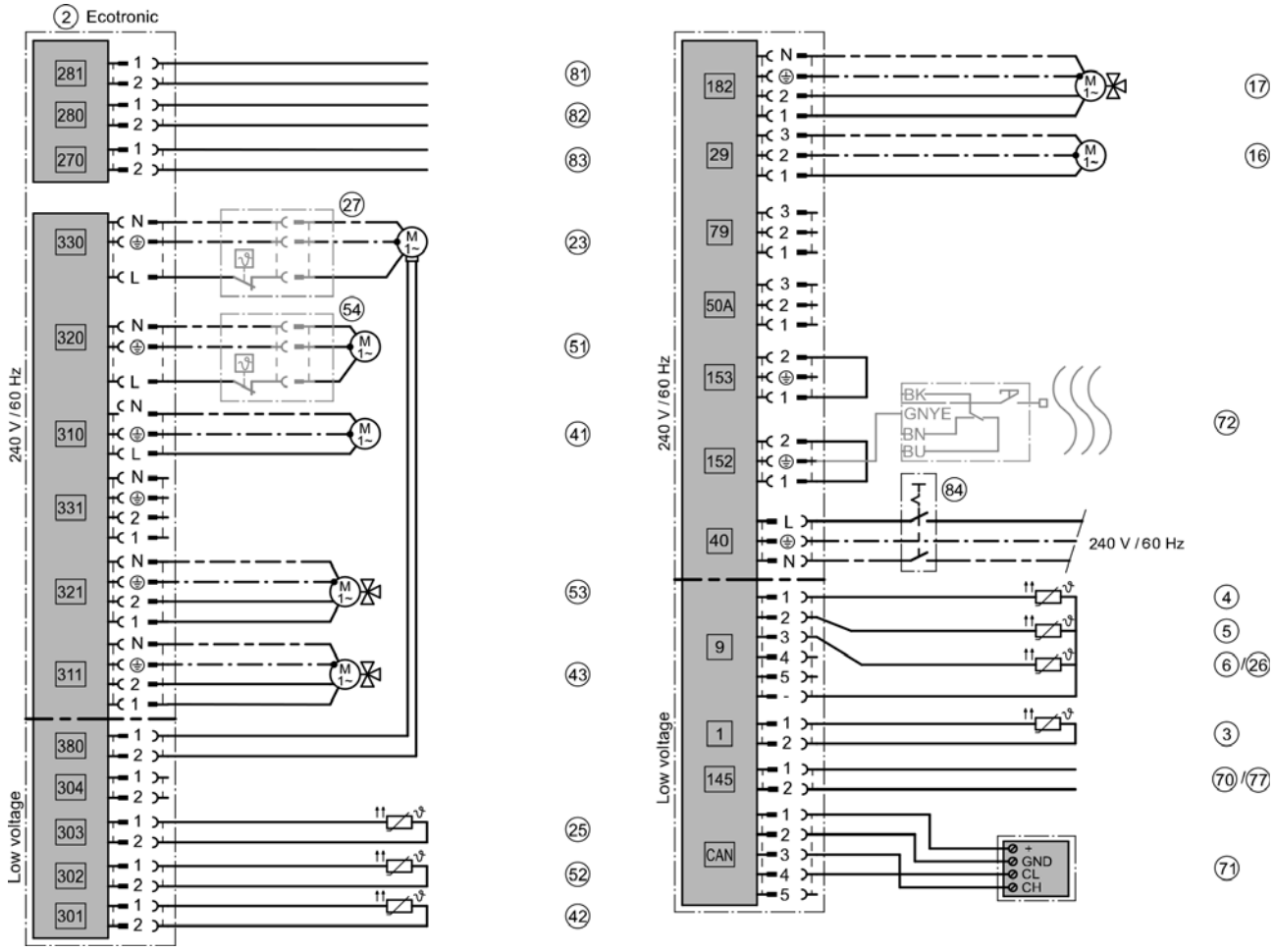


System Layout 3 *(continued)*

Equipment required	
Pos.	**Description**
	Heat source
①	Vitoligno 300-C with
②	Ecotronic
③	Outdoor temperature sensor ATS
④	Buffer tank temperature sensor PTS, top
⑤	Buffer tank temperature sensor PTS, centre
⑥	Buffer tank temperature sensor PTS, bottom
⑦	Safety equipment block with safety valve
⑧	Expansion vessel
⑯	Boiler circuit pump KKP
⑰	Return mixing valve - low temperature protection package
⑱	Low temperature protection package
	DHW heating by boiler
⑩	Multi mode heating water buffer tank
⑬	DHW pump ZP (provide electrical connection on site)
⑭	Threaded DHW circulation fitting
	DHW heating by solar thermal system
㉑	**Solar collectors**
㉒	Solar Divicon
㉓	Solar circuit pump R1
㉔	Set of temperature sensors for solar circuit
㉕	– Collector temperature sensor KOL
㉖	– Tank temperature sensor SOL
㉗	High limit safety cut-out HLSC
㉘	Thermostatic DHW circulation set
㊵	**Heating circuit I**
㊶	Heating circuit pump HKP M1 (heating circuit I) and… 3-way mixing valve
㊷	Strap on temperature sensor
㊸	Mixing valve motor M1
㊿	**Heating circuit II**
51	Heating circuit, comprising: Heating circuit pump HKP M2 (heating circuit II) and… 3-way mixing valve
52	Strap on temperature sensor
53	Mixing valve motor M2
54	Temperature limiter to restrict the maximum temperature of underfloor heating systems – Version with immersion sensor – Version with contact sensor
	Accessories
70	Vitotrol 200A (max. two Vitotrol 200A per Ecotronic) or… Vitotrol 300A (max. one Vitotrol 300A per Ecotronic) or…
71	Vitotrol 350
72	Low water cutoff
77	KM BUS distributor
81	Output feedback
82	External default output
83	External default output
84	ON/OFF switch

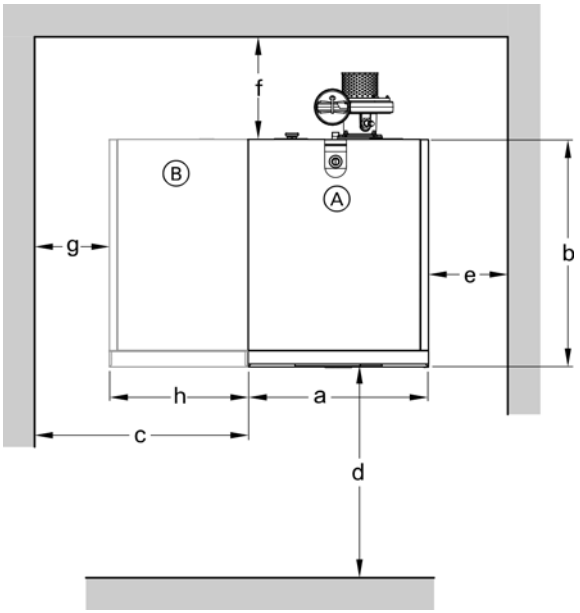
System Layout 3 *(continued)*

Electrical installation



Clearances

Minimum clearances for version with pellet supply via vacuum system



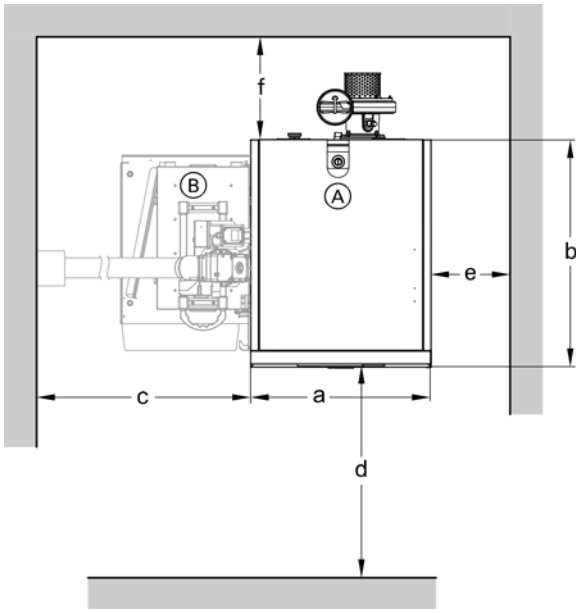
Legend
Ⓐ Boiler
Ⓑ Pellet hopper

Note: The specified wall clearances are required for installation and maintenance work.

Minimum clearances vacuum system		
a	in. (mm)	30 (765)
b	in. (mm)	36 (920)
c	in. (mm)	35½ (900)
d	in. (mm)	31½ (800)
e	in. (mm)	16 (400)
f	in. (mm)	20 (500)
g	in. (mm)	4 (100)
h	in. (mm)	22½ (570)
Minimum room height	in. (mm)	79 (2000)

Recommended minimum service clearances
For typical Vitoligno 300-C series boiler installations, Viessmann recommends installing the boiler with the service clearances shown in the illustrations.

Minimum clearances for version with pellet supply via flexible screw conveyor



Legend
Ⓐ Boiler
Ⓑ Connection unit for pellet supply with flexible screw conveyor (can be pivoted 90° to the front or back)

Minimum clearances flexible screw conveyor		
a	in. (mm)	30 (765)
b	in. (mm)	36 (920)
c	in. (mm)	26/35½* (670/900*)
d	in. (mm)	31½ (800)
e	in. (mm)	16 (400)
f	in. (mm)	20 (500)
Minimum room height	in. (mm)	79 (2000)

***** Dimension c, when the flexible screw conveyor is routed to the back parallel to the boiler.

Recommended minimum service clearances
For typical Vitoligno 300-C series boiler installations, Viessmann recommends installing the boiler with the service clearances shown in the illustrations.

Boiler model 300-C	32	48
Top	0	0
Sides (left and right)	0	0
Front	0	0
Rear	0	0
Floor	noncombustible	noncombustible

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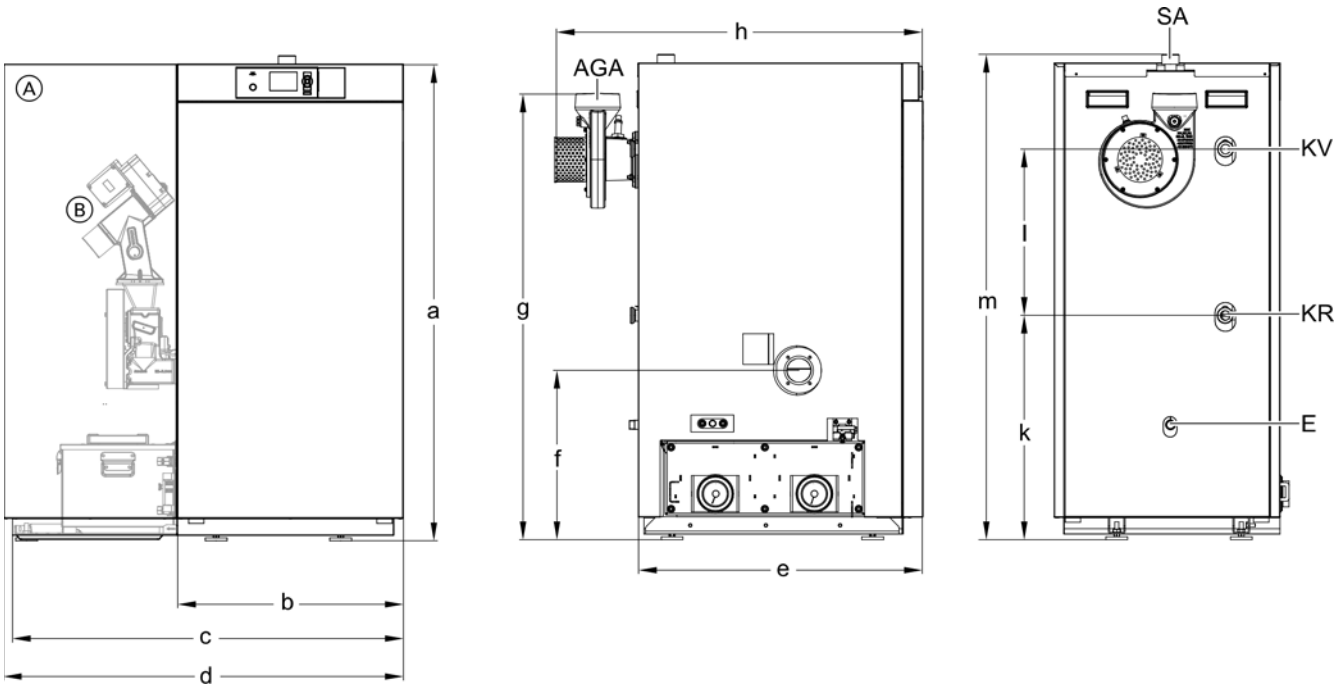
Dimensions



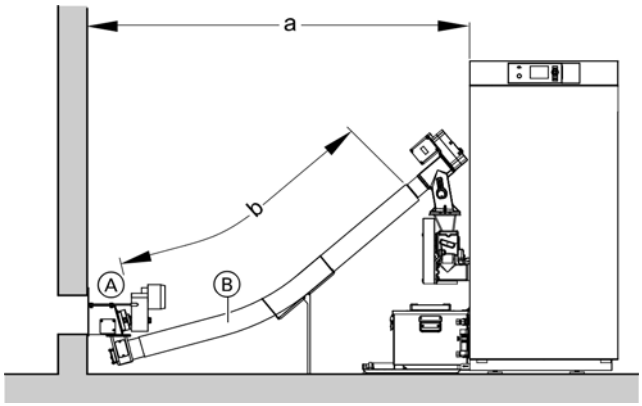
Legend

Ⓐ Version with pellet hopper (pellet supply via vacuum system)
Ⓑ Version with connection unit (for pellet supply via flexible screw conveyor)
AGA Flue outlet 6 in. (150 mm)
E Drain ¾ in. NPT
KR Boiler return 1½ in. NPT
KV Boiler supply 1½ in. NPT
SA Safety header 1½ in. NPT

Boiler model 300-C		32 to 48
a*	in. (mm)	60⅝ (1539)
b	in. (mm)	30⅛ (765)
c (total width of version with pellet supply via flexible screw conveyor)	in. (mm)	49 (1244)
d (total width of version with pellet supply via vacuum system)	in. (mm)	52½ (1332)
e	in. (mm)	36¼ (920)
f*	in. (mm)	19⅛ (487)
g*	in. (mm)	58⅛ (1478)
h	in. (mm)	48⅛ (1224)
k*	in. (mm)	31⅛ (792)
l	in. (mm)	19¼ (488)
m (height to SA connection)	in. (mm)	61½ (1560)

* includes adjustable feet height set to 1¼ in. (30 mm)

Alignment of the Flexible Screw Conveyor to the Pellet Store

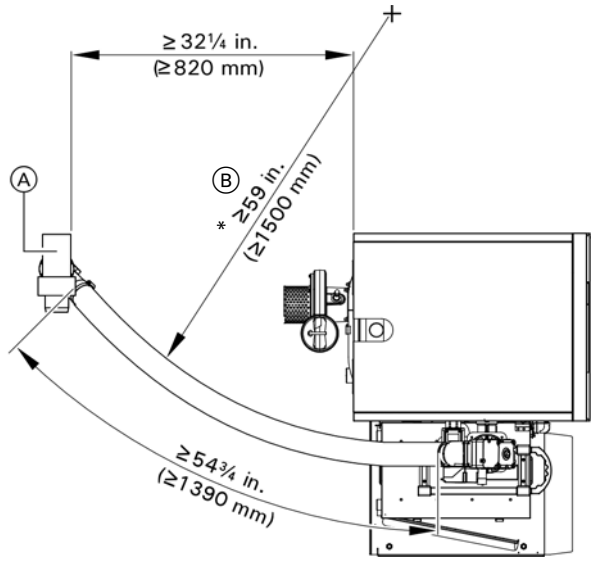


Legend
Ⓐ Pellet discharge or connector at the pellet silo
Ⓑ Hose with screw conveyor

The pellet supply with flexible screw conveyor can either be connected to the room discharge with screw conveyor supply system or to a pellet silo.
The pellet silo or room discharge adaptors as well as the drive unit of the flexible screw conveyor on the Vitoligno can be fitted in different positions.

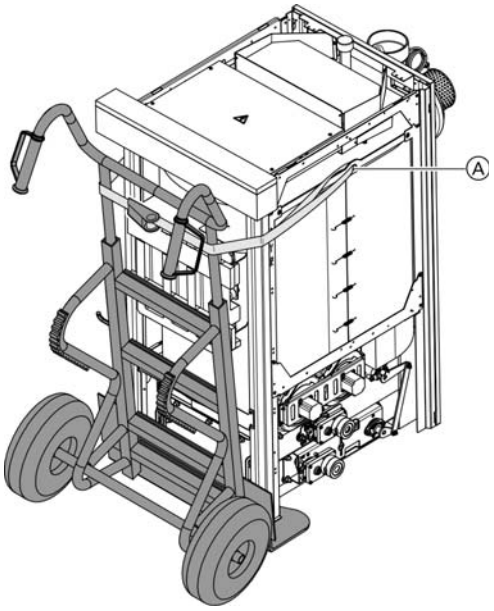
Dimension a	in. (mm)	min. 67 (min. 1700)
Dimension b (hose length)	in. (mm)	min. 55 (min. 1390)

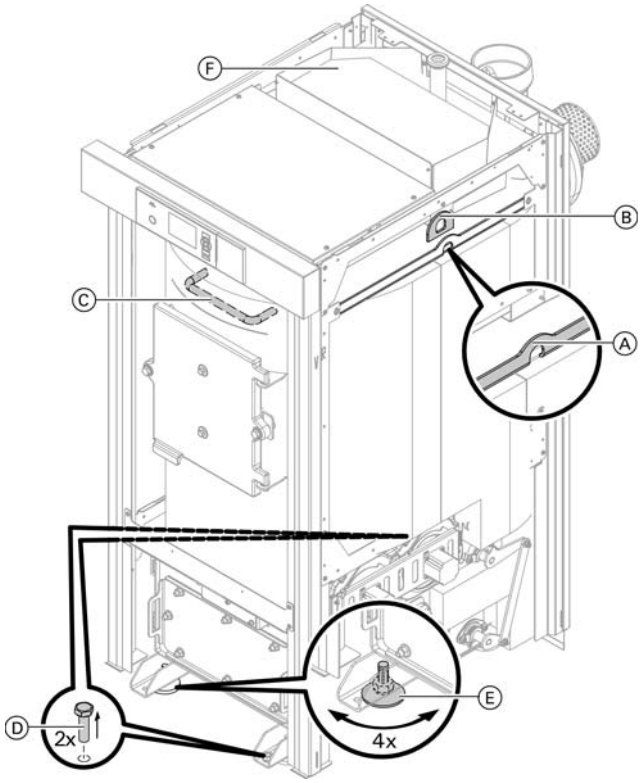
*** Note:** Observe the minimum bending radius of the flexible screw conveyor.



Legend
Ⓐ Pellet discharge or connector at the pellet silo
Ⓑ Minimum bending radius

Handling, Transport and Siting





Legend

Ⓐ Lugs for hand cart straps
Ⓑ Lugs for vertical lifting only
Ⓒ Transport aid (handle)
Ⓓ Screws with nuts for securing on the pallet
Ⓔ Adjustable feet
Ⓕ Insulation

Handling

IMPORTANT

Severe jolts can damage the combustion chamber. Do not subject the boiler to any severe jolts during handling and positioning.

Transporting the boiler

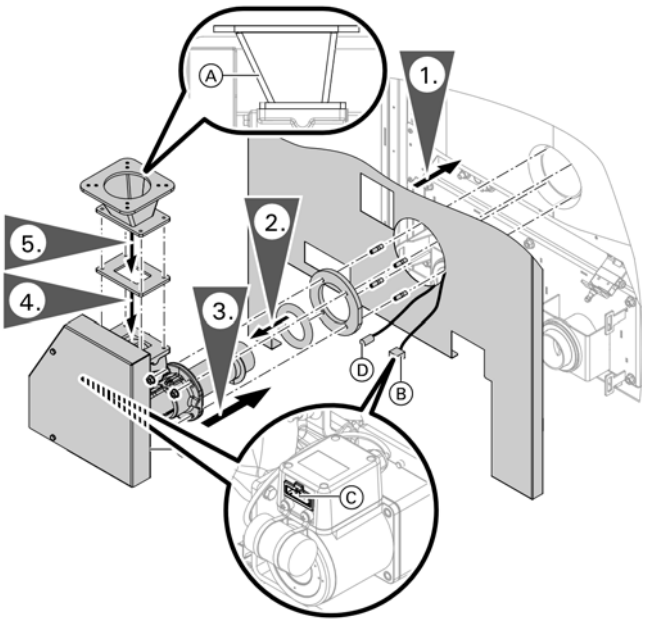
- Transport the boiler to the installation location in an upright position and, if possible, on the pallet.
- The whole boiler can be lifted at lifting lugs Ⓑ behind insulation Ⓕ.

1. Undo straps and remove box.
2. Remove the parts lying on the boiler.
3. Remove 2 screws Ⓓ from the base rails.
4. Lift the boiler from the pallet and position it.

It is essential to use appropriate lifting devices certified of lifting a minimum 1500 lbs. (680 kg).

5. Screw in 4 adjustable feet Ⓔ and position the boiler with a slight tilt (approx. 0.5°) towards the front.
   Note: The slope is required for venting the boiler.
6. Remove the cleaning brush from the boiler and keep it safe.

Fitting the Connection Unit to the Boiler



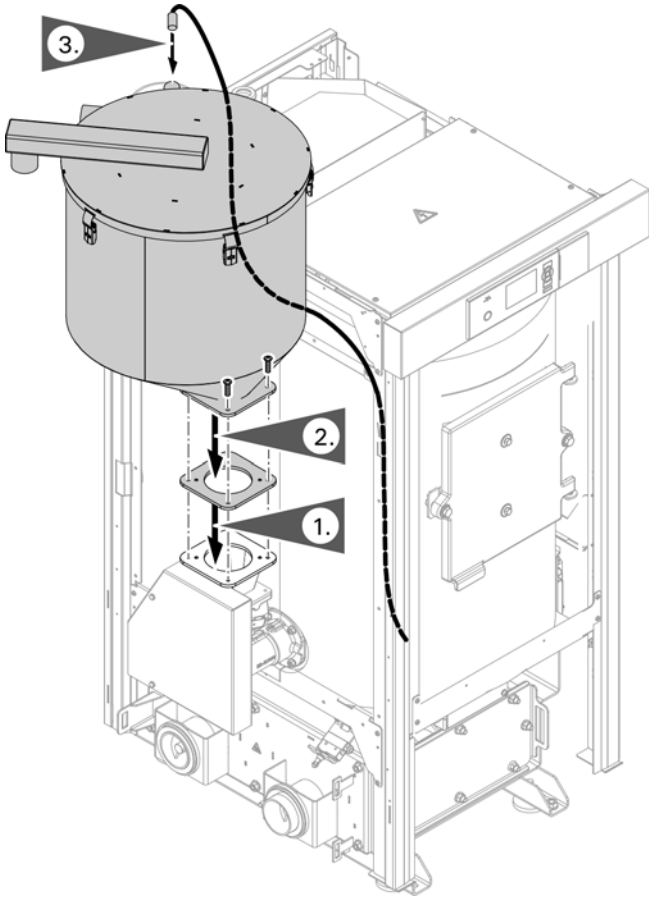
For screw coveyor only

1. Fit the left hand side panel on the left hand side of the boiler. Route the cable for the charging unit with plug Ⓑ and lead Ⓓ for the pellet sensor through the opening in the side panel.
   Note: The parts are at the front right suspension rail.

For pellet supply via vacuum module and screw conveyor

2. Push the supplied fiber rope gasket seal onto the screw conveyor tube of the connection unit as far as the front flange.
3. ■ Insert the threaded studs with the short thread into the supply flange on the boiler.
   ■ Push the flat gasket onto the threaded studs.
   ■ Push connection unit onto the threaded studs.
   ■ Position the connection unit parallel to the top of the boiler (not horizontally as the boiler is positioned with a slight slope towards the front) and secure with nuts. Torque: 14.7 lb.ft (20 Nm).
4. Position the gasket on the connection unit.
   Note: Parts for steps 4 and 5 can be found in the box for the pellet hopper with vacuum module.
5. Secure intermediate flange with 4 screws. Ensure correct positioning: Incline Ⓐ on the side facing away from the boiler.
6. Insert plug Ⓑ into connection unit motor Ⓒ.

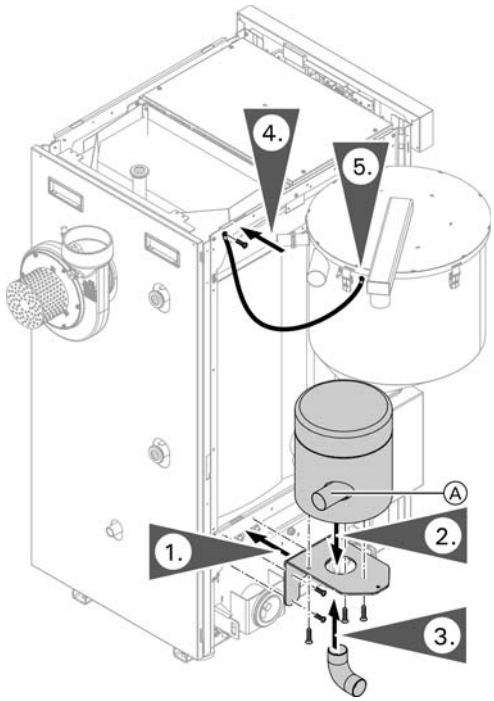
Pellet Supply via Vacuum System



Installing the pellet hopper

Note: Prior to installing the hopper remove all hardware and accessories from inside the hopper.

1. Place the gasket on the flange.
2. Position the pellet hopper and secure with 4 short bolts.
3. Insert the cable with round 5-point female plug into the pellet level sensor. Remove the protective cap from the pellet level sensor for this purpose.
   Note: The pellet sensor connection is pre-installed and secured at the front right suspension rail for transport (release to install).

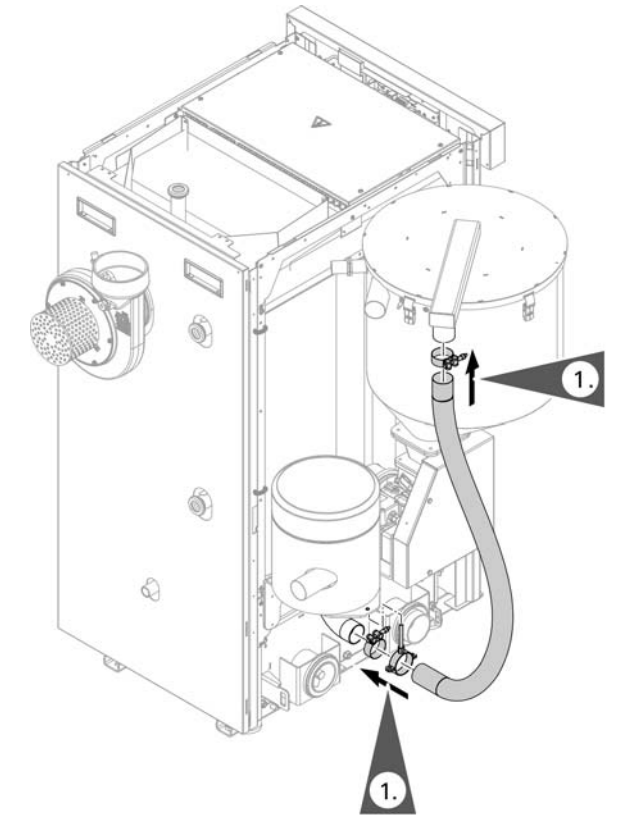


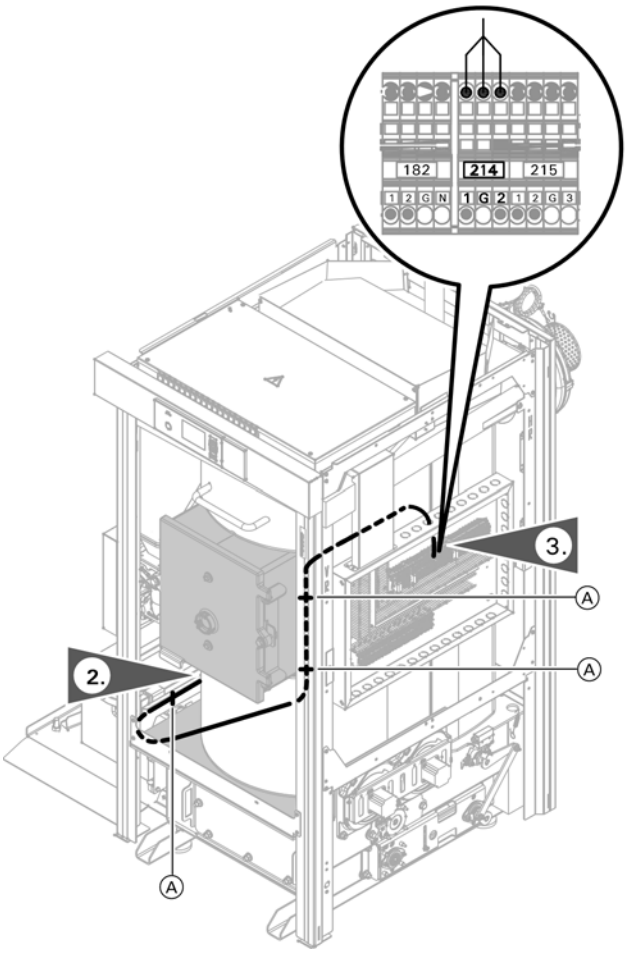
Installing the vacuum module

Note: The hardware for steps 1 to 3 has been removed from the pellet hopper.

1. **Note:** Prior to fitting the mounting bracket, remove the cable from the nearby cable tie.
   Secure the mounting bracket for the vacuum module with 3 self-tapping screws.
2. Position vacuum module (pipe connectors to the rear) and secure it to the mounting bracket from below with 3 knurled screws.
   Note: when installing the vacuum module, ensure the the vacuum return air line connection Ⓐ is facing to the rear of the boiler. If all 3 screws do not line up, remove all 3 brass inserts and shift one position using a 5 mm Allen key.
3. Push the plastic pipe elbow onto the bottom of the vacuum module.
4. Remove screw from frame and connect ground wire with screw.
5. Fit the supplied grounding cable to the spade connector on the pellet hopper.

Pellet Supply via Vacuum System *(continued)*





Connecting the vacuum module

1. Push pellet hose onto the pipe connectors on the pellet hopper and vacuum module (bottom) and secure with hose clamps.
2. Route the vacuum module cable from the vacuum module (left side), along the inside of the frame as shown and zip tie Ⓐ to the frame.
3. Remove junction box cover by removing 4 screws and grounding strap. Make connections to terminal 214 on the DIN rail X1.

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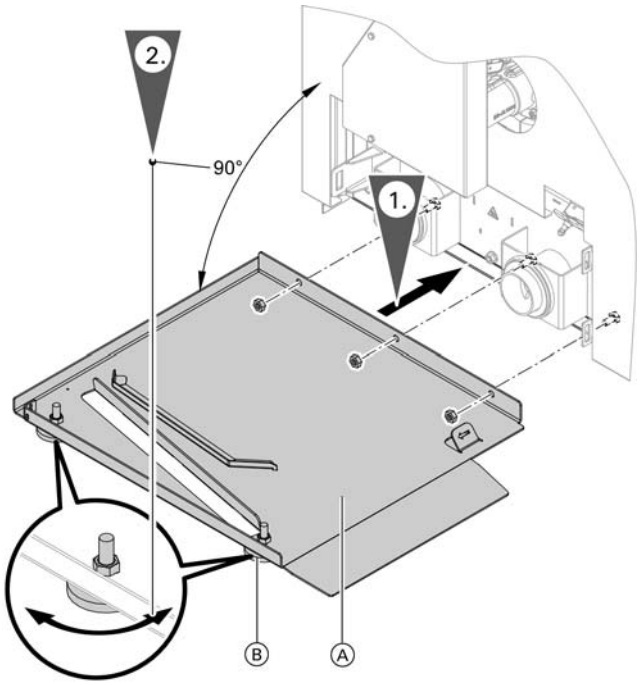
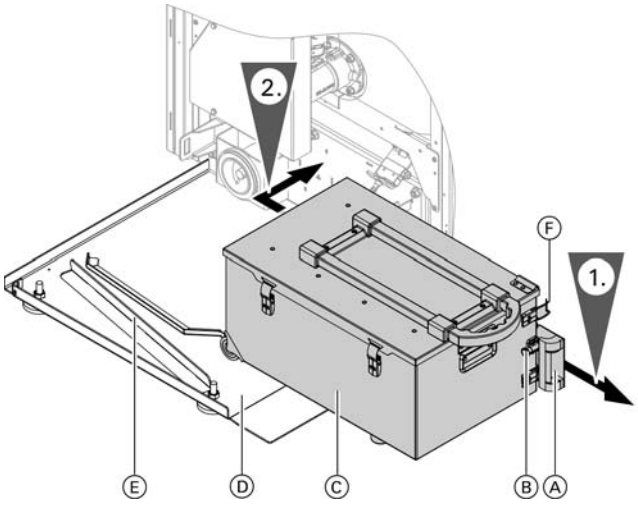
Fitting the Base Plate for the Ash Box



Note: The base plate and a bag containing 3 nuts can be found on top of the boiler.

1. Secure base plate to the boiler with 3 nuts.
2. Align base plate at right angles to the boiler with the pre-installed adjustable feet.

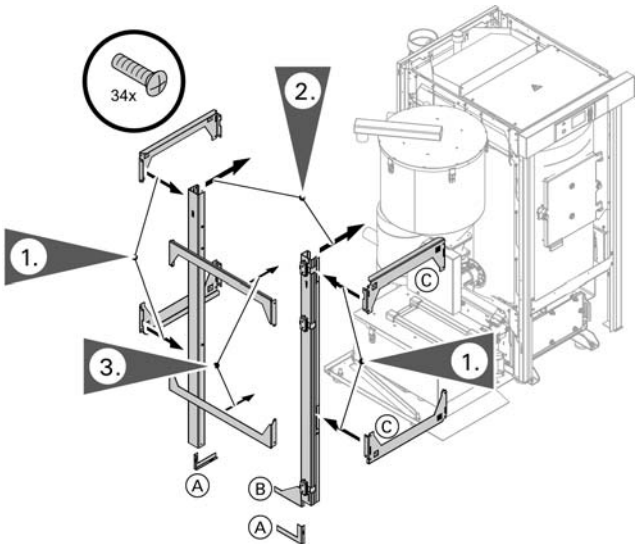
Fitting the Ash Box



Note: Before inserting the ash box, ensure the cover is in place and locked with the tensioning toggles.

1. Pull locked release bolt Ⓑ and pull ash partition Ⓐ forwards until the release bolt Ⓑ engages.
2. Push back ash box Ⓒ on base plate Ⓓ along guide rail Ⓔ as far as it will go and push to engage ash discharge auger pipe.
3. Secure ash box to the boiler with 2 latch clamps Ⓕ.

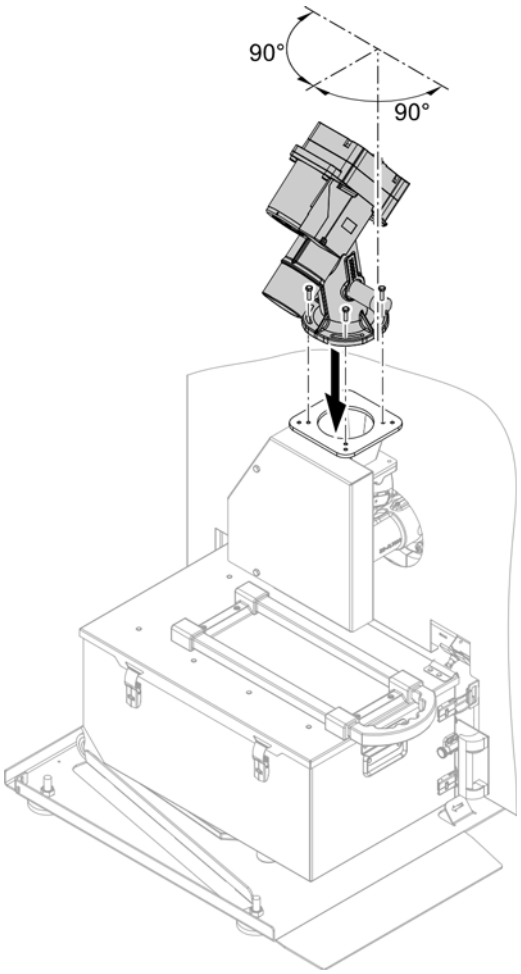
Vacuum System Frame Rail Assembly



Fitting the rails on the left

1. Insert horizontal rails into the slots of the vertical rails and secure with self-tapping screws.
   Note: Use the horizontal rails with pre-fitted magnets Ⓒ for the front rail set.
2. Fit the rear and front rail sets on the boiler using self-tapping screws.
3. Hook in 2 tie-bars and secure with self-tapping screws.
   Also secure the two vertical rails to the base plate with self-tapping screws. Use the supplied retaining brackets for this purpose:
   One retaining bracket Ⓑ (front) and one Ⓐ (back)

Flexible Screw Conveyor Drive Assembly

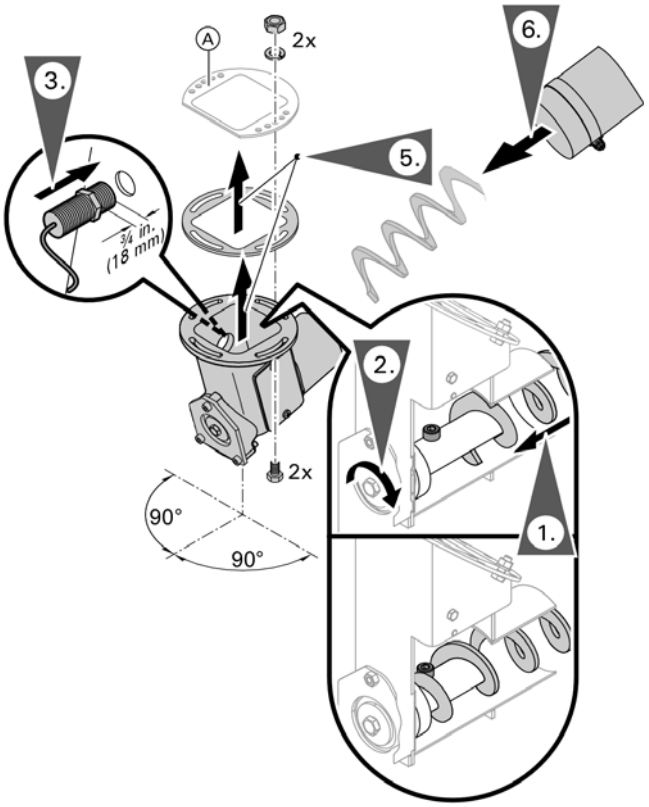


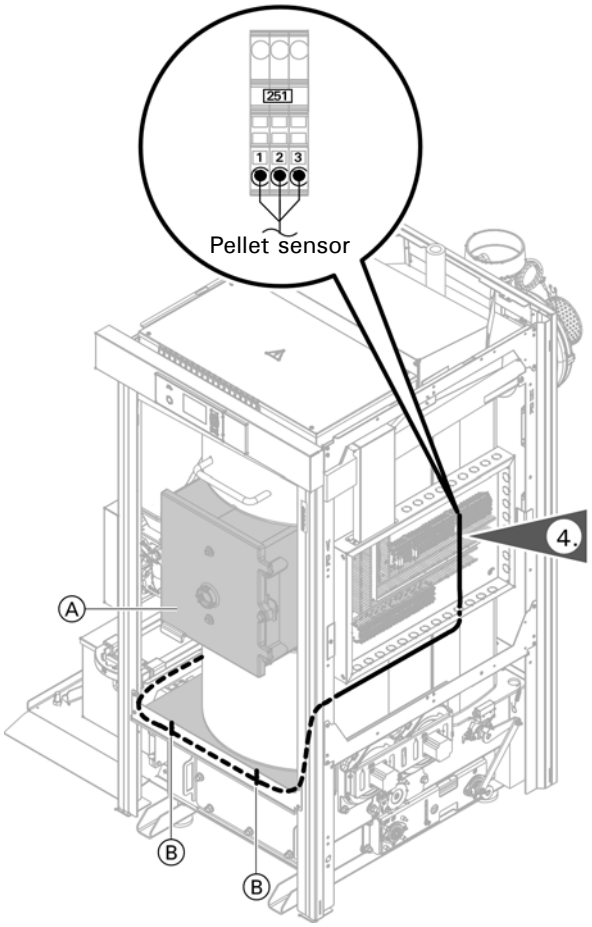
Fitting the drive unit

Secure the drive unit with 4 screws (supplied).

Note: The drive unit can be pivoted from the position shown by 90° around its vertical axis. To do this, undo and remove the screws, turn the drive unit by the required number of degrees and re-secure it with screws.

Flexible Screw Conveyor Drive Assembly *(continued)*





Fitting the screw conveyor to the room discharge adaptor

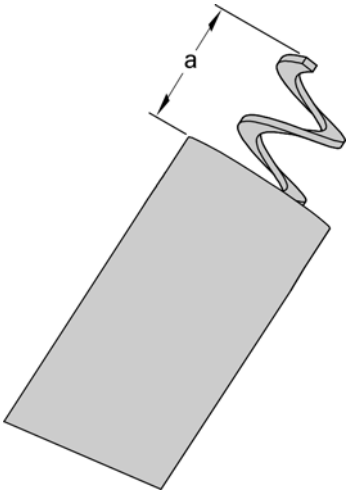
Ⓐ Flange at the room discharge or pellet silo

1. Push the flexible screw conveyor onto the shaft end as far as the support ring.
2. Turn the shaft to clamp the flexible screw conveyor between the screw and the support ring.
3. Only for pellet storage room with room discharge:
   Insert pellet sensor with plug designation 251 at the room discharge adaptor to a depth of approx. ¾ in. (18 mm).
   Secure with the locknut fitted to the sensor.
4. Route the flexible pellet sensor cable from the flexible screw drive (left side), around the insulation jacket of the boiler, zip tie Ⓑ the cable to the front of the frame rail to the junction box (right side).
   Make connections to terminal 251 on DIN rail X2.
   See page 49.
   Note: To access the junction box see page 42.
5. Mount the room discharge adaptor with gasket to the discharge connector of the room discharge or the pellet silo.
   Note: The flange can be pivoted vertically around its own axis from the position shown by 90°. To do this, undo and remove the screws, turn the flange by the required number of degrees and re-secure it with screws.
6. Push hose over the flexible screw conveyor onto the room discharge adaptor and secure with a hose clip.

⚠ CAUTION

Route the sensor cable as shown so that it does not come into contact with any hot surfaces Ⓐ.

Flexible Screw Conveyor Drive Assembly *(continued)*



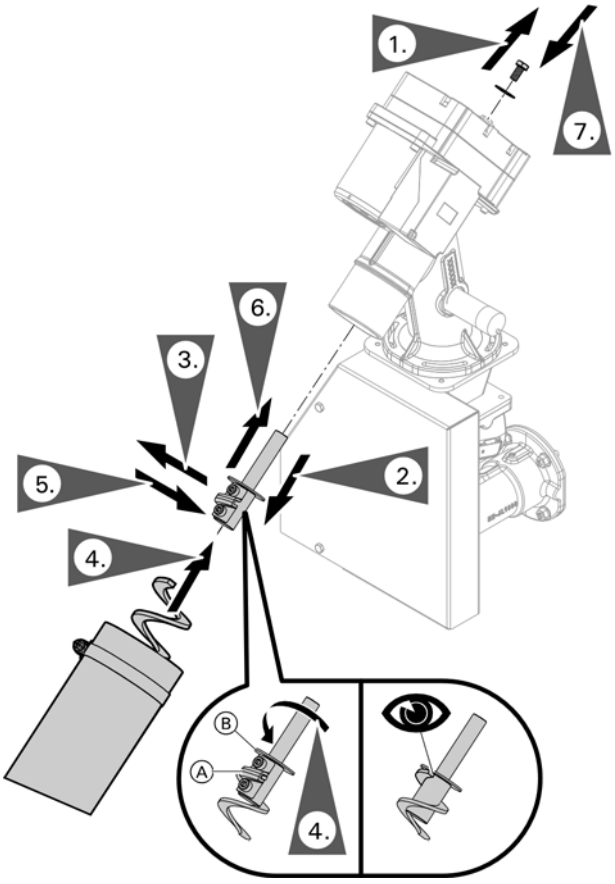
Adjusting the length of the screw conveyor

1. Route the flexible screw conveyor with the hose to the drive unit (observe the minimum bending radius, see page 30). Mark the required length on the hose.
2. Trim only the hose (not the screw conveyor) with a suitable tool at the position marked.
   Note: To trim the end of the hose, position it on a solid surface and secure it firmly.

CAUTION

Damage to the screw conveyor surface may lead to the flexible screw conveyor breaking during subsequent operation. Do not damage the screw conveyor while trimming the hose.

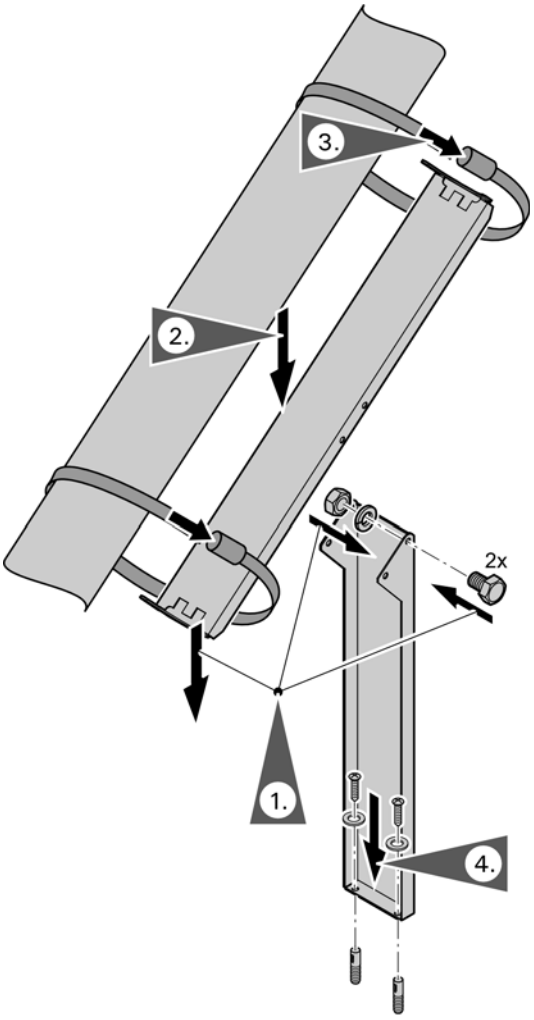
3. Trim the screw conveyor with a suitable tool.
   Dimension a = 5½ in. (140 mm).



Fitting the screw conveyor to the drive unit

1. Undo screw on the motor shaft.
2. Pull motor shaft out downwards.
3. Undo the screws on the screw conveyor fixing tab, but do not remove them.
4. Push flexible screw conveyor onto the motor shaft. By turning the shaft, route the screw conveyor underneath screw conveyor fixing tab Ⓐ up against disc Ⓑ.
5. Tighten the screws on the screw conveyor fixing tab.
6. Insert the motor shaft into the drive unit.
   Push the hose onto the drive unit connector and secure with a hose clamp.
7. Secure the motor shaft with a washer and screw.

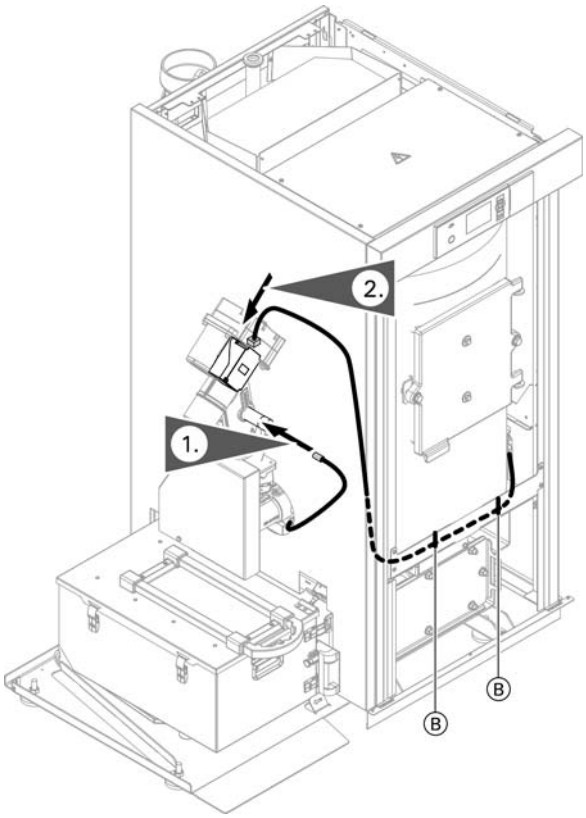
Flexible Screw Conveyor Drive Assembly *(continued)*

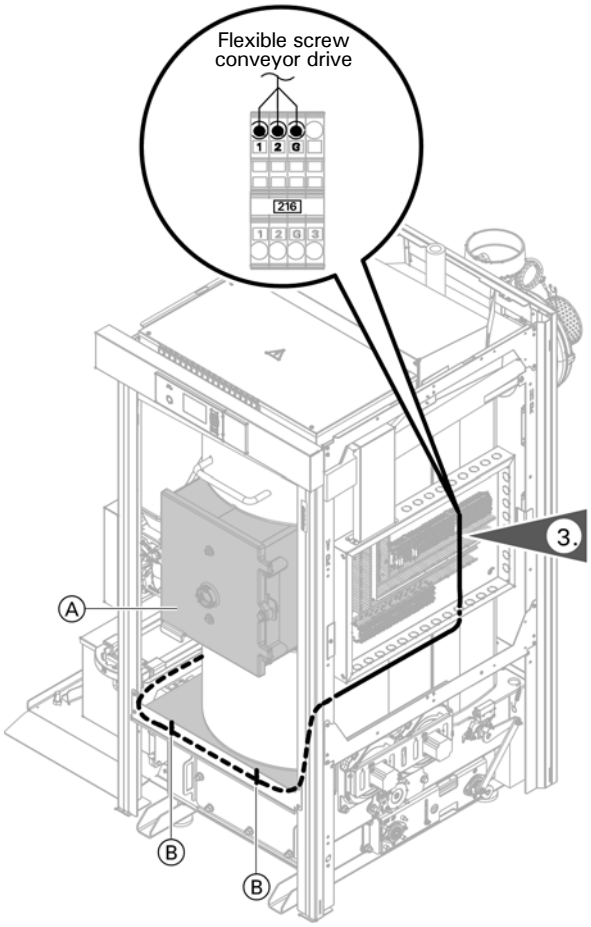


Fitting the hose support

1. Secure the foot to the support plate with 2 bolts and nuts (supplied).
2. Clamp the hose support between the floor and the supply hose.
3. Secure the supply hose to the hose support with hose clips (supplied).
4. Secure the foot to the floor using 2 screws, washers and anchors (supplied).

Flexible Screw Conveyor Drive Assembly *(continued)*





Connecting the pellet sensor to the drive unit

1. Screw the plug attached to the boiler into the pellet sensor.
2. Insert supplied connecting cable for the drive motor into the motor.
3. Route the flexible screw motor cable from the flexible screw drive (left side), around the insulation jacket of the boiler, zip tie Ⓑ the cable to the front of the frame rail to the junction box (right side).
   Route the cable into the junction box and secure using field supplied strain relief.
   Make connections to terminal 216 on DIN rail X1.
   To access the junction box refer to page 42.
   Junction box terminals 218 for room discharge
   Junction box terminals 216 for flexible screw conveyor
   For junction box terminals refer to page 49.

CAUTION

Route the flexible screw conveyor cable as shown so that it does not come into contact with any hot surfaces Ⓐ.

Electrical Connections

IMPORTANT

Electrical installations must comply with the latest edition of:

- **In the U.S.A., the National Electrical Code (NEC), ANSI/NFPA 70 and any other state, local codes and/or regulations.**
- **In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Part 1 and any other province, territory, local codes and/or regulations.**

CAUTION

Electronic assemblies can be damaged by electrostatic discharge. Prior to any work, touch grounded objects such as heating or water pipes to discharge static loads.

For overview of PCBs, see page 132. Connection/wiring diagrams can be found starting on page 43. Connections for fuel supply system to junction box.

Note: Connecting cables will be damaged if they touch hot components. When routing and securing power cables on site, ensure that the maximum permissible temperatures for these cables are not exceeded.

Actuator connection

Supply system	For charging scheme, Refer to coding "Hardware"	Feed screw conveyor	Suction turbine	Flexible screw conveyor motor	Pellet store discharge screw conveyor motor	Ext. charging
		213	214	216	218	219 *3
Vacuum module with suction wand*4	1	X	X	--	--	--
Vacuum module and discharge screw conveyor	2	X	X	--	X	--
Vacuum module with external charging	3	X	X	--	--	X
Flexible screw conveyor without discharge motor*5	5	X	--	--	X	--
External charging with proximity switch at transfer to rotary lock valve	6	X	--	--	--	X
Flexible screw conveyor with discharge screw conveyor for pellet store	7	X	--	X	X	--
Flexible screw conveyor with external charging	8	X	--	X	--	X

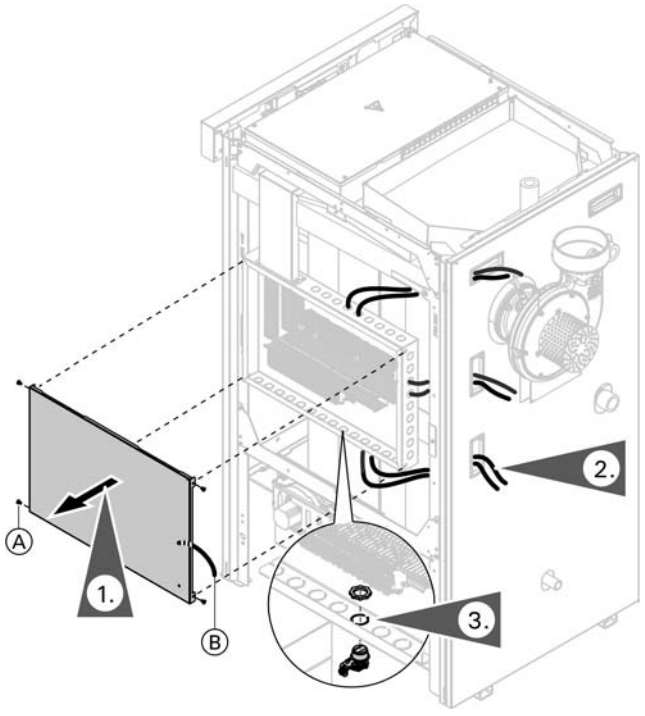
*3 potential-free
*4 e.g. pellet silo without motor for discharging
*5 e.g. pellet silo

Electrical Connections *(continued)*

Connection of sensors and switches

Supply system	For charging scheme, refer to coding "Hardware"	Fill level, fuel store	Boiler pellet hopper (vacuum system) or via rotary lock valve (flex. screw conveyor)	Room discharge adaptor
		247	248	251
Vacuum module with suction wand*6	1	Optional	X	--
Vacuum module and discharge screw conveyor	2	Optional	X	X (if not: jumper across terminals 1 and 2) in the junction box
Vacuum module with external charging	3	Optional	X	X (if not: jumper across terminals 1 and 2) in the junction box
Flexible screw conveyor without discharge motor*7	5	Optional	X	--
External charging with proximity switch at transfer to rotary lock valve	6	Optional	X	--
Flexible screw conveyor with discharge screw conveyor for pellet store	7	Optional	X	X
Flexible screw conveyor with external charging	8	Optional	X	X (if not: jumper across terminals 1 and 2) in the junction box

*6 e.g. pellet silo without motor for discharging
*7 e.g. pellet silo



For charging scheme (supply system) settings, see pages 50 and 69.

Routing the cables into the junction box and applying strain relief

1. Remove the junction box cover by removing 4 screws Ⓐ and grounding strap Ⓑ.
2. Route cables through the access holes in the rear panel to the junction box.
3. Remove the junction box knockout and install a strain relief before making the connection.

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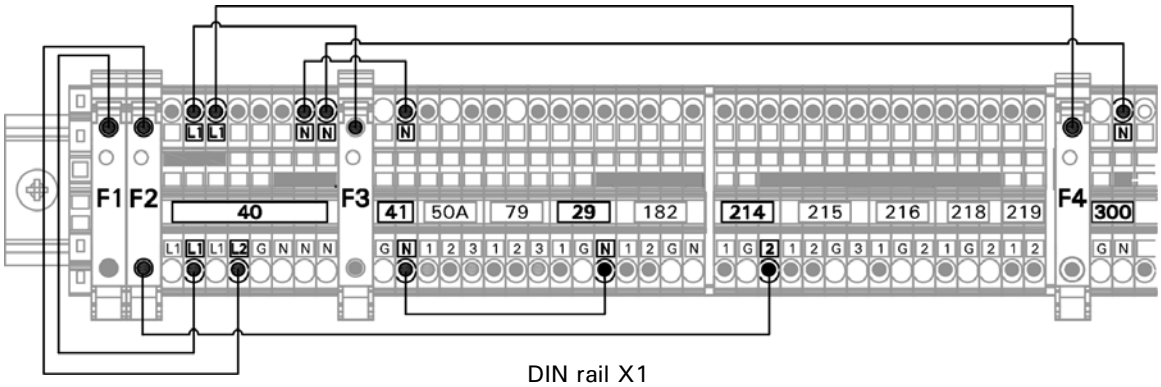
Electrical Connections *(continued)*

Accessory power supply connections (factory wired)

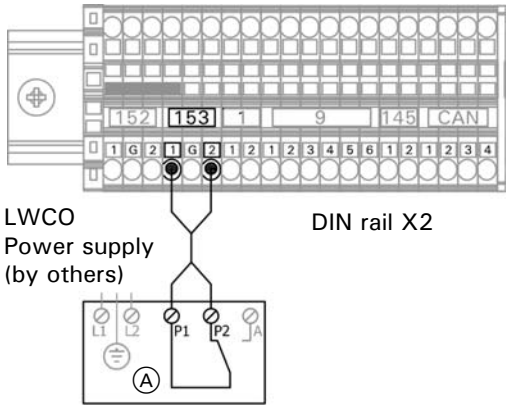


DIN rail X1

Legend
Ⓐ Power supply for accessories 29 182
Ⓑ Power supply for heating circuits (A1, A2 and A3)
Ⓒ Neutral jumper for accessories 29 182
Ⓓ Neutral jumper for heating circuits (A1, A2 and A3)
Ⓔ Power supply for auger system connection 214, 215, 216 and 218

F3 120VAC 10A
F4 120VAC 10A
All jumpers are factory installed based on accessories connected to the Ecotronic control.

Safety equipment connections (accessory)



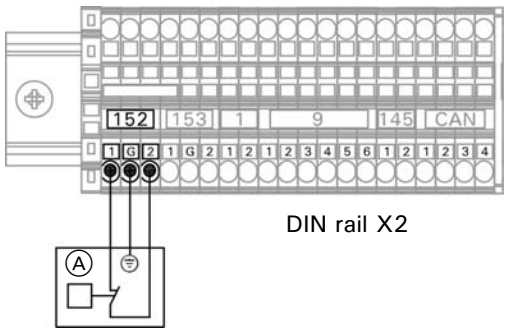
DIN rail X2

Make connections for switching contact of the low water cutoff at terminals 1 and 2 of 153.

Supply low water cutoff with power (there are no provisions for LWCO power from the Ecotronic control, the power supply is field supplied).

Legend
Ⓐ Low water cutoff device (typical)

Auxiliary safety equipment connections (field supplied)



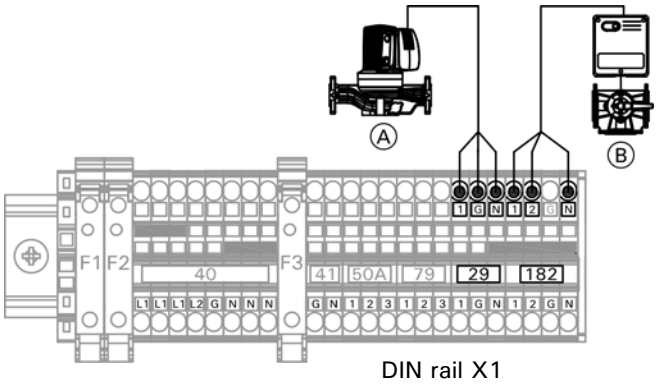
DIN rail X2

Install periphery safety equipment on terminal 152, when no periphery safety equipment is being used, install a jumper across terminals 1 and 2 (field supplied).

Legend
Ⓐ Periphery safety equipment

Electrical Connections *(continued)*

Low temperature protection package connections



Legend
Ⓐ Boiler pump
Ⓑ Return temperature 3-way valve

Boiler pump plug 29 terminals 29-1, 29-G, 29
Rated voltage..... 120VAC
Maximum rated current..... 2A

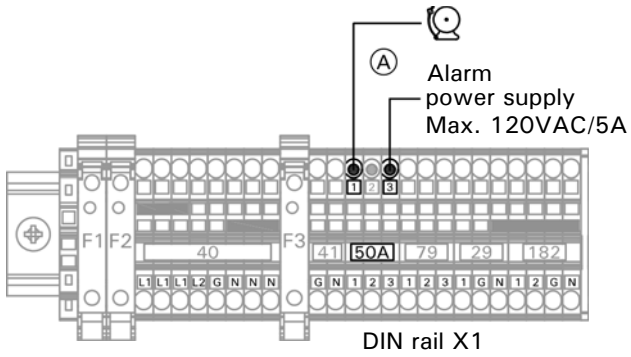
Return temp control mixing valve plug terminals 182-1, 2, N

Rated voltage..... 120VAC
Maximum rated current output..... 0.1A

Note: Maximum output 10 full load amps shared between 120VAC outputs 29 182

Refer to the low temperature protection package Installation Instructions.

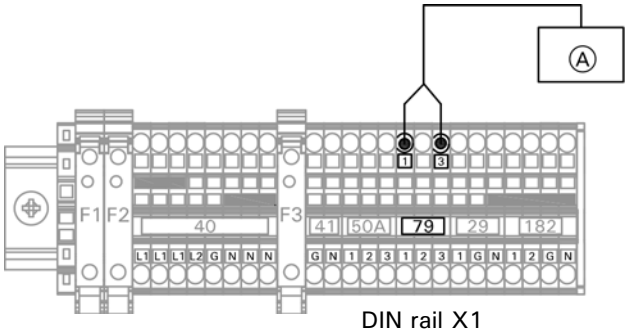
Alarm output connections



Legend
Ⓐ Central fault messaging receiver (field supplied)

50A is a dry contact connect, with closure on terminals 1 and 3 during a fault condition.
Rated voltage..... 120VAC
Maximum rated current..... 5FLA

Secondary heat generator activation connections

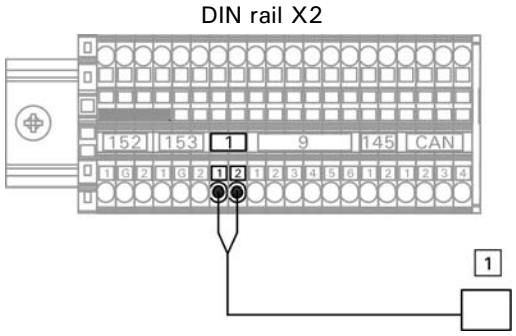


Legend
Ⓐ Secondary heat generator activation signal

79 is a dry contact connect, with closure on terminals 1 and 3 for secondary heat generator activation.
Rated voltage..... 120VAC
Maximum rated current..... 5FLA

Electrical Connections *(continued)*

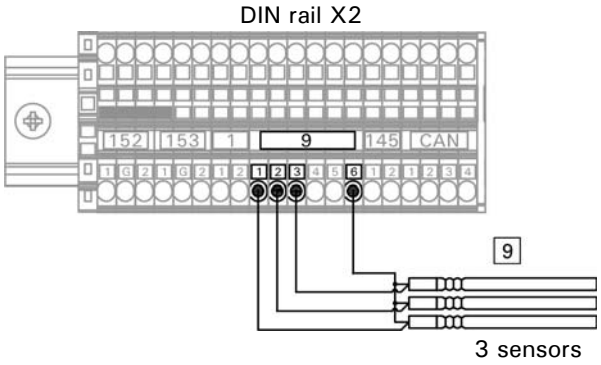
Plug [1]: Outdoor temperature sensor



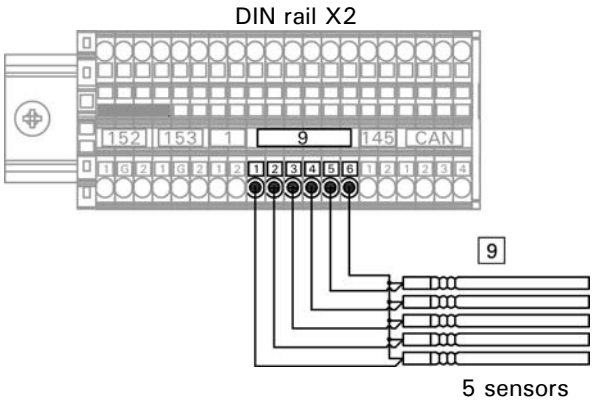
Connecting the outdoor temperature sensor

Terminals	Function	Sensor type
1	Ai	Pt1000
2	GND	--

Plug [9]: Buffer tank temperature sensors



Connection for 3 buffer tank temperature sensors



Connection for 5 buffer tank temperature sensors

Connecting the buffer tank temperature sensors

Terminals	Function 5 sensors	Function 3 sensors	Sensor type
1	1 Buffer tank temperature sensor 1 (top)	1 Buffer tank temperature sensor 1 (top)	Pt1000
2	Buffer tank temperature sensor 2	Buffer tank temperature sensor 2	Pt1000
3	Buffer tank temperature sensor 3	Buffer tank temperature sensor 3	Pt1000
4	Buffer tank temperature sensor 4	--	Pt1000
5	Buffer tank temperature sensor 5	--	Pt1000
6	GND (for all 5 sensors)	GND (for all 3 sensors)	--

Electrical Connections *(continued)*

IMPORTANT

Incorrect connections may cause malfunctions.
Observe the instructions provided in this chapter.

Connecting the heating circuits, solar circuit, DHW etc.

Various parts of a heating system can be connected to the boiler control unit. The associated appliances can be directly connected to the PCB HKK or to extension kits (via KM-BUS).

Note: For a detailed overview of connection options, see page 48.

Heating system part	Abbreviation	Max. number	Connect
Heating circuit	HC	3 (4)	Sensor, pump, mixing valve motor
Solar circuit	SOL	1	Sensors, pump, mixing valve motor
DHW heating	WWB	1	Sensor, pump
Flow limiter	VSB	1	Valve
DHW circulation pump	ZP	1	Pump

Connections	For	Connection numbers on HKK
Sensor connections Ⓐ (accessory)	HC	301, 302, 303
	WWB	302, 303
	SOL	303 (collector) + 304 (lower DHW heating)
Pump connections Ⓑ (field supplied)	HC	310, 320, 330
	WWB	320
	SOL	330
Mixing valve motor connections Ⓒ DHW circulation pump connections Ⓒ Solar diverter valve Ⓒ (field supplied)	HC	311, 321, 331
	ZP	321, 331 (always connect ZP to Y2)
	SOL	331

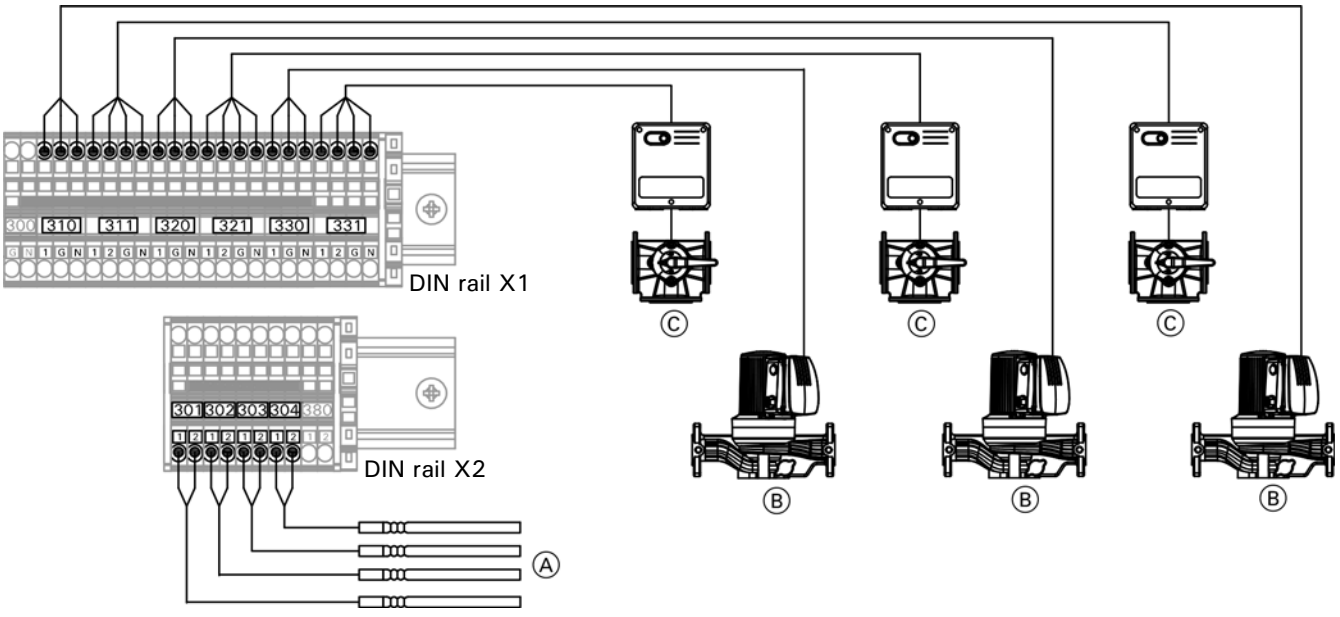
Power supply for DHW recirculation pump

DHW recirculation pumps equipped with their own internal control unit must be connected via their own separate mains connection. Power supply connection via the Ecotronic control unit or Ecotronic accessories is not permissible.

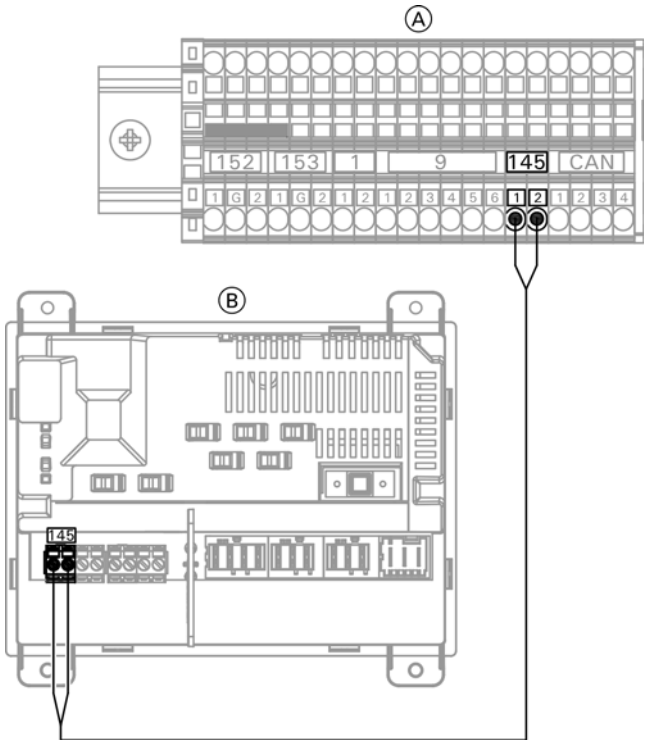
PCB HKK

There are 3 connection groups on the HKK PCB:
A1 (only for one HC)
A2 (for HC or WWB)
A3 (for HC, WWB or SOL)
The connections of a group belong together.
The appliances for a specific heating circuit must be connected to the connections of a group.

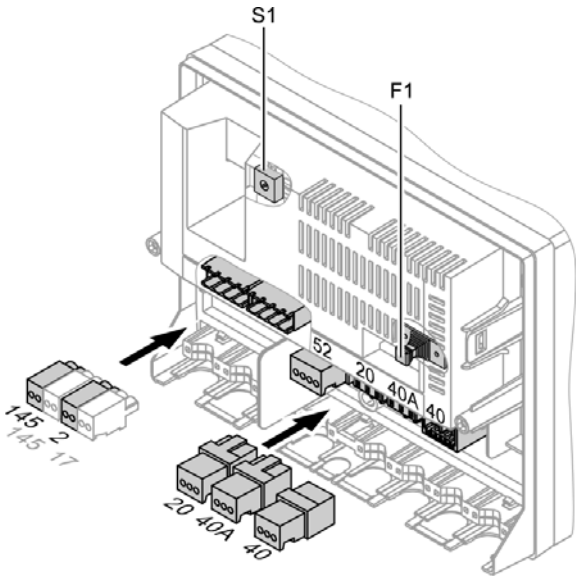
Note: Maximum output 10 FLA share across 120VAC outputs 310, 311, 321, 330 and 331.



Electrical Connections *(continued)*



Legend
Ⓐ DIN rail X2 boiler junction box
Ⓑ Mixing valve extension module (accessory)



Legend
S1 Rotary selector
F1 MCB/fuse

Mixing valve extension kit (accessory)

Max. 3 mixing valve extension kits can be connected to the boiler control unit (accessory). Each extension kit must be connected to the PCB KSK via KM-BUS; see page 146.

Connections per extension kit

Connections	For	Connection numbers in extension kit
Sensor connections	HC, WWB (return temperature sensor)	2
	WWB (tank temperature sensor)	17
Pump connection	HC, WWB	20
Mixing valve motor connection	HC, VSB	52

The distinctiveness and sequence of the extension kits must be defined via rotary selector S1 in the extension kit.

Extension kit	S1 rotary selector position
E1	1
E2	3
E3	5

Allocation of connections

Note: For a detailed overview of connection options, see page 48.

PCB HKK	Extension kits
1x HC at A1 2x HC at A1 and A2 3x HC at A1, A2 and A3	1x HC at E1 2x HC at E1 and E2 3x HC at E1, E2 and E3
Note: Max. 4x HC can be connected in total.	
If 0x HC or 1x HC: WWB at A2 If 2x HK: WWB at A3 **Note:** Always connect WWB immediately downstream of HC without a gap. Exception: If only WWB is connected to the HKK, connect it at A2.	WWB at E1, E2 or E3 **Note:** Connect WWB downstream of HC without a gap.
ZP only at A2 or A3	VSB possible in addition to WWB
ZP possible in addition to WWB	
SOL only at A3	

- It is not possible to connect solar control module type SM1.
- Solar at the boiler only possible if WWB or the buffer tank (3-5 sensors) are connected to the Ecotronic.

Refer to the mixing valve extension module Installation Instructions for additional information.

Electrical Connections *(continued)*

Overview of connection options

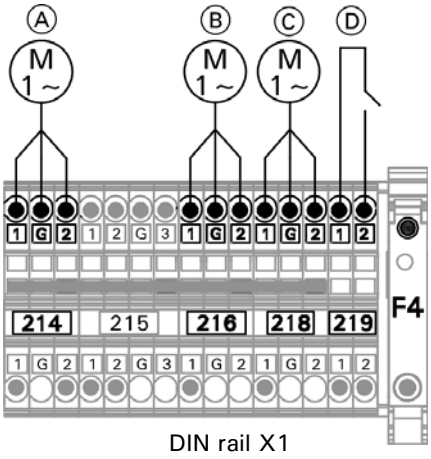
Key
HC Heating circuit
SOL Solar circuit
FRC Flow rate control (volume control)

Key
DHW Domestic hot water heating
(CP) DHW recirculation pump, optional

	To Ecotronic (HKK PCB)			To "Mixing valve extension module" (KM-BUS subscriber)		
	Connection group			Rotary selector setting		
	A1	A2	A3	1	3	5
1 heating circuit	HC1	(CP)	--	--	--	--
	--	(CP)	--	HC1	--	--
2 heating circuit	HC1	HC2	(CP)	--	--	--
	--	(CP)	--	HC1	HC2	--
	HC1	(CP)	--	HC2	--	--
3 heating circuit	HC1	HC2	HC3	--	--	--
	HC1	HC2	(CP)	HC3	--	--
	HC1	(CP)	--	HC2	HC3	--
	--	(CP)	--	HC1	HC2	HC3
4 heating circuit	HC1	HC2	HC3	HC4	--	--
	HC1	HC2	(CP)	HC3	HC4	--
	HC1	(CP)	--	HC2	HC3	HC4
1 heating circuit and DHW	HC1	DHW + (CP)	--	--	--	--
	HC1	DHW + (CP)	--	DHW + FRC	--	--
	--	(CP)	--	HC1	--	--
	--	(CP)	--	HC1	DHW + FRC	--
2 heating circuit and DHW	HC1	HC2	DHW + (CP)	--	--	--
	HC1	HC2	(CP)	DHW + FRC	--	--
	HC1	DHW + (CP)	--	HC2	--	--
	HC1	(CP)	--	HC2	DHW + FRC	--
	--	DHW + (CP)	--	HC1	HC2	--
	--	(CP)	--	HC1	HC2	DHW + FRC
3 heating circuit and DHW	HC1	HC2	HC3	DHW + FRC	--	--
	HC1	HC2	DHW + (CP)	HC3	--	--
	HC1	HC2	(CP)	HC3	DHW + FRC	--
	HC1	DHW + (CP)	--	HC2	HC3	--
	HC1	(CP)	--	HC2	HC3	
	--	DHW + (CP)	--	HC1	HC2	HC3
4 heating circuit and DHW	HC1	HC2	HC3	HC4	DHW + FRC	--
	HC1	HC2	(CP)	HC3	HC4	DHW + FRC
	HC1	HC2	DHW + (CP)	HC3	HC4	--
	HC1	DHW + (CP)	--	HC2	HC3	HC4
Only DHW	--	DHW + (CP)	--	--	--	--
	--	(CP)	--	DHW + FRC	--	--
1 heating circuit and solar	HC1	(CP)	SOL	--	--	--
	--	(CP)	SOL	HC1	--	--
2 heating circuit and solar	HC1	HC2	SOL	--	--	--
	--	(CP)	SOL	HC2	HC2	--
	HC1	(CP)	SOL	--	--	--
3 heating circuit and solar	HC1	HC2	SOL	--	--	--
	HC1	(CP)	SOL	HC1	HC3	--
	--	(CP)	SOL	HC2	HC2	HC3
4 heating circuit and solar	HC1	HC2	SOL	HC3	HC4	--
	HC1	(CP)	SOL	HC2	HC3	HC4
1 heating circuit, solar and DHW	HC1	DHW + (CP)	SOL	--	--	--
	HC1	(CP)	SOL	DHW + FRC	--	--
	--	DHW + (CP)	SOL	HC1	--	--
		(CP)	SOL	HC1	DHW + FRC	--
2 heating circuit, solar and DHW	HC1	(CP)	SOL	DHW + FRC	--	--
	HC1	DHW + (CP)	SOL	HC2	--	--
	HC1	(CP)	SOL	HC2	DHW + FRC	--
	--	(CP)	SOL	HC1	HC2	DHW + FRC
	--	DHW + (CP)	SOL	HC1	HC2	--
3 heating circuit, solar and DHW	HC1	HC2	SOL	HC3	DHW + FRC	--
	HC1	(CP)	SOL	HC2	HC3	DHW + FRC
	HC1	DHW + (CP)	SOL	HC2	HC3	--
	--	DHW + (CP)	SOL	HC1	HC2	HC3
4 heating circuit, solar and DHW	HC1	HC2	SOL	HC4	HC4	DHW + FRC
	HC1	DHW + (CP)	SOL	HC2	HC3	HC4
Solar and DHW only	--	DHW + (CP)	SOL	--	--	--
	--	(CP)	SOL	DHW + FRC	--	--
Solar only	--	(CP)	SOL	--	--	--

Electrical Connections *(continued)*

Motor connections



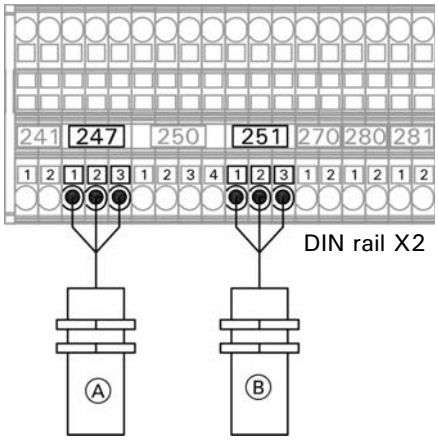
DIN rail X1

Connections of motors are dependant on fuel storage and fuel extraction system being used.

Legend

Ⓐ Vacuum module (when using the vacuum feed system)
Ⓑ Flexible screw conveyor motor (when using flexible screw conveyor)
Ⓒ Storage room extraction auger (when using storage room with sloping floor)
Ⓓ External charging (dry contact)

Sensor connections

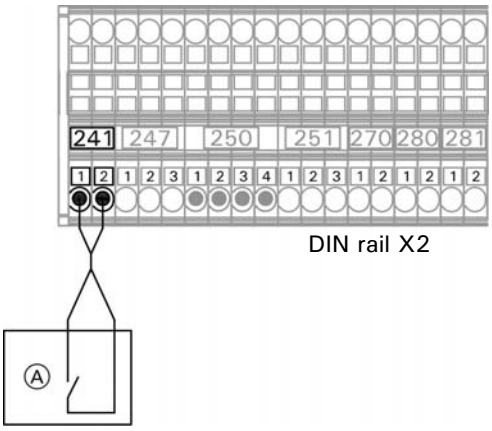


DIN rail X2

Legend

Ⓐ Pellet level sensor - storage room
Ⓑ Pellet level sensor - flexible screw - if not, a field supplied jumper may be required, refer to page 42

System limit switch connections



DIN rail X2

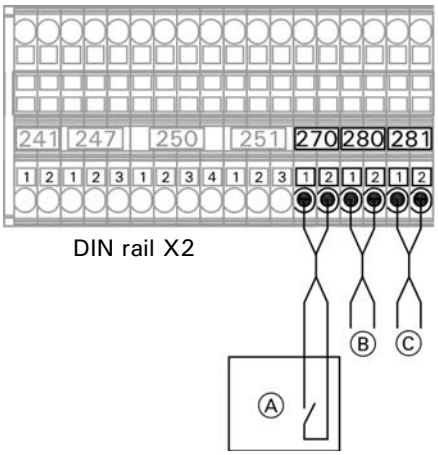
If a limit switch is not used, a field supplied jumper must be installed.

Legend

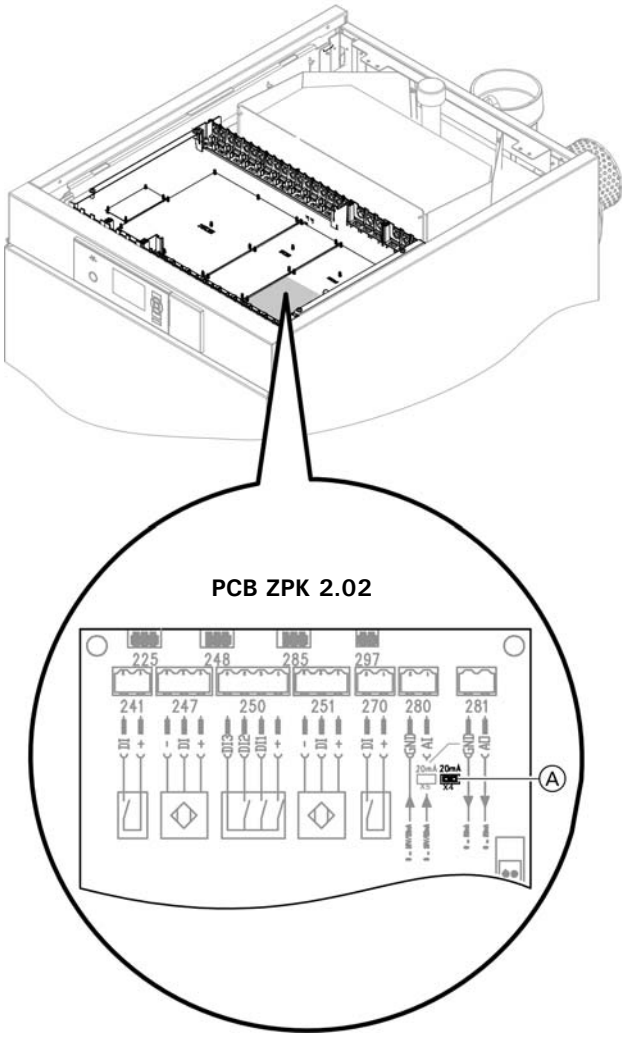
Ⓐ Safety limit switch silo door dry contact (field supplied)

Electrical Connections *(continued)*

Demand input / output connections



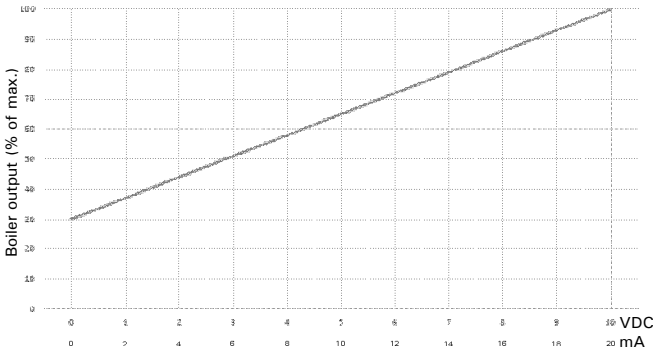
DIN rail X2



Legend
Ⓐ Jumper for output parameter settings 280, factory setting: open

Legend
Ⓐ External demand (dry contact) - must be coded, refer to coding 1 address 44
Ⓑ 0-10VDC or 0-20 mA input signal
Ⓒ 0-10VDC output signal

Output reduction



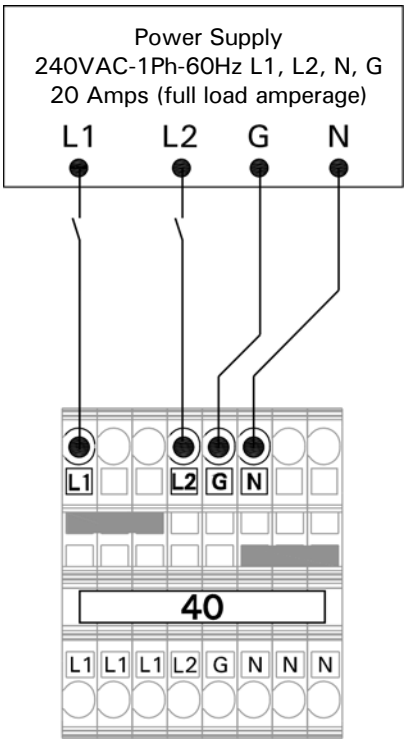
Input signal limit boiler max. operating input

With regard to the function, please note:
If a current signal is required at 280, close jumper Ⓐ.

Jumper Ⓐ for output 280	X4	Jumper open: Voltage signal 0…10V	X4	Jumper closed: Current signal 0…20 mA

Electrical Connections *(continued)*

Provide disconnect means and overload protection as required



DIN rail X1

Power supply
Power supply 40.

IMPORTANT

Electrical installations must comply with the latest edition of:

- **In the U.S.A., the National Electrical Code (NEC), ANSI/NFPA 70 and any other state, local codes and/or regulations.**
- **In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Part 1 and any other province, territory, local codes and/or regulations.**

Power supply for DHW recirculation pump
Connect DHW pumps with standalone functions directly to the 120V supply.
Power connection via the Viessmann control unit is not permissible.

1. Check that the power cable to the control unit is protected with a fuse.
2. Connect the power cable in the junction box and the control unit (on site).

⚠ WARNING

Incorrect core assignment can result in serious injury and damage to the appliance. Take care not to interchange wires "L1", "L2", "N" and "G".

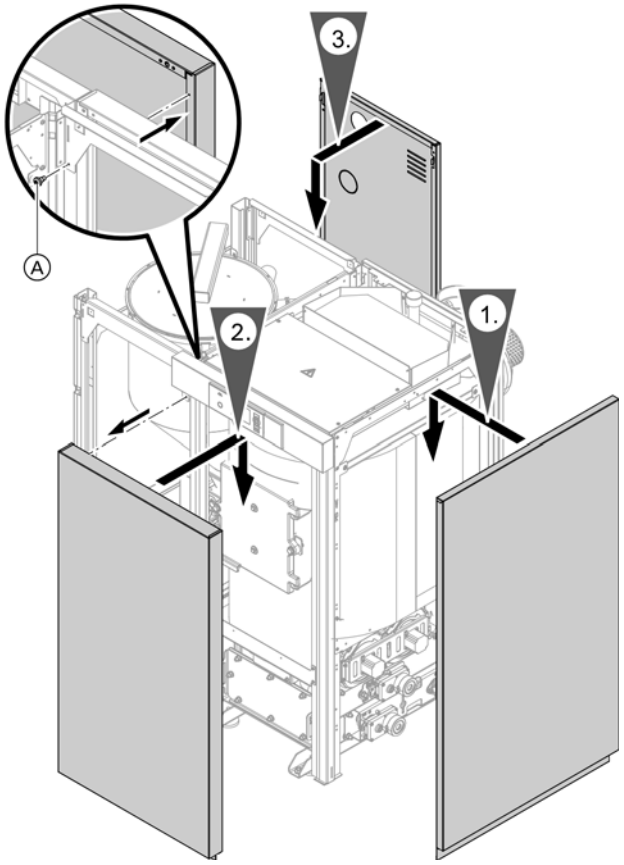
Color coding to UL:
GN Green
BK Black
WT White

Power Failure Provision

Backup power supply or backup generator is recommended to ensure continuous operation in the event of power failure.

- Do not open boiler doors
- Do not add fuel to the boiler
- The boiler control will automatically restart once power is restored
- Upon restoration of power check and clear any fault codes

Vacuum System Final Assembly

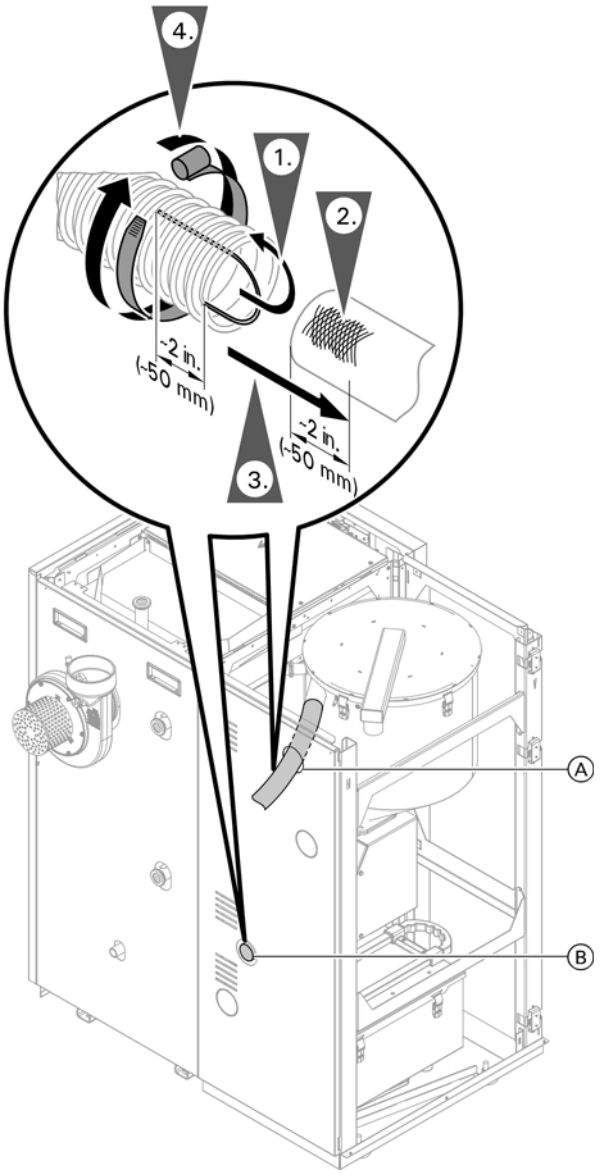


Legend
Ⓐ Self-tapping screw

Fitting the right and rear jacketing panels
Note: Self-tapping screws are included in the delivery.

On step 2:
Secure the front panel from behind with self-tapping screw Ⓐ.

Vacuum System Final Assembly *(continued)*

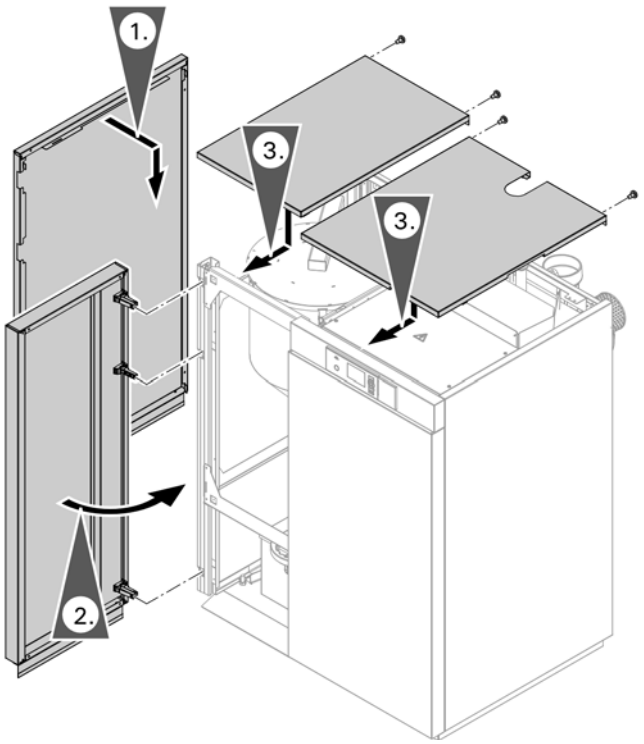


Legend
Ⓐ Pellet supply hose connection
Ⓑ Return air hose connection

Fitting the pellet hoses

1. Trim the hoses to the required length.
   Allow an extra 2 in. (50 mm) for connection of the ground wire at the end of each hose.
   Expose the ground wire by approx. 2 in. (50 mm) at each hose end. Bend the ground wire inwards into the hose.
2. Make a bare metal connection at all connectors (including that on the room discharge).
3. Route the pellet supply and return air hoses through the apertures in the back panel. Push all hoses with ground wire over the bare metal part of the connectors.
4. Secure the hoses to the connectors using hose clamps.
5. Secure hoses to the wall using wall mounting brackets no more than 40 in. (1000 mm) apart.
   Note: We recommend fitting the clips of the hoses with anti-vibration anchors.

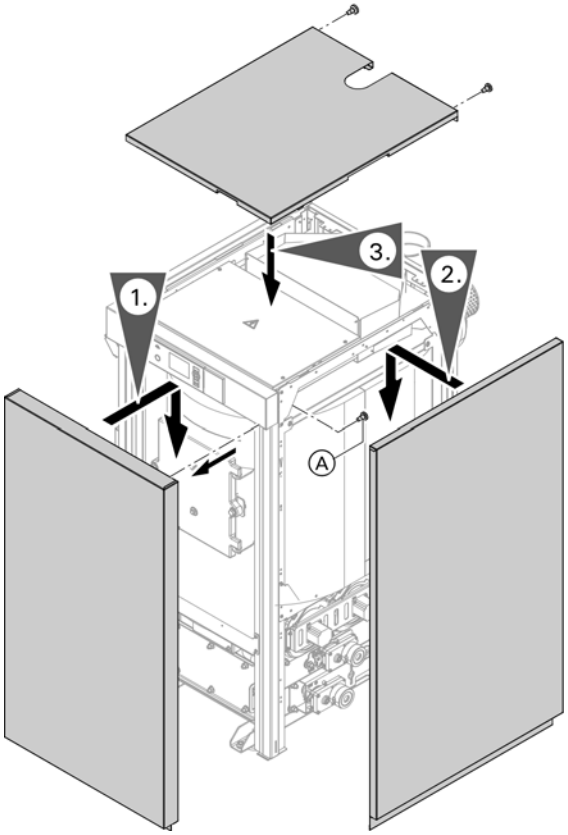
Vacuum System Final Assembly *(continued)*



Fitting left and top jacketing panels

1. Fit left side panel.
2. Insert door hinges at the top and bottom left.
   The door hinges engage in the retainers.
   Close the door.
   Note: The hinges are adjustable:
   - Disengage the damper fittings towards the front and remove.
   - Adjust the hinges using the adjusting screws that are now revealed.
   - Push the damper fittings back onto the hinge until they engage.
3. Position top panels, push forwards and secure each one with 2 self-tapping screws.

Flexible Screw Conveyor Final Assembly



Fitting the jacketing panels
Note: Self-tapping screws are included in the delivery.

On step 1:
Secure the front panel from behind with self-tapping screw.

Legend
Ⓐ Self-tapping screw

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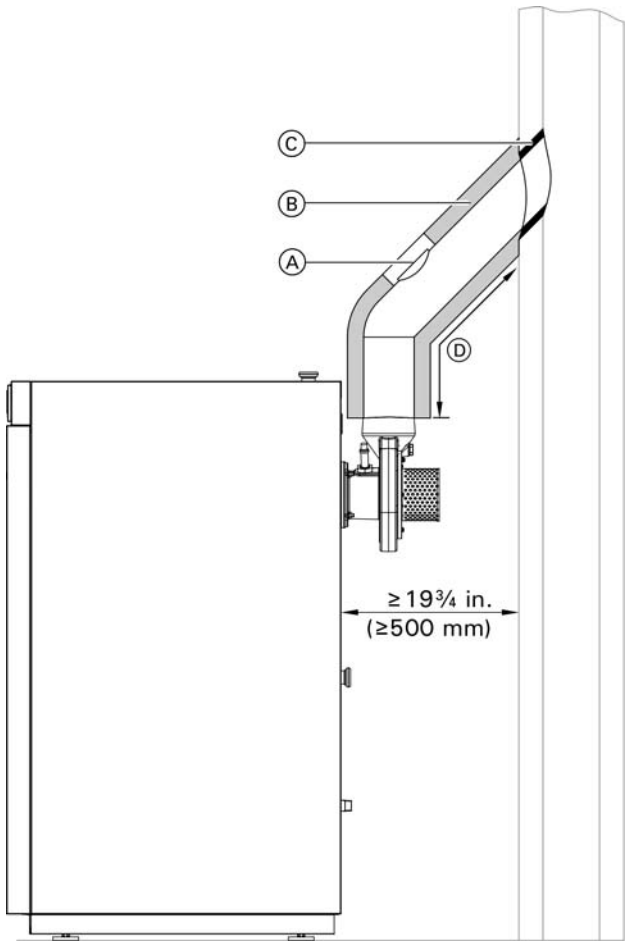
Connections on the Flue Gas Side



Legend
Ⓐ Cleaning port with test connector for checking flue gas temperature and emissions
(Distance of the test connector to the boiler flue outlet or last pipe bend: 2 x vent ∅)
Ⓑ Thermal insulation
Ⓒ Flexible flue inlet

1. Install the flue pipe rising to the chimney (preferably 45°).

Flue pipe diameter 6 in. (150 mm)
Max. flue pipe length to the chimney Ⓓ: 118 in. (3 m)

Note: Let the flue pipe connector project about ½ in. (1 cm) into the chimney. This prevents condensate or rainwater from the chimney running into the flue pipe.

2. The entire flue pipe with cleaning aperture must be gas-tight.
3. Thermally insulate the flue pipe, minimum insulation thickness 1¼ in. (30 mm).
4. Install a barometric damper (accessories) in the chimney.

Note: Install a flexible connection piece in the flue to prevent sound transmission from the flue gas fan. Never brick the flue pipe into the chimney. If necessary, provide additional sound insulation on site.

Refer to the barometric damper installation instructions (field supplied).

This boiler must be properly vented. Use a vent material certified for use with solid-fuel fired equipment.

IMPORTANT

Do not use galvanized steel.

The Vitoligno 300-C is output-controlled within a range from 30%-100% of the rated boiler output. This produces flue gas temperatures from min. 212°F (100°C) to max. 482°F (250°C).

An insulated chimney should be provided to prevent sooting, condensation and creosote formation.

The distance from the flue gas exhaust blower to the chimney should be as short as possible. 90° elbows should be avoided if possible. Flue gas pipes of more than 40 in. (1 m) in length must be insulated.

The connection to the chimney should be made such that it rises at an angle of 30°- 45° (to prevent excess ash accumulating in the lateral section of the vent pipe).

The flue gas line, including the lead-in into the chimney, must be gas-tight.

Single acting barometric draft regulator
The barometric draft regulator must be the same diameter opening as the chimney for which the vent is sized 6 in. (150 mm).

For room sealed operation and a draught > 0.02 "w.c. (> 0.15 mbar), a barometric draft regulator approved for room sealed operation must be used.

Connections on the Flue Gas Side *(continued)*

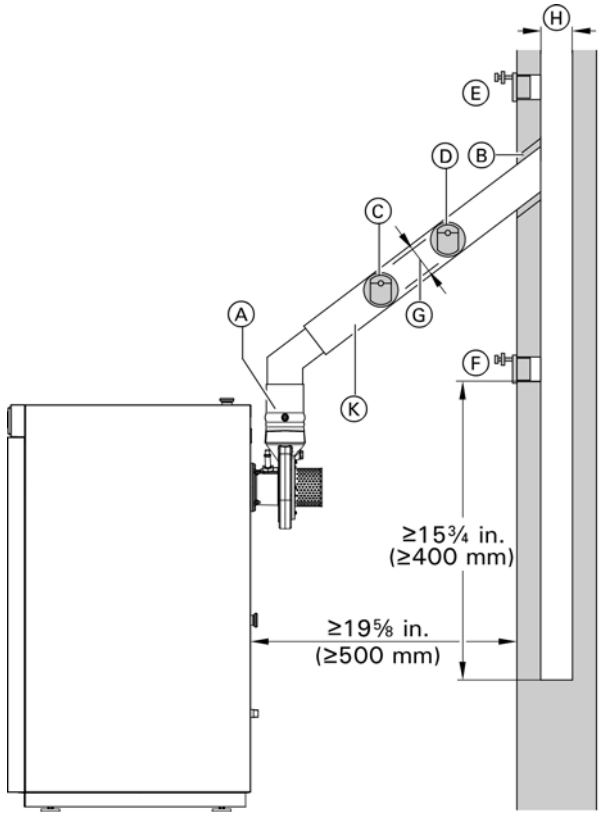


Diagram of boiler with wall clearance

Legend

Ⓐ Boiler flue connection with condensate trap (for vertical installation)
Ⓑ Flexible flue pipe inlet
Ⓒ-Ⓕ Possible installation location for the barometric damper [min. 24 in. (600 mm) from boiler flue outlet).
Ⓖ Flue pipe cross-section
Ⓗ Chimney cross-section
Ⓚ Thermal insulation

Explanation of possible installation locations:

Ⓒ Very good control, venting effect limited by long flue pipe or small cross-section ratio flue: chimney; select this installation location only in extreme circumstances.
Ⓓ Very good venting effect, good control; select this installation location only in extreme circumstances.
Ⓔ Very good venting effect, good control; retrofit only in case of masonry chimneys. In case of multi layered construction, installation only by qualified contractor; installation location Ⓔ is preferred over Ⓕ.
Ⓕ Limited control and venting. Due to the low soot levels, we recommend this installation for solid fuel boilers and lined chimneys.

Flue gas connection

- Never push the flue pipe too far into the chimney.
- Never insert the flue pipe into the brickwork of the chimney. Instead, connect using a flexible flue pipe adaptor. Provide a cleaning aperture.

The installation of this unit shall be in accordance with local codes. In the absence of local codes use:
- In Canada, CSA B365 installation code for solid fuel burning appliances and equipment (latest edition).
- In USA, NFPA-211 standards for chimneys fire places, vents and/or solid fuel burning appliances (latest edition).

Venting requirements

This boiler needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air. Inadequate supply of combustion air can cause poisonous flue gases to enter living space which can cause severe personal injury or loss of life.

This boiler must be properly vented. Use a vent material certified for use with solid-fuel fired equipment.

This boiler's venting system must be listed to ULC S-629 (Canada) or UL 103HT (USA) – Standard for Solid and liquid Fuel Chimneys. Use current revision of codes.

This boiler shall be connected to:
a) a masonry chimney conforming to local regulations or, in the absence of such regulations, to the requirements of the National Building Code
or...
b) a certified factory-built chimney.

A flue pipe serving this boiler shall be constructed of steel or other suitable material with a melting point of not less than 2000°F (1100°C). Galvanized steel shall not be used.

Combustion Air Supply

Codes

Provision for combustion and ventilation air must be made in accordance with applicable local codes.
In the absence of local codes, use:
CSA B365 (latest edition) , Installation Code for Solid Fuel Burning Appliances and Equipment, NFPA-211 (latest edition) Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances.

⚠ WARNING

Failure to provide an adequate supply of fresh combustion air can cause poisonous flue gases to enter living space. Flue gases entering living space can cause carbon monoxide poisoning which can result in severe personal injury or loss of life.

⚠ WARNING

Never cover the boiler or store debris or other materials near the boiler, or in any way block the flow of adequate fresh air to the boiler. Never cover the combustion air opening. Advise system operator / ultimate owner accordingly.

General

This equipment requires fresh air for safe operation and must be installed ensuring provisions for adequate combustion and ventilation air exist.

Whenever possible, install boiler near an outside wall so that it is easy to duct fresh air directly to the boiler area.

The boiler location must never be under negative pressure. Exhaust blowers, attic blowers, or dryer blowers may cause air to be exhausted at a rate higher than air can enter the structure for safe combustion.

The heating contractor shall ensure all of the following requirements are met:

- An adequate supply of combustion air must be available to ensure proper combustion.
- Ambient air temperatures must be maintained within safe operating limits.
- When a damper is provided in any opening intended to admit combustion air into the room within which the appliance is installed, the damper shall be interlocked to prevent any burner from starting before the damper is fully open.
- Each duct used to convey air from the outdoors shall have:
  1. a cross-sectional area throughout its length at least equal to the free area of the inlet and outlet openings which it connects,
  2. making a provision for outdoor combustion air, the intake shall not be less than 12 in. (0.3 m) above the anticipated snow level for the location.
- The heating contractor must check with local authorities (municipal building department) for combustion air requirements particular to the area.

Confined spaces

When a furnace or boiler is enclosed in a space that has a volume less than 20% of that to be heated by the appliance, the space shall:

a) have a permanent opening or openings for natural air circulation with a minimum net free area of 1 in² / 1000 Btu/h input, and

b) connect to another space or spaces such that the total volume of air available for natural air circulation is at least 30% of the total volume to be heated by the appliance.

The minimum dimension of any opening specified in item (a) shall be no less than 1 in. (25 mm) The lower edge of at least one opening shall be located within 20 in. (0.5 m) of the floor of the enclosed space, and the upper edge of at least one opening shall be located within 20 in. (0.5 m) of the ceiling of the enclosed space.

Note: The intent of this Clause is to allow either one long vertical opening or two shorter horizontal openings, one high and the other low, to allow for air circulation to prevent overheating of the appliance.

Unconfined spaces

Where the boiler is located in an unconfined space in a building having insufficient infiltration, additional air for combustion and ventilation shall be obtained from outdoors or from spaces freely communicating with the outdoors. Under these conditions, permanent opening(s) shall be provided so that the total air received through these openings will be at least as much as would be admitted by openings having a total free area of 1 in² / 5,000 Btu/h or (450 mm² / kWh) of the total input rating of all wood-fired appliances.

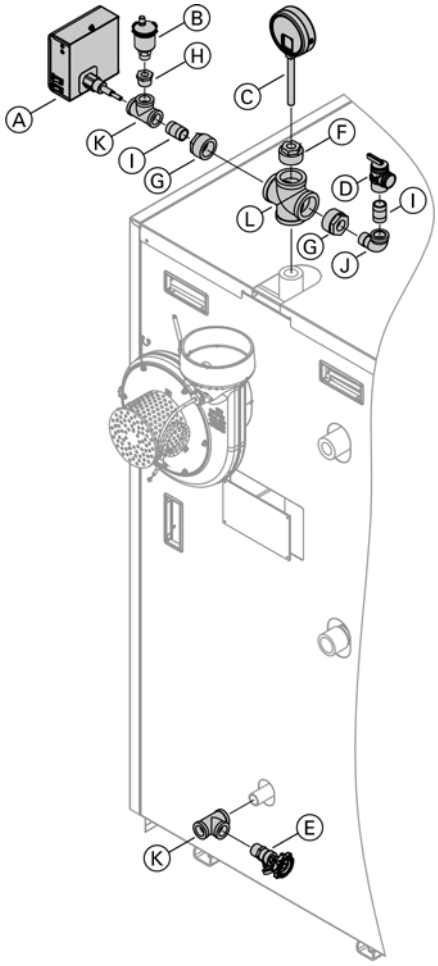
Louvers and grilles

In calculating free area as specified, consideration shall be given to the blocking effect of louvers, grilles, or screens that protect openings. Screens shall be no smaller than ¼ in. (6 mm) mesh and shall be readily accessible for cleaning. If the free area through a design of louver or grilles is known, it shall be used in calculating the size of opening required to provide the free area specified. If the design and free area are not known, it shall be assumed that wood louvers have 20 - 25% free area and metal louvers and grilles have 60 - 75% free area.

Negative pressure

Systems, including a combination of exhaust fans and a combination of air fans shall not be installed or controlled to permit the creation of a negative pressure in the boiler room relative to the breaching and flue.

Connections on the Heating Water Side



Legend
Ⓐ Low water cutoff
Ⓑ Air vent
Ⓒ Temperature and pressure gauge
Ⓓ pressure relief valve
Ⓔ Sediment faucet
Ⓕ Bushing 1½ in. to ½ in. NPT
Ⓖ Bushing 1½ in. to ¾ in. NPT
Ⓗ Bushing ¾ in. to ⅜ in. NPT
Ⓘ Nipple ¾ in. to 1½ in. NPT
Ⓙ Street elbow ¾ in. NPT
Ⓚ Tee ¾ in. NPT
Ⓛ Cross 1½ in. NPT

Note: The connection between boiler and expansion tank must not be interrupted by shut-off devices.

Performing a boiler pressure test

The boiler must be leak tested before being placed in operation. Before boiler is connected to piping or electrical power supply, it must be hydrostatically pressure tested.

1. After installing safety devices (see previous page), install temporary cap on ¾ in. x 2 in. nipple.
2. Cap supply, return and drain connections (where PRV is installed).
3. Connect ½ in. garden hose to boiler fill valve at the bottom of the boiler and fill boiler slowly until pressure gage indicates max. working pressure 45 psig (3 bar).
4. Maintain pressure for 15 minutes. During time of pressure testing, do not leave boiler unattended.
5. Inspect all pipe joint connections and safety devices with a flashlight for leaks. A lower manometer reading than 45 psig (3 bar) usually indicates loss of water due to leakage. All leaks must be repaired.
6. After 15 minutes, release water pressure from boiler by opening boiler drain valve slowly, remove caps from supply and return connections as well as ¾ in. cap from 2 in. nipple, and install pressure relief valve immediately instead of ¾ in. cap.
7. After boiler has passed pressure test, proceed with the installation.

Maximum boiler operating pressure	45 psi (3 bar)

Installing the low temperature protection package

The low temperature protection package must be installed prior to connecting the boiler to the heating system.

Refer to installation instructions for low temperature protection package

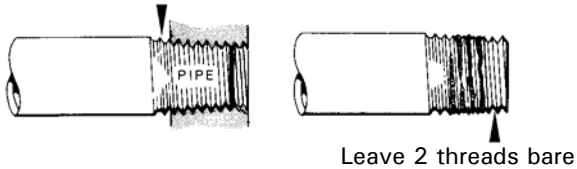
Connecting heating system

Flush heating system thoroughly prior to connecting boiler

Proper piping practice

Support piping by proper suspension method. Piping must not rest on or be supported by boiler. Use moderate amount of dope. Use an approved pipe sealant or teflon tape when connecting the following installation fittings.

2 imperfect threads



Leave 2 threads bare

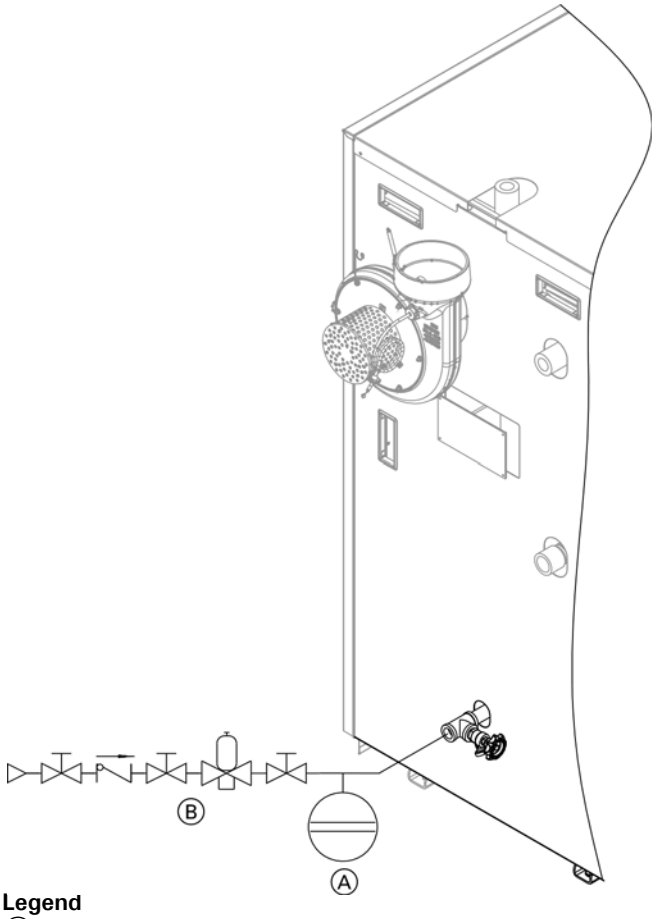
Boiler with low water cut-off

Do not install an isolation valve between boiler and low water cut-off.

Follow the installation instructions of the low water cut-off from the manufacturer.

For low water cut-off connection to the boiler see page 43.

Filling the Heating System



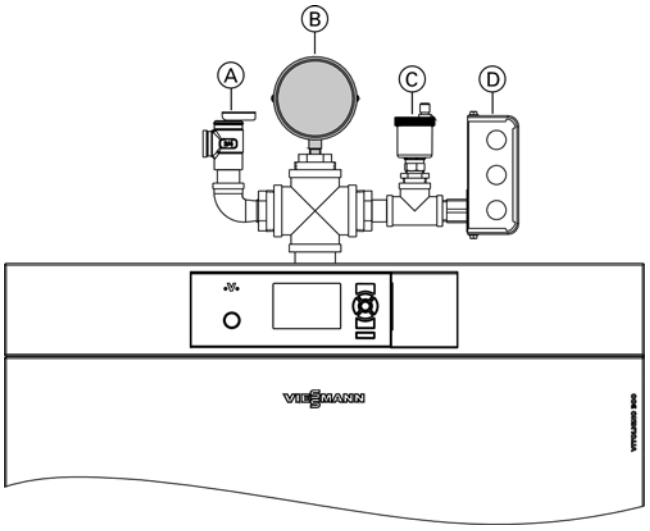
Legend
Ⓐ Precharged expansion tank (field supplied)
Ⓑ Automatic fill (field supplied)

CAUTION

To prevent equipment damage, install all pipework free to load and torque stresses.

IMPORTANT

Apply sufficient amount of thread sealant when making the connections.



Legend
Ⓐ Pressure relief valve (PRV)
Ⓑ Temperature and pressure gauge
Ⓒ Air vent
Ⓓ Low water cutoff

1. Check the pre-charge pressure of the expansion vessel.
   If the pre-charge pressure is lower than the static system pressure, top up with nitrogen until the precharge pressure is 0.1 to 0.2 bar (1.4 to 2.9 psi) higher than the static system pressure.
   If the pre-charge pressure is too high, adjust it accordingly.
2. Open the non-return valves.
3. Fill the heating system with water and vent until the charge pressure is 0.1 to 0.2 bar (1.4 to 2.9 psi) higher than the pre-charge pressure of the expansion vessel.
   Max. allowable working pressure (MAWP)..45 psi (3 bar)

WARNING

Exposing the boiler to pressures and temperatures in excess of those listed will result in damages, and will render warranty null and void.

4. Mark the charge pressure at pressure gauge Ⓑ.
5. Reset the non-return valves to their operating position.

Filling the Heating System *(continued)*

Water quality

Treatment for boiler feed water should be considered in areas of known problems, such as where a high mineral content and hardness exist. In areas where freezing might occur, an antifreeze may be added to the system water to protect the system. Please adhere to the specifications given by the antifreeze manufacturer.
Do not use automotive silicate based antifreeze.
Please observe that an antifreeze/water mixture may require a backflow preventer within the automatic water feed and influence components such as diaphragm expansion tanks, radiation, etc. Maximum antifreeze content is 50% for the Vitoligno 300-C boiler. Do not use antifreeze other than specifically made for hot water heating systems. System also may contain components which might be negatively affected by antifreeze.
Check total system frequently when filled with antifreeze.
Advise system operator/ultimate owner that system is filled with a glycol mix. The heating contractor must provide a MSDS (Material Safety Data Sheet) for the antifreeze used to the system operator/ultimate owner.

Total permissible hardness of the fill and top-up water

Total heating output	**Specific heating volume**					
MBH	< 5 USG per 3412 BTU		≥ 5 USG per 3412 BTU to < 13 USG per 3412 BTU		≥ 13 USG per 3412 BTU	
≤ 170	300 ppm	17.5 gpg	200 ppm	11.7 gpg	2 ppm	0.11 gpg
> 170 to ≤ 682	200 ppm	11.7 gpg	150 ppm	8.8 gpg	2 ppm	0.11 gpg
> 682 to ≤170	150 ppm	8.8 gpg	2 ppm	0.11 gpg	2 ppm	0.11 gpg
> 2050	2 ppm	0.11 gpg	2 ppm	0.11 gpg	2 ppm	0.11 gpg

ppm - parts per million
gpg - grains per gallon

Checking all Connections on the Heating Water Side for Leaks

Switching on the Power and Starting the Commissioning Sequence

After switching the power on, a commissioning sequence commences. If it does not start automatically, press ◀/▶ simultaneously for approx. 5 sec.
While making the following inputs, these keys may also be pressed:
↩ to go back one step

☰: to display the commissioning menu structure

Setting the Language

Shortly after switching the power on, the display shows "Select language".
Press the following keys:
1. ▲/▼ for the required language.
2. OK to confirm.

Loading the Standard Setting

Press the following keys:
1. ▲/▼ for "Yes" or" No".
2. OK to confirm.

Setting the Date

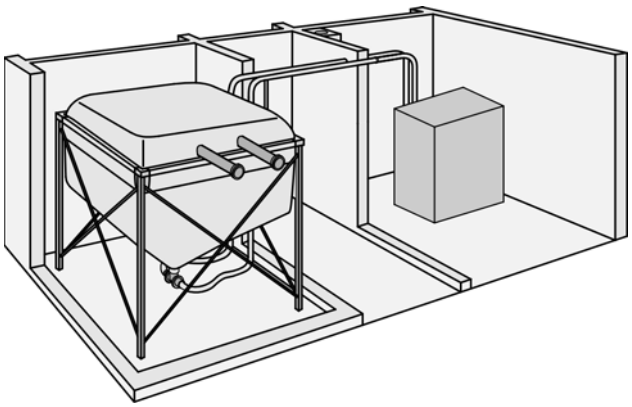
Press the following keys:
1. ▲/▼ for the required date.
2. OK to confirm.

Setting the Time

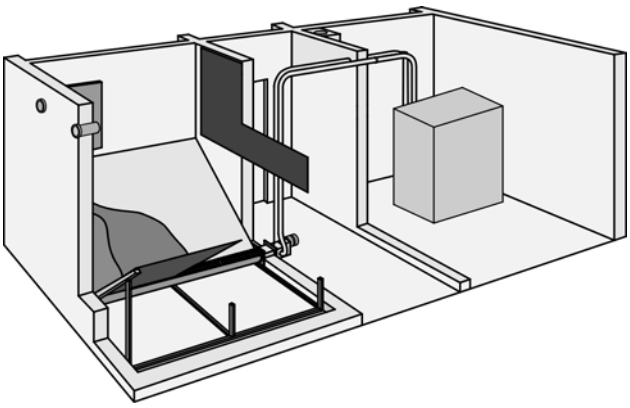
Press the following keys:
1. ▲/▼ for the required time.
2. OK to confirm.

Configuring the Supply System/Charging Scheme

The supply system is set at the factory for discharge from a pellet silo with a vacuum supply system (setting "1")
Press the following keys:
1. ▲/▼ for the required supply system "1", "2", "5" or "7". (For other supply systems, see page 79)
2. OK to confirm.



When configuring the supply system, the following are available for selection:
Setting "1" (factory set condition) for pellet supply via vacuum supply system from a pellet silo and for discharge with manual changeover unit from a pellet storage room or pellet box.



Setting "2" for pellet supply via screw conveyor discharge from the pellet storage room and onward transportation via a vacuum supply system.

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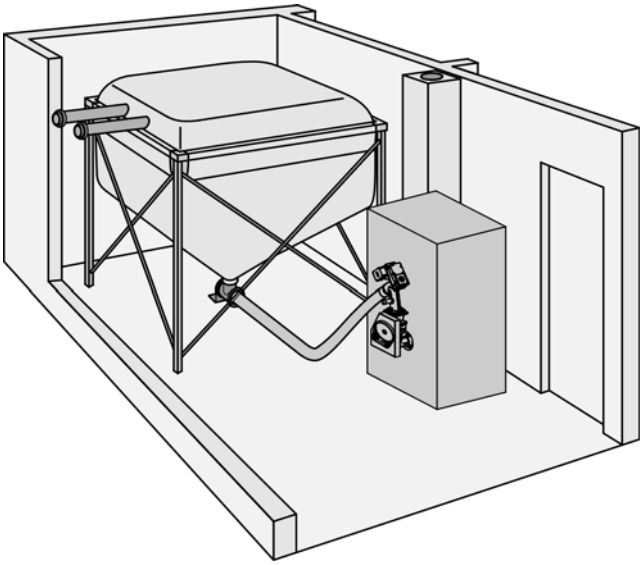
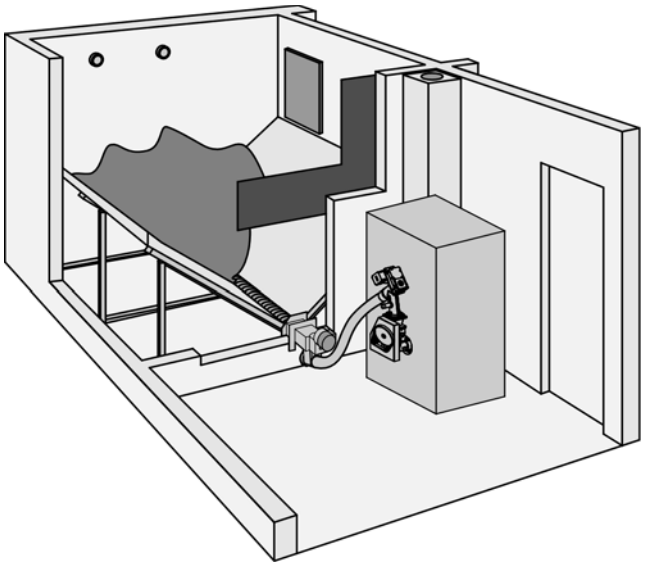
Configuring the Supply System/Charging Scheme *(continued)*

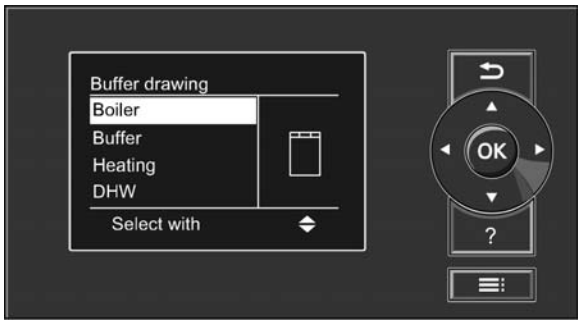


Setting “5” for pellet supply from pellet silo via flexible screw conveyor.



Setting “7” for pellet supply via screw conveyor system and flexible screw conveyor.

Control Unit Controls and Display Elements



The programming unit
You can adjust all control unit settings centrally at the programming unit.

- ⮌ Takes you to the previous step in the menu or cancels a setting that has been started.
- Cursor keys
  Scrolls through the menu or adjusts values.
- (OK) To confirm your selection or save the setting you've made.
- **?** Calls up the help text relevant to the selected menu point.
- ☰ Calls up the extended menu.

To access the service menu press OK and ☰ simultaneously for approximately 4 sec.

Selecting the Pellet Store Sensor

To specify whether a level sensor is present in the pellet store, press the following keys:
1. ▲/▼ for pellet store sensor "Yes/No"

Selecting the external digital input (external demand)
To specify whether the digital input (junction box terminal 270) is connected to start/stop the boiler
1. ▲/▼ for pellet store sensor "Yes/No"
2. (OK) to confirm.

Setting the Number of Buffer Tank Temperature Sensors

Press the following keys:
1. ▲/▼ for buffer tank temperature sensor "No", "3" or "5"

The preset is how many sensors are connected.

Selecting the Type of Heating Water Buffer Tank

If the test point for capturing the system temperature is to be selected, press the following keys:
1. ▲/▼ for buffer tank type.
   "0" for basic heating water buffer tank
   "1" for combi tank
2. (OK) to confirm.

Selecting an Additional Boiler

If an additional heat generator is to be selected, press the following keys:
1. ▲/▼ for additional boiler "Yes/No"
2. (OK) to confirm.

Selecting the Connection for Heating Circuits 1 to 4

To specify where the respective heating circuit is connected, press the following keys:

1. ▲/▼ for "No":
   Not installed.
   for "On the boiler":
   Connected at internal PCB.
   for "On the mixing valve extension module":
   Connected to extension kit via KM-BUS.
2. OK to confirm.

Selecting the DHW Connection

To specify where the DHW heating is connected, press the following keys:

1. ▲/▼ for "No":
   Not installed or DHW heating connected to a combi tank.
   for "On the boiler": Connected at internal PCB.
   for "On the mixing valve extension module":
   Connected to extension kit via KM-BUS.
2. OK to confirm.

Selecting DHW Recirculation

To specify whether a DHW recirculation pump is connected, press the following keys:

1. ▲/▼ for DHW circulation "Yes/No"
2. OK to confirm.

Selecting the Solar Connection

Press the following keys:

1. ▲/▼ for "No":
   Not installed.
   for "On the boiler": Connected at internal PCB.
2. OK to confirm.

   Note: To calculate the solar yield, the nominal flow rate or the solar circuit pump must be set in coding address 75 (see page 89).

Selecting the Solar Type

Only available if “On the boiler” was previously selected.
Press the following keys:
1. ▲/▼ for diverter valve “Yes/No”
2. OK to confirm.

Selecting the minimal set system temperature
Press the following keys:
1. ▲/▼ to set the minimal system temperature.
2. OK to confirm.

Changing the Heating Circuit Designations

Press the following keys:
1. ▲/▼ to change the letters.
2. ◀/▶ to select the next character.
3. OK to confirm.

Diagnosis

Behind every term on the display there must be a value or text. Check the corresponding electrical connection
if nothing is displayed.
Press OK to continue to the next display.
The following displays appear in sequence:
- “General”
- “Boiler”
- “Buffer”
- “Charging”
- “Heating circuit 1”
- “Heating circuit 2”
- “Heating circuit 3”
- “Heating circuit 4”
- “DHW”
- “Solar”

Checking Outputs (actuators) and Sensors

The following boiler actuators and sensors can be controlled:

- "General"
  - "Central fault"
- Boiler
  - "Flue gas fan"
  - "Ignition"
  - "Primary air damper, open"
  - "Primary air damper, close"
  - "Sec air damper, open"
  - "Sec air damper, close"
  - "Boiler pump"

  Note: After replacing the mixing valve motor: Check the rotational direction.
  - "Boiler valve, open"
  - "Boiler valve, close"
  - "Ash removal"
- "Charging"
  - "Feed screw conveyor"
  - "Feed On"
  - "Screw conveyor"
  - "Vacuum module"
  - "Discharge"
- "Hydraulics"
  - "Additional boiler"
- "Heating"
  - "Heating circuit 1 - Pump"
  - "Heating circuit 1 - Valve, open"
  - "Heating circuit 1 - Valve, close"
  - "Heating circuit 2 - Pump"
  - "Heating circuit 2 - Valve, open"
  - "Heating circuit 2 - Valve, close"
  - "Heating circuit 3 - Pump"
  - "Heating circuit 3 - Valve, open"
  - "Heating circuit 3 - Valve, close"
  - "Heating circuit 4 - Pump"
  - "Heating circuit 4 - Valve, open"
  - "Heating circuit 4 - Valve, close"
- "DHW"
  - "DHW - Pump"
  - "DHW - Valve, open"
  - "DHW - Valve, close"
- "DHW circulation" (on the boiler, PCB HKK)
  - "DHW circulation - Pump"
- "Solar" (on the boiler, PCB HKK)
  - "Solar - Pump"
  - "Solar - Valve, open"
  - "Solar - Valve, close"

The settings that were made are displayed:

- Overview, heat distribution, heating circuit 1
- Overview, heat distribution, heating circuit 2
- Overview, heat distribution, heating circuit 3
- Overview, heat distribution, heating circuit 4
- Overview, DHW
- Overview, DHW circulation
- Overview, solar

Calibrating the O_2 Probe

Note:
- Probe calibration must not be performed during commissioning.
- The probe calibration required when replacing the Lambda probe can only be performed manually. For calibrating the Lambda probe, see page 104.

Filling the Vacuum Module

Press the following keys:
1. ▲/▼ for "Yes"
   "Manual" setting: not possible.
   "Automatic" setting:
   Suction turbine starts automatically after OK is pressed.

Ending Commissioning

Press the following keys:
1. ▲/▼ for "Yes/No"
   If "Yes" is selected: The commissioning sequence is concluded. The display changes to the standard menu.
   If "No" is selected: Commissioning restarts
2. OK to confirm.

Displaying the Menu Structure

If you exit the commissioning sequence by pressing "☰", the structure of the commissioning menu is displayed. From here, you can switch to the standard menu by pressing ⮌.

Setting the Fuel Supply Times (with vacuum system)

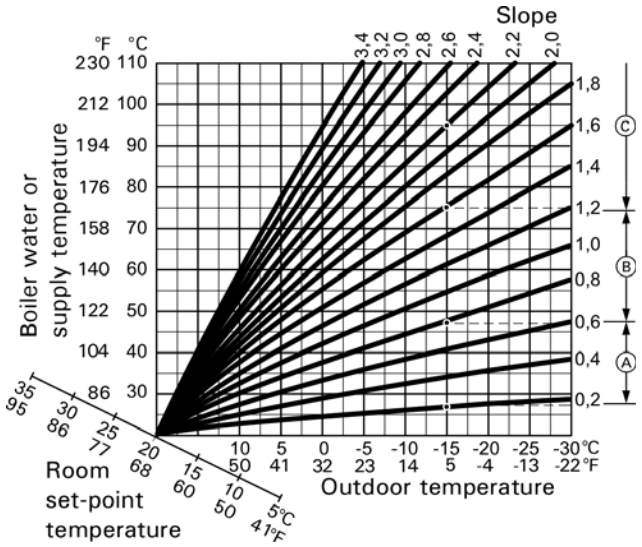
You can individually select specific times during which you do not want fuel to be supplied.

Refer to the Vitoligno 300-C Operating instructions.

Matching the Control Unit to the Heating System

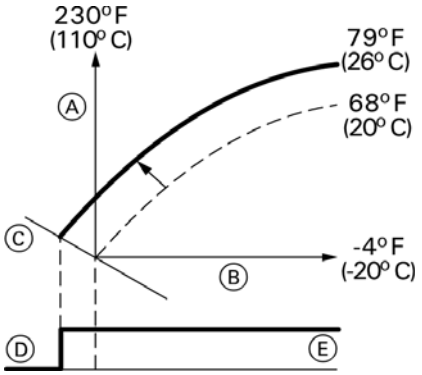
The control unit must be matched to the system equipment level. Various system components are recognized automatically by the control unit and the relevant codes are set automatically.
Check and adjust all addresses in Coding 1 (see chapter "Coding 1").
Note: Further setting options are listed in Coding 2.

Setting the Heating Curves



Example for outdoor temperature 5°F (– 15°C)
Ⓐ Underfloor heating system, slope 0.2 to 0.8
Ⓑ Low temperature heating system, slope 0.8 to 1.6
Ⓒ Heating systems with a boiler water temperature in excess of 167°F (75°C), slope greater than 1.6

Standard set room temperature



Adjustment of the standard set room temperature from 68 to 79°F (20 to 26°C).

Legend
Ⓐ Boiler water temperature or supply temperature
Ⓑ Outdoor temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump “Off”
Ⓔ Heating circuit pump “On”

The heating curves represent the relationship between the outdoor temperature and the supply temperature. To put it simply: The lower the outdoor temperature, the higher the supply temperature.
The supply temperature in turn affects the room temperature.

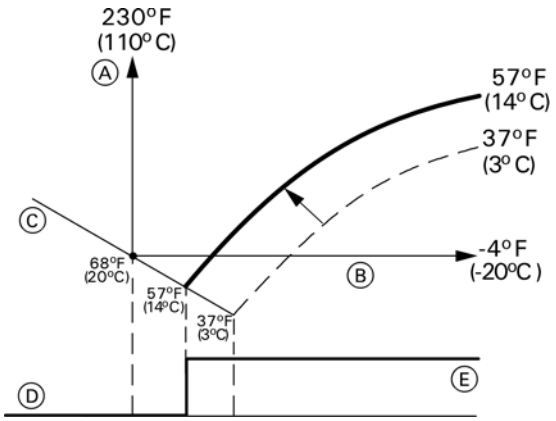
Settings in the factory set condition:
- Slope = 1.4
- Shift = 0

Setting the set room temperature
Individually adjustable for each heating circuit. The heating curve is offset along the set room temperature axis. With the heating circuit pump logic function enabled, the curve modifies the start and stop characteristics of the heating circuit pump.

Press the following keys:
1. ☰.
2. ▲/▼ for selecting the heating circuit.
3. OK to confirm.
4. ▲/▼ to select “Heating circuit 1” (HC1), “Heating circuit 2” (HC2), “Heating circuit 3” (HC3) or “Heating circuit 4” (HC4).
5. ▲/▼ for “Standard room temp.”.
6. OK to confirm.
7. ▲/▼ for the required value.
8. OK to confirm.

Setting the Heating Curves *(continued)*

Reduced set room temperature



Adjustment of the reduced set room temperature from 37 to 52°F (3 to 14°C).

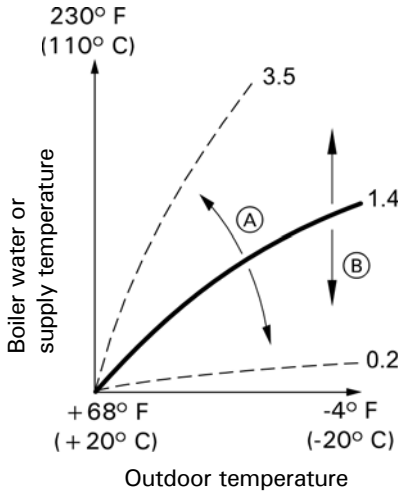
Legend

Ⓐ Boiler water temperature or supply temperature
Ⓑ Outdoor temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump "Off"
Ⓔ Heating circuit pump "On"

Press the following keys:

1. ☰.
2. ▲/▼ for selecting the heating circuit.
3. OK to confirm.
4. ◀/▶ to select "Heating circuit 1" (HC1), "Heating circuit 2" (HC2), "Heating circuit 3" (HC3) or "Heating circuit 4" (HC4), if installed.
5. ▲/▼ for "Reduced room temperature".
6. OK to confirm.
7. ▲/▼ for the required value.
8. OK to confirm.

Individually adjustable for each heating circuit.



Legend

Ⓐ Changing the slope
Ⓑ Changing the shift (vertical parallel offset of the heating curve)

Changing the slope and shift

Press the following keys:

1. ☰.
2. ▲/▼ for selecting the heating circuit.
3. OK to confirm.
4. ◀/▶ to select "Heating circuit 1" (HC1), "Heating circuit 2" (HC2), "Heating circuit 3" (HC3) or "Heating circuit 4" (HC4), if installed.
5. ▲/▼ for "Heating curve".
6. OK to confirm.
7. ▲/▼ for "Slope" or "Shift".
8. OK to confirm.
9. ▲/▼ for the required value.
10. OK to confirm.
11. Press ↩ to return to default display.

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Emissions Test after Commissioning

After commissioning, an emissions test must be conducted (see page 77).

Shutting Down the System

⚠ WARNING

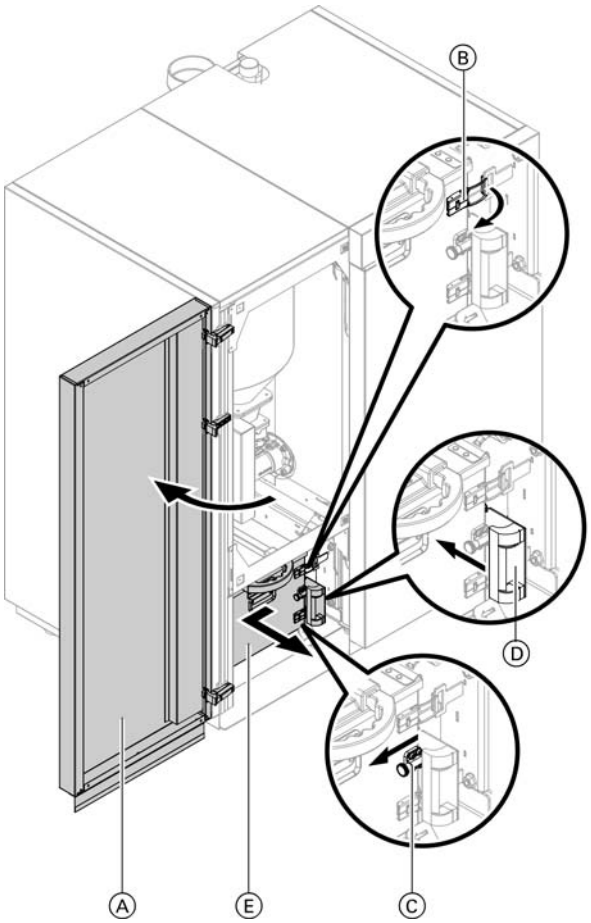
Contact with live or hot components can result in serious injuries.

- Before starting cleaning work, disconnect from the mains voltage at the fuse or power switch isolator. The mains ON/OFF switch on the boiler (see page 133) does not isolate the entire appliance from the power supply.
- Wait until the boiler has cooled down.
  1. Switch off the boiler by pressing "START/STOP" on the control unit.
  2. Wait until the run-on time has passed and let the boiler cool down.
  3. Switch off the mains isolator and safeguard against restarting.

Emptying the Ash Box

⚠ WARNING

Breathing in ash or pellet dust is detrimental to health.
Wear a **dust mask to protect your respiratory tract.**



Note: If the ash box was emptied without a message having been displayed on the control unit, reset the ash fill level at the control unit:
☰ for "Extended menu" "Information" "Reset data" select "Ash box" "Reset data" "Yes"-"No" OK to confirm.

1. Switch the boiler off with the "START/STOP" button at the control unit and wait until "Buffer drawing" or "Residual heat utilisation" is shown on the display.
2. Only for pellet supply via vacuum system:
   Open left hand front panel (door) Ⓐ.
3. Open tensioning toggles Ⓑ by pushing down on the tension toggle clip. Push the ash box slightly to the left.
4. Pull out locking pins Ⓒ. Push ash partition Ⓓ back as far as it will go.
5. Pull out ash box Ⓔ towards the front.
   Note: The telescopic handle on top of the ash box can be pulled out to various lengths.
6. Empty the ash box. For this, remove the cover from the ash box.
7. Remove ash residues from the base plate.
8. Reseal the ash box with its cover.
9. Proceed in reverse order to re-insert the ash box and close the boiler.
   Note: Before closing the boiler, ash separator Ⓓ has to be opened again.
10. Restart the boiler by pressing "START/STOP" on the control unit.

Overview of Maintenance and Cleaning Work in the Boiler

⚠ WARNING

Hot surfaces can lead to serious injuries.
Only open the boiler after it has cooled down.

⚠ WARNING

Breathing in ash or pellet dust is detrimental to health.
Wear a (Noish N95) dust mask to protect your respiratory tract.

Have a heating contractor clean the interior of the boiler once a year.

⚠ CAUTION

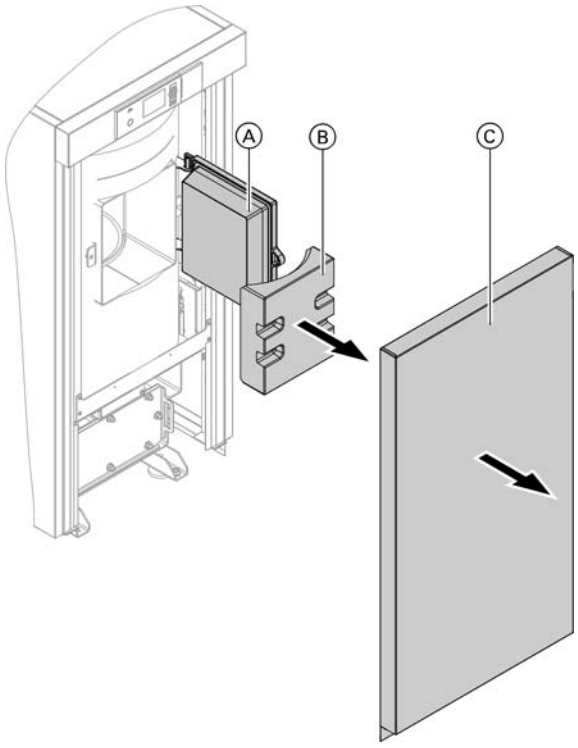
During maintenance and cleaning work, and when manipulating the ash box, there is a risk of fire and burns due to hot parts and ash.
- **Wear suitable safety gloves.**
- **Only dispose of the hot ash in fireproof containers with covers.**

Vitoligno 300-C	System user	Heating contractor
After 6,600 to 8,800 lb. (3,000 to 4,000 kg) of pellets consumed or at least once per year		
Empty ash box (see page 71).	X	--
Check the system pressure. Minimum system pressure: 14.5 psi (1.0 bar)	X	--
After 33,000 lb. (15,000 kg) of pellets consumed or at least once per year		
Check all installed position switches	--	X
Remove the flue ash from the chimney	--	X
Clean the flue pipe	--	X
Clean the secondary heating surfaces	--	X
Clean the flue gas collector chamber	--	X
Clean the Lambda probe with a soft brush	--	X
Clean the flue gas temperature sensor	--	X
Clean flue gas fan	--	X
Clean the combustion chamber	--	X
Clean the reversing chamber	--	X
Clean the finned grate	--	X
Clean the ignition element and ignition pipe	--	X
Clean the ash chamber and ash removal parts	--	X
Clean the pellet sensor in the pellet hopper with a soft brush	--	X
Clean the intake grille in the pellet hopper with a vacuum cleaner	--	X
Clean the vacuum module with a vacuum cleaner	--	X
Check all gaskets on the covers and replace if necessary	--	X
After 66,000 lb. (30,000 kg) of pellets consumed or at least once every 3 years		
Maintenance of moving parts (drive chains, shafts, friction bearings, cogs, etc.)	--	X
Every 5 years		
Replace the battery inside the control unit.	--	X

Cleaning the Combustion Chamber

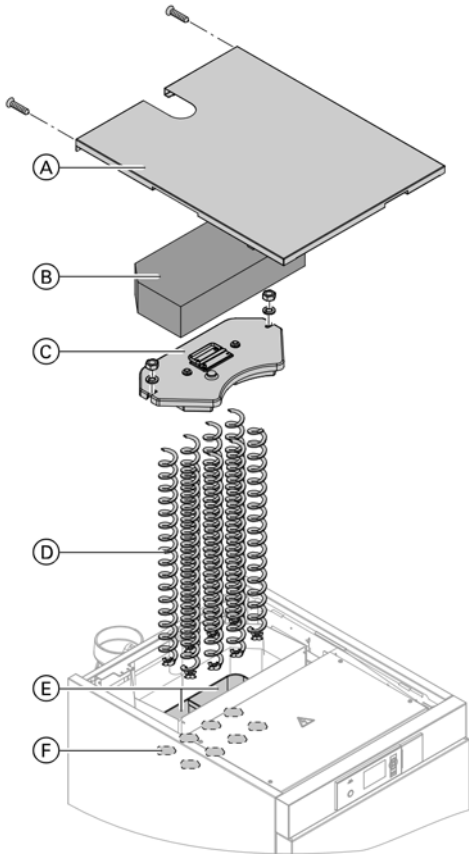
CAUTION

Hot gases can escape from the combustion chamber. Never open the combustion chamber door during operation. Only open the door when the system ON/OFF switch has been turned off. Clean the combustion chamber only when the boiler has cooled down sufficiently.



1. Pull front panel Ⓒ back slightly from the top remove and set aside.
2. Open combustion chamber door Ⓐ.
3. Remove and clean thermal insulation block Ⓑ.
4. Clean the combustion chamber including the combustion chamber fire bricks with a spatula and vacuum cleaner.
5. Clean the finned grate with a vacuum cleaner.
6. Clean the ignition element and ignition pipe.
7. Refit thermal insulation block Ⓑ and close the combustion chamber door.
8. Check combustion chamber door Ⓐ for tightness. If in doubt, test with a paper strip. You should not be able to pull out a paper strip [approx. ¾ in. (20 mm) wide] that has been jammed into the door.
9. Replace damaged gasket if required.
10. Reinstall front panel Ⓒ.

Cleaning Secondary Heating Surfaces



Note: Clean the secondary heating surfaces at least once per heating season.

1. Remove top panel Ⓐ. Remove the 2 rear screws for this purpose.
2. Remove thermal insulation mat Ⓑ.
3. Remove cleaning cover Ⓒ.
4. Pull out cleaning spirals Ⓓ.
5. Clean reversing chambers Ⓔ and secondary heating surfaces (flues) Ⓕ with a cleaning brush and vacuum cleaner.
6. Reassemble in reverse order.

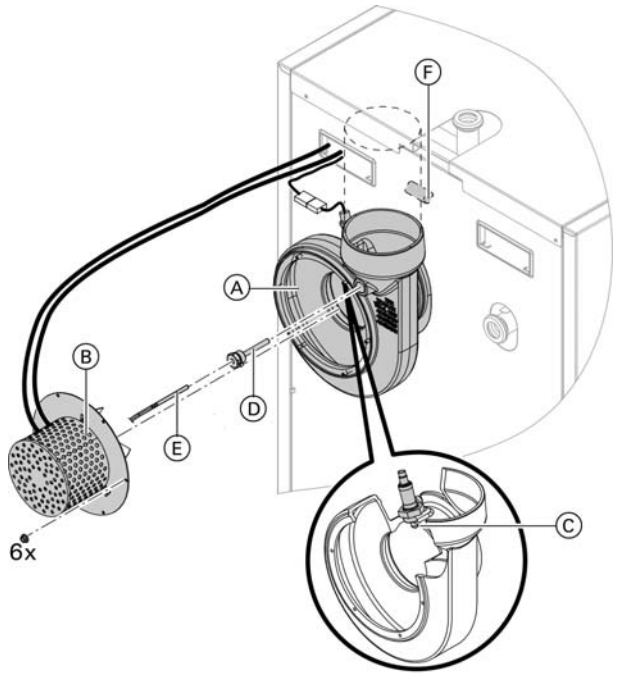
Cleaning the Flue Pipe

The flue pipe should be cleaned annually or after the consumption of 33,000 lb. (15,000 Kg) of pellets.

Removing Flue Ash from the Chimney

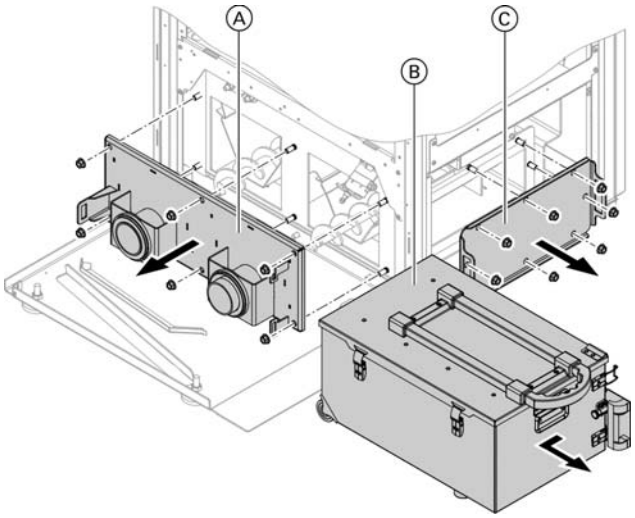
The flue ash from the chimney should be removed annually or after the consumption of 33,000 lb. (15,000 Kg) of pellets.

Cleaning the Flue Gas Fan, Lambda Probe and Flue Gas Temperature Sensor

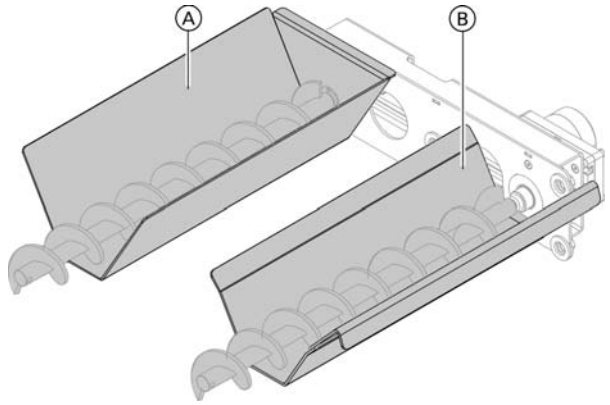


1. Undo the 6x flanged nuts on flue gas fan Ⓐ and pull out motor Ⓑ with impeller.
   Note: ■ Do not dismantle the impeller.
   ■ The cables are not long enough to set the motor down on the floor.
2. Clean impeller with a spatula and vacuum cleaner.
3. Check impeller for visible damage and secure seating.
4. Clean Lambda probe Ⓒ with a soft brush, tap carefully and inspect for damage. Do not use compressed air or solvents to clean the Lambda probe.
5. Undo the locking screw in sensor well Ⓓ for the flue gas temperature sensor and remove sensor Ⓔ.
6. Wind out sensor well Ⓓ and clean with a soft brush.
7. Refit the sensor well and sensor in reverse order.
8. Clean condensate trap Ⓕ (if installed).
9. Reassemble all components in reverse order.
   Check that sealing surfaces are clean.
   Note: Installation position of motor Ⓑ with cables as shown.

Cleaning the Ash Chamber and Ash Removal Parts



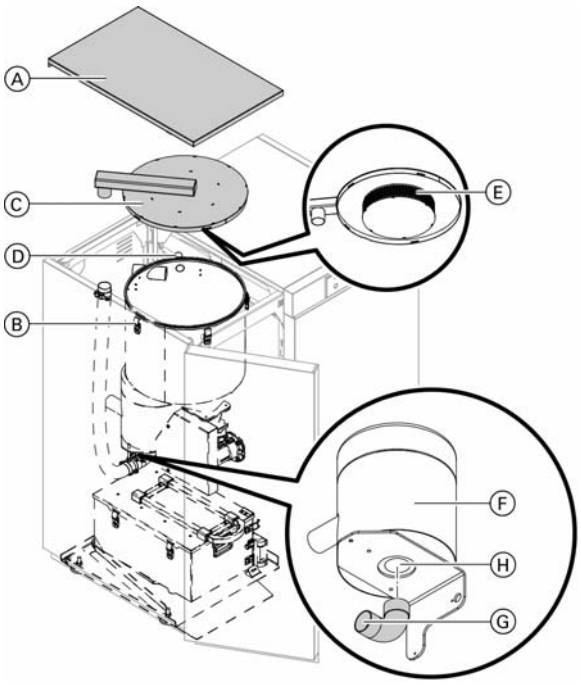
1. Pull out ash box Ⓑ (see page 71).
2. Remove covers Ⓐ and Ⓒ. Undo the flanged nuts for this purpose.
3. Clean the inside of both covers.
   Check gaskets for damage and replace if necessary.



Ash chamber

1. Clean ash chambers Ⓐ and Ⓑ with a vacuum cleaner.
2. If necessary, clean the screw conveyors and drive mechanisms with a cleaning brush.
3. Reassemble in reverse order.
   Note: Tighten the flanged nuts on the cover evenly and diagonally.

Cleaning the Intake Grille and Pellet Sensor in the Pellet Hopper



1. Open top panel Ⓐ. Remove the 2 rear screws for this purpose.
2. Open tensioning toggles Ⓑ by pushing down on the tension toggle clip.
3. Remove cover Ⓒ.
4. Clean pellet sensor Ⓓ with a soft brush and inspect for damage.
5. Clean strainer Ⓔ on the underside of the cover with a soft brush or vacuum cleaner.
6. Replace the cover on the pellet hopper and secure with tensioning toggles.
7. Remove plastic bend Ⓖ from vacuum module Ⓕ.
8. Clean air intake aperture Ⓗ with a vacuum cleaner.
9. Refit plastic bend and top panel.

Lubricating Drive Chains and Drive Unit Bearings

Lubricating drive chains and drive bearings should be completed every 3 years or after the consumption of 66,000 lb. (30,000 Kg) of pellets.

Checking all Installed Position Switches

Checking all position switches should be completed annually or after the consumption of 33,000 lb. (15,000 Kg) of pellets.

Checking the Expansion Vessel and System Pressure

Note: The expansion vessel can lose some of its charge pressure over time. When the boiler heats up, the pressure gauge will indicate a higher pressure. The safety valve may also respond and discharge the excess pressure.
Therefore check the expansion vessel pre-charge pressure annually.
Check whether the installed expansion vessel is adequate for the system water volume.
Carry out this test on a cold system.

1. Drain the system until the pressure gauge shows “0”. Alternatively, close the cap valve on the expansion vessel and reduce the pressure until the pressure gauge indicates “0”.
2. If the pre-charge pressure of the expansion vessel is lower than the static system pressure, top up with nitrogen until the pre-charge pressure is 1.4 to 2.9 psi (0.1 to 0.2 bar) higher than the static system pressure.
3. Top up with water until the charge pressure of the cooled system is at least 14.5 psi (1.0 bar), and is 1.4 to 2.9 psi (0.1 to 0.2 bar) higher than the precharge pressure of the expansion vessel. Maximum boiler operating pressure: 45 psi (3 bar).

Emissions Test after Maintenance

After commissioning, an emissions test must be carried out. Carry out repeat emissions tests in the manner described.

Preparation

- Clean flue gas routes and the chimney at least 3 days before testing.
- If the Lambda probe shows less than 20% O_2 when cold, clean the Lambda probe and calibrate (see page 104).
- Operate the boiler continuously for at least 24 hours between cleaning and testing.
- Allow boiler to cool down before testing.

Test point

For the test point, observe the following:

- Place measuring head centrally in flue pipe
- Not directly next to the flue gas fan
- Not upstream of a flue bend
- If installed in the test route: Tightly close the chimney damper/draught stabilizer.
- Upstream of the test point: Distance to the boiler flue outlet or last pipe bend: 2 x Ø of the flue pipe
- Downstream of the test point: Stilling pipe (straight pipe) with at least 1 - 2 x Ø of the flue pipe

Testing

For consistent test results, continuous heating operation is essential. Therefore avoid modulating heating operation. In test mode, the boiler heats with a consistent output until the maximum boiler water temperature has been reached.

1. Ensure heat draw-off. Avoid modulating heating operation.
2. Start the boiler.
3. In the standard menu: Enable “Test mode”.
   The display shows “Preparation”. The boiler heats until load operation. “Test active” then appears as soon as constant heating operation has been reached.
4. Carry out emissions test.
   Note: The duration of test mode can be set in the “Test mode” menu.
5. Select “Terminate”.
   Note: Test mode is automatically terminated when the test duration has passed or the maximum temperature has been reached. Boiler switches to control mode.

On the menu point “Test mode”:

- “Information”: Display of temperatures, O_2 value, etc.
- “Duration”: Set time and confirm with “OK”. Test duration then begins afresh. When the boiler starts, the test duration is set to 60 min.

Instructing the System User

Operating and service documents

File all parts lists, operating and service instructions in the folder and hand this over to the system user.

Instructing the system user

The system installer must instruct the user in the operation of the system and provide the user with the cleaning brush.

Coding 1

Calling up code 1
Press the following keys:
1. OK + ☰ simultaneously for approx. 4 sec.
   The "Service" menu appears.
2. ▲/▼ for "Code 1".
3. OK to confirm.
4. ▲/▼ for the required group.
5. OK to confirm.
6. ◀/▶ for "Heating": to select "Heating circuit 1" (HC1), "Heating circuit 2" (HC2), "Heating circuit 3" (HC3) or "Heating circuit 4" (HC4), if installed.
7. ▲/▼ for the required coding address.
8. OK to confirm.
9. ▲/▼ for the required value.
10. OK to confirm.
    "Adopted" appears briefly in the display.
11. ↩ Exit the service menu.

Overview
The coding addresses are displayed in groups, subject to system configuration:
- "Hardware" See page 78
- "General" See page 80
- "Boiler" See page 80
- "Charging" See page 81
- "Buffer tank" See page 83
- "Additional heat source" See page 84
- "Heating" See page 85
- "DHW" See page 87
- "Solar" See page 88

Hardware

Coding in the factory set condition		**Possible change**	
Additional boiler			
Additional boiler: No	No additional boiler installed	Additional boiler: Yes	Additional boiler installed
Buffer tank			
Buffer: No	No heating water buffer tank installed	Buffer: 3	Heating water buffer tank with 3 buffer tank temperature sensors installed
		Buffer: 4	Do not adjust!
		Buffer: 5	Heating water buffer tank with 5 buffer tank temperature sensors installed
Buffer tank			
Buffer type:0	When heat is drawn from the heating water buffer tank, actual system temperature = temperature at buffer tank temperature sensor 1 Only available when code "Buffer: 3, 4 or 5". (basic heating water buffer tank)	Buffer type:1	When heat is drawn from the heating water buffer tank, actual system temperature = temperature at buffer tank temperature sensor 2 (combi tank)

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Buffer type			
Additional boiler: No	No additional boiler installed	Additional boiler: Yes	Additional boiler installed
Charging scheme			
Charging scheme:1	Automatic charging with vacuum module for vacuum supply system from a pellet silo and for discharge with manual changeover unit from a pellet storage room	Charging scheme: 0	No automatic charging of the boiler
		Charging scheme: 2	Automatic charging with vacuum module and discharge screw conveyor
		Charging scheme: 3	Vacuum module with external charging
		Charging scheme: 4	Do not adjust!
		Charging scheme: 5	Discharge screw conveyor
		Charging scheme: 6	External charging
		Charging scheme: 7	Screw conveyor and discharge screw conveyor
		Charging scheme: 8	Screw conveyor and external charging
DHW			
DHW: No	There is no DHW heating installed	DHW: On the boiler	DHW heating is connected to the control unit of the boiler.
		DHW: On the mixing valve module	DHW heating is connected to the extension kit.
DHW circulation			
DHW circulation: No	There is no DHW circulation connected to the control unit of the boiler.	DHW circulation: Yes	The DHW circulation is connected to the control unit of the boiler.
Fuel store sensor			
Fuel store sensor: No	No level sensor installed in the fuel store	Fuel store sensor: Yes	Level sensor installed in the fuel store
Heating circuit 1			
Heating circuit 1: No	There is no heating circuit 1 installed.	Heating circuit 1: On the boiler	Heating circuit is connected to the boiler control unit.
		Heating circuit 1: On the mixing valve module	Heating circuit is connected to the extension kit.
Heating circuit 2			
Heating circuit 2: No	There is no heating circuit 2 installed.	Heating circuit 2: On the boiler	Heating circuit is connected to the boiler control unit.
		Heating circuit 2: On the mixing valve module	Heating circuit is connected to the extension kit.
Heating circuit 3			
Heating circuit 3: No	There is no heating circuit 3 installed.	Heating circuit 3: On the boiler	Heating circuit is connected to the boiler control unit.
		Heating circuit 3: On the mixing valve module	Heating circuit is connected to the extension kit.
Heating circuit 4			
Heating circuit 4: No	There is no heating circuit 4 installed.	Heating circuit 4: On the boiler	Heating circuit is connected to the boiler control unit.
		Heating circuit 4: On the mixing valve module	Heating circuit is connected to the extension kit.

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Solar			
Solar: No	There is no solar group installed.	Solar: On the boiler	The solar group is connected to the control unit of the boiler.
		Solar: On the external solar module	Do not adjust!
Solar diverter valve			
Solar diverter valve: No	The solar group connected to the boiler does not have a diverter valve for charging the heating water buffer tank. Only available when codes "Solar: On the boiler" and "Buffer installed" and "DHW installed" are set.	Solar diverter valve: Yes	The solar group connected to the boiler has a diverter valve for charging the heating water buffer tank.

General			
Detached house/apartment building			
7F:1	Detached house; same holiday program for all heating circuits	7F:0	Apartment building; holiday program can be adjusted separately
Minimum temperature, top buffer tank sensor			
91:0	No minimum temperature	91:1 to 91:95	If a combined heating water buffer tank is installed, a minimum temperature for the top of buffer tank (captured by PTS 1) can be set.
Boiler			
Runtime boiler load			
01:...	Max. runtime of the boiler at full load in minutes before the boiler switches to grate cleaning	01:120 to 01:1000	Setting range of max. runtime at full load until grate cleaning in minutes
Flue gas residual O_2			
0C:...	Set value for concentration of residual oxygen in the flue gas	0C:... to 0C:...	Setting range of residual oxygen set value in 0.1% increments
Boiler water temperature limit			
0E:...	Max. boiler water temperature in °C	0E:70 to 0E:90	Setting range of max. boiler water temperature in °C
Min boiler return			
12:...	Speed of the flue gas fan when the boiler starts (heat-up) in %	3C:... to 3C:...	Setting range in %

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Boiler *(continued)*			
Flue gas fan start speed			
3C:...	Speed of the flue gas fan when the boiler starts (heat-up) in %	3C:... to 3C:...	Setting range in %
Flue gas fan minimum speed			
3D:...	Min. speed of the flue gas fan in %	3D:... to 3D:...	Setting range in %
Flue gas fan maximum speed			
3E:...	Max. speed of the flue gas fan in %	3E:... to 3E:...	Setting range in %
External demand			
44:0	No external boiler demand (digital) is connected.	44:1	An external boiler demand (digital) is connected.
Default output			
45:0	No external default output (0 - 10V) of the boiler is connected.	45:1	An external default output (0 - 10V) of the boiler is connected.
Feed runtime, boiler ignite, recharge			
4D:...	Max. runtime of feed screw conveyor on ignition	4D:... to 4D:...	Setting range in sec.
Min. runtime boiler run-on			
8C:...	Min. runtime boiler run-on	8C:... to 8C:...	Setting range in min.

Charging Is available if code “Charging scheme”, hardware group, is set.			
Feed screw conveyor heat-up cycle			
14:...	Start cycle of the feed screw conveyor in % after boiler ignition	14:... to 14:...	Setting range in %
Feed screw conveyor maximum cycle			
15:...	Max. cycle limit of feed screw conveyor in %	15:... to 15:...	Setting range in %
Day hopper idle runtime (man. charging)			
27:30	30 minutes rotary lock valve idle runtime with manual charging of the boiler. Code is only available with manual charging of the boiler.	27:1 to 27:100	Setting range in min

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Charging *(continued)*			
Day hopper idle runtime (autom. charging)			
2C:...	Rotary lock valve emptying time in minutes before vacuum module starts. Code is only available for charging with vacuum module.	2C:... to 2C:...	Setting range in min
Screw conveyor delay			
2E:...	Delay in seconds	2E:0 to 2E:100	Setting range in sec.
Discharge cycle - ON			
30:...	Discharge cycle in seconds (discharge runs for ... sec.)	30:2 to 30:30	Setting range in sec.
Discharge cycle - OFF			
31:...	Discharge pause in seconds	31:...	Discharge does not pause: Constant
		31:1 to 31:100	Setting range in sec. (discharge pause adjustable from 1 to 100 sec.)
Discharge delay			
32:...	Delay in seconds	32:0 to 32:100	Setting range in sec.
External charging cycle - ON			
40:...	External charging cycle in seconds (external charging runs for ... sec.)	40:2 to 40:30	Setting range in sec.
External charging cycle - OFF			
41:...	External charging pause in seconds	41:0	External charging does not pause: Constant operation
		41:1 to 41:100	Setting range in sec. (pause in external charging adjustable from 1 to 100 sec.)
External charging delay			
42:...	External charging delay in seconds	42:0 to 42:100	Setting range in sec.
Reheating suppression buffer tank temperature			
33:...	Set minimum buffer tank temperature when being heated by the solar system (only available when the solar system is connected to the Vitoligno 300-C.	33:0	No reheating suppression

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Buffer			
Maximum buffer tank temperature			
34:...	Max. average temperature of the heating water buffer tank in °C (upper limit of control range)	34:30 to 34:100	Setting range in °C
Minimum buffer tank temperature			
35:...	Min. average temperature of the heating water buffer tank in °C (lower limit of control range)	35:30 to 35:100	Setting range in °C
Buffer tank charging to sensor			
36:3	The boiler charges the heating water buffer tank up to the third buffer tank temperature sensor.	36:1	The boiler charges the heating water buffer tank up to the first buffer tank temperature sensor (top).
		36:2	The boiler charges the heating water buffer tank up to the second buffer tank temperature sensor.
		36:4	The boiler charges the heating water buffer tank up to the fourth buffer tank temperature sensor.
		36:5	The boiler charges the heating water buffer tank up to the fifth buffer tank temperature sensor.
Buffer tank charging up to temperature			
37:...	The boiler charges the heating water buffer tank up to a temperature of ... °C at the selected sensor (code “36:1-5”, buffer tank group) is reached.	37:30 to 37:100	Setting range in °C
Boiler start, sensor			
39:1	If the set system temperature at the first buffer tank temperature sensor (top) is undershot, the boiler starts.	39:2	If the set system temperature at the second buffer tank temperature sensor is undershot, the boiler starts.
		39:3	If the set system temperature at the third buffer tank temperature sensor is undershot, the boiler starts.
		39:4	If the set system temperature at the fourth buffer tank temperature sensor is undershot, the boiler starts.
		39:5	If the set system temperature at the fifth buffer tank temperature sensor is undershot, the boiler starts.

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Additional heat generator			
Is available if code "Additional boiler: Yes", hardware group, is set.			
Buffer tank charging until sensor			
D0:1	The additional heat generator charges the heating water buffer tank up to the first buffer tank temperature sensor. **Note:** Only useful if the additional heat generator has its own boiler circuit pump.	D0:0	The heating water buffer tank temperatures are ignored.
		D0:2	The additional heat generator charges the heating water buffer tank up to the second buffer tank temperature sensor.
		D0:3	The additional heat generator charges the heating water buffer tank up to the third buffer tank temperature sensor.
		D0:4	The additional heat generator charges the heating water buffer tank up to the fourth buffer tank temperature sensor.
		D0:5	The additional heat generator charges the heating water buffer tank up to the fifth buffer tank temperature sensor.
Buffer tank charging until temperature			
D1:75	The additional heat generator charges the heating water buffer tank until the temperature of 167°F (75°C) at the selected sensor (code "D0:1-5") is reached.	D1:50 to D1:100	Adjustable value in °C
Start delay			
D2:10	Start delay of the additional heat generator of 10 min	D2:0 to D2:250	Adjustable value in min
Start temperature set system temperature			
D3:-10	Start temperature of the additional heat generator. Starting condition: Actual system temperature < set system temperature minus value set (here: 10 K)	D3:-100 to D3:-1	Adjustable value in K
Minimum runtime			
D4:5	Minimum runtime of the additional heat generator of 5 minutes	D4:0 to D4:250	Adjustable value in min
Min pause duration			
D5:5	Minimum pause duration of the additional heat generator of 5 minutes	D5:0 to D5:250	Adjustable value in min
Start without delay, Set system temp			
D6:-20	Start of additional heat generator without delay. Condition: Actual system temperature < set system temperature minus value set (here: 20 K)	D6:-100 to D6:0	Adjustable value in K
Parallel operation			
D7:1	Parallel operation of both heat generators is possible. **Note:** Parallel operation only possible when the additional heat generator has a boiler circuit pump.	D7:0	Parallel operation of both boilers is not possible.

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Heating			
Remote control			
A0:0	Is available if a remote control is connected. Without remote control	A0:1	With Vitotrol 200A. Recognized automatically.
		A0:2	With Vitotrol 300A. Recognized automatically.
		A0:3	With Vitotrol 350. Recognized automatically.
Summer eco function room temperature			
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump "Off" when outdoor temperature (OT) is 1 K higher than the set room temperature (RTset)	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function (see the following table)

Parameter address "A5":	Heating circuit pump "Off" Summer eco function active
1	OT > RTset + 5 K
2	OT > RTset + 4 K
3	OT > RTset + 3 K
4	OT > RTset + 2 K
5	OT > RTset + 1 K
6	OT > RTset + 1 K
7 to 15	OT > RTset − 1 K to 15 OT > RTset − 9 K

Summer eco function absolute			
A6:36	Extended economy mode disabled	A6:5 to A6:35	Extended economy mode active, i.e. the heating circuit pump is switched off at a variable value, adjustable from 41°F to 95°F plus 1.8°F (5°C to 35°C plus 1°C). The mixing valve is closed. This value is based on the adjusted outdoor temperature, comprising the actual outdoor temperature and a time constant. The time constant takes into account the cooling down of an average building. Recommended setting: "A6:16" to "A6:18"
Mixing valve economy function			
A7:0	Without mixing valve economy function	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "Off": The mixing valve has been closing for longer than 20 minutes Heating circuit pump "On": ■ Mixing valve changes to control function or… ■ If there is a risk of frost

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Heating *(continued)*			
Room sensor room hook-up			
B0:0	Is available if code "A0:1" or "A0:2", heating group, is set. Heating mode/reduced mode: Weather-compensated mode without room temperature hook-up	B0:1	Heating mode: Weather-compensated mode without room temperature hook-up Reduced mode: Weather-compensated mode with room temperature hook-up
		B0:2	Heating mode: Weather-compensated mode with room temperature hook-up Reduced mode: Weather-compensated mode without room temperature hook-up
		B0:3	Heating mode/reduced mode: Weather-compensated mode with room temperature hook-up
Room sensor room influence factor			
B2:0	No room influence factor	B2:1 to B2:31	Room influence factor adjustable from 1 to 31
Room sensor summer eco function			
B5:0	Without room temperature-dependent heating circuit pump logic function	B5:1 to B5:8	Is available if code "A0:1" or "A0:2", heating group, is set. With room temperature-dependent heating circuit pump logic function (see the following table)

Parameter address "B5":	Heating circuit pump "Off" Summer eco function active	Heating circuit pump "Off" Summer eco function passive
1	RTactual > RTset + 5 K	RTactual < RTset + 4 K
2	RTactual > RTset + 4 K	RTactual < RTset + 3 K
3	RTactual > RTset + 3 K	RTactual < RTset + 2 K
4	RTactual > RTset + 2 K	RTactual < RTset + 1 K
5	RTactual > RTset + 1 K	RTactual < RTset
6	RTactual > RTset	RTactual < RTset −1 K
7	RTactual > RTset − 1 K	RTactual < RTset −2 K
8	RTactual > RTset − 2	RTactual < RTset −3 K

Supply temperature minimum limit			
C5:20	Minimum supply temperature limit set to 68°F (20°C)	C5:10 to C5:100	Adjustable from 34°F to 212°F (1°C to 100°C)

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Heating *(continued)*			
Supply temperature maximum limit			
C6:75	Maximum supply temperature limit set to 167°F (75°C)	C6:10 to C6:100	Adjustable from 50°F to 212°F (10°C to 100°C)
Room sensor limit			
C8:31	Is available if code "A0:1" or "A0:2" and "B0:1", "B0:2" or "B0:3", heating group, is set. No limit for room influence.	C8:1 to C8:31	Room influence limit adjustable from 34°F to 88°F (1°C to 31°C)
Party mode time limit			
F2:8	Party mode can be active for up to 8 h	F2:0	No time limit for party mode. Party mode is deactivated when changing the operating program to "Heating".
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h
Dissipate heat			
F3:1	The "Dissipate heat" function regulates the heating circuit supply temperature to the set maximum (code "C6", heating group).	F3:0	The "Dissipate heat" function is disabled for the selected heating circuit.
Runtime set			
F4:140	The valve is controlled for the operating time of 140 sec., then switched to continuous operation.	F4:15 to F4:254	Adjustable value in sec.
DHW			
DHW differential			
0C:0	The differential temperature of DHW heating (difference between system temperature and DHW temperature) is determined automatically.	0C:1 to 0C:20	Fixed setting of differential temperature from 2°F to 36°F (1°C to 20°C)
DHW return temperature			
0D:10	Flow control active. Set return temperature corresponds to DHW temperature plus 18°F (10°C)	0D:0	Flow control deactivated. Valve is always fully opened.
		0D:1 to 0D:30	Flow control active. Set return temperature corresponds to DHW temperature plus value set in °C.

Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Solar			
Differential DHW			
6E:10	Differential temperature of 10 K between solar and DHW heating to start DHW heating by the solar thermal system	6E:1 to 6E:50	Setting range of differential temperature in K
Maximum temperature DHW			
6F:70	Max. DHW temperature limit when heated by the solar thermal system. DHW is heated by the solar thermal system up to this temperature. If DHW is heated by a combi tank, this temperature refers to the first buffer tank temperature sensor.	6F:0 to 6F:100	Setting range in °C
Differential buffer			
70:20	Differential temperature of 20K between solar and heating water buffer tank to start heating water buffer tank by the solar thermal system	70:1 to 70:50	Setting range in °C
Additional function, solar			
71:0	Additional function of tank heating by the solar thermal system disabled. Code only available when DHW heating is connected to the boiler.	71:0 to 71:23	Start time of the solar additional function. Solar auxiliary function: Signal for starting the transfer pump of the solar thermal system. This also heats the lower area of the DHW tank to the required temperature. Time adjustable from 1:00 am (01:00 h) (“71:1”) to 11:00 pm (23:00 h) (“71:23”). The time of the function must be between the enable times for DHW heating.
Additional function runtime			
72:0	Circulation pump off.	72:0 to 72:180	Runtime of solar de-stratification pump in min, adjustable from 1 min to 180 min. Only available with code “71:1 - 23”.

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Coding 1 *(continued)*

Coding in the factory set condition		Possible change	
Solar *(continued)*			
Solar circuit pump maximum speed			
73:100	Maximum permissible speed of solar circuit pump out of 100% of maximum possible pump speed	73:10 to 73:100	Setting range in %
Solar circuit pump minimum speed			
74:30	Minimum permissible speed of solar circuit pump out of 30% of maximum possible pump speed	74:10 to 74:100	Setting range in %
Nominal flow rate collector circuit			
75:0.0	No flow rate	75:0.1 to 75:50.0	Nominal flow rate of collector circuit in L/min. Adjustable from 0.1 L/min to 50 L/min (0.1 L/min = 0.02 GPM)
Solar collector maximum temperature			
76:140	Maximum temperature in the solar collector. The solar group is shut down if the temperature exceeds 284°F (140°C). When the temperature falls below the set value by 18°F (10 K) to 266°F(130°C), the solar group starts.	76:50 to 76:150	Setting range in °C
Solar collector sensor			
77:0	Collector sensor flush	0-120	Runtime of the solar pump in seconds.

Coding 2

Calling up code 2

Note: ■ At coding level 2, all codes are accessible, including the codes at coding level 1.
■ Codes that are not assigned, due to the heating system equipment level or the setting of other codes, are not displayed.

Press the following keys:

1. OK + ☰ simultaneously for approx. 4 sec. The "Service" menu appears.
2. ↩ + OK simultaneously for approx. 4 sec. "Code 2" appears in the "Service" menu.
3. ▲/▼ for "Code 2".
4. OK to confirm.
5. ▲/▼ for the required group.
6. OK to confirm.
7. ◀/▶ for "Heating": to select "Heating circuit 1" (HC1), "Heating circuit 2" (HC2), "Heating circuit 3" (HC3) or "Heating circuit 4" (HC4), if installed.
8. ▲/▼ for the required coding address.
9. OK to confirm.
10. ▲/▼ for the required value.
11. OK to confirm. "Adopted" appears briefly in the display.
12. ↩ Exit the service menu.

Overview

The coding addresses are displayed in groups, subject to system configuration:

■ "General" See page 90
■ "Boiler" See page 91
■ "Charging" See page 93
■ "Buffer tank" See page 93
■ "Heating" See page 93
■ "DHW" See page 94

General			
Coding in the factory set condition		**Possible change**	
Fault message output delay			
80:6	Minimum fault duration of 30 sec before a fault message is issued.	80:0 to 80:199	Adjustable from 0 sec. to 995 sec. 1 step ≙ 5 sec.
Automatic summer/wintertime changeover			
81:1	Automatic summer/ wintertime changeover	81:0	Manual summer/wintertime changeover
Outdoor temperature time constant			
90:128	Time constant for calculating the adjusted outdoor temperature 21.5 h	90:0 to 90:199	Fast (low values) or slow (high values) matching of the supply temperature, subject to the set value according to changes in outdoor temperature; 1 step ≙ 10 minutes
Outdoor temperature offset			
92:0	No outdoor temperature correction.	92:- 10 to 92:10	Correction of the outdoor temperature by the value set in °C.

Coding 2 *(continued)*

Boiler			
Coding in the factory set condition		**Possible change**	
Flue gas residual O_2 partial load correction			
0D:...	Increase set residual O_2 in the flue gas by ... %.	0D:0 to 0D:5.0	Setting range 0 to 5.0 in %
Boiler water temp delay			
0F:...	Shutdown delay in seconds when the max. boiler water temperature is exceeded (code 1, address E, boiler group)	0F:0 to 0F:240	Setting range in sec.
Supply controller enabled			
11:0	Supply temperature control for the boiler is active.	11:1	Supply temperature control for the boiler is active. The boiler supply temperature is regulated to the boiler water temperature set in the menu minus 3 K via the boiler valve setting.
Min. set system temperature			
13:1	If the heating circuits are not regulated by the boiler control unit, a minimum set system temperature can be selected. Setting of min. set system temperature is enabled.	13:0	Setting of min. set system temperature is disabled.
Boiler pump minimum speed			
1C:... Do not adjust!	The minimum boiler circuit pump speed is ... % of the maximum speed. Code only enabled for boiler circuit pumps with PWM signal.	1C:15 to 1C:100	Setting range in %
Boiler pump maximum speed			
1D:... Do not adjust!	Boiler circuit pump speed in %. Code only enabled for boiler circuit pumps with PWM signal.	1D:15 to 1D:100	Setting range in %
Flue gas temperature minimum			
3F:...	Limitation of the minimum flue gas temperature to a specific temperature	3F:... to 3F:...	Setting range in °C
Output controller			
46:...	Do not change.	46:... to 46:...	Setting range
Material controller			
47:...	Do not change.	47:... to 47:...	Setting range A small value slows the controller down, a large value speeds it up.

Coding 2 *(continued)*

Boiler			
Coding in the factory set condition		**Possible change**	
Material controller delay			
4A:...	Do not change	4A:... to 4A:...	Setting range
Material controller full load			
53:...	Do not change	53:... to 53:...	Setting range
Material controller partial load			
56:...	Do not change	56:... to 56:...	Setting range
Material controller flue gas fan			
57:...	Do not change	57:... to 57:...	Setting range
Primary air damper max. boiler output			
82:...	Do not change	82:... to 82:...	Setting range
Primary air damper partial load			
83:...	Do not change	83:... to 83:...	Setting range
Primary air damper boiler start			
84:...	Do not change	84:... to 84:...	Setting range
Secondary air damper minimum			
87:...	Do not change	87:... to 87:...	Setting range
Automatically calibrate Lambda probe			
F9:1	Settings to calibrate the Lambda probe ■ Automatic start of Lambda probe heating ■ Calibration of Lambda probe manual only	F9:0	■ Lambda probe heating always on ■ Calibration of Lambda probe manual only
		F9:2	■ Automatic start of Lambda probe heating ■ Automatic calibration of Lambda probe
Type O_2 probe			
FF:...	Lambda probe type Do not adjust!	FF:0	Lambda probe type LSM 11
		FF:1	Lambda probe type NGK
		FF:2	Current signal 4 - 20 mA
		FF:3	Wideband probe with BLS PCB

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Coding 2 *(continued)*

Charging

Is available if code “Charging scheme”, hardware group, is set.

Coding in the factory set condition		Possible change	
Maximum cycle, partial load			
16:...	Max. feed cycle in partial load operation	16:... to 16:...	Setting range in %
Combustion chamber fill time			
1E:...	Runtime of feed screw conveyor in seconds	1E:... to 1E:...	Setting range in sec.
Screw conveyor fill time			
1F:...	Runtime in seconds to charge the feed screw conveyor	1F:... to 1F:...	Setting range in sec.
Fuel consumption			
22:...	Setting for fuel consumption	22:... to 22:...	Setting range in kg/h (Amount of fuel delivered by the feed screw conveyor in one hour)

Buffer tank			
Buffer tank volume range calculation			
95:...	Heating water buffer tank volume in liters	95:1 to 95:20 000	Setting range in L

Heating			
DHW priority			
A2:0	No priority control during tank heating **Note:** Individually adjustable for each heating circuit. Select heating circuit with ◀/▶	A2:1	During tank heating, the mixing valve closes. When the heating circuit is wired to the boiler control unit: The heating circuit pump remains on. When using an extension kit for the heating circuit: The heating circuit pump stops.
		A2:2	During tank heating, the mixing valve is closed and the heating circuit pump is switched off.
		A2:3	During tank heating, the set supply temperature is adjusted to the set value for reduced heating mode and the heating circuit pump is switched off.
Frost protection temperature			
A3:2	Outdoor temperature below 34°F (1°C): Frost protection function “On” Outdoor temperature above 37°F (3°C): Frost protection function “Off”	A3:-9 to A3:15	Frost protection function “On”/”Off”; see the following table

Coding 2 *(continued)*

Heating			
Frost protection temperature			
A3:2	Outdoor temperature below 34°F (1°C): Frost protection function "On" Outdoor temperature above 37°F (3°C): Frost protection function "Off"	A3:-9 to A3:15	Frost protection function "On"/"Off"; see the following table

IMPORTANT

If the frost protection temperature is set to less than 1°C outdoor temperature, uninsulated pipes may freeze. There is a particular risk for outdoor pipes and in standby mode, e.g. during holidays. Provide pipes with thermal insulation and avoid unsupervised standby mode.

Parameter address "A3"	Frost protection function / heating circuit pump "On"	Frost protection function / heating circuit pump "Off"
-9	14°F (-10°C)	17.6°F (-8°C)
-8	15.8°F (-9°C)	19.4°F (-7°C)
-7	17.6°F (-8°C)	21.2°F (-6°C)
-6	19.4°F (-7°C)	23°F (-5°C)
-5	21.2°F (-6°C)	24.8°F (-4°C)
-4	23°F (-5°C)	26.6°F (-3°C)
-3	24.8°F (-4°C)	28.4°F (-2°C)
-2	26.6°F (-3°C)	32.2°F (-1°C)
-1	28.4°F (-2°C)	32°F (0°C)
0	32.2°F (-1°C)	33.8°F (1°C)
1	32°F (0°C)	35.6°F (2°C)
2 to 15	33.8 to 57.2°F (1 to 14°C)	37.4 to 60.8°F (3 to 16°C)

Heating			
Coding in the factory set condition		**Possible change**	
Frost protection activation			
A4:0	The frost protection function is activated. Start and stop temperatures of the function can be adjusted (code "A3", heating group). Frost protection function: The heating circuit pump is switched on at the relevant outdoor temperature; a minimum supply temperature of 50°F (10°C) is specified. At the relevant outdoor temperature, it is automatically switched off.	A4:1	The frost protection function is disabled. Adjustment only possible if code "A3: – 9" has been set. **Note:** Observe the note for code "A3".
Room sensor offset			
E2:50	Is available if code "A0:1" or "A0:2", heating group, is set. No correction of actual room temperature	E2:0 to E2:49	Correction - 5 K to display correction - 0.1 K
		E2:51 to E2:99	Display correction + 0.1 K to display correction + 4.9 K
Slab curing			
F1:0	Slab curing disabled Do not adjust!	F1:1 to F1:6	--

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Coding 2 *(continued)*

DHW			
Coding in the factory set condition		**Possible change**	
DHW set temperature reheating suppression			
67:0	Reheating suppression of external solar control unit disabled	67:0 to 67:90	DHW set value during active reheating suppression of the external solar control unit in °C
Start hysteresis, DHW			
85:0	Pump on: As soon as DHWactual < DHWset - 5°F (-2.5 K)	85:1 to 85:10	Setting range in K Pump on: As soon as DHW 2°F to 18°F (1 K to 10 K) below DHWset

Service Functions

The following service functions can be selected:
- "Diagnosis", see from page 95
- "Actuator test", see from page 67
- "Coding 1", see from page 78
- "Coding 2", see from page 90
- "Boiler"
- "Fault history" see from page 96
- "Service functions"
  - Calibrating the probe
  - Filling the vacuum module
  - Changeover unit
  - Loading standard setting
- "Terminate service"

Calling up the service menu
The service menu can be activated from any menu.
Press the following keys:

1. OK + ☰ simultaneously for approx. 4 sec.
   The "Service" menu appears.
2. ▲/▼ for the required service function.

Leaving the service menu
You can leave the service menu as follows:
- By pressing ↩
- Automatically after 30 minutes
- Via menu point "Terminate service"

Calling up Operating Conditions and Sensors

You can verify operating conditions and check sensors via the Information menu in the "Extended menu" and in the "Service menu" (Diagnosis and Boiler submenus).

Fault Display

Fault display:
- "Fault" is displayed.
- The red fault indicator flashes.

A central fault message facility connected to terminal 50A is switched on.

Checking and acknowledging faults
Note: If an acknowledged fault is not removed, the fault message will be re-displayed the following day at 7:00 am (07:00 h):

Press the following keys:
1. OK for troubleshooting.
2. ▲/▼ to display further fault messages if there are several faults.
3. OK to "Acknowledge" the fault message.
4. ▲/▼ for "Yes" or "No".
5. OK to confirm.

To restart the boiler after faults have been rectified, press the "START" button.

Calling up acknowledged fault messages
Press the following keys:
1. ☰.
2. ▲/▼ for "Fault messages".
3. OK to confirm.
4. ▲/▼ for the list of current faults.

Fault displays in plain text
The following faults are displayed as plain text.
The meaning of the fault and the fault codes are detailed in the table on page 97.
- "Excess temperature"
- "Repeat heat-up"
- "Fault, O_2 probe"
- "Boiler supply"
- "Boiler return"
- "Flue gas sensor"
- "Outdoor sensor"
- "Buffer tank sensors"
- "Supply sensor"
- "DHW sensor"
- "Return sensor"
- "KM-BUS"

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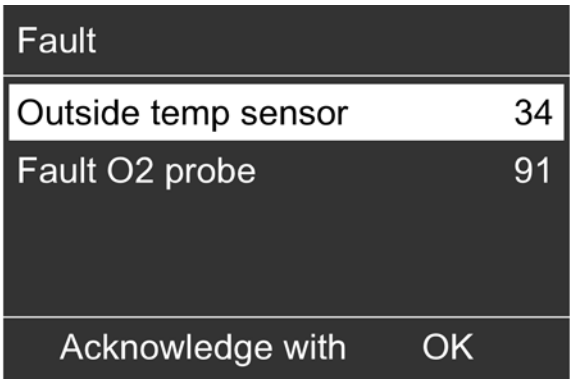
Fault Display *(continued)*



Calling up fault codes from the fault memory (fault history)

The 10 most recent faults are saved and can be called up. Faults are sorted by date. The most recent fault is given the fault number 1.

Press the following keys:

1. OK + ☰ simultaneously for approx. 4 sec. The "Service" menu appears.
2. ▲/▼ for "Fault history".
3. OK to confirm.
4. ▲/▼ for "Display".
5. ⮌ until the default display is shown.

Deleting the fault codes from the fault memory

Press the following keys:

1. OK + ☰ simultaneously for approx. 4 sec. The "Service" menu appears.
2. ▲/▼ for "Fault history".
3. OK to confirm.
4. ▲/▼ for "Delete".
5. ▲/▼ for "Yes".
6. OK to confirm.
7. ⮌ until the default display is shown.

Fault codes

Fault code displayed	System characteristics	Cause	Measures
0A	System circuits cannot be controlled	No connection to the heating circuit PCB (HKK)	■ Check connection between boiler PCB and heating circuit PCB. ■ Notify heating contractor
11	Burner blocked	No connection to the auxiliary PCB (ZPK)	■ Check connection between boiler PCB, heating circuit PCB and auxiliary PCB. ■ Notify heating contractor.
20	Burner blocked	Short circuit, boiler water temperature sensor	Check boiler water temperature sensor.
21	■ Return temperature raising facility valve opening ■ Boiler circuit pump starts	Short circuit, boiler return temperature sensor	Check boiler return temperature sensor.
22	Burner blocked	Short circuit, flue gas temperature sensor	Check flue gas temperature sensor.
23	Burner blocked	Problem with O_2 sensor	Check the O_2 sensor and calibrate it
24	Control unit set to 32°F (0°C) outdoor temperature	Short circuit, outdoor temperature sensor	Check outdoor temperature sensor.
25	No DHW heating	Short circuit, top buffer tank temperature sensor	Check top buffer tank temperature sensor.

Fault Display *(continued)*

Fault codes			
Fault code displayed	**System characteristics**	**Cause**	**Measures**
25	No DHW heating	Short circuit, top buffer tank temperature sensor	Check top buffer tank temperature sensor.
26	Control mode	Short circuit, buffer tank temperature sensor 2	Check centre buffer tank temperature sensor.
27	Control mode	Short circuit, buffer tank temperature sensor 3	Check bottom buffer tank temperature sensor.
28	Control mode	Short circuit, buffer tank temperature sensor 4	Check bottom buffer tank temperature sensor.
29	Control mode	Short circuit, buffer tank temperature sensor 5	Check bottom buffer tank temperature sensor.
30	Burner blocked	Lead break, boiler supply temperature sensor	Check boiler supply temperature sensor.
31	■ Return temperature raising facility valve opening ■ Boiler circuit pump starts	Lead break, boiler supply temperature sensor	Check boiler return temperature
32	Burner blocked	Lead break, flue gas temperature sensor	Check flue gas temperature sensor.
33	Burner blocked	Problem with O_2 sensor	Check the O_2 sensor and calibrate it
34	Control unit set to 32°F (0°C) outdoor temperature	Lead break, outdoor temperature sensor	Check outdoor temperature sensor.
35	No DHW heating	Lead break, buffer tank temperature sensor 1 (top)	Check buffer tank temperature sensor.
36	Control mode	Lead break, buffer tank temperature sensor 2	Check buffer tank temperature sensor.
37	Control mode	Lead break, buffer tank temperature sensor 3	Check buffer tank temperature sensor.
38	Control mode	Lead break, buffer tank temperature sensor 4	Check buffer tank temperature sensor.
39	Control mode	Lead break, buffer tank temperature sensor 5	Check buffer tank temperature sensor.
3D	Burner blocked	Ash box missing.	Check ash box position.
3E	Burner blocked	Current flue gas fan speed does not match set speed.	Check flue gas fan.
41	No control mode at heating circuit 1 (KM-BUS)	Lead break to extension kit 1 (KM-BUS)	Check connection to extension kit 1.
42	No control mode at heating circuit 2 (KM-BUS)	Lead break to extension kit 1 (KM-BUS)	Check connection to extension kit 2.
43	No control mode at heating circuit 3 (KM-BUS)	Lead break to extension kit 1 (KM-BUS)	Check connection to extension kit 3.
44	No room influence at remote control with room temperature capture 1 (KM-BUS)	Lead break to remote control with room temperature capture 1 (KM-BUS)	Check connection to remote control room temperature capture.
45	No room influence at remote control with room temperature capture 2 (KM-BUS)	Lead break to remote control with room temperature capture 2 (KM-BUS)	Check connection to remote control room temperature capture.
46	No room influence at remote control with room temperature capture 3 (KM-BUS)	Lead break to remote control with room temperature capture 3 (KM-BUS)	Check connection to remote control room temperature capture.

Fault Display *(continued)*

Fault codes			
Fault code displayed	**System characteristics**	**Cause**	**Measures**
49	No values from the external solar system	The KM-Bus connection to the vitosolic is broken	Check KM-Bus connection to the vitosolic
51	No control mode at heating circuit 1 (KM-BUS)	Short circuit, supply temperature sensor, heating circuit 1 (KM-BUS)	Check supply temperature sensor, heating circuit 1.
52	No control mode at heating circuit 2 (KM-BUS)	Short circuit, supply temperature sensor, heating circuit 2 (KM-BUS)	Check supply temperature sensor, heating circuit 2.
53	No control mode at heating circuit 3 (KM-BUS)	Short circuit, supply temperature sensor, heating circuit 3 (KM-BUS)	Check supply temperature sensor, heating circuit 3.
54	No DHW heating	Short circuit, tank temperature sensor	Check tank temperature sensor
55	No flow control	Short circuit, DHW return temperature sensor	Check return temperature sensor.
56	No solar yield	Short circuit, collector temperature sensor	Check collector temperature sensor.
57	No solar yield	Check collector temperature sensor.	Check solar reference sensor.
58	No control mode at heating circuit 4 (KM-BUS)	Short circuit, supply temperature sensor	Check supply temperature sensor.
61	No control mode at heating circuit 1 (KM-BUS)	Lead break, supply temperature sensor, heating circuit 1 (KM-BUS)	Check supply temperature sensor, heating circuit 1.
62	No control mode at heating circuit 2 (KM-BUS)	Lead break, supply temperature sensor, heating circuit 2 (KM-BUS)	Check supply temperature sensor, heating circuit 2.
63	No control mode at heating circuit 3 (KM-BUS)	Lead break, supply temperature sensor, heating circuit 3 (KM-BUS)	Check supply temperature sensor, heating circuit 3.
64	No DHW heating	Lead break, tank temperature sensor	Check tank temperature sensor.
65	No flow control	Lead break, DHW return temperature sensor	Check return temperature sensor.
66	No solar yield	Lead break, collector temperature sensor	Check collector temperature sensor.
67	No solar yield	Lead break, solar reference sensor	Check solar reference sensor.
68	No control mode at heating circuit 4 (KM-BUS)	Lead break, supply temperature sensor	Check supply temperature sensor.
8A	Burner blocked	Flue gas temperature in load operation too low	Check position of ash box and install correctly if necessary.

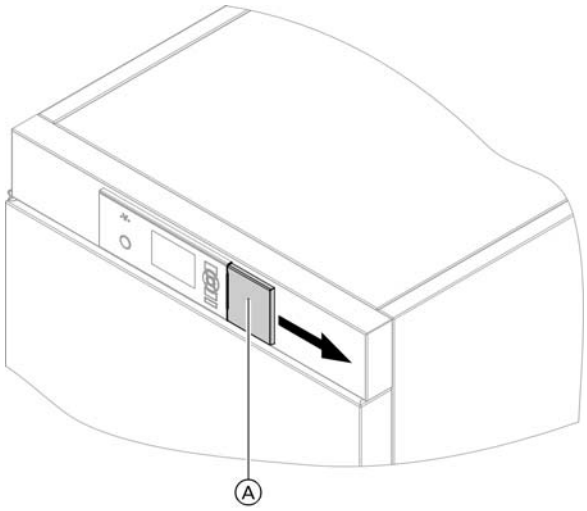
Fault Display *(continued)*

Fault codes			
Fault code displayed	**System characteristics**	**Cause**	**Measures**
8C	Burner blocked	Return temperature not reached during operation.	Check return temperature sensor. Check the plug for the mixing valve motor of the return temperature raising facility is inserted correctly (see installation and service instructions for return temperature raising facility).
8F	Burner blocked	Oxygen content in flue gas too low during load operation.	Check Lambda probe.
90	Burner blocked	Lambda probe inaccurate	Cleaning the combustion chamber, Lambda probe and sensor well of the flue gas temperature sensor ■ Recalibrate Lambda probe ■ Acknowledge with OK Recalibrate the Lambda probe after replacing.
91	Burner blocked	■ Lambda probe heavily soiled ■ Lambda probe faulty ■ Electronics fault	Clean Lambda probe ■ Recalibrate Lambda probe ■ Acknowledge with OK Recalibrate the Lambda probe after replacing.
93	Burner blocked	Residual O_2 flue gas value is too high during load operation.	Top up the day hopper if necessary.
A4	Burner blocked	Fault, material shortage	■ Check fuel store fill level ■ pellet supply with vacuum system: Check the output stage of the vacuum module. If necessary, select a higher power stage (see chapter “Setting the vacuum module”).
A5	Burner blocked		Adjust the vacuum module blocking time in the control unit.

Fault Display *(continued)*

Fault codes			
Fault code displayed	**System characteristics**	**Cause**	**Measures**
A6	Burner blocked	Ash box full or secondary heating surface cleaning blocked	■ Emptying the ash box ■ Acknowledging a fault ■ If the fault recurs: Check the mechanism for secondary heating surface cleaning and the ease of operation of the turbulators. See chapters "Cleaning secondary heating surfaces" and "Cleaning the ash chamber and ash removal parts".
AA	Burner blocked	Boiler had excess temperature.	■ Check set values in control unit ■ Check pump ■ Check valves ■ Check sensors
AB	Burner blocked	Water pressure is too low.	■ Check low water cutoff connections (see safety equipment connections on page 43) ■ Check jumper cable connections (see auxiliary safety equipment connections page 43)
AC	Burner blocked	Water pressure is too high.	Check water pressure.
B4	Control mode	Fuel store empty	Check fuel store fill level.
BD	Burner blocked	Maintenance cover/door of fuel store open	Check jumper cable connections (see system limit switch page 49)
BE	Burner blocked	Discharge transfer contaminated	Clean proximity switch.
C8	Burner blocked	Changeover unit has not reached position.	Test the changeover unit.
C9	No fuel transport	Vacuum module spends too long in constant operation.	■ Check suction lines for blockages and remove if necessary. ■ Ensure there is sufficient fuel in the fuel store.
E0	Burner blocked	Jumpers are not inserted in slots 97 and 98.	Notify heating contractor.
F9	Burner blocked	Grate did not reach limit position.	■ Acknowledge a fault ■ If fault recurs, check grate ■ Clean grate if required
FA	Burner blocked	Proximity switch in pellet hopper is constantly contaminated.	Clean proximity switch.

High Limit Safety Cut-out



CAUTION

If this function is not reset, it inhibits the safety equipment function and can result in system damage. Whenever the high limit safety cut-out has been triggered, check afterwards that the thermally activated safety valve is reset.

The high limit safety cut-out is part of the boiler. The high limit safety cut-out is located behind the boiler programming unit.

Note: Any high limit safety cut-out response requires a manual reset.

Triggering the function

The high limit safety cut-out responds if the supply temperature exceeds 230°F (110°C).

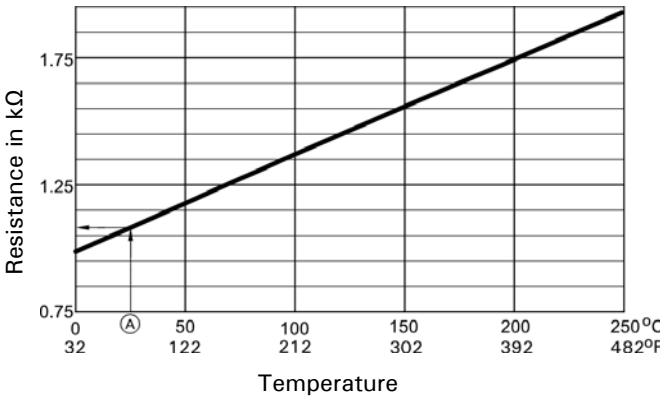
Cancelling the function

Note: The reset can only take place once the supply temperature has dropped to approx. 140°F (60°C).

1. Move cover Ⓐ on the programming unit to the right.
2. Press the green button on the high limit safety cut-out. A quiet “click” will be audible. The high limit safety cut-out has been reset.
3. Close cover Ⓐ on the programming unit.
4. Acknowledge excess temperature at the programming unit of the control unit with OK.

Sensors

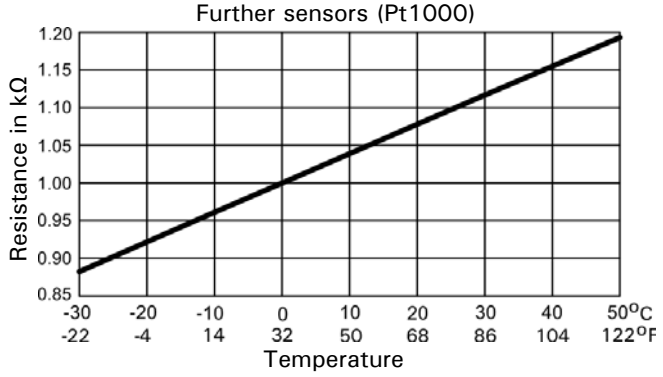
Flue gas temperature sensor (Pt1000)



Legend

Ⓐ Data point shown: Resistance of 1.1 kΩ at a temperature of 25 °C

Further sensors (Pt1000)



Sensor type Pt1000:

- Supply temperature sensor
- Buffer tank temperature sensor
- Return temperature sensor
- Flue gas temperature sensor
- Outdoor temperature sensor

Curve of the sensor from the extension kit for heating circuit with mixing valve:

Refer to the extension kit installation instructions

Connection

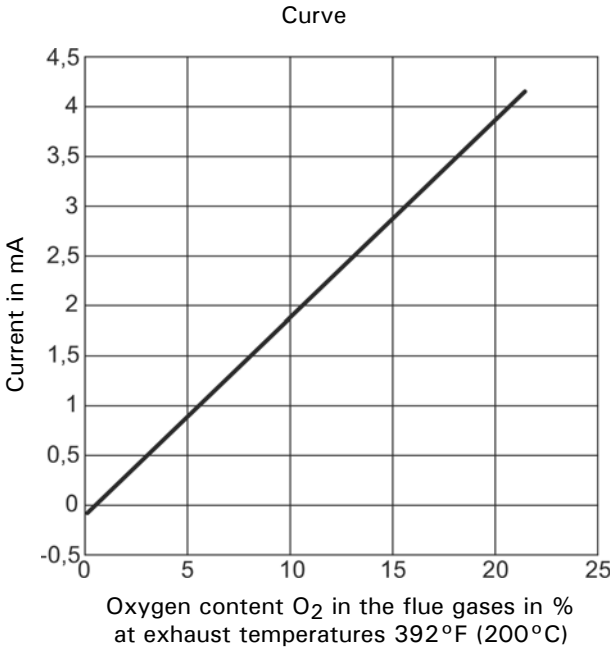
See chapter “Connection and wiring diagram” from page 142.

Checking the sensors

1. Pull out corresponding plug.
2. Check the sensor resistance at the plug.
3. Compare the test result with the actual temperature. Checking test results, see chapter “Diagnosis”. In the case of severe deviation, check sensor installation and replace the sensor if required.

Lambda Probe

Lambda probe specification



Oxygen content O_2 in the flue gases in %
at exhaust temperatures 392°F (200°C)

For measuring the residual oxygen content in the flue gas.

Checking the Lambda probe

1. Check the Lambda probe for contamination and damage; clean if necessary (see page 64).
2. Check the connecting cable for damage.

Notes:
- Do not paint, wax or treat the probe with any other such substance. Only use special grease recommended for Lambda probes to grease the threads.
- The Lambda probe receives its reference air via the connecting cable. For this reason, ensure that the connection plugs are kept clean and dry and do not treat them with contact spray, anti-corrosion agents, etc.
- Do not solder the connecting cable; it must be crimped, clamped or secured with screws.

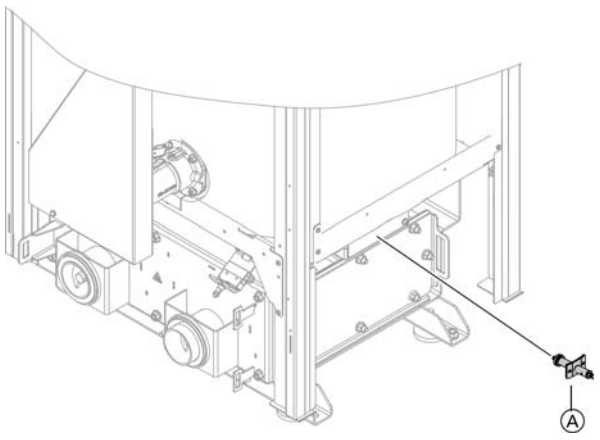
Calibrating the Lambda probe

1. Hang the probe for at least 15 minutes outside the boiler in the installation room without any ground contact.
2. Call up the service menu on the control unit.
3. Use ▲/▼ to select menu point “Service function”. Confirm with OK.
4. Use ▲/▼ to select menu point “Calibrate O2 probe”. Confirm with OK.
   The waiting time of 3 minutes is displayed in sec.

Connection

The Lambda probe is connected with plug 198.
See page 132.

Replacing the Ignition Element



Legend
Ⓐ Ignition element

CAUTION

Contact wires on the ignition element are easily damaged if bent. When connecting the ignition element and the plug:
- **Use the contact openings provided.**
- **Insert carefully.**
- **Insert as far as possible.**

CAUTION

The ignition element is damaged by overheating. Always ensure that the combustion chamber door and the covers on the boiler body are closed during start-up and heating operation. If the combustion chamber door or any covers are open, the ignition element does not receive the required air supply.

Parts Lists

Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

The following information is required when ordering parts

- Serial Number (see rating plate Ⓐ)
- Rating plate Ⓐ is located at back of boiler (not as illustrated)
- Specify item number (from this Parts List)
- Position No. of the spare part from within the Boiler Section (from this Parts List)

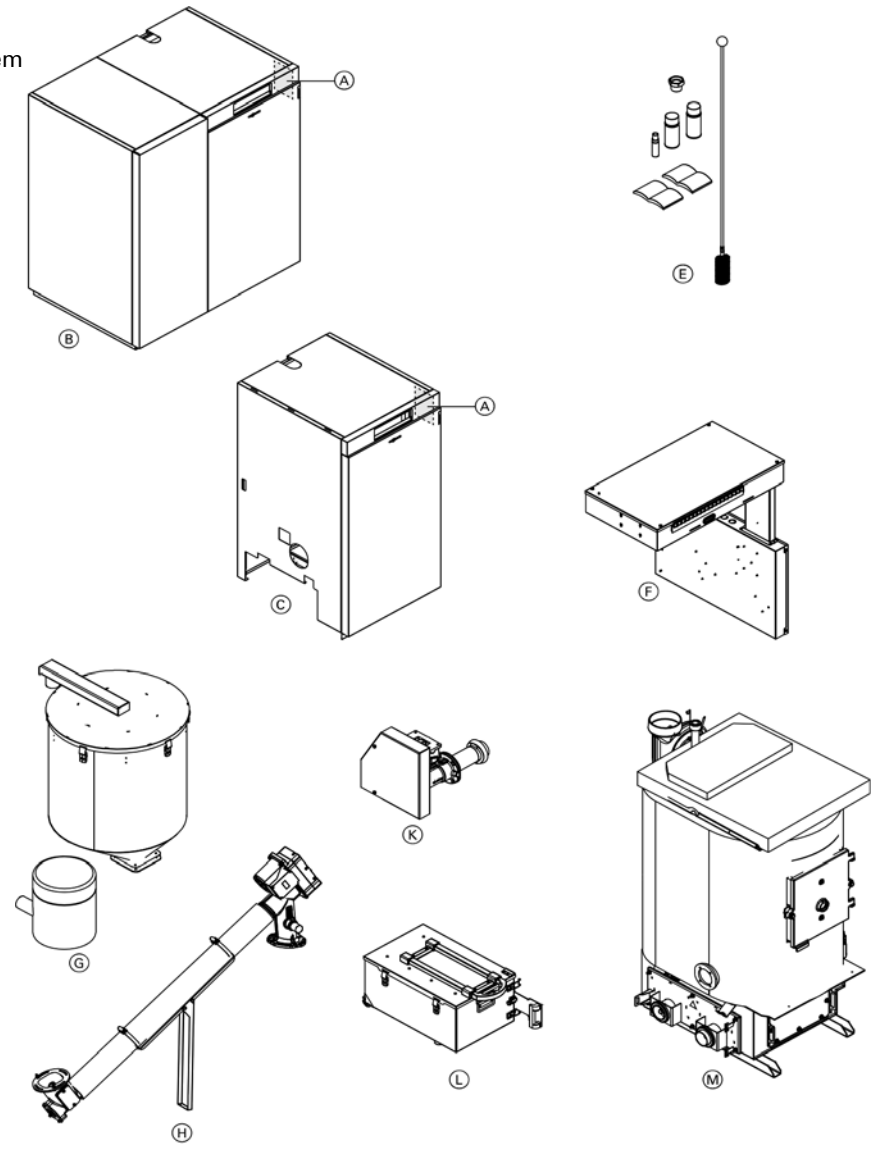
Legend

Ⓐ Rating Plate
Ⓑ Insulation jacket, vacuum system
Ⓒ Insulation jacket, flexible auger system
Ⓔ Other Parts
Ⓕ Control
Ⓖ Pellet hopper and vacuum system
Ⓗ Flexible auger conveyor system
Ⓚ Feeding system
Ⓛ Ash box
Ⓜ Pressure vessel

Other Parts (not illustrated)

0100 Installation Set *1
0150 Technical literature set

*1 For Installation Sets and Technical Literature Sets see separate Parts Lists.



Parts Lists *(continued)*

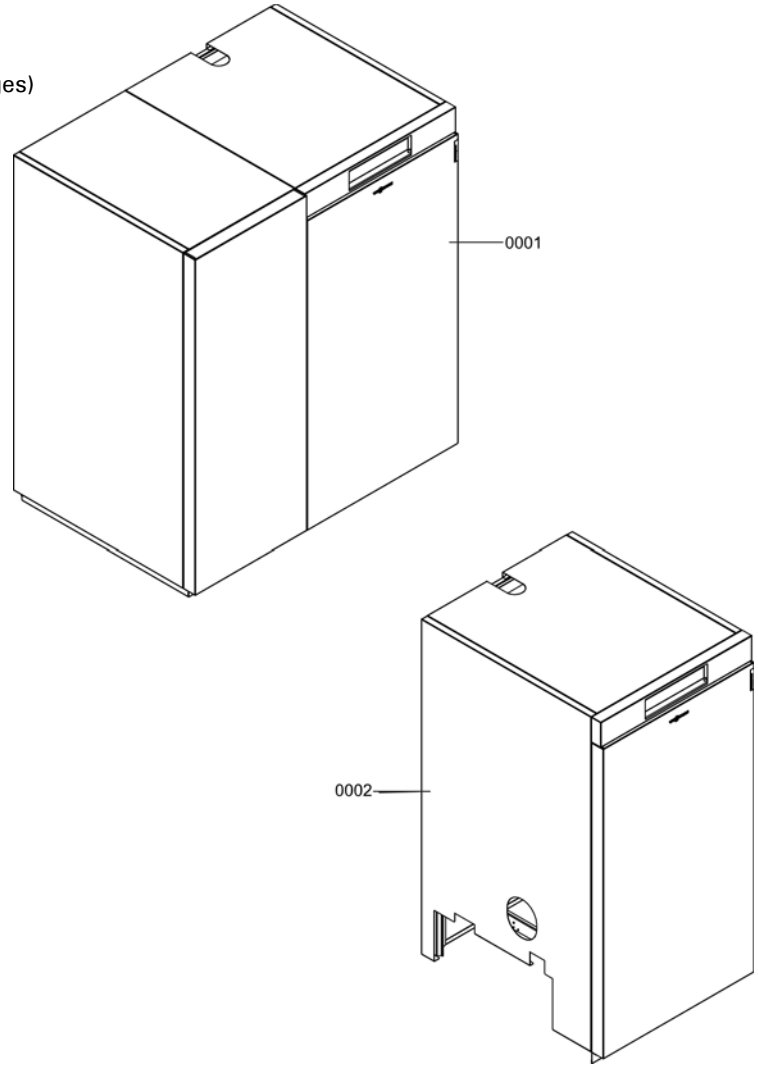
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

0001 VL3C Insulation Jacket, Vacuum System (see subassembly in following pages)

0002 VL3C Insulation Jacket, Flexible Auger System (see subassembly in following pages)



Parts Lists *(continued)*

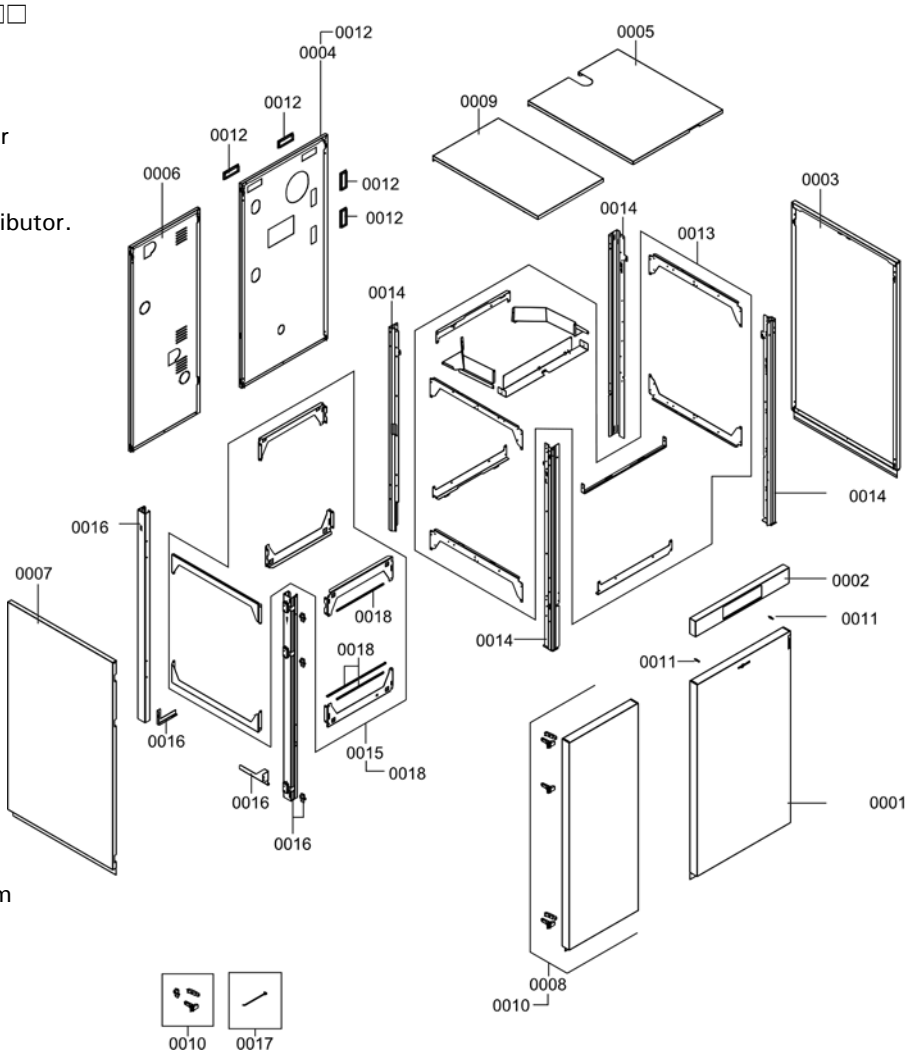
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Jacketing assembly for boilers with vacuum system

0001 Front panel
0002 Front panel, top
0003 Side panel, right
0004 Back panel, right
0005 Top panel, right
0006 Back panel, left
0007 Side panel, left
0008 Door, ash removal
0009 Top panel, left
0010 Hinge with dampers
0011 Mounting stud, M5 SW 9x34
0012 Cover, edgemolding
0013 Support set, boiler
0014 Hanging rail set, boiler
0015 Support set, fuel feed system
0016 Hanging rail set, fuel feed system
0017 Cable tie, 210 x 4,7
0018 Edgemolding



Parts Lists *(continued)*

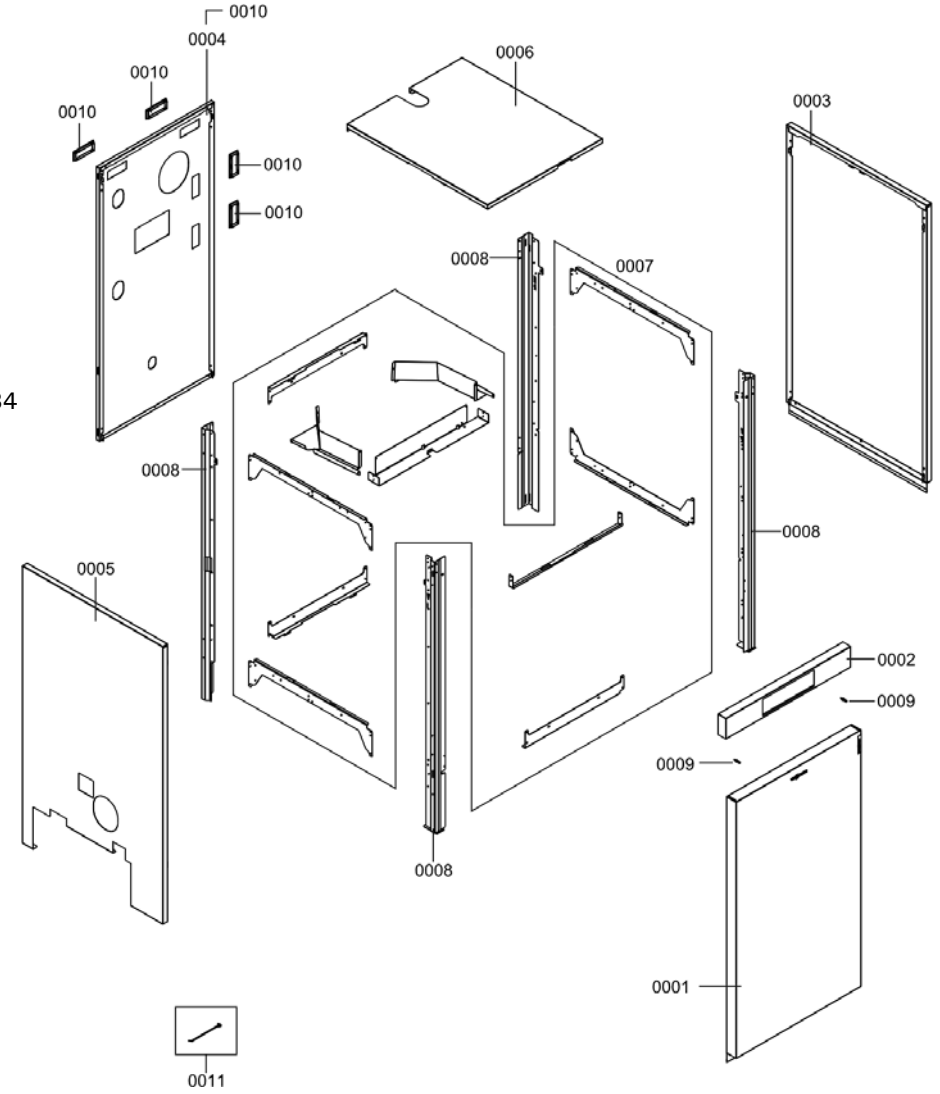
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Jacketing assembly for boilers with flexible auger system

0001 Front panel
0002 Front panel, top
0003 Side panel, right
0004 Back panel, right
0005 Side panel, flexible auger
0006 Top panel, flexible auger
0007 Support set, boiler
0008 Hanging rail set, boiler
0009 Mounting stud, M5 SW 9x34
0010 Cover, edgemolding
0011 Cable tie, 210 x 4,7



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Parts Lists *(continued)*

Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

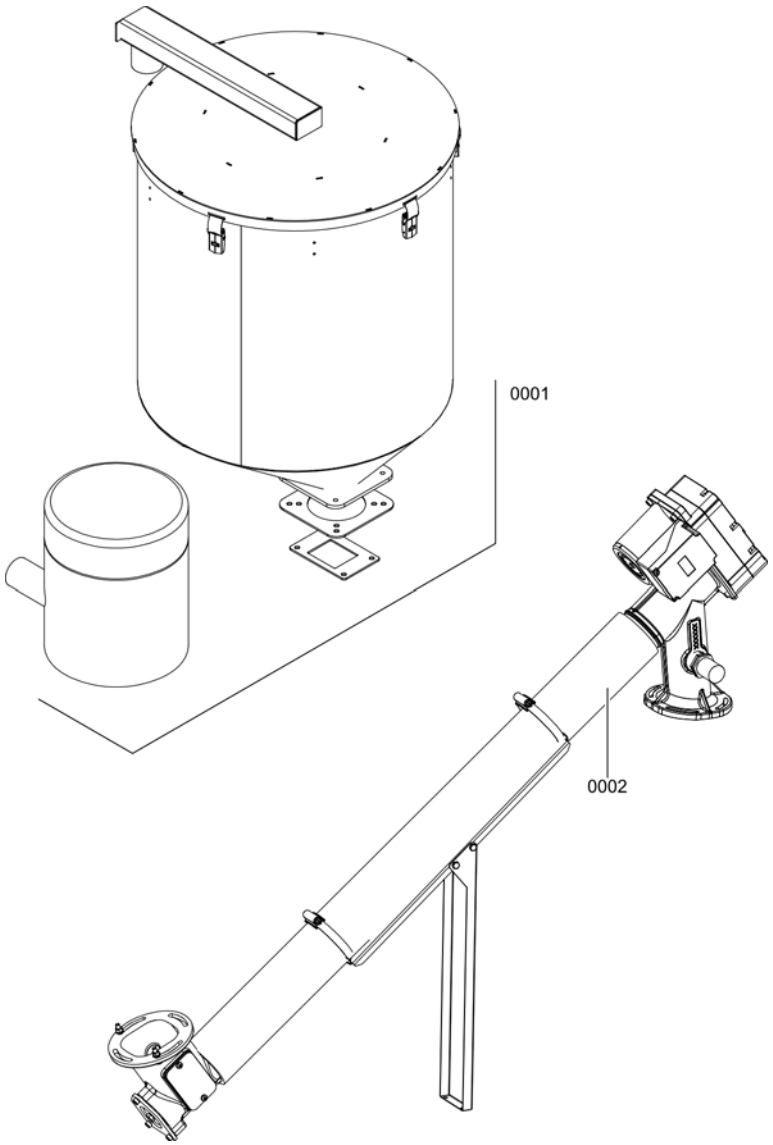
Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Fuel extraction system system

0001 VL3C Pellet Hopper
(see subassembly in following pages)

0002 VL3C Flexible Auger System
(see subassembly in following pages)



Parts Lists *(continued)*

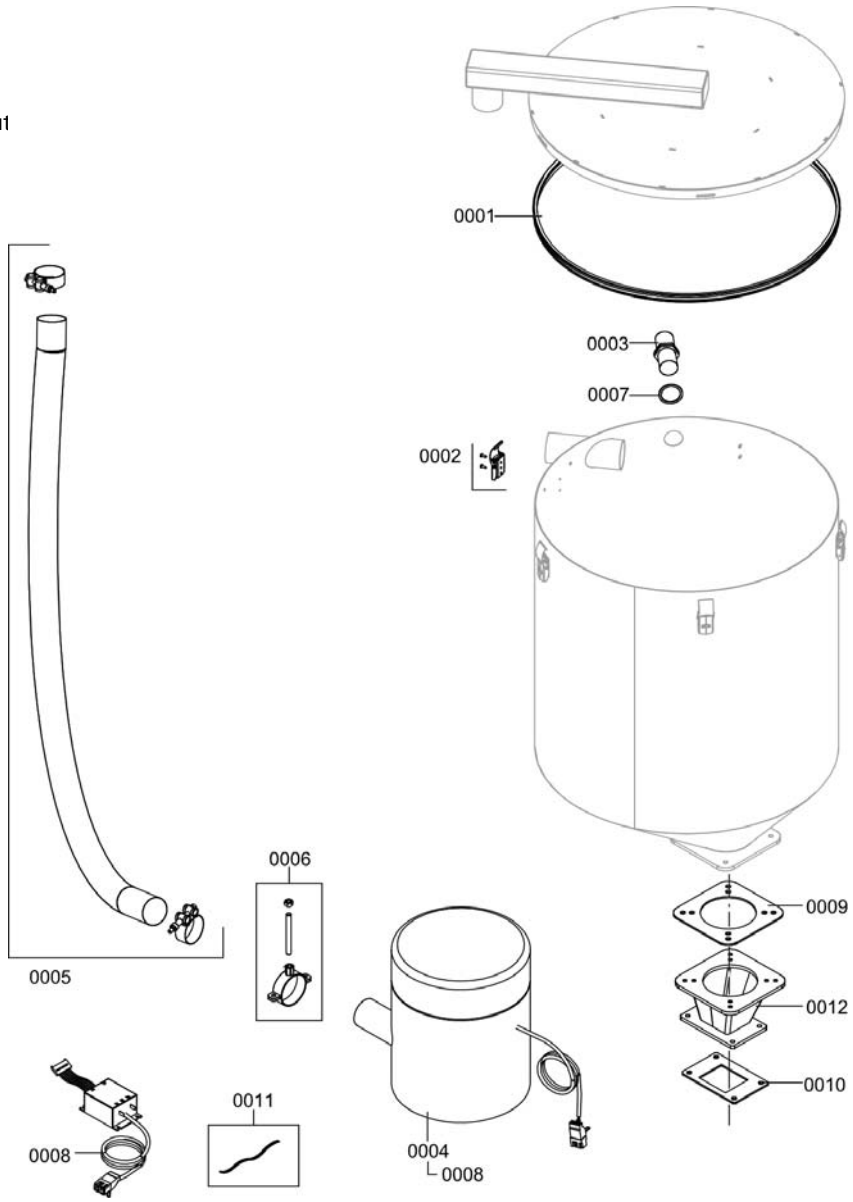
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distribut

Pellet hopper assembly

0001 Gasket, pellet container
0002 Retaining clip
0003 Sensor, pellets
0004 Suction turbine
0005 Spiral hose
0006 Mounting set, spiral cord
0007 Gasket, A 32 x 39 x 2 (Set of 5)
0008 Connection line, suction turbine
0009 Gasket, transition flange
0010 Gasket, rotary valve
0011 Harness, GND L = 500
0012 Adaptor flange



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Parts Lists *(continued)*

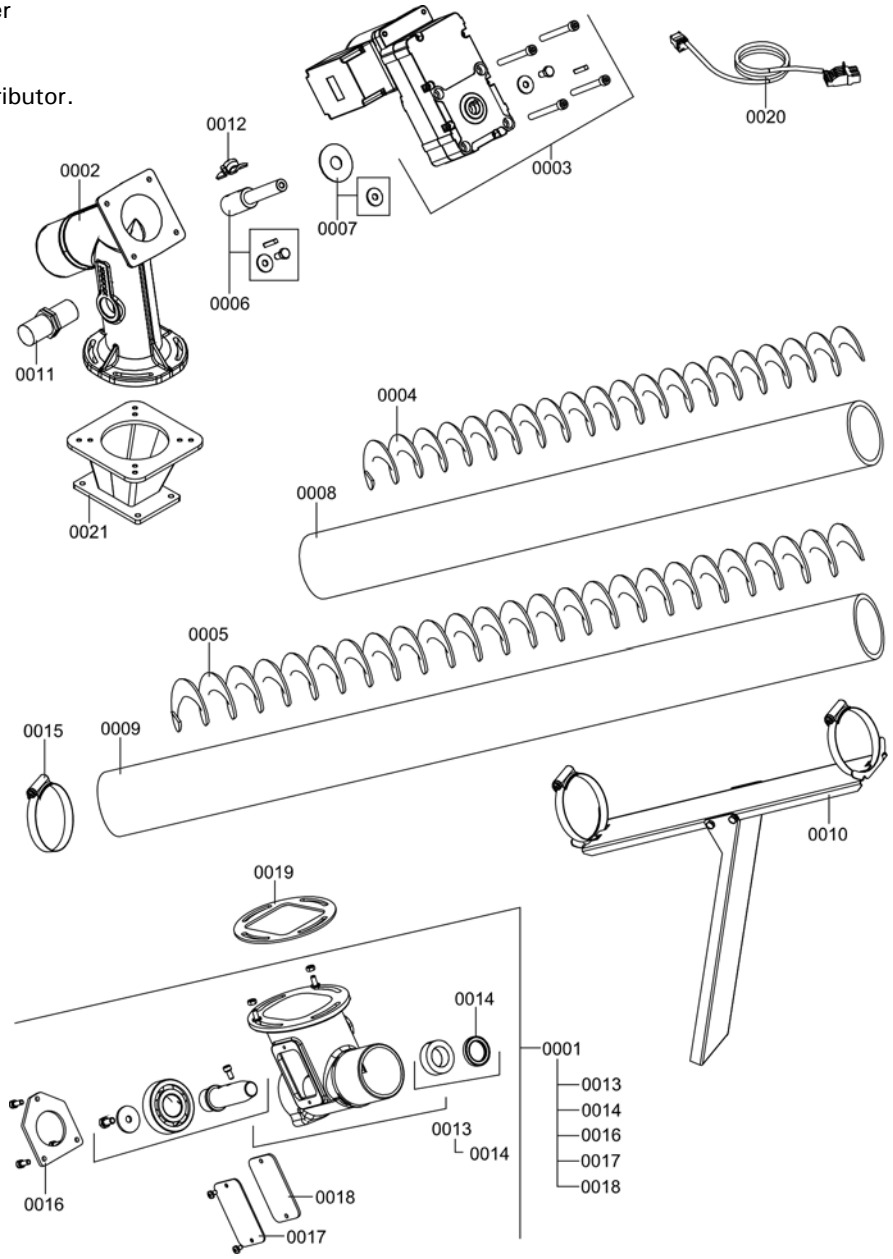
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Flexible auger system assembly

0001 Rotary adjustment
0002 Rotary unit
0003 Drive motor, 230/1/50-60 Hz
0004 Flexible auger, 3m
0005 Flexible auger, 4m
0006 Motor shaft
0007 Discs, rotaty unit
0008 Hose, 3m
0009 Hose, 4m
0010 Hose support
0011 Sensor, pellets
0012 Auger mounting latch
0013 Auger wave
0014 Wave washer 28 x 40 x 6
0015 Hose clamp, AS 80 - 100
0016 Fuel holder
0017 Cleanout cover, rotary adjustment
0018 Gasket, cleanout cover
0019 Gasket, rotary adjustment
0020 Harness, flexible auger motor
0021 Adaptor flange



Parts Lists *(continued)*

Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Pressure vessel assembly

0001 VL3C Insulaton, Boiler (see subassembly in the following pages)

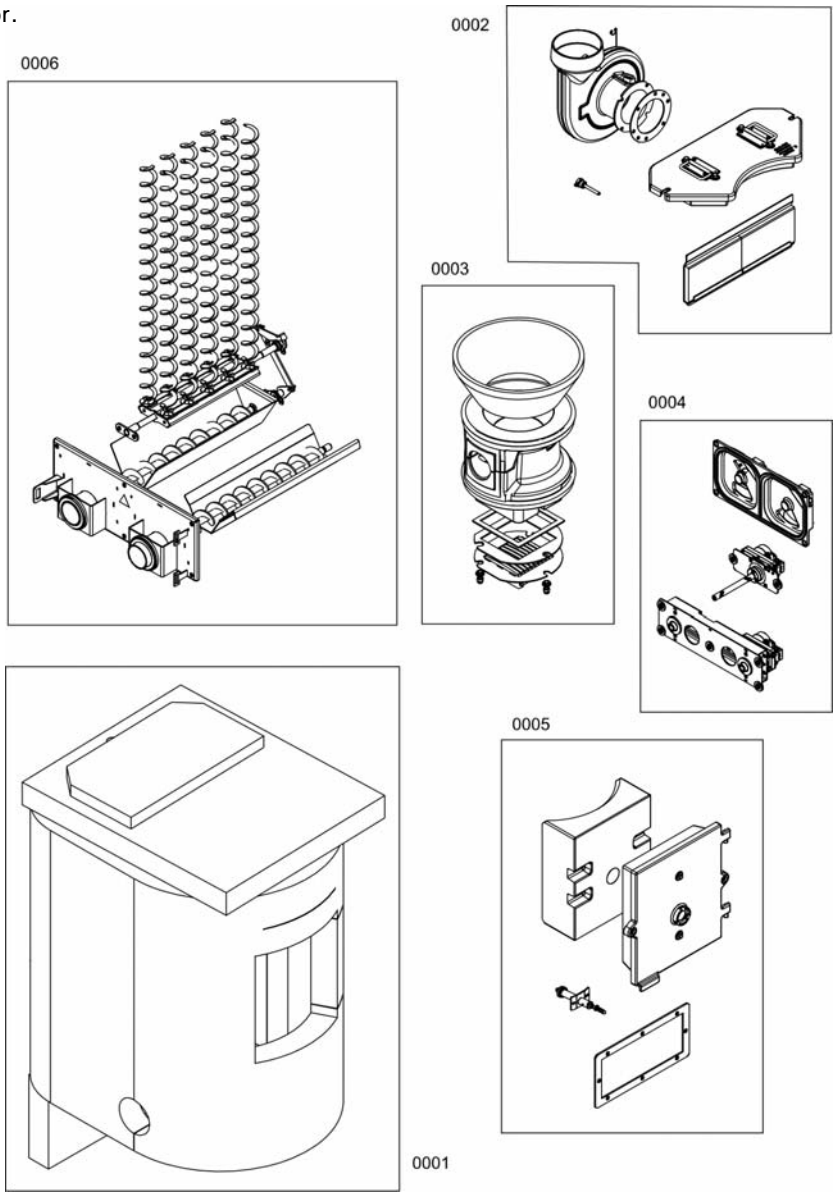
0002 VL3C Flue Gas Discharge (see subassembly in the following pages)

0003 VL3C Combustion Chamber (see subassembly in the following pages)

0004 VL3C Air Intake and Cleaning Drive (see subassembly in the following pages)

0005 VL3C Ignition and Combustion Chamber Door (see subassembly in the following pages)

0006 VL3C Ash Removal (see subassembly in the following pages)



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Parts Lists *(continued)*

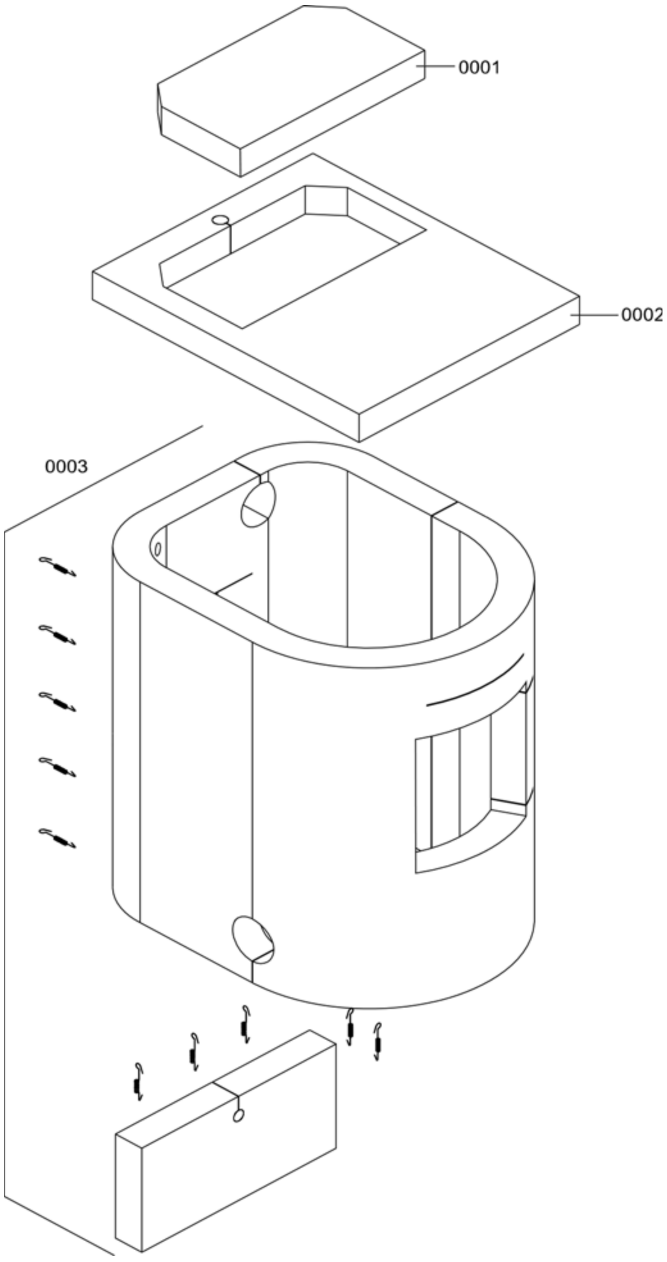
Model No.	Serial No.
300-C, 32	7673002 jjjjjjjjj
300-C, 48	7673003 jjjjjjjjj

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Insulation for boilers

0001 Insulation blanket, cleanout cover
0002 Insulation blanket, top
0003 Insulation set, boiler



Parts Lists *(continued)*

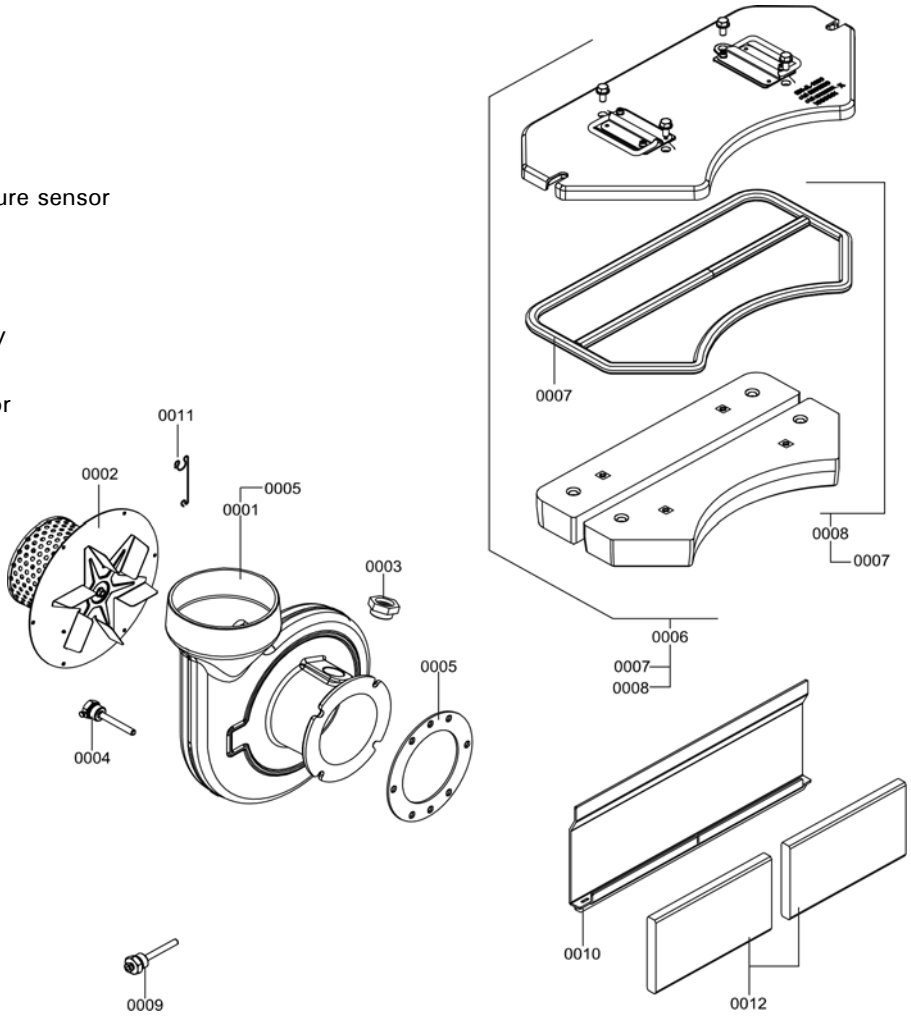
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Flue gas discharge assembly

0001 Fan housing
0002 Radial fan, R2E210-AA34-15
0003 Insulating nipples
0004 Thermowell, flue gas temperature sensor
0005 Gasket, exhaust fan
0006 Cleanout cover, top
0007 Gasket, GF 16 x 12 l = 2000
0008 Combustion chamber refractory
0009 Sensor well, 1/2" di = 6,5
0010 Dividing plate, flue gas collector
0011 Harness, spring
0012 Insulation stone



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Parts Lists *(continued)*

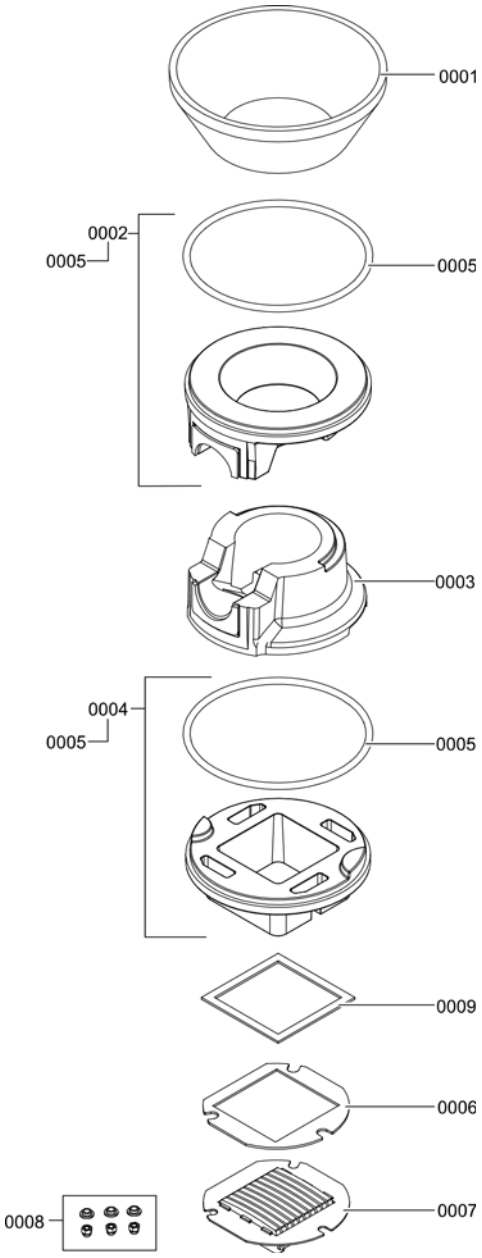
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Combustion chamber assembly

0001 Combustion chamber insert stone
0002 Combustion chamber, top
0003 Combustion chamber, middle stone
0004 Combustion chamber, bottom stone
0005 Gasket
0006 Gasket, grate bearing plate
0007 Fuel grate
0008 Bushing set, distance
0009 Gasket, combustion chamber base



Parts Lists *(continued)*

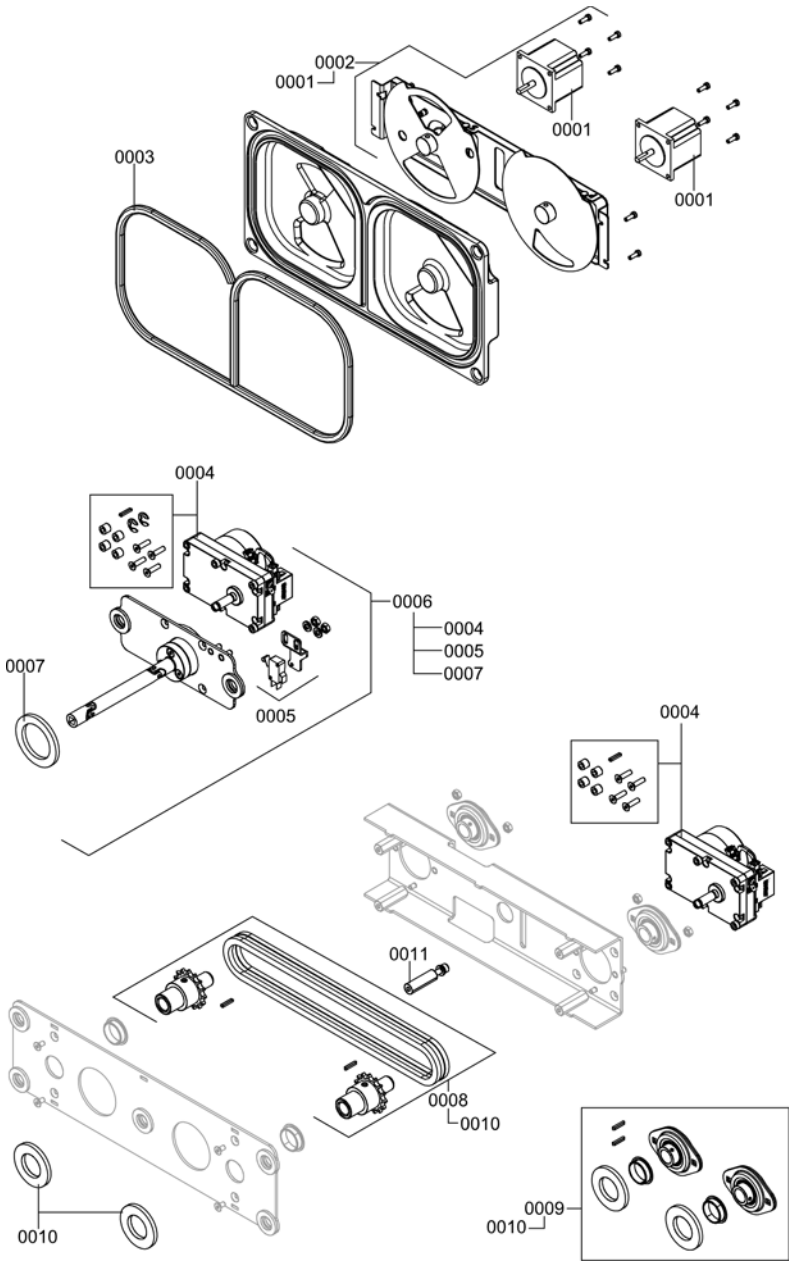
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Air intake and cleaning drive assembly

0001 Step motor, STB-59D2038GA
0002 Drive unit, air baffle
0003 Gasket, GF 9 x 7 x L = 2000
0004 Synchronous motor, AC 1,3RPM VW
0005 End switch with console
0006 Grate motor
0007 Gasket, grate drive
0008 Chain set, ash removal drive
0009 Fuel storage
0010 Gasket, chain set, ash removal drive
0011 Vibration stud, M6



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Parts Lists *(continued)*

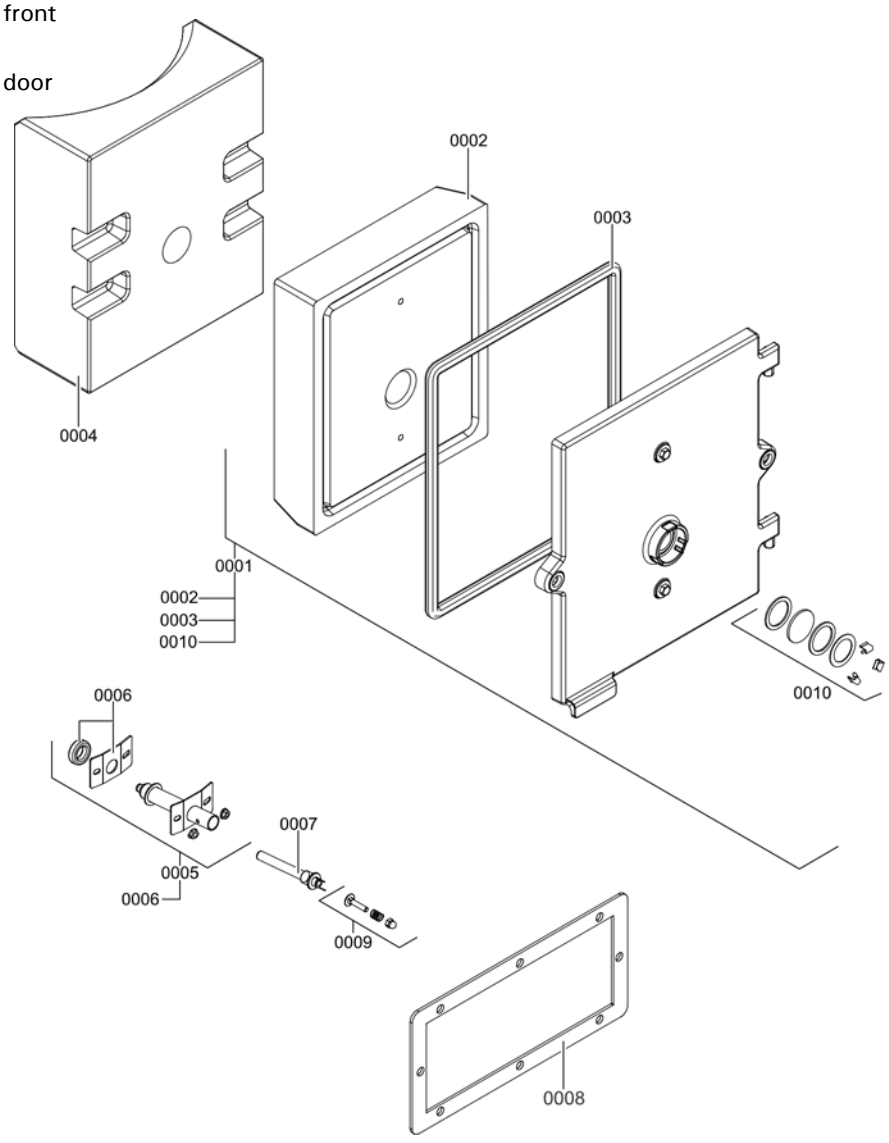
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Ignition and combustion chamber door assembly

0001 Combustion chamber door
0002 Combustion chamber refractory, front
0003 Gasket, GF 16 x 12 l = 2000
0004 Combustion chamber refractory, door
0005 Ignition tube system
0006 Gasket set, ignition tube system
0007 Ignition element
0008 Gasket, cleanout cover
0009 Compression spring
0010 Sight glass



Parts Lists *(continued)*

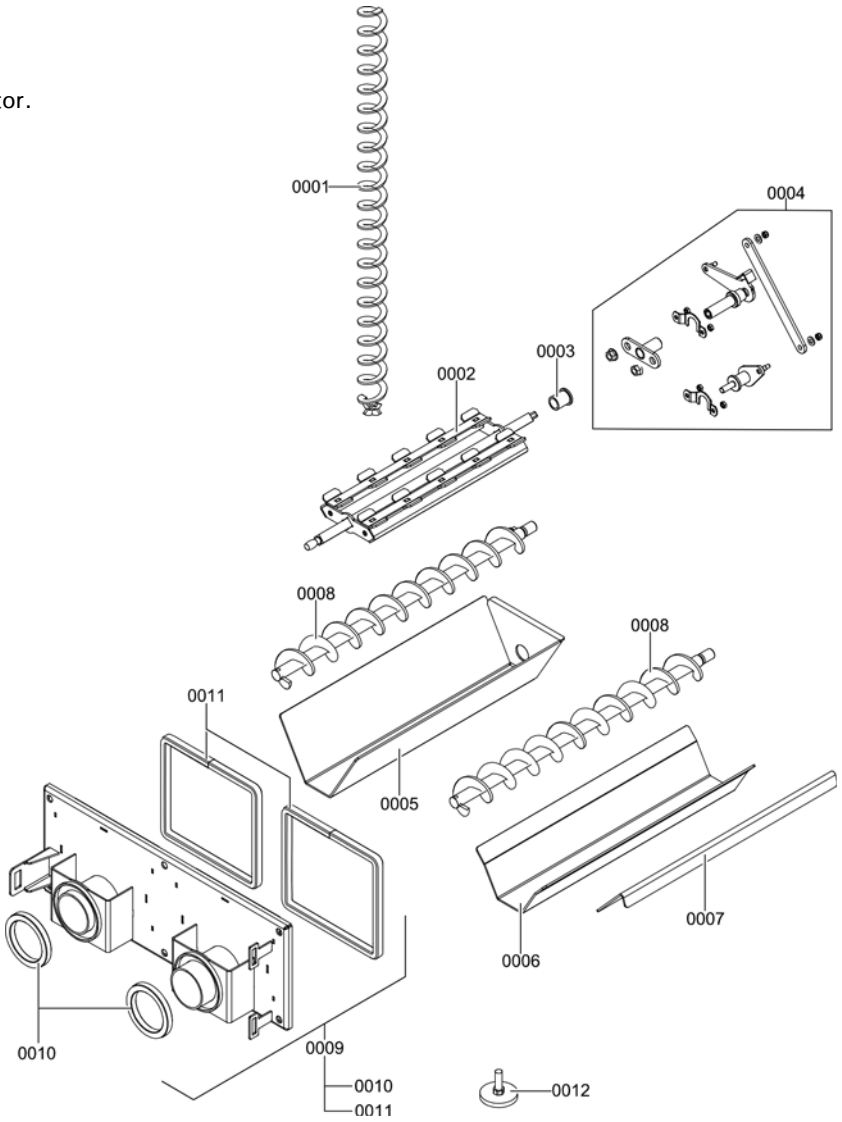
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Ash removal assembly

0001 Turbulator
0002 Cleaning craddle
0003 Bushing, 18 x 30
0004 Drive unit, cleaning craddle
0005 Ash box, back
0006 Ash box, grate
0007 Top panel, grate ash tray
0008 Auger
0009 Cleanout cover, ash removal
0010 Gasket set, ash removal cover
0011 Gasket, GF 16 x 12 l = 2000
0012 Leveling bolt



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Parts Lists *(continued)*

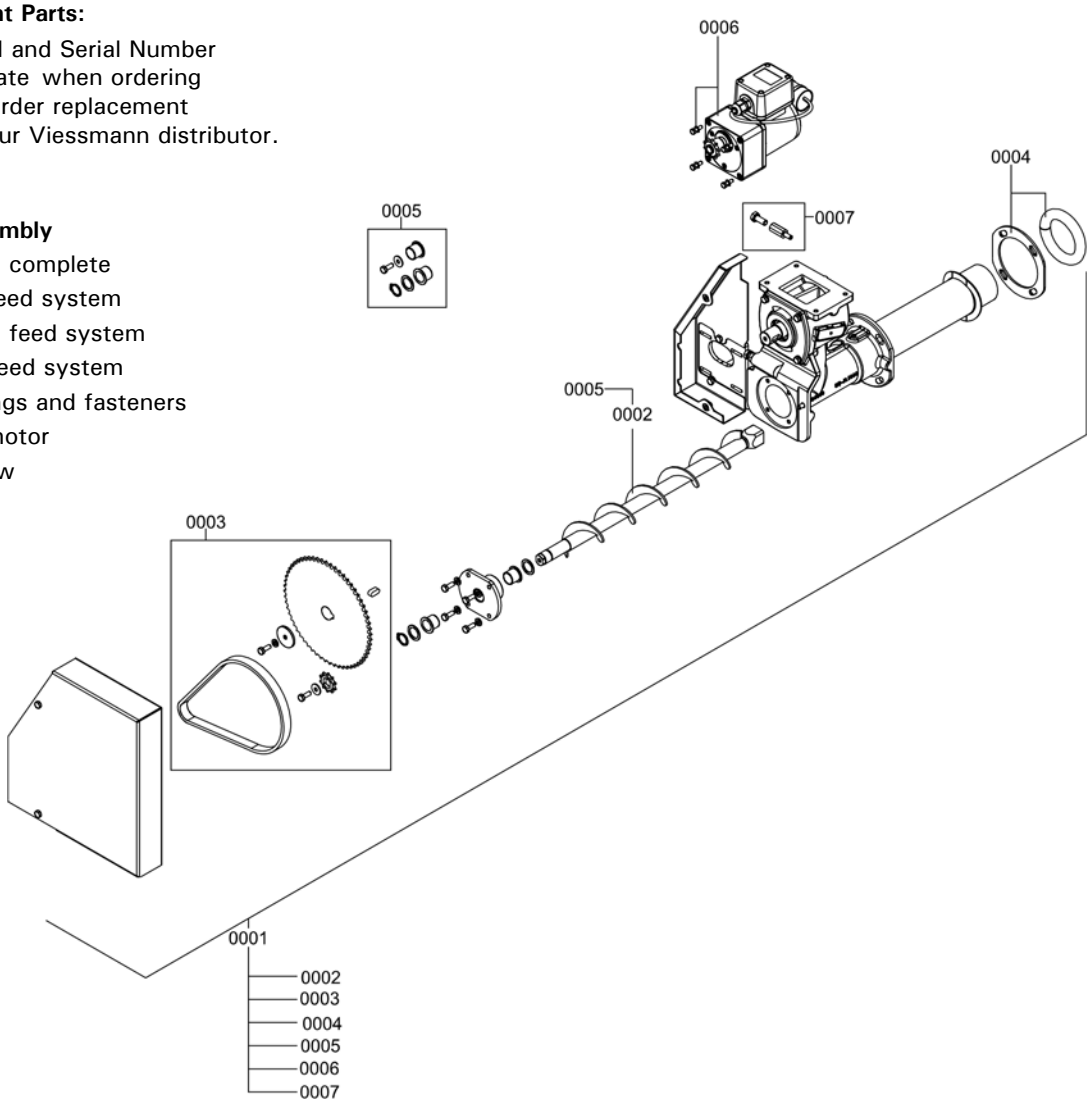
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Feeding system assembly

0001 Feed system, complete
0002 Auger unit, feed system
0003 Sprocket set, feed system
0004 Gasket set, feed system
0005 Sliding bearings and fasteners
0006 Flat geared motor
0007 Support screw



Parts Lists *(continued)*

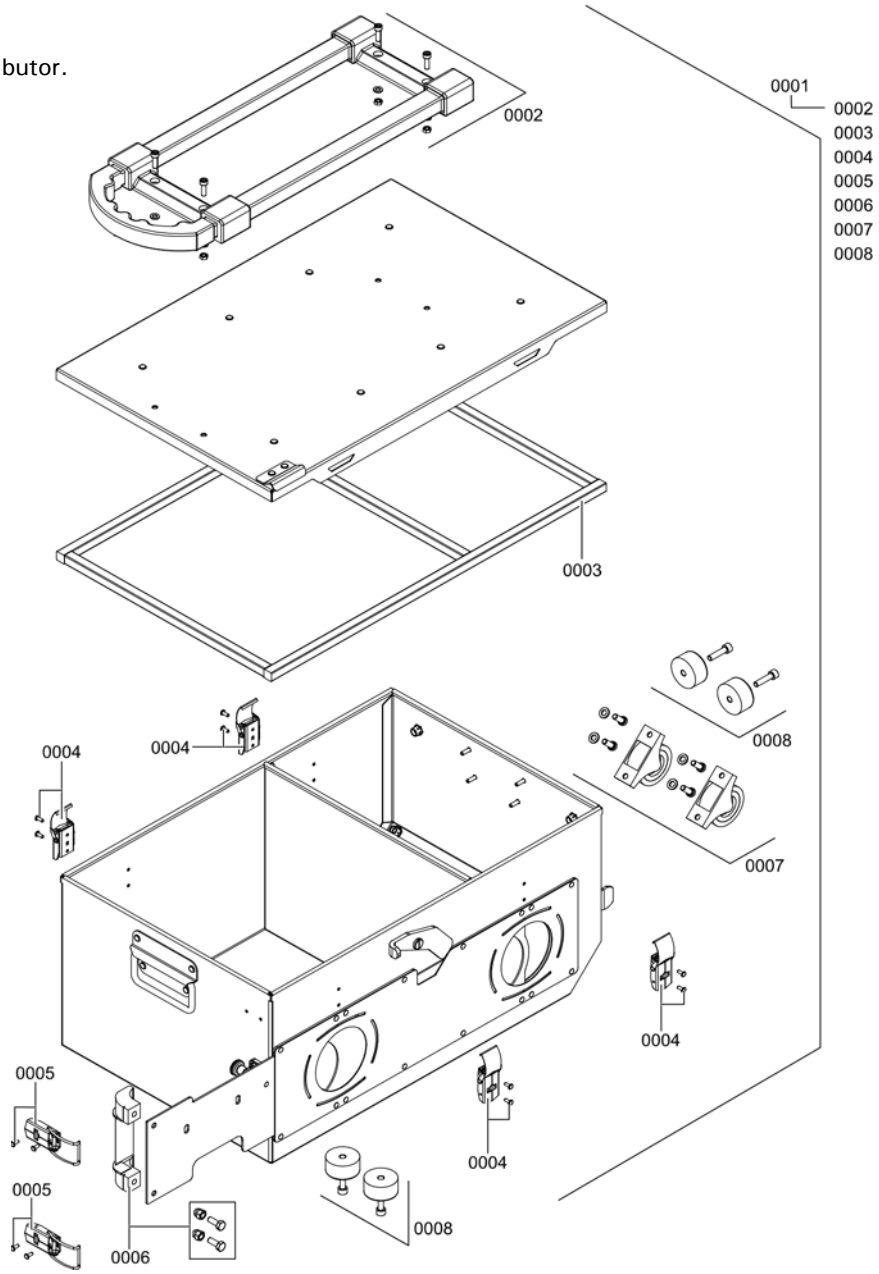
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Ash box assembly

0001 Ash container
0002 Grab handle
0003 Gasket, GF 12 x 12
0004 Retaining clip
0005 Bracket
0006 Shell handle
0007 Casket roller, D = 50 (Set of 2)
0008 Rubber foot (Set of 2)



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Parts Lists *(continued)*

Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

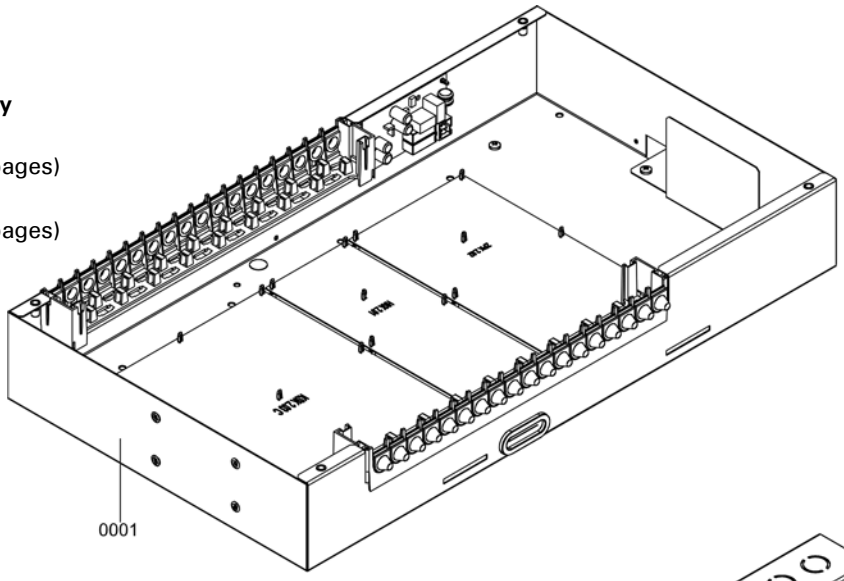
Ordering Replacement Parts:

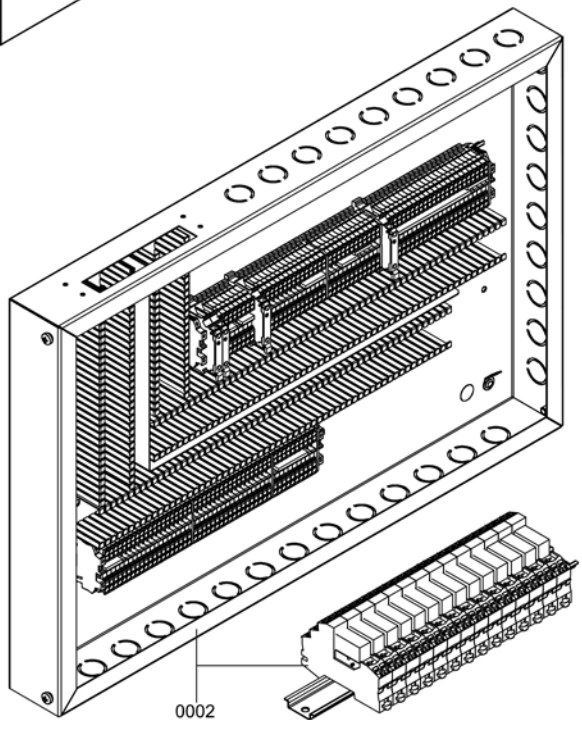
Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Boiler control and junction box assembly

0001 VL3C Boiler Control
(see subassembly in following pages)

0002 VL3C Junction Box with Relays
(see subassembly in following pages)





Parts Lists *(continued)*

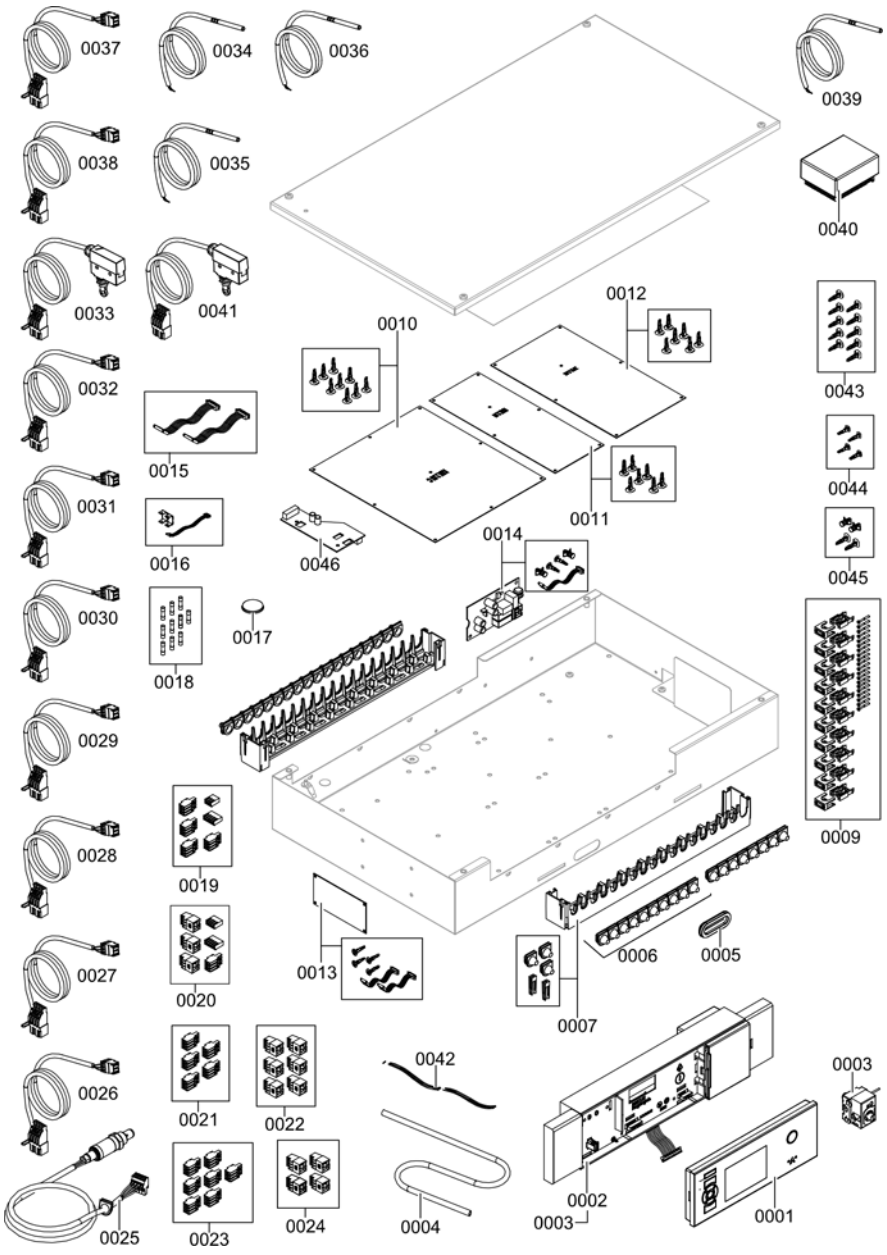
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Boiler control assembly

0001 Programming unit
0002 Intake housing with FHL 110°C
0003 Adjusting high limit, 110°C
0004 Corrugated hose, DN10
0005 Grommet, oval
0006 Cable bushing (Set of 10)
0007 Side cover, open
0009 Strain relief (Set of 10)
0010 Circuit board, KSK2.03
0011 Circuit board, HKK2.01
0012 Circuit board, ZPK2.02
0013 Power supply, boiler circuit control
0014 Timer, feed motor
0015 Bridge set, circuit board
0016 Jumper, GND
0017 Battery, 3,0V 230mAh
0018 Fuse Set, 5A / 10A slow 5x20/250V
0019 Harnesses, KSK, low voltage
0020 Accessory pack (230V plugs, KSK)
0021 Accessory pack (low volt plugs, HKK)
0022 Accessory pack (230V plugs, HKK)
0023 Harnesses, ZPK, low voltage
0024 Harnesses, ZPK, 230V
0025 Probe, lambda
0026 Harness, probe
0027 Harness, step motor, secondary
0028 Harness, step motor, primary
0029 Harness, grate motor
0030 Harness, grate sensor
0031 Harness, ash removal motor
0032 Harness, ignition element
0033 Switch with cable, ash removal
0034 Sensor, supply, PT1000
0035 Sensor, return, PT1000
0036 Sensor, flue gas, PT1000
0037 Harness, feed motor
0038 Harness, pellet sensor
0039 Sensor, Immersion, PT1000
0040 Sensor, outdoor, PT1000
0041 Cable, switch, cleaning
0042 Harness, GND L = 2100
0043 Spacer brackets (Set of 10)
0044 Spacer brackets (Set of 4)
0045 Spacer brackets (Set)
0046 Circuit board, BLS 1.01



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Parts Lists *(continued)*

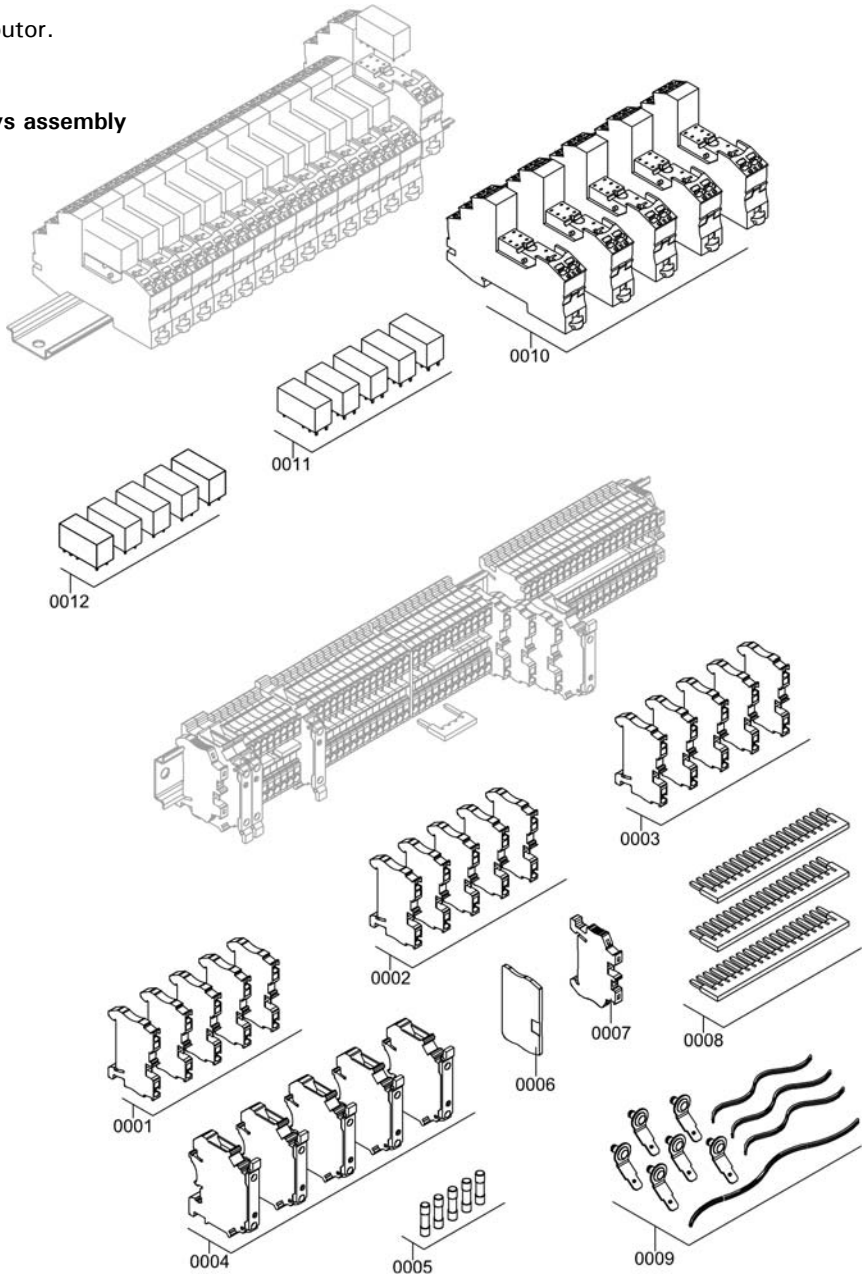
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Boiler control and junction box with relays assembly

0001 Terminal block, PT 2.5, gray
0002 Terminal block, PT 2.5, green
0003 Terminal block, PT 2.5, blue
0004 Terminal block, fuse
0005 Fuse, T10A/250V, G-Type (Set of 5)
0006 Cover, D ST 2.5
0007 End cover
0008 Jumper, red (Set of 3)
0009 Grounding set
0010 Relay base
0011 Relay, 230V
0012 Relay, 24V



Parts Lists *(continued)*

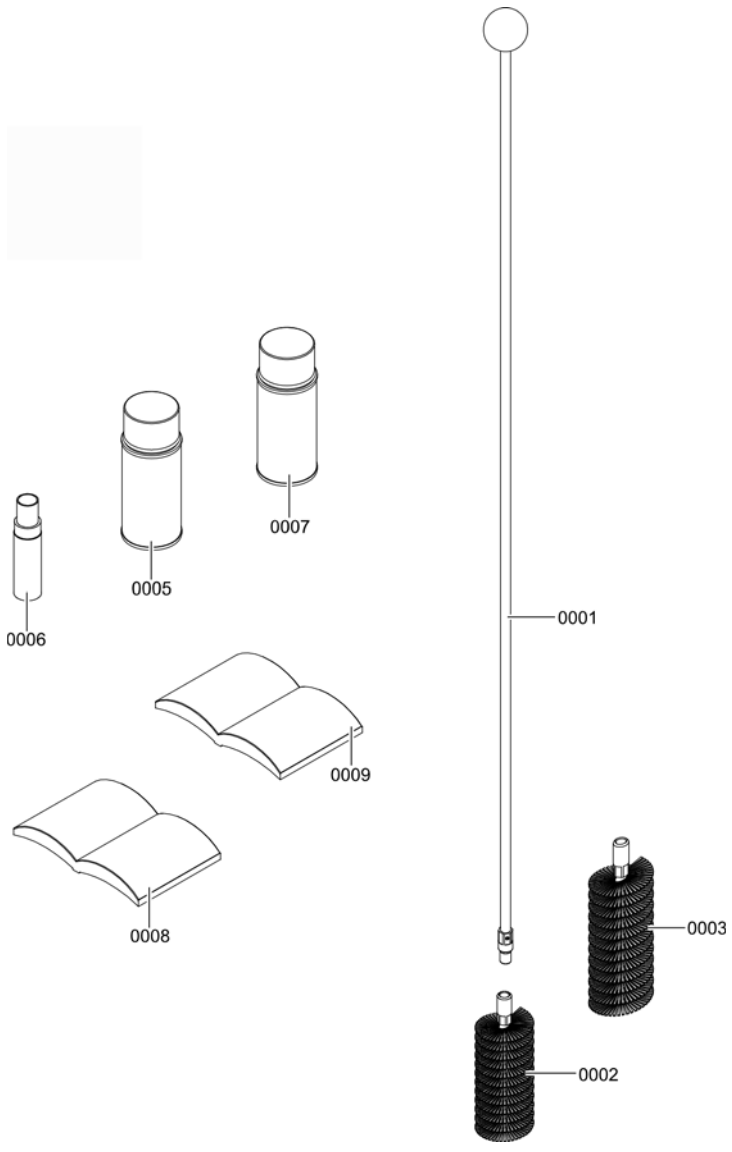
Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number from ASME rating plate when ordering replacement parts. Order replacement components from your Viessmann distributor.

Other parts

0001 Cleaning brush handle
0002 Cleaning brush head, 51x100mm, long
0003 Cleaning brush head, D = 50, short
0005 Touch-up spray, paint Vitotec, SIL
0006 Touch-up paint, Stk Vitotec SIL
0007 Touch-up spray, paint “Anthracite”
0008 Installation instructions, Vitoligno 300-C 32-48VL3C
0009 Operating instructions, Vitoligno 300-C



Installation Set for Shunt System 7544 956

Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Parts:
Please provide Model and Serial Number Ⓐ when ordering replacement parts. Order replacement components from your Viessmann distributor.

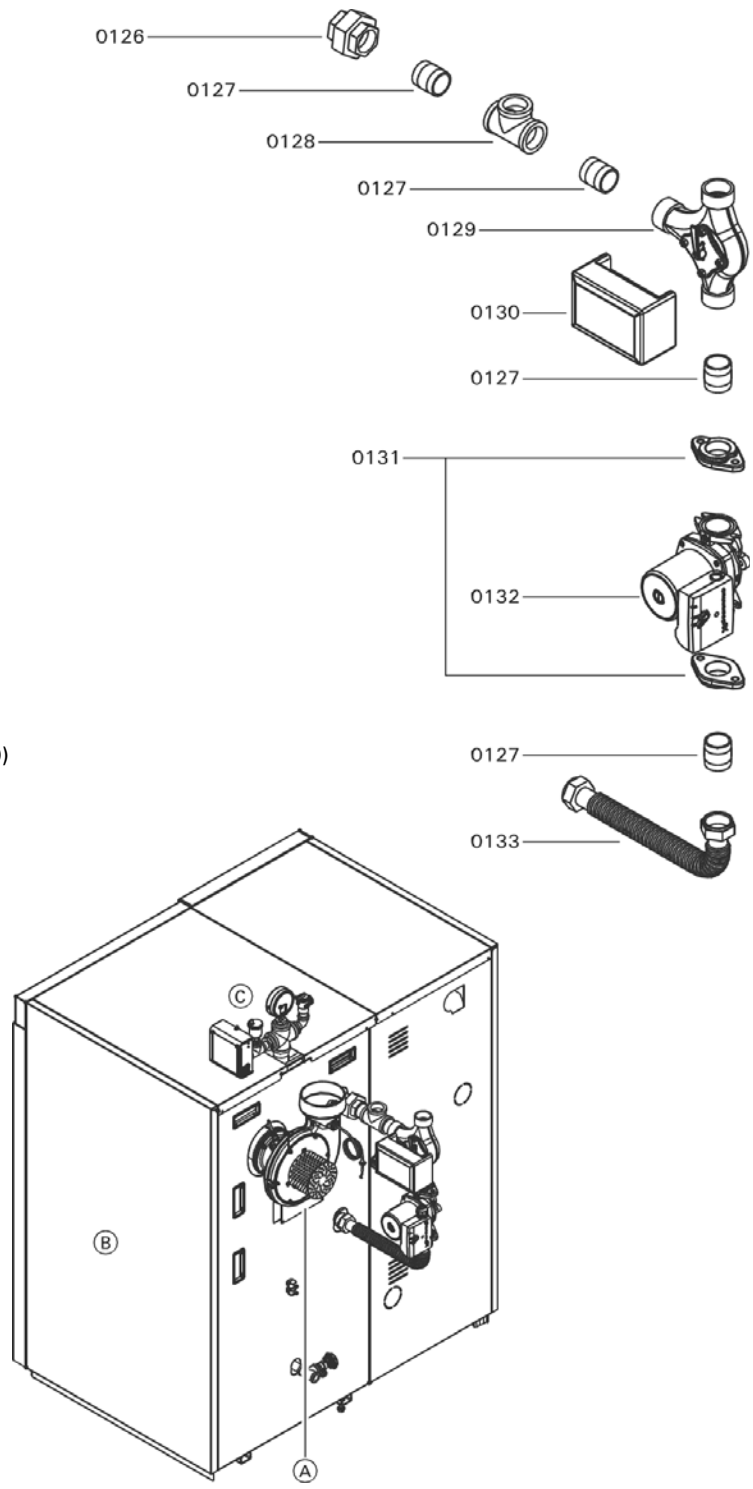
0126 Union, 1½"
0127 Nipple, 1½ x 2"
0128 Tee, 1½"
0129 Mixing valve, 3-way 1½"
0130 Mixing valve motor, 120/1/60
0131 Flange set, 1½"
0132 Circ. pump, UPS15-58FC 120/1/60
0133 Stainless steel flex pipe, 1½" x 18"

Other Parts (not illustrated)
0134 Accessory pack, mixing valve motor mounting bolts
0166 Installation Instructions
0167 Parts List

Ⓑ Vitoligno boiler (see separate parts list)

Ⓒ Boiler Installation Set (see separate parts list)

Mixing valve (0129) and mixing valve motor (0130) see separate parts list



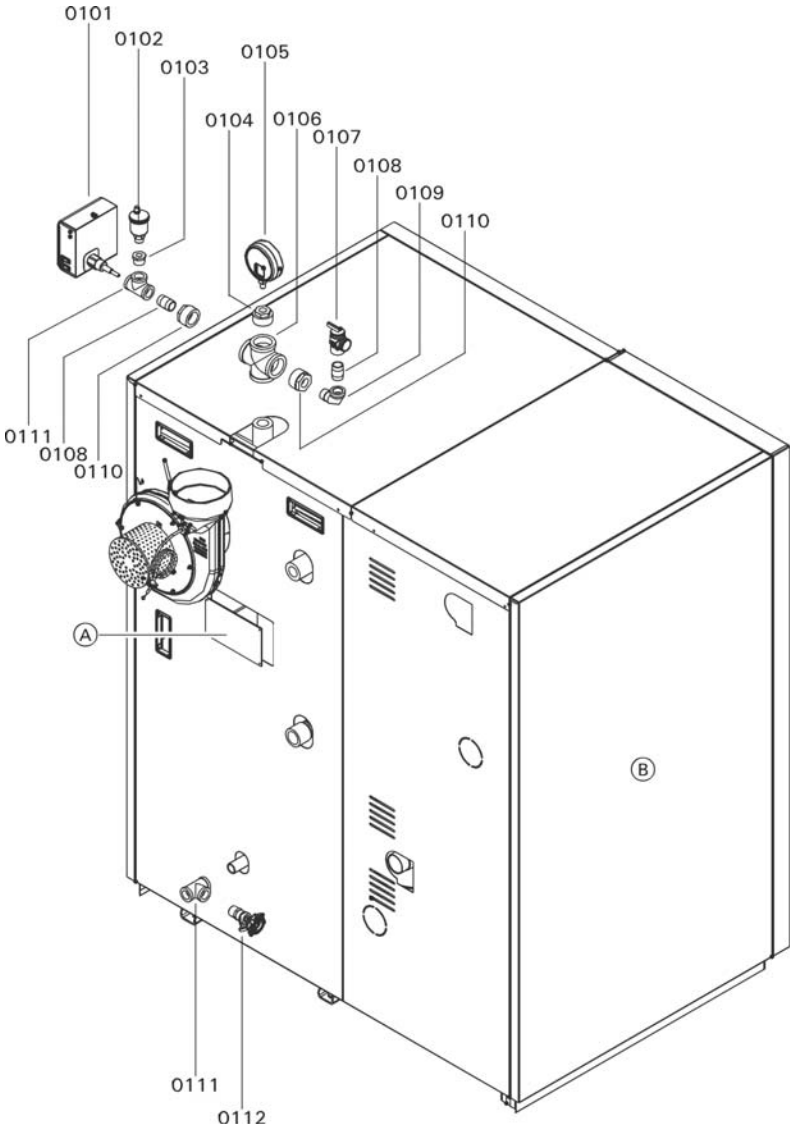
Vitoligno boiler shown with assembled shunt system

Installation Set

Model No.	Serial No.
300-C, 32	7673002 □□□□□□□□□
300-C, 48	7673003 □□□□□□□□□

Ordering Replacement Parts:

Please provide Model and Serial Number Ⓐ when ordering replacement parts. Order replacement components from your Viessmann distributor.



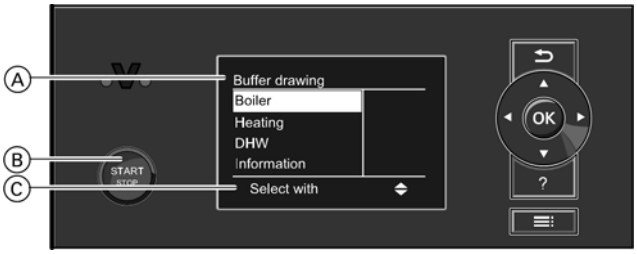
Parts

0101 Low water cutoff
0102 Air vent with shut-off base, 3/8 in.
0103 Hex bushing, ¾ in. x 3/8 in.
0104 Hex bushing, 1½ in. x 1/2 in.
0105 Temperature and pressure gauge
0106 Cross, 1½ in.
0107 Pressure relief valve, ¾ x ¾ in. 45 psi
0108 Nipple, ¾ in. x 1½ in.
0109 90° Street elbow, ¾ in.
0110 Hex bushing, 1½ in. x ¾ in.
0111 Tee, ¾ in.
0112 Sediment faucet, ¾ in.

Other Parts (not illustrated)

0165 Parts List, Installation Set
Ⓑ Vitoligno boiler
see separate Parts List

Display and Operating Elements



Legend
Ⓐ Display of operating phase
Ⓑ Start-stop pushbutton
Ⓒ Dialogue line

Back key
Return to the previous step in the menu or cancel a setting that has been started.

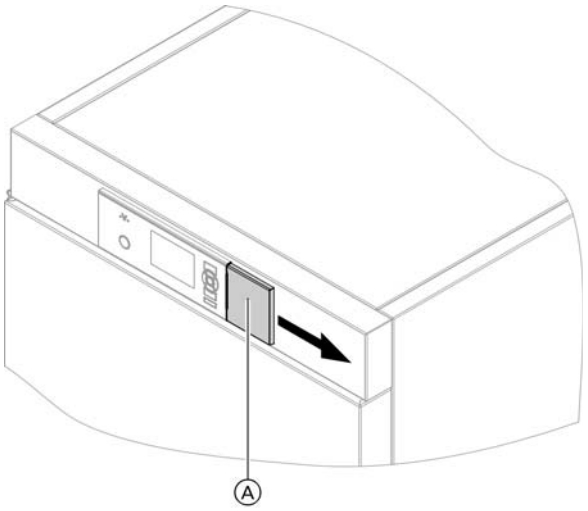
Cursor keys
Scroll through the menu or adjust values.

OK Confirm selection or save the setting made.

? Call up help text in connection with the selected menu point.

Call up the extended menu.

Start-stop pushbutton function **Start-stop pushbutton:**	
Does not illuminate	The boiler is off; no frost protection.
Illuminates	The boiler is in standby mode and will start automatically on demand or the boiler is operating.
Flashes	The boiler completely burns the available fuel or An external demand via coding address 44 was activated **Note:** The start-stop pushbutton is disabled if an external programming unit is connected. The boiler can only be switched on and off via the external unit.
■ Flashing slowly	Contact at plug 270 closed. There is an external demand.
■ Flashing rapidly	Contact at plug 270 open. There is no current demand.



Function of appliance power switch

Behind cover Ⓐ are the reset button (green) for the high limit safety cut-out and the appliance power switch.

The appliance power switch is used to isolate the control unit from the power supply. It does not turn off the main power supply.

There are live components inside the control unit enclosure even after turning off.

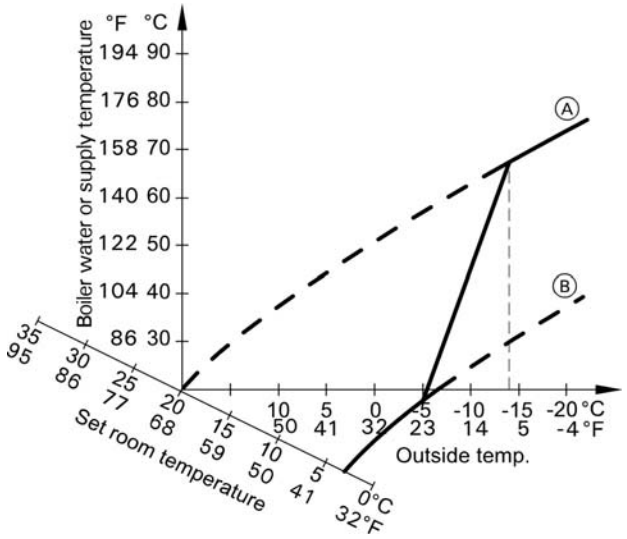
Prior to completing service work on the boiler, disconnect power at the power supply.

⚠ WARNING

Live components can cause severe injuries. When carrying out maintenance work, isolate the entire system from the power supply and check that it is no longer live.

Control Functions

Example using the settings in the factory set condition



Legend

Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

Solar circuit control

The solar circuit pump is controlled via the differential temperature between the solar circuit and DHW heating (coding address 6E). If the differential temperature between the solar circuit and the DHW is above the set value, the solar thermal system activates the pump and mixing valve for heating DHW. The collector must have a sufficient actual temperature available.

DHW is heated until the following conditions are met:

- Max. DHW temperature (coding address 6F) is reached.

or...

- Differential temperature between solar thermal system and DHW heating (coding address 6E) is less than the set value.

In both cases, a check is carried out to see if the differential temperature between the solar thermal system and the heating water buffer tank (coding address 70) is above the set value.

Heating circuit control unit

Brief description

- The set supply temperature of each heating circuit is determined from the following parameters:
  - Outdoor temperature
  - Set room temperature
  - Operating mode
  - Heating curve slope and shift
- The supply temperature of the heating circuits is controlled by the gradual opening or closing of the mixing valves.
  The mixing valve motor control changes the actuating and pause times subject to the control differential (control deviation).
- Coding addresses that influence the heating circuit control unit:
  A0 to FB.
  For a description, see codes overview.

Functions

The heating circuit supply temperature is captured by the supply temperature sensor.

Time program

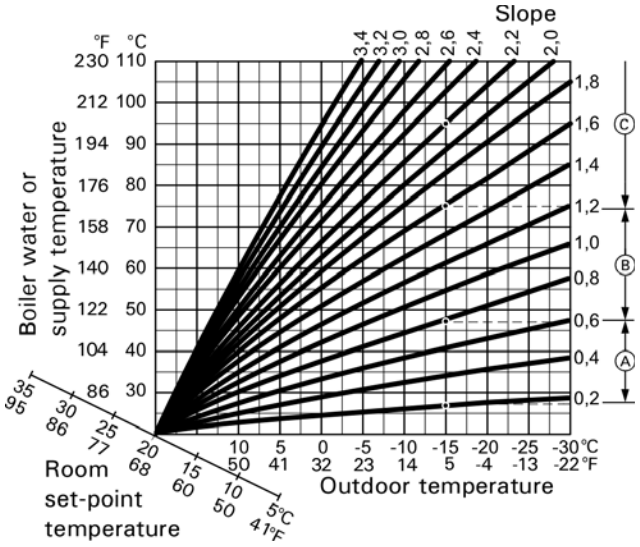
In accordance with the times programmed in the “Heating” program, the control unit time switch regulates between central heating with standard room temperature and central heating with reduced room temperature. Every operating mode has its own set level.

Outdoor temperature

A heating curve must be set to adjust the control unit to the building and the heating system. See “Setting heating curves” page 69.
The heating curve characteristics determine the set supply temperature subject to outdoor temperature. The control unit regulates in line with an average outdoor temperature. This is made up of the actual and the adjusted outdoor temperature.

Control Functions *(continued)*

Supply temperature control



Example for outdoor temperature 5°F (−15°C)
Ⓐ Underfloor heating system, slope 0.2 to 0.8
Ⓑ Low temperature heating system, slope 0.8 to 1.6
Ⓒ Heating systems with a boiler water temperature in excess of 167°F (75°C), slope greater than 1.6

Room temperature
In conjunction with the remote control and room temperature hook-up (coding address "B0"):
Compared to the outdoor temperature, the room temperature has a greater influence on the set supply temperature (change via coding address "B2").

DHW temperature
The priority control of the tank heating can be adjusted individually for each heating circuit. Adjustment via code A2, heating group, for each heating circuit. This is used to determine which heating circuit is affected by priority control during tank heating.

- With priority control:
  During tank heating, the set supply temperature of the relevant heating circuits is set to 32°F (0°C). The mixing valve closes. The heating circuit pump is switched off.
- Without priority control:
  The heating circuit pump continues to operate with the same set value.
- With reduced priority control:
  During tank heating, the set supply temperature of the relevant heating circuits is set to the set value of reduced heating mode.

Upper control range limit
Electronic maximum temperature limit
Setting range: 34°F to 260°F (1°C to 127°C)

Heating circuit pump logic (economy mode)
The heating circuit pump is switched off [set supply temperature set to 32°F (0°C)] when the outdoor temperature exceeds the value selected via coding address "A5".

Extended economy mode
The heating circuit pump is switched off and the set supply temperature is set to 32°F (0°C) if one of the following criteria is met:

- The outdoor temperature exceeds the value selected via coding address "A6".
- The set room temperature is reduced via coding address "A9".
- The mixing valve has been closed for 12 minutes (mixing valve economy function, coding address "A7").
- The actual room temperature exceeds the value selected via coding address "B5"

Frost protection
If the outdoor temperature falls below +34°F (+1°C), a supply temperature of min. 50°F (10°C) is ensured.
For changes see coding address "A3", variable frost protection limit.

Upper control range limit
Electronic maximum temperature limit
Setting range: 34°F to 260°F (1°C to 127°C)
Change via coding address "C6".

Note: The maximum temperature limit is no substitute for the underfloor heating system temperature limiter.

Temperature limiter for underfloor heating:
The temperature limiter switches the heating circuit pump off if the set value has been exceeded. The supply temperature is only slowly reduced in this situation, i.e. it may be several hours before the system restarts automatically.

Lower control range limit
Electronic minimum temperature limit
Setting range: 34°F to 260°F (1°C to 127°C)
Change via coding address "C5".
Only enabled during operation with standard room temperature.

Control Functions *(continued)*

Tank temperature control
Brief description
- Tank temperature control is a constant temperature control. It operates by starting and stopping the circulation pump for tank heating.
- Central heating is switched off during tank heating. When tank priority control is active, see coding address A2, heating group.
- Coding addresses that influence the tank temperature control:
  – 0C, 0D (DHW group)
  – A2 (heating group)
  For a description, see codes overview.

Functions
Time program
An automatic program or an individual time program may be selected for DHW heating and the DHW circulation pump.
In the individual time program, up to 4 time phases per day can be set via the time switch for DHW heating and 4 time phases for the DHW circulation pump.
All tank heating sequences will be completed irrespective of the time program.

Priority control
The priority control of the tank heating can be adjusted individually for each heating circuit.
- With priority control: (coding address 2 “A2:2”, heating group):
  The set supply temperature will be adjusted to 32°F (0°C) during tank heating.
  The mixing valve closes and the heating circuit pump is switched off.
- With priority control: (coding address 2 “A2:1”, heating group):
  The set supply temperature will be adjusted to 32°F (0°C) during tank heating.
  The mixing valve closes and the heating circuit pump is running. Only possible when the heating circuit is wired on the internal boiler PCB. When using an extension kit for the heating circuit, the heating circuit pump is switched off.
- With reduced priority control: (coding address 2 “A2:3”, heating group)
  The heating circuit pump remains switched on. During tank heating, the set supply temperature of the heating circuit will be reduced to the set value of reduced heating mode until the set supply temperature has been reached.
  The set supply temperature is determined from the following parameters:
  – Outdoor temperature
  – Differential between the set and the actual boiler water temperature
  – Heating curve slope and shift
- Without priority control: (coding address “A2:0”, heating group)
  The heating circuit control unit continues to operate with the same set value.

Set DHW temperature
The set DHW temperature can be adjusted between 50°F and 158°F (10°C and 70°C).
The set range can be extended via the menu.

DHW recirculation pump
The DHW circulation pump delivers hot water to the draw-off points at adjustable times.
Up to 4 time phases can be set at the time switch.

System with Vitosolic
A second set DHW temperature can be specified via coding address “67”.
Reheating by the boiler will be suppressed above this value. The DHW tank is heated exclusively by the solar thermal system.

Control sequence
The circulation pump for tank heating starts when the differential between the buffer tank temperature (top sensor) and the actual tank temperature exceeds the setting (coding address “0C”).

The circulation pump for tank heating stops when the boiler water/buffer tank temperature (top sensor) falls below the actual tank temperature by the differential comprising the values of coding address “0C”.
DHW tank goes cold (set value 10 K):
- Pump on:
  – Starting the circulation pump for tank heating subject to boiler water temperature (coding “61:0”): The circulation pump starts when the boiler water temperature is higher than the DHW temperature.

The DHW tank is hot:
- Pump run-on:
  After tank heating, the circulation pump runs on until one of the following criteria is met when the boiler is operating:
  – The differential between the boiler water and DHW temperature is too small (coding 0C, DHW group)
  – The set DHW temperature is exceeded.

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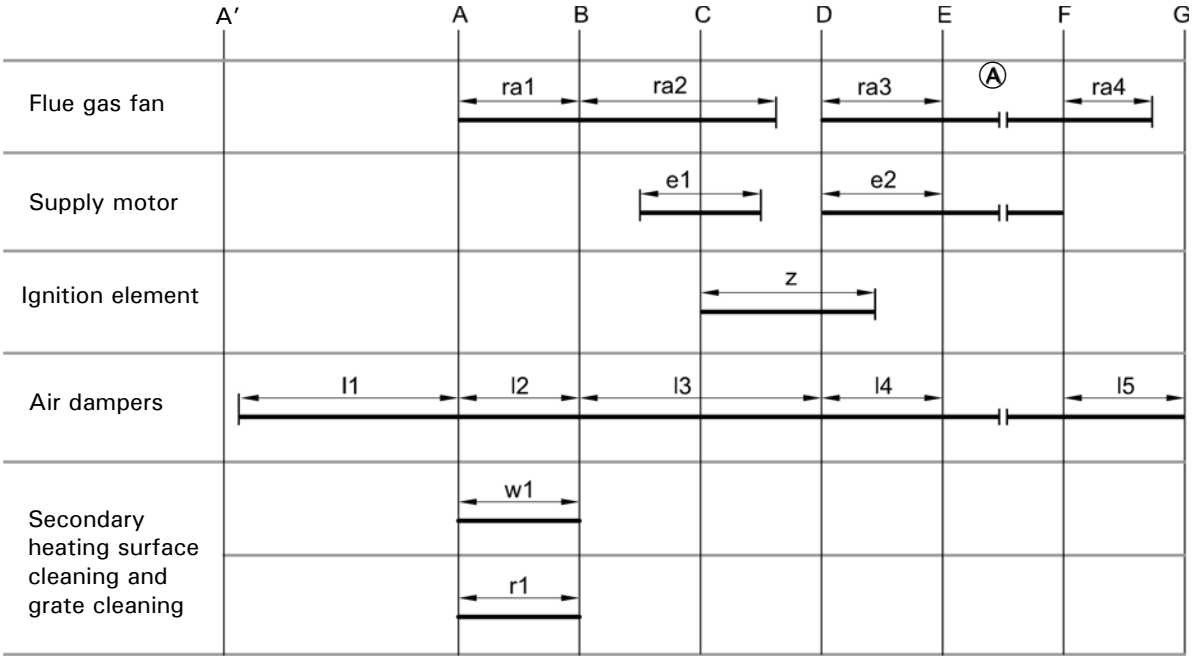
Vacuum Supply System

A vacuum system transports the pellets from the connector of the room discharge or pellet silo into the pellet hopper on the boiler.

Supply process
When the feed motor is running, the duration of the motor operation is recorded. The recorded time is used to calculate the amount of pellets consumed and when the next supply process should be started. In addition, the pellet sensor in the pellet hopper has to confirm that a new pellet supply is required.

If individual supply times have been configured at the programming unit, a supply process can only be initiated within the enabled times. If required, the pellet sensor can initiate a supply process at the end of the enabled time. The pellet hopper will be completely filled once more.
If the supply process was initiated, the vacuum module is initially activated. Pellets that remain in the pipework from the previous supply process are removed.
After this, the cycling operation for the discharge from the pellet store is started.

Pellet Combustion Sequence Chart



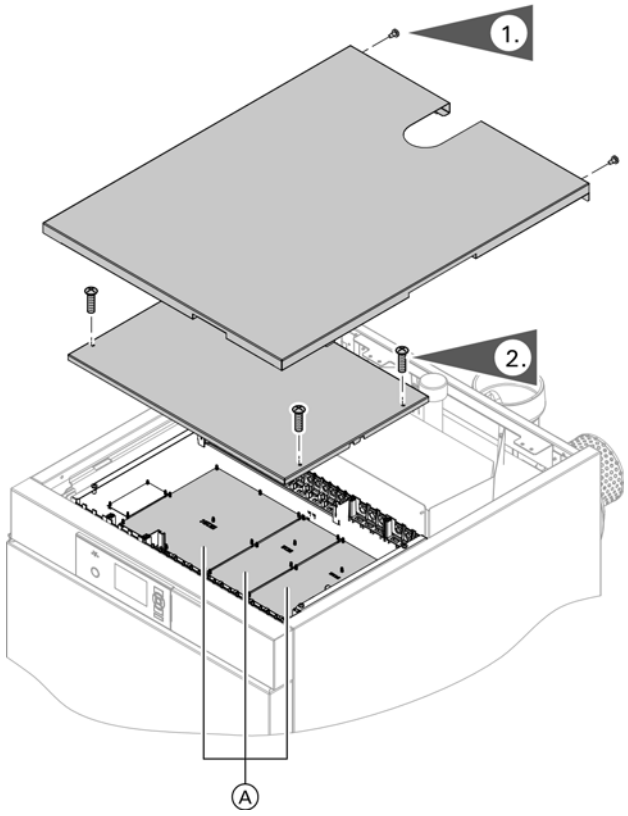
Legend

A′ Burner start initiation
A Purge phase
B Ignition phase starts
C Ignition
D 2nd ignition phase
E Control mode
F Stop
G Idle state
Ⓐ Output-dependent control

ra1 Purge speed
ra2 Ignition speed
ra3 2nd ignition phase speed
ra4 Stop speed
e1 Charge time entry
e2 2nd ignition phase entry
z Ignition on

l1 Air damper calibration
l2 Air damper purge position
l3 Air damper ignition position
l4 Air damper 2nd ignition phase (controlled)
l5 Air damper stop position
w1 Secondary heating surface cleaning
r1 Grate cleaning

PCB Positions



Overview of PCBs Ⓐ

ZPK Auxiliary PCB: Control of the fuel charging and cleaning systems

HKK Heating circuit PCB: Control of the heating circuits, DHW heating and solar

KSK Main PCB: Burner control unit, power export, KM-BUS, CAN bus, buffer tank temperature sensors, control of automatic return temperature raising facility

1. Remove 2 screws and remove the top boiler panel.
2. Remove 4 screws and remove the PCB cover.

Fuses

F10
- T10A
- 250V 50/60 Hz
- PCB KSK power cable

F20
- T5A
- 250V 50/60 Hz
- PCB ZPK power cable

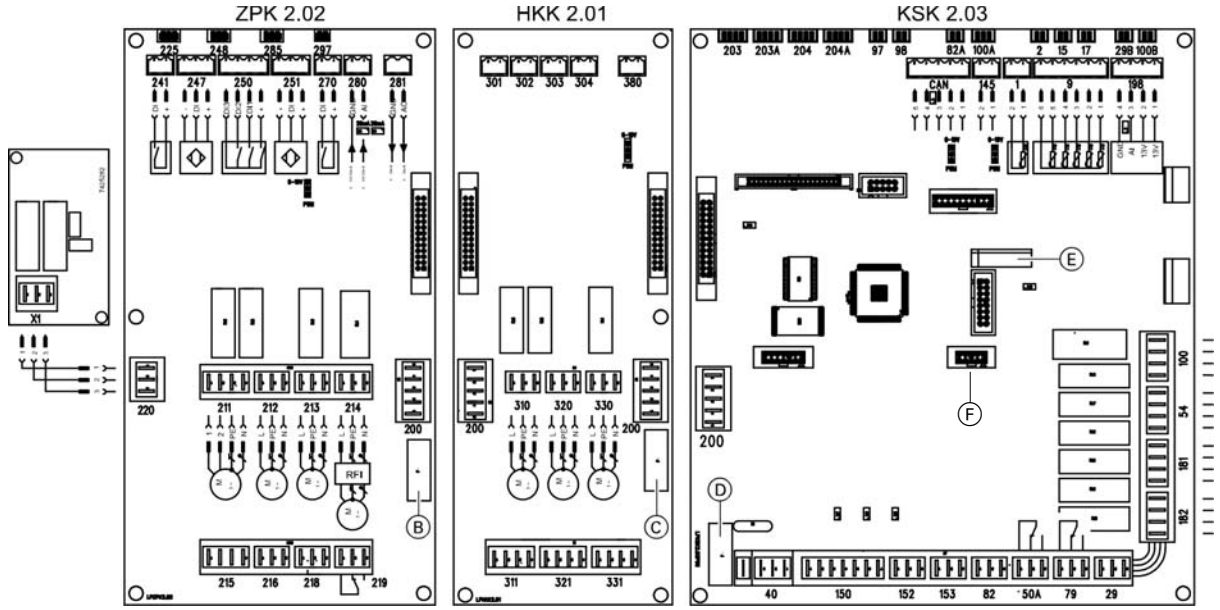
F30
- T5A
- 250V 50/60 Hz
- PCB HKK power cable

Battery

The battery provides power for saving the time and date in the event of a power failure.

- Button cell, type CR2032, 3 V
- Replacement: every 5 years

Front of boiler



Legend

Ⓐ PCBs
Ⓑ Fuse F20
Ⓒ Fuse F30
Ⓓ Fuse F10
Ⓔ Battery
Ⓕ Ecotronic software update port

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Technical Data

Boiler model 300-C		**32**	**48**
Input	MBH	44-129	64-193
	(Kw)	(13-38)	(19-57)
Output	MBH	37.4-109.6	54.4-164
	(Kw)	(11-32)	(16-48)
Efficiency			
– At full load	%	85	85
– At partial load	%	85	85
Heat exchanger surface area	ft^2 (m^2)	30.9 (2.87)	30.9 (2.87)
Supply temperature			
Fixed High Limit (FHL)	°F (°C)	230 (110)	230 (110)
Adjustable high limit range	°F (°C)	203 (95)	203 (95)
Max. operating pressure	psi	45	45
at 230°F (110°C)	(bar)	(3)	(3)
Power Supply			
	Voltage	240	240
	Phase	1	1
	Hz	60	60
	Amperage	20	20
Overall dimensions			
Total length h	in. (mm)	48⅛ (1224)	48⅛ (1224)
Total width b (boiler)	in. (mm)	30⅛ (765)	30⅛ (765)
Total width d (boiler with pellet hopper)	in. (mm)	52½ (1332)	52½ (1332)
Total width c (boiler with connection unit for the flexible screw)	in. (mm)	50 (1244)	50 (1244)
conveyor)	in. (mm)	60⅝ (1538)	60⅝ (1538)
Height a (boiler)	in. (mm)	61½ (1560)	61½ (1560)
Total height m			
Total weight			
– Boiler incl. thermal insulation and pellet hopper	lb. (kg)	1433 (650)	1433 (650)
– Boiler incl. thermal insulation and connection unit for flexible screw conveyor	lb. (kg)	1356 (615)	1356 (615)
Pellet hopper capacity (with vacuum system)	cu ft. (L)	3.5 (101)	3.5 (101)
Volume of ash box	cu ft. (L)	2.3 (65)	2.3 (65)
Boiler water content	USG (L)	47.5 (180)	47.5 (180)
Boiler connections			
Boiler supply	NPT	1½“	1½“
Boiler return	NPT	1½“	1½“
Safety connection	NPT	1½“	1½“
Drain	NPT	¾“	¾“
Flue gas			
Average temperature (gross)			
– At upper heating output	°F (°C)	266 (130)	275 (135)
– At partial load (33% of upper heating output)	°F (°C)	176 (80)	176 (80)
Mass flow rate			
– At upper heating output	lb/h (kg/h)	231 (105)	273 (124)
– At partial load (33% of upper heating output)	lb/h (kg/h)	53 (24)	64 (29)
CO_2 content in the flue gas			
– At the upper rated heating output	%	13	13
– At partial load (33% of upper heating output)	%	11	11
Flue outlet	∅ in.	6	6
	∅ (mm)	(150)	(150)
Required draught (at full load)	“w.c. (Pa)	0.02 (5)	0.02 (5)
Max. permiss. draught***1***	“w.c. (Pa)	0.06 (15)	0.06 (15)

1 Install a barometric damper in the chimney.

Maintenance Schedule

	Commissioning	Maintenance/service	Maintenance/service
Date:			
By:			

	Maintenance/service	Maintenance/service	Maintenance/service
Date:			
By:			

	Maintenance/service	Maintenance/service	Maintenance/service
Date:			
By:			

	Maintenance/service	Maintenance/service	Maintenance/service
Date:			
By:			

	Maintenance/service	Maintenance/service	Maintenance/service
Date:			
By:			

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