Eco Engineering

Installation Manual

Easypell
16 - 32 kW

ENGLISH

200014EN

www.easypell.com

Eco Engineering

Title: Installation Manual Easypell 16 - 32 kW
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Approved: Christian Wohlinger

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Contents

1 Dear Customer

- This manual is intended to help you operate the product safely, properly and economically.
- Please read this manual right through and take note of the safety warnings.
- Keep all documentation supplied with this unit in a safe place for future reference. Please pass on the documentation to the new user if you decide to part with the unit at a later date.
- Please contact your authorised dealer if you have any questions.

2 Intended use

The pellet heating system is designed to heat water for central or other indirect heating systems and hot water supply for buildings. It is not permissible to use the pellet heating system for any other purpose. Reasonable foreseeable inadvertent uses for the heating system are not known.

CE

The Easypell complies with all directives, regulations and standards relevant for this type of equipment within the scope of the declaration of conformity of the CE marking.

EU Directives	Description
2006/42/EC	Basic safety and health requirements for the design and construction of machinery
2006/95/EC	Directive concerning electrical equipment for use within certain voltage limits
2001/95/EC	Product Safety Guideline
2004/108/EC	Directive on the approximation of laws on electromagnetic compatibility and repealing Directive 89/336/EC

The following harmonized standards were applied:

Standards	Description
EN 303–5	Heating boilers Part 5, Heating boilers for solid fuels, manually and automatically fed firing systems, nominal heat output up to 300kW
EN ISO 17225–2	Solid biofuels - Fuel specification and classes Part 2: Wood pellets for non-industrial use

The following National Standards, Guidelines and Specifications have been applied:

Standards	Description
TRVB H 118	Technical Guideline Preventive Fire Protection, Automatic Wood Combustion Plants

EASYPELL PELLETZENTRALHEIZUNG	CONFORMITY EXPLANATION	PE/PR/013.E

EC – CONFORMITY EXPLANATION

in accordance with machine guideline 2006/42/EG, Annex II A

The manufacturer declared that the new machine part / machine component due to their design and construction, as well as in our marketed version agreed in the valid version with the regulations of the machine safety regulation – MSR, Federal law gazette L.No. MSV2010, BGBl Nr.282/2008, and thus the machine guideline 89/392/EEC converted by it, last changed through 2006/42/EC.

Manufacturer, company

Eco Engineering 2050 GmbH
Gewerbepark 1
A-4133 Niederkappel

Easypell 16, 20, 25 and 32kW

With the interpretation and the building of the machine the following standards wereused:

Relevant Provisions:

2006/42EC	Machine guideline in applicable constitution
2014/35EC	Low voltage directive
2014/30/EC	EMC - directive electromagnetic compatibility

Applied european / national standards and guidelines:

EN ISO 12100 :2010	Security of machines
EN 303-5	Definitions of performance of heat exchangers
EN 61000-6-2 and EN61000-6-3	Electromagnetic compatibility
ÖNORM M7550, B8130 and B8131, as well as the technical guidelines and the Construction Products Directive	- TRVB H 118 - Preventing fire protection - 89/106/EEL

In accordance with the listed directives, this product is designated with CE

The manufacturer also declares compliance with the seasonal energy efficiency requirements and emissions according to the Ecodesign Regulation in force. (Regulation (EU) 2015/1189, of the Commission, of April 28, 2015, by which develops Directive 2009/125/EC)

Niederkappel, February 10th, 2022
date, sign. :

Ing. Herbert Ortner
Managing director

3 Types of safety warning sign

The warning signs use the following symbols and texts.

Types of safety warning sign

1. Risk of injury
2. Consequences of risk
3. Avoiding risk

⚠DANGER

Danger - indicates a situation that could lead to death or lifethreatening injury.

► Observe the instructions for eliminating this hazard!

⚠WARNING

Warning - indicates a situation that could lead life-threatening or serious injury.

⚠CAUTION

Caution - indicates a situation that could lead to injury.

NOTICE

► indicates a situation that could lead to property damage.

4 Prerequisites for installing a pellet boiler

You must fulfill the following conditions before operating a fully automatic pellet boiler.

4.1 Guidelines and standards for installing a pellet boiler

Overview of standards and guidelines applying to the installation of a pellet boiler.

Check whether you need to obtain planning permission or approval from the authorities for installing a new heating system or changing your existing system. Legislation in your country must be observed.

Flue gas system	EN 13384–1	Legislation in your country must be observed.
Building and fire prevention regulations		Legislation in your country must be observed.
Type of installation	FC 42x	Fireplace with a flue gas fan for connection to an air exhaust system. The combustion air line from air shaft and the connecting piece to the chimney are part of the fireplace.
	FC 52x	Fireplace with a flue gas for connection to a chimney. The combustion air line from outside and the connecting piece to the chimney are part of the fireplace.
Sound insulation	DIN 4109	Please note the building-unique demands on sound insulation.

4.2 Central heating room

The pellet boiler is installed in the central heating room.

1. Safety instructions for the heating room

   ⚠DANGER

   Risk of fire

   Do not store flammable materials or liquids in the vicinity of the pellet boiler. Do not permit unauthorised persons to enter the central heating room - children are to be kept out. Always close the boiler door.

2. Air supply and ventilation of central heating room
   The central heating room must be fitted with air supply and ventilation openings (at least 200cm2). Legislation in your country must be observed.

3. Combustion air supply
   The pellet boiler needs a supply of combustion air.

   Never operate the pellet boiler if the air intake openings are partially or completely closed.

   Contaminated combustion air can cause damage to the pellet boiler. Never store of use cleaning detergents containing chlorine, nitrobenzene or halogen in the room where the heating system is installed, if combustion air is drawn directly from the room.

   Do not hang out washing in the central heating room.

   Prevent dust from collecting at the combustion air intake to the pellet boiler.

4. Damage due to frost and humid air
   The central heating room must be frost-proof to ensure trouble-free operation of the heating system. The temperature of the central heating room must not fall below –3°C and must not exceed +30°C. The air humidity in the central heating room must not exceed 70%.

5. Danger for animals
   Make sure that household pets and other small animals cannot enter the central heating room. Fit mesh over any openings.

6. Flooding
   If there is a risk of flooding, switch off the pellet boiler in good time and disconnect from the power supply before water enters the central heating room. You must have all components that come into contact with water replaced, before you start up the pellet boiler again.

7. Cleaning
   Clean the flue gas tube and chimney regularly.

   NOTICE

   Oxidation of chimney

   Do not use metal brushes to clean chimneys made of stainless steel.

   ► Legislation in your country must be observed.

4.3 Flue gas system

The flue gas system consists of a chimney and a flue gas tube. The flue gas tube connects the pellet heating system to the chimney. The chimney leads the flue gas from the pellet heating system out into the open.

1. Design of the chimney

The design of the chimney is very important. The chimney must ensure safe exhaust of the flue gases in all operating conditions of the boiler. The flue system must be designed in accordance with local regulations or ÖNORM EN 13384-1. The flue pipe must be insulated and must rise to the chimney and be as short as possible.

Boiler size	Easypell 16	Easypell 20	Easypell 25	Easypell 32
Flue gas tube diameter (at boiler) – [mm]	130		150	
Chimney diameter	as per chimney calculation, EN 13384–1			

2. Flue gas temperature

Boiler type	Easypell 16	Easypell 20	Easypell 25	Easypell 32
Flue gas temperature rating	160 °C			
Flue gas temperature partial load	100°C			
The dewpoint of flue gas with wood pellets (max. 10% water content) is approx. 50°C.				

3. Chimney draft

The diameter of the chimney must be selected based on a chimney calculation according to EN 13 384–1. The suction effect of the chimney draft must extend as far as the chimney connection. The maximum flow rate that can be drawn through the chimney limits the maximum performance of the pellet boiler. The boiler performance must be reduced if the chimney does not possess the necessary cross-section. This may only be performend by authorised personnel.

4.4 Safety systems

The following safety measures are the prerequisite for safe operation of your system.

Emergency stop switch

Every heating system must be able to be switched off with an Emergency Stop switch. The Emergency Stop switch must be inside the central heating room.

Safety valve

The hydraulic system must be equipped with a safety valve. This valve opens when the pressure inside the heating system increases to max. 3 bar. The safety valve must:

- be installed at the highest point of the boiler,
- must not be locked,
- and must be within 1 metre of the boiler.

Safety temperature sensor

The pellet boiler is equipped with a safety temperature sensor. This is located on the pellet boiler. If the boiler temperature exceeds 95°C then the heating system switches off.

Expansion tank

All heating systems must be equipped with a pressurised expansion tank. The plumber or heating system installer must dimension the expansion tanks according to the dimensions of the hydraulic system.

NOTICE

Starting up

Starting up for the first time has to be performed only by an authorized service technician.

4.5 Operation of a pellet boiler with an existing boiler

There are different regulations in the different European countries. Please mind the prescription of your country.

5 Warnings and safety instructions

Observing safety instructions ensures that the heating system is operated safely.

5.1 Basic safety instructions

- Never get yourself into danger; give own safety the utmost priority.
- Keep children away from the central heating room and storage room.
- Observe all safety warnings on the boiler and in this user manual.
- Observe all instructions relating to maintenance, servicing and cleaning.
- The pellet heating system may only be installed and started up for the first time by an authorised plumber. Professional installation and start up is the prerequisite for safe and economical operation.
- Never make any changes to the heating system or flue gas system.
- Never close or remove safety valves.

5.2 Warning signs

⚠DANGER

Risk of poisoning

Make sure that the pellet boiler is supplied with sufficient combustion air. The openings in the combustion air inlet must never bepartially or completely closed. Ventilation systems, central vacuum cleaning systems,extractor fans, air conditioning systems, flue gas blowers, dryers or similar equipment must never be allowed to draw air from the central heating room and cause a drop in pressure. The boiler must be connected tight to the chimney using a flue gas tube. Clean the chimney and the flue gas tube at regular intervals. The central heating room and pellet storage room must be sufficiently supplied with air and ventilated. Before entering the storage room it must be ventilated with sufficient air and the heating system switched off.

⚠DANGER

Risk of electric shock

Switch off the system before performing work on the boiler.

⚠DANGER

Risk of explosion

Never burn petrol, diesel, engine oil or other explosive materials. Never use liquids or chemicals to ignite the pellets.

⚠DANGER

Risk of fire

Do not store any flammable materials in the central heating room. Do not hang out any washing in the central heating room. Always close the boiler door.

⚠WARNING

Risk of burns

Do not touch the flue spigot or the flue gas tube. Do not reach into the ash chamber. Use gloves to empty the ash box. Do not clean the boiler until it has been allowed to cool down.

⚠CAUTION

Risk of cut injuries due to sharp edges.

Use gloves for performing all work on the boiler.

NOTICE

Damage to property

Heat the pellet heating system using pellets that comply with EN ISO 17225–2 class A1 only.

NOTICE

Damage to property

Do not use the heating system if it, or any of its components, come into contact with water. If water damage occurs, have the heating system checked by an service technician and have any damaged parts replaced.

5.3 What to do in an emergency

What to do in the event of a fire

- Switch off the heating system.
- Call the fire brigade
- Use approved fire extinguishers (fire protection class ABC).

What to do if you smell smoke

- Switch off the heating system.
- Close the doors leading to living areas.
- Ventilate the central heating room.

NOTICE

EMERGENCY STOP SWITCH

In both cases, the emergency stop switch must be operated outside the boiler room.

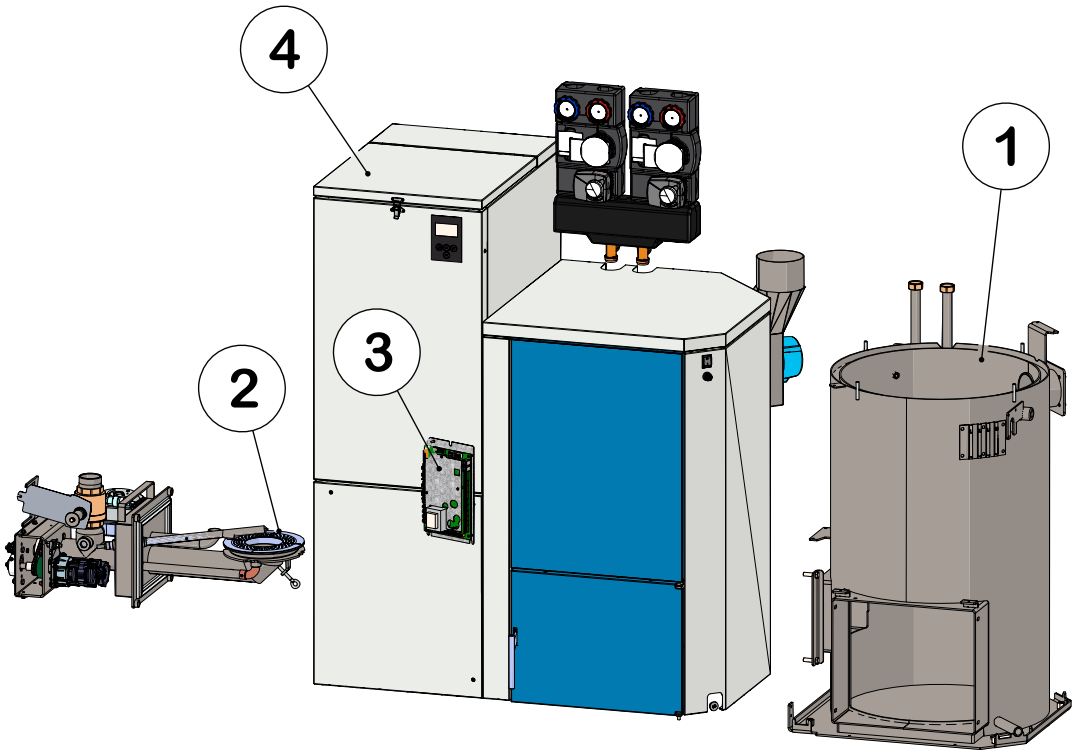
6 The Easypell

Easypell types and power ratings

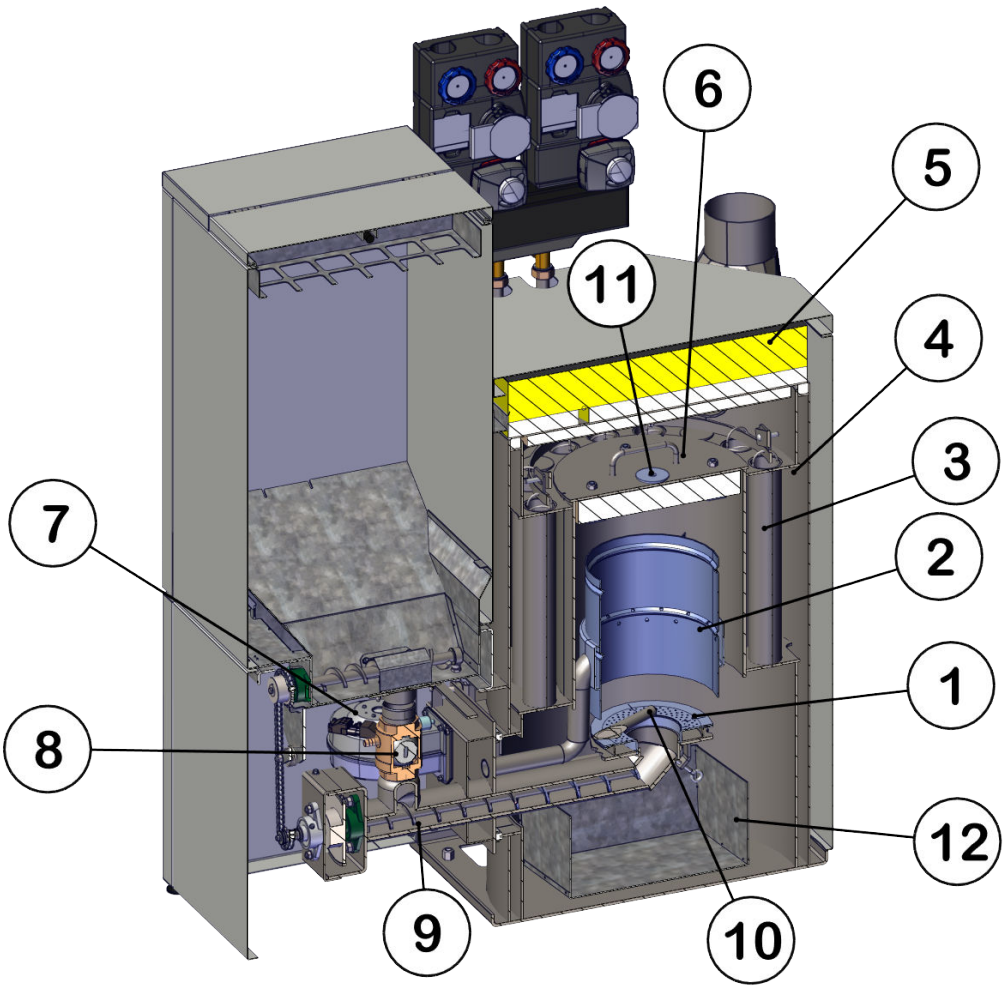
Eco Engineering offers the Easypell with the following power ratings: 16, 20, 25 and 32kW.

Refer to the data plate for the power rating of your Easypell. The data plate is located on the rear side of the boiler. Here you find the type designation, manufacturer's serial number and year of build.

Key components of the Easypell



1	Boiler (heat exchanger)	3	Boiler controller
2	Burner	4	Pellet hopper



1	Burner plate	7	Suction fan
2	Flame tube	8	Anti-blowback system
3	Heat exchanger	9	Burner auger
4	Boiler water	10	Electronic ignition
5	Boiler insulation	11	Combustion chamber sensor
6	Combustion chamber cover	12	Ash box

7 Bringing the pellet boiler into the central heating room

This section describes the prerequisites as well as the working sequence required.

1. Transport
2. Notes on bringing the unit into the building
3. Casing parts
4. Dismantling the casing parts

7.1 Transport

Maine Energy Systems supplies the pellet boiler on a pallet. The pellet boiler is ready to be connected.
The control unit for the boiler controller is integrated into the control panel.

If it is not possible to bring the boiler into the building at ground level, remove the casing, the burner, the boiler controller and the pellet hopper. This will reduce the weight of the unit and make it easier to carry.

Tighten the hydraulic connections firmly on site and carry out a density test.

NOTICE

Contamination and corrosion

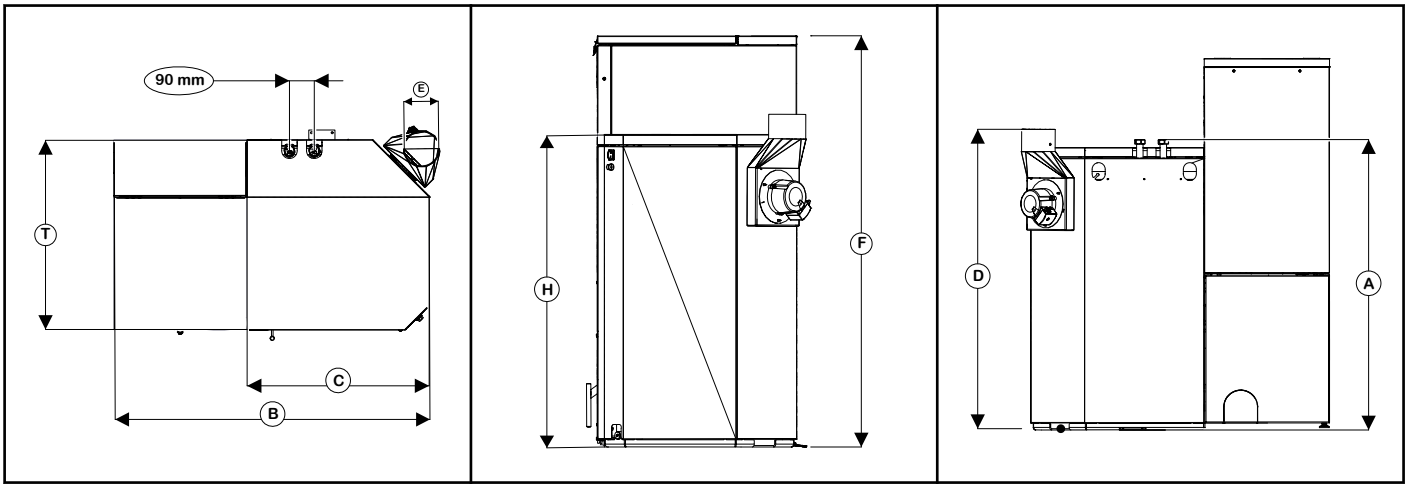
Make sure that the pellet boiler is located under a roof if it needs to be stored outside before it is transported/ brought into the building.

7.2 Notes on bringing the unit into the building

Make sure that the pellet boiler is located under a roof if it needs to be stored outside before it is transported/brought into the building.

Minimum door width — max. unit dimension		
Easypell 16 / 20	16 – 20 kW	677 mm
Easypell 25 / 32	25 – 32 kW	724 mm

Boiler dimensions



Dimensions in mm	Easypell 16	Easypell 20	Easypell 25	Easypell 32
A: flow & return	1120		1310	
B: overall width of pellet boiler	1145		1145	
C: Width of boiler casing	665		703	
D: Hight flue gas tube	1155		1350	
E: Diameter flue gas tube	130		150	
H: Height of boiler casing	1092		1294	
F: Height hopper	1425		1525	
T: Depth of boiler casing	720		770	

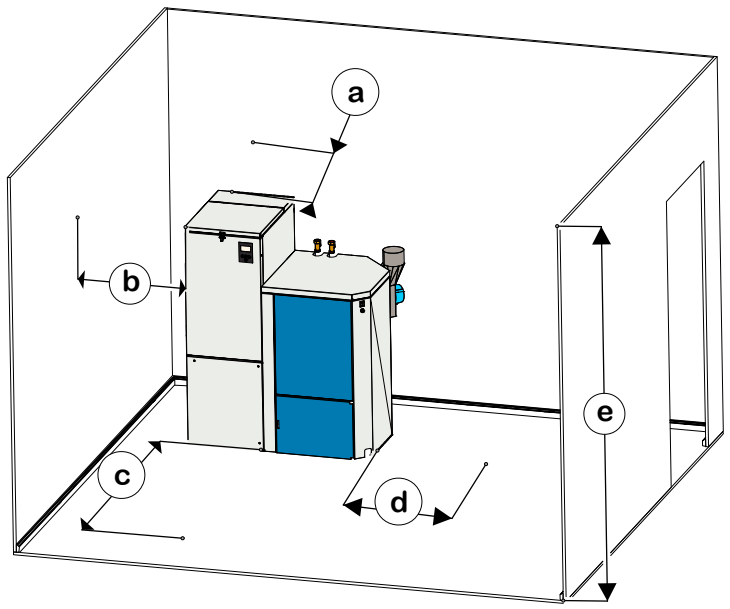
Boiler Weight

Dimensions in kg	Easypell 16	Easypell 20	Easypell 25	Easypell 32
Weight of boiler with casing, hopper and burner	345		420	

Minimum clearance dimensions required

To install the heating system properly and ensure economical operation, you need to make sure that minimum clearance dimensions indicated below are observed when setting up the boiler.

In addition, make sure that legislation in your country is complied with relating to the minimum clearanceof the flue gas tube.



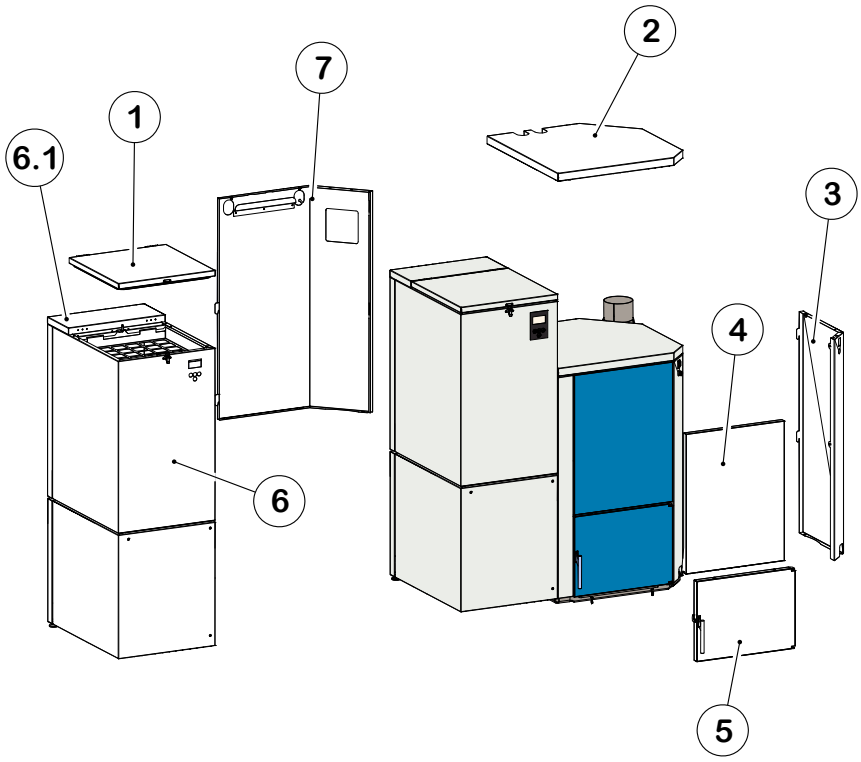
a	Min. clearance of flue gas connection from wall or part of building	150 mm
b	Min. clearance of side of boiler from wall or part of building	300 mm
c	Min. clearance of front of boiler from wall or part of building	700 mm
d	Min. clearance of side of burner from wall or part of building	150 mm
e	Min. room height	2050 mm

Legislation in your country must be observed!

The indicated values must not fall below by piping or other.

7.3 Casing parts

Die Verkleidungsteile umgeben den Kessel. Sie verhindern den Kontakt zu heißen, beweglichen und stromführenden Bauteilen. Sie geben dem Pelletkessel Easypell das unverwechselbare Aussehen.



1	Pellet hopper casing cover	5	Boiler door
2	Boiler casing cover	6	Pellet hopper casing
3	Boiler side panel	6.1	Cover pellet hopper casing
4	Front of boiler	7	Boiler rear panel

7.4 Removing the casing, the hopper and the burner

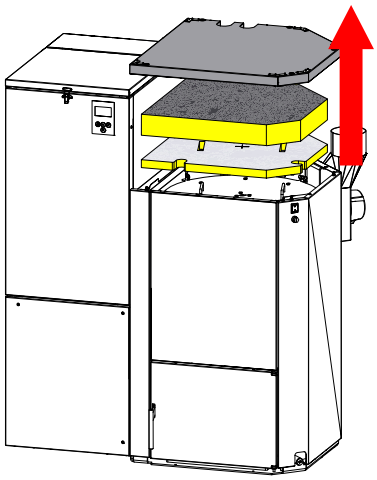
Dismantle the pellet boiler as far as necessary if site conditions require, so that the unit can be brought safely into the building.

The complete dismantling of all components described here is divided into the following sections:

1. Dismantling the burner casing and the burner
2. Dismantling the boiler door
3. Dismantling the boiler casing

7.4.1 Dismantling the burner casing and burner

1



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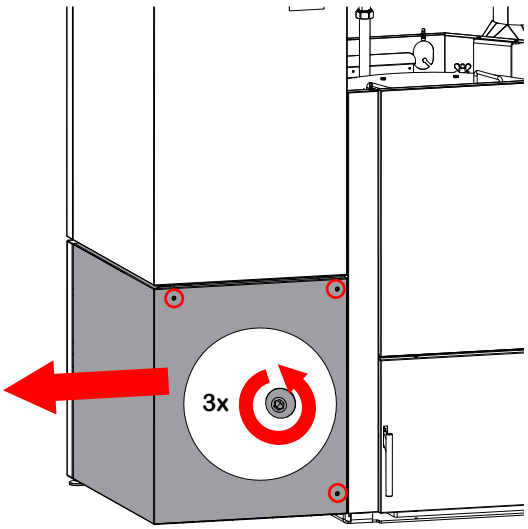

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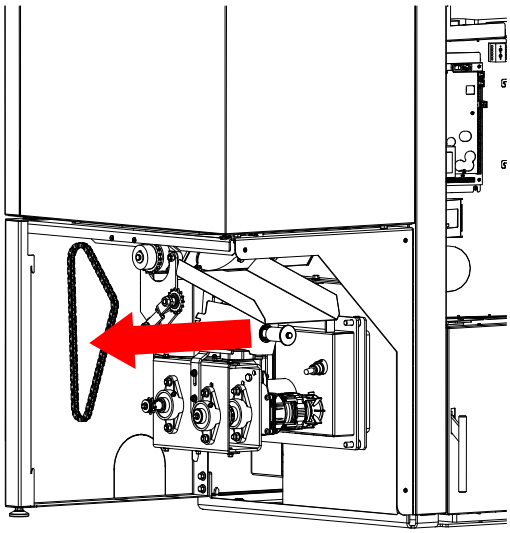

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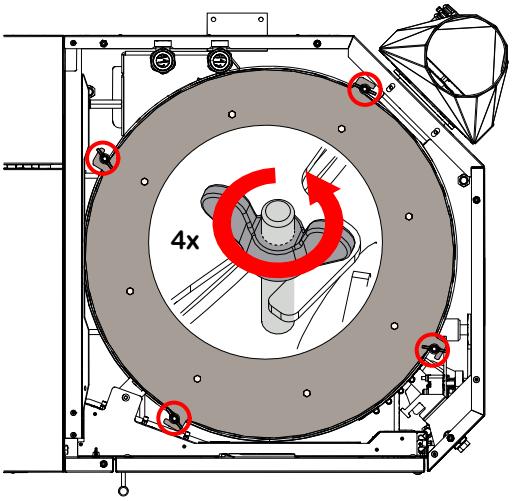

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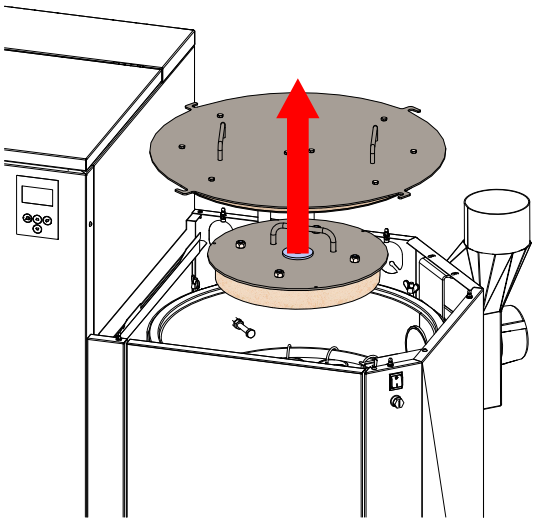

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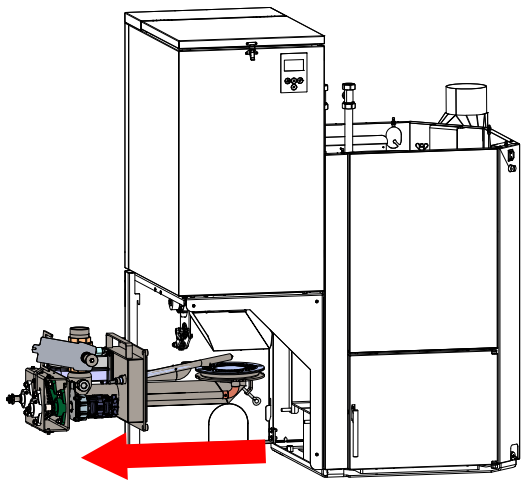
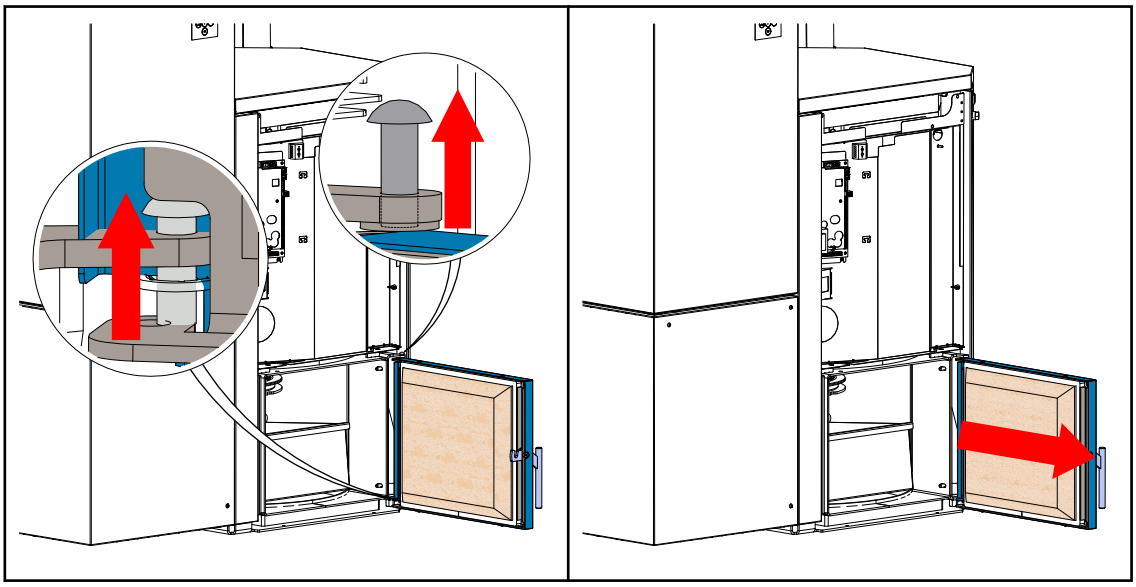
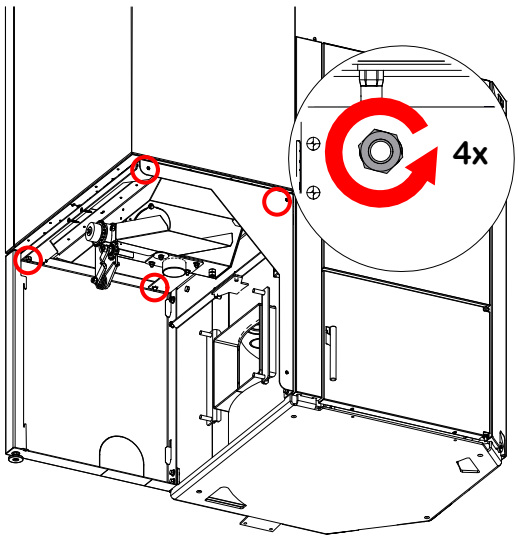


7.4.2 Dismantling the boiler door



7.4.3 Dismantling the boiler casing

1



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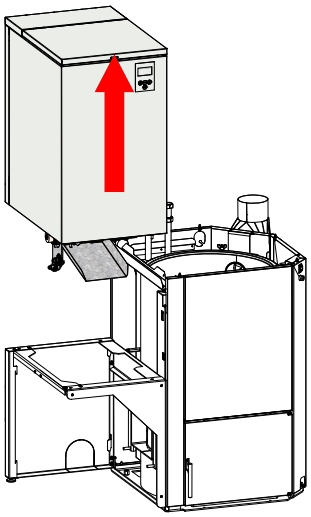

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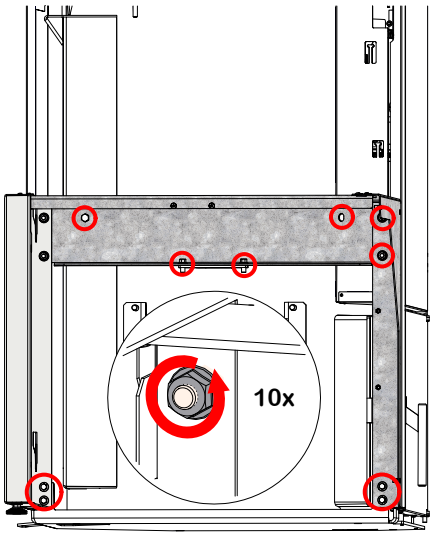

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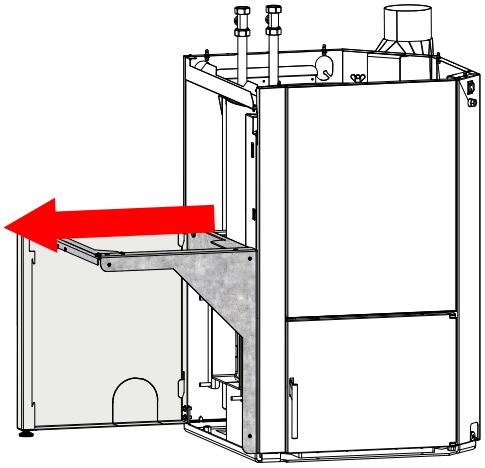

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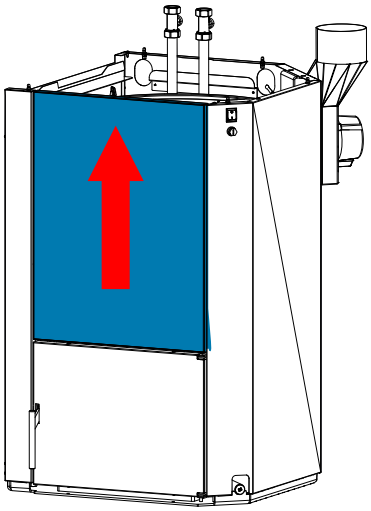

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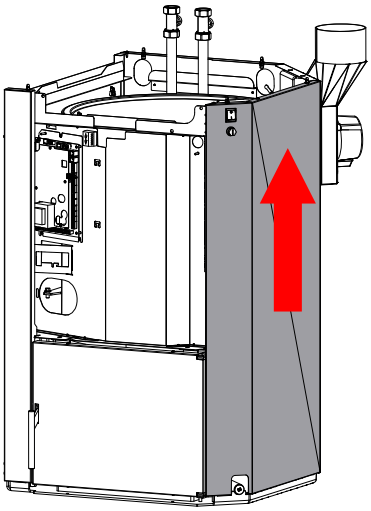
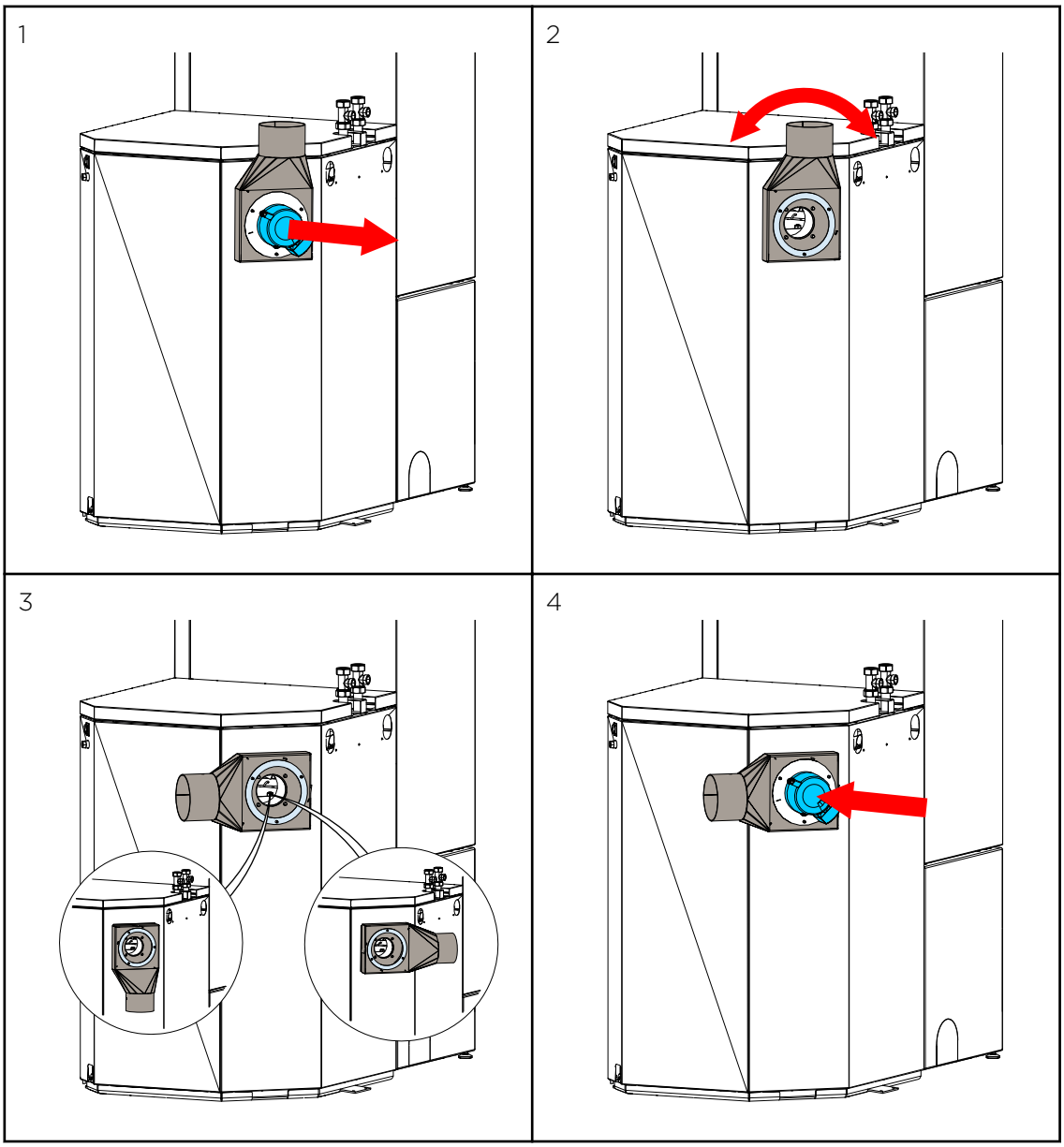


7.5 Change position of flue gas fan



8 Performance adjustment

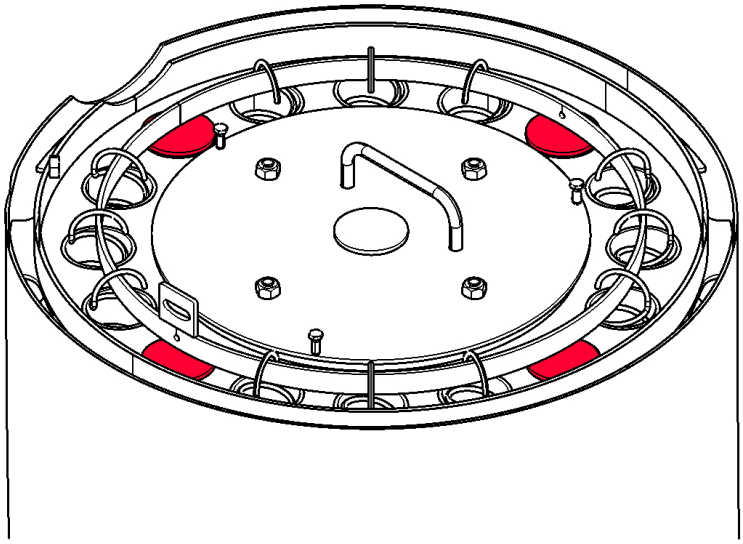
On ÖkoFEN pellet boilers the effective heat exchanger area can be changed within a assembly group. This involves opening or closing the heat exchanger tubes. The power rating of the pellet boiler is adjusted as a result. ÖkoFEN supplies the pellet boilers in one type group with the power rating shown below. If the condition as shipped is different from the power rating on the data plate supplied, then the service technician must adjust the power rating before starting up for the first time.

8.1 Installing the turbulators and closure plugs

Heat transfer takes place in the heat exchanger tubes. The heat exchanger tubes are fitted with cleaning springs that also act as turbolators.

On the Easypell 16 and Easypell 25 boilers, some of these heat exchangers are sealed off with sealing caps.
In this way, the heat exchanger area is adapted to the rated output.

Sealing caps:



Increasing the boiler power rating

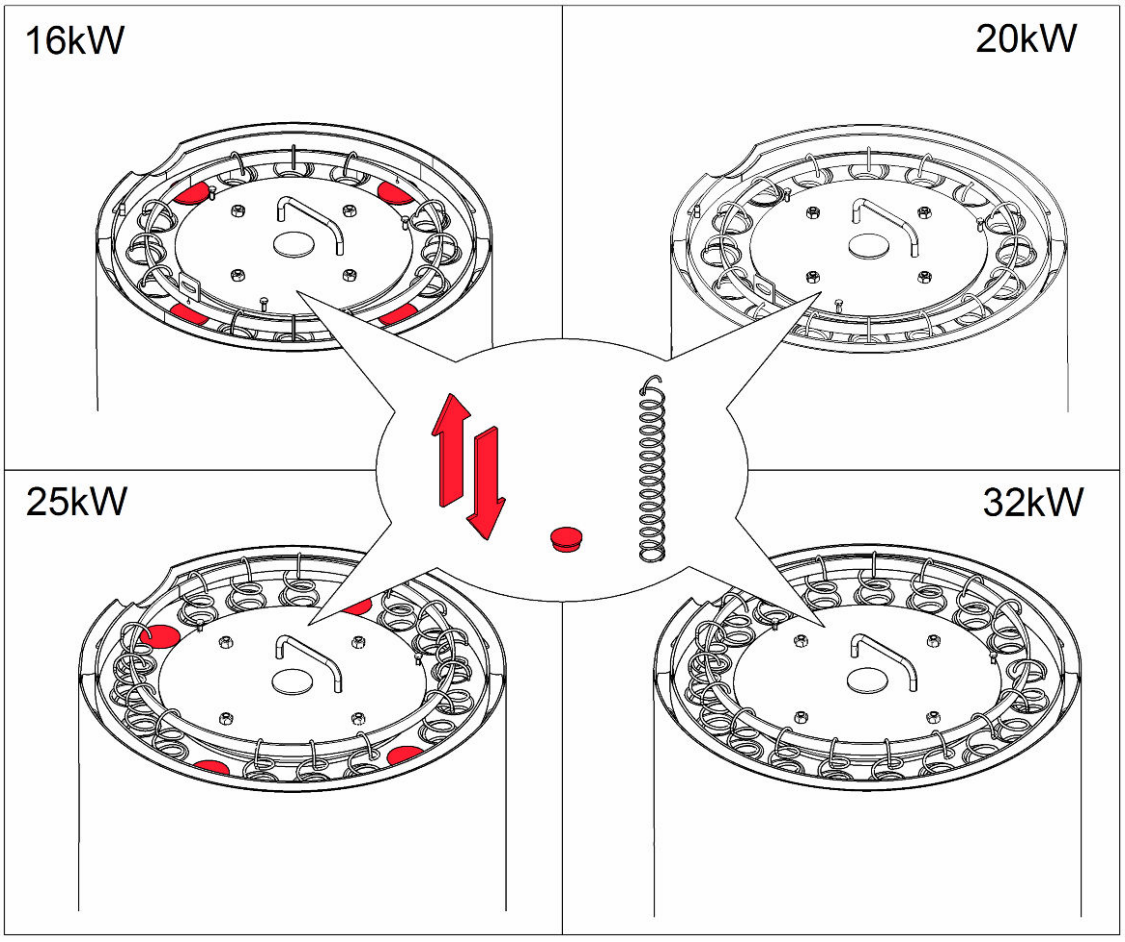
1. Remove the closure plugs from the ends of the heat exchanger tubes.
2. Insert the turbulators supplied into the heat exchanger tubes.
3. Hook the turbulators onto the ring of the cleaning system.

Reducing the boiler power rating

1. Unhook the turbulators from the ring of the cleaning system.
2. Remove the cleaning springs/turbulators from the heat exchanger tubes.
3. Close off the heat exchanger tubes using the closure plugs supplied.

Number of cleaning springs (tubulators) to be removed/installed:

Boiler power ratings as per data plate	Factory-set boiler power rating	
16 kW	16 kW	No adjustment required
20 kW	16 kW	Insert another 4 turbulators
25 kW	25 kW	No adjustment required
32 kW	25 kW	Insert another 4 turbulators



Only the adjustment of the system by an authorized Eco Engineering service technician can guarantee an optimal level of efficiency and with that a low-emission operation.

Starting up for the first time has to be performed only by an authorized Eco Engineering service technician.

9 Connecting up the hydraulics

The hydraulic connections are located on the top side of the boiler.

⚠DANGER

Risk of explosion

You may connect up the pellet boiler only after an authorised plumber has installed the hydraulic system completely with all safety devices.

NOTICE

Water damage, damage to pellet boiler

Only an authorised plumber may connect up hydraulics on the pellet boiler. Check the hydraulic system for leaks before starting up.

NOTICE

Insulation

The flow and return pipes must be insulated according to the state of the art.

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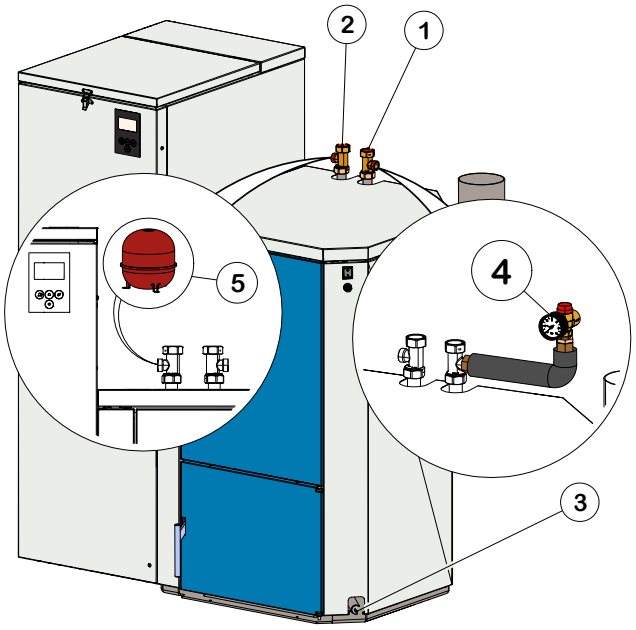
1. Hydraulic schematics
   Always refer to the Eco Engineering hydraulic schematics when connecting up the pellet boiler. The Eco Engineering hydraulic schematics are available from your Eco Engineering sales partner or from the Eco Engineering website.

2. Connections
   The connections between the pellet boiler and the hydraulic system must be disconnectable.

3. Drain connection
   When you install the pellet boiler, remove the plug from the ENTLEERUNG connection and fit a 1/2" diameter shut-off valve.



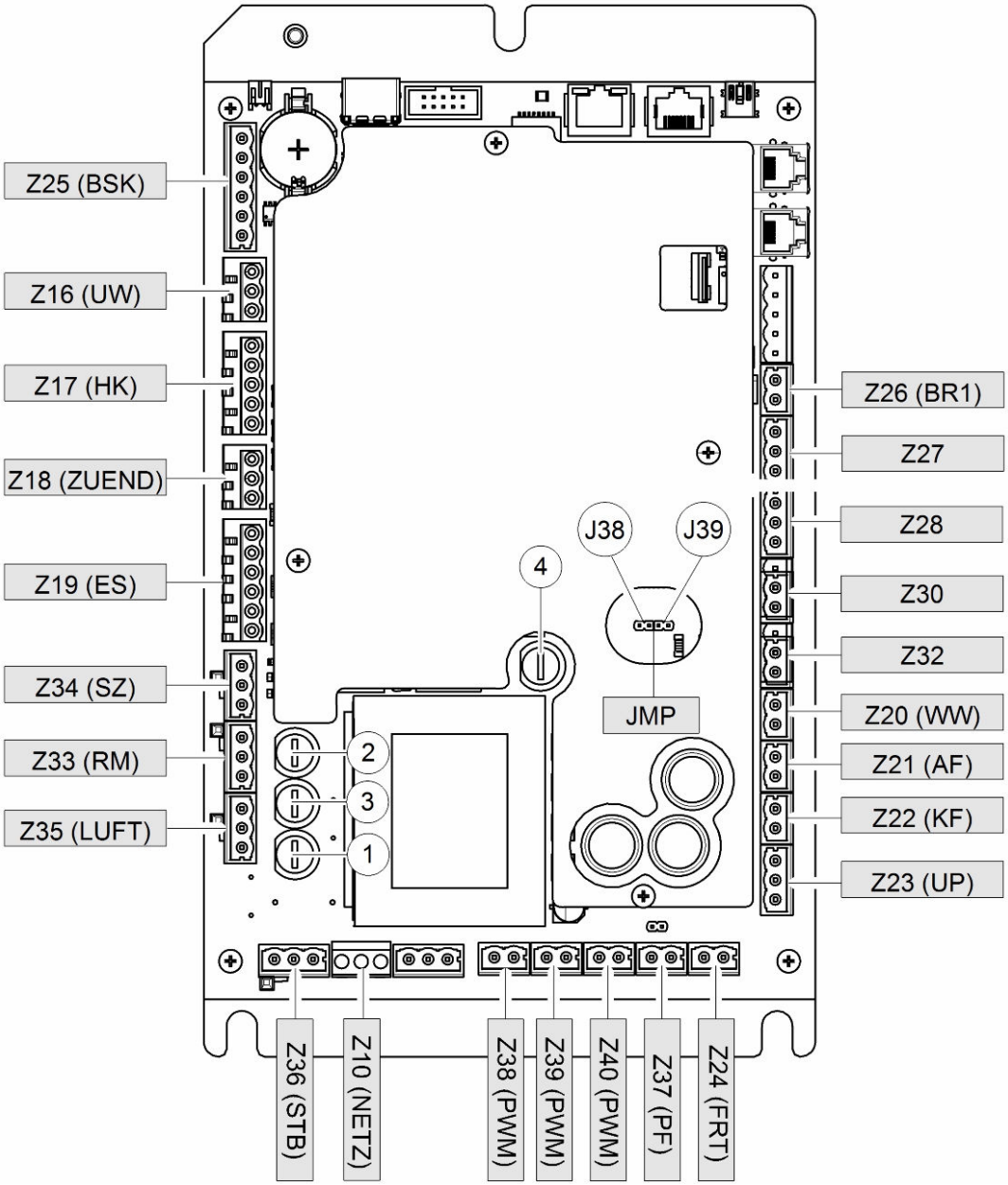
1	Feed
2	Return
3	Drain connection
4	Safety valve
5	Expansion tank

Two T-pieces are located in the ash pan and must be mounted directly on the hydraulic connection during installation.

10 Fuses - boiler controller

The boiler controller is located behind the front cover of the boiler. It is used to control the combustion procedere and the fuel-feeding system.

The boiler controller is connected to the operating device by a bus-connection. The operating device is located in the boiler door. Visualizing of measuring values and ajdustment of desired values and parameters are accomplished through through the operating device.



	Fuse type	secured terminals
1	F1: Fuse T 3,15A	LUFT, ES, ZUEND
2	F2: Fuse T 3,15A	UW, RM, SZ
3	F3: Fuse T 315mA	internal supply
4	F5: Fuse T 1A	Z28, Z30

NOTICE

Damage of property

If you change microfuses, ensure correct current rating

10.1 Plugs on the boiler control unit

Alle Sensoren und Aktoren sind steckfertig verkabelt. Die Verbindung mit der Kesselsteuerung erfolgt mittels Steckverbindung.

Achten Sie darauf, dass die Beschriftung der Stecker mit der Steckplatzbezeichnung übereinstimmen.

Designation of plug-in position		Voltage	Name of sensors, motors and pumps
Z25 (BSK)	1 2 3 4 5 6	24 Volt	Flame return gate (Belimo)
Z16 (UW)	13 PE N	230 Volt	DHW pump/ Accumulator pump
Z17 (HK)	N PE 14	230 Volt	Only active if a sensor is connected to terminal 43/44.
Z18 (ZUEND)	N PE 22	230 Volt	Ignition
Z19 (ES)	2 3 N PE 6	230 Volt	Burner motor
Z34 (SZ)	17 PE N	230 Volt	Flue gas fan
Z33 (RM)	15 PE N	230 Volt	Motor boiler cleaning device
Z35 (LUFT)	N PE 11	230 Volt	Burner fan
Z36 (STB)	17 PE 19	230 Volt	Safety temperature sensor
Z10 (NETZ)	L PE N	230 Volt	Power supply boiler control unit
Z38 (AOUT PWM 1)	16 17	24 Volt	PWM signal for room thermostat Z26 or BR1
Z39	3 4	24 Volt	PWM pump signal for output of room thermostat Z27
Z40	5 6	24 Volt	PWM pump signal for output of room thermostat Z28
Z37 (PF)	1 2	24 Volt	Accumulator sensor
Z24 (FRT)	13 12	24 Volt	Combustion chamber sensor
Z23 (UP)	4 3 2	24 Volt	Negative draft measuring
Z22 (KF)	9 8	24 Volt	Boiler sensor
Z21 (AF)	41 42	24 Volt	Outdoor sensor
Z20 (WW)	43 44	24 Volt	DHW sensor
Z32	35 36	24 Volt	Not used
Z30	15 16	24 Volt	Pilot switch for hopper
Z28	3 4 5	24 Volt	Room thermostat Z40
Z27	24 25 26	24 Volt	Room thermostat Z39
Z26 (BR1)	8 7	24 Volt	Burner contact - Room thermostat Z38
JMP	-	-	Jumper for speed controlled high-efficiency pump

10.2 Cable routing

Reroute cables after dismantling the casing or other system components.

⚠DANGER

Risk of electric shock

Switch off the system before performing work on the boiler.

Note the following points to ensure the cables are routed securely:

Cables must not be routed:

- over moving parts
- over hot parts
- over sharp edges

Cables must be:

- routed in the cable ducts provided
- through cable leadthroughs
- tied together
- secured with cable ties at the points provided
- Power cables must be routed in the right-hand duct and sensor cables must be routed in the left-hand duct.

⚠DANGER

Risk of electric shock

Check cables for damage..
Replace any cables that are damaged.

NOTICE

Five safety rules:

Before starting work

► ● switch off
● lock against reclosure
● chech that lines and equipment dead
● ground and short circuit phases
● cover, partition or screen of adjacent line sections

NOTICE

Damage to the boiler controller

Before fitting the casing components, make sure that all cables are connected to the correct points on the controller! Failure to do so can lead to damage to the controller, and such damage is not covered by warranty!

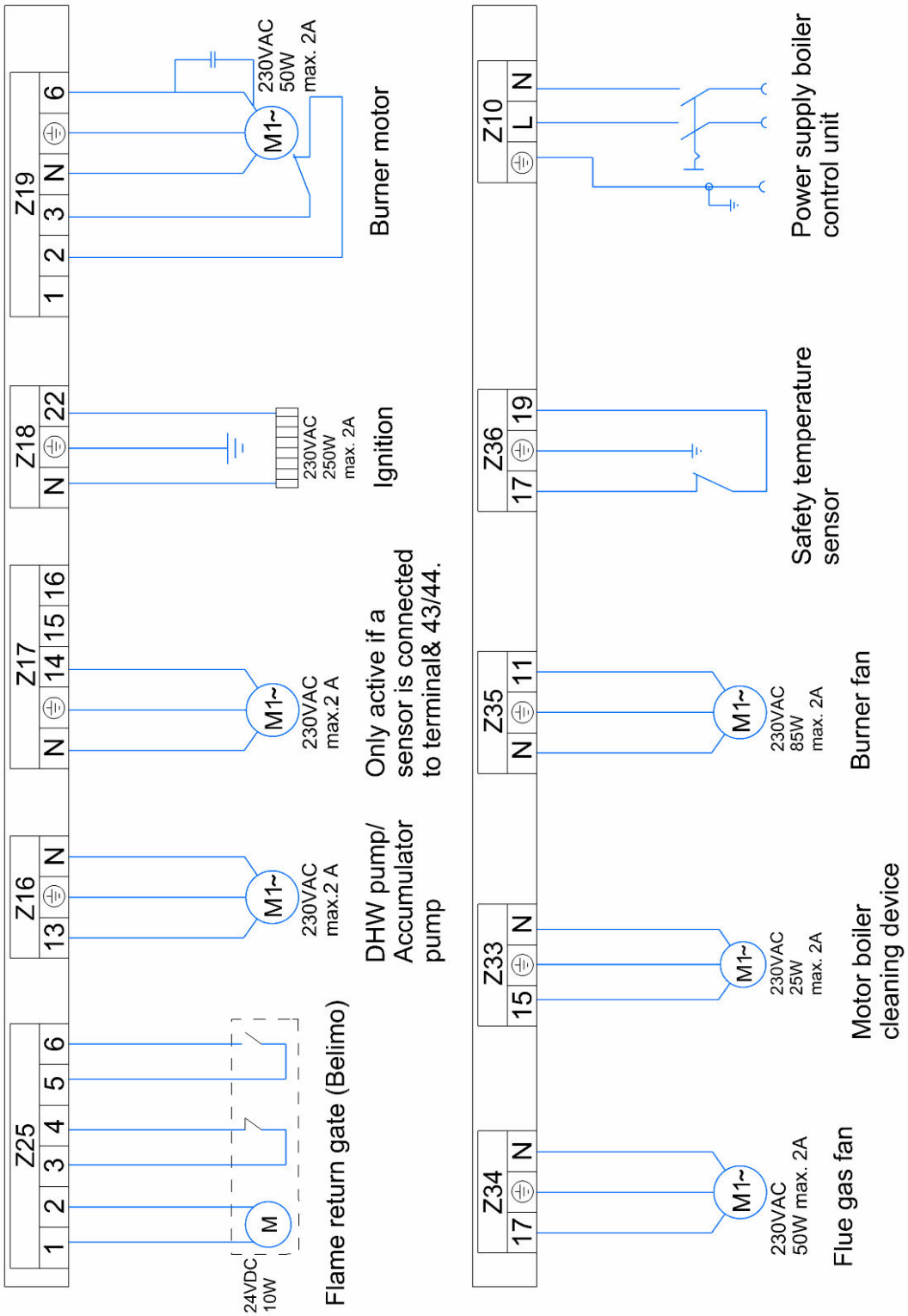
10.3 Wiring diagrams

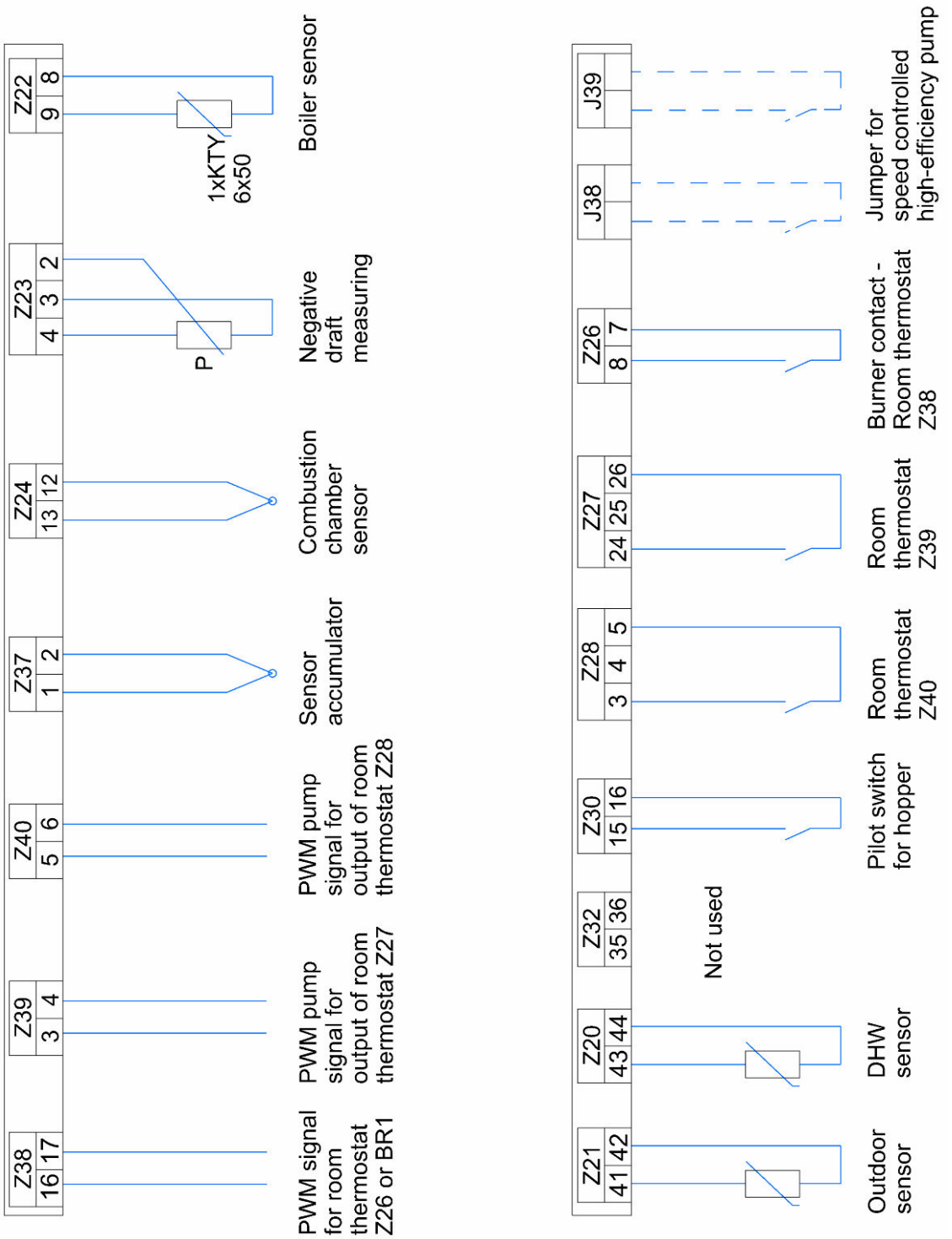
The wiring diagrams for the boiler control unit provide detailed technical information for qualified persons. Only qualified persons or electricians under the direction of a qualified person may connect to the controller.

⚠DANGER

Risk of electric shock

Only a qualified person may connect the pellet boiler to the power supply. Always disconnect / de-energize the power supply before working on the boiler.




Z38
16 17
PWM signal for room thermostat Z26 or BR1
Z39
3 4
PWM pump signal for output of room thermostat Z27
Z40
5 6
PWM pump signal for output of room thermostat Z28
Z37
1 2
Sensor accumulator
Z24
13 12
Combustion chamber sensor
Z23
4 3 2
P
Negative draft measuring
Z22
9 8
1xKTY 6x50
Boiler sensor
Z21
41 42
Outdoor sensor
Z20
43 44
DHW sensor
Z32
35 36
Not used
Z30
15 16
Pilot switch for hopper
Z28
3 4 5
Room thermostat Z40
Z27
24 25 26
Room thermostat Z39
Z26
8 7
Burner contact - Room thermostat Z38
J38
J39
Jumper for speed controlled high-efficiency pump

11 Starting up for the first time

After bringing in the boiler, connecting up the hydraulics and power supply, the unit can be started up for the first time.

NOTICE

Density of the combustion chamber

To ensure a trouble-free operation, the density of the combustion chamber must be given.

The unit must be started up for the first time by an authorised Eco Engineering service technician.

NOTICE

Material Damage

The allowed operation temperature of the boiler controller is between 5 and 40° C.

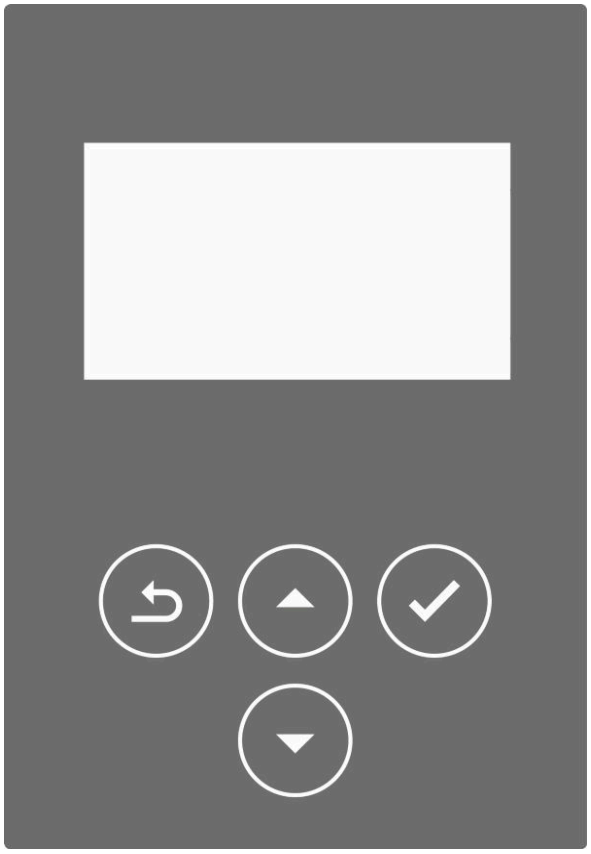
NOTICE

Emission measurement

Before carrying out an emission measurement, the pellet boiler must have a minimum running time of 30 hours.

12 Starting the pellet boiler

Navigation-icons



Icon view	Description
	Use the up arrow to return to the previous menu screen.
	Use the down arrow to arrive at the next menu screen.
	When this symbol is displayed, the set value can be changed. When this function is selected, the value can be changed by pressing the arrow keys.
	When this function is selected, you leave the menu without saving the changed value.

Icons System status

Icon view	Description
	Run down time
	Negative draft input open
	Accumulator
	Sensor break accumulator sensor
	Boiler
	DHW
	Sensor break DHW sensor
	Boiler cleaning Note: This message appears when the container cover has been open for longer than 20 seconds.
	Warning
	Heating full power
	Safety temperature sensor has released
	Container cover is open
	OFF
	Ignition
	Sensor break boiler sensor
	Sensor break combustion chamber sensor
	Flame return gate open fault
	Time programme aktive

Icon view	Description
	Burner contact closed
	Pump active
	Temperarure too low
	Outertemperature control

13 Controller for heating circuits and DHW

In principle, 5 versions are available:

Version A: Burner demand via contact Z26, Pump on the output Z16, no DHW.

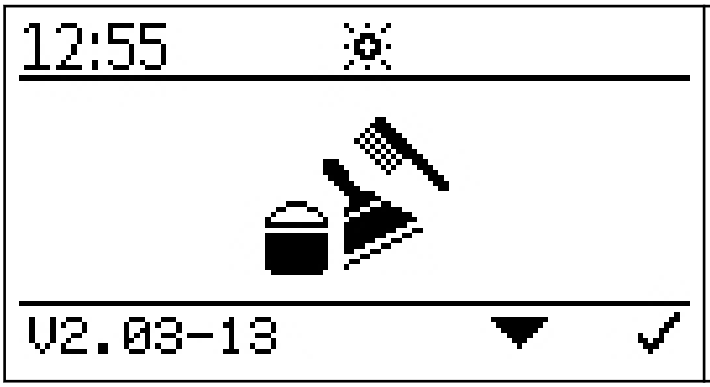
Version B: Heating circuit direct via thermostat, DHW regulation.

Version C: Heating circuit and DHW regulation.

Version D: Accumulator, heating circuit and DHW regulation for fresh water module or corrugated pipe.

Version E: Accumulator, heating circuit and DHW regulation for hot water accumulator.

13.1 Code level



For access to the code level in which you can set or change values, proceed as follows:

- Select the start mask
- Press the two buttons together for about 3 seconds.
- The symbol appears in the upper right corner.

13.2 Version A

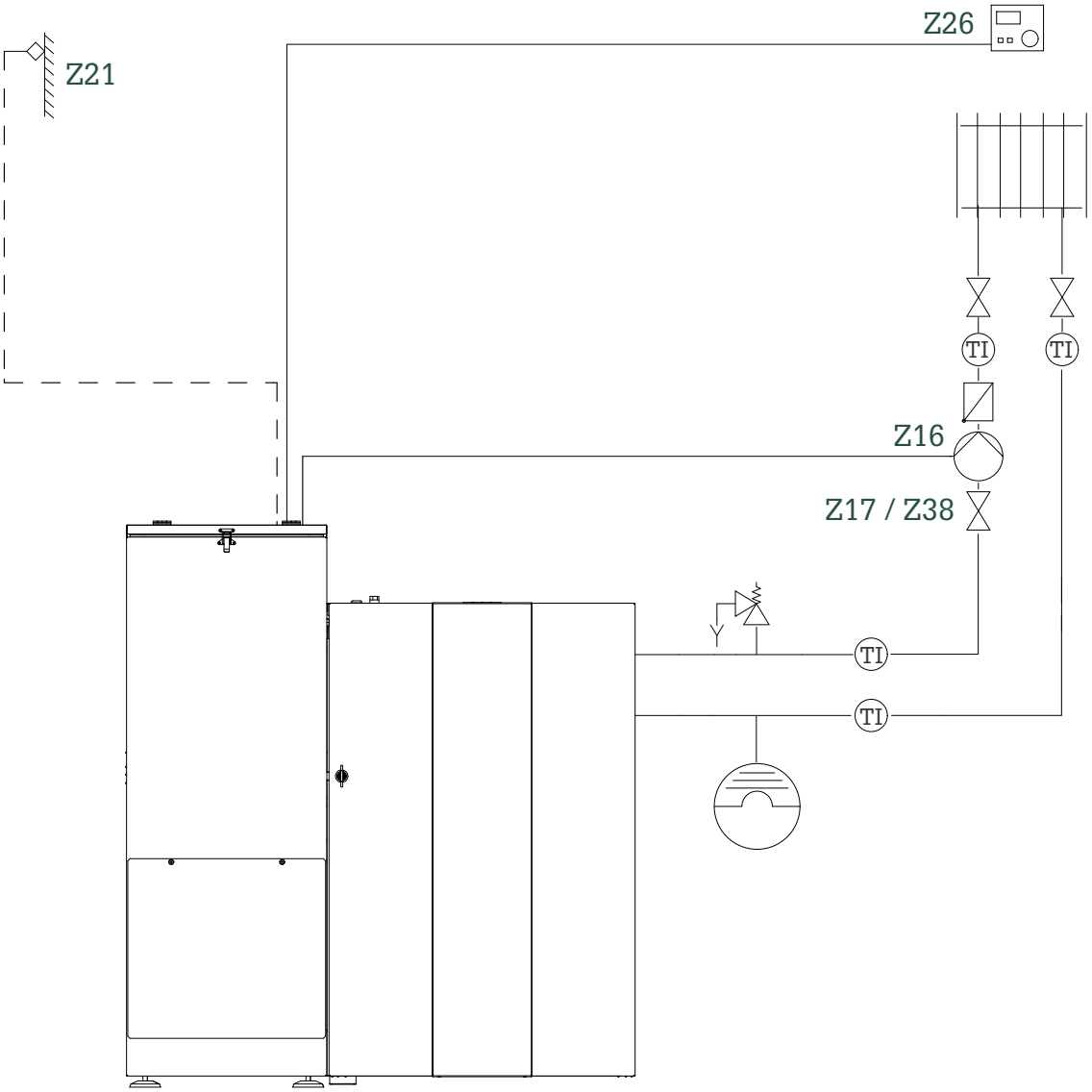
The boiler is started via the burner contact. The pumps at output Z16 (UW) are active from a boiler temperature of 60° C.

The mode of the pumps can be selected.

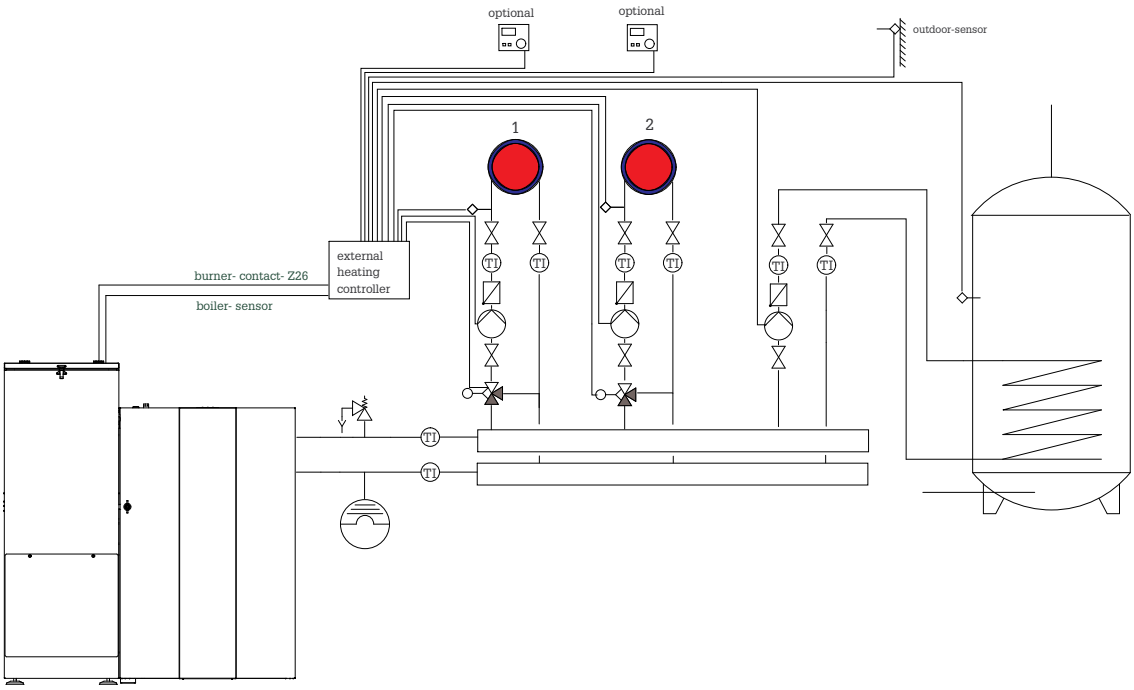
External heating controller

For an external heating controller, input Z26 is determined as burner demand. The boiler sensor of the heating controller must be installed into the boiler to avoid a pump function below 60 ° C of the boiler pump. Controllable pumps are regulated with regard to the boiler temperature.

Hydraulic diagram version A:



Heat consumers are shown symbolically and can be substituted by others!

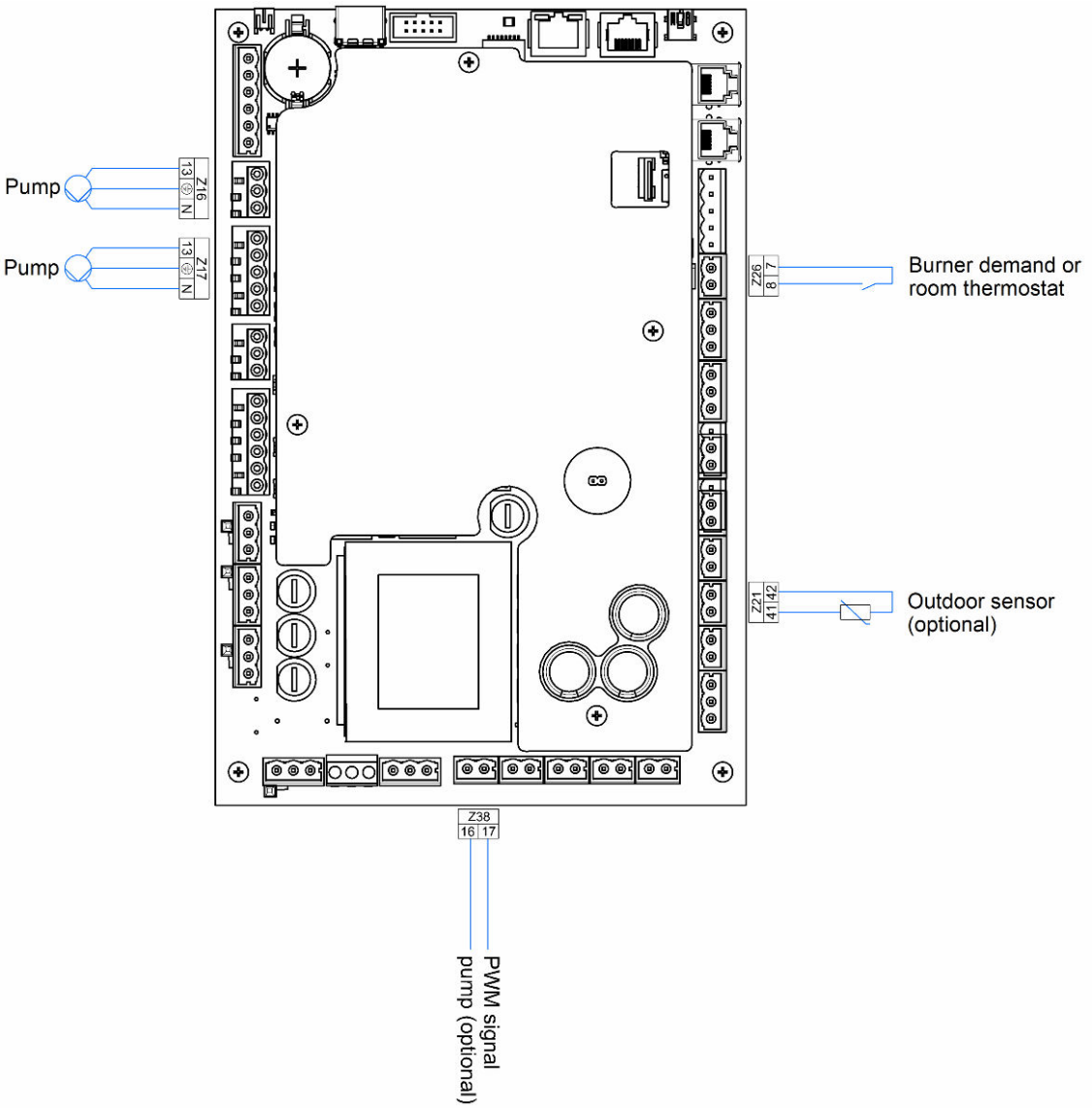


Heat consumers are shown symbolically and can be substituted by others!

NOTICE

It must be ensured that the heating circuit pump only switches on from 60°C boiler temperature. Otherwise, the boiler may be damaged.

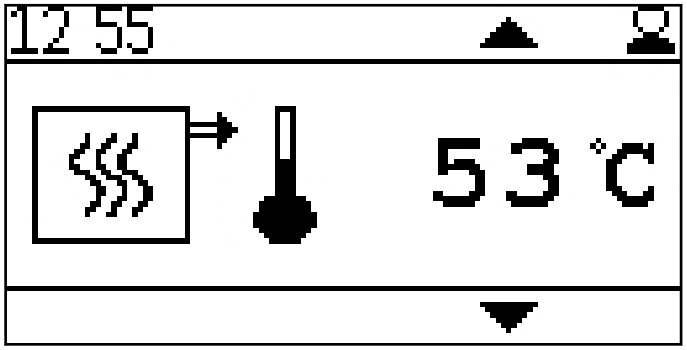
Wiring diagram version A:



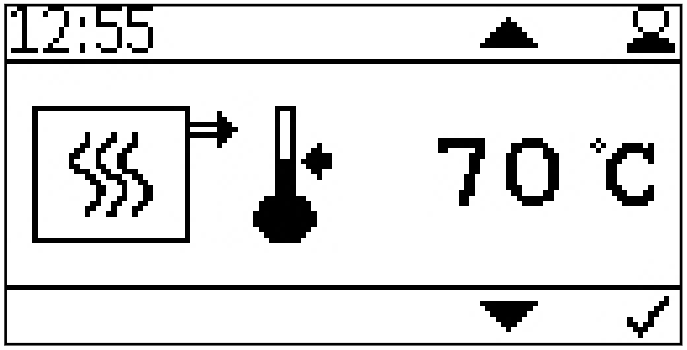
The total line length of the heating circuit pumps must not exceed 100 m!

13.2.1 Commissioning controller version A

After code input:

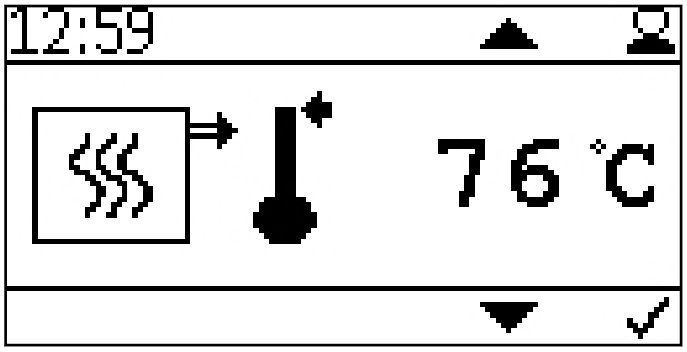


Display of the current boiler temperature



Setting the boiler set temperature.

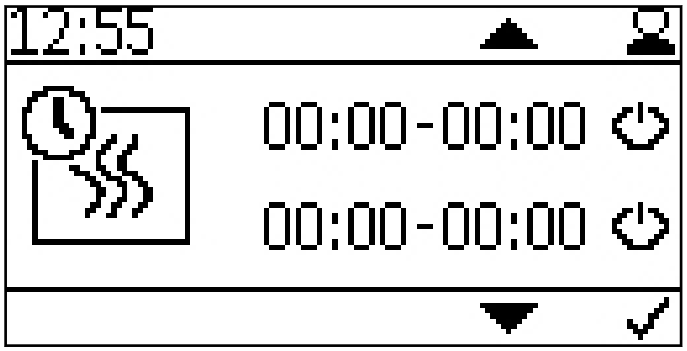
The boiler set temperature can be set in the range of 70 ° C to 90 ° C if a higher boiler temperature requirement or a larger modulation range is required.



Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

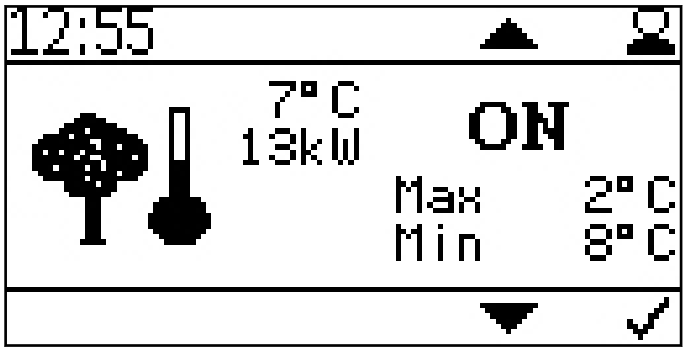


Adjusting the time programme of the boiler.

By pressing the start and stoptime appear.

Activate the times with

In the activated time, the boiler always runs up to the switch-off temperature without considering the contact Z26. Outside the time, the contact Z26 activates the boiler.

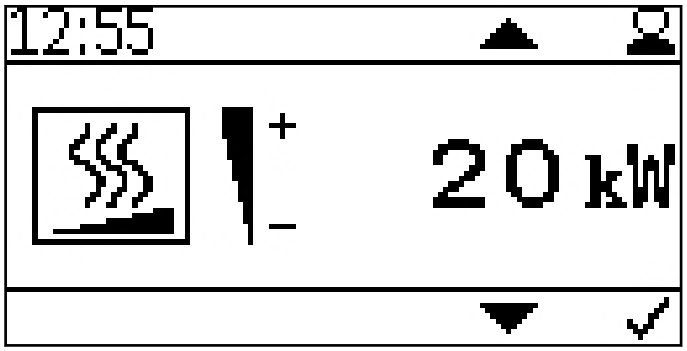


Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

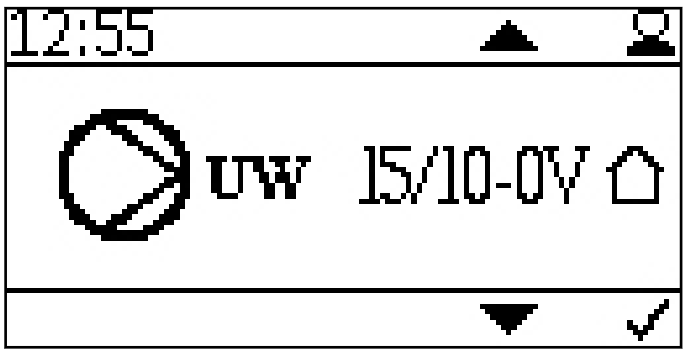
Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C



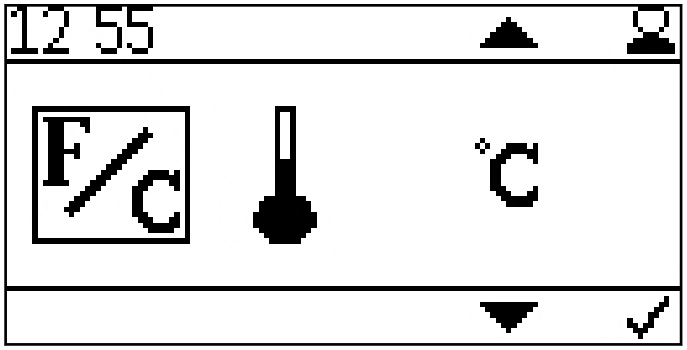
Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting. This will improve boiler runtime and modulation.



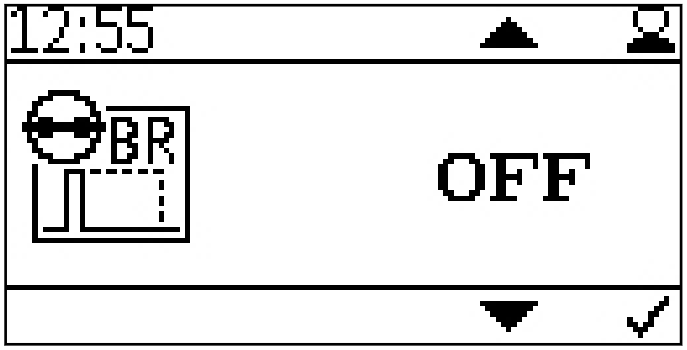
Settings pumptype:
Z16/38

- Heating efficient with or without PWM1 - PWM signal heating
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal solar



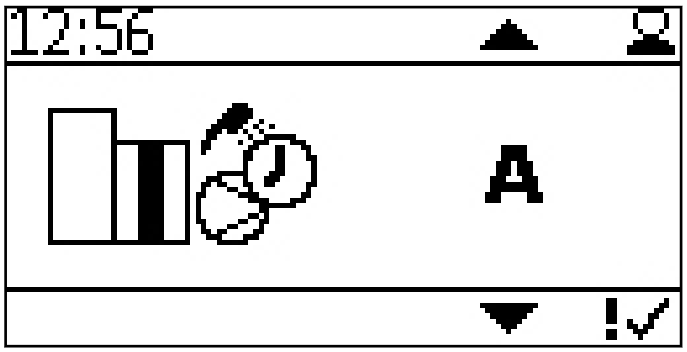
Setting temperature unit.

- ° Celsius
- ° Fahrenheit



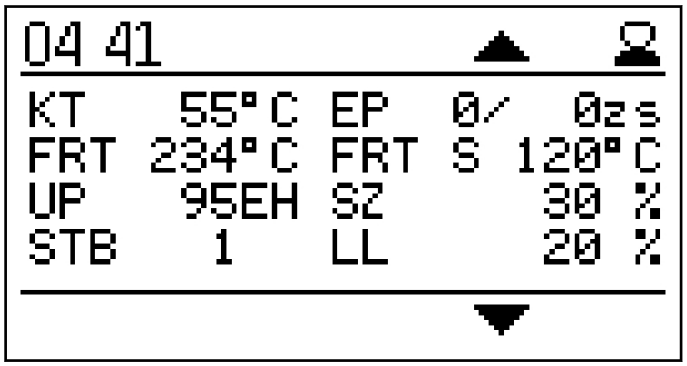
Setting mode burner request.

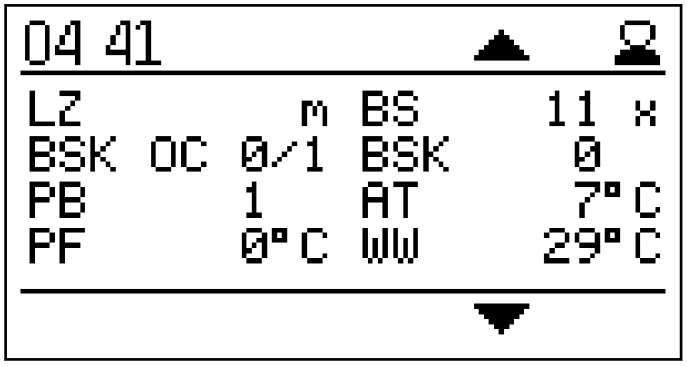
Conversion from constant ON / OFF to pulse mode. In pulse mode, the boiler runs according to the start pulse until it reaches the shut off temperature.

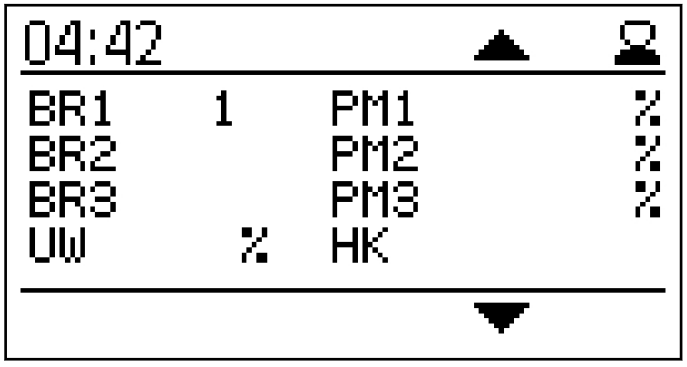


Setting operation mode.

Changing the operation mode.

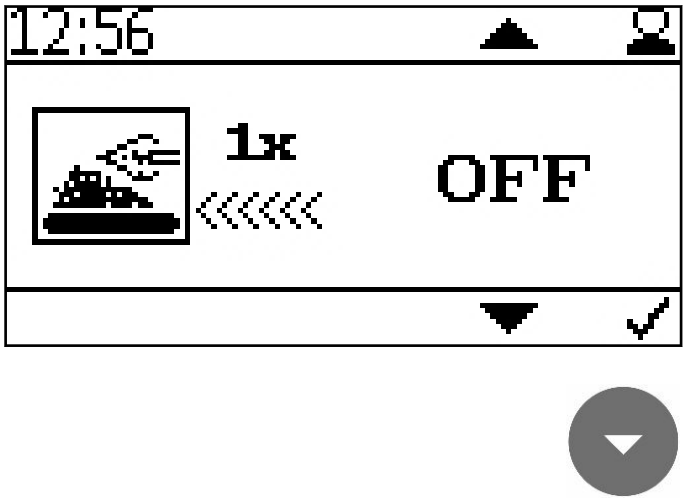






Display of the current values

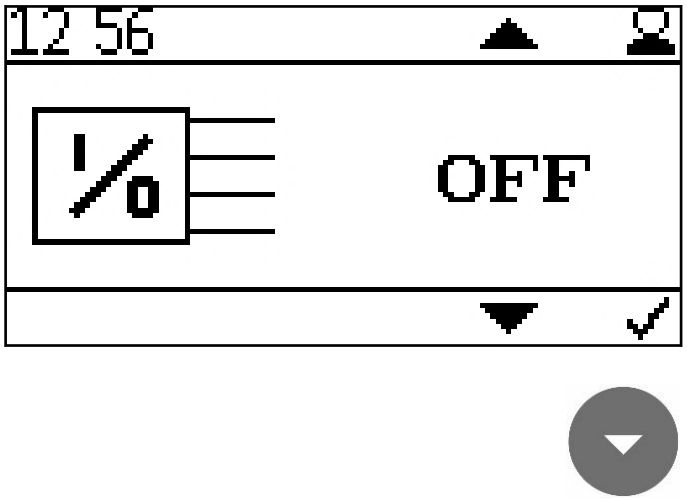
- KT: Boiler temperature
- FRT: Combustion chamber temperature
- UP: Negative draft
- STB: Safety temperature sensor
- EP: Supply/Pause time
- FRT S: Set combustion chamber temp
- SZ: Flue gas fan
- LL: Burner fan
- LZ: Run time
- BSK OC: Flame return gate open / closed
- PB: Pellet hopper casing cover
- PF: Accumulator sensor
- BS: Burner starts
- BSK: Flame return gate open Set
- AT: Outside temperature sensor
- WW: DHW
- BR1: Burner / thermostat contact Z26
- BR2: Burner / thermostat contact Z27
- BR3: Burner / thermostat contact Z28
- UW: Output for pump UW 230V
- PM1: Pump output PWM-signal Z38
- PM2: Pump output PWM-signal Z39
- PM3: Pump output PWM-signal Z40
- HK: Output for pump HK 230V



Extended insertion

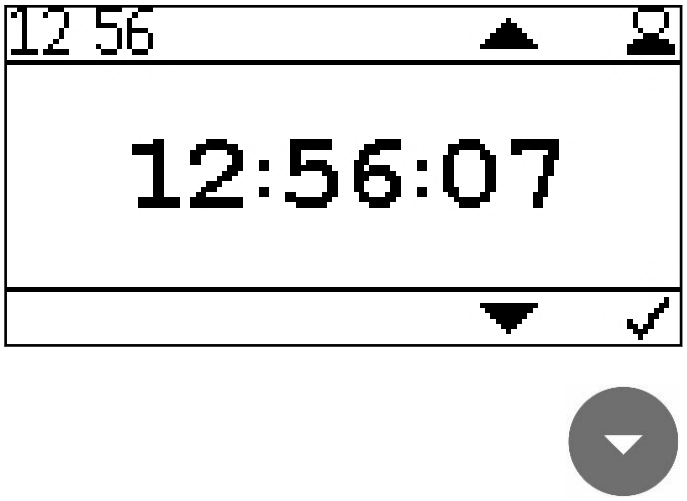
When this action is activated, the pellets are pushed in for a maximum of 3 ignition cycles longer than standard during the next ignition.

This function is automatically reset after being activated once and is used for faster ignition when the burner screw is empty.

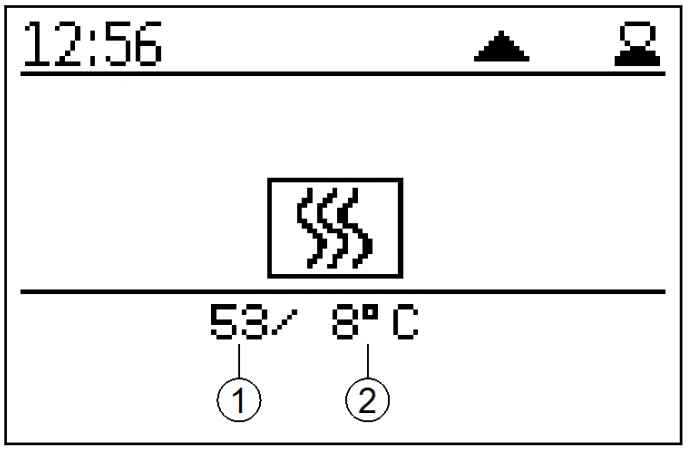


Output test.

The Output Test serves to check all connected.



Setting current time.



Display of current boiler status.

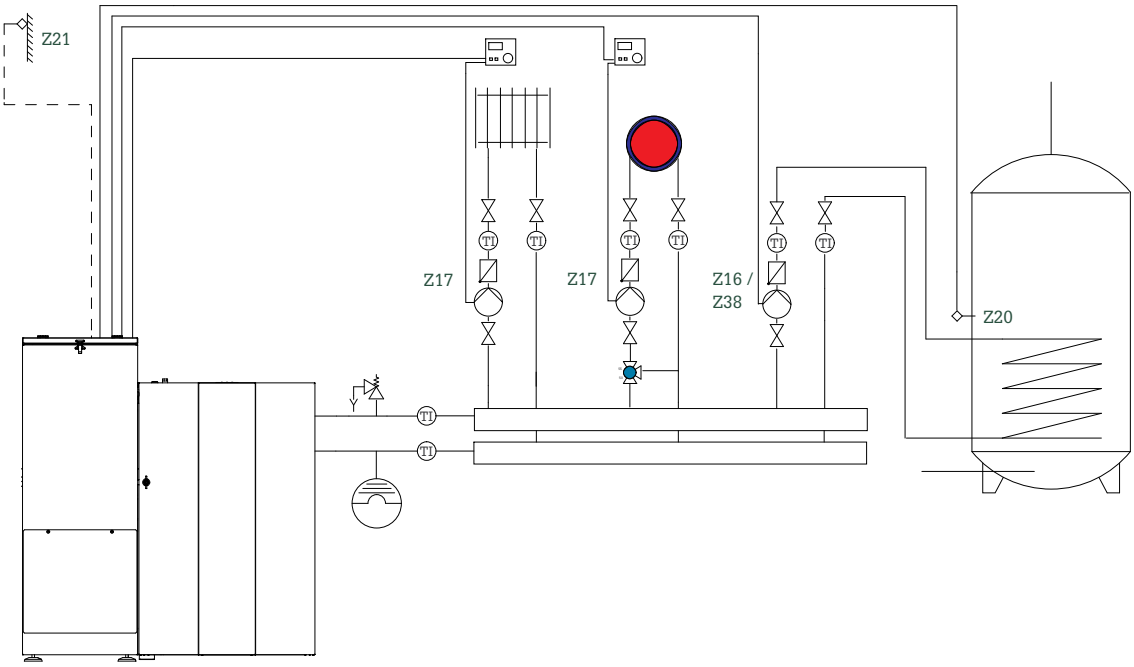
1. Current boiler temperature
2. Boiler set temperature

13.3 Version B

Heating circuits can switch on the burner demand via room thermostats directly in the pump line. When the boiler reaches 60° C, a signal is output to Z17 (HK After the thermostat interrupts the pump supply, the boiler switches off when the end temperature is reached.

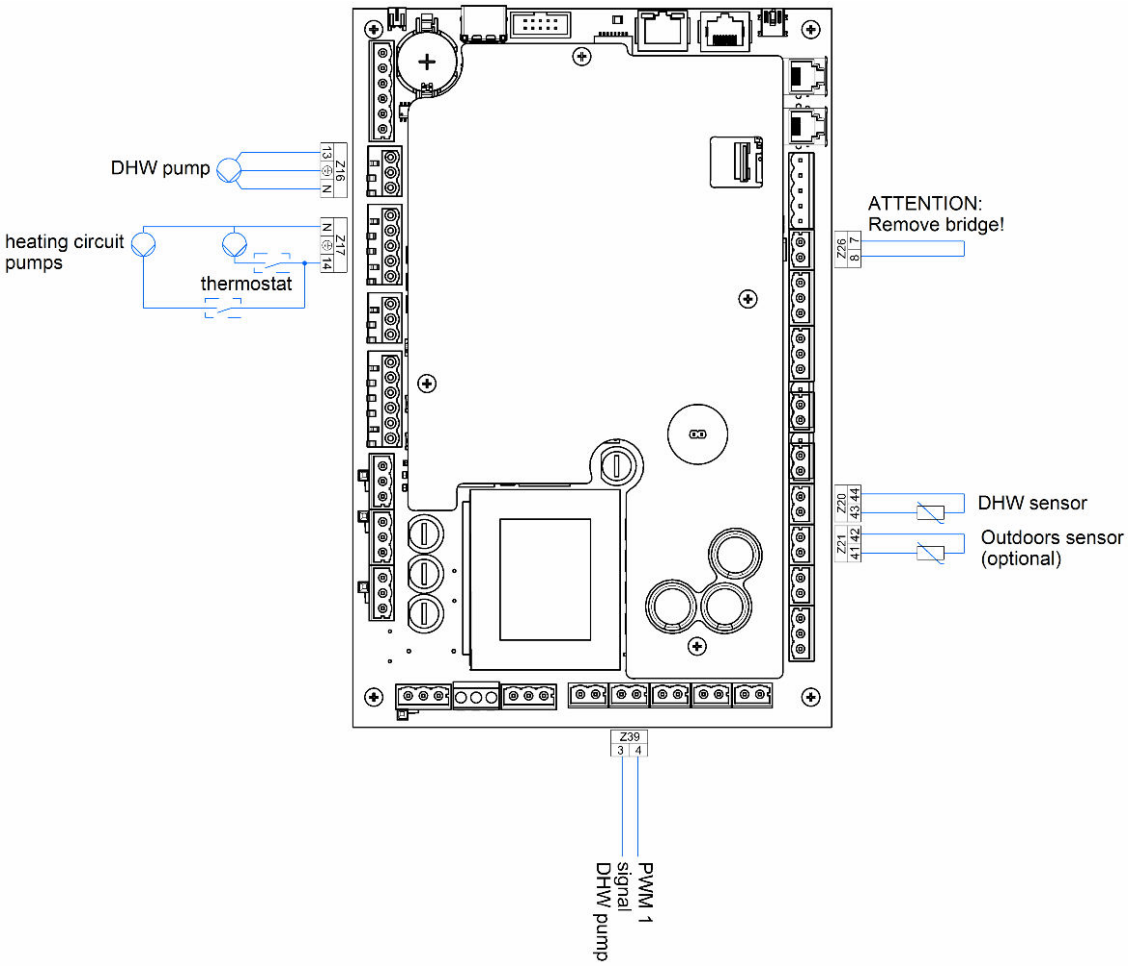
DHW is controlled via sensor Z20 (DHW) and pump output Z16 (UW). Controllable DHW pumps are regulated with regard to the boiler temperature.

Hydraulic diagram version B:



Heat consumers are shown symbolically and can be substituted by others!

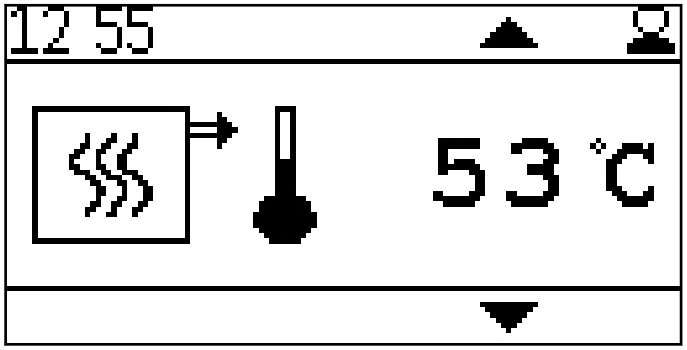
Wiring diagram version B:



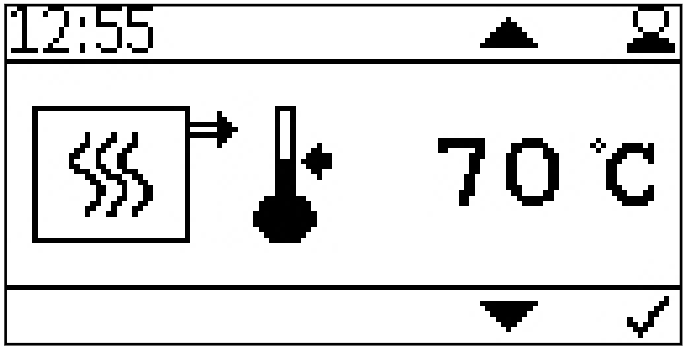
The total line length of the heating circuit pumps must not exceed 100 m!

13.3.1 Commissioning controller version B

After code input:

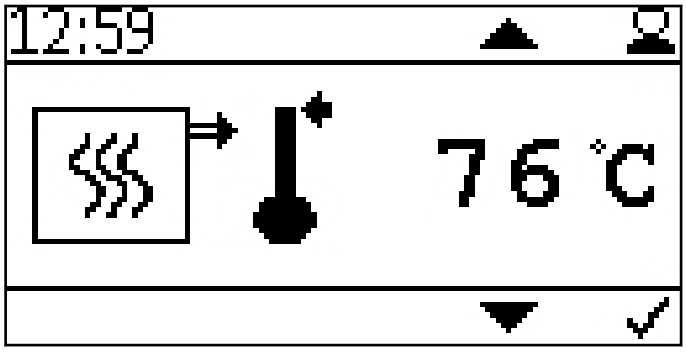


Anzeige der aktuellen Kesseltemperatur



Setting the boiler set temperature.

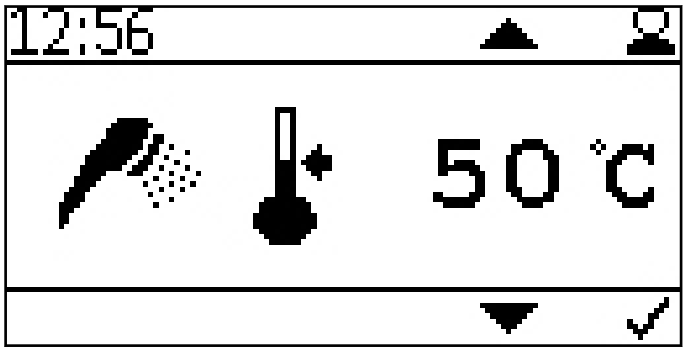
The boiler set temperature can be set in the range of 70° C to 90° C if a higher boiler temperature requirement or a larger modulation range is required.



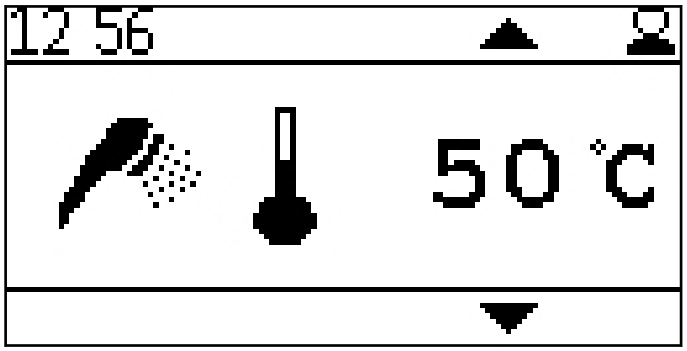
Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

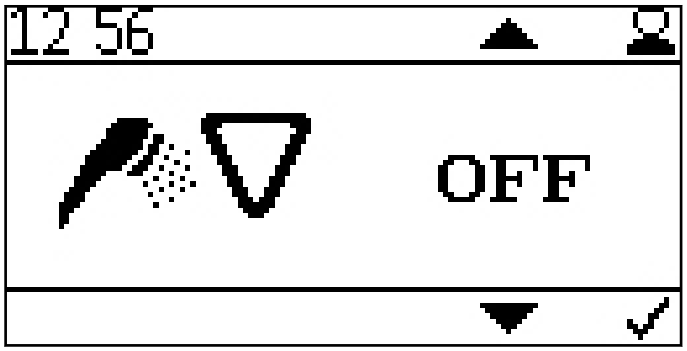


Display of the current DHW temperature.



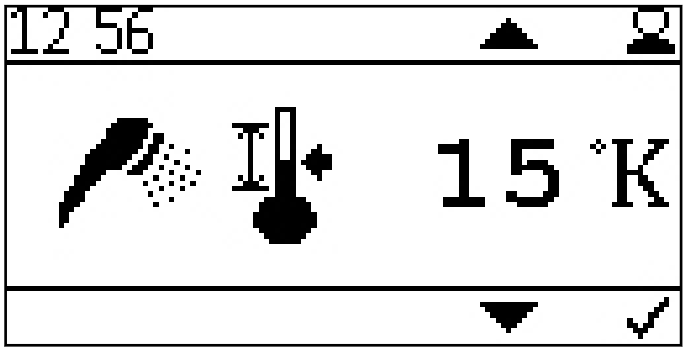
Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.



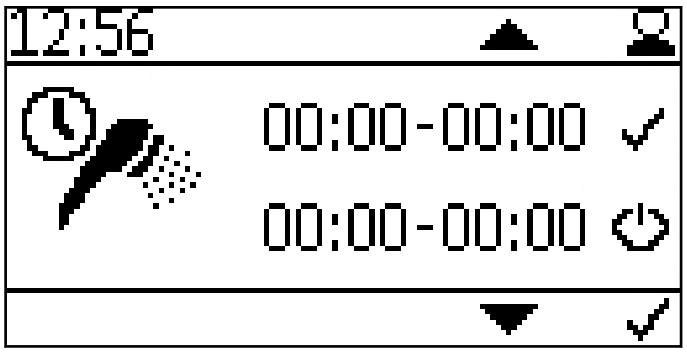
Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.



Setting DHW hysteresis.

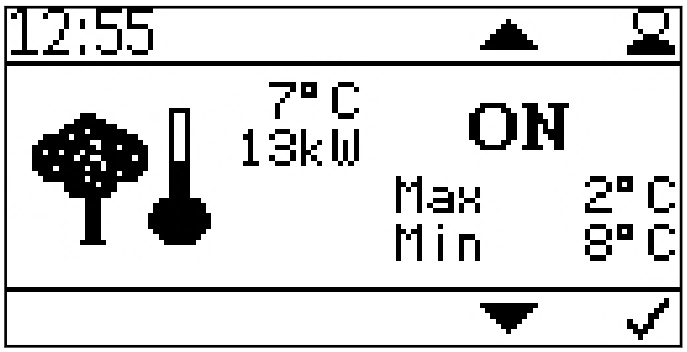
The DHW hysteresis can be set between 5K and 20 K.



Setting the time programm of the DHW.

By pressing the start and stoptime appear.

Activate the times with
During the activated time, the boiler regulates to the values indicated by the hot water sensor.
The hot water control is not activated outside the set times!

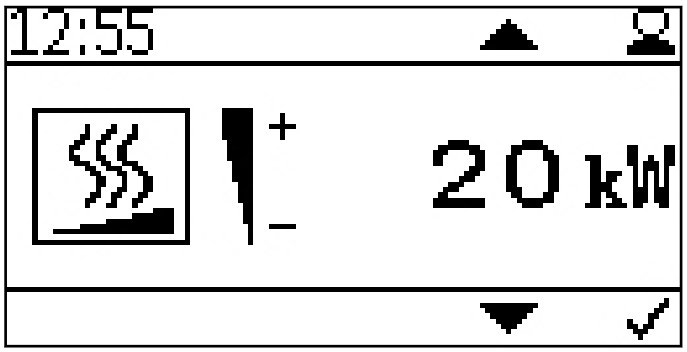


Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

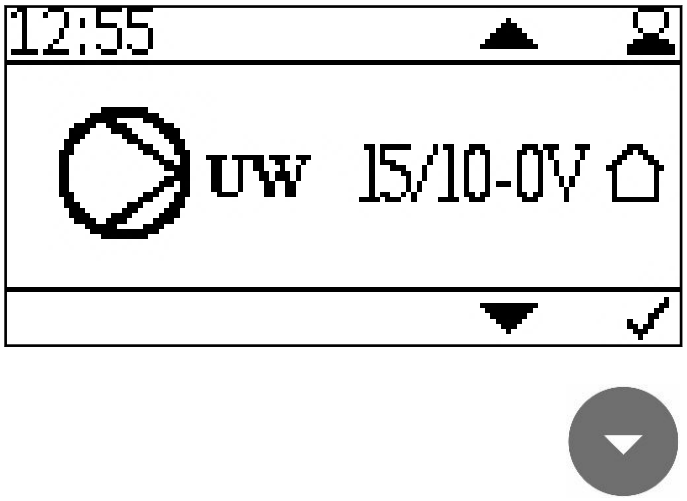
Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C



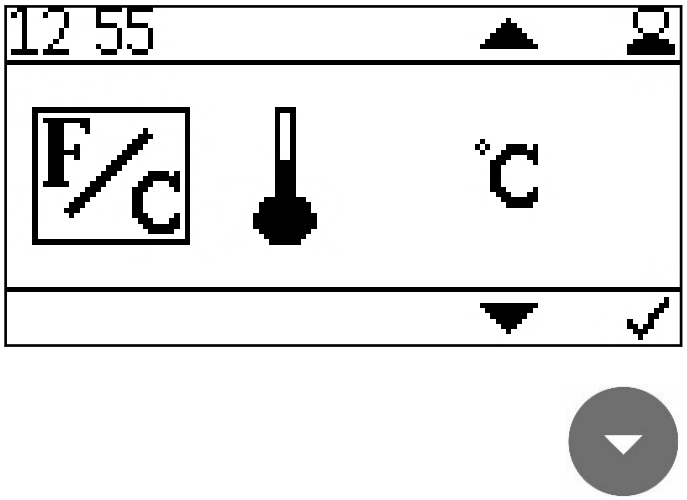
Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting. This will improve boiler runtime and modulation.



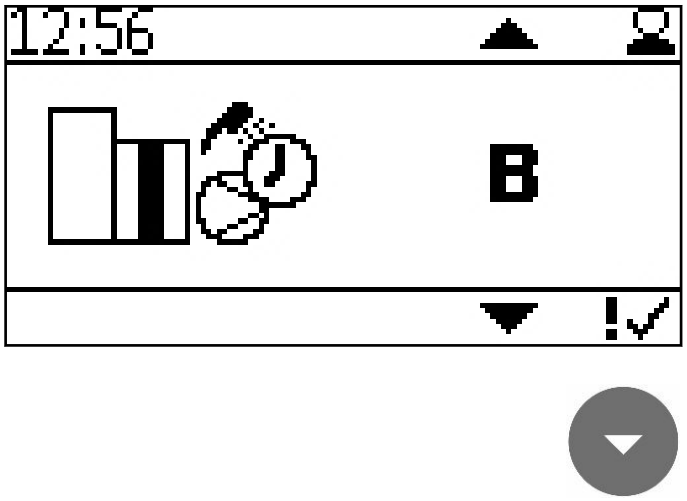
Settings pumptype:
Z16/38

- Heating efficient with or without PWM1 - PWM signal heating ⌂
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal solar ☼



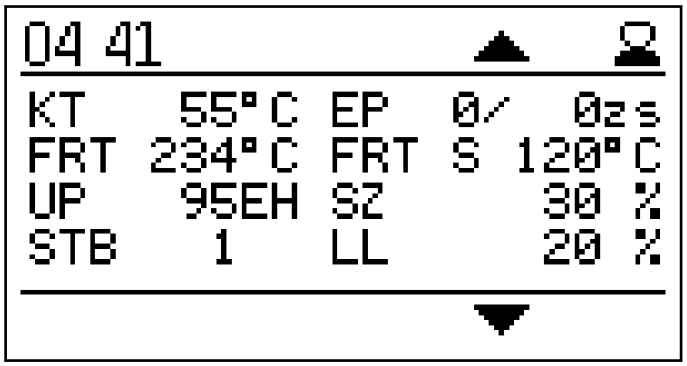
Setting temperature unit.

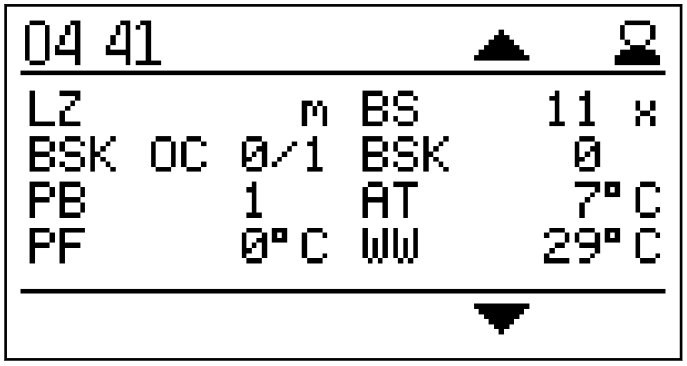
- ° Celsius
- ° Fahrenheit

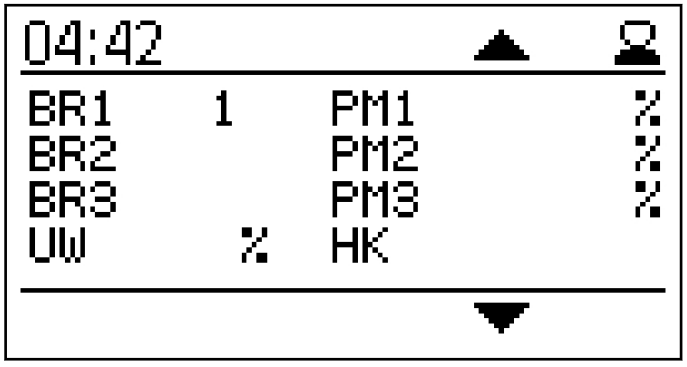


Setting operation mode.

Changing the operation mode.

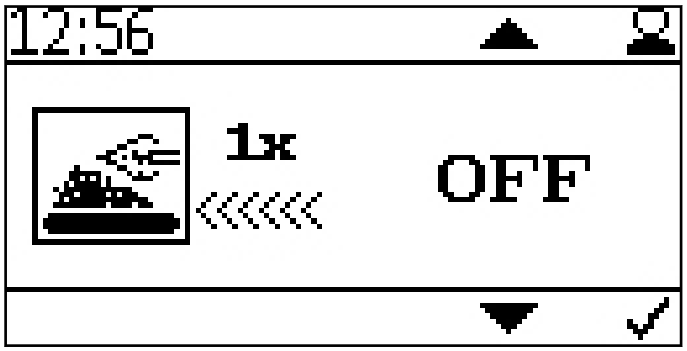






Display of the current values

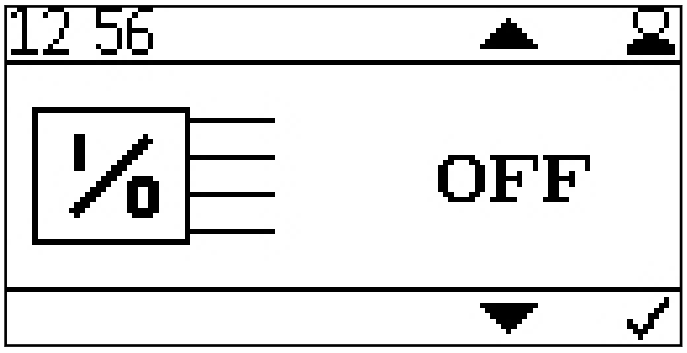
- KT: Boiler temperature
- FRT: Combustion chamber temperature
- UP: Negative draft
- STB: Safety temperature sensor
- EP: Supply/Pause time
- FRT S: Set combustion chamber temp
- SZ: Flue gas fan
- LL: Burner fan
- LZ: Run time
- BSK OC: Flame return gate open / closed
- PB: Pellet hopper casing cover
- PF: Accumulator sensor
- BS: Burner starts
- BSK: Flame return gate open Set
- AT: Outside temperature sensor
- WW: DHW
- BR1: Burner / thermostat contact Z26
- BR2: Burner / thermostat contact Z27
- BR3: Burner / thermostat contact Z28
- UW: Output for pump UW 230V
- PM1: Pump output PWM-signal Z38
- PM2: Pump output PWM-signal Z39
- PM3: Pump output PWM-signal Z40
- HK: Output for pump HK 230V



Extended insertion

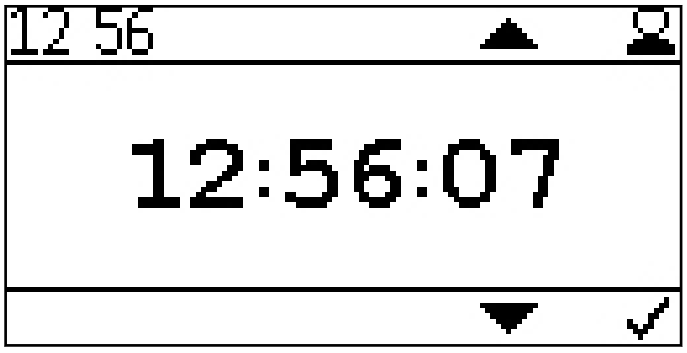
When this action is activated, the pellets are pushed in for a maximum of 3 ignition cycles longer than standard during the next ignition.

This function is automatically reset after being activated once and is used for faster ignition when the burner screw is empty.

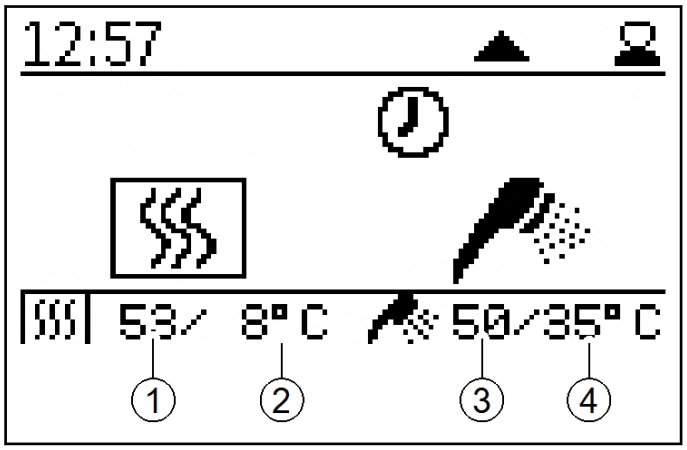


Output test.

The Output Test serves to check all connected.



Setting current time.



Anzeige aktueller Kesselstatus.

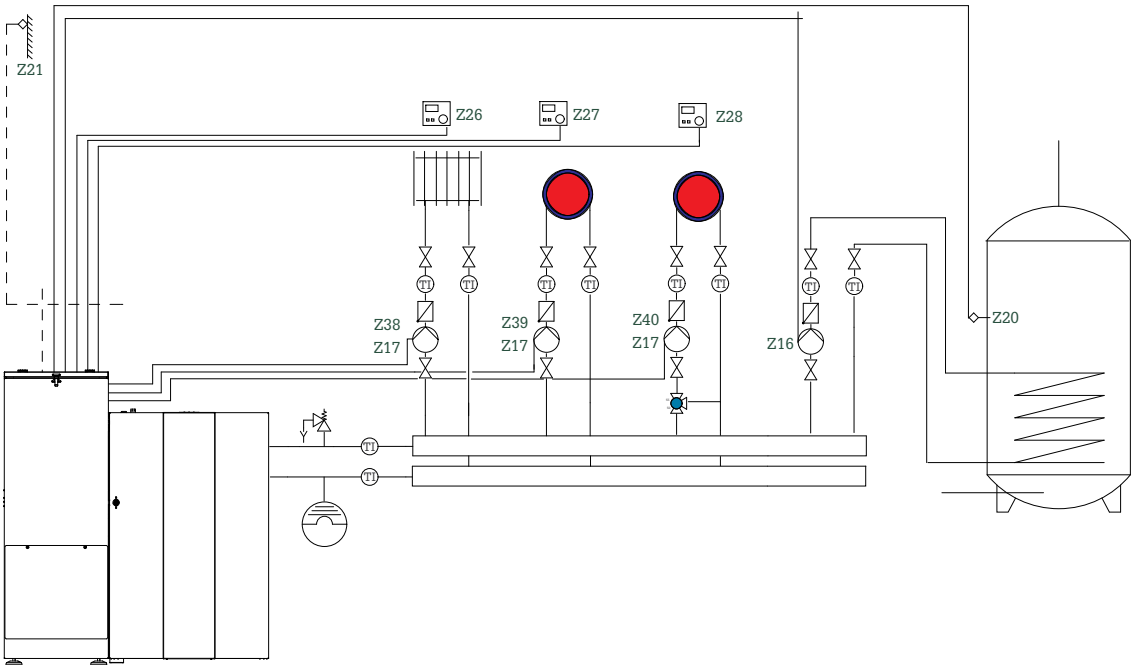
1. Current boiler temperature
2. Boiler set temperature
3. Current DHW temperature
4. DHW set temperature

13.4 Version C

Up to 3 heating circuits can be demanded via room thermostats or time program. A room thermostat (ON / OFF) can be connected via the inputs X26, X27 and X28. The 230V supply of the pumps is provided via output Z17 (HK) (boiler temperature> 60° C).Via the terminals Z38, Z39 and Z40, a PWM signal for controlling the individual heating circuits is output. The PWM signal can be set more or less powerful in the first code level

DHW for the accumulator works via sensor input Z20 (DHW) and pump output Z16 (UW). Residual heat is dissipated via Z16 (UW) to the warm water boiler. The pump mode cannot be selected.

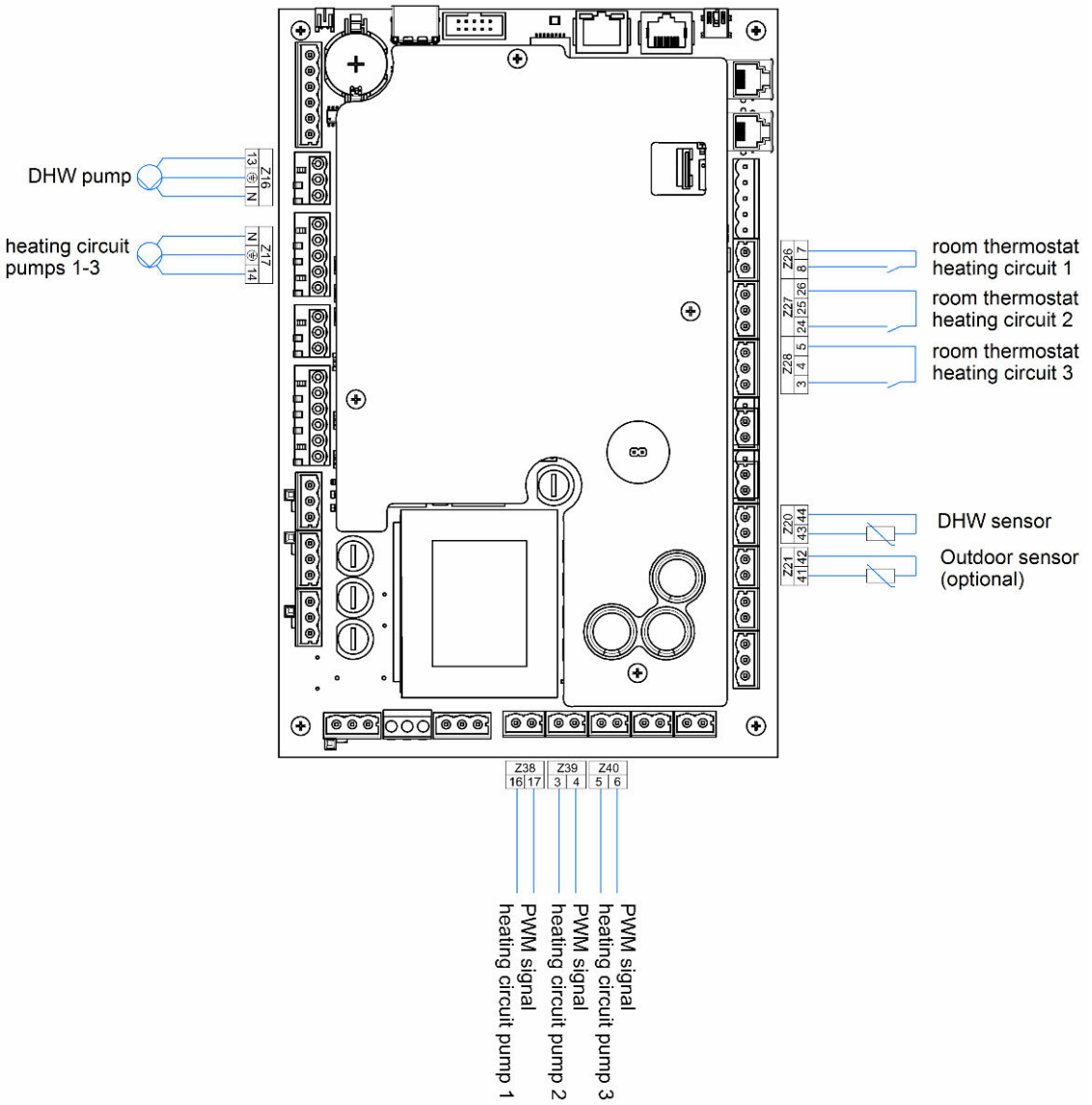
Hydraulic diagram version C:



Heat consumers are shown symbolically and can be substituted by others!

If there is more than one heating circuit, PWM pumps or the external relay box must be used so that individual control of the pumps is possible.

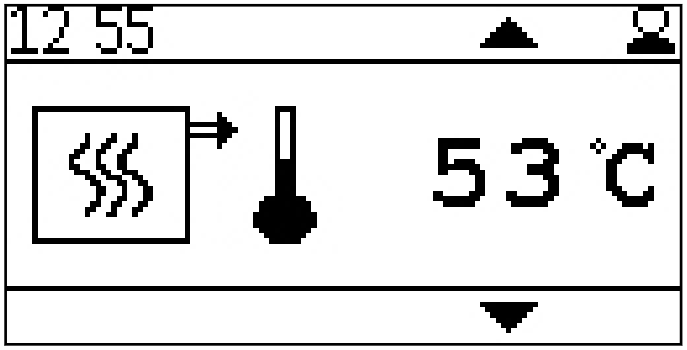
Wiring diagram version C:



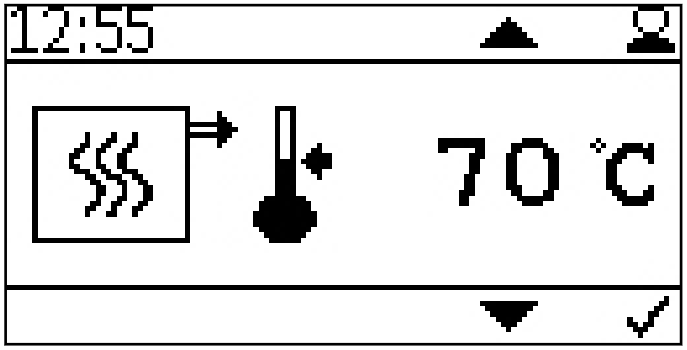
The total line length of the heating circuit pumps must not exceed 100 m!

13.4.1 Commissioning controller version C

After code input:

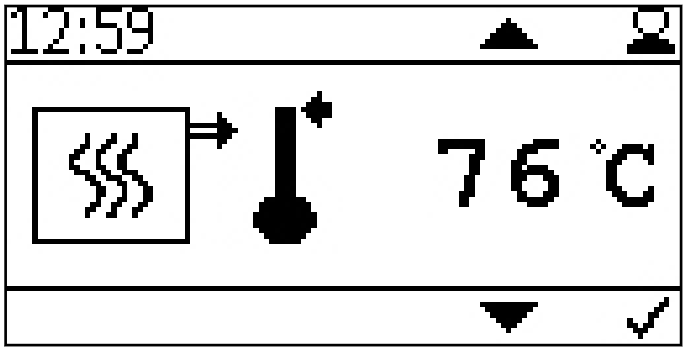


Display of the current boiler temperature



Setting the boiler set temperature.

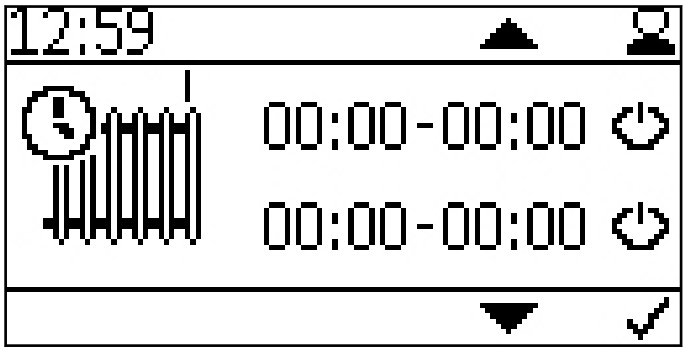
The boiler set temperature can be set in the range of 70 ° C to 90 ° C if a higher boiler temperature requirement or a larger modulation range is required.



Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

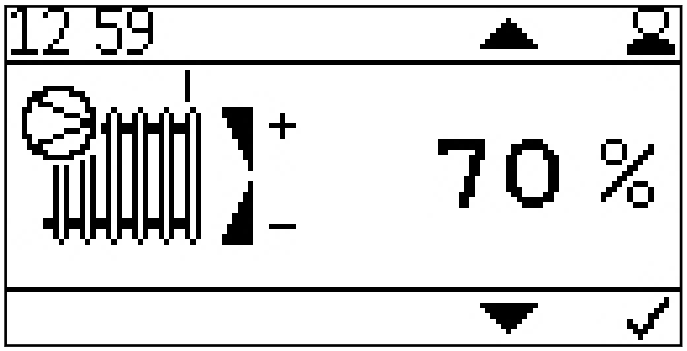


Setting the time programm of heating circuit 1.

By pressing the start and stoptime appear.

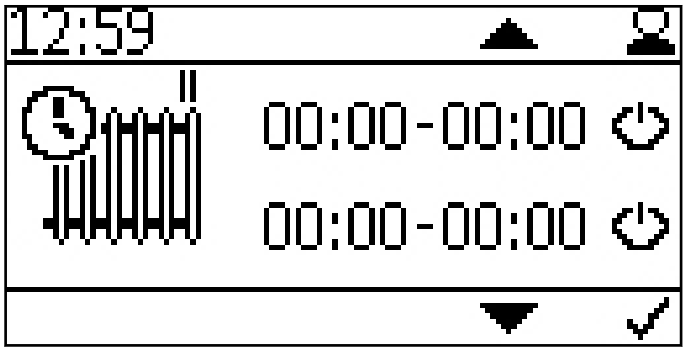
Activate the times with

During the activated time, the boiler always runs up to the switch-off temperature without considering the Z26 contact. Outside the time, contact Z26 activates the boiler.



Setting the power of heating circuit pump 1.

The power range can be set between 30 - 100%. For normal use, a setting of 30 - 70% should be selected.
When adjusting too excessive noises can appear.

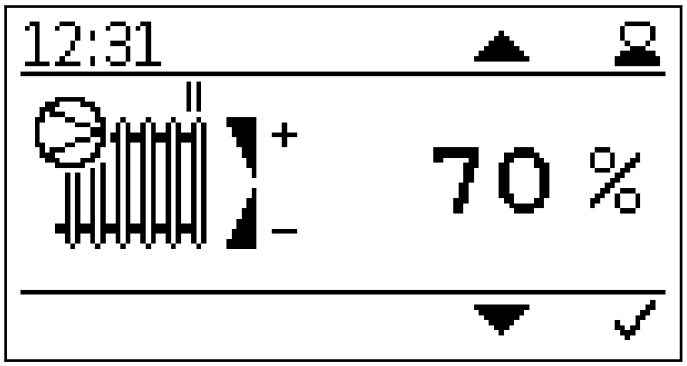


Setting the time programm of heating circuit 2.

By pressing the start and stoptime appear.

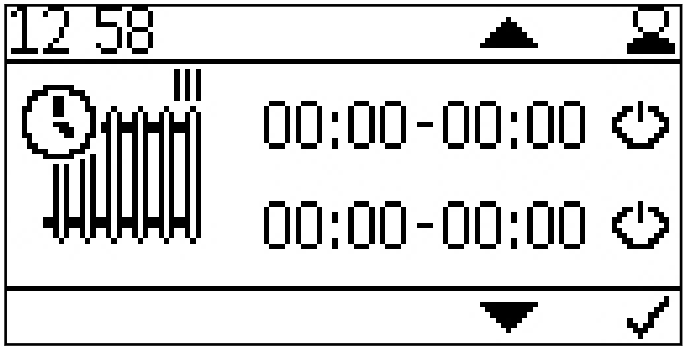
Activate the times with

During the activated time, the boiler always runs up to the switch-off temperature without considering the Z27 contact. Outside the time, contact Z27 activates the boiler.



Setting the power of heating circuit pump 2.

The power range can be set between 30 - 100%. For normal use, a setting of 30 - 70% should be selected.
When adjusting too excessive noises can appear.

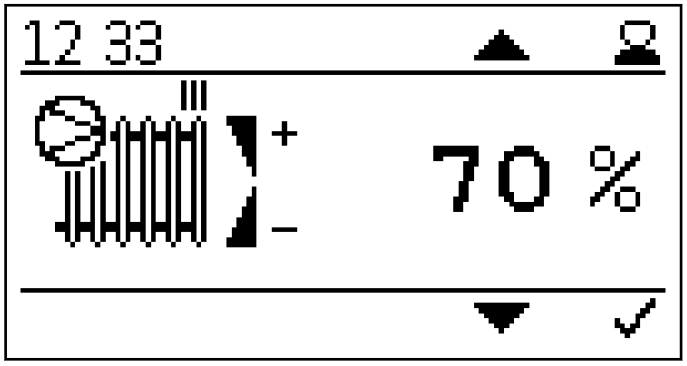


Setting the time programm of heating circuit 3.

By pressing the start and stoptime appear.

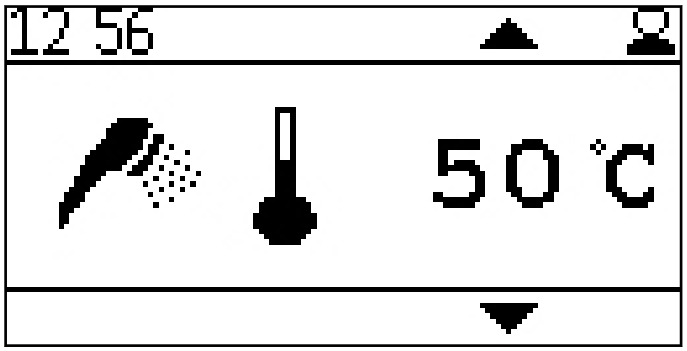
Activate the times with

During the activated time, the boiler always runs up to the switch-off temperature without considering the Z28 contact. Outside the time, contact Z28 activates the boiler.

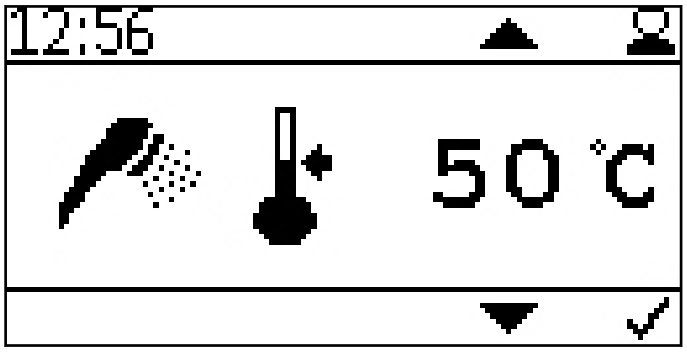


Setting the power of heating circuit pump 3.

The power range can be set between 30 - 100%. For normal use, a setting of 30 - 70% should be selected.
When adjusting too excessive noises can appear.

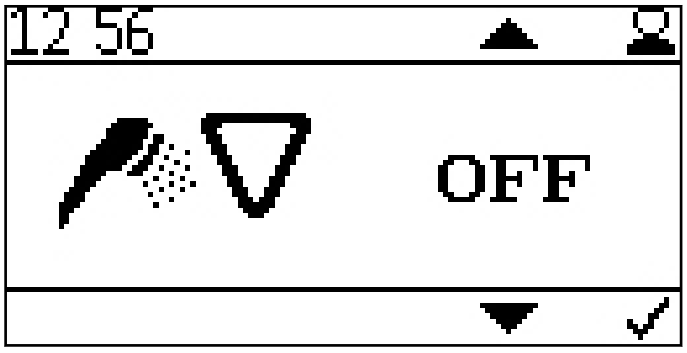


Display of the current DHW temperature.



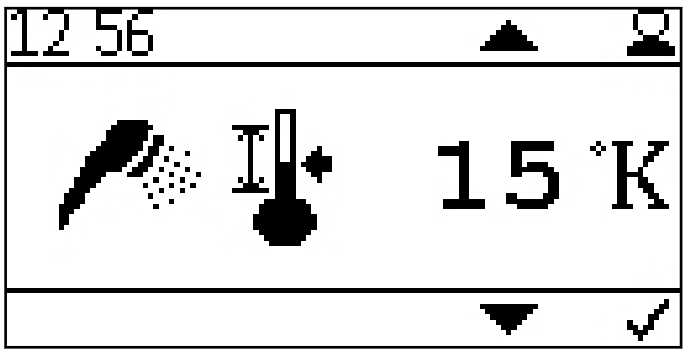
Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.



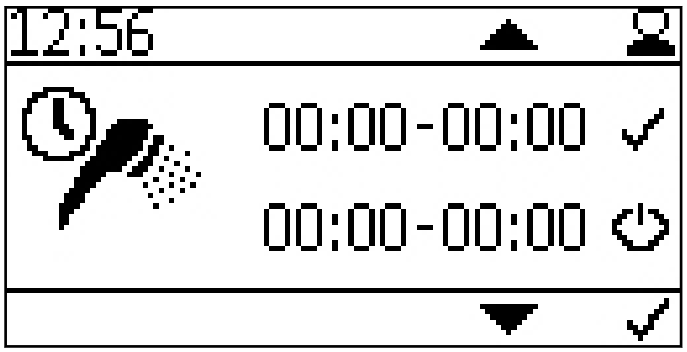
Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

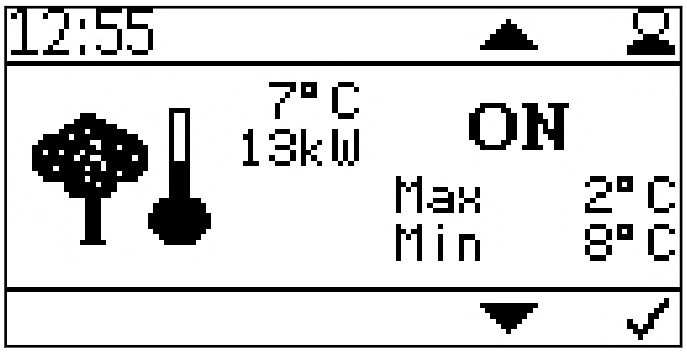


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

Activate the times with

During the activated time, the boiler regulates to the values indicated by the hot water sensor.
The hot water control is not activated outside the set times!

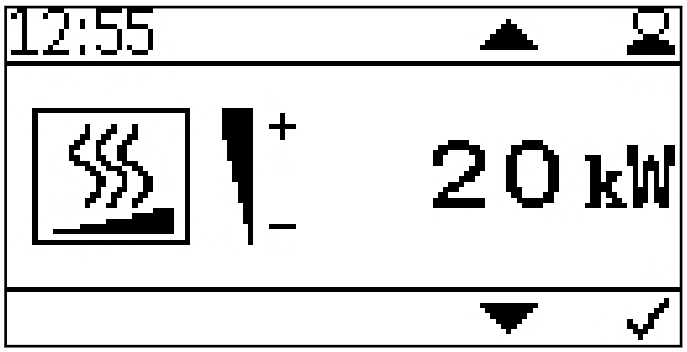


Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

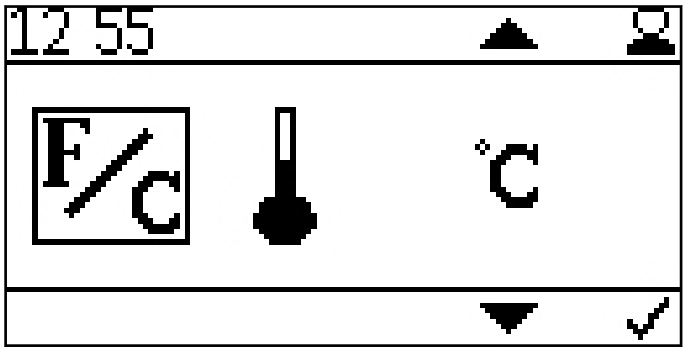
Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C



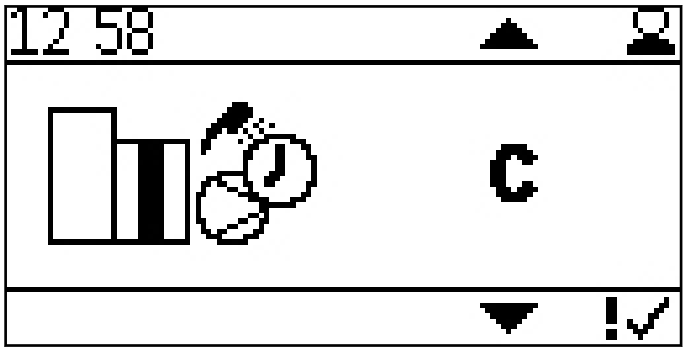
Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting. This will improve boiler runtime and modulation.



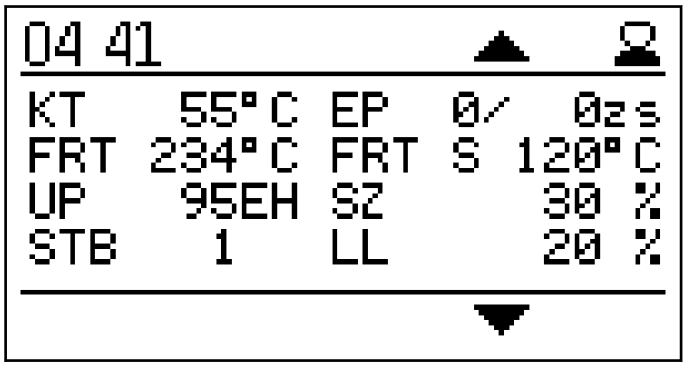
Setting temperature unit.

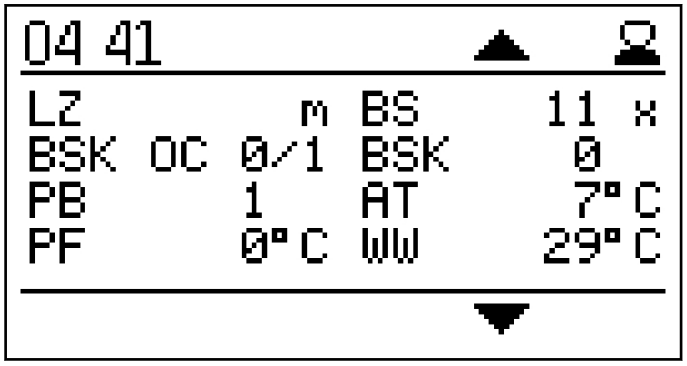
- ° Celsius
- ° Fahrenheit

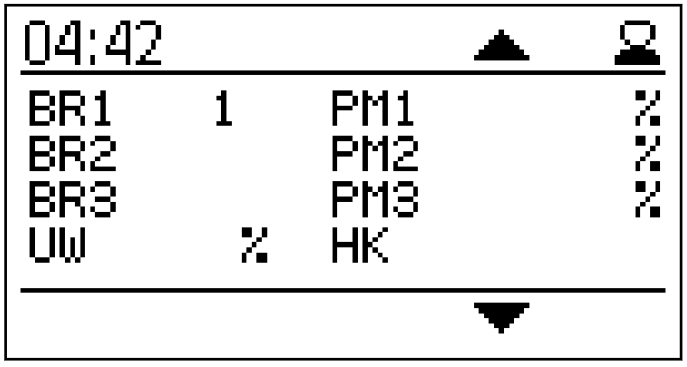


Setting operation mode.

Changing the operation mode.

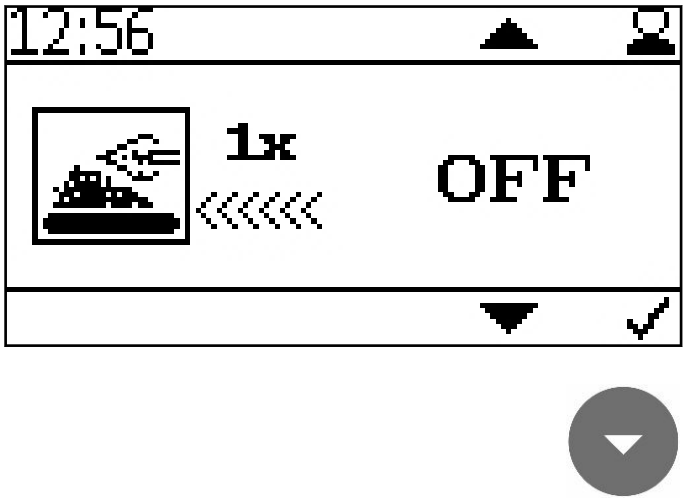






Display of the current values

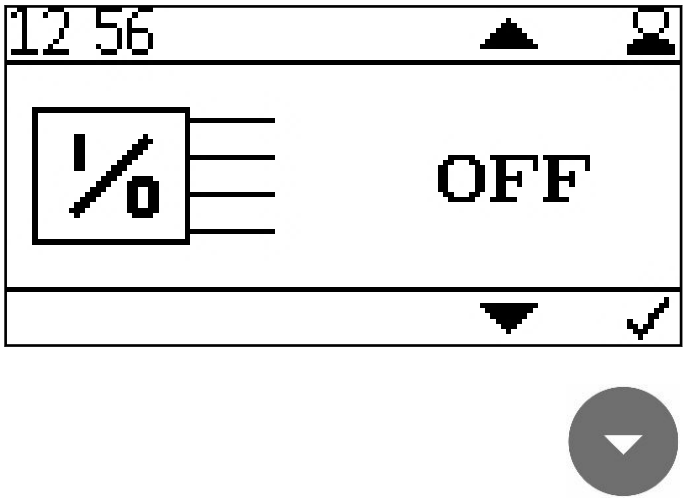
- KT: Boiler temperature
- FRT: Combustion chamber temperature
- UP: Negative draft
- STB: Safety temperature sensor
- EP: Supply/Pause time
- FRT S: Set combustion chamber temp
- SZ: Flue gas fan
- LL: Burner fan
- LZ: Run time
- BSK OC: Flame return gate open / closed
- PB: Pellet hopper casing cover
- PF: Accumulator sensor
- BS: Burner starts
- BSK: Flame return gate open Set
- AT: Outside temperature sensor
- WW: DHW
- BR1: Burner / thermostat contact Z26
- BR2: Burner / thermostat contact Z27
- BR3: Burner / thermostat contact Z28
- UW: Output for pump UW 230V
- PM1: Pump output PWM-signal Z38
- PM2: Pump output PWM-signal Z39
- PM3: Pump output PWM-signal Z40
- HK: Output for pump HK 230V



Extended insertion

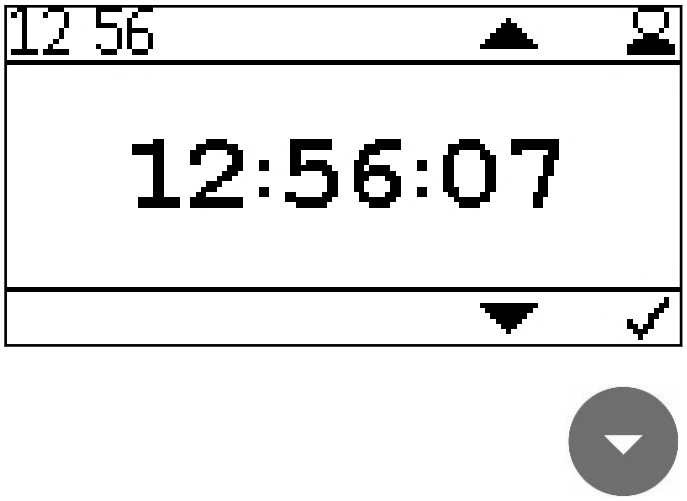
When this action is activated, the pellets are pushed in for a maximum of 3 ignition cycles longer than standard during the next ignition.

This function is automatically reset after being activated once and is used for faster ignition when the burner screw is empty.

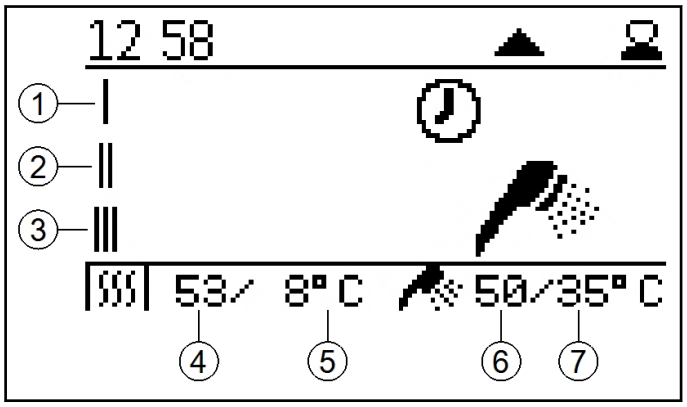


Output test.

The Output Test serves to check all connected.



Setting current time.



Display of current boiler status.

1. Heating circuit 1
2. Heating circuit 2
3. Heating circuit 3
4. Current boiler temperature
5. Boiler set temperature
6. Current DHW temperature
7. DHW set temperature

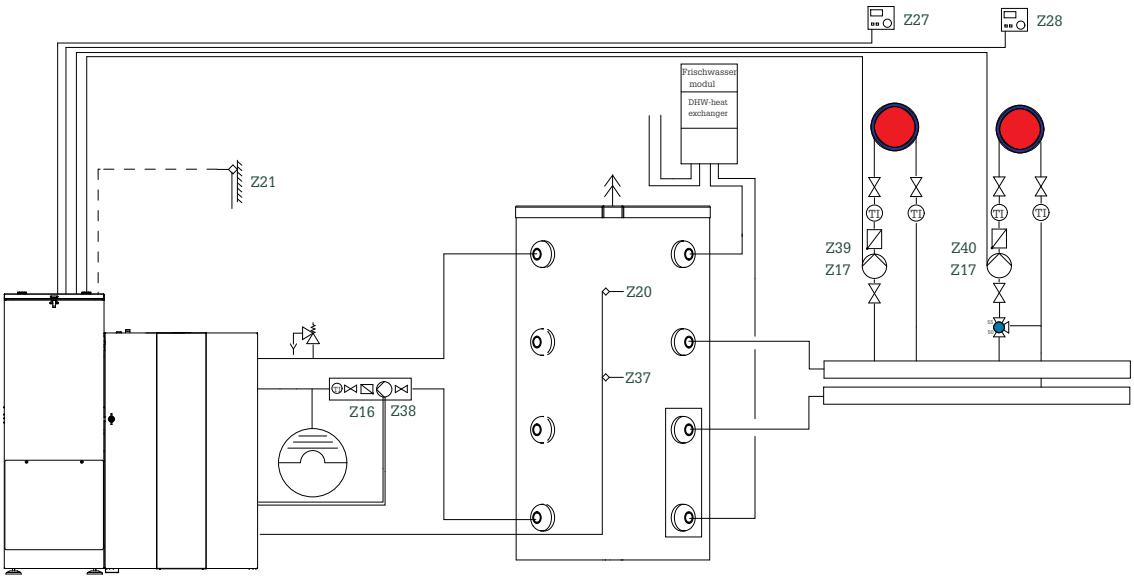
13.5 Version D

The accumulator sensor is connected to terminal Z37.

The burner demand regulates the accumulator temperature.

The pump output X16 (UW) and X38 (PWM) are used for the boiler controlled pump, which is not active below 60° C. A room thermostat can be connected via inputs Z27 and Z28. This room thermostat controls the two heating circuits via pump output Z17 (HK) and the outputs X39 and X40. The DHW sensor (Z20) is attached to the accumulator and regulates the burner demand outside the heating period.

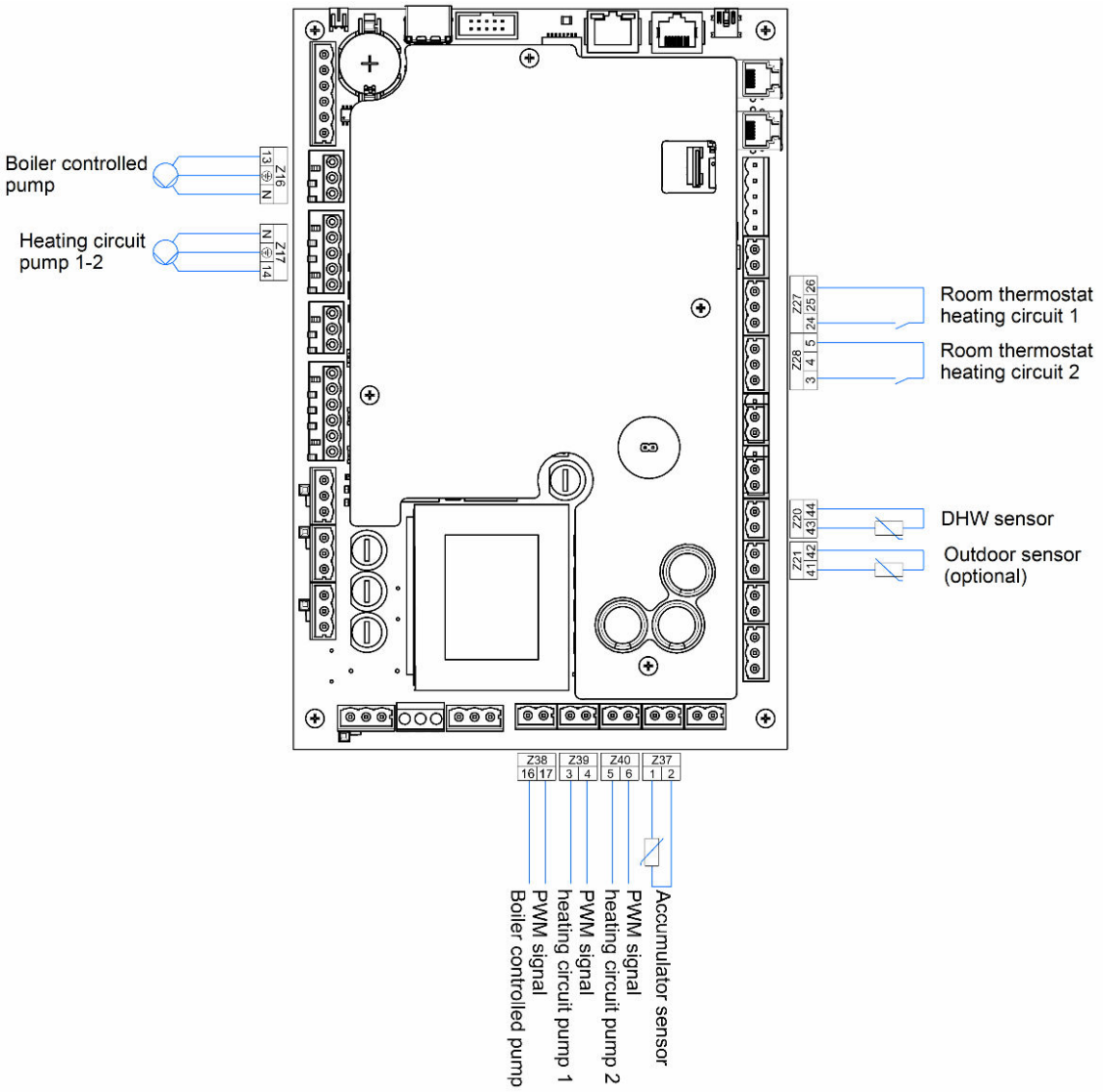
Hydraulic diagram version D:



Heat consumers are shown symbolically and can be substituted by others!

If there is more than one heating circuit, PWM pumps or the external relay box must be used so that individual control of the pumps is possible.

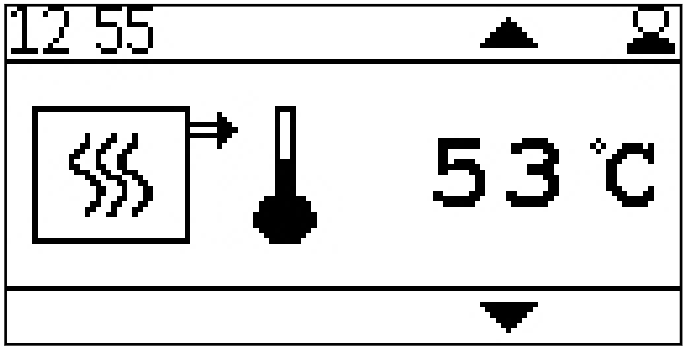
Wiring diagram version D:



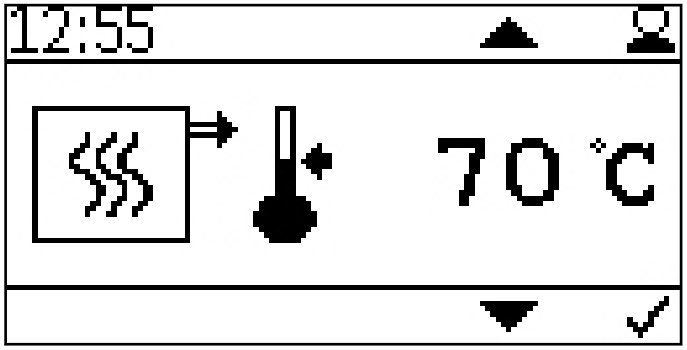
The total line length of the heating circuit pumps must not exceed 100 m!

13.5.1 Commissioning controller version D

After code input:

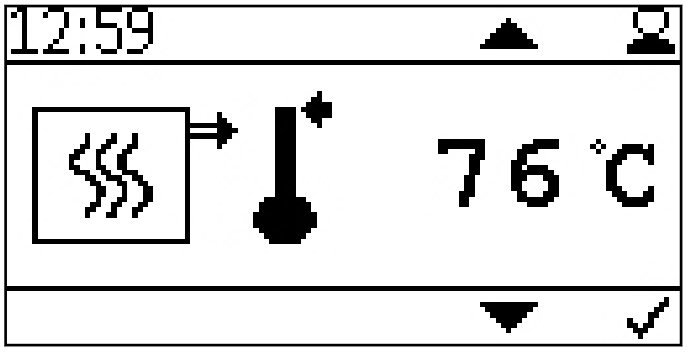


Display of the current boiler temperature



Setting the boiler set temperature.

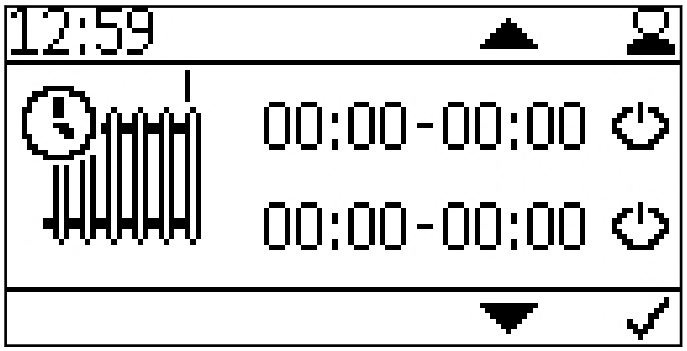
The boiler set temperature can be set in the range of 70 ° C to 90 ° C if a higher boiler temperature requirement or a larger modulation range is required.



Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

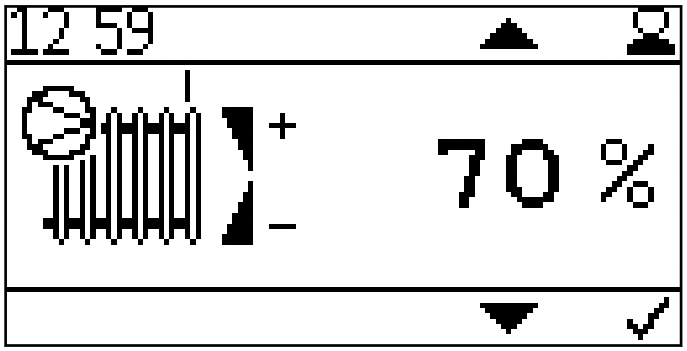


Setting the time programm of heating circuit 1.

By pressing the start and stoptime appear.

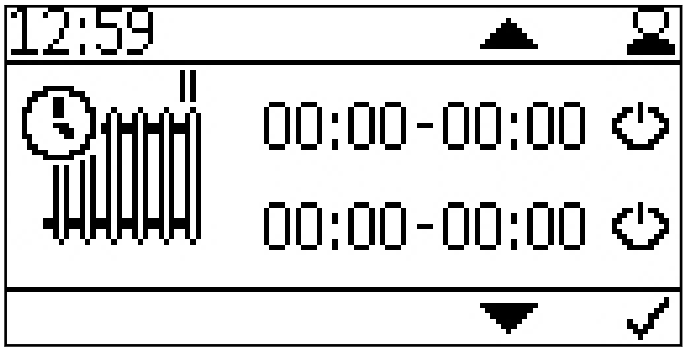
Activate the times with

During the activated time, the boiler always runs up to the switch-off temperature without considering the Z27 contact. Outside the time, contact Z27 activates the boiler.



Setting the power of heating circuit pump 1.

The power range can be set between 30 - 100%. For normal use, a setting of 30 - 70% should be selected.
When adjusting too excessive noises can appear.

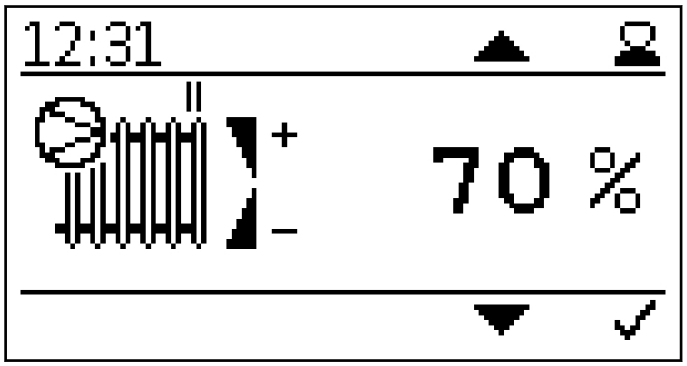


Setting the time programm of heating circuit 2.

By pressing the start and stoptime appear.

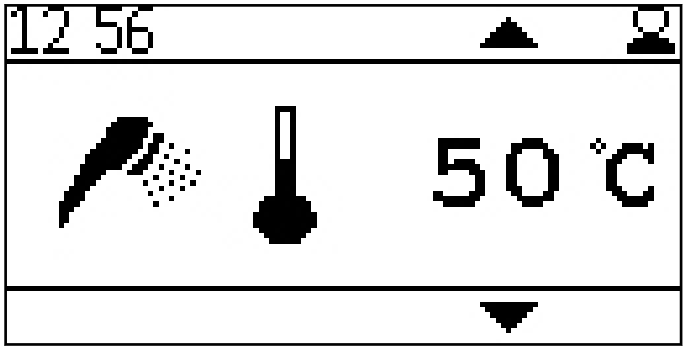
Activate the times with

During the activated time, the boiler always runs up to the switch-off temperature without considering the Z28 contact. Outside the time, contact Z28 activates the boiler.

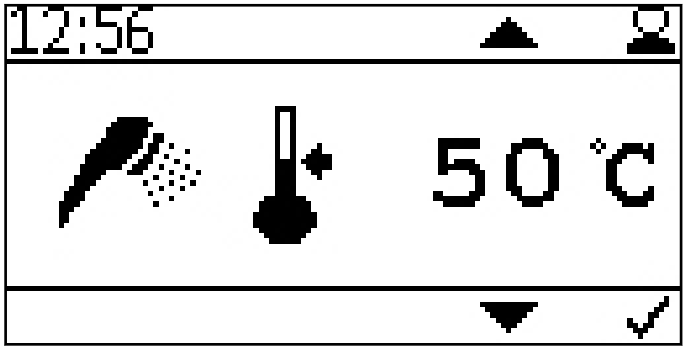


Setting the power of heating circuit pump 2.

The power range can be set between 30 - 100%.
For normal use, a setting of 30 - 70% should be selected.
When adjusting too excessive noises can appear.

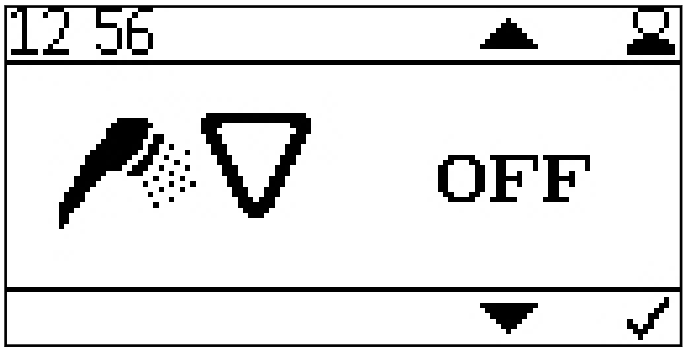


Display of the current DHW temperature.



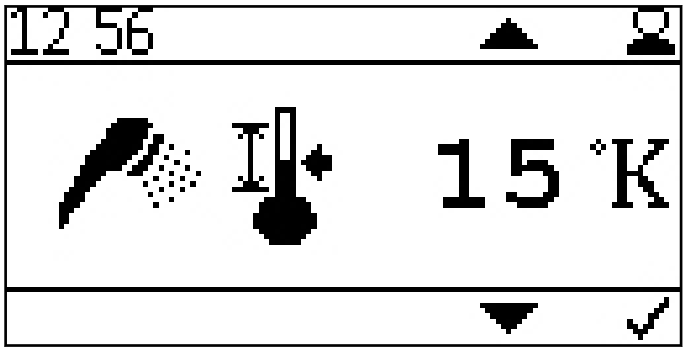
Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.



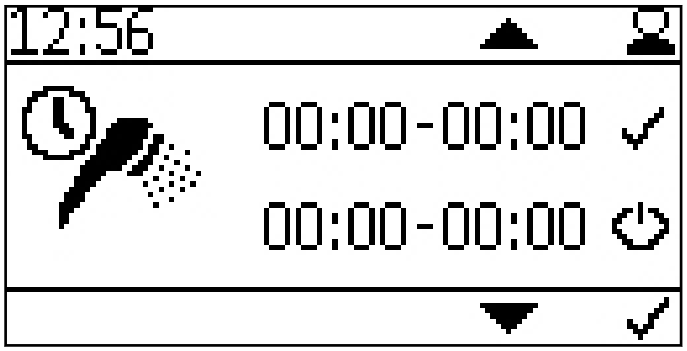
Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

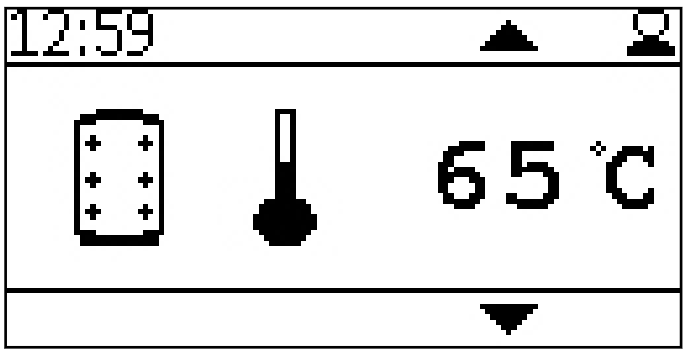


Setting the time programm of the DHW.

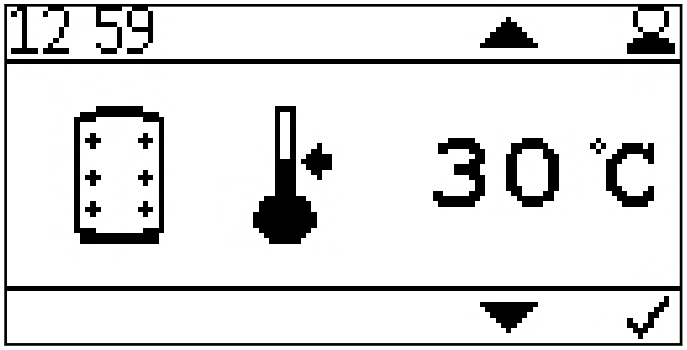
By pressing the start and stoptime appear.

Activate the times with

During the activated time, the boiler regulates to the values indicated by the hot water sensor.
The hot water control is not activated outside the set times!

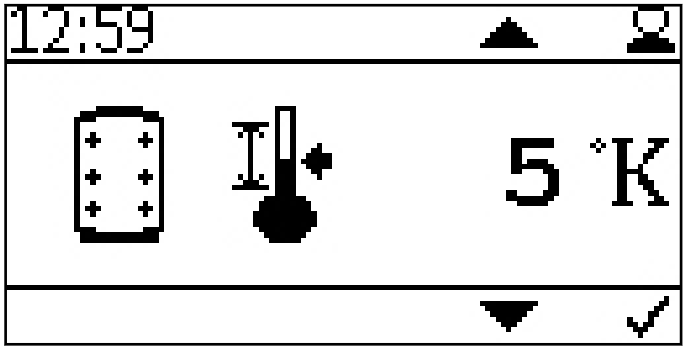


Display current accumulator temperature.



Setting the accumulator set temperature.

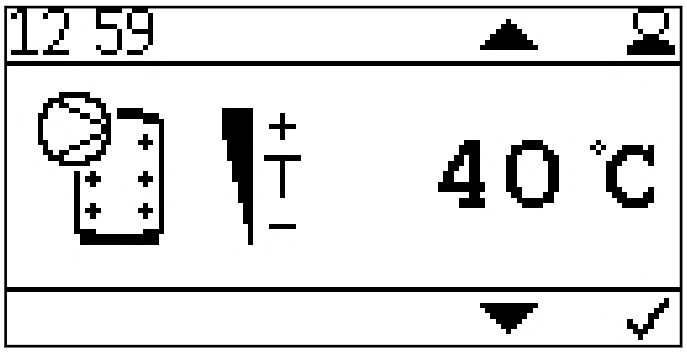
Note:
The accumulator set temperature can be set in the range of 30° C to 75° C.



Setting hysteresis Accumulator set temperature

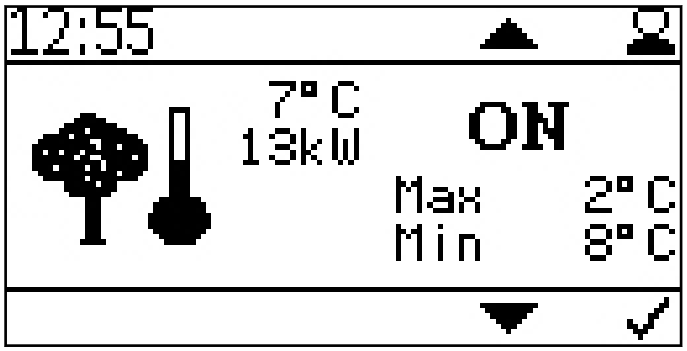
The accumulator hysteresis can bet set between 5 K and 20 K.

The boiler switches on when the difference of the set temperature is higher than adjusted.



Setting pump release temperature of the heating circuit.

The pump release temperature can be set between 10° C and 80° C. If the temperature is too low, the DHW reserve outside the DHW time program may be limited.

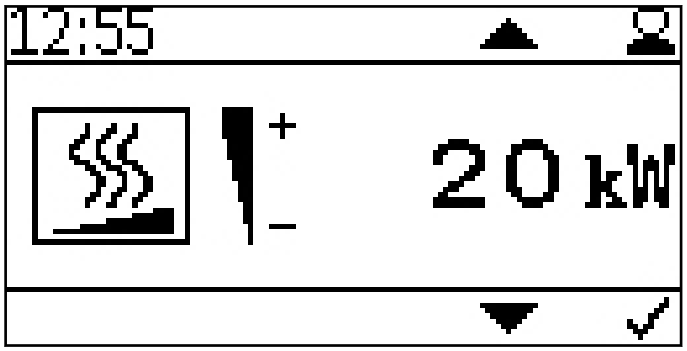


Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

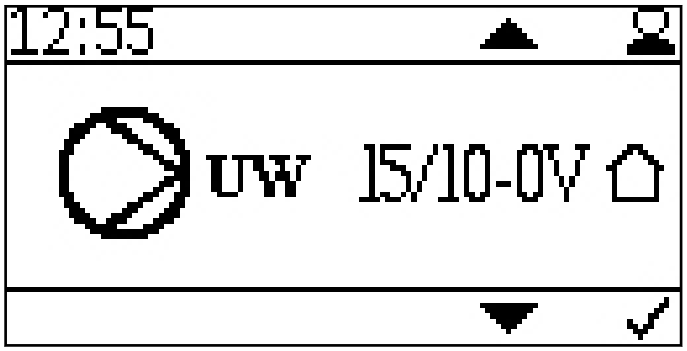
Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C



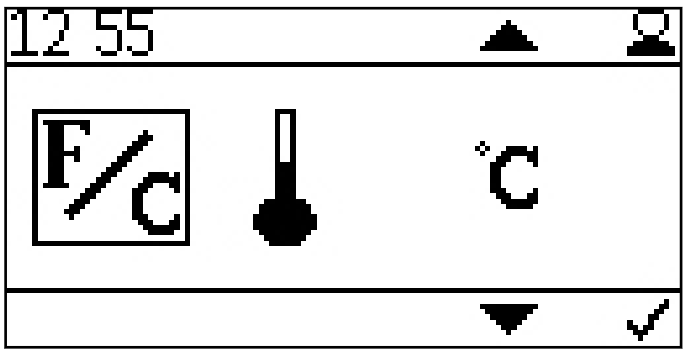
Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting. This will improve boiler runtime and modulation.



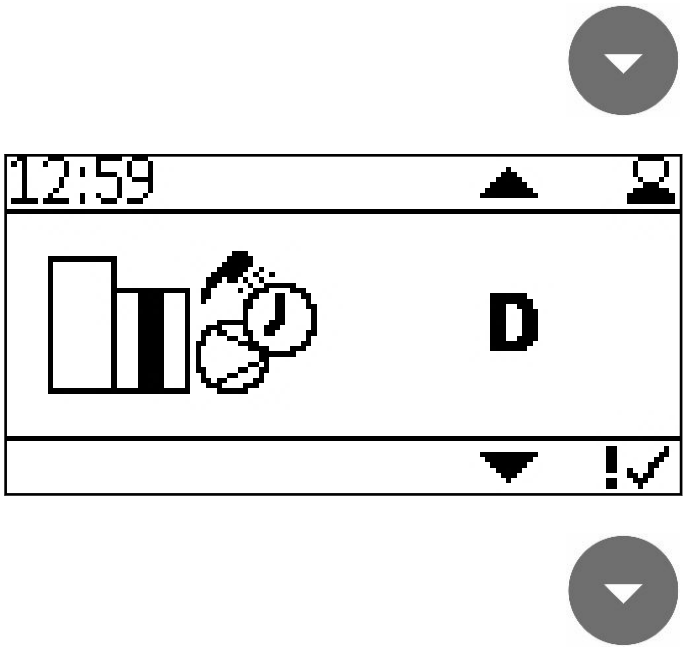
Settings pumptype:
Z16/38

- Heating efficient with or without PWM1 - PWM signal heating ⌂
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal solar ☼



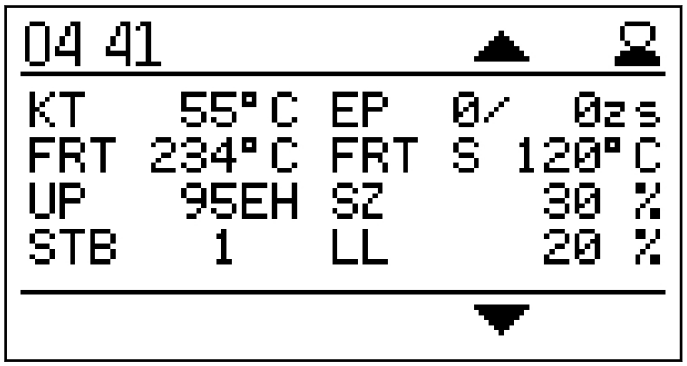
Setting temperature unit.

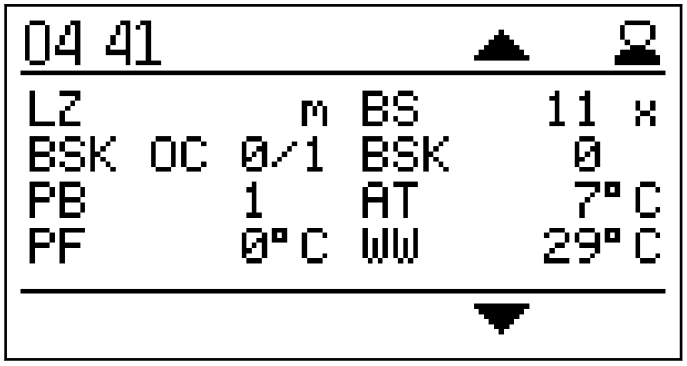
- ° Celsius
- ° Fahrenheit

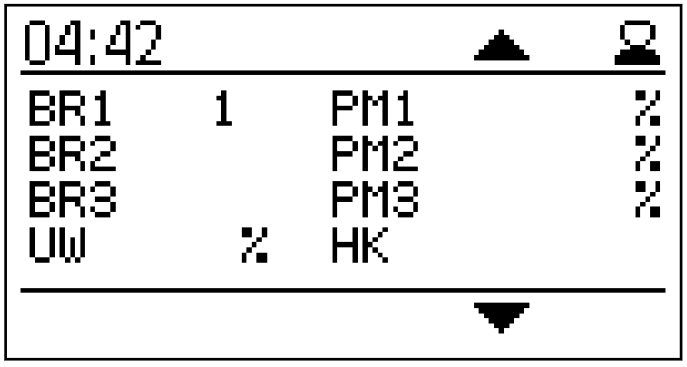


Setting operation mode.

Changing the operation mode.

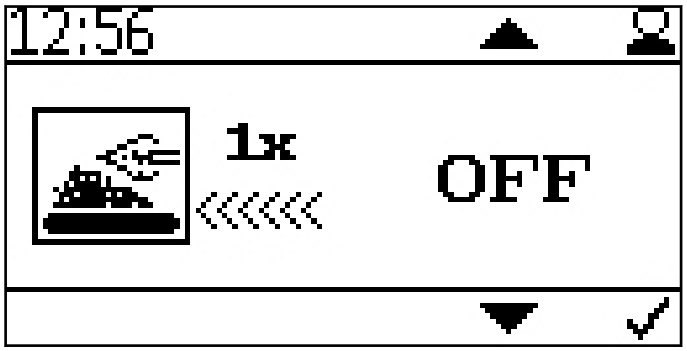






Display of the current values

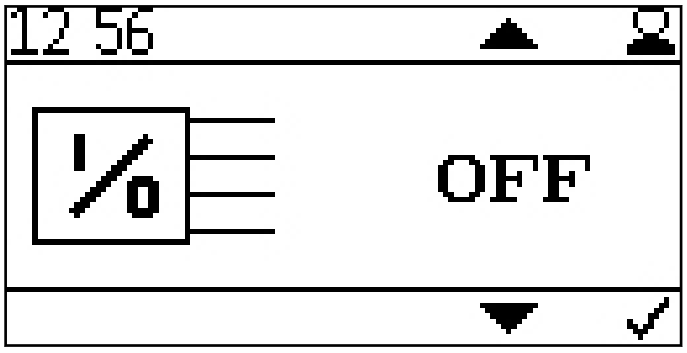
- KT: Boiler temperature
- FRT: Combustion chamber temperature
- UP: Negative draft
- STB: Safety temperature sensor
- EP: Supply/Pause time
- FRT S: Set combustion chamber temp
- SZ: Flue gas fan
- LL: Burner fan
- LZ: Run time
- BSK OC: Flame return gate open / closed
- PB: Pellet hopper casing cover
- PF: Accumulator sensor
- BS: Burner starts
- BSK: Flame return gate open Set
- AT: Outside temperature sensor
- WW: DHW
- BR1: Burner / thermostat contact Z26
- BR2: Burner / thermostat contact Z27
- BR3: Burner / thermostat contact Z28
- UW: Output for pump UW 230V
- PM1: Pump output PWM-signal Z38
- PM2: Pump output PWM-signal Z39
- PM3: Pump output PWM-signal Z40
- HK: Output for pump HK 230V



Extended insertion

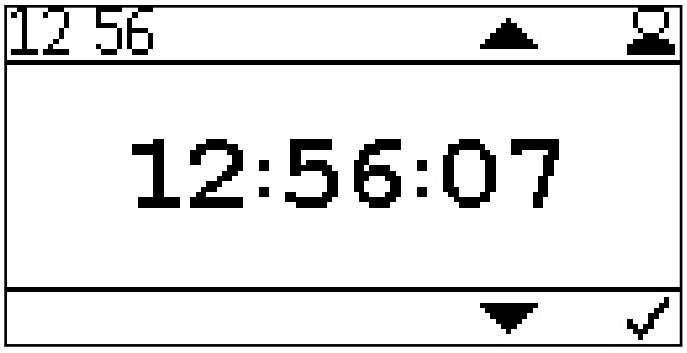
When this action is activated, the pellets are pushed in for a maximum of 3 ignition cycles longer than standard during the next ignition.

This function is automatically reset after being activated once and is used for faster ignition when the burner screw is empty.

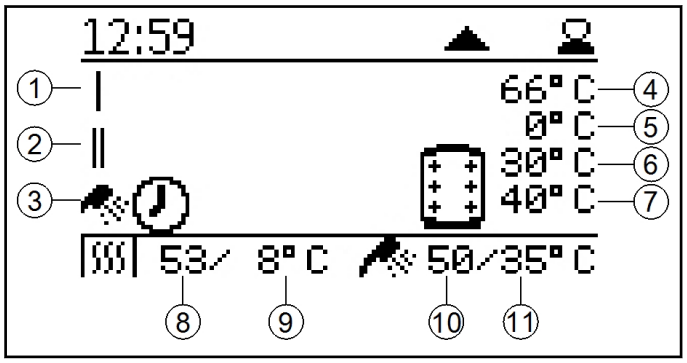


Output test.

The Output Test serves to check all connected.



Setting current time.



Display of current boiler status.

1. Heating circuit 1
2. Heating circuit 2
3. DHW
4. Current accumulator temperature
5. currently demanded accumulator set temperature from the boiler (depending on current demand)
6. Accumulator set temperature
7. eating circuit-Pump on temperature
8. Current boiler temperature
9. Boiler set temperature
10. Current DHW temperature
11. DHW set temperature

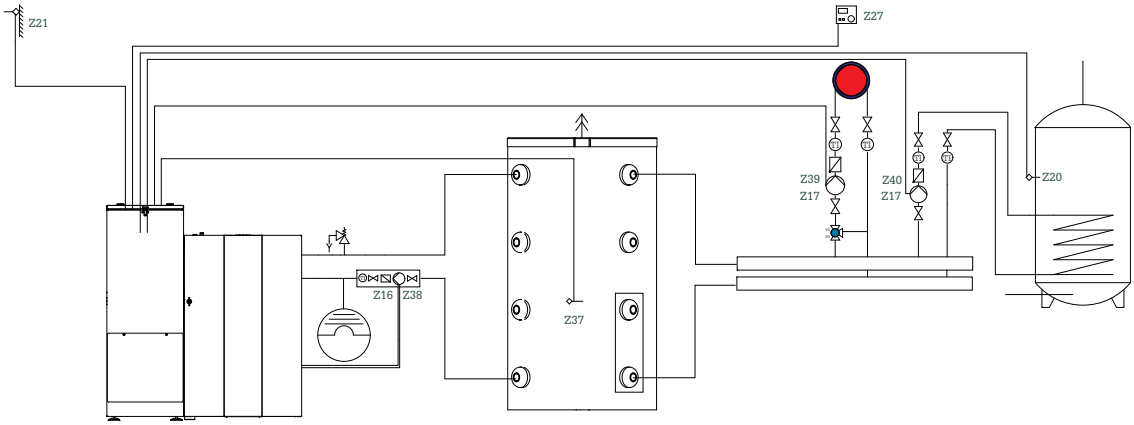
13.6 Version E

The accumulator sensor is connected to terminal Z37.

The set accumulator temperature regulates the burner demand. The pump output X16 (UW) and X38 (PWM) are used for the boiler controlled pump, which is not active below 60° C.

A room thermostat can be connected via input Z27. This room thermostat controls the heating circuit via pump output Z17 (HK) and output X39. The DHW is regulated in a warm water boiler via the sensor Z20 and the pump Z40-Z17, the DHW sensor (Z20) is attached to the warm water boiler. The residual heat of the boiler is loaded into the accumulator.

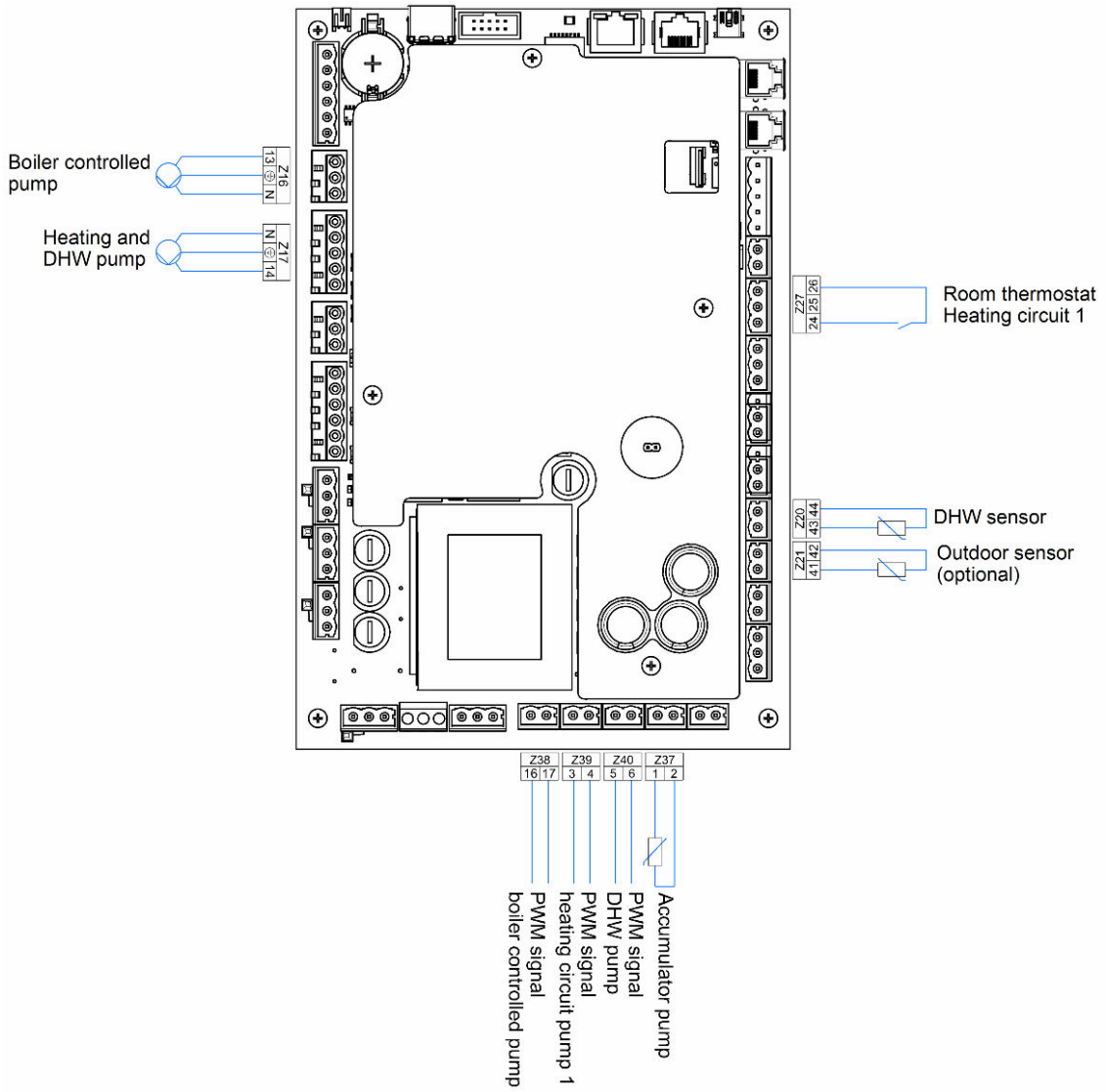
Hydraulic diagram version E:



Heat consumers are shown symbolically and can be substituted by others!

For a heating circuit and hot water, PWM pumps or the external relay box must be used to allow individual control of the pumps.

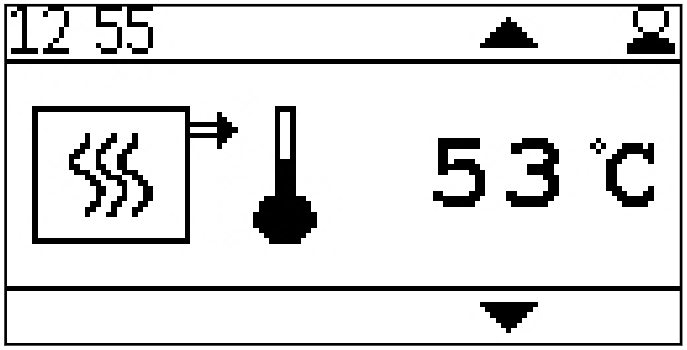
Wiring diagram version E:



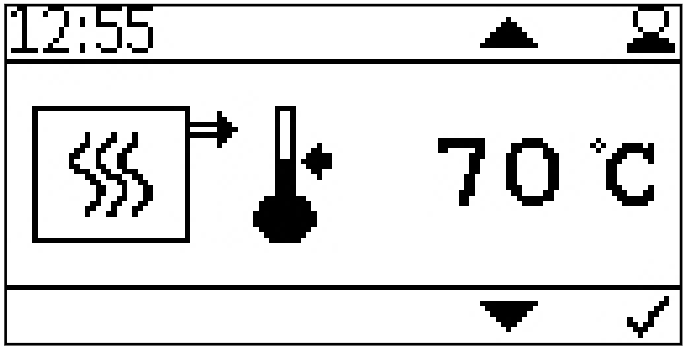
The total line length of the heating circuit pumps must not exceed 100 m!

13.6.1 Commissioning controller version E

After code input:

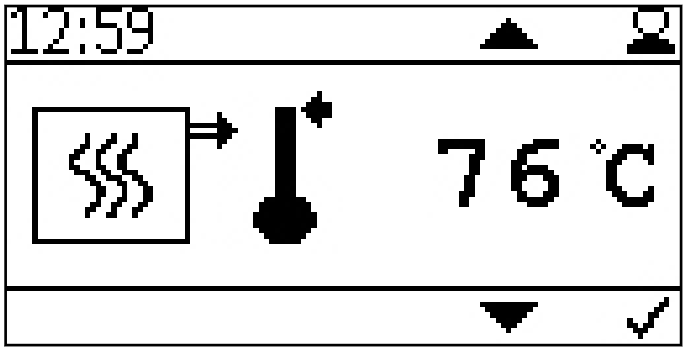


Display of the current boiler temperature



Setting the boiler set temperature.

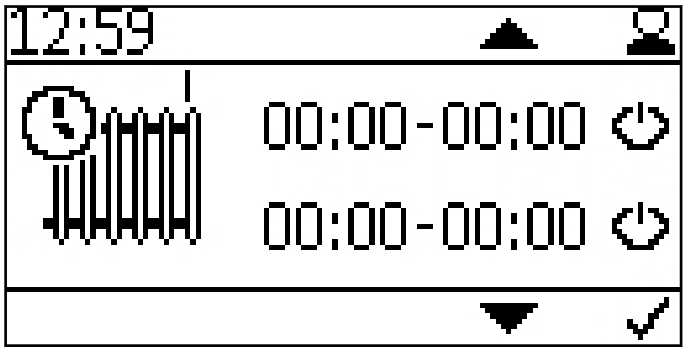
The boiler set temperature can be set in the range of 70 ° C to 90 ° C if a higher boiler temperature requirement or a larger modulation range is required.



Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

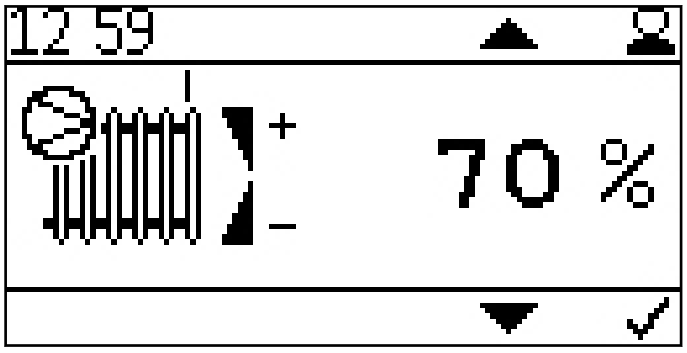


Setting the time programm of heating circuit 1.

By pressing the start and stoptime appear.

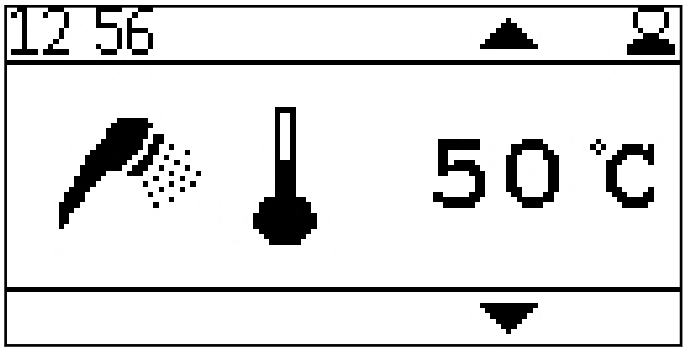
Activate the times with

During the activated time, the boiler always runs up to the switch-off temperature without considering the Z26 contact. Outside the time, contact Z26 activates the boiler.

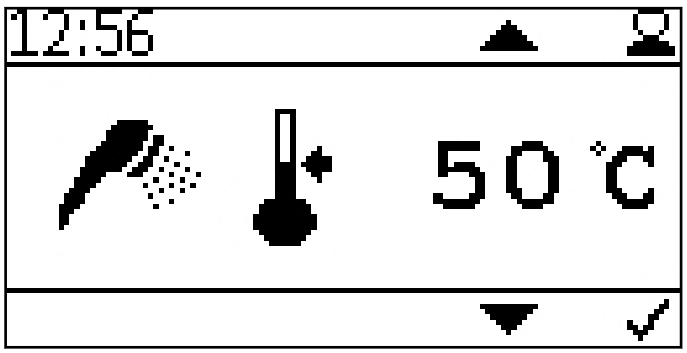


Setting the power of heating circuit pump 1.

The power range can be set between 30 - 100%. For normal use, a setting of 30 - 70% should be selected.
When adjusting too excessive noises can appear.

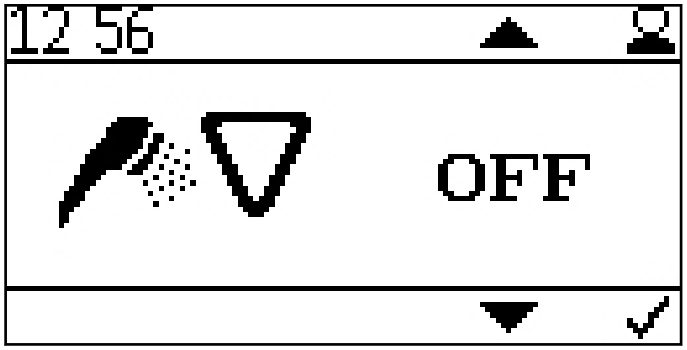


Display of the current DHW temperature.



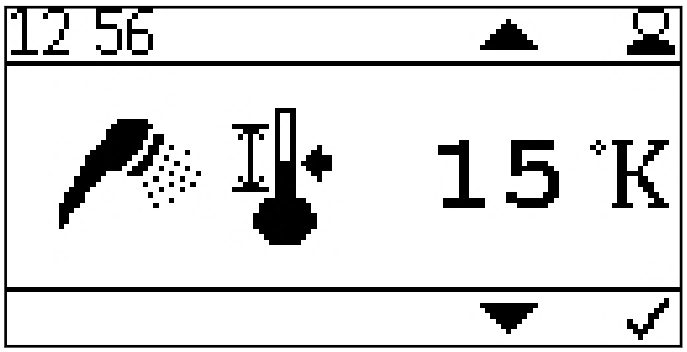
Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.



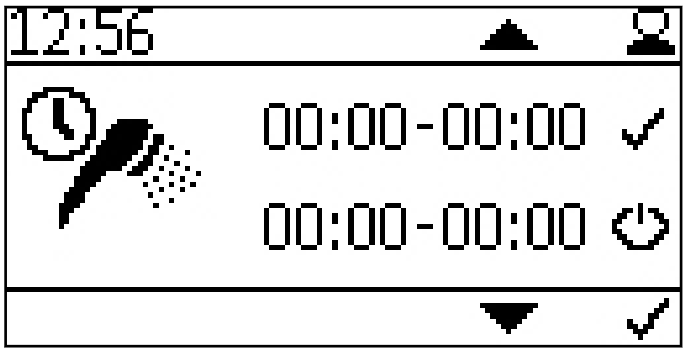
Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

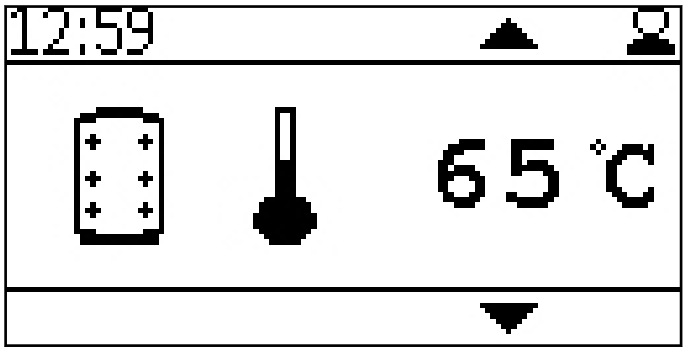


Setting the time programm of the DHW.

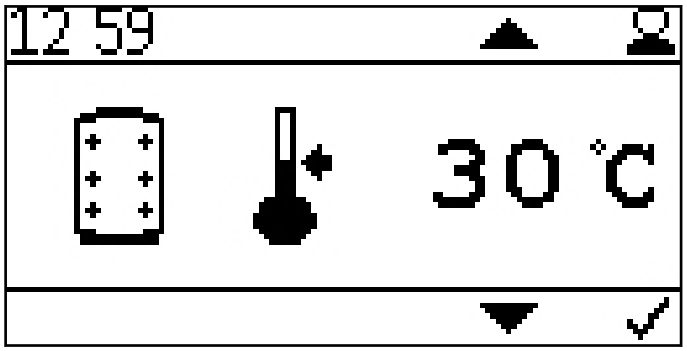
By pressing the start and stoptime appear.

Activate the times with

During the activated time, the boiler regulates to the values indicated by the hot water sensor.
The hot water control is not activated outside the set times!

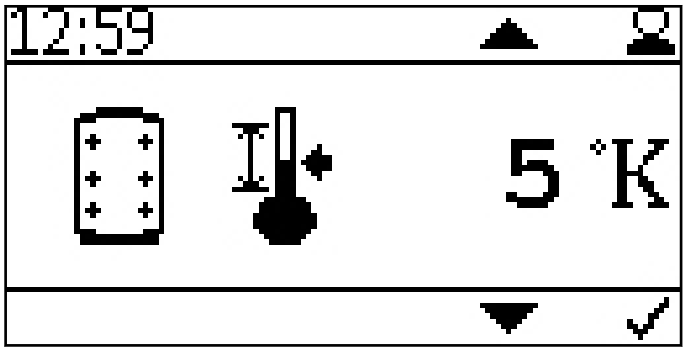


Display current accumulator temperature.



Setting the accumulator set temperature.

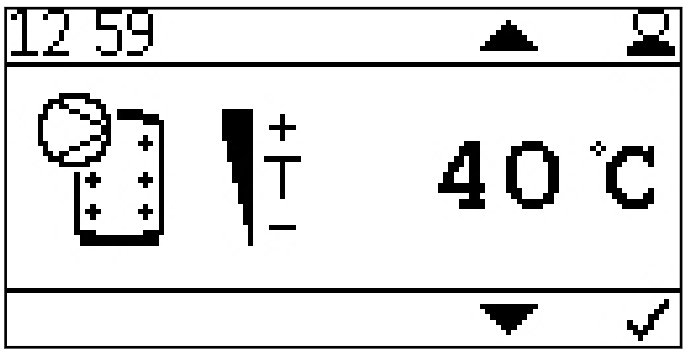
Note:
The accumulator set temperature can be set in the range of 30° C to 75° C.



Setting hysteresis Accumulator set temperature

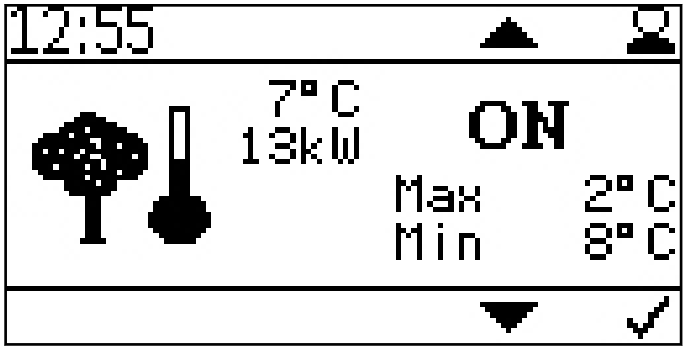
The accumulator hysteresis can bet set between 5 K and 20 K.

The boiler switches on when the difference of the set temperature is higher than adjusted.



Setting pump release temperature of the heating circuit.

The pump release temperature can be set between 10° C and 80° C. If the temperature is too low, the DHW reserve outside the DHW time program may be limited.

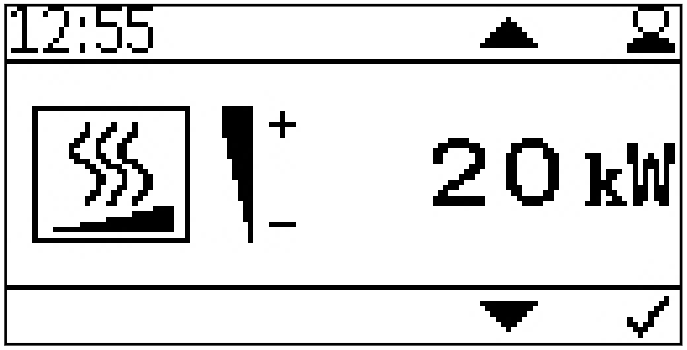


Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

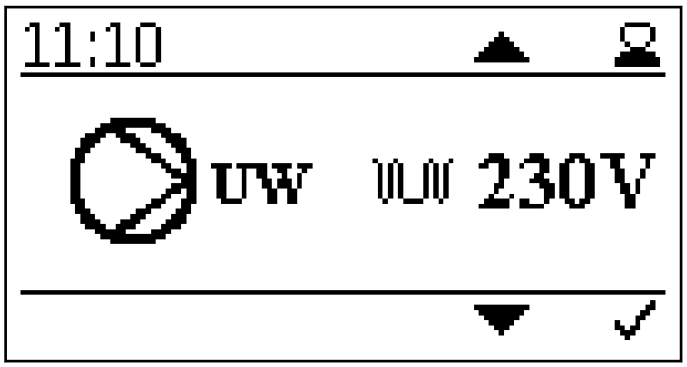
Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C



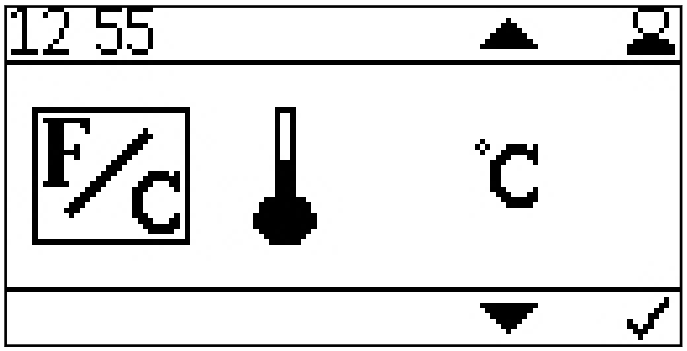
Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting. This will improve boiler runtime and modulation.



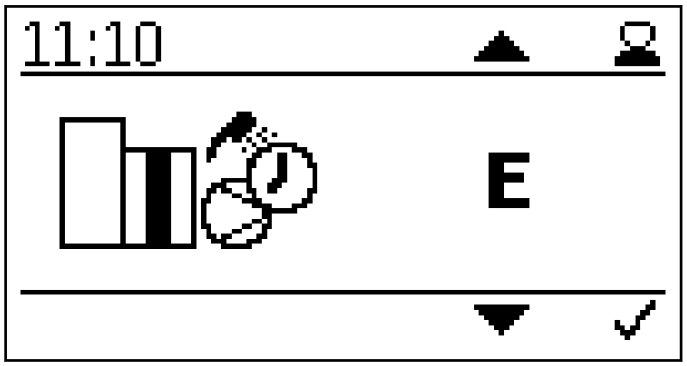
Settings pumptype:
Z16/38

- Heating efficient with or without PWM1 - PWM signal heating ⌂
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal solar ☼



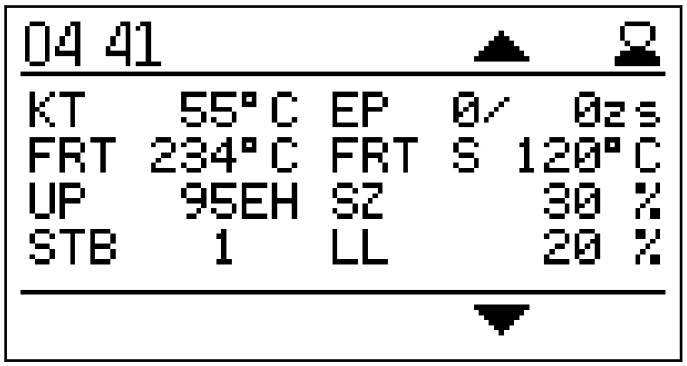
Setting temperature unit.

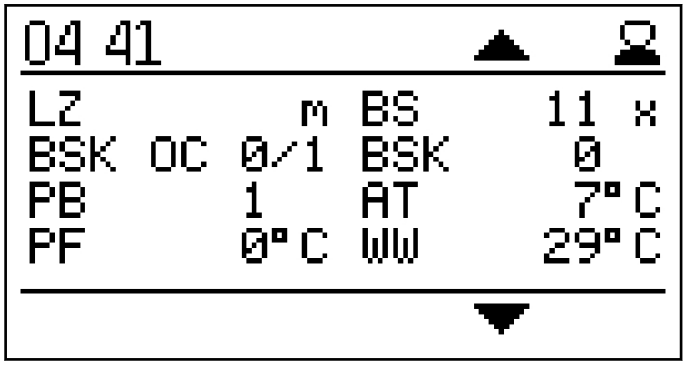
- ° Celsius
- ° Fahrenheit

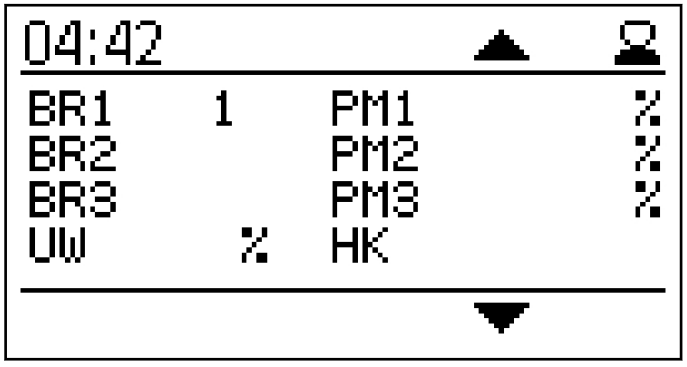


Setting operation mode.

Changing the operation mode.

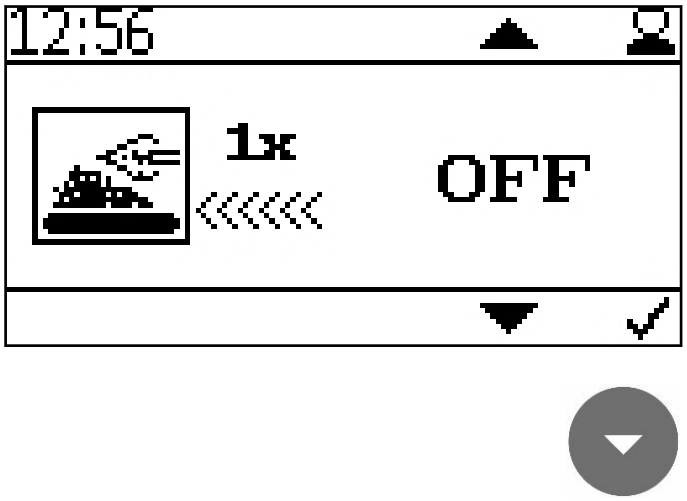






Display of the current values

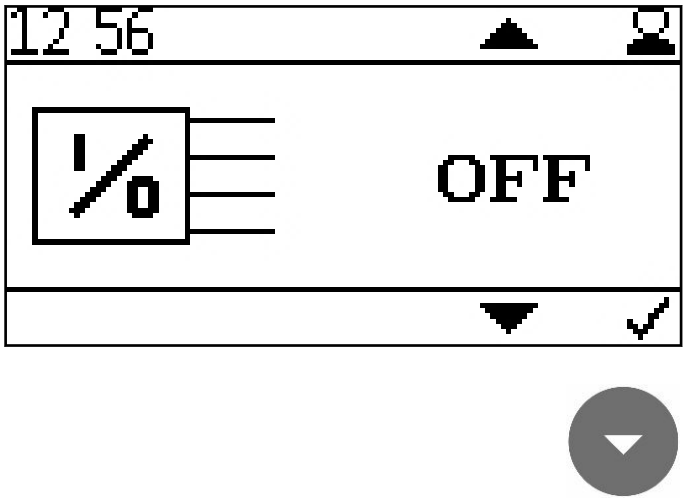
- KT: Boiler temperature
- FRT: Combustion chamber temperature
- UP: Negative draft
- STB: Safety temperature sensor
- EP: Supply/Pause time
- FRT S: Set combustion chamber temp
- SZ: Flue gas fan
- LL: Burner fan
- LZ: Run time
- BSK OC: Flame return gate open / closed
- PB: Pellet hopper casing cover
- PF: Accumulator sensor
- BS: Burner starts
- BSK: Flame return gate open Set
- AT: Outside temperature sensor
- WW: DHW
- BR1: Burner / thermostat contact Z26
- BR2: Burner / thermostat contact Z27
- BR3: Burner / thermostat contact Z28
- UW: Output for pump UW 230V
- PM1: Pump output PWM-signal Z38
- PM2: Pump output PWM-signal Z39
- PM3: Pump output PWM-signal Z40
- HK: Output for pump HK 230V



Extended insertion

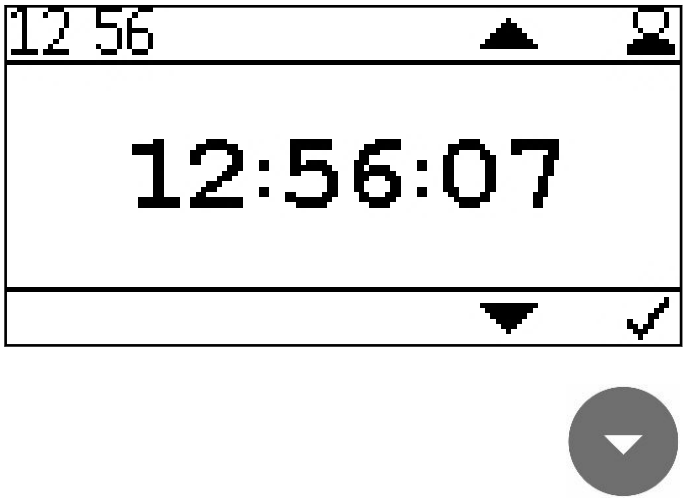
When this action is activated, the pellets are pushed in for a maximum of 3 ignition cycles longer than standard during the next ignition.

This function is automatically reset after being activated once and is used for faster ignition when the burner screw is empty.

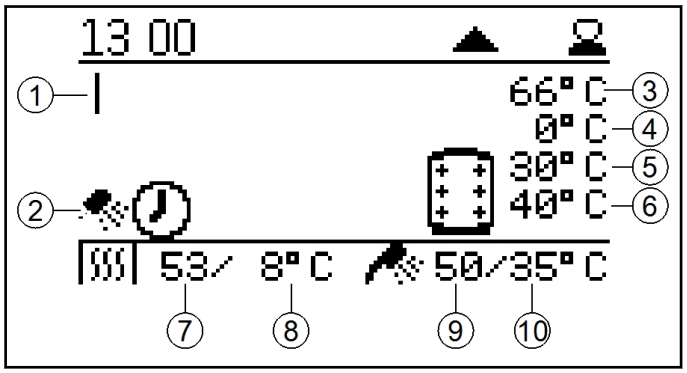


Output test.

The Output Test serves to check all connected.



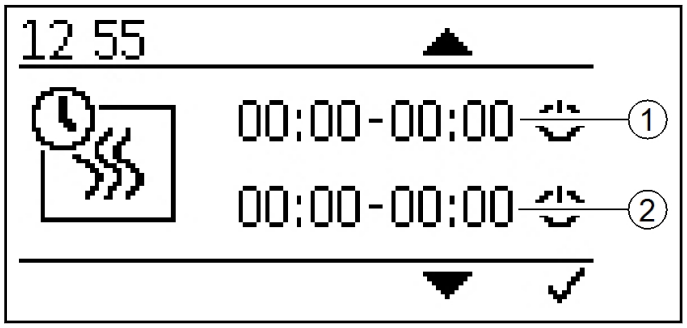
Setting current time.



Display of current boiler status.

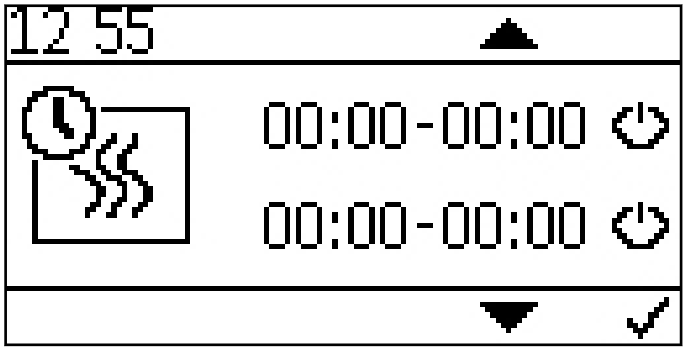
1. Heating circuit 1
2. DHW
3. Current accumulator temperature
4. currently demanded accumulator set temperature from the boiler (depending on current demand)
5. Accumulator set temperature
6. Heating circuit-Pump on temperature
7. Current boiler temperature
8. Boiler set temperature
9. Current DHW temperature
10. DHW set temperature

13.7 Setting the time program



- Heating period 1
- Heating period 2

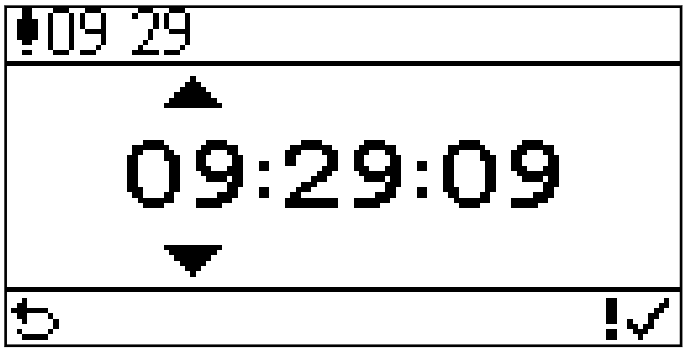
Press the confirm button to request a change, then use the arrow key to select the desired value and select it with the confirmation button.



The value can be raised or lowered by pressing the keys

Confirm with

13.8 Setting the time



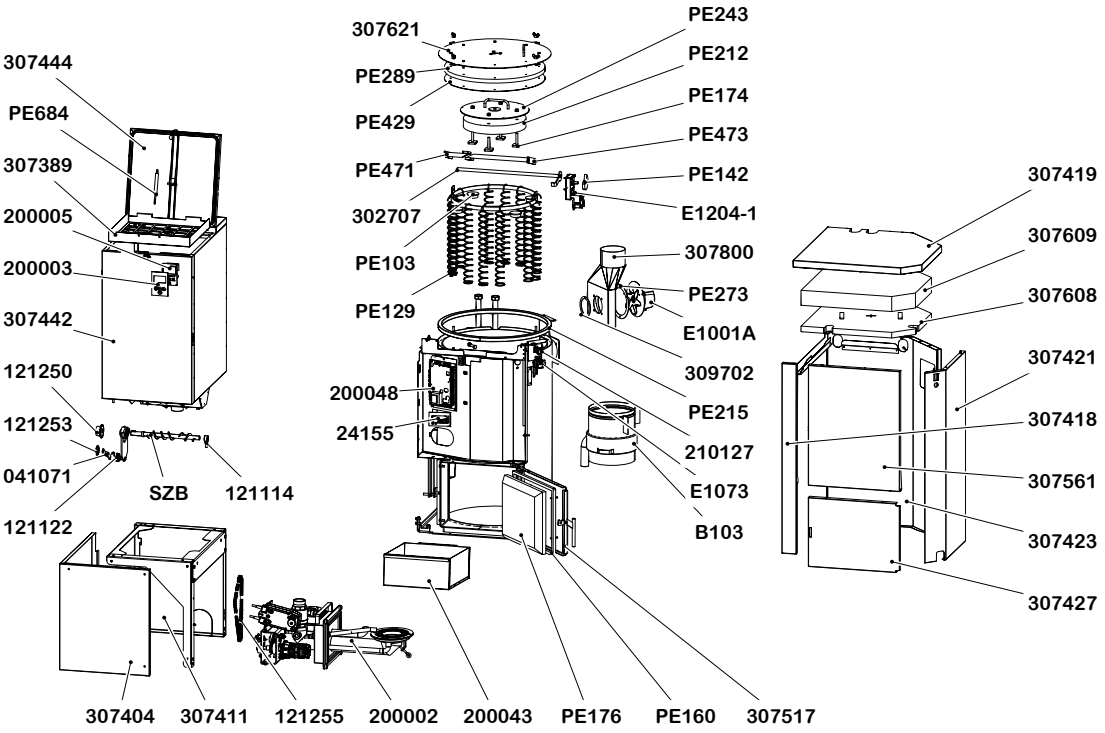
The current time is displayed.

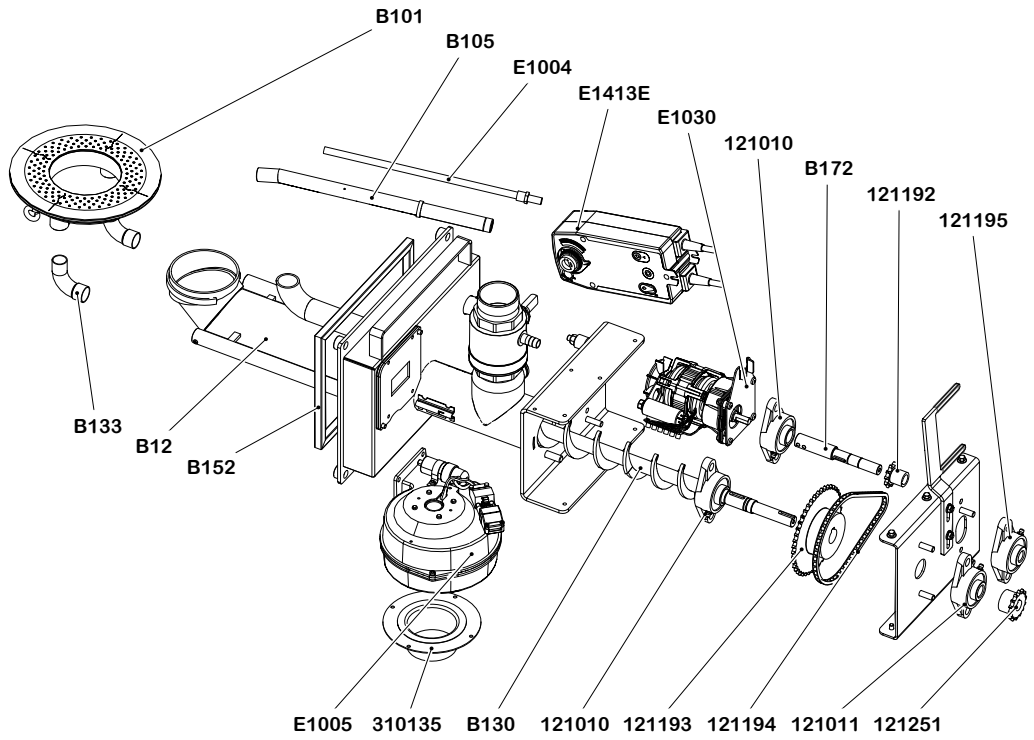
The setting of the time is analog to the setting of the time programes!

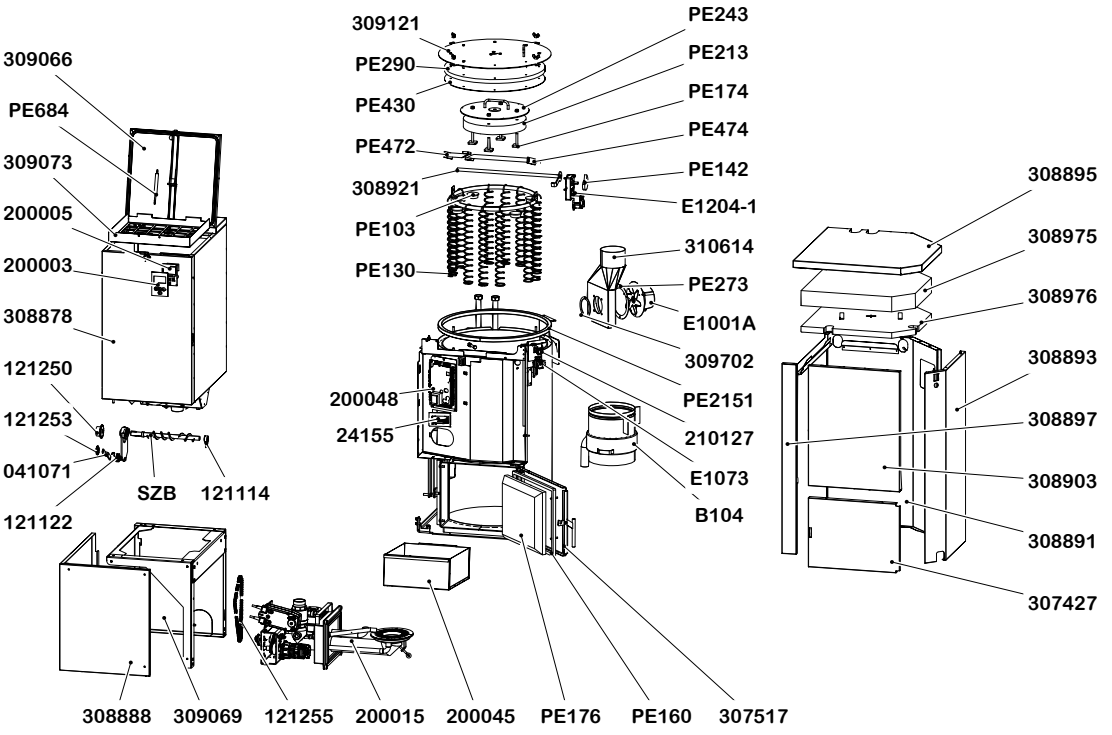
14 Default values and settings

	Default	Minimum	Maximum
Pump type – Boiler controlled pump	Energy-efficient	-	-
Boiler control temperature	70 °C	70 °C	90 °C
Switch off temperature	76 °C	76 °C	95 °C
Outdoor sensor min power	8 °C	7 °C	25 °C
Outdoor sensor max power	2 °C	-10 °C	6 °C
Boiler power rating	16/20/25/32	10/21 kW	20/32 kW
PWM pump	70 %	30 %	100 %
DHW set temperature	50 °C	30 °C	75 °C
DHW hysteresis	15 °C	5 °C	20 °C
Accumulator set temperature	30 °C	30 °C	75 °C
Accumulator hysteresis	5	5	20
Pump on temp (accumulator mode)	40 °C	10 °C	80 °C

15 Spare parts






309066
PE684
309073
200005
200003
308878
121250
121253
041071
121122
SZB
121114
309121
PE290
PE430
PE472
308921
PE103
PE130
PE243
PE213
PE174
PE474
PE142
E1204-1
310614
PE273
E1001A
309702
PE2151
210127
E1073
B104
200048
24155
308895
308975
308976
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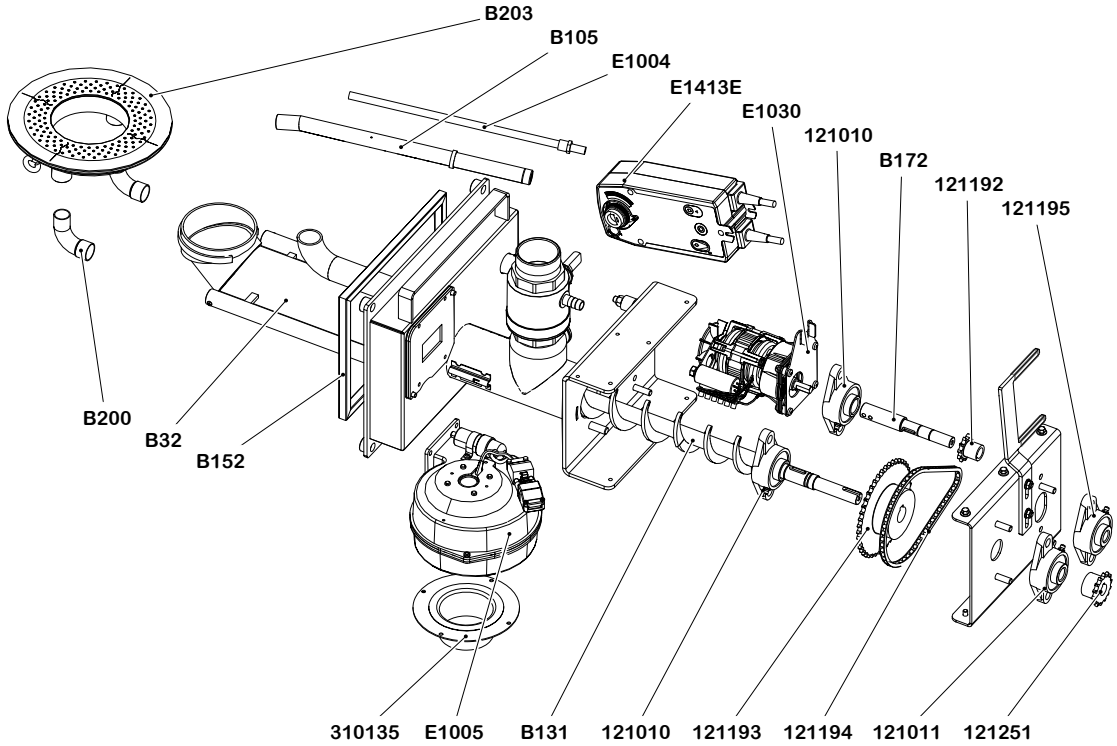
309069
121255
200015
200045
PE176
PE160
307517


B203
B105
E1004
E1413E
E1030
121010
B172
121192
121195
B200
B32
B152
310135
E1005
B131
121010
121193
121194
121011
121251

16 Technical data

Information according to EU regulation 2015/1187 and 2015/1189

Model designation	Easypell			
	16	20	25	32
Manufacturer and contact details	Eco Engineering 2050 GmbH Mühlgasse 9, 4132 Lembach, Austria			
Heat-up mode	Automatically			
Condensing boiler	no			
Solid fuel boiler with cogeneration system	no			
Combined heater	no			
Energy efficiency class	A+			
Energy efficiency index (EEI)	119	118	119	121
seasonal space heating energy efficiency in active mode η_{son}	86	84	85	86
Seasonal space heating energy efficiency η_s (based on upper heating value)	80	80	81	82
Delivered useful heat at nominal heat power P_n [kW]	16	20	25	32
Delivered useful heat at 30 % of the nominal heat power P_p [kW]	5	6	8	10

Fuel	Pellets made of 100% natural wood according to EN ISO 17225–2, class A1
Colorific value [kWh/kg]	≥ 4,6
Bulk density [kg/m^3]	≥ 600
Water content [Gew.%]	≤ 10
Ash parts [Gew.%]	≤ 0,7
Length [mm]	≤ 40
Diameter [mm]	6 ±1

Model designation	Easypell			
	16	20	25	32
Annual space heating emissions				
PM [mg/m^3]	< 40			
OGC [mg/m^3]	< 20			
CO [mg/m^3]	< 500			
NOx [mg/m^3]	< 200			

Auxiliary power consumption				
Auxiliary power consumption at nominal heat power el_{max} [W]	68	82	99	123
Auxiliary power consumption at 30 % of nominal heat power el_{min} [W]	26	29	33	39

Water area				
Water capacity [l]	70		108	
Feed / return connection [inch]	1		5/4	
Feed / return connection Ø [DN]	25		32	
Water resistance at 10K [mbar]	69,5	99	135	186
Water resistance at 20K [mbar]	17,8	26	35	49
Boiler temperature [°C]	65 - 90			
Minimum boiler temperature [°C]	55			
Operating pressure maximum [Bar]	3			
Test pressure [Bar]	4,6			

Model designation	Easypell			
	16	20	25	32
Flue gas area (Flue gas = F.g.)				
Combustion chamber temperature [°C]	500 - 870			
Need of draught rated power [mBar]	0,08			
Flue gas temperature partial load [mBar]	0,03			
Flue gas temp. rated power [°C]	160			
Flue gas temp. partial load [°C]	100			
F.g. volume rated power at f.g.tem. [kg/h]	39,1	44,4	51,1	60,4
F.g. volume partial load at f.g. tem. [kg/h]	9,4	13,4	18,3	25,2
F.g. volume rated power at AGT [m^3/h]	54,7	62,2	71,5	74,4
F.g. volume partial load at AGT [m^3/h]	13,2	18,7	25,6	35,3
Flue gas tube diameter (at the boiler) [mm]	130		150	
Chimney diameter	as per chimney calculation			
Chimney construction	as per chimney calculation			

Model designation	Easypell			
	16	20	25	32
Chimney calculation				
Rated heating power [kW]	16	20	25	32
Firing thermal capacity nominal load [kW]	17,13	21,28	26,71	33,51
CO2 volume concentration nominal load [%]	14,1	13,6	13,2	13,0
Flue gas iniertia current for chimney calculation nominal load [kg/s]	0,0109	0,0123	0,0142	0,0168
Flue gas temperature for chimney calculation nominal load [° C]	160			
Required (+) or maximum (-) delivery pressure nominal load [Pa]	8			
Rated heating power partial load [kW]	5	6	8	10
Rated thermal power partial load [kW]	5,35	6,50	8,57	10,56
CO2 volume concentration partial load [%]	10,4	10,5	10,6	10,7
Flue gas iniertia current for chimney calculation partial load [kg/s]	0,0020	0,0029	0,0039	0,0057
Flue gas temperature for chimney calculation partial load [° C]	100			
Required (+) or maximum (-) delivery pressure partial load [Pa]	3			

Weight		
Overall Weight [kg]	345	420

Model designation	Easypell			
	16	20	25	32
Electrical Components				
Connection value	230 VAC, 50Hz			
Main Drive [W]	40			
Combustion Air Blower [W]	62			
Flue gas fan [W]	25			
Electrical Ignition – [W]	250			
Cleaning Motor [W]	40			
Flame Return Gate [W]	5			
Noise generation [dB]	43,7 ± 3,2			
Protection class	IP20			

Further technical data and results of the type test available on request from your Eco Engineering contact.

Eco
Engineering