SCAN-LINE AQUA

OPERATING INSTRUCTIONS

Heta

Congratulations on the purchase of your new stove. We are confident that you will enjoy using your new investment, which you will get most out of by following the advice and instructions contained within this guide.
Scan-Line Aqua conforms to both EN 13240 and 15a B-VG Austria.
This certification is your guarantee that your new stove meets a range of stringent specifications and requirements, which ensure it is made from high-quality materials, is kind to the environment and is efficient.

Your new stove is supplied with the following:
a. Operating instructions
b. Warranty
c. A heat-resistant mitt

TABLE OF CONTENTS

INSTALLATION

Installing the stove

The stove must always be installed in accordance with applicable regulations for your particular area or country, including installation of the flue and connection of the stove to it. Always consult your local chimney sweep before carrying out installation, as you are responsible for ensuring that all applicable regulations are complied with.

Clearance

Regulations regarding installation of a stove near a flammable wall differ from those for a non-flammable wall. A stove may be positioned against a wall made from non-flammable material. However, to allow for sufficient cleaning space behind your stove, we recommend a clearance of at least 5cm from the wall.

For minimum clearance requirements from a flammable wall, refer to the information plate on the stove and the table on page 6 of this guide.

Warning!

As your stove becomes extremely hot during operation (in excess of 90°C), please handle it with extreme caution.

Children should never touch the stove.

Never place flammable objects under the ashpan.

Remember

1. Always ensure easy access to the chimney cleaning hatch.
2. Ensure the room has adequate ventilation.
3. Note that extraction fans ope-

rating in the same room as the stove can weaken the chimney draught, which can effect the stove's efficiency. It can also lead to smoke escaping into the room when opening the firing door

4. Do not cover the air vents, if fitted.

Floor surface

Ensure the floor can bear the weight of the stove and top-mounted steel chimney, if applicable. The stove must stand on a non-flammable surface such as steel plate or brick/tile. The dimensions of the non-flammable surface used to cover the floor area must comply with applicable regulations for your particular area or country.

Chimney connection

The chimney opening must comply with national and local regulations. However, the area of the opening should not be less than 175 cm2, which corresponds to a diameter of 150 mm. If a damper is fitted to the flue gas pipe, there must be at least 20 cm2 of free passage when in the closed position. If local regulations permit, two closed fireplaces may be connected to the same chimney. However, you must be aware of local regulations regarding how closely they may be located to each other. Stoves must never be connected to a chimney that already has a gas-fired heater connected to it.

An efficient stove places high demands on a chimney. Therefore, always have your local chimney sweep assess the condition of your chimney

Connecting to a brick chimney

Build a thimble into the chimney to accommodate the flue gas pipe. The thimble and flue gas pipe must not penetrate the chimney opening itself, but must be flush with the inside of the chimney duct. The points where brickwork, thimble and flue gas pipe meet must be sealed with fireproof material/beading.

Connecting to a steel chimney

When connecting a top-outlet stove directly to a steel chimney, we recommend feeding the chimney pipe inside the connecting pipe from the stove, which will allow soot and condensation to drop into the stove itself rather than collecting on the outside surface.

An installation must comply with applicable national and local regulations where a chimney is fed through an internal ceiling. To avoid overloading the stove, it is important that the chimney is supported by a load-bearing roof support.

Draught conditions

Poor draught may result in smoke escaping from the stove when the door is opened.

To ensure satisfactory combustion, chimney draught for this oven should be at least 10 PA, although some smoke may still escape if the firing door is opened when the stove is burning strongly.

The nominal flue gas operating temperature is 236°C with an outdoor temperature of 20°C.

The flue gas mass flow is 14.7 g/sec.

Chimney draught is generated by the difference between the high chimney temperature and low outdoor temperature.

The chimney's length and insulation

as well as the ambient wind and weather conditions also affect the ability to generate sufficient negative pressure in the chimney.
Before lighting a stove that has not been used for a long time, check that the chimney and stove are not blocked with soot, bird nests, etc.

Reduced draught can occur when:

- the temperature difference is too small, e.g. due to insufficient chimney insulation
- the outdoor temperature is too high, e.g. during the summer.
- there is no wind outside
- the chimney is too low and is sheltered from the wind
- there is false air in the chimney
- the chimney and flue gas pipe are blocked
- the house is sealed (no through-draught)
- negative pressure (poor draught conditions) due to a cold chimney or bad weather conditions can be compensated for by increasing the airflow into the stove.

Good draught occurs when:

- there is a significant difference in temperature between the chimney and outdoor air
- the weather conditions are clear
- there is a strong wind
- the chimney is at the correct height of at least 4 m above the stove and free of the roof ridge

OPERATING INSTRUCTIONS

First firing

Your stove is treated with heatresistant paint, which hardens at a temperature of approx. 250°C. Ensure the room is well ventilated, as the hardening process produces a certain amount of fumes and smell.
The firing door should remain slightly open during the first 1–2 firings with around 1 kg wood and should not be closed until the stove is cold. This is to prevent the beading from becoming stuck to the stove.

Wood fuel

The stove is EN approved for the firing of wood fuel. You must therefore only burn clean, dry wood in your stove. Never use your stove to burn driftwood, as it may contain a significant amount of salt, which can damage both your stove and chimney. You must also avoid burning rubbish, painted wood, pressure-impregnated wood or chipboard, as these materials can release toxic fumes and vapours. Correct firing produces optimal heat and efficiency. It also avoids problematic smells and smoke being released into the atmosphere and reduces the risk of chimney fire.
When burning damp wood, a large proportion of the heat is wasted during evaporation of the water. Firing with damp wood is therefore not only uneconomical, it also increases the risk of tarry soot, smoke and environmental problems. Therefore, it is important to use dry wood, i.e. wood with no more than 18 % moisture content. This is achieved by storing the wood for 1-2 years before use. Firewood with a diameter of more than 10 cm should be split

before storage, and should be of an appropriate length (approx. 22–30 cm) so they can be laid evenly on the embers. Firewood stored outdoors should be covered.

Examples of combustion values for different woods

Wood type in cubic metres equivalent to 1,000 litres of oil

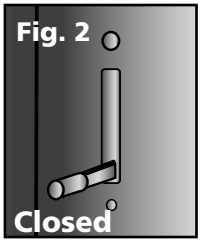
Oak	Beech	Ash	Birch	Elm	Spruce
7,0	7,0	7,2	8,0	8,9	10,4

Chimney fires

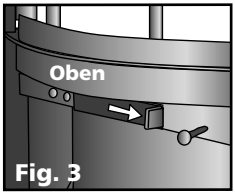
In the event of a chimney fire, close the firing door and shut off the secondary/start-up air to smother the fire. Then call the fire service immediately. Chimney fires are often caused by incorrect operation or long-term use of damp wood.

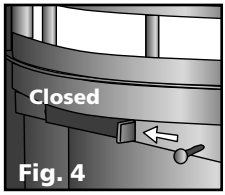
Regulating the air supply

Open the secondary air by moving the operating handle at the back of the side panel. Fig. 1 shows the secondary air fully open. Gradually shut off the secondary air by lowering the handle. The air supply is fully shut off when the handle is as shown in Fig. 2.



Open the start-up air to the stove by sliding the start-up handle fully to the right (front view). See Fig. 3. Shut off the start-up air by sliding the start-up handle fully to the left (front view). See Fig. 4.





Igniting

To ignite the fuel, place firelighters, small paraffin ignition bags or small pieces of firewood on the bottom grate. Then place larger pieces of firewood on top of the kindling material perpendicular to the firing door. Fully open the secondary air and leave the firing door slightly open (approx. 1 cm).

When the fire is burning with a steady flame and the chimney has heated up (after about 10 min), close the firing door. We recommend leaving the secondary air fully open throughout the first firing, to ensure that the stove and chimney are heated thoroughly.

Stoking

We recommend stoking the stove while there is still a good layer of embers. Spread the embers across the bottom grate and place up to 2 kg of firewood on the embers in a single layer perpendicular to the firing opening. Close the firing door and feed in start-up air if required. The wood will then ignite within 30–60 seconds. When the wood is burning with a steady flame, shut off the start-up air if open. Then adjust the secondary air to the required level. Nominal operation (12 kW) is achieved when the secondary air

is fully open and the primary air is shut off. When firing, do not place the fuel too closely together, as this will result in poor and therefore less cost-effective combustion. Note that the start-up air must not remain open during normal operation, as overheating may occur. It should therefore be shut off when the fuel is burning with a steady flame.

Reduced combustion

To operate the stove with reduced output, simply use a smaller amount of wood when firing and reduce the air supply. However, remember that the secondary air must never be shut off completely during firing, and it is important to ensure that the embers remain hot. Moderate heat is achieved when the fire settles, i.e. when no more flames are visible and the wood has become glowing charcoal.

Optimal firing

To achieve the most effective firing, it is important for the air to be fed in correctly. As a general rule, the fire should be controlled by the secondary air so that it ignites the flue gases. The secondary air circulating inside the stove also prevents the formation of soot on the glass panel. Note that sooting is inevitable if both the start-up and secondary air is shut off. When damp wood is combined with the conditions described above, the soot can become extensive and adhesive enough to pull the door beading off when the door is next opened.

Risk of explosion!!!

After placing wood in the stove, it is very important not to leave the stove unattended until it is burning with a steady flame (normally within 30–60 seconds).

The large amount of gas produced by adding an excessive amount of wood, combined with insufficient air supply, may lead to a risk of explosion. We also recommend leaving a layer of ash at the bottom of the combustion chamber.
Use caution when emptying the ashpan. Hot embers can remain in the ash for a long time.

Stove data as per EN 13240 testing. Scan-Line Aqua

Particle emission mg/m³	CO %	Flue gas mass flow g/s	Nominal flue gas temp. c°	Flue connector pipe mm ø	Firing weight kg	Draugh min mbar	Nominal output kW	Power kW	Distance to flammable materials in mm behind the stove	Distance to flammable materials in mm at the sides	Minimum distance from furniture mm	Stove weight kg
55	0,07*	14,7	236	150	2	0,10	12	12	150	300	1000	160

* 0,07% - (875 mg/nm³)

The nominal heating effect is the effect at which the oven has been tested.
Testing was carried out with the secondary air fully open and start-up air fully closed.

BLOCKAGE

If smells or smoke escape from the stove, it is important to establish whether the chimney is blocked. A small amount of draught is always required to ensure satisfactory operation. However, note that chimney draught is dependent on the outside wind conditions. It may be necessary to fit a damper in the flue gas pipe to regulate the draught in high wind conditions. When sweeping the chimney, be aware that soot, etc. can collect in the smoke chamber behind the stones. Excessive chimney draught may cause wood to burn too quickly. Also check the condition of the door beading. Using damp wood may produce insufficient heat, as much of the heat energy is used to dry the wood, which results in increased heating costs and greater risk of chimney sooting.

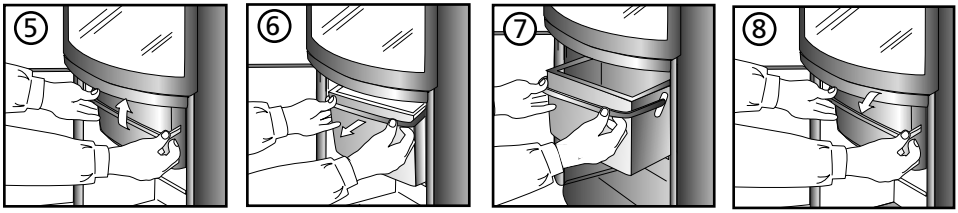
MAINTENANCE

Your stove is surface treated with heat-resistant lacquer and should be cleaned using a damp cloth. Commercially-available repair spray can be used to repair damage to the lacquer surface.

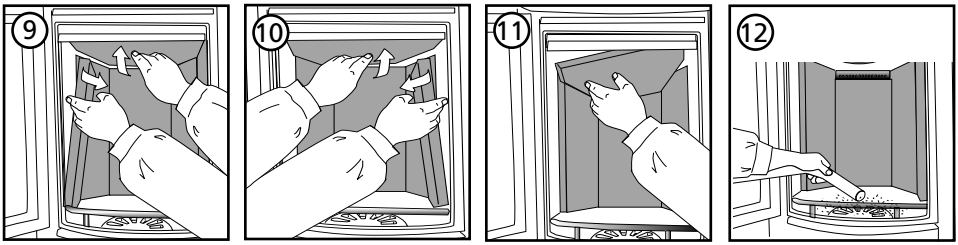
Cleaning the glass

Inefficient firing resulting from the use of damp wood, etc. can lead to sooting of the glass panel. However, this can be removed easily using special glass cleaner or standard scouring liquid.

Emptying the ashpan (Figs. 5-8)



Clearing soot after chimney sweeping and replacing the stones. (Figs. 9-12).



WARRANTY

Heta stoves undergo extensive quality control before delivery to our suppliers.

Your product is therefore guaranteed for 5 years against manufacturing defects.

Your warranty does not cover:
- Consumables/breakable parts, including: Fireproof stones in the combustion chamber, glass, fire rope and grate
- Damage resulting from incorrect use
- Disassembly, transportation and re-installation costs associated with a warranty repair

In the event of a claim, you will need to provide the warranty slip number.

Warning

Unauthorised modification of the stove and the use of non-original parts will void your warranty.

Attaching an outside air supply (if required) Figs. 5–8.

Fig. 13

Cut out and remove the metal cover plate as shown using a diagonal cutter.

Fig. 14

Feed a duct through the hole in the back plate.

Fig. 15

Push the duct onto the ø100 mm pipe welded behind the ashpan.

Fig. 16

Secure the duct using a collar band.

CONNECTING TO A WATER SYSTEM

Aqua: Applications and conditions of use.

Fig. 1 Scan-Line 580

The important information contained within this guide does not encompass every situation. Common sense and good workmanship, together with professional installation and correct maintenance, will ensure the reliability of your stove.
As Heta A/S is unable to give advice on every type of installation, we have produced this guide to help you choose the best method of installing your stove.
An AQUA stove gives you even more possibilities than with a standard stove, allowing you to have hot water, radiators and even floor heating anywhere in the house.
You do, however, have to bear in mind a few things:

The installation may only be carried out by an authorised plumber and must comply with all applicable legislation. You must also have a basic understanding of how the stove works. Do not install a stopcock between the stove and the rest of the heating system. Incorrect operation of the system may overheat the water and prevent it from circulating. Never fire the stove while the boiler is empty, as this may cause the copper cooling pipes to leak. Air trapped within the boiler may also lead to a risk of explosion. To get the best out of your heating system and maintain efficient burning, we recommend that you use Heta's AQUA Kit, which releases water into the system only when the stove reaches the right temperature.

An AQUA stove must always be fitted with an expansion tank, of which there are two types: open expansion and closed expansion.

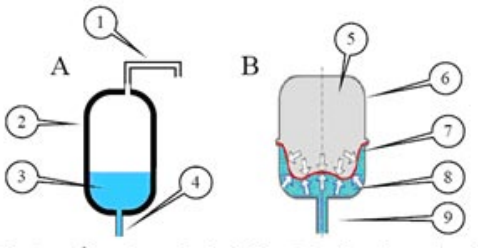


Fig. 2 A: Open expansion tank
Fig. 2 B: Closed expansion tank

1: Vent pipe. 2 and 6: Tank.
3 and 8: Water. 4 and
9: Connection to system.
5: Pressurised air.
7: Membrane.

Open expansion means that the expansion tank (in this case located at the top of the installation) is open to the atmosphere. It must be large enough to accommodate the volume of expanded hot water in the system. If the circulation in the system stops while the stove is lit, the temperature will rise sharply. It is therefore necessary to protect against excess pressure. An open expansion tank that is correctly and installed and of sufficient size protects against this by releasing excess pressure to the atmosphere through a vent pipe. The disadvantage of open expansion is that the expansion tank must be located above the rest of the system. The tank (and access pipe) must also be protected against frost, and oxygenation of the water also necessitates some form of corrosion protection within the system.

With closed expansion, the expansion tank is hermetically sealed and fitted with a membrane, which accommodates changes in water volume by compressing the air stored on the other side of the membrane. The advantage of this system is that the expansion tank can be located anywhere in the system. Also, as the system is hermetically sealed, it is not liable to the same oxygenation problems of the open expansion system. However, this system does not protect against excess pressure resulting from, for example, overheating. It is therefore necessary to install some form of protection that complies with relevant legislation. For a closed expansion system, this normally consists of a pressure relief valve and emergency cooling circuit. The emergency cooling circuit consists of a spiral-shaped pipe built into the water tank, which is connected directly to a cold water supply at one end, running out to a drain via a thermostat at the other. The thermostat sensor is located in a holder within the tank.

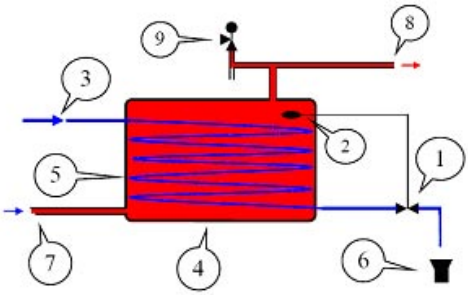
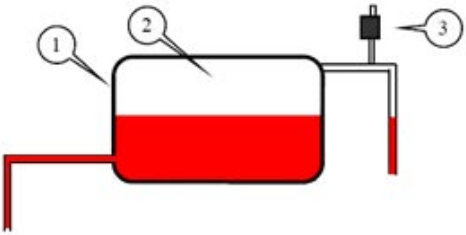


Fig. 3 Emergency cooling circuit
1: Temperature control valve
2: Sensor
3: Cold water supply
4: Tank
5: Cooling coil
6: Drain
7 and 8: Flow and return
9: Pressure relief valve

If the system overheats, the thermostat will open at 95°C, allowing cold water to run through the cooling coil to cool the tank. If this is insufficient, for example if the cold water supply is stopped, the temperature will continue to rise until the pressure causes the pressure relief valve to open, allowing built-up steam to escape.

If pockets of air become trapped in the water system, there is a risk that the water may stop circulating, which in turn can lead to overheat-



ing. We therefore recommend installing an automatic air vent to allow trapped air to escape.

Fig. 4 Example of an automatic air vent

1: Tank
2: Air pocket preventing circulation
3: Automatic air vent (in this case, open)

A stove fitted with a water tank may cause increased cooling of the smoke, which can lead to problems with chimney draught. Therefore, it is important to use additional kindling and to leave the door slightly open for longer than normal, so the water in the tank can be heated as quickly as possible. A system should also be installed to maintain the correct temperature. We recommend a system comprised of a thermostatic switch and a circulation thermostat, which ensure that water starts circulating only when it has reached the required temperature.

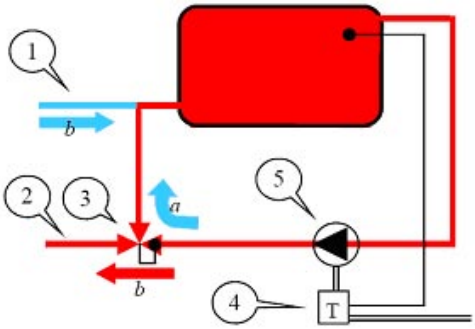
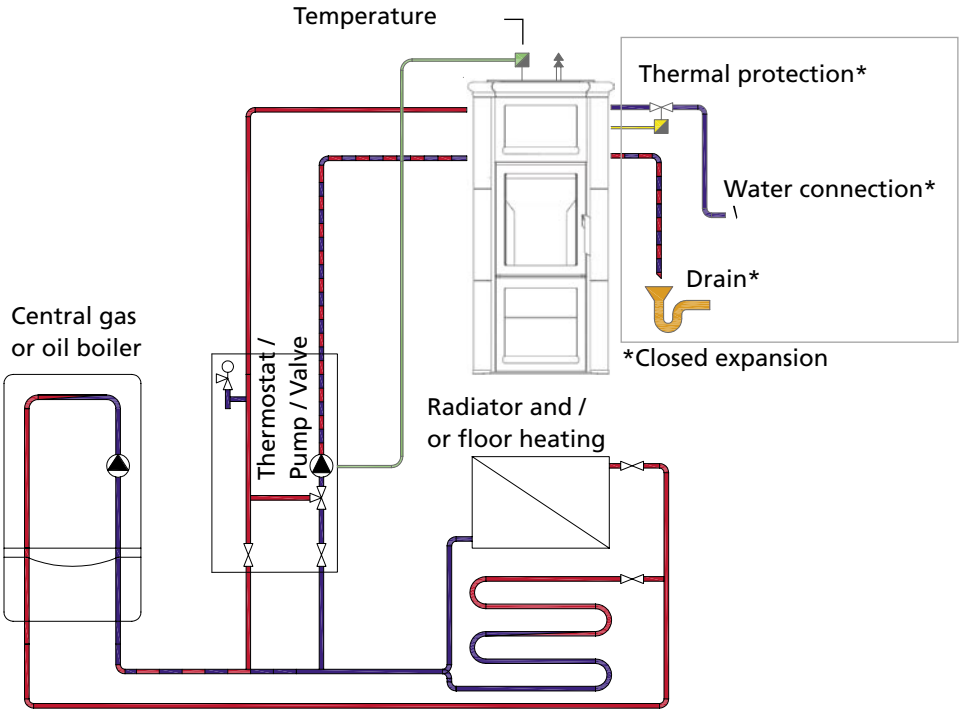


Fig. 5 System for maintaining the correct temperature

1: Cold water return
2: Hot water supply
3: Circulation thermostat
4: Thermostatic switch
5: Circulation pump
a: Circuit at 60°C
b: Circuit over 60°C

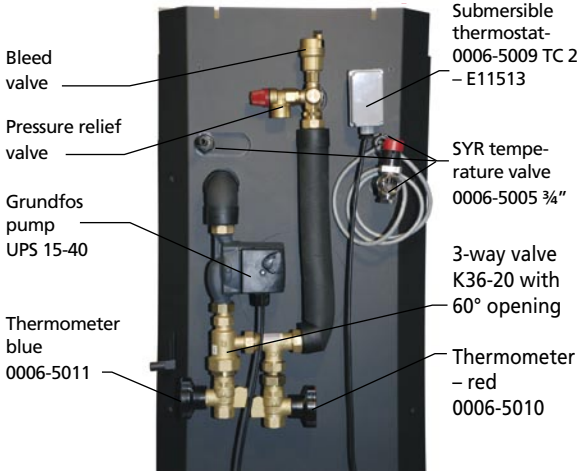
The circulation pump starts when the water temperature in the tank reaches 50°C. At this temperature, circulation only occurs in the tank/Aqua kit, as the thermostat (Figs. 5,3) will not open and release water to the rest of the system until the tank temperature reaches 60°C. This process stops and starts the system automatically. Therefore, you only have to ensure that at least one component that is able to dissipate the heat is attached to the system, such as an accumulation tank or an open radiator.

Example: Opened and closed expansion systems



Connection

1. Water to drain. 12 mm copper pipe
2. Water connection.
Thermal cooling protection.
12 mm copper pipe
3. Return (cold) 1″ RG
4. Flow (hot) 1″ RG
5. Extra 1″ RG
6. Submersible thermostat connector
1/2″ RG



Aqua kit K36-20
See special instructions for
Aqua kit on page 14

INSTALLING AND COMMISSIONING HETA AQUA KIT K 36-20

1. GENERAL

1.1 Scope

These instructions describe the function, installation, commissioning and operation of Heta return-flow temperature controller K36-20. For other components such as regulators, refer to the relevant manufacturer's documentation.
Sections marked with [Expert] are intended for use by qualified professionals.
Please read these instructions thoroughly before using the loading valve assembly for the first time and store them safely for future reference.

1.2 Product description

Heta return-flow loading valve assembly K36-20 is a pre-installed fixture that maintains constant return water temperature in Heta recessed fireplaces and stoves.

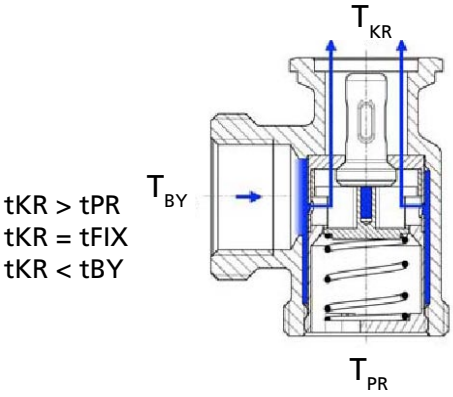
- Ballcocks with integrated thermometer (flow and return)
- Pressure relief valve to prevent excessive pressure
- Automatic bleed valve to prevent air/gas bubbles in the heat exchanger
- Submersible thermostat to turn the pump on and off depending on temperature
- Thermal control valve with 60°C opening temperature

Our packaging is made from recyclable materials.

1.3 Functional description

Heta return-flow loading valve assembly K36-20 prevents the boiler from sooting by raising the return water temperature with the help of a thermal valve (through a bypass). The constant return-flow temperature ensures even combustion and optimal energy utilisation.

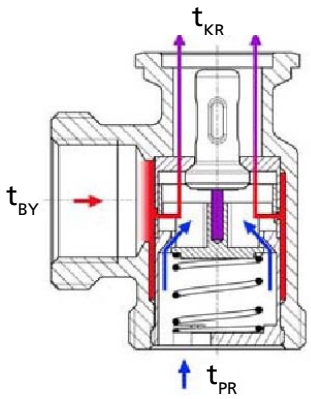
1. As long as the water temperature in the boiler circuit remains below the control valve opening temperature, the valve will prevent water flowing into the accumulation tank. The pump circulates the water in the boiler circuit via the bypass, and as there is less water in the boiler circuit, it heats up more quickly.



2. When the temperature in the boiler circuit reaches the control valve opening temperature, it reduces the bypass volume flow and opens the accumulation tank circuit. The cold return water from the accumulation tank then mixes with the hot water

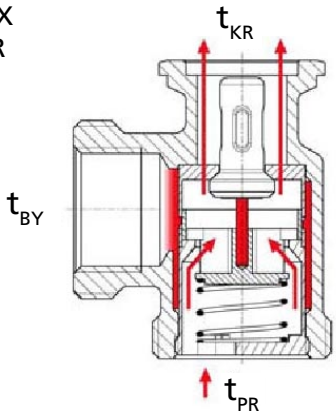
from the boiler circuit in the control valve. This maintains constant return-flow temperature to the boiler and prevents the formation of condensation in the boiler.

tKR > tFIX
tKR = tBY



3. When the return-flow temperature from the accumulation tank exceeds the valve opening temperature, the control valve closes the bypass completely. This allows the water from the accumulation tank to flow directly into the boiler.

tKR > tFIX
tKR = tPR



Temperatures: tBY = boiler flow (bypass) tKR = boiler return flow tPR = accumulation tank return flow tFIX = opening temperature

2 SAFETY INSTRUCTIONS

Installation, commissioning and connection of the electrical components require expert professional knowledge equivalent to that of an authorised plumber, heating installation engineer, environmental technician or equivalent. The following must be adhered to when carrying out installation and commissioning:

- relevant regional and national regulations
- trade association regulations relating to safety at work
- general/safety instructions provided in this document

The person or contractor carrying the installation is responsible for ensuring it is carried out correctly!

Note:

Risk of damage to materials from mineral oil!

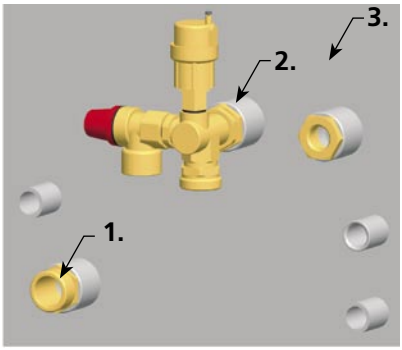
The EPDM seals must never come into contact with substances containing mineral oil, as this will damage the material and reduce its sealing properties. If you are in any doubt, contact the product manufacturer. to determine whether solar fluid,

grease or other products used during installation contain mineral oil. We accept no responsibility and do not guarantee against damage resulting from seals that have become damaged through exposure to mineral oil.

3 ASSEMBLY AND INSTALLATION [Expert]

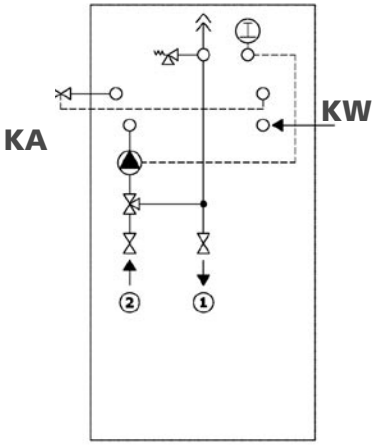
3.1 Assembly of return-flow loading valve assembly

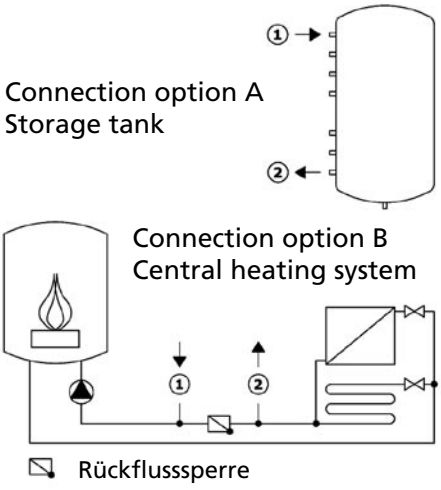
1. Seal 1" double nipple in the return-flow connector (no. 3).
2. Seal the safety section with the vent to the extra connector (no. 4). The safety section is protected by a lock nut. The cross joint can be adjusted when the lock nut has been loosened.
3. Seal the 1" AG x ½" IG reduction section to the flow connector (no. 5). The immersion thermostat shell can be sealed to the reduction section.
4. Install the pre-assembled return-flow loading valve assembly. Remember to fit the seals! Start with the safety section. First, connect everything and



tighten by hand. Then align the assembly and connect the pipes (see connection diagram on the following page). Before commissioning/pressure testing, be sure to check and tighten all connections.

5. Connect the submersible thermostat as described in the separate instructions and secure it.
6. Piping/connection diagram





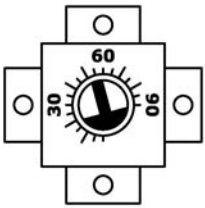
The stove must never be used without water and a functioning cold water supply [KV] / drain [KA] in the thermal drain protection and relevant safety fixtures. Otherwise, there is a risk of explosion, leading to irreparable damage!

Note: Thermal drain protection is not mandatory in Denmark when using open expansion.

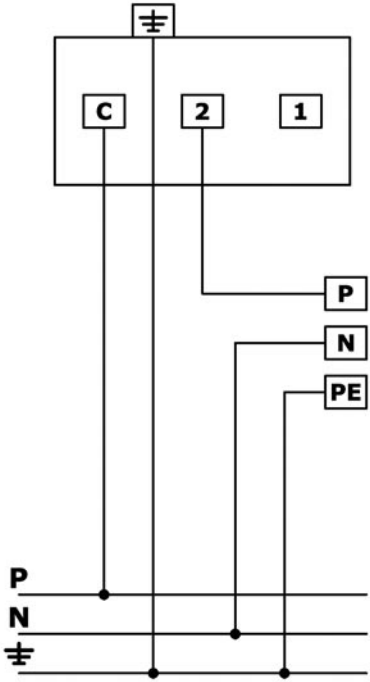
3.2 Electrical connection of return-flow loading valve assembly:

Wiring of submersible thermostat connectors

Thermostat



Setting at ~ 55°C



Heating pump

4 TECHNICAL DATA

Return-flow loading valve K36 DN 20

Connectors
on heat production equipment: 1" external thread
to accumulation tank ¾" internal thread

Materials
Fixtures brass
Seals EPDM/paper
Insulation EPP
Hydraulics
Max. temperature: 110°C
Max. pressure 4 bar
Kvs value 5.3

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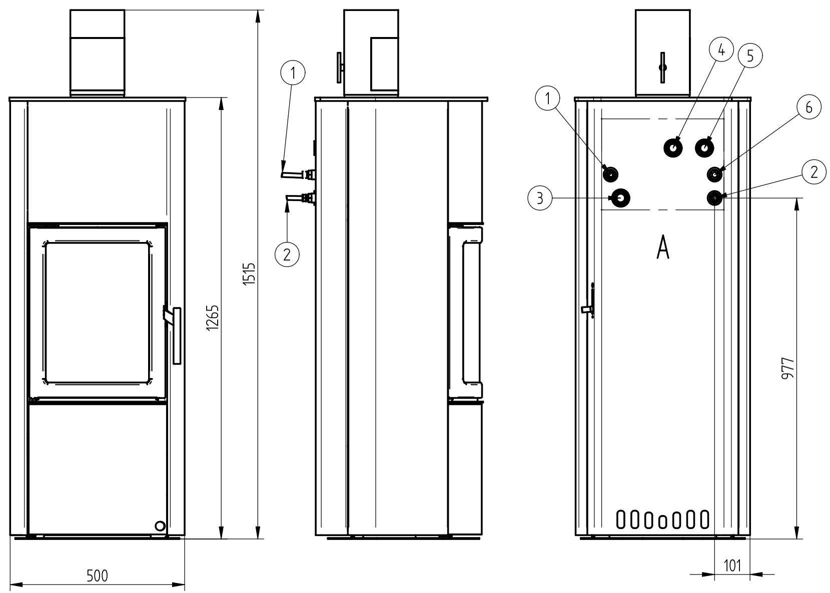
5 PERFORMANCE

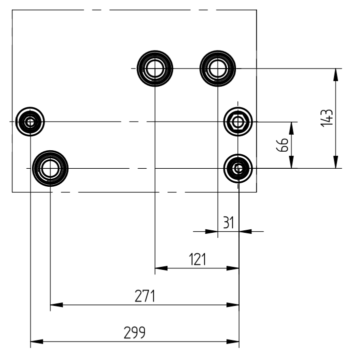
The stove has an output of approx. 6 kW.
Which equates to:
- 260 l water flow per hour at 20°C between the thermometers
- 345 l water flow per hour at 15°C between the thermometers
- 520 l water flow per hour at 10°C between the thermometers

The installed pump (Grundfos UPS 15-40) is triggered
- at level III (at 520 l/h) at approx. 3.2 m WS (pressure loss)
this equates to approx. 40 m of Ø 18 x 1.5 mm copper pipe.
- at level II (at 520 l/h) at approx. 2.5 m WS (pressure loss)
this equates to approx. 30 m of Ø 18 x 1.5 mm copper pipe.
- at level I (at 520 l/h) at approx. 1.3 m WS (pressure loss)
this equates to approx. 15 m of Ø 18 x 1.5 mm copper pipe.

As a rule, the pump is capable of running at level I.

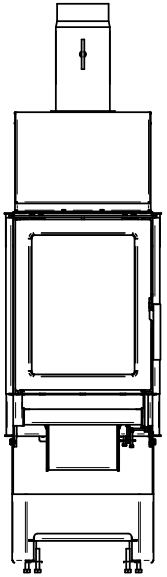


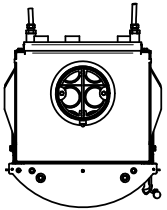
DETAIL A

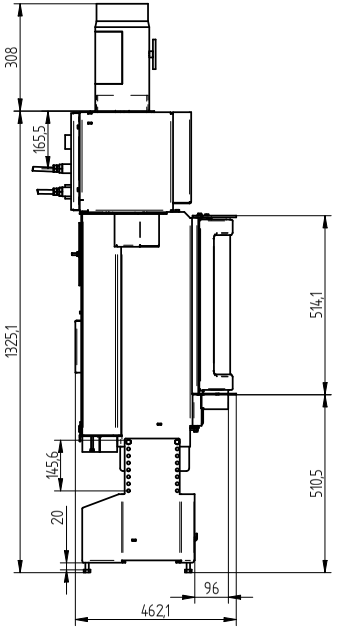


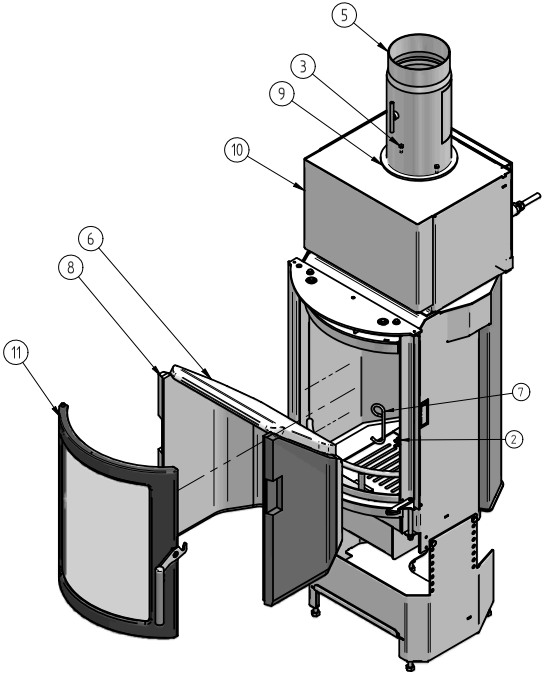
1 Copper pipe for water to drain
- boil protection - For closed systems
2 Copper pipe for water connection
- Thermostatic boil protection
3 Return (cold) 1” RG
4 Flow (hot) 1” RG
5 Extra 1” RG
6 1/2” RG submersible connector

170,7 kg Vægt	Areal	Saml. Materiale type	Montere Bearbejdning	
Heta Brændeovne	Jupitervej 22 7620 Lemvig Tlf. 96630600 Fax 96630616	Bukke nummer Buk 1 Buk 2 Skære nummer	Sidst opdateret	25-08-2008
			Teg SBS	04-11-2007
			Godk.	
			Teg type Samlingstegning	
Scanline 580 Aqua		Valseindstilling 1 2	Mål uden tolerancer efter DS/ISO 2768-1-m	
		Valsetryk	Solid Edge 8038-0002-00-plance.dft 8038-0002-00.asm	8038-0002-00









Pos. Nr.	Vare Nr.	Titel	Materiale	Antal
1*	0008-0003	M6 x 20 rundhoved		1
2	0008-0040	M5 X 10 unbrako		2
3	0008-1201	M6x16 Sekskantskrue	elforzinket	2
4*	0008-1402	Møtrik M6 el forz.		1
5	0020-3024	Rensesektion		1
6	0023-0075	Røgvender	Støbt Skamolsten	1
7	1013-0396	Løftekrog til bundrist	Blankt rundstål ø6 0004-1403	1
8	1523-0021	Heta Stensæt for SL-500	Saml.	1
9	1525-0001	Røgtud Tysk udgave		1
10	4530-1104	Compact Line aqua formontage	Saml.	1
11	5005-0024	Låge Kompakt Line	Saml.	1

92,6 kg
Vægt

Areal

Saml.
Materiale type

Heta Brændeovne

Jupitervej 22
7620 Lemvig
Tlf. 96630600
Fax 96630616

Kompakt Line Aqua

Bukke nummer
Buk 1
Buk 2
Skære nummer
Valseindstilling
1 2
Valsetryk

Montere
Bearbejdning

Sidst opdateret		11-08-2008
Tegning	LSK	16-06-2008
Godkendt		
Tegning type	Samlingstegning	

Mål uden tolerancer efter DS/ISO 2768-1-m

Solid Edge
T108-0001.dft
T108-0001.asm

7108-0001