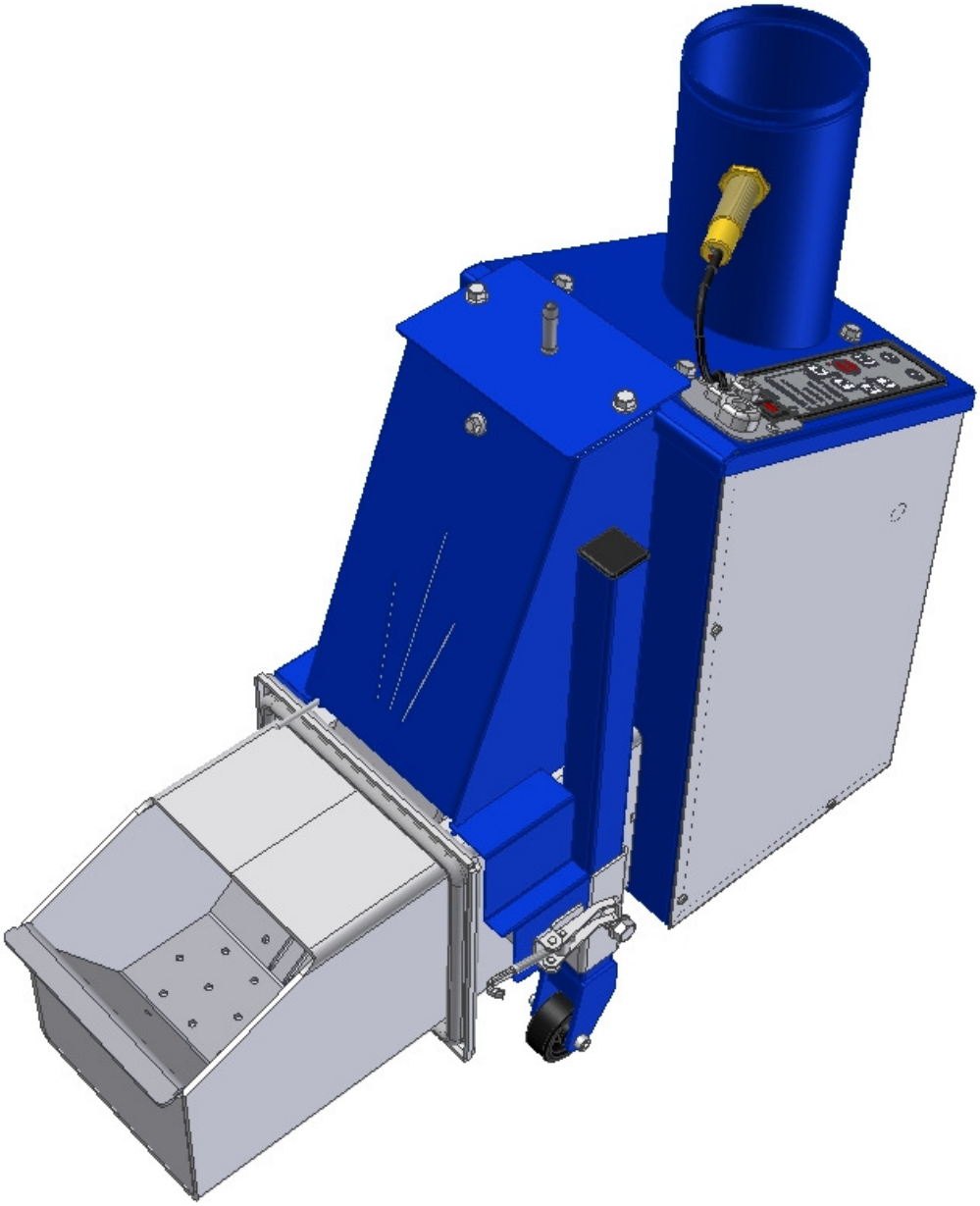
Installation - Service

Pellet burner Janfire Flex-a



11899043 R2 SV

Due to constant development, Janfire AB reserves the right to change part or parts of this publication at any time without notice.

Janfire AB assumes no responsibility for errors or damages of any kind resulting from the use of this publication.

Contents

1 Safety Instructions

1.1 General Information

The security regulations base on a risk analysis that has been implemented according to relevant EU directives in order to meet the European standards for CE labelling.

At each installation, the installation checklist completed and archived. This is very important to the customer's warranty shall apply.

Read the safety instructions carefully before installation. Always follow the safety instructions during installation and during maintenance. Follow the safety instructions on the warning signs!

Installation, operation, service and any other work should be carried out by qualified personnel and in accordance to local standards and regulations.

When unpacking, the burner should be checked for any damage. If any parts are damaged contact the installing contractor.

The local chimney sweep must be informed, an examination of the existing chimney must be performed and a local building application may be necessary depending on local code requirements.

Before using the system, it must be controlled and fine-tuned. Adjustments and readings are made during start up. These observations should be written into the installation protocol. This is very important in order to customer guarantee will apply.

NOTE: When restarting the system turn the burner fan on for 10 minutes to cool down any remaining cinders.

NOTE: Always follow these instructions for installation, operation and service.

NOTE: For personal and operational safety: Use only spare parts, which have been manufactured or approved by Janfire AB.

1.2 Conventions

These safety instructions use the following protocols:

- DANGER!

The text “DANGER!” is used when there is a risk for personal injury or death.

- WARNING!

The text WARNING! is used when there is a risk for damaging the product, unit or control box etc.

- CAUTION!

The text CAUTION! is used when there is a risk for a system failure, operational stop, or disturbances etc.

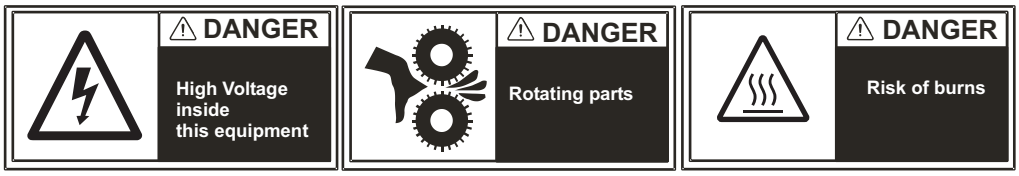
The warning texts are in hierarchical order. The text “DANGER!” also includes the possibility of the events covered by “WARNING!” or “CAUTION!”

1.3 Safety Instructions for Installation and Service

All electrical installation and service should be carried out by qualified personnel and in accordance to local electrical standards and codes.

All plumbing and piping connections should be carried out by qualified personnel and in accordance to local standards and codes.

Chimney cleaning should be carried out by qualified personnel and in accordance to local standards and codes.



1.4 Safety Systems

The following safety systems are included in the Janfire NH pellet burner:

- A drop shaft protects against reverse combustion.
- Temperature switch
  A temperature switch in the drop shaft stops the burner output if temperature exceed 140°C .
- Water safety device.
  The water safety device blows at an environmental temperature of 100°C.

NOTE: The container must be entirely filled with water. If the water safety device has opened and released water or has begun to leak, then it has to be replaced.

- Feeding hose of plastics of a special type. The hose between the external screw and the burner is made of plastics so that it shall melt away (not burn) at high environmental temperatures and break the connection between the pellets feeder and the burner.
- Circuit breaker
  The NH pellet burner is equipped with a burner door micro-switch or circuit breaker, which prevents the burner from operating when detached from the boiler.

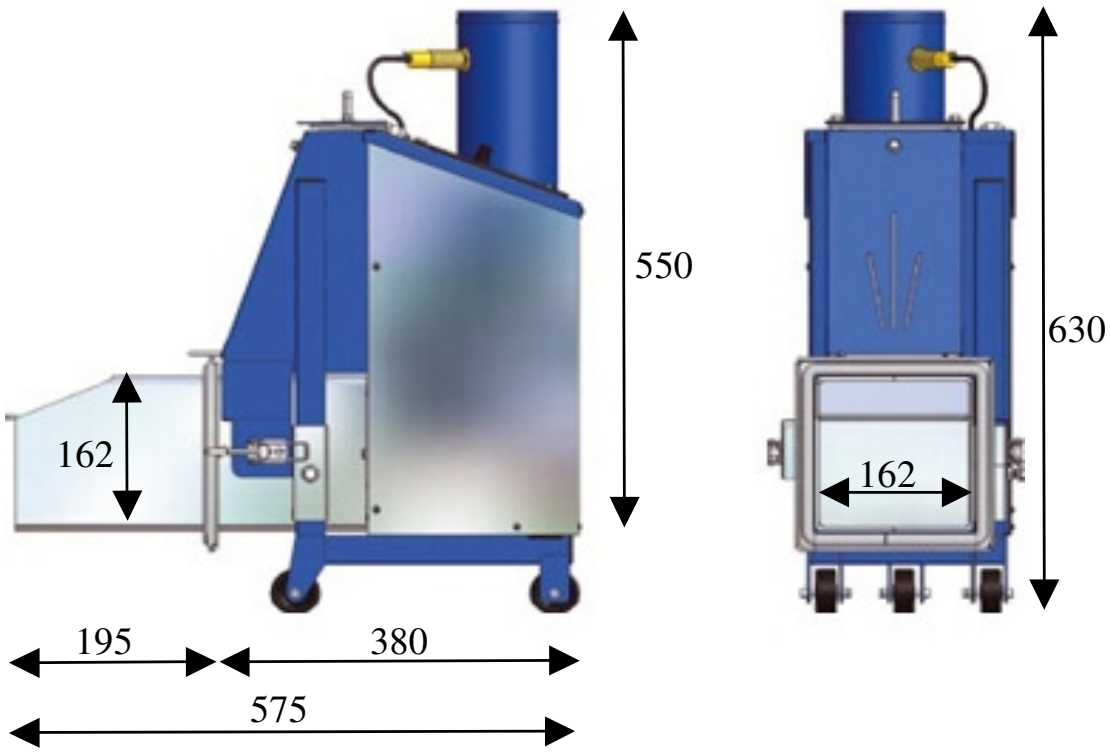
NOTE: The free space around the burner shall be in accordance with the authorities' requirements regarding fire safety.

1.5 CE declaration

If the unit is used in combinations other than those tested, Janfire AB cannot guarantee compliance with the relevant EU directives.

2 Technical Data

	Janfire Flex-a
Burner output capacity	9, 12, 15 och 18 kW
Maintenance output	600 W – automatic choice
Burner power consumption	80 W, 230 VAC, 50 Hz
Automatic ignition coil	1000 W
Pellet storage volume	Internal storage: 3 liter = 1,8 kg
Internal dosage motor	15 W
Combustion fan	60 W, Variable speed operation
Control panel	Touch-button
Fuses	- 6 A circuit breaker (6A automatic fuse) - 6,3 Amp fast blow fuse for heating coil
External auger	1-phase 230 V AC, 50 Hz, 250 W, 2,4 A, Capacitor 14 µF. If auger length greater than 4.30 m, use a 3-phase motor.
Weight	25 kg



Figur 1 Måttskiss Janfire Flex-a

3 Operational Description

An external auger feeds pellets from an external storage bin to a receptacle located in the top of the burner (internal hopper). An internal dosage auger then feeds the pellets to a drop shut where they fall freely into the combustion chamber or burning bowl/cup; this eliminates the possibility of reverse combustion.

A variable speed fan supplies the burner with primary and secondary air. On its way to the burning cup the air cools heat-exposed parts of the burner. The correct amount of air is then fed to the burning cup for primary and secondary combustion. The ignition coil preheats the air for automatic ignition. Burner cup sensor (flame guard) detects pellet ignition. If ignition does not take place shuts the burner down.

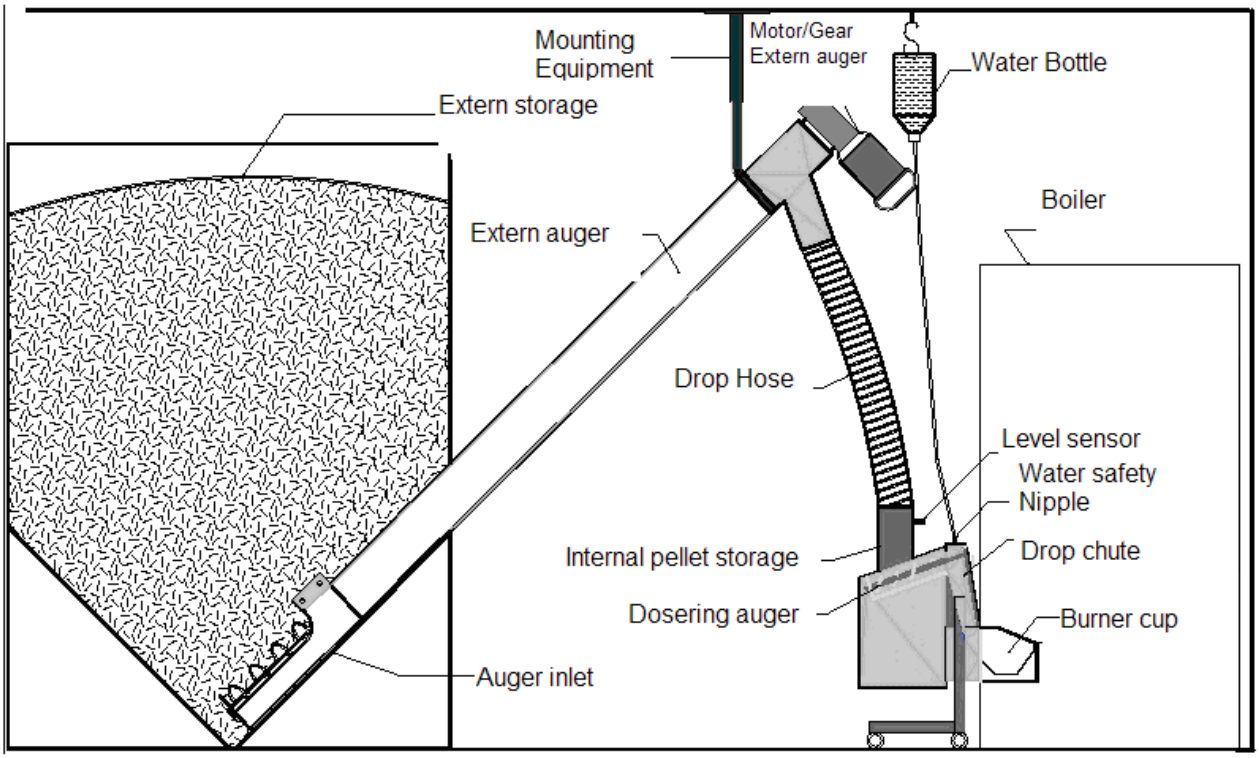
OBS! If the draft is insufficient the hot flue gases will rise backwards into the drop chute. If the drop chute temperature rises to the highest allowed level 140°C shuts the burner down. If it still is too hot, the water safety device blows.

The power is determined by the chosen power level and is adjusted by the thermostat of the boiler.

Except for the standby output level of about 600 W, the burner output can be set between: 9 kW, 12 kW, 15 kW and18 kW. These burner output levels are based on a pellet weight density of 675 g/l and an energy content of 4.8 kWh/kg. To adjust for variations in the burner output and combustion levels when using pellets with another weight or energy content the levels can be changed here. The different output levels can be fine tuned to produce the best overall combustion result.

High quality pellets produce high efficiency and output. High quality pellets are solid wood pellets 6-10 mm in diameter with little sawdust. Moisture levels should be no higher than 10%, ash content no higher than 1% weight, and energy content should be about 4.7 - 5.0 kWh/kg. Always verify the energy density and volume weight values for the pellets upon delivery.

Burner is intended for wood pellets according to SS 187120 group1-3(Sweden); DIN 51731 size HP2 (Germany).



Figur 2 Function description

3.1 Pellet burner Flex-a

1. Control panel is easily available and simple to use. It needs only a pressure on button in order to start or to shut down. Automatic adaptation to summer or winter relation gives best efficiency. Burner output can be adjusted after season, the building's size and heat consumption. will be adjusted during installation. Burner output can thereby easy be changed for most effective operation.

2. Good combustion with high efficiency and low wastes are achieved through that a small internal auger be able precisely dose to the burner. Due to dosage auger can pellet transport happen directly from bigger stores.

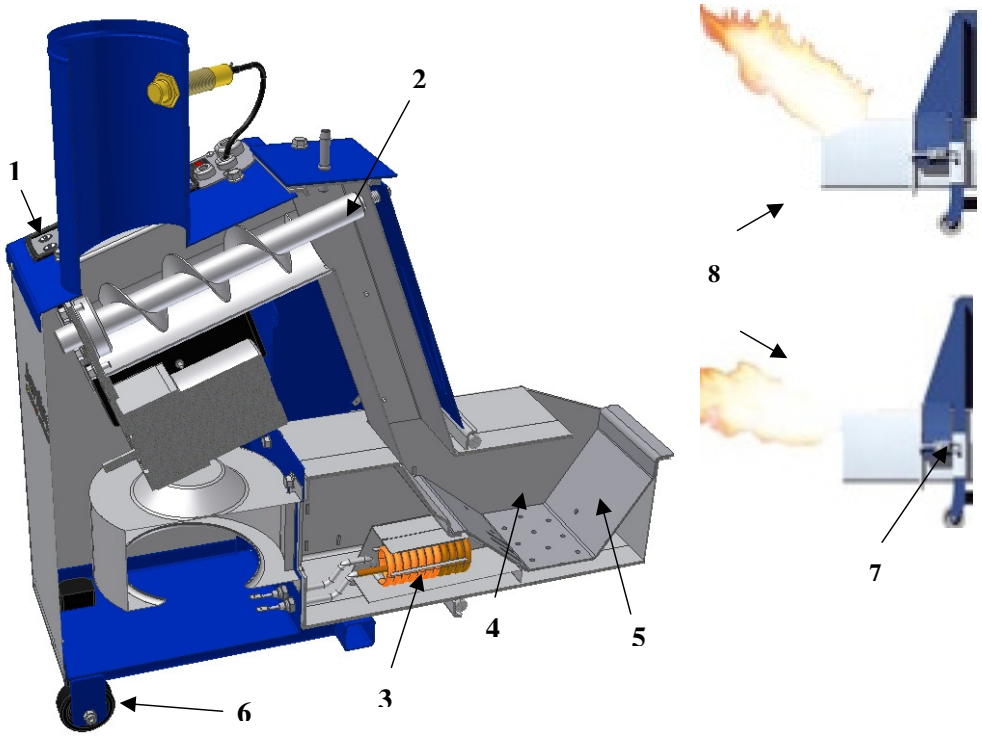
3. Automatic ignition.

4. Combustion Chamber is designed so that minimally with fuel submits the combustion zone without to have been burnt up totally. None pellet ”spills over” and ports in the boiler. Combustion Chamber is produced of heat-resistant stainless steels.

5. The combustion plate is very easy to lift out and clean.

6. The burner is on wheels and therefore easy to move out for ash removal and cleaning. It can easily be moved out of the boiler and avoid heavy lifting. Simple quick lock fasteners - great for cleaning and ash removal.

7. Janfire flex-a can be obtained and adapted for upward burning or horizontally burning flame and therefore suitable for almost all boilers.

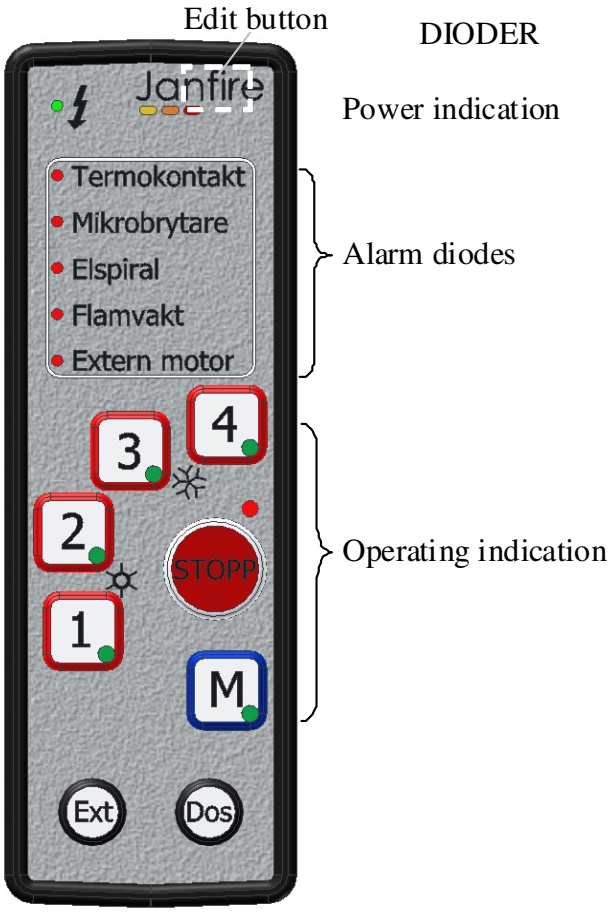
8. 

Figur 3 Pellet burner Flex-a

3.2 Control panel

Functional description of the control unit. Explanation of the light signals and burning status

Note: Work with electrical parts of the plant should only be performed after the main fuse has disconnected, and only by qualified personal



Figur 4 Control panel

Indication of diodes operating:

In each button for each power option there's a LED that can light up yellow, green or both yellow and green.

When one of the power buttons activates lights diodes as follows:

Yellow and green ignition progress

Yellow and flashing green ignition progress-electric coil active

Green – Combustion running

Yellow-standby / maintenance burning

Diode at the stop button indicates when the burner is stopped or is being stopped (Flashing).

Alarm diodes:

Alarm diodes lights when interruption due to security or operational problems.

"Termokontakt "(temperature switch) Lights in case of the burner was subject to abnormal high temperature caused by poor draft.

"Mikrobrytare" (safety switches) on the burner alerts if the burner is outside the boiler or are not properly locked against the boiler

"Elspiral" (Ignition Coil) Faulty electrical coil or its electrical fuse

"Flamvakt" (Flames detector) Burner has not managed to ignite the pellets or has extinguished for some reason

"Extern motor" – **Lights** - alerts when filling of internal storage is not made within the time limit

"Extern motor" -Flashes – Broken TRIAC to external motor in the electronic circuit

All alarm settled (0) by breaking the power of the burner being until all diodes goes off and then turn on the power again. Reset of over heating alarm requires that the burner has been cooled (the Switch itself are automatically reset when the temperature in the burner falls down to normal levels).

"Elspiral"(Ignition coil) broken ignition coil or its fuse

"Flamvakt (Flame guard) The Burner has not managed to ignite the pellets or has extinguished for some reason

"Extern motor" (motor external auger) — illuminate when the filling of internal store is not made within set time

Extern motor -flash when TRIAC is broken in electronics to external motor

All alarm been resetting (0) by breaking the power to the burner, until all diodes goes off, and turn on the power again. Resetting of "termokontakt" (temperature switch) alarm requires that the burner has been cooled ("termokontakten" are automatically reset when the temperature in the burner falls down to normal levels).

3.3 Adjustment of various parameters

To be able to change some parameters must Electronics ' amendments (Edit) mode.

Turn on the change mode by pressing edit + Ext buttons in approximately 5 sec and release when edit/Status diode is extinguished.

Note!!! Modify mode cannot be enabled during computer start-up or warming (transition between maintenance and operation).

Each press of the button changes the edit mode in this order:

- Fan preference mode
- Setting for feeding time
- Setting the external motor access time
- Setting for maintenance time end mode

3.4 Adjustment of the fan speed

Fan-preference mode activates by press both edit and Ext buttons in 5 sec and release when edit/Status diode is switch off. When you release the buttons-edit/Status diode is blinking once. This shows that fan-preference mode is active.

Select the fan mode will be adjusted by pressing each button as follows:

1 = Fan setting for the power mode 1 (60V)

2 = Fan setting for the power mode 2 (75V)

3 = Fan setting for the power mode 3 (90V)

4 = Fan setting for the power mode 4 (120)

M = fan setting for ignition (87V)

Connect the voltmeter to the underside of the burner and control the voltage.

Press “Ext” to reduce voltage

Press “Dose” to increase voltage

Press “Stop” to save the new setting.

If mode changes without saving returns settings to previously saved value.

3.5 Adjustment of pellet Feeding

Press edit button from Fan setting mode to activate feeding sttings mode.

Alarm diodes uses for display of feeding time.

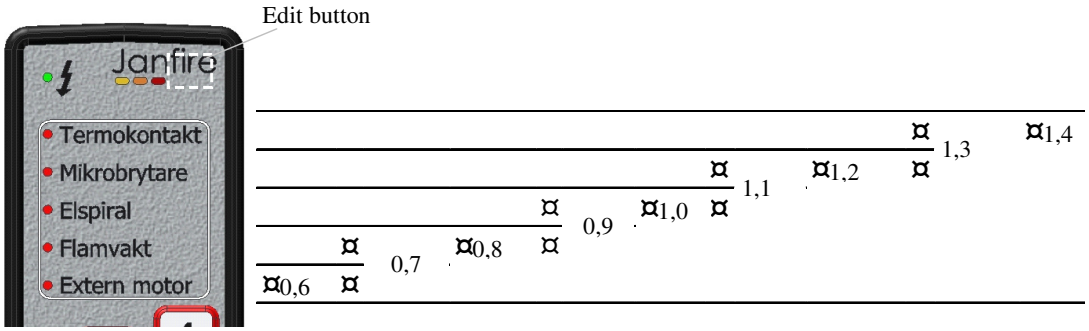
Feeding time is normally 1.0 sec. In this case, only the diode in the middle (elspiral) shine.

Each press to Ext (left button) decreases time for 0.1 sec.

Each press to Dos (right button) increases time for 0.1 sec.

For example, if the feeding time should be 1.1 sec then diodes for elspiral and mikrobrytare shine. See other settings shown in the following figure. Feeding time can be adjusted between 0.6 and 1.4 sec.

Press STOPP to save the new setting.



3.6 Adjustment of external augers running time

Press edit button from feeding settings mode to activate external augers settings mode.

Time is normally 2 min.

Only alarm diode at the bottom ”extern motor” shine.

One press to ”Dos” increase time for 1 min and turn on one diode more.

One press to ”Ext” decrease time for 1 min and turns out one diode.

For example, if the external augers running time should be 4 min then the three bottom diodes (extern motor, flamvakt and elspiral) should shine.

Termokontakt = 6 min

Mikrobrytare = 5 min

Elspiral = 4 min

Flamvakt = 3 min

Extern = 2 min

Press “Stop” to save the new setting.

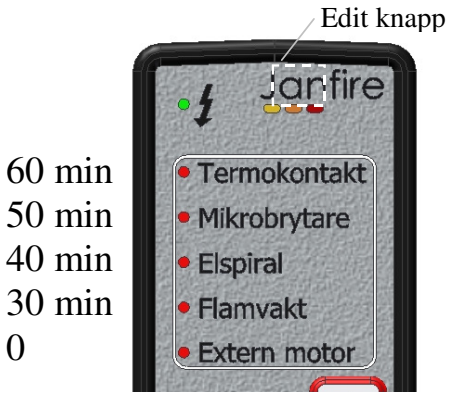
3.7 Adjusting of maintenance time

Press Edit from external auger settings mode to activate mode for adjusting of maintenance time.

Maintenance time is normally 60 min.”Termokontakt” diode at the top shine.

Press the “Ext” button to decrease or “Dos” to increase time as shows in the figure. Press “Stop” to save the new setting.

Om det önskas att brännare aldrig ska gå i underhåll ställer man tiden ner till 0. It is desired that the burner should never go in the maintenance adjust time to 0.



Press “Stop” to save the new setting.

Exit Edit mode by pressing the Edit button again and then Edit/status diode light up again

3.8 The Functional Description

Start:

Set the boiler's thermostat on the desired temperature (recommended around 80°C). The water temperature in the boiler should be lower so that the thermostat is active.

If burner starts when the water temperature is higher or even just below (the thermostat switched off), the burner goes on standby for at least 35 min (safety time) if the thermostat still switched off.

It is better to adjust the temperature and restart the burner to avoid wait according to the following:

Press “STOPP” button. Cut off the power. Wait until all the diodes on the Panel goes off. Turn on the power again. Raise the thermostat, and select power level.

When the power level is selected (except "M" mode) starts the fan and blows on max rpm for 10 min (security blow).

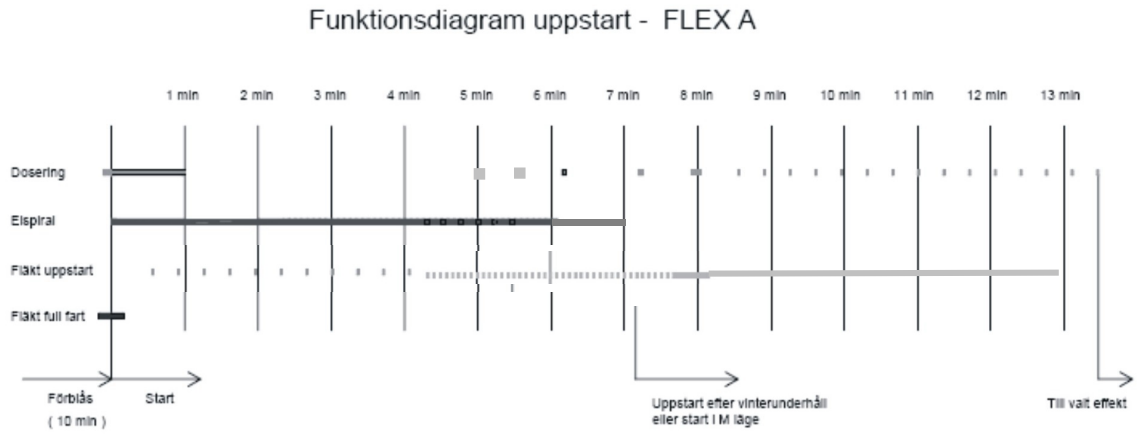
To skip the security wind to do this, follow these steps:

"STOPP" is active. Boiler thermostat shall be switched on. Press the "ext" until extern auger stops(in the case that the level of the filler pipe is below the sensor and the diode on the sensor is off).Press and hold the "ext" key and select any effect mode (not "M") and the burner starts without safety blow.

Start-up:

After completed 10 min blow, starts feeding auger to feeding pellets (approx 60 sec), the fan starts blowing (first 10 sec with max rpm and then turn to pulsing blow with ignition fan level) and at the same time starts ignition coil warmed up for about 3 min and the Green diode on the selected power button will Flash at the same time as the yellow diode lights up. See the functional diagram. About 3 min after start the electrical coil power reduces to maintain a constant temperature of coil (about 750 °C). The ignition coil switches off after about 7 min. Through the start-up uses ignition fan level – which is factory set to 87 V.

Ignition occurs normally after 3 -4 min. After 5 min starts pellets feeding (first with longer pauses, and then more often) and the fan starts blowing with more frequent pulses and then switch to continuous speed. The whole start-up phase takes about 13 minutes.



Operation :

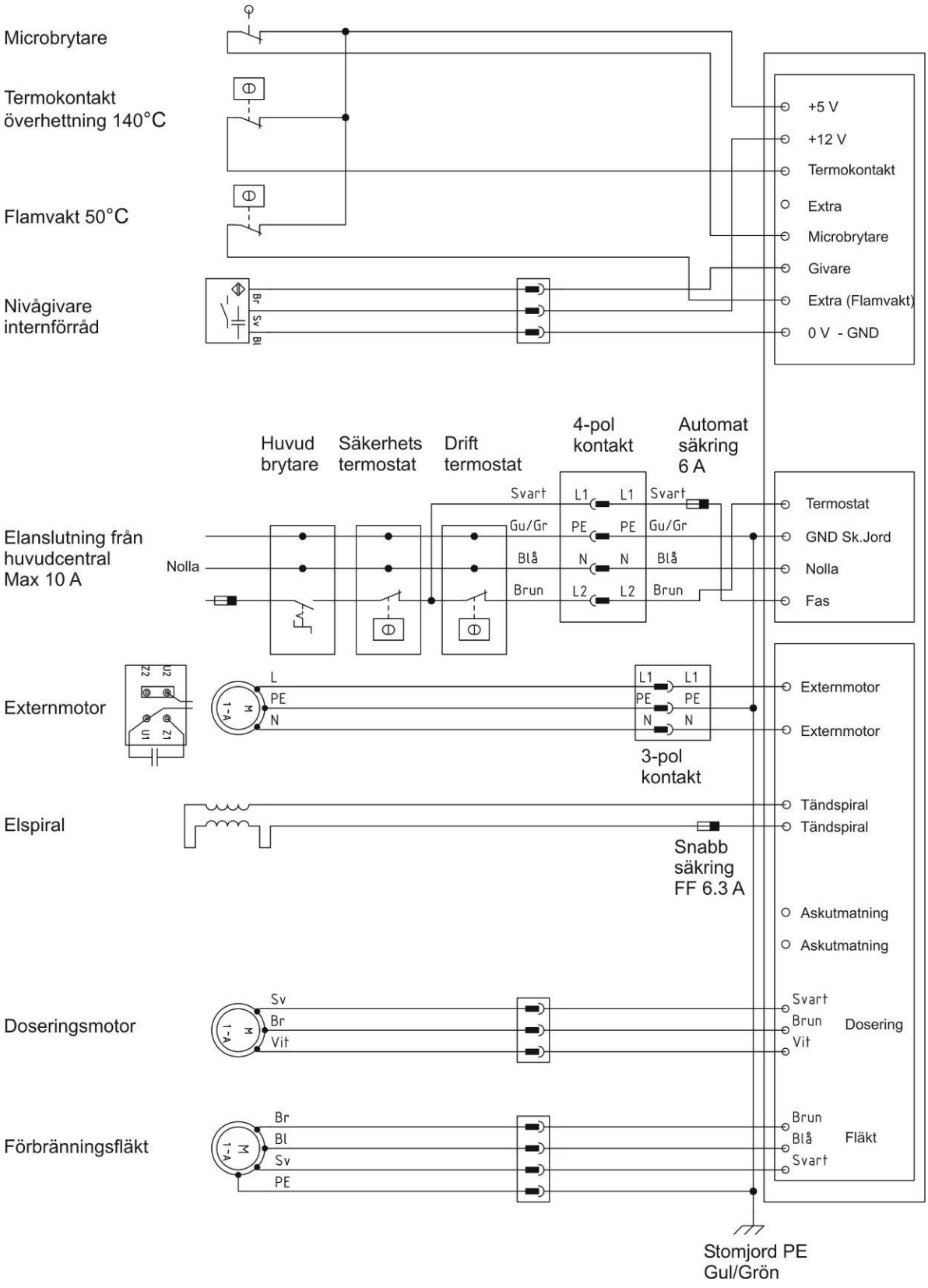
After the start-up phase, shifts it to the selected power level with preset feeding and fan speed. Green diode on the selected power button will shine.

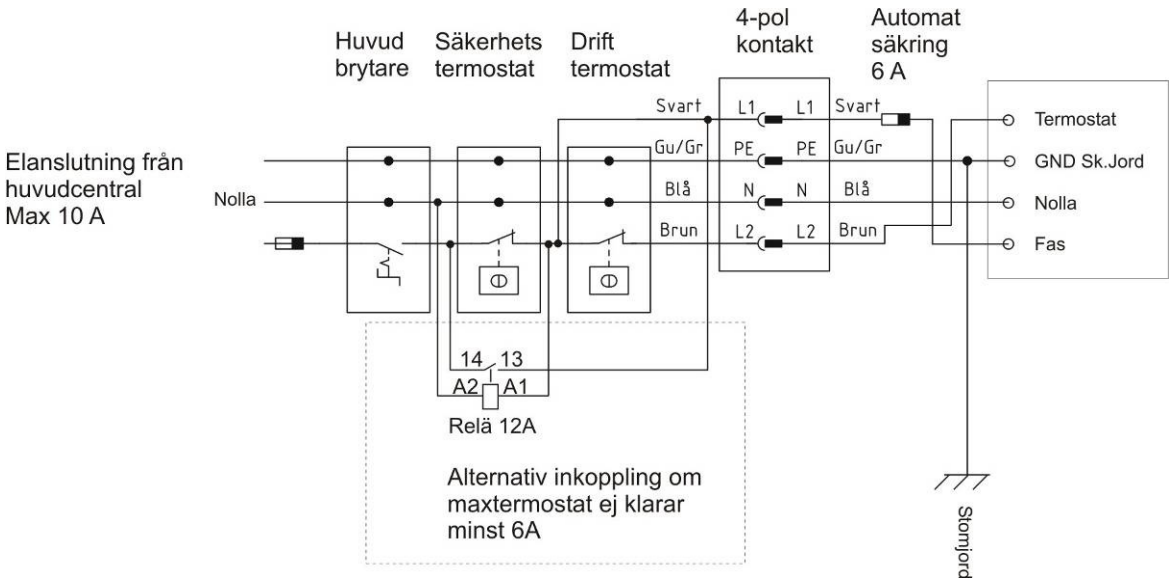
Now we can start adjustment at the different levels.

Feeding (quantity of distributed fuel) in each power level can be changed (see Chapter 5). The feeding pulse is normally 1 second and with various breaks in the respective power level available different quantities of pellets.

Air flow can be adjusted by adjusting the voltage to the fan in each level individually, so that a good combustion is obtained.

4 Inkopplingsschema El





Anteckningar: