

PELLET HEATING SYSTEMS

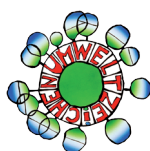


Assembly instructions (1/3)

Further instructions for your HAPERO pellet boiler

Touch Display 1.0 instructions (2/3)

Service manual (3/3)





01.6 Important advise



Please read all safety rules carefully before installing your device (page 2-5). You must not operate your device before understanding and acknowledging all safety instructions!

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Further guidelines / references

Instructions for Touch Display
Service

HAPERO instruction manual (1/3) enclosed with the pellets boiler
HAPERO service booklet (3/3) enclosed with the pellets boiler



01.01 Used symbols and warnings

Symbol for additional information

Symbol for necessary action

Be aware of potential danger warnings at the beginning of action instructions.



Detail information

You can find detailed information on the specified pages.



Notice

Please follow instructions



Danger

Danger to life or severe injury



Danger

Danger to life or severe injury due to electrocution



Warning

Mild injury can occur



Warning

Slight property damage possible



KW15 – Model series

Notice valid only for 15kw models



KW25/35 Model series

Notice valid only for 25/35 kw models



02.01 Many thanks indeed,

that you have decided to purchase a Hapero product. **Before assembly and installation of your product it is essential to read the instructions carefully.**

Only by correct installation and assembly can damage be avoided. Your pellet boiler will look after you and the environment with optimal function for many years to come.

We can not be held liable for any changes after printing and subsequent printing errors.

We reserve the rights for changes.



The most up-to-date version is available to download at:

<http://www.hapero.com/service-center/downloads/>

02.02 General safety notice



Before installation and use of the pellet boiler the instruction manual needs to be read completely and thoroughly!

- The pellet boiler has to be assembled and installed by a fully licensed technician or tradesman. The pellets boiler is not suitable to be operated by persons (including children) with a physical, sensory or cognitive disability or inexperienced persons, unless a responsible person is present or has given correct instructions. Children have to be supervised at all times, the boiler is not a toy and does have hot surfaces.
- Please disconnect the boiler from the electric supply before carrying out any service work. The emergency switch or the cut-out switch has to be easily accessible. Operating the boiler with damaged wiring is prohibited. If the wiring is damaged, it is imperative to contact a fully licensed tradesman immediately to arrange a repair.
- To guarantee safety technical processes and functions, please only disconnect your pellets boiler in standby mode from the electrical supply.
- Please be aware that even if the pellet boiler is switched off, the mains electrical voltage (pumps, motors, mixers) is active.
- The pellet boiler in switched off mode carries out periodic cleaning and maintenance processes, so even during the summer months should the boiler not be continuously disconnected from the power supply.
- Please switch off the pellets boiler 45 minutes prior to store room filling. The store room filling must only be carried out when the boiler is in standby mode.
- Replacement of damaged or defect parts should only be original HAPERO spare parts.
- Removing, bypassing or overriding any safety and monitoring features is strictly prohibited.
- Only operate the boiler if it is in perfect technical condition.
- Promptly rectify all errors and damages to ensure full safety measures are in place.
- Electrical discharge can cause damage to electronic components.
- Prior to any service work being carried out, we advise that you touch earthed objects for effective static discharge.



02.03 Operating a pellets boiler in the living room



- Burning fuel releases thermal energy, which leads to a hot surface, doors, door handles, viewing glass, flue tube and front surface of the heating device. Refrain from touching those parts without the necessary safety equipment e.g. heat protective gloves. Children must be made aware of the potential danger and kept away at all times whilst boiler is in operating mode.
- Do not place any non-heat proof objects on or near the pellet boiler.
- Do not attempt to dry items of clothing on the pellet boiler.
- Do not place a clothes dryer or similar within the safety distance of the pellet boiler.
- FIRE HAZARD !!
- Do not use highly flammable or explosive substances in the same or adjacent room whilst the pellet boiler is in operation mode.
- Do not place objects on top of the boiler (air vent)
- Sufficient fresh air supply is essential at the assembly site, please ensure adequate ventilation.

02.04 Installation / commissioning



- In all cases the installation must comply with current Building Regulations, Local Authority Byelaws and other specifications or regulations as they affect the installation of the boiler.
- DIN VDE 0100 Guidelines for buildings of power plants upto 1000V
- DIN VDE 0105-100 Operation of electrical sites

It should be noted that the Building Regulations requirements may be met by adopting the relevant recommendations given in British Standards BS 8303, BS EN 15287-1:2007 as an alternative means to achieve an equivalent level of performance to that obtained following the guidance given in Approved Document J.

It is a legal requirement under England and Wales Building Regulations that the installation of the boiler is either carried out under Local Authority Building Control approval or is installed by a Competent Person.

Please note that in Scotland the installation work is subject to the Building Warrant scheme and must be granted a warrant upon completion to the satisfaction of the Local Authority verifier.

02.05 Electric power cut

Electric power cut – during heating mode

All operational functions will be restored after a short power cut. Should the duration of the power cut last longer, the pellet boiler will return to the start-up phase (cleaning, material supply, preparation, ignition and heating) as long as a temperature demand is requested.

Electric power cut – during the starting phase

After a power cut during the start-up phase the starting process will be repeated.

02.06 Maintenance of the pellet boiler

We recommend a maintenance contract between a Hapero certified specialist dealer and the end customer. The warranty of the pellet boiler becomes invalid if periodic maintenance is not carried out.

The correct maintenance increases the stability and the durability of your pellet boiler. It minimises the waste of valuable resources and protects our environment as well as your wallet.

During an automatic cleaning process of the pellet boiler squeaking or scratching noises may develop. These are mechanical sounds and do not indicate any faults or defects.



02.08 CE Identification



It can be confirmed, that the named and described products adhere to all the necessary safety guidelines, especially the guidelines required within the European Union concerning electromagnetic tolerance (89/336/ EWG) and the guidelines for modification of the CE-Description (93/68/EWG) as well as the rules concerning electromagnetic tolerance of devices dated 18.09.1998.

This declaration certifies the agreement of the named guidelines, but does not contain assurance of any quality features. The safety guidelines of the provided product documentation are to be followed. The attachments are part of this declaration.

02.09 Rules / Guidelines

The product as well as the control accessories correlate to the following regulations:

EG-guidelines

- 2004/108/EG electromagnetic tolerance (EMV guidelines)
- 2006/95/EG low voltage guidelines
- 2006/42/EG machinery and equipment guidelines

EN-rules

- EN 14785

02.10 Warranty / guarantee / commissioning / maintenance



Entitlement to warranty specifies the following:

- **Commissioning carried out through a HAPER0 certified after sales service**
- **Completion and sending of commissioning confirmation**
- **Annual maintenance**

according to HAPER0 specifications.



Please ...

- fill in the enclosed confirmation of commissioning and send it to Hapero/Zhaus HAPER0 Energietechnik GmbH.
- or fill in the data file „confirmation of commissioning.pdf“ and send it to **ibn@hapero.com**

... Your benefits!

1. free of charge hotline
2. fast and efficient after sales service
3. free of charge original HAPER0 USB-stick
4. lifelong, free of charge software up-date

A new control system software can update features and functions with a USB stick. Data safety of adjusted boiler parameter

Fast transmission of all data

Fast and cost efficient optimising of your pellets boiler

Fast and cost efficient error analysis



Software up-date

The control system software can be up-dated with Plug & Easy (windows PC software)

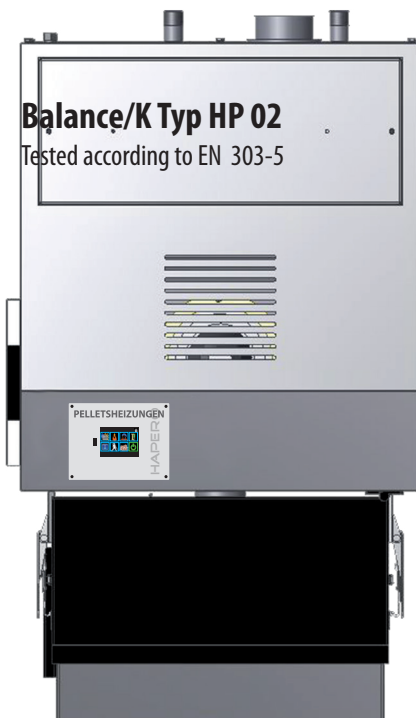
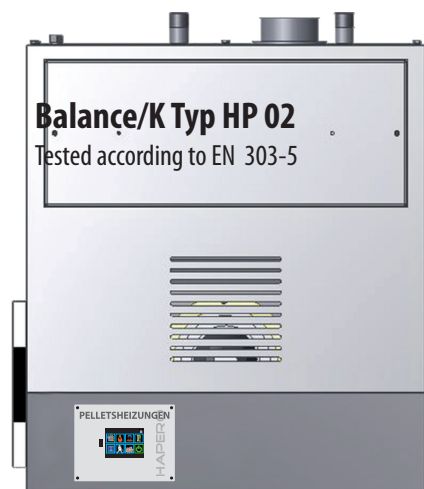
www.plugandeasy.com



Plug & Easy

Always downloads the latest control system software and supports any software update.

Can convert the control system data (data-logger) into an Excel file.



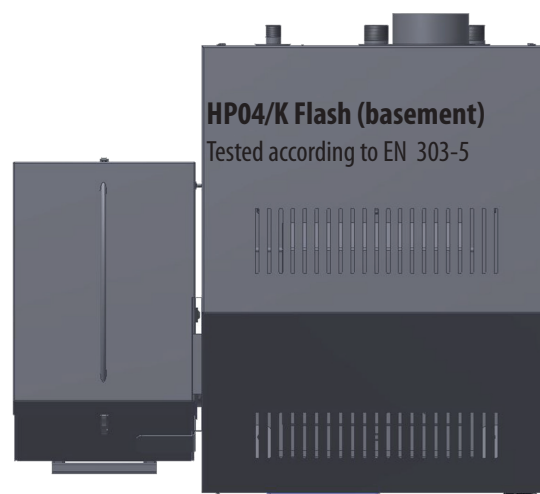
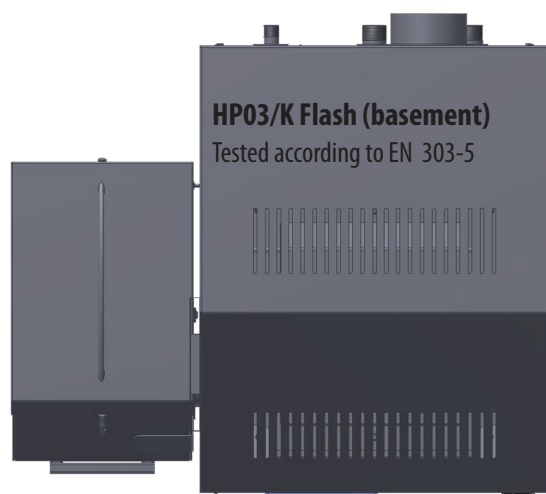
Article no.: 2020.02



Article no.: 2020.01



Article no.: 2030.01



Article no.: 2040.01



Article no.: 2045.01

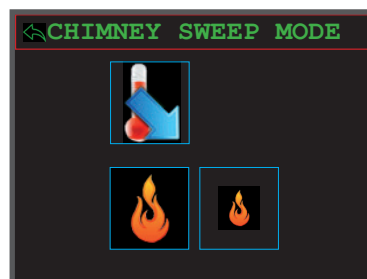


Preparation

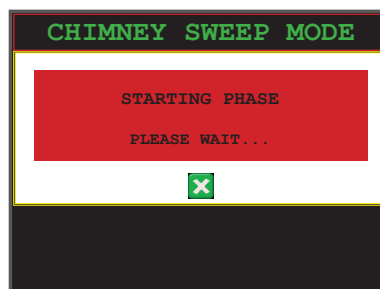
Before an emission or dust reading of your boiler please carry out the following steps:

1. Emptying of the ash tray / ash box
2. No obstructions near the boiler
3. Control measures for quality and legality of pellets
4. Providing the correct boiler documentation (instruction and service manual, etc.)
5. Boilers without a maintenance contract, please carry out a full service
6. Before the actual reading (at least 2 hours before) activate the preparation on the Touch display in the chimney sweep mode.

Menu chimney sweep function



Menu permission for reading



Detail - description chimney sweep mode



Preparation

The boiler ends his heating program and empties the buffer if one has been installed. During the chimney sweep mode increased radiator or hot water system temperatures can occur.



Flame „big“ = Reading method nominal load reading

Flame „small“ = Reading method part load reading



READING

The reading (emissions/ dust) should only be carried out when „reading - carry out now“ is shown on the display



Interruption

Interruption of the reading method but not the chimney sweep mode.

Abortion of the chimney sweep mode after leaving the menu reading activity.



What are wood pellets

Pellets are produced using chip wood from saw mills as well as waste timber supplied by the Forestry Commission. These natural products will be crushed, dried and pressed into pellets.



Low quality or illegal pellets fuel usage will impair the function of your pellets boiler and can invalidate your warranty, guarantee and the subsequent product liability.

Cinder accumulation!

Using contaminated pellets increases the risk of cinder accumulation in the burner.



WARNING:

Sufficient ventilation is essential before entering the store room area!



WARNING:

Waste products and liquids must not be burned in the pellets boiler!



The only fuel permitted for your pellets boiler are high quality controlled wood pellets, suitable according to **EN 14961-2 quality class A1**. Non-compliance invalidates all guarantees and warranties. Your own safety and the correct function of your device can not be assured.

Pellets storage



Due to the natural combination of resin and oxygen, carbon monoxide can build up. Sufficient ventilation in your pellets store room is essential.

Filling of an external pellets storage



Please switch off your pellets boiler 45 minutes prior to filling your pellets store. Non-compliance can put your own safety at risk and impair the correct function of your device. As a result, all warranties and guarantees will become invalid.

Specification for high quality pellets

Extract from the data record sheet for wood pellets according to EN-17225-2 A1 norm

Origin	• Stem wood • Chemically untreated wood
Diameter [mm]	6 (+ - 1)
Length [mm]	3,15 - 40 (max. 1% 45)
Wood dust percentage [%]	max. 1% (delivered)
Bulk weight [kg / m ³]	min. 600
Heating value per kg	4,6 - 5,3 kWh
Moisture content [%]	max. 10
Ash percentage [%]	max. 0,7
Ash melting temperature [°C]	>1200
Dust percentage [%]	max. 1 %
Mechanical consistency [%]	min. 97,5



Important recommendations for store room filling

Initial filling:

Please check the entire store room for foreign objects/contaminants before filling for the first time.

Subsequent fillings:

To avoid any pellets feeding problems due to increased dust particles in the store room, push any remaining pellets towards the auger or the suction point before filling.

Correct procedure before filling:

Switch off the pellets boiler a minimum of 45 minutes before your fuel/pellets delivery is due. The filling can then start approx. 45 minutes after switching off your pellets boiler (in standby mode).



Under no circumstances should the pellets boiler be turned off using the heater's emergency switch.

Please attach this label to the store room door.

Enclosed with the assembly instructions.

Wood pellets store room

- The pellets boiler needs to be switched off a minimum of 45 minutes before filling!
- The procedure is specified in the operating manual and needs to be carried out accordingly.
- No entrance for unauthorized persons.
Keep children out!
- Smoking, open fire and other sources of fire are strictly prohibited!
- The room needs to be aired before entering!
- Injury may occur due to loose parts!
- Please carry out the filling with great care!

04.01 Positioning of 15 kW Pellets boiler (160 - 200 kg)

The packaging of the pellets boiler leaves the HAPERO factory in immaculate condition.

Please check the packaging for visual damage as well as the tilt indicator. In case of any damage please note them on the relevant transport documents on the day of delivery.

Claims at a later date can not be accepted.

The boiler can be transported to the heating room with a commercial sack barrow or pushcart.

The packaging prevents any damage.

Now you can remove all the packaging.

The boiler is held in place on a pallet by 4 screws.

Lift the boiler off the pallet and place it on the assembly site.

04.02 Positioning of 25/35 kW Pellet boiler (330 kg)

The packaging of the pellets boiler leaves the HAPERO factory in immaculate condition.

Please check the packaging for visual damage as well as the tilt indicator. In case of any damage please note them on the relevant transport documents on the day of delivery.

Claims at a later date can not be accepted.

Now you can remove all the packaging.

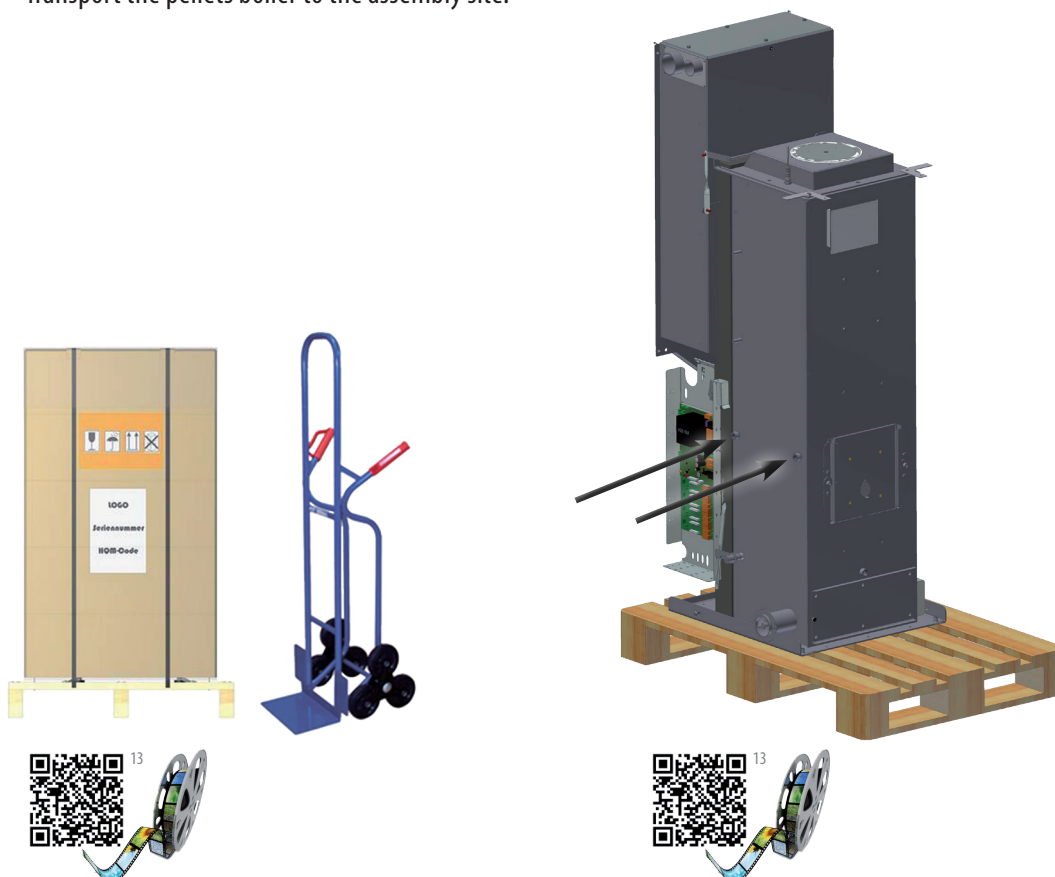
The boiler is held in place on a pallet by 8 screws.

Remove the cladding

1. boiler lid
2. front panel
3. left side panel
4. right side panel

Behind the insulation (slots) 4 x threaded tubes 1/2" in diameter can be screwed into socket welding fittings ready to be lifted on and off for transport purposes only.

Transport the pellets boiler to the assembly site.



04.03 combustion air/ room independant fresh air supply



**Each burning process requires oxygen or fresh air.
This combustion air usually gets extracted from the room.**

Air extraction from the assembly room:

Modern apartments or flats often have very airtight windows and doors and not enough air can ventilate. Problems can arise with additional ventilation in the apartment (e.g. in the kitchen or the WC)

Should you not be able to supply any external combustion air, then it is advisable to air/ventilate the room several times per day, to avoid low pressure or inefficient burning.

Controlled living room ventilation:

A low pressure safety device with adequate (building) permission must be installed (your chimney sweep will be able to approve this licence)

Zufuhr Externer Verbrennungsluft

Verwenden Sie ausschließlich den Original **HAPERO Extern-Luftschlauchadapter**

Maximale Länge

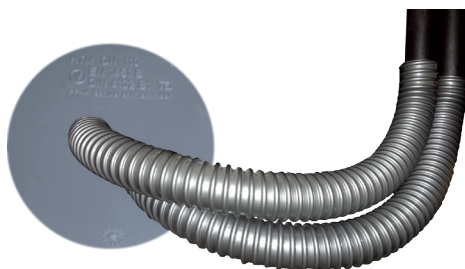
Der Luftschlauchadapter wird an ein Rohrsystem (Vergleichbar Polokalrohr 100) angeschlossen. Die maximale Länge darf 15 Meter nicht überschreiten.

Der Rohrdurchmesser von 100 mm darf auf der gesamte Länge nicht unterschritten werden.

Rohrabschluß

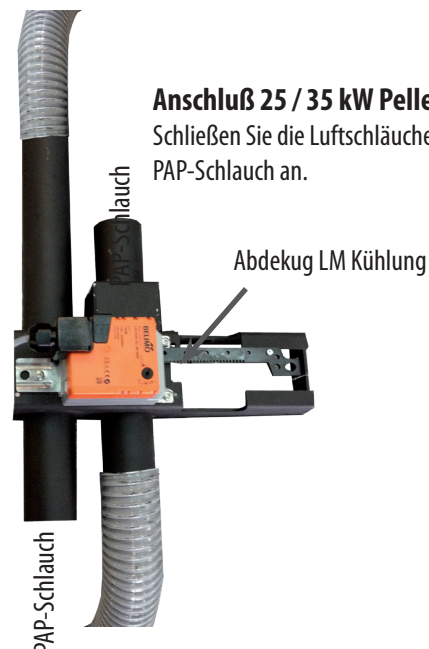
Beachten Sie dass bei dem Rohrabschluß die Luft angesaugt wird, es darf daher keine Rohrabschluß mit beweglichen Lammeln verwendet werden.

Air suction via a flue with an air shaft has to be programmed when carrying out the parametrisation at the control device.



Anschluß 15 kW Pelletskessel

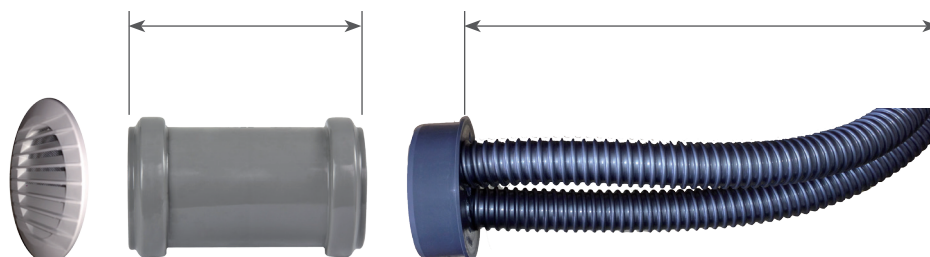
Schließen Sie die Luftschläuche ausschließlich am unteren Ende der Zuluftrohre an.



Anschluß 25 / 35 kW Pelletskessel

Schließen Sie die Luftschläuche gegenüber den PAP-Schlauch an.

Abdekug LM Kühlung





04.04 Chimney/flue

The exhaust fume site of the flue must be calculated according to EN 13384.

The pellets boiler has to be connected to a chimney flue that is suitable for solid fuel. The chimney has to have a minimum diameter of 80 mm (15 kW) / 130 mm (25/35 kW).

During the burning process low pressure develops in the combustion chamber. Slight high pressure can develop at the exhaust fume exit if there is insufficient chimney draft. Correct and airtight installation is therefore imperative.

Flue pipe assembly

Due to a high degree of effectiveness and a low exhaust fume temperature, exhaust fume condensation may develop in the connection pipe. The connection pipe condensate should be airtight, well insulated (minimum of 20 mm) and to be inserted into a moisture resistant/non-sensitive chimney flue.

Avoid many different changes of direction of the exhaust fume flow to the chimney (e.g. too many corners and bends in the flue tube) and draught paths over 3 meter)

Draught limiter

With over 20 Pascal chimney draught the installation of a draught limiter is compulsory (to be measured when warm)

Cleaning slots should be installed in the flue tube.

Double connection flue pipes to the chimney

A double connection is permitted according to EN 13384.

Flue pipe connection standard

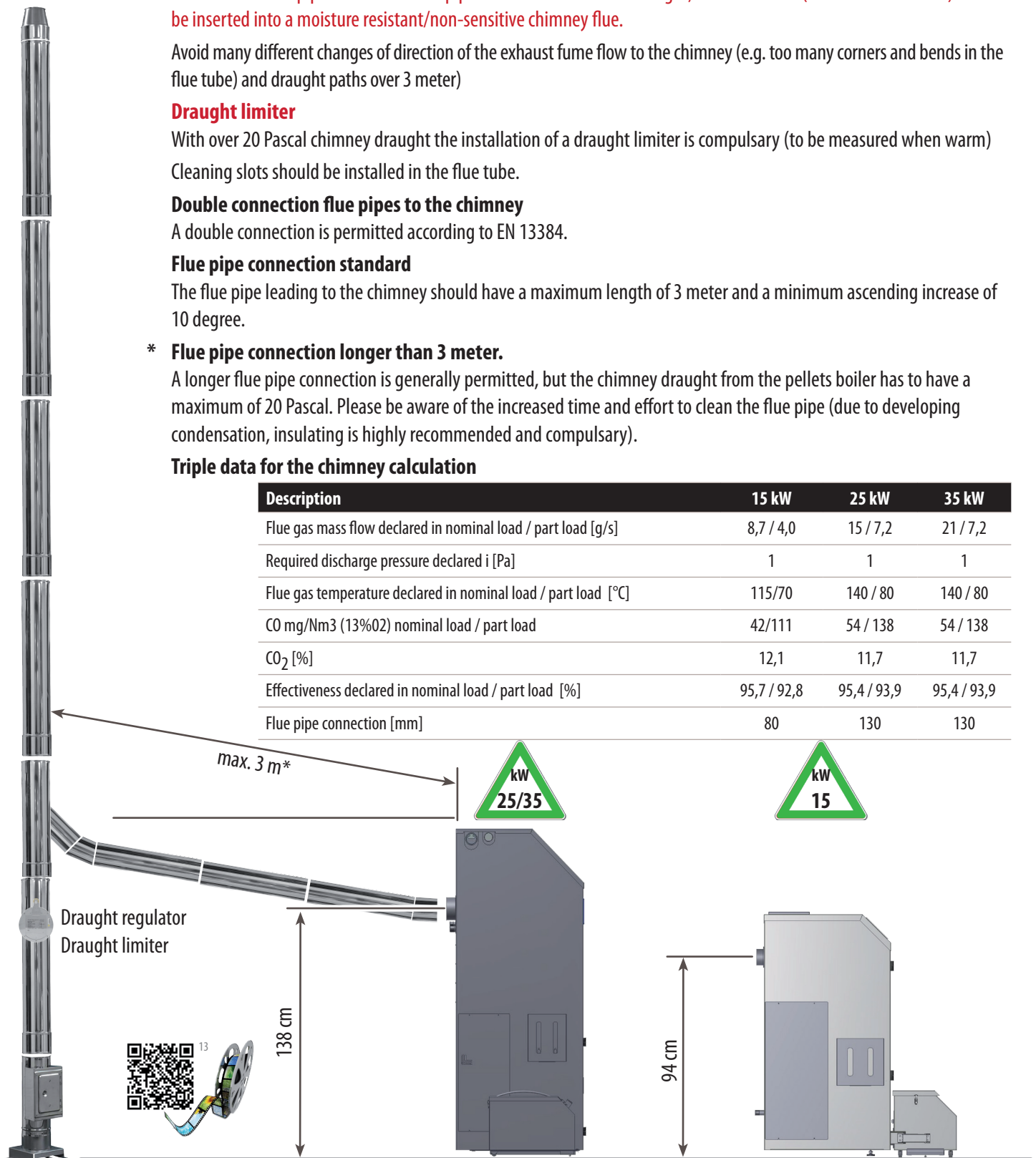
The flue pipe leading to the chimney should have a maximum length of 3 meter and a minimum ascending increase of 10 degree.

* Flue pipe connection longer than 3 meter.

A longer flue pipe connection is generally permitted, but the chimney draught from the pellets boiler has to have a maximum of 20 Pascal. Please be aware of the increased time and effort to clean the flue pipe (due to developing condensation, insulating is highly recommended and compulsory).

Triple data for the chimney calculation

Description	15 kW	25 kW	35 kW
Flue gas mass flow declared in nominal load / part load [g/s]	8,7 / 4,0	15 / 7,2	21 / 7,2
Required discharge pressure declared i [Pa]	1	1	1
Flue gas temperature declared in nominal load / part load [°C]	115/70	140 / 80	140 / 80
CO mg/Nm3 (13%O2) nominal load / part load	42/111	54 / 138	54 / 138
CO ₂ [%]	12,1	11,7	11,7
Effectiveness declared in nominal load / part load [%]	95,7 / 92,8	95,4 / 93,9	95,4 / 93,9
Flue pipe connection [mm]	80	130	130





04.05 Assembly area minimum distances / safety distances

The pellets boiler has to be assembled on a fire resistant surface. Minimum dimensions of a relevant, fire resistant surface.



The red area is classified as the safety distance for highly flammable objects and by using a viewing glass has to be adhered to!

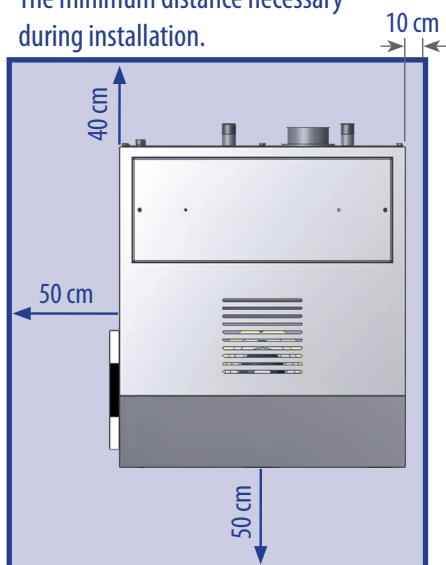
The safety gap is a minimum gap for highly flammable objects and it is imperative to follow these guidelines.

The blue area is the minimum distance needed for a safe installation.

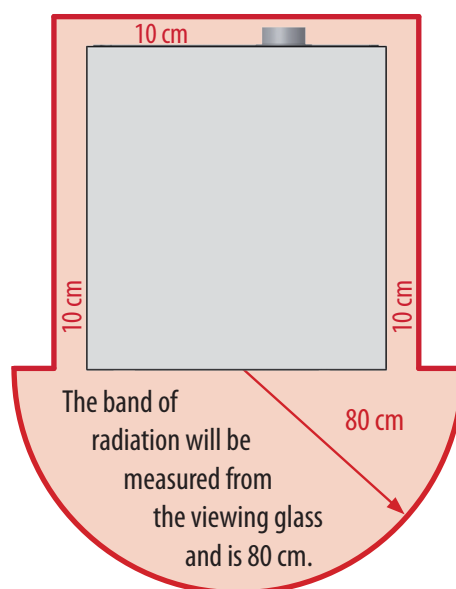
The minimum gap is not necessary with flexible connections, as long as the minimum gaps are maintained after boiler has been changed in position.



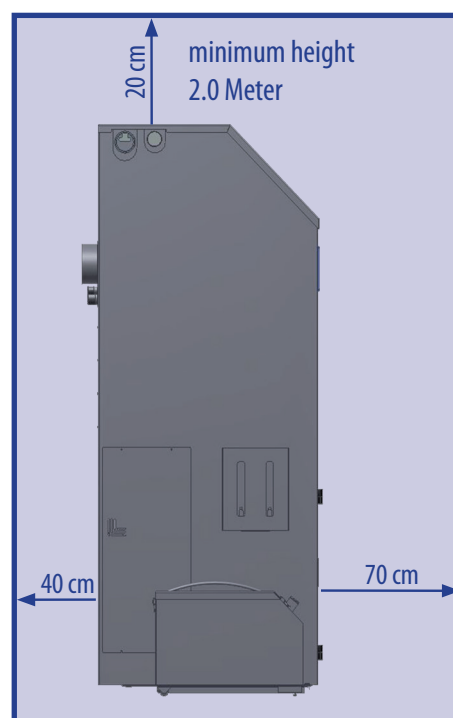
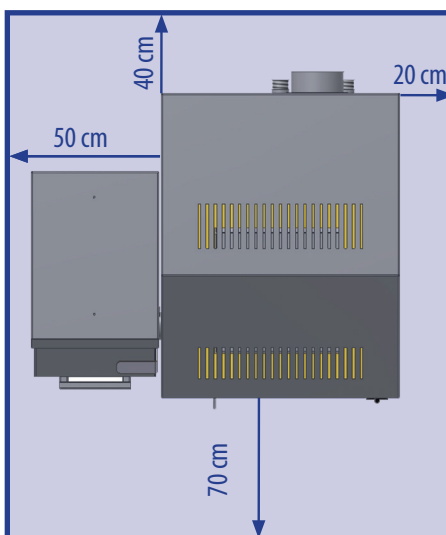
The minimum distance necessary during installation.

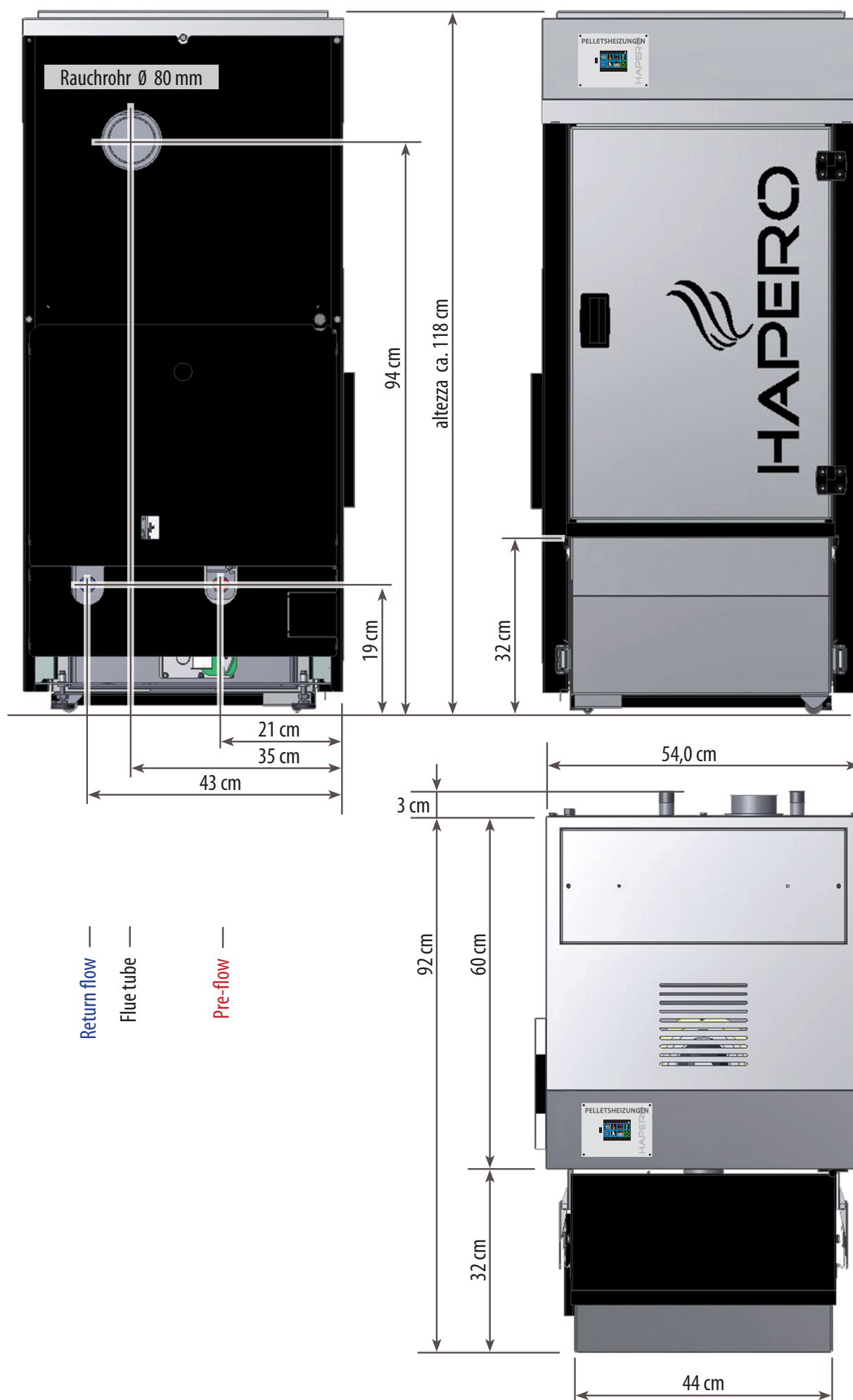


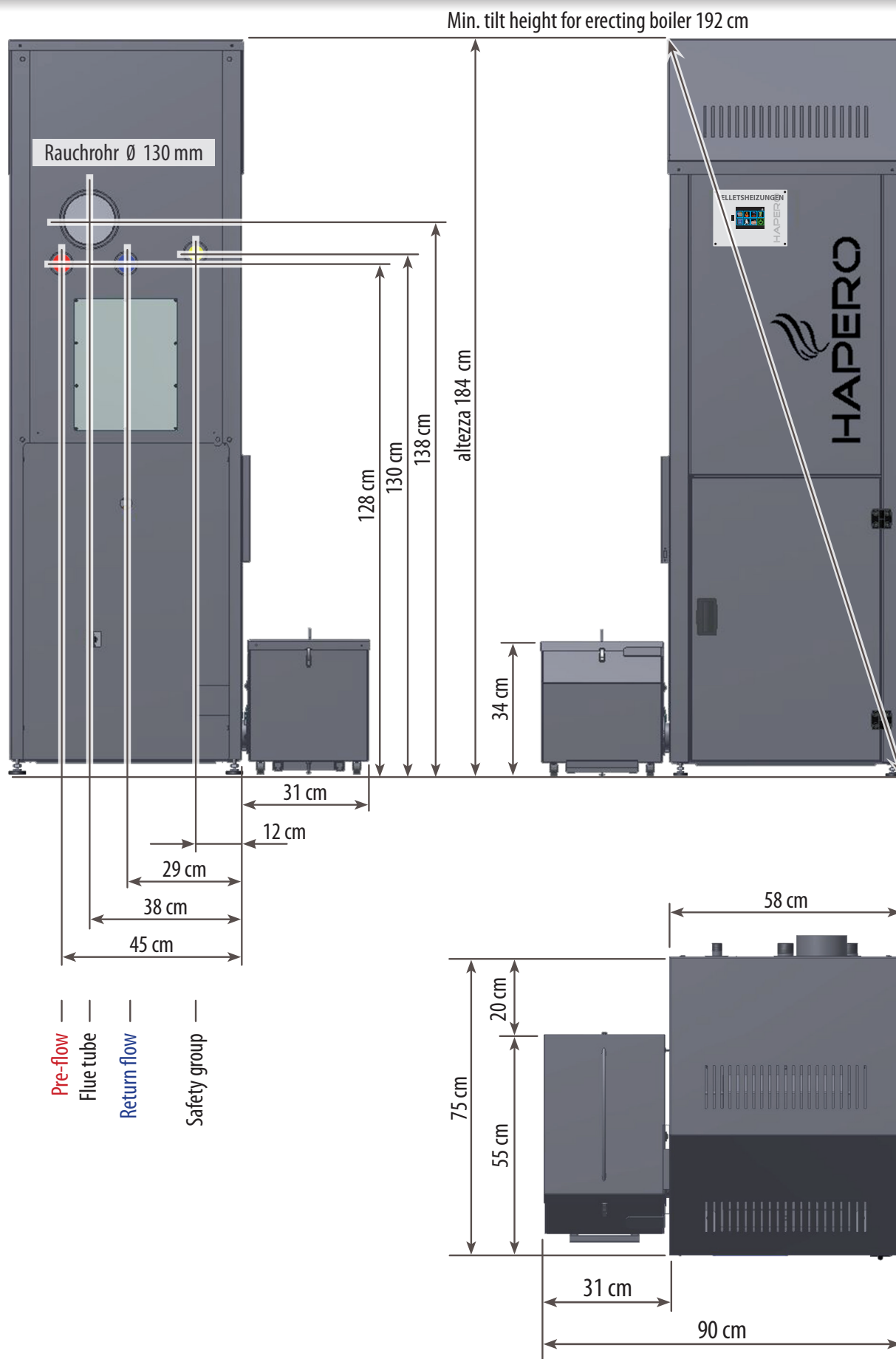
The safety distance must be maintained when using a viewing glass.



The minimum distance necessary during installation.









04.08 Connection for hydraulic

Valve for filling and emptying of heating systems

15 kW: this valve has to be installed by the pre-flow connection

25 / 35 kW: this valve is situated on the front of the boiler, underneath the combustion chamber door.

The boiler has to be in an upright position.



Hydraulic plans

Our hydraulic plans are only schematic illustrations of control systems and we can not be held liable for the complete content. Please follow all building regulations and local guidelines.

Hydraulic – filling

Water (follow the guidelines of your local water board)

Return flow riser

- Our boilers are designed in such a way, that the return flow riser is not required if HAPER0's energy management (heating circuit, hot water system and buffer) is installed.
- A return flow riser must be used if installing an external regulator. Please install and configure at 55° via the main board of the pellets boiler.

Ventilation

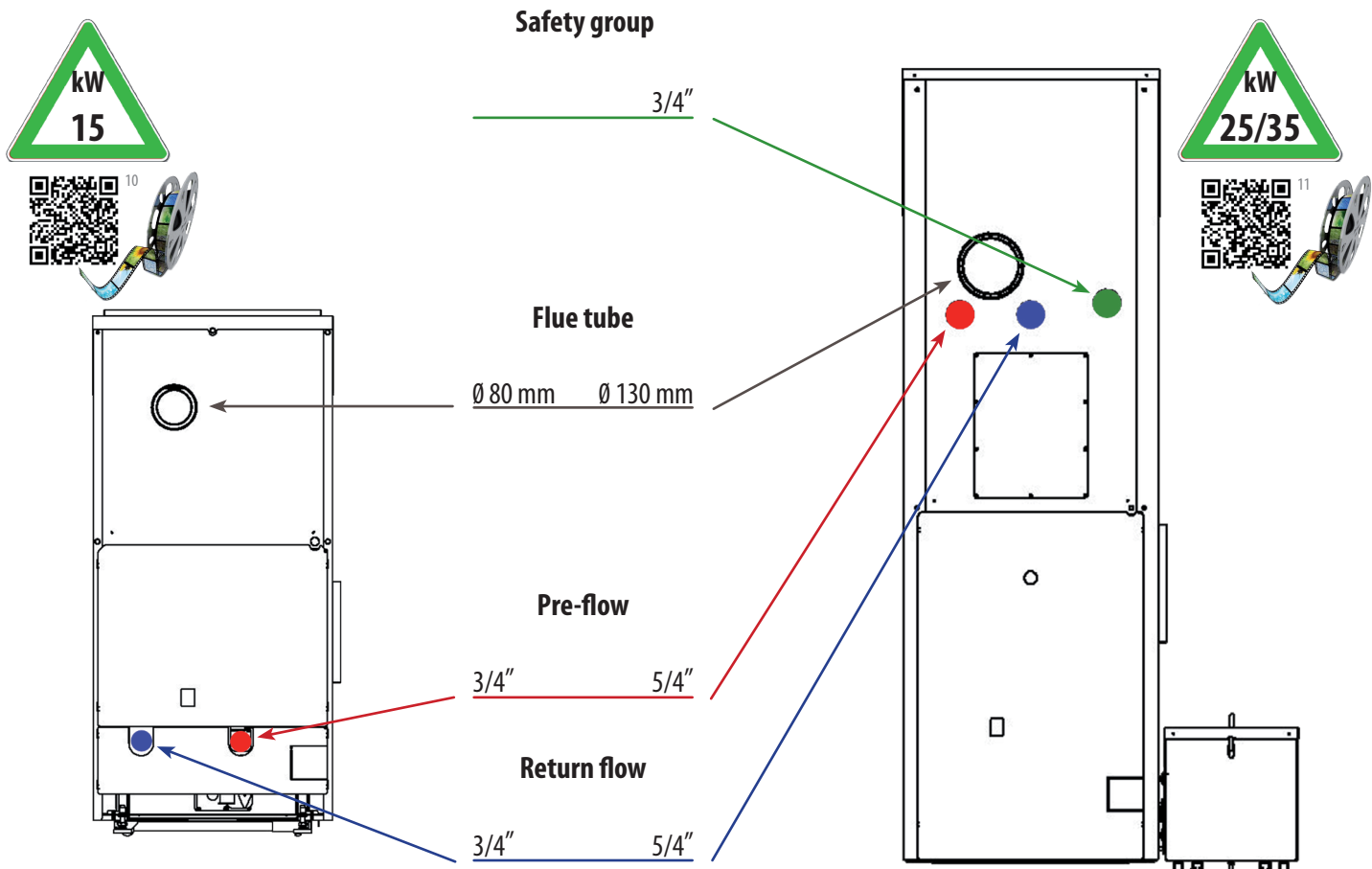
After filling with hydraulic liquid the correct ventilation of the pellet boiler is necessary. Please use a commercially available radiator ventilation/bleeding key.

15 kW: the boiler ventilation valve is located on the front of the boiler, above the combustion chamber door.

25 / 35 kW: the boiler ventilation valve must be integrated within the safety group

Safety group

the safety group is installed at the assembly site.





04.09 Disassembly / assembly for boiler cladding



WARNING

Only carry out manipulation on the device, if the pellets boiler is not connected to the electricity supply.



WARNING

The pellets boiler has to be switched off and sufficiently cooled down to be able to carry out any maintenance work.

The cladding panels are pre-assembled ready for delivery.

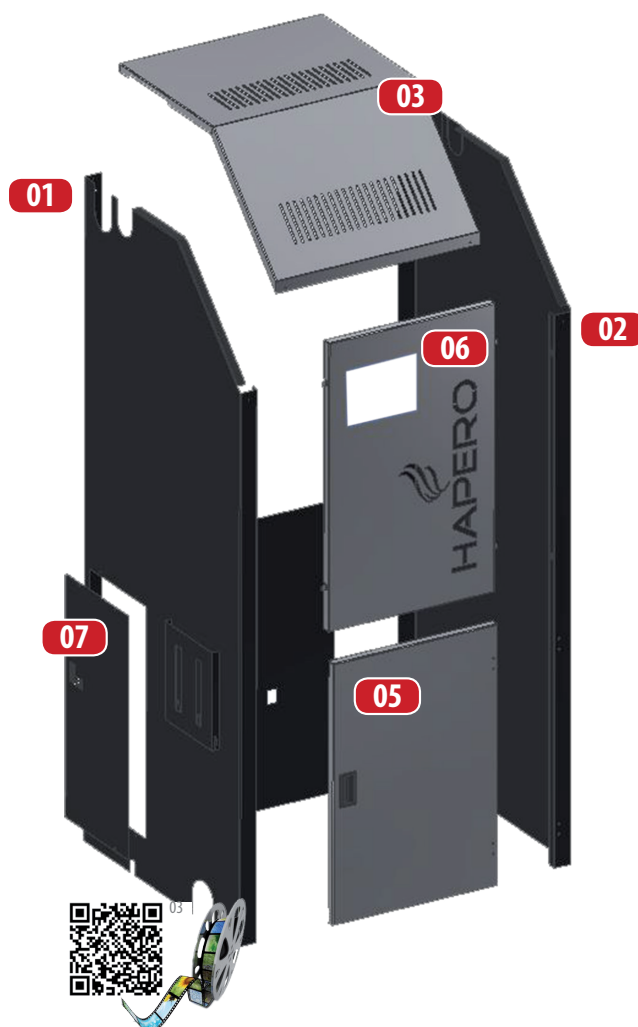
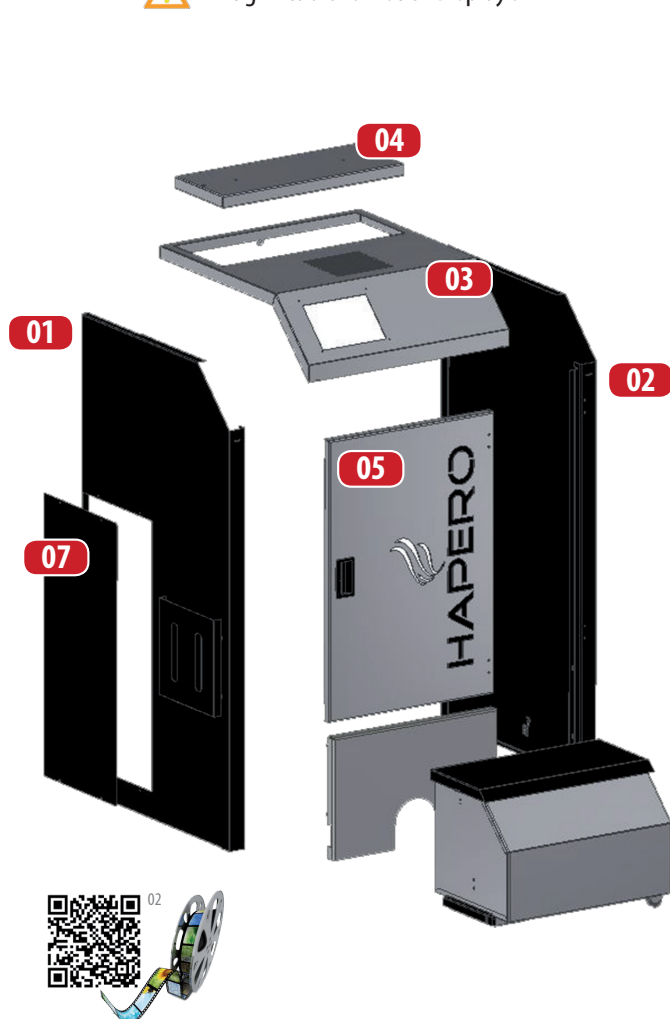
To connect with the electrical power supply or the wiring for the boiler circuit pump and the pellets feeding system (suction unit) please remove the safety lid for the electronics located on the left hand side.

04.10 Cladding components

Pos	Description	Order of disassembly		Disassembly necessary for	
		15 kW	25/35 kW	15 kW	25/35 kW
01	Left side panel	3	2	maintenance	maintenance
02	Right side panel				
03	Boiler lid	2	1	maintenance	maintenance
04	Daily container lid	1		maintenance	
05	Boiler door				
06	Front panel		3		maintenance
07	Electronic safety lid			commissioning	commissioning



Plug in cable for Touch Display !





05.01 Power supply

The electrical connection has to be carried out by a professional service that operate according to all national guidelines. The cable has to have a dual insulation with a cross section of at least 3 x 1,5mm².

Due to a static charging during transport, the earthing must be checked before commissioning.

The electrical connection has to have a circuit breaker installed.

The connection must be via a cable conduit.

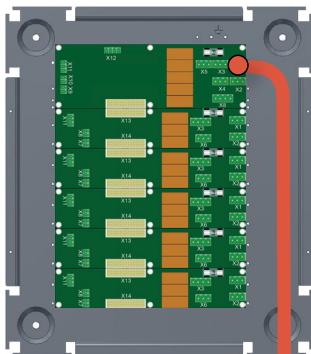


The connection wiring diagram

Manual pellets filling 230 V AC ≥ 8 A

Automatic pellets filling 230 V AC / ≥ 13 A / ≤ 16 A

Energy management starter set



Electric supply

230 V / ≥ 13 A / ≤ 16 A



Cable conduit

boiler earthing

draught release via cable clips

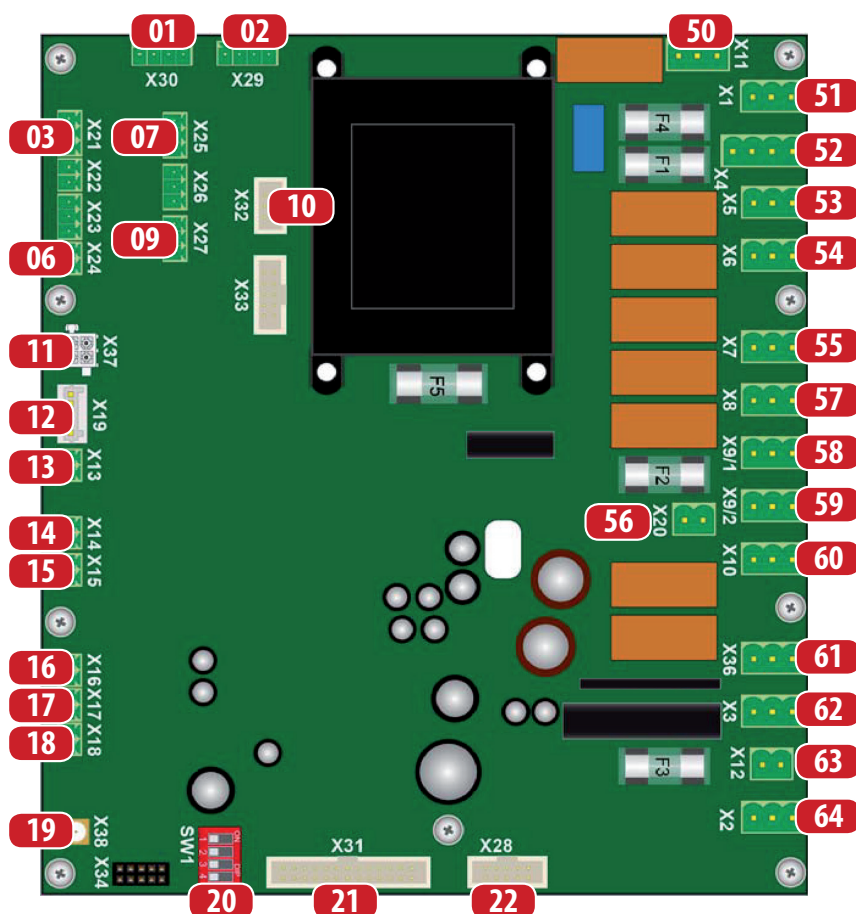
relay special function
boiler circuit pump
suction unit incl.
pellets feeding auger



05.02 Wiring lay-out

Pos	Description	Plug
01	CAN Bus > Touch Display	X30
02	CAN Bus > Energy management	X29
03	Sensor motor multifunction	X21
06	Digital input external contact	X24
07	Filling level sensor – pellets container	X25
09	Digital input special function	X27
10	Programming plug (VRISP mk II)	X32
11	Lambda probe connection	X37
12	Airmass sensor connection	X19
13	Temperature sensor combustion chamber	X13
14	Temperature sensor auger channel	X14
15	Temperature sensor boiler water	X15
16	Temperature sensor special function	X16
17	Temperature sensor outside temperature	X17
18	Analogue input 0-10 volt	X18
19	Wireless antenna	X38
20	Function switch (Cascade)	SW1

Pos	Description	Plug	Fuse
50	Relay special function	X11	
51	230 V AC electric supply	X1	
52	230 V AC grid drive (Belimo)	X4	F1
53	230 V AC motor multifunction	X5	F1
54	230 V AC igniter	X6	F1
55	230 V AC boiler circuit pump	X7	F1
56	safety switch suction unit	X20	F1
57	230 V AC suction unit (Belimo)	X8	F2
58	230 V AC ash conveyor auger	X9/1	F2
59	230 V AC suction unit (suction turbine)	X9/2	F2
60	230 V AC pellets feeding auger	X10	F2
61	230 V AC auger screw	X36	F3
62	230 V AC suction fan	X3	F3
63	Safety temperature limiter	X12	
64	230 V AC electric supply	X2	



05.03

A change of fuses must only be carried out by fully trained professionals and disconnected 230 V AC-supply. Current safety rules and regulations must be followed at all times.

Type	Fuse
10 AT microfuse	F1
10 AT microfuse	F2
1 AT microfuse	F3
400 mA microfuse	F4
3,15 AT microfuse	F5
10 AT microfuse	F1



Commissioning – automatic pellets feeding system

06.01 Mechanical connection of the automatic pellets feeding system

The pellets feeding system must be installed following the assembly instruction guidelines.

Suction hose diameter 45 mm (thick-walled hose)

The suction hose from the pellets boiler needs to be installed via the suction unit to the exit point. A disruption or an extension is not permitted.

The protective conductor of the hose has to be fixed to the pre-installed terminal strip.

Return air hose diameter 50 mm (thin walled hose)

The return air hose must be installed from the boiler via the suction unit to the exit point.

0,75 Meter bis zur ersten
Schlauchhalterung



Hose assembly ABOVE
(Optional: Daily container lid suction unit)
article no. 9385

suction unit:

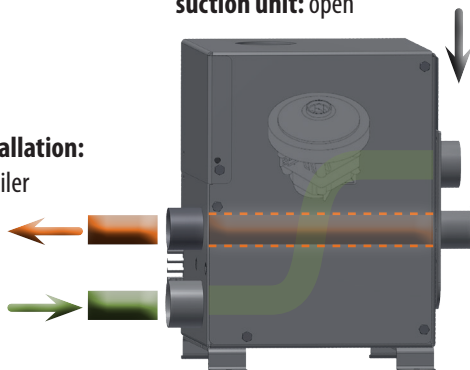


Hose assembly BELOW
(standard)



suction unit: open

hose installation:
to the boiler

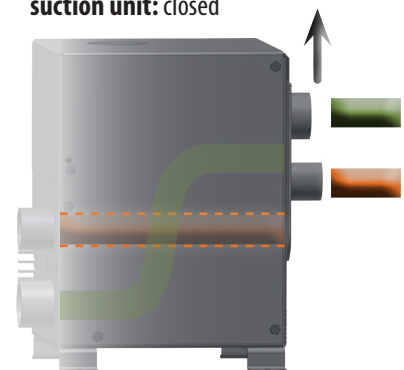


floor or wall assembly possible

hose installation: :
from the
extraction point

0,75 Meter bis zur ersten
Schlauchhalterung

suction unit: closed





06.02 Electrical connection of the automatic pellets supply

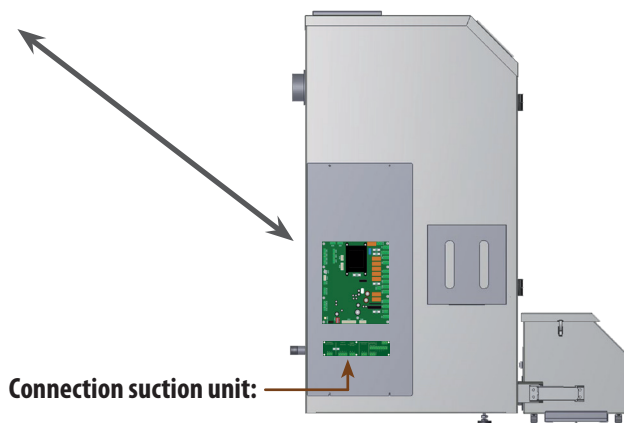
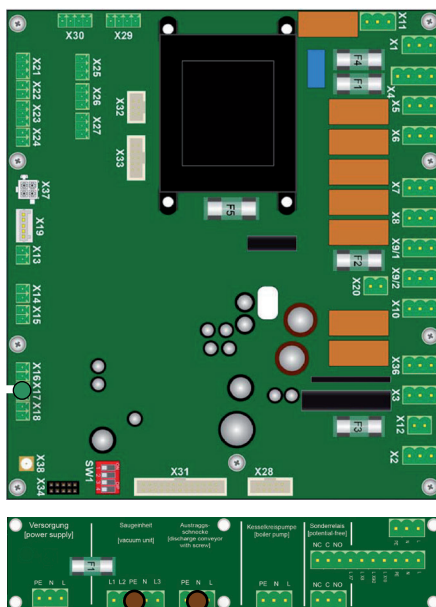


- The local electrical supply companies guidelines and rules need to be followed
- DIN VDE 0100 guidelines for building high voltage constructions upto 1000V need to be observed
- DIN VDE 0105-100 operation of electrical sites

The electrical connection of the suction unit (store room conveyance) should only be carried out following the strict HAPERO guidelines!



Non-compliance of these guidelines will result in your warranty/guarantee entitlements becoming invalid and could risk your own health and the safety of the device!

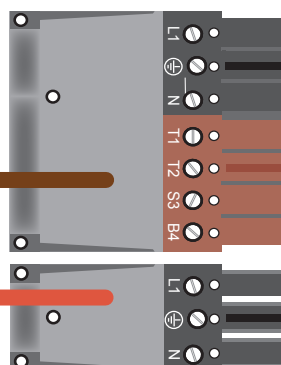


Connection suction unit:

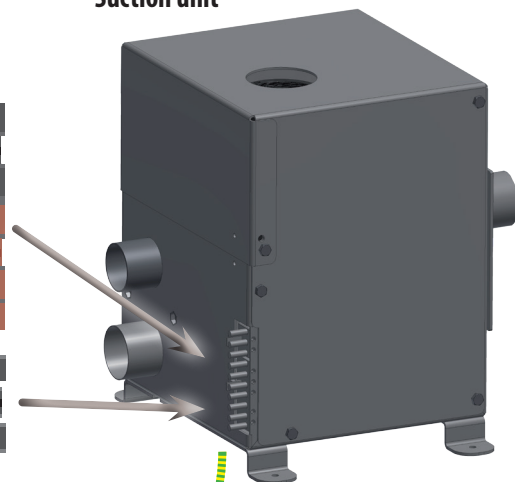
boiler	suction unit
L1	L1 230 VAC
L2	T2 grid drive (Belimo)
PE	PE earth
N	N neutral
L3	S3 suction turbine
PE	
N	
L	T1 auger conveyance

Connection suction unit

connection cable
6 pole (min. 6 x 1,5 mm²)



Suction unit



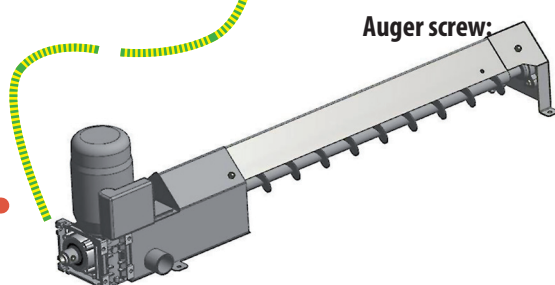
suction unit	auger conveyance
L1	L
PE	PE
N	N

Auger conveyance:

connection cable
3 pole (min. 3 x 1,5 mm²)



Auger screw:



Earth Suction unit / Auger screw

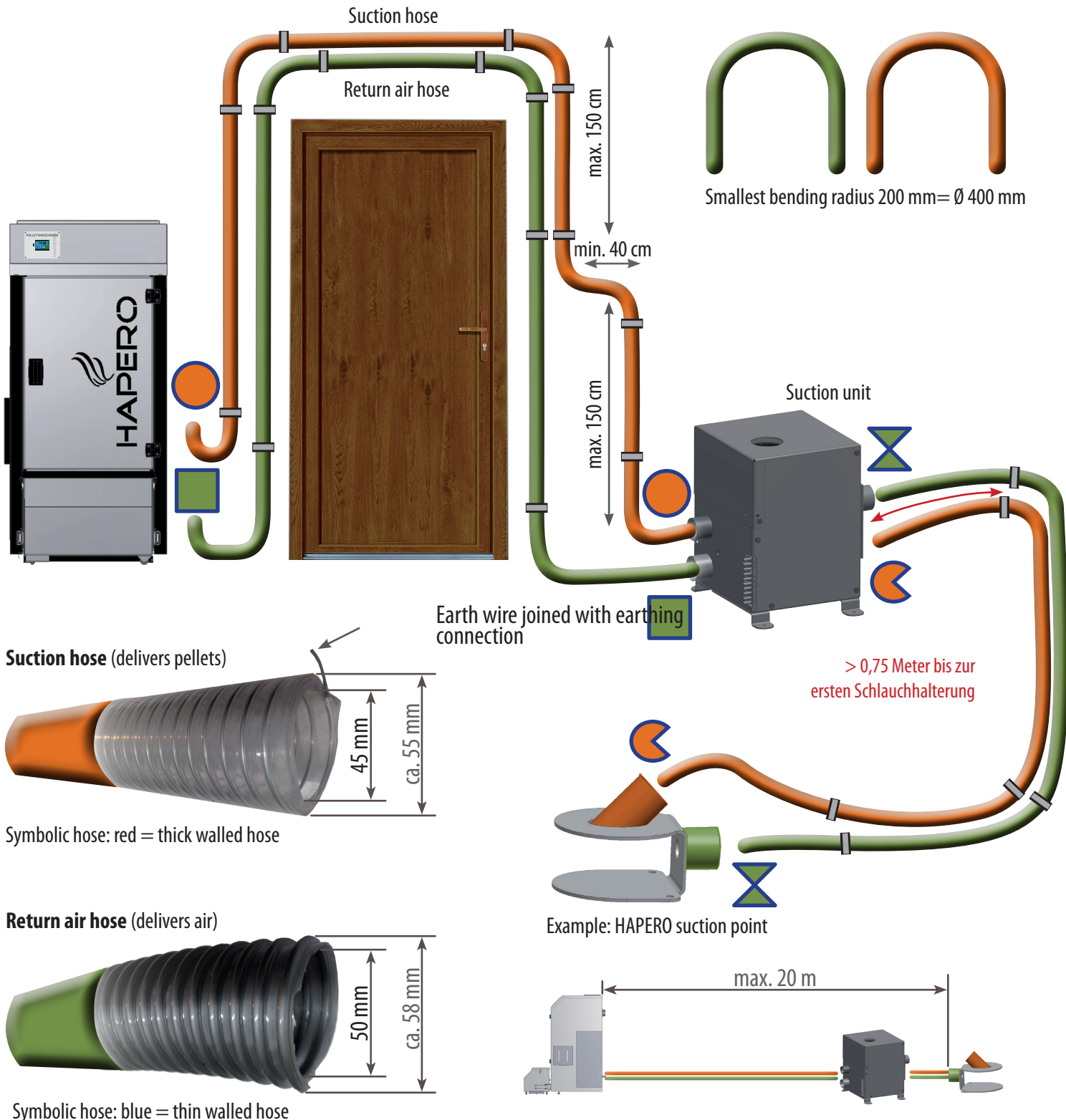
General information concerning store room technique

06.03 Store room technique in general



By using flexible hoses and air flow for pellets conveyance, it assures a smoother transport from the store room to the daily container. It will also simplify the store room design, but specific rules and guidelines have to be followed. It is not recommended to use a suction point if the rise-suction pipe is over 3 meter. It has to be installed as a tiered levelling system, because at the end of the suction process all remaining pellets in the suction hose will drop and it can cause a blockage. Building in tiers ensures that only those pellets drop, that remain in the rise or elevation of the hose. Building in tiers is not necessary if an auger system is installed, because the suction pipe can be fully emptied.

Example for assembly:





07.01 Electrical connection

Energy management starterset

The energy management starterset consists of a base plate with lid which contains the performance electronic for heating circuits, domestic hot water system, buffer and solar heating system. The basic configuration contains the first control system electronics for connection of a climatic sensitive heating circuit with a 3-way mixer and a domestic warm water system. All further extension strips for the performance electronic must be joined with flat ribbon cable and a 230 V AC connection.

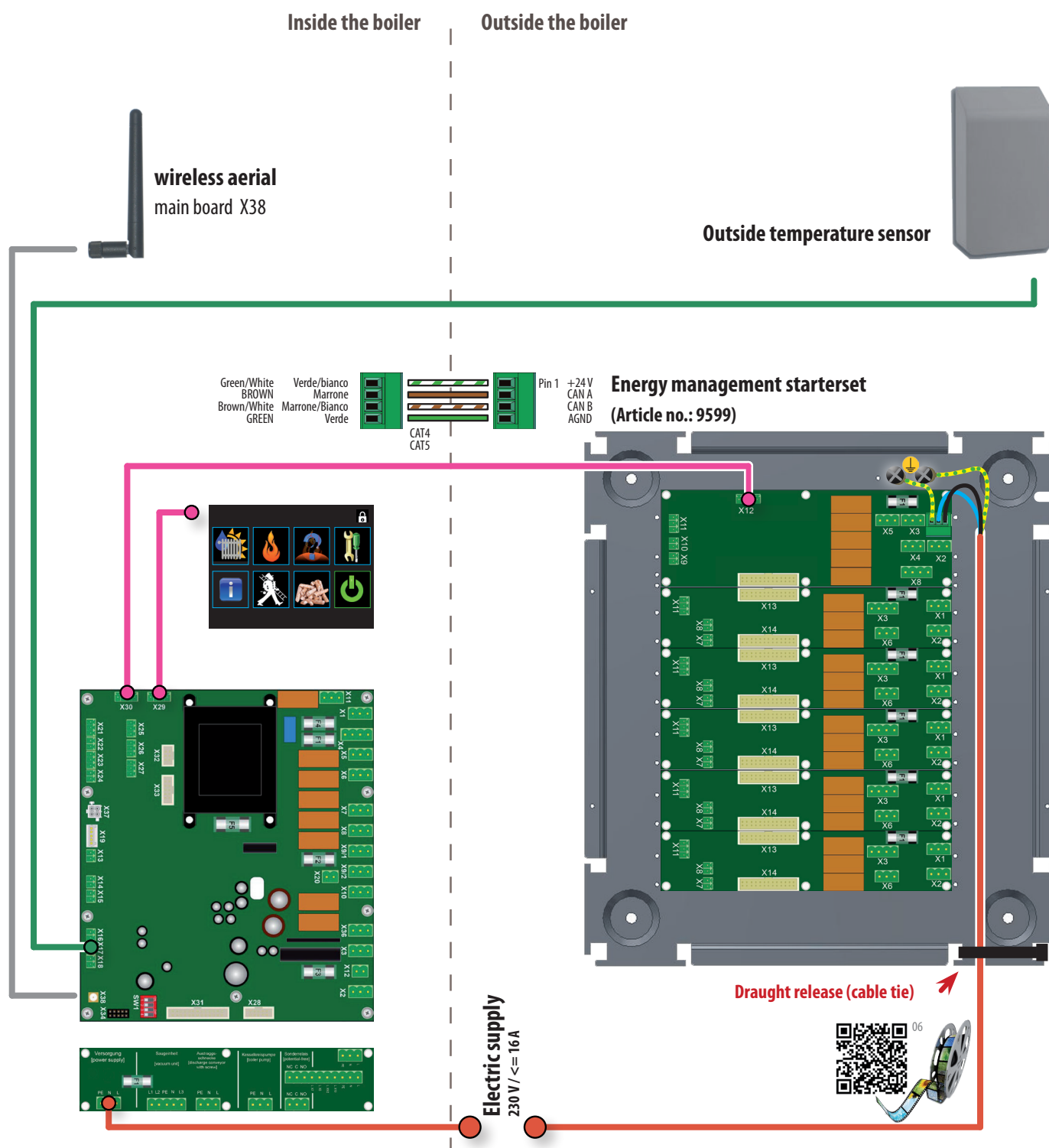


The electric supply must be installed by a professional company and it is imperative that all national guidelines are followed. The cable must have a dual insulation with a cross section minimum dimension of 3 x 1,5 mm².



The connection lay-out

230 V AC ≥ 8 A





07.02 Plug lay-out / legend

	PE N L Pin 1 L	Phoenix RM 5,08 (230 Volt) 230 Volt electric supply Pump connection for heating circuit / domestic hot water system / buffer / pellets feeding system Pin 1 external conductor/ Phase Pin 2 neutral conductor Pin 3 protective conductor
	PE N L L Pin 1 L	Phoenix RM 5,08 (230 Volt) 3 way mixer Pin 1 external conductor / Phase mixer OPEN Pin 2 external conductor / Phase mixer SHUT Pin 3 neutral conductor Pin 4 protective conductor
	L1 L2 PE N L3 Pin 1 L3	Phoenix RM 5,08 (230 Volt) suction unit Pin 1 external conductor / Phase Pin 2 external conductor / Phase grid drive (Belimo) Pin 3 protective conductor Pin 4 neutral conductor Pin 5 external conductor / Phase suction turbine
	Pin 1 AI AGND	Phoenix RM 3,5 (temperature sensor) Pin 1 KTY 81 / 110 Pin 2 earth
	Pin 1 +24V DI	Phoenix RM 3,5 (digital input 2 poles) Pin 1 +24 Volt Pin 2 digital input
	Pin 1 +24V DI AGND	Phoenix RM 3,5 (digital input 3 poles) Pin 1 +24 Volt Pin 2 digital input Pin 2 earth
	+24V CAN A CAN B AGND	Phoenix RM 3,5 (CAN Bus connection) Pin 1 +24 V Pin 2 CAN A Pin 3 CAN B Pin 3 earth



Screw terminal in cable room regulator



Phoenix RM 3,5 (cable room regulator)

Pin 1 room temperature
Pin 2 switch / room temperature adjuster
Pin 3 earth

 **230 V (electricity supply / pumps / pellets feeding system)**
3 poles (min. 3 x 1,5 mm²)

 **230 V (mixer connection)**
4 poles (min. 4 x 0,75 mm²)

 **230 V (suction unit)**
5 poles (min. 5 x 1,5 mm²)

 **Temperature sensor** (sensor connections need to be isolated to 230 V connections)
2 poles (min. 2 x 0,22 mm²)

 **Cable tethered room regulator** (sensor connections need to be isolated to 230 V connections)
3 poles (min. 3 x 0,75 mm²)

 **CAN BUS cable**
4 poles (Twisted-pair-cable with a surge resistance of 95-140 Ohm)
(CAT4 / CAT5 cable)



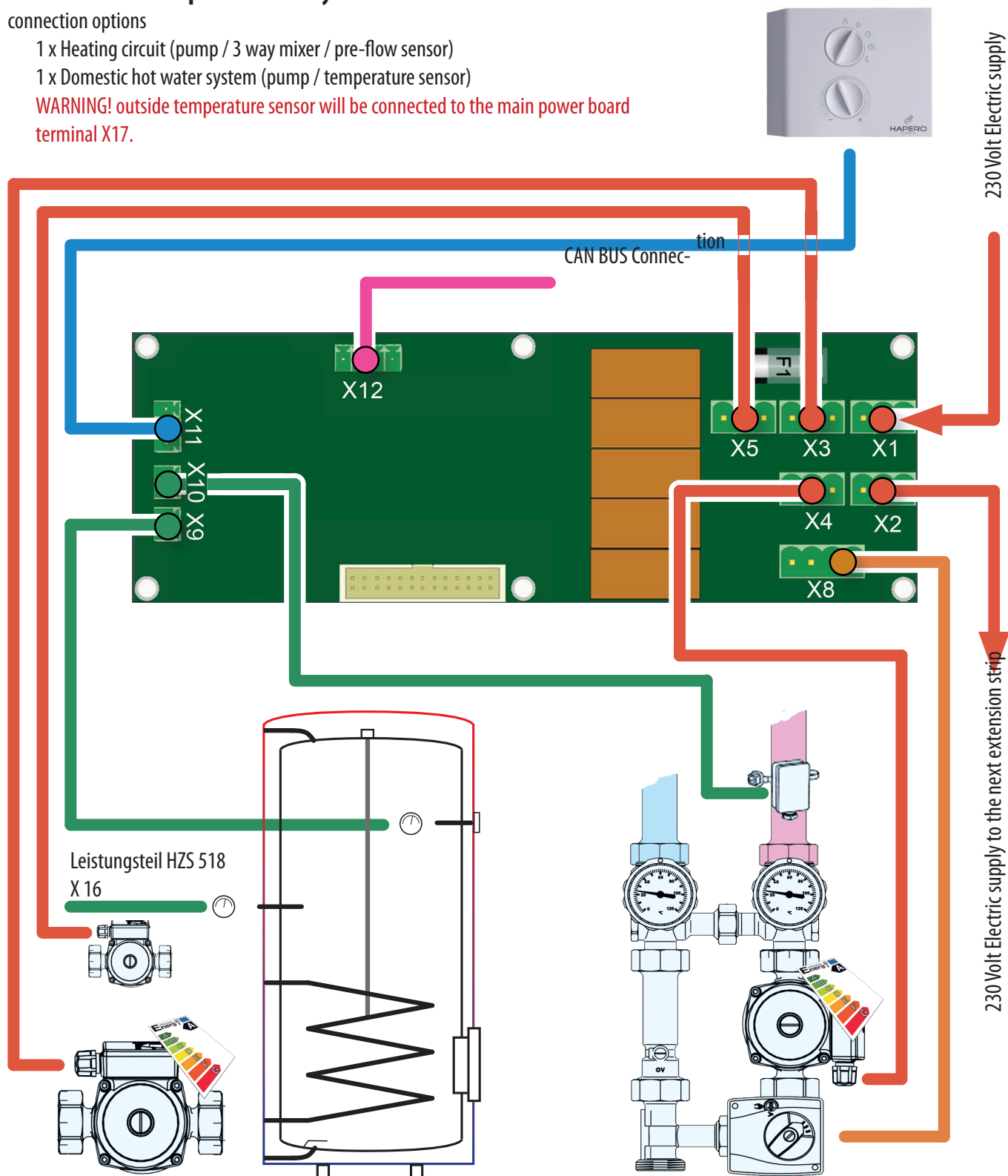
07.03 Extension strips on assembly site 1

connection options

1 x Heating circuit (pump / 3 way mixer / pre-flow sensor)

1 x Domestic hot water system (pump / temperature sensor)

WARNING! outside temperature sensor will be connected to the main power board terminal X17.



A change of fuses must only be carried out by fully trained professionals and a disconnected 230 V AC-supply.

Current safety rules and regulations must be followed at all times.

Type	Fuse
10 AT microfuse	F1

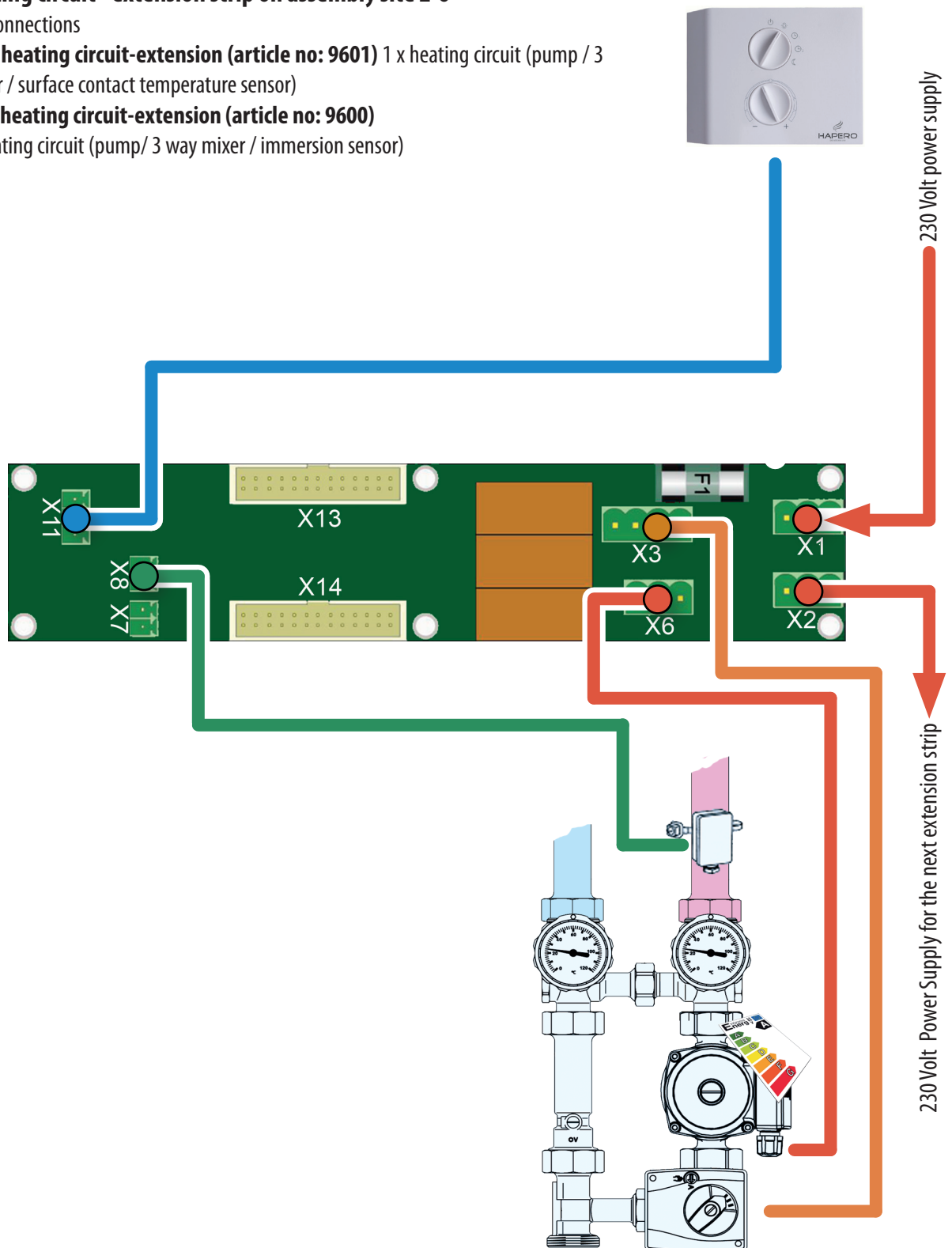
07.04 Heating circuit - extension strip on assembly site 2-6

options for connections

With set heating circuit-extension (article no: 9601) 1 x heating circuit (pump / 3 way mixer / surface contact temperature sensor)

With set heating circuit-extension (article no: 9600)

1 x heating circuit (pump/ 3 way mixer / immersion sensor)



A change of fuses must only be carried out by fully trained professionals and a disconnected 230 V AC-supply.

Current safety rules and regulations must be followed at all times.

Type	Fuse
10 AT microfuse	F1



07.05 Extension strips on assembly site 2-6

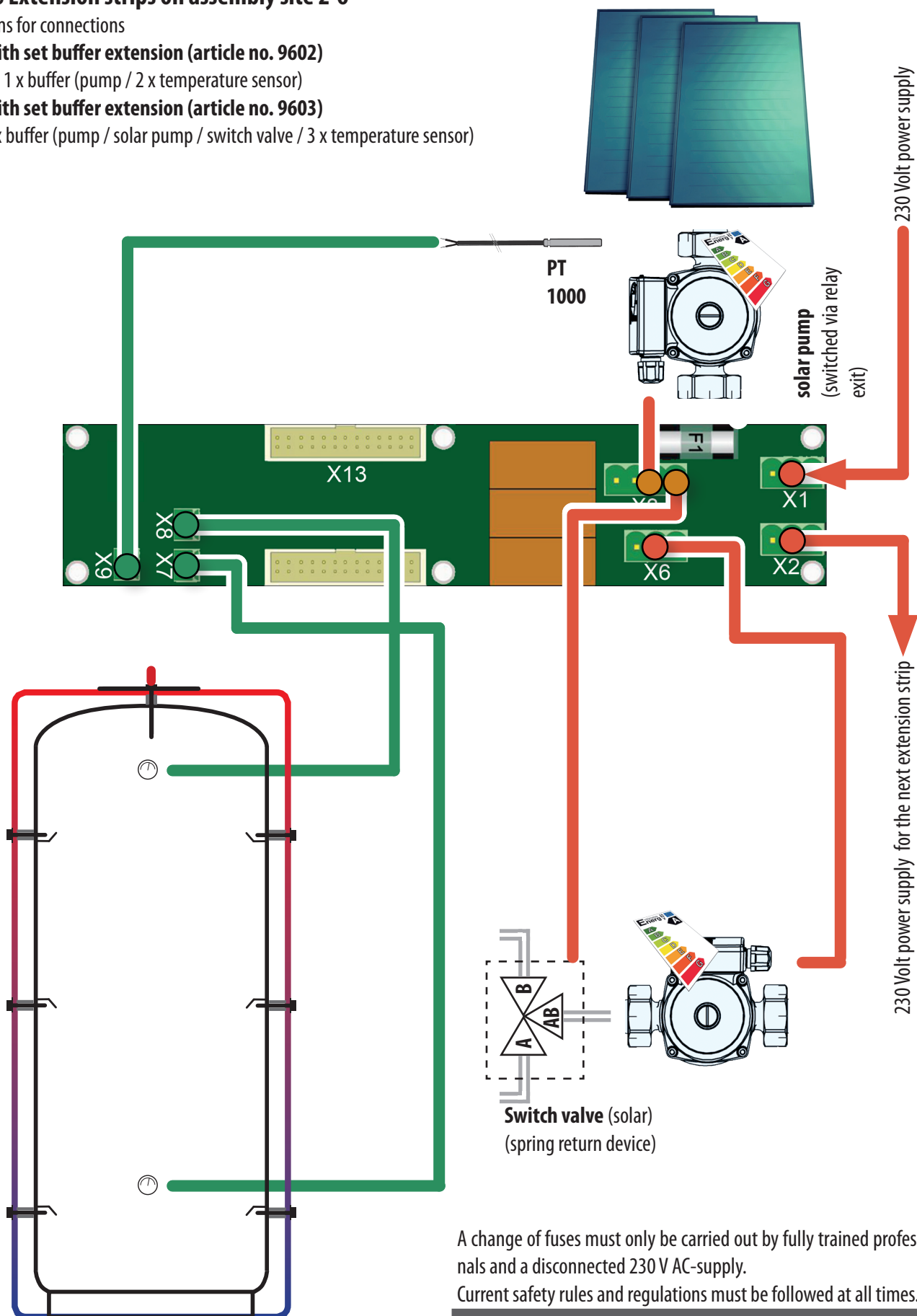
options for connections

With set buffer extension (article no. 9602)

1 x buffer (pump / 2 x temperature sensor)

With set buffer extension (article no. 9603)

1 x buffer (pump / solar pump / switch valve / 3 x temperature sensor)



A change of fuses must only be carried out by fully trained professionals and a disconnected 230 V AC-supply.

Current safety rules and regulations must be followed at all times.

Type	Fuse
10 AT microfuse	F1



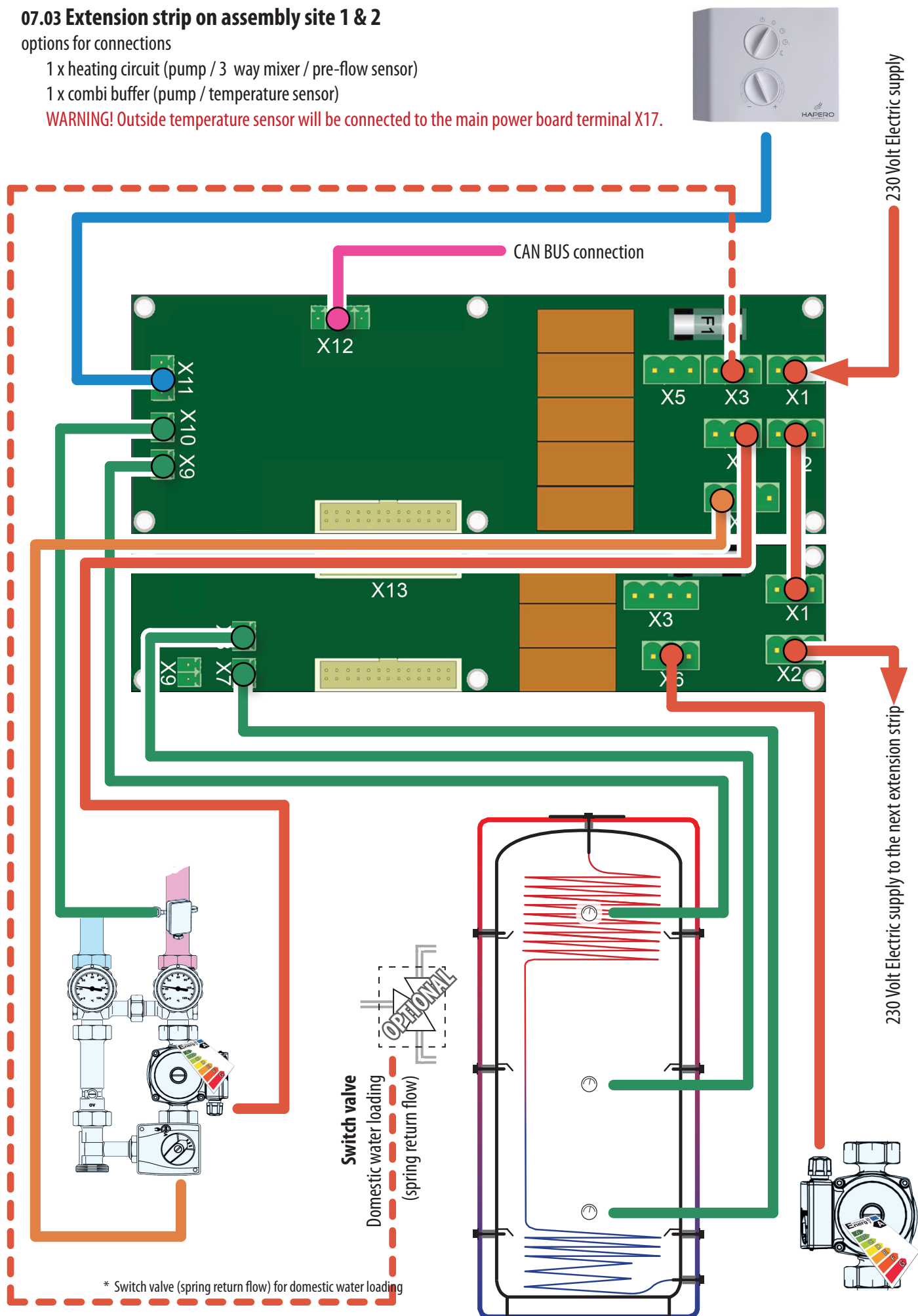
07.03 Extension strip on assembly site 1 & 2

options for connections

1 x heating circuit (pump / 3 way mixer / pre-flow sensor)

1 x combi buffer (pump / temperature sensor)

WARNING! Outside temperature sensor will be connected to the main power board terminal X17.





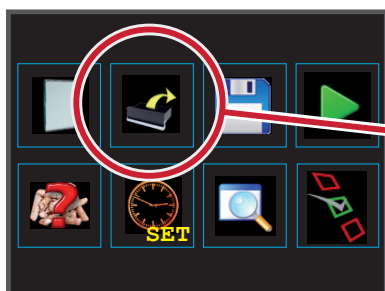
08.01 Necessary tasks for the assembly of a pellet boiler

Tasks	Page	
1 Air supply purification for the combustion air	15	☐
2 Identify assembly site (safety and minimum gaps)	17	☐
3 Flue connection installation	16	☐
4 Hydraulic connection, filling and ventilation	20	☐
5 Prepare electricity supply and connect pellets boiler	22	☐
6 Mechanical connection of pellets feeding system and electric wiring	24	☐
7 Assembly of starter set energy management, CAN BUS connection wiring	27	☐
8 Heating circuit, domestic warm water system, buffer, solar - wiring	29	☐
9 Commissioning as per instruction manual following all current HAPERO guidelines		☐

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.



Menue platform service



09.02 Pellet boiler with ash box



After starting the programm function „empty ash tray“ please follow the instructions on the display.

09.03 Pellet boiler with ash tray



After starting the programm function „empty ash tray“ please follow the instructions on the display.

1. Open the boiler door
2. Unlatch the ash tray and pull it out
3. When re-inserting the ash tray after emptying please ensure correct closure.

WARNING!

Removal of the ash tray without carrying out the ash loading program is not possible, due to a safety locking device.

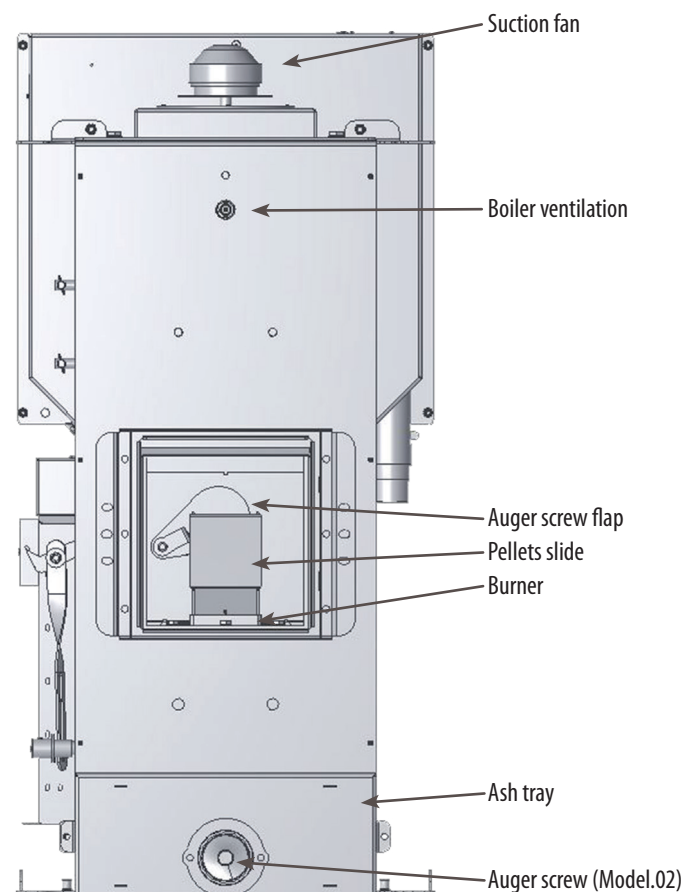
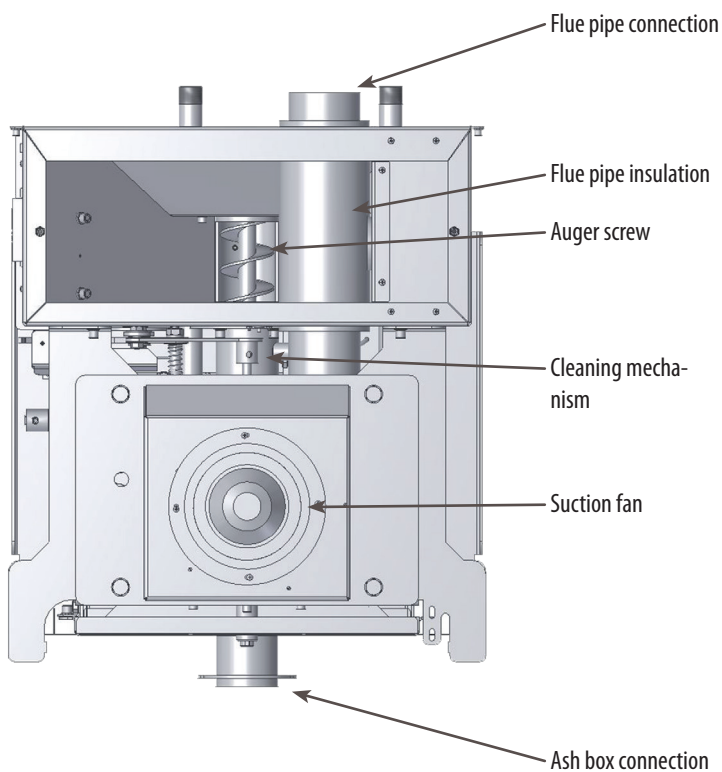
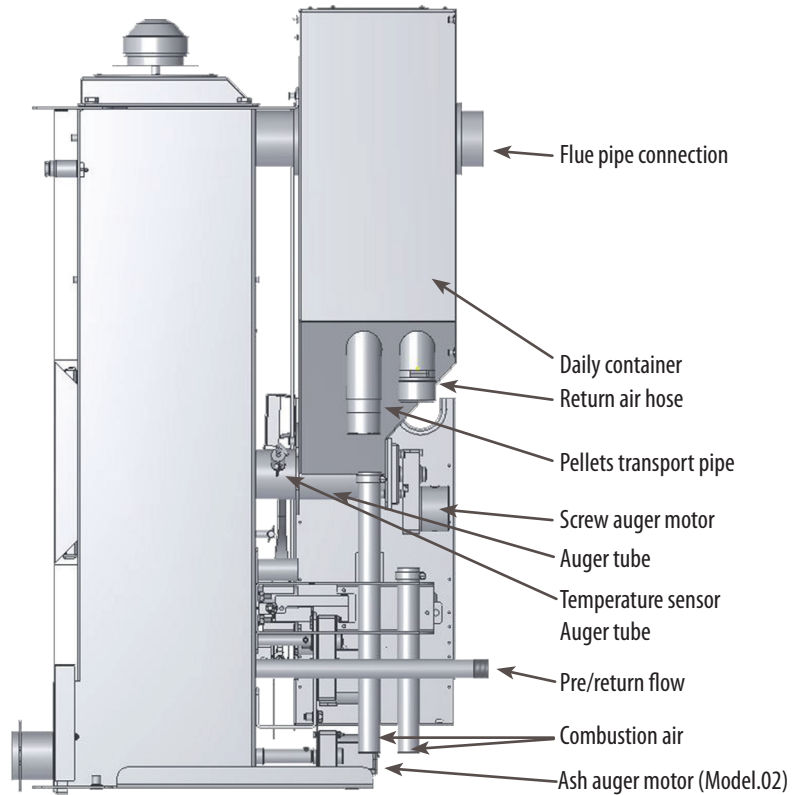
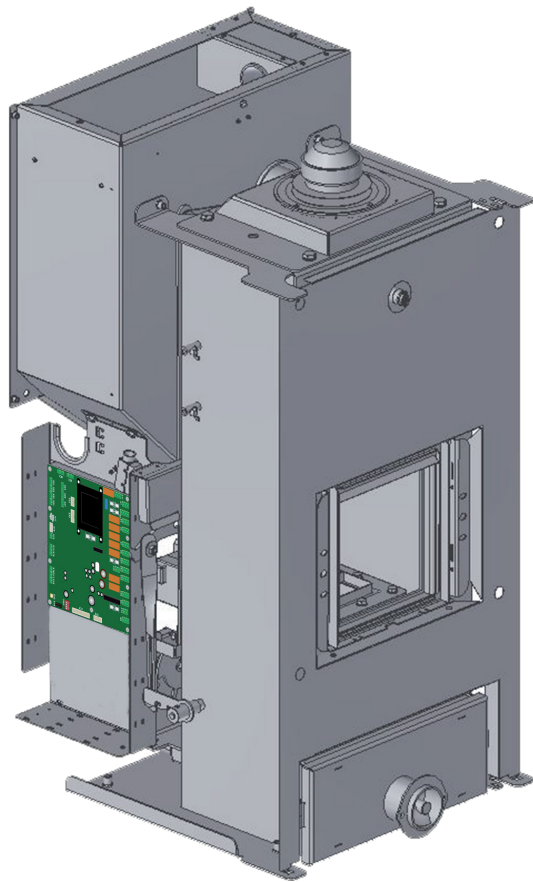


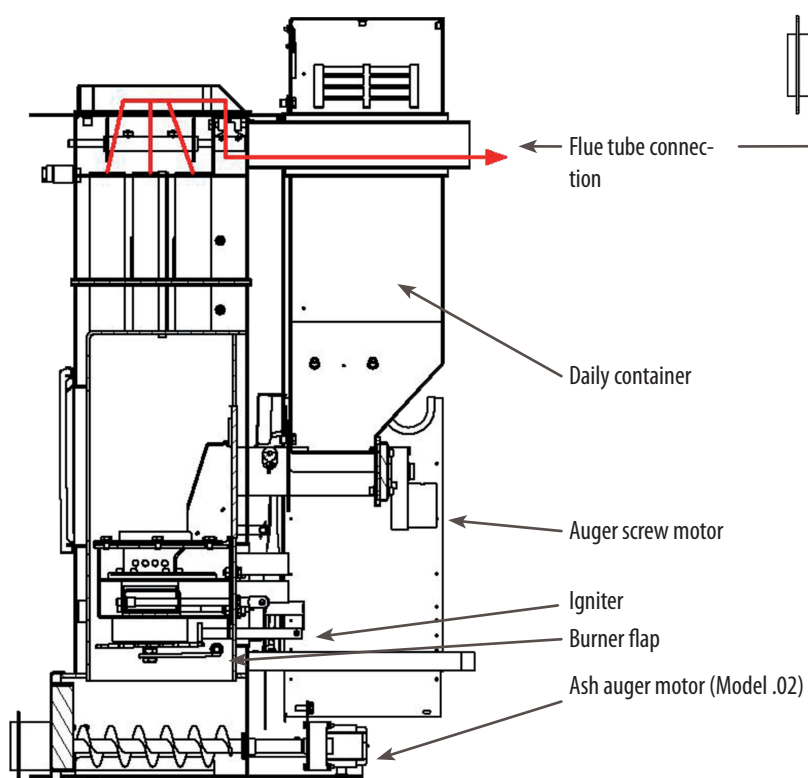
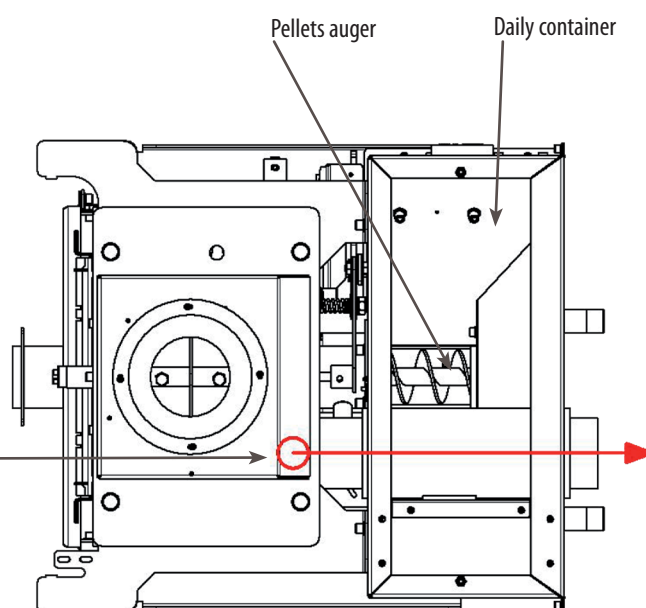
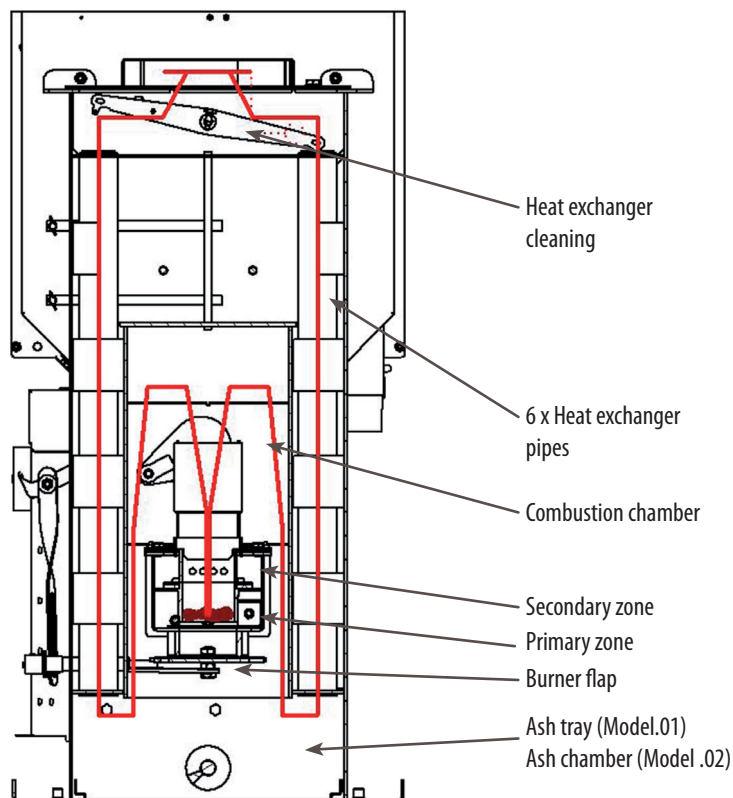
Emptying of the ash should be carried out after maximal 1000 kg of pellets. Follow the instructions on the display. Please be aware, that the ash tray can contain particles of embers, even several days after switching off the pellets boiler. Always wear safety gloves when handling or emptying the ash tray.

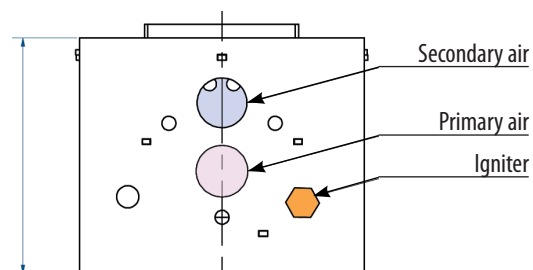
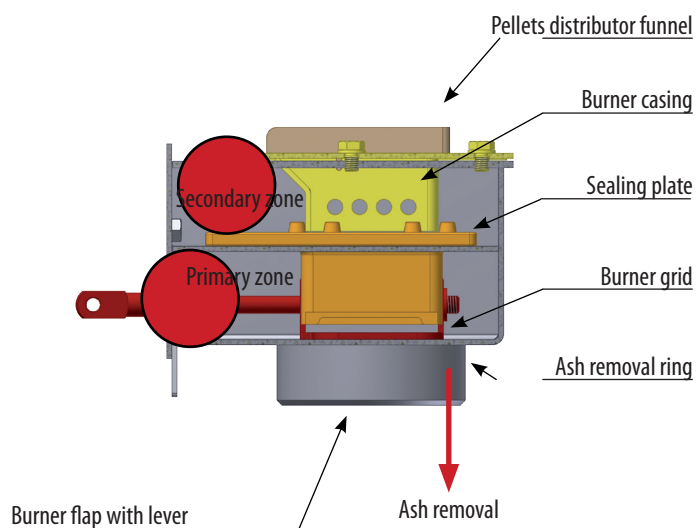
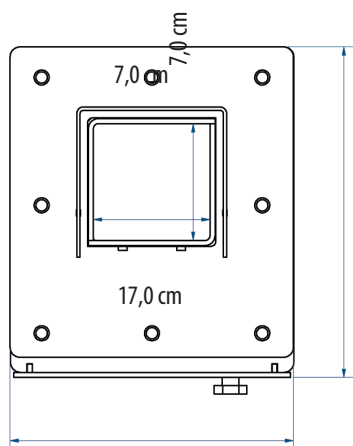
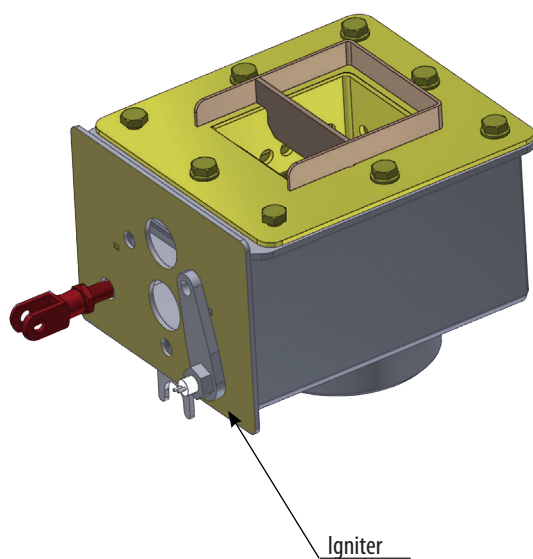


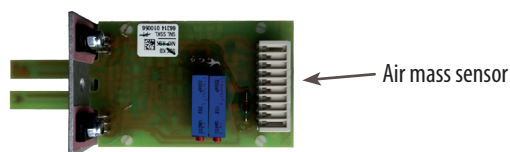
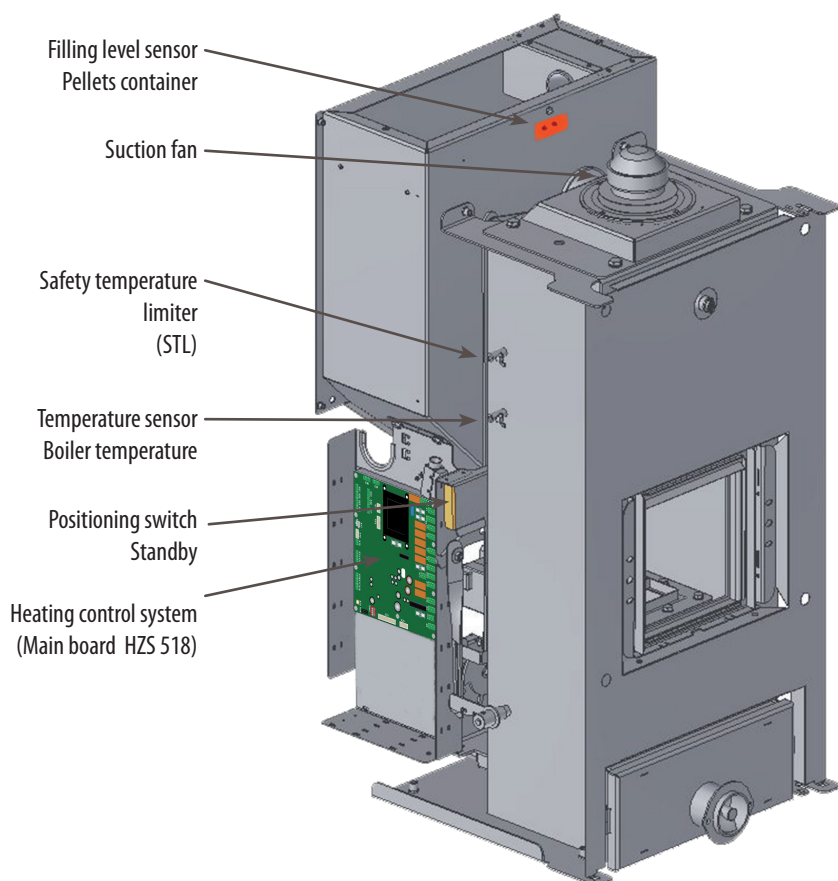
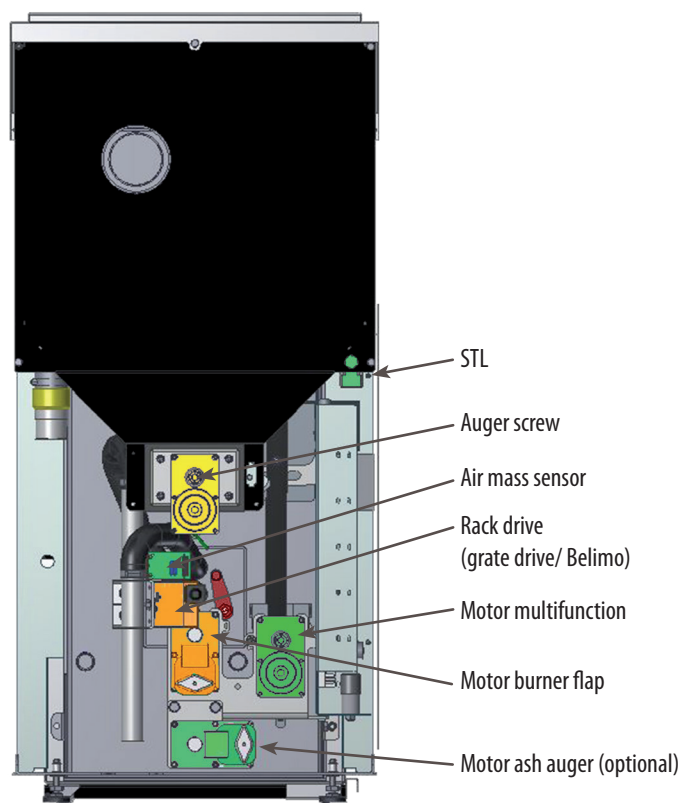
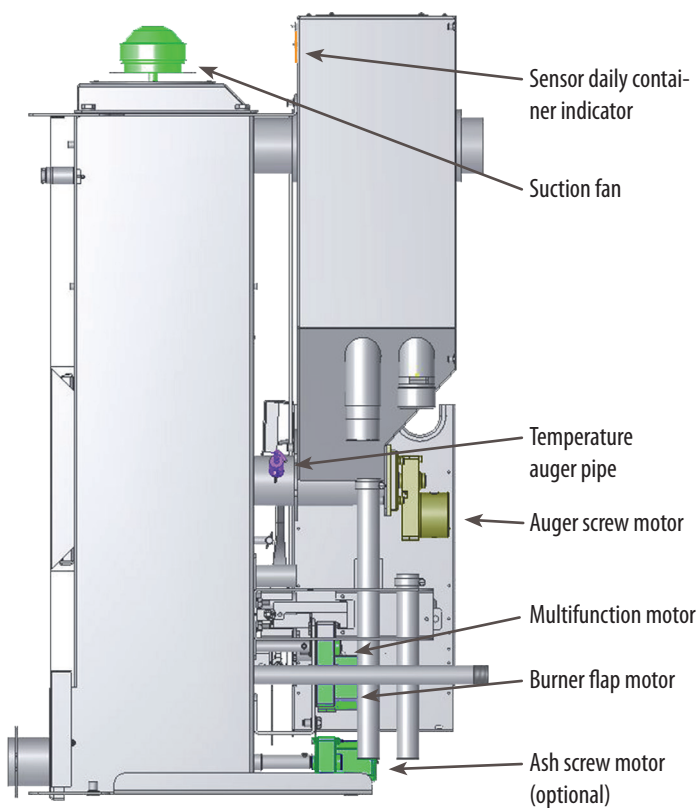
When re-inserting the ash tray after emptying please ensure correct closure.













Anhang 3 zur Vergabegrundlage RAL-UZ 111 und RAL-UZ 112

Sehr geehrte Kundin!
Sehr geehrter Kunde!

Zum effizienten und emissionsarmen Betrieb Ihrer Heizanlage beachten Sie bitte folgende Hinweise:

Die Installation und Einstellung der Anlage hat ausschließlich durch qualifiziertes, geschultes Personal zu erfolgen.

Verwenden Sie ausschließlich die von uns in der Bedienungsanleitung (Seite 7) vorgeschriebenen Brennstoffe. Nur so kann ein emissionsarmer, wirtschaftlicher und störungsfreier Betrieb Ihrer Heizanlage gewährleistet werden.

Führen Sie in regelmäßigen Abständen die von uns empfohlenen Wartungs- und Reinigungsarbeiten an Ihrer Heizanlage durch. Angaben hierzu finden Sie in der Bedienungsanleitung Seite 55 und Seite 58. Damit gewährleisten Sie nicht nur die Funktionssicherheit der Heizanlage und deren Sicherheitseinrichtungen, sondern auch den effizienten und emissionsarmen Betrieb der Anlage. Die beste Betreuung Ihrer Heizanlage erreichen Sie mit dem Abschluss eines Wartungsvertrages.

Ihr Pelletkessel ist innerhalb eines Leistungsbereiches von 30 % bis 100 % der Nennleistung regelbar. Die Öfen sollten möglichst im mittleren und oberen Leistungsbereich (angepasst auf den jeweiligen Wärmebedarf) betrieben werden, um unnötige Emissionen im Kleinlastbetrieb zu vermeiden. Ideal ist die Kombination mit einem modulierenden Raum- oder Heizungsregler um unnötiges Takten zu vermeiden und möglichst lange Laufzeiten zu gewährleisten.

Nur bei Geräten mit integriertem Wasser-Wärmetauscher: Aus energetischer Sicht sind ein Pufferspeicher und eine Kombination mit einer Solaranlage zu empfehlen. Damit ist ein effizienter und emissionsarmer Betrieb Ihrer Heizanlage gewährleistet.





IBS - INSTITUT FÜR

BRANDSCHUTZTECHNIK UND SICHERHEITSFORSCHUNG

GES.M.B.H. - STAATLICH AKKREDITIERTE PRÜF- UND ÜBERWACHUNGSSTELLE



Gutachtliche Stellungnahme:

Auf Basis der unter „Grundlagen“ angeführten Verwaltungsakte, Richtlinien und Prüfberichte und unter Berücksichtigung der nachstehend angeführten Rahmenbedingungen kann die automatische Holzfeuerungsanlage mit externer Beschickung der Type „HP 02 BALANCE K“ und der Type „HP 02 BALANCE W“ der **Fa. Hapero Energietechnik GmbH** als **„geeignete Pelletsfeuerungsanlage zur Aufstellung außerhalb von Heizräumen (z.B. Wohnraum)“** eingestuft werden.

**IBS – INSTITUT FÜR BRANDSCHUTZTECHNIK
UND SICHERHEITSFORSCHUNG GESELLSCHAFT M.B.H.**
Staatlich akkreditierte Prüf- und Inspektionsstelle

Ing. J. STOCKINGER
Bereichsleiter-Stv. der Prüfstelle

Ing. R. RIBLER
Sachbearbeiter

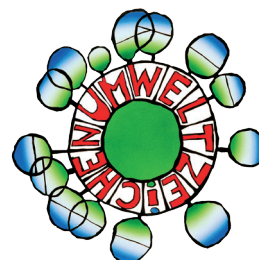
Dir. Stv. Ing. H. PEHERSTORFER
Zeichnungsberechtigter
Geschäftsführer



AUSZUG AUS DEM ORIGINAL PRÜFBERICHT. NACHZULESEN UNTER WWW.HAPERO.COM

Umwelteigenschaften „Holzheizungen“ (Richtlinie UZ 37)

Wer mit Holz, Holzhackgut oder Holzpresslingen (Briketts, Pellets) statt mit fossilen Energieträgern heizt, schont das Weltklima und fördert nachhaltiges Wirtschaften. Ob händisch beschickte Raumheizgeräte oder Heizkessel: Mit dem Umweltzeichen nutzt man den nachwachsenden Energieträger Holz besonders emissionsarm und mit hoher Energieausbeute.



Modernster Stand der Technik

Für geringe Emissionen von Kohlenmonoxid und Staub, hohen Wirkungsgrad und geringe Abstrahlverluste sorgen die vorgegebenen Wärmeverlustkoeffizienten bei Pufferspeichern sowie Mindestdämmstärken bei Leitungen. Alle Komponenten der Heizanlage (Speicher, Pumpen, Dämmung) sind normgeprüft und weisen hohe Qualität auf, die von akkreditierten bzw. notifizierten Prüfanstalten festgestellt wurde. Diese überprüfen auch das Einhalten der Wärmeverlustkoeffizienten der Speicher und der Mindestdämmstärken der Leitungen.

Langlebigkeit

Hersteller der Umweltzeichen-Heizanlage müssen für mindestens zehn Jahre die Verfügbarkeit gleichwertiger Ersatzteile garantieren.

Kundenservice

Für sachgemäßen Betrieb der Heizung müssen Hersteller über die technischen Details der Anlage, zulässige Brennstoffe und deren richtige Lagerung sowie über richtiges Heizen informieren. Außerdem müssen sie die Heizanlage jährlich warten bzw. überprüfen.

Geeigneter Brennstoff

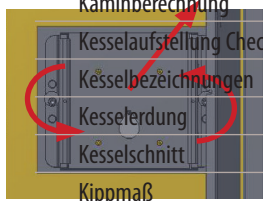
Da die Wahl des geeigneten Brennstoffs eine wesentliche Voraussetzung für das einwandfreie, effiziente und umweltschonende Betreiben der Heizung ist empfehlen wir, nur Brennstoffe aus Biomasse mit dem Umweltzeichen zu verwenden (siehe UZ Richtlinie 38 „Brennstoffe aus Biomasse“).



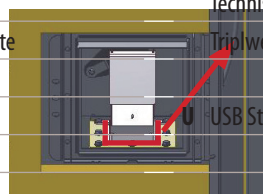


01.5 Stichwortverzeichnis

Wort	Seite
A Abmaße	
Aggregateplan	
Anschlussauslegung	
Aschenlade	
Aufstellplatz	
B Brenner	
C Checkliste Kesselaufstellung	
D DINplus	
E Elektrische Komponente	
Elektrischer Anschluss	
Elektronik Adeckung	
Energiemanagement Starterset	
Entlüftung	
H Hydraulik	
Hydraulikplan	
I Inbetriebnahme	
K Kabelbelegung	
Kamin	
Kaminberechnung	



b.



c.

Wort	Seite
L Lagerraumtechnik	
Luftzufuhr	
M Mindestabstand	
P Pellets	
Pelletsversorgung	
Plug & Easy	
R Rauchgaswege	
Rauchrohr	
Raumluftunabhängig	
Rücklauf	
S Saugeinheit	
Saugschlauchverlegung	
Sicherheitsabstand	
Sicherheitsgruppe	
Sicherheitsvorschriften	
Sicherungen	
Sichtscheibe	
Starterset Energiemanagement	
Steckerbelegung	
T Typenschild	
Technische Daten	

Wort	Seite
V Verbrennungsluft	
Verkabelung Brauchwasserboiler	
Verkabelung Puffer	
Verkabelung Solar	
Verkleidung	
Verkleidung	
Vorlauf	
Z Zertifikate	
Zugregler	

Triplwerte	
U USB Stick	



	7 kW living room	15 kW living room	15 kW basement	25 kW basement	35 kW basement
Description	Individual/W Typ HP 01	Balance/W Typ HP 02	Balance/K Typ HP 02	HP 03/K Flash	HP 04/K Flash
Test standard	EN 14785	EN 14785	EN 303 - 5	EN 303 - 5	EN 303 - 5
Boiler class		3	5	5	5
Nominal heat input [kW]	8	4,3 - 14,9	3,8 - 14,5	7,6 - 25	7,6 - 35
Degree of efficiency full load [%]	93,4	97,1	95,7	95,4	95,4
Degree of efficiency part load [%]	97,1	97,1	92,8	93,9	93,9
Performance distribution Room / Boiler [%]	100 / 0	20 / 80	0 / 100 10 / 90*	0 / 100	0 / 100
Adjustable boiler temperature [°C]		55 - 83	55 - 83	55 - 83	55 - 83
Minimal return flow temperature [°C]		25	25	25	25
Permitted operating pressure [bar]		3	3	3	3
CE Identification	CE	CE	CE	CE	CE
Fuel type	EN-17225-2 A1	EN 17225-2 A1	EN 17225-2 A1	EN 17225-2 A1	EN 17225-2 A1

*Betrieb mit Sichtscheibe

Dimensions					
Overall width [mm]	550	540	540	580 + 310 (A-Box)	580 + 310 (A-Box)
Overall depth [mm]	600	600	600	750	750
Overall height [mm]	1300	1140	1140	1830	1830
Flue tube connection height [mm]	280	940	940	1380	1380
Diameter flue tube connection [mm]	80	80	80	130	130
Height pre-flow [mm]		185	185	1270	1270
Height return flow [mm]		185	185	1270	1270
Total weight [kg]	135	158	158	330	330
Water content [L]		32	32	75	75
Storage tank [L]	66	45	45	90	90

Connections					
Pre-flow [inch]		3/4	3/4	5/4	5/4
Return flow [inch]		3/4	3/4	5/4	5/4
Air vent for the boiler [inch]		1/2	1/2	3/4	3/4

Inspection data					
$\Delta T = 20 \text{ K}$ [mbar]	5,0	5,0	5,0	5,0	5,0
Emission temperature at full load [°C]	120	115	115	140	140
Emission temperature at part load [°C]	55	70	70	80	80
Flue gas output rate at full load [g/s]	5,7	8,7	7,9	21	21
Flue gas output rate at part flow [g/s]	1,4	4,0	3,5	7,2	7,2
CO ₂ at full load [mg/Nm ³]	24	37	42	54	54
CO ₂ at part load [mg/Nm ³]	72	168	111	138	138
Min. supply pressure [mbar / Pa]	1	1	1	1	1
Max. supply pressure [mbar / Pa]	25	20	20	20	20

Electrical power consumption					
Electrical connection	230 V $\geq$ 13 A	230 V $\geq$ 13 A	230 V $\geq$ 13 A	230 V $\geq$ 13 A	230 V $\geq$ 13 A
Standby [W]	7	7	7	7	7
Suction turbine during the pellets filling process [W]	1.400	1.400	1.400	1.400	1.400
Ignition [W]	257	257	257	257	257
At 100 % Burner capacity [W]	38	38	38	47	47

PELLETSHEIZUNGEN



HAPERO Pellet-Living room stove 7kW
Art. No. 1010.00



HAPERO Pellet-Living room boiler 15kW
Art. No. 2030.02



HAPERO Pellet-Living room boiler 15kW
Concrete cladding, Art No 2030.01



HAPERO Pellet-boiler 15kW
Art. No. 2020.01



HAPERO Pellet-boiler 15kW XL
Art. No. 2020.02



HAPERO outdoor biobox 15kW
Art. No. 2035.00



HAPERO Pellet-boiler 25kW & 35kW
Art. No. 2040.01 & 2045.01



HAPERO Cascade 70kW
Art. No. 2049.01



HAPERO Cascade 105kW
Art. No. 2050.01

Article number: 8794

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