



INSTALLATION

KWB Combifire

CF1.5 | CF2 S/GS/V





Contents

	Foreword	7
	About this manual	7
	Explanation of the Formatting	7
	Legal	7
	Structural measures	8
	Boiler room requirements	9
	Fuel storage room requirements	10
1	Safety	13
1.1	Please note	13
1.1.1	Grading of the safety instructions	13
1.1.2	General safety instructions	13
1.1.3	Comply with the safety instructions	13
1.1.4	Please read and follow the manual	14
1.1.5	Qualification of the installation personnel	14
1.1.6	Protective equipment of the assembly personnel	14
1.2	Pictograms used	14
1.3	Stickers	17
1.3.1	Stickers on the front part	17
1.3.2	Stickers on the side	19
1.3.3	Stickers on the top part	19
1.3.4	Stickers on the rear side	20
1.3.5	Stickers for the storage room	22
1.3.6	Stickers on the injection connector	22
1.3.7	Type plate sticker	23
2	Before you begin	24
2.1	Screw connections, dimensions	24
2.2	Bringing in the parts	24
2.2.1	Door width	24
2.2.2	Weights	25
2.2.3	Complicated positioning	25

2.3	Temporary storage	26
2.4	Tools	27
2.5	Placement	27
2.5.1	Dimensions, clearances	27
3	Prepare boiler	29
3.1	Replace hook-in plates of the combustion chamber lining in the CF1.5	29
3.2	Install the inspection glass slider	29
3.3	Prepare the door and install it	29
3.4	Checking the seal of the doors	31
3.5	Configuring the door	32
4	Mounting the boiler	33
4.1	Placing the basic structure	33
4.2	Attach the corrugated pipes	34
4.3	Mounting the servomotors	35
4.4	Mounting the induced draught fan	36
4.5	Preparing the pellet module	36
4.5.1	Preparing the water connection	36
4.5.2	Preparing the flange	37
4.6	Option: Automatic ignition	37
4.7	Installing the automatic heat exchanger cleaning	38
4.8	Mounting the casing – Part 1	40
4.9	Close the back	43
4.9.1	Installing the power supply plug	44
4.10	Installing the measuring mode switch	44
4.11	Mounting the sensors	45
4.11.1	Safety temperature limit sensor and boiler temperature sensor	45
4.12	Establish the cable connections	46
4.13	Mounting the casing – Part 2	47
4.13.1	Installing the casing door	47
4.13.2	Installing the maintenance cover	49
4.13.3	Installing the control unit	50
4.13.4	Door contact switch	51

4.14	Installing the pellet module	51
4.14.1	Setting up the pellet module	51
4.14.2	Preparing the burner	51
4.14.3	Removing the ash scraper ring	52
4.14.4	Mount the burner	52
4.14.5	Installing the ash screw motor	53
4.14.6	Connecting the pellet module with the boiler	53
4.14.7	Connecting the electrical system	54
4.14.8	Installing the pellet module casing	55
4.14.9	Ash container	59
4.15	Closing the casing	60
5	From the boiler to the conveyor system	61
5.1	Mounting the suction tank and suction turbine	61
5.1.1	Installing the suction turbine	61
5.1.2	Installing the suction container at the pellet module	63
5.1.3	Cabling for the suction container	63
5.2	Conveyor system connection	63
5.2.1	Connection to burner (screw)	64
5.2.2	Connection to burner (drop hose)	64
5.2.3	Connection to the suction tank	64
5.3	Running the hoses	64
5.3.1	Fire safety	65
5.4	Installing the storage container	66
5.5	Installing the burner casing	66
6	Final steps	67
6.1	Affixing the stickers	67
6.2	Bracket for cleaning tools	67
6.3	Completion of Assembly	67
7	Appendix	68
7.1	Dismantling and disposal	68
7.1.1	Dismantling	68



7.1.2	Disposal	68
	Keyword index	73



Foreword

About this manual

This manual contains all the required information for installation by technicians. The chapter sequence corresponds to the recommended workflow. For further queries please contact your sales partner or KWB Customer Service.

KWB – Kraft und Wärme aus Biomasse GmbH including its country representatives and authorised competence partners are hereinafter referred to as KWB.

Our objective is to constantly improve our products and manuals – we would appreciate your comments and suggestions.

You can find all contact data on the KWB home page www.kwb.net.

If you find any errors or mistakes, please let us know at: doku@kwb.at

Original manual – Subject to change. No responsibility accepted for errors and omissions!

Explanation of the Formatting

Work steps

We use different symbols for the preconditions, the actual work steps and the result:

↘ Precondition

→ Work step

↳ Result

Page texts

The keywords to the left of the text column assist you in immediately detecting the content of the text paragraph.

Cross references

A reference to another section of this document can be recognized with an arrow and the page number in brackets. Example: **About this manual [► 7]**

Legal

Intellectual Property

© 2021 KWB – Kraft und Wärme aus Biomasse GmbH

All catalogues, brochures, diagrams, drawings, manuals and control and adjustment programmes etc. are protected as intangible property and always remain the intellectual property of KWB. Any use, reproduction, distribution, publication, processing and/or other transfer to third parties requires the prior written consent of KWB.

When operating the contractual goods, the installation, operating and other technical regulations and instructions from KWB must be strictly observed and adhered to.

NOTE**Warranty**

- The manufacturer's KWB warranty specifies proper installation and commissioning of the system as a prerequisite. Defects and damage due to improper installation, commissioning and operation are excluded from the warranty!
- The manufacturer's instructions must be complied with to ensure proper system function. Knowledge of the manuals is a prerequisite.
- Use only original parts or parts that have been expressly approved by the manufacturer.
- If something is not clear, please look it up in this manual or contact the KWB customer service.

Liability / Warranty

Any change and / or modification of the contractual goods or in the operation of the contractual goods not expressly authorised by KWB in writing or their operation in conjunction with other devices or accessories the compatibility of which has not been expressly confirmed by KWB, any inappropriate operation/use (e.g. the use of fuels and/or water not in accordance with standards which do not correspond to VDI 2035 or ÖNORM H 5195-1; inappropriate and / or excessive use) leads to the exclusion of the warranty. Any liability or warranty for compatibility of the contractual goods with other products, systems, plants or parts, as well as the suitability thereof for a specific use shall be excluded unless expressly permitted in writing.

Intended use

KWB boilers heat water for central heating systems. The application, operation, maintenance and repair of KWB systems must, without exception, be performed as described in the instructions.

KWB dust filter separate dust.

Only the fuels specified in the Operating instructions in Section Intended fuels may be used without exception.

Any other use shall be deemed IMPROPER. The responsibility for the resultant damage shall lie with those who operate and use the system!

Structural measures**NOTE****Establishing the constructional requirements**

- Compliance with the locally applicable regulations, and proper execution of the structural measures lies solely within the system owner's sphere of responsibility and is a prerequisite for the guarantee and warranty requirement.
KWB does not accept any liability, nor does it offer any warranties for any type of constructional measures.
- Comply with all locally applicable, legal, submission, construction and implementation regulations when creating the structural requirements! In addition, comply with KWB installation guidelines!
- Without laying claim to an exhaustive treatment of the issue at hand and without suspension of any conditions imposed by the authorities, we recommend the Austrian preventative fire protection directive TRVB H118 and the ÖKL technical bulletin No. 56 and No. 66 in the applicable version.

Boiler room requirements

Floor:

- Concrete, bare or tiled
- Even, horizontal
- Dry
- Able to carry max. load
- Non-flammable (Flammability classification A1 pursuant to EN 13501)

Customer-provided fire protection

Building part	Fire protection design according to EN 13501
Floor, walls	fire resistant: REI 90
Bearing walls, floors, roofs	fire resistant: REI 90
Horizontal supports and other supports	R 90
Boiler room door	fire retardant: EI ₂ 30 c opening in escape direction, closing automatically
Connecting door to the fuel storage room	fire retardant: EI ₂ 30 c; closing automatically
Heating room windows	fire retardant: E 30; not to be opened

Fire extinguisher

Lighting, electrical system

- NO storage of flammable agents in the boiler room.
- NO direct connection to rooms in which flammable gases or liquids are stored (Garage, storeroom etc).
- Place a portable fire extinguisher of the specified size (at least 6 kg fill weight EN 3) outside of the boiler room next to the boiler room door.
- Make sure that permanently installed lighting and an electrical supply line to the heating system are available.
- Place the light switch and the **labelled** emergency stop switch ("Stop Escape" as per TRVB H118) of the heating system at an easily accessible location outside of the boiler room next to the boiler room door.
- Leave sufficient reserve cable in the boiler room in case you wish to connect the boiler with other bus participants.

Ventilation

- Two air vents must be installed; one close to the ground and one close to the ceiling; the air intake opening must lead directly into the open. If other rooms must be crossed to do this, this air duct must have an envelope according to EI 90 (EN 13501)!
- The size of the non-closing opening is dependent on the rated power of the heating system: Calculate the opening with 5 cm² per kW, but no less than 400 cm².
- Fit a protective grille with a non-flammable mesh width < 5 mm on the outside of ventilation openings into the open.
- When installing the openings and air ducts, you must ensure that no outside and weather-related influences (leaves, snow, ...) impair the air flow.
- Do not use any chlorine-containing cleaning or operating agents (e.g. chlorine gas plant for swimming pools) or hydrogen halides in the boiler room.
- Keep all boiler air intake openings free of dust.
- If not specified otherwise in the applicable provisions regarding the structural equipment of the boiler room, the following standards apply for the design and dimensioning of the air ducts:

Note on standards:

ÖNORM H 5170 – Construction and fire-protection requirements

Frost protection

- Provide frost protection for all water lines and district heating pipes.

Room temperature	<ul style="list-style-type: none"> • Ensure a minimum temperature of 10°C in the boiler room as stipulated in EN 12831. Lower temperatures change the lubricating characteristics to an extent that the reliable operation of the drive aggregates would no longer be ensured. • Ensure a maximum temperature of 40 °C.
Safety	<ul style="list-style-type: none"> → Never store flammable materials in the boiler room outside of the heating system container or storage container or hopper. Avoid direct connections to rooms in which flammable gases or liquids (e.g. parking garage) are stored. → No flammable items must be placed on the boiler for drying purposes (e.g. clothing, ...). → The system must be protected against damage from and nesting of animals (rodents, ...).
Protection against rodents and other animals	
Sea level	→ Please contact the manufacturer if the boiler is to be installed at more than 2000 metres above sea level.

Fuel storage room requirements

The structural on-site requirements for the boiler room always also apply to the fuel storage room.

Calculation of storage room size

For the size of the storage room, the following rules of thumb apply for average conditions:

Rules of thumb for a single family home

Fuel		Storage space for 1 year	Consumption for 1 year
Pellets	≤ 10% water content, 6 mm diameter	Inclined floor: = 0.9 m³ x heating load in kW	= 400 kg heating load in kW
		Without inclined floor: = 0.75 m³ x heating load in kW	

Extinguishing devices

Manual extinguishing devices

[HLE]

A manual extinguishing device [HLE] must be installed in fuel storages **larger than 50 m³**:

- Frost-proof
- Connected to a pressurized water line
- Piping at least 3/4" or DN 20.
- Above the conveyor channel conduit in the fuel storage
- Label the HLE armature as "Extinguishing device fuel storage room."

Automatic extinguishing devices

[SLE]

If there is a firewall to the living quarters, an automatic extinguishing device [SLE] is required. In this case, please contact KWB.



Electrical installation

→ Electrical installations are only permitted in the fuel storage room in explosion-protected versions - recognizable by the "Ex" label (see left).

The structural on-site requirements for the boiler room always also apply to the fuel storage room.



DANGER

Dust explosion due to open electrical installation

- To avoid ignition sources, do NOT install switches, outlets or junction boxes in the fuel storage room.
- Always avoid electrical installations in the fuel storage room.
- If this is not possible, these must be designed with explosion protection.

Dust-tight, pressure-resistant

If a pumping truck is used to fill the fuel storage room with wood chips or pellets, it is necessary to seal the fuel storage such that it is dust-tight: Mount the hose couplings and pipelines supplied by KWB which must be earthed.

The pumped-in air is extracted via a second pipeline, which is also earthed. The walls, windows and doors must withstand the overpressure created during the filling process.

Ensure correct pellet storage

Protect the pellets

An optimal storage room ensures that the pellets are protected during storage.

- NEVER install the filling pipelines with 90° bends as pellets may break due to the quick change in direction.
- An ricochet protection mat across from the injection connectors slows the flight of the pellets.
- Protection against water and humidity, dust-tight

Fire protection

- ÖNORM M 7137, among other things, prescribes fire-resistant walls of the type EI 90: Wall thickness must be at least 12 cm (or 17 cm hollow blocks) plastered on both sides or 10 cm concrete.

Inject pellets

- Access road must be >3m wide and 4 m high, permissible total weight 24 t
- Conveyance height <6 m
- Filling line <30 m
- Injection connector near outer wall and easily accessible

Injection connector

The term "injection connector" comprises both injector as well as extractor nozzles.

Placement of injection connector

- Place the injection connector in the middle of the room
- Place the extraction connector in at least 50 cm distance from the injection connector.
- Place both connectors ≥50 cm from the side walls and ≥20 cm from the ceiling.
- The injection and extraction connectors must be earthed!
- Shorten the extraction connector in the storage room as much as possible. The injection connector should clearly project into the room.

Injection connector with storage room ventilation

ÖNORM M 7137 requires ventilation of fuel storage rooms to prevent hazardous carbon monoxide concentrations.

- Ask your pellet supplier to carry out the following inspections:
 - Inspect the seals of the covers: Do they function properly?
 - The cover should only be fastened with suitable special tools: Turn to the stop (=torque approximately 10 Nm).
Only four key notches ensure even pressure is exerted on the seal - if there are only two key notches, leaks may occur due to uneven pressure on the seal!

Version A (recommended!): Injection connectors lead to the outside

- Use a sufficient number of KWB injection connectors with ventilation opening (20 cm² each).

Required conditions		Number of injection connectors
Ventilation line ≤ 2 m	Storage volume ≤ 10 t	2
Ventilation line ≤ 2 m	Storage volume > 10 t	3
Ventilation line > 2 m		3

Version B (not recommended!): The injection connectors lead to the interior of the building




- Seal the ventilation openings of the injector connection caps: No CO gases should reach the building's interior!
- Ensure air extraction to the outside via a separate ventilation opening.
- Please note that this ventilation opening must be dust-tight and pressure-resistant during filling, but that a subsequent ventilation must be possible.

1 Safety

1.1 Please note

1.1.1 Grading of the safety instructions

In this documentation, warnings with the following hazard levels are used to indicate direct dangers and important safety regulations:

NOTE	General information We use this display to indicate and describe important information .
 CAUTION	Beginning hazard We use this display to indicate and describe beginning hazards . If these stated hazards are not observed, injuries, property damage and environmental damage can occur.
 WARNING	Medium hazard We use this display to indicate and describe hazards. If this warning is not observed, severe or fatal injuries can occur.
 DANGER	Serious hazard We use this display to indicate and describe hazards . If this warning is not observed, severe or fatal injuries occur!

1.1.2 General safety instructions

- **Do not alter the system in any way!**
- Close all provided covers before you place the system into operation!
- Unplug the connector before you perform any service or open the control!
- Always disconnect the power supply to the boiler and conveyor system (main switch) before you enter the fuel storage room.

NOTE	Proper installation by specialists <ul style="list-style-type: none"> ➤ The entire installation, integration and commissioning of the heating system may only be carried out by expert specialists of KWB or their partners. ➔ All the work must conform to the specifications stated in the KWB manuals and local regulations.
-------------	--

1.1.3 Comply with the safety instructions

NOTE	Please comply with the safety instructions Your system has been tested for safety and it satisfies the applicable standards, directives and regulations. Failure to comply with the safety instructions or improper use poses danger of material damage. In addition, failure to comply with the safety instructions or improper use also poses a life-threatening hazard!
-------------	---

1.1.4 Please read and follow the manual

NOTE

Please read the instructions carefully before installation or commissioning!

Compliance with the instructions and proper installation or commissioning is a prerequisite for a warranty provided by KWB.

→ If you are unsure about anything, please refer to the instructions or contact the KWB customer service.

→ You will find all instructions for our heating systems in the KWB PartnerNet: <http://partnet.kwb.net/>

1.1.5 Qualification of the installation personnel



CAUTION

Assembly and installation by unqualified personnel may lead to material damage and injuries!

→ The following applies for assembly and installation:

→ Comply with the directions and notes in the instructions.

→ Have the work on the system only carried out by personnel with appropriate technical skills.



Assembly, installation, commissioning and maintenance must only be carried out by qualified persons:

- Heating engineers / building services engineers
- Electrical installation engineer
- KWB Customer Service

The installation personnel must have read and understood the directions in the documentation.

1.1.6 Protective equipment of the assembly personnel

To the extent necessary or required by regulations, personal protective equipment must be used. Such obligations may also refer to the use of hazardous materials, for example, or the wearing of personal protective equipment.



During transport, installation and assembly:








- Suitable work clothes
- Protective gloves
- Safety footwear (at least protection class S1P)

1.2 Pictograms used

The following command, prohibition and warning signs are used in the documentation and/or at the boiler.

According to the Machine Directive, signs attached directly at the danger location of the boiler warn of direct dangers or signal safety-relevant behaviours. These stickers must not be removed or covered up.

Command sign (safety colour blue)			
	General command signs		Use mask
	Follow instructions		Use welding mask
	Use hearing protection		Before maintenance and repair disconnect from mains
	Use eye protection		Check barrier
	Earth before use		Keep closed
	Disconnect plug from the mains!		Use gas detector
	Use foot protection		Continuous ventilation to the outside is required
	Use hand protection		Ventilation required
	Use protective clothing		Entry only with a second person on the outside! In the event of an accident first call for help!
	Use face guard		Only certified technicians
	Use head protection		Only certified electricians

Prohibition sign (safety colour red)			
	General prohibition signs		No access for persons with pace-makers or implanted defibrillators
	Unauthorized access prohibited		Reaching in prohibited
	Smoking is prohibited		Stepping on the surface is prohibited
	No open flames; Fire, open ignition sources and smoking are prohibited		

Warning signs (safety colour yellow)			
	General warning sign		Warning of automatic start-up
	Warning of explosive substances		Warning of danger of crushing
	Warning of obstructions on the ground		Warning of flammable substances
	Warning of danger of falling		Warning of sharp object
	Warning of low temperature / frost		Warning of hand injuries
	Warning of danger of slipping		Warning of rollers running in opposite direction
	Warning of electrical voltage		Warning of optical radiation
	Warning of suspended load		Warning of flammable materials
	Warning of hot surface		Warning of suffocation risk

1.3 Stickers

NOTE

Hazard due to missing safety sticker

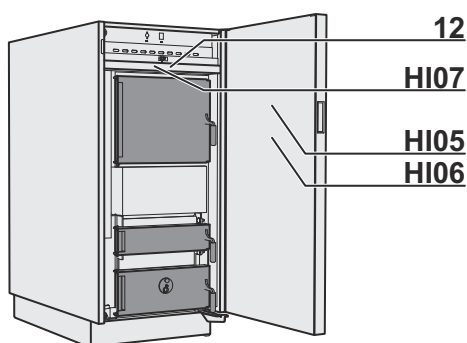
- ↳ Safety stickers save lives! They protect you against injuries and prevent damage to property and equipment!
- Ensure the correct use of the heating system: Attach ALL stickers as indicated in the instructions!
- Give the unused stickers to the operator of the heating system and instruct the operator regarding the possible hazards and/or consequences!
- Order any missing or incorrect stickers from KWB.

- Attach the KWB Logo to the front casing.
- Using the template, affix the correct lettering (depending on boiler type: Classicfire or Combifire) to the front casing.
- Affix the stickers.

27-2000228 – Languages: DE | EN | FR

27-2000229 – Languages: ES | IT | SL



1.3.1 Stickers on the front part



- Attach the two large stickers to the inside of the casing door.

HI05

!

Asche entleeren / Empty ash / Vider les cendres

- » Asche aus dem Füllraum/Brennraum entfernen. Vor jedem zehnten Anheizen durchführen. / Remove ash from the fill room/combustion chamber. To be done before every tenth heat-up. / Éliminer la cendre de la chambre de remplissage/de combustion. À effectuer avant chaque dixième allumage.

Wichtig / Important / Important:

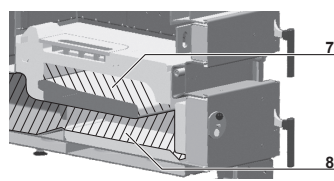
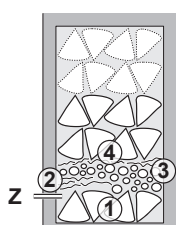
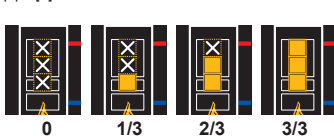
- » Asche oberhalb des Wannensteins [7] entfernen. / Remove ash above the tank block [7]. / Éliminer les cendres au-dessus du bloc de cuve [7].
- » Asche [8] (hinten) mit Aschekratzer entfernen. / Remove ash [8] (in the rear) with the ash scraper. / Éliminer les cendres [8] (à l'arrière) à l'aide du grattoir à cendres.

Befüllung mit Stückholz / Filling with log wood / Remplissage de bois en bûches

- » Vorgegebene Füllmenge im Menü *Nachlegen* überprüfen. / Check the prescribed filling amount in the *Refill* menu. / Contrôler la quantité de remplissage définie dans le menu *Recharge*.
- » Füll- & Anheiztür öffnen. / Open fill & heat-up door. / Ouvrir la porte de remplissage et d'allumage.

- 1: Eine Lage Stückholz in den Füllraum legen. Größere Zwischenräume erleichtern das Anheizen. / Put a layer of log wood into the fill room. Larger spaces in between make igniting it easier. / Placer une couche de bûches en bois dans la chambre de remplissage. Des espaces plus ou moins grands facilitent l'allumage.
- 2: Papier vor dem Zündrohr platzieren [Z]. / Place paper in front of the ignition pipe [Z]. / Placer du papier devant le conduit d'allumage [Z].
- 3: Kleineres, leicht entflammables Holz auf die erste Lage Stückholz legen. / Put a small, easily lit piece of wood on the first log-wood layer. / Poser du petit bois facilement inflammable sur la première couche de bûches.
- 4: Papier großflächig über die erste Lage Stückholz legen. / Place paper over a large surface of the first log-wood layer. / Poser du papier sur une surface étendue, sur la première couche de bûches.

- » Füllraum füllen (siehe Regelung - 0 bis 3/3). / Filling the fill room (see Control - 0 to 3/3). / Remplir la chambre de remplissage (voir commande - 0 à 3/3).







HI05

Emptying ash and filling

HI06

!

Automatische Zündung / Automatic ignition / Allumage automatique

- » Kesseltüren schließen / Close boiler doors / Fermer les portes de la chaudière
- » Zündprogramm wählen / Select ignition program / Sélectionner le programme d'allumage

Anforderung: / Request: / Demande :

Zündung erfolgt mit der nächsten Wärmeanforderung (empfohlen)
Ignition should take place during the next heat request (recommended)
L'allumage a lieu à la prochaine demande de chaleur (recommandé)

Zeitprogramm: / Time program: / Plages horaires :

Zündung erfolgt nach Ablauf einer Wärmeanforderung / Ignition takes place after expiry of a heat request / L'allumage a lieu après expiration d'une demande de chaleur

Sofort: / Immediately: / Immédiatement :

Zündung erfolgt sofort / Ignition takes place immediately / L'allumage a lieu immédiatement

Aus: / Off: / Off :

Keine automatische Zündung (händisch zünden) / No automatic ignition (manual ignition) / Aucun allumage automatique (allumage manuel)

Händisch zünden / Manual ignition / Allumage manuel


- » Papier entzünden / Ignite paper / Allumer le papier
- » Mittlere Kesseltür so lange geöffnet lassen, bis das Holz knistert.
Leave middle boiler door open until you hear the wood crackling.
Laisser la porte centrale de la chaudière ouverte jusqu'à ce que le bois crépite.
- » Türen schließen / Close doors / Fermer les portes

HI06

Ignition

→ Attach the warning *Keep doors closed* onto the crossbar below the door contact switch.

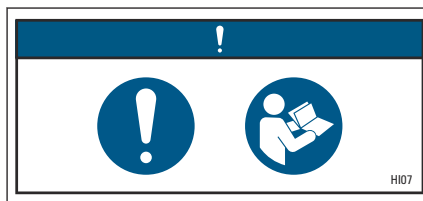
**Keep doors
closed
(12)**



Keep all doors closed during operation!

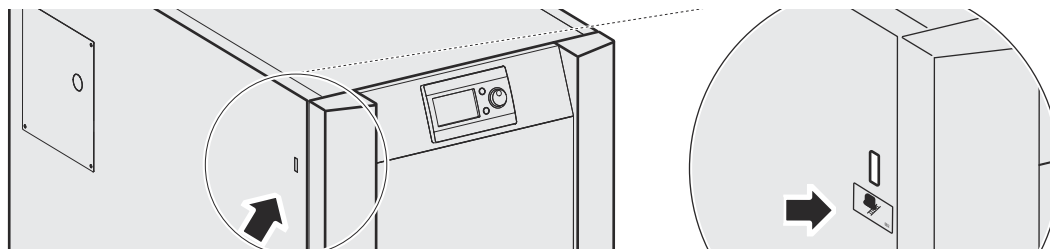
12

Check tight-
ness
(HI07)

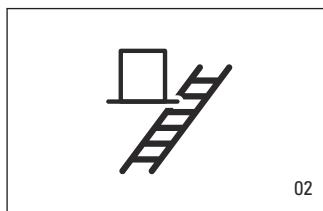


Check door tightness after 100 operating hours!
Follow the instructions!

1.3.2 Stickers on the side



Switch, meas-
uring mode



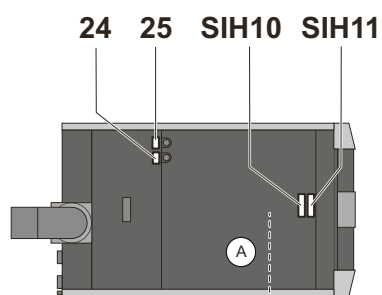
Points out the switch that starts the measuring mode.

Ash Container
(36)



Sticker ash container 40kg

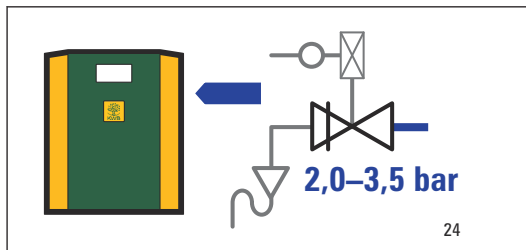
1.3.3 Stickers on the top part



KPM/KSM Comfort 4
WMM Comfort 4

Attach the following stickers to the casing:

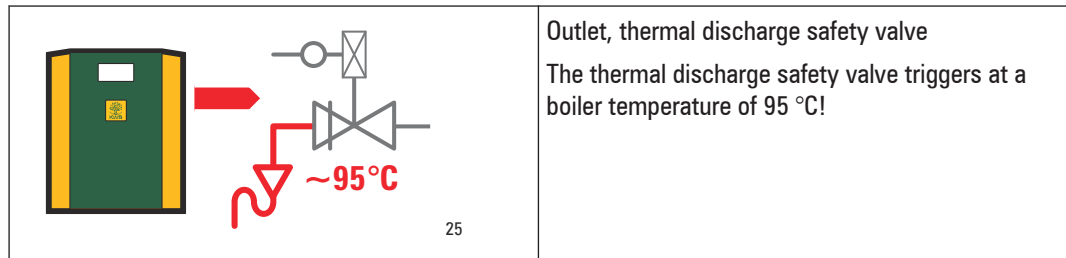
Inlet, thermal
discharge safe-
ty valve
(24)



Inlet, thermal discharge safety valve

The thermal discharge safety valve presupposes a cold-water pressure of 2–3.5 bar!

Outlet, thermal discharge safety valve (25)



Affix the sticker with the plug assignment of the KWB Comfort 4 to the inside of the control cabinet cover plate [A] so it is clearly visible:

Stecker Kessel-Power-Modul [KPM] Plug, boiler power module [KPM] Fiche module d'alimentation de chaudière [KPM]

100	Versorgung 230/400 V _{AC} / Power supply 230/400 V _{AC} / Alimentation 230/400 V _{AC}
101	Abgehende Versorgung Zusatzplatine / Outgoing power supply additional board / Sortie alimentation carte supplémentaire
102	Saugturbine / Suction turbine / Turbine d'aspiration
104	Förder-Trommelmotor (Pin 1-2-3) & Hauptantrieb (Pin 4-5-6) / Conveyordrum motor (pin 1-2-3) and main drive (pin 4-5-6) / Moteur d'extraction/Moteur à tambour (broches 1-2-3) et entraînement principal (broches 4-5-6)
106	Zündstab Gebläse Stückholz / Ignition rod fan log wood / Barre d'allumage ventilateur bois en bûches
107	Zündstab Heizung / Ignition rod heating system / Barre d'allumage chauffage
109	Schnell-Ladventil, wie 122 / Quick-charge valve, as 122 / Vanne de charge rapide, comme 122
110	Drehrost Motor / Revolving grate (motor) / Grille rotative moteur
111	STB / STL / STB
112	Zündung Pellets / Ignition, pellets / Amorçage des granulés
113	Wärmetauscher-Reinigung (Pin 1-2-3) & Saugzug (Pin 4-5-6) / Heat exchanger cleaning (pin 1-2-3) & induced draught (pin 4-5-6) / Nettoyage de l'échangeur thermique (broches 1-2-3) et tirage (broches 4-5-6)
115	Gebläse Verbrennungsluft (Pin 1-2-3) / Fan, combustion air (pin 1-2-3) / Ventilateur air de combustion (broches 1-2-3)
120	Mischer RLA / Mixer return flow boost / Mélange MTR
121	Kessel- od. Pufferladepumpe / Boiler or buffer charging pump / Pompe d'alimentation de chaudière ou de ballontampon
122	Schnell-Ladventil Puffer 0 / Quick-charge valve Buffer 0 / Vanne de charge rapide Ballon tampon 0
123	Zubringer- od. Ladepumpe Puffer 0 / Supply or charge pump Buffer 0 / Pompe d'alimentation ou de charge ballontampon 0
124	Multifunktionsausgang 3 / Multi-function output 3 / Sortie multifonctions 3
125	Multifunktionsausgang 1 / Multi-function output 1 / Sortie multifonctions 1
126	Multifunktionsausgang 4 / Multi-function output 4 / Sortie multifonctions 4
127	Multifunktionsausgang 2 / Multi-function output 2 / Sortie multifonctions 2
128	Reserve Sicherheits-Eingang, z.B. Wassermangel-Sicherung / Reserve safety input, e.g. low water pressure switch / Entrée de sécurité de réserve, par ex. sécurité manque d'eau
129	Not-Halt (bei reinem Stückholzbetrieb gebügelt) / Emergency stop (bridged for pure log wood operation) / Arrêt d'urgence (shunté en cas de mode bois en bûches exclusif)

130	Schalter Aschebehälter entfernt (Pin 1-3) / Ash container switch removed (pin 1-3) / Commutateur bac à cendres retiré (broches 1-3)
131	Sensor Überfüllschutz-Deckel Förderkanal (Muss bei EF2 und CF2 gebügelt bleiben!) / Sensor, overflow protection cover conveyor channel (Must remain bridged in EF2 and CF2) / Capteur couvercle de protection de trop-plein conduite d'alimentation (doit rester shunté avec EF2 et CF2 !)
132	TÜB Lagerraum (gebügelt oder verwendet!) / TMS storage room (bridged or used) / CTC local de stockage (shuntée ou utilisée)
133	Reserve Sicherheits-Eingang / Reserve safety input / Entrée de sécurité de réserve
134	Hausbus [OUT] / House bus [OUT] / Bus domestique [OUT]
135	Kesselbus [OUT] / Boiler bus [OUT] / Bus chaudière [OUT]
136	Abgehende Busverbindung Zusatzplatine / Outgoing bus connection additional board / Sortie liaison bus carte supplémentaire
137	Kessel BGE 24 V _{DC} / Boiler BGE 24 V _{DC} / Chaudière MCE 24 V _{DC}

Stecker Kessel-Signal-Modul [KSM] Plug, boiler signal module [KSM] Fiche module de signaux de la chaudière [KSM]

200	Lambdasonde / Lambda probe / Sonde lambda
202	Füllstand (Pin 2-5-8) / Fill level (pin 2-5-8) / Niveau de remplissage (broches 2-5-8)
203	Temp.schutzschalter Fördersystem (Pin 2-7) od. Trommelposition (Pin 2-7) / Temp. protection switch conveyor system (pin 2-7) or drum position (pin 2-7) / Interrupteur de protection contre la surchauffe du système d'alimentation (broches 2-7) ou position du tambour (broches 2-7)
204	Taste Messbetrieb / Switch, measuring mode / Touche d'activation de la mesure
205	Türkontakt / Door contact / Contact de porte
209	Hauptantrieb Drehzahl / Main drive, speed / Vitesse entraînement principal
210	Verbrennungsluft Drehzahl (Pin 1-2-3) / Combustion air speed (pin 1-2-3) / Vitesse de l'air de combustion (broches 1-2-3)
211	Saugzug Drehzahl (Pin 4-5-6) / Induced draught fan speed (pin 4-5-6) / Vitesse du tirage (broches 4-5-6)
212	Dichtschieber Position (Pin 1-2-3) & AUFZU (Pin 4-5-6) / Sealing valve position (pin 1-2-3) and OPEN/CLOSED (pin 4-5-6) / Obturateur position (broches 1-2-3) et OUVERT/FERMÉ (broches 4-5-6)
213	Primär-Luftklappe: AUFZU (Pin 1-5-9) / Position (Pin 3-7-11) / Sekundär-Luftklappe: AUFZU (Pin 2-6-10) / Position (Pin 4-8-12) / Primary air shutter: OPEN/CLOSED (pin 1-5-9) / position (pin 3-7-11) / Secondary air shutter: OPEN/CLOSED (pin 2-6-10) / position (pin 4-8-12) / Clapet d'air primaire : OUVERT/FERMÉ (broches 1-5-9) et position (broches 3-7-11) / Clapet d'air secondaire : OUVERT/FERMÉ (broches 2-6-10) / position (broches 4-8-12)

215	Unterdruck-Messdose 0-5 V _{DC} / Negative pressure sensor 0-5 V _{DC} / Boile dynamométrique de dépressurisation 0-5 V _{DC}
217	Rücklauf-Temp. / Return flow temp. / Temp. de retour
218	Kesselvorlauf-Temp. / Boiler forward flow temp. / Temp. de départ de la chaudière
220	Flamm-Temp. Stückholz / Flame temp. log wood / Temp. de la flamme bûches
221	Flamm-Temp. Pellets / Flame temp. pellets / Temp. de la flamme granulés
230	Freigabe Verbrennung (Ext. 1) / Release combustion (ext.1) / Activation combustion (Ext. 1)
231	Multifunktionaler Eingang (Ext. 2) z.B. Heizen auf Soll-Temp. 2 / Multi-function input (ext. 2) e.g. heating to setpoint 2 / Entrée multifonction (Ext. 2) par ex. le chauffage à la temp. référence 2
232	Freigabe d. Rauchsauger (gebügelt ausgeliefert) / Released by smoke extractor (delivered bridged) / Activation via l'absorbeur de fumées (livré shunté)
234	Externe Vorgabe SOLL-Kessel-Temp. / External specification SETPOINT boiler temp. / Consigne externe temp. de CONSIGNÉ chaudière
235	Kesselpumpe PWM 1 / Boiler pump PWM 1 / MLI pompe de la chaudière 1
237	Außen-Temp. / Outside temp. / Temp. extérieure
238	Puffer-Temp. 1 / Buffer temp. 1 / Temp. ballon tampon 1
239	Puffer-Temp. 2 / Buffer temp. 2 / Temp. ballon tampon 2
240	Puffer-Temp. 3 / Buffer temp. 3 / Temp. ballon tampon 3
241	Puffer-Temp. 4 / Buffer temp. 4 / Temp. ballon tampon 4
242	Puffer-Temp. 5 / Buffer temp. 5 / Temp. ballon tampon 5
243	Versorgung 24 V _{DC} GSM-Modul / Power supply 24 V _{DC} GSM module / Alimentation 24 V _{DC} module GSM
247	Kesselbus [IN] KPM #135 / Boiler bus [IN] KPM #135 / Bus chaudière [IN] KPM #135
248	Kesselbus [OUT] / Boiler bus [OUT] / Bus chaudière [OUT]
250	RS232 GSM-Modul / RS232 GSM module / Module GSM RS232

xxx ... Interne Anschlüsse / internal connections /
Raccordements internes
xxxx ... Externe Anschlüsse / external connections /
Raccordements externes

KPM/KSM CF2+

Plug list KPM/KSM - KWB Comfort 4 (symbol display)

Stecker Wärmemanagement-Modul [WMM] Plug, heat management module [WMM] Connecteur module de gestion thermique [WMM]

300	Versorgung 230 V _{AC} / Supply 230 V _{AC} / Alimentation 230 V _{AC}
301	Pumpe/Ventil Zweitwärmequelle / Pump/valve for secondary heating source / Pompe/vanne seconde source de chaleur
302	Solarpumpe 2 / Umschaltventil / Solar pump 2 / switchover valve / Pompe solaire 2/vanne de commutation
303	Solarpumpe / Solar pump / Pompe solaire
304	Zirkulationspumpe / Circulation pump / Pompe de circulation
305	Brauchwasserpumpe / DHW pump / Pompe du chauffe-eau
306	Zubringer- od. Pufferladepumpe / Supply or buffer charging pump / Pompe d'alimentation ou de charge
307	Mischer HK 2 / Mixer HC 2 / Mélangeur CC 2
308	Pumpe HK 2 / Pump HC 2 / Pompe CC 2
309	Mischer HK 1 / Mixer HC 1 / Mélangeur CC 1
310	Pumpe HK 1 / Pump HC 1 / Pompe CC 1
311	Anforderung Zweitwärmequelle / Secondary heating source request / Demande seconde source de chaleur
320	Zirkulation Taster / Circulation, push button / Touche circulation
322	Freigabe HK 1 / Release HC 1 / Activation CC 1
323	Freigabe HK 2 / Release HC 2 / Activation CC 2
327	Temp. Außen / Temp. outside / Temp. extérieur

328	Temp. Brauchwasserspeicher 1 / Temp. DHWC 1 / Temp. chauffe-eau 1
329	Temp. Zirkulation / Temp. circulation / Temp. circulation
330	Temp. Puffer 1 / Temp. buffer 1 / Temp. ballon tampon 1
331	Temp. Puffer 2 / Temp. buffer 2 / Temp. ballon tampon 2
332	Temp. Puffer 3 / Temp. buffer 3 / Temp. ballon tampon 3
333	Temp. Puffer 4 / Temp. buffer 4 / Temp. ballon tampon 4
334	Temp. Puffer 5 / Temp. buffer 5 / Temp. ballon tampon 5
335	Temp. Raum HK 1 analog / Temp. room HC 1 analogue / Temp. ambiante CC 1 analogique
336	Temp. Raum HK 2 analog / Temp. room HC 2 analogue / Temp. ambiante CC 2 analogique
337	Temp. Vorlauf HK 1 / Temp. forward flow HC 1 / Temp. départ CC 1
338	Temp. Vorlauf HK 2 / Temp. forward flow HC 2 / Temp. départ CC 2
339	Temp. Kollektor / Temp. collector / Temp. capteur
340	Temp. Vorlauf Solar / Temp. forward flow solar / Temp. départ solaire
341	Temp. Brauchwasserspeicher 2 / Temp. DHWC 2 / Temp. chauffe-eau 2
342	Temp. Zweitwärmequelle / Temp. secondary heating source / Temp. seconde source de chaleur
345	Solar Durchfluss- & Temperatursensor (Vortex) / Solar flow & temperature sensor (vortex) / Capteur de température et de débit solaire (Vortex)

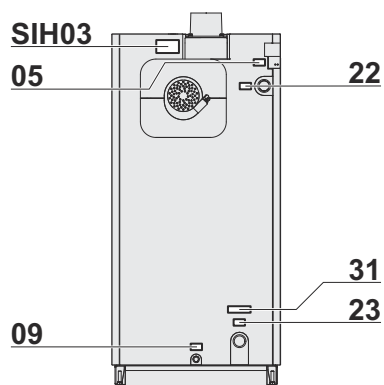
349	Solar PWM Signal Pumpe 1 / Solar PWM signal pump 1 / Signal MLI solaire pompe 1
350	Solar PWM Signal Pumpe 2 / Solar PWM signal pump 2 / Signal MLI solaire pompe 2
360	Hausbus [IN] – bleibt frei, wenn im Kessel verbaut / House bus [IN] – remains open if installed in the boiler / Bus domestique [IN] – reste libre si monté dans la chaudière
361	Hausbus [OUT] – Terminiert (120 Ω) ausgeliefert. Bei Bus-Weiterführung entfernen! / House bus [OUT] – delivered terminated (120 Ω). Remove in case of bus extension! / Bus domestique [OUT] – livré avec terminaison (120 Ω). Retirer en cas de continuation du bus !
362	Bediengerät 1 / Control unit 1 / Module de commande 1
363	Bediengerät 2 – gebügelt ausgeliefert / Control unit 2 – is delivered bridged / Module de commande 2 – livré shunté
364	Bediengerät 3 – direkt im Multifunktionsgehäuse! / Control unit 3 – directly in the multi-function enclosure! / Module de commande 3 – directement dans le boîtier multifonctions !
365	Verbindung zur LED-Reihe / Connection to the LED row / Connexion à la rangée de LED
366	Eingehende Busverbindung vom KPM (#136) / Incoming bus connection from KPM (#136) / Liaison bus entrante en provenance du KPM (#136)
367	RS232-Schnittstelle / RS232 interface / Interface RS232
368	Versorgung 24 V _{DC} / Supply 24 V _{DC} / Alimentation 24 V _{DC}

WMM CF2±

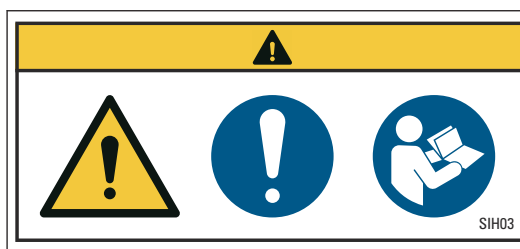
Plug list WMM - KWB Comfort 4 (symbol display)

1.3.4 Stickers on the rear side

Attach the following stickers to the casing:



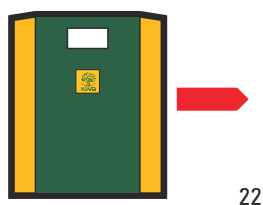
(SIH03)



Note regarding exhaust pipe and chimney connection:


Must be leak-tight and rising!
Must be built according to DIN 18160/2!
Follow the instructions!

**Forward flow
(22)**



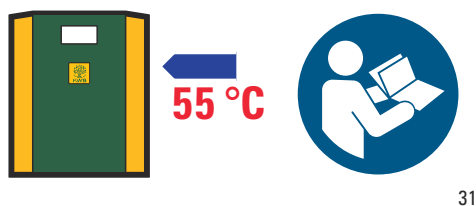
Forward flow

**Power supply
(05)**

230 V_{AC}
13 A —  **C**
05

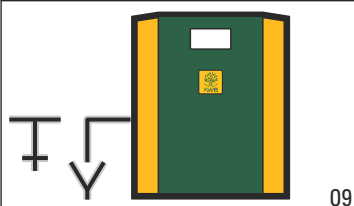
Power supply

**Return flow
boost
(31)**



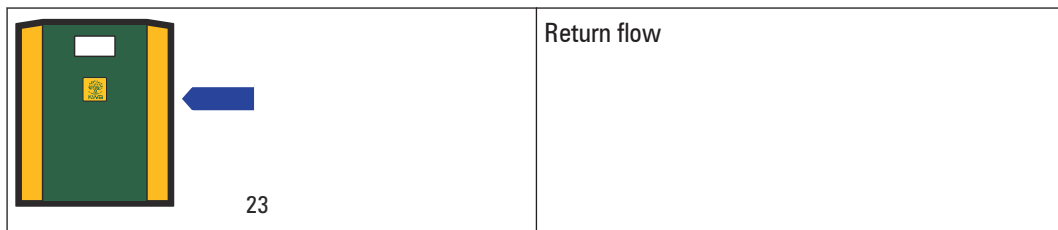
Observe information regarding the return flow boost!
Follow the instructions!

**Filling and emptying
(09)**



Filling and emptying

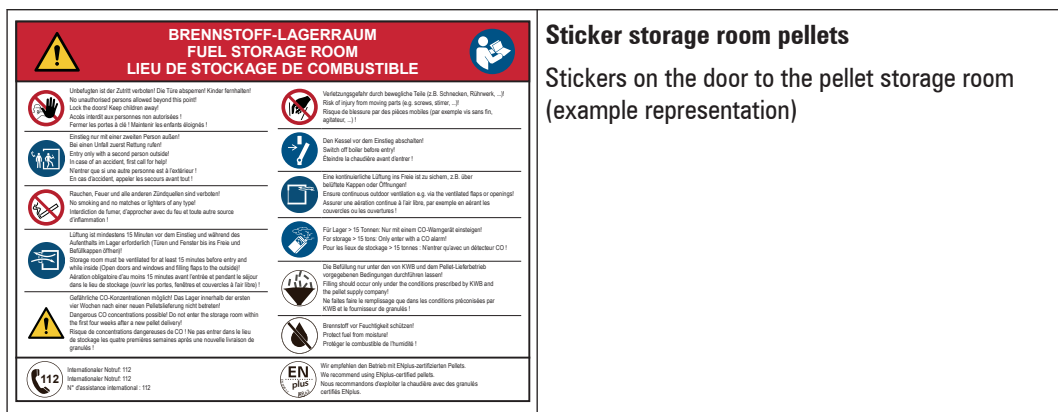
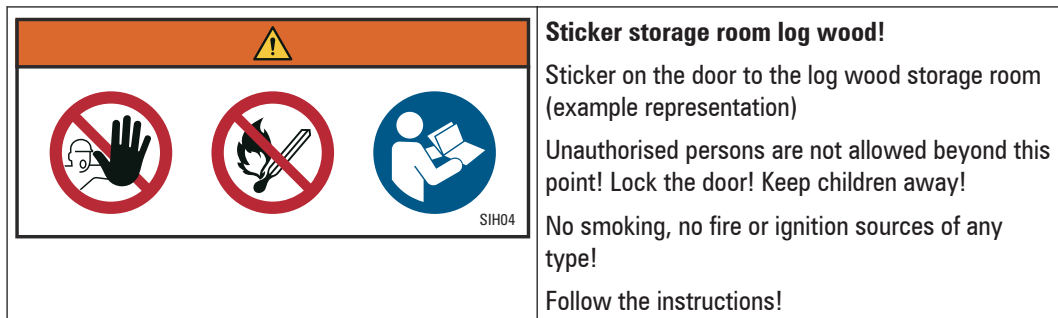
Return flow (23)



1.3.5 Stickers for the storage room

→ Always ensure that the storage room warnings are attached to the door of the storage room!

(SIH04)




1.3.6 Stickers on the injection connector

→ Please ensure that the following warning sticker is applied to the injection connector:



1.3.7 Type plate sticker

		Kraft und Wärme aus Biomasse GmbH A-8321 St. Margarethen/Raab, Industriestraße 235
Type Fuel extractor	KWB Powerfire type TDS 300 with E-Filter	
SN Year	000-1234567/0 2020	
Fuel	wood pellets C1 (EN 303-5), A1 (ISO 17225-2)	
Rated thermal output (RTO)	300.0 kW	
min. thermal output	73.5 kW	
Fuel thermal output at RTO	317.8 kW	
max. operating pressure	3.5 bar	
max. operating temperature	90 °C	
Permitted temperature	95 °C	
Water content	610.0 Ltr	
Max. allowed power input	5100 W	
Electrical connection	3+N 400 VAC 50Hz 16 A	
Test standard boiler class	EN 303-5 5	
CO at rated power	34 mg/m³ (13% O₂)	
Dust at rated power	9.7 mg/m³ (13% O₂)	
VKF-NR	18889	

Type plate example

You will find the type plate with the instructions attached to one of the cover sheets.

→ Attach the type plate to the boiler casing in a **visible location**.

This sticker is absolutely required for the operating permit!

2 Before you begin

2.1 Screw connections, dimensions

Take the following information into account during the entire assembly process:

Information on screw connections

Generally, we use hexagonal nuts with flange for fastening. You can also first use a washer, then a lock washer and then a nut.

Information on dimensions

All dimensions are provided in millimetre (mm) unless specified otherwise.

2.2 Bringing in the parts

The basic structure (combustion chamber, heat exchanger and combustion room module) is delivered pre-assembled on a palette.

- Avoid damage caused by strong vibrations and shocks:
The refractory bricks might fracture!
- Handle the packing units with care:
The casing parts are easily scratched!

2.2.1 Door width

The following door widths are required to move a KWB Combifire into the room:

Unobstructed door width

KWB Combifire 18–38 kW		
Door width at least	Without casing, pre-assembled	71.5 cm
	Without casing, dismantled	70 cm
	With casing	80 cm
Door height at least	Always	180 cm

2.2.2 Weights



WARNING

Fatal crushing (pulled muscles) caused by heavy components! Inappropriate lifting/transporting can lead to fatal injury and serious damage to the equipment.

- **Only trained staff** may lift/transport heavy components!
- **Keep the component weight in mind – handle accordingly:**
 - Verify transport securing devices BEFORE lifting / transporting!
 - Keep the centre of gravity in mind - always secure components to prevent slipping and tilting!
 - Select stable bases, suitable tools and assistance from staff!
 - Lift with your back straight, NOT too heavy.
 - Use your personal protection equipment[PSA].
 - In difficult areas ensure that people and system are safe!

Components with a weight of more than 25 kg

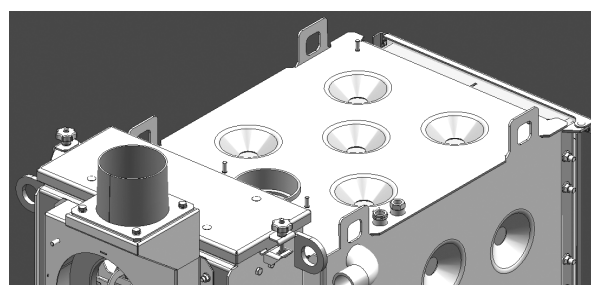
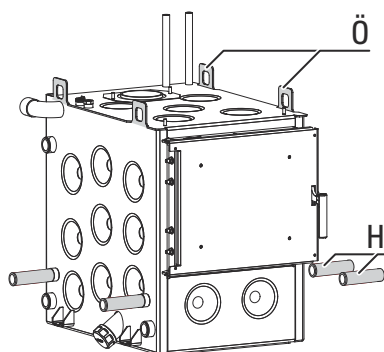
KWB Combifire 18-38 kW	Weight type CF1.5	Weight type CF2
Fill room module	224 kg	221 kg
Heat exchanger module	108 kg	108 kg
Combustion room module	273 kg	273 kg
Pellet module	130 kg	130 kg

The total weight of the KWB Combifire type CF1.5 is 852 kg.

The total weight of the KWB Combifire type CF2 is 849 kg.

2.2.3 Complicated positioning

The KWB Combifire is delivered on several palettes and can be lifted from the palette with a lifting truck with the help of formwork panels or at least 3 lifting jacks.



Ö Hoisting lug

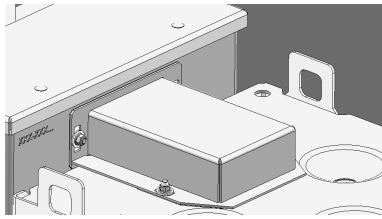
H Lifting aid (Not included in the scope of delivery)

Crane

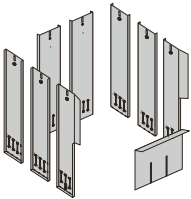
The boiler is prepared for being transported into the room with the help of a crane. The basic structure has 6 lifting lugs: 4 lugs at the combustion chamber and 2 more lugs at the heat exchanger.

The basic structure can be dismantled if it is NOT possible to move the basic structure consisting of fill area, heat exchanger, combustion chamber module into the boiler room (too heavy, too wide, too high ...).

Disassemble the suction channel



- Remove the 2 screws at the rear (2x M8) to the heat exchanger module.
- Remove the 2 screws (2x M8) to the fill room module.
- Remove the suction channel.

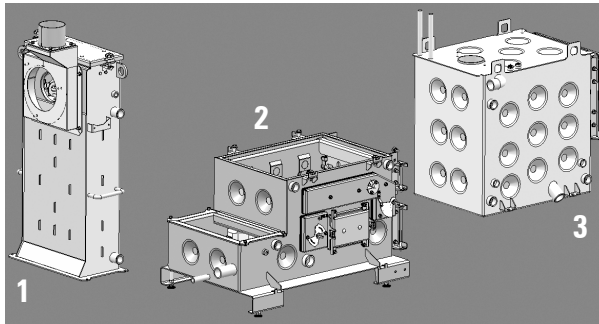


Remove the combustion chamber lining

- Remove the cable ties at the doors.
- Open the fill room door and remove all combustion chamber lining parts.

Tip: Insert a screw driver into the opening under the hook, lift the plates up and unhook them.

Separate the modules



1	Heat exchanger module	2	Combustion room module	3	Fill room module
---	-----------------------	---	------------------------	---	------------------

- Remove the screw connections between the combustion chamber module (2) and heat exchanger module (1) (4x M8x20 + nut).



WARNING

Fatal injuries from heavy components!

- Use appropriate hoisting equipment. Keep the centre of gravity in mind.
- Make sure to secure components against sliding and tipping!

- Lift the heat exchanger module (1) off the combustion room module (2).
- Remove the screw connections between the combustion chamber module (2) and fill room module (3) (4x M10x45 + nut + 2 washers each).
- Lift the fill room module (3) off the combustion room module (2). For this, use the four optional available pipes as lifting aids (can be ordered from KWB using article number 18-1010090)!

Assembly

- Put the modules back together in reverse order after placing them in the room.

Note: In type CF1.5, you no longer need to install the combustion chamber lining (see section **Replace hook-in plates of the combustion chamber lining in the CF1.5** [► 29]).

2.3 Temporary storage

If the installation is carried out at a later point in time:

→ Store the components dust-free and dry at a protected location

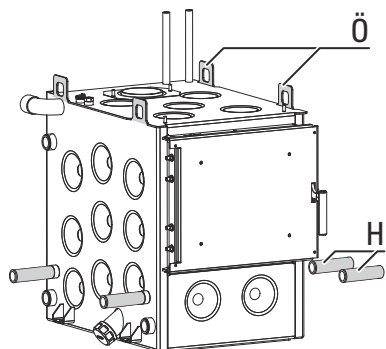
Note: Humidity and frost may damage the components, particularly electrical parts!

2.4 Tools

Supplied tools

NO tools are supplied.

Required tools (NOT supplied):



- Pipes are supplied as a lifting aid (H) for the transport of the substructure and the lifting of the fill room module and can be ordered at KWB under article number 18-1010090.
- Lifting truck
- Tip: Assembly lever, e.g. Jenni Rollfuss (<http://www.jenni.ch>)
- Spirit level, length > 80 cm
- Cross-head screwdriver
- Slotted screwdriver
- Torx T10 screw driver
- Torx T25 screw driver
- Hex wrenches in sizes 8, 13, 15, 17, 19 — as open-end wrench, socket wrench and screwdriver
- Extension bar from the socket wrench set
- Set of hex wrenches
- 2x pipe wrenches – or open-end wrench sizes 36 and 54
- Rubber mallet
- Silicone and silicone gun
- Cutter (knife)
- A cordless screwdriver is recommended.

2.5 Placement

2.5.1 Dimensions, clearances

NOTE

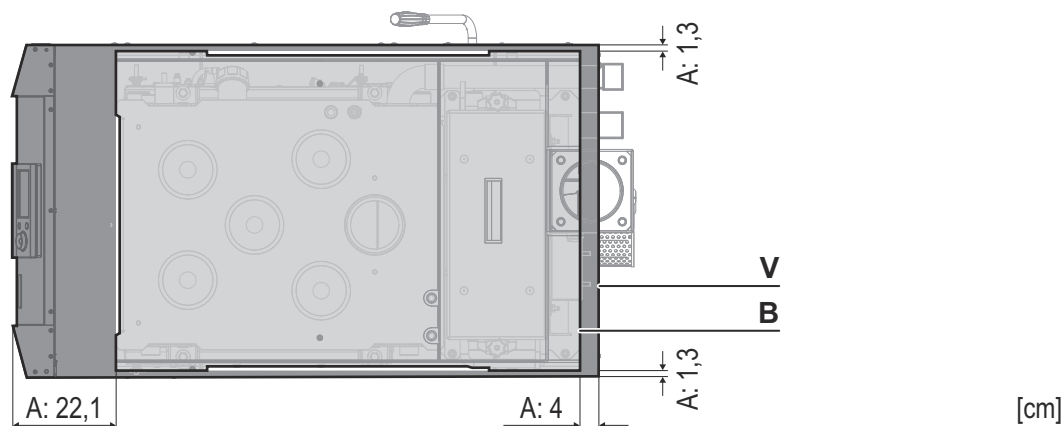
Ensure sufficient space for maintenance!

In the event of installations **ABOVE** the heat exchanger space:

→ Ensure a maintenance area with a distance of at least 30 cm to the installations!

If you place the basic structure flush to a wall ...

→ Install the casing parts before you move the boiler to the wall.

Placement of the basic structure without casing

V	Boiler casing	A	Distance between casing and base plate
B	Base plate		

→ You must take into account the internal distance (A) between casing and base plate!

→ Add these internal distances (A) to the required distances of the installation dimensions!

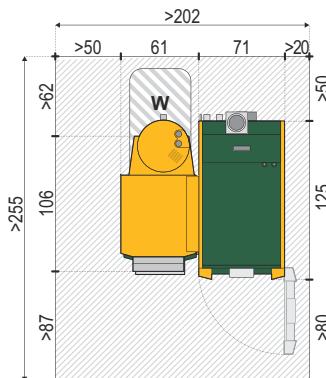
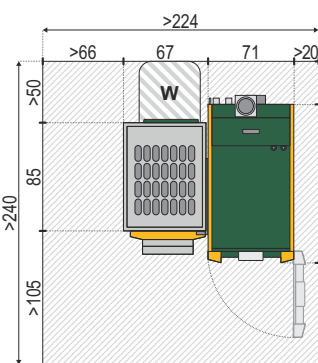
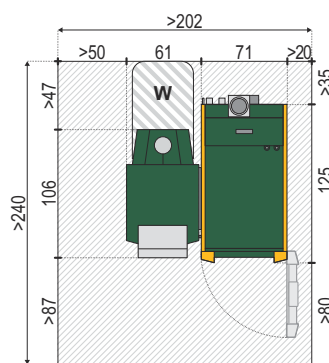
→ Label the boiler position in the room.

Installation dimensions

Installation dimensions KWB
Combifire type CF1.5 | CF2 S
18/28/32/38 kW

Installation dimensions KWB
Combifire type CF1.5 | CF2 S
18/28/32/38 kW with 300 l storage tank

Installation dimensions KWB
Combifire type CF1.5 | CF2 GS
18/28/32/38 kW



M: The space required for doing maintenance on the KWB Pellet Module.

3 Prepare boiler

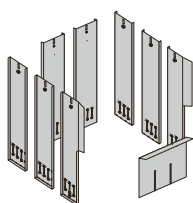
Note: You will find the parts for the inspection glass and the required handles inside the combustion chamber module!

- Remove the cable ties (transport securing device) at the doors.
- Remove the box.

3.1 Replace hook-in plates of the combustion chamber lining in the CF1.5

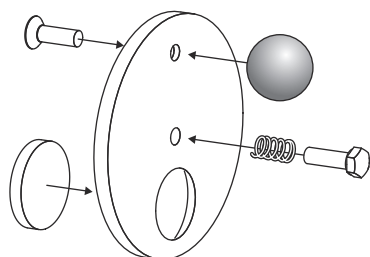
Note: The following steps only need to be carried out in type CF1.5!

Note: You will find the hook-in plates for the CF1.5 in two boxes on the palette with the accessories.



- Open the fill room door and remove all combustion chamber lining parts.
 - ↳ **Tip:** Insert a screw driver into the opening under the hook, lift the plates up and unhook them.
- Now hook in the hook-in plates for the CF1.5.

3.2 Install the inspection glass slider



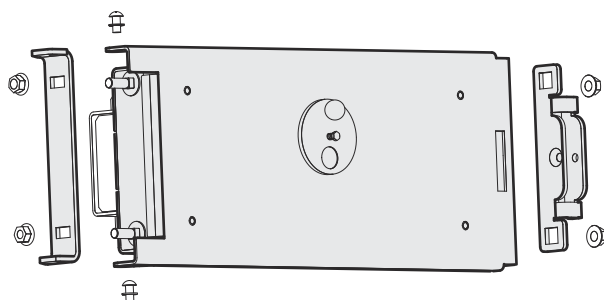
Note: You will find the parts for the inspection glass slider in a box in the combustion chamber module.

- Install the inspection glass slider on the combustion chamber door as illustrated.
- Screw in the screws in the middle (M5x16) so that only 5 mm project.

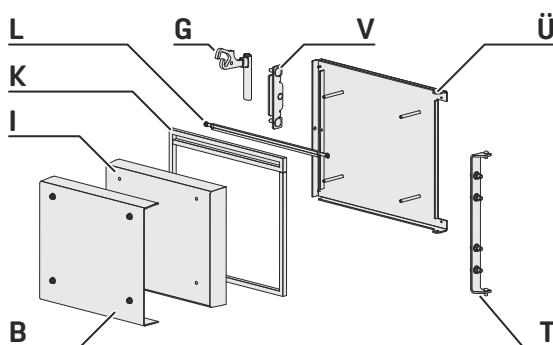
3.3 Prepare the door and install it

Note: You will find the door handles in a box in the combustion chamber module.

- ↳ The doors are factory-fastened on the right.
- Carry out the following steps if you wish to fasten the door on the left.
- Remove the door fasteners (2× bolts + axle locking ring each) and remove the door.

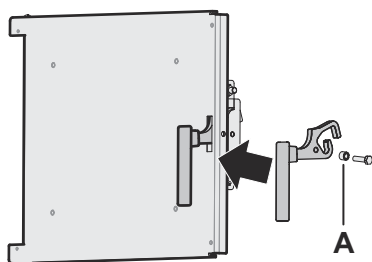
Reconfigure the doors

- Unscrew the hinge and the locking strip.
- Turn the door 180° and reinstall the parts.

Fill room door

L	Slat (used as a spacer)	G	Door handle
K	Ceramic fibre cord	V	Locking strip (2x M10)
I	Insulation	Ü	Door leaf
B	Retaining plate (4x M8)	T	Hinge (4x M10)

- Dismantle the fill room door (see graphic).
- Turn the following construction elements 180°:
 - Door leaf [Ü]
 - Ceramic fibre cord [K] and strip [L]
 - Locking strip [V] and hinge [T]
- Put the construction elements back together.
- The strip [L] must be on top: It serves as a spacer in the carbonisation duct area.

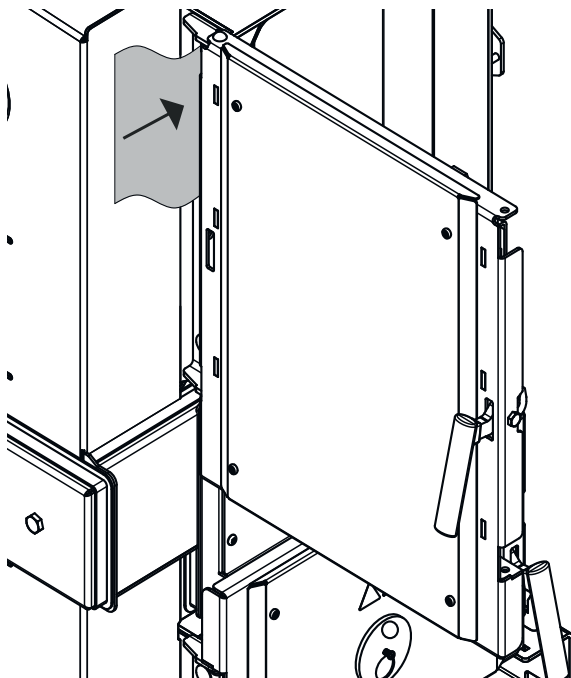
Mounting the door handles

- You must take the spacer [A] into account.
- Manually tighten the door handles such that they still have ease of movement.
- Install the doors and secure the bolts with axle locking rings.

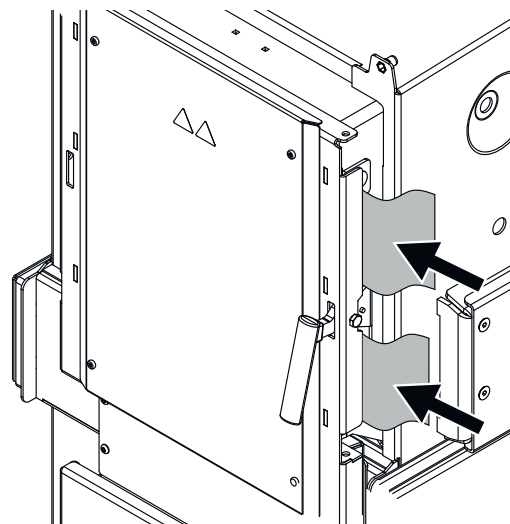
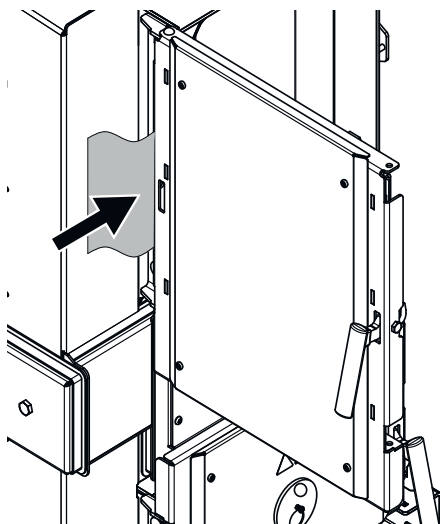
3.4 Checking the seal of the doors

Note: Perform a tightness test for the 3 inner doors. The door tightness test is shown below using the fill room door as an example. Perform the same steps when checking the tightness of the two other doors!

- Push a piece of paper between door and boiler (at the side of the door hinge in the upper part of the door).

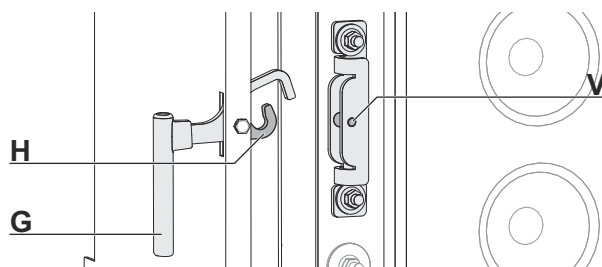


- Close the door.
- Try to pull out the sheet of paper.
 - ↳ If the sheet cannot be pulled out:
Door is tight and correctly adjusted!
 - ↳ If the sheet can be pulled out:
Door is not sealed tightly and must be newly adjusted!
(See section: **Configuring the door** [► 32])
- After adjusting the door, check its tightness again.



- Repeat the same approach at the door hinge side in the lower part of the door and on the door handle side.

3.5 Configuring the door



- Close the doors such that the latch [H] of the door handle [G] touches the lock [V].
- Rap the door on the side where the stop is, fully in direction of the boiler and then tighten the screws.
- Fully close the door and, if necessary, adjust the lock [V] until the pressure on the sealing is even on all sides.
- Check the contact pressure on the doors: There must be a noticeable resistance when you are closing the door.
- Loosen the screw connections, if required, and correct the door position.

Note: Make sure the doors are aligned fully horizontally!

Note: It is very easy to adjust the 3 boiler doors if one of them chafes at the top or bottom boilerplate. Loosen one of the hexagon socket screws at the hinge, lift or lower the boiler door in relation to the hinge and then re-tighten the screw.



4 Mounting the boiler

4.1 Placing the basic structure

NOTE

Placement flush to the wall

- If you place a system flush to a wall such that you will no longer have access to the right side of the system, you will have to **change the installation sequence!**
- In this case you must install the casing casing parts, before you place the boiler in its final position.

Distances to its surroundings

Adhere to the distances specified in section **Placement [► 27]** – This way, you will later have more space for the operation and maintenance of the system!

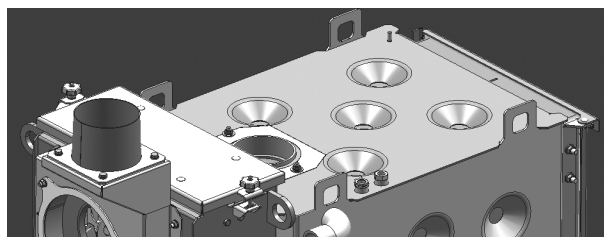
- Place the basic structure in the boiler room at the intended position.

Align

NOTE

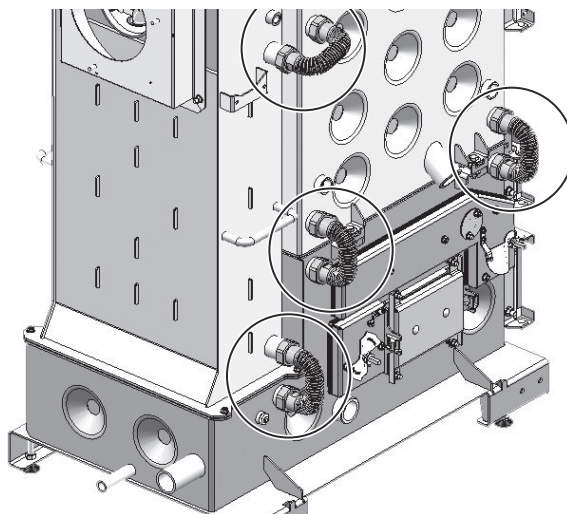
Possible accumulation of air

- Make sure that the boiler is positioned completely horizontally.
- ↳ If its positioning is off, it is possible that undesired air accumulates inside the boiler and may have a detrimental effect on the proper functioning of the boiler!



- Use the 4 hoisting lugs as support points for the spirit level.
- Put the basic structure in a horizontal position: The base plate has been equipped with set screws (M12) for this purpose. Make sure to grease the threads of the set screws to prevent abrasion. Secure (lock) the position with a second nut.

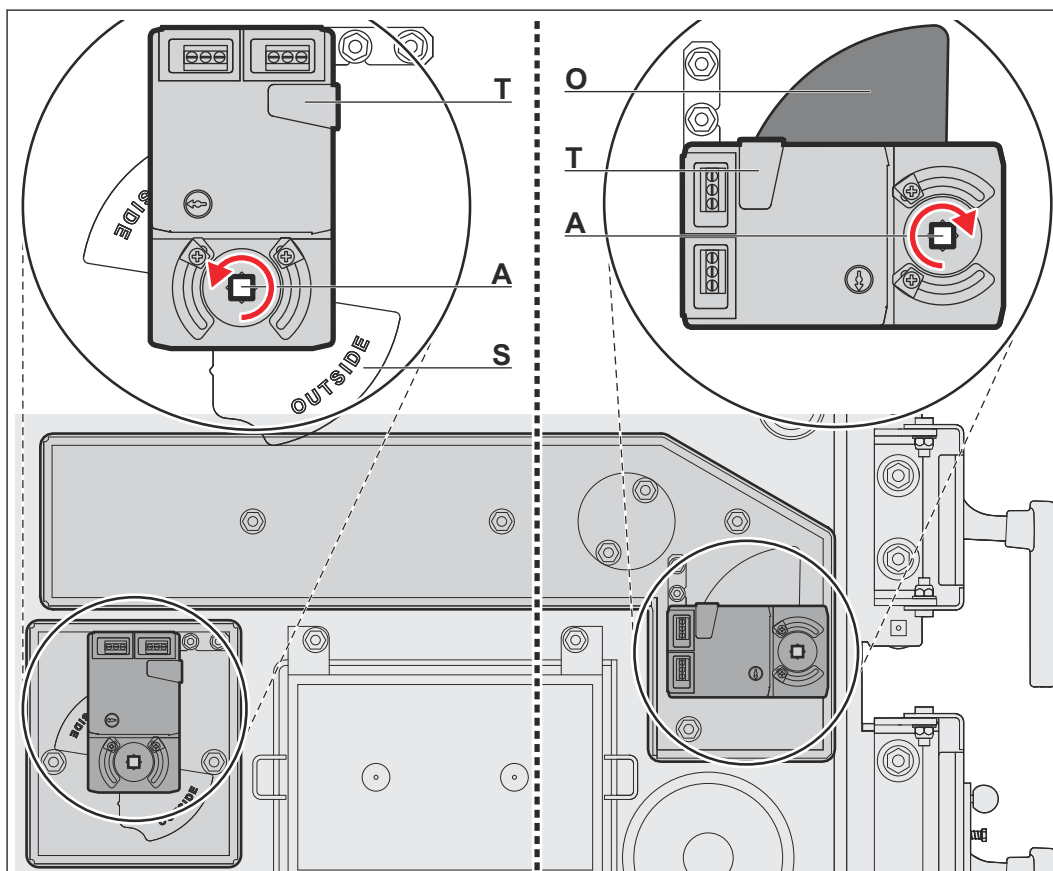
4.2 Attach the corrugated pipes



- Remove the plastic caps from the connecting pipes.
- Place the 4 corrugated pipes including seals individually as indicated and screw these together as follows:
- Place the seals respectively on the two connecting pipes and install the two corrugated pipes by manually tightening them.
Attention: Do not grease the seals!
- Fasten the union nuts with a pipe wrench.
Attention: Do not use a counter grip!

Attention: The connection must be leak-tight!

4.3 Mounting the servomotors



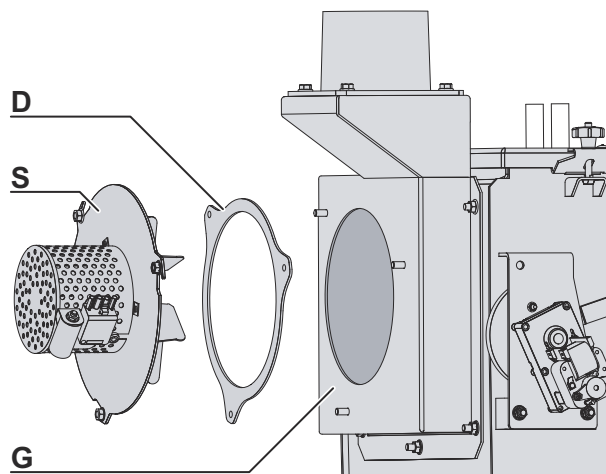
Secondary air Plug number #42		Primary air Plug number #41	
T	Safety release button	A	Shaft support
S	Label [Outside] must be outside!	O	Opening

→ Press the safety release button (T).	
→ Turn the shaft support (A) counter-clockwise to the stop.	→ Turn the shaft support (A) clockwise to the stop.
→ Using pliers turn the air shutter shaft counter-clockwise until the opening (S) is closed.	→ Using pliers turn the air shutter shaft clockwise until the opening (O) is closed.
→ Slide the servomotors onto the shafts and hook them in at the torque support.	
→ Tighten the nuts of the torque support.	

Note: The front shutter (closer to the boiler door) is the primary shutter!

For information regarding cabling see section **Establish the cable connections** [► 46].

4.4 Mounting the induced draught fan



→ Slide the seal (D) onto the bolt of housing (G).

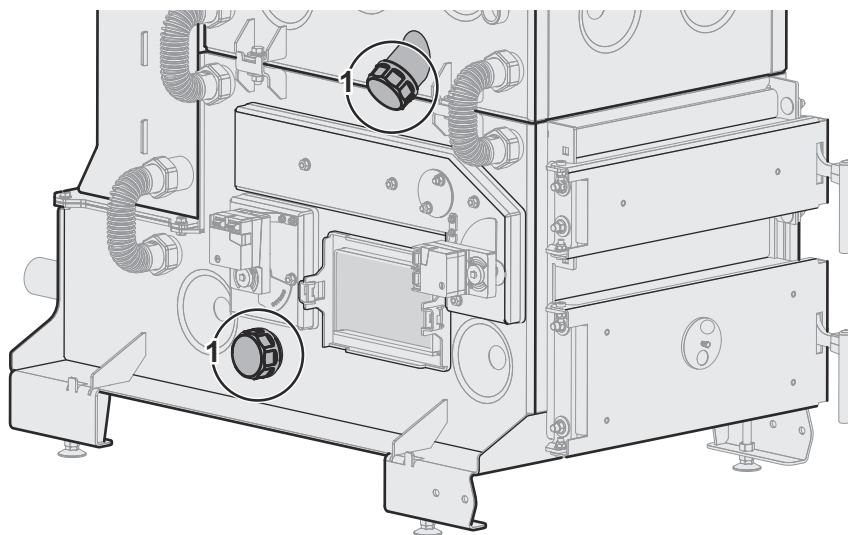
→ Screw the induced draught fan (S) to the housing (G) – 3 × M8 nuts.

For information regarding cabling see section **Establish the cable connections** [► 46].

4.5 Preparing the pellet module

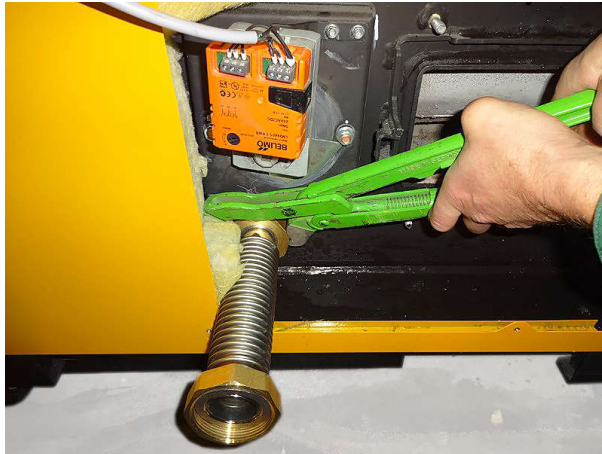
4.5.1 Preparing the water connection

The KWB Pellet Module is water-jacketed and must be hydraulically connected with the boiler.



→ Unscrew both sealing caps from the connector pieces [1].

Use a pipe to create a pipe wrench extension if the seal caps are stuck.



→ Install the supplied corrugated pipes including flat seals on both connector pieces [1].
Make sure that the union nuts are sufficiently tightened to ensure a reliable leak-proof connection!

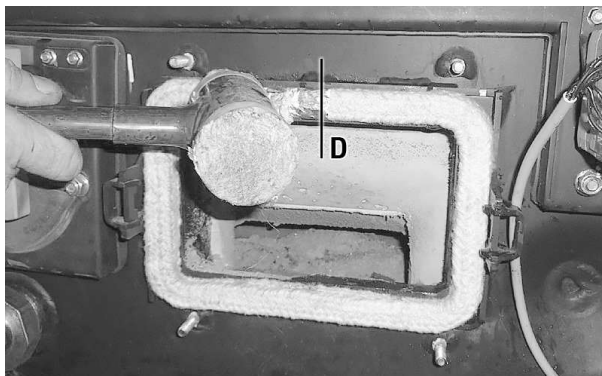
Attention: Do not lubricate the seals!

Attention: Do not hold!

Attention: The connection must be leak-tight!

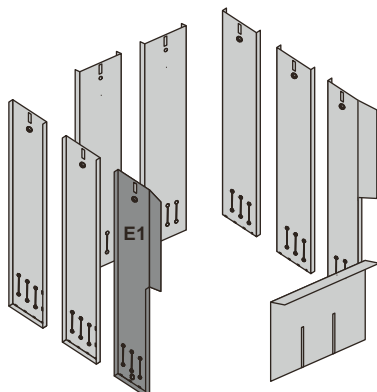
4.5.2 Preparing the flange

→ Install the supplied sealing cord on the flange. Start in the top middle [D].

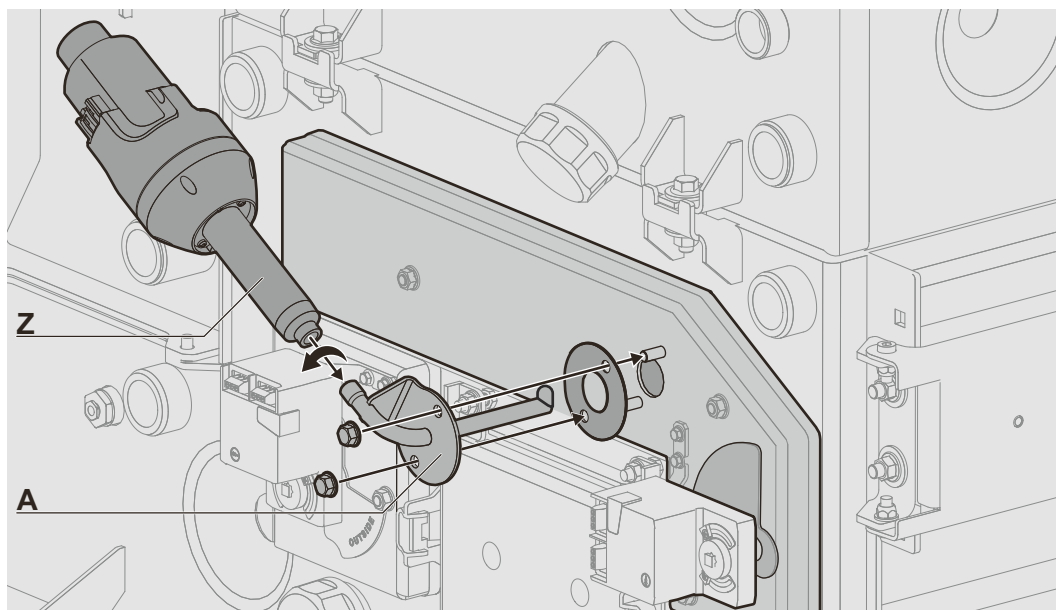


→ Using a rubber mallet carefully hammer the sealing cord into the frame.

4.6 Option: Automatic ignition

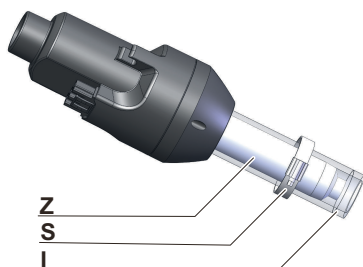


→ Remove the hook-in plate (E1) in the combustion chamber.



[Z]	Ignition fan	[A]	Ignition pipe
-----	--------------	-----	---------------

- Remove the cover [A] of the primary air duct.
- Select the appropriate ignition pipe:
 - The ignition pipe for type CF2 can be found in the same box as the ignition fan.
 - The ignition pipe for type CF1.5 can be found on the palette with the accessories.



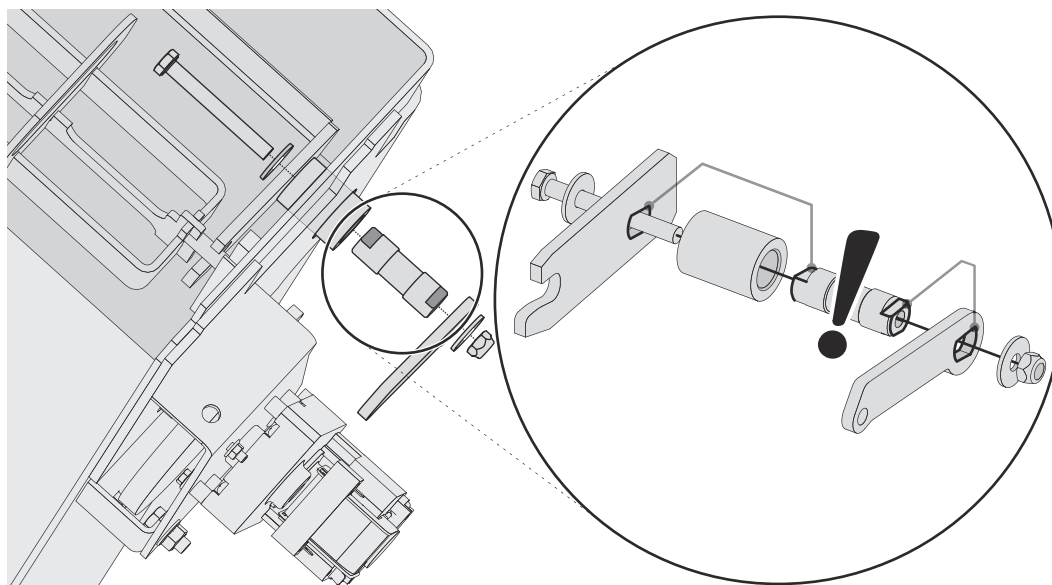
- Slide the supplied insulation [I] onto the ignition fan [Z] and fasten the insulation with a hose clamp [S] on the ignition pipe neck.
- Screw the ignition fan onto the ignition pipe.
- Install the ignition fan and ignition pipe as illustrated with the supplied seal.
- Reinstall the hook-in plate in the combustion chamber lining.

Note: To prevent that the hook-in plate slides in front of the ignition pipe, the pipe was equipped with a protrusion that keeps the hook-in plate in its position.

For information regarding cabling see section **Establish the cable connections** [► 46].

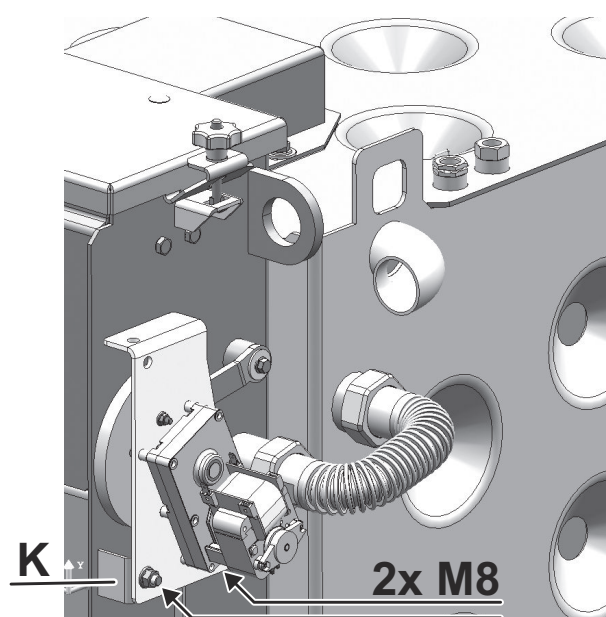
4.7 Installing the automatic heat exchanger cleaning

- Remove the maintenance cover above the heat exchanger.
- Insert the drive shaft through the opening in the maintenance cover on the side until the shaft no longer turns freely.



Please note the flattened parts in the assembly, only then the heat exchanger cleaning will work properly!

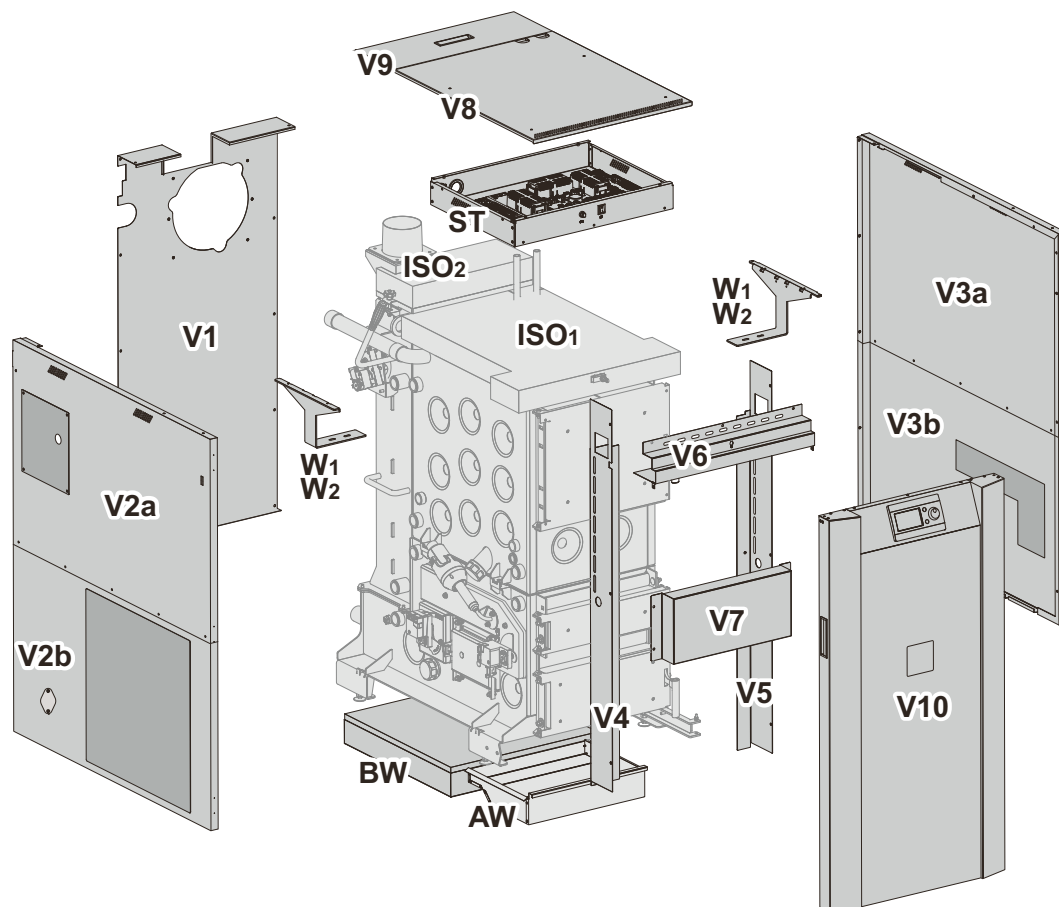
- Insert the long screw with a washer into the drive shaft in the heat exchanger area.
- Fasten the shaft on the outside with a washer and an M8 nut.



- Mount the components of the automatic heat exchanger cleaning on the respectively provided bracket [K] (2x nuts M8).
- Replace the maintenance cover on the heat exchanger.

For information regarding cabling see section **Establish the cable connections** [► 46].

4.8 Mounting the casing – Part 1



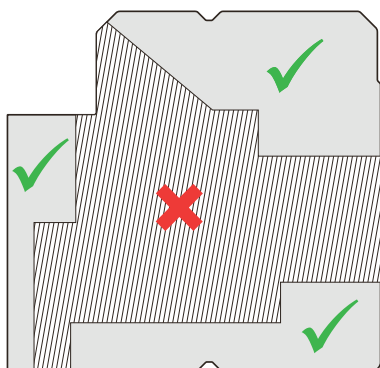
Note: The maintenance opening [V2a] is only used in the KWB Classicfire, in the KWB Combifire it must be removed.

Removing insulation

The boiler is delivered with a continuous insulation, which has pre-cut openings in a few places.

→ Using a knife, cut out the insulation as shown in the picture.

The insulation will be later put back in most places – DO NOT dispose of the pieces!

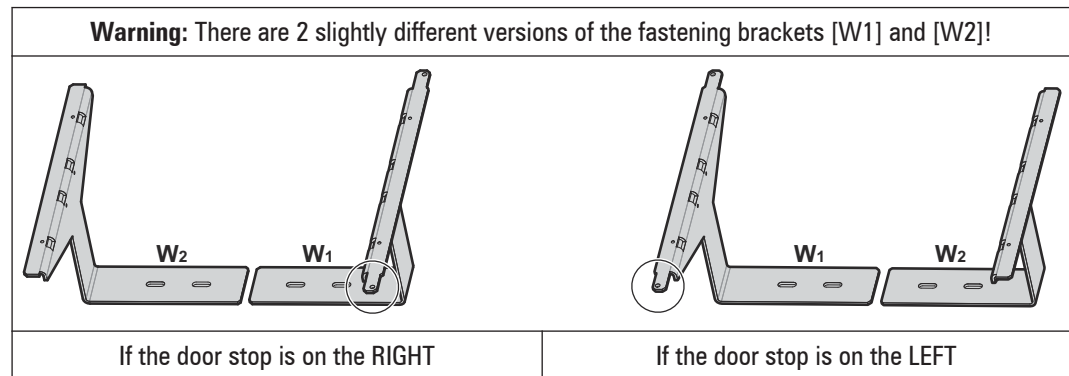


✓	Insulation remains	X	Remove insulation
---	--------------------	---	-------------------

Additional areas:

- Motor for automatic heat exchanger cleaning
- Corrugated pipes

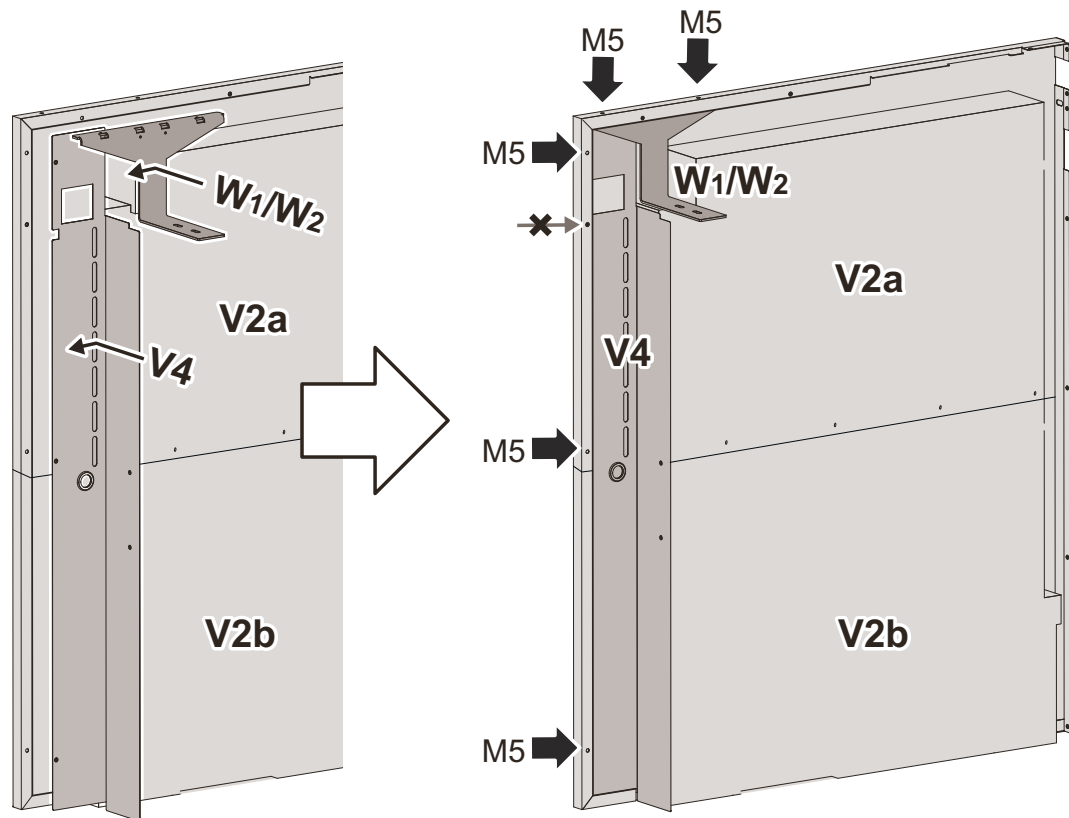
Fastening bracket for door stop



Keep in mind that the door is hung into the fastening bracket WITH the tabs at the ends (see graphics). (These installation steps are described in section **Installing the casing door** [► 47].)

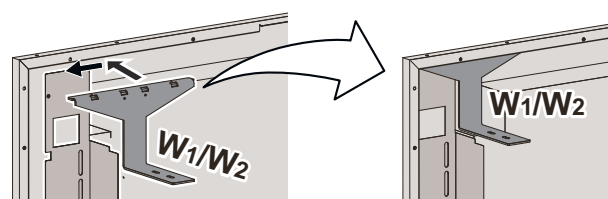
Side casing

Left



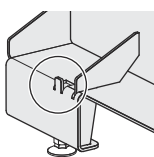
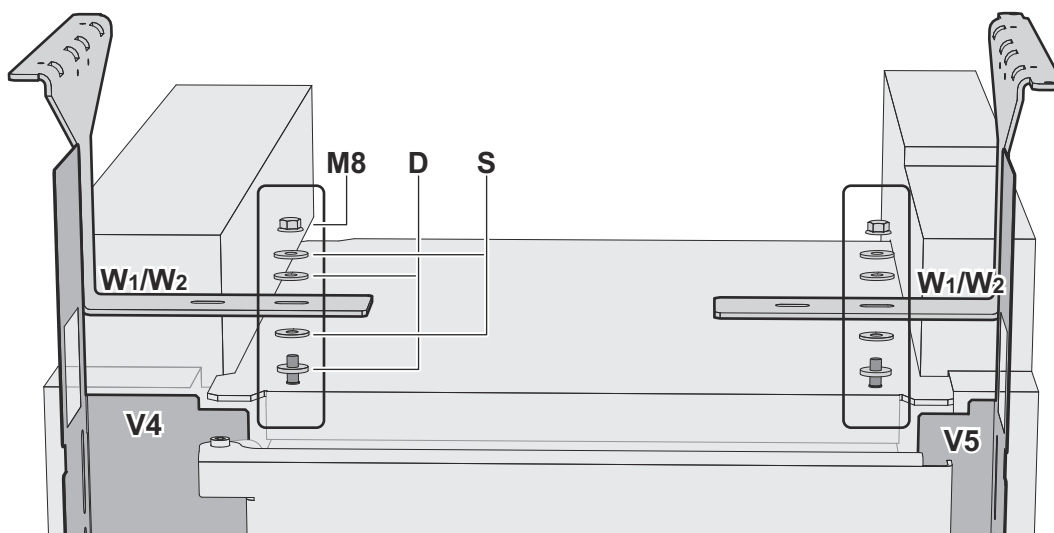
→ Screw together the 2 casing parts ([V2a] and [V2b]) of the left side casing using 6 [M5] screws.

→ Insert the left blind [V4] as shown with 3 screws [M5] into the frame of the left side casing [V2a] + [V2b].



- Insert – depending on the side where the stop is – the fastening bracket [W1] or [W2] into the frame of the left side casing [V2a]: Thread the angle first under the sheet and then push it to the left.
- Fasten the angle with 2 [M5] screws.
- Repeat these steps analogously with the 2 right casing parts ([V3a] and [V3b]) and with the right blind [V5] and the remaining angle with the right-side casing [V3a].

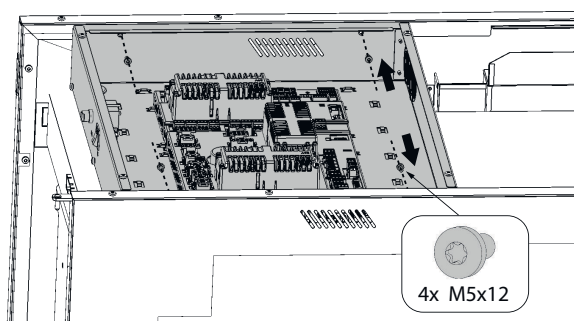
Right



- Insert one acoustic insulating disc [D] each and one washer [S] onto the two studs on top of the boiler (image).
- Insert the complete side parts onto the studs on the floor plate (left graphic representation)
- Bring the two completed side parts including fastening brackets into a horizontal position and place them each on the studs at the boiler: **Please note the different hole positions!**
- Place one acoustic insulating disc [D] and one washer [S] each on the two studs and manually fasten the two brackets with a nut [M8].

Installing the control box

- Place the insulation [ISO1] on top of the fill room module.
- Turn the control box [ST] so that the switch is in **front**.

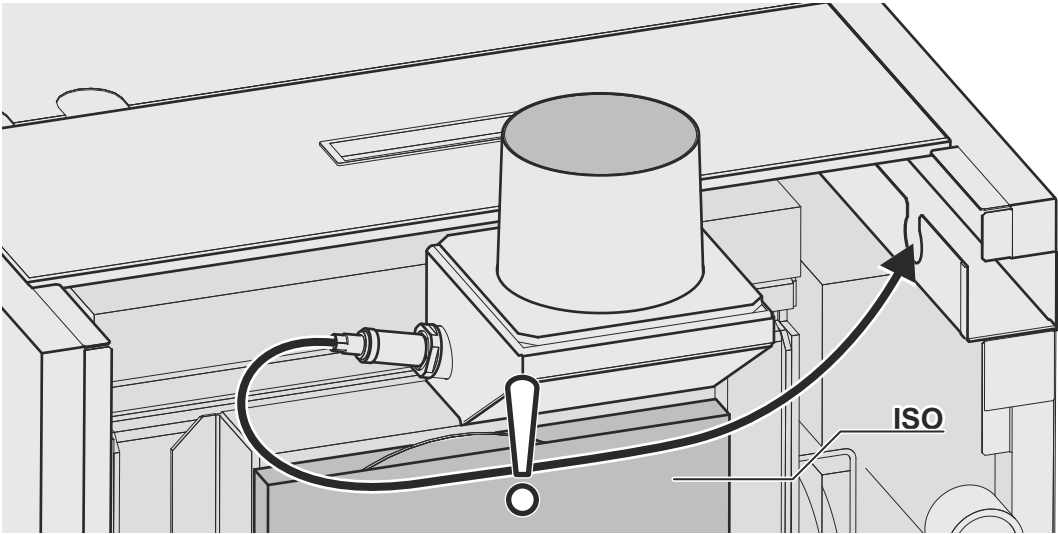


- Place the control box [ST] on the boiler and connect the control box with the side casings [V2a] and [V3a] using 4 M5 screws.

Tip: During the installation work, make sure to protect the casing parts on top with cardboard.

4.9 Close the back

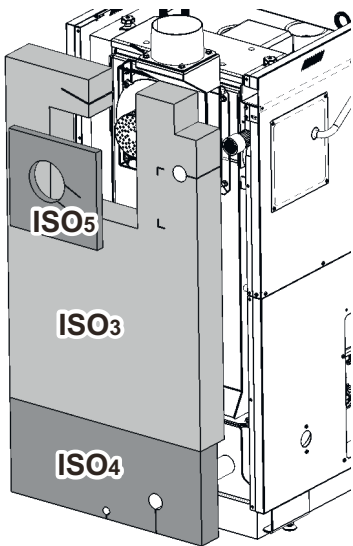
Lambda sensor



- Run the lambda probe cable as illustrated behind the exhaust gas box **outside the insulation** [ISO].
- Run the extension cable from the control box to the back to the cable duct.
- Screw in the lambda probe hand-tight into the plastic socket.
- Connect the extension cable with the lambda probe cable.

Conne- tor	Pins	Description	Function
200	6	6-pole connection sensor	Lambda probe

Insulation

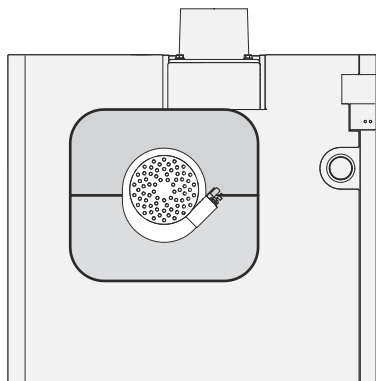


- Install the 3-part insulation at the rear:
 - Insulation top [ISO3]
 - Insulation bottom [ISO4]
 - Insulation induced draught [ISO5]

Casing

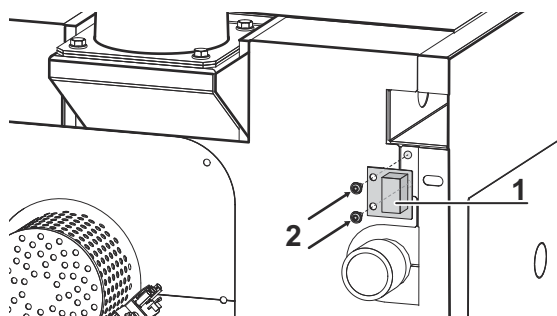
- Install the back [V1] (unvarnished metal plate) using 12 M5 screws in the rear and 2 M5 screws on top.

Induced draught



- Mount the two parts of the frame around the induced draught.

4.9.1 Installing the power supply plug

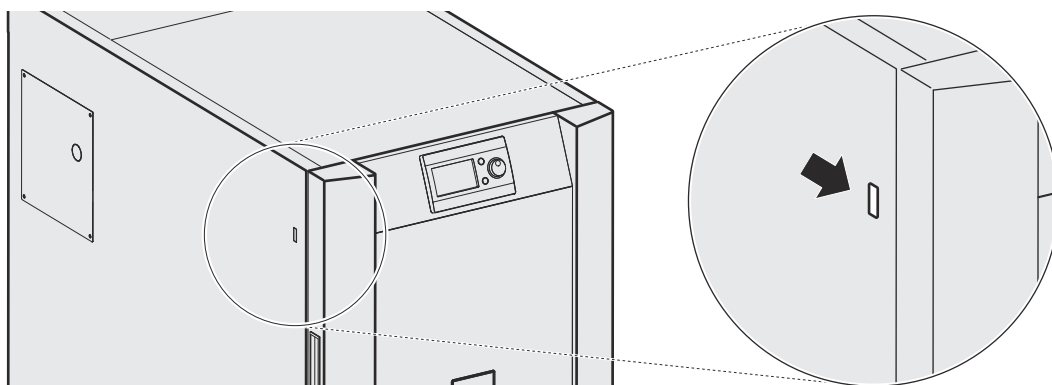


Cable routing

- Run the cables including plug and metal plate from the control cabinet into the cable duct to the rear.
- Mount the plug including the metal plate with 2 screws to the rear of the boiler [2].

Connector	Pins	Description	Function
100	5	3-pole power supply 230 V _{AC}	Boiler power supply (L1 to L3 bridged)

4.10 Installing the measuring mode switch



- Remove the metal sheet at the pre-cut breaking point in the upper part of the side casing. Deburr the edges, if necessary.
- Install the measuring mode switch.
- Route the cable from the measuring mode switch through the grommet at the bottom from below into the control cabinet.

Conne- tor	Pins	Description	Function
204	2	2-pole connection, push button	Measuring mode switch

4.11 Mounting the sensors



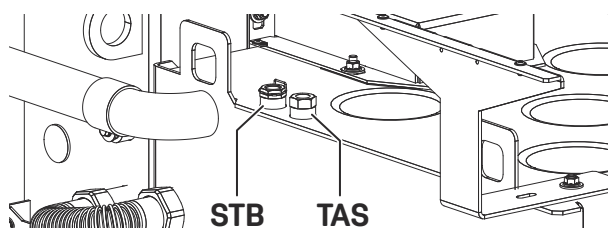
CAUTION

Damage to cables due to hot surfaces

- Use the existing cable ducts to run the cables.
- Always run cables outside of the thermal insulation!
- Always prevent the cables from contacting hot surfaces.

4.11.1 Safety temperature limit sensor and boiler temperature sensor

These two immersion sleeves are located on the top of the fill room module.



TDV: Immersion sleeve for the thermal discharge valve.

STL

- Run the capillary tube of the safety temperature limiter through one of the grommets in the control box to the rear into the immersion sleeve [STB].
- Slide the boiler temperature sensor into the same immersion sleeve [STB].
- Carefully secure the capillary tube and sensor with the clamp.

TDV

- The immersion sleeve [TAS] for the sensor for the thermal discharge valve will only be used when the boiler is integrated into the hydraulic system and is left unused for the moment!

Conne- tor	Pins	Description	Function
111	2	2-pin digital input 230 V _{DC}	Safety temperature limiter (STL)
218	2	2-pole connection sensor PT1000	Boiler forward flow temperature

4.12 Establish the cable connections

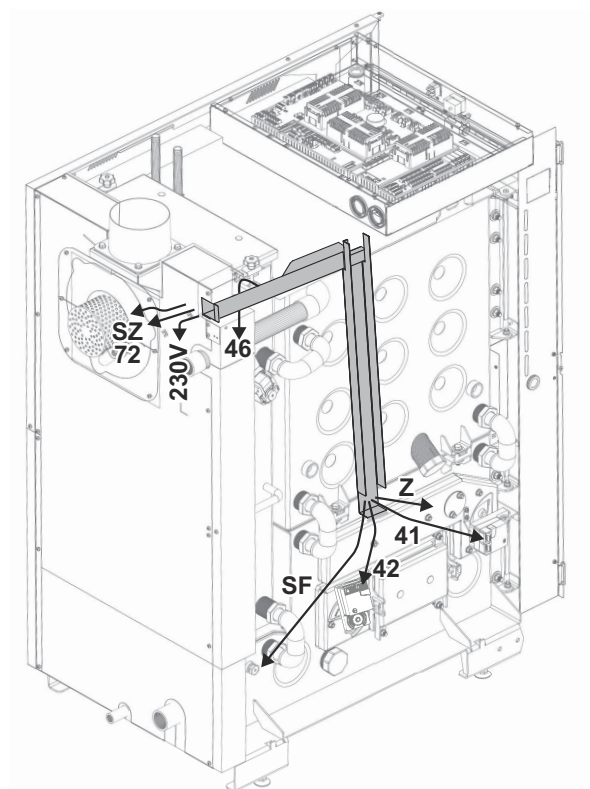


CAUTION

Damage to cables due to hot surfaces

- Use the existing cable ducts to run the cables.
- Always run cables outside of the thermal insulation!
- Always prevent the cables from contacting hot surfaces.

Cable ducts



[SZ] 72	Induced draught: power supply and speed monitoring		
46	Heat exchanger cleaning system		
[Z]	Ignition rod	41	Servo drive primary air
		42	servo drive secondary air
[SF]	Flame temperature sensor		

Fasten the cabling

NOTE

Possible damage because cabling has been installed too loosely

- Secure all cables in the cable duct with cable ties!
- ↳ You ensure electrotechnical safety with this kind of strain relief.

Downward cabling

- Thread the cables from the control box into the vertical cable duct on the left:
 - Connect cables #106 and #107 with the plug at the ignition rod.
 - Connect cable #213 with plugs #41 (servo drive primary air) and #42 (servo drive secondary air)

- Run the flame temperature sensor #220 between side casing and insulation to the immersion sleeve. Pull the sensor through the opening in the casing first to the outside and then insert the sensor into the immersion sleeve [SF]. The sensor is fastened to the cable with the spring.

Conne- tor	Pins	Description	Function
106	3	1-pole (L) supply 230 V _{AC}	Ignition rod fan for log wood
107	3	2-pin (L+N) supply 230 V _{AC}	Ignition rod heating system
213	12	10-pole connection sensor & actuator	Primary air, air shutter: OPEN/CLOSED (1-5-9) and position (3-7-11). Secondary air, air shutter: OPEN/CLOSED (2-6-10) and position (4-8-12).

Cabling to the rear

- Run the cables in the cable duct from the control box to the rear (induced draught) and then to the bottom left (heat exchanger cleaning):
- Connect the cables #113 and #211 with plug #46 and the plug [Saugzug] at the induced draught fan.

Conne- tor	Pins	Description	Function
113	6	6-pole supply 230 V _{AC}	Heat exchanger cleaning (1-2-3) and induced draught (4-5-6)
211	6	6-pin connection sensor	Induced draught, fan speed (4-5-6)

4.13 Mounting the casing – Part 2

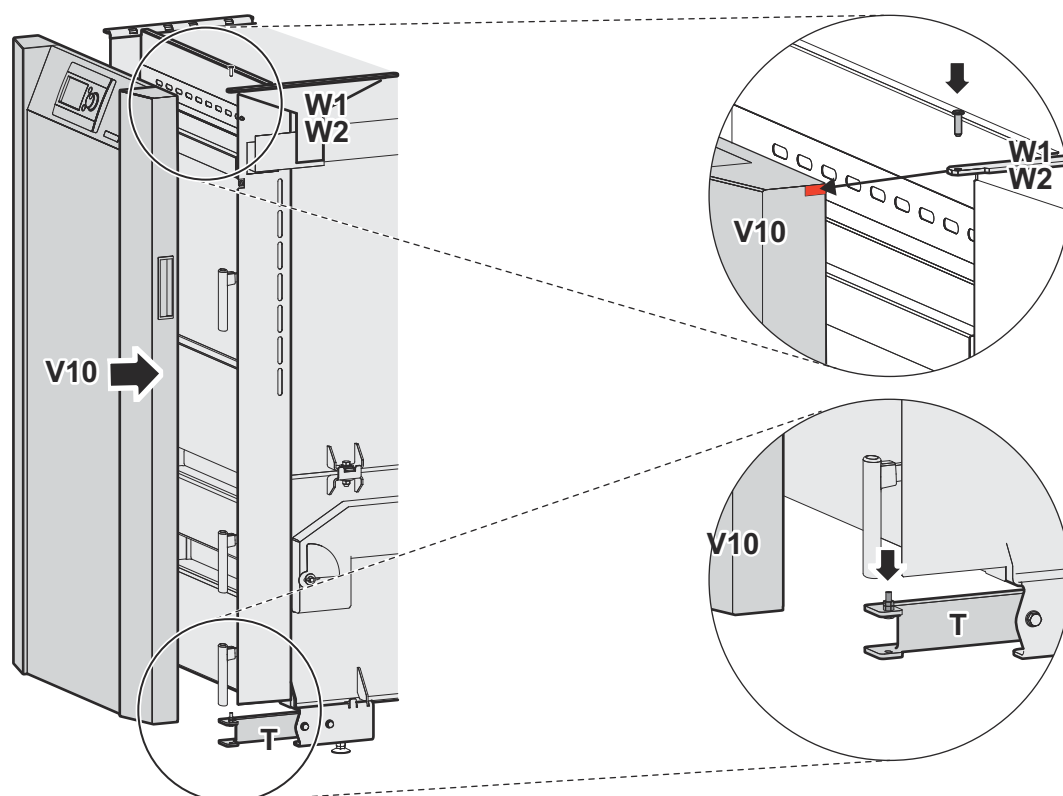
4.13.1 Installing the casing door

The casing door can be installed on the right or left.

Door magnets

- Insert the three (3) magnet catches in the positions at the door (on the "other" side).
- Install the three (3) metal counterparts with 2× screws (2.9×13 – Torx T10) at the front edge of the side casing.

Door holder

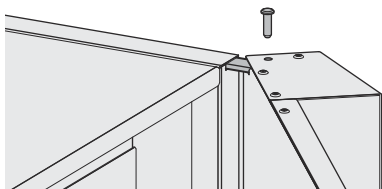


- Insert 1 × M6 × 25 screw from below into the front end of the door bracket [T] and secure it hand-tight with a nut. Also screw the 2nd nut onto the screw. It is used to vertically align the door.
(graphic representation, bottom)

- Screw the door bracket [T] (2 × M8 × 20) manually to the floor plate.

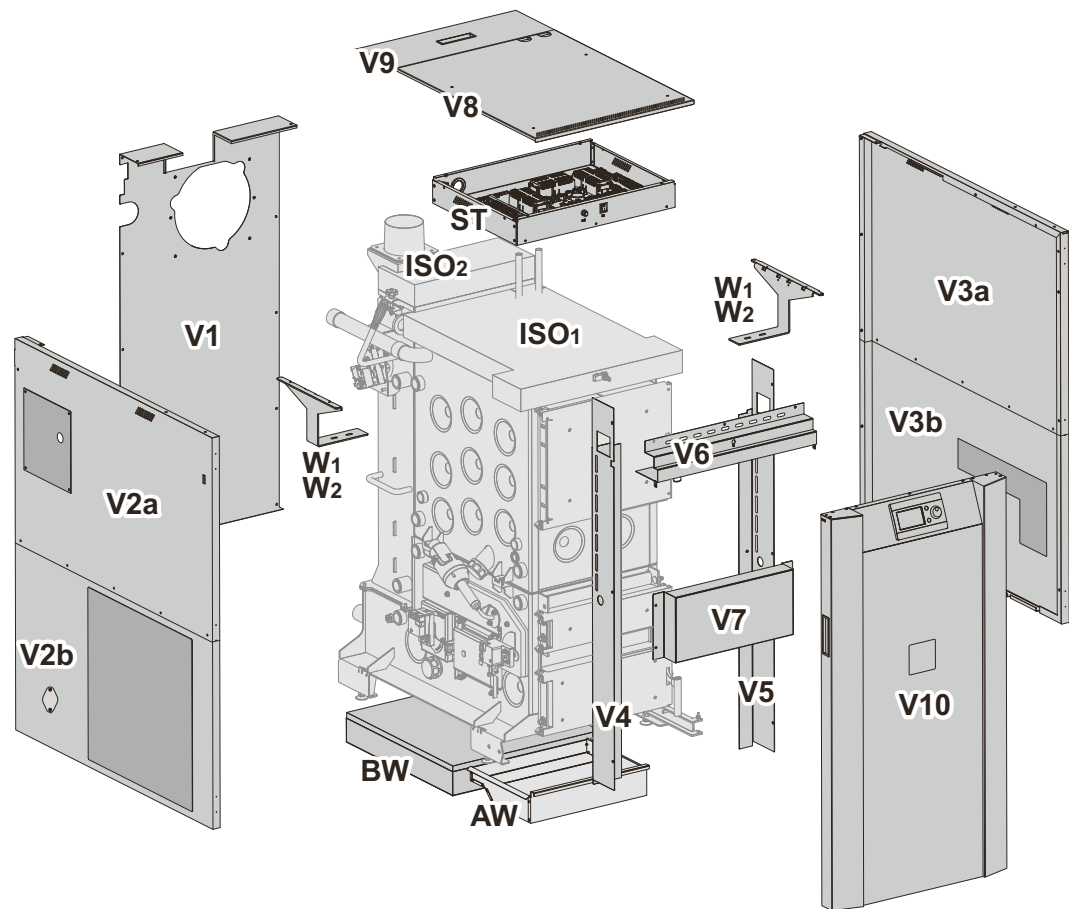
Mounting

- Hook the casing door [V10] in at the door bracket [T] screw **at the bottom**.

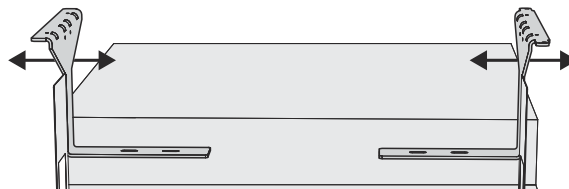


- Insert the **upper** part of the casing door into the tab and secure the connection with a hinge bolt.
(graphic representation, top)
- Close the casing door to facilitate alignment.
Ensure an even vertical air gap between casing door and side parts.
- Tighten the screws (2 × M8 × 20) at the door bracket [T].

4.13.2 Installing the maintenance cover



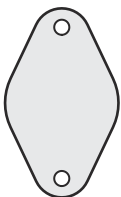
Alignment



→ Align the casing parts and secure the fastening brackets [W1] and [W2].

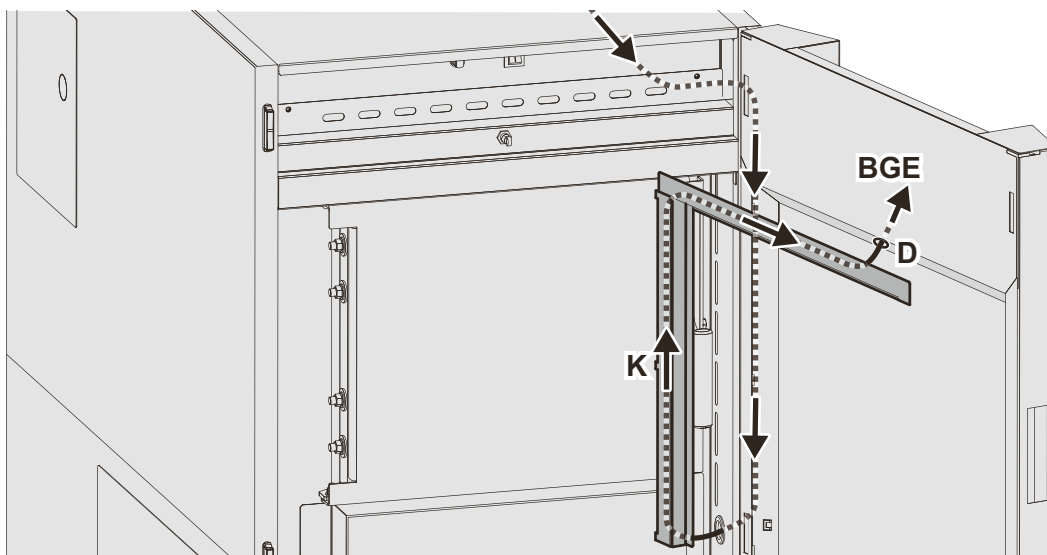
Maintenance cover

- Install the maintenance cover using 7 M5 screws at the side casing [V3b] on the right.
- Install the maintenance cover in the heat exchange cleaning area using 4 M5 screws at the left side casing [V2a].
- Mount the small oval maintenance cover using 2 M5 screws at the left side casing [V2b] above the flame temperature sensor.

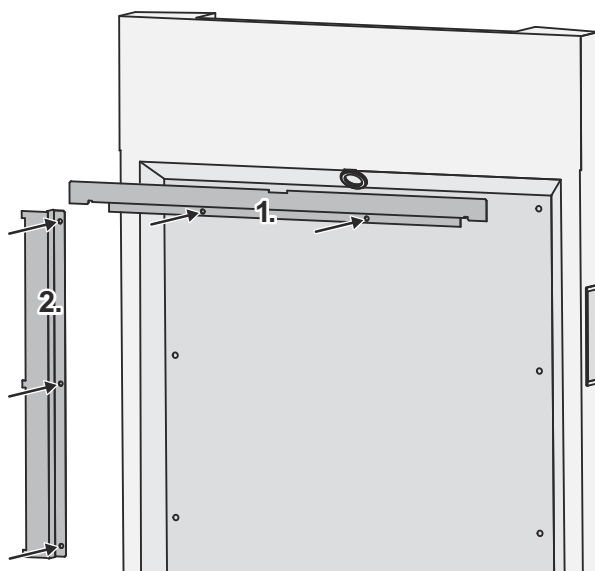


4.13.3 Installing the control unit

- Insert the supplied **grommets** at half height into the side casing parts [V4] and [V5].
- Make a cut into the insulation behind the bushing [D] to the control unit so that you can thread the cable through there later.
- Insert the supplied grommet into the bushing [D] at the inside of the casing door.



- Route the cable [K] from the control box and the optionally supplied Ethernet cable for the KWB Comfort Online as shown through the bushing [D] to the control unit [BGE] at the door.



- Mount the cable duct above the two cables.
 - Fasten the horizontal part with 2 M5 screws.
 - Fasten the vertical part with 3 M5 screws.
- Connect both cables with the control unit.

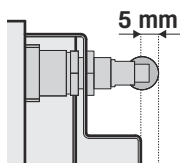
137	9	Bus flat connector (3 + 4 = unused. 9 = screen/shield.)	House bus [IN] + 24 V _{DC} control unit and boiler bus [IN] + 24 V _{DC} control unit Only to be used for the boiler control unit!
-----	---	--	---

- Insert the supplied battery into the control unit.
- First, position the control unit at the upper edge and then press the bottom edge of the control unit into the bracket.

4.13.4 Door contact switch

- Install the door contact switch (is in the control box) onto the casing part [V6] that has not been installed yet.

Connec- tor	Pins	Description	Function
----------------	------	-------------	----------



- Align the door contact switch such that the outer point of the counterpart projects 5 mm over the sheet edge.
- Thread the cable to the right under the control box to the front to the casing part [V6]. Make sure that you thread the cable between control box and insulation!
- Install the blind [V6] at the control box (3 M5 screws in front) and the side casings (1 M5 screw each on the side under the edge).

Middle front

- Install the middle casing part including insulation [V7] with 4 screws M5 at the fill room module.
- Close the casing door. Ensure that the limit switch switches securely!

4.14 Installing the pellet module

4.14.1 Setting up the pellet module

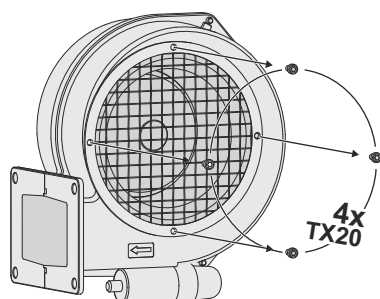
Adjusting height

- Place the pellet module as close as possible to the boiler.
- Use the set screws at the pellet module to adjust the pellet module height to the boiler height.
- The pellet module must be set up absolutely horizontally!
The upper edges of the pellet module are NOT of equal height. You will therefore need to place a spirit level on the lower edges of the pellet module to ensure precise adjustment!

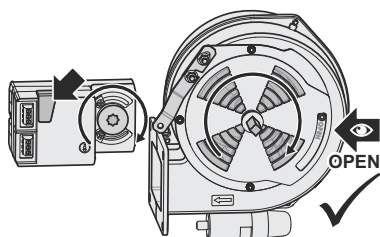
4.14.2 Preparing the burner

Installing the sealing valve

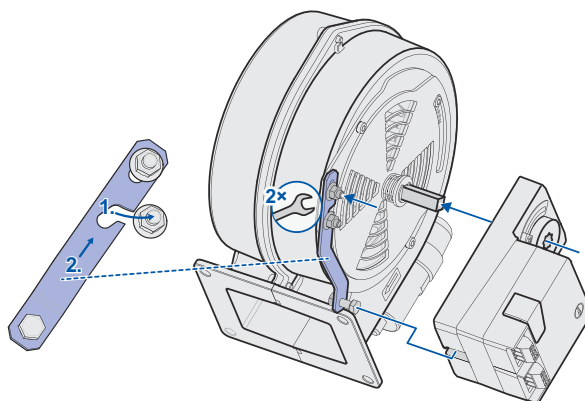
The following work steps correspond to the instructions supplied in the cardboard box:



- Remove the 4 TX20 screws of the fan.
The grille is no longer needed and can be disposed of.
- Place the sealing valve on the fan as shown.



- Fasten the sealing valve with the 4 TX20 screws to the fan.
- Turn the sealing valve clockwise to the stop.
If you can read the word [OPEN], then everything is correct.
- Hold the button pressed on the motor and turn the shaft support clockwise to the stop.



- Place the motor on the sealing valve shaft and thread the torque support of the sealing valve into the recess in the rear of the motor.
- Fasten the torque support to the fan using 2 screws [2x].

4.14.3 Removing the ash scraper ring



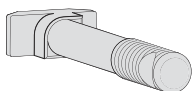
- Remove the ash scraper ring from the burner plate in order to be able to insert the burner more easily.



- Turn the ash scraper ring with the marking (image) to the opening and lift up the ring at this position. Then pull the ring from the burner plate.

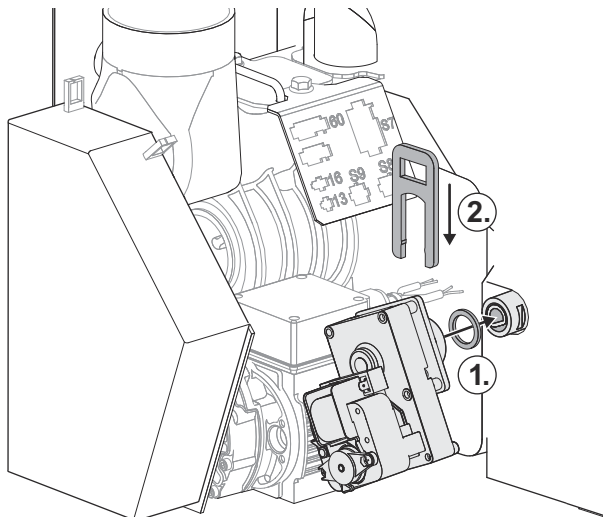
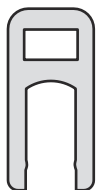
4.14.4 Mount the burner

- Tip: It is recommended to also dismantle the secondary air connector to make the burner installation easier.



- Slide the burner into the pellet module and fasten the burner with the two pre-installed hammer-head screws.
- Install the secondary air connector and replace the ash scraper ring (from the front).

4.14.5 Installing the ash screw motor

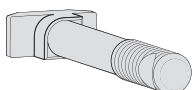


- 1. Slide the motor and the washer onto the ash screw.
- 2. Insert the splint into the ash screw from above in order to fasten the motor. Knock the splint fully into the ash screw, if required.

4.14.6 Connecting the pellet module with the boiler

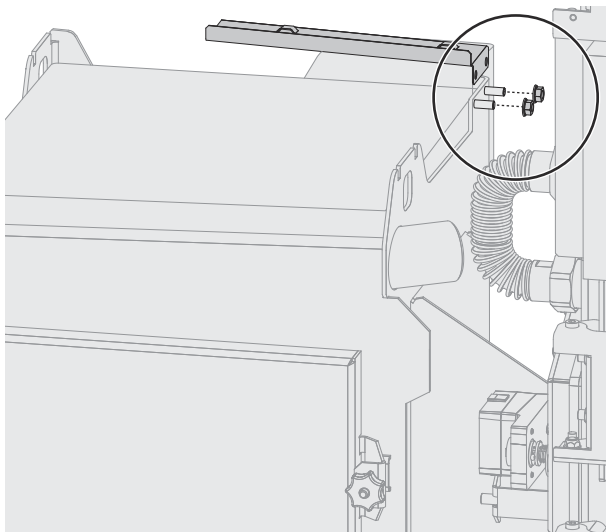


- Place the lower insulation in the area under the flange.
- Place the pellet module as close as possible to the boiler.
- Now also connect the two corrugated pipes together with the seal with the pellet module. Important: Make sure that the union nuts are sufficiently tightened to ensure a reliable leak-proof connection!
- Attention:** Do not lubricate the seals!
- Attention:** Do not hold!
- Slide the pellet module into the boiler flange and fasten the pellet module with the two pre-installed hammer-head screws.
- Check whether the two set screws are visually equally long! Only then the seal is tight.



- Reinsert the upper insulation into the maintenance opening.
- Also cover the top side of the flange.
- Make sure that the shutters for the primary air and secondary air and the suction intake opening of the ignition fan are open: Remove any obstructing insulation parts, if necessary!

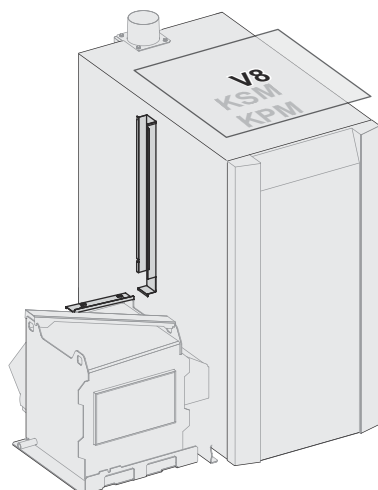
4.14.7 Connecting the electrical system



- Install the cable guide strip with 2 M8 nuts to the top of the pellet module.



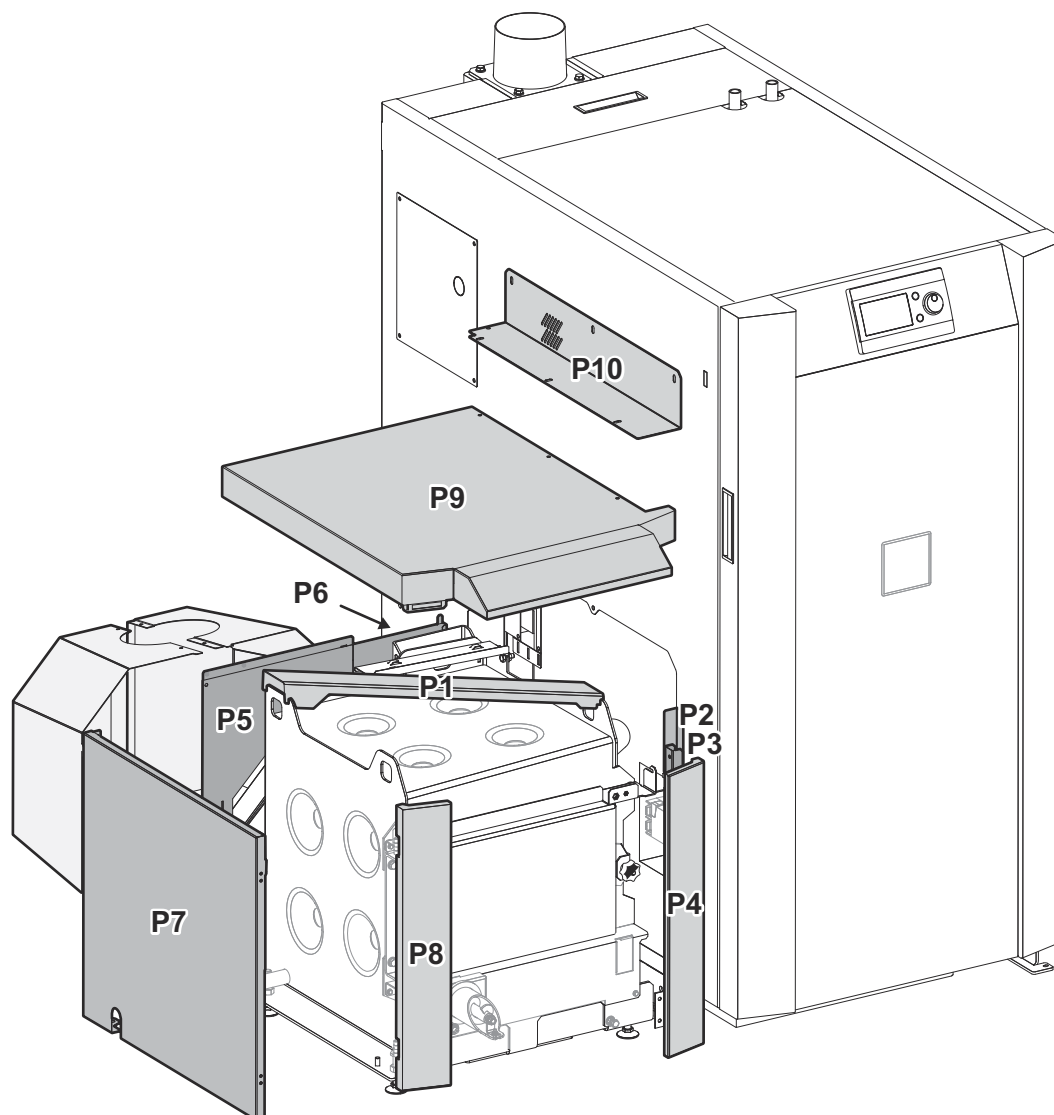
Routing the cable loom



- Insert the cable loom from above. Route the cable loom coming from the control box (see graphics) through the cable duct at the boiler side wall and from there to the pellet module.
- Connect all cables with the respective plugs to the Boiler signal module [KSM] or the Boiler power module [KPM].

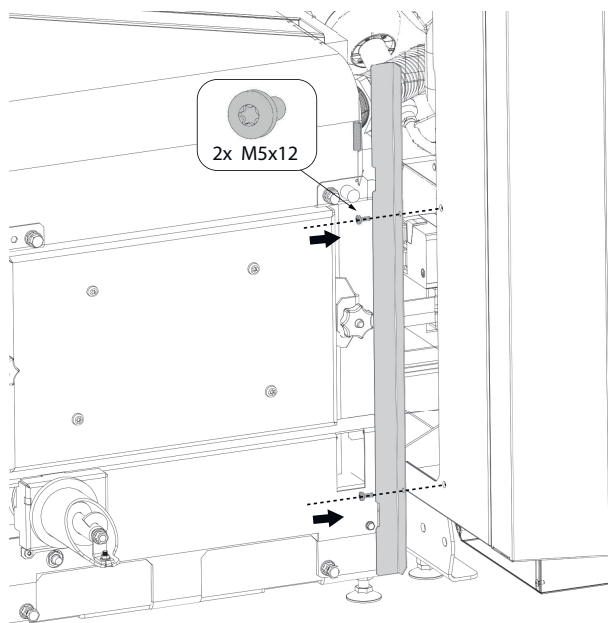
- Secure the cable at regular intervals with cable ties and ensure sufficient reserve cable and strain relief!
- Connect the cable to the connectors S7, S8 and S9 on the connector bracket at the burner.
- Connect cable #17 with the plug of the ash container limit switch (pre-installed on the side of the pellet module).
- Connect cable #42 with the plug for the sealing valve at the burner fan.
- Insert the 3 cable lugs into the motor contacts of the ash conveyance.

4.14.8 Installing the pellet module casing



- Place the reinforcing element [P1] transversely on the KWB Pellet Module.
- Install the front casing fastening bracket [P2] with 2× M5 screws on the boiler side casing.

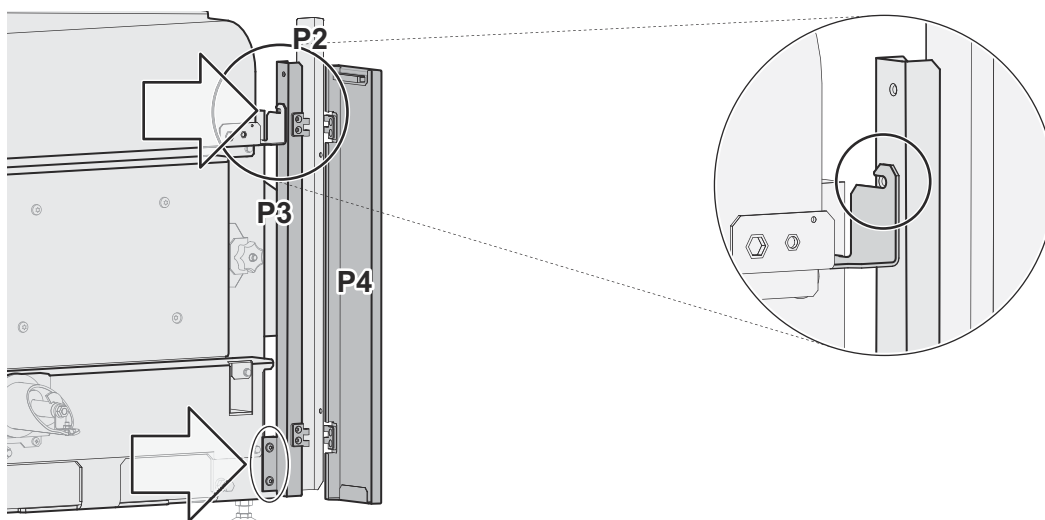
Front right



- Connect the right casing part [P4] using 2 hinges with the U-shaped [P3] fastening profile using countersunk screws.



- Install the U-shaped fastening profile [P3] at the right front of the pellet module (3 × TX, arrows in graphic representation).



Suction container bracket

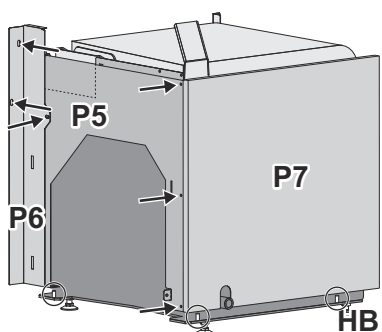
- Only for systems with suction container:
Install the (yellow) vertical suction container bracket using 2x M8 screws.



- Only for systems with suction container:
Remove the pre-cut piece from the casing part [P5].

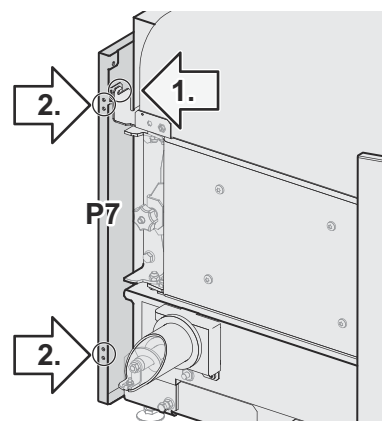


Rear & left side



- Place the casing parts [P5] and [P7] on the retaining bolts [HB] and bolt the two parts.
- Mount the rear casing fastening bracket [P6] vertically to the boiler casing and casing part [P5].

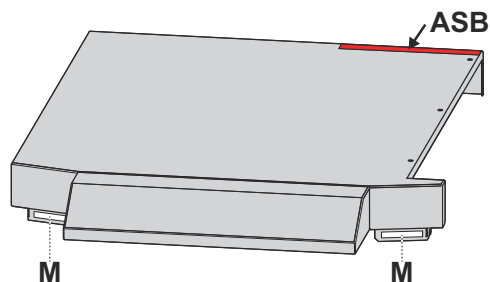
Front left



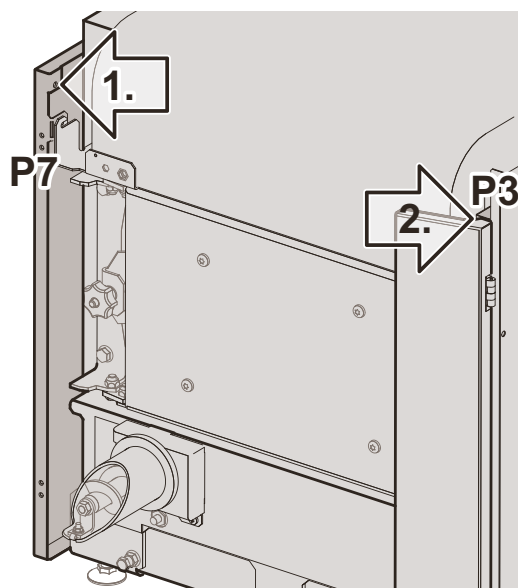
- 1. Bolt the side casing [P7] to the pellet module.
- 2. Connect the left casing wing [P8] with the side casing [P7] using 2 hinges (with 4 countersunk screws each).

Cover

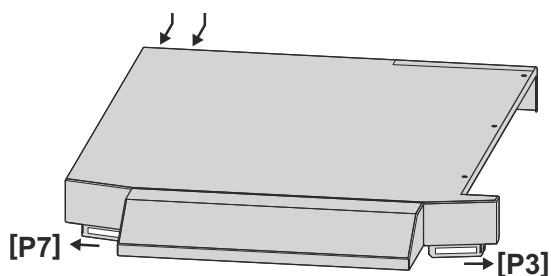
- Only for systems with suction container:
Remove the pre-cut piece from the pellet module cover [P9] from [ASB].



- Insert the two magnet latches [M] into the recesses at the front of the cover.
- Screw the 2 screws TX half in into the left side casing [P7] and in U-shaped fastening profile [P3].

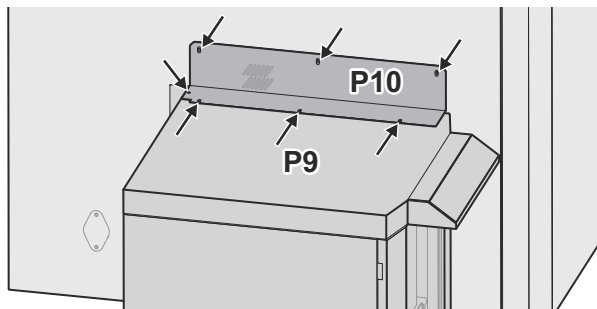


- Place the pellet module cover [P9] first at the rear and then at the front.



- Bolt on the pellet module cover [P9] at the back with 2 screws TX and, before that, tighten the half screwed-in screws in the side parts.
The 3 screws at the boiler edge will be fastened only in the next step!
- Install the horizontal casing fastening bracket [P10] with 7 × TX screws on the edge of pellet module and boiler.

Right



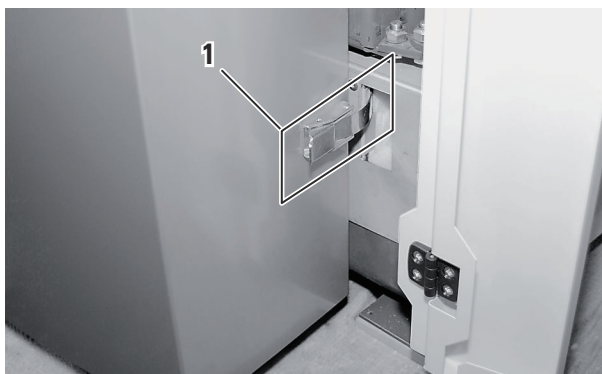
→ Check the free movement of the front shutters before you proceed.

4.14.9 Ash container

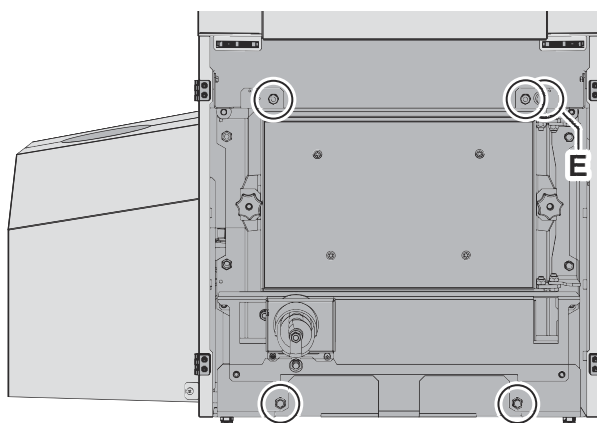


Handle and wheels on the ash container are optionally available

→ Turn the closing cap on the back side of the ash container to the side.



→ Position the ash container on the boiler and clamp the ash container firmly on both sides (1).



→ If the ash container wobbles on the boiler: Adjust the stop position of the ash container using the four adjustment screws (image above).

- If required, you can adjust the vertical alignment of the ash container using the eccentric pin (E) in the top right corner.

4.15 Closing the casing

Under the boiler

- Place the floor trough [BW] including insulation under the combustion room module.
- Place the ash trough [AW] including insulation under the combustion room module.

Cover

- Place the black insulation mat [ISO2] and casing [V9] on the heat exchanger maintenance cover.
- Mount the casing [V8].

5 From the boiler to the conveyor system

The KWB Combifire comes in 3 versions

Next working
steps

KWB Combifire type CF1.5 CF2 S 18/28/32/38 kW	KWB Combifire type CF1.5 CF2 S 18/28/32/38 kW with 300 l storage tank	KWB Combifire type CF1.5 CF2 GS 18/28/32/38 kW
Connection to a conveyor screw	No conveyor system	Connection to a suction system
	Installing the storage con- tainer [► 66]	Mounting the suction tank and suction turbine [► 61]
Connection to burner (screw) [► 64] or Connection to burner (drop hose) [► 64]		Connection to the suction tank [► 64]
Installing the burner casing [► 66]		
		Running the hoses [► 64]

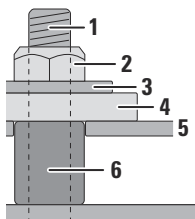
5.1 Mounting the suction tank and suction turbine

The suction container can only be installed on the completely installed pellet module!

Scope of delivery

- 1 suction tank
- 1 suction turbine
- 1 multiwire cable

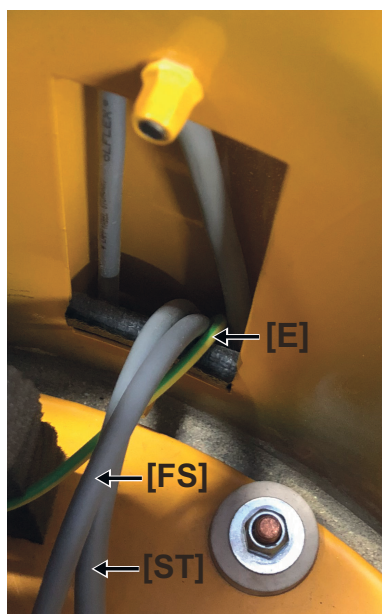
5.1.1 Installing the suction turbine



- Lift the cover and remove the insulating plate - attention: The plate partially contains slits and may tear here!
- Put on spacer rubbers (6) onto the 3 threaded bolts (1).
These rubber tubes prevent the vibrations of the turbine plate from transferring to the container.
- Place the suction turbine onto the 3 threaded bolts (1).
You can mount the turbine in 120° steps – select the position that appears optimal for the additional laying of the conveyor hoses! (The rear centre positioning is standard.)
- Secure the turbine plate (5) with rubber discs (4) and the metal washers (3). Tighten the nuts (2) until the rubber discs (4) begin to expand.

Preparing the wiring

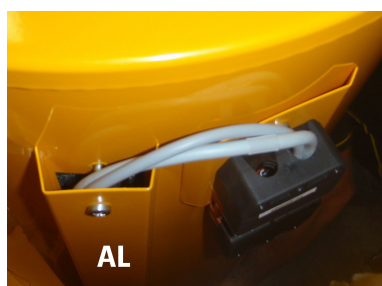
- Remove the covering strip on the back side of the container (2 cross-head screws).
- Thread the earthing cable to the back and out (far away from the motor, at the turbine metal sheet).
- Thread all cables out of the turbine housing to the rear and then fully down.



E	Earthing cable
CS	Fill level #16
ST	Suction turbine

→ Install the 6-pin plug including bracket at the back of the suction container. Route all cables down in the cable duct.

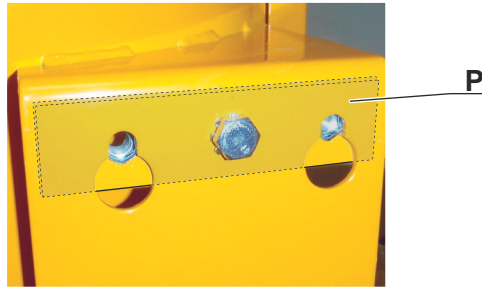
→ Reinstall the covering strip [AL] at the suction container.



Final steps

- Reinsert the previously removed insulation – the slits for the cables must point to the rear! Ensure that the insulating plate lies on the floor all the way around so that the cover can close!
- Only for suction systems WITHOUT sampling probes (another turbine will be used here): Attach the insulating ring with the adhesive side facing upwards to the turbine and remove the protective film from the adhesive side.
- Pull the cover open and close it with the 3 snap locks.

5.1.2 Installing the suction container at the pellet module



- Fasten the two plates [P] with 1 hexagon screw each **on top and at the bottom** to the suction container bracket.
- Screw the 2x2 screws including washers so far into the two plates that you can hook the fastening into the vertical bracket in the next step.



- Fasten the suction container to the vertical bracket.

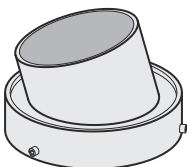
5.1.3 Cabling for the suction container

- Connect the respective cables with the plug-in panel at the stocker:

Connector	Function	Function
S2	Power supply	Conveyor motor/drum motor and main drive
13	Sensor 2-pole	Temperature protection switch, conveyor system or drum position
16	Sensor 3-pole	fill level
60	Power supply	Suction turbine

- Route the earthing cable from the suction container through the cable duct down to the burner and fasten the cable to the set screw between negative pressure (vacuum) unit and secondary air connector piece.

5.2 Conveyor system connection



Burner connection

- Rotate the burner connection between the burner and conveyor system in the direction from which the conveyor channel will come.
- Use the three set screws to fasten the burner connection in this position.

5.2.1 Connection to burner (screw)

- Align the conveyor system and boiler such that eject point and burner connection are aligned one above another as much as possible.
- Shorten the connection hose if necessary.
- Secure the connection hose to the eject connection and the burner connection with the supplied hose clamps.

5.2.2 Connection to burner (drop hose)

- The optional positioning is when the burner connection lies exactly under the head section for the drop hose.
- Connect the head section for the drop hose as straight as possible (angle $\leq 25^\circ$) with the shortest possible path to the burner connection.
- Shorten the connection hose if necessary.
- Secure the connection hose to the eject connection and the burner connection with the supplied hose clamps.

5.2.3 Connection to the suction tank

- Connect the suction container and burner using the supplied hose.
- Secure the connection hose to the eject connection and the burner connection with the two supplied hose clamps.



- Connect the two hoses with the connectors at the suction container: Adhere to the marked arrows on the connectors in order to connect the suction hose [↓↓ ↓↓] and return air hose [↑↑ ↑↑] accordingly!

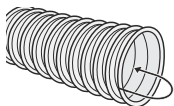
5.3 Running the hoses

Observe the subsequent instructions for all working steps in which a hose is connected to a connecting piece!

- Use the earthing strands in the hose!

Water for stiffness when connecting the hose

- Use only water as lubricant for any stiffness encountered when connecting the hose to the connection (grease will clump)!



Tip

**WARNING****Risk of a dust explosion after static discharge**

- Always ground **all** hoses involved in the suction conveyor in order to prevent electrostatic charging.
- Strip back approximately 5 cm from the earthing strands at the hose ends and bend in the earthing strands before you mount the hose onto a connecting piece.
- Ensure that the earthing strands have electrical contact with the connections – if necessary, file off the coating on the pipe.

Installation path parameters

- Choose the **shortest path** from the storage room to the boiler or the suction turbine.
- Run the hoses without sagging sections – pellets would gather in these areas and obstruct conveyance!
Tip: Use the KWB **equipment trays** for the horizontal run!
- Avoid **wall enclosures** – hoses must always be accessible.
- Mount the hose bracket to the wall or ceiling using **acoustically insulated pipe clamps**.
- Prevent contractions in the cross-section!

NOTE**Damage possible**

- Do not run the hose in the walking area – the hose is not trample-resistant or kink-proof!
- Keep the hoses away from radiators, uninsulated heating pipes and exhaust pipes – the hoses are only suitable for temperatures up to 60 °C!
- **ONLY** run the hoses inside – they will become brittle if they are exposed to UV radiation!

NOTE**Lengthen the hose?**

- The suction hose must be from one piece to prevent clogging!
- The return air hose may consist of multiple pieces – this coupling must be made of metal in order to ensure electrical grounding!

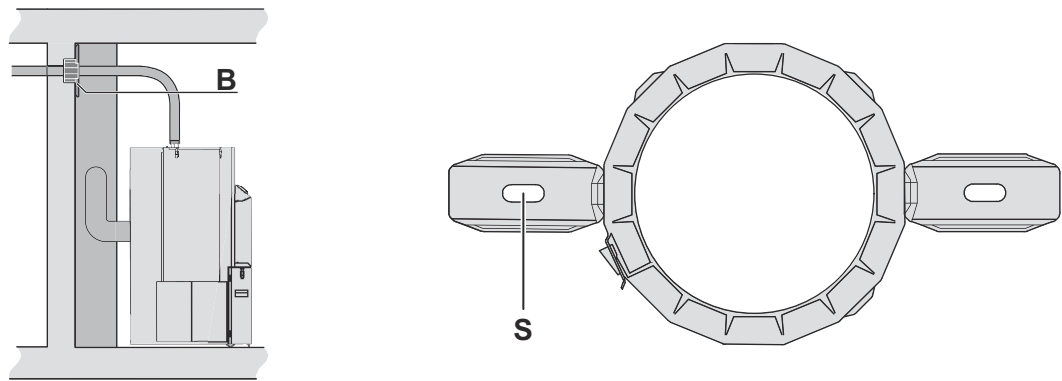
5.3.1 Fire safety

If the hoses are run (via an adjacent room) from one fire section to another, it is absolutely mandatory to install a fire protection sleeve in the wall on the side of a potential fire source!

- ↳ The hoses have an outside diameter of 60 mm.
- Create a wall opening of at least Ø 70 mm for the transportation hoses.
- Install the fire protection sleeve (Art. No. 02-1000091).
Comply with the manufacturer specifications when using other fire safety sleeves
- Seal the space between the fire protection sleeve and the wall opening.

All additional fire safety requirements apply without limitation!

Example



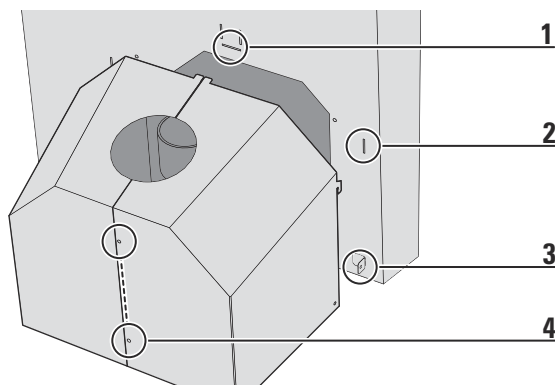
B	Fire protection sleeve	S	Fastening with bolts
---	------------------------	---	----------------------

5.4 Installing the storage container

The storage container can only be mounted on the completely installed pellet module!

→ Generally, it is recommended to follow the installation instructions found in the storage container packaging unit.

5.5 Installing the burner casing



→ Bend the tab [3] 90° out of the side casing.

→ Insert the upper tabs of the two casing parts into the horizontal slit [1] and simultaneously hook the burner casings into the slits [2].

The casing must thereby be positioned **outside** of the bent-out side tabs [3].

→ Fasten the burner casings to the bent-out tabs [3] using one screw each.

→ Bolt the two casing parts 2x together [4] and 1x to the side tab [3].

6 Final steps

6.1 Affixing the stickers

NOTE

Hazard due to missing safety sticker

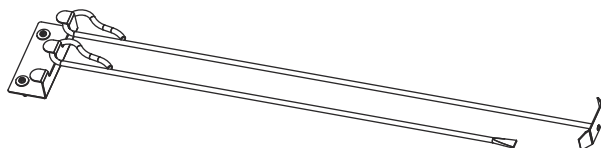
- ↳ Safety stickers save lives! They protect you against injuries and prevent damage to property and equipment!
- Ensure the correct use of the heating system: Attach ALL stickers as indicated in the instructions!
- Give the unused stickers to the operator of the heating system and instruct the operator regarding the possible hazards and/or consequences!
- Order any missing or incorrect stickers from KWB.

- Attach the KWB Logo to the front casing.
- Using the template, affix the correct lettering (depending on boiler type: Classicfire or Combifire) to the front casing.
- Affix the stickers.
- ↳ See section: **Stickers** [► 17]

27-2000228 – languages: DE | EN | FR

27-2000229 – languages: ES | IT | SL

6.2 Bracket for cleaning tools



- Install the bracket for the cleaning tools on the wall using anchor bolts.

6.3 Completion of Assembly

- Leave the construction site in a clean condition.

7 Appendix

Please also see

- 📄 Declaration of conformity CF2 S/GS/V (► 70)
- 📄 Technical data table CF2 (► 71)

7.1 Dismantling and disposal

7.1.1 Dismantling

- ✎ Dismantle the boiler in reverse order of the assembly sequence. Consult KWB customer service for advice! Comply with local regulations!
- Shut down the heating system and disconnect the boiler from the mains after the system has cooled down.
- Empty the boiler.



WARNING

Fatal crushing (pulled muscles) caused by heavy components! Inappropriate lifting/transporting can lead to fatal injury and serious damage to the equipment.

- ✎ **Only trained staff** may lift/transport heavy components!
- ✎ **Keep the component weight in mind – handle accordingly:**
 - Verify transport securing devices BEFORE lifting / transporting!
 - Keep the centre of gravity in mind - always secure components to prevent slipping and tilting!
 - Select stable bases, suitable tools and assistance from staff!
 - Lift with your back straight, NOT too heavy.
 - Use your personal protection equipment[PSA].
 - In difficult areas ensure that people and system are safe!

- Remove and empty the ash container at the pellet module.
- Remove the ash from the pellet module.
- Remove the casing cover parts and the pellet module cabling.
- Remove the pellet module from the boiler.
- Remove the ash from the boiler.
- Remove the casing cover parts and the cabling.
- Disconnect the boiler from the hydraulic system and the chimney connection.

7.1.2 Disposal

- Comply with local waste disposal regulations! Ensure environmentally sound disposal pursuant to AWG (Austria) or country-specific provisions.
- Recyclable materials can be taken separately and in clean condition to the specified recycling points.

In principle, you can dispose of the heating system as residual or bulky waste – but we recommend separating its components for recycling purposes (in a recycling centre) in order to handle resources in a more sustainable manner.

Plastic materials

The control unit housings, cable bushings and seals are made of plastic or rubber.

Construction waste

This includes the insulation (mineral wool) and the refractory bricks from the combustion chamber.

Metal

Our main material is metal which can be recycled efficiently: boiler bodies, cables ...

Circuit boards

- Dispose of these responsibly!
- Comply with all local waste disposal regulations!



CAUTION

Hazardous waste – dispose of properly!

The metals on and in the circuit boards do NOT belong in the household waste.

- ↳ All circuit boards used by KWB comply with the "Directive 2002/95/EC for the restriction of certain hazardous substances in electrical and electronics equipment".
- Take the circuit boards to a proper disposal facility – this helps protect the environment!
- Dispose of the circuit boards at collection points for electronic waste only.

Battery



CAUTION

Environmental contamination by batteries

- ↳ There is a lithium battery inside the boiler control unit.
- Dispose of the battery separately. When doing so, you must comply with all local regulations!



The following characters below the garbage bin symbol stand for:

- Pb: Battery contains lead
- Cd: Battery contains cadmium
- Hg: Battery contains mercury

Old batteries may not be disposed of in the household waste: EU Directive 2006/66/EC obligates consumers to dispose of batteries/rechargeable batteries at a collection point (more information can be found at <http://www.epbaeurope.net/>). Returning batteries to communal collection points is free of charge for private households.

Alternatively, you can send used batteries from the KWB control unit back to us. When sending batteries/rechargeable batteries, you must meet a few special conditions: Please inquire ahead of time (hazardous materials) and be sure to provide sufficient postage.

Declaration of Conformity

As specified by the EC Machinery Directive 2006/42/EC, Annex II 1 A

We hereby declare that the specified system in the series version complies with all applicable provisions of the Machine Directive.

Boilers of the model range

KWB Combifire 18–38 kW

Comprising the models: CF1.5 S/GS/V 18 / 28 / 32 / 38 and CF2 S/GS/V 18 / 28 / 32 / 38

in combination with conveyor systems

Pellet stirrer, Pellet Stirrer Plus with elbow screw or suction conveyor, KWB Pellet Big Bag with elbow screw or suction conveyor, conveyor screw with elbow screw or suction conveyor, fabric tank with screw or suction conveyor, 1-Point-sampling probes, sampling probes with suction conveyor, buried tank with suction conveyor, storage container

Furthermore, the system conforms to the following directives/applicable regulations:

Electromagnetic Compatibility EMC-directive 2014/30/EU; Low Voltage Directive (LVD) 2014/35/EU;
RoHS-directive 2011/65/EU

Applied European harmonised standards:

EN 303-5:2012, EN 60335-1:2014-04, EN 60335-2-102:2006, ÖNORM EN ISO 12100:2013-10-15

KWB – Kraft und Wärme aus
Biomasse GmbH

St. Margarethen an der Raab
09.01.2019



Authorised representative for
the compilation of the technical
documents

Place,
Date

Helmut Matschnig,
Managing Director

CF1.5 CF2 18.01.2021	Unit	CF1.5 18	CF1.5 28	CF1.5 32	CF1.5 38	CF2 18	CF2 28	CF2 32	CF2 38
		Log wood/Pellet	Log wood/Pellet	Log wood/Pellet	Log wood/Pellet	Log wood/Pellet	Log wood/Pellet	Log wood/Pellet	Log wood/Pellet
Rated power	kW	18,3/22,0	28,6/30,0	31,9/30,0	38/35,0	18,3/22,0	28,6/30,0	31,9/30,0	38,0/35,0
Partial load	kW	14,3/6,6	14,3/9,0	14,2/9,0	14,2/10,5	14,3/6,6	14,3/9,0	14,2/9,0	14,2/10,5
Boiler efficiency at rated power	%	93,4/93,0	92,4/92,0	92,4/92,0	91,8/91,4	93,4/93,0	92,4/92,0	92,4/92,0	91,8/91,4
Boiler efficiency at partial load	%	93,0/90,9	93,0/91,0	93/91,0	93,0/91,0	93,0/90,9	93,0/91,0	93/91,0	93,0/91,0
Fuel thermal output at rated power	kW	19,6/23,6	31/32,6	34,5/32,6	41,4/38,3	19,6/23,6	31/32,6	34,5/32,6	41,4/38,3
Fuel thermal output at partial load	kW	- /7,3	15,4/9,9	15,3/10,5	15,3/11,5	- /7,3	15,4/9,9	15,3/10,5	15,3/11,5
Full load burn-off period	h	10/-	6,2/-	5,9/-	5,8/-	12,2/-	7,6/-	7,3/-	6,6/-
Boiler class according to EN 303-5:2012	-	5	5	5	5	5	5	5	5
EU Energylabel	-	A+	A+	A+	A+	A+	A+	A+	A+
Water side									
Water content	l	141/168	141/168	141/168	141/168	141/168	141/168	141/168	141/168
Water connection, forward/return flow (internal thread)	inch	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4
	mm	38,1	38,1	38,1	38,1	38,1	38,1	38,1	38,1
Water connection for filling and/or emptying (internal thread)	inch	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	mm	12,7	12,7	12,7	12,7	12,7	12,7	12,7	12,7
Thermal safety valve: pressure	bar	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
Water connection for thermal safety valve (internal thread)	inch	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	mm	12,7	12,7	12,7	12,7	12,7	12,7	12,7	12,7
Water-side resistance at 20 K	mbar	13,5	13,5	13,5	13,5	13,5	13,5	13,5	13,5
	Pa	1350	1350	1350	1350	1350	1350	1350	1350
Boiler-entry temperature	°C	55/-	55/-	55/-	55/-	55/-	55/-	55/-	55/-
Working temperature/operating temperature	°C	80	80	80	80	80	80	80	80
Maximum permitted temperature	°C	110	110	110	110	110	110	110	110
Maximum operating pressure	bar	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5
Buffer tank required	-	✓	✓	✓	✓	✓	✓	✓	✓
Minimum usable buffer tank volume	l	1500	1500	1500	1500	1800	1800	1800	1800
Recommended usable buffer tank volume	l	1800	1800	1800	1800	2500	2500	2500	2500
Exhaust-gas side (data for chimney design)									
Combustion chamber temperature	°C	900-1100	900-1100	900-1100	900-1100	900-1100	900-1100	900-1100	900-1100
Combustion chamber pressure (unregulated)	mbar	< 0	< 0	< 0	< 0	< 0	< 0	< 0	< 0
Required draft at rated power/partial load	mbar	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08
		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Induced draught required	-	✓	✓	✓	✓	✓	✓	✓	✓
Exhaust-gas temperature at rated power	°C	160/140	160/140	160/140	160/140	160/140	160/140	160/140	160/140
Exhaust-gas temperature at partial load	°C	100/80	100/80	100/80	100/80	100/80	100/80	100/80	100/80
Exhaust-gas mass flow at rated power	kg/s	0,023	0,023	0,023	0,023	0,023	0,023	0,023	0,023
Exhaust-gas mass flow at partial load	kg/s	0,011	0,011	0,011	0,011	0,011	0,011	0,011	0,011
Exhaust-gas volume at rated power	Nm ³ /h	54	54	54	54	54	54	54	54
Exhaust-gas volume at partial load	Nm ³ /h	27	27	27	27	27	27	27	27
Chimney connection height	mm	1590	1590	1590	1590	1590	1590	1590	1590
Exhaust-gas connection diameter	mm	150	150	150	150	150	150	150	150
Incline of the Exhaust-gas pipe	°	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3	≥ 3
Chimney diameter (minimum)	mm	150	150	150	150	150	150	150	150
Chimney design: moisture-resistant	-	✓	✓	✓	✓	✓	✓	✓	✓
Fuel									
Permissible fuels: log-wood (L50, M25 acc. to EN 17225-5)	-	✓	✓	✓	✓	✓	✓	✓	✓
Maximum length log-wood	cm	55	55	55	55	55	55	55	55
Maximum water content (fresh weight)	kg/kg	≤ 25	≤ 25	≤ 25	≤ 25	≤ 25	≤ 25	≤ 25	≤ 25
Pellets of pure wood in accordance with ISO 17225-2	-	✓	✓	✓	✓	✓	✓	✓	✓
Fill chamber									
Fill chamber volume	l	160,8	160,8	160,8	160,8	183,8	183,8	183,8	183,8
Width of fill doors	mm	440	440	440	440	440	440	440	440
Height of fill doors	mm	364	364	364	364	364	364	364	364
Electrical system									
Connection	-	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A	230V, 1~ 50Hz, C13 A
Unit switch and main switch: present	-	✓	✓	✓	✓	✓	✓	✓	✓
Connected power boiler (minimum)	W	151/502	151/502	151/502	151/502	151/502	151/502	151/502	151/502
Connected power boiler (maximum)	W	1288/1639	1288/1639	1288/1639	1288/1639	1288/1639	1288/1639	1288/1639	1288/1639
Weights									
Heat exchanger	kg	108	108	108	108	108	108	108	108
Burning chamber module	kg	273	273	273	273	273	273	273	273
Fill chamber module	kg	224	224	224	224	221	221	221	221
KWB pellet module	kg	130	130	130	130	130	130	130	130
Total weight (without/with pellet module)	kg	722/855	722/855	722/855	722/855	719/852	719/852	719/852	719/852

CF1.5 CF2 18.01.2021	Unit	CF1.5 18	CF1.5 28	CF1.5 32	CF1.5 38	CF2 18	CF2 28	CF2 32	CF2 38
Emissions according to test report		TÜV Austria	TÜV Austria	TÜV Austria	TÜV Austria	TÜV Austria	TÜV Austria	TÜV Austria	TÜV Austria
Test report no.	—	15-UW/Wets-EX-132/3; 15-UW/Wets-EX-132/4	15-UW/Wets-EX-132/2 16-U-234/5D	15-UW/Wets-EX-132/8	15-UW/Wets-EX-132/6; 15-UW/Wets-EX-132/5	15-UW/Wets-EX-132/3; 15-UW/Wets-EX-132/4	15-UW/Wets-EX-132/2; 16-U-234/5D	15-UW/Wets-EX-132/8	15-UW/Wets-EX-132/6; 15-UW/Wets-EX-132/5
O ₂ content rated power	Vol.-%	6,2/6,1	6,3/5,8	5,7/5,7	5,6/5,6	6,2/6,1	6,3/5,8	5,7/5,7	5,6/5,6
O ₂ content partial load	Vol.-%	6,2/8,5	6,2/7,3	6,2/7,1	6,2/6,8	6,2/8,5	6,2/7,3	6,2/7,1	6,2/6,8
CO ₂ content rated power	Vol.-%	13,8/14,5	13,9/14,8	14,7/14,9	14,8/15,00	13,8/14,5	13,9/14,8	14,7/14,9	14,8/15,0
CO ₂ content partial load	Vol.-%	14,0/12,0	14,0/13,2	14,0/13,4	14,0/13,7	14,0/12,0	14,0/13,2	14,0/13,4	14,0/13,7
Noise emissions (EN 15036-1)									
Normal operating noise at rated power	dB(A)	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70
Ref. 10 % O₂ dry (EN303-5)									
CO at rated power	mg/Nm ³	57,0/24,0	64,0/24,0	53,0/24,0	32,0/24,0	57,0/24,0	64,0/24,0	53,0/24,0	32,0/24,0
CO at partial load	mg/Nm ³	81,0/69,0	81,0/36,0	81,0/29,4	81,0/19,0	81,0/69,0	81,0/36,0	81,0/29,4	81,0/19,0
NO _x at rated power	mg/Nm ³	153,0/151,0	169,0/166	158,0/169,9	169,0/176,0	153,0/151,0	169,0/166	158,0/169,9	169,0/176,0
NO _x at partial load	mg/Nm ³	115,0/131,0	115,0/139,0	115,0/140,9	115,0/144,0	115,0/131,0	115,0/139,0	115,0/140,9	115,0/144,0
OGC at rated power	mg/Nm ³	7,0/<3,0	7,0/<2,0	4,0/<2,0	5,0/<2,0	7,0/<3,0	7,0/<2,0	4,0/<2,0	5,0/<2,0
OGC at partial load	mg/Nm ³	12,0/2,9	12,0/<3,0	12,0/2,6	12,0/<2,0	12,0/2,9	12,0/<3,0	12,0/2,6	12,0/<2,0
Dust at rated power	mg/Nm ³	13,0/19,0	21,0/18,0	20,0/18,0	21,0/18,0	13,0/19,0	21,0/18,0	20,0/18,0	21,0/18,0
Dust at partial load	mg/Nm ³	10,0/18,0	10,0/19,0	10,0/19,0	10,0/19,0	10,0/18,0	10,0/19,0	10,0/19,0	10,0/19,0
Ref. 11 % O₂ dry									
CO at rated power	mg/Nm ³	52,0/22,0	58,0/22,0	48,0/22,0	29,0/22,0	52,0/22,0	58,0/22,0	48,0/22,0	29,0/22,0
CO at partial load	mg/Nm ³	74,0/63,0	74,0/32,2	74,0/26,7	74,0/18,0	74,0/63,0	74,0/32,2	74,0/26,7	74,0/18,0
NO _x at rated power	mg/Nm ³	139,0/137,0	154,0/152,9	143,0/155,7	153,0/160,0	139,0/137,0	154,0/152,9	143,0/155,7	153,0/160,0
NO _x at partial load	mg/Nm ³	104,0/120,0	104,0/127,5	104,0/128,9	104,0/131,0	104,0/120,0	104,0/127,5	104,0/128,9	104,0/131,0
OGC at rated power	mg/Nm ³	7,0/<2,0	7,0/<2,0	4,0/<2,0	5,0/<2,0	7,0/<2,0	7,0/<2,0	4,0/<2,0	5,0/<2,0
OGC at partial load	mg/Nm ³	11,0/2,6	11,0/2,6	11,0/2,4	11,0/<2,0	11,0/2,6	11,0/2,6	11,0/2,4	11,0/<2,0
Dust at rated power	mg/Nm ³	12,0/17,0	19,0/<18,0	18,0/17,2	19,0/16,0	12,0/17,0	19,0/<18,0	18,0/17,2	19,0/16,0
Dust at partial load	mg/Nm ³	10,0/17,0	10,0/<18,0	10,0/17,6	10,0/<17,0	10,0/17,0	10,0/<18,0	10,0/17,6	10,0/<17,0
Ref. 13 % O₂ dry (FJ-BLT)									
CO at rated power	mg/Nm ³	42,0/17,0	47,0/18,0	39,0/18,0	23,0/18,0	42,0/17,0	47,0/18,0	39,0/18,0	23,0/18,0
CO at partial load	mg/Nm ³	59,0/50,0	59,0/26,0	59,0/21,3	59,0/14,0	59,0/50,0	59,0/26,0	59,0/21,3	59,0/14,0
NO _x at rated power	mg/Nm ³	111,0/110,0	123,0/121,0	115,0/123,7	123,0/128,0	111,0/110,0	123,0/121,0	115,0/123,7	123,0/128,0
NO _x at partial load	mg/Nm ³	84,0/96,0	84,0/101,0	84,0/102,6	84,0/105,0	84,0/96,0	84,0/101,0	84,0/102,6	84,0/105,0
OGC at rated power	mg/Nm ³	5,0/<2,0	5,0/<2,0	3,0/<2,0	4,0/<2,0	5,0/<2,0	5,0/<2,0	3,0/<2,0	4,0/<2,0
OGC at partial load	mg/Nm ³	8,0/2,1	8,0/<2,0	8,0/<2,0	8,0/<2,0	8,0/2,1	8,0/<2,0	8,0/<2,0	8,0/<2,0
Dust at rated power	mg/Nm ³	10,0/14,0	15,0/13,0	15,0/13,0	15,0/13,0	10,0/14,0	15,0/13,0	15,0/13,0	15,0/13,0
Dust at partial load	mg/Nm ³	8,0/13,0	8,0/14,0	8,0/14,0	8,0/14,0	8,0/13,0	8,0/14,0	8,0/14,0	8,0/14,0
In accordance with § 15a-BVG Austria									
CO at rated power	mg/MJ	28,0/12,0	32,0/12,0	26,0/12,0	16,0/12,0	28,0/12,0	32,0/12,0	26,0/12,0	16,0/12,0
CO at partial load	mg/MJ	40,0/34,0	40,0/19,0	40,0/19,0	40,0/10,0	40,0/34,0	40,0/19,0	40,0/19,0	40,0/10,0
NO _x at rated power	mg/MJ	76,0/75,0	84,0/82,0	78,0/82,0	84,0/87,0	76,0/75,0	84,0/82,0	78,0/82,0	84,0/87,0
NO _x at partial load	mg/MJ	57,0/65,0	57,0/69,0	57,0/69	57,0/71,0	57,0/65,0	57,0/69,0	57,0/69	57,0/71,0
OGC at rated power	mg/MJ	4,0/<1,0	4,0/<1,0	2,0/<1,0	4,0/<1,0	4,0/<1,0	4,0/<1,0	2,0/<1,0	4,0/<1,0
OGC at partial load	mg/MJ	6,0/1,4	6,0/<2,0	6,0/<2	6,0/1,4	6,0/1,4	6,0/<2,0	6,0/<2	6,0/1,4
Dust at rated power	mg/MJ	7,0/9,0	10,0/9,0	10,0/9,0	11,0/9,0	7,0/9,0	10,0/9,0	10,0/9,0	11,0/9,0
Dust at partial load	mg/MJ	5,0/9,0	5,0/9,0	5,0/9,0	5,0/9,0	5,0/9,0	5,0/9,0	5,0/9,0	5,0/9,0

mg/Nm³ ... Milligram per standard cubic meter (1 Nm³ under 1.013 hectopascal at 0 °C)
FJ-BLT ... Francisco Josephinum Wieselburg – Biomass Logistic Technology
*** ... Drawing inspection
** ... The water-side resistance is specified and determined in each case on the boiler interface (flange RF/FF)

Keyword index

Symbols

[HLE], 10

[SLE], 10

A

Air gap, 48

Air vent, 9

Align, 48

Ash trough, 60

Axle locking ring, 30

B

Base plate, 28

Basic structure, 24, 33

Boiler forward flow temperature, 45

Bolt, 30

Burner casing, 66

Burner connection, 64

C

Cable duct, 50

Capillary tube, 45

CEE plug, 13

Ceramic fibre cord, 30

Cold water pressure, 19

Combustion chamber lining, 26

Comfort Online, 50

Connecting pipe, 34

Contact pressure, 32

Control box, 42

Control unit, 50

Conveying height, 11

corrugated pipe, 37

Corrugated pipes, 53

Crane, 25

D

directive

fire protection, 8

Distance, 33

Door fastener, 29

Door handle, 30

Door handles, 30

Door holder, 48

Door leaf, 30

Door magnet, 47

Door width, 24

dust explosion, 11

E

earthing strands, 65

Eject point, 64

Emptying, 21

Equipment tray, 65

Ethernet cable, 50

Exhaust gas pipe, 21

explosion protection, 11

F

Fastening bracket, 41, 42

Filling, 21

Filling line, 11

Fire extinguisher, 9

Fire extinguishing system

Automatic, 10

Manual, 10

fire protection

customer-provided, 9

Fire protection sleeve, 65

Fire safety requirements, 65

Fire-resistant, 11

Floor, 9

Floor plate, 48

Floor trough, 60

Forward flow, 21

Forward flow temperature, 45

Frost protection, 9

G

Grease, 64

Grille, 52

ground, 65

guarantee requirement, 8

H

Heat exchanger, 27, 38

heating pipe, 65

Hinge, 30, 56

Hinge bolt, 48

Hoisting lug, 25, 33

Hose coupling, 11

hose ends, 65

Hot surfaces, 45, 46

I

Ignition fan, 38
Ignition pipe, 38
Immersion sleeve, 45
Immersion sleeves, 45
incorrect
 stickers, 17, 67
Induced draught, 44
Induced draught fan, 36
Injection connector, 11
Inlet, thermal discharge safety valve, 19
Inspection glass slider, 29
installation guidelines, 8
Installation path, 65
Installation sequence, 33
Installations, 27
Insulation, 40, 42, 53, 54
Internal distance, 28

K

KWB Logo, 17, 67

L

Lambda sensor, 43
Lifting aid, 27
Limit switch, 51

M

Magnet catch, 47
Maintenance, 33
Maintenance area, 27
Maintenance cover, 38, 49
missing
 stickers, 17, 67

O

Outlet, thermal discharge safety valve, 20
Overpressure, 11

P

Pellet module, 51, 53, 57
Pipe clamp, 65
pipe wrench, 36
Pipelines, 11
Portable fire extinguisher, 9
Power supply, 21
Primary air, 54
Pumping truck, 11

R

radiators, 65
Reconfigure the doors, 30
Return flow, 22
Return flow boost, 21
Ricochet protection mat, 11
Rubber mallet, 37

S

Safety release button, 35
Safety temperature limiter, 45
Sealing cord, 37
Sealing valve, 51
Secondary air, 54
Separate the modules, 26
Servomotor, 35
Set screw, 33
Side casing, 49
Slit, 66
Spirit level, 33
Sticker, 19, 20
Sticker sheet, 17, 67
stickers, 17, 67
Stop, 32
Stop Escape, 9
Suction channel, 26
Suction container, 56, 57, 63

T

Tab, 48
temperature, 65
Torque support, 35, 52
TRVB H118, 8
Turbulators, 0

U

Unobstructed door width, 24
UV radiation, 65

W

warranty requirement, 8
Water, 64





KWB – Kraft und Wärme aus Biomasse GmbH
Industriestraße 235
A-8321 St. Margarethen an der Raab
+43 3115 6116-0
office@kwb.at | www.kwb.at



* 2 1 - 2 0 0 1 6 7 1 *

Original manual | 2021-02 | Index 2 | EN