KWB
Energy. Thought further.

Storage & Heating Room Equipment

Technology & Planning 2026

General remarks concerning the heating room and fuel storage

Required structural conditions

Please always comply with applicable local statutory submission, construction and execution regulations! These are the prerequisites for the KWB warranty and guarantee services, and for your insurance protection. KWB does not accept any liability, nor does it offer any warranties or guarantee for any type of building measures. Proper execution of building measures is the sole responsibility of the system owner. Inquire about time limits and procedures for handling subsidy applications in a timely manner. Comply with the dimension specifications in the installation examples and technical data. For complex projects, KWB therefore urgently recommends setting up an onsite appointment with the competent KWB area manager. Without any claim to an exhaustive treatment of the issue at hand and without suspension of any conditions imposed by the authorities, we recommend the following:

Heating room

Concrete flooring, plain or tiled; height-adjustable system feet can be used to compensate minor irregularities. All materials for floors, walls, ceilings must be fire resistant in REI90*; storage room door (EI2-30-C*) must be executed as an automatically closing fire door that opens to the outside, connection door to the fuel storage room must be executed as an automatically closing fire door (EI2-30-C*). Heating room window non-opening E30*; non-closing intake air opening 5 cm^2 per kW rated power of heating system, but no less than 400 cm^2. For boiler capacities > 60 kW, two intake air openings must be installed: one close to the ground and one close to the ceiling; the intake air openings must lead directly into the open. If it crosses other rooms, the air duct must feature an REI90* envelope; a protective grille with a mesh width Ø 5 mm must be fitted on the outside of ventilation openings to the outside. There must be permanently installed lighting and electrical supply to the heating system; the light and the labelled emergency-stop switch of the heating system must be in an easily accessible location outside the heating room in the vicinity of the heating room door. A portable fire extinguisher (6 kg filling weight, EN3 standard) must be installed outside the heating room near the heating room door. The heating room as well as water lines and district heating pipes must be frost-resistant. There must be no storage of flammable materials in the heating room outside the boiler system, storage container or hopper; no direct connection to rooms where flammable gases or liquids (garage) are stored. See the installation examples and tables for boiler dimensions for the minimum clear door widths. You must comply with the local installation regulations.

Chimney

The chimney design should be resistant to moisture. This means that there will be no moisture penetration or damage to the brickwork even though the temperature level in the exhaust-gas path is permanently below the exhaust gas dew point. The approximate values for the chimney diameter are stated in the specifications. These apply based on the average structural conditions, meaning: effective chimney height 8–10 m, 1,5 m exhaust pipe length, 2 segment bends at 90° each, 1 contraction, 1 Tee connection at 90°. You must adhere to the specifications in the cross-section diagrams provided by the chimney manufacturer. If conditions differ or are less favourable in terms of space, it will be necessary to carry out a chimney calculation. Upon request, KWB will provide the chimney calculation. This is a chargeable service. It is advisable to involve your locally competent chimney sweep during the planning phase as she/he is the one who will have to issue the acceptance certificate for the exhaust gas system.

Exhaust pipe connection at the chimney

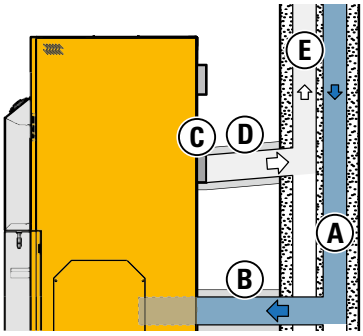
We recommend that a draft limiter and a blowback flap be built into the exhaust pipe, or chimney side wall, and be arranged in such a manner as to exclude any danger to persons. The exhaust pipe should be kept as short as possible. It should ascend at least slightly towards the chimney. The exhaust pipe should be thermally insulated and feature easily accessible cleaning openings. The chimney connection should be 20 mm larger than the exhaust pipe diameter. This way, it will be possible

to integrate a suitable acoustic transmission decoupler between the exhaust pipe and the chimney. The KWB system is by default equipped with a negative pressure-controlled induced draught fan.

Ambient air-independent operation (EF2)

Depending on the structural situation and if the combustion airline and the connection line to the chimney|air-exhaust gas system are sealed and the material is suitable, the KWB Easyfire corresponds to the types FC43x*1 and FC53x*2 according to the approval principles for the inspection and assessment of ambient air-independent fireplaces for solid fuels of the Deutsches Institut für Bautechnik (DIBt).

A) Combustion air supply - air-exhaust gas system (LAS system)
B) Combustion air line
C) Connection of connection line – KWB Easyfire
D) Connection line
E) Exhaust pipe



The purchase and use of ambient air-independent fireplaces must be discussed with the responsible chimney sweep to ensure that the overall system (joint operation of fireplace, exhaust gas system and room-air technical system) satisfies the technical safety and functional requirements. The respectively applicable local rules and regulations must be adhered to. These specifications serve as a guideline and do not replace chimney calculation.

Combustion air line

Flexible aluminium pipe Ø100 mm, leakage rate < 0,1 m^3/h; max. length: 15 m; Length reduction per 90° bend: 1 m; Length reduction per 45° bend: 0,5 m; sealed tight, thermally insulated with no less than 30 mm (in Germany thermal insulation must be in accordance with German Energy Savings Regulation, EnEV). The airline must be formed such that no condensate builds up (heat insulation, routing to the pellet heating system pointing slightly upward).

If the line leads outdoors, it should be provided with suitable wind protection. A protective grille (mesh width >1 cm) must be attached to the entry cross-section of the air duct. For the combustion air duct from the outdoors to fireplaces, the construction guideline for fire protection requirements of ventilation systems applies. Ventilation lines and their casing and insulation must be made of non-flammable materials (EI90*). If the combustion line is run through other rooms, the line must feature an I90* sheathing. When connecting the combustion airline to an air-exhaust gas system (LAS), the technical documents of the respective LAS manufacturer must be complied with.

Connection line (exhaust gas)

Maximum length: 2 m; max. 2 bends 90°; thermally insulated with at least 30 mm; CE according to DIN EN 1856-2; with KWB Easyfire type EF2 inspected systems: Schiedel Prima Plus system (certificate number 0036 CPD 9195 017/2006), Raab EW Alkon system (certificate number 0432 BPR 219914).

Connection line to the KWB Easyfire

- Schiedel Prima Plus system: Order the connector part from Schiedel (sealing material: ICS seal ring silicone Ø 150 mm, KRS sealing putty-ES to 300 °C)
- Raab EW Alkon system: Ordering the exhaust pipe union from KWB.
- With ambient air-independent operation, it is important that the exhaust pipe connection is installed pressure-tight.

Air-exhaust gas system (LAS)

Pressure-tight, construction guideline-approved for connection of ambient air-independent solid fuel fireplaces, not sensitive to humidity; air-exhaust gas systems with annular gap and non-insulated exhaust gas pipe cool the exhaust gas off too much and are therefore unsuitable. A chimney calculation incl. combustion air supply via the LAS system must be carried out by respectively qualified professionals! There must be no short-circuit between the exhaust gases and the supply air.

Draft limiter, blowback flap

For ambient air-independent operation, the draft limiter and blowback flap must be omitted if there is a ventilation/air conditioning system in the air network of the pellet heating system. In Austria, a draft limiter must be installed for energy conservation purposes – therefore, the omission of the draft limiter must be discussed with the chimney sweep!

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* in accordance with ÖNORM EN 13501

*1 Fireplace with combustion air blower for connection to an air-exhaust gas system. The combustion airline from the air shaft and the connector to the chimney are a component of the fireplace.

*2 Fireplace with combustion air fan for connection to a chimney. The combustion airline from outdoors and the connector to the chimney are a component of the fireplace.

Fuel storage room

The structural requirements for the heating room also apply to the fuel storage room. A rear-ventilated false floor must be installed at the same level as the top edge of the conveyor system if using wood chip fuel P31S in accordance with ISO 17225-4. If using wood chip fuel size P16S, then a rear-ventilated false floor is not mandatory in accordance with ISO 17225-4. The wall duct for the screw channel between storage room and heating room must be sealed such that it is fireproof (e.g. with rock wool). If a pumping car is used to fill the fuel storage room with pellets, it is necessary to mount hose couplings and pipelines (to be earthed). These are available from KWB. If this filling method is chosen, dust-proof sealing of the fuel storage room is required! The escaping air is extracted through a second earthed pipeline and hose coupling. Suction removal of the transport air is the responsibility of the fuel supplier. Filling nozzles that do not lead to the outside, but into the building must be sealed off (REI90*). The walls, windows and doors must withstand the over-pressure created during the filling process. In the event of bulk fuel storage, no electrical installations are permissible in the fuel storage room since they pose an ignition hazard. KWB biomass heating systems are supplied with all the necessary fire-protection equipment included. Depending on the local installation situation and the fire safety specifications required for your region, and on the type of fuel and storage volume, a manually triggered fire extinguisher and/or a built-in automatic fire extinguisher may have to be connected to a pressurised water line. The fire extinguisher with manual release featuring a frost-proof connection (from the heating room) is to be fitted at least with 3/4" or as DN 20 directly above the conduit of the conveyor system channel leading into the fuel storage room in the form of empty piping. The shut-off device that is to be installed in the boiler room must be marked with the following sign: "Fire extinguisher - fuel storage room". The Austrian TRVB H 118 (from December 2016) requires the following for Austria:

- A fire extinguisher with manual release must be installed for systems up to and including a capacity of 500 kW if 50–200 m^3 of wood chips are stored. If such a fuel-storage room is built next to fire-resistant structural components without openings, a REI90* enclosure/sheathing is not necessary.
- In the case of wood chip storage rooms in utility outbuildings with a fire wall facing living quarters, an REI90* enclosure/sheathing of the fuel-storage room is not necessary if the fire section is smaller than 800 m^2. Fuel must be stored separately from other goods (e.g. by means of wooden planking).
- A manual-release extinguisher should be installed when storing up to (and including) 200 m^3 of other wood materials (with dust portion) in systems up to and including 500 kW.
- For systems with a capacity greater than 500 kW or storage volumes greater than 200 m^3 a manual-release extinguisher is mandatory.

  If you have any questions, please contact your KWB factory representative. Above-ground fuel stores must have access to the outside by means of a door of at least 1,80 m^2 cross section, and be planked on the inside to prevent the fuel from trickling outside should the door be opened by mistake. The planking should be removable from outside. An inspection opening (REI90*) must be installed above the conveyor system channel. Please refer to the installation examples. In case of large storage facilities special legal regulations apply that were defined during the application for the building permit.

Guidelines and recommendations for building a pellet storage

In times of energy transition and the increased replacement of fossil fuel-based heating systems with pellet heating systems, convenience and operational reliability are decisive factors. Smooth heating operations and the resulting customer satisfaction depend on many factors, including the fuel, the injection process all the way to the pellet storage construction with filling line and fuel extraction system. For this reason, the aspects of safety, quality and ventilation have become increasingly important with regard to the pellet storage in the last few years. Various specifications with regard to accessibility, protection against fire and explosion and storage ventilation must be fulfilled in this process.
The Europe-wide applicable DIN EN ISO 20023 standard "Safe handling and storage of wood pellets in residential and other small-scale applications" (up to 100 tons storage capacity) provides related recommendations (published in early 2019). The statements contained in the standard are very well summarized in the information brochure published by the German Energy Wood and Pellet Association (Deutscher Energieholz- und Pellet-Verband - DEPV) "Storage of Wood Pellets". The brochure is aimed at heating system installers, planners, engineers and architects.

Guidelines and recommendations on handling wood pellets

Focus areas of the EU standard DIN EN ISO 20023

Focus area: Storage accessibility

Pellet storages must be accessible safely and via short paths. The injection path should be no more than 30 m. The injection and extraction nozzle should be no higher than 2 m. If this is not possible, safe means of ascend and descend must be provided. The pellet supplier should be able to safety and compression-free connect the injection hose, if required with 45° bends.

Focus area: Storage construction

The static requirements for the storage space must be complied with since it must be able to withstand the weight pressure and pressure spikes during filling, which may occur, e.g., during a chamber switch in the supply vehicle. Newly constructed storage space walls should be firmly connected with the ground and ceiling. In addition to affixing safety stickers on the storage space entrance door, care should be taken that the injection nozzles, ricochet protection mats and sloping floors, if any, are correctly positioned. Care should also be taken that the fuel extraction is properly acoustically decoupled.

Focus area: Storage ventilation

The requirements regarding the pellet storage ventilation are critical for health protection. According to DIN EN ISO 20023 the air intake and extraction lines should be designed so that a natural ventilation is ensured. Ventilated injection and extraction nozzles may also be taken into account for that. The standard also sets forth requirements regarding the placement of air-permeable fabric silos and provides options for storage room ventilation via adjacent heating rooms. In extreme cases, a machine-based ventilation via a fan can be installed, which, however, may only be operated in compliance with strict specifications. In summary, before building a pellet storage, the ventilation concept should include all those parameters that should also serve as the basis for the system handover to the operator.

The installer's duty to advise

The installer's duty to advise has now become more important. The standard prescribes the preparation of a handover certificate, which – combined with the heating installer's implicit verbal duty to advise – should be signed by both the installer and the customer during the handover of a commissioned heating system with pellet storage. This applies irrespective of who built the pellet storage. As part of the handover, the heating installer should inspect the storage and advise regarding safety measures (ventilation, avoidance of ignition sources) and operating aspects for the pellet storage. The handover certificate must provide a summary of the entire facility and its parameters and will aid during faults and complaints.

Preparing a ventilation concept – let's go!

The DEPI storage room configurator can be used to create an individual ventilation concept based on DIN EN ISO 20023. In addition to the number, length and situation of the injection nozzles and the correct installation of the ricochet protection mats, it defines the structural requirements for storage room walls and sloping floors and the dimensions of the additional ventilation openings. The concept furthermore is used as the basis for a correctly completed handover certificate. We will be happy to help you in this respect.

Brochure "Lagerung von Holzpellets" (Storage of Wood Pellets), DEPI

Pellet storage handover certificate

Storage room configurator, DEPI

General information about the pellet storage constructions

For pellets, the permissible pouring height is 3 m. Greater pouring heights must be clarified based on specific site conditions.

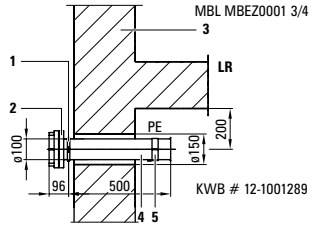
Heating load of the building [kW]	Consumption per year [t/a]	Stirrer without sloping floor (assumed fill height 2,5 m)		Fuel extraction with sloping floor (assumed fill height 2,5 m)	
		Storage room volume [m³]:	Storage room space [m²]:	Storage room volume incl. empty space [m³]:	Storage room space [m²]:
8	2,8	6,0	2,4	7,2	2,5
10	3,5	7,5	3,0	9,0	3,6
12	4,2	9,0	3,6	11	4,3
15	5,3	11	4,4	14	5,4
20	7,0	15	6,0	18	7,2
22	7,7	17	6,8	20	7,9
25	8,8	19	7,6	23	9,0
30	10,5	23	9,2	27	11
35	12,3	26	11	32	13
45	15,8	34	14	41	16
55	19,3	41	17	50	20
65	22,8	49	20	59	23
75	26,3	56	23	68	27
95	33,3	71	29	86	34
115	40,3	86	35	104	41
135	54	101	41	122	49

Calculation basis for the table: The calculation is based on an annual consumption of 1.500 full load hours per year

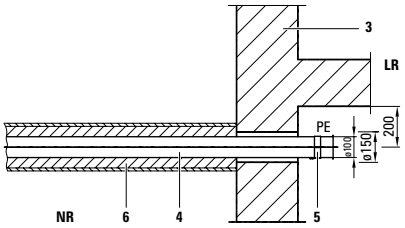
• Required storage room volume when using a stirrer system: 0,75 m³ per kW heating load • Required storage room volume when using a sloping floor: 0,9 m³ per kW heating load • Maximum pouring height: 3 m • Pellet bulk density: 650 kg/m³ • Annual consumption: 350 kg per kW heating load

Installation options for the pellet injection nozzle

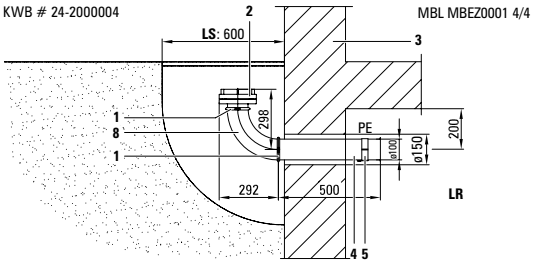
Standard model



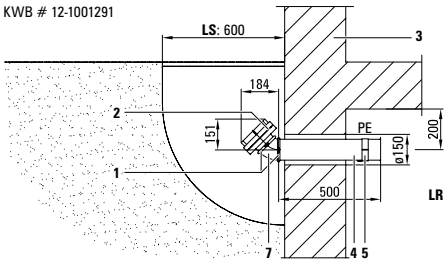
If there is a duct through other rooms



Option for light shaft 90°



Option for light shaft 45°



Legend

1	Tension ring: connect conductive!
2	Hose coupling system Storz "A" NW 110 with blind coupling. In the heating room or garage, the coupling must be installed with a removable REI90 cover!
3	Masonry
4	Steel pipe
5	Earth clip: Remove paint and ensure conductive connection!
6	Fireproof sheathing EI 90, e.g.: 50 mm rock wool + 15 mm fire safety plate
7	Pipe bend 45°
8	Pipe bend 90°
PE	Potential Earth
LS	Light shaft
LR	Fuel storage room
NR	Adjacent room

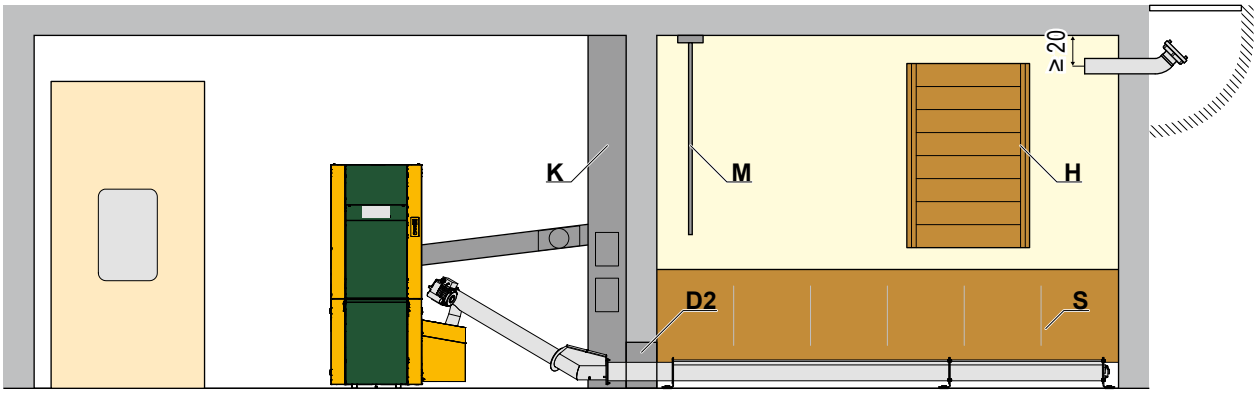
All dimensions in cm I Width x Height

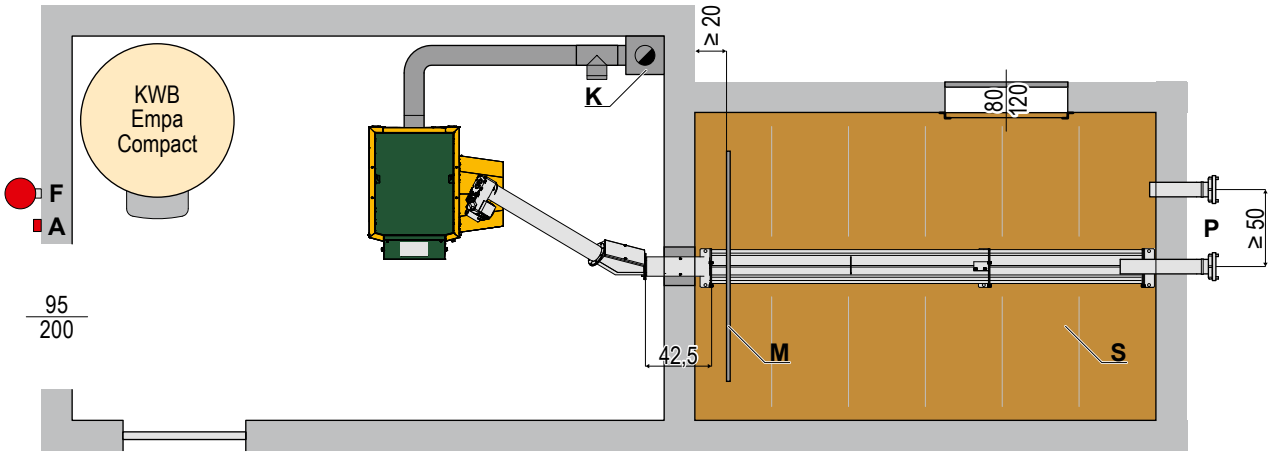
Practical examples pellet storage

Compatible with
KWB Combifire type CF2 18–38 kW
KWB Easyfire type EF2 2,4–38 kW
KWB Pelletfire Plus type MF2 S 45–135 kW

Storage room adjacent to boiler room

Pellet screw with sloping floor





Max. filling height: 300 cm

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
D2	Wall duct 35x35 cm: seal after installation, channel must be acoustically decoupled
F	Fire extinguisher
H	Protective door boards for pressure relief
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy saving damper with explosion flap (except for EF2 with ambient-air-independent operation)
M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.
S	Sloping floor with an incline of at least 40° and a smooth surface (e.g. with Betoplan or plywood boards)

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm².
- Assemble the drives outside the storage room.
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating systems KWB Easyfire type EF2 S and KWB Pelletfire Plus type MF2 S are available both as a right-sided as well as a left-sided model.
  The log wood and pellet heating system KWB Combifire type CF2 S is only available as a left-sided model.

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

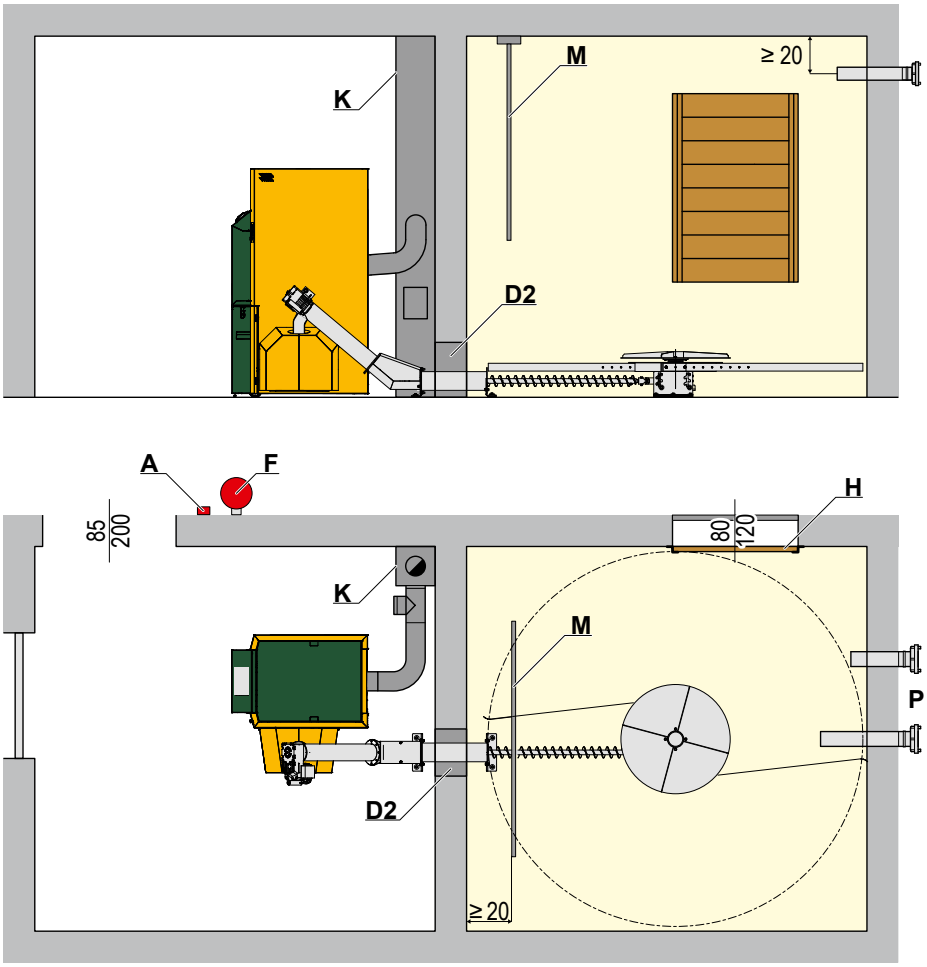
All dimensions in cm I Width x Height

Practical examples pellet storage

Compatible with
KWB Combifire type CF2 18 – 38 kW
KWB Easyfire type EF2 2,4 – 38 kW
KWB Pelletfire Plus type MF2 S 45 – 135 kW

Storage room adjacent to boiler room

KWB Pellet Stirrer Plus



Max. filling height: 300 cm

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
D2	Wall duct 35 x 35 cm: seal after installation, channel must be acoustically decoupled
F	Fire extinguisher
H	Protective door boards for pressure relief
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with explosion flap (except for type EF2 with ambient air-independent operation)

M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm².
- Assemble the drives outside the storage room.
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating system KWB Easyfire with elbow screw (type EF2 S) is available both as a right-sided as well as a left-sided model.

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

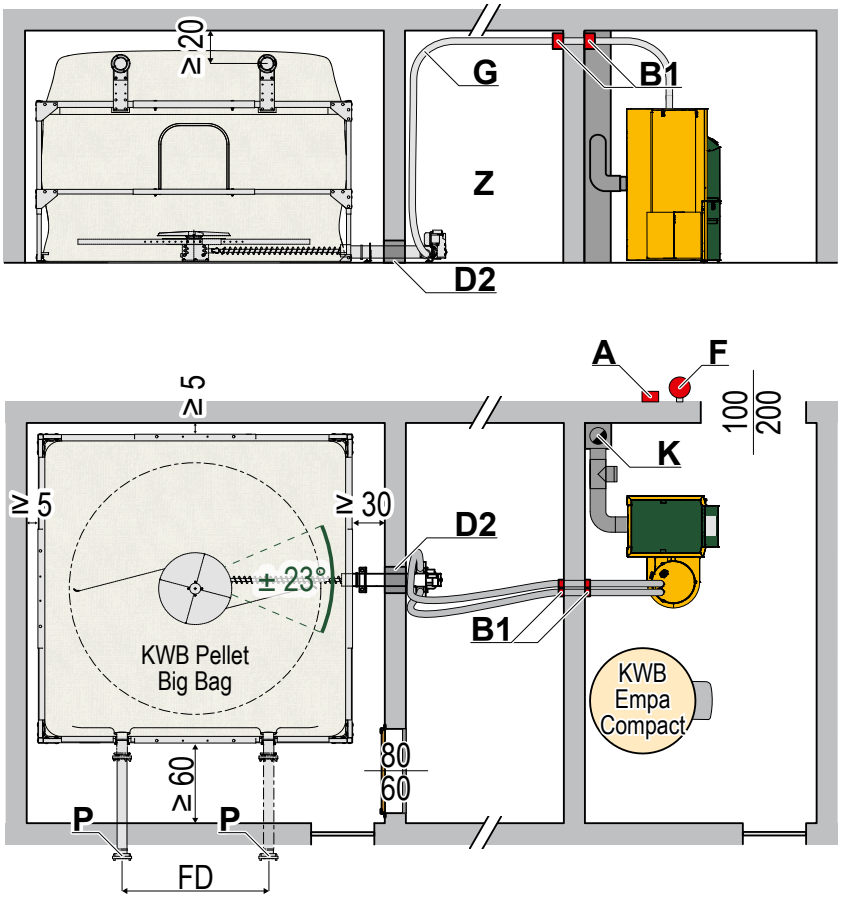
All dimensions in cm I Width x Height

Practical examples fabric pellet tank

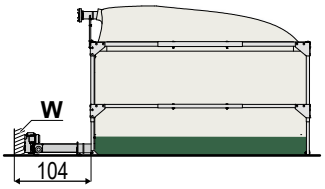
KWB Pellet Big Bag

KWB Pellet Big Bag and suction conveyor

Compatible with
KWB Combifire type CF2 GS 18–38 kW
KWB Easyfire type EF2 GS 2,4–38 kW
KWB Easyfire type EF3 GS 40–60 kW
KWB Easyfire 1 Plus type USP GS 10–20 kW
KWB Pelletfire Plus type MF2 GS 45–135 kW

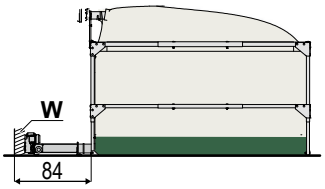


Standard variant



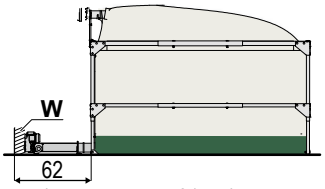
(Headpiece L = 73,5 cm)

Medium variant



(Headpiece L = 53,5 cm)

shorter version



(Headpiece L = 31 cm)

Max. filling height: 212 cm

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
B1	Fire protection sleeve conveyor hoses Ø 6 cm, drill hole Ø 7 cm, respectively, - seal after installation. **Local fire safety regulations and other requirements must be strictly complied with!**
D2	Wall duct 35 x 35 cm: seal after installation, channel must be acoustically decoupled
F	Fire extinguisher
G	Hose routing • Max. total conveyor length: 25 m • Maximum conveyor height without step: 3 m • Maximum conveyor height with step: 5 m – with at least 3 m height difference, install step • Put hoses horizontally for at least 1 m per step • All conveying hose bend radii at least 40 cm

K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with explosion flap (except for type EF2 with ambient air-independent operation)
P	Pellet injection connector: 1 or 2 injection connectors (depending on size of the KWB Pellet Big Bag) – suction is not required
W	Clearance for maintenance
Z	Gap

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm². • Assemble the drives outside the storage room.
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating systems KWB Easyfire and KWB Combifire with suction conveyor are only available as left-sided models. The pellet heating system KWB Pelletfire Plus is available both as a right-sided as well as a left-sided model.

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

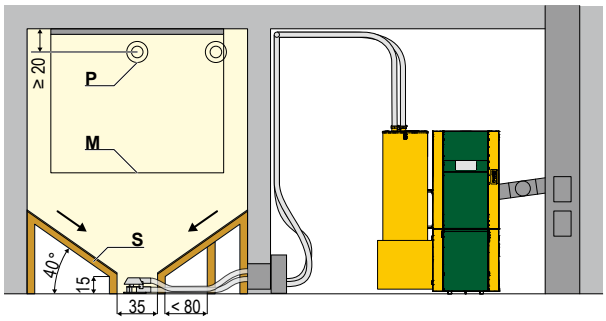
All dimensions in cm | Width x Height

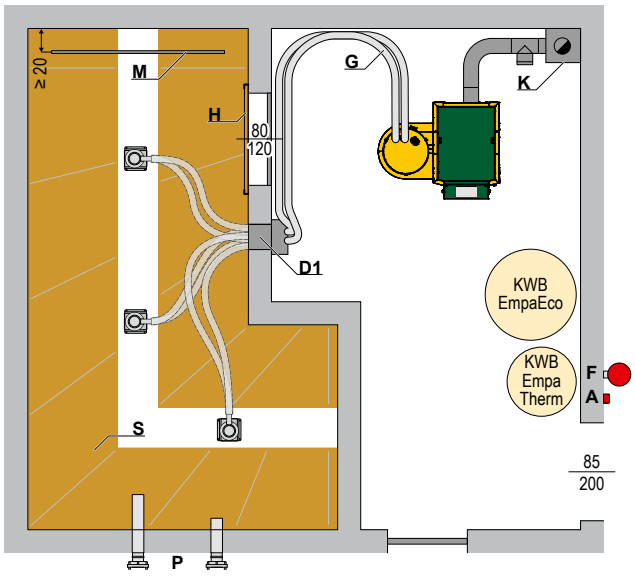
Practical examples pellet storage

Storage room next, above or below the heating room

Compatible with
KWB Combifire type CF2 GS 18 – 38 kW
KWB Easyfire type EF2 GS 2,4 – 38 kW
KWB Easyfire type EF3 GS 40 – 60 kW
KWB Easyfire 1 type USP GS 10 – 20 kW
KWB Pelletfire Plus type MF2 GS 45 – 65 kW

KWB sampling probes with suction conveyor (only to 65 kW)





Max. filling height: 300 cm

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
D1	Wall duct Ø 25 cm, central axis: upper edge of floor + 14 cm, distance to other construction parts ≥ 35 cm from the central axis. The wall duct must be free of hollow spaces and should have a smooth and clean finish.
F	Fire extinguisher
G	Hose routing for the Easyfire type EF2 GS / Combifire type CF2 GS / Pelletfire Plus type MF2 GS • Max. conveyance length of sample probes: 25 m • Max. delivery height without step 3 m • Maximum conveyor height with step: 5 m – must install step at the latest at a height difference of 3 m Hose routing for the Easyfire 1 Plus type USP GS • Max. suction length (length of run between the suction container and switch unit or wall): 10 m • Max. suction length in the storage room (wall to sample probe): 4 m • Max. total conveyance height: 3,5 m • Installing a step at the respective height difference is NOT possible for the Easyfire 1 Plus!

G	General tips on hose routing • Arrange hoses horizontally for at least 1 m per step • All conveying hose bend radii at least 40 cm
H	Protective door boards for pressure relief
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with explosion flap (except for type EF2 with ambient air-independent operation)
M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.
S	Sloping floor with an incline of at least 40 ° and a smooth surface (e.g. with Betoplan or plywood boards)

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm². • Assemble the drives outside the storage room.
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating systems KWB Easyfire, KWB Easyfire 1 Plus and KWB Combifire with suction conveyor are only available as left-sided models.
  The pellet heating system KWB Pelletfire Plus is available both as a right-sided as well as a left-sided model.

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

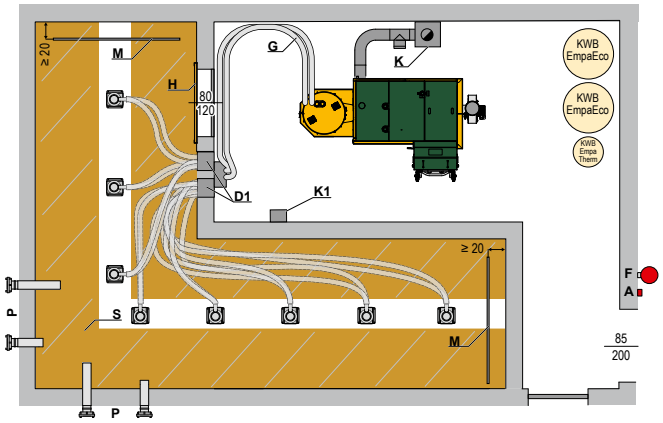
All dimensions in cm I Width x Height

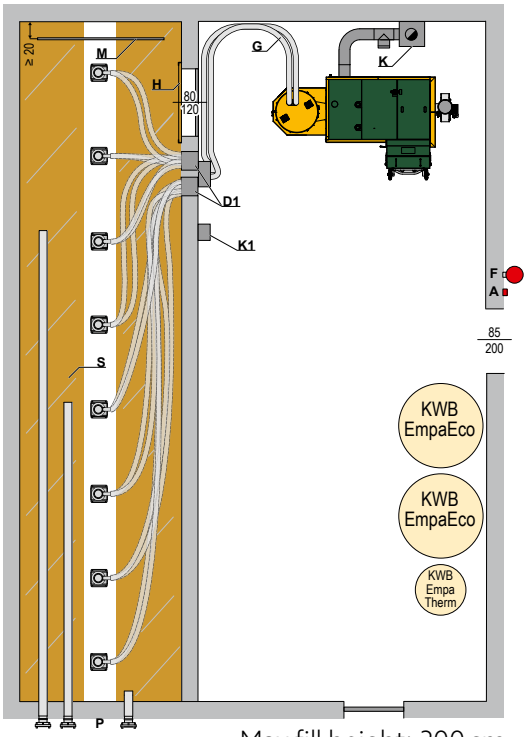
Practical examples pellet storage

Compatible with
- **KWB Easyfire type EF2 GS** 2,4 – 38 kW
- **KWB Easyfire type EF3 GS** 40 – 60 kW
- **KWB Pelletfire Plus type MF2 GS** 45 – 135 kW

Storage room next, above or below the heating room

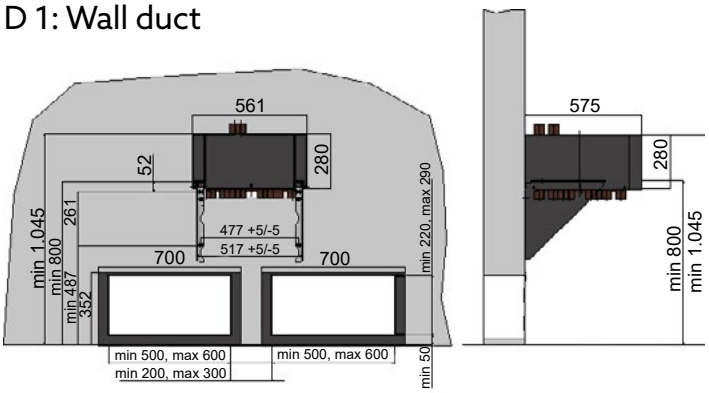
Examples KWB switchover unit 8 sampling probes with suction conveyor





Max fill height: 300 cm

D 1: Wall duct



Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
F	Fire extinguisher
G	Hose routing for the Easyfire type EF2 GS / Combifire type CF2 GS / Pelletfire Plus type MF2 GS • Max. conveyance length of sample probes: 25 m • Max. delivery height without step 3 m • Maximum conveyor height with step: 5 m – must install step at the latest at a height difference of 3 m
G	General tips on hose routing • Arrange hoses horizontally for at least 1 m per step • All conveying hose bend radii at least 40 cm
H	Protective door boards for pressure relief
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with explosion flap (except for type EF2 with ambient air-independent operation)
K1	KWB extension module (Comfort 4)
M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.
S	Sloping floor with an incline of at least 40° and a smooth surface (e.g. with Betoplan or plywood boards)

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm².
- Assemble the drives outside the storage room.
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating systems KWB Easyfire, KWB Easyfire 1 Plus and KWB Combifire with suction conveyor are only available as left-sided models.
  The pellet heating system KWB Pelletfire Plus is available both as a right-sided as well as a left-sided model.

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

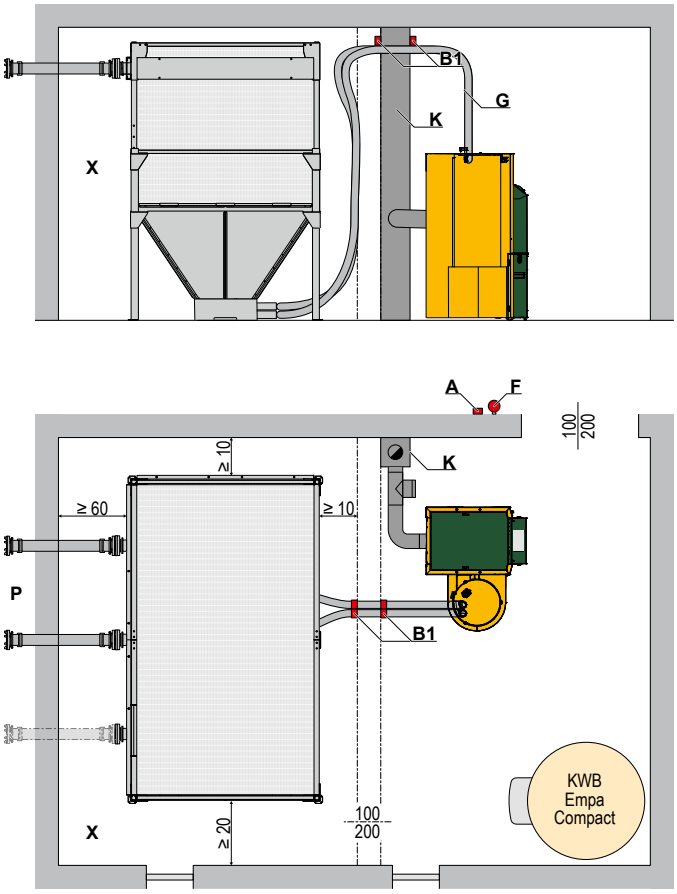
All dimensions in cm l Width x Height

Practical examples fabric pellet tank

Placement adjacent to, above/below the heating room or outside protected from the weather

Compatible with
KWB Combifire type CF2 GS 18 – 38 kW
KWB Easyfire type EF2 GS 2,4 – 38 kW
KWB Easyfire type EF3 GS 40 – 60 kW
KWB Easyfire 1 Plus type USP GS 10 – 20 kW

KWB Pellet Box



Max. filling height: 250 cm

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
B1	Fire protection sleeve suction hoses Ø 6 cm, drill hole Ø 7 cm, respectively - seal after installation. **Local fire safety regulations and other requirements must be strictly complied with!**
F	Fire extinguisher
G	Hose routing • Max. total conveyor length: 25 m • Maximum conveyor height without step: 3 m • Maximum conveyor height with step: 5 m – with at least 3 m height difference, install step • Arrange hoses horizontally for at least 1 m per step • All conveying hose bend radii at least 40 cm
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with blowback flap (except for type EF2 with ambient air-independent operations)
P	Filling nozzles (injection & suction nozzles): 2 or 3 filling nozzles (depending on the size of the KWB Pellet Box)
X	Fabric tank installation room: • Provide for ventilation of the fabric tank storage room sized ≥ 400 cm² • No pointy or sharp elements may be stored in the room where the fabric tanks is placed! • The fabric must not come into contact with moist walls. • UV light must be strictly avoided in the fabric tank storage room (e. g. glue UV-foil to the windows). • As the pellet dust forms residues over the years, KWB recommends cleaning the fabric tank every 3-5 years.

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm².
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating systems KWB Easyfire and KWB Combifire with suction conveyor are only available as left-sided models. The pellet heating system KWB Pelletfire Plus is available both as a right-sided as well as a left-sided model.

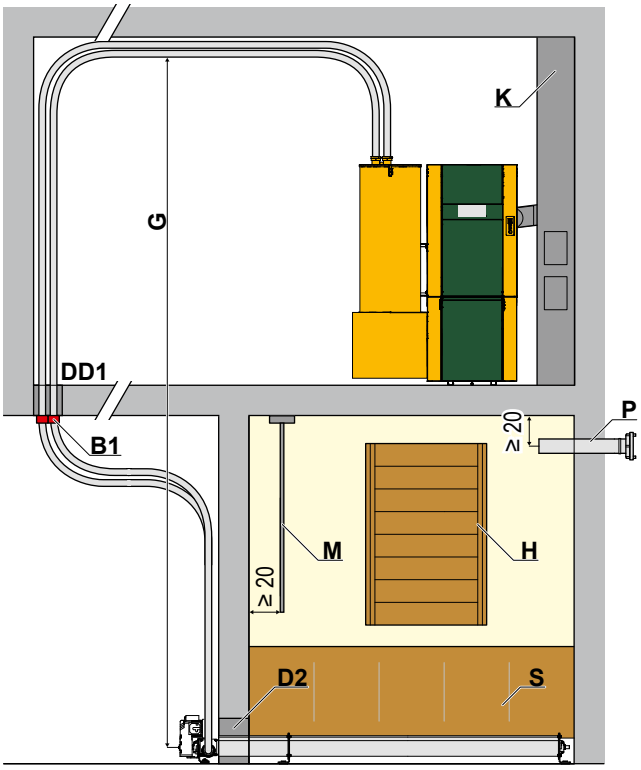
For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

All dimensions in cm I Width x Height

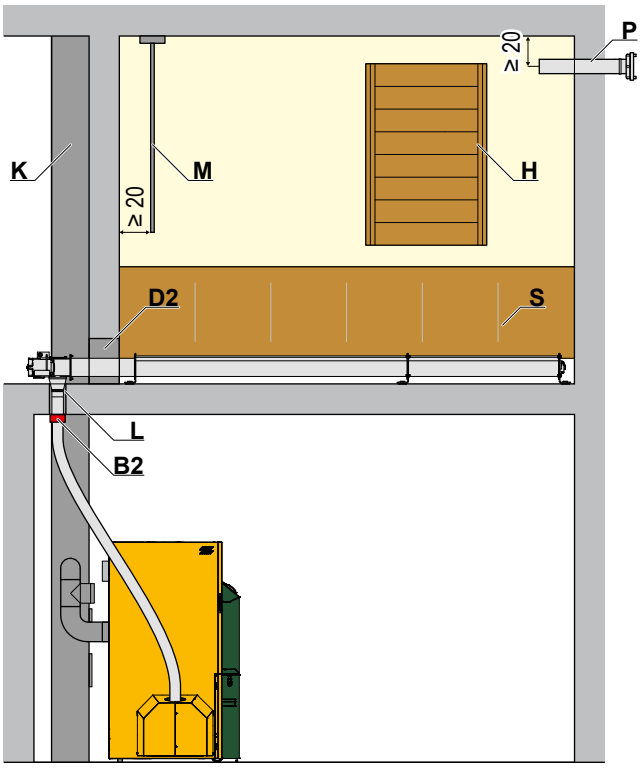
Practical examples of special solutions pellet operation

Compatible with
upon request

Conveyor screw with suction conveyor



Conveyor screw with drop hose model



Max. filling height: 300 cm

Legend

B1	Fire protection sleeve suction hoses Ø 6 cm, drill hole Ø 7 cm, respectively – seal after installation; the channel must be acoustically decoupled. **Local fire safety regulations and other requirements must be strictly complied with!**
B2	Fire safety sleeve drop hose Ø 7,5 cm. **Local fire safety regulations and other requirements must be strictly complied with!**
D2	Wall duct 35 x 35 cm: seal after installation, channel must be acoustically decoupled
CS	Conveyor screw
G	Hose routing • Max. total conveyor length: 25 m • Maximum conveyor height without step: 3 m • Maximum conveyor height with step: 5 m – with at least 3 m height difference, install step • Arrange hoses horizontally for at least 1 m per step • All conveying hose bend radii at least 40 cm
H	Protective door boards for pressure relief
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with blowback flap
DD1	Ceiling duct Ø 10 cm: seal after installation, channel must be acoustically decoupled
M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.
S	Sloping floor with an incline of at least 40° and a smooth surface (e.g. with Betoplan or plywood boards)

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm². • Assemble the drives outside the storage room.
- Take the ceiling load / static loads into account!
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!
- The pellet heating systems KWB Easyfire and KWB Combifire with suction conveyor are only available as left-sided models. The pellet heating system KWB Pelletfire Plus is available both as a right-sided as well as a left-sided model.

* Planning advice for KWB Pelletfire Plus: As of a capacity of 65 kW, the use of steel pipe bends should be planned for all direction changes in the pellet conveying hoses (except for the return air hose).

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

All dimensions in cm | Width x Height

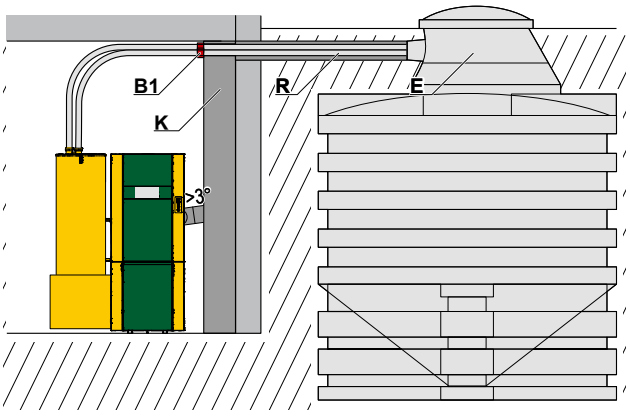
Practical examples for special solutions in pellet operations

Compatible with
KWB Combifire type CF2 GS 18–38 kW
KWB Easyfire type EF2 GS 2,4–38 kW
KWB Easyfire type EF3 GS 40–60 kW
KWB Easyfire 1 Plus type USP GS 10–20 kW
KWB Pelletfire Plus type MF2 GS 45–135 kW

Suction conveyor for buried tank

The buried tank itself, as well as extraction from the buried tank, is not included in the KWB product line. KWB recommends the Geotank system by Geoplast:

Kunststofftechnik GmbH
A-2604 Theresienfeld, Bahnstraße 45
www.pelletstank.com



Legend

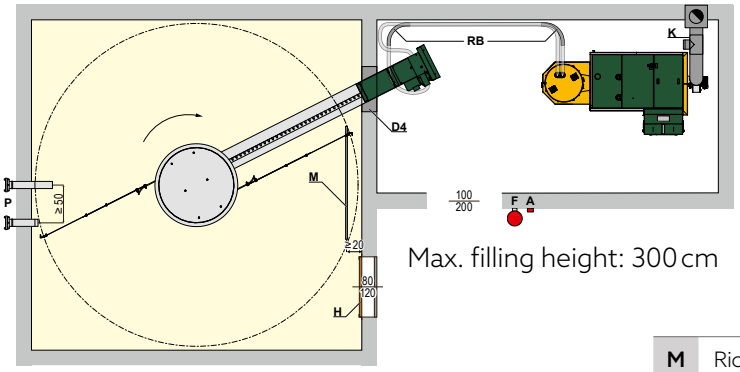
B1	Fire protection sleeve suction hoses Ø 6 cm, drill hole Ø 7 cm, respectively - seal after installation. **Local fire safety regulations and other requirements must be strictly complied with!**
R	A protective conduit (Ø 15 or 20 cm) for the underground installation of the suction hoses must be provided and laid by the customer. The protective conduit and wall duct must be sealed tight to the outside.
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with explosion flap (except for type EF2 with ambient air-independent operation)
E	Buried tank

Notes
• Provide ventilation for the heating room sized ≥ 400 cm². • Take the ceiling load / static loads into account! • Assemble the drives outside of the storage room • **Local fire safety regulations and other requirements must be strictly complied with!** • Maintain the legally prescribed distances to flammable materials! • The pellet heating systems KWB Easyfire with suction conveyor are only available as left-sided models. The pellet heating system KWB Pelletfire Plus is available both as a right-sided as well as a left-sided model.

Suction system for large storages

Compatible with
KWB Pelletfire Plus type MF2 GS* 45–135 kW

Combine suction conveyor only with spring-blade rotary stirrer!



Max. filling height: 300 cm

Legend

C	False floor optional – it is possible to install the conveyor channel in a recess in the floor. (Rear ventilation recommended)
D4	Wall duct 60 × 60 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
G	Hose routing • Max. total conveyor length: 25 m • Maximum conveyor height without step: 3 m • Maximum conveyor height with step: 5 m – with at least 3 m height difference, install step • Arrange hoses horizontally for at least 1 m per step • All conveying hose bend radii at least 40 cm
M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.
RB	Planning advice for KWB Pelletfire Plus: As of a capacity of 65 kW or during basic operation, a reinforced pellet conveying hose with a bend radius R500 (Longlife execution) should be planned for.
SK	Suction head

* Planning advice for KWB Pelletfire Plus: As of a capacity of 65 kW, the use of steel pipe bends should be planned for all direction changes in the pellet conveying hoses (except for the return air hose).

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

All dimensions in cm I Width x Height

Guidelines and recommendations for building a wood chip storage

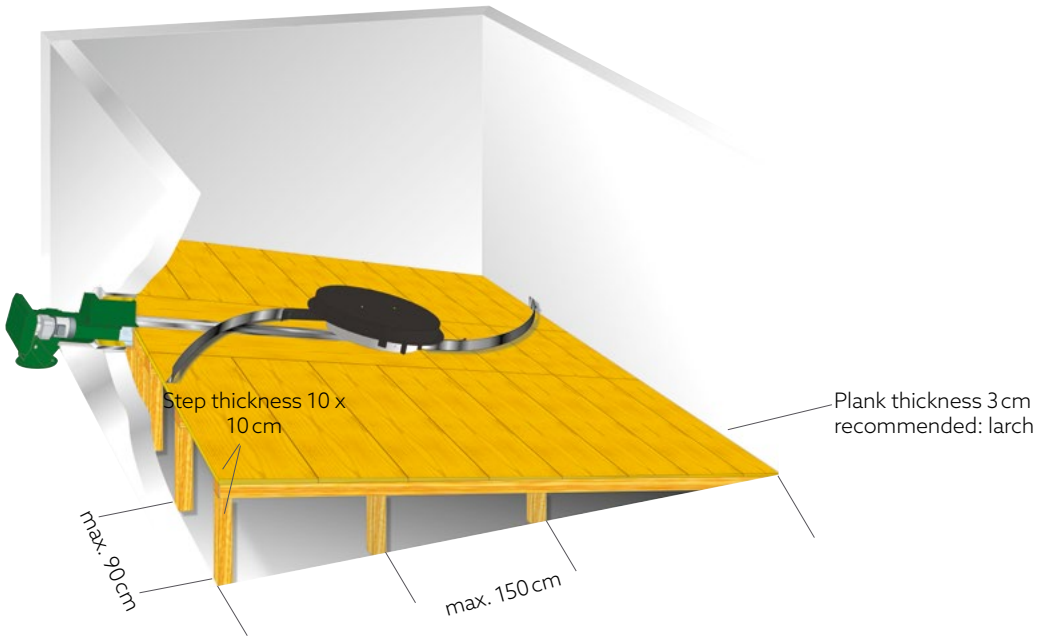
Wood chip storage room

Please observe the rule that the fill height may be no more than 1,5 times the storage room diameter. In the event of higher fill heights, the wood chips start creating bridges which leads to failures in the fuel conveyance!

Heating load of the building [kW]	Annual consumption [m³]	Required storage room volume [m³]:
20	50	74
30	75	111
40	100	148
45	113	167
50	125	185
60	150	222
65	163	241
70	175	259
80	200	296
100	250	370
108	270	400
120	300	444

Calculation basis for the table:
- Wood chips with 25% moisture content and size P16S according to EN 14961-4
- Consumption: 2,5 m³ wood chips per kW heating load
- Storage room volume: 3,7 m³ per kW heating load
- 1.500 full load hours per year

Example false floor



All dimensions in cm I Width x Height

Practical examples for the wood chip storage

Thanks to KWB's flexible and diverse conveyor systems, a solution can be found for almost every structural situation.

Heating in an adjacent building

KWB Multifire with stirrer system and conveyor screw: direct storage room filling

Heating system in the basement with direct filling

KWB Multifire with double heating system with stirrer system and 2 conveyor screws: direct storage room filling

Heating in a separate heating house

KWB Multifire with double heating system with stirrer system and 2 conveyor screws: direct storage room filling

Heating system in the basement with filling screw

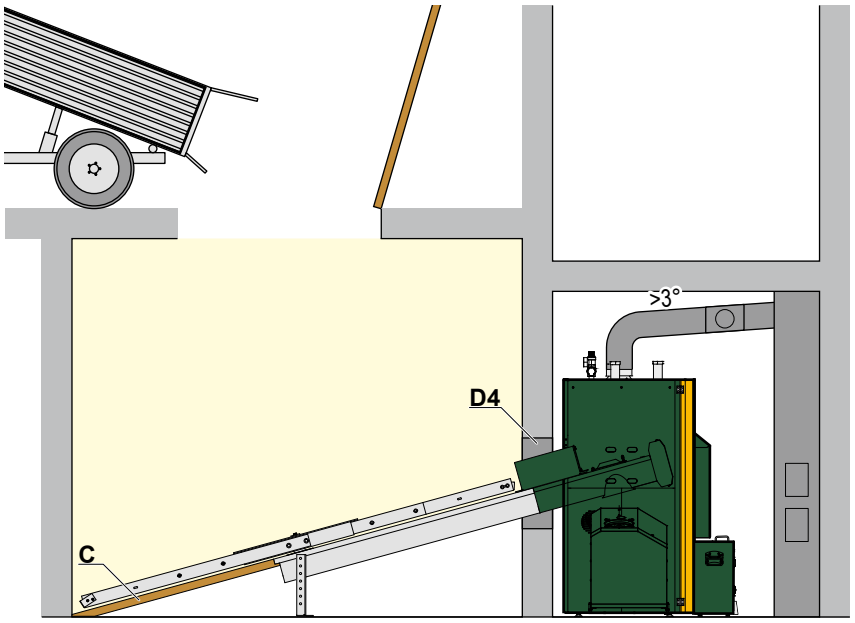
KWB Multifire with stirrer system and conveyor screw: Storage room filling with filling screw

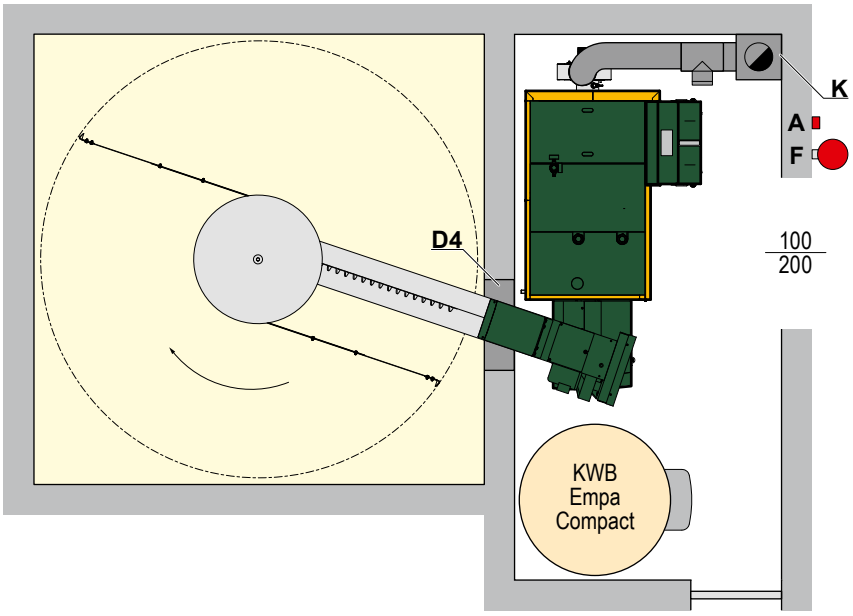
All dimensions in cm I Width x Height

Wood chip storage adjacent to heating room

Compatible with
KWB Pelletfire Plus type MF2 S 45 – 135 kW
KWB Multifire type MF2 D/ZI 20 – 120 kW
KWB Powerfire type TDS 150 kW
KWB Powerfire type TDS 200 – 300 kW only for pellet operation

Stirrer with conveyor channel and direct connection





Max. filling height: Stirrer diameter x 1,5;
A maximum pouring height of 3 m is permitted in pellet operations.

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
C	False floor optional – it is possible to install the conveyor channel in a recess in the floor (we recommend rear ventilation and acoustic decoupling)
D4	Wall duct 60 × 60 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)

F	Fire extinguisher
K	Chimney: Exhaust gas pipe and chimney design according to "Technical data" table, energy-saving damper: Installation with blowback flap

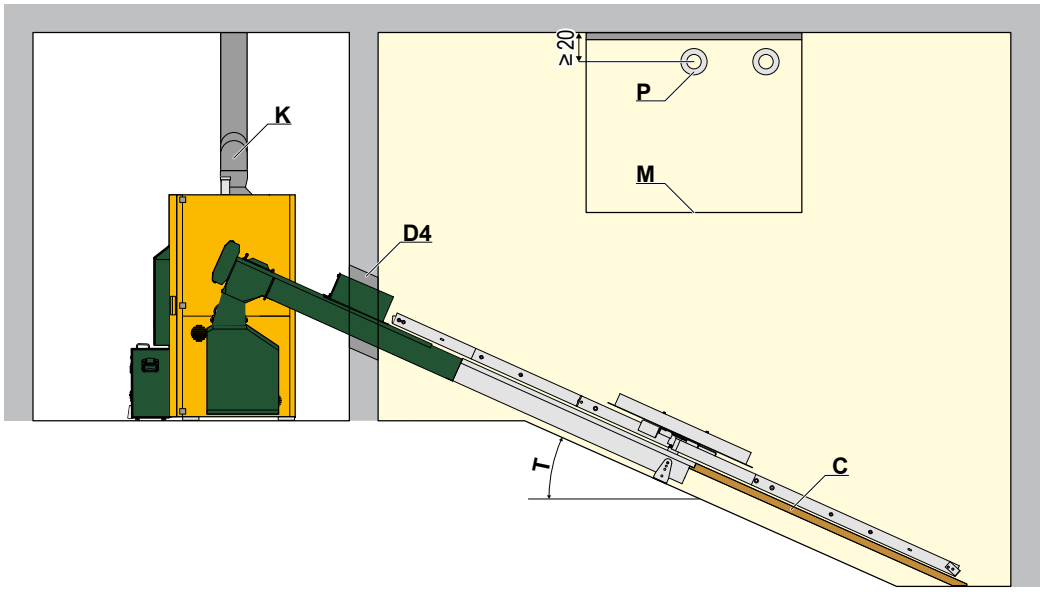
For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

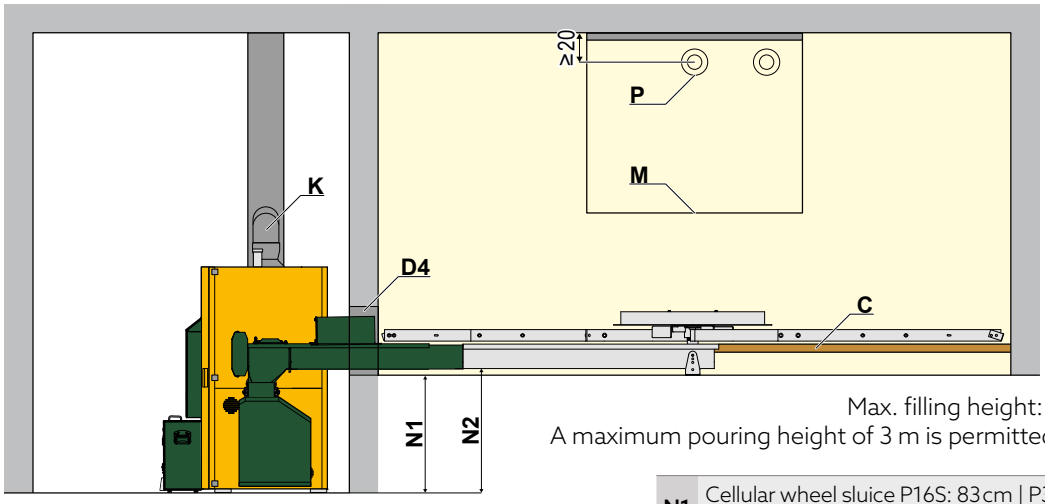
All dimensions in cm I Width x Height

Wood chip storage adjacent to heating room

Compatible with
KWB Pelletfire Plus type MF2 S 45–135 kW
KWB Multifire type MF2 D/ZI 20–120 kW
KWB Powerfire type TDS 150 kW
KWB Powerfire type TDS 200–300 kW only for pellet operation

Stirrer with conveyor channel and direct connection





Max. filling height: Stirrer diameter x 1,5;
A maximum pouring height of 3 m is permitted in pellet operations.

Legend

C	False floor optional – it is possible to install the conveyor channel in a recess in the floor. (Rear ventilation recommended)
D4	Wall duct 60 × 60 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
K	Keep access to the chimney free: >60 cm; exhaust pipe and chimney design according to "Technical data" table; energy-saving damper: installation with blowback flap
M	Ricochet protection mat

N1	Cellular wheel sluice P16S: 83 cm | P31S: 93 cm Hopper ZI: 92 cm | type MF2 S pellet operation: 73 cm
N2	Cellular wheel sluice P16S: 88 cm | P31S: 98 cm Hopper ZI: 97 cm | type MF2 S pellet operation: 78 cm
T	Wood chip operation: from > 100 kW max. 15° up to ≤ 100 kW max. 20° Pellet operation: up to ≤ 135 kW max. 20°
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm².
- Take the ceiling load / static loads into account!
- Assemble drives outside the storage room
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!

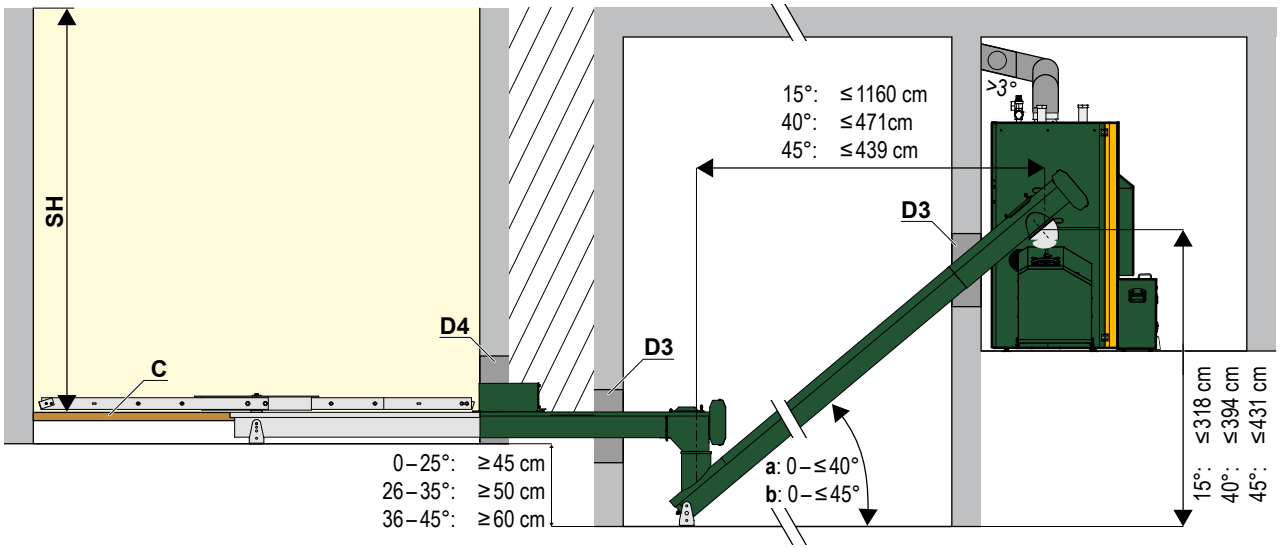
For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

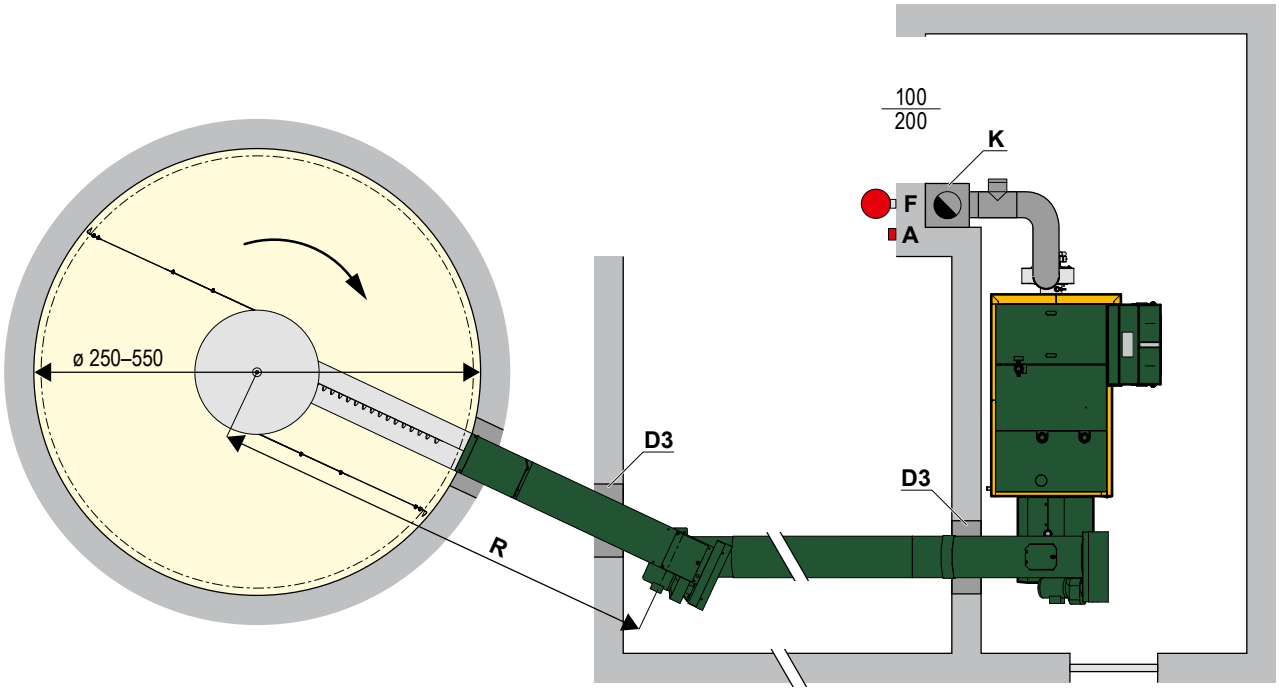
All dimensions in cm I Width x Height

Wood chip storage at a distance from the heating room

Compatible with

- **KWB Pelletfire Plus type MF2 S** 45–135 kW
- **KWB Multifire type MF2 D/ZI** 20–120 kW
- **KWB Powerfire type TDS** 150 kW
- **KWB Powerfire type TDS** 200–300 kW only for pellet operation





Max. filling height: Stirrer diameter x 1,5;
A maximum pouring height of 3 m is permitted in pellet operations.

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
C	False floor optional – it is possible to install the conveyor channel in a recess in the floor. (Rear ventilation and acoustic decoupling are recommended)
D3	Wall duct 50 × 50 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
D4	Wall duct 60 x 60 cm; seal after installation, channel must be acoustically decoupled

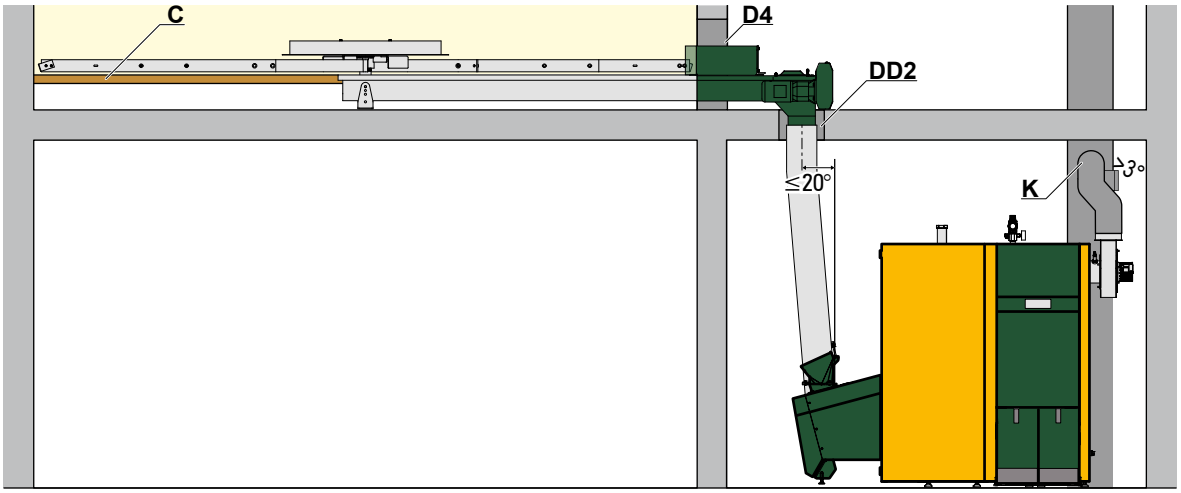
F	Fire extinguisher
K	Chimney: Exhaust gas pipe and chimney design according to "Technical data" table, energy-saving damper: Installation with blowback flap
N1	Pouring height upon request (depends on storage room width and length, and fuel)
R	Screw length ≤ 1.200 cm
SH	Pouring height

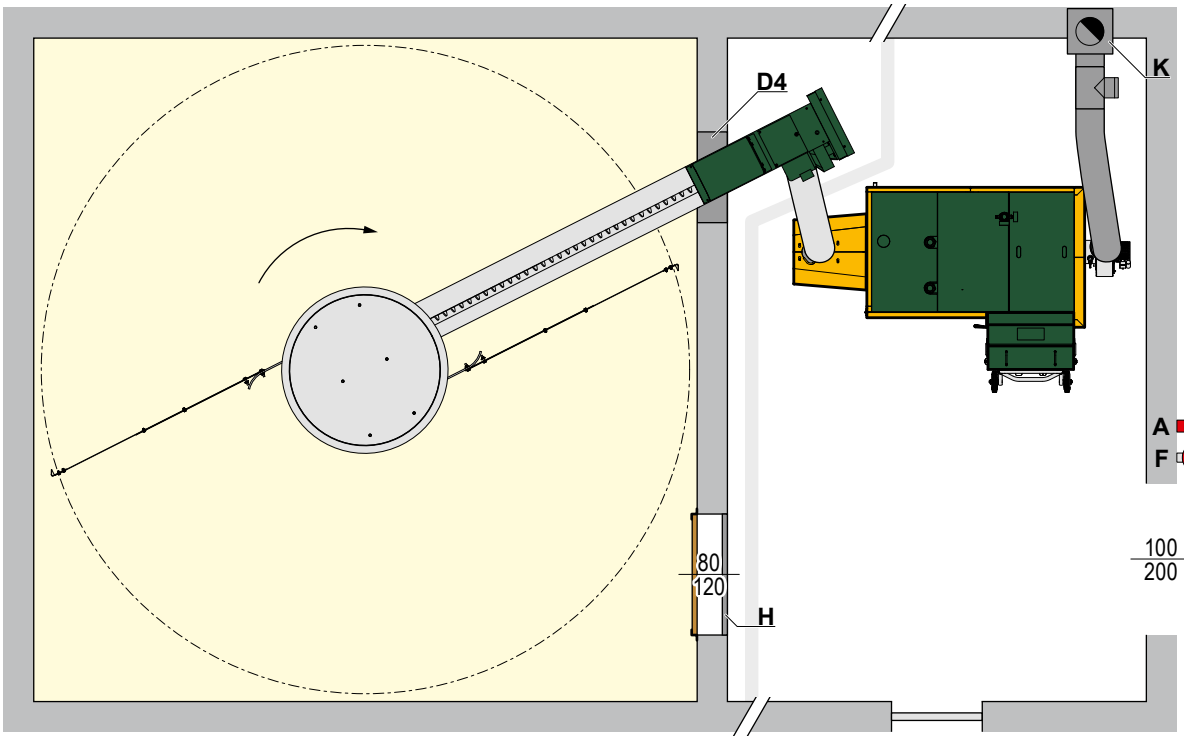
For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

All dimensions in cm I Width x Height

Wood chip storage above the heating room

Compatible with
KWB Pelletfire Plus type MF2 S 45 – 135 kW
KWB Multifire type MF2 D/ZI 20 – 120 kW
KWB Powerfire type TDS 150 kW
KWB Powerfire type TDS 200 – 300 kW only for pellet operation





Max. filling height: Stirrer diameter x 1,5;
A maximum pouring height of 3 m is permitted in pellet operations.

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
C	False floor optional – it is possible to install the conveyor channel in a recess in the floor. (Rear ventilation and acoustic decoupling are recommended)
D4	Wall duct 60 × 60 cm; seal after installation; the channel must be acoustically decoupled (> 2 cm acoustic insulation)
F	Fire extinguisher

H	Hatch: Protective door boards for pressure relief
K	Chimney: Exhaust pipe and chimney design according to "Technical data" table, energy-saving damper: Installation with blowback flap
DD2	Ceiling duct 30 × 30 cm, seal after installation; the channel must be acoustically decoupled (> 2 cm acoustic insulation)

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

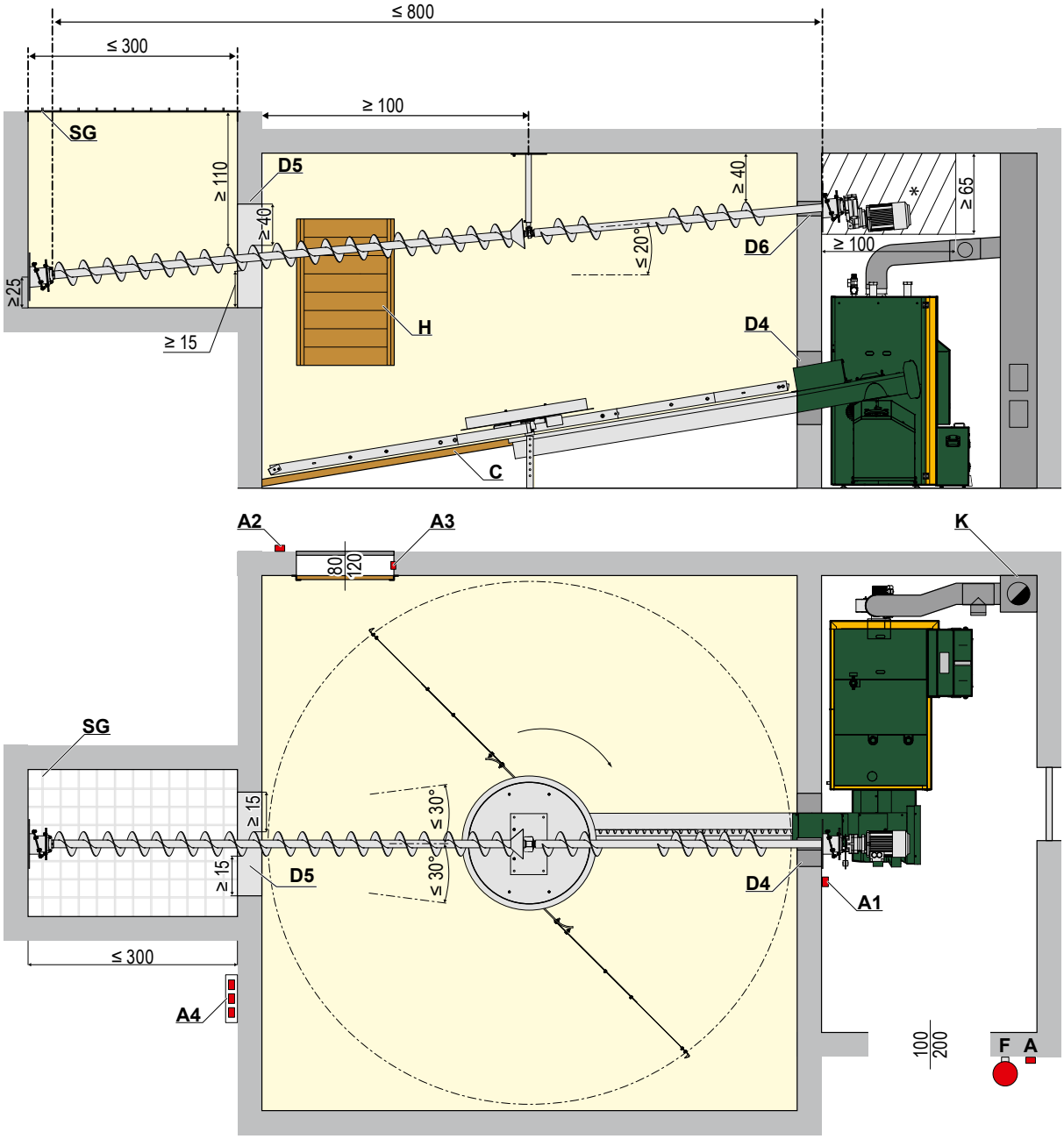
All dimensions in cm I Width x Height

Stirrer with wood chip filling screw

Compatible with

KWB Multifire type MF2 D/ZI 20 – 120 kW

KWB Powerfire type TDS 150 kW



Max. filling height: Stirrer diameter x 1,5;
A maximum pouring height of 3 m is permitted in pellet operations.

Legend

A	Emergency-stop switch: Boiler NOT de-energised, but combustion stopped – heat dissipation continues!
A1	Emergency off switch or switches: For the motor
A2	Emergency off switch or switch with key: For the door to the burner chamber storage room
A3	Door contact end switch: On the door frame to the burner chamber storage room
A4	Emergency off switch + On switch + Off switch: At the operator station at the filling shaft
C	False floor optional – it is possible to install the conveyor channel in a recess in the floor. (Rear ventilation and acoustic decoupling are recommended)
D4	Wall duct 60 × 60 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
D5	Wall duct 80 x 80 cm
D6	Wall duct Ø 10 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
F	Fire extinguisher
H	Hatch: Protective door boards for pressure relief
K	Chimney: Exhaust pipe and chimney design according to "Technical data" table, energy-saving damper: Installation with blowback flap
SG	Tightly bolted protective grille Mesh width 20 cm

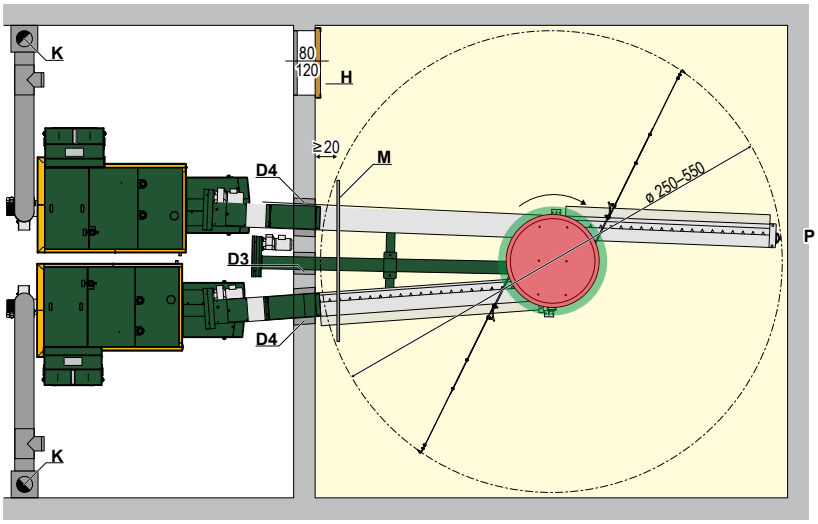
For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

All dimensions in cm I Width x Height

Conveyor systems for double boiler systems

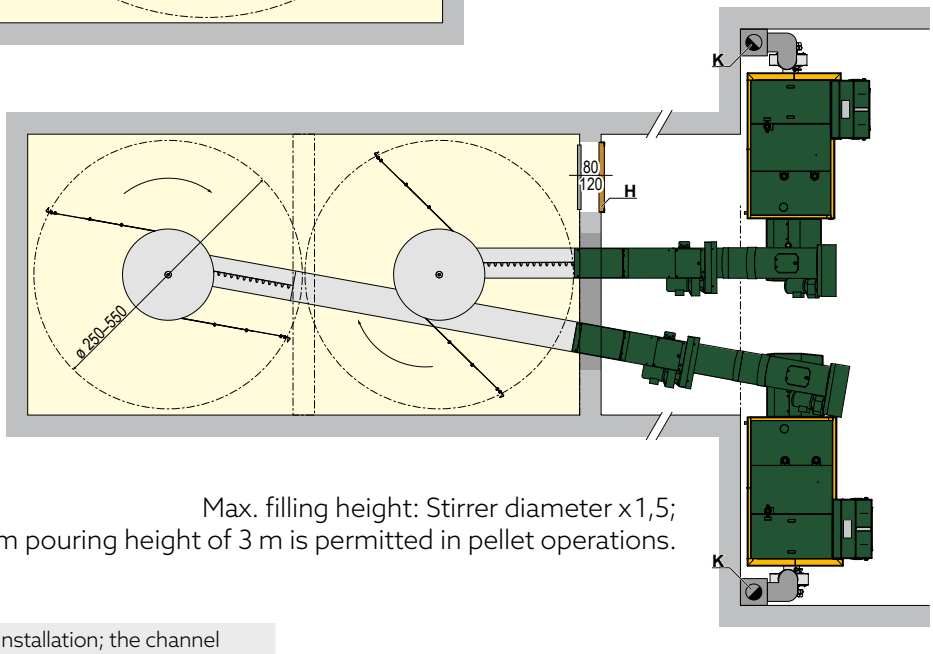
Compatible with
KWB Pelletfire Plus type MF2 S 45 – 135 kW
KWB Multifire type MF2 D/ZI 20 – 120 kW
KWB Powerfire type TDS 150 kW
KWB Powerfire type TDS 200 – 300 kW only for pellet operation

Stirrer with v-shaped and y-shaped conveyor channel and direct connection



Planning advice: The Y-shaped conveyor channel has a short screw channel and a long screw channel where half of the channel is closed. The opening of the long channel must reach to under the stirrer disc, but remain in the green ring area (ring width 140 mm). It must not reach into the blocking zone (red area, diameter 820 mm).

Dual boiler system with stirrers arranged one behind the other



Max. filling height: Stirrer diameter x 1,5;
A maximum pouring height of 3 m is permitted in pellet operations.

Legend

D3	Wall duct 50 × 50 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
D4	Wall duct 60 × 60 cm; seal after installation; the channel must be acoustically decoupled (at least 2 cm acoustic insulation)
H	Hatch: Protective door boards for pressure relief
K	• Keep access to the chimney free: at least 60 cm • Exhaust pipe and chimney model according to "Technical data" table • Install energy-saving damper with blowback flap

M	Ricochet protection mat
P	Ventilated filling nozzles (injection & suction nozzles) Place the injection connector in the middle of the room and the suction nozzle ≥ 50 cm to the side of the injection connector in the direction of the storage room door. The suction nozzle should always be cut as short as possible inside, almost flush with the wall (it must still be possible to mount the earthing clamp!). Both nozzles should be attached at a distance of ≥ 50 cm from the side walls and ≥ 20 cm from the ceiling.

Notes

- Provide ventilation of the heating room sized 5 cm² / kW or ≥ 400 cm².
- Take the ceiling load / static loads into account!
- Mount the drives outside of the storage room
- **Local fire safety regulations and other requirements must be strictly complied with!**
- Maintain the legally prescribed distances to flammable materials!

For a compliant pellet storage room design, KWB recommends implementing the requirement of the European DIN EN ISO 20023 standard.

All dimensions in cm I Width x Height