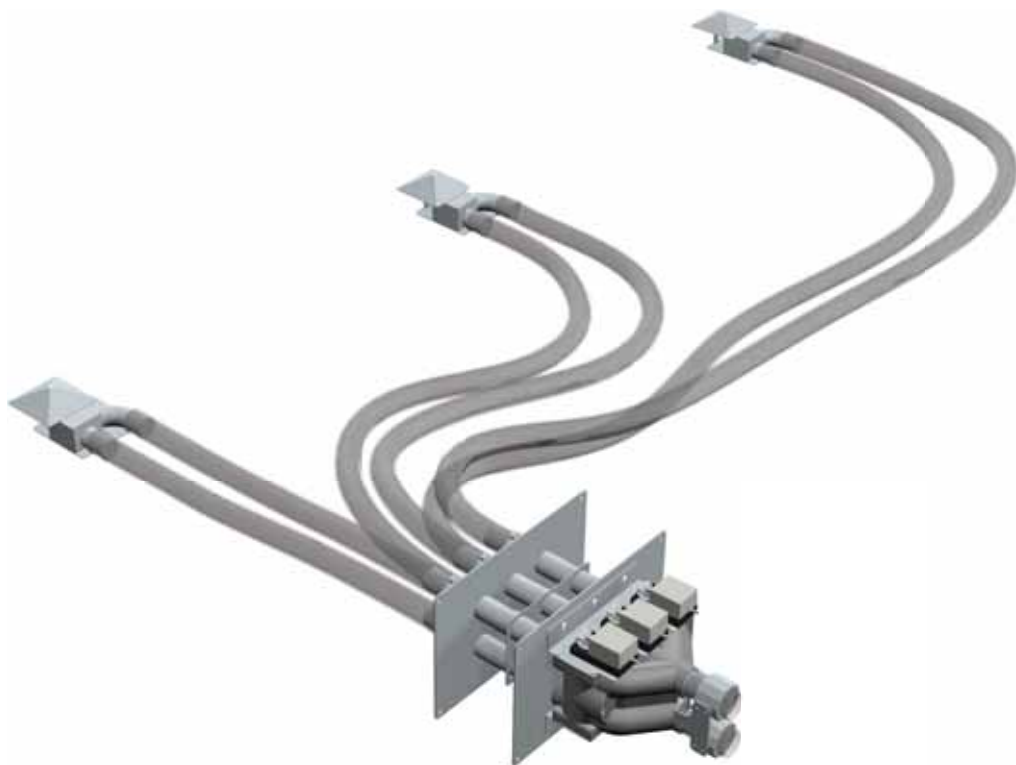


Installation and Operating Instructions
Pellets suction system



Translation of the original German installation and operating instructions for technicians and operators

Read and follow the instructions and safety information!

Technical changes, typographical errors and omissions reserved!

M1560013_en | Edition 04/11/2013



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1 General

Thank you for choosing a quality product from Fröling. The product features a state-of-the-art design and conforms to all currently applicable standards and testing guidelines.

Please read and observe the documentation provided and always keep it close to the system for reference. Observing the requirements and safety information in the documentation makes a significant contribution to safe, appropriate, environmentally friendly and economical operation of the system.

The constant further development of our products means that there may be minor differences from the pictures and content. If you discover any errors, please let us know: doku@froeling.com.

Subject to technical change.

Issuing a delivery certificate

This is an incomplete machine as defined by the Machinery Directive. The incomplete machine must only be started up when it has been confirmed that the machine, in which the incomplete machine has been installed, conforms to the provisions of Directive 2006/42/EC.

Compliance with the open provisions and verification of the correct installation must be confirmed in the delivery certificate of the declaration of installation (included in documentation).

Guarantee conditions

Our sale and delivery conditions generally apply. These conditions have been made available to customers, and customers have been made aware of them at the time of order completion.

You can also find the guarantee conditions on the enclosed guarantee certificate.

2 Safety

2.1 Hazard levels of warnings

This documentation uses warnings with the following hazard levels to indicate direct hazards and important safety instructions:



DANGER

The dangerous situation is imminent and if measures are not observed it will lead to serious injury or death. You must follow the instructions!



WARNING

The dangerous situation may occur and if measures are not observed it will lead to serious injury or death. Work with extreme care.



CAUTION

The dangerous situation may occur and if measures are not observed it will lead to minor injuries or damage to property.

2.2 Permitted uses

The Froling universal suction system is solely designed for discharging fuels from suitable stores. Only use fuels specified in the “Permitted fuels” section.

The unit should only be operated when it is in full working order. It should be operated in accordance with the instructions, observing safety precautions, and you should ensure you are aware of the potential hazards. The inspection and cleaning intervals in the operating instructions should be observed. Ensure that any faults which might impair safety are rectified immediately.

The manufacturer or supplier is not liable for any damage resulting from non-permitted uses.

2.3 Permitted fuels

2.3.1 Wood pellets

Wood pellets made from natural wood with a diameter of 6 mm

Note on standards

EU:	Fuel acc. to EN 14961 - Part 2: Wood pellets class A1 / D06
and/or:	Certification program EN <i>plus</i> or DIN <i>plus</i>

General note:

Before refilling the store, check for pellet dust and clean if necessary.

2.4 Qualification of assembly staff



CAUTION

Assembly and installation by untrained personnel:

Risk of personal injury and damage to property.

During assembly and installation:

- ☐ Observe the instructions and information in the manuals
- ☐ Only allow trained staff to carry out assembly and installation

Assembly, installation, initial startup and servicing must always be carried out by qualified personnel:

- Heating technician / building technician
- Electrical installation technician
- Froling customer services

The assembly staff must have read and understood the instructions in the documentation.

2.5 Protective equipment for assembly staff

You must ensure that staff have the protective equipment specified by accident prevention regulations.



- For transportation, setup and assembly:
 - suitable workwear
 - protective gloves
 - sturdy shoes

2.6 Qualification of operating staff

CAUTION



If unauthorised persons enter the installation room / boiler room:

Risk of personal injury and damage to property

- ☐ The operator is responsible for keeping unauthorised persons, in particular children, away from the system.

Only trained operators are permitted to operate the unit. The operator must also have read and understood the instructions in the documentation.

2.7 Protective equipment for operating staff

You must ensure that staff have the protective equipment specified by accident prevention regulations.



- For operation, inspection and cleaning:
 - suitable work wear
 - protective gloves
 - sturdy shoes

2.8 Design information

Carrying out modifications to the system and changing or deactivating safety equipment is prohibited.

Always comply with all fire, building, and electrical regulations when installing or operating the system, in addition to following the operating instructions and mandatory regulations that apply in the country in which the tank is operated.

2.8.1 Standards

The system must be installed and commissioned in accordance with the local fire and building regulations. The following standards and regulations should be observed in any case:

ÖNORM / DIN EN 60204	Safety of machines; Electrical equipment of machines, Part 1: General requirements
TRVB H 118	Technical directives for fire protection/prevention (Austria)
ÖNORM H 5170	Construction and fire protection requirements (Austria)
ÖNORM H 5190	Heating systems - Acoustic insulation
EN ISO 13857	Safety of machines; Safety distances for maintaining a safe distance from hazardous areas

2.8.2 Requirements at the installation site

- All walls and load-bearing elements must support the static load. The structural requirements may need to be discussed with a structural engineer. Local fire regulations must be respected.
- Water lines should not be located in close proximity to the pellet store or the feeder units due to the dangers posed by condensation and bursting water pipes.
- Pipes that cannot be removed at justifiable expense and which intersect the path of the pellets during filling should be clad to protect against the flow and prevent breakage (e.g. deflector plate, wooden boarding). The cladding should be designed to divert the pellets without damaging them.
- There must not be any electrical installations such as switches, lights, distribution boxes or other ignition sources in the pellet store. The necessary installations must be explosion-proof and installed according to the locally applicable regulations.
- Doors, windows and hatches to the pellet store must open outwards and be fitted with a dust-proof seal all the way round, to prevent dust escaping from the store, particularly into other rooms.

For further information about the technical features of the pellet store:

⇒ [See "Technical equipment of the store" \[page 17\]](#)

3 Assembly

3.1 Transport

The product is delivered on pallet(s) in cardboard packaging.



NOTICE

Damage to components if handled incorrectly

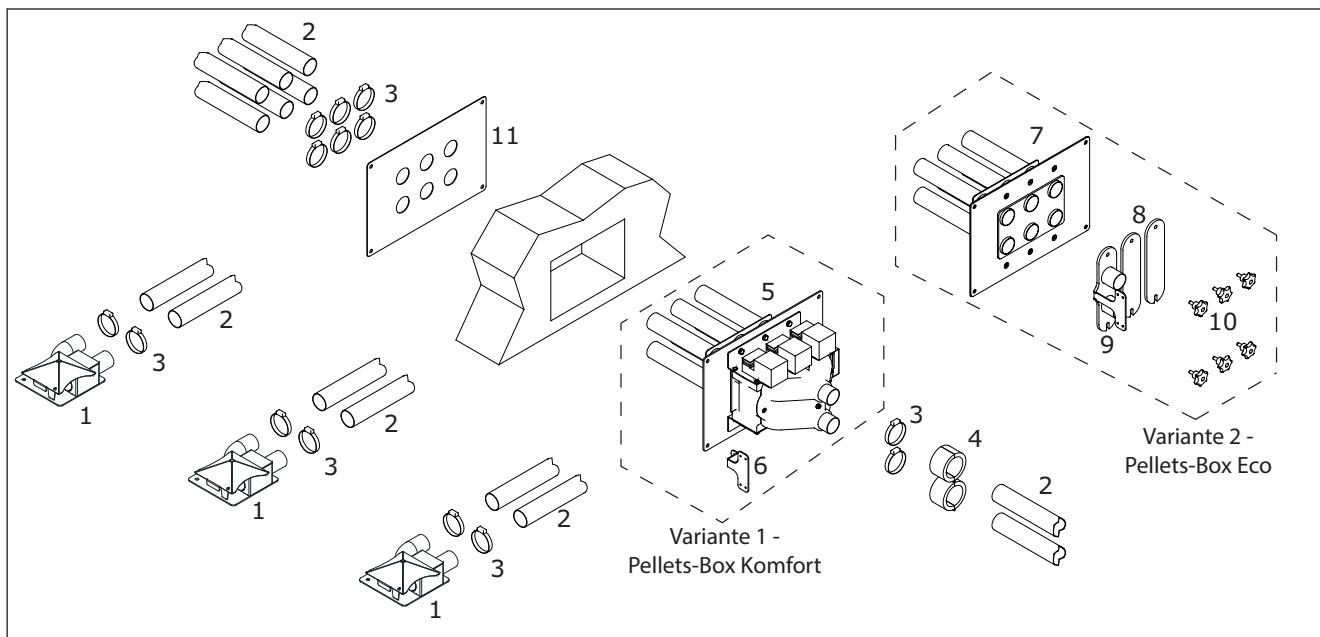
- ☐ Follow the transport instructions on the packaging.
- ☐ Transport components with care to avoid damage
- ☐ Protect the packaging against damp
- ☐ Pay attention to the pallet's centre of gravity when lifting

3.2 Temporary storage

If the system is to be assembled at a later stage:

- ☐ Store components at a protected location, which is dry and free from dust
 - Damp conditions and frost can damage components, particularly electric ones!

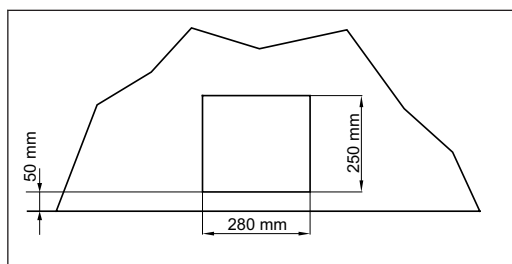
3.3 Assembly overview



Item	Quantity	Unit	Name
1	3	units	Suction probe
2	25	m	PVC suction hose ID 50 mm x 4 mm
3	17	units	Hose clamps 50-65 mm
4	2	units	Fire protection collar 63
5	1	units	Pellets-Box Comfort (Variant 1)
6	2	units	Bracket for fire protection collar (Variant 1)
7	1	units	Insertion module for wall (Variant 2)
8	2	units	Blind plates (Variant 2)
9	1	units	Manual re-arranging unit (Variant 2)
10	6	units	Star-shaped screws (Variant 2)
11	1	units	Cover plate for wall

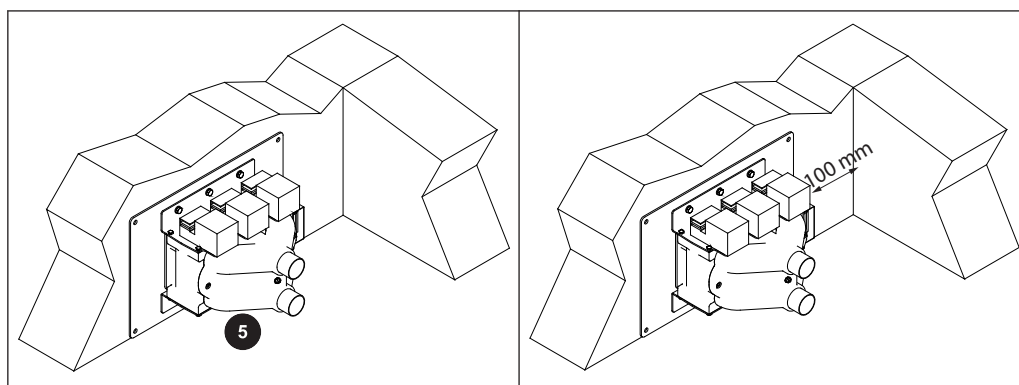
3.4 Assembly of the universal suction system

Before installation:

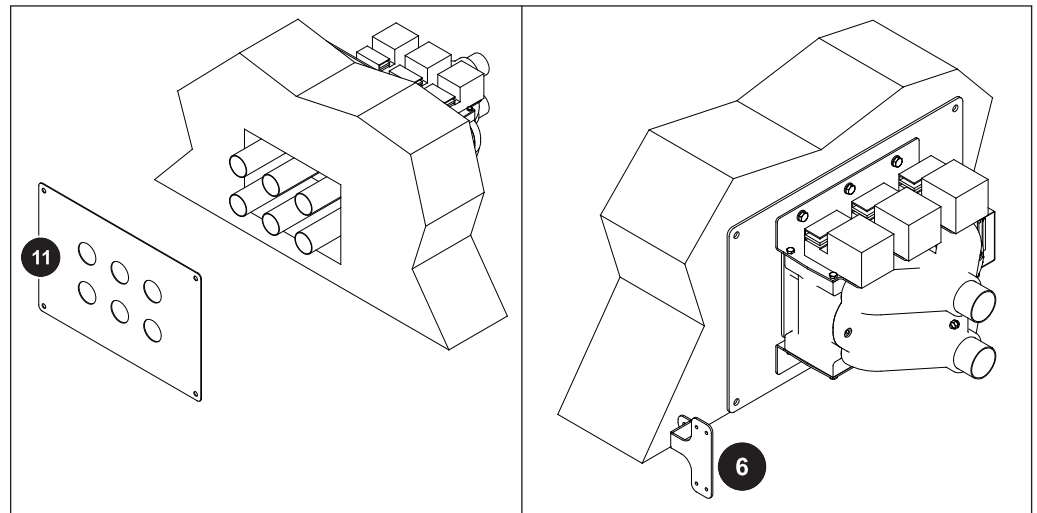


- ☐ Prepare the wall cavity for the Pellets Box.
 - Dimensions: width: 280 mm, height: 250 mm
 - There should be a distance of at least 50 mm from the finished floor.
 - For easy maintenance in case of the Pellets-Box Comfort: leave at least 100 mm distance between the wall and the board at the side of the board.

3.4.1 Variant 1 - Pellet-Box Comfort

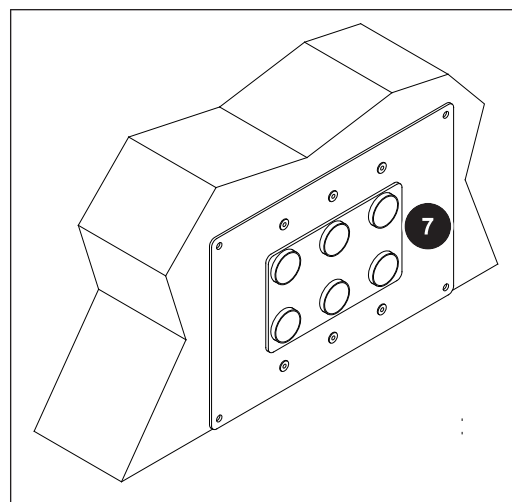


- ☐ Assemble the Pellets-Box Comfort (5) into the wall cavity using 4 M8x50 frame screws and 10 mm dowels in the wall next to the pellet store space.
- ☐ For easy maintenance in case of the Pellets-Box Comfort: leave at least 100 mm distance between the wall and the board at the side of the board.
- ☐ Fill the space in the wall cavity
 - Caution! The packing material must not be flammable.
 - The partition must be insulated to conform to ÖNORM B3836 or DIN 4102-11

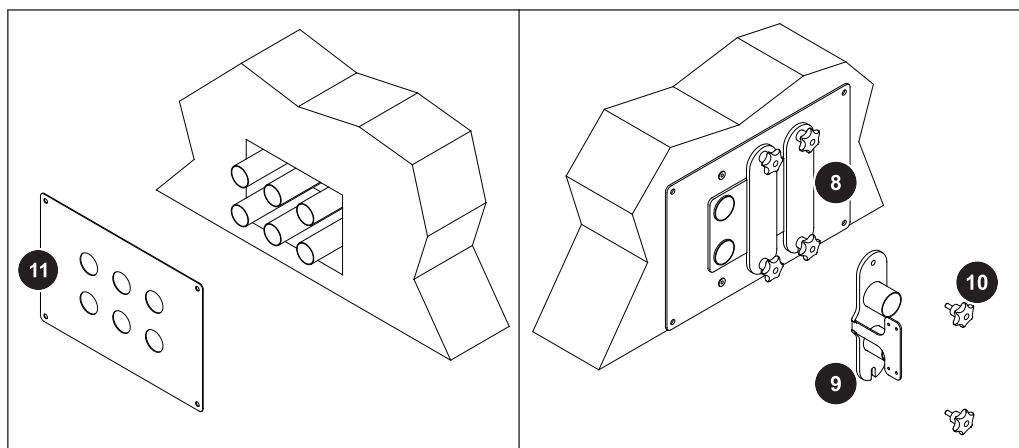


- ❑ Place the cover plate (11) onto the pipes in the pellets box in the store space and fix in place with four M8x50 frame screws and 10 mm dowels
- ❑ Fix the bracket for the fire protection collar (6) in place
 - ➔ be sure to comply with local regulations

3.4.2 Variant 2 – Eco pellet-box

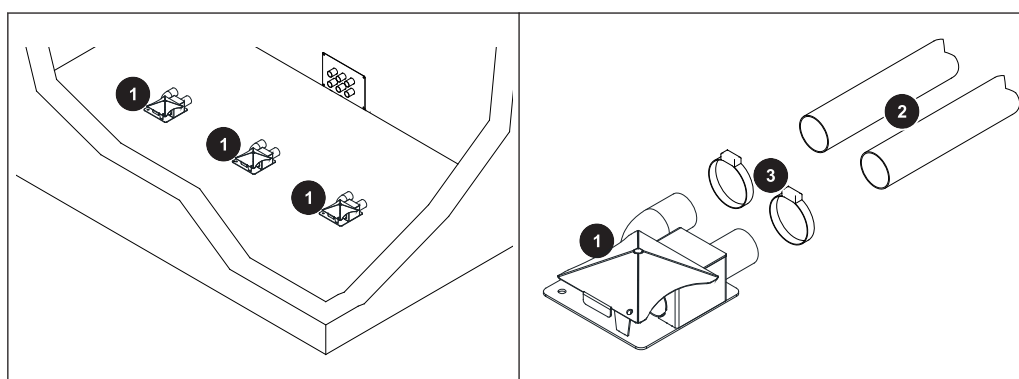


- ❑ Assemble the Insertion module for wall (7) into the wall cavity using 4 M8x50 frame screws and 10 mm dowels in the wall next to the pellet store space.
- ❑ Fill the space in the wall cavity
 - ➔ Caution! The packing material must not be flammable.
 - ➔ The partition must be insulated to conform to ÖNORM B3836 or DIN 4102-11

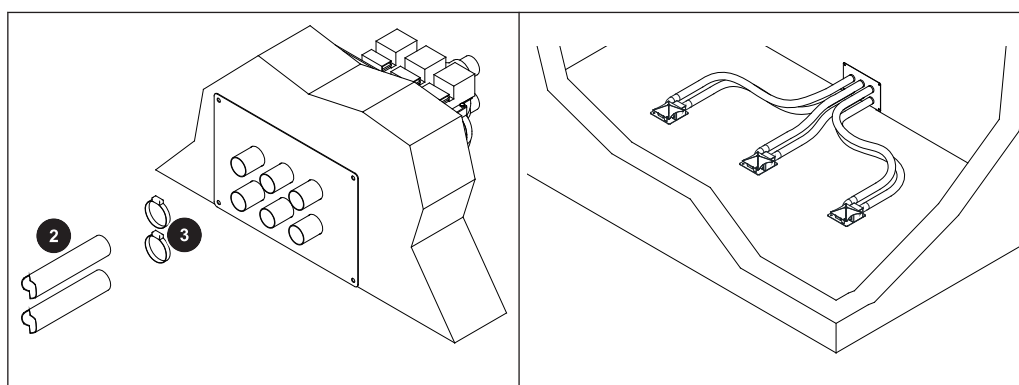


- ☐ Place the cover plate (11) onto the pipes in the pellets box in the store space and fix in place with four M8x50 frame screws and 10 mm dowels
- ☐ Attach two blanking plates (8) to the insertion module using 2 star-shaped screws (10) for each one
- ☐ Attach the manual re-arranging unit (9) with two star-shaped screws (10)
 - ➔ The position of the re-arranging unit can be freely selected

3.4.3 Installing the suction probes and lines



- ☐ Position the suction probes (1) evenly around the middle of the pellet store space and attach to the floor using frame screws
- ☐ Attach the hose lines (2) to the suction probes (1) using hose clamps (3)



- ☐ Lay the hose lines (2) to the pellet-box and secure them using hose clamps (3)

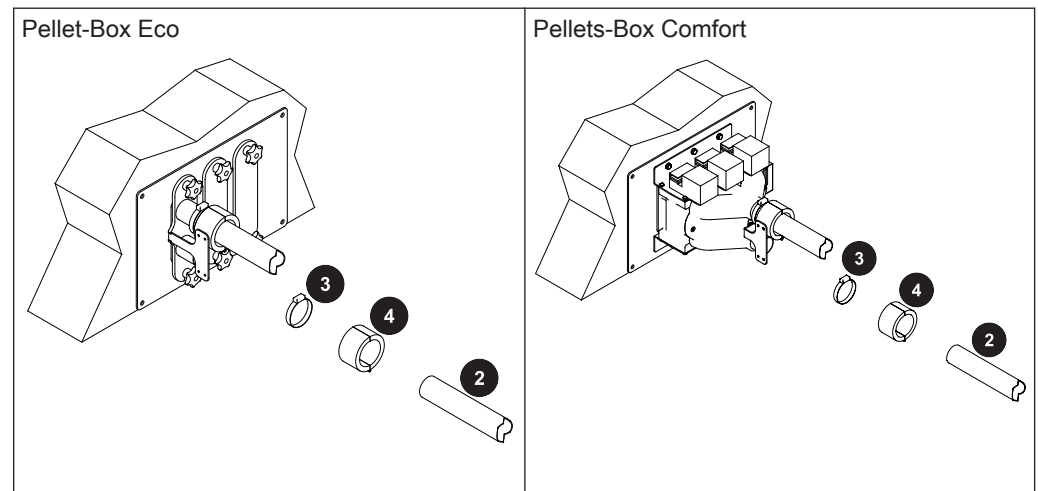
NOTICE! Be careful not to confuse the suction hose and return line connection to the suction probe or pellets box! - Check the sticker

NOTICE! Respect the potential equalisation

⇒ See "Potential equalisation" [page 15]

NOTICE! Read the notes on store design

⇒ See "Technical equipment of the store" [page 17]



- ☐ Thread the fire protection collar (4) onto the hose line (2)
 - ➔ be sure to comply with local regulations
- ☐ Attach the hose lines (2) to the pipes to the pellet box using hose clamps (3)
- ☐ Lay the hose lines to the boiler and install with hose clamps to the identified connections

NOTICE! Be careful not to confuse the suction hose and return line connection to the suction probe or pellets box! - Check the sticker

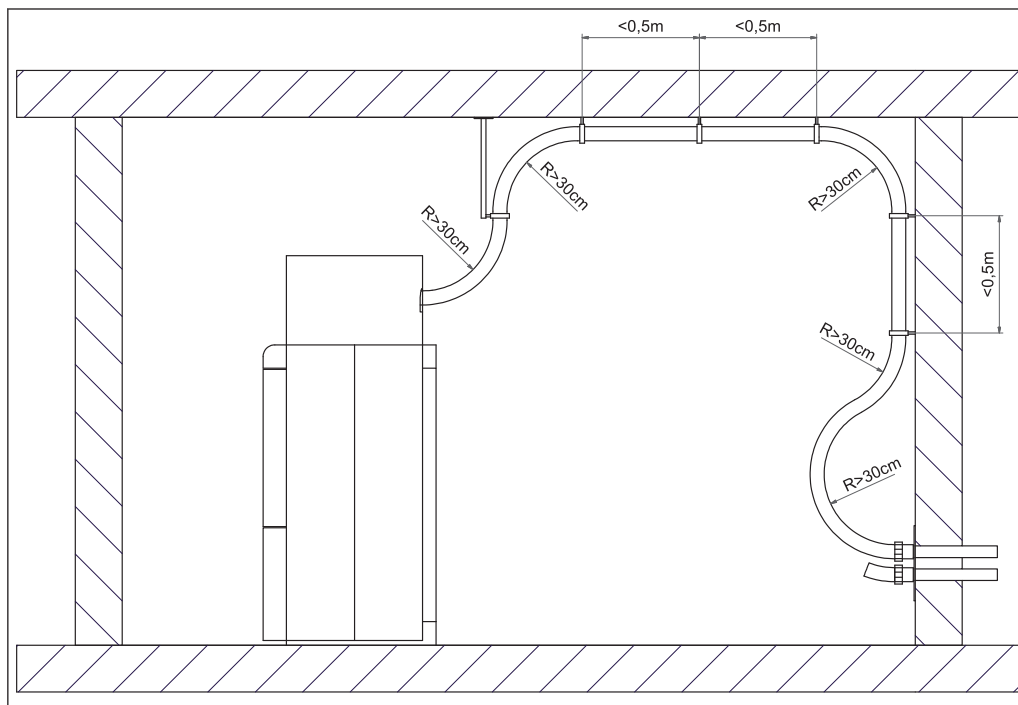
NOTICE! Respect the potential equalisation

⇒ See "Potential equalisation" [page 15]

NOTICE! Read the notes on store design

⇒ See "Technical equipment of the store" [page 17]

3.5 Assembly information for hose lines

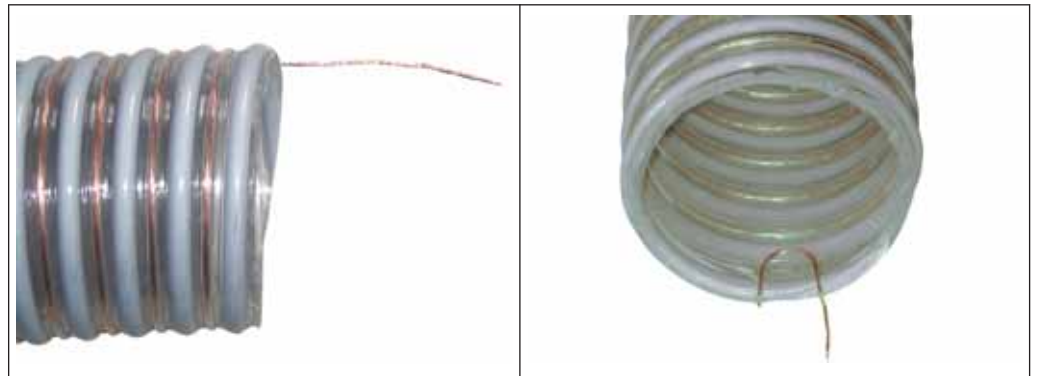


Please note the following with regard to the hose lines used in Froling vacuum discharge systems:

- Do not kink the hose lines! Minimum bending radius = 30cm
- Lay the hose lines as straight as possible! Sagging lines can lead to so-called “pockets”, which may cause problems with the pellet feed.
- Lay the hose lines in short sections away from walking areas
- Hose lines are not UV-proof. Therefore: Do not lay the hose lines outdoors
- Hose lines are suitable for temperatures up to 60°C. Therefore: Hose lines must not come into contact with flue gas pipes or uninsulated heating pipes.
- Hose lines must be earthed on both sides to ensure that no static charge builds up as a result of transporting the pellets.
- The suction hose to the boiler must be in a single section
- The return-air line can be made up of several sections, but consistent potential equalisation must be established throughout the line

3.5.1 Potential equalisation

When connecting the hose lines to the individual connections, ensure there is consistent potential equalisation throughout the line



- ☐ Expose approximately 3 cm of the earth wire at the end of the hose line
 - ➔ TIP: Slit the insulation open along the wire with a knife
- ☐ Bend the earth wire inwards in a loop
 - ➔ This prevents the earth wire from being damaged by the movement of pellets



- ☐ Slide the hose clamp onto the hose line
- ☐ Attach the hose line to the connector
 - ➔ Ensure that contact is established between the earth wire and the connector
- ☐ Secure the hose line with a hose clamp

3.6 Electrical connection



DANGER

When working on electrical components:

Risk of electrocution!

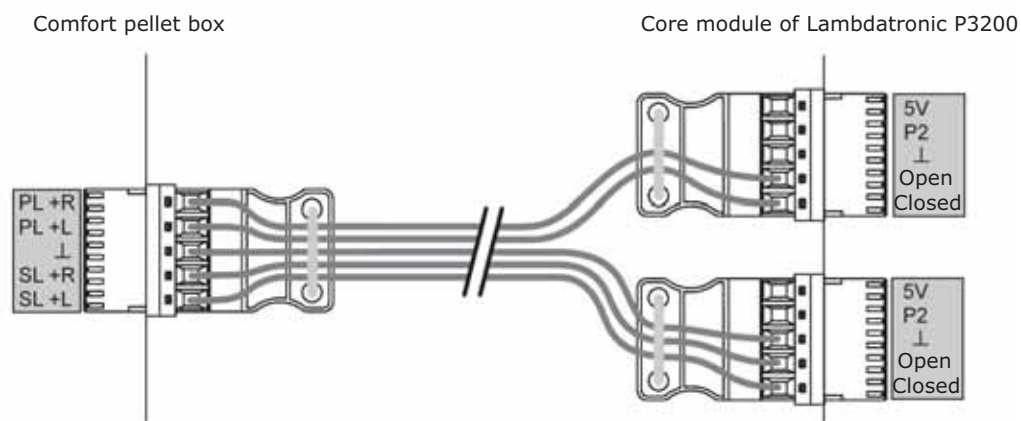
When work is carried out on electrical components:

- ☐ Only have work carried out by a qualified electrician
- ☐ Observe the applicable standards and regulations
 - ➔ Work must not be carried out on electrical components by unauthorised persons

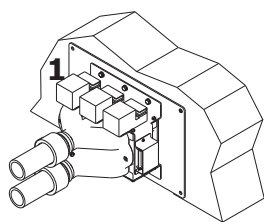
- ☐ Flexible sheathed cable must be used for the wiring; this must be of the correct size to comply with applicable regional standards and regulations

3.6.1 Comfort pellet box port

With the automatic universal suction system, the Comfort pellet box is connected to the core module using flexible cable (5x0.75mm², YMM as per ÖVE-K41-5 or H05VV-F as per DIN VDE 0881-5). This is a 24V control line.



The previous figure shows the plugged-in 5-pin connecting plug of the Comfort pellet box and the accompanying connection layout at the Lambdatronic P 3200 controller.



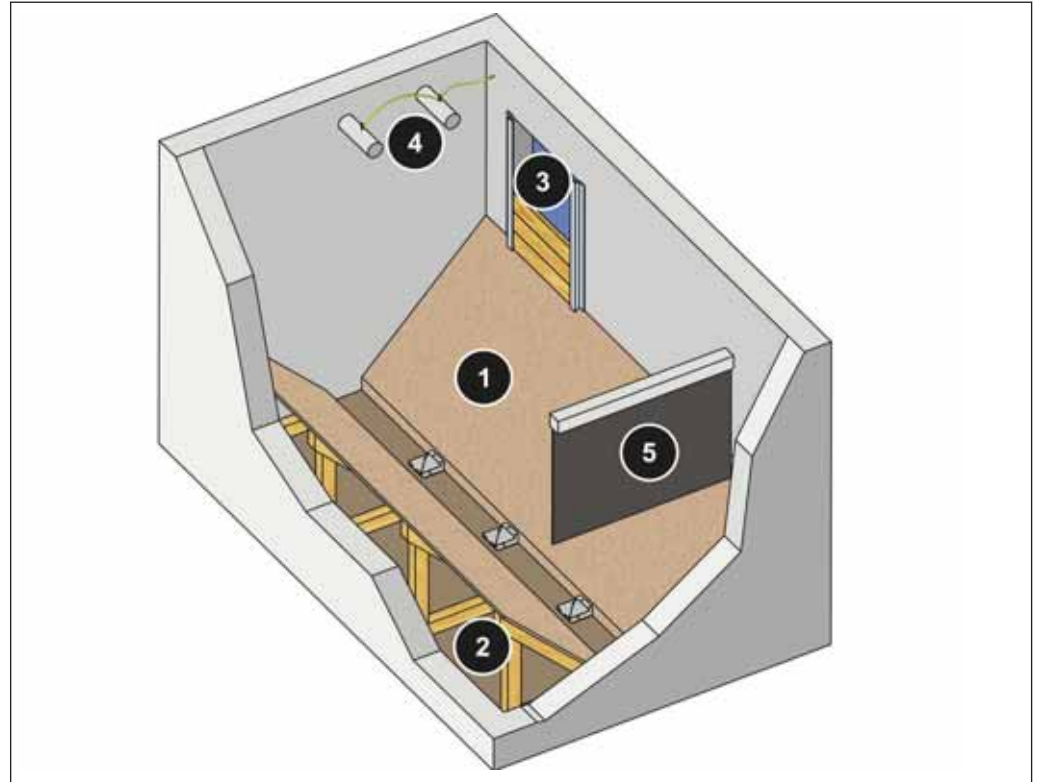
To check the plug configuration:

- ☐ Perform check using the board's labels
 - ➔ The actuators (1) of the pellet box must be switched to the "R" position.

The actuators are ready to plug in and are connected to the board.
The pellet box comes with all the necessary plug clips.

3.7 Technical equipment of the store

For the Froling discharge system, the pellet store space must be built with an inclined floor. The following picture shows the most important components:



- | | |
|---|----------------------------------|
| 1 | Sloping sides |
| 2 | Framework for sloping sides |
| 3 | Planking on the store space door |
| 4 | 2 filling couplings |
| 5 | Buffer mat opposite inlet nozzle |

Size of store space

The storage area should be able to hold approximately 1.5 times the annual amount of pellets needed independently of the system heating load.

Rule of thumb: **1 m³ store space / kW heating load**

NOTICE



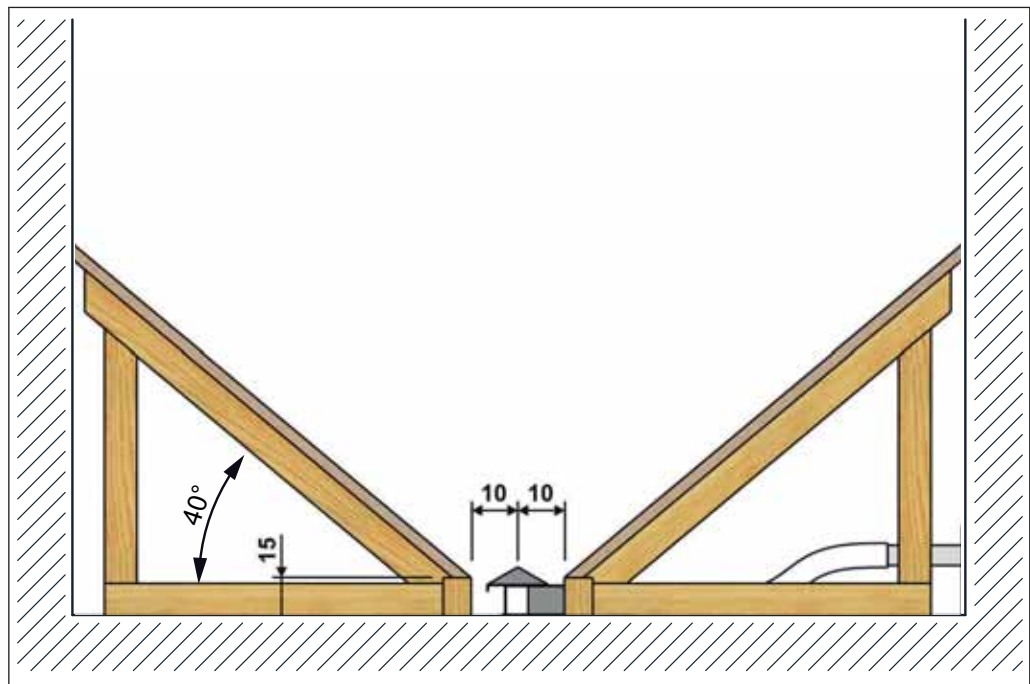
Formation of dust from pellets

Dust formed over time from the pellets which sinks to the floor can impair the discharge of pellets from the store space

- ☐ Completely empty and clean the store space on a regular basis
- ☐ Check the store space before refilling and clean if necessary

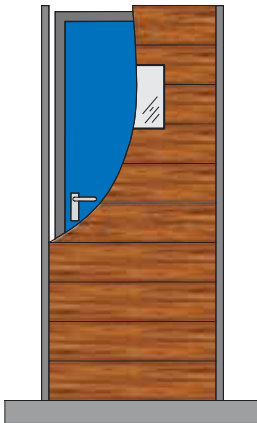
3.7.1 Sloping floor

- ☐ The framework must be dimensioned so that the sloping sides are not deformed when subject to static loads
- ☐ The bulk of the weight should fall on the sloping sides and must not be transferred to the outer walls
 - Rule of thumb for calculating the total weight: **1 m³ pellets Δ 650 kg**



- ☐ Where possible the suction probes should already be fitted before the sloping sides are constructed
- ☐ Ensure that a distance of 20 cm between the cross-pieces is observed
- ☐ Fit the suction probes in the middle
- ☐ The sloping sides must slope at an angle of at least 40° and have a smooth surface!
 - The pellets must be able to slide down the sloping sides smoothly
- ☐ Avoid edges and steps.
- ☐ Ensure the sloping sides go right up to the surrounding walls!
 - The pellets must not slip over the sloping sides

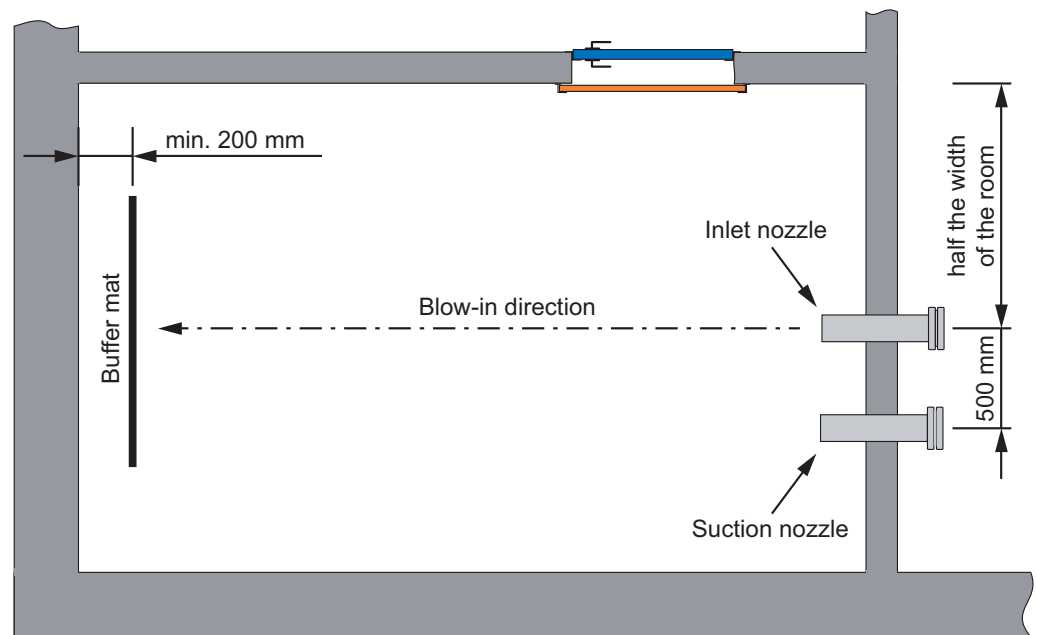
3.7.2 Planking on the store door



The pellet store door must be a fire door with a Class T30 fire resistance rating; it must have a seal. On the inside of the room you should install wooden boards to stop the pellets pressing against the door. Practice has shown that it is advisable to install an additional inspection window.

3.7.3 Filling couplings

The filling couplings are used to fill the pellet store; the central coupling serves as an inlet nozzle and the off-centre one serves as a suction hose for dust.



The holes in the wall for the pipes must have a diameter of at least 150 mm. To fix the filling couplings in the masonry, they must be bricked in or cemented in so that they cannot twist. Filler couplings that are fixed in place using foam compounds may come loose when the filling hose is coupled. The filling couplings must be earthed in order to prevent the build up of electrostatic charge.

3.7.4 Buffer mat

The rubber buffer mat should be fitted opposite the filling pipes at least 20 cm from the wall at a right angle to the blow-in direction.

During filling, the mat stops the pellets from hitting the wall and breaking up. The mat also stops the pellets from knocking plaster or cement rendering off the wall. Broken pieces of masonry or finish and other foreign bodies can block the discharge system or the pellet feed into the boiler and cause the system to fail. The warranty does not cover such faults.

3.8 Initial startup

- ☐ Start up the system according to the Installation and operating instructions for the boiler

4 Appendix

4.1 Addresses

4.1.1 Address of manufacturer

FRÖLING
Heizkessel- und Behälterbau GesmbH

Industriestraße 12
A-4710 Grieskirchen
AUSTRIA

TEL 0043 (0)7248 606 0
FAX 0043 (0)7248 606 600
INTERNET www.froeling.com

4.1.2 Address of the installer

Stamp