

Installation and Operating Instructions
Cube 500 S



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

Read and follow the instructions and safety information!

Technical changes, typographical errors and omissions reserved!

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1 General

Thank you for choosing a quality product from Froling. 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.

Warranty and Guarantee Conditions

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

1.1 Permitted uses

The Froling Cube 500 S is only to be used for storing wood pellets. 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.

1.1.1 Permitted fuels

Wood pellets

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

Note on standards

EU:	Fuel as per EN ISO 17225 – Part 2: Wood pellets class A1 / D06
and/or:	ENplus / DINplus certification scheme

1.2 Qualification of assembly staff



CAUTION

Assembly and installation by unqualified persons:

Risk of personal injury and damage to property

During assembly and installation:

- ☐ Observe the instructions and information in the manuals
- ☐ Only allow appropriately qualified personnel to work on the system

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.

1.3 Personal 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 work wear
 - protective gloves
 - sturdy shoes (min. protection class S1P)

1.4 Design information

1.4.1 Standards for structural and safety devices

ÖNORM H 5170	Heating installation - Requirements for construction and safety engineering, as well as fire prevention and environmental protection
ÖNORM M 7137	Compressed untreated wood – Requirements for storing pellets at the end customer's site
TRVB H 118	Technical directives for fire protection/prevention (Austria)

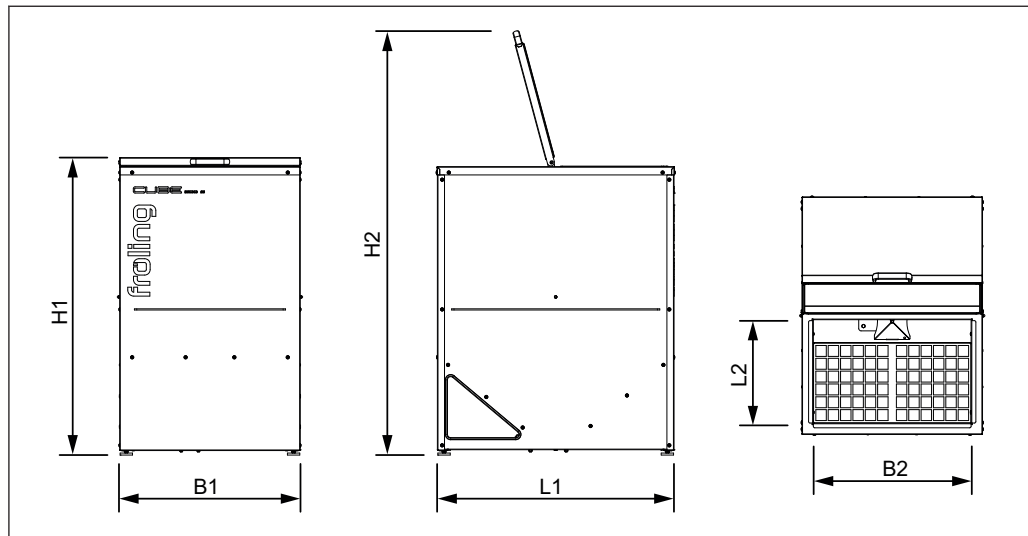
1.4.2 Regulations and standards for permitted fuels

1. BImSchV	First Order of the German Federal Government for the implementation of the Federal Law on Emission Protection (Ordinance on Small and Medium Combustion Plants) in the version published on 26 January 2010, BGBl. JG 2010 Part I No. 4.
EN ISO 17225-2	Solid bio-fuel - Fuel specifications and classes Part 2: Wood pellets for use in industrial and domestic systems

1.4.3 Requirements at the installation site

- The installation site must be flat with sufficient load-bearing capacity
- The operating area must be designed in such a way that the container is easy to fill
- The system does not provide any light, so the customer must provide sufficient lighting in accordance with national workplace design regulations

2 Technology

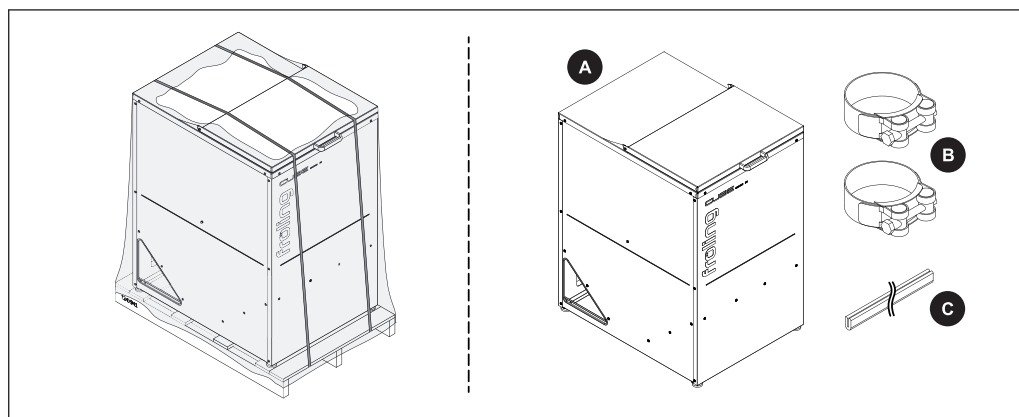


Pos.	Description	Value
H1	Cube height	1255 mm
H2	Total height when filling lid is open	1785 mm
B1	Cube width	760 mm
B2	Width of filling opening	664 mm
L1	Length of Cube incl. connections for suction hoses	996 mm
L2	Length of filling opening	435 mm
Pellet suction line / return air line connection		Ø 50 mm
Weight		87 kg
Capacity ¹⁾		approx. 495 kg
<small>1. The specified capacity applies with a pellet bulk weight of approx. 650 kg/m³. After the suction probe has been cleared, you should expect at least 10% of the total volume to remain.</small>		

3 Installation

3.1 Materials supplied

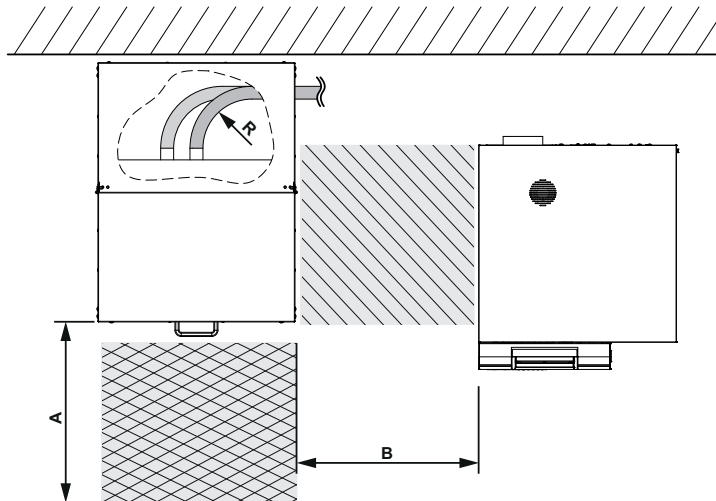
The Cube 500 S is secured to the pallet with tension bars and delivered wrapped in plastic film.



- | | |
|----------|----------------------------------|
| A | Cube 500 S |
| B | 2 hinge bolt clamps 56 – 59 mm |
| C | Edge protection profile L=970 mm |

3.2 Positioning and connecting the Cube 500 S

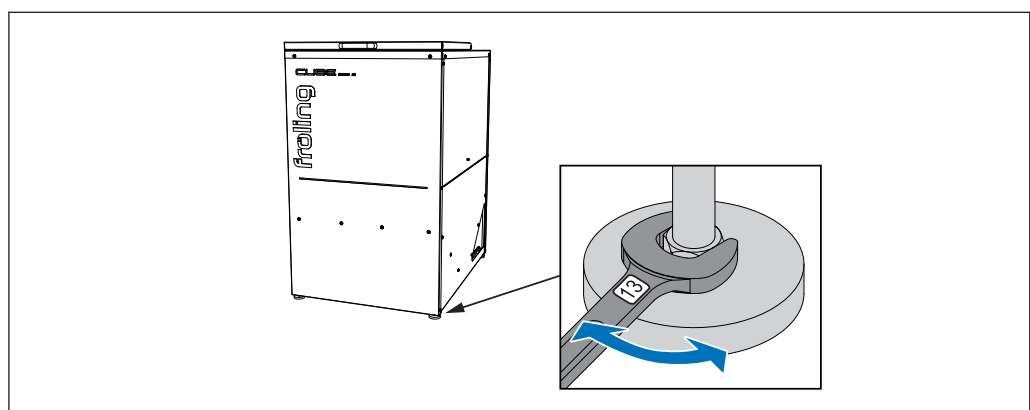
The suction hoses are mounted on the underside of the Cube 500 S and can be guided out on a suitable side. Note the following distances when positioning the Cube 500 S:



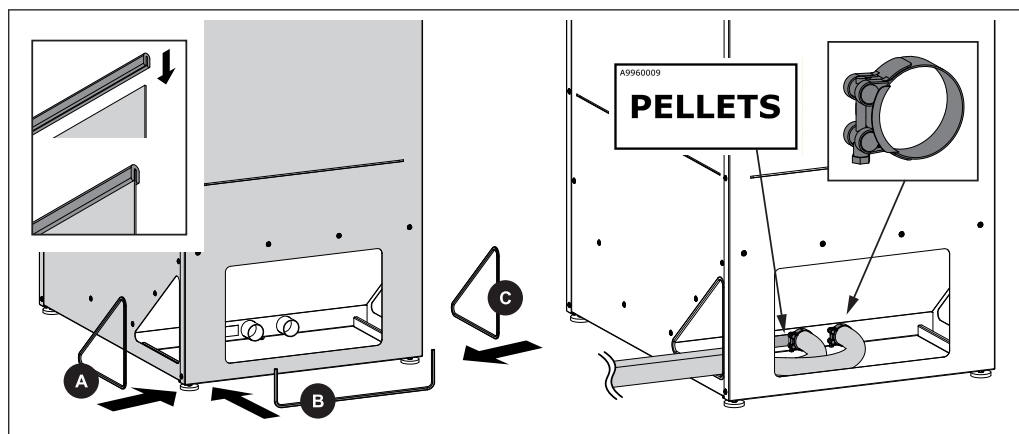
Pos.	Description	Value
A	Space required at front for filling with bagged cargo	500 mm
B	Recommended distance from boiler when installing in boiler room	See recommended distances in the installation instructions for the boiler

The Cube 500 S can be placed against the wall on the sides where the suction tubes are not guided out.

After positioning at the installation site:



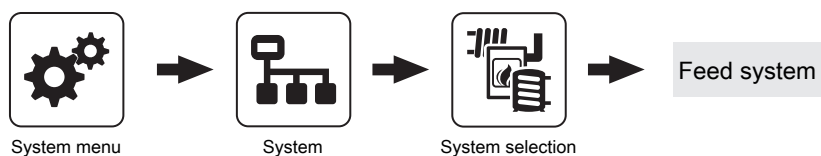
- ☐ Align the Cube on the floor using the adjustable feet
 - To do this, use a 13 mm open-end spanner



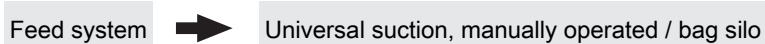
- ☐ On the side where the suction hoses are guided out (A, B or C), fit the enclosed edge protection profile over the sheet edge of the cut-out
- ☐ Secure the suction hoses to the connections using the hinge bolt clamps and fit to the boiler
 - Fit suction hose to left-hand connection ("PELLETS" sticker)
 - Fit return air line to right-hand connection

3.3 Configuring the discharge system in the controller

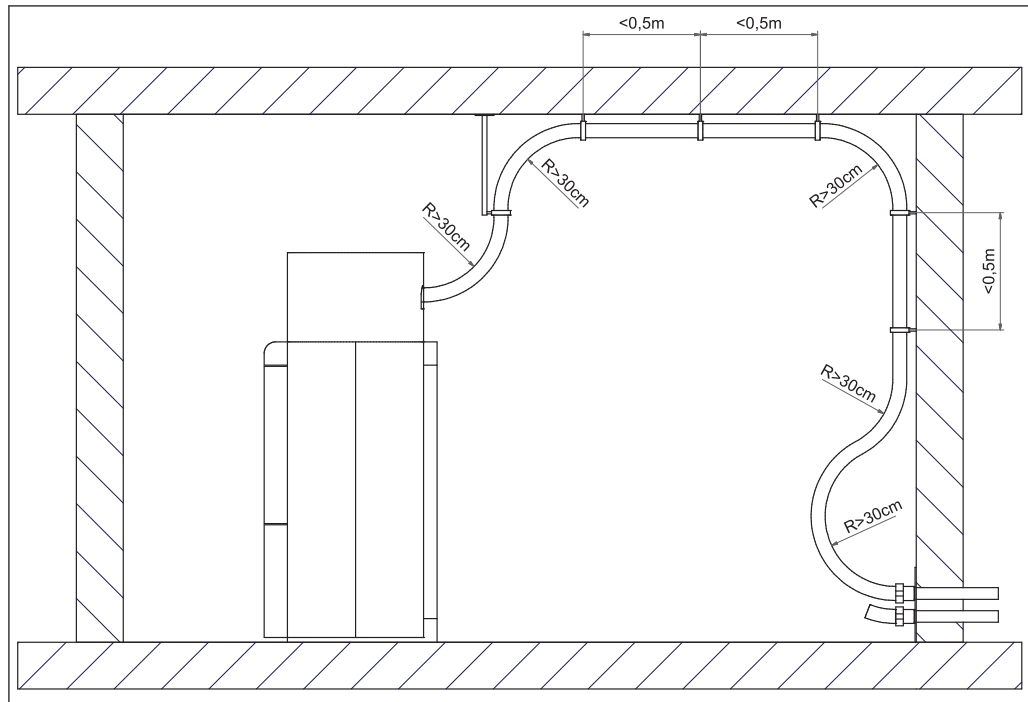
In the controller, navigate to the "Discharge" menu as follows.



In the "Discharge" menu, the parameter "Universal suction, manually operated / bag silo" must be set to YES



3.4 Assembly information for hose lines

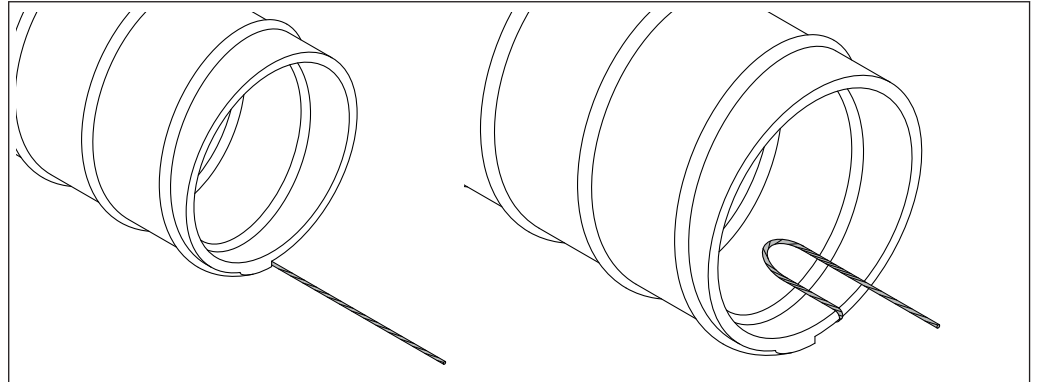


Please note the following with regard to the hose lines used in Fröling vacuum discharge systems:

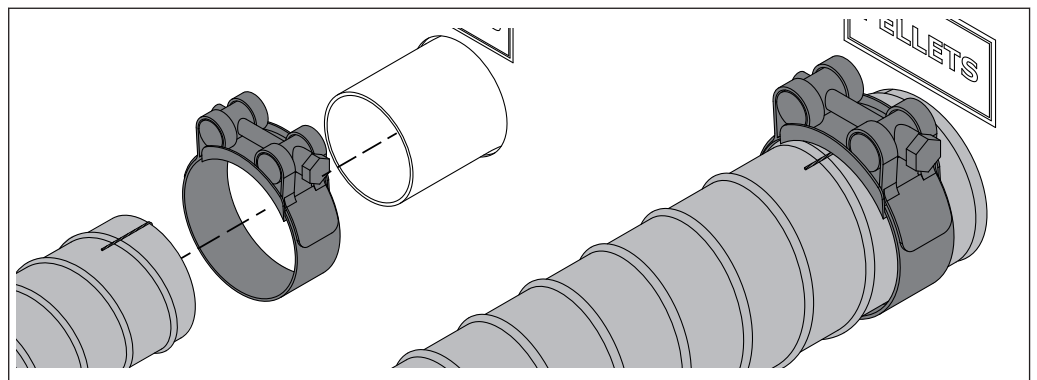
- Do not kink the hose lines! Minimum bending radius = 30cm
- Lay the hose lines as straight as possible! Sagging lines can lead to so-called “pockets”, which may cause problems with the pellet feed.
- Lay the hose lines in short sections away from walking areas
- Hose lines are not UV-proof. Therefore: 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
- For systems over 48 kW, only suction hoses with PU inlet are recommended due to the increased load.

3.4.1 Potential equalisation

When connecting the hose lines to the individual connections, ensure there is consistent potential equalization 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 pellet movement.



- ☐ 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
 - **TIP:** If stiffness occurs when trying to attach the hoses to the connectors, pour a few drops of water onto the pipe (do not use grease).
- ☐ Secure the hose line with a hose clamp

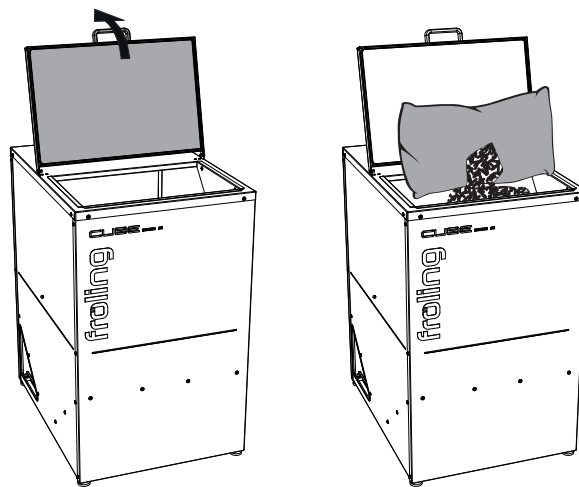
4 Operation

4.1 Prior to filling

The Cube 500 S should be completely emptied at regular intervals before refilling, checked for fines and cleaned if necessary.

Tip: Using a pellet deduster (Froeling PST) reduces the amount of fines in the container and is, therefore, recommended.

4.2 Filling the Cube with pellets



- ☐ Open the lid of the filling opening
 - The lid stays up at an aperture angle of approx. 105°
- ☐ Place the bagged pellets on the filling grille
- ☐ Open the bottom of the bag using a suitable tool
 - The pellets trickle through the grille into the container
- ☐ Repeat the process until the container is filled

4.3 Recurrent Check

The Cube is essentially maintenance-free. For lasting reliable operation, the Cube should be regularly subjected to a visual inspection.

- ☐ Check Cube for damage
- ☐ Check that all screw connections are tightened.
- ☐ Check that the hose clips are secure