

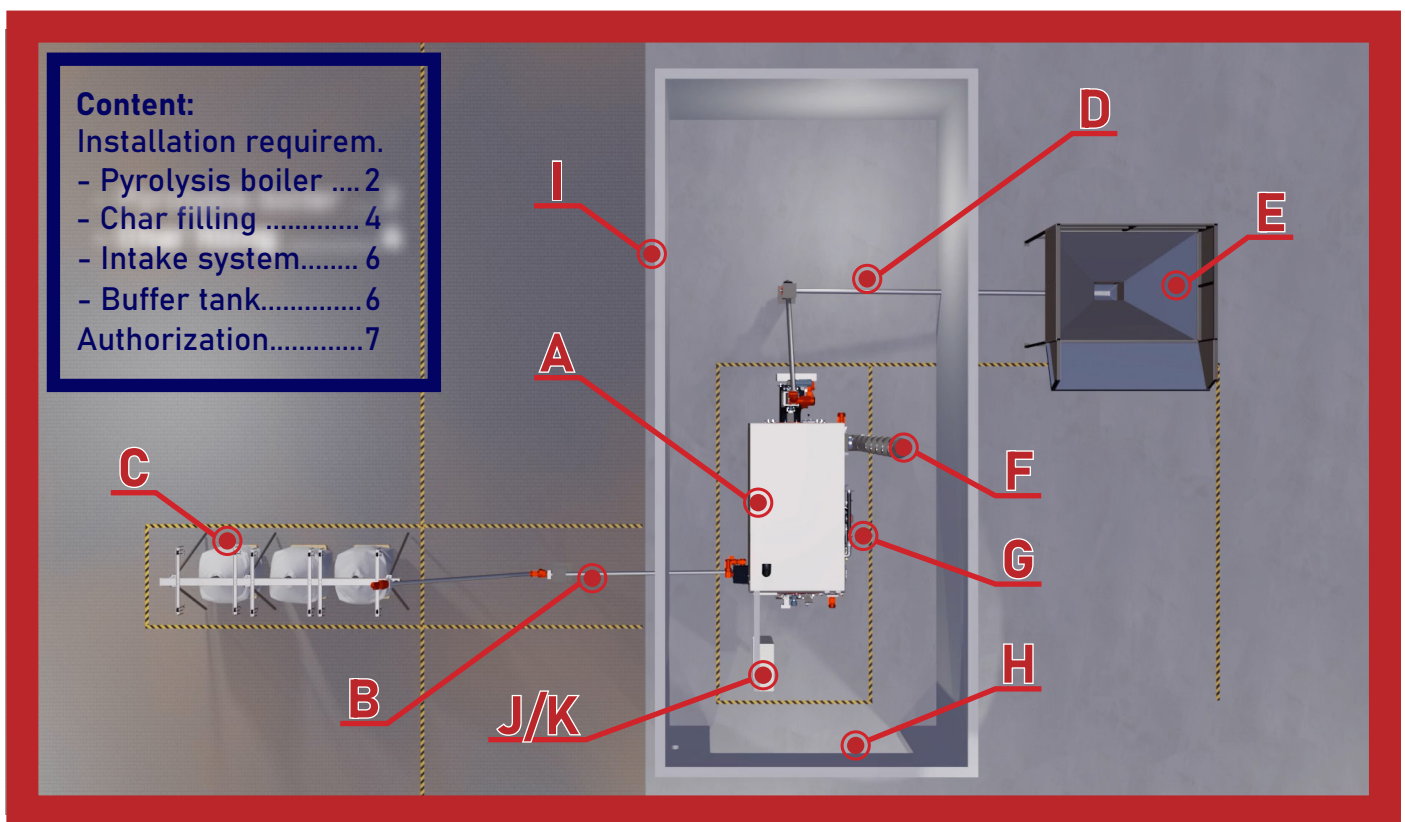
BIOMACON₂



DECARBO POWER

INSTALLATION & AUTHORIZATION: PYROLYSIS BOILER

HEAT THAT SAVES THE CLIMATE



Content:

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System overview:

- | | | | |
|----|---|----|--|
| A: | Pyrolysis boiler (Biomaccon) | G: | Piping connections for heating-, fresh-, and waste water (on side) |
| B: | Char discharge screw conveyor (Biomaccon) | H: | Entry gate (on side) |
| C: | Char filling station (Biomaccon) | I: | EI30/60 fire protected room, frost-, and water resistant (on side) |
| D: | Solid fuel intake system (on side) | J: | El. power connection, 400kW/32A, 50Hz (60Hz in US)(on side) |
| E: | Solid fuel storage container (on side) | K: | Internet connection (on side) |
| F: | Chimney (on side) | | |

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INSTALLATION REQUIREMENTS: PYROLYSIS BOILER

1. FIRE PROTECTION ROOM: Our pyrolysis boilers are to be set up in separate boiler rooms. With a nominal heat output of up to 70kW, boiler rooms must be equipped with the same fire resistance of at least EI30. With a nominal heat output of over 70kW, boiler rooms must have at least a fire resistance of EI60. Doors are to be designed with fire resistance EI30 and to open in the direction of escape when the rated heat output is over 70kW.

2. DISTANCES: For the floor space a minimum distance of 800mm around the machine is necessary. This is used for fire protection and provides enough space for assembly and maintenance works.

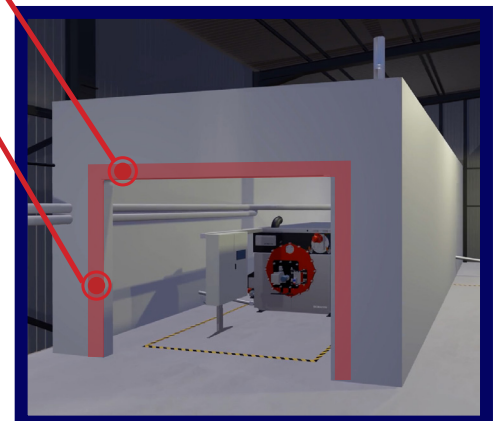
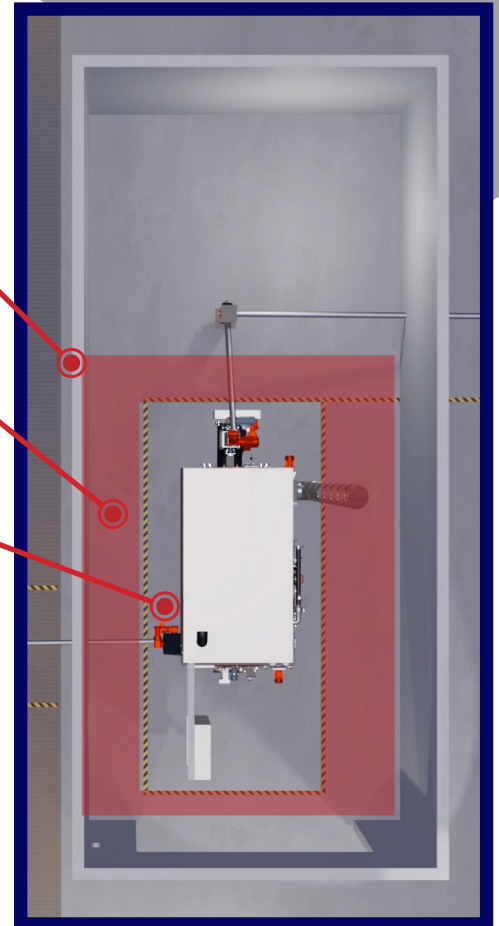
3. SURFACE REQUIREMENT & FOUNDATION: The available space and foundation of the installation area must be designed for the load specified in the table.

Model	Min. area requirement [mm x mm] (no distances)	Min. foundation load [kg/m ²]
C160-F	6.189 x 2.811	1.600
C224.F	7.189 x 2.811	1.300
C400-I	10.568 x 3.492	1.900
C500-I	12.568 x 3.492	2.100

4. VENTILATION & EXPLOSION PROTECTION: The installation site must be sufficiently ventilated to avoid CO accumulation and an explosive atmosphere in the boiler room.

5. GATE: The installation room must have an entrance gate on the entry side of the system so that the converter screw and the reformer can be pulled out in the event of maintenance.

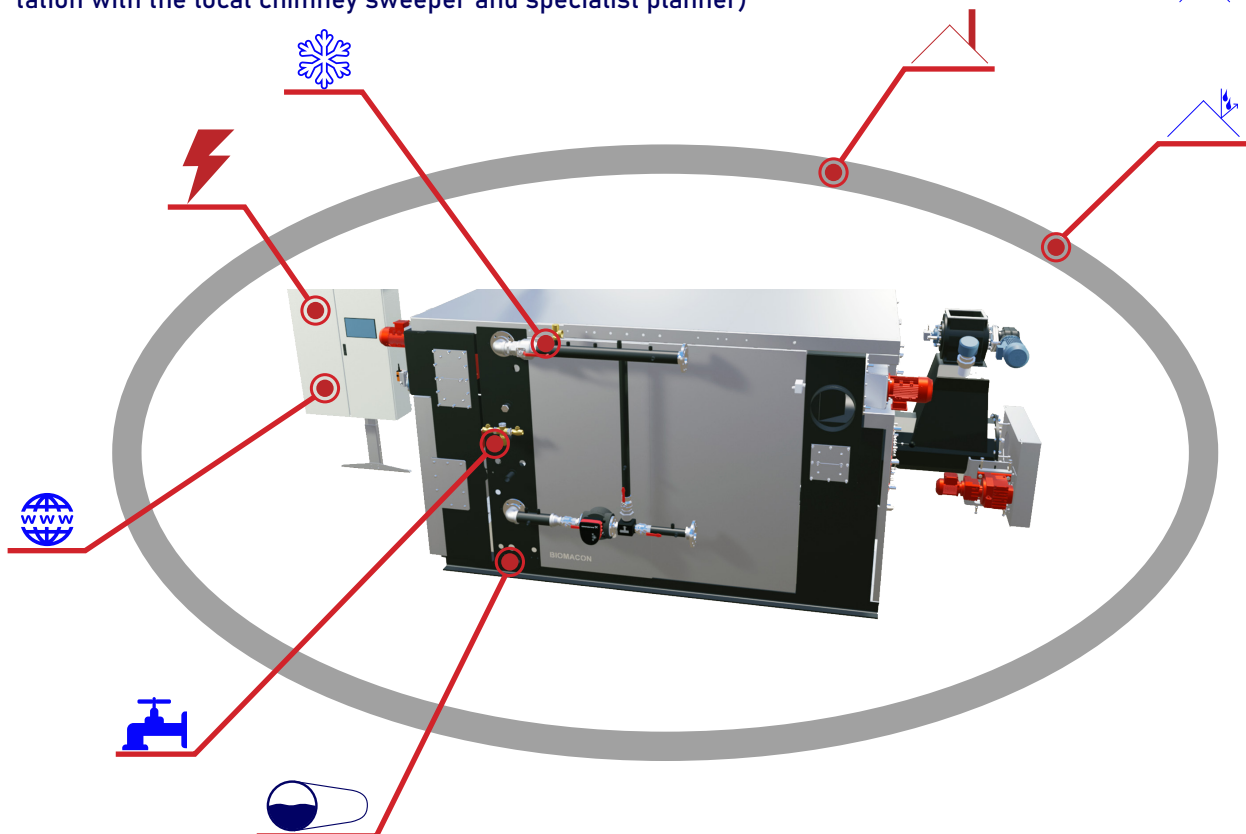
Model	Tor Größe Breite x Höhe
C160-F bis C224-F	3,0m x 2,5m
C400-I bis C500-I	3,0m x 3,0m





INSTALLATION RQMTS. CONTD.: PYROLYSIS BOILER

6. **FROST PROTECTION:** The boiler room must be frost-proof!
7. **ELECTRICITY:** The installation site requires a 3-phase (400V / 32A) power connection
8. **WATER:** The installation site requires a drinking water connection according to DN32-PN min 2bar
9. **WASTEWATER:** The installation site requires a water connection KG DN100
10. **INTERNET:** The installation site must have a permanent internet connection
11. **WEATHER:** The installation site must be dry and watertight
12. **CHIMNEY:** For the installation site, it must be possible to run a chimney over the roof (consultation with the local chimney sweeper and specialist planner)



INSTALLATION REQUIREMENTS: CHAR FILLING

The char filling system as well as the stored char may either be set up outside the building under open sky or in an open room under the conditions specified below.

! Setting up the char filling system and storing the packed coal in a closed room is not permitted for safety reasons (CO, fire and explosion protection).

Char storage and installation under open sky:

The char is transported outside the building by the discharge system and filled into big bags. The filling station of the big bags should have a distance of at least 5m from the building where the pyrolysis boiler is installed and from other combustible materials.

The discharge system is supplied with a water injection as standard. Before the char is filled into the big bags, the char is extinguished with a water injection to reduce dust emissions and lower the risk of fire.

The water content of the filled char is approx. 30% after the water has been injected. The same requirements apply to the storage of the filled coal in the open air.

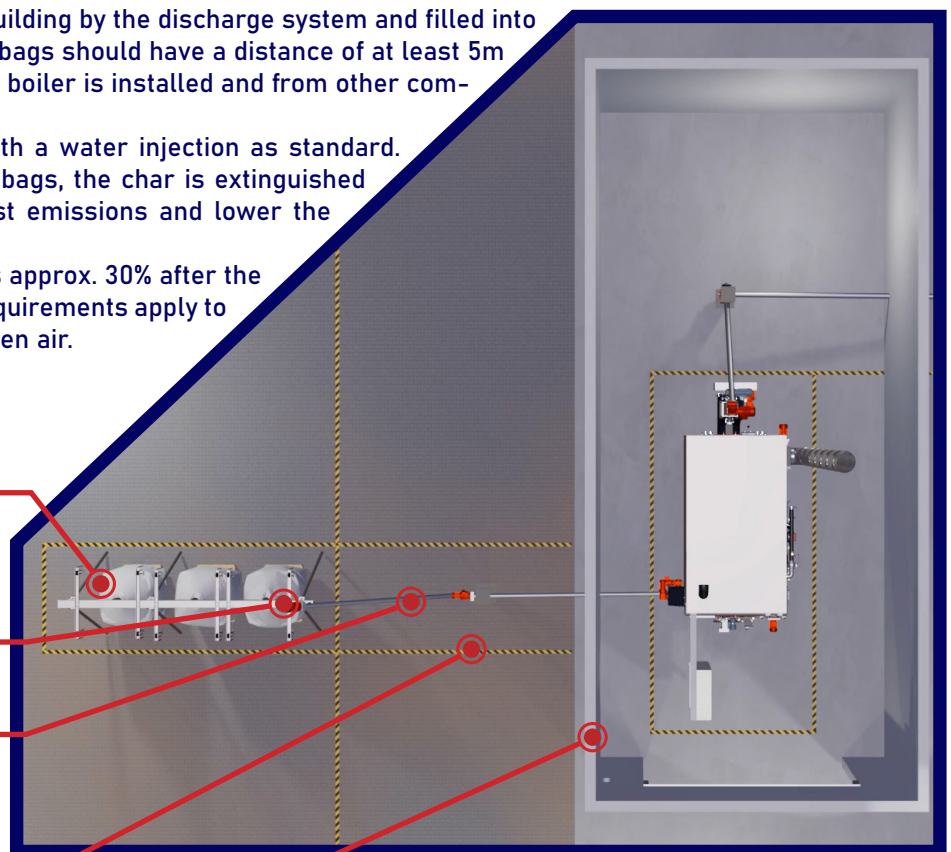
Char filling system with big bags

Water injection

Char discharge system

5m. min. distance to next building or other combustable materials

EI30/60 fire protected room



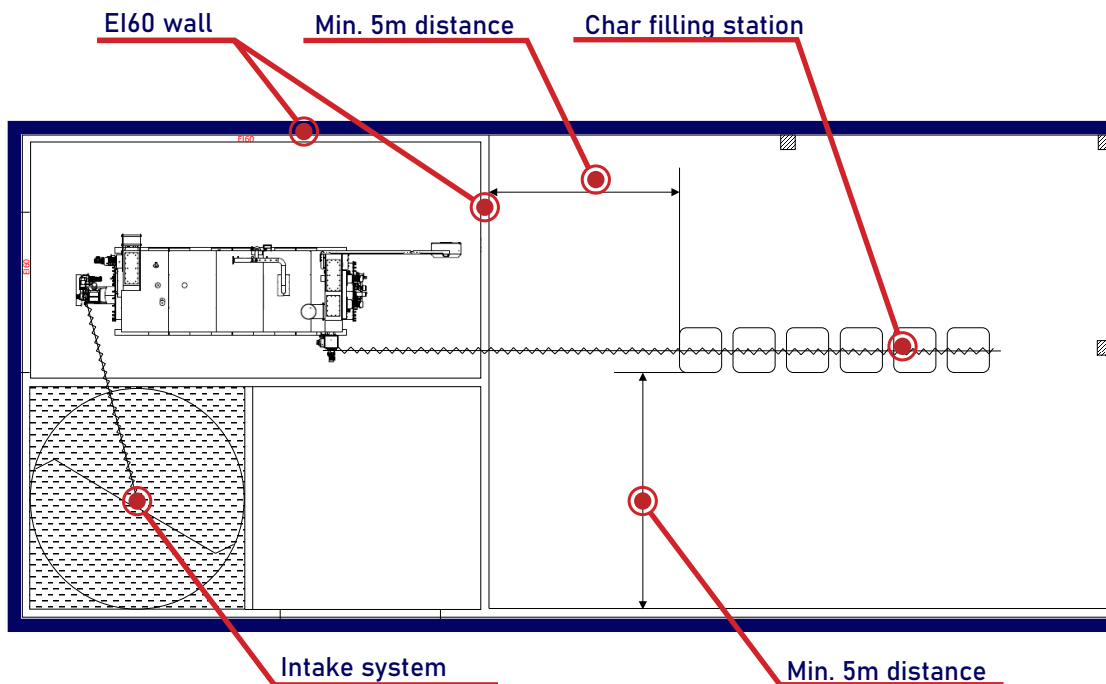


INSTALLATION RQMTS. CONTD.: CHAR FILLING

Char storage and installation:

The following fire protection and safety measures must be taken into account when setting up the char filling system and when storing the char in an open room.

1. The char filling system must be set up in a separate fire protected room EI30 (for model C63-F) or EI60 (from model C100-F onwards).
2. At least one outer wall must be completely open to the outside. The air circulation in the room must be guaranteed at all times.
3. The char discharge system must have a minimum length of 5m
4. The char filling system and big bags must keep a minimum distance of 5m from the fire protection walls.
5. Big bags of the char filling system must be secured with a fire extinguishing system, which automatically extinguishes the coal with water at temperatures above 100°C





INSTALLATION REQUIREMENTS: INTAKE SYSTEM

The entry system has to be purchased from a third party supplier by the client. For boilers with automatic intake (mechanical) from the solid fuel storage directly into the combustion unit (pyrolysis boiler) require an automatic backfire protection device BSD in the intake screw conveyor.

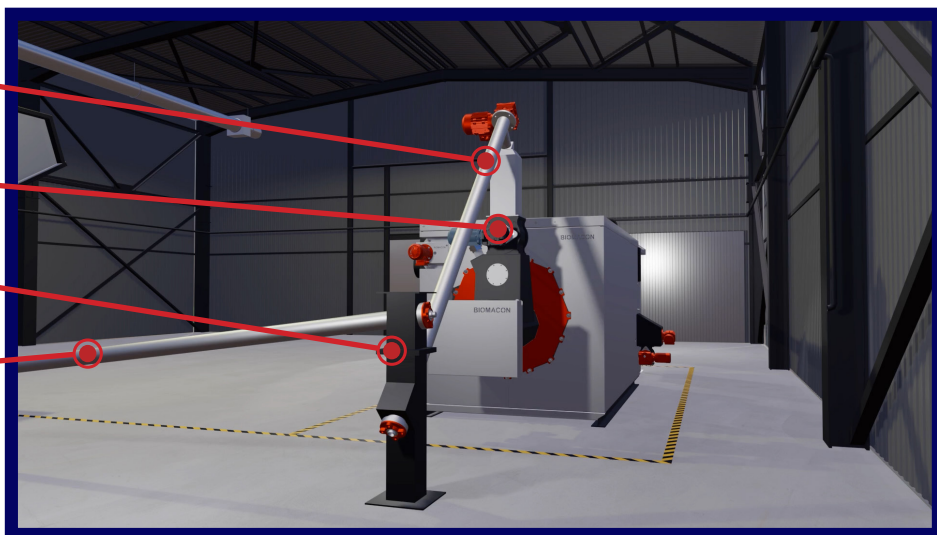
! There is an automatically triggered backfire protection device BSD to be installed inside the intake conveyor screw.

Automatic backfire protection device

Intake sector gate

Intake transfer station

Intake screw conveyor



INSTALLATION REQUIREMENTS: BUFFER TANK

The buffer tank and hydraulic installation works are as well to be purchased from third party supplier. For the correct dimensioning of the buffer tank please follow DIN EN 303-5 in Europe or contact your your local. Buffer tanks are sized by 30l/kW according to DIN EN 303-5.

! We recommend to place the buffer tank in the immediate vicinity of the pyrolysis boiler. The combination with a buffer tank is necessary because one can achieve continuous heat consumption in the ideal performance range of the boiler!



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AUTHORIZATION:

All Biomacon pyrolysis boilers are designed according to DIN EN 303-5 (Biomass Heating boilers - Part 5: Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW - Terminology, requirements, testing and marking). Depending on the choice of solid fuel, different legal framework conditions apply. Each country and even state has their specific authorization requirements therefore you will need to check with your local expert on boiler authorization.

Nevertheless below we list a few categories on solid biofuels that can be used in our systems and state the quality of biochar you can expect.

Solid fuel	Bio char quality
1. Natural wood	Materials Agriculture Animal feed
2. Wood, painted, varnished, coated, plywood, chipboard, fibreboard and their residues without halogen-organic coatings and wood preservatives	Materials
3. Straw and similar organic matter	Materials Agriculture
4. Non-animal dried digestate	Materials Agriculture
5. Dried sewerage sludge	Scientific assessment required

Contact us directly for more details on planning and approval!

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