

— DEVELOPED WITH LULEÅ UNIVERSITY OF TECHNOLOGY

Biotherm – Horse manure burner

Biotherm's unique burner. Manure becomes heat on the farm, with no landfill and no transport.



Up to **60** %

MOISTURE CONTENT OF HORSE MANURE

— HEAT FROM THE STABLE

From manure to heat.

Stable manure is burned on the farm to heat stables, riding arenas and homes – instead of being stored, hauled away and landfilled.

THE BURNER CAN BE FITTED WITH

Hot-water boiler, max 110 °C

High-temperature boiler, max 160 °C, and steam generator

Steam boiler



FUEL

Manure and bedding from the stables

MOISTURE CONTENT

Up to 60 %
Manure holds 30–75 %.
Mixing in wood chips controls the moisture.

LANDFILL

Not needed

TRANSPORT

No transport of the manure off site

250–1,000_{kW}

Output range. The image shows two burners in stainless steel, with cover plates.



THE BIO THERM BURNER

Built for the wet fuel.

Biotherm's unique burner for horse manure, extremely wet wood chips and slaughterhouse waste. It can also be adapted for wood chips, pellets, briquettes, sod peat and grain.

DEVELOPED BY

Biotherm Heat AB →

TOGETHER WITH

Luleå University of Technology →



DELIVERED BIOTHERM PLANT

— DEVELOPED WITH LULEÅ UNIVERSITY OF TECHNOLOGY

Over 20 years on horse manure.

The burner was developed together with Luleå University of Technology for combustion as close to 100 % as possible – whatever the fuel.

EARLY 2000S

Development with LTU begins

OVER 20 YEARS

Experience with horse manure as a fuel

SINCE 1976

Sustainable heating from the family business



— DRYING AND PELLETING

Manure can also become pellets.

The wet manure, at 30–70 % moisture content, goes from the store to our own dryer, which dries it to 11–15 %. It is then pressed into pellets with around 5–7 % moisture content, which can be stored from summer to winter.

THE PELLETING PLANT AT MENHAMMAR

approx. **5–7 %**

PELLET MOISTURE CONTENT

After pressing. Before drying
30–70 %, after 11–15 %.

approx. **130 kW**

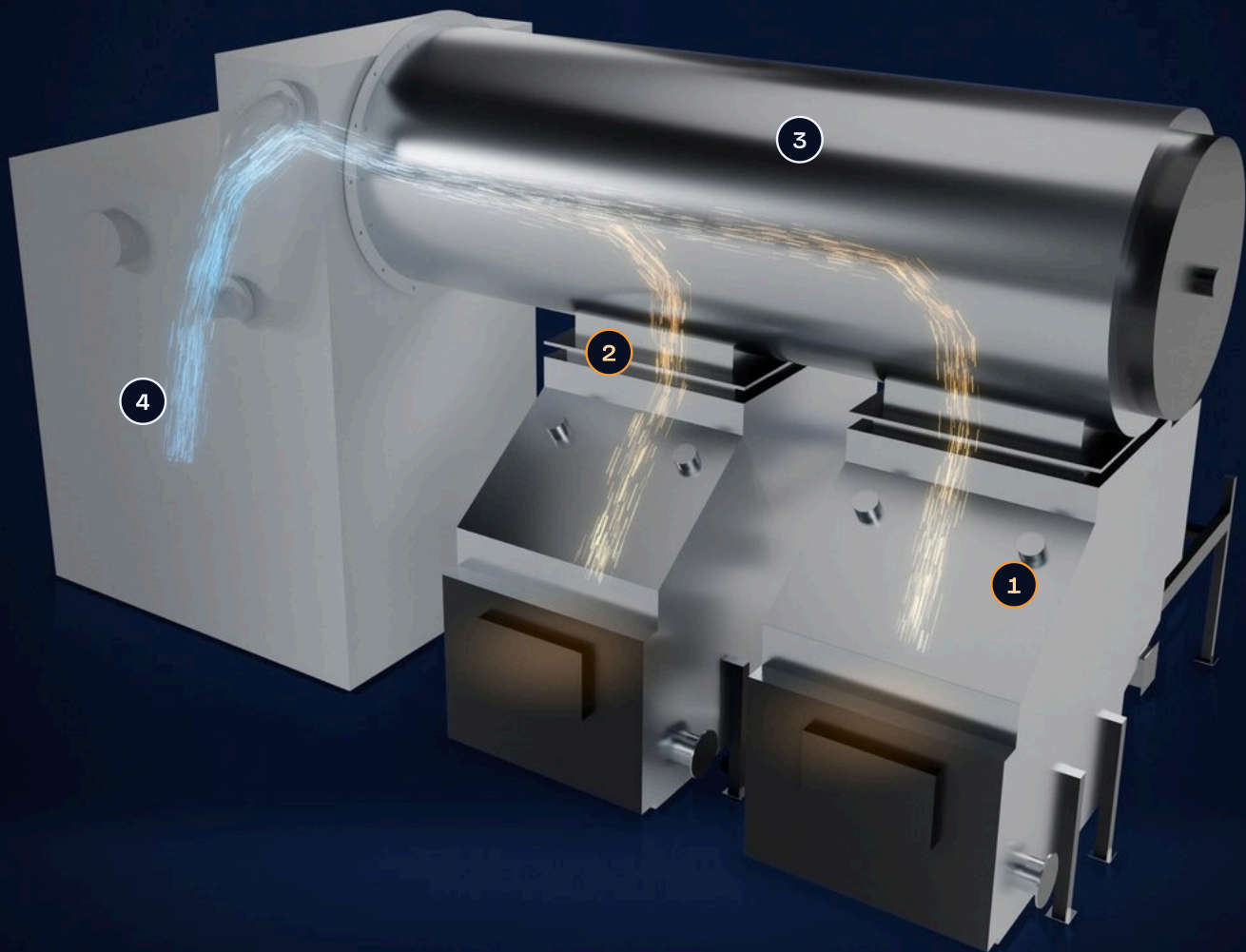
TO THE DRYER

Example: from a 500 kW burner. The surplus heats the buildings.

— HOW THE BURNER WORKS

How the manure becomes heat.

The fuel is fed in from the rear and burns on the grate. The flue gases rise into the horizontal secondary combustion chamber, which in turn carries the energy into the boiler and its heat exchanger, where the heat is recovered.



① The burner body

Where the fuel burns on the grate.

② The inlet

Where the flue gases rise into the secondary channel.

③ The secondary channel

Secondary combustion, shared by both burners.

④ The boiler

Its heat exchanger recovers the heat.

EXPLODED VIEW FROM THE REAR

Part by part.

The burners and secondary channel taken apart, from the CAD model.



- 1 The secondary channel**
A horizontal channel, shared by both burners, that passes the heat on to the boiler.
- 2 The secondary channel inlet**
Where the flue gases from the burner body rise into the secondary channel.
- 3 The burner body**
Where the fuel burns on the grate.
- 4 The stoker feed**
Regulates the amount of fuel on the combustion bed.

THE FUEL FEED

From the fuel store to combustion.

The fuel is loaded into the stores outdoors. Conveyor screws carry the material to the mixer pockets and then on into the burner or burners.



① The drop chute

From the store.

② Conveyor screws

Carry the fuel from the stores to the mixing stations.

③ The mixer

Blends the wood chips and horse manure in the right proportions before the material reaches the burners.

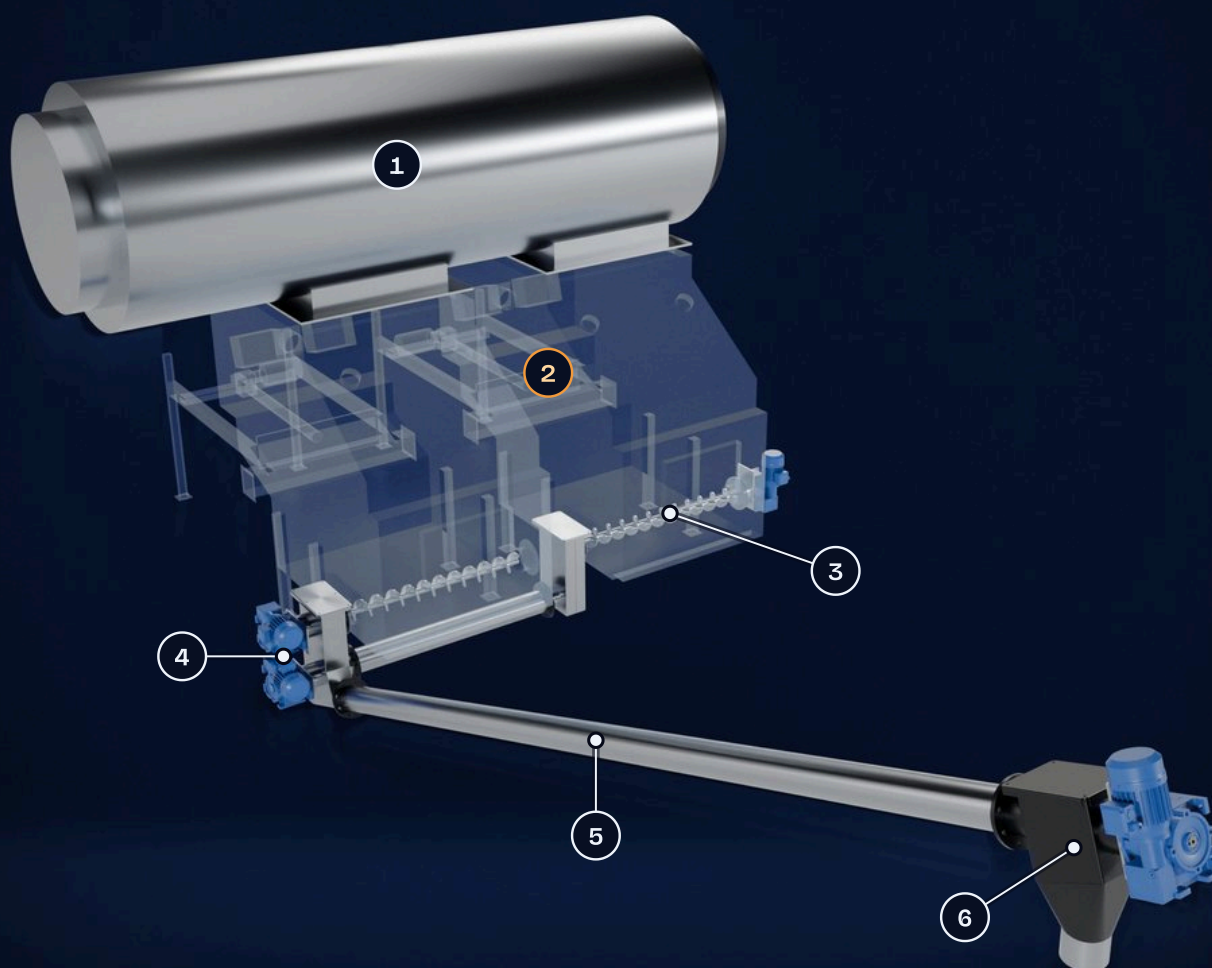
④ Screw motors

Finally feed the fuel into each burner.

— ASH DISCHARGE

Screws carry the ash out.

Ash screws run across the lower part of the burners and collect the ash from both burners. An inclined screw then carries it out through the wall.



① The secondary channel
Shared by both burners. Passes the heat on to the boiler.

② The burner bodies
Shown transparent here, so that the ash screws are visible.

③ The ash screws
Run across the lower part of the burners and collect the ash.

④ The gear motors
Drive the screws, one motor per screw.

⑤ The inclined screw
Lifts the ash out through the wall.

⑥ The ash chute
Where the ash drops out, outside the boiler room.

The complete plant.

The image below shows a 1,000 kW Biotherm burner (2 × 500 kW) with a shared secondary channel in front of the boiler. The flue gases then pass through a cyclone and a bag filter. Biotherm designs and engineers the plant in 3D.



- 1 The burners**
Two burners side by side.
- 2 The secondary channel**
Shared by both burners. Leads into the boiler.
- 3 The boiler**
Receives the heat from the secondary channel.
- 4 The flue duct**
Carries the flue gases on from the boiler.
- 5 The cyclone**
Separates out the coarser particles.
- 6 The bag filter**
Filters out the fine particles.

— ECONOMY AND ENVIRONMENT

Every horse is a heat source.



kW

PER HORSE

The manure from an average-sized horse provides fuel for roughly 4 kW, around the clock.

approx. **160** kW

40 HORSES

An average-sized riding school or trotting yard.

approx. **2,500** m²

HEATED AREA

Stables, premises and homes.

The waste becomes heat on site – with no landfill and no transport.

Approximate values according to Biotherm, for an average-sized horse and a facility with 40 horses.

— SUSTAINABLE HEATING SINCE 1976

One contact. All the way.

A family business in its fourth generation, with offices in Västerås and Luleå. We developed the burner ourselves – and we are still there once the heat is on.



Needs assessment

With a free heat-load calculation.

Engineering

3D drawings.

Manufacturing

Our own burner and feed system – and a range of fuel stores.

Installation

Commissioning and fine-tuning.

Training

In operation and maintenance.

Service

Alarms and remote monitoring.

— FREE HEAT-LOAD CALCULATION

Let's calculate your heating.

We begin with a needs assessment and a free heat-load calculation. Then we take responsibility for the entire plant, from the fuel feed to delivered heat.

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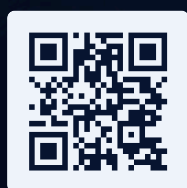
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READ MORE

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The Biotherm burner is developed by Biotherm Heat AB together with Luleå University of Technology. Data subject to change. Final data for your plant is provided at the design stage. © 2026 Biotherm Heat AB.