



# ALFAFLAME

bioheating systems

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**Low energy price have a main idea why start to use bioenergy**

**Farms which invest to bioenergy**

- farms which makes new dryer and silo storages
- farms wich cultivate special crops
- modernisation grain drying machines
- forest owners
- heating solutions for different buildings - movable

**Subsidy amount to bioenergy**

**Easy to calculate pay back time**

## Comparing fuels

800 KW HEATER COMPARING LIGHT OIL AND WOOD CHIP 01.10.2022				
field area	200,00	ha		
crop t/hectar	5,00	ton/hectar		
total amount	1000,00	ton		
grain density	0,70	ton/m <sup>3</sup>		
grain dryer volyme	35,00	m <sup>3</sup>		
grain mass in a dryer	24,50	ton		
batches	40,82	pcs		
batch time	5,00	h (18%-13%)		
total drying time	204,08	h		
<b>WITH OIL (90% efficiency)</b>				
oil consumption kg	75,00	kg/h		
oil consumption liter	88,50	l/h		
oil price	1,70	eur/l vat 0%		
oil consumption total	18061,22	l/year		
oil price per year	30704,08	eur/Y vat 0%		
<b>WOOD CHIP</b>				
wood chip consumption vs oil	1,06	m <sup>3</sup> /h		
wood chip price	23,00	eur /m <sup>3</sup>		
wood chip consumption total	216,73	m <sup>3</sup> /year	3,5 eur/m <sup>3</sup> woodchip make	
wood chip price per year	4984,90	eur/year	a chip from own wood	
price difference per year	25719,18	eur/year		
<b>WOOD PELLET</b>				
pellet consumption per year	57,80	m <sup>3</sup> /year		
pellet density	0,65	ton/m <sup>3</sup>		
mass per year	37,57	ton/year		
pellet price	215,00	eur/ton		
pellet price per year	8076,98	eur/year		
<b>FACT:</b>				
1kg pellet =4,8kWh				
1000 ltr oil =3,2m <sup>3</sup> pellet=12m <sup>3</sup> wood chip				
pellet ash amount 0,4%				
pellet humidity 8-10%				
1 m <sup>3</sup> wood chip =800kWh =300kg				

## **AlfaFlame Bioheating system solutions**

- AlfaFlame Oy develop and manufacture air to air bioheating products. Bioheaters, bioburners and discharger solutions of storage. The system includes also control centres. Our heating solutions are made for grain dryers, greenhouses, barns etc.
- Main idea have make a container solution or free spaced equipments which are in a building
- Container have ready to use. Customer have to do next things
- Main power cable with 63A plug (container use 32A)
- Placement of the container must to do solid ground
- Signal cable from dryer's electric centre
- Notice local fire safety distances

## **Solution container or free spaced equipments**

- Depends from customer needs and what He wants
- Container is very easy to start to use but needs separate wood chip storage
- Total prices have normally quite near to each others (small storage, DIY man)
- Transportation can have difficult or expensive (container wide 3,45m)
- Dryer need over 800kw =>two heater solution (drawings later)
- Water boiler possibilities to same room and one storage system

## **Fire safety distances**

### Free spaced equipments

- Heater room have normally made from fireproof material so it can have beside of the dryer or dryer house

### Container

- Two different kind of model, with or without isolation (roof and walls)
- w/o isolation must have 4 - 8m distance from building in Finland
- If have only dryer without building so container can be placed next to
- Notice local fire safety distances. Farmer must to discuss with the fire authority before placed

- Notice multilift equipments





Standard model, hinges side can be changed







Spring discharger of container

With ramps easier filling



- Geenhouse or hall warming





Easy transportation with wire multilift or hook multilift equipments



Long distance moves  
normally with low semitrailer and long ramps  
very easy to drop and pick up container with  
lorry.







Burner nominell effect 640 kW  
moving grate, primary and secondary  
air, ignition of fire with Leister igniter or  
hot air blower



Heater nominal power 640kW

Effect 800 kW with a 2x 7,5kW fans and woodchip moisture 35% or less





Left and right handness model primary ash conveyor  
standard equipment but secondary have option







Heater room height at least 3,6m  
because of cleaning



Storage conveyor  
Rotary feeder  
Burner conveyor



## Electric centre and main fans frequency converter



Touch screen main page







Secondary ash conveyor

Manually operated cover of  
storage



Oil heater room changed to bioheater





Heizomat Water boiler 75 kW in a same heater room





Double dryer system (two dryers and one heater)

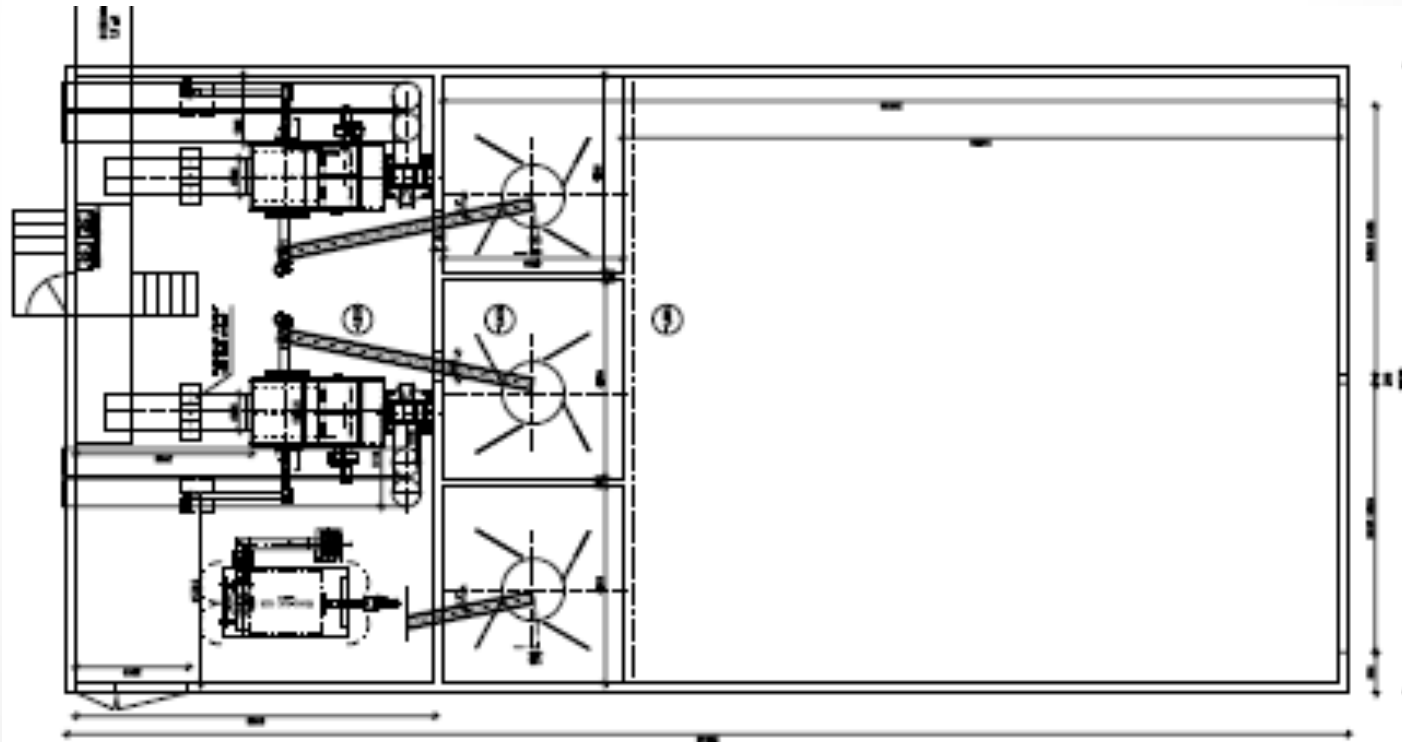
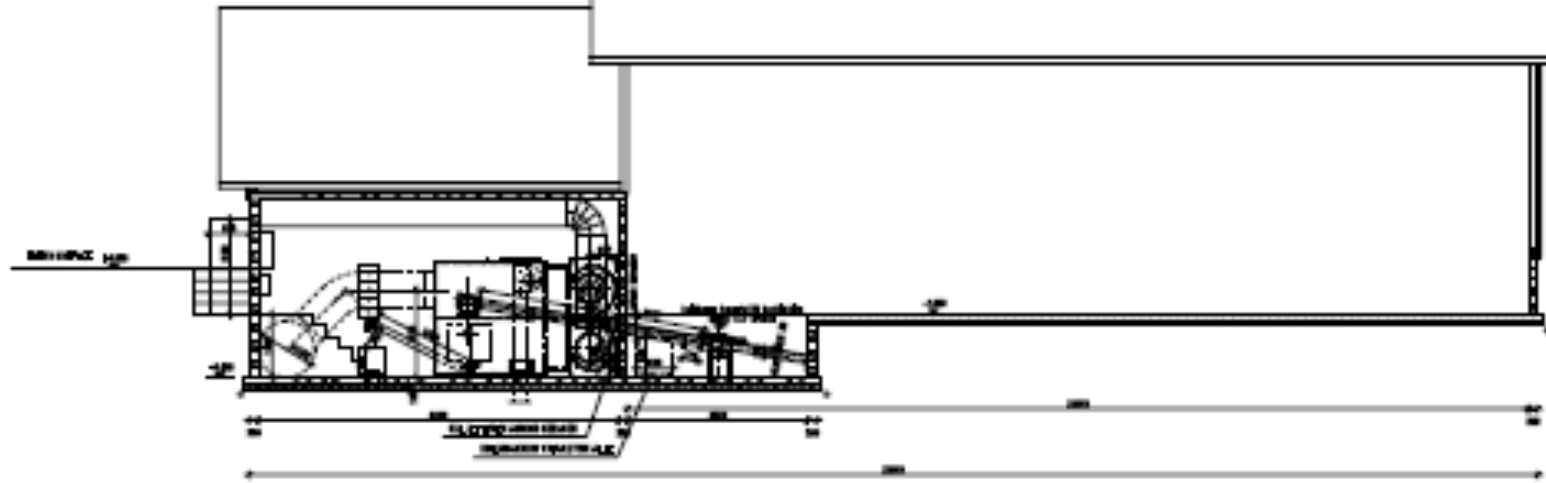


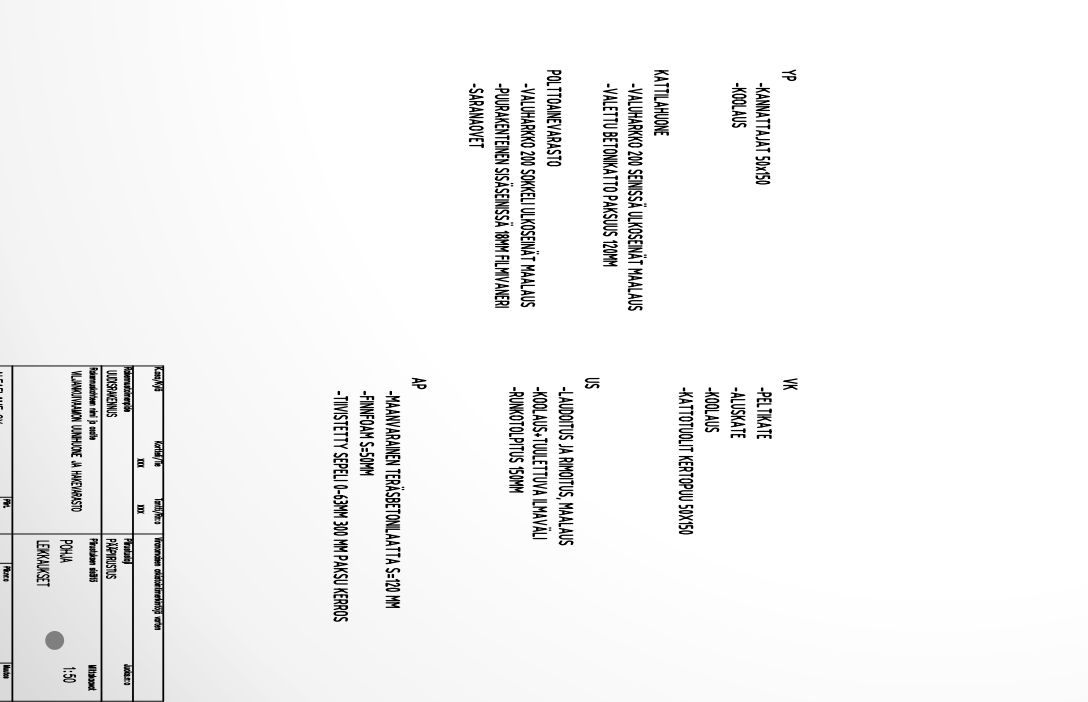
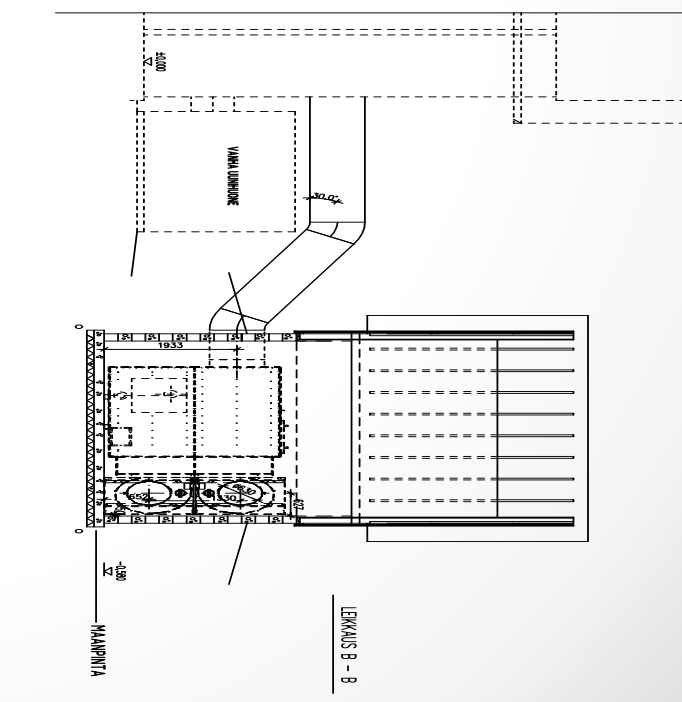


For bigger dryers two 800 kW heaters total 1600kW



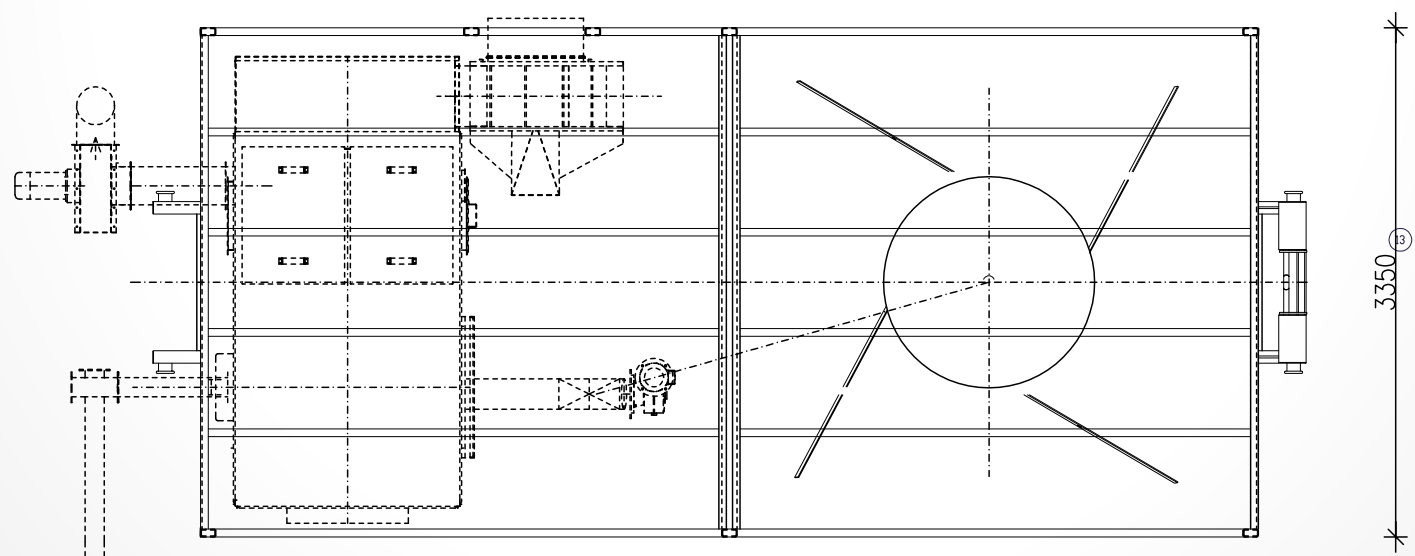
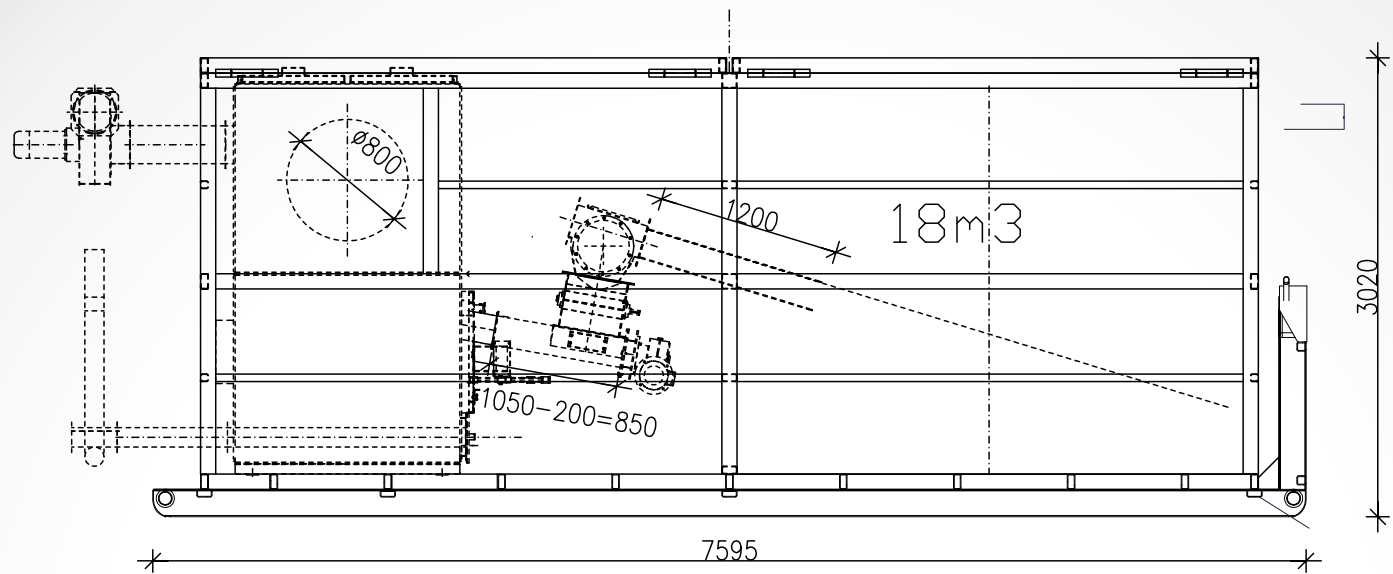
Two bio heaters and water boiler, big storage



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## Isolated container beside of the dryer house

