



Drying of Milled Peat for Fuel Briquettes

Sangla Turvas, Estonia

The Haarslev RotaTube dryer, type RTD, provides state of the art drying of milled peat combined with heat recovery for district heating

As part of a complete new drying and heat generation installation Haarslev Industries were chosen to supply the dryer unit as replacement for an old Russian steam dryer. The old dryer was both difficult to control and had low availability.

Dryer Characteristics

The Haarslev RotaTube dryer, type RTD is the perfect match for drying of fine and dusty biomass types like peat, saw dust, lignin, etc.

From the outside the dryer looks like a traditional rotary drum dryer, but the magic lies internally. Here the unique steam distribution system ensures excellent heat transfer. The arrangement of the tube bundles provides easy maintenance access to all interior parts. Thanks to the design this dryer can be manufactured in very large units and thus handling big volumes even for low density products like peat.

Advantages

- Superior energy efficiency as up to 75% of the energy input can be recovered for district heating

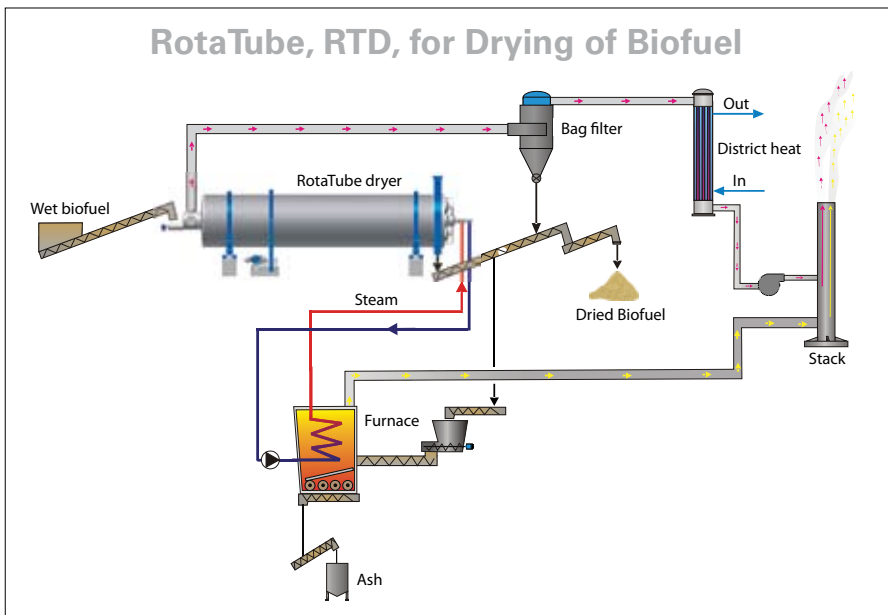
- Environmental impact is reduced to a minimum (clean exhaust, clean waste water)
- Risk of dust explosions is minimised
- Automatic control
- Low maintenance costs
- High availability



Process Description

Low value bio-mass is used in the boiler where steam for the dryer is produced. The steam (in the range of 1-6 barg) is led to the tube bundles inside the dryer. By condensation of the steam heat is transferred indirectly by contact to the wet peat. Hereby evaporation takes place without using a heat carrier like air.

As the exhaust gases from the dryer has a high wet bulb temperature, a very high recovery of the energy is possible at high temperature level. By means of indirect condensation in a shell & tube condenser the energy is recovered for district heating. Thanks to the pure vapours from the dryer approx. 70% of the energy supplied to the dryer is recovered as district heating.



Pure vapours also result in a low oxygen content in the exhaust gases which practically eliminates the risk of dust explosion and fires. Fire is normally considered as the biggest problem when drying fine and dusty products like milled peat.

Prior to the heat recovery the exhaust gases are cleaned to the highest possible degree in a bag filter. This results in crystal clean condensate which can be led to the sewer without further cleaning. Thanks to the clean condensate the condenser requires no cleaning and is therefore considered maintenance free.

Technical Data

Annual operation time	> 8000 hours
Plant capacity	40,000 t/year
Dry substance	
- In:	43 %
- Out:	87 %
Evaporation capacity	4,500 kg/h
Steam consumption	3.8 MW (6700 t/h at 6 barg)
Heat recovery	3.0 MW for district heating
Dryer	1 x RTD 3518-18
Installed motor power	120 kW
Start-up	2009

Haarslev Industries reserves the right to make changes.



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