

FRACTIONING BIOMASS BY SCREENING

Commonly fractioning in industries is done by sieving. Sieves can be made in different design with a various active screening surface between 2-5 m² for each flat. Sieve sizes vary from \varnothing 0.1mm to 30 mm. The screener is driven by a vibrator which gives it the typical elliptical motion pattern that counteracts blinding and loosens and stratifies the feed material. Screens are manufactured with up to 5 decks, to suite the screening operation. In the screening operation of biomass two main fractions are mostly rejected, first too big particles that might cause problems in downstream operation and secondly particles that are too small as they usually are more ash rich.

OPERATION PRINCIPLE

Gravimetric fractioning uses differences in specific particle weight in treated biomass. After drying and comminuted to an appropriate particle size by chipping or shredding the biomass is fed into the gravimetric separator in an even flow. This is done by an air tight rotary valve or screw. The biomass is then transported in a thin layer by a vibrating table. An adjustable nozzle is placed at the end of the table and is lifting up lighter fractions by an air stream letting heavier fractions like rocks, gravel and metal pieces pass by. The equipment can also be used the other way round to reduce the amount of very light and unwanted fractions. Capacity was registered to be 2,5 ton DM/m²,h. (m² is for one sieve area).

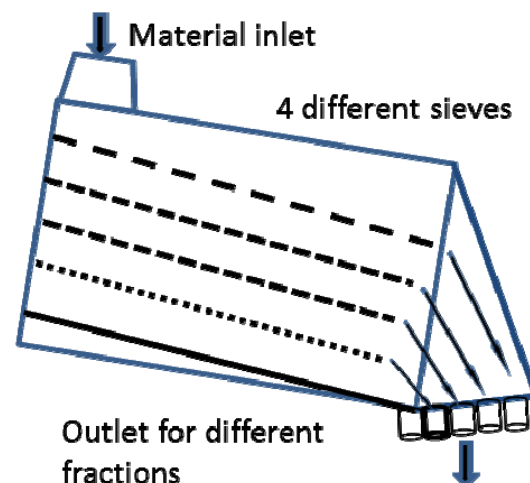


Fig 1. Principle set up of a screen separator for sieving.



Fig 2. Gravimetric separator for commercial use sieving

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10.12.2013