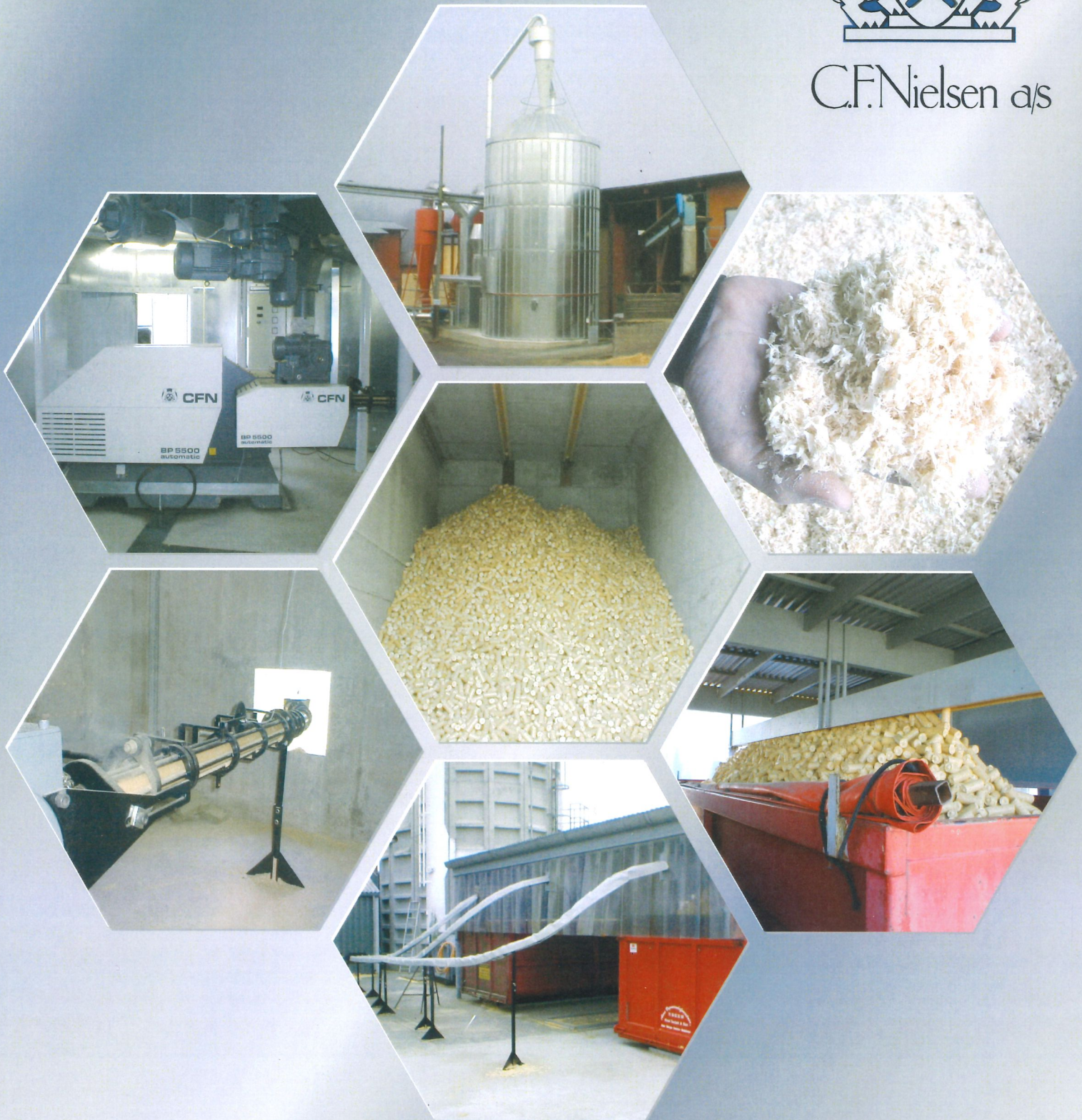


CFN Briquetting Plant



C.F.Nielsen a/s



Turn your Waste into Profit...

www.cfnielsen.com

Briquetting of Wood Waste Material

Background

C.F. Nielsen A/S is a leading manufacturer with more than 60 years of experience in briquetting. We have supplied stationary or mobile briquetting plants all over the world. An investment in a CFN briquetting press is very profitable and it will often be paid off within only 1 – 3 years.

Our high-tech production machinery is efficient and state-of-the-art. By producing all the components ourselves we are able to secure an unparalleled quality to the benefit of our customers.

Features & Benefits

A **Briquetting System** allows you to compress your waste sawdust, chips, shavings or other biomass into briquettes that are very environmental friendly high-grade bio fuels. Wood waste briquettes are used for heating in the public or private sector.

The volume of the wood briquette is normally reduced to less than one tenth of the volume of the raw material and thus making transport a lot easier and far less expensive.

Generally two kg of wood briquettes holds the same energy as one litre of fuel oil.

Briquetting is a process in which the material is compressed under high pressure, which causes the content of lignin in the wood to be liberated and thereby it binds the material to a firm briquette.

Humidity influence on quality of the briquettes

The most appropriate water content in raw material for briquetting varies and depends on the raw material. However we recommend water content of min. 6% up to max 16%. If the water content is beyond 16% even for smaller part of the raw material it will reduce the quality of the briquettes and eventually make the process impossible.

Hydraulic Presses

Major part of the hydraulic presses on the market are designed to be used where demand to capacity is from 50 to 150 kg/h and this makes these machines attractive for minor installations that are to be used only for 6-8 hours per day.



However a few semi-professional hydraulic briquette presses with a capacity of until app. 400 kg/h are today available on the market.

CFN hydraulic briquette presses are built as turnkey solutions complete with dosing silo, hydraulic power station and control panel.

Generally the lifetime of a hydraulic press will be considerably shorter than the lifetime of a mechanical briquetting press.

The outcome is fairly good uniform length and looks of the briquettes that are mainly used on the private market.

The raw material is fed into the machine by a time controlled dosing screw, which means that it is the volume of the raw material, which is controlled and not the weight.

Mechanical Presses

Mechanical presses are available with capacities from approx. 200 kg/h up to 1800 kg/h. Those presses are typically installed at professional users, as the key machines in large briquetting plants that generally are operating automatically for 2 or 3 shifts a day.

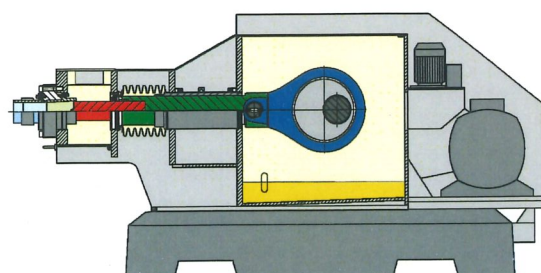


Briquettes from such plants are normally produced in round and short shapes to be used at heating plants for large industries or district heating units.

It is however possible to convert a mechanical press to mass-produce square briquettes for the consumer market. The briquettes can be cut to the preferred standard length by installing an automatic briquette saw or cutter.

Construction of the Mechanical Press

A mechanical press is built like an eccentric press. A constantly rotating eccentric connected to a press piston presses the raw material through a conic nozzle. On a mechanical press the required counter pressure will only be adjusted by mounting a nozzle with a different conicity.





C.F. Nielsen AS

We have developed a large variety of nozzles for various types of wood and other biomass in order to cope with customer requirements to the quality and shape of the briquettes.

The lifetime of a mechanical press is considerably longer than the lifetime of the smaller hydraulic presses.

Feeding and Operation

A mechanical press receives raw material by a speed controlled dosing screw. In reality the speed of the dosing screw determines the outcome of the machine. The regulation has to be based on the specific gravity of the raw material. A modification of the specific gravity of the raw material will, therefore, change the weight of the added quantity, which again results in a variation of the hardness of the briquette.

Change from one type of wood to another or changing for instance the content of dust versus chips will therefore result in a changed look and hardness of the briquette. Therefore we often recommend our presses to be equipped with an automatic capacity adjustment system that will adjust the capacity up and down depending of the raw material.

Briquetting Plant

A mechanical briquetting press will continuously produce a briquettes string, which, however, breaks in random lengths dependent on the binding capability of the raw material.

For shortening of the briquette string a briquetting saw or cutter can be delivered. The saw works in cycle with the advancing briquetting string and the

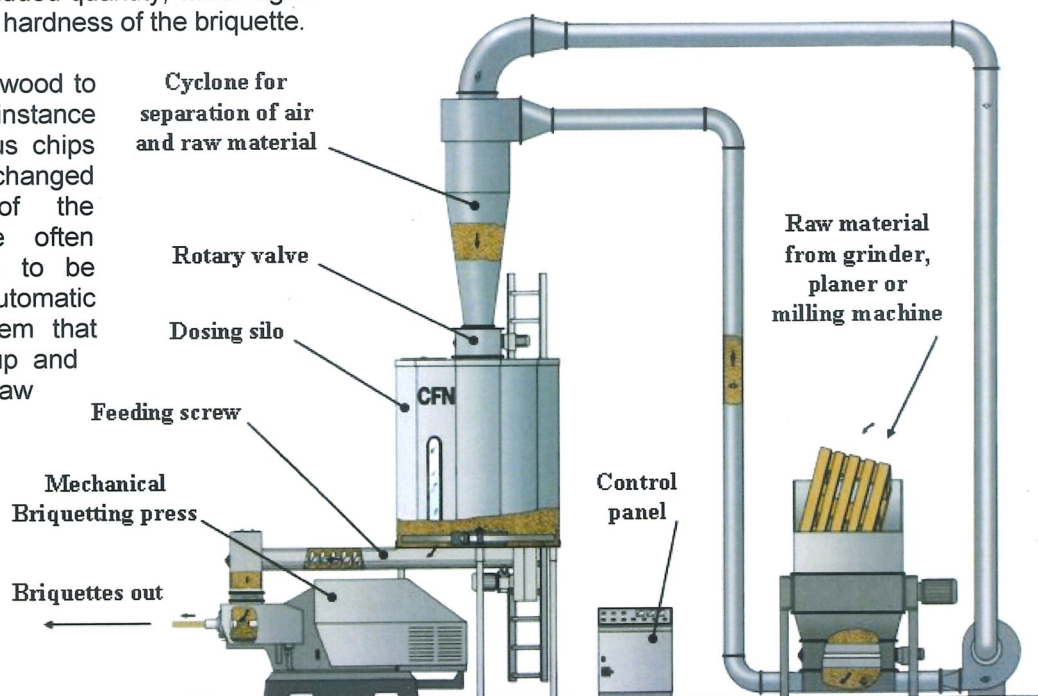


result is a very small length variation of the briquettes.

Cooling lines and quality of briquettes

On the mechanical press the quality of the briquettes depends highly on the cooling and transport lines mounted on the machine. Our presses are as standard delivered with 15 m cooling/transport lines, which we recommend as an absolute minimum for wood briquettes.

The briquette being pushed out of the press is very hot because of the friction in the nozzle. The longer time the briquette can remain under pressure in the cooling line the longer and harder it will be. Cooling lines of 35 to 50 metres in length are very common.



Briquettes for industrial use (for instance district heating stations) must not be too long or too hard, as they may cause damage to the dosing system of the plant. Briquettes for the private sector are normally preferred to be hard and rather long (15-30 cm) as they are often packed in small plastic bags for easy distribution and handling.

To improve the quality of the briquettes for the private sector it may be necessary to accept some reduction of the capacity of the machine.

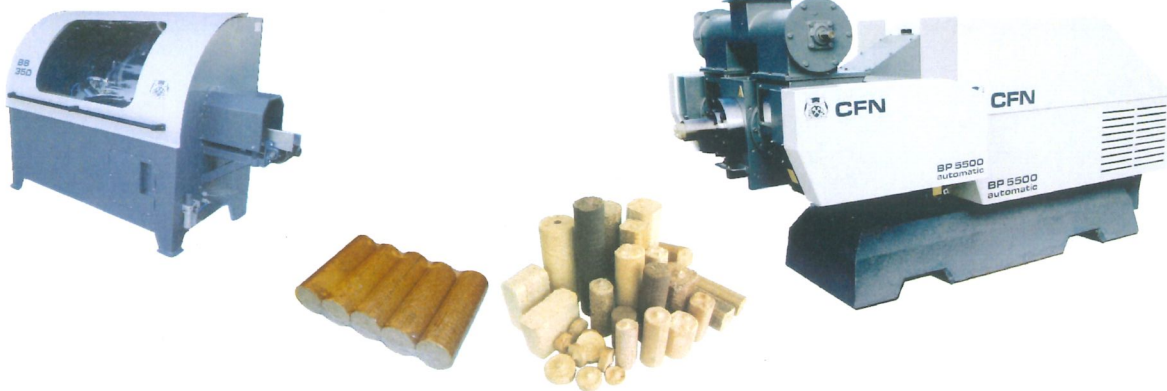
Next step

We look forward to receive your specific inquiry in order to enable us based on our know-how and extensive expertise in briquetting to prepare a detailed quotation for a complete briquetting plant tailored to meet your specific requirements.

Please do not hesitate to get back to us with any specific questions.

Briquetting Solutions

- From a Reliable Partner



Range of Briquetting Machines

Model	Max capacity	Briquette size	Type
BPH 60	120 kg/h	Ø60 mm	Hydraulic
BPH 70	150 kg/h	Ø70 mm	Hydraulic
BPH 70-2	300 kg/h	Ø70 mm	Hydraulic
BP 2000	225 kg/h	Ø50 mm	Mechanical
BP 3200	500 kg/h	Ø60 mm	Mechanical
BP 4000	750 kg/h	Ø60 mm	Mechanical
BP 5000	1200 kg/h	Ø75 mm	Mechanical
BP 5500 / HD	1400 kg/h	Ø75 / square 65x65 mm	Mechanical
BP 6000 / HD	1800 kg/h	Ø90 / square 75x75 mm	Mechanical

Please contact us for further information or a quotation.
Brochures and videos are available at: www.cfnielsen.com

C.F. Nielsen A/S is a leading manufacturer of Briquetting Equipment and has specialized in delivering turn-key briquetting plants that run fully automatically. Our service team mounts and maintains plants all over the world.



A glance at some of our production facilities



C.F. Nielsen a/s



One of our service teams
- ready for take off

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