

FROM WASTE TO VALUE



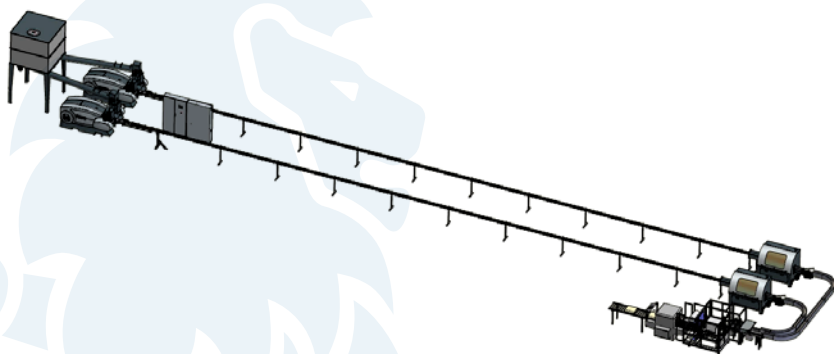
C.F. Nielsen A/S

FULL-LINE BRIQUETTING SOLUTIONS - WORLDWIDE

World Leader in Briquetting Solutions



C.F. Nielsen is the leading manufacturer of mechanical briquetting presses. From raw material – agricultural waste, wood waste and other biomass residues and wastes, we offer full-line briquetting solutions all over the world. Briquettes are utilized in big boilers and power plants and log-type briquettes for use in fireplaces and wood-burning stoves by private consumers.



We take pride in maintaining almost the entire value chain in-house. Our technology is constantly being developed while working closely with our customers, to ensure that our solutions meet their demands and expectations - now and in the future. This philosophy, combined with the supply of briquetting machines for many different applications, permits us to constantly innovate and adapt our machines to the latest market requirements. This also enables us to continue delivering the strongest and most efficient briquetting machines in the world.



“Tell us about your market, your challenges, your story – and our expert staff will determine the best briquetting solution for you and your company.”



C.F. Nielsen A/S



Founded in 1889

On February 19th 2014, C.F. Nielsen celebrates our 125th anniversary by publishing a book that tells the company's history from our start in 1889, up to the modern manufacturing company it is today. For more than 100 years, the company was fully owned by the Nielsen family – until 1998, when Henning M. Larsen acquired the shares and he is now the Chairman of the Board. In 2007, Mogens Slot Knudsen joined the company as Managing Director and co-owner. Under their leadership, the company has continued to grow and expand internationally.



What makes us so special?

Our dedication, years of experience, industry expertise and adamant commitment to the needs of our customers, as well as:

- We see every project through from idea to completion
- We are briquetting experts able to deliver different technologies including mechanical presses, hydraulic presses and screw presses
- In-house specialists offer a wide range of services on everything from testing raw materials to after-sales services
- Sales managers all have international experience and are able to advise you on a wide range of aspects related to briquetting
- We offer you our expertise for complete briquetting plants and we work with the best suppliers worldwide to ensure quality in all aspects for our customers
- Fast delivery of spare parts – we can respond to a breakdown in a matter of hours
- Long life span on machines
- Emphasis on customer ROI
- We strive to secure the future through ingenuity and innovation – and to create value through service



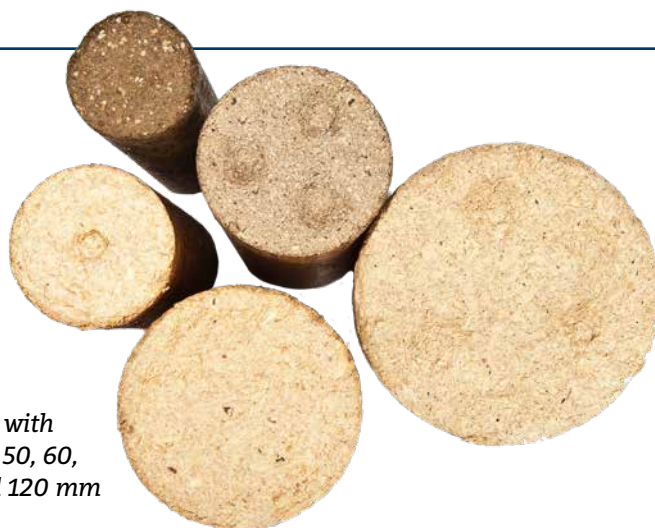
World Leader in Briquetting Solutions

Global Supplier

At C.F. Nielsen, we are dedicated to serving our customers. Many of our employees have been with the company for more than 10 years, and some for even more than 40 years – acquiring the expertise needed to serve the many diverse markets in which we operate. From Africa to Asia and from the Middle East to North America – our skilled staff is at your service.

High-quality Briquetting Presses

C.F. Nielsen has the world's largest range of Mechanical Briquetting Presses, ranging from 200 kg to more than 5,000 kg/h. The presses are sold all over the world for different wood types, agriculture and other residues. Having established our leading position within the mechanical presses, C.F. Nielsen has expanded the product range with both Hydraulic and Screw Presses, enabling us to meet increasing demands.



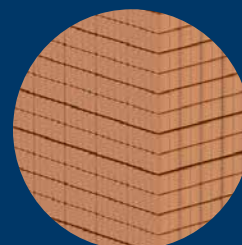
Briquettes with diameters 50, 60, 75, 90 and 120 mm

Is it profitable to produce Briquettes?

Profitability depends on many different factors which will vary according to location, raw materials and size of factory. However, the main factors you need to consider are the following:

- Raw material – the cost, type, form and moisture level
- Production – power consumption, wages, spare parts, service, drying- and downsizing costs
- Logistics – transportation, shipping and storing costs
- Sales price – local sales or exports

There are many factors to analyze which is why extensive research is necessary when deciding about your investment. Contact us with any questions. We are happy to take on projects large and small.



Why make Briquettes?

Briquetting often leads to a sizeable volume reduction - simplifying storage and transportation issues. Briquettes are a strong alternative to pellets, with simpler technology offering many advantages for industrial applications. Briquettes are perfect for logs for fireplaces and wood-burning stoves, for animal bedding and feed, biogas production and flammable dust. **ASK US FOR MORE INFORMATION.**



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Mechanical Presses – The Cornerstone of the Company

Mechanical presses are typically used for both small and large-scale installations and two or more presses can be combined for high tonnage per hour. C.F. Nielsen offers a large range of mechanical presses:

MODEL	MAIN MOTOR	BRIQUETTE SIZE	CAPACITY INDUSTRY	CAPACITY CONSUMER
BP 2010	18.5 kW	Ø50 mm	150-225 kg/h	
BP 2510	22 kW	Ø50 mm	300-350 kg/h	
BP 3200	22 kW	Ø60 mm	400-600 kg/h	
BP 4000	30 kW	Ø60 mm	500-750 kg/h	500-650 kg/h
BP 5000	37 kW	Ø75 mm	800-1200 kg/h	800-1000 kg/h
BP 5510/5510 HD	45/55 kW	Ø75/65x65 mm	900-1400 kg/h	900-1100 kg/h
BP6510/6510 HD	55/75 kW	Ø90/Ø100/75x75 mm	1200-2300 kg/h	1100-1500 kg/h
BP 7010/7010 HD	75/90 kW	Ø90/Ø100/75x75/85x85 mm	1500-2500 kg/h	1300-1700 kg/h
BP 7510/7510 HD	110/132 kW	Ø110/Ø120/100x100 mm	2000-3500 kg/h	data on request

* Capacities are dependant upon the raw material and requirements for the briquettes.

The presses are equipped with advanced control systems with remote access, making it possible to monitor, operate or even to reprogram the PLC-function online.



Features & Benefits:

- Modern design with streamlined covers
- Touch screen operation
- Latest PLC software
- Service-friendly
- Low maintenance costs
- High efficiency motors
- Die system with exchangeable wear parts
- Die system adapted to customers' raw material and density requirement
- Double infeed system on large machines for higher capacity and uniform density

Hydraulic Briquetting Systems

Different hydraulic briquetting systems are now provided by our sister company Ruf Maschinenbau GmbH & Co. KG in Germany.

RUF Briquetting Systems are suitable for making briquettes from wood, biomass, metal and numerous other remnants. Especially the wood and biomass machines have a throughput of between 30 and 1,500 kg per hour. The rectangular RUF Briquettes are uniform sized and easy to store.

Alternative briquette formats are available. The wood briquettes as high quality source of energy are typically used for fireplaces and wood-burning stoves. You can find more information about these hydraulic briquetting systems on www.briquetting.com

Extrusion Presses

C.F. Nielsen's BP Shimada Extrusion Briquetting Press comes as a compact unit with press, buffer silo, dosing system and control panel. The press has a PLC operated control panel with internet access, or can be delivered

with a relay-based control panel. The square briquettes are uniform, easy to store, and typically used as logs for fireplaces and wood-burning stoves. The specialized BP Shimada Briquetting Press produces very dense briquettes, which can be carbonized to high quality charcoal briquettes for cooking and BBQ.

Extrusion Screw Presses are equipped with a main motor of 45 kW, producing briquettes measuring 55x55 mm or 65x65 mm.

C.F. Nielsen offers a wide range of accessories as well as additional equipment to supplement the briquetting machines. The equipment includes saws, briquette breakers, dosing silos, and packaging machines.



Wood Briquetting

Consumer Briquettes

Over the last two decades, the demand for briquettes for fireplaces and wood-burning stoves has increased.

C.F. Nielsen is now a leading supplier, developing a wide range of equipment for consumer briquetting, including lines with the highest capacity and the latest designs and control system. Silos, saws, packaging equipment and other accessories complete the lines.



The picture shows what is probably the largest consumer briquetting line in the world with a capacity of more than 100,000 tons per year. 12 BP6500HD briquetting presses, with saws and automatic weighing.

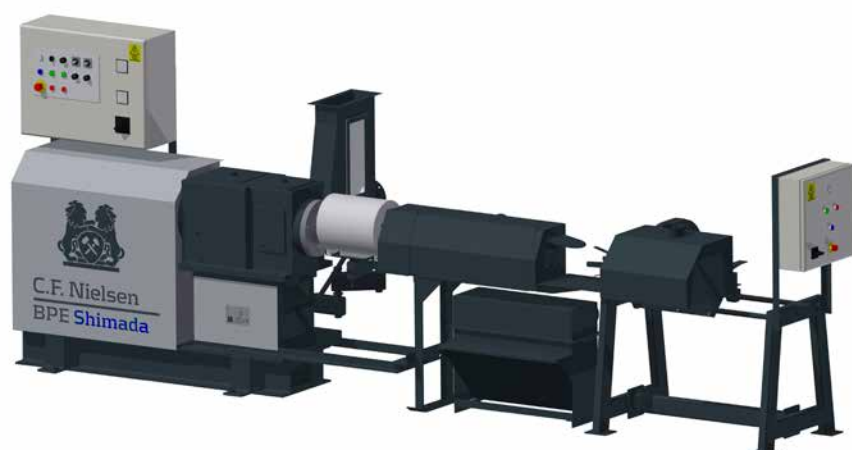




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The shown line is a combination of a new BP5510 and an old BP5500 complete with saws and packaging line. The raw material is a mix of cleaned demolition wood and wood residues producing excellent briquettes.



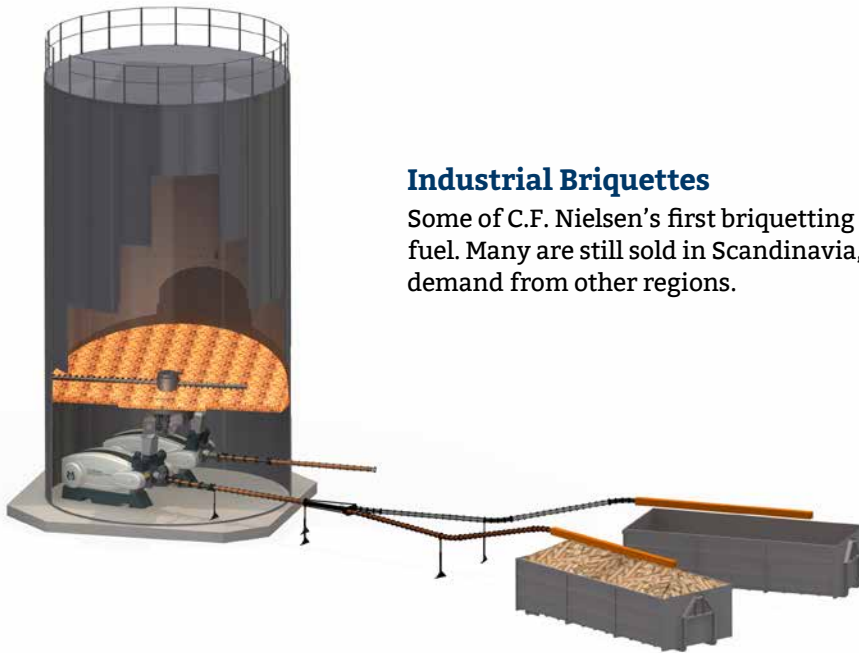
The BP Shimada Extrusion Briquetting Press – complete with press, smoke hood and saw.



Different hydraulic briquetting systems are now provided by our sister company Ruf Maschinenbau GmbH & Co. KG in Germany



Wood Briquetting



Industrial Briquettes

Some of C.F. Nielsen's first briquetting plants were for industrial fuel. Many are still sold in Scandinavia, while there is also high demand from other regions.



Two BP5510 briquetting presses producing industrial briquettes from softwood shavings.



MDF board is becoming a popular alternative to particle board and solid wood alternatives. C.F. Nielsen has developed a solution to handle the challenge of MDF waste. Two BP4000 briquetting presses producing industrial briquettes from MDF dust.

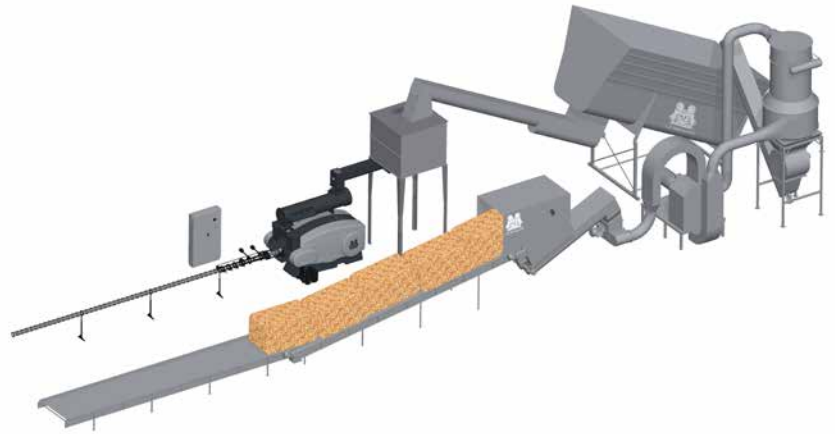


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Agricultural Briquetting



4 BP6000 producing briquettes from wheat straw for bedding with a capacity of 6 t/h.



The shown line is a solution for briquetting of wheat straw consisting of a BP7510 with a total capacity of 3-3.5 tons per hour. The line is complete with shredder, hammer mill, filter and presses.



Agricultural Briquetting

Demand for briquetting agricultural residues has increased in recent years. There are many kinds of agricultural raw materials, making careful preparation before briquetting vital.

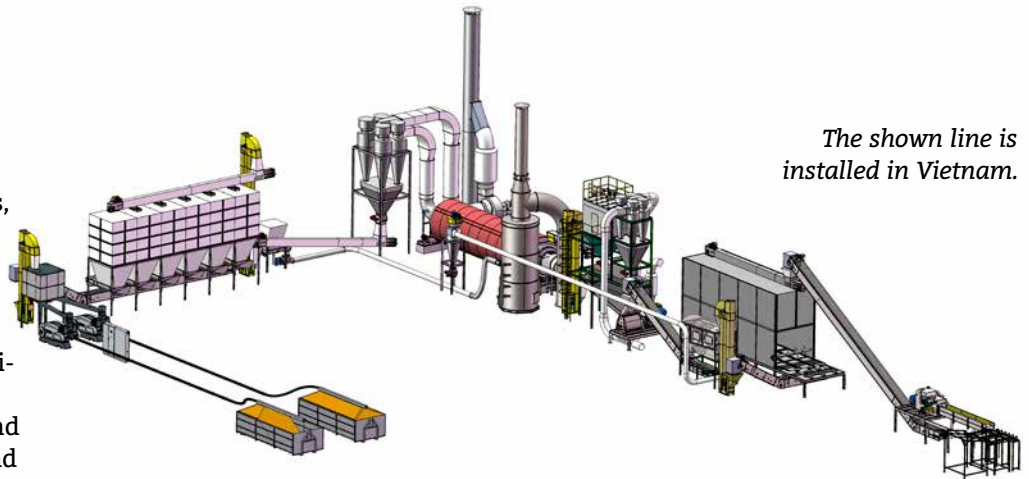
C.F. Nielsen's equipment is well-suited for briquetting agricultural residues, with specialized spare parts developed to reduce wear and tear.



Three mobile briquetting presses BP3200, BP5000 and BP6510 for installation in Ethiopia. The raw material will be a wide range of agricultural and wood based residues.

CFN Engineering

Customers often call on our expertise in designing complete production plants. Therefore, we are offering a new concept with CFN Engineering which includes complete solutions for wood and agricultural-based raw materials, and everything from chipping and drying to briquetting and packaging. CFN Engineering is offered in selected markets and includes definition of raw materials, technical flow diagrams and specifications of equipment, 2 and 3D layouts, cost specifications and site management. **Tell us about your requirements.**



The shown line is installed in Vietnam.



In Kenya we have installed a complete briquetting solution with a large shredder, hammer mill and 4 BP6510 briquetting presses with a capacity of 6 t/h. The raw material is pineapple waste from large plantations, which is normally burned in the field. The briquettes will be used for fuel, replacing firewood.

The Future



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New Applications – New Developments

In line with our values, C.F. Nielsen will continue developing new machinery and applications. Here are a few examples of some of the projects we are working on:



The Star Press – a new high capacity Concept in Briquetting

The SBP-9 Star Press is a revolutionary concept in briquetting. It is the world's largest briquetting press, with a design based on a radial principle of movement.

The press is developed for high capacity production of small briquettes 40-60 mm, reaching an output of up to 5000 kg/h.



Torrefied Wood

Torrefied wood is regarded as the new “coal” – renewable energy expected to replace many types of biomass. The densified torrefied biomass can replace coal in existing power plants, avoiding the need to convert the plants. C.F. Nielsen has developed special applications to densify torrefied wood.

Village Concept – Sustainability and value for Developing Communities

In Africa, there is great need for energy for cooking that replaces charcoal. C.F. Nielsen's “Village Concept” offers a complete briquetting line using agricultural waste.



Together with BioFuel Technology and The University of Aarhus in Denmark, C.F. Nielsen developed new technology that produces 250 Nm³ methane per ton of briquetted straw. A new mobile solution with a capacity of 6-7 tons per hour is now available.



Charcoal Briquettes

The increasing demand for quality briquettes and the acquisition of extrusion press technology allows us to enter this market and deliver complete production lines.



After-Sales Service

Our After-Sales Service has high priority and ensures that our customers obtain maximum up-time and long life-time on their equipment as well as minimum maintenance and repair costs. Our services include: spare parts, trouble shooting, internet access to machines, service contracts and overhauls.



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