WEIMA BRIQUETTING

with Confidence

www.weimauk.com
Background

The briquette forming (combustible bricks) of wood materials is a well known process used as a fuel source product circa 1920. However, at that time an availability of less expensive fuels lead to a lack of public and commercial interest.

With the rise of sustainability issues, zero landfill policies, government incentives and rising alternative fuel costs, the popularity of producing this natural waste to revenue fuel has increased dramatically. In some cases creating new businesses.

Weima Machinenbau GmbH remains the global leader in this technology, successfully manufacturing briquette press and shredder solutions for more than 30 years from their factory in Ilsfeld, Germany supporting more than 25,000 installations globally.

Fercell Engineering Limited, operating from our manufacturing, test and customer support premises in Aylesford, KENT are a Premier Global Partner to Weima Machinenbau GmbH for the UK and Nth. Ireland EU region.
Background

The range of Weima briquette press is extensive including differing briquette formats and production volumes per hour, processing a broad range of materials (up to 90% volume reduction) which can include; wood shavings, sawdust and shredded materials such as security documents, paper, cardboard, paper dust, cereal waste (straw, hay, husk etc.) (containing a maximum moisture content of 18%). Wood briquettes are a carbon neutral fuel, extensively used in both domestic and commercial markets.

EPS foams, some types of plastic and soft metals such as brass, copper aluminium and lead can also be processed into dense briquettes with volume reductions of up to 90%, avoiding degradation of material thereby attracting premium SCM prices.
The mechanics of a WEIMA briquette press

The Weima system employs automatic agitation of materials within the storage hopper. This rotating agitator is driven by an independent gear drive unit, with the same applying to the Weima worm-screw feed system ensuring a continuous optimum output density of each briquette by controlling the volume of material delivered into the compaction chamber. Other manufacturers employ a less reliable gravity fed principle.

The classic “C” “C-HD” and “TH” Series of low noise, briquette press are factory pre-commissioned, bursting with the most up to date energy saving features, electronic PLC control, complete self diagnostics and automatic briquette length and optimum bulk density control features to offer the most cost efficient economical and reliable solution.

Specifying the inclusion of oil cooling among other optional additions to further enhance the machines capability to include a bagging carousel system which reduces the need of an operator in constant attendance, further reducing operating costs – increasing profits.
WEIMA briquettes – calorific comparisons

Briquettes are an environmentally friendly fuel source and clean to handle. The calorific value of a typical timber briquette can be as much as 6kW per kg, dependant on the material of course, compared to kiln dried timber off-cuts of 4kW per/kg or air dried logs of a similar value dependant on the combustion system.

Timber waste briquettes also have a zero sulphur content and produce on average 0.5% of ash of which can be used as garden fertilizer, compared to coal ash of between 20-35%.

Briquettes can be used in most wood burners, open fires, chimnea’s and even barbeques.

Weima range of briquette press are generating excellent revenues for customers, many selling more sacks than they can produce each week.
WEIMA briquette press features

Self diagnostics –
LED proximity switches
in the vertical and horizontal
press chambers let the
operator know where about's
the rams are at all times, this
is especially useful in the
event of a blockage. (The
blue capped tube between
the horizontal proximity
switches is a breather filter).
WEIMA briquette press features

The agitator slowly rotates; sweeping material into the worm screw chamber, the worm screw feeds the press chambers. Heavy duty gearboxes and floors are available for tougher applications, these are necessary when fitting a hopper extension for increased in-feed storage capacity.

Auto stop/start ensures the press automatically starts when the hopper is filled and stops when the hopper is close to empty.
Hydraulic Oil Cooling; Choosing this option allows for a 24/7 operation. This can double and in some cases, triple throughput capacities. The addition of a Fercell bagging system further enhances automation for extended production periods.

Oil cooling also ensure the oil is always kept at its optimum operating temperature, maintaining viscosity and thereby possibly reducing operational maintenance downtime.
Pressure gauge; Located above the hydraulic reservoir at the rear of the machine this feature automatically controls the pressure and release of each briquette from the chromium “nose pliers”.

This gauge rarely needs adjusting with the exception to a radical change of input material quality. Once set, the gauge can be locked into position.

Note: All Weima briquette press are delivered pre-commissioned with finished briquettes in the nose pliers.
WEIMA briquette press features

**Automatic Briquette Density/Length Control**
From the comprehensive range of machines specify circular, square or rectangular briquettes to, without the aid of additional chemicals, produce briquettes only using hydraulic compression.

Organic materials such as wood rely on the natural lignin and cellulose present as a binding agent.

Briquette volume throughputs range from approx. 40 kg/hr. up to 6000 kg/hr. depending on the quality of material.
Control Panel Functions

1. Control voltage powers the panel up and starts the automatic start/stop control system.
2. For a manual start/stop bypassing auto control system.
3. Disturbance light.
4. Sequential stop disturbance light.
5. Manual/Auto switch: Turned to manual if a blockage occurs, worked alongside buttons 6, 7 and 8 to push out the blockage.
8. Manual button for nose clamp.
9. Hour meter.
Disturbance lights and faults

Red lamp H3 is illuminated
• A motor protective switch has tripped
• Temperature in the hydraulic tank is too high
• Oil level in the hydraulic tank is too low

Red lamp H4 is illuminated
• Check the pressure switch
• Clamp is not holding the briquette
• Proximity sensor filling cylinder forward is defective.
• Check proximity sensor for the briquette auto length/density monitoring device

Red lamp H4 is flashing
• Check the pressure switch
• Clamp is not holding the briquette
• Proximity sensor filling cylinder forward is defective.
• Check proximity sensor for the briquette auto length/density monitoring device
Launching the new High Density (HD) technology now makes working with problematic materials such as MDF, wood chip and metal swarf a thing of the past.

Throughput rate up to 300kg per hour
Three briquette formats possible;
50 mm, 70 x 70mm & 150 x 60 mm

TRY BEFORE YOU BUY INVITATION
Bring your own materials and trial a machine at our Kent test facility, with our compliments.
Fercell WeimaUK customer success stories

Trade only supplier in Cornwall producing up to 200 x 10kg / sacks per week @ £2.95 per sack.  
*Annual revenue £29,000.*

Domestic market producer in the Scottish highlands producing up to 150 x 10kg sacks per week.  
Average price of £5.50 per 12kg sack, giving approximate *annual revenue of £42,900.*

SME Woodworking factory in Scotland purchased an entry level Weima briquette press. Produce 100 x 10 kg sacks per week of mixed shredded timber waste & shavings, successfully selling all they can produce at £3.50 per sack.  
*Annual income of £18,200.*

Isle of Wight domestic market supplier producing approximately 2500 kg of briquettes per week for local sale at up to £4.50 per 10 kg sack.  
*Annual revenue £48,100.*

North of England producer to wholesale trade using a Weima press generating 120 kg of briquettes per hour on a 20 hour sift over a six day week. At £120.00 per ton and annual revenue of £69,000.

Large Northern Ireland kitchen manufacturer converting wood off cuts and shavings to briquettes at 180 kg per hour. Based on a forty hour week over a forty-eight week year - average of over 172,800 x 10 kg sacks per year.  
*Trade only revenue of £475,000*
Fercell *Elster* dust extraction & briquette press

Designed by Fercell Engineering this is a totally enclosed cartridge filter unit model ELSTER TH20-18-T

This unit is a totally enclosed design manufactured in the UK from prime galvanised sheet steel ensuring durability and long life. Incorporated in the design parameters are; full width compression access door providing easy inspection or removal of the filter cartridges, a versatile and flexible silo filter fan and the capability to carry out a clean cycle without any loss of pressure saving time and maintenance downtime.
Fercell automatic bagging systems

These single bag to 16 bag automated bagging system can be specify with the carousel control managed by the briquette press PLC.

A plastic preformed tube is attached the outlet nozzle of the briquette press with its outlet positioned at load height of the bagging station carousel. There are a number of bagging system variants including bag sizes.
Selection of briquette materials types

- **Wood, paper, lead**
- **Acrylic**
- **Aluminium swarf**
- **RDF & mixed material**
- **Cardboard egg trays**
- **Nickel, wood dust, MDF**
Selection of briquette press types

- **TH70S/20 DUO**
- **TH3400**
- **TH1000/14 – Hopper extension**
- **C-140, 150, 160, 170**
- **TH714 – Aluminium Waste**
- **Vario Plus K**
Selection of briquette press types

ELSTER Briquette Press and Dust Extraction Combo

TH1500 DUO

C150 HD
Specification sheet

Approximate Weights of Loose Wood Shavings & Dusts
The following shows approximate weights in kg/m³ of loose wood shavings and dusts at an average moisture content of 15% per m³.

- Mixed Sawdust & Shavings (Softwoods) 100 - 110 Kg m³
- Mixed Sawdust & Shavings (Hardwoods) 140 - 160 Kg m³
- Sanding Dust 180 - 200 Kg m³

Aprox Heat Output of Some Materials

- 35 Sec-Fuel Oil @ 12.57 kW / Kg
- Kiln Dried Timber Off-Cuts @ 4.0 kW / Kg
- Briquetted Mixed Timber Shavings & Sawdust 6.00 kW / Kg
- Cardboard @ 5.50 kW / Kg
- Newspaper @ 5.52 kW / Kg
- Municipal Waste (RDF) @ 4.20 kW / Kg
- M.D.F @ 5.30 kW / Kg
- Straw @ 4.00 kW / Kg
- Wheat @ 4.10 kW / Kg

- 2.5 Kg of Wood Briquettes = 1 litre of Heating Oil
- 1 Ton of Wood Briquettes = 400 litre Heating Oil
Specification sheet

**Average Production Costs**
To produce a 10 kg sack of briquettes, using the new range of Weima energy saving range of briquetting equipment, the following cost guidelines have been calculated:

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate cost of plastic sack, printed one side</td>
<td>0.25</td>
</tr>
<tr>
<td>Approximate running cost of the briquetter</td>
<td>0.10</td>
</tr>
<tr>
<td>(dependant on tariff being paid)</td>
<td></td>
</tr>
<tr>
<td>Approximate initial marketing and advertising cost</td>
<td>0.10</td>
</tr>
<tr>
<td>(This will reduce as your market increases, sacks out in the marketplace with your name on = free advertising)</td>
<td></td>
</tr>
<tr>
<td>Sundry cost</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Total</strong>:</td>
<td><strong>0.50</strong></td>
</tr>
</tbody>
</table>

**Approximate Weights of Solid Woods**
The following shows approximate weights in kg/m³ of solid woods at an average moisture content of 15% per m³.

- Ash - 690 Kg
- Beech - 720 Kg
- Cedar - 380 Kg
- Cotton Wood - 450 Kg
- Deal - 470 Kg
- Mahogany - 520 Kg
- Oak - 600 Kg
- Oak (American) - 750 Kg
- Pinewood - 600 Kg
- Pitch Pine - 670 Kg
- Rosewood - 870 Kg
- Willow - 560 Kg
Machine Test Facility

“Try before you buy, with our compliments”

- Use your own materials
- Discuss project with engineers
- Save time travelling overseas
- Take away output for further evaluation

Speak to the product specialists:
Conveyors, Air extraction plant, Single & Multi-shaft Horizontal and Vertical Shredders, Briquette press, Sorting and separation, foam compaction, de-watering and biomass burners.

www.weimauk.com
Moisture is the key

Fercell Moisture Meter Model MTR - 1A.
State of the art, this electronic device accurately measures the moisture content in sawdust, wood shavings, slivers etc.

Specification:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>8% - 50% moisture content</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0° - 50°C</td>
</tr>
<tr>
<td>Resolution</td>
<td>1%</td>
</tr>
<tr>
<td>Display</td>
<td>LCD</td>
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<tr>
<td>Sample volume</td>
<td>120 cm³</td>
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<tr>
<td>Measurement pressure</td>
<td>0.2 Mpa</td>
</tr>
<tr>
<td>Power</td>
<td>9V, battery 6F22</td>
</tr>
<tr>
<td>Battery life</td>
<td>approx 5000 measurements</td>
</tr>
<tr>
<td>Low battery signal</td>
<td>Yes</td>
</tr>
<tr>
<td>Weight</td>
<td>aprox</td>
</tr>
<tr>
<td>Size</td>
<td>Instrument: 290 x 215 x 65mm</td>
</tr>
<tr>
<td></td>
<td>Case: 310 x 225 x 75mm</td>
</tr>
</tbody>
</table>
Professional Support, Service and Maintenance

Our prompt service is delivered by a team of more than 18 manufacturer trained engineers located in key points nationwide.
Fercell Engineering hold “off-the-shelf” replacement parts and consumables at our facility in Aylesford in Kent. In addition, our highly trained staff are always happy to assist with technical support. The replacement parts service is backed up by our principals who hold files on all models, serial numbers and manuals of machines sold worldwide.
The Solution
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