

**The difference a Weima briquetter makes...**



The Benefits of Briquetting  
The Weima Way



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**Plastic Car Waste**

**Timber Waste**

**Paper and Cardboard Waste**

**Electronic Waste**

**Nylon Filament**

**A.B.S. Plastic Car Bumpers**

**PE-HE Thermoplastics**

**Plastic Film Waste**

**Lump Polymer**

Examples of just a few of the many materials that the WEIMA range of size reduction equipment can process.

**Shredders, Granulators,  
Briquetting Process,  
Turnkey RDF Systems**

## Ecological Sense with Briquetting Systems from Fercell / Weima UK

The process of manufacturing briquettes (combustible bricks) by pressuring wood waste was well known as a source of fuel back in the 1920s, but the cheap availability of other fuels meant a lack of public and commercial interest at that time.

Many industries today are still producing natural bulky waste materials, which in their basic condition, have little to zero economic value, and are also costly to dispose of.

However with the energy crisis of the seventies and eighties, and the current declining fuel resources, and the rapidly rising energy costs of fossil fuels, has lead to the increase in the production of briquettes, as an alternative profitable source of fuel, for the domestic and industrial market place.

Weima GmbH has been successfully manufacturing briquette presses and shredders for over 25 years now at their Ilsfeld Germany factory, with over 20,000 installations world wide.

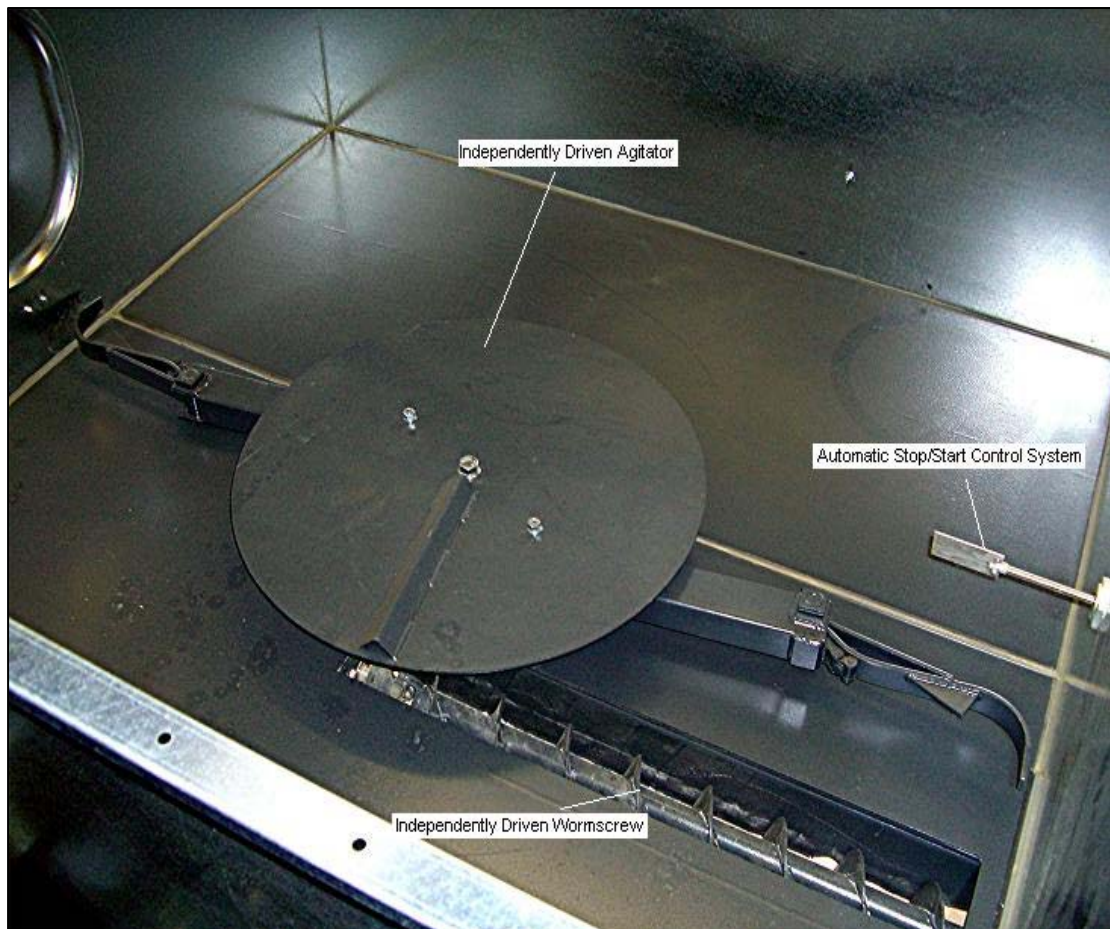


Fercell / Weima UK are their sole UK distributor, and have been successfully marketing the Weima Size Reduction Technology Equipment, now for many years, with a large and comprehensive test facility at its 20,000 sq/ft Aylesford Kent factory, or their 10,000 sq/ft Carryduff Northern Ireland test facility, where customers are very welcome to trial process their waste materials

The Weima briquette presses are predominantly for the processing of timber shavings, sawdust and shreadings, paper / cardboard dust and shreadings, shredded Straw / Hay / Barley / Rapeseed / Miscanthus (elephant grass), with a maximum moisture content of 18%. These can all be used as a valuable carbon neutral fuel. Polystyrene foams, some types of Plastics and Aluminium granulates can also be processed into solid dense briquettes with volume reductions of up to 90% ensuring a clean-space saving environment.

The method of producing briquettes with the Weima system is by means of the long proven automatic agitation of the materials within the storage hopper. This is driven by an independent gear drive unit and the Weima wormscrew feed system rather than the gravity feed system other manufacturers of briquetting presses use.

This worm screw feed system automatically controls the volume of materials being introduced into the briquetting press compaction chamber ensuring a continuous optimum density of the briquettes being produced.



*Agitator, worm screw and auto/stop start control*

With the well known C and TH range of low noise, briquette presses now being equipped with the latest, energy saving, fully electronic PLC control system, complete with self diagnostics, and automatic briquette length control equipment, these innovations ensure that consistent “hard and dense” briquettes are automatically produced, without the need of an operator in attendance or standing by to adjust the machine, as is the case with many other briquette presses on the market.



*Automatic Briquette Length Control*

The comprehensive Weima range of circular and square briquette producing machines operate without the use of any chemical additives being added to the materials, and are produced purely by hydraulic compression alone. Relying on the natural lignin and cellulose that are present in the waste material being processed, these act as a binding agent, with briquette volume throughputs of approximately 40 kg/hr (entry level model) up to approximately 700 kg/hr.

For the automatic dust-free loading of the TH20 series of briquetting presses, an automatic handling system will be required.

**FERCELL Totally Enclosed, Cartridge Filter Unit, Model: ELSTER TH20-9**

This unit is of a totally enclosed design, manufactured from prime galvanised sheet steel, to ensure durability and long life.



### **Waste Collection Container**

The ELSTER TH20-9 has been designed to be close coupled (ensuring an airtight connection) to the material storage hopper of the Weima TH520 - TH820 range of briquette presses.

### **Silencer**

Mounted within the top chamber of the Elster filter enclosure is an acoustically lined clean air exhaust plenum chamber fully lined with VAF acoustic insulation polyfoam, tested to BS476, Parts 6 and 7.

### **Explosion Relief Vent Membrane Panels**

The current legislation "The Dangerous Substances and Explosive Atmosphere Regulations (DSEAR1) with prescriptive requirements, mandatory by law, apply to areas where explosive atmospheres may occur.

To ensure compliance with the 'DSEAR1' Regulation there will be mounted to the external wall of the filter unit one explosion relief vent membrane panel, to ATEX Classification No. EX II 3D.

### **Cartridge Filter Element**

Mounted within the lower chamber of the filter enclosure are nine 12m<sup>2</sup> cartridge filters (108m<sup>2</sup>), manufactured from top quality polyester filter media, with all seams double bonded to ensure durability in operation. Each filter cartridge element is fitted with a hinged compression locking mechanism to enable stability to be maintained to each of the cartridges.

### **Filter Cleaning System**

Mounted in the top of the filter enclosure is a fully automatic pneumatic reserve air filter cleaning mechanism (incorporating compressed air header tank, pilot valves, nozzles and venturi cones) operated via a sequence of 220v solenoid valves that operates automatically when the filter unit monitors a drop in the differential pressure.



## Automatic Economizer Control

One 10-16 fully automatic controller is equipped with a large backlit LCD which clearly shows every passage of requested data.



## Waste Inlet

A single rectangular transitional inlet is provided and this inlet spigot can be easily positioned on either the left or right hand side of the filter enclosure. (Handling specified at time of order)

The inlet dimensions have been maximised to provide as large a cross sectional area as possible to reduce the transport velocity at point of entry, resulting in a higher percentage of dust particles to bypass the filter elements, dropping into the collection hopper.

It has a fast flow setting menu with intuitive operation that allows the operator to choose one of three different pressure reading scales (mbar, kPa and mmH<sub>2</sub>O), whilst the clogging level can be seen on a numerical and/or graphic scale.

## Fan

The ELSTER TH20-9 is a versatile and flexible silo filter which can be combined with a variety of fan sets, and configured as either a positive or negative pressure unit, dependant on application.

It is important to ensure that the fan set selected has the correct duty and pressure for the filtration speed and resistance required.

## Method of Operation

The unit continuously monitors the differential pressure between the post and pre side of each cartridge filter. When the pressure drops below a pre-set level the unit cleans a set of filter cartridges (3 sets of 3 cartridge filters), in the sequence required. The pneumatic cleaning operation takes place whilst the plant is in operation, resulting in an extraction system requiring little shut down time.

Briquettes are clean to handle and are an environmentally friendly source of fuel. The calorific value of briquettes can be as much as 6kW per kg,

(dependant on the material used) compared to kiln dried timber off-cuts at 4kW per kg and air dried logs at 3kW per kg.

Dependant on the combustion system, timber waste briquettes have a zero sulphur content and produce on average 0.5% of ash that can be used as garden fertilizer compared to the ash content of coal at between 20-35%. Briquettes can be used in most types of wood burners, open fires, chimneas and even barbeques.

Briquettes that are being produced from the Weima range of briquette presses are generating excellent revenues for their users, with many customers now being able to sell more sacks of briquettes than they can produce each week.

The following are just a few of the many successful case studies, from our large UK wide customer base

### **Weima UK Briquetting Press Customer Success Stories**

One of our customers in Cornwall is currently producing up to 200 x 10kg / sacks per week, and is only selling to a trade buyer @ £2.95 per/sack giving a weekly revenue of £590.00 x 50 weeks /year equating to an annual revenue of £29,000.00.

Another customer in the Scottish highlands is producing up to 150 x 10kg / sacks per week, they are marketing directly to the end domestic user at the average price of £5.50 per 12kg sack, giving approximate revenue of £42,900.00 per year.

There is another customer in Scotland who we sold an entry level Weima briquetting press to and they are producing 100 x 10 kg sacks per week of mixed shredded timber waste & shavings, currently successfully selling all they can produce at £3.50 per sack, generating an annual income of £18,200.00.

A customer based in the Isle of Wight is producing approximately 2500 kg of briquettes per week, and all being sold locally for up to £4.50 per 10 kg sack (trade price @ £2.90), giving an approximate annual revenue of £48,100.00.

With another customer in the North of England producing 120 kg of briquettes per hour and running 20 hours per day x 6 day week, supplying in bulk to a single large industrial user @ £120.00 per ton, giving an approximate annual revenue of £69,000.

In Northern Ireland we have a customer who is producing 180 kg of briquettes per hour, of mixed timber waste shreddings and shavings, based on a 40 hour x 48 week year, giving an average of over 172.800 x 10 kg sacks per year, with approximate trade only revenue of £475,000

## 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:

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

## Approximate Weights of Solid Woods

The following shows approximate weights in kg/m<sup>3</sup> of solid woods at an average moisture content of 15% per m<sup>3</sup>.

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

## Approximate Weights of Loose Wood Shavings & Dusts

The following shows approximate weights in kg/m<sup>3</sup> of loose wood shavings and dusts at an average moisture content of 15% per m<sup>3</sup>.

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

## 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



For more information please contact:-

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