Operating Instructions

PH Briquette Machine (ECO)

Sawdust Briquette

Wood Shavings / Sawdust Mixture

Paper Dust Briquette

Pine Briquette

Mahogany Briquette

MDF Briquette

⚠ Health and Safety

Safety at work

The person responsible for the machine must ensure that all applicable safety regulations are adhered to, in accordance with §4, 309/2006 Sb.
Qualified personnel for assembly, disassembly, starting, handling, cleaning and regular maintenance must be appointed by the responsible personnel in order to ensure safety of persons and property.
Precautionary measures must be carried out by the responsible personnel so no unauthorised person is able to operate the machine.
The responsible personnel must ensure safe operation of the machine and regular maintenance and cleaning.
The responsible personnel must carry out precautionary measures in order to prevent access to operation and maintenance area by unauthorised persons and children.
The machine must be used for its designated purpose only, in accordance with manufacturer's conditions. Its design, mechanism and technical condition conforms to safety regulations.
Only physically and mentally competent operators older than 18-years-old can handle the machine. They must be acquainted with its manual with a proof they've done so. The manual must be stored in a place accessible by the personnel.
Operating staff using the machine must use personal protective aids, i.e. respirator mask to protect respiratory tract.
Operating staff is responsible for checking the correct condition of the machine before it is operational, then in regular periods and after modifications of the machine.
Operating staff must ensure that nobody approaches the working machine. Staff must shut down the machine in case of any danger.
Operating staff must turn the machine off if he/she leaves it unattended for longer period.
Operating staff is obliged to carry out visual checks of the machine and its basic maintenance.
If the operating staff discovers a fault or a damage that could compromise operation safety and that cannot be undone by them, they must contact the responsible personnel immediately.
If the machine is not in use for whatever reason, its electrical systems must be disconnected from the power supply by disconnecting the flexible lead's plug from the mains and also at the machine's end. The flexible lead must be stored in a place secured against unauthorised usage.
It is essential to keep the safety markings, symbols and signs on the machine legible. The responsible personnel must restore their condition in case they are damaged or not legible anymore.

Fire protection

Beware! Harmful emissions may develop during a fire due to burning plastic, rubber and oil and therefore general applicable fire protection regulations must be adhered to.
The machine is not equipped with fire extinguishers. Therefore the responsible personnel must secure the area where the machine is stored by appropriate and accredited fire protection means in sufficient number on visible places, protected against damage and misuse. They must be regularly checked and personnel must be familiarised with their handling.
Electrical appliances must not be extinguished by water! There must be a powder, foam or CO2 fire extinguisher in the area and the personnel must be familiarised with their handling. If there is a water or foam extinguisher next to the appliance, it can only be used after the electricity is switched off.
It is essential to regularly clean the cover surface of the electrical device or surface of the devices that are expected to get warmer, (surfaces of electric motors), from dust and other impurities in order to prevent decreased cooling efficiency of the electric motors.

Electric appliances

Only qualified personnel knowing the device to an appropriate extent can operate the electrical appliance in accordance with EN 50110-1 ed.2.
Electrical system of the appliance is made according to the applicable regulation requirements and technical specifications, especially EN 60 204-1 ed. 2 and related regulations.
Electrical system of the appliance connects to the power supply 3/PE/A ~ 230/400 V, 50 Hz by flexible lead.
The flexible lead to the electrical appliance must not lie on the ground without any protection against mechanical damage!
If there is an additional protection in place with additional protective bonding in the area where the machine is installed, conductive dead parts of the machine must be connected to the protective system by a copper conductor 6 mm2 in diameter, connecting to the outer protective machine clampl.
The responsible personnel is obliged to reinforce the realisation of regular revisions of the electrical appliance in set periods.

Prohibited activities

DO NOT:

To connect electrical system of the machine to the power supply if a protective part of the machine is dis-assembled or damaged (electrical system covers, covers on the potentially dangerous mechanical parts)!
To let flexible lead lying on the ground without an appropriate protection against mechanical damage.
To run the machine if there are people who may be exposed to a danger by being close to it.
To dismantle protective covers when the machine is in operation and to deactivate protective and safety devices!
To modify the construction of the machine.
To carry out maintenance, cleaning and repairs if there is a possibility of all electrical circuits not being switched off.
To pull the plug of the flexible lead from the socket by pulling the cable!
To transfer the machine if it is connected to power supply by flexible lead!
To feed the hopper by materials conflicting with the recommendations described in this manual, materials with higher humidity than 18%, materials with larger cutting length than 10 mm in one direction and especially materials different to wood.

It is essential to bear in mind the possibility of the following risks that may arise when using the machine:

Mechanical risks:
Risk of an injury caused by a dropped dismantled parts of the machine during the maintenance and repairs or improper transfer.
Risk of an injury caused by moving parts of the machine during removal of its protective covers.
Risk of an injury caused by a dropped machine due to its inappropriate handling during transfer or in transit.
Additional risks occurring when the machine is in use are described in the following sections and are marked by a symbol at each point.

Electrical risks:
Risk of direct or indirect contact with parts used for live electric current if the electrical system cover is removed or if the isolated parts are damaged.
Risk of an injury by electric current when touching damaged parts of the flexible lead, (isolation of conductors, electric socket covers).
Risk of an injury by electric current caused by damaged parts of the electric system (control devices, control circuit components).

Hygienic risks:
Risk of hearing apparatus injury by noise emissions above 85 dB (Laeq).
The time-averaged emission level of acoustic pressure was measured at A -LpAeq, T = 70 dB.
Risk of damaging person’s breathing apparatus during processing dry wood which causes increased amount of dust in the working area.

Table of contents **page**

Technical and operating conditions of the PH series:

Briquette material moisture limits: up to 18%
Compacted briquette density: up to 700 kg/m^3
Briquette length: 20-60 mm
Maximum operating pressure: 8 t
Hydraulic system max. operating temperature: 50° C
Operating environment: 5°-25° C
Briquette material: biomass waste, i.e. sawdust and shavings up to size of 10 mm with the specific weight ranging from 70-120 kg/m3 without any metallic and mechanical impurities with exception of wood.

Technical Parameters
Type: PH
Power input: 3.55 kW
Output: 10-15 kg/hour
Weight: 124 kg
Dimensions: 1.7 x 0.52 x 1 m
Capacity of the hopper: 0.045 m^3
Supply voltage: 230 V, 50Hz
Machine Category: Private & Professional

At the point of the machine operation, the equivalent of the acoustic pressure level A does not exceed 75 dB. The noise levels were tested in accordance with ISO 3746: 1996 and EN ISO 11202:1997 pursuant to NV 502/2000 Sb.

Introduction

The Operating Instructions apply to the hydraulic press system of the PH series . The Operating Instructions have been issued by the manufacturer and are consistent with the approved technical specifications which represent a binding document defining the requirements for briquette machine manufacture. The briquette material processed by the press comes out in a form of a cylindrical briquette, having the diameter of 50 mm and the length ranging from 20 - 60 mm. The briquette does not contain any binding agents and the compression is achieved solely by the pressure inside the cylindrical die, both through the resistance of the material itself and the increased temperature of the pressing unit.

For the safety reasons, the PH models may be operated by the following personnel only:

Installation staff: trained personnel of the Supplier
Maintenance staff: trained personnel of the Customer with mechanical engineer qualifications
Operators: trained personnel of the Customer

Machine signs

Pictogram #	Symbol	Description
1		**WARNING!** There are areas of the electrical system underneath the covers marked with this pictogram. The electrical system must be turned off and secured before the covers can be taken off.
2		**WARNING!** Areas where there are moving mechanical parts that may cause an injury are marked by this symbol.
4		**WARNING!** The surface and areas around this symbol are hot.Do not touch.

Pictogram #	Symbol	Description
	Manufacturer's label	Label with basic technical parameters helping to identify and run the machine.
		Outer security clamp of the machine.
		The producer declares by this sign that the product conforms the requirements set forth in NV # 17/2003, NV # 616/2006, NV # 176/2008. and EU Directive associated with the product, i.e. 2006/95/EC, 2004/108/EC and 2006/42/EC.

Press machine installation

All hydraulic and electrical parts are earthed, connected to the control panel and ready to use. The machine should be placed horizontally on a level, solid surface. The output nozzle was disassembled for transport purposes. You'll find it next to the machine. It needs to be attached as per the 'Output nozzle assembly guide' which is part of the documentation.

Key Components

Hopper, electric motor with a pump, hydraulic allocator, electric gearbox for feeding the hopper, die clamp, press unit, control panel, electric switchboard.

Control Panel

The heating control panel is operated by on / off switch located below the display. This switch also starts the feeder / mixer mechanism inside the hopper. The controls on the display can be used for changing the temperature setting. The actual temperature is shown in the upper part of the display, the pre-set temperature is displayed in its lower part.
There are also four fuses installed on this panel:

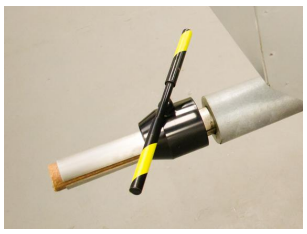
- Feeder mixer: 1.6 A
- Heater element: 4 A
- Controller: 1.25 A
- Hydraulics: 16 A

The fuses shouldn't be replaced by fuses of a different rating.

The main switch is located on the side.

Starting the machine

Always start the machine with an empty hopper. The machine is activated by pressing the main switch (on the side) and the heating unit / feeder mixer switch (**left switch** on the heating control panel). Once the pre-set temperature is reached (the top value on the screen reaches the bottom value (see also the quick guides for adjusting the temperature)), the briquette operation can be commenced by starting the main motor (hydraulic pump) - the **right switch** on the control panel. Hydraulic system adjusts the pressure at each end and thus the movement of the cylinder is changed into the pressing chamber where the material is compressed or out of the pressing chamber to allow new material to fall in.



To produce quality briquettes, the pressure clamp has to be adjusted, see the Figure on the left. The clamp must be either tightened or released according to the current briquette quality and the briquette material.

The clamp can be tightened in small increments as long as the briquettes easily come out of the chamber. The clamp needs to be released in case the briquette doesn't come out of the nozzle. By incremental adjusting of the clamp, high-quality briquettes can be obtained in a few cycles. A change in briquette material or temperature will require the pressure clamp to be readjusted.

The recommended position of the clamp is up to 1 inch from the edge of the heating protective cover.

The operator must ensure that briquettes are always coming out from the nozzle and that there is always sufficient amount of material in the hopper, covering the entrance into the output nozzle while the machine is in operation.

The machine features a feeder which is installed inside the hopper. The feeder is activated by the heater / feeder mixer switch below the temperature screen and works independently from the hydraulic system, so only replenishment of material is needed. The briquette operation is carried out by an operator in accordance with the instructions mentioned here-above.

Stopping the press machine

Turn off the machine by the heater / feeder mixer switch on the left and then the main motor switch on the right; or by using the main switch on the side of the control panel.
Clean the control panel from the dust and other waste residue.
Don’t remove the briquettes that are left inside the pressing chamber / nozzle - these serve as a natural barrier against the newly pressed briquettes.

DO NOT:

- put hands into the machine or otherwise prevent the individual components of the machine from operating, the source material replenishing process must be carried out with maximum care and appropriate measures must be taken to prevent clothing or body parts from being caught by the feeder.
- put large objects into the hopper.
- access the electric switchboard if the machine is connected to the power supply.
- operate the machine in case of an apparent defect.
- overfill the hopper or forcefully insert the material into the hopper
- operate the machine at temperatures below 5°C
- interfere with the machine design and modify it.

All modifications must be approved by the Manufacturer.

Recommended temperatures for the following materials:

Material	Recommended temperature in °C	
	From	to
Mixture of pitch pine	50	120
Softwood	140	160
Hardwood	190	230
Sawdust	200	230
Melamine powder	210	240
Blocked pressing chamber temperature	**250**	**280**

The temperature is set using the control panel. The 'SET' button must be pressed in order to get to the temperature settings. The temperature shown on the top row of the display can be changed by 'UP' and 'DOWN' buttons as needed. It is necessary to press the 'SET' button a couple of times to get the default screen on the control panel – the temperature is then confirmed and the heating should reach the desired level.

Maintenance

Maintenance must be carried out regularly. The briquette machine is to be shut down if evident defects appear and the operation must be stopped until the issues are fixed.

Mechanical components

The proper function of the machine requires an adequate distance to be maintained between the pressure clamp and the heater element on the output nozzle. The correct position of the clamp is up to 1 inch from the protective cover of the heating system.

In order to avoid loose screws on the ram mount, all of them must be re-tightened regularly. The ram end / piston head alignment should be checked regularly (prior to first use and at least once a month thereafter). It should be central horizontally in relation to the output nozzle. Vertical alignment can be checked by putting a pinch of sawdust onto the bottom of the output nozzle - piston head should take the majority of the particles but it should leave some of the fine dust (i.e. flour-like) particles on the bottom. If it needs adjusting, 6 nuts at the rear side of the machine are to be used for its alignment. Bear in mind, while centering the piston using the six nuts, that the gap between the face of the cylinder and the rear face of the press chamber should be 40mm. **Centering of the piston head must be done / checked regularly. If the piston head scrapes the metal wall of the output nozzle, it may result in hydraulic components damage and therefore the warranty will be void.**

Hydraulic component

Hydraulic hoses joints must be checked daily. The oil level must be checked regularly, at least once a month. The oil must be changed at least once a year. The machine uses hydraulic oil RENOLIN VG 46 or similar.

Electrical component

The electric switchboard must be kept clear of dust particles. All the maintenance and servicing is carried out while the machine is switched off (with no electric current supply to the machine). A visual check of the wire insulation is necessary as well. A general

inspection of the machine in accordance with EN 60204-1 Section 20 must be carried out at three-year interval. Any repairs of or interventions in machine wiring may be performed only by a competent person in accordance with relevant regulations. Any electric switchboard related work requires its disconnection from the power supply (the electric switchboard is under electrical current).

Final Provisions

The manufacturer reserves the right to alter the specification of the components used due to potential changes of their suppliers. The general inspections of the electrical components must be carried out by a competent person in accordance with applicable legal regulations. The manufacturer's service centre must be notified of any defect which prevents smooth operation of the machine:

IMPORTANT NOTICE:

Press chamber blockage:

In case there is a blockage in the press chamber, the following should be carried out:

- **the leftover material needs to be removed from the hopper,**
- **loosen the pressure clamp,**
- **the temperature should be increased to 250° - 280°C,**
- **wait for about 10 minutes,**
- **turn on the main motor,**
- **the piston should push the blocked briquettes out of the pressing chamber,**
- **if the first attempt is not successful, another one should be carried out several minutes later and repeated until the briquette comes out,**
- **the usual temperature should be set after the briquette causing the blockage is pressed out and normal flow of briquetting should continue.**

Declaration of CE Conformity

Product: **Briquette press PH**

The Manufacturer declares that the product, used as instructed, is safe and all measures have been taken to ensure the conformity of the products placed on the market with their technical documentation, fundamental requirements set forth in 98/37 EC Directive issued by the European Parliament and Councils and with technical requirements of standards associated with the product.

Terms and Conditions

Please, see our website for details:
http://www.maedev.com/terms/

List of repairs

Date	Work description	Technician

Supplier
MAEDEV limited
71-75 Shelton Street, London, England, WC2H 9JQ
info@maedev.com

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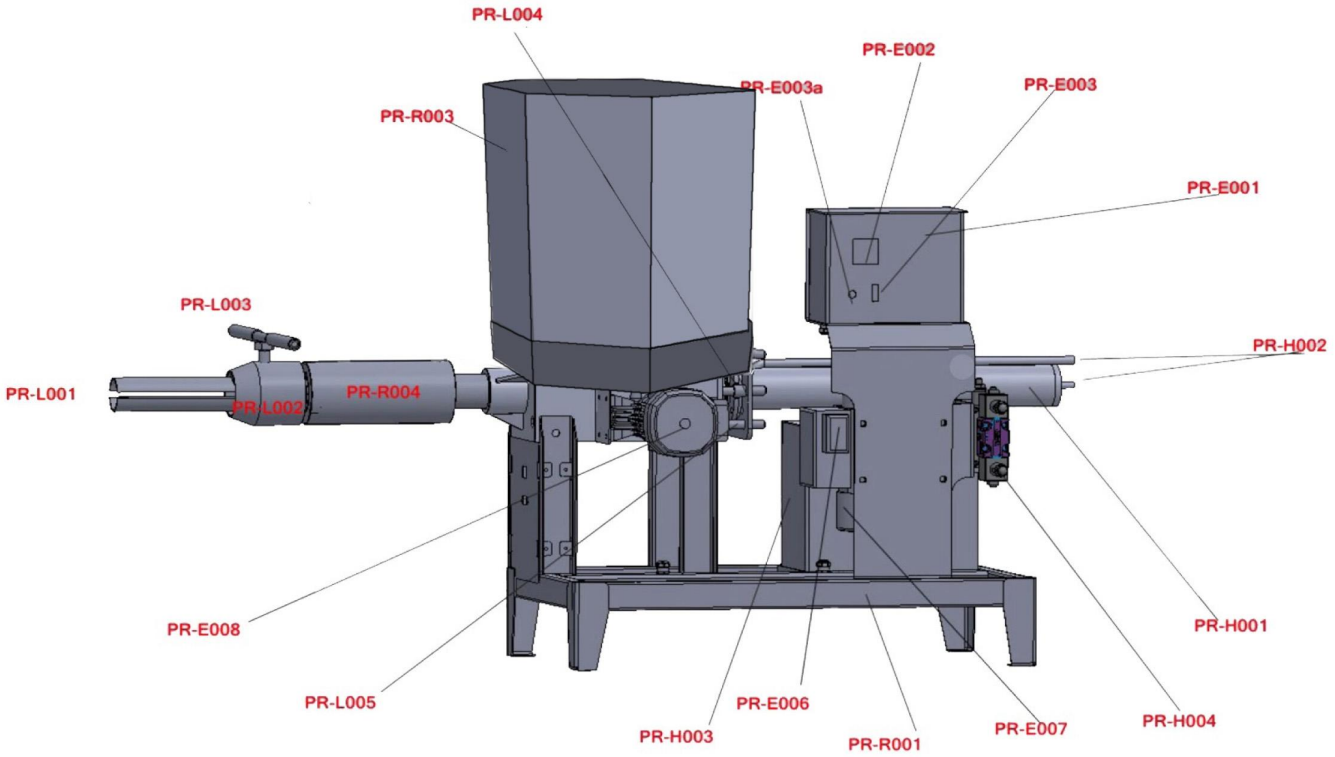
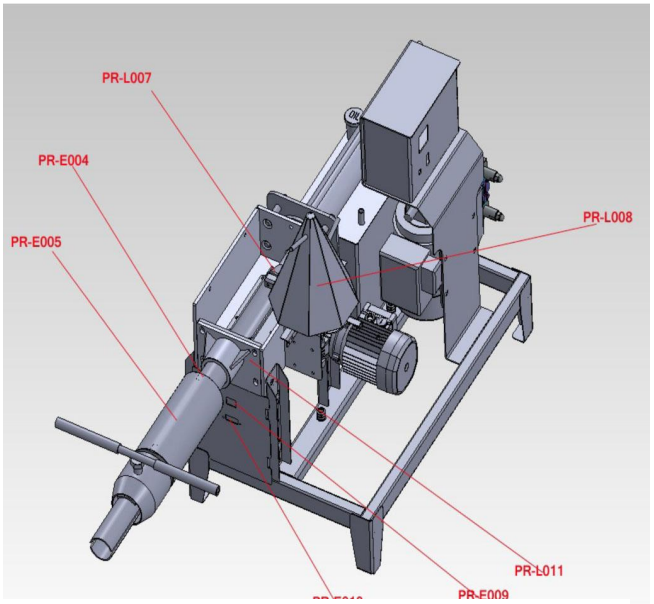
date & signature

Notes:



Ref.	Description	Ref.	Description
PR-R001	Main frame	PR-L001	Pressing chamber / output nozzle
PR-R003	Hopper	PR-L002	Pressure clamp
PR-R004	Heater protective cover	PR-L003	Clamp lever
PR-E001	Electric switchboard	PR-L004	Hydraulic ram mount
PR-E002	Thermo-regulator Unit	PR-L005	Alignment nuts mount
PR-E003	Heating switch	PR-L006	Hydraulic cylinder flange
PR-E003a	Overload fuse	PR-L007	Ram end
PR-E004	Temperature sensor	PR-L008	Mixer / feeder cone
PR-E005	Temperature mount	PR-L011	Face of the press unit
PR-E006	Main switch		
PR-E007	Hydraulic motor		
PR-E008	Mixer / feeder motor		
PR-E009	Heating Connector		
PR-E010	Temperature Sensor Connector		
PR-H001	Hydraulic ram		
PR-H002	Hydraulic hose set		
PR-H003	Hydraulic tank		
PR-H004	Hydroallocator		



Heating, clamp and piston scheme: