

## ТЕХНОЛОГИИ ЗА БИОГОРИВА ОТ ДЪРВЕСНИ ОТПАДЪЦИ

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## TECHNOLOGIES FOR THE BIO FUELS PRODUCTION FOR ENERGY PURPOSE FROM WOOD WASTE

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### ERATO BUSINESS STRATEGY



Figure 1. Biomass Energy Utilization Project Cycle

### BIOMASS FUELS DEVELOPED BY ERATO ON THE BULGARIAN MARKET



New biomass fuel under developed by ERATO

- Cheaper than available biomass fuels for residential purposes
- Utilized by fully automated biomass boilers with low initial investment

**ERATO PRODUCTION - PRODUCT GROUPS**

Woodworking machines	Biomass fuel production products	Biomass burners and boilers products	
Four sided planer 4FM 180/4	Pellet line PL200	Pellet burner GP20	Pyrolytic boiler GreenECOTerm 25
Four sided planer 4PM 180/4	Pellet press PPM 410	Pellet burner GP20+	Pyrolytic boiler GreenECOTerm 32
Four sided planer 4PM 230/4	Wood chipper CM 400	Pellet burner GP20+/25	Pyrolytic boiler GreenECOTerm 42
Four sided planer 4PM 180/5	Wood chipper DC 300	Pellet burner GP 45	Pyrolytic boiler GreeECOTerm 52
Four sided planer 4PM 230/5	Wood chipper RG 600	<b>GreenECOTerm series</b>	
Four sided planer PM 523		Pellet boiler PELLETHERM 30-V2.0	Wood chips boiler Biotherm 300
Multiblade circular saw MC 320		Pellet boiler Mario 25	Wood chips boiler Biotherm 1000
Spindel moulder FP 180		Pellet boiler Mario 30	
Spline machine TM 105		Pellet stove PS 9 PONY	

**ERATO BIOMASS FUEL PRODUCTION PRODUCTS**



**WOOD CHIPPER MACHINES SERIES DC 300**

The drum wood chipper is designed for processing and recycling of different types of wood waste and scraps with purpose production of wood chips for burning in biomass energy boilers. The drum wood chipper is used in woodworking industry.



**Technical characteristics of wood chipper machines series DC 300**

Technical data	Dimension	DC 300
Maximum height of working material	mm	300
Maximum Width of working material	mm	300
Maximal power capacity	kW	60
Maximum revolutions	min <sup>-1</sup>	750
Nominal voltage	V	12DC
Screens dimensions	mm	20x20/35x35
Productivity	m <sup>3</sup> /h	15
Weight	kg	1700

**WOOD CHIPPER MACHINE SERIES CM 400**

The drum wood chipper is designed for processing and recycling of different types of wood waste and scraps with purpose production of wood chips for burning in biomass energy boilers.



**Conveyor belt of CM 400 wood chipper**



**Elevator of CM 400 wood chipper**

### Technical characteristics of wood chipper machines series CM 400

TECHNICAL DATA	Dimensions	?? 400-3
Width/height of a groove of the conveyor belt	mm	410/220
Length of a conveyor belt	mm	5000
Maximum section of the filler groove	mm	110x400
Diameter of the knife head	mm	450
Number of knives		3
Knife dimensions	mm	158 x 18 x 430
Knife head revolutions	min <sup>-1</sup>	565
Main engine capacity	kW	30
Engine capacity of the upper feeding drum	kW	2.2
Conveyor belt engine capacity	kW	2.2
Screens dimensions	mm	20x20/35x35
Productivity	m <sup>3</sup> /h	6-12
Weight	kg	2700

### WOOD CHIPPER MACHINE SERIES RG 600



It is a highly effective chipping machine, designed for treatment and recycling of different types of wood residues – dry wood residues of wood processing and furniture production. The machine chops the wood materials into small wood pieces, which could be utilized as fuel, depending on the size of the screen. The machine can be used for production of wood chips for burning in biomass energy boilers.

### Technical characteristics of wood chipper machines series RG 600

Technical data	Dimension	RG 600
Capacity of the container	m <sup>3</sup>	0.5
Productivity (depends on the raw material and screen dimension)	m <sup>3</sup>	0.7-1.5
Diameter of the rotor	mm	310
Length of the rotor	mm	610
Revolution of the rotor	rpm	140
Electricity capacity	kW	22
Tools	pcs	28
Size of the orifices of the screen	mm	10-40
Weight	kg	1400
Number of the hydraulic cylinders	pcs	2

**PELLET LINE PL 200**

Pellet line is designed for pelletizing of wood shavings, waste from the olive husks, fodder, mixtures and biomass.



**Technical characteristics of pellet line PL 200**

Technical data	Dimensions	PL 200
Installed capacity	kW	10,8
Total weight	kg	510
Surface required for the installation	m <sup>2</sup>	3.0x2.2
Maximum height	mm	2.15
Requirements to the e.l. installation		400V/25A
Capacity:		
• Wood pellets	kg/h	~ 50-60
• Prina and fodder mixtures	kg/h	~ 80-100
The pellet line can work with a matrix with diameter Ø 6 and Ø 8 mm.		

**PELLET PRESS PPM 410**





**Technical characteristics of pellet press PPM 410**

<b>Technical data</b>	<b>Dimensions</b>	<b>PPM 410</b>
Inside diameter of pellet die	mm	410
Working band	mm	68
Pellet rolls	pcs	2
Supply voltage	V	380/660
Frequency	Hz	50
Main motor power	kW	55
Conditioner motor power	kW	1.5
Feeding motor power	kW	0.75
Productivity	kg/h	500
Length	mm	2000
High	mm	3220
Width	mm	2510
Weight	kg	2800

The machines, produced in „ZMM Haskovo“ Plc and „Erato Product“ OOD, are certified according to the requirements of the established directives and hold CE certificates issued by TUV.