

BUSINESS PLAN

**Creating a high-performance universal biofuel plant «ATLANT»
with capacity of 10 tons of wood pellets per hour (74 000 tons per year)**



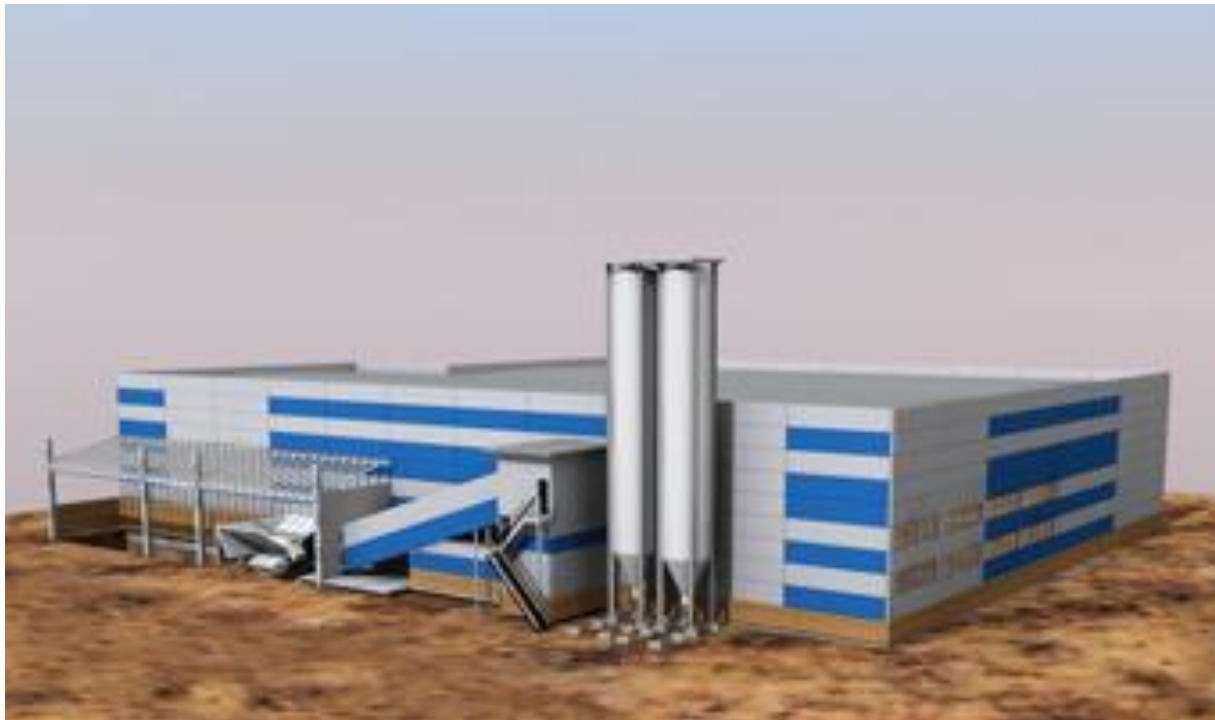
GRAN-PELLET LLC, 2017

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1. RESUME.

Limited Liability Company «Grand -Pellet», Arzamas Nizhny Novgorod region presents the business plan, with a view to attract investment funds to implement the project of creation of the universal enterprise for the production of biofuel pellets of all types of wood waste and non-business timber, placing the plants in Vyksa and Balakhna district of Nizhny Novgorod region of Russia. Our company has a professional team of employees and the required years of experience in this field.



2. OBJECTIVE OF THE PROJECT.



The main goal of this project is the production and sale of pellets class DIN plus, EN plus A1 in the EU. At present, our company has preliminary agreements for the supply of pellets to Italy totaling 150 000 tons per year. In addition, the objective of the project is to stimulate the growth of financial and other indicators of the enterprises for processing wood, loggers, farmers and enterprises for processing agricultural raw materials of the Nizhniy Novgorod region.

3. DETAILS OF THE FINAL PRODUCT.

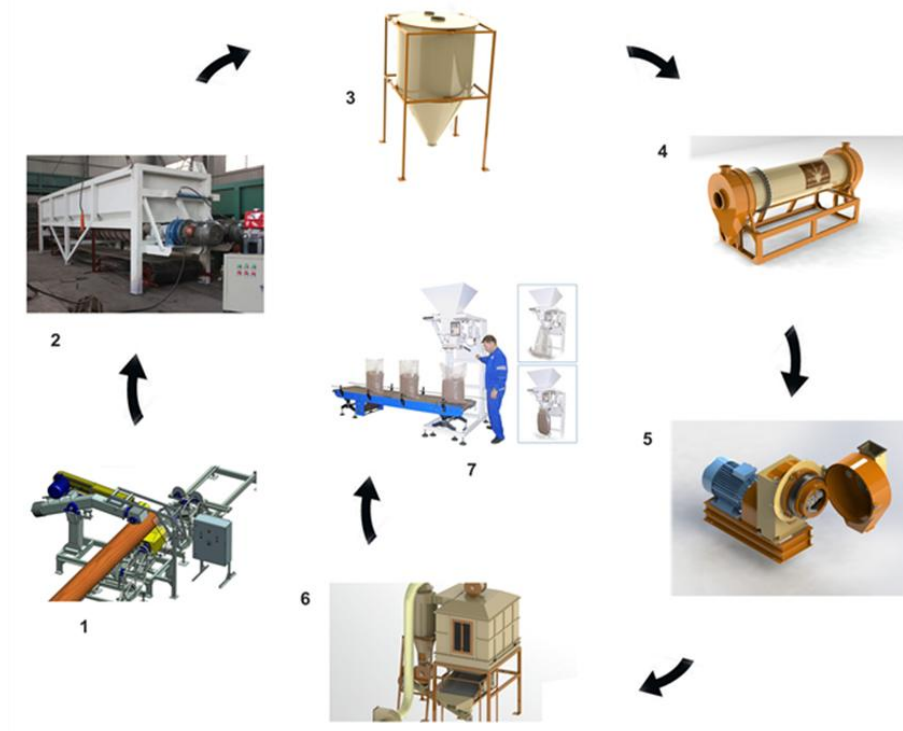


At the present time - the time rapidly developing innovative technologies - along with new fuels and new energy industries much attention deserve clean and safe for the environment fuel, which is a renewable resource - wood pellets (pellets). A significant proportion of all pellets produced and sold in Europe, make up the class of pellets DIN plus, EN plus A1, made on the basis of wood waste. They are cylindrical pellets of 8.6 mm diameter and a length of 15-40 mm. Made of wood waste: non-business logs with bark removed and wane, non-durable storage sawdust, wood chips any wood.

The main error in selecting materials for the production of biofuel granules is that allegedly suitable for pelletizing sawdust and other wastes only softwoods, as they contain the resins necessary for bonding particles during pressing. But the reality is not so. Bonding of the particles during pressing is not due to tar content in the product, but due to the created in the granulator compression camera the temperature (over 83 ° C), vapor content and the presence of high pressure at which the rapid contraction of the oxygen particles, causing the release of non-polluting substances -

lignin. Creating a dense shiny granule wall is achieved by rapid cooling of pellets after the matrix at 3-5 ° C below the ambient temperature.

4. TECHNOLOGICAL PROCESS. DESCRIPTION OF PRODUCTION.



The production process of biofuel pellets involves the use of only environmentally friendly components and consists of the following cycles:

1. Cleaning the logs of bark, raw material sorting.
2. Chopping wood until a homogeneous fraction.
3. The intermediate storage of raw materials.
4. Drying raw materials to 9-11% moisture.
5. Granulation.
6. Cooling the finished pellets.
7. Packing of finished product.

4.1. Cleaning the logs of bark and wane.

For the production of fuel pellets Class "A" from the waste wood must be used only pure raw material (sawdust, sawmill waste, wood chips, round timber), peeled from bark and wane. To do this, before grinding or sawing logs need to be cleaned in a special debarking machine or debarking drum.

4.1.1. Barking machine.



No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Bebarking machine KU-1	13000x1520x2000	18,0	820,0	up to 12 m ³ per hour

Debarking machine is designed for use in companies with large volumes of production. It is a metal hopper mounted on the frame and having an inside longitudinal shafts (drums) with the specially welded sharpened device. Due to the counter-rotating drum comes log rotation and the removal from it of the upper layer. Refined beam through a specially lift aboard the hopper under the action of the rotating drum is discharged on the flyover for further grinding.

4.1.2. Universal shredder «Termite» of the bodywork type with multi-stage crushing system (version stationary, without the diesel engine).

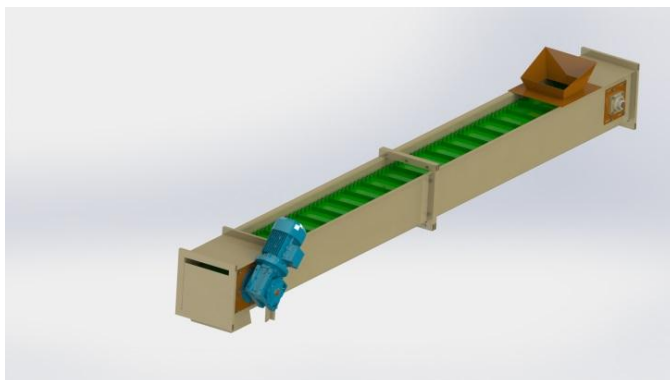


No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Stationary multi-chopper ID-1ST	9000x2200x2400	129,0	8 970,0	up to 32 m ³ per hour

This shredder is an innovative development of our company. It combines several pieces of equipment, optimizing the processing of non-business timber and sawmill waste. The first stage of grinding implements a complete mechanical failure of the integrity of the timber to a large fraction chips. The second stage of crushing is integrated into the overall design of the installation of crushing machine, which allows to receive at the output of the unit fine-needle fraction sizes up to 1x1x3 mm.

Implemented in this embodiment can significantly reduce chopper power consumption for the entire grinding process unlike similar competitors equipment. The receiving hopper of installation can be equipped with a hydraulic system changes the geometric volume of the hopper.

4.1.3. Scraper belt conveyor TLS.



The belt-type conveyors assembled for blocks binding and perform a horizontal, inclined (45°) or a combination transportation of product.

In this case, the conveyor TLS-500/20M is set to supply the crushed material from the chopper to the drum dryer SB-6MU.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Scraper belt conveyor TLS-500/20M	20000x700x240	3,0	860,0	up to 18 tons per hour

4.1.4. Chain scraper conveyer TCS.

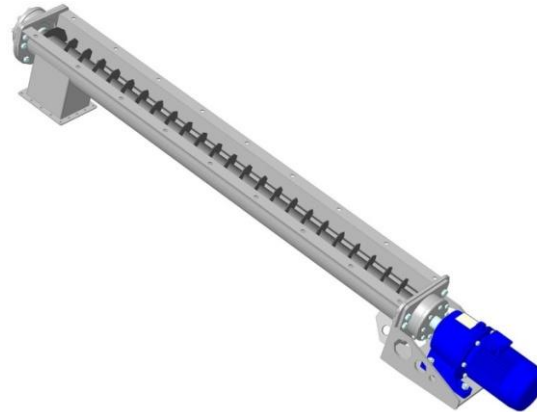


The chain-type conveyors assembled for blocks binding and perform a horizontal, inclined (45°) or a combination transportation of product.

In the process, it serves as a feeding conveyor from the chopper to the storage bin of the heat generator (the raw material pre-drying unit).

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Chain scraper conveyer TCS-500/20M	20000x700x 240	7,5	1 320,0	18 tons per hour

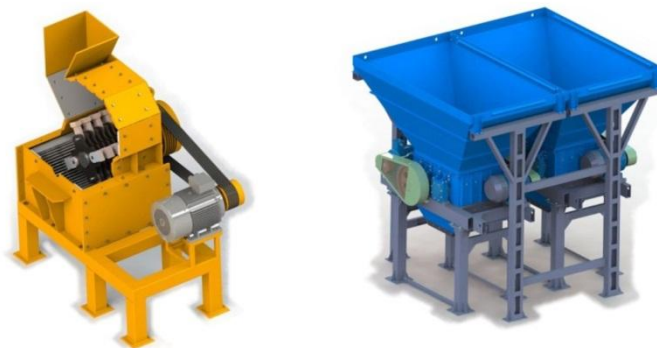
4.1.5. Screw conveyor in the channel TSVZ.



The screw conveyor in the channel TSVZ is designed for horizontal and inclined moving of inert materials. It is used to ligaments the blocks and feeding of for the individual pieces of equipment. It can also be used for loading and unloading bulk materials. It has several types of execution: with a receiving hopper, with the taking back the product from the tank, with tight binding to the transportation line. Conveyors can be equipped with manual and automatic damper, valves and serve as feeders.

No.	Name of equipment	Dimensions (L/Ø/H) mm	kW/h	Weight, kg	Productivity
1.	Screw conveyor in the channel TSVZ-150/9M	9000x200x460	1,1	286,0	up to 45 tons per hour

4.1.6. Hammer crusher DU.



The hammer crusher DU is also independent development of our company. It is made in the form of the strew-type hammer mill with an increased number of hammers and with the operational load product hopper. The design of the installation allows you to quickly and accurately perform maintenance work on changing the calibration sieves, as well as replacement of repair kits and crusher units in general.

A feature and advantage of our crusher is the fact that the crushing machines DU can be combined into a single high-volume production crushing system. To increase the volume does not require major structural modifications units. Crushing station can be recruited like a cassette binding.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity	
1.	Hammer crusher DU-3,5	1000x800x1520	37,0	480,0	sawdust	up to 3 500
					cereals	up to 8 000

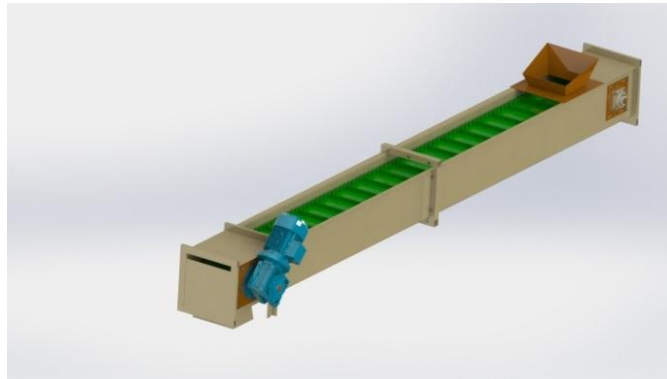
4.1.7. Receiving hopper with conveyor.



Receiving hopper with integrated conveyor is in it for the operational acceptance of the dry material from the processing of wood (veneer, pencils, etc.).

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Receiving hopper with conveyor TLS	4000x2000x2200	1,1	780,0	up to 8 000 kg per hour

4.1.8. Scraper belt conveyor TLS.



Transporter TLS-500/20M is set to supply the crushed material (dry material) from the hopper up to a hammer mill DK-5SI in front of the drum dryer SB-6MU.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Scraper belt conveyor TLS-500/20M	20000x700x240	3,0	860,0	up to 18 tons per hour

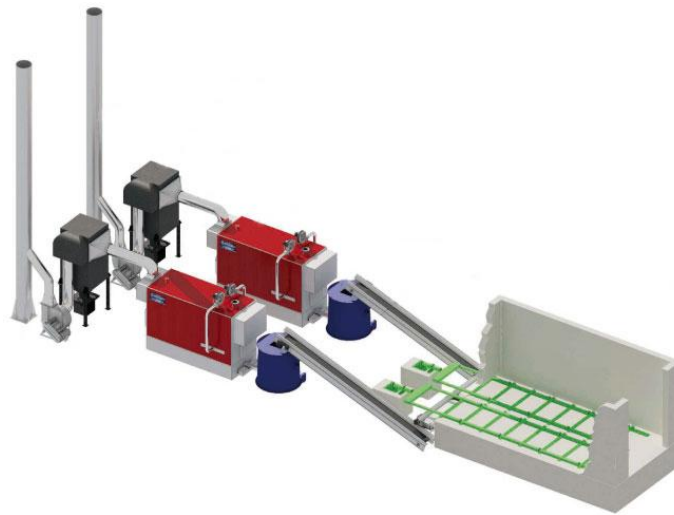
4. 2. Material drying unit.

The unit of the material pre-drying BPS.

The unit of the material pre-drying BPS-6M is a set of equipment designed for automatic continuous drying of the ground material which has humidity up to 70%. The ground to a size of 1x1x3 mm raw material is fed into the operating hopper of the drum dryer SB-6M to gradual drying of the product.

Excess of hot air pressure (up to 400 °C) and specially designed and installed a system of vanes and screens carry a uniform, stable drying of the product particles in a suspended state.

The control system and the dual-circuit automatic heat generator TPG-400 ensures the fireproof maintenance and allow the use of the second circuit of the heat generator for domestic needs (heating, hot water).



These systems heat generator developed by our company makes it more practical than competitive products. At the outlet of the drying drum SB-6 mounted precipitating cyclone with a valve (rotary valve ZS-300), which prevents an overpressure.

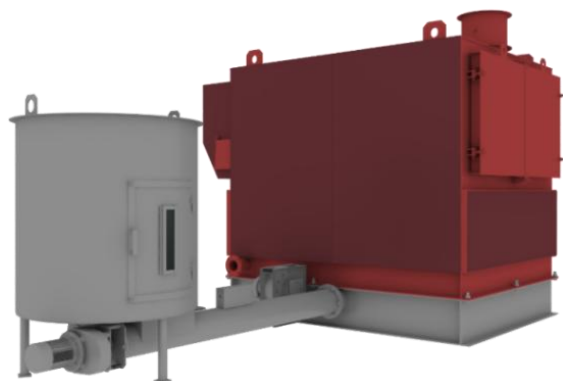
The precipitating cyclone separates product and feeds it to the rotary grinder DK-5C, in which the final (deep) to flour milling state. The milled product is fed by the pneumatic system into the hopper of the grinders BV for tedding.

4.2.1. Silos of finished product.



The silos of finished product BPG are cylindrical drives with conical bottom and nozzle for discharge of the product. Depending on the application and specific task the hopper can be equipped with level sensors, filter (suction system), safety valve of pressure relief, a viewing platform, a ladder, a vibrator, an aeration system, manual and automatic valves, rotary valves, frame with increased height for the load of road and rail transport. Several bins can be combined into a single bunker system, and equipped with common systems of loading and unloading.

2.2. Heat generator TPG.



Specifications of TPG-150:

The power of the heat generator - 3,0 MW

Power consumption - 12 kW/h

Efficiency - 85%

Weight - 23 000 кг

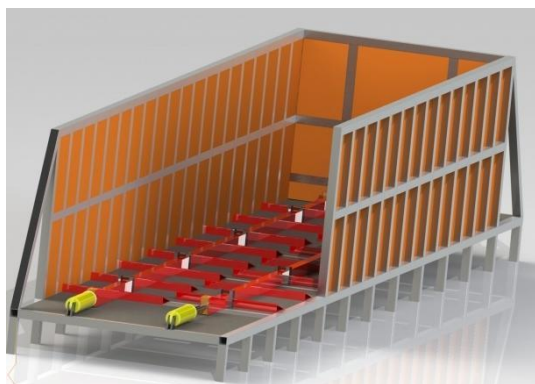
Fuel consumption (per hour) - max. 620 kg/h

The volume of the gas-air mixture - 23 000 m³/h

The temperature of the drying agent - 400 °C

Note: For heat generators can be used shredded waste, wood chips and bark after debarking machine, as well as weed out non-business raw materials from the operational warehouse storage.

4.2.3. Mechanized container type store «live bottom» for the operating storage of raw materials for the TPG.

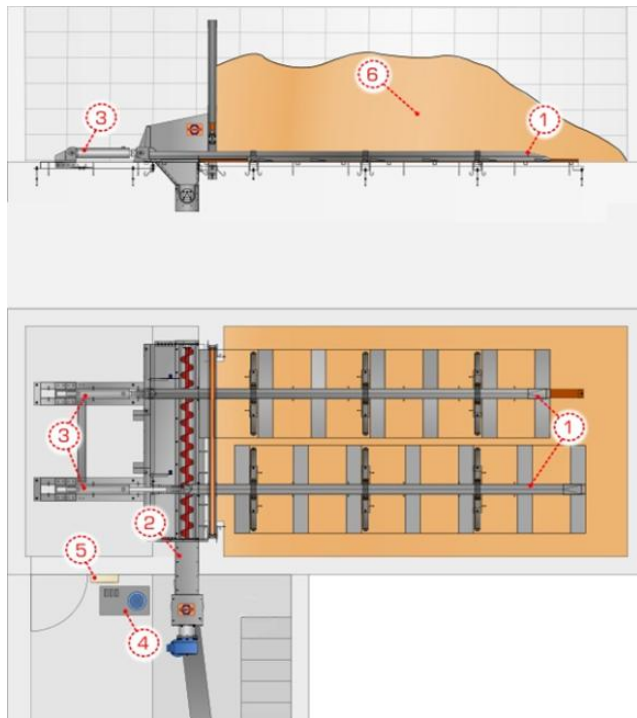


This warehouse is a separate module designed for the operating storage of the daily volume of raw materials for the smooth operation of the pre-drying unit.

Structurally, mechanized warehouse is a metal structure in the form of a container with the hydro system (for the moving of raw material) placed on the bottom («live bottom») and with the hopper on entrance. The use of this warehouse to optimize the automatic operation of the pre-drying unit BPS-6M, and automate the entire process of production of pellets. Also, the warehouse can reduce the number of staff, energy, time and cost.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Container type store «live bottom»	6000x4000x2500	8,0	18 000,0	one time - up to 60 m ³
					For trouble-free operation of the TPG-150 - 25 hours

4.2.3.1. The hydro-mechanical system of the moving floor.



1. *Hydro-mechanical tappets*
2. *Pit conveyor / discharge conveyor*
3. *The hydraulic cylinders of the system*
4. *Hydro station*
5. *Remote controller*
6. *Raw material*

4.2.4. Chain scraper conveyor TCS-500.



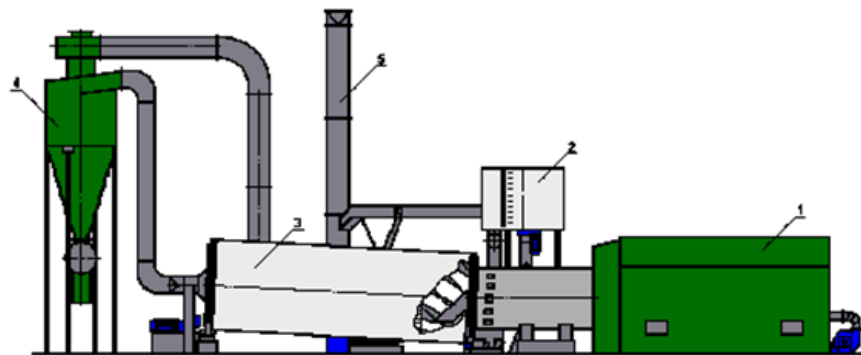
The chain scraper conveyor TCS-500 applies to the supply of raw materials to the feed hopper of the TPG, as well as for the transportation of raw materials from the raw materials receiving hopper and from the shredder to the crushing machine DU.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Chain scraper conveyor TCS-500/12	12000x700x240	3,0	1 090,0	up to 18 tons per hour

4.2.5. Tumble drier SB-12MU.

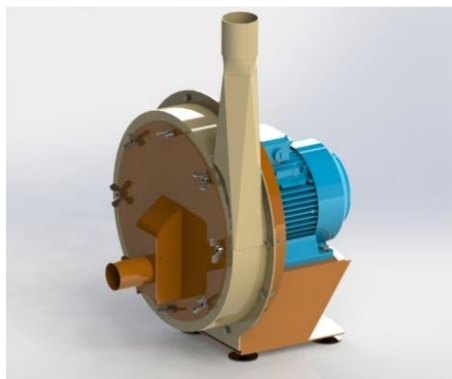


No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Tumble drier SB-12MU	14000x1700x240	156,0	4 090,0	up to 5 tons per hour



1. Heat generator TPG
2. Hopper for the loading material into the SB
3. Tumble drier SB
4. The precipitating cyclone on the frame with a rotary valve ZS (shutter)
5. The pipe to drain the gas-air mixture

4.2.6. Hammer crusher DK-5SI.



Hammer crusher DK is a proprietary development of our Company. According to the design and specification performances of our crusher has smaller dimensions and weight compared with the equipment in this category on the market (direct analogues does not). Crusher DK is designed for deep grinding to the desired product fraction (grits, flour). Crusher design includes the system of the fan discharge of the product (pneumatic system). The height of the crushed material supply is up to 6 meters.

Comparative table of crushers specifications .

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity (kg per hour)	
1.	Hammer crusher DK-5SI	900x700x980	37,0	387,0	sawdust	up to 3 200
					cereals	up to 6 000
2.	Crusher made by competitors DKR-5	950x900x1200	37,0	620,0	sawdust	up to 2 000

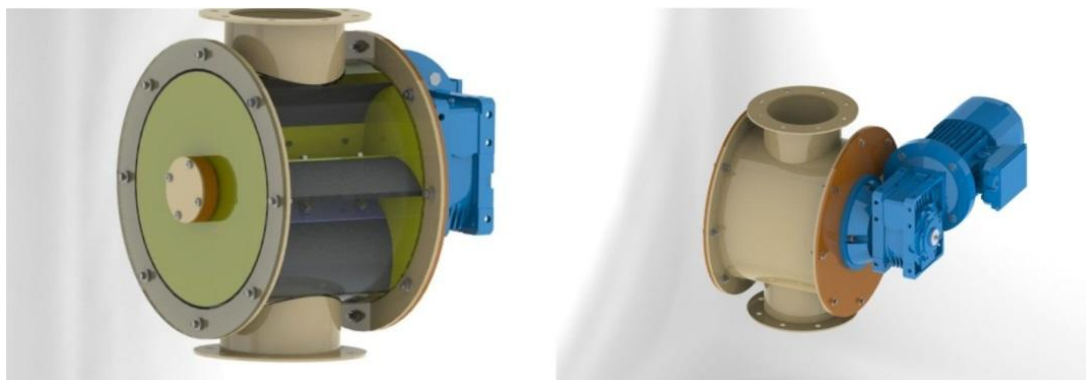
4.2.7. Screw conveyor TSV.



The screw conveyors TSV are used for raw materials feed in the loading hopper, in the drying drum SB-6 and for supplying of dried raw material to the crusher DK-5SI.

No.	Name of equipment	Dimensions (L/Ø/H) mm	kW/h	Weight, kg	Productivity
1.	Screw conveyor TSV-300/9M	9000x340x860	1,1	180,0	up to 16 000 kg per hour
2.	Screw conveyor TSV-300/6M	6000x340x860	0,75	123,0	up to 16 000 kg per hour

4.2.8. Sluice gates (valves) ZS.



The sluice gate ZS (valve) serves to prevent the uncontrolled release of excess air pressure and the dust from the precipitating cyclone CO.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Sluice gate ZS-300M	720x520x500	1,1	38,0	up to 23 000 kg per hour

2.9. Precipitating cyclone CO (on the frame).



Precipitating cyclone CO is for separating product particles from the overpressure air. It is installed at the exit of the material from the dryer drum SB-6MU.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg
1.	Precipitating cyclone CO	820x940x2540	-	81,0

4.3. Granulation (pelletizing) unit.



Pelletizing unit consists of a pellet press PG-6RM, screw feeder DSPG mounted on a frame with the audit and repair facilities, tank for the agitating BV, transporters TLS-300/2 and TLS-300/8 for the movement of finished granules from the granulator PG-6RM to pre-drying unit BO-7.

4.3.1. Tanks for the agitating BV.



Tank for the agitating BV provides an uninterrupted supply of raw materials ready to granulate to the dispenser of the pellet press (DSPG) to prevent a caking and slowdown of the product to the bunker. This device allows to achieve stable performance of granulation process, extend the service life of all components and mechanisms of the granulator. The frame with bridges for audit and scheduled maintenance simplifies the process of exploitation.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Tank for the agitating BV with aspiration	2100x2100x4800	3,0	896,0 incl. frame	6 000 kg per hour

4.3.2. Screw batcher of granulator DSPG.



The screw batcher of the granulator DSPG is designed for controlling the uninterrupted supply of raw materials from the tank for the agitating BV to the pellet press PG. The batcher prevents falling asleep and jamming of the granulator, and also eliminates the work of the granulator in the wear mode.

No.	Name of equipment	Dimensions (L/Ø/H) mm	kW/h	Weight, kg	Productivity
1.	Screw batcher of granulator DSPG	930x280x420	0,75	28,0 incl. frame	3 000 kg per hour

4.3.3. Pellet press (gear type) PG-6RM.



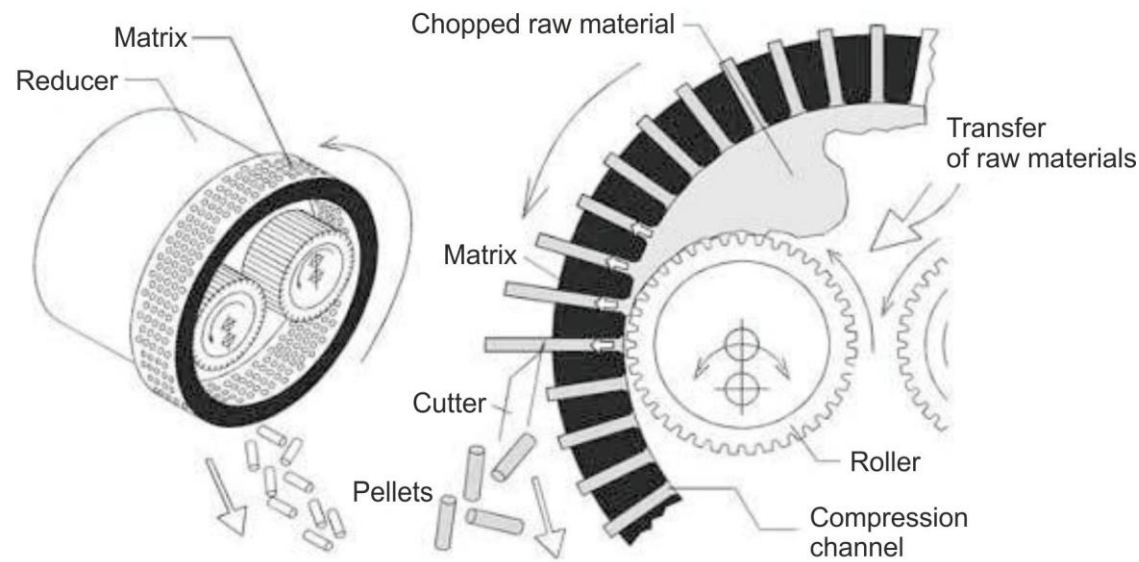
The pellet press PG-6RM is fully developed by our company and is an independent model of granulators. It has a belt drive of the compression assembly and the two-stage gear. All components and mechanisms are produced in Russia. Bearings and sealing elements of European manufacturers. On request, the pelletizer PG-6RM can be equipped with an automated lubrication system of all units, hydraulic rollers controller, service life counter / operating time and other automation systems. Granulator design is simple and has a low operating costs. Furthermore, unlike the Chinese and European counterparts, as well as the flat matrix pelletizer the granulator PG-6RM requires less time for maintenance work and replacement of the matrix.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity (kg per hour)	
					sawdust	combi. feed
1.	Pellet press PG-6RM	1200x1280x2100	110,75	1 860,0 incl. frame	up to 1 600	up to 7 200

Warranty period - 1.5 years.

Term of service - 8 years and more.

The principle of operation of the granulator.



Comparative table of the specifications of the granulators.



No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity (kg per hour)	
					sawdust	cereals
1.	PG-6RM	1200x1280x2100	110,75	1 860,0	sawdust	up to 1 600
					cereals	up to 7 200
2.	The similar MUNCH RMP-520	2600x2150x2150	157,5	3 500,0	sawdust	up to 1 500
					cereals	up to 6 500
3.	The flat matrix pelletizer KAHL-38-780	1630x2180x1650	110,0	3 000,0	sawdust	up to 1 400
					-	-

Comparative table of operating characteristics of granulators.

No.	Name of equipment	Consumption of lubricants (kg per year)	The frequency of routine and prev. maintenance	Resource of matrix (tons)	Resource of rollers (tons)	Cost, in USD
1.	PG-6RM	20 l (machine oil) 30 kg (lubrication Ciatim)	every 3696 hours the automatic adjustment and lubrication*	2 500	1 200	82 800,00
2.	The similar MUNCH RMP-520	1920	-	2 500	1 200	102 300,00
3.	The flat matrix pelletizer KAHL-38-780	600	-	1 200	1 200	for a used unit 92 000,00

** To service the pellet press PG-6RM need 2 times a year, or 1 every 3696 hours to carry out maintenance work, which includes the replacement of the gear oil, filling of the system of automatic lubrication of the rollers by oil, replacement of the filter elements and seals (if necessary), metering of technology gaps, checking the bearing units for the presence of backlash.*

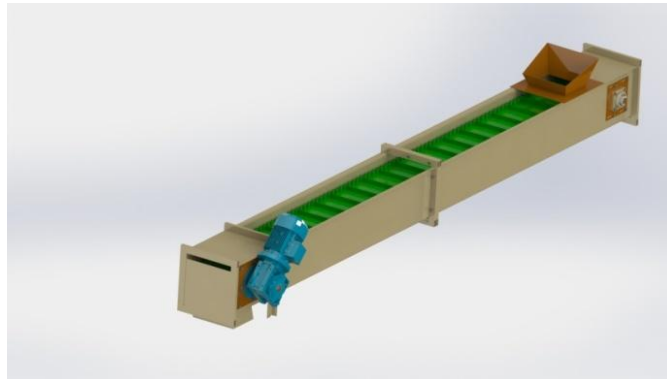
The claimed advantages of pellet presses KAHL-38-780 and PG-6RM.

<p>Pellet press KAHL-38-780</p> 	<p>Pellet press PG-6RM</p> 
<p>Great for hardwood</p>	<p>Designed for processing all types of wood</p>
<p>High capacity for long-term operation</p>	<p>Knots and mechanisms are designed to work around the clock</p>
<p>Low maintenance</p>	<p>Service of granulator - 1 every 6 months or 3696 operating hours</p>
<p>Low costs of runners lubricant - 15 gr. per hour</p>	<p>Costs for lubrication of rollers - only 90 gr. per day because used pressure centralized lubrication system</p>
<p>Continuous operation without overheating</p>	<p>Allowable time without stopping - 48 hours or more. Stop the machine is due only to the peculiarities of the electro-motor.</p>
<p>Low speed of runners - 2.5 m/s</p>	<p>rollers are arranged stationary, it rotates only the outer part of the roller (reinforced bearings of high accuracy "AAA"). Compression occurs by means of the rotation of matrix.</p>

Quick replacement of the matrix - 1 hour	Quick replacement of the matrix - only 30 minutes
Quick replacement of runners	Quick replacement of rollers - 1 hour
Easy to service thanks to a new on-line monitoring of the production process	Full automation system of the production process (optional) conducts maintenance work in automatic mode and is on-line monitoring of the production process
Feed of product is by the free fall	Raw material supply to the press chamber is carried out by free (metered) sprinkling the product. Product distribution inside the chamber is due to the passive spreader.
Large inner chamber for light products (KHAL company does not disclose the data about the drop of performance dynamics)	The internal volume of the pressing chamber is designed in view of the granulation of light but bulky material (the productivity falling in accordance with the declared data)
3-6 rollers for effective rolling	3 rollers are ensuring stable compression without increased wear and reduce the compression chamber volume (which is important for light materials)
Deep drilled matrixes of chrome steel	The ring matrix is able to provide the maximum threshold of compression 1/14. Matrix material is the vacuum hardening chrome steel with followed grinding the nozzles to gloss.
Stepless adjustable shaving device to provide a uniformly pellets length	Infinitely variable (external) adjustment of knives with convenient control by the pellet size calibration line

<p>Solid bearing assembly in the runners and gear area</p>	<p>Fixed roller system allows the use of larger diameter bearing units and reduce the angular load, the load on the rolling and shock loads on the entire press unit. Matrix is fixed to the face plate around the perimeter of the washer, evenly distributing the load on the entire plane. The washer is mounted on the main shaft of the gearbox, which makes it possible to produce the shaft mounting at several points, reducing the load.</p>
<p>Extremely robust construction</p>	<p>The lowest weight in its class is achieved by the use of modern high-tech materials, ultra-durable and lightweight casting, as well as the optimization of structural elements of the reducer without reducing the declared characteristics and the term of service of the unit as a whole</p>
<p>Worm shaft for direct transfer of forces with high efficiency</p>	<p>The two-stage structure of reducer of the granulator allows optimally adjust the reducer, reduce the load on the motor, as well as all components of the granulator. Belt drive ensures low noise level and is one of the gear stages, as well as eliminates the mechanical damage of granulator's system in case of emergency jamming.</p>
<p>The granulator is not universal and produced only for a specific raw.</p>	<p>The granulator is versatile in the use of different raw materials.</p>

4.3.4. Scraper belt conveyors TLS-300/2M and TLS-300/8M.



The conveyors TLS-300/2M and TLS-300/8M carry the movement of finished granules from the granulator PG-6RM to the unit of pellets cooling BO-7.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Scraper belt conveyor TLS-300/2M	2000x500x240	0,75	43,0	up to 8 tons per hour
2.	Scraper belt conveyor TLS-300/8M	8000x700x485	0,75	164,0	up to 8 tons per hour

4.4. Unit of pellets cooling.



The unit of pellets cooling BO-7 is designed to cool the formed and still hot pellets. It combines the following equipment: automatic cooling tower KOG-7, a vibrating-sifting table SPG, blowing fan, rotary valve ZS, a precipitating cyclone CO on the frame, transporters TSV-150/2,3M and TSV-150/9M (with industrial supports) to return a non-granular semolina and injured pellets for re-granulation.

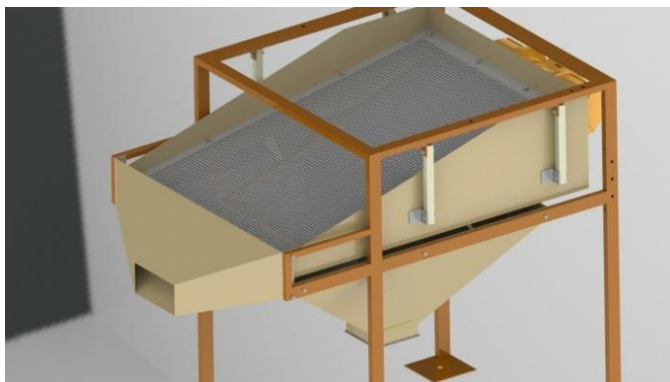
4.4.1. Cooling tower KOG-7.



The automatic cooling tower KOG-7 is equipped with a full sensor and an automatic unloading system of cooled pellets through a special system of automatic blinds.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity (kg per hour)	
					sawdust	up to 4 000
1.	Cooling tower KOG-7	2330x1650x2800	0,75	830,0 incl. frame	combi. feed	up to 6 000

4.4.2. Vibrating-sifting table SPG.

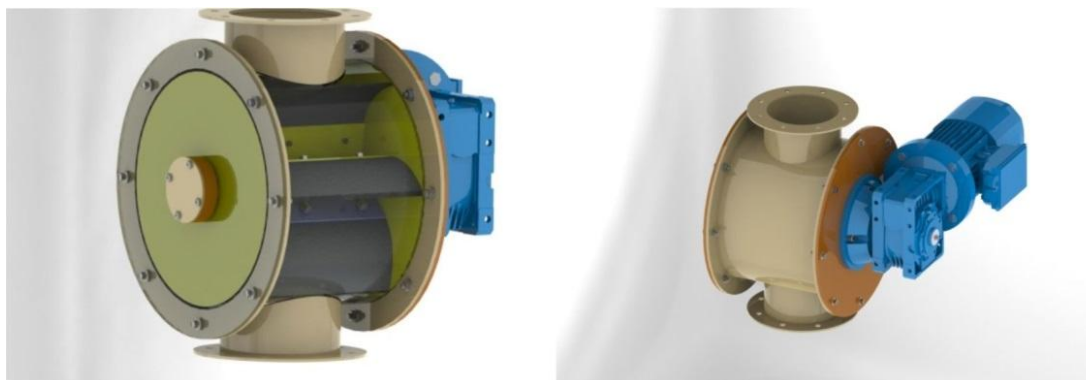


Vibrating-sifting table SPG is designed for elimination of non-granular semolina and injured pellets from the finished commodity pellets. The advantages of our sifting table are:

- low noise level;
- low vibration;
- greater productivity;
- low power consumption;
- the absence of a free wheeling of sifting elements.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity (kg per hour)	
1.	Vibrating-sifting table SPG-1M	2360x1750x1420	0,25	132,0 с рамой	sawdust	up to 4 000
					combi. feed	up to 6 000

4.4.3. Sluice gates (valves) ZS.



Sluice gate (valve) ZS serves to prevent the uncontrolled release of excess air pressure and the dust from the cooling tower KOG-7, as well as a feed dispenser to the cooler.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Sluice gate ZS-300M	720x520x500	1,1	38,0	up to 23 000 kg per hour

4.4.4. Blowing fan.



Blowing fan is designed to create inside the cooling chamber the force of the counter air flow.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg
1.	Blowing fan	640x720x800	7,5	57,0

4.4.5. Screw conveyor TSV.



The screw conveyors TSV-150/3M and TSV-150/9M are used for the horizontal and inclined moving of inert materials. They are used to transport of non-granular product and injured pellets from the granules sifting table back to the granulation unit for re-granulation.

No.	Name of equipment	Dimensions (L/Ø) mm	kW/h	Weight, kg	Productivity
1.	Screw conveyor TSV-150/3M	3000x180	0,75	31,0	up to 4 tons per hour
2.	Screw conveyor TSV-150/9M	9000x180	до 0,75	93,0	up to 4 tons per hour

4.6. Precipitating cyclone CO (on the frame).



Precipitating cyclone CO is for separating product particles from the overpressure air.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg
1.	Precipitating cyclone CO	820x940x2540	-	81,0

4.5. Unit of packaging of finished products (pellets) to plastic bags of 5-15 kg and big-bag.



Unit of packaging of finished products (pellets) to plastic bags of 5-15 kg and big-bag is a set of equipment consists of the following modules:

5.1. Bunker of operational storage of finished products.



Bunker of storage of finished products (on the frame) is designed for operational storage of finished products in the block of packaging. On unloading mounted electronic, automatic flow divider with belt conveyors divorced to blocks.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Bunker of storage	5200x2300x2300	-	467,0	up to 4 tons per hour

4.5.2. Flow divider.



The flow divider with an electronically-mechanical controller serves to distribute the flow between the packing blocks. It mounted atop NZK-20.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Flow divider (electric)	800x700x900	0,75	19,5	not limited

5.3. Bucket elevator-type conveyor NZK-20/9M.



Bucket elevator-type conveyor NZK-20/9M carries the vertical movement (lifting) of the finished granules from the pellet cooling unit to the operational silos of the packing in the big-bag terminal and the packing in plastic bags module.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Bucket elevator-type conveyor NZK-20/9M	1200x540x9400	2,2	564,0	up to 20 tons per hour

4.5.4. Semi-automatic packaging terminal (in 5-15 kg plastic bags).



The terminal consists of a packaging system with batcher of weight, weight control system of filling bags, manual installation for sealing the plastic bags and belt conveyor for operational transportation of the finished (packed) product.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Weighing packing terminal VTF-1500	4200x1800x3200	7,5	31,0	up to 4 tons per hour

4.5.5. Packaging module (in big-bag) with the conveyor for feeding of big-bags.



Packaging module consists of a frame with mounted on it the filling hopper and the batcher of components. The operator secures the bag to the frame and includes a load operation. The batcher of weight VDK automatically makes loading with the previously set parameters, and then disables the load operation and notifies the operator by audible and visual signals. Operator unfasten (removes) handles and valve of the bag from special locking devices and by pressing the button (or pedal) gives the command to transport the filled big-bag to the conveyor TL-1500/6M for further shipment.

No.	Name of equipment	Dimensions (L/W/H) mm	kW/h	Weight, kg	Productivity
1.	Packaging in big-bag module	5200x2300x5200	3,85	1 050,0	up to 4 tons per hour

4.6. Manage the production process at the plant.

4.6.1. The control system and the factory automation.



The automation and control all production processes system consists of a central control unit, PC, software, the main power cabinet, control consoles for rapid (manual) management of the production processes directly on production sites.



This section includes:

- software;
- special programming devices;

- electronic control units;
- controllers;
- alarm sensors and alarm systems;
- computing appliances;
- electrical valves and gate valves;
- the weight controllers and other equipment required for complete automation of the production process.

The warranty for all equipment - up to 2.5 years.

Term of service - 8 years and more.

Design and adaptation (co-ordination) equipment - up to 15 working days.

Manufacturing of equipment - up to 80 working days.

Installation of equipment into the prepared building - 5-15 working days.

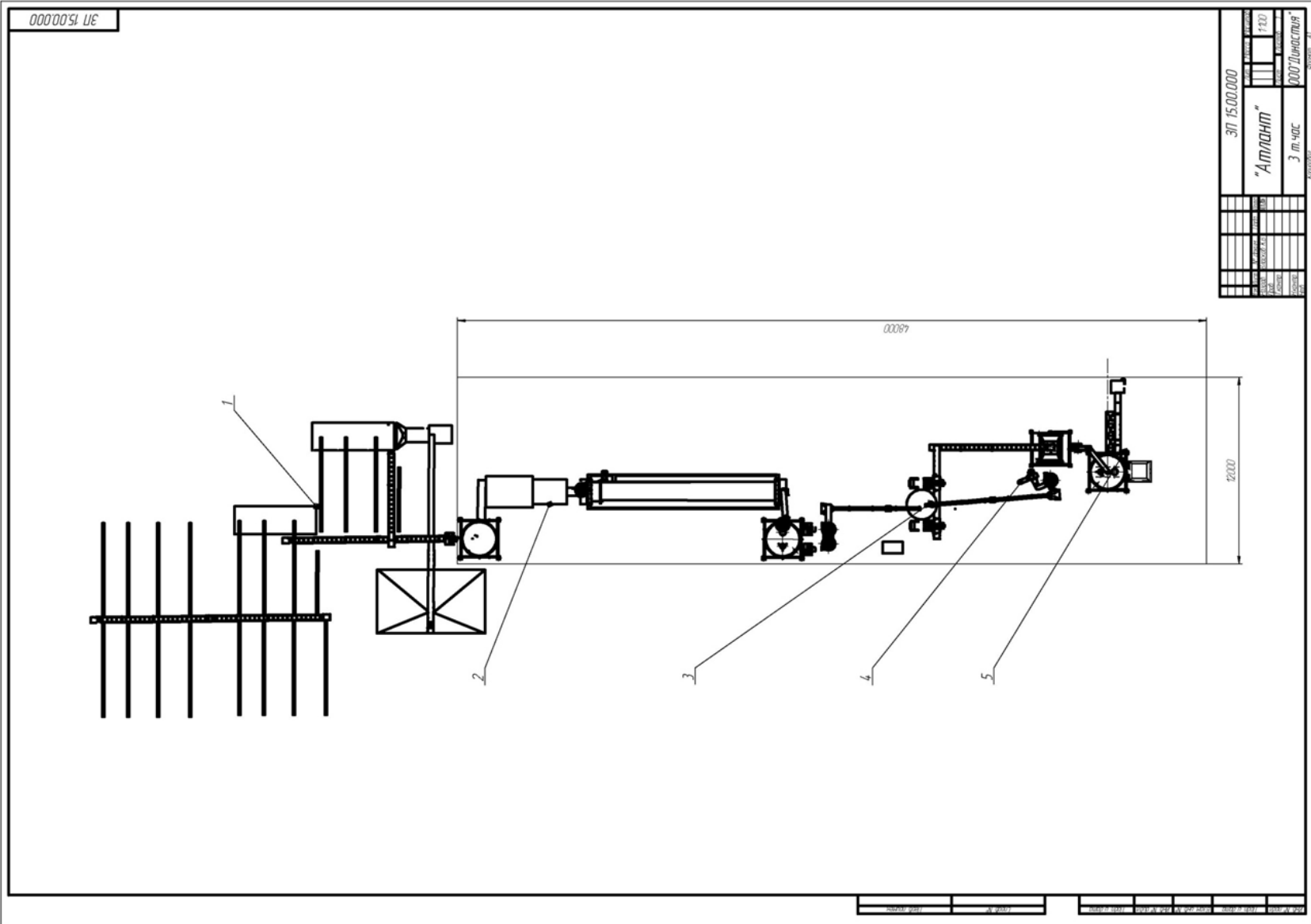
Setting and output to the declared capacity - up to 30 working days.

The number of employees and the amount of wages.

The total number of employees of the two plants is 104 people for three-shift operation. Director and accountant working 5 days a week, and workers in 3 shifts according to the schedule (12 people per shift).

Position	Number of persons	Wage (in RUB)	Total (in RUB)
Director	2	50 000,00	100 000,00
Accountant	2	35 000,00	70 000,00
Storekeeper	6	30 000,00	180 000,00
Shift supervisor / Operator	6	30 000,00	180 000,00
Workers	72	25 000,00	1 800 000,00
Security guards	12	20 000,00	240 000,00
Maintenance crew	4	30 000,00	120 000,00
TOTAL:	104		2 690 000,00

5. THE LAYOUT OF THE EQUIPMENT.



6. 3-D MODEL OF THE GRANULATION LINE (excluding the processing area of wood waste and storage chips).

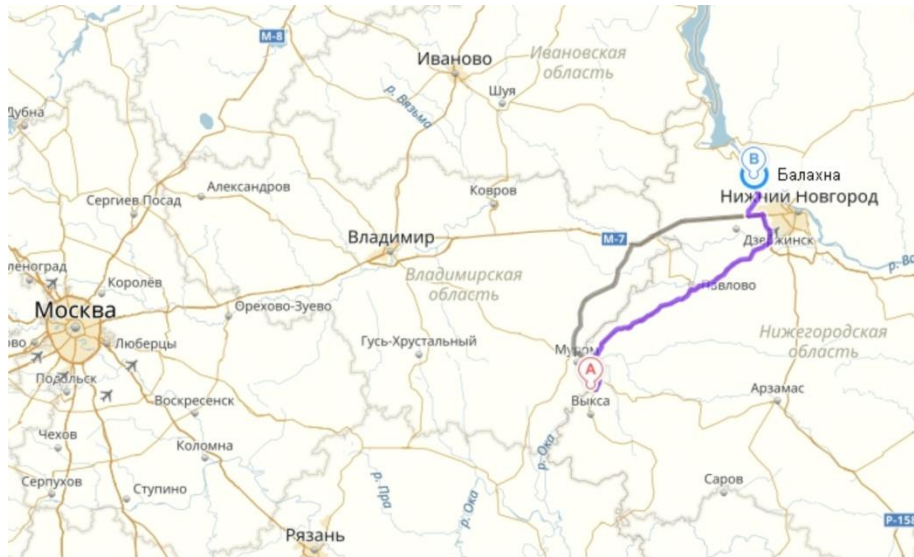


7. EQUIPMENT SPECIFICATION (calculation for 1 plant with a capacity of 5 tons per hour).

№	Name of equipment	kW/h	Quantity	Price, USD	Amount, USD
1	Block of scraping bark, acceptance and separation of raw materials, chopping wood waste	215	1	196 153,84	196 153,84
2	Block of operational storage of raw «live bottom»	10	1	180 000,00	180 000,00
3	Block of deep grinding of raw materials (crushing)	74	1	127 400,00	127 400,00
2	Pre-drying block BPS-12MU	211,75	1	311 846,00	311 846,00
5	Granulation block BPGP (based on PG-6MR)	302	1	205 969,23	205 969,23
6	Pellets cooling block BO-7M	15.2	1	59 230,76	59 230,76
7	Block for packing of finished products (in bags of 5-15 kg & «big-bag») WTF	26	1	160 520,00	160 520,00
8	Industrial and warehouse building 1500 m ²	12	1	415 384,60	415 384,60
10	Block of production line control	18	1	152 000,00	152 000,00
11	Construction of building, installation supervision, start-up and commissioning, personnel training, the output of the plant on the declared capacity	10% of the cost of equipment		180 850,44	
TOTAL / ИТОГО:		782,5			1 989 354,87

For realization of this Project it is necessary to build 2 plants «ATLANT» for the production of wood pellets with total production capacity of 10 tons per hour.

8. PROJECT LOCATION.



of wood waste in the Russian Federation", which can be up to 50% of the total feedstock (it will be very beneficial for the business).

The first plant "ATLAS"-type of capacity of 5 tons per hour will be located at the entrance to the city Vyksa, Nizhny Novgorod region, Navashino highway. This site is convenient because it is close to the five municipal areas: Vyksa, Kulebaki, Navashino, Ardatov, Voznesensk. Distance to the forest fund is not more than 50 km. Also site is located 19 km to the freight train station «Mordovshik» and 30 km to the river cargo terminals on the river Oka, which allows a variety of options of shipment of finished products to the final consumer.

The second plant "ATLAS"-type of capacity of 5 tons per hour will be located in the industrial area of the city Balakhna, Nizhny Novgorod Region («Shelyauhovo»). This plant will be located in 9 km to the river pier on the Volga River and 37 km to the freight railway station. In close proximity are Zavolzhsky, Gorodetsky, Pervomayskiy, Bor districts of Nizhny Novgorod region, which also has thick forests and a large number of timber processing and logging companies, which is positive for the organization of pellet production.

9. THE RAW MATERIAL BASE. ASSESSMENT OF THE MARKET.

The raw material base, as defined in section 8, are forests and wood waste of Nizhny Novgorod region areas that near the placing plants "ATLANT".

The major suppliers of raw materials will be companies and private entrepreneurs that engaged in logging on an industrial scale, as well as sawmills and wood processing company.

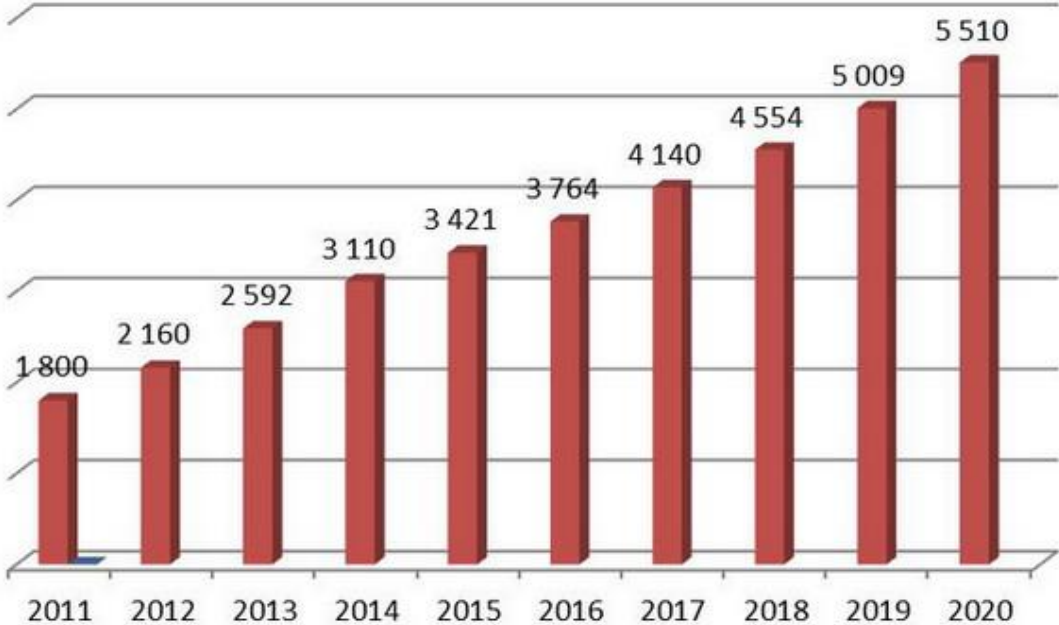
Assessing the market of wood pellets, we proceeded from the needs of the European market. We have held talks with the Czech, Slovak and Italian wholesale buyers of wood pellets. Now the customer interest in these products many times greater than the real offer of pellets for the European market. And shortage of fuel increases in Europe, year by year. We have already signed a preliminary agreement (memorandum) for the supply of the entire volume of pellets (with the ability to increase and extension) to Italy, FCA and CIF.

10. PROJECT POTENTIAL.

The performance of each of the planned plants «ATLANT» (manufacturer of equipment - «DINASTY» LLC, Russia) is 5 tons per hour / 3080 tons per month / 37 000 tons of finished products per year. Configuration of the plants "ATLANT" allows to produce the packaging products into all types of packaging that are in demand in the market.

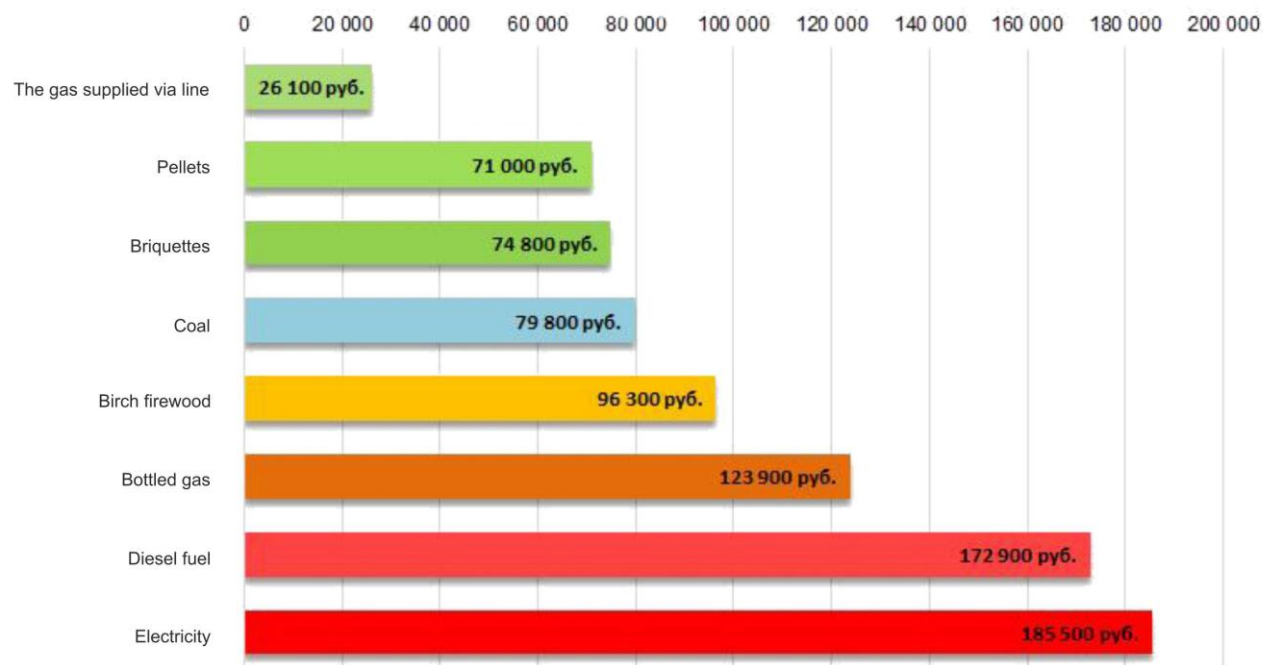
Stable operation and a large stock of raw materials, centered around the locations of the plants, will allow the plants to work steadily for several decades. In view of these circumstances, we have a real opportunity to take a leading position among the suppliers of pellets on the market in Italy, and later in other European countries.

The dynamics of growth the demand in the EU countries.



This graph is based on data of the European analytical group on alternative energy.

Schedule of calculating the cost of heating (on different fuels).



The graph shows that the heating with pellets is in second place, behind only gas supplied via line, but ahead of all other fuels, such as briquettes, coal, birch firewood, bottled gas, diesel fuel and electricity.

11. PROJECT COST.

The cost of creating and running two complete plants «ATLANT» will be 4,872,929, 74 US dollars.

12. ECONOMICAL INDICATORS.

No.	Name of type of expenditure and income (in USD)	December 2016	January 2017	February 2017	March 2017	April 2017	May 2017
PRELIMINARY EXPENSES							
1.	Purchase of pellet plants ATLANT	70% 2 860 591,20				30% 1 225 890,52	
2.	Purchase of furniture and office equipment	27 384,60					
3.	Purchase of raw materials (10 days stock)				175 000,00		
4.	Purchase and installation of transformer substation	116 923,00					
5.	Installation and repair of power lines	4 800,00					
6.	Purchase of lands	261 538,46					
7.	Purchase of technical project	107 692,30					
8.	Preparation of land / landscaping	6 153,00					
RECURRENT EXPENDITURE							
9.	Wage fund (100 persons)	4 615,00	4 615,00	4 615,00	4 615,00	41 538, 46	41 538, 46
10.	Payroll tax	1 569,00	1 569,00	1 569,00	1 569,00	14 123,00	14 123,00
11.	Income taxes						42 319,54
12.	Purchase of stationery	246,00	246,0	246,00	246,00	246,00	632,00
13.	Purchase of wood waste (raw)						189 538,50
14.	Household expenses. The cost of maintaining the territory and premises.			215,00	215,00	215,00	430,00
15.	Costs of equipment service						49 230,00
16.	Purchase of electric power	92,00	412,00	553,00	1 815,00	1 815,00	72 898,00
17.	The costs for packaging (plastic bags of 15 kg, with a trade mark, big-bags)						189 538,50
18.	Euro pallet 6 160 pcs.						36 012,30
19.	TOTAL EXPENDITURE	3 391 601, 16	6 842,00	7 198,60	183 460,00	1 283 827, 98	636 260,30
20.	GROSS PROFIT (1 kg = 8,50 RUB)						805 538,46
21.	NET PROFIT (in USD)						169 278, 15

To implement the Project, it is necessary to make investments in the amount of 4 872 929.74 US dollars.
Time of creation of production will be 5 months.
The period of full return of investment is 29 months (from the date of start of production).
The total period of implementation of the Project to its full payback is 34 months.

13. PROFIT.

The total net profit of the Project is 169 278.15 USD per month, 2 031 337.80 USD per year.
The profit is specified in view of payment of taxes, fees and other expenses.

14. PAYBACK.



According to the planned calculations specifically made with a margin of safety at the maximum rate of costs and the average cost of production on markets, the full payback of the project (including construction of 2 plants, landscaping, manufacturing and start-up of equipment) will be **only 34 months**, i.e. less than three years.

We propose that during entire payback period the all created property (**100%**) belongs only to the Investor, and the profit is distributed **90% to the Investor and 10% to the Initiator of the Project**. After a full recoupmnt, the all created property and the income to distribute of other proportions - **70% to the Investor and 30% to the Initiator of the Project**.

15. FINAL PROVISIONS.

Based on the facts collected during the development of this Project and outlined in this Business plan, we can say with confidence that the Project has a high ROI and short payback period than favorably with competitors in the production of wood biofuel pellets and significantly surpasses them.

The professional team of «Gran-Pellet» LLC is able to accurately and on time to implement this project.

We hope for long-term mutually beneficial cooperation with you!

Yours faithfully,

General Director of «Gran-Pellet» LLC



Kirill V. VLASKOV
Kirill V. VLASKOV

February 17, 2017

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