VIBRATION MILL

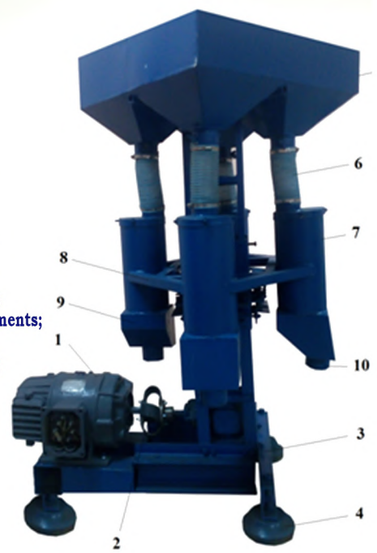
11, 8 - loading and unloading throat;
2 - container;
3 – adapting pipe;
4 - electric motor;
5 - oscillating platform;
6 - frame;
7 – equalizer spring group;
9 - balance weight

MILLING RESULTS

Oat

S=980 cm²/g d=1 mm

GYRATORY MILL

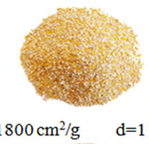


1 - electric motor;
2 - elastic coupling;
3 - bed;
4 - damper;
5 – loading container;
6 - loading throat;
7 - grinding chambers;
8 - oscillating platform;
9 - separation compartments;
10 - unloading throat;
11 – gyratory's bushing

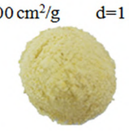
MILLING RESULTS

Corn

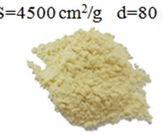
S=920 cm²/g d=5 mm



S=1800 cm²/g d=1 mm

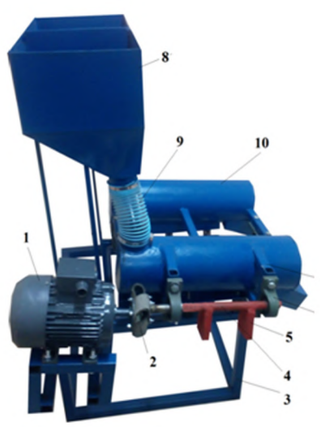


S=4500 cm²/g d=80 µm



S=5300 cm²/g d=50 µm

ANGULAR VIBRATION MILL



1 - electric motor;
2 - elastic coupling;
3 – bed plate;
4 - input drive;
5 - balance weight;
6 - vibration drive bearing units;
7 – strut support;
8 - loading hopper;
9 – loading pipes;
10 - grinding chambers;
11 – transverse sleeper;
12 - center axle bearing units;
13 - axis

MILLING RESULTS

Phyto-raw materials

S=710 cm²/g d=10 mm

S=4250 cm²/g d=70 µm

Technical and operational performance

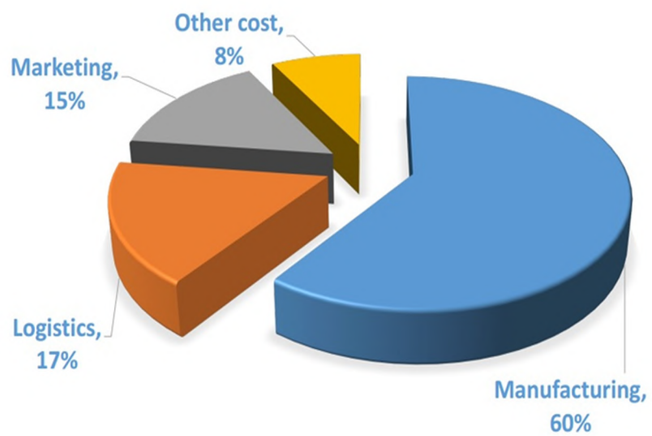
№	BRAND	INDEXES							
		Productivity t / h	kW drive performance	0.37$ 1 kW/h	10 hours (1 workday)		To produce 20t		Specific performance t/m^3 h
					Produc-tivity t	energy costs $	Time h	Energy costs $	
1	VM-400	2,2	11	4,07	22	40,70	9,09	36,99	5,5
2	MSHR-900x900	0,4	18,5	6,85	4	68,50	50	342,5	0,6
3	PSMM	1,0	36,4	13,47	10	134,7	20	269,4	5,6
4	Palla 35U	1,4	10,5	3,89	14	38,90	14,3	55,63	3,9

The results of the calculations are summarized in the tables. These are real technical and economic parameters of traditional mills and new vibration mill VM-400, offered for comparison, the dimensionless value of the individual indicators and general indicators of each machine derived from calculations in two ways DI and DII.

The degree of significance indicators	0,213	0,292	0,109	0,176	0,21

№	BRAND	INDEXES				
		Productivity t / h	kW drive performance	Weight tons	Volume occupying machine	Specific performance t/m^3 h
1	VM-400	2,2	11	2,4	5	5,5
2	МШР-900x900	0,4	18,5	5,8	16	0,6
3	PSMM	1,0	36,4	3,0	20	5,6
4	Palla 35U	1,4	10,5	2,9	6	3,9

COST STRUCTURE AND FINANCIAL INDICATORS



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UNIVERSAL VIBRATION MILL

The aim is reached by someone who tries to achieve it

Developers

GRYGORII KALETNIK – Dr. of Economics, Prof., Academician, President of VNAU, Accelerator

INNA HONCHARUK – Ph. D of economics, assos. prof., responsible executor

OLENA SOLONA - Ph.D., Associate Professor, VNAU, Project Manager

IGOR KUPCHUK - Ph. D of Engineering, Assoc. Prof.

CONCEPT OF OUR SUCCESSFUL STARTUP:

The idea of the project is to create highly effective vibratory mills of continuous action for the implementation of the process of highly-performance grinding of loose raw materials in the conditions of its mechanoactivation. This processing technology will give the possibility to create a number of new products for the consumer.

Vibrating grinding is one of the most effective methods of changing of the structure of raw materials due to its mechanoactivation. This phenomenon is characterized by a significant increase in the dispersion of the treated material and promotes the generation of more soluble polymorphic modifications.

A series of experimental models of vibration mills of different technological directions are developed: a gyratory mill, a toroidal mill, an angular vibration mill and a two-container mill. It can be used in agrarian sector of economy, food, pharmaceutical, chemical and construction industries, etc.

Strategy of the startup: formation of industrial clusters for the development and production of enterprise models; creation of marketing systems for commercialization of the scientific development and the network services of a series of vibration mills.

This brochure gives You an idea of what the Vibro Mill actually is as well as demonstrates the technical level of a NEW Continuously Vibration Mill compared to existing mills

The aim of the Vibro Mill Team is to attract as many people as possible to support young people, introduction of innovative ideas of Ukrainian scientists, realization of startup projects and implementation of a series of universal vibration mills at industries around the world.

THE DEVELOPED VIBRATION MILL WILL ENABLE TO PROVIDE FINE GRINDING FOR:

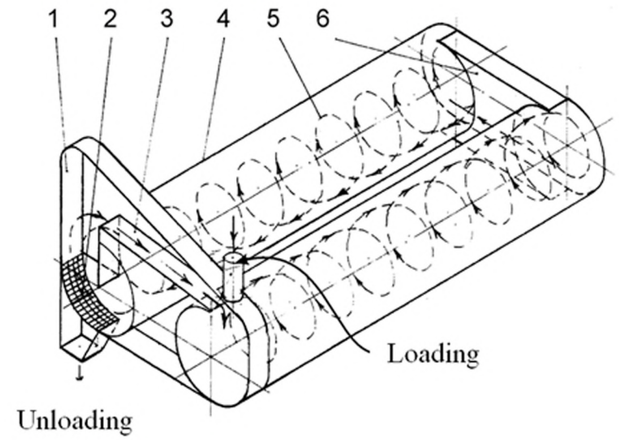
- plant raw material in the production of high-efficiency pellets;
- phyto-raw materials in the production of homeopathic medicine;
- glauconite in the production of entero- and immunosorbent powder, that is characterized by radio-sorbent properties;
- minerals in the production of high-efficiency premixes;
- limestone in the production of environmentally friendly building blocks.

VIBRO MILL TIMELINE

- The idea of creation — 1998
- Scientific substantiation, registration of patents — 2012
- 2016 — American agrobusiness company wants to buy a vibro mill
- 2018 — Victory at the festival of innovations
- Production customization — 2020
- Conquering the market

How does it works? (Functional Principle)

UNIVERSAL VIBRATORY MILL



BASIC OUTLINE OF THE MILL:

1- reloading gutter; 2 - conveying trough; 3 - unloading grille; 4 - grinding chamber; 5 - loading movement trajectory; 6 - transition trough.

POTENTIAL POSSIBILITIES:

1. Guarantee non-waste production.
2. Uses less electricity.
3. Doesn't require expensive maintenance.
4. High efficiency.
5. High technological capabilities.