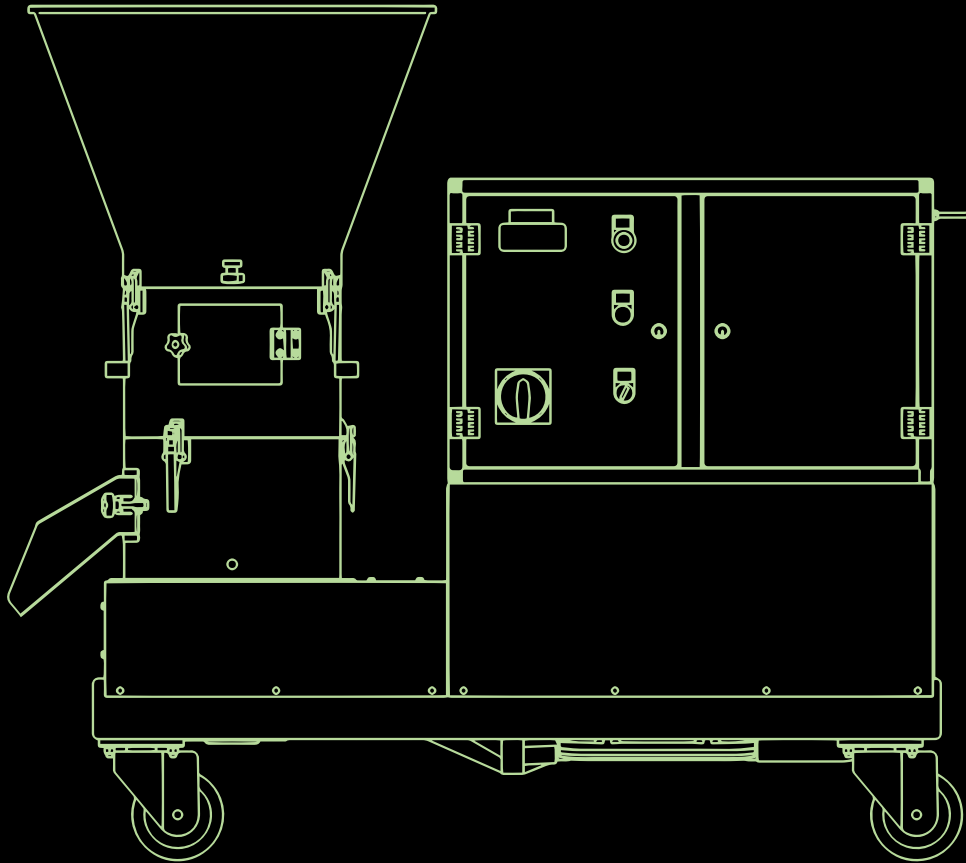


.FASTER.BETTER

Profit source for smart pellets producers

FEED & BIOMASS

mini PELLETER



WHAT MINIPELLETER CAN DO FOR YOU AND YOUR CUSTOMERS?

HOW CAN MINIPELLETER HELP YOU BUILD YOUR NEW BUSINESS?

Foreword

I often look back at quotations and adages of Albert Einstein. They were, are and will be always effective. We usually do not concern ourselves how many of them relate to how we think, perceive and respond to the needs, identify what and how it should be done

„Everything should be made as simple as possible, but not simpler.“

These words were the foundation of design assumptions for our miniPelleter - literally and figuratively. As you read, and later when you use our pellet mill, you will become convinced how we have developed the thesis of Einstein in friendly mechanical solutions.

However, to businessmen I dedicate another adage of Einstein: There are thousands of ways to kill time, but no one knows how to revive it...

Time elapses constantly. You have to decide, how do you want to use it: investing into good solutions and making money or choosing bad solutions and waste time and money...

No one knows how revive the past time. Working with miniPelleter, you would not waste your time - you will spend it efficiently and soon you will count your profits.

But first read through our guide.

Best regards,
Paul Nawrocki
CEO

„There are thousands of ways to kill time, but no one knows how to revive it..“

A good business decision is time saving. The time that no one would not have to take back, because this is well invested time.

The time of profit satisfaction.

Part 1

YOU: NEW DIMENSION OF PRODUCTION

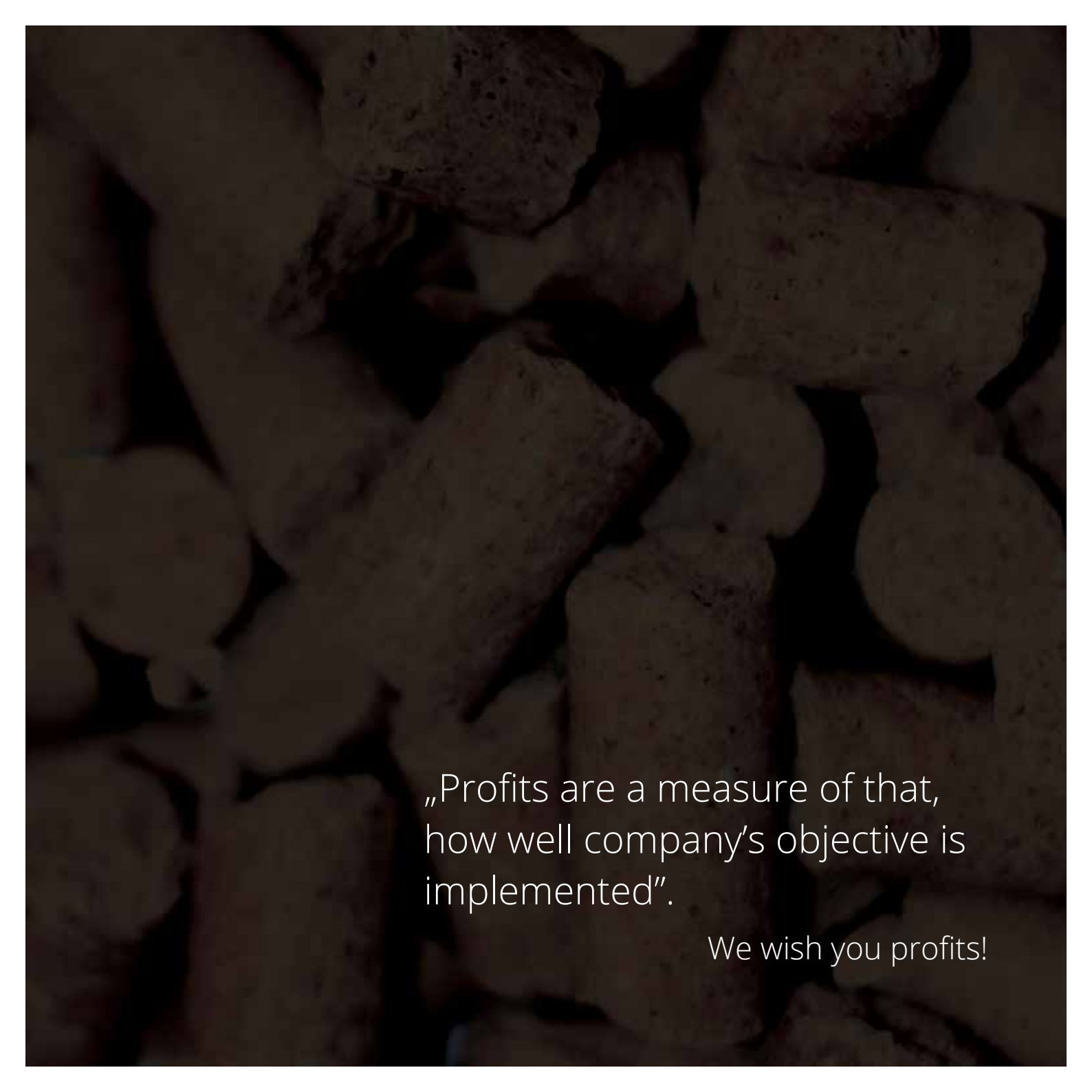
Sustainable development strategy

Statistics indicate clearly that the success in this business is achieved by those companies with strong foundations of their basic activities. It is a proven principle in all fields of economic activities. Expansion to the areas of company's side activities works well. An example may be a furniture manufacturer who has a sawdust and he decides to manufacture fuel pellets using his own raw material. Similarly, a farmer may diversify his production by straw pellets for the needs of energy industry.

A pelleting line based on miniPelleter may be a perfect form to diversify and to extend your current scope of production. Its unquestionable benefit is a very low threshold of financial investment. In some cases, this is only about thirty thousand Euro. This is very little compared to installations for millions.

In addition, seemingly low capacity within the range of **300 - 500 kg/h** is an enormous advantage for pellet producers that base mainly on their own raw material. There is no need to look for extra raw material from the necessity of "loading the pelleting line" that has to work in order to be repaid. Such producer is fully independent, he knows well the quality of his raw material and without any problem keeps constantly a high quality of pellets produced by him. Larger producers often depend on other suppliers and this is their great concern.

A sustainable growth provides stable profits and a low level of risk. And this kind of business we like most!



„Profits are a measure of that,
how well company's objective is
implemented“.

We wish you profits!



**The right solution
is not that obvious...**

...and Users of pellet mills and pelleting plants became convinced about this, when they lost their money buying poor solutions that were not suited well to their needs. This is quite regular situation. The criteria for selecting appropriate solutions are very wide and have to consider Your very specific needs. That is the priority! Ignoring it will lead to problems that might be avoided. Finally, the fewer problems with the pellet mill, the more time for your family. You need to choose, if they are important to you.

Consider all arguments that would make you avoid unpleasant and costly surprises. If we find out that necessary conditions have not been met, then we advise you against investing in this type of business. This is not at all a rare situation.

Your guide to available optimal solutions will be our Process Engineer. With him you can safely go through the sea of options connected with pelleting. Many investors seemed to know how to start with this business. Many of them seemed to know how to survive in it. It turned out that they were wrong. Now second-hand machines are available from banks or leasing companies that may have problems to sell them.

And you probably do not want to make their faults again?

How to start with this business [and survive]?

Each investment is governed with similar rules and puts requirements, the compliance with which is a key to its success. It is not otherwise in pelleting industry.

Here are 8 factors to achieve success with Your project:

- 01 Keep your raw material of suitable quality and quantity. Find long-term suppliers and sign contracts.
- 02 Find Customers for your product (this is usually the smallest thing). Find long-term suppliers and sign contracts.
- 03 Gain means to implement the investment and save your own money (supposedly these are worth most of all).
- 04 Bind yourself with the supplier, who will provide you with necessary knowledge, suitable technology (project and machine) and after-sale support (you won't survive without it).
- 05 Hire employees with relevant and high qualifications and let us train them.
- 06 Pay your employees fair wages, to take care of good production results.
- 07 Give a good management for Your production plant.
- 08 Make a union with other producers pellets - together you will have advantage in negotiations with large Customers (power industry, markets etc.).

A close-up photograph of a miniPelleter pellet mill. The image shows the top section with a perforated die and a warning label. The die is a circular metal plate with a grid of small holes. Below it is a larger metal plate with larger circular holes. A red and black warning label is visible on the side of the machine, featuring a gear icon and a red prohibition symbol. The background is dark and out of focus.

What is miniPelleter?

miniPelleter is a semi industrial pellet mill designed for professional use in several fields of industry.

miniPelleter is an idea worth deeper consideration for a new business or expanding the existing one.

Our pellet mill is the next step in upgrading or expanding your existing pelleting line - irrespective of what raw material you have.

The most important advantage of our miniPelleter is the fast return on investment (ROI). This means that, in a very reasonable time, you would be able to enjoy earned money by You and Your miniPelleter.

You and Your miniPelleter will create an efficient company. Together you will go further, faster and you will multiply your assets.



What is ROI and why is it so important?

ROI is an abbreviation: Return On Investment. This is a very important profitability index of your investment. Generally, ROI determines the effectiveness of financial means which You invested in Your company. The shorter the time of reimbursement, the better for You - you will faster regain the invested money. And that is just the real point in business, isn't it?

What in fact is pelleting?

Generally, pelleting is the process of pushing a raw material into holes of a die where pellets are formulated.

Most popular use of pelleting process:

- **reduction in raw material bulk density - it mainly concerns biomass;**
- **concentration of all components of prepared mixtures - it concerns feed;**
- **compacting of bulk substances, such as mineral fertilisers;**
- **change of physical state, e.g. natural fertilisers, DDGS etc.**

There are also other goals that are not less important for the investors, who want to develop their businesses. While pelleting a change of the form of raw material always takes place: from a bulk into a compact one. Well-formed pellets offer many advantages. They do not scatter dust, have high bulk weight and density, easy to be transported, packaged and customised. They are simply a convenient solution in many fields of industry throughout the world.

You will probably join a growing group of small producers of pellets. You have started at good place and with the aid of specialists with a confirmed experience.

Good luck!

BIOGAS PLANT WASTE



Let us start from the beginning: You and the Process Engineer

When you are planning new investments, modernization or development, start with our Process Engineer - an expert in the field of pelleting and planning investments. This is the model that is increasingly used and gives the most important information, whether it is generally profitable to invest in this type of production.

You will discuss what conditions must be fulfilled to achieve fast investment reimbursement. Our Process Engineer will determine that your raw material is suitable for pelleting, explain the rules of pelleting, advise you alternative solutions, define what range of the investment is necessary to achieve a final product with specifications required by your Customers.

The results of your discussion will be assessed in our internal team and after that we will present our precise, individually tailored solution.

Consult our experts before you decide to invest. You may spend your money anytime, but spend it effectively.

What miniPelleter can do for you and your Customers?

For sure, it will guarantee suitable quality and quantity of pellets with parameters that satisfy your Customers. That is in other words you will have a PRODUCT.

mP will give your Customers security of supplies of your product, and thus a security for their businesses. And also a security for their Customers. This means building many years' relationships based on LOYALTY.

By this, we can say that you may create a solid foundation, on which you and your Customers will build a new field in your current activity. You will generate a grid of relations between You as a PRODUCER and Users of your product (LOYAL CUSTOMERS).

And all of this you may achieve with no necessity of financial investment that exceeds the possibilities of small and medium enterprises.

Business based on miniPelleter will bring satisfied Customers, who will duly use of your product - a pellet - irrespective of a type of raw material. This biggest advantage is worth its price.

A photograph of a forest floor in autumn. The ground is covered with a thick layer of brown and yellow fallen leaves. In the foreground, a large pile of cylindrical wood pellets is stacked on a log. The background shows a dense forest of trees with green and yellow foliage. The text "What exactly can be pelleted?" is overlaid in white on the right side of the image.

What exactly can be pelleted?



A unique design of miniPelleter allows you to pellet practically all types of raw materials and to maintain an adequate quality of pellets and a relatively high capacity. This is a very special feature you'll appreciate during the operation.

Naturally, the most widely used, as forestry biomass or feed, are pelleted most easily. Nor do other raw materials cause any problems, if you follow our guidelines as regards their individual processing procedures.

A list of raw materials that are possible for pelleting is very long. For each of them we select a die with optimum parameters that provides a satisfactory capacity and quality of pellets. Note: We always recommend pelleting tests. We mention them later in this catalogue.



Basic division of the raw materials:

Feed

- Poultry
- Cattle
- Pigs
- Horses
- Rabbits
- Fish
- Other

Forest biomass

- Hardwood
- Softwood

Agro biomass

- Straw
- Hay
- Husk
- Bran
- Peat

Mineral raw materials

Textiles

Plastics

Other raw materials of natural origin

Pelleting tests

Before you decide to purchase miniPelleter we recommend you to consult with our Process Engineer to perform pelleting test for your raw material.

Such a test is recommended for an untypical raw materials or mixtures of common raw materials.

Our test ensures selecting die of correct parameters. Then you will be able to commence the work without any surprises such as die jamming, low capacity or poor quality of produced pellets.

In order to carry out the pelleting test, please contact us at the address: **npt@granulatory.com and write what raw material you have.**

The test requires providing a minimum of 1 big-bag, cap. ca. 1.5m³ to our lab in Żnin City, Szpitalna 20, Poland. Together we will specify the date of performing the test. We recommend you to participate in this test as your first training. We may charge you with a small fee for the test (the fee will be refunded, if you purchase the miniPelleter).

A close-up photograph of a large pile of wood pellets. Two hands are visible, one on the left and one on the right, both holding a small amount of the pellets. The pellets are cylindrical and light brown in color. The text "How to prepare for the meeting with our Process Engineer?" is overlaid in white, bold font in the upper center of the image.

How to prepare for the meeting with our Process Engineer?

We understand that your time is very valuable and we respect it. Therefore, it is worth to be well-prepared to the meeting with our Process Engineer beforehand.

As it has already been mentioned, our Process Engineer will perform a pre-feasibility study with you. He will require the information that is known only for you.

Note down the following general information:

- 01 What type of raw material do you have? Sawdust, chips, straw, loose feed mixture etc.
- 02 What quantity of raw material do you have? Specify the amount in any unit of time period (per day, per week, per month, per year). If the raw material is available seasonally, in which period of the year does it occur in most amounts?
- 03 What is the cost of purchase of raw materials?
- 04 At what distance from your company is the main source of raw material?
- 05 What is the raw material particle size?
- 06 What is the humidity of raw material?
- 07 What is the current protection of your electrical installation?
- 08 How many shifts a day are you going to work?
- 09 Do you have a production building or do you intend to build it?

Additionally, for feeds prepare answers to the following questions:

- 01 For which animals do you want to produce the pelleted feed?
- 02 What diameter of pellets do you intend to produce?
- 03 Do you know feed recipe?
- 04 Do you want to add liquid components? What kind?

During the interview, many other questions will be arisen, from which very interesting conclusions will be drawn. On that basis, we will evaluate initial costs and a turnaround time. The information collected will be a good basis for a decision to be taken to implement or reject the investment.

Part 2

WE:

**THE CONCEPT
AND EXPERIENCE**

The Manufacturer

Our experience will bring benefits in a form of your profits.

The design of pellet mills the Users would be satisfied indeed, requires a many-year and deep-knowledge of physics, mechanics, automation, electronics, materials science and many other related fields.

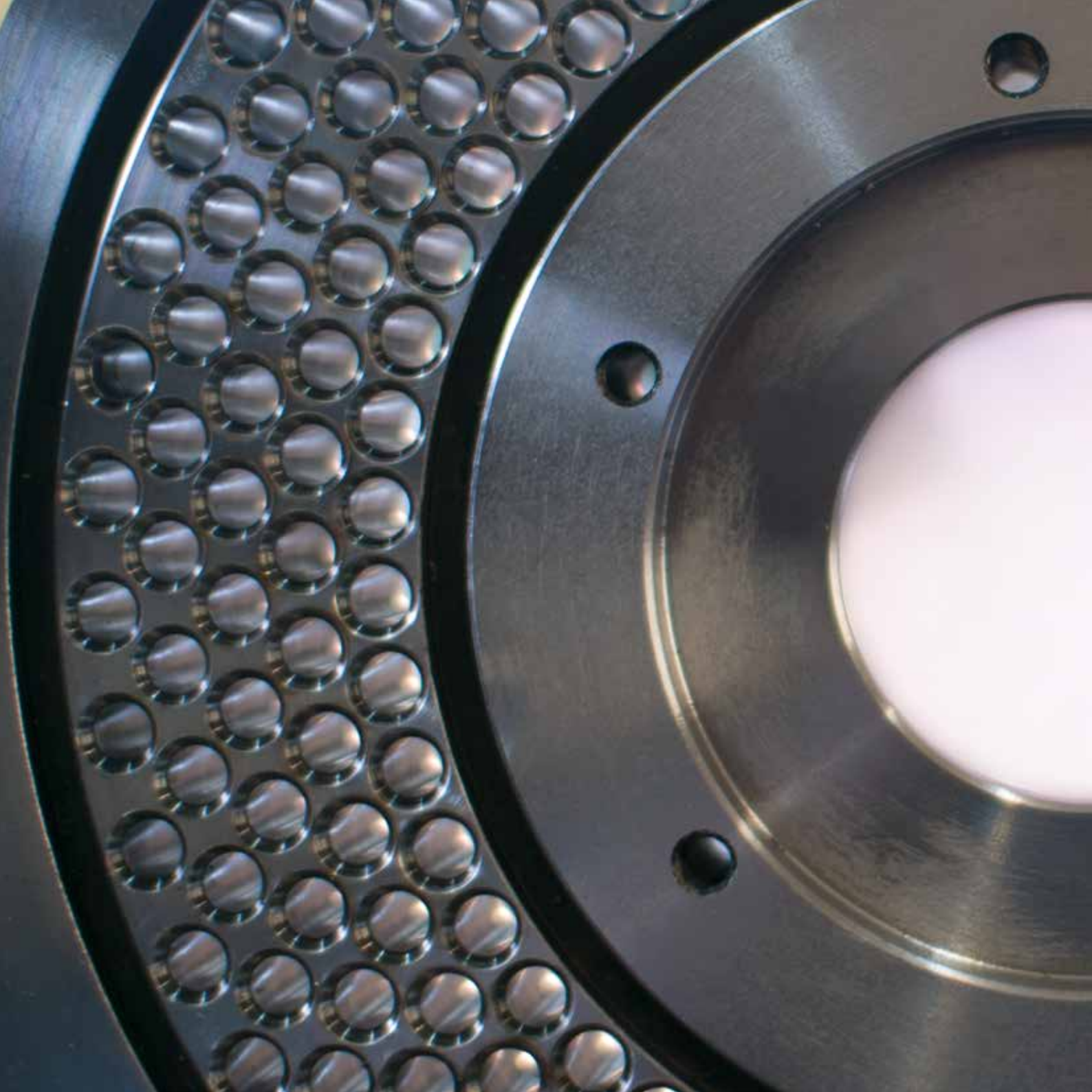
In addition, extremely important is a practice in pelleting raw materials of a huge span of parameters, even the basic ones.

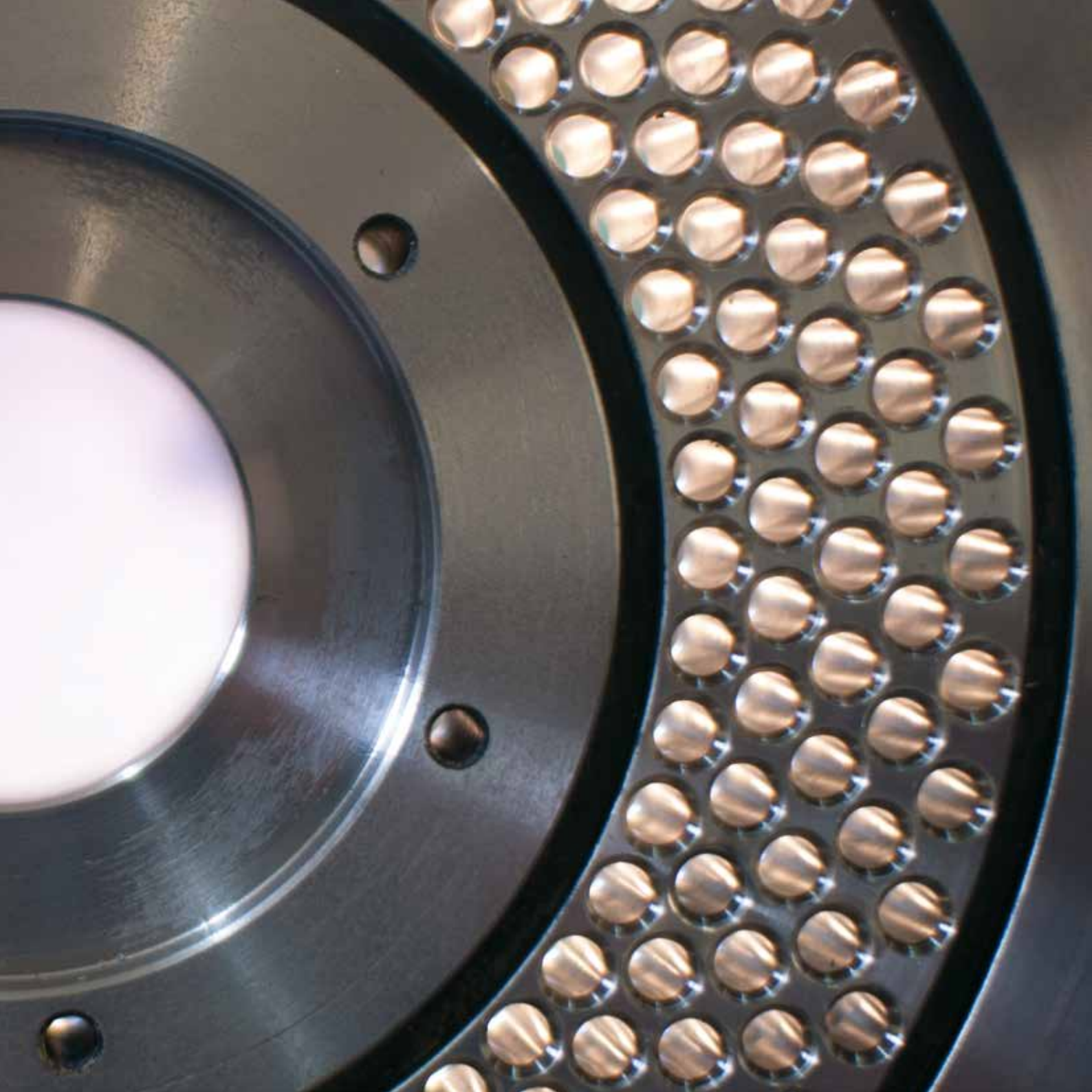
miniPelleter is the result of experience and practices in design, building and use of industrial pellet mills. These solutions have been suitably adapted and rescaled. They satisfy demands of our Customers for pellet mill that is robust, universal and easy to use.

You will soon enjoy the benefits of a many-year wise work of our designers and process engineers. You will be satisfied.

Nawrocki Pelleting Technology is more than 40 years in the design of pellet mills. Our flagship industrial models achieve power of more than 500 kW.

We decided for a very narrow specialisation thanks to which we are able to focus all our forces to design and manufacture reliable pellet mills.





**Standards to provide
a consistent quality of**

design, manufacture, operation,
maintenance and service.



Restrictive design and production requirements are our brand name. They guarantee a high standard for our products: the advanced method of manufacturing and a perfect and repeatable workmanship.

These two elements that, at the first glance, cannot be seen, are of great importance for you - the Users.

They can really manifest themselves during the use - an actual show of the possibilities of our machines. That is when we acquire the highest grades and miniPelleter returns invested money.

A means of production, i.e. a machine, the primary aim of which is to work for you, requires a special care from the very beginning. Much earlier than of the idea for miniPelleter - a small pellet mill as an option for affordable solutions - we took care of suitable conditions for this project.

In 2006 Nawrocki Pelleting Technology has implemented their Integrated Quality System that is still developed and modified to improve its usefulness for the Users of our solutions. ISO certification is not only a piece of paper with a logo of notified body. This is a proof we keep our promises: those written and those declared directly to our Customers. That is why you will be satisfied.



A project is important, however, its assumptions are the most important.

Before the constructor of miniPelleter drew the first line, its idea was born in his mind – „Let us make a small pellet mill the Users of it would be satisfied“.

We have recognised stories of people who lost much money by investing in cheap pellet mills, from a star called “Boo-Boo” situated in a galaxy called “Despair”. We heard many times, what problems they encountered and how they had to cope with them. We analysed the entries on Internet forums. We admired all those men, who left alone helped each other to bring their machines usable. Many of them were unsuccessful.

We determined basic, and then detailed design, production and usable assumptions. We made it on one A4 sheet of paper. It took a few months, but we achieved the intended purpose. This was in 2012. First miniPelleter appeared in the world in September 2013. In October, it found first Customer. Satisfied.





Production methods are important for repeated and of high quality.

The quality - high and repeatable - this is within manufacturer's obligations; that is how we see it. Our vision required massive investments in highest quality CNC machines, modern hardening furnaces, welding equipment, laser cutters, and other machines that are necessary to manufacture miniPelleter. Nawrocki's professional machine park ensures a repeatable quality of miniPelleter details the key machine of your pellet production plant.

But that is not all. The most important are specialists who manufacture miniPelleters: design engineers, welders, turners, millers, fitters, assemblers, quality inspectors.

Their efforts make miniPelleter so good. Our employees are the guarantors of repeatable and high quality. You will come to know many of them when you visit us or when we meet for training.



Before you make up your mind to invest, please let us service you decently.

Do you know why we agree to return miniPelleter by you and to pay back your money? It is simple: because you will probably never decide to do it.

The reason for this is that, first our Process Engineer will carry out the analysis with you, whether miniPelleter is generally a sensible solution for you and what rough return on the investment would be, if at all... Let us talk about all significant details concerning your project with miniPelleter as the main issue. Above all, maths is still a main basis of the economics and that is what the investor takes into account first.

Then, our Process Engineer will present a profitability forecast of the investment and whether miniPelleter is able to meet your needs.

And we will repay your money, if our Process Engineer makes a mistake. After all, why are you to pay for not your mistakes?



I've bought it! Okay guys, let's get down to work!

Generally, where a story with Customer usually ends, we usually start it.

We will begin with training concerning the operation and service of miniPelleter. From general to detail, slowly we move to a stage in which you are able to work with this machine unaided. You will know how to prepare your pellet mill to work, how to maintain it after the work, how to replace its die and roller set. You will learn everything you need to know. By the way, you will get somewhat dirty as we train you practically. You will also achieve theoretical fundamentals of pelleting. They will come in useful.

If you prove that you have picked them up, then we would hand over your pellet mill to you.

Whereas at your plant, you will begin a regular production. Then you could also turn to us for assistance, because it is sometimes necessary to support yourself with the knowledge of our Process Engineers. Usually, that problem is able to be solved by us through a phone call. If it is not possible in that way, we will come to you.

In any case, you will produce good pellets efficiently. In the event of a problem, we are to help you. Please do not hesitate and call us!

Testing laboratory

Working with miniPelleter is pleasant, since before you get it from us, we will make pelleting tests at our testing lab. On the basis of those tests, we will determine precise parameters for pelleting, including the parameters of a pelleting die, a recommended drive, a necessity to use a raw material conditioner etc. We will analyse your raw material, before attempting the test. Most of them we know, but some are an interesting challenge for us and it is much easier to test them in our lab, then to buy the machine and be astonished that the pellet „does not want to be produced!“.

In our factory in Žnin City, we have a test station equipped with everything we need to state, what pelleting parameters would be optimal for your raw material.

We always recommend tests, when the raw material seems to us to be „suspect“. This is a part of rationality analysis of purchasing miniPelleter as a whole. That test doesn't cost much, but you may save lots of money.

My mP does not come true... May I give it back?

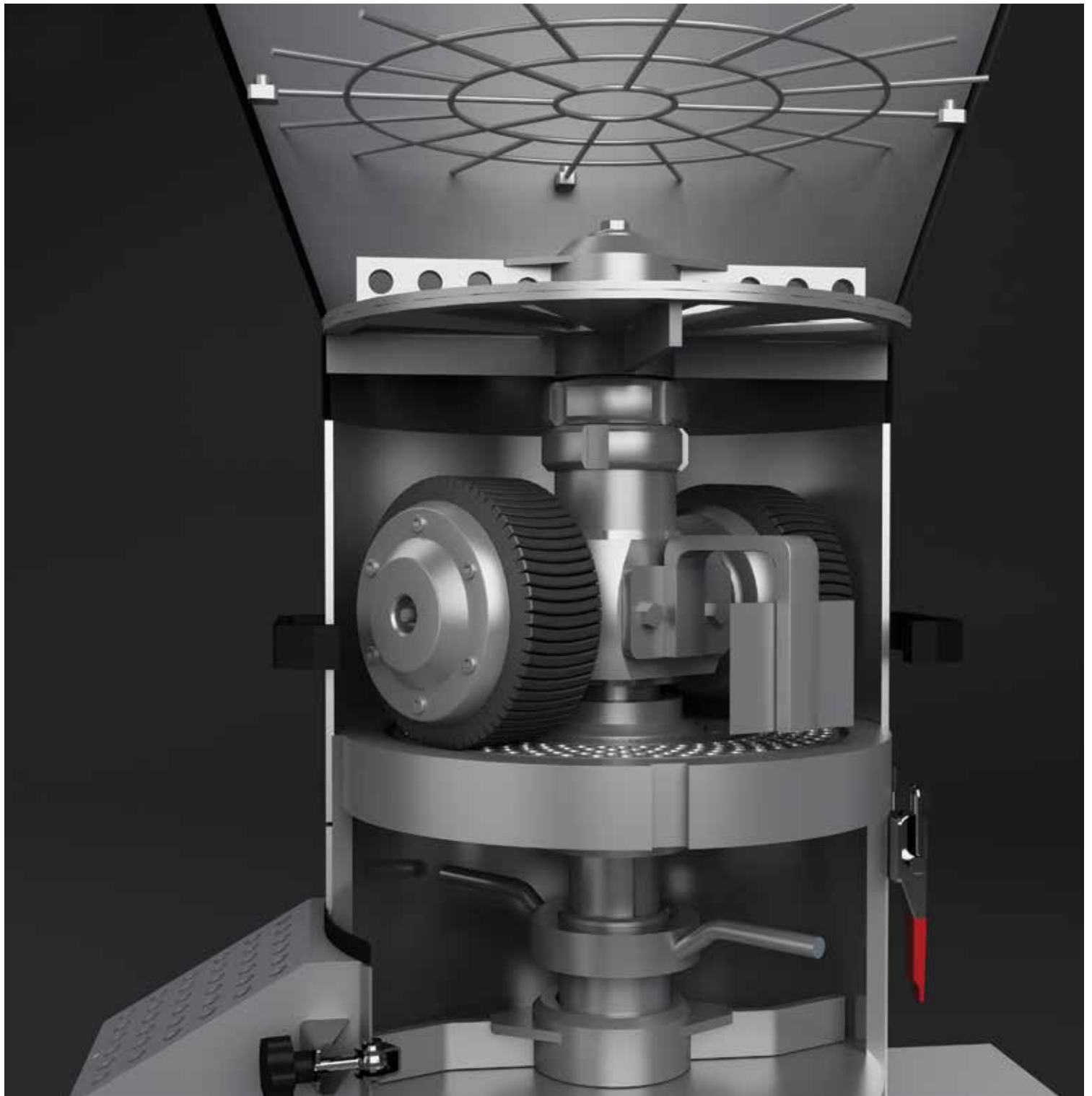
It is not glaringly obvious that despite our best intentions your miniPelleter fails to fulfil its purpose. It does not produce good pellets, its capacity is low and it does not meet the design assumptions. There is no application for it. What then?

Then we will take it back and we pay back your money. If you give us back your miniPelleter not deteriorated, you will cover only the costs of die and rollers. Slightly higher may be the costs of its possible renewal. Apart from this, we will not leave you with a problem of useless pellet mill and frozen cash.

The pay back procedure is simple: arrange the return of equipment with our Process Engineer, define the date of supply of it to our factory in Žnin. Here we will check its status, determine and assess possible deficiencies. You will get your money back within couple of days.

The return of miniPelleter concerns only the units purchased directly from the manufacturer (Nawrocki Pelleting Technology, Žnin City, Poland). In the case of purchase from our Partner, please contact us before you buy!

Such situation has not taken place yet. And we will make sure such a situation will never occur in the future.



Part 3

miniPelleter:

**TECHNOLOGY IN A FRIENDLY
FORM**

The Pellet Mill

The best technology at attractive price! The miniPelleter is not a result of compromise between its quality, efficiency and price. It is the result of the observation of your needs and problems with pelleting using the equipment that did not meet assumptions for its supply. Therefore, miniPelleter has all the best. Literally!

We have imagined a small-sized pellet mill that is able to start working after pressing the Start button. We assumed that we make it using the best available mechanical and electrical components.

A construction concept of all-in-one comes true perfectly in the case of miniPelleter. We integrated the best mechanical solutions proven in our industrial pellet mills together with proven electrical solutions and we closed them in one beautiful casing. We have selected for you the best transmission: industrial, robust, designed for medium loads - in our opinion: the best one. **We have chosen a 22kW motors.**

The best impression on Users of miniPelleter make elements of the pelleting unit: they are massive, awe inspiring and mechanically robust. In addition, the most of them is covered with a wonderful protective galvanised coat - this is a warranty of its long life.

Electrically, miniPelleter offers the components of the highest quality from leading manufacturers. Very important was also a simplicity of integration of miniPelleter with a new or an existing pelleting line. With this aspect, we have been successful, too.

We have created exactly what we designed and it occurred that our work operates in compliance with the expectations of our Customers!

Your satisfaction is most important for us!

SPRUCE





A “tank” type design

We did not play with subtleties, we have constructed miniPelleter to make an appliance that would be maximally fault-tolerant and resistant to mechanical damage.

A heavy, thick frame, sturdy supports of the transmission, a giant rotary shaft, a durable holder of rollers, a reinforced structure of pelleting die. Not only these items have been designed by us for heavy operation. Every detail has been treated with the same care - their role is to operate effectively.

All of the components of this pellet mill have been calculated considering a relatively high loads, oversized, but in compliance with all healthy rules of mechanics, ergonomics and costs.

In addition, we applied new solutions for dies with a high compression ratio, a roller holder made of one piece of metal, blades and scrapers of a new design.

It is not a case that our Customers return to us to buy next pellet mills.

Which details and the smallest particulars are the most important?

A robust design is the base of miniPelleter. It is very important, but the rest of details are equally valid.

Therefore, they have been treated by us seriously as well.

This miniPelleter is a semi-industrial pellet mill not for amateurs but for professionals, who do not require high capacities and to work like 20 hours per day. Such a machine requires deep development of its details. Why are the components of the pelleting unit covered with electroplated coating? Why the body is precisely turned and dressed on CNC machining center? Why have we abandoned simple, chip solutions for the advanced and complex ones in our production? Such questions may be asked even more.

However, the answer is one: We do it all in order to provide miniPelleter to operate reliably for many years, return the costs of investment, earn money for you and receive a high resale price.

**Everything should be made
as simple as possible, but
not simpler.**

Albert Einstein



The design assumptions were quite simple: Let us develop a pellet mill that would be extremely robust, efficient and easy to be serviced.

OATS HUSK 6 mm



HIBISCUS 6 mm



BIRD FEED 3 mm



FISH ENTICEMENT 16 mm



22kW. Is it small or big?

Primarily, the idea of miniPelleter was to generate profits by our Customers, because the use of investments is to make money. The gains are drawn from the production of pelleted material in a minimum amount per a given period of time, predetermined in the business plan.

We analysed the market and found out that 22kW is the optimal electric power. Most of our potential Customers had appropriate power in their factories to supply such drive and sufficient quantity of raw material to process it.

Such power allows you to produce even **250-350** kg/h of pellets from softwood sawdust and even 500-600 kg/h of poultry feed. For small manufacturers, there are optimal amounts that permit them to develop their own raw material, and often to conduct a semi-industrial production to regular orders even for large sales networks.

Capacity brings profits that may be easily doubled by the installation of two miniPelleters. Then the ratio of the investment value to profit is very favourable. Our Customers use increasingly such solution.

It is also important to have an ability to apply a starting system of type softstart in that companies which cannot afford themselves to induce high instantaneous voltage drops that occur while starting up in the star-delta system.

Our Process Engineer will examine which solution is the best for you; you will get the best from us!



What capacity may I expect?

You may expect the following capacities for warmed-up machine with 18.5kW motor and a run-in set of die and rollers selected respectively for the following raw materials:

Biomasa

- Softwood: 250 - 280 kg/h
- Hardwood: 150 - 220 kg/h
- Straw: 180 - 200 kg/h
- Sunflower husk: 200 - 250kg/h

Feeds

- Poultry: 400 - 600 kg/h
- Fish: 350 - 550 kg/h
- Pigs: 250 - 350 kg/h
- Cattle: 150 - 200 kg/h

Capacity is a very relative notion and it needs to be referenced to a definite time unit. It is not allowed to base on instantaneous maximum values, but only on mean values of annual capacity. More accurate data you will receive from our Process Engineers.



What parameters should have a raw material?

There are three basic parameters that define the optimal features of raw material intended to be pelleted.

- 01 Particle size of raw material.
- 02 Moisture content, i.e. percentage of water content.
- 03 Pollutant content.

The parameters of die depend on a type of raw material and they are selected individually.

Parameters for biomass:

- ⊖ Biomass type: Practically every type of agricultural and forestry biomass is suitable for pelleting.
- ⊖ Optimal fragmentation ratio (size): 0.5 - 3.0 mm
- ⊖ Moisture content (humidity): 12 - 13%

Parameters for feed:

- ⊖ Feed type: There is no feed that makes a problem for pelleting them in miniPelleter.
- ⊖ Optimal fragmentation ratio (particle size): all components of bulk feeding mix in their original size are accepted, including: cereals, ground cereals, bulk and liquid additives *.
- ⊖ Moisture content (humidity): 10 - 11%

Obtaining and maintaining of the parameters mentioned above depend on the original parameters of raw material, operation quality of machinery and appliances that are located in line before the pellet mill (a dryer, hammer mills etc.) and knowledge of production rules of both biomass and feed pellets. This principle also applies to other raw materials, the parameters of which we will select in our testing lab.

If you have any doubts as regards the parameters of pelleting, please contact us, we will take up your problem.

* We recommend adding liquids to the mixer or, alternatively, to the conditioner. These are additional appliances selected for the needs of processing.



Take care of me. I will repay you :)

miniPelleter is a semi-industrial pellet mill. This means that it will earn money for you, if you follow basic rules of machine operation:

- ⊕ always use raw material of suitable parameters,
- ⊕ do not exceed permitted amperage,
- ⊕ lubricate periodically bearings and replace oil in the transmission,
- ⊕ check the status of pellet mill after completing the day work,
- ⊕ immediately consult with service team, if you notice any unusual actions,

Together with pellet mill, you will receive the Operational and Maintenance Manual and a Guarantee as well. It is enough if you follow it. This is the only universal principle - always reliable.

Relax... Voltage is no longer a problem.

Users of our pellet mills have not always appropriate current protections in their factories. Therefore, the electrical systems to start up of our miniPelleter have been adapted to the abilities of our Customers.

We offer miniPelleters in 2 versions of the start-up system.

- ⊕ Star-Delta (standard),
- ⊕ SoftStart.

Star-Delta is the most affordable, popular and generally used starting system. It requires higher protection thresholds for local electric system that are available for at least 70% of miniPelleter Users.

SoftStart is used when we cannot allow any start-up voltage spike. SoftStart enables automatic and smooth achieving a full power, without any sudden load of electric power supply network. This is a very safe solution.

Thus, you may use miniPelleter independently of the levels of voltage surge protection - we have always a solution. Always a great one!

Note: Our Process Engineer will also discuss this topic, so find out what is the status of your electric power system and what is your available electric power.

Spare parts on the spot - that is our standard

Machines have such a feature that they sometimes break down. Not the entire machines, of course, but a damage or missing of one small screw or gasket only may effectively stop the pellet mill's work.

If you do not produce, you do not earn money. Every hour of downtime induces a financial loss. They are often very severe, especially, when you have to implement the contract. No one is able to revive the lost time... Remember!

We are personally responsible for our production of miniPelleters at our factory in Žnin City. Here is manufactured every component. We are not dependent on any subsuppliers. All parts we have in our warehouse and we use them for current production and service tasks. The same applies to large commercial components such as gear or motor and the smallest ones like clamps, seals, bearings.

When you visit us, you can notice that we have in stock ready to dispatch part sets, consumables and spare parts. All details, including standard dies for softwood, transmissions, motors and even wheels. Every detail is off-the-shelf. You visit us and go home half an hour later. You install and continue your operation. It is usually a question of literally a few hours, unless you produce in the Far Far Away Kingdom... then it takes a slightly longer.

If it reveals that your miniPelleter has broken down completely, then you will get temporary pellet mill at the time of the repair. And you will fulfil orders - you gave your word and you keep it. In such way you win your loyal Customers. With miniPelleter it is feasible!

„When your pellet mill has broken down while you have to implement Customer's order immediately... what to do? Don't worry, you will receive a replacement miniPelleter for the time of repair.“

Part 4

mP & You:

ALL GOOD FRIENDS

I've bought it. Help!!! Any support perhaps?

„I've bought it! I have got it! I brought, unpacked, installed and started up! It's beautiful! Beautiful? Well..., as a matter of fact: no...”

If, after training, any doubts arise and your operators hate reading the operation and maintenance manual, you can make use of our support.

Simply contact our Process Engineers by phone, who patiently will hear you out and will advise you step-by-step what you have to do.

High quality of after-sale service is our pride and a satisfaction of Users of our machines. Thanks to our experience that is at your disposal, you achieve good results and profits. It makes us happy!

More than 90% of problems are solved by phone within a few minutes. Our Process Engineers are specialists in pelleting and the use of miniPelleter and there are no secrets in these aspects. Irrespective whether the problem is with pellet mill or with the process of pelleting, you can always turn to him and achieve help you need.

You are not alone! We are with you.

What factors decide about the capacity of miniPelleter?

It is a very broad subject, but in a nutshell we will list 10 fundamental factors affecting a momentary and long-term capacity of pellet mill:

- 01 Type of raw material: animal feed, biomass, plastics, mineral raw materials.
- 02 Parameters of various types of raw material: particle size, moisture content, viscosity, natural binders etc.
- 03 Suitable selection of die parameters for the raw material to be pelleted.
- 04 Stability of the parameters of raw material.
- 05 Experience of pellet mill operators.
- 06 Efficient logistics of the supply of raw material.
- 07 The organization of work and logistics inside the factory.
- 08 High efficiency of all other machines and devices that operate with the pellet mill.
- 09 Optimizing the automation of production processes.
- 10 Transport organization for pelleted material.

Each of the above factors is the most important, because neglecting even one may lead to breakdowns and to reduce an average capacity of the appliance.

All of these factors have the same and very significant impact on a success of the entire investment. This is not only a question of capacity. These are much more serious consequences that you can avoid, if you properly organise your business.

Our Process Engineer will discuss with you factors you need to focus on to get back the invested money and bring profit.



Service is a chance for praise, if the Customer will be satisfied.

An excellent principle we recommend is this: **Please do not solve problems by yourself - let the service solve it.** We make use of it by ourselves, when one of our machine tools fails. We raise the problem, the service arrives - and the problem is solved.

We recommend you to do the same. Our service specialists are at your disposal and the same is with our service team working in the field, who are to able solve practically every problem on the spot.

Some of the problems are solved by us by phone calls. These are the issues connected with current adjustment and the use that sometimes appear at the start of the work with miniPelleter. More serious failures we repair on site, where miniPelleter is operated.

It also depends on a service contract you have concluded. Time required to return the machine to its operable status does not exceed 3 working days. However, we usually implement our service within 2 days.

In case of very rare, hopeless failures, we will take the broken down pellet mill to our service centre and you will receive a replacement pellet mill for the time of repair.





Do you produce powdered or bulk feed? And do you know the benefits of pelleted feeds?

Complete pelleted feed are the most popular aliment for farm animals. In Europe and North America, a huge majority of produced feed is in a pelleted form.

If you manufacture bulk feed, is there anything in the way to start producing pelleted feed and to elevate the outcomes of your Customers' meat production.

Production line based on the solutions of miniX series allows you to reduce considerably financial means needed to start up the production of complete feed. Flexibility of applying miniPelleter allows you to produce practically any feed for each species of animals.

For feed producers we designed a comprehensive solution in a form of miniFeedPelletingLine (mFPL).

We recommend you to consult with our Process Engineers in order to fix the scope of production, select dies and supplementary devices for pelleting line.



BENTONIT I WERMIKULIT

Benefits of pelleted feed at a glance:

- Lower feed consumption,
- Homogeneity and stability of the composition,
- Better digestibility and nutritive absorption,
- No stratification effect of feed components,
- Reduction of oxidation process of sensitive components,
- Easy for transport and packaging, no dusting.

mFPL: miniFeedPelletingLine

Is it possible to find in your feed mill a free area of size 4m x 4m? Yes, for sure! That will do to erect a processing tower for the production of pelleted feeds.

miniFPL is a free-standing production tower. It includes all the equipment necessary to produce pelleted feed: a tank, pellet mills and conditioners, a cooler, a screen, a steam generator, a steam installation, electric system and a complete process automation.

This is a semi-industrial structure with capacity adapted for small producers: from 500 kg/h up to 2 Mg/h. That will meet your requirements and your neighbours, too.

mFPL does not require any serious construction work; it in itself constitutes a manufacturing building, which you will receive in basic price.

The most important advantage of mFPL is its ability to integrate instantly with your feed mixing plant.

The most important features of mFPL

- Capacity up to 2 t/h,
- Small size,
- Easy to be operated,
- Production versatility,
- Modular construction,
- Fast return on investment,
- Instant installation and production start-up.

Do you need more information?

Call us: +48 509 930 307

or write us:

npt@granulatory.com

Fish: How to produce high-energy feed of a large pellet diameter?

It is very simple: Order miniPelleter in a version for high-energy feeds.

We will provide you with a special version that enables you to use die of special design. Then, to the prepared feed mix you will be able to add much more fat or other components that elevate calorific value.

In addition, you will be able to offer your Customers pelleted feeds of diameter even up to 16mm. Such parameters you will not get on another pellet mill of this class.

Important: If you intend to produce feeds with high content of fats, we strongly recommend consulting with our Process Engineers. Production of enticements will require laboratory tests to determine the time of disintegration and settling in acid, alkaline, alcohol and water environments.

**That type feed are often used as a foodstuff for fish and chicken.
High content of fats in a form of e.g. oil requires dies with a hole of operational length even more than 100mm.**



TOPINAMBUR

How to pellet wood or agro biomass?

Biomass is a relatively difficult raw material and requires adequate preparation before it enters into the pelleting chamber. In general, biomass should have moisture content approximately 12 - 13% and it should disintegrate to achieve particles of size 0.1 - 2.0 mm.

Depending on an original form of raw material, a two-stage disintegration may be required. This applies, for example, a straw that in a form of bales or blocks needs to be shredded into a preliminary fraction at first, and then, it is ground inside a hammer mill. It is likewise with wood chips that they have to be milled to a size of 5-15mm-long needles, and then they are able to be dried and ground.

Is it possible to pellet different raw materials with the use of the same die and to keep even quality and capacity?

Unfortunately, this is not possible.

Pelleting consists in pressing the raw material through die holes until formation of hard pellets. Characteristics of the individual raw materials requires individual matching the parameters of die, the so-called Die Compression Ratio [DCS].

DCS defines a ratio of the die hole diameter to the hole working length. Adequately determined DCS ensures keeping a constant quality of pellets with an optimal capacity of pellet mill.

Therefore, dies for poultry feed, cattle feed, straw, softwood, hardwood, mineral raw materials will have different parameters.

A consequence of these incorrect parameters is unacceptable quality and capacity of pelleting. A die with too high DCS will scorch pellets and may cause fire inside the cooler. Whereas inside die of too low DCS a process of compression does not occur, the result of which is a friable pellet and a massive amount of dusty material. This is generally a complete contradiction of reasonable pelleting.

Our Process Engineers will determine correct parameters of the die. In the case of rarely encountered raw materials or mixes, we will perform pelleting tests, after which you will be very satisfied with the results of the work of your pellet mill.

Die Compression Ratio (DCS) is a ratio of hole diameter to a working length of the die. It is different for the most types of raw materials





What is going on with this softstart?

Softstart (means a slow automatic start) permits for smooth and gradual increasing motor rpm.

If your factory is equipped with a low current protection then the application of a direct start-up may induce releasing overload protections in electrical installation and switching off miniPelleteer. While accelerating motors directly, it is possible to occur a momentary voltage drop, which reveals in an unpleasant lighting flickering and may interfere the operation of electronic circuitries.

To avoid this situation, we recommend the use of the system of Softstart type. Its advantage is the fact that the start up of the appliance occurs slowly: from zero to maximum load, by limiting the start-up current of motor even up to eight times.

Owing to the softstart system, you are able to work with no electric network troublesome start-ups, which also induce lower wear of network elements and will allow you to enjoy high comfort of the work.





Standard and optional equipment

miniPelleter is a pellet mill that you are buying with a complete equipment. This means that when you connect it to the electric power supply system, feed with a raw material (check the parameters of raw material on previous pages) and provide the reception of pelleted material, you can start to work immediately.

When you make up your mind to purchase will receive within the basic price:

- ⊙ a miniPelleter pelleting press,
- ⊙ a tapered feeder for raw material,
- ⊙ a magnetic separator,
- ⊙ raw material feeding rate regulator,
- ⊙ control panel with a Star-Delta power module,
- ⊙ motor 15kW or 18.5kW with a gear,
- ⊙ 1 flat die fi6.0, 2 rollers (a complete),
- ⊙ a kit of tools,
- ⊙ a power supply cable,
- ⊙ documentation.

Optionally, you can choose optional and additional equipment:

- ⊙ an electric power supply module type softstart,
- ⊙ a screw feeder,
- ⊙ conditioner with own drive and framework (or without them)

Technical parameters:

- **Power:** 22 kW
- **Weight:** 585 kg
- **Dimensions:** length: 1590 mm, width: 520 mm, height: 1360 mm

Die:

- **Outer diameter:** 380 mm
- **Max thickness:** ~180 mm
- **Hole max diameter:** 15-20 mm

Rollers:

- **Number of rollers [pcs.]** 2
- **Roller inner diameter [mm]** 150

ALFALFA WITH COMPONENTS



Who deserves praise?

miniPelleter is the result of wise work of our designers and construction engineers, who have created a product in accordance with a concept of the originator.

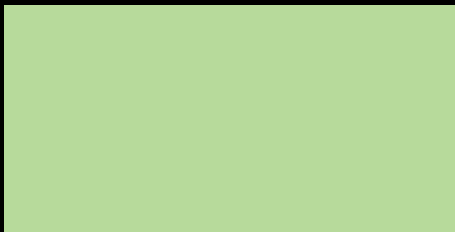
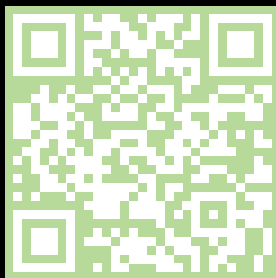
However, not much is worth a draft that is not changed into a really built appliance. miniPelleter is manufactured by specialists who are able to change drawings into physical parts. Our assembly team takes care of quality of the implementation of finished product. You will assess their work, when you receive your pellet mill.

But the effective operation also depends on a quality of training conducted by our trainers. Thanks to them you will be able to produce with your miniPelleter all the best that is ever possible to be achieved.

However, our service team is at your disposal, whenever miniPelleter will require repair.

They all deserve praise. Thank you!





NPT - Nawrocki Pelleting Technology
Szpitalna 20 Street, 88-400 Żnin, Poland
Tel.: M: +48 509 930 307
e-mail: npt@granulatory.com