drum dryer

Models: HADD 500

Drum drying is a method used for drying out liquids from raw materials with drying drum. Drum dryer is made of high quality stainless steel AISI304, suitable for mixing and drying products such as different kinds of starches, breakfast cereals, baby food, instant mashed potatoes to make them cold-water-soluble. The rotation speed of the drum is adjustable by means of a frequency converter.

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drum dryer

Models: HADD 500

Drying out liquids from raw materials

Drum drying is a method used for drying out liquids from raw materials with drying drum. In the drum-drying process, pureed raw ingredients are dried at relatively low temperatures over rotating, high-capacity drums that produce sheets of drum-dried product. This product is milled to a finished flake or powder form.

Main components:

- rotary drum for drying,
- control panel,
- hot air generator,
- injection and nozzle

HOW IT WORKS:

Product (about 170 liters) is loaded into the drum and hot air is blown directly into the drum. Consequently, the product is gradually dried and the drum rotates. The rotation speed of the drum can be controlled from the control panel. The tilt of the drum is adjustable.

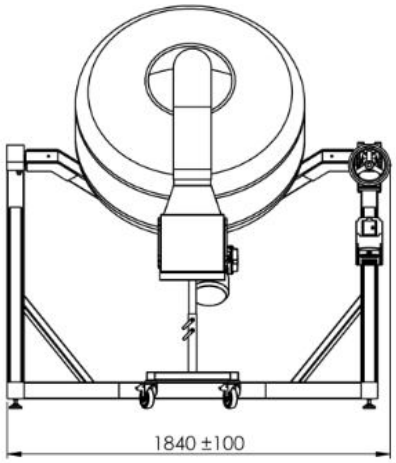
Custom made dryer for the customer

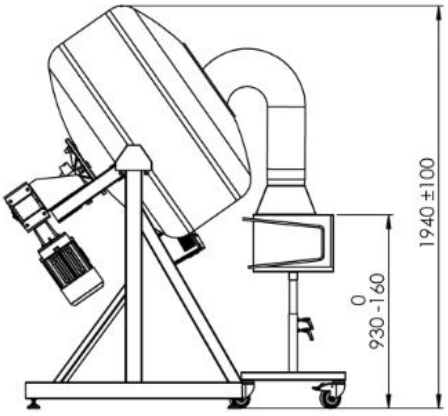
The dryer is also supplied with a fluid injection system consisting of a pressurized air container (compressor not included) and a hose with an injection nozzle. Normit company is able to customise our dryers according to your needs and requirements and provide excellent servis thanks to our highly skilled engineers.

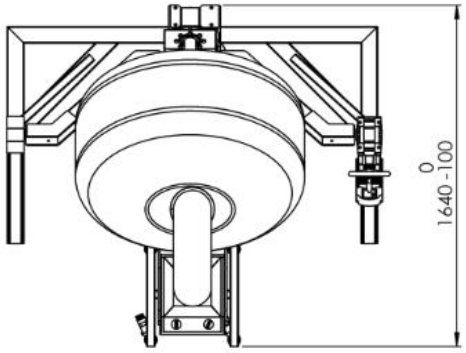
drum dryer

Models: HADD 500

Technical drawings







Material	AISI 304
Geometric Volume, L	500
Working Volume, L	170
Motor power	2,2kW
Lenght	2350mm
Width	1500mm
Height	2000mm
Weight	255kg

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convective rotary drum dryer

Models: ABM 1500, 2200

The product falls into a tumble dryer through a small hopper, and hot air is injected directly into the drum. The dryer principle is simple and efficient. By rotating the drum, the product swells in the drum. By air flow and rotation of the drum the material is gradually dried. Output: The product is continuously drained from the hopper dump

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convective rotary drum dryer

Models: ABM 1500, 2200

Dryer with a convective drying method is a convection device for drying air-dried materials under the influence of drum rotation and hot air flow. Dryers are designed for dry bulk materials, can be used for continuous or discontinuous operation. The device can be used in construction, chemical, food and other industries

Heating is provided by hot air generator, 9 kW hot air heating.

Main components: rotary drum for drying, hot air generator. Products: salt, sand and other powder products.

Drum Volume (geometric) l	400
Material of construction	AISI304
Voltage three-phase	
Voltage, V	400
Frequency, Hertz	50
Height, mm	1550
Width, mm	800
Lenght, mm	2850
Weight, kg	240

convective rotary drum dryer

Models: ABM 1500, 2200

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Normit HDM 75 / 150 / 600

convective honey dehumidifier

Normit HDM plant for drying and mixing honey is a highly efficient, high-performance solution for thoroughly mixing honey and simultaneously removing excess moisture. It can be optionally supplied with a built-in filtration system.

The specially designed spiral construction creates the greatest possible surface area for heat exchange and ensures fast removal of moisture, but takes up only a small amount of space.

The large surface for heat exchange in a compact design is due to the special shape of the agitator. Evaporation of water takes place continually over a large surface, which ensures fast and efficient drying of honey.

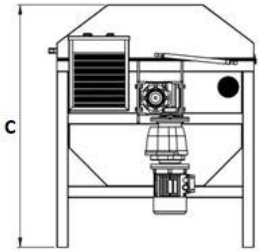
Mixing is performed at the same time as drying to evenly regulate the moisture of the entire portion of honey in the plant. The special shape of the agitator enables efficient mixing of different kinds of honey for creating a blend.

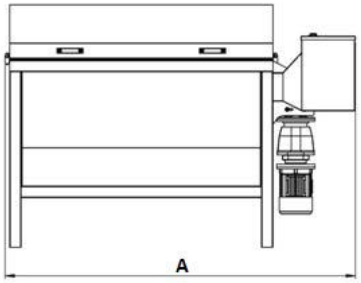
Filtration system. If filtering the honey is needed, it can be pumped through an external filter when it is discharged from the plant or a built-in filter can be supplied. The working body can be partially manufactured in the form of stainless-steel mesh or perforated.

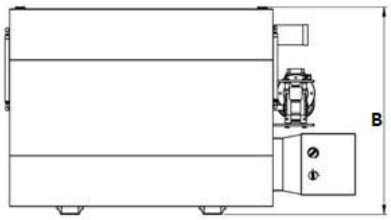
If you need to intensely heat the product or melt crystallized honey, the HDM installation is supplied with a heating jacket for connecting to an external hot water system or with an internal heating source.

Advantages

- **Universal application** – a single plant performs mixing (blending, homogenizing), removal of excess moisture, and if needed, filtration.
- **It's economical.** The efficient design allows it to perform all processes with minimal energy costs and in a minimum amount of time.
- **Low cost and low maintenance expenses**, minimal energy consumption.
- It's compact. The plant has the greatest possible surface area for heat exchange over a small amount of space.
- **It's hygienic.** The HDM plant is designed for convenient cleaning and maintenance. Clean-in-place can be carried out within the plant itself.







Model: HDM	75	150	600
A: length, mm	1 055	1 200	1 900
B: width, mm	650	700	1 150
C: height, mm	750	800	1 350
Batch load, kg up to	75	150	600

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atmospheric honey dehumidifier

Model: Normit D / HD

D 50 / 200 / 300 / 600 / 1000

HD 1 500 / 3 000

The atmospheric condensate honey dryers Normit series D and HD have been designed specifically for the **high-performance drying of honey on an industrial scale**, taking into account all the specific features and properties of the product.

Efficient evaporation with no vacuum

It is known that, ceteris paribus moisture-removal in a vacuum is more efficient than performed under atmospheric pressure, due to the easier break up of molecular bonds. However, in the honey dryers Normit series D and HD, a further innovative solution has been implemented – intensive forced air drying in the processing chamber, which results in performance close to that achieved with vacuum drying.

In addition, the special design of the disc agitator blades ensures the largest possible area of evaporation.

Pharmaceutical honey production

Even high-quality honey with a moisture content of 19-20% is not usable in the pharmaceutical industry. Uniform removal of a few extra percent of moisture, without excessive heating and oxidation and for a short period of time, is a task the atmospheric condensate dryers Normit series D and HD is well able to achieve.

Additional features

Removal of excess moisture from the honey is performed without changing its chemical composition or compromising its commercial properties.

Besides the drying of honey, this model can be used for the manufacture of invert sugar, for the production of artificial honey. This means you can use the equipment all year round, even when the natural honey-processing season is over.

Artificial honey is a nutritious and very popular product in the confectionery industry, also often used for the feeding of bees during the winter period.

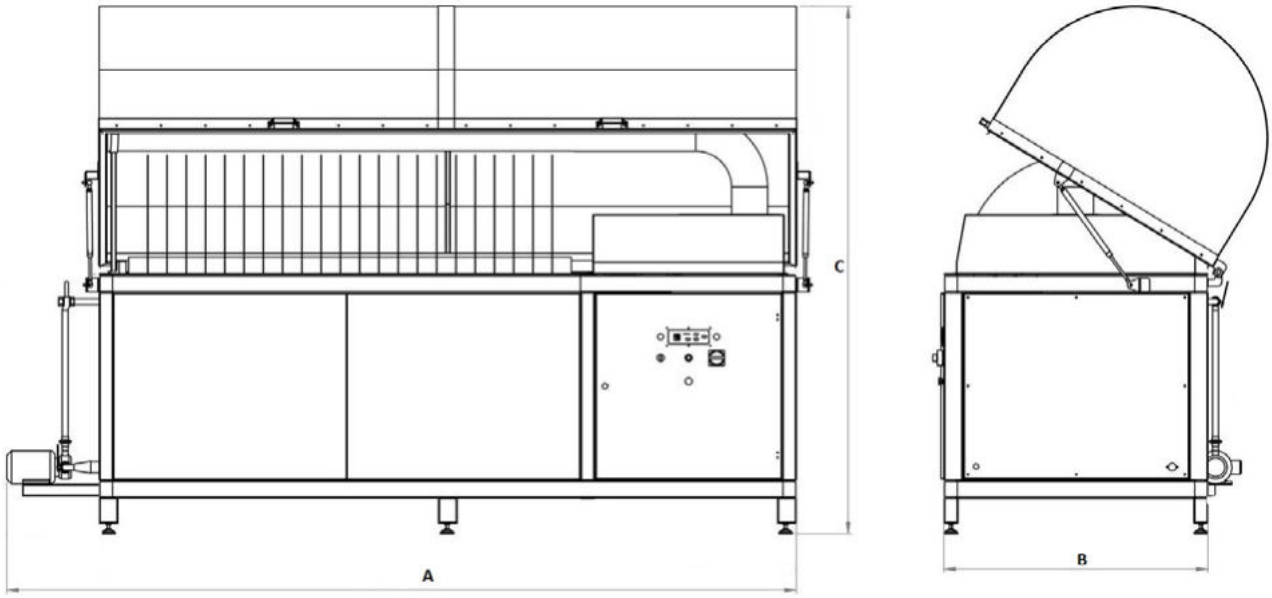
Model: HD

Model: D

Advantages

- Dryers Normit series D and HD are **designed specifically for honey** and takes into account all features of this product processing.
- **It is the most effective professional solution** in the field of industrial honey drying nowadays.
- It allows for a significant increase in the amount of honey harvested per season, with the ability to achieve **high quality and gentle final drying of honey** straight from the hive.
- It significantly improves the quality of the unripe honey and increases its shelf life. Processed honey is not separated and does not ferment.
- During the **drying process, honey may also be filtered**.
- The honey dryers Normit series D and HD have a robust design, which is **easy to operate and maintain, clean**, and designed for operation on a twenty-four hour basis – whenever you need it.
- It can be loaded with liquid or partly melted honey.
- Its **sanitary design is in accordance with FDA and GMP standards**. The honey dryers Normit series D and HD can be used in the pharmaceutical industry. If required, complete validation documentation is supplied.

Model: HD



Model: D	300 D	300 K	600 D
A: length, mm	2 000	1 350	1 550
B: width, mm	900	1 200	1 160
C: height, mm	1 150	1 400	1 500
Batch load up to, kg	300	300	600

Model: HD	1 500	3 000
A: length, mm	3 600	5 200
B: width, mm	1 400	1 590
C: height, mm	2 000	1 680
Batch load up to, kg	1 500	3 000

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Normit PD / VD

PD 1 500 / 3 000

VD 65 / 130 / 300 / 400 / 670 / 800 / 1 300 / 2 700 / 3 300

Vacuum honey dehumidifier

The vacuum honey dryers Normit series PD and VD are **designed for intensive and gentle removal of excess moisture from the honey under vacuum conditions.**

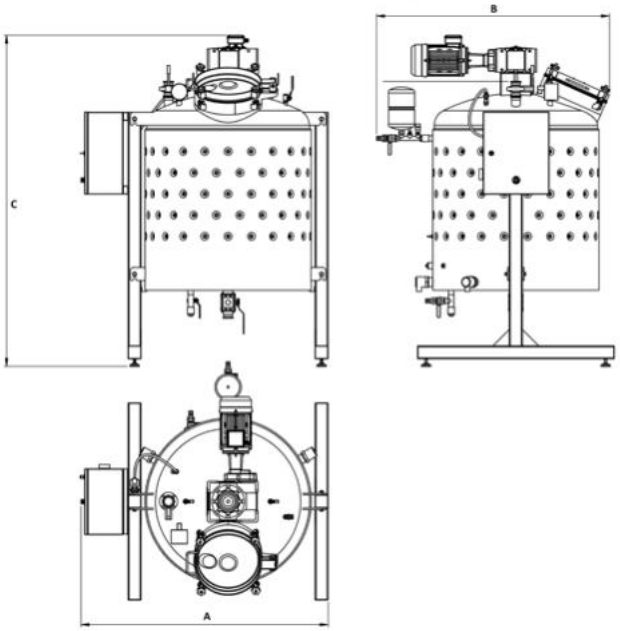
Excessive moisture content in honey (over 18-20%), due to its early collection or poor quality, leads to difficulties in long-term storage, as well as separation and fermentation.

Increase in productivity

In vivo bees spend a considerable amount of time and effort on the final drying of honey in the hive. The possibility of conducting a final drying of honey after its extraction from the frames significantly increases the honey harvest per season.

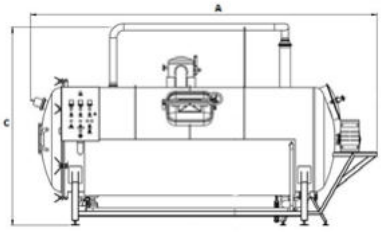
Removal of moisture without increasing hydroxymethyl furfural content.

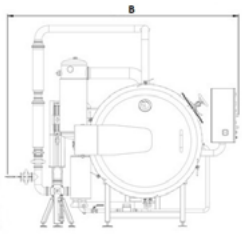
The dryer has been **designed specifically for honey, bearing in mind all the features of this sensitive product, and can effectively remove moisture without heating,** or with low temperature heating that does not lead to increased content of hydroxymethyl furfural. Honey dried in the Normit series PD and VD vacuum dryers **can be used in the pharmaceutical industry**.



Model: VD

Model: PD





Efficiency

Efficient removal of moisture from honey is performed not only by the vacuum, but also by means of the largest possible heat exchange and heat transfer area which includes the inner walls of the working chamber and the entire surface of the disk agitator. Due to the large heat exchange surface, we have significantly lowered energy costs for the evaporation of moisture, when compared to conventional vacuum drying apparatuses.

Additional features

Besides the drying of honey, this model **can be used for the manufacture of invert sugar, for the production of artificial honey**. This means you can use the equipment all year round, even when the natural honey-processing season is over.

Artificial honey is a nutritious and very popular product in the confectionery industry, also often used for the feeding of bees during the winter period.

Design

The vacuum honey dryers Normit series PD and VD consist of a vacuum chamber made of stainless steel AISI304 (or AISI316 on request), equipped with a specially shaped disk stirrer system with scrapers, vacuum system, condensate and a control system based on industrial controllers. Condensate removal is carried out by a high-performance innovative cyclone separator.

The honey vacuum dryers Normit series PD and VD **are equipped with a built-in refractometer for controlling the level of moisture content during the process of evaporation**.

The dryer can be equipped with an optional recirculation loop and honey filtration system. Filters in the filter system are interchangeable and made of stainless steel, and allow for both basic cleaning from large impurities and ultrafiltration to remove pollen grains.

Advantages

- **Sanitary design** in accordance with FDA and GMP requirements.
- EU-made with **high quality materials and components**.
- Gentle moisture removal without heating or with minimal heating, preserving all the beneficial qualities of honey.
- Can be used for the production of pharmaceutical honey.
- High efficiency evaporation at **low energy cost** and for a short period of time.
- Low noise, and lack of **harmful emissions**.
- It allows for a significant increase in the amount of honey harvested per season, with the ability to achieve **high quality and gentle final drying of honey** straight from the hive.
- It significantly improves the quality of the unripe honey and increases its shelf life. Processed honey is not separated and does not ferment.
- During the drying process, honey may also be filtered.
- The honey dryers Normit series PD and VD have a robust design, which is **easy to operate and maintain, clean**, and designed for operation on a twenty-four hour basis – whenever you need it.
- It can be loaded with liquid or partly melted honey.

Model: PD	1 500	3 000
A: length, mm	3 448	4 300
B: width, mm	2 525	2 760
C: height, mm	2 215	2 450
Batch load, kg up to	1 500	3 000

Model: VD	65	130	300	400	670	800	1 300	2 700	3 300
A: length, mm	1 120	742	1 600	1 985	1 500	1 514	1 224	2 350	1 900
B: width, mm	850	879	1 200	1 780	1 290	1 428	1 504	1 675	2 000
C: height, mm	1 380	1 408	1 950	1 665	2 100	2 707	3 880	2 590	3 400
Batch load, kg up to	65	130	300	400	670	800	1 300	2 700	3 300

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MULTI LAYER BELT DRYER AND ROASTING OVEN

Model: DR 5

Thanks to the infra-red radiation and due to the closed construction, the heat treatment is carried out without the outside air, which significantly improves the efficiency and adds a lovely taste and scent to the final product - **not dependent on outside air humidity**.

Maintaining all good properties + adding of high-efficiency scorching energy - from using an infrared emitter.

The uniformity of the roasting thanks to precise adjustment of the height of the product layer, different speeds of belt movement, the mixing of the product by movement between the levels, the high precision of the temperature control, as well as the possibility of additional loosening/ mixing systems (optional).

Processes:

- Roasting
- Drying
- Pasterization

Designed for drying and roasting of a wide range of products such as:

- peanuts
- almonds
- hazelnuts
- sunflower seeds

Hygiene

- Each floor has an automatic belt cleaning system with waste collection.
- Optionally, a washing system can be installed.
- Under the roaster are a waste and dust pickup.

Design

- The roaster is entirely made of stainless steel. Because roasting is often performed with the presence of salt, the use of stainless steel guarantees long service life and reliability.
- All cables and other components (except the product and grids) are separated by bars. The high temperatures achieved in the frying zone has minimal impact on the system components.
- High temperature bearings are used, which allows a longer maintenance interval.
- Infra-red radiators are located above and below the conveyor belt to achieve maximum efficiency and uniformity of roasting.
- Thermo-insulating panels made of stainless steel provide better thermal insulation, but they can be easily disassembled if necessary.
- Each infra-red emitter has a protective cover that prevents dust from entering the product, which prevents burning.
- The front doors can be open, which provide quick access to the basic parts and mechanisms.
- All insulating panels are equipped with high-temperature seals.
- A magnetic separator is located at the furnace outlet.

Heating system

Continuous roasting system - Dry roasters are manufactured with electric heating (or optionally with gas heating).

Electric heating is optimal for this type of device because there are no undesirable smells that could enter into the product and the natural scent does not escape through the fans but remains in the product.

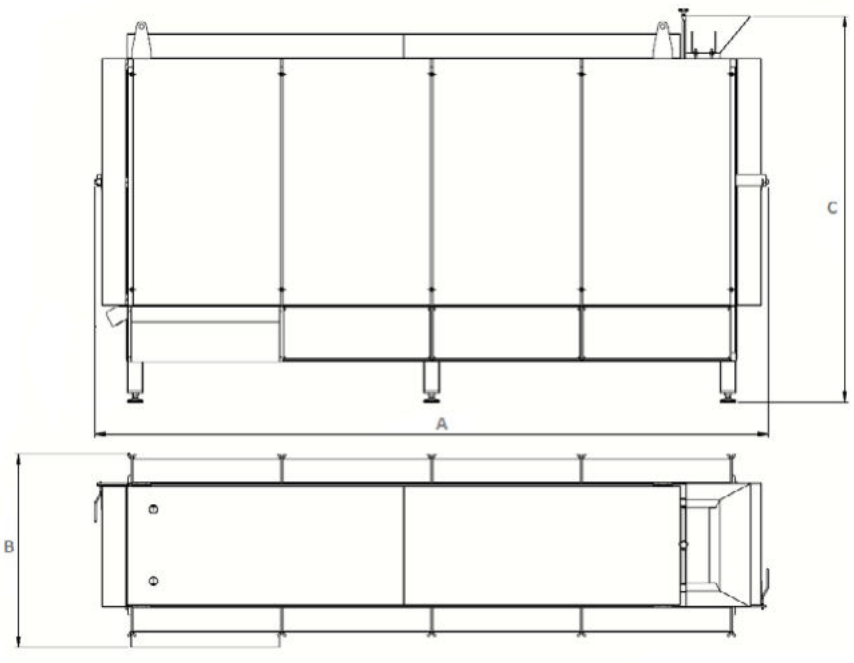
Control system

- The automatic control allows you to set different temperature separately for each module.
- The conveyor speed and the product's frying time are automatically regulated.
- The control panel can be fully opened for quick access to temperature sensors. The panel is also mounted on the frame but extended onto the brackets, what eliminate heat transfer from the roaster.
- Adjustable legs allow setting the roaster in the horizontal position to balance the unevenness of the floor.
- The roaster is delivered to the factory completely assembled. There is no need for on-site assembly, which greatly saves time and money when putting the machine into operation.

Optional

- Water supply system inside the roasting chamber in case of a fire
- Integrated washing system
- Feed conveyor for even product delivery
- Possibility to use Teflon Belt

Model	DR 5
A: length, mm	4 250
B: width, mm	1 400
C: height, mm	2 450



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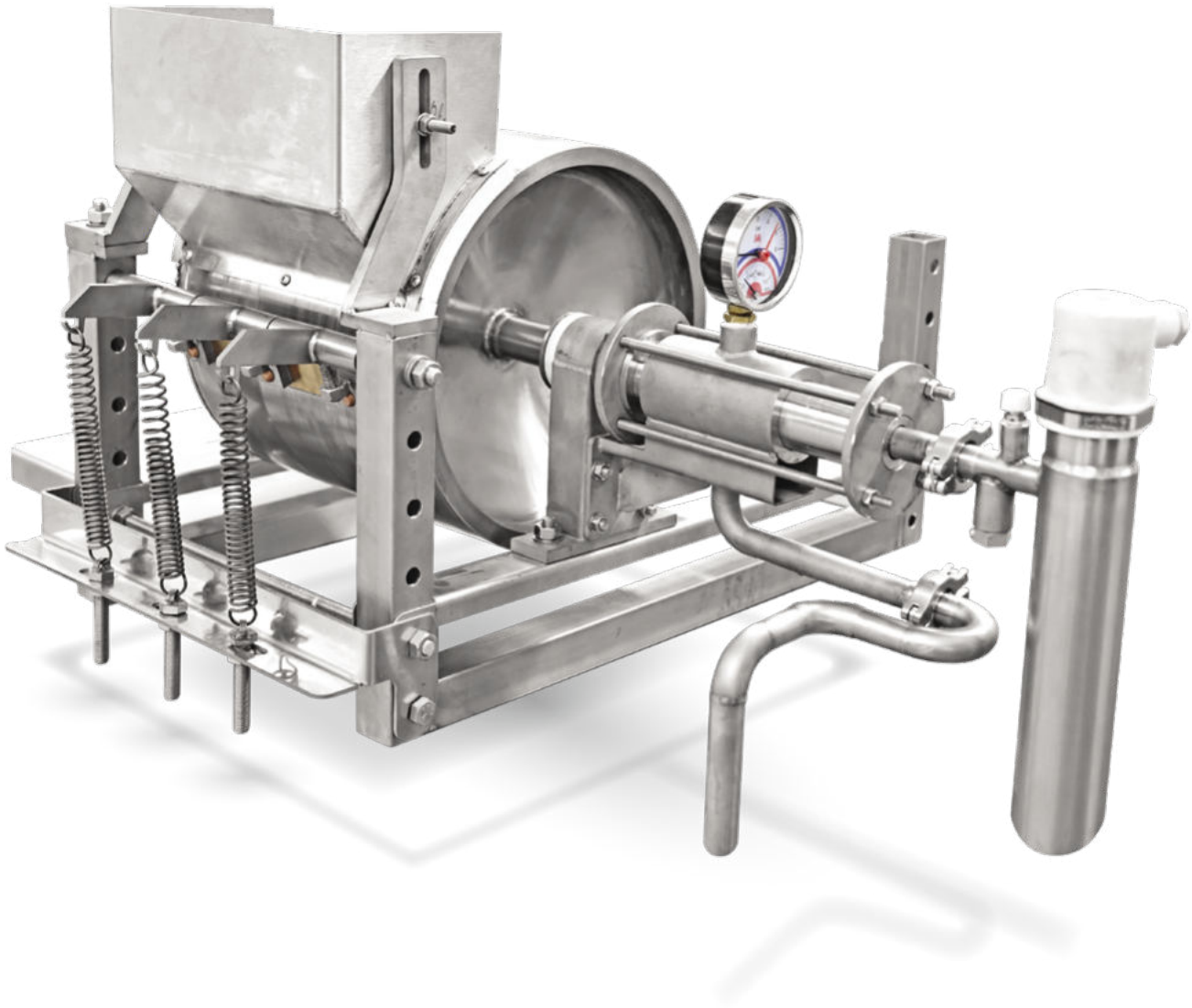
drum dryer for drying and crystalization

Models: RD 1



Atmospheric tumble dryers are designed for the manufacturing of dry products from liquid suspensions. The drying and crystalization machine is a device used for drying milk, yeast or other products. The drum is heated by a duplicator. It is possible to adjust the thickness of the dried layer with a knife. A scraper at the end of the drum, scrapes the product down.

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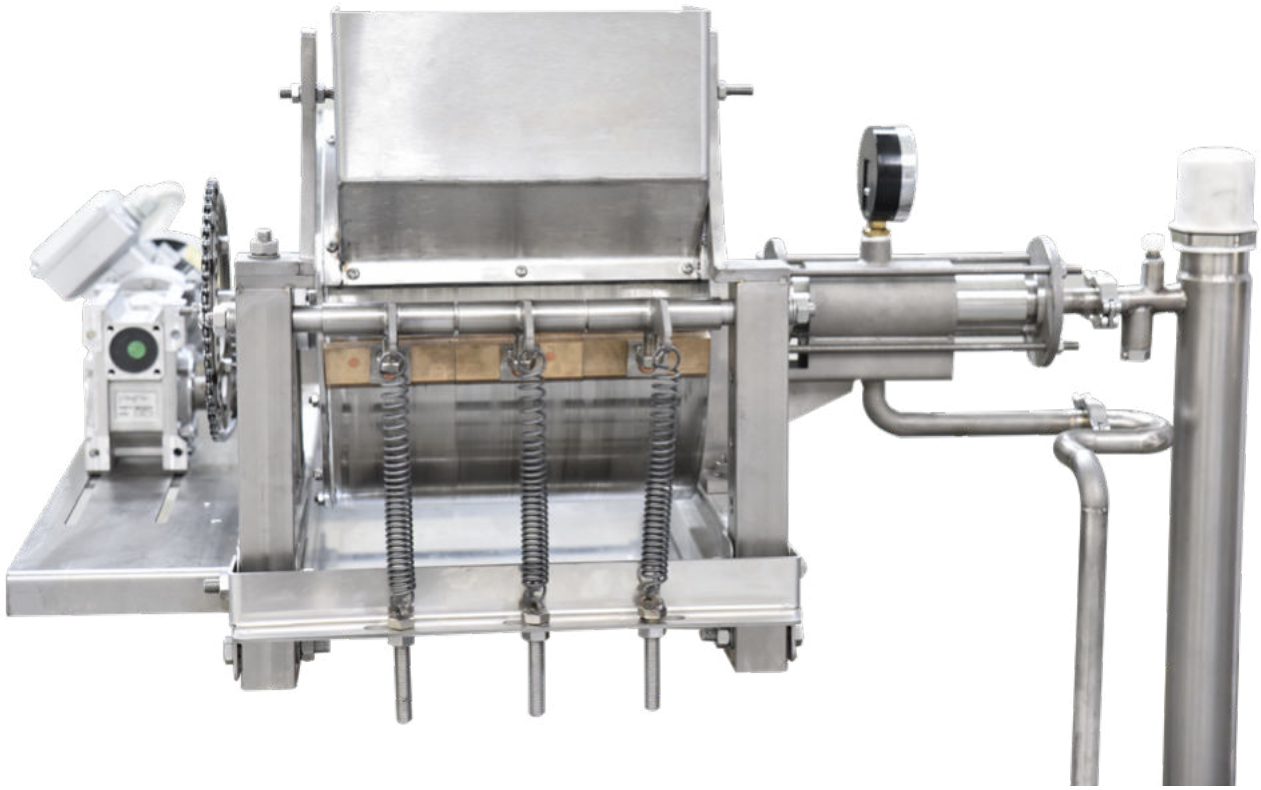
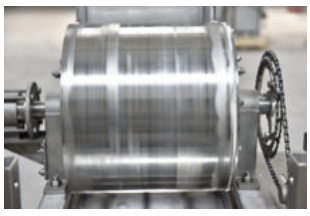
drum dryer for drying and crystalization

Models: RD 1



The contact time of the material with the hot drum is short. Therefore, processing conditions, such as film thickness and drum temperature, are strictly controlled.



Drying devices are used in chemical, pharmaceutical and food industry. The liquid materials are completely dried during contact with the cylindrical surface in less than one rotation of the drum.

HOW IT WORKS

The principle of functionality is following - the liquid to be dried is fed into a rotating drum heated from the inside of the steam, adhering to the thin film, active moisture removal is removed from the thin film, then the dry product is removed by means of fixed blades.

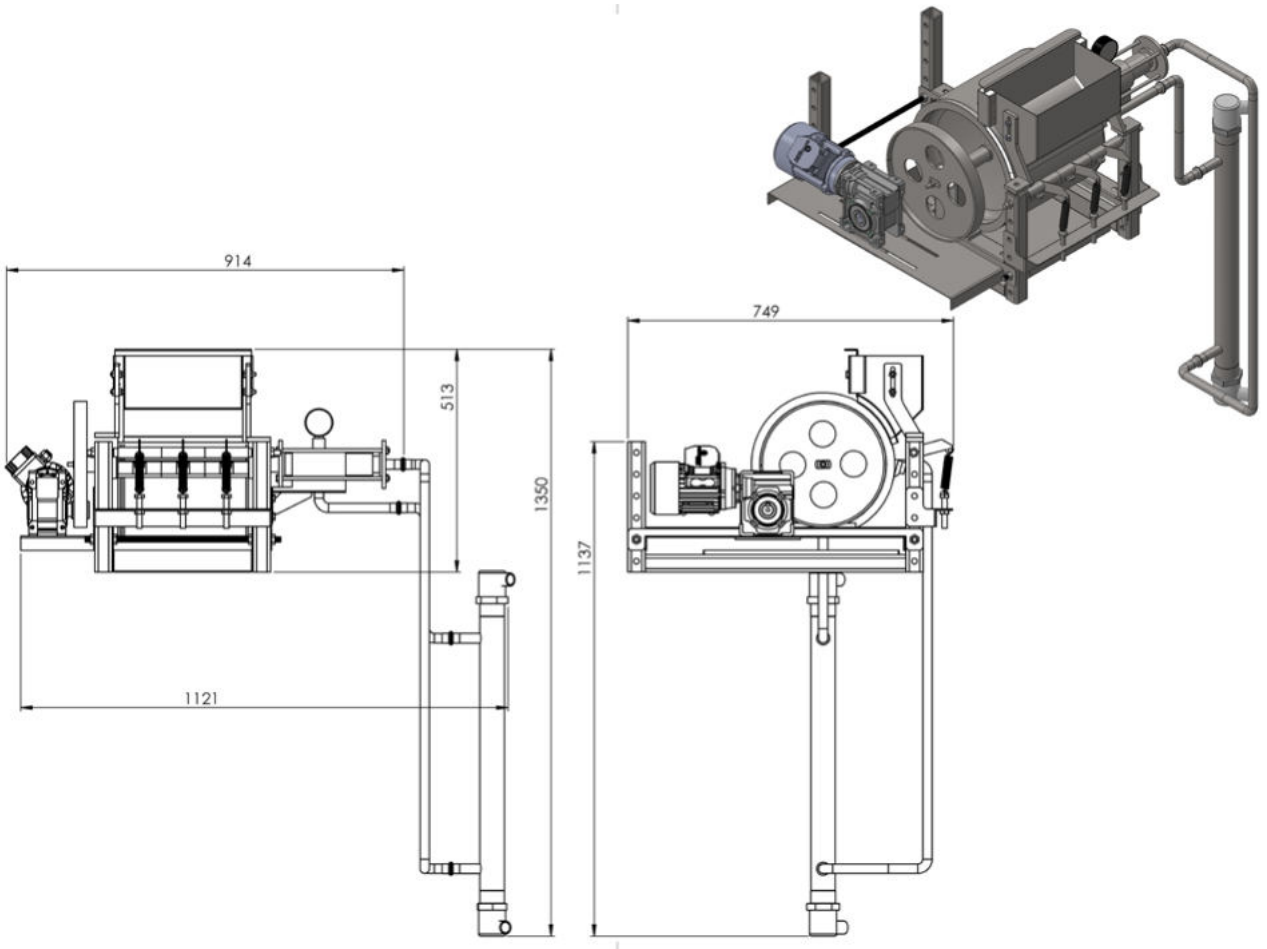
The main tool of one shaft Normit RD 1 drier is a drum with internal steam heating and turning in the opposite direction. The direction of rotation is determined by the type of product being processed. The drum knife removes the dry parts of the product which subsequently fall into the hopper (not included). The device is made of stainless steel AISI 304.

Optional equipment

- filter
- storage tank
- mill
- liquid product dosing system
- extractor
- magnetic separator

drum dryer for drying and crystalization

Models: RD 1



BENEFITS

- The drying process is carried out continuously to obtain a high quality product
- The whole product is constantly exposed to even heat.
- A short drying time that effectively allows heat-sensitive products to dry
- Roller drum have an efficient and effective design that allows simultaneous execution of two processes - evaporation and drying.
- Drying in a tumble dryer is a more efficient and cost-effective solution compared to other drying methods
- The drying process is carried out only on the outside of the drum so that the product can be dried "to the last drop"
- Simple setup and management.
- Simplicity and convenience for cleaning and maintenance.
- The device is compact

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vacuum dryer for oil

Models: SD 5000

Vacuum dryer is an automated closed system for evaporation of the solvent (removal of water by evaporation) for separating substance increase its concentration in the solvent or complete removal of the solvent (water). The dryer is designed for use in the food, chemical and pharmaceutical industries.

Vacuum spray dryer consists of a tank with the inner casing, the nozzle located in the upper part of the installation, display window with lighting, heat exchanger-condenser. The vacuum dryer is connected to a condensate collection tank and a vacuum pump. For spraying the product, it must be connected to a compressor (not supplied) for tightening air. Evaporation is a highly energy-efficient way of removing water or other liquids and thus the primary process for the production of concentrates.

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vacuum dryer for oil

Models: SD 5000

Evaporation is used to reduce product volume, remove water prior to drying, and to improve product storage life.

The product in a pipe is mixed with air and fed into the upper part of the dryer where is sprayed through a nozzle to a fine The evaporation process occurs.

Normit design guarantees:

- High energy efficiency
- High quality product
- Compact design
- Simple operation and automatic control
- Minimum workforce required
- Low running and maintenance costs

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vibrating fluid bed dryer

Model: VKD

Vibration fluidized bed dryer (fluid bed dryer), allows processing / dry almost all kinds of materials and products in all industries.

Fluid bed dryer is a universal device for drying granules, sand, gravel, salt, pasty materials and similar materials for the pharmaceutical, chemical, food, and other related industries.

Fluid bed dryer is a universal device for drying granules, sand, gravel, salt, pasty materials and similar materials for the pharmaceutical, chemical, food, and other related industries Vibration fluidized bed is characterized by high performance with optimum energy utilization. Thanks vibration prevents the laminate and the formation of craters.

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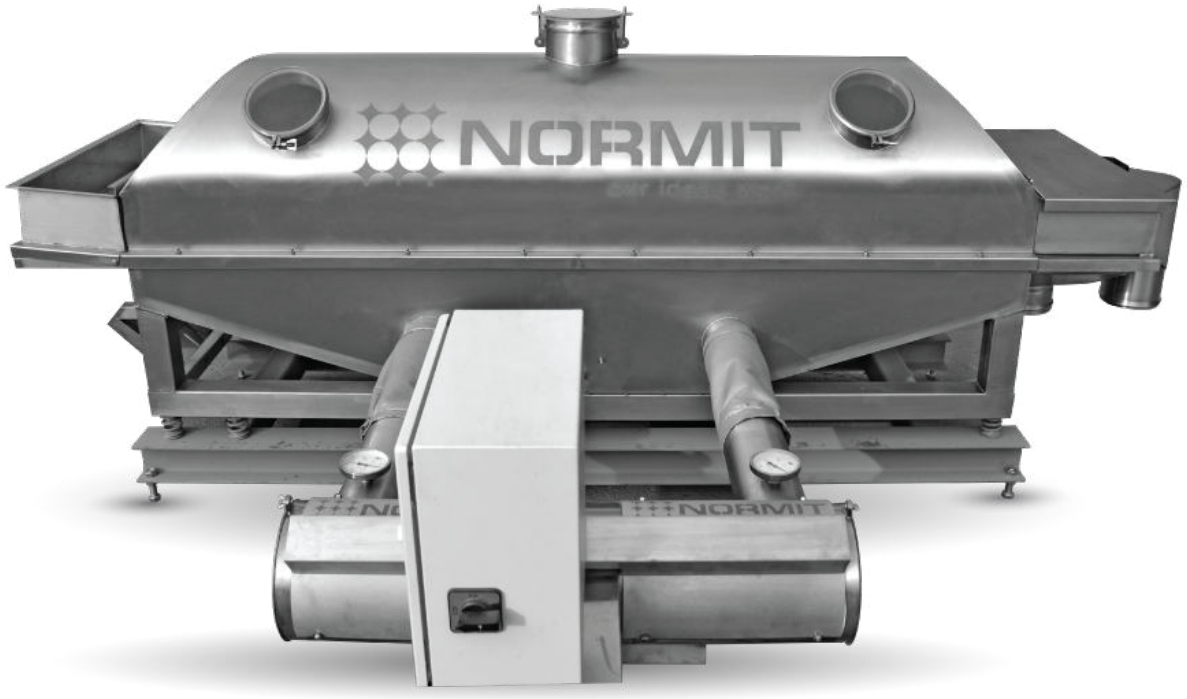
vibrating fluid bed dryer

Model: VKD



How it works:

Fluid bed dryer utilizes hot air flow to make the materials suspended into fluidized state and dry them quickly, water exhausted with air flow after evaporation.

Input material for drying in the dryer is fed from the feeder and with the power of vibration is continuously moving forward in a horizontal stream. The hot air is blown upwardly through the fluidization grid, which is located on the product, that is heated and removes the moisture. The dried product is discharged out of the dryer. The temperature could be strictly controlled during drying to assure the quality of material after drying.

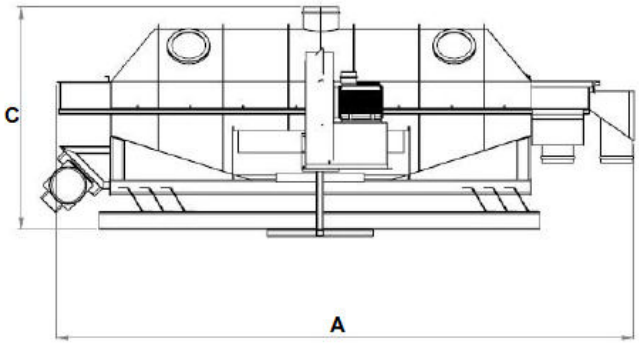
The gauge glass allows you to watch the product during the drying.

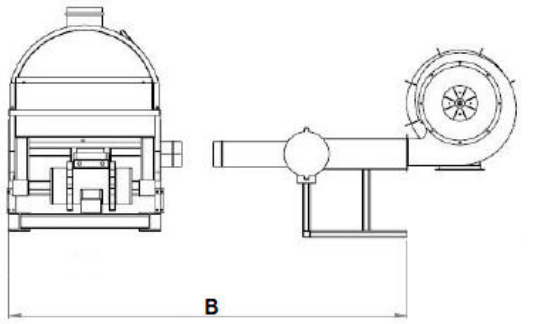
Benefits:

- Drying efficiency even at low intensity purge
- Energy savings
- Due to vibration is the material uniformly distributed, there is no division into sections and the product is not clumping
- Standard equipment of vibration dryer has a regulation valve, which allows you to regulate the supply of raw materials in the drying zone
- High reliability
- Production on modern technologies
- Hygienic and easy to clean
- The dryer is made entirely of stainless steel
- Modern design
- Can be used for dangerous products such as solvents, paints, chemicals, etc.
- Safe to use
- Versatility

vibrating fluid bed dryer

Model: VKD





AREA OF SCOPE

- Pharmaceutical industry
- Chemical Industry
- Food processing industry
- The mining industry
- The construction industry
- The Plastics industry

Model:	VKD
A: length, mm	3 280
B: width, mm	2 257
C: height, mm	1 305

Standard equipment of NORMIT: Vibrating fluid bed dryer

- heating plant
- filter
- equipment for collecting fine particles of the product from the dryer
- control panel
- manufacture of sizes according to customer requirements

Options:

- Intelligent system PLC
- Supply and exhaust fan
- Filter
- Equipment for collecting fine particles of the product from the dryer
- Temperature indicator and controller of the air supplied to the apparatus
- Temperature indicator of product in the dryer
- Humidity sensors in the product inlet
- Humidity sensors in the product output
- Humidity sensors, air inlet
- Humidity sensors, air output
- Air pressure indicator
- Installation of additional cooling section, as well as heating
- Further cooling and drying section, drying section or only tempering section
- When it is necessary to isolate the product from the atmosphere, produced a rotary valve
- May be made in accordance with GMP standards
- Installation of heads of CIP, for easier cleaning
- Other customer requirements

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food dryer

Model: FD Farma

Benefits of dried fruit:

- Dried fruit is very durable, healthy and maintains a taste like fresh fruit
- Source of nutrition and energy
- Retains 85% of vitamins and minerals, the taste remains even after drying

NORMIT
our ideas work

food dryer

Model: FD Farma

Fruits and vegetables are the main source of vitamins. If stored fruits and vegetables must be taken into consideration their high moisture content, thereby exacerbating microorganisms that cause decay. Drying of fruits and vegetables in the dryer NORMIT FD Farma withdraw moisture, thereby the water content decreases by about 10-15%. When we remove the water from the fruit it avoid the mildew and bacteria that could destroyed fruits and vegetables during storage . Dried fruit retains up to 85% of vitamins, contains sufficient vitamins, iron, magnesium and calcium and are also a rich source of fiber. The evaporated water takes with itself the volume but not the energy and nutrients that are only concentrated into a smaller volume. Preserved remains also part of antioxidants (maximum have them dried plums), even the cranberries contain more than fresh.

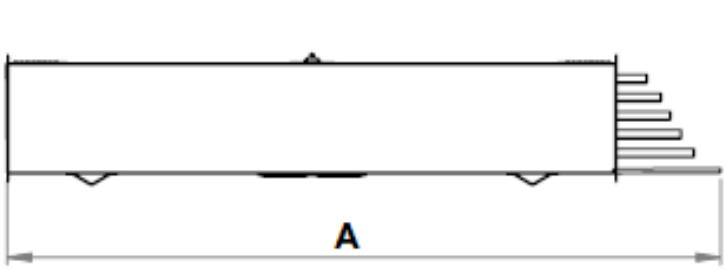
How it works:

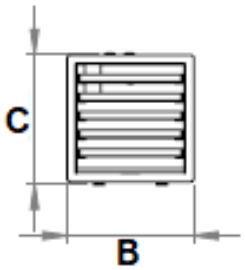
The dryer works on the principle of uniform hot air. For products which have a higher water content, are soft, juicy and fleshy drying will take longer , we also have to adapt the drying temperature. On drying are used only mature, undamaged fruit without putrefaction. Before drying must be removed stalks, flower, etc.. NORMIT dryer consists of drying chamber containing a removable, stainless steel grids, which have been placed in several levels.

The size and number of stainless steel grid depends on the size of the

food dryer

Model: FD Farma





dryer. Each drying chamber has its own sensor and a temperature indicator, can optionally be fitted with special moisture meter.

The controls are simple adjustable via potentiometers, one set required heating capacity of dryer and a second set intensity of blowing of hot air. It is also possible to set by timer drying time up to several hours. After the time expires, the dryer automatically shuts down.

Preparation of vegetables and fruits

First wash the fruit and vegetables. Pieces that are rotten are put aside. You can removed pit from fruit before drying, peel them or removed cores and cut, it would shorten the drying time. Then product cut into thin slices and put onto the stainless steel grid.

Special treatment

Enzymes in fruit and vegetables impact on change their color during ripening. These changes are also reflected during the drying process and also during storage. The process of enzymatic activity can be slowed by different special modifications as blanching or soaking into regulating solutions (pineapple juice, lemon juice, saline, citric acid or ascorbic acid, various syrups, etc.). Process of blanching helps to retain color and flavor and speeds up the drying process.

Model:	FD Farma
A: length, mm	1 970
B: width, mm	350
C: height, mm	360

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