



«Ask Techniks» LLC.

## Industrial continuous carbon-burning complex «ASK Techniks-200»

High-tech, energy-efficient equipment that allows the processing of wood, agricultural waste and the production of charcoal chips on an industrial scale. During operation, thermal energy from the combustion of pyrolysis gases is not released into the environment, but is used for software-controlled pyrolysis processes, for pre-drying of wood, as well as for external consumers. The productivity of the complex is up to 5.0 tons of coal chips per day.

**The equipment is characterized by reliability, simplicity, and ease of operation**

The equipment has an automatic control system of our own design. The system has a user—friendly interface, is easy to operate, and, most importantly, allows you to automatically control the actuators of the complex, ensuring the constancy of the thermal mode of operation to obtain high quality finished products.

Our company is a resident of the Minsk City Technopark, which confirms the innovation and relevance of our activities. Company profile on the Technopark's website: [mgtp.by/portfolio-item/ooo-vostochnaya-delovaya-kompaniya/](http://mgtp.by/portfolio-item/ooo-vostochnaya-delovaya-kompaniya/)

You can find more detailed information about the complex and our company on the website

[ask-technics.com/en](http://ask-technics.com/en)

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## Package

1. Storage hopper of raw materials with a ladder (1 piece)
2. Screw for feeding raw materials into the dryer (1 piece)
3. Fans (2 pieces)
4. Screw for feeding raw materials into the reactor furnace (1 piece)
5. Reactor furnace with refractory brick lining (1 piece)
6. Temperature sensor (2 pieces)
7. Raw material level sensor (3 pieces)
8. Heat exchanger with recuperation system (1 piece)
9. Stainless steel chimney (3 meters)
10. Control panel with automation system and software (1 piece)

## Advantages of the industrial continuous carbon-burning complex «ASK Techniks-200»

- **Continuous operation of the complex**

The complex works without cooling down, which means, when unloading coal chips or loading raw materials, there is no need to stop the complex.

- **Temperature control throughout each stage of technological process**

Complex has temperature sensors, which make it possible to control and automatically manage heat carrier temperature

- **Everyday performance up to 5,0 t. of charcoal chips per day**

- **Automated control system**

Complex is shipped with specialized control program. All production processes are automated and synchronized, starting from raw material loading, and all the way to finished product. All metrics of the working process are displayed on control panel.

- **10 years of continuous operation without major repairs**

Reactor furnace has lining made of fire-resistant bricks. All thermally loaded nodes and parts are made of alloy steel AISI 321 with inherent high strength. Reactor is insulated in order to better keep heat.

- **Environmental friendliness of the complex**

This is due to the modern, high-tech design of the complex, which contributes to the absence of emissions of harmful substances into the atmosphere, which complies with the environmental standards of EcoNiP 17.01.06-001-2017. It is confirmed by Protocol No. 1-PI-2021/177 of measurements on emissions of pollutants into the atmosphere from stationary installations. Liquid and gaseous substances are burned in the reactor furnace, and the heat carrier is used to maintain the pyrolysis process and pre-drying of raw materials.

- **Mobility and compactness**

The container-type carbon-burning complex allows the use of standard vehicles. One truck is required to transport the complex.

The main technical characteristics of the industrial carbon-burning continuous action complex «ASK Techniks-200»

No	Name of the parameter	Unit of measurement	Value
1.	Charcoal chips production	kg/h	up to 200
2.	Charcoal chips production	t/day	up to 5,0
3.	Charcoal chips production	t/month	up to 150
4.	The amount of raw materials for the production of up to 200 kg/hour of charcoal chips	m <sup>3</sup> (dense)	1,3 — 1,4
5.	The amount of raw materials to produce 1t of charcoal chips.	m <sup>3</sup> (dense)	6,6 — 8,0
6.	The amount of firewood to start the complex	m <sup>3</sup>	0,2-0,3
7.	Electrical power	kWh	24
8.	Energy consumption of the complex	kWh	10-12
9.	The working cycle of the complex	-	Continuous
10.	The range of operating temperatures of the furnace	°C	800-950
11.	The amount of thermal energy	kWh	400

12.	Air volume for external consumers	m <sup>3</sup>	5 000 - 30 000
13.	Air temperature for external consumers	°C	80 - 200
14.	Maintenance staff	person/shift	1
15.	Dimensions of the complex without chimney, LxWxH	m.	14,0x2,0x3,0
16.	Total weight, not more than	t.	15,0

### **Additional characteristics and information applicable to the ASK Techniks-200 carbon-burning complex plant**

№	Name of the parameter	Value
1.	Safety requirements	Comply with the requirements of the Technical Regulations of the Customs Union TR CU 010/2011 "On the safety of machinery and equipment"
2.	Климатическое исполнение	UHL1 according to GOST 15150, while the ambient air temperature during operation is from minus 30 to plus 40 ° C
3.	Raw material	Sawdust, wood chips, bark, twigs, stumps, felling residues, husks of cereals, straw, nut shells, kernels of stone fruits and more.
4.	Preliminary preparation of raw	Grinding

	materials	
5.	Loading of raw materials	With a frontal loader
6.	Final product	High-carbon coal chips. Complies with GOST 7657-84, Grades A and B. The content of non-volatile carbon is at least 85% (depending on the quality of the incoming raw materials)
7.	Formation of by-products	Ash produced by burning firewood when starting the reactor furnace

**The volume of emissions of pollutants into the atmosphere (the source of emission is the carbon—burning complex «ASK Techniks-200»)\***

Operating mode of technological equipment	Name of the substance	The concentration of the substance at the normal conditions, mg/m <sup>3</sup>	Actual emission, g/s
with a mix of outdoor air	Nitrogen oxides in terms of nitrogen dioxide	58.08	0.0160
	Carbon oxide	184.17	0.0508
	Sulfur dioxide	below 2.86**	--
	Solid particles (undifferentiated dust)	17.25	0.0048
without a mix of outdoor air	Nitrogen oxides in terms of nitrogen dioxide	95.67	0.0190
	Carbon oxide	490.42	0.0974
	Sulfur dioxide	below 2.86**	--

	Solid particles (undifferentiated dust)	16.66	0.0033

\* - extract from Protocol No. 01-PI-2021/177 dated 09/24/2021 of measurements on emissions of pollutants into the atmosphere from stationary plants

\*\* - the lower limit of detection of the measurement technique

## Description of the production cycle - "Processing of wood waste"

### 1. Preparation of raw materials

Fine—grained waste from woodworking enterprises – sawdust, wood dust are used as raw materials. Large waste: wood chips, humps, lumpy waste, tree bark, felling residues must be crushed to a fraction of 3-5mm (recommended sizes), 0-7mm (acceptable sizes) with a hammer crusher.

### 2. Production of coal chips

U The prepared wood raw materials are loaded into the storage hopper of the carbon-burning complex. To control the level of raw materials, a technological viewing window is provided in the hopper. The raw materials from the storage hopper are loaded into the dryer by a screw conveyor.

U After pre-drying, the raw material is fed by a screw conveyor into a reactor furnace, where the carbonization process takes place.

U The finished product, coal chips, enters an unloading screw conveyor with a cooling "jacket" and is unloaded into a container for finished products.

**U The entire production cycle and production processes are automated and synchronized with each other.**

## Description of an industrial continuous carbon-burning complex «ASK Techniks-200»

Manufacturer	«ASK Techniks» LLC, Belarus
Payment terms	- 50% prepayment within 5 (five) banking days from

	<p>the date of signing the delivery agreement</p> <p>- 50% within 5 (five) banking days after notifying the buyer by e-mail about the readiness of the equipment for shipment</p>
Terms of delivery	EXW, Republic of Belarus, Smolevichi district, Smolevichi
Production time	3-6 months (depending on the production load, the production time may increase)
Guarantee	12 months from the date of signing the act of acceptance and transfer of equipment to the buyer
Commissioning, training	10% of equipment cost
Travel, accommodation (team of 3 people)	Payed by the buyer

## PHOTOGALLERY



Picture 1. Storage hopper



Picture 2. Dryer



Picture 3. Reactor furnace



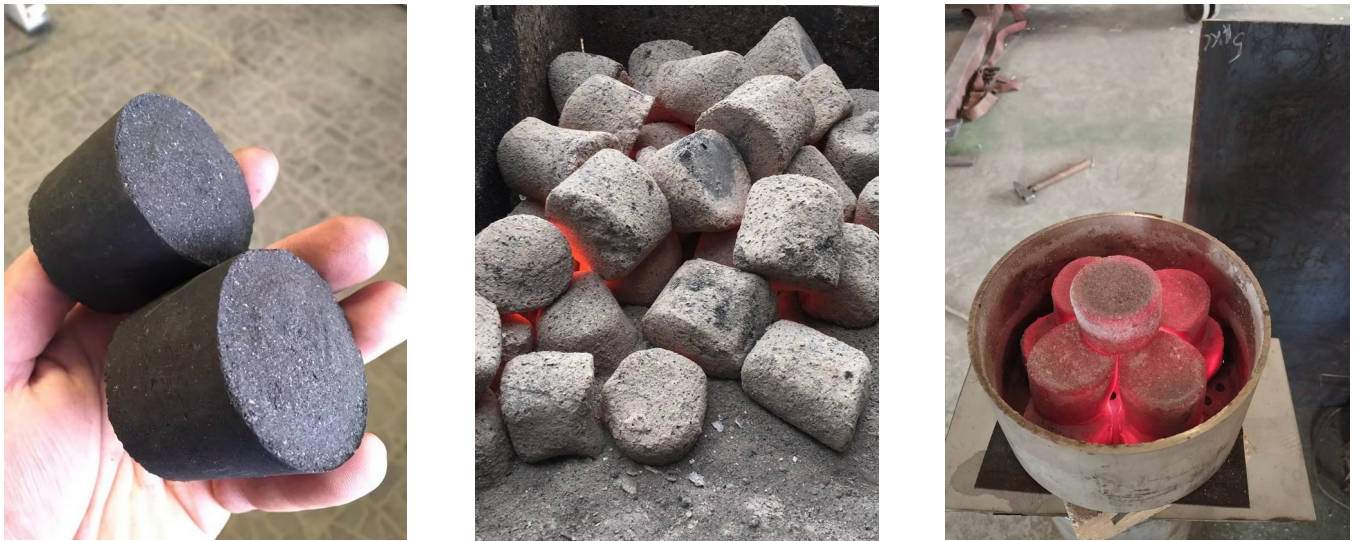
Picture 4. Unloading of final product



Picture 5. Sawdust. Coal chips from sawdust



Picture 6. Rice husks. Coal chips from rice husks



Picture 7. Long-burning charcoal briquettes



Picture 8. The process of operation of the carbon-burning complex



Picture 9. Control cabinet



Picture 10. Operator panel with software

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Bank requisites

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