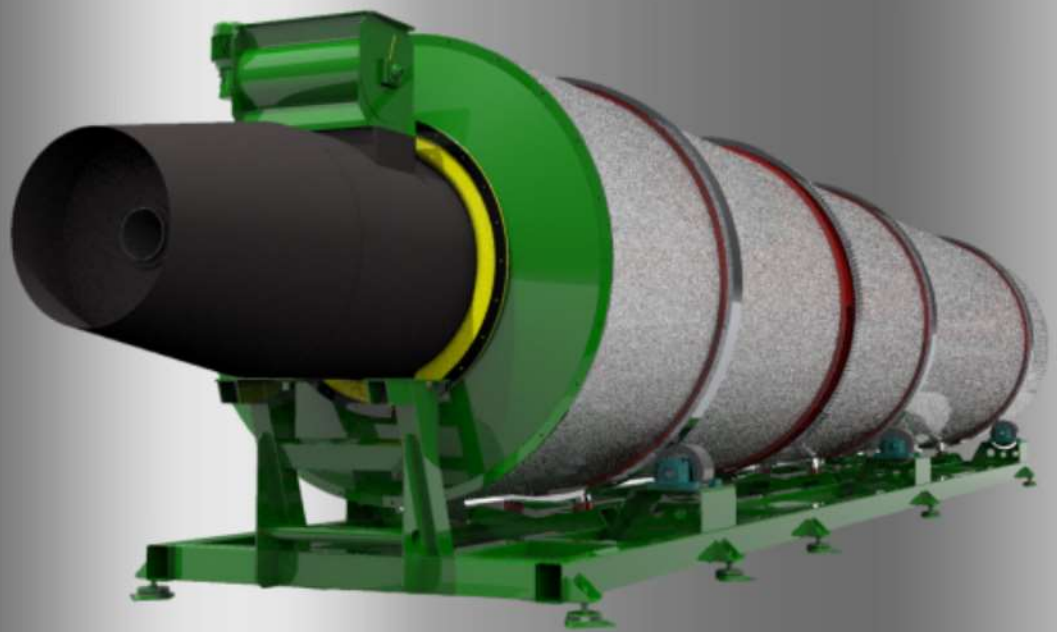


Drum dryers, granulation lines

PILOTOP

MACHINE & EQUIPMENT



Machine & Equipment

Industrial drum dryers

Industrial dryers and dryers for sawdust, wood chips, biomass, sludge from biogas stations, agro commodities - cereals, legumes, drying of sand, gravel and other mineral materials.

Our company deals with design, production and sale of technological equipment for the storage and processing of agricultural commodities, cement and calcium materials, biomass, agro commodities, wood waste, etc. The machines and equipment are designed for the treatment and preparation of raw materials for further processing such as storage, drying, granulation-pelleting and briquetting. We produce and supply drum dryers for wood sawdust, wood chips, biomass, cereals, hops, hemp, plastic chips for plastic waste processors and other operations requiring drying of bulk raw materials. Another related production program of the company is the production and supply of parts and components for pelleting and briquetting lines such as screw and belt conveyors, transport - transport fans, bulk material dispensers, separators-cyclones of bulk materials, hot-air boilers, etc. In cooperation with domestic and foreign partners, we participate in the supply of small-capacity and large-capacity pelletizing and briquetting lines.

Industrial drum dryers are designed for drying commodities

Wood sawdust,
wood chips



Cereals,
legumes



Forage, grass
hops, hemp



Gravel, sand,
building materials



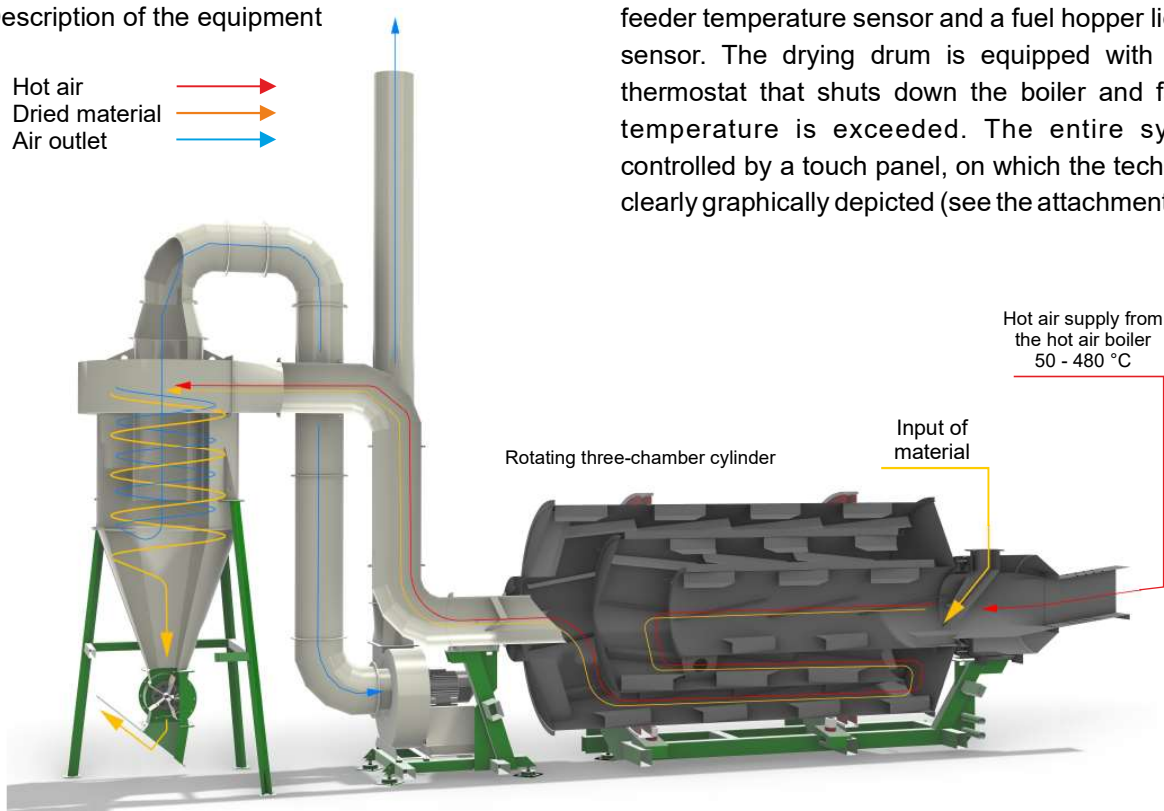
Drum dryer - technology description

The technology of the drum dryer, hot-air boiler and transport routes is one functional unit in terms of the control process. The material is poured in the drum by rotation and moved to the extraction chamber with the help of sliding blades. Dry sawdust is then sucked out of the cylinder by an exhaust fan into the separator and then by a screw conveyor into the dry material container or into the press hopper. The solid particles separator - cyclone with an exhaust fan ensures the removal of steam and dust from the drying drum, and the steam from the separator through an air duct outside the building.

The dryer is equipped with electric drives with gearboxes so that the consumption of input energy is minimized during the operation of the device, thus working in a very economical energy mode. The dryer is heated by a boiler of its own design designed only for this purpose. The boiler is fully automated, wood chips, pellets, or sawdust can be used as fuel. The dryer can operate in manual mode with the assistance of the operator, or it can be automatically regulated by a control system. The operation of the dryer depends on the assembled variant and consists of supervising the correct operation of individual devices, setting the required temperatures of the inlet and outlet temperature regulators, refilling the material into the fuel tank, monitoring the material level in the dryer hoppers and performing basic maintenance. The assembly is equipped with safety parts such as a safety thermostat for the outlet temperature, a fuel feeder temperature sensor and a fuel hopper lid closure sensor. The drying drum is equipped with a safety thermostat that shuts down the boiler and fan if the temperature is exceeded. The entire system is controlled by a touch panel, on which the technology is clearly graphically depicted (see the attachment).

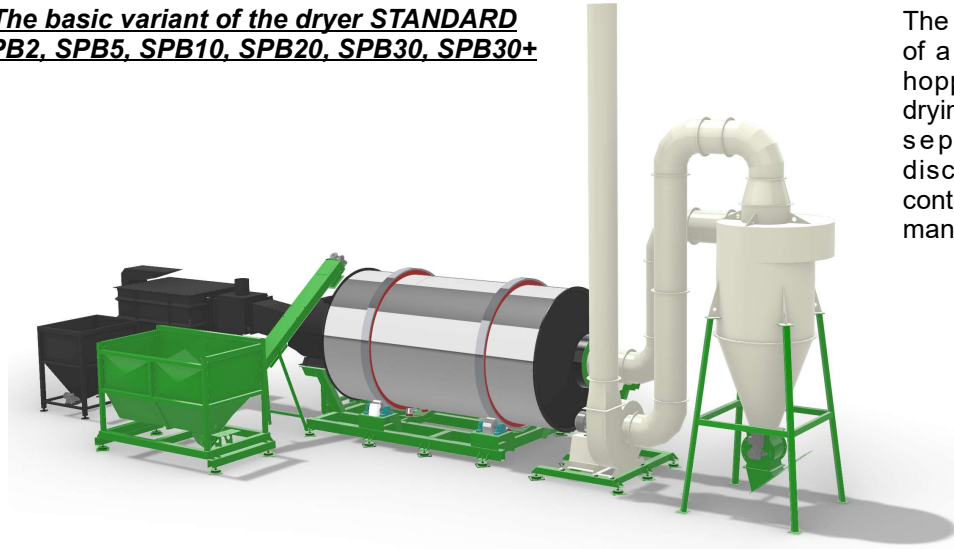
Description of the equipment

Hot air →
Dried material →
Air outlet →



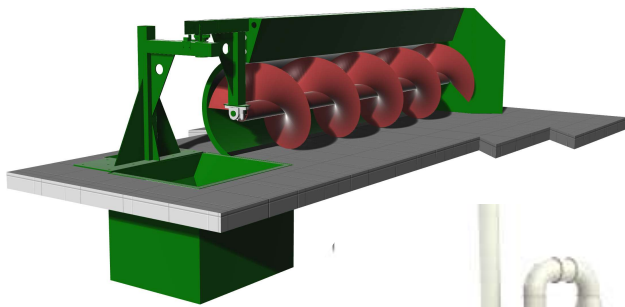
Drum dryer STANDARD

**The basic variant of the dryer STANDARD
SPB2, SPB5, SPB10, SPB20, SPB30, SPB30+**



The basic variant is a set consisting of a boiler, fuel tank, dried material hopper, insulated three-chamber drying cylinder, exhaust fan, cyclone separator, rotary dispenser, discharge conveyor, wiring and control panel. The control can be manual or fully automatic.

Accessories to the basic variant



The basic version of the SPB2, SPB5, SPB10, SPB20, SPB30, SPB30+ dryer can be supplemented with a feeding screw conveyor, which ensures the filling of the drying roller from the floor area. The advantage is the continuous filling of the drying roller without the need to monitor and replenish the dried material.



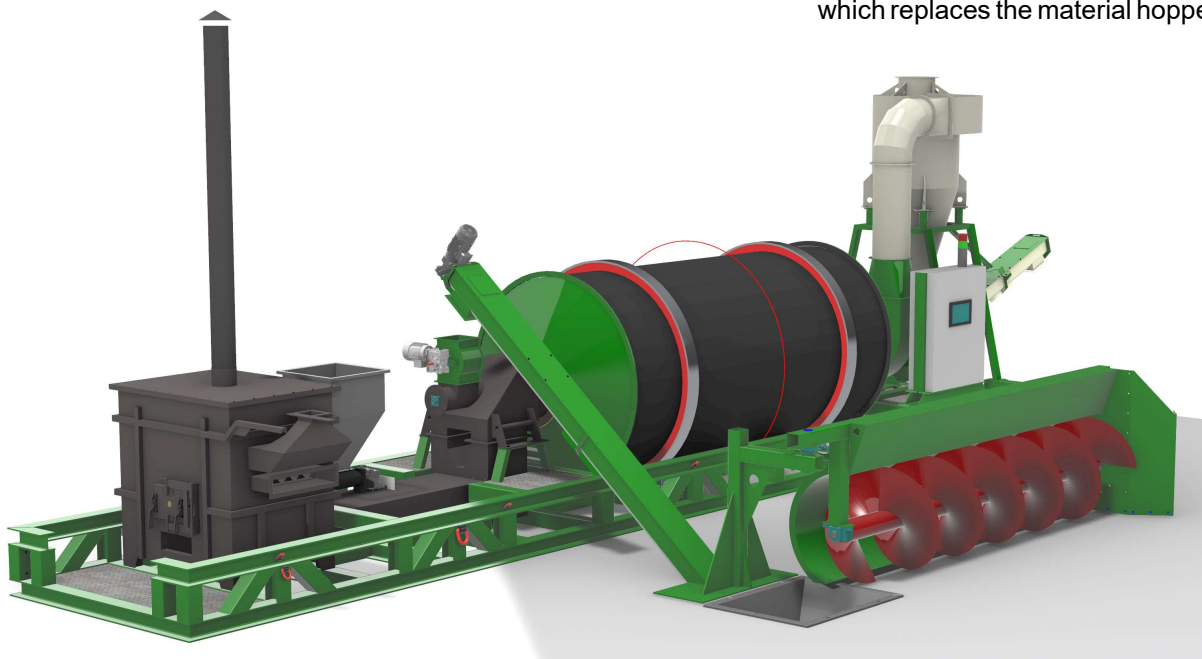
Drum dryer COMPACT

***The basic variant of the dryer Compact
SPBC2, SPBC5, SPBC10, SPBC20, SPBC30, SPBC30+***



The Compact variant is the basic version assembled on a steel frame, which is dimensionally adapted for transport by a standard truck or 40 inch container. Can be moved to another workstation at any time after dismantling several parts.

The Compact variant with a feeding auger



The Compact variant with a feeding auger is supplemented with a feeding auger, which replaces the material hopper.

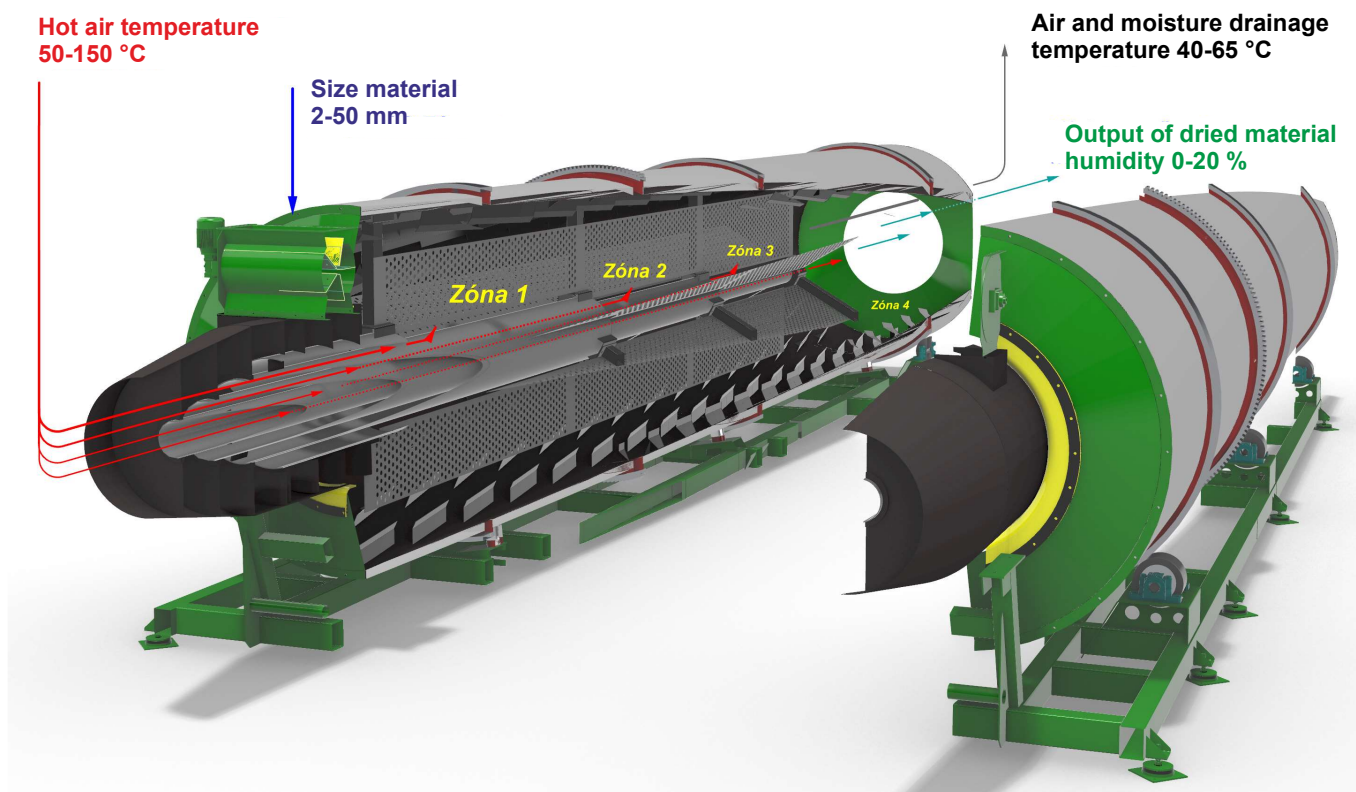
Drum dryer SPB Agro

Drum dryer SPB30-AGRO

The single-chamber roller system is designed for drying material of mainly plant origin and for drying up to temperatures of 150 °C. The material is transferred in the cylinder by the rotation of the roller and moved by sliding blades along the entire length of the roller. Drying air from the boiler is supplied to the drying cylinder by means of transport fans. The hot air is supplied by fans that are part of the boiler and are regulated by the temperature and volume requirement for each zone separately by the central duct. The temperature can be set separately for each zone. The excess air is then extracted from the cylinder by an exhaust fan into the centrifugal separator. The system is designed for drying material with an input moisture of up to 90 % and a size of up to 50 mm to an outlet moisture of up to 0 %. It is possible to dry commodities such as alfalfa, hops, hemp, fodder stalks, corn and other cereals. With the boiler modification, the dryer is also suitable for drying wood chips.



Description of the drum dryer SPB Agro



AGRO drum dryers are designed for drying commodities:



Technical parameters SPB2,SPB5,SPB10

Technical parameters of the SPB2 dryer		
Amount of wet input material (before drying)	495	kg/hour
Moisture of the input fraction	45	%
Volume of water in the fraction	223	kg/hour
Volume of dry material in the fraction	272	kg/hour
Output moisture (after drying)	12	%
Volume of water in the fraction	37	kg/hour
Volume of dry material in the fraction	272	kg/hour
Amount of material after drying (for pelletization)	309	kg/hour
Volume of evaporated water from the dryer	186	kg/hour
Energy for evaporation of 1 kg of water	3,9	MJ/kg
Heat output of installed boiler	150	kW
Required electrical input power of the assembly	12,1	kW

Technical parameters of the SPB5 dryer		
Amount of wet input material (before drying)	800	kg/hour
Moisture of the input fraction	45	%
Volume of water in the fraction	360	kg/hour
Volume of dry material in the fraction	440	kg/hour
Output moisture (after drying)	12	%
Volume of water in the fraction	60	kg/hour
Volume of dry material in the fraction	440	kg/hour
Amount of material after drying (for pelletization)	500	kg/hour
Volume of evaporated water from the dryer	300	kg/hour
Energy for evaporation of 1 kg of water	3,1	MJ/kg
Heat output of installed boiler	300	kW
Required electrical input power of the assembly	16,4	kW

Technical parameters of the SPB10 dryer		
Amount of wet input material (before drying)	1600	kg/hour
Moisture of the input fraction	45	%
Volume of water in the fraction	720	kg/hour
Volume of dry material in the fraction	880	kg/hour
Output moisture (after drying)	12	%
Volume of water in the fraction	120	kg/hour
Volume of dry material in the fraction	880	kg/hour
Amount of material after drying (for pelletization)	1000	kg/hour
Volume of evaporated water from the dryer	600	kg/hour
Energy for evaporation of 1 kg of water	3,1	MJ/kg
Heat output of installed boiler	500	kW
Required electrical input power of the assembly	26,2	kW

Technical parameters SPB20,SPB30,SPB30+

Technical parameters of the SPB20 dryer		
Amount of wet input material (before drying)	2800	kg/hour
Moisture of the input fraction	45	%
Volume of water in the fraction	1260	kg/hour
Volume of dry material in the fraction	1540	kg/hour
Output moisture (after drying)	12	%
Volume of water in the fraction	210	kg/hour
Volume of dry material in the fraction	1540	kg/hour
Amount of material after drying (for pelletization)	1750	kg/hour
Volume of evaporated water from the dryer	1050	kg/hour
Energy for evaporation of 1 kg of water	3,1	MJ/kg
Heat output of installed boiler	900	kW
Required electrical input power of the assembly	33,8	kW

Technical parameters of the SPB30 dryer		
Amount of wet input material (before drying)	4500	kg/hour
Moisture of the input fraction	45	%
Volume of water in the fraction	2025	kg/hour
Volume of dry material in the fraction	2475	kg/hour
Output moisture (after drying)	12	%
Volume of water in the fraction	338	kg/hour
Volume of dry material in the fraction	2475	kg/hour
Amount of material after drying (for pelletization)	2813	kg/hour
Volume of evaporated water from the dryer	1688	kg/hour
Energy for evaporation of 1 kg of water	2,9	MJ/kg
Heat output of installed boiler	1,3	MW
Required electrical input power of the assembly	41,2	kW

Technical parameters of the SPB30+ dryer		
Amount of wet input material (before drying)	5900	kg/hour
Moisture of the input fraction	45	%
Volume of water in the fraction	2655	kg/hour
Volume of dry material in the fraction	3245	kg/hour
Output moisture (after drying)	12	%
Volume of water in the fraction	443	kg/hour
Volume of dry material in the fraction	3245	kg/hour
Amount of material after drying (for pelletization)	3688	kg/hour
Volume of evaporated water from the dryer	2213	kg/hour
Energy for evaporation of 1 kg of water	2,9	MJ/kg
Heat output of installed boiler	1,8	MW
Required electrical input power of the assembly	63,0	kW

Conversion of SPB performance Dimensions of the drum dryer SPB

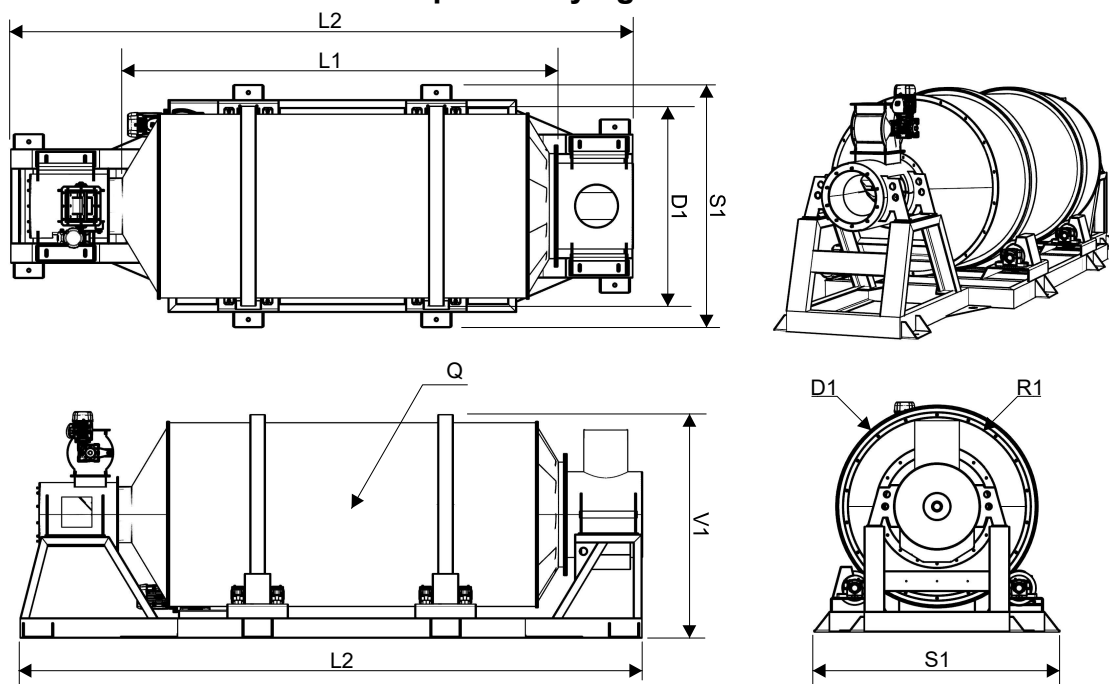
Conversion of SPB20 power according to input moisture

Input moisture	Input temperat.	Output moisture	Amount of dried material at input	Amount of dried material at output
35 %	300 °C	12 %	2592 kg/hour	1914 kg/hour
40 %			2696 kg/hour	1838 kg/hour
45 %			2799 kg/hour	1750 kg/hour
50 %			2903 kg/hour	1649 kg/hour
55 %			3007 kg/hour	1537 kg/hour
60 %			3110 kg/hour	1414 kg/hour
65 %			3214 kg/hour	1278 kg/hour
70 %			3318 kg/hour	1131 kg/hour
75 %			3421 kg/hour	972 kg/hour
80 %	3525 kg/hour	801 kg/hour		

The above outputs are guaranteed for sawdust or softwood chips (spruce, pine) at an input moisture content of 35-80 % to an output moisture content of 12 %.

The calculation of the dried amount of material is calculated for the input material wood sawdust, at the inlet temperature to the drying roller of 300 °C and to the required output moisture of 12 %. The calculation of the output quantity in kg/hour may vary depending on the type, size and quality of the material being dried. The performance can be corrected by changing the inlet temperature, which can range from 240 °C to 350 °C, which is the maximum permissible temperature for drying wood material.

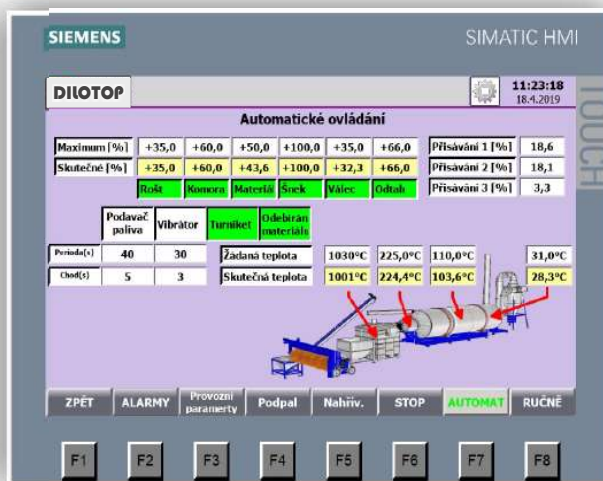
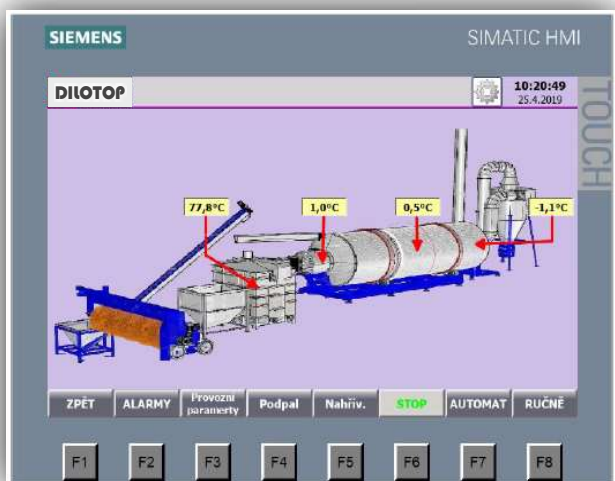
Installation dimensions of a separate drying drum with frame construction



Type	L2 total length	S1 total width	V1 total height	R1 cylinder diameter	L1 cylinder length	Q cylinder volume	D1 cylinder width
SPB2	3840 mm	1470 mm	1600 mm	1240 mm	3000 mm	3,62 m3	1380 mm
SPB5	4500 mm	1680 mm	1830 mm	1450 mm	3500 mm	5,72 m3	1590 mm
SPB10	5750 mm	2080 mm	2180 mm	1820 mm	4500 mm	11,72 m3	1960 mm
SPB20	7150 mm	2390 mm	2440 mm	2050 mm	6500 mm	25,62 m3	2190 mm
SPB30	8250 mm	2450 mm	2610 mm	2250 mm	7250 mm	34,17 m3	2390 mm
SPB30+	9800 mm	2450 mm	2610 mm	2250 mm	8500 mm	40,01 m3	2390 mm

Drum dryer operation and safety SPB

The set is equipped with safety parts such as a safety thermostat for the outlet temperature, a temperature sensor inside the drum, a fuel feeder temperature sensor, a fuel hopper lid closure sensor, temperature sensors in the boiler chambers and a chimney flap for heat removal outside the assembly. The set is connected to a pressure water supply in case of ignition of the material in the drum. The drying drum is equipped with a safety thermostat, which shuts down the boiler and fan if the temperatures are exceeded, shuts off the heat supply to the assembly and starts the extinguishing process using a servo valve and pressurized water in the event of a fire. The entire system is controlled by a touch panel, which clearly graphically shows the technology and the condition of all components during the drying process with the necessary data. In the event of a malfunction, the operator is alerted visually by a red warning light and an acoustic siren. Any defects are then listed on the display with a description of the defect.



Drum dryer control system SPB

Description of the drum dryer control system

The machine is equipped with a PLC control system and an operator panel for technology control, displaying states and faults. On the door of the dryer switchboard there are control and signalling elements – main switch, button, indicator light and HMI panel. The operator panel monitors the current machine states and quantities, sets parameters, views and confirms error messages.

Control in manual mode

In manual mode, the individual drives can be controlled independently of each other. All machine conditions must be checked by the operator and he is responsible for any errors, such as flooding, overheating, or unwanted ignition of fuel or dried material. On the main screen, the current states of the drives are displayed - speed, and operation by a green field with the name of the respective drive. In the numerical fields with white background (maximum) it is possible to enter the required speed or to open the relevant drives in percentage. In addition, for the fuel feeder drives, vibrator and feed cutter drives, it is possible to enter the running time (Chod) or the time after which the restart (Period) is set in seconds. For constant operation of the drive, it is necessary to set the period to 0 seconds.

Main screen in manual mode

In this mode, the current temperature values and RPM of the individual motors are displayed on the screen. The white-coloured fields are adjustable, setting the setpoints of the individual drives. Using the START, STOP, or FORWARD and BACKWARD buttons, the individual drives are started and stopped.

Control in automatic mode

In automatic mode, the control system regulates temperatures to the desired values. These required values can be changed by an experienced operator. Changes have a major impact on the stability and safety of the machine, so it is necessary to change the values with consideration. The operator is responsible for the changes made.

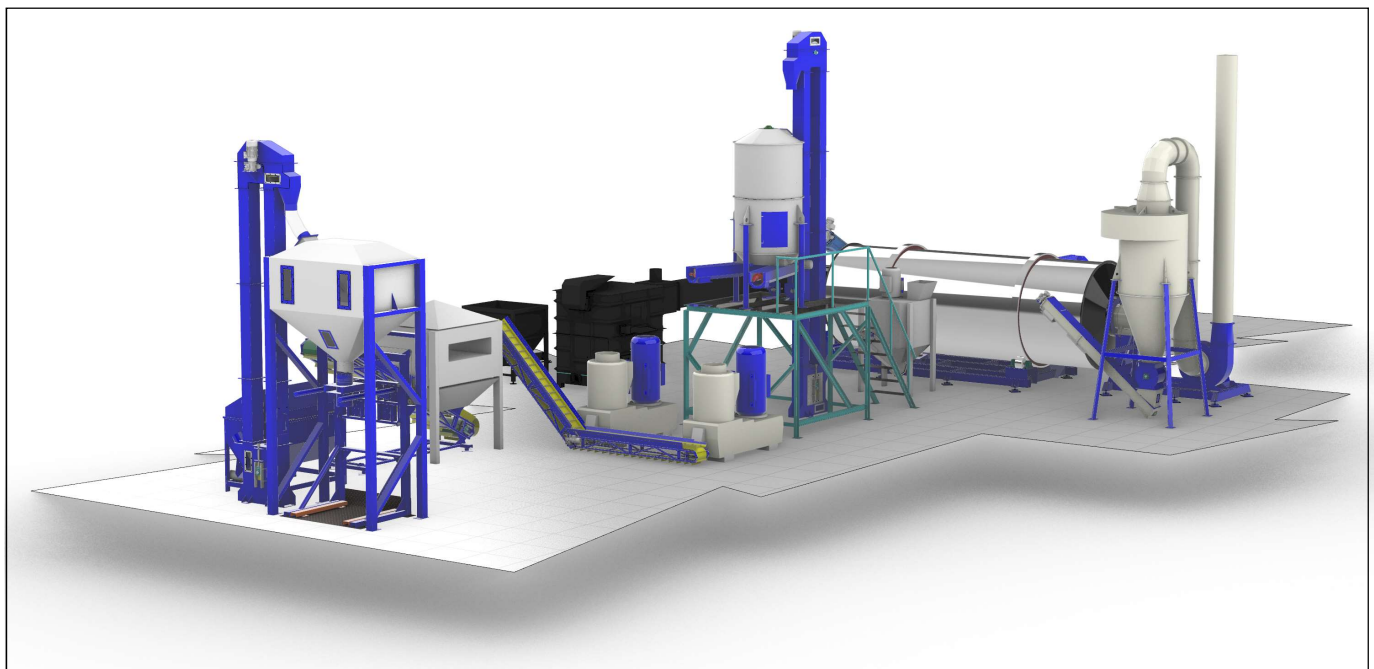
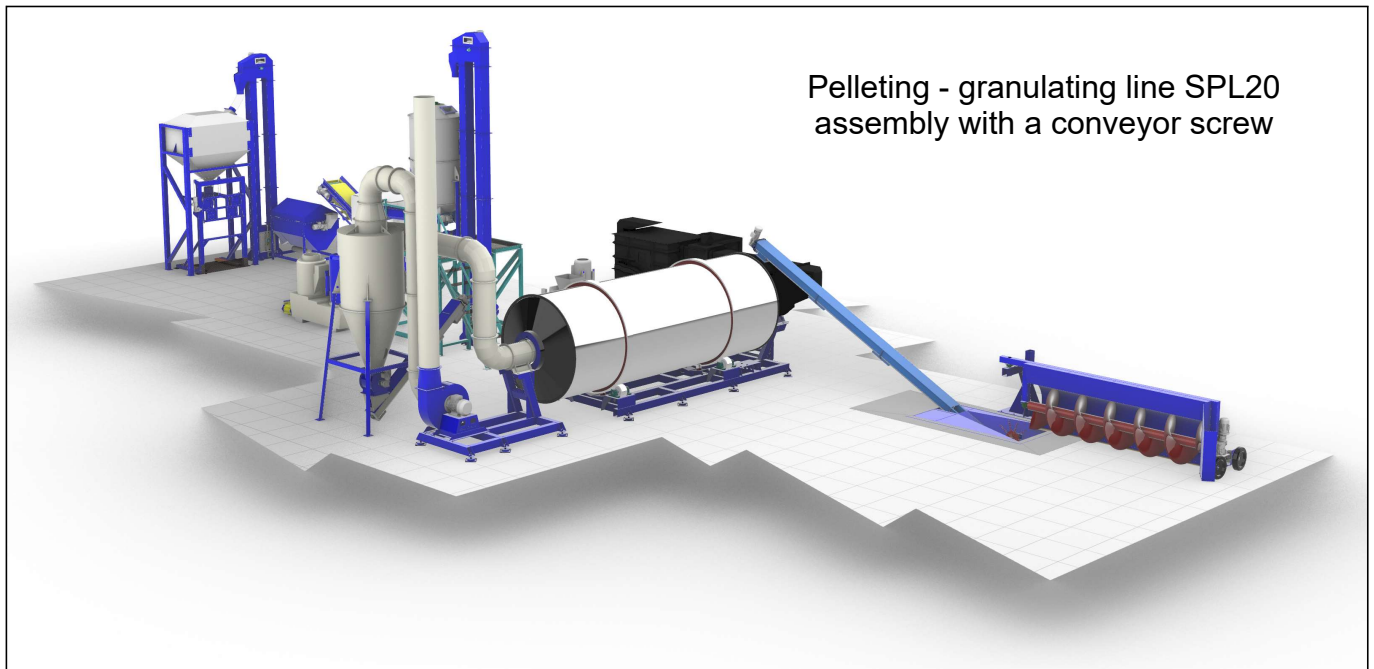
Description of functions of individual controls

- Boiler temperature control
- Temperature control at the dryer inlet
- Temperature control in the drying drum
- Temperature control at the dryer outlet

Main screen in automatic mode

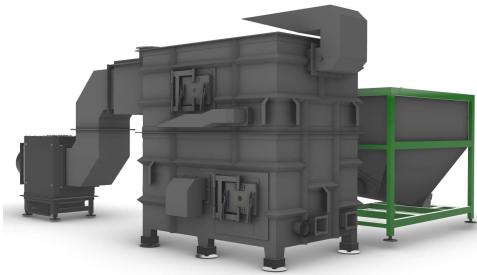
In this mode, the screen displays the current temperature values, the speed of individual engines, the percentage opening of the intake air flaps and some operating parameters of the automatic control (white coloured fields) are displayed with the possibility of editing.

Pelleting and granulating line



Components of pelletizing lines

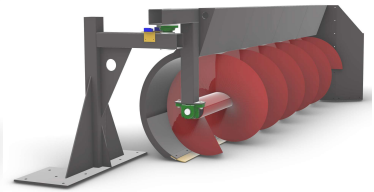
Hot air boiler 150 kW - 1.8 MW



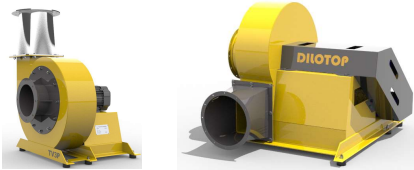
Hopper with sorting screen and screw conveyor



Feeding screw conveyor



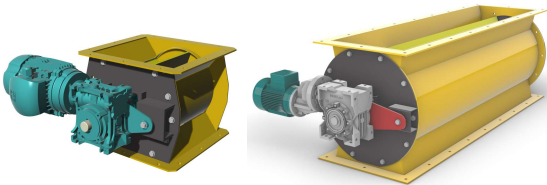
Transport ventilators
1.5 - 22 kW / 1200 -18500 m3/hour



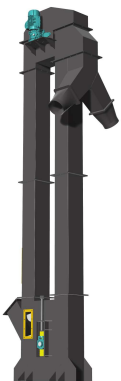
Bulk bag filler, industrial scales



Rotary separator-tourniquet, dispenser



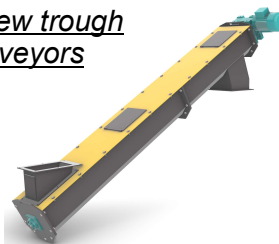
Bucket conveyors



Industrial Scale BigBag filler



Screw trough conveyors



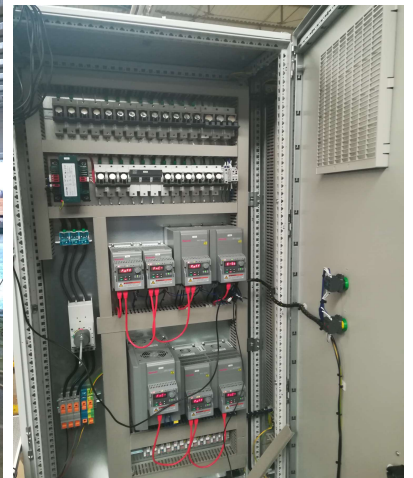
Screw tube conveyors



Mixing tank



Realization



Realization



Contact

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