



Requirements for the Use of Rotary Shafts Used on Roller Looms

**Nematov Erkinjon
Khamroevich**

PhD, Associate Professor;

**Kalandarov Navruzbek
Olimbaevich**

doctoral student.

Tashkent State University. IA Karimova (Uzbekistan)

Sadillaeva Saodat Juraevna

Bukhara Engineering and Technological Institute (Uzbekistan)

ABSTRACT

To automatically regulate the grain supply, a flap is suspended above the dosing roll on the hinges. It is connected through levers, a roller, a bracket and a roller with a power sensor made in the form of two curtain sensors. The flap forms a feeding gap with the metering roll. The minimum clearance is set manually using a restrictive screw (for striped systems it is approximately 0.35 mm; for grinding

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The frame of the roller loom is collapsible. It is made of cast iron and consists of two sidewalls, two longitudinal walls and a traverse. The operation of the machine begins with the start of the electric motor, from which the rotation is transmitted by the V-belts to the

pulley of the upper fast-turning roller, and from it through the inter-roller gears to the lower roller. From the pulley hub of the upper roller, rotation by means of a flat-belt transmission is transmitted to the pulley of the feeding rolls, and from it to the leading half-coupling of the cam clutch.

With a product-filled receiving pipe, a capacitive level switch ensures that the circuit of the solenoid valve that connects the compressed air line to the working cavity of the pneumatic cylinder is short-circuited. In this case, the piston raises the rod up. From it, an eccentric shaft is rotated through a system of levers, which moves up the free ends of the bearing housings of the lower roller, resulting in a halt of grinding rollers. The spring-loaded slave half-clutch of the cam clutch enters into engagement with the leading half-clutch, and rotation through the gearboxes begins to be transmitted to the feeding rolls.

Under the influence of the weight of the product, the sensor curtains turn the flap

through the lever system, and the product begins to flow through the feeding gap.

Reducing the mass of grain entering the receiving pipe helps to reduce the pressure on the sensor. As a result, under the action of the spring and its mass, the flap is lowered to the dosing roll, reducing the grain supply. When the grain stops flowing into the receiving pipe, the capacity of the product level alarm device changes. In this case, the relay unit opens the circuit of the solenoid valve. As a result, the supply of compressed air to the pneumatic cylinder is stopped and, under the action of a spring through the eccentric shaft, the corresponding levers and the screw, a blade of grinding rollers occurs.

The high technological efficiency of roller machines of the BZN type is ensured by the fact that on different systems the rollers differ from each other in the parameters of rifling grooves. Roller machines A1-BZN, A1-BZ-2N and A1-BZ-ZN use rollers with grooves that differ:

- profile - with angles of 23/69 ° (for the I draught system of the section of high-glass wheat);
- 30/65° (for other dredged systems, except for the IV draught section of high-glass wheat);
- 50/65° (for the indicated IV drab and the last grinding systems);
- slicing densities - 4.1÷ 10.2 grooves per 1 cm (for striped systems) and 15.3 grooves per 1 cm (for the last grinding systems);

- Gradient 4÷8 per cent for drake systems; 10% for the latest grinding systems.

The size of the gaps between the piled rollers is checked at a distance of 50÷70 mm from their ends (the gap should be 0.8÷1.0 mm for the I runnaya system; 0.6÷0.8 for the II runner system; 0.4÷0.6 for the third large runner system; 0.2÷0.4 for the rifted system; 0.1 ÷0.2 for the smooth rollers - 0.05 mm). The gaps between the flap and the dosing roll should be no more than 0.35 mm on the pulled systems, and no more than 0.15 mm on the grinding systems.

Roller machine A1-BZ-2N is designed for grinding grain and intermediate products of wheat grinding. It is used at new flour mills of varietal grinding, as well as at reconstructed enterprises instead of ZM2 roller machines. Unlike the A1-BZN roller machine, this machine has individual bonnets, as well as the possibility of installing an electric motor on the same floor where the machine is located, as well as under the ceiling on a special site. Roller machine A1-BZ-2N is produced in 39 versions. In this case, the performance of roller machines is determined by the state of the surface of the grinding rollers (the characteristic of the grooves), the type of grain feeders and cleaners, the power of the drive electric motors, as well as the presence of gearboxes of the feeders and the diameter of the flat-belt gear pulleys.

Basic technical data of roller machines

Index	A1-BZN	A1-BZ-2N	A1-BZ-ZN
	250x1000	250x1000	250x1000
Capacity of one half of the machine, t/day	84	84	84
Speed of rotation of the fast-turning roller, c-1:			
Grooved	7,0÷7,7	7,0÷7,7	7,0÷7,7
Smooth	6,6÷6,9	6,6÷6,9	6,6÷6,9
Nominal internal diameter of pneumatic receiver outlet pipes, mm	-	-	65.70, 75.85, 90, 95, PGs, 130
Electric motor power of the drive of the rollers of one half, kW	18,5	18,5	18,5
Air flow rate for aspiration, m ³ /s	0,16	0,16	-

The reliability of this type of machines without any disturbances is ensured at a maximum power of up to 30 kW. In addition, the machines in question provide for the possibility of using wear-resistant rollers with a bleached layer thickness of up to 25 mm and diameters of 252÷200 mm. Compared with BZN type machines, in which the thickness of the bleached layer does not exceed 10÷12 mm, this factor can significantly increase the service life of the rollers. At the same time, depending on the order, the machines can be supplied hollow or monolithic with rollers, respectively, with a white depth of 25 or 15 mm. On request, the machines can be manufactured in a version that allows the use of rollers in them both with conical trunnions (under the diameter of the inner ring of the bearing, equal to 75 or 90 mm), and with smooth trunnions (under the diameter of the bearing tie bushing of 80 mm).

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