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SOURCE Periodicals as indicated.

SPECIFICATIONS OF NEW USSR GRINDING MACHINES

SURFACE-GRINDING MACHINES -- Moscow, Stanki 1 Instrument, Jan 51

Model 3740

Model 3740 surface-grinding machine with a horizontal spindle and round electromagnetic table was designed by G. M. Kresteshnikov. Until recently, surface-grinding machines were manufactured on the principle of the shaper. The grinding head was located on a ram which reciprocated to and from the center of the table, and the table rotated on a sliding knee. The depth feed was accomplished by moving the knee upward. The basic shortcoming of a machine tool of this design is the rapid loss of accuracy because of the wear of the bed ways on the table side and the nonrigidity of the knee unit. In the new design, the grinding head is moved vertically for setting and for depth feed, and the reciprocating as well as rotary movement is transmitted to the table. This considerably improves the operating condition of the ways and permits the development of rigidly designed mechanisms, which in turn makes possible the attainment of high precision and surface finish. The accuracy in respect to surface finish and parallelism achieved on the new machine tool is 3-4 microns. Photograph of Model 3740 appears on the front cover of Stanki 1 Instrument, June 1950 and is available as CIA Photo Accession No 77427. Specifications given on inside back cover of this source are as follows: table diameter, 400 millimeters; speed, up to 210 revolutions per minute; power of main electric motor, 4.5 kilowatt; weight of machine tool, 3,700 kilograms; dimensions, 2,247 x 1,525 x 1,900 millimeters. Designers: K. A. Samoylov, chief designer; G. M. Kresteshnikov, leading designer; P. V. Olizarov, leading technologist.

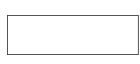
Model 3317

The special feature of Model 3317 vertical two-spindle surface-grinding automatic is that it does not have a table for holding the workpiece. With automatic adjustment to compensate for wheel wear, this automatic can be incorporated in automatic transfer machine lines. [ ]  
25 April 1951, p 162, for specifications and photograph of this model.

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Model 3544

Model 3544 surface-grinding machine is designed for grinding ways of various large parts such as beds, columns, tables, slides, etc. up to 4,000 millimeters long, up to 1,150 millimeters wide, and up to 1,200 millimeters high. It has a hydraulic drive, to transmit reciprocating movement to the table, balance the traverse, and in addition, to lubricate the ways.

Model 375

Model 375 is a heavy rotary (karusel'no) grinding machine with an electromagnetic table 1,500 millimeters in diameter. Maximum grinding height is 600 millimeters. Photograph in Stanki i Instrument, February 1950, front cover available as CIA Photo Accession No 77426. Additional specifications given on inside back cover of this source are: cutting speed, 40 meters per second; workpiece speed, 75 meters per minute; transverse feed, up to 2,200 millimeters per minute; total power of electric motors, 47 kilowatts; dimensions, 4.2 x 4 x 3.3 meters; weight, 32 tons. Designers: Il'ya Aleksandrovich Rabinovich, leading designer; Konstantin Aleksandrovich Samoylov, chief designer.

Model 3724

The special features of Model 3724, which has a 400 x 2,000-millimeter rectangular table, and was designed by M. V. Kalinkov, leading designer, are the great power and the high rigidity of design.

HEAVY CYLINDRICAL GRINDING MACHINES -- Moscow, Vestnik Mashinostroveniya, Apr 52

The Khar'kov Machine Tool Building Plant imeni Molotov is manufacturing heavy cylindrical grinding machines from 32 to 90 tons in weight. These include Models 3174, 3172, 3428, KhSh71, and 3417V.

Model 3174 (Figure 1) and Model 3172 (Figure 2) are intended for external grinding of cylindrical and tapered surfaces. The leading designer of these models is F. A. Berlyavskiy.

Specifications of Models 3174, 3172

	<u>Model 3174</u>	<u>Model 3172</u>
Height of centers over table, mm	400	300
Distance between centers, mm	5,000	4,000
Maximum grinding diameter, mm	700	550
Minimum grinding diameter, mm	200	100
Maximum grinding length, mm	5,000	4,000
Dimensions of machine tool, mm		
Length	14,600	12,000
Width	4,000	4,000
Total power of electric motors, kw	60	60
Weight of machine tool, kg	45,000	32,000

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Specifications of Models 3174, 3172

	Model <u>3174</u>	Model <u>3172</u>
Diameter of grinding wheel, mm	900-600	900-600
Maximum angle of table swivel, degrees	2	8
Taper number in workpiece spindle heads	Metric 100	Metric 80
Speed of table travel, m/min	0.1-2.5	0.1-2.5
Number of workpiece revolutions per min	8-40	12-60

Model 3428 special grinding machine (Figure 3) is intended for grinding crankpins of large crankshafts. The machine is furnished with a setup for grinding any one type of crankshaft. Figure 4 shows the crankshaft mounted. The leading designer of this machine is A. A. Shereshev.

Specifications of Model 3428

Height of centers over table, mm	610
Maximum length of crankshaft that can be ground, mm	5,000
Diameter of grinding wheel, mm	1,300-1,100
Speed of table travel, m/min	0.1-2.5
Number of crankshaft revolutions per min	10-30
Dimensions of machine, mm	
Length	14,600
Width	4,000
Weight of machine tool, kg	50,000
Total power of electric motors, kw	60

Model KhSh71 special machine tool [photograph on front cover of source] is intended for grinding external surfaces and flange faces of large bearing bushings and other items. Swiveling the table at an angle of up to 6 degrees permits the grinding of tapered surfaces.

The leading designer of this model is Ya. S. Kushlyanskiy.

Specifications of Model KhSh71

Height of centers over table, mm	500
Distance between centers, mm	2,000
Size of workpiece that can be ground	
For external grinding	
Minimum diameter, mm	250

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<u>Specifications of Model KhSh71</u>		
Maximum diameter, mm		980
Maximum grinding length, mm		2,000
For face grinding		
Maximum flange diameter, mm		980
Maximum grinding length, mm		80
Maximum length of workpiece that can be installed, mm		1,200
Size of grinding wheels, mm		
For external grinding		PVD 750 x 75 x 305
For face grinding with a special grinding head		ChTs 200 x 63 x 32
Speed of table travel, m/min		0.1-2.5
Number of workpiece revolutions per min		8-40
Total power of electric motors, kw		50
Dimensions of machine tool, mm:		
Length		8,000
Width		4,100
Height		2,350
Weight of machine tool, kg		30,000

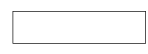
Model 3K17V heavy cylindrical grinding machine (Figure 5) is intended for grinding cylindrical, tapered, convex, and concave surfaces on rolling mill rolls up to 1,500 millimeters in diameter and up to 6,000 millimeters in length. The following operations in machining rolls can be performed on this machine:

1. Grinding cylindrical necks.
2. Grinding tapered necks with maximum length of tapered part up to 400 millimeters and taper up to 1:12.
3. Grinding barrel rolls with a cylindrical surface.
4. Grinding barrel rolls with a convex or concave surface; the maximum extent of convexity or concavity is one millimeter  $\sqrt{\text{sic}}$  (The specified convexity or concavity is obtained by a special profiling mechanism);
5. Grinding the fillet from the barrel to the neck, with a radius of 5-50 millimeters. (Dressing the grinding wheel on the radius is done by a special dressing device).

The leading designer of the machine tool is F. A. Berlyavskiy.

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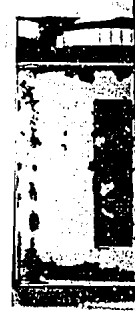
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Specifications of Model 3417V

Height of centers, mm	800
Maximum grinding diameter, mm	1,500
Minimum grinding diameter, mm	200
Maximum distance between centers, mm	6,000
Maximum weight of roll being ground, kg	40,000
Dimensions of machine tool, mm	
Length	16,500
Width	5,200
Height	2,500
Weight of machine tool, kg	90,000
Total power of electric motors, kw	120
Speed of electromechanical carriage travel (infinitely variable), m/min	0.05-2.5
Number of workpiece revolutions per min (infinitely variable)	6-60
Diameter of grinding wheel, mm	900-450
Taper number in workpiece spindle heads	Metric 140



The following photographs are available under the CIA Photo Accession Numbers listed in parentheses:

- Figure 1 (77421) - Model 3174 Cylindrical Grinding Machine
- Figure 2 (77422) - Model 3172 Cylindrical Grinding Machine
- Figure 3 (77423) - Model 3428 Special Grinding Machine
- Figure 4 (77424) - Installation of a crankshaft on Model 3428
- Figure 5 (77425) - Model 3417V Heavy Cylindrical Grinding Machine
- Front cover (77420) - Model KsSh71 Special Grinding Machine

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