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NEW METHODS SPEED MACHINING RATES; MECHANIZATION PICKS UP IN TOOL GAUGE MANUFACTURE

Modernization of lathes and milling machines at various plants has brought about an increase in rpm and in capacity. At the GZFS (Gor'kiy Milling Machine Plant), rate on the 6B82, 6G82 and 612 milling machines increased from 425 to 750 rpm; on the D1P20M lathes of the Krasnyy proletariy Plant, from 600 to 1,200 rpm. New high-speed machine tools were also designed. The speed of some lathes was increased to 3,000 rpm at the Krasnyy proletariy Plant; Model 1616 lathes were stepped up to 2,500 rpm at the Srednevolga Plant; 6N83 and 6N12 milling machines to 1,500 rpm at the GZFS; drills with 25-millimeter diameters to 2,000-2,500 rpm, etc.

The table below shows the high-speed cutting rates achieved at various plants by individual Stakhanovites:

Plant	Material Machined	Rates of Cutting Achieved (v m/min)	(t mm)	(s mm/rev)	Norms Fulfilled (in 9 mo of 1948)
imeni Sverdlov	Steel (gear)	525	2	0.48	50.12 min, norm 6.48 min, norm
MSZ	Steel 35	600	--	--	425 percent
Krasnyy proletariy	Rim Steel H_B = 280	560	1.5	0.45	300 percent
	Steel, rough machining	150	6.0	0.4	--
	Steel, finishing	875	1.0	0.3	248 percent
ZVShS (Moscow Grinding-Mach Plant)	Steel 40X and 40	465	1.5-2.0	0.36	560 percent
imeni Molotov	Cast iron	267	4-4.5	0.4	413 percent
imeni Sverdlov	(Milling) Steel 45	150	3.0	120 mm per min	315 percent
imeni Ordzhonikidze	Steel 40X	170-190	--	--	303 percent
MSZ	Steel	270	--	--	213 percent
Kolomna	(Milling) Steel 45	291	1.0	500 mm per min	--

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Work in high-speed cutting is not being carried on satisfactorily at the Plant imeni Lenin, the Lubny Plant, and some of the plants of the GUKMASh (Main Administration of Heavy Machine Building) and the Glavtyazhstankoprom (Main Administration of Heavy Machine-Tool Building Industry).

The effectiveness of high-speed methods of working and the simultaneous decrease of time for auxiliary operations can be seen from the following examples.

On short parts of a type of gear in groups of 15 to 20 pieces, a worker at the Plant imeni Sverdlov takes 9.6 minutes of machining bevel gears No 20002 instead of 37 minutes according to norms; for Part 3115, 10 minutes instead of 25 minutes; for Part 2212, 7.3 minutes instead of 20 minutes; on 240-millimeter round racks, 7.4 minutes instead of 30.5.

One of the basic problems involved in the introduction of high-speed cutting is chip removal. The Krasnyy proletariy Plant has succeeded, by making holes in cutters, in successfully removing chips. The hole is made on an electric-arc bench tool (elektroiskrovom nastol'nom stanke). The entire operation takes only 45 seconds per cutter.

In addition to high-speed turning and milling, high-speed methods for cutting worms and threads were successfully introduced in 1948. The GZFS perfected high-speed methods for rough-threading lead screws for milling machines by utilizing a special four-cutter head installed on the DiP200 threading machine. The rpm of the head is 1,400, the rpm of the part (lead screw) is 15, the speed of cutting is 235 meters per minute, the feed for each head revolution is one millimeter, and the life of the cutter is 90 minutes.

With these methods, the screw (Part B82752), which is 1,215 millimeters long can be machined in 19 minutes instead of one hour 40 minutes as when thread milled; the productive capacity is increased 5.8 times. Another screw, Part B82617, can be machined in 7 minutes instead of 45 minutes. A third screw, Part B82622, in 9.5 minutes instead of 55 minutes.

During 1948, the Krasnyy poletariy Plant perfected and in September exceeded the planned capacity in the production DiP20M lathes by conveyer-belt methods.

Work is being conducted at the Frezer Plant for conveyer production of dies and at the Krasnyy instrumental'shchik Plant for assembly-line production of dial indicators.

At the Leningrad Plant, Sestroretsk, Kirzhach and other plants, conveyer-belt methods are being perfected for the production of slide gauges, taps and sections for circular files.

In the abrasives industry, conveyer lines are being organized for the production of vulcanized wheels at the Chelyabinsk Plant.

At the GZFS a new method of bimetallic manufacture of worm gears and worms with a cold-cast bronze edge has been introduced. As a result, the consumption of bronze has been reduced for a worm gear, Part 237157, from 36 to 16 kilograms; for a worm, Part A4-1416, from 55 to 28 kilograms. The Moscow Grinding-Machine Plant has also started to use this method.

At the Krasnyy proletariy Plant, Plant imeni Ordzhonikidze, MSZ, and others, semiautomatic planing and multicutter milling machines have replaced universal lathes.

A six-spindle multicutter semiautomatic machine for manufacturing the bodies of three-jaw chucks was introduced at the Prisposobleniye Plant in 1948.

At the Stankolit Plant the production of steel castings in converters by the Motgov method was perfected. At Plant imeni Sverdlov the practice of chill casting constituted 33 percent of the 1948 total casting volume; at the GZFS, 14.1 percent; at Plant imeni XVI Congress, 13.6 percent and at the MSZ, 10.1 percent. This method has not been sufficiently developed at other plants.

During the second half of 1949, 50-80 percent of the output of lathes having 150, 200 and 300-millimeter swing, 25-millimeter drilling machines, taps, dies, circular file elements, micrometers, slide gauges, and other tools is to have been accomplished by continuous conveyer methods.

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