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SOVIET METALLURGY DEVELOPS NEW TYPES OF STEEL

LENINGRAD PLANT DEVELOPS TURBINE STEEL -- Leningradskaya Pravda, 9 Feb 52

During 1951, the Leningrad Plant imeni Lenin received two large special orders for steel casting: one for hydroturbines of the Tsimlyanskaya GES and the other for a new type of steel to be used in a special 150,000-kilowatt steam turbine. For this kind of turbine, special cast steel parts were required that can operate at far higher temperatures than regular steam turbines.

Modern technology has developed types of steel which are extremely heatproof. However, in this case current types of steel were not adequate, as they were intended for machines with a relatively short service period. In the case of parts for a turbine with an extra high capacity, the steel had to be not only extra strong, but also creep-resistant when operating at high temperatures and under heavy loads. To increase the turbine efficiency, the clearances between rotating and stationary parts are reduced to a minimum. Therefore, in the case of metal deformation due to creep, some of the parts are likely to rub against others, and because of the tremendous operating speed of the turbines, they would be in danger of breaking. Similar cases have repeatedly been observed in foreign countries.

It was necessary to develop new types of steel and to test all of their properties. Numerous experiments were made at the Plant imeni Lenin in cooperation with scientific research workers. An analysis of experimental research showed that two methods could be used to obtain the required type of steel: one was to raise the total amount of alloying elements and at the same time use only a small number of elements to determine special properties of steel, or to increase the number of alloying elements and at the same time reduce the total content of such elements. The second method is more difficult to use in steel-smelting plants, but also more economical. After careful consideration, it was decided to employ the second method.

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The steel-smelting shop of the plant has mastered the production of the new type of steel. Molds have been prepared for large turbine casings of chrome-molybdenum steel, to be used in the production of parts made of the new heatproof steel.

URAL PLANTS SLOW IN PRODUCING NEW TOOL STEEL -- Moscow, Trud, 13 Jan 52

The Osnutninsk and Zlatoust metallurgical plants of the Ministry of Ferrous Metallurgy are slow in mastering the production of tool steel according to a new standard prescribed for the manufacture of files. This is one of the reasons why there is still a large percentage of waste in the production of files at the Voroshilovgrad File Plant imeni Rudya.

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