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CONFERENCE ON THE USE OF HIGH-TEMPERATURE CHROMIUM STEELS
IN POWER MACHINE BUILDING

- USSR -

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Following is a translation of an article by Engineer M. N. Sokolova in the Russian-language periodical Energo-Mashinostroyeniye (Power Machine Building), Leningrad, No. 7, July 1960, page 34.

The State Committee of the Council of Ministers of the USSR on Automation and Machine Building held a scientific-technical conference in the TSKTI [Tsentral'niy Kotel'no-Turbinniy Institut -- Central Boiler-Turbine Institute], in February 1960, to discuss questions on the use of economical, chromium, non-corrosive and high-temperature steels in machine building. The aim of the conference was to sum up the results of research and experimental work, carried out in search and the use of chromium steels by the organized bodies of the largest scientific-research institutes and plants, and to speed up the solution of questions regarding the adoption of higher power parameters.

Conference was attended by the representatives from: Central Boiler - Turbine Institute, TSNIITMASH [Tsentral'niy Nauchno-Issledovatel'skiy Institut Tekhnologii i Mashinostroyeniya -- Central Scientific-Research Institute of Technology and Machine Building], TSNIICHERMET [Tsentral'niy Nauchno-Issledovatel'skiy Institut Tekhnologii Chernoy Metallurgii - Central Scientific-Research Institute of Technology of Ferrous Metals], UKRNITI [Ukrayinskiy Nauchno-Issledovatel'skiy Tekhnologicheskii Institut - Ukrainian Scientific-Research Technological Institute], VTI [Vsesoyuzniy Teploekhnicheskii Institut - All-Union Thermal Engineering Institute], institutes of the USSR Academy of Sciences, boiler, turbine, and metallurgical plants and planning organizations. Reports were read by: L. Ya. Liberman, Ye. N. Masaleva, V. M. Zemzin, V. V. Bazhenov (TSNIITMASH), A. I. Chizhik [IMZ - Leningradskiy Metallurgicheskii Zavod -- Leningrad Metallurgical Plant], Z. N. Petropavlovskaya, M. F. Sheshenev, R. S. Kaplan [KHPGZ - Kharkovskiy Turbogeneratorskiy Zavod -- Kharkov Turbo-Generator Plant], A. M. Borzdyk (TSNIICHERMET), I. A. Fomichev (UKRNITI), and others.

The reports threw light on the following subjects: the present situation in the problem of high-temperature, non-corrosive chromium steels and the prospects for their use in power machine building with temperatures of 580-620°C; research into high-temperature, non-corrosive steels of high chromium content, usable in turbine building; results of experimental work on development, research, and adoption of

chromium steels usable for reinforcing parts in steam turbines; materials on research into chromium, high-temperature steels E1756 and E1757; the structure and properties of the cast chromium, high-temperature steel XL1LB; steel E1802 for vanes and forge work (rotors, discs, etc.), and reinforcing parts; properties of steel XL2VMFR (E1993). The conference also reviewed results of work on welding of high-temperature chromium steels and perlite steels for turbine blade assemblies, forge work, and steam pipes; peculiarities of making pipes for boiler assemblies from martensite, semiferrite, and perlite steels; results of research into forge work in experimental model rotors from E1802 and E1756 steels, and the questions of welding high-temperature, 10 ÷ 12-percent chromium steels, working at 600° C temperatures.

The conference pointed out that metallurgical foundations in individual plants of heavy machine building are not fully complying with requirements in large-scale forge work and high alloy casting.

The conference adopted the decision to create a single, coordinated plan for research and experimental work in chromium, and high-temperature steels for power machine building.

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