

## **An Increase in the Performance of Parts Made of Heat-Resistant Steels and Alloys**

Increasing gas turbine engine parts' heat strength and heat resistance is considered. Heat-resistant steels and alloys are most often used in highly loaded units and units of modern aerospace engineering, turbines, and power plants of the generator type. They work under high contact loads and temperatures and must simultaneously have sufficient heat strength and resistance. For this, metallographic studies of these materials were performed, and structures and the influence of alloying elements were analyzed. Special attention was paid to studying the microtopography of the working surfaces formed during the finishing operations of the part's production. It is because their efficiency largely depends on the microtopography of the surfaces. Finishing operations of polishing the cylindrical surfaces of parts such as bolts and studs improve their disassembly during the overhaul of aircraft engine assemblies. While poor-quality polishing deteriorates the fatigue strength, such surfaces' resistance to thermal fatigue does not allow them to achieve regulated performance. The study reveals the possibilities of increasing materials' heat strength and resistance using appropriate heat treatment, particularly repeated heat treatment.