DIRECTED SELECTION OF TECHNOLOGY FOR ENSURING THE REQUIRED QUALITY OF MECHANICAL SEALS WORKING SURFACES

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The system of a directional selection of technology that ensures the required quality of working surfaces of the mechanical seals rings covers their entire life cycle, which includes the material of rings and their elements, the technology of manufacture, maintenance etc. They are viewed through special directed choice techniques. It is necessary to consider the mutual impact of selected methods, which will ultimately affects the quality of the whole product.

The need for a systemic approach to research requires analysis of the expedient use of directional selection technology to ensure the required quality of the surface layers of the rings at all stages of their life cycle. It is now obvious that the problems of improving the wear resistance of details of friction units should be carried out in close co-operation design, technological and tribological solutions. Proper selection of materials is only possible if the analysis of structural and tribological characteristics of friction unit and the conditions of its operation is carried out. At the stage of pre-production design the design of the mechanical seal rings, which perform certain functions, it is important to know the techniques, the use of which may provide the required characteristics of the surface and in accordance with the quality parameters to assign it (technological rationality of design). Production experience shows that the range of such methods can be wide. At the pre-production technological stages the knowledge of the methods to improve the quality of the surface layers of machine parts allows to plan a rational technology of obtaining the desired properties. As a result of research, it is possible to choose the most efficient method of producing ring billets of the required quality. Perhaps they will be made of cheaper materials, with less allowance for processing etc. It is possible a more rational use of thermal machining, reducing the number and duration of the individual stages. It is also necessary to know the obtained results of studies when planning and implementing the assembly process. The choice of assembly operations: welding, assembly, thermo-assembly etc. - is dependent on the quality of the surface of the previous layer. This leads to a deeper analysis of the assembly process, as in the final stages of the production process the necessary characteristics of the product are finally formed.

During the formation of the surface layer with the desired characteristics control methods and testing of the seal are applied. Knowing the material and surface quality rings, it can be predicted the conditions under which mechanical seals will work better or worse and in this regard, using the obtained results, it is possible to manage the process of rational exploitation.