

[IV~19]

Surface Processing of Components and Tools by MEVVA Source Ion Implantation

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Abstract

Metallic ion implantation has been employed in surface processing of industrial components and tools with very encouraging improvements in recent years. In spite of highly technical effectiveness, the new surface technique has not been extensively accepted by industries mainly because of high costs of capital and operating compared with other competitive surface techniques. High current and large implantation area with eliminating the mass analyzer and the beamscanning unit make metal vapor vacuum arc (MEVVA) source ion implantation versatile, simple and cheap to operate and well suited to commercial surface processing.

In this paper, the recent development of MEVVA Source ion implantation technique in Beijing Normal University has been reviewed and the results of surface modification of materials and several industrial components and tools implanted by MEVVA source ion implantation have been discussed.