

Abstract

CONTINUOUSLY VARIABLE APERTURE
FOR HIGH-ENERGY ION IMPLANTER

A variable aperture assembly (30) is provided for controlling the amount of ion beam current passing therethrough in an ion implantation system (10). The aperture assembly (30) comprises an aperture (44) defined by opposing first and second aperture plates (44A, 44B) through which an ion beam passes; control arms (46A, 46B) connected, respectively, to the first and second aperture plates (44A, 44B); and an aperture drive mechanism (36) for simultaneously imparting movement to the control arms in opposite directions, to adjust a gap (50) between the aperture plates (44A, 44B) to thereby control the amount of current passing through the aperture (44). Each of the opposite directions in which the control arms move is generally perpendicular to an axis along which the ion beam passes. A control system (120) is also provided for automatically adjusting the aperture gap (50) based on inputs representing actual ion beam current passing through the implanter, desired ion beam current, and aperture position. The control system (120) includes control logic (122, 124) for receiving the inputs and outputting control signals (126, 128) to the aperture drive mechanism to adjust the aperture gap.

Figure 1

