

ABSTRACT

Ultraviolet light having a wavelength which is greatly absorbed by oxygen is emitted for a predetermined period of time from a light source(12) into a housing containing a light transmitting system(BMU), an illumination optical system(14), and a projection optical system(PL). The gas in the housing is replaced with dry air containing oxygen sufficiently. The oxygen in the gas absorbs the energy of the ultraviolet light, and ozone is produced by photochemical reaction. Therefore, the contaminant adhering on the surface of an optical element is removed by the oxidation of ozone; thus the optical element is efficiently cleaned. Consequently, an optical element is sufficiently cleaned in a shorter time than in conventional methods, and the illumination time of the ultraviolet light is reduced, thereby reducing the damage to the glass material.