

**APPARATUS HAVING AN IMMERSION FLUID SYSTEM CONFIGURED TO MAINTAIN  
IMMERSION FLUID IN A GAP ADJACENT AN OPTICAL ASSEMBLY**

**ABSTRACT**

An apparatus and method for maintaining immersion fluid (212) in the gap adjacent the projection lens (16) during the exchange of a work piece (208) in a lithography machine (10) is disclosed. The apparatus and method includes an optical assembly (16) configured to project an image onto a work piece (208) and a stage assembly (202) including a work piece table (204) configured to support the work piece (208) adjacent the optical assembly (16). An environmental system (26) is provided to supply and remove an immersion fluid (212) from a gap between the optical assembly (16) and the work piece (208) on the stage assembly (202). After exposure of the work piece (208) is complete, an exchange system (216) removes the work piece (208) and replaces it with a second work piece. An immersion fluid containment system (214) is provided to maintain the immersion liquid (212) in the gap during removal of the first work piece (208) and replacement with the second work piece.

Figure 1