

METHOD FOR MANUFACTURING MASK BLANK SUBSTRATE, METHOD FOR
MANUFACTURING MASK BLANK AND METHOD FOR MANUFACTURING TRANSFER
MASK

Abstract

Provided are a method for manufacturing a low-defect and high-quality mask blank substrate such that the occurrence of a phenomenon where a portion of a transfer pattern and a principal surface of the substrate therebeneath are broken off together can be minimized, a method for manufacturing a low-defect and high-quality mask blank such that the degradation in the mechanical strength of the principal surface of the mask blank substrate can be minimized and such that the occurrence of a phenomenon where a portion of a transfer pattern and a principal surface of the substrate therebeneath are broken off together can be minimized, and a method for manufacturing a low-defect and high-quality transfer mask such that the occurrence of a phenomenon where a portion of a transfer pattern and a principal surface of the substrate therebeneath are broken off together is minimized such that there is little pattern loss. The mask blank is manufactured by preparing a mask blank substrate (X) having a substrate principal surface (X1) polished using a polishing solution containing abrasive grains, etching the substrate principal surface (X1) using catalyst-referred etching so as to remove damaged portions from the principal surface (X1), and then depositing a thin film that forms a transfer pattern on the substrate principal surface (X1) of the substrate (X) by sputtering.

FIGURE 1