Actinic Review of EUV masks: Status and recent Results of the AIMS™ EUV System

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Abstract

The EUV mask infrastructure is of key importance for the successful introduction of EUV lithography into volume production. In particular, for the production of defect free masks, actinic review of potential defect sites is required. With such a review it can be decided if a defect prints, i.e. need to be repaired or compensated. It also serves as verification for the repair or compensation with the MeRiT® electron beam repair tool, thereby providing a closed loop mask repair solution. To realize such an actinic review tool, ZEISS and the SEMATECH EUVL Mask Infrastructure consortium started a development program for an EUV aerial image metrology system, the AIMS™ EUV, with realization of a prototype tool. After the first tests in early 2014, the prototype was updated to meet production needs. The delivery of the first customer tool is planned for the first half of 2015. The AIMS™ EUV concept and its feasibility has been discussed in previous years at SPIE Advanced Lithography conferences. In this paper, we discuss the current status of the prototype integration and show recent results from the integration of the prototype tool.