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(54) **FACET MIRROR FOR USE IN A PROJECTION EXPOSURE APPARATUS FOR MICROLITHOGRAPHY**

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See application file for complete search history.

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(57) **ABSTRACT**

A facet mirror is to be used as a bundle-guiding optical component in a projection exposure apparatus for microlithography. The facet mirror has a plurality of separate mirrors. For individual deflection of incident illumination light, the separate mirrors are in each case connected to an actuator in such a way that they are separately tiltable about at least one tilt axis. A control device, which is connected to the actuators, is configured in such a way that a given grouping of the separate mirrors can be grouped into separate mirror groups that include in each case at least two separate mirrors. The result is a facet mirror which, when installed in the projection exposure apparatus, increases the variability for setting various illumination geometries of an object field to be illuminated by the projection exposure apparatus. Various embodiments of separate mirrors for forming the facet mirrors are described.

27 Claims, 20 Drawing Sheets