Supply Chain Explorer

By the Emerging Technology Observatory

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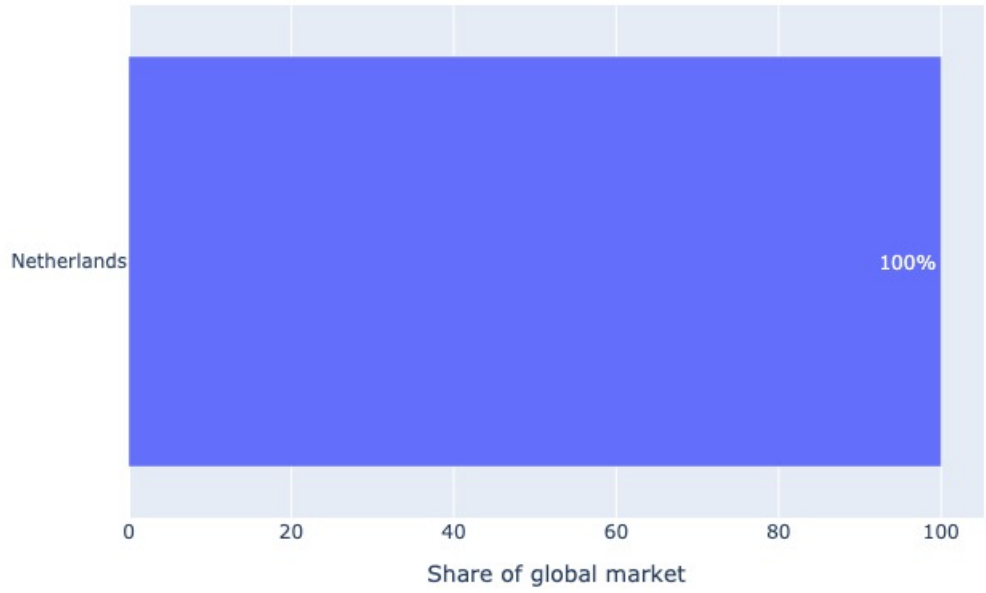
EUV scanners

Photolithography scanners use ultraviolet light to draw intricate, nanoscale patterns into semiconductor wafers, creating the billions of tiny circuits contained in a single advanced logic chip. An extreme ultraviolet (EUV) scanner refracts a beam of 13.5 nm ultraviolet light through a photomask, transferring that pattern to a photoresist chemical applied as a layer on the chip. The light dissolves parts of the photoresist in the circuit pattern. The newly created photoresist pattern is etched into a permanent chip substrate below the photoresist. Throughout this process, the scanner precisely moves the wafer and the photomask help build the design.

EUV scanners are the most advanced photolithography equipment currently used in mass semiconductor production. They are the only tools combining leading-edge precision (by producing light with small wavelengths) with high throughput (by using photomasks), and are necessary for mass-producing the most advanced logic chips. They are exclusively built by the Dutch firm ASML. A single EUV scanner costs well over $100 million, ships in 40 freight containers and contains about 100,000 individual parts.

Country provision



Notable supplier companies

- ASML - Netherlands