In a fiber opening system, staple fiber is often conveyed between machines through thin-walled metal pipes called ductwork. Fans produce air pressure that moves the fiber through the ducts. When the fiber gets to the end of the duct it is usually desirable to provide a means to separate the air from the fiber so the fiber can fall by gravity into the next machine in the process. The device that accomplishes the air/fiber separation is called a fiber condenser. There are two primary types of fiber condenser.

A rotary condenser, sometimes called a rotary separator, consists of a round metal screen through which a vacuum is pulled. When the fibers reach the screen they are pulled against the screen and held fast by the vacuum. Inside the screen is a baffle so that vacuum is applied to only half the screen. As the screen turns it carries the fiber around and once the fiber passes the start of the baffle, it is no longer held by vacuum to the screen and can fall off the screen in clumps. Usually this is helped by a rotating scraper or belt.

An air box type condenser sometimes called a stationary separator, is nothing more that a large metal box made out of metal screen having an open bottom. The fiber/air mixture is blown into the box and the air escapes through the screen. There are no moving parts. This type of condenser does not control the fiber as well as a rotary condenser and cannot completely separate the fiber from the air. The fiber comes out much more fluffy and continues to be blown around somewhat. For dusty fibers, the air box may be enclosed by a second solid metal box so a vacuum can be pulled to suck away dust.