

***Question:*** *Why is a priming system needed on a centrifugal fire pump?*

A centrifugal, midship-mounted fire pump on a fire department engine must be primed before it will operate. Primed means fully water flooded and all the air inside the pump casing preferably removed.

An operating midship pump filled with water is self-sustaining in that it creates quite a high vacuum at the eye of the impeller. This provides a continuous intake of water when drafting from a static supply source. However, when water is drained and the pump is filled with air, the centrifugal pump impeller is a very poor vacuum pump. This presents a problem when trying to draft from a static source where the physical level of the water supply is lower than the pump itself, such as when operating from a portable tank or pond. Operating an air-filled midship pump fails to produce enough vacuum required to provide lift, which is needed for the fire pump to flood itself when the pump is above the supply source. Under most drafting conditions, operating an air-filled pump will not initiate a prime and it therefore requires the aid of an external priming system.