



QUICK RESPONSE

Saving life and property through effective licensing, plan review, and inspection of fire protection systems.

April 2009

FIRE PUMPS – IMPELLER



One of the critical internal components of a centrifugal fire pump is the **impeller**. The **impeller** is mounted to the shaft which is rotated by the driver.

As shown in the Figure 1 below, the outer edges of the **impeller** are known as *shrouds*. The curved interior portions of the **impeller** that joins the shrouds are known as *vanes*. The center of the **impeller** is referred to as the *eye*.

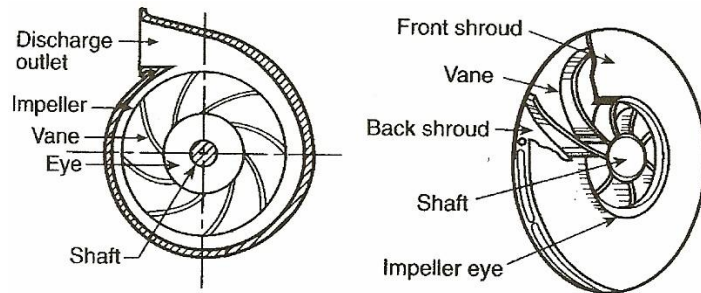
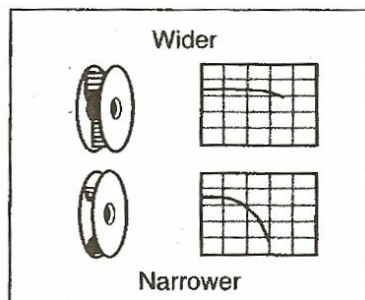
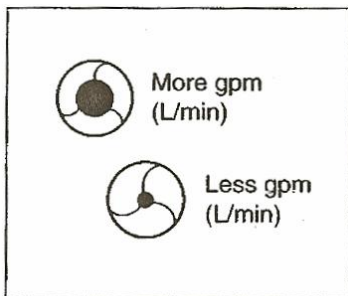
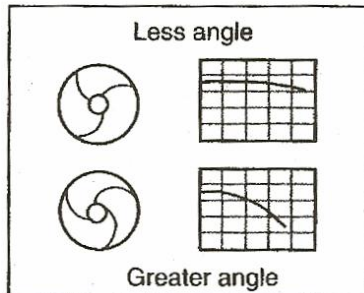
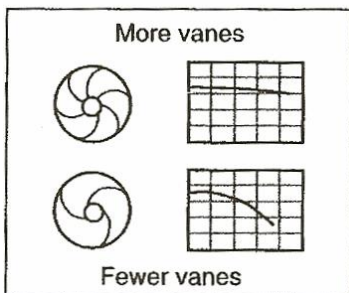


Figure 1



When the pump is activated the shaft rotates the **impeller** rapidly. Water is drawn into the eye and guided at high velocity by the vanes and shrouds outward toward the discharge outlet. Due to centrifugal force, pressure increases as the water moves through the rotating **impeller**.



As indicated in figures to the left, fire pump performance can vary depending on the distance between the shrouds, the number of vanes, the angle of the vanes, and the size of the eye of the **impeller**.

Impellers may be either single or double suction. With single suction **impellers**, the water enters the eye on one side. With the more common double suction **impellers**, the water enters the eye from both sides.