



## Fire Pumps: Eccentric Reducers: Another Perspective

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**Learning Objective:** The student shall be able to identify the condition in which a fire pump suction-side eccentric reducer may be installed with the “flat side” down.

Coffee Break Training 2008-4 emphasized the importance of correct orientation and placement of tapered eccentric reducers on the suction side of stationary fire pump installations.

The purpose of an eccentric reducer is to transition the pipe sizes from a larger incoming supply to a smaller suction inlet on the pump. Eccentric reducers are easily identified by the fact that one side appears to be flat, while the other side is tapered toward the suction inlet.

When the pump is fed from **below** or **the side** from an underground water main, the eccentric reducer must be installed with the “flat side” on the top, parallel to the floor. This arrangement prevents air being trapped in the upper portion of the fitting. Air entering the suction side of the pump can cause dangerous cavitation.

In those configurations where the fire pump supply comes from **above**, such as is the lower elevations of a basement or from an elevated tank, the eccentric reducer may be installed with the “flat side” down, parallel to the floor. When the water supply is delivered from above, any trapped air can be bled off at the top of the pump casing while the system is filled with water. In today’s illustration, the water supply is on the right-hand side of the picture, and is entering the pump from above. Therefore, it is described as a “top-feed” installation and the reducer may be installed as it is shown.

In all cases, the fire inspector, installer, or person performing the pump test should pay particularly close attention to the reducer’s installation, and in the event of questions, always refer to the equipment manufacturer or listing for guidance.

For additional information, refer to “Pumps for Fire Protection Systems” by Kenneth Isman, available from the National Fire Protection Association.



This eccentric reducer is installed correctly with the “flat side” down in a top-feed configuration. Photo courtesy Keith Heckler, P.E., Rockville Fire Department, Maryland.

