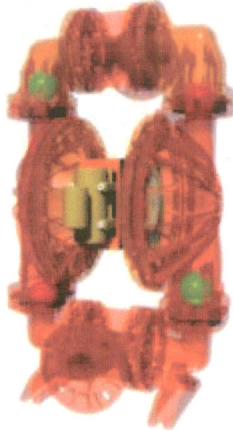


PRINCIPLES OF OPERATION

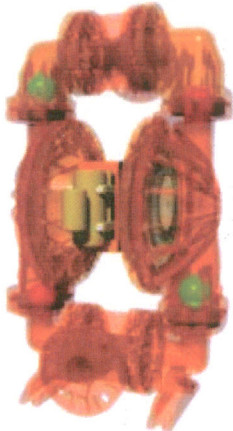
See How It Works

Figure 1:



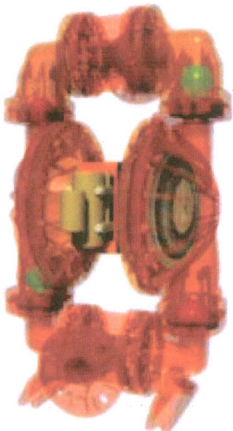
Air supply is directed to the left air chamber behind diaphragm A. Diaphragm A is driven by compressed air away from the center section and toward the liquid chamber. The opposite diaphragm (diaphragm B) is pulled in by the common shaft. Diaphragm B is now on its suction stroke while diaphragm A is on its discharge stroke. The movement of diaphragm B toward the center block opens the bottom right check valve and closes the upper right check valve. This movement creates a vacuum within liquid chamber B. Atmospheric pressure forces fluid into the inlet manifold, past the lower right inlet check valve and into liquid chamber B. When the pressurized diaphragm A reaches its full stroke, the air distribution system redirects the air supply to the back side of diaphragm B.

Figure 2:



The pressurized air forces diaphragm B away from the center block and the common shaft pulls diaphragm A toward the center section. The air chamber on side A, exhausts its air to atmosphere. Diaphragm B is now beginning its discharge stroke, while diaphragm A is beginning its suction stroke. The movement of diaphragm B toward the center block, opens the bottom right check valve and closes the upper right check valve. Diaphragm A creates a vacuum that begins to open the inlet check valve (lower left) and closes the discharge check valve (upper left).

Figure 3:



These same hydraulic forces lift the discharge valve ball off its seat while the opposite discharge valve ball is forced onto its seat, forcing fluid to flow through the left side of the pump and out the discharge manifold. The movement of diaphragm A to the center block of the pump creates a vacuum within liquid chamber A. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet valve ball is forced off its seat allowing the fluid to enter the right liquid chamber.

As the pump reaches its original starting point, each diaphragm has gone through one suction and one discharge stroke. This movement constitutes one pumping cycle. The pump will take several cycles to completely prime depending on the application variables. .