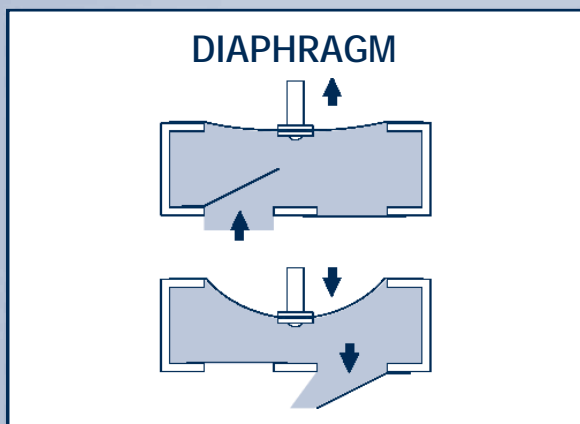


# PUMPING PRINCIPLES

- CONTENTS
- ENGINE COOLING
- INDEX
- HOME
- NEXT
- BACK

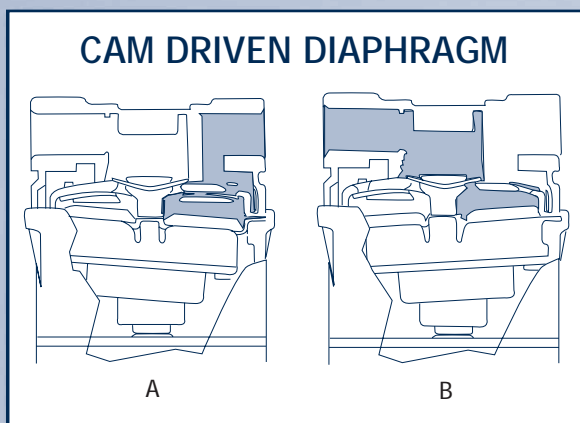


## HOW IT WORKS:

- a.) As the piston diaphragm is pulled away from the housing, the cavity increases in size. This creates a vacuum that draws in the liquid through the one way inlet valve.
- b.) As the diaphragm is pushed toward the housing, the cavity decreases in size which forces the liquid out through the one way outlet valve.

## FEATURES:

- Dry Running: can run dry indefinitely without damage
- Self-priming: can lift up to 15 feet under ideal conditions
- Self-adjusting: "air operated" diaphragm pumps automatically adjust their speed as viscosity fluctuates



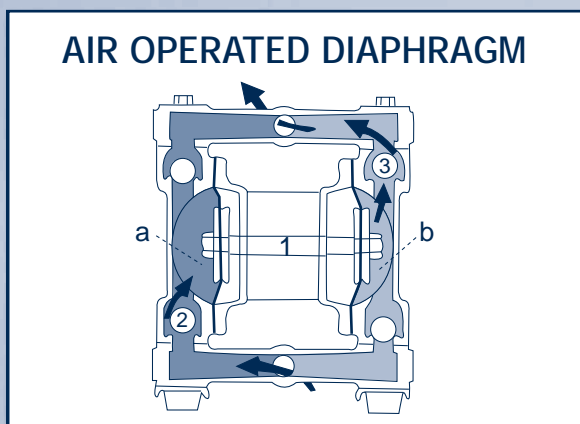
## HOW IT WORKS:

A multiple diaphragm pump utilizes an offset cam attached to the diaphragm by pistons to alternately enlarge and decrease the size of each chamber.

- a.) As the piston moves away from the housing, the cavity increases and draws in liquid through the one way inlet check valve.
- b.) As the piston moves toward the housing the cavity decreases in size and forces the liquid out through the one way outlet check valve.
- c.) Each diaphragm cavity works independently as their piston alternately decreases and increases the diaphragm cavity.

## FEATURES:

- Same as the diaphragm principle shown above
- High Pressure: up to 150 psi is possible; 2500 psi for Hydracell
- Smooth Flow: multiple diaphragms smooth out the pulsation of the single diaphragm design

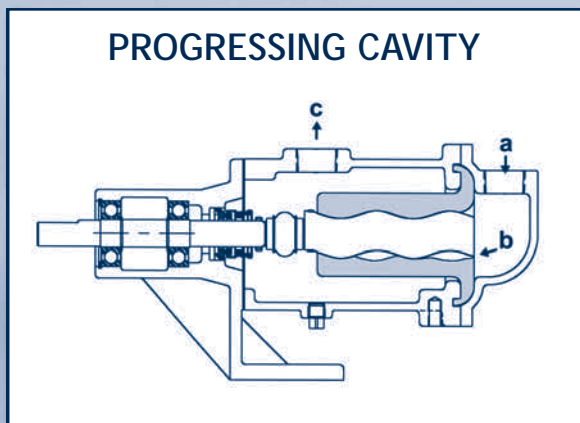


## HOW IT WORKS:

- a.) Compressed air powers the piston (1) moving it right to enlarge cavity "a". This action draws in liquid through the inlet check valve (2).
- b.) While the piston (1) enlarges cavity "a" it compresses cavity "b" forcing liquid out the one way check valve (3) toward the discharge.
- c.) Once the piston (1) has fully extended, it is redirected (by compressed air) to compress cavity "a" (forcing liquid out) and enlarging cavity "b" (drawing liquid in).
- d.) Once the piston (1) has fully extended to the left the cycle repeats as compressed air redirects the piston (1) back to the right.

## FEATURES:

- Dry Running: can run dry indefinitely without damage
- Dead Head: will simply stall and will not be damaged when the discharge is blocked
- Self-priming: can lift up to 20 feet under ideal conditions



## HOW IT WORKS:

- a.) Liquid is drawn into the suction of the pump as the corkscrew shaped rotor revolves within the rubber stator.
- b.) Liquid is captured in the cavity between the rotor and stator. This cavity travels toward the discharge during rotation.
- c.) The cavity opens into the discharge chamber and delivers its contents as it reduces in size. Liquid is forced out the discharge as more liquid is delivered by continued rotation.

## FEATURES:

- Abrasive Handling: the rotor/stator design allows the handling of abrasive and/or viscous liquids
- Low Shear: smooth gentle pumping action enables the pumping of shear sensitive and solid entrained liquids
- High Pressure: up to 600 psi can be achieved with low to high viscosity liquids