ROTOR CLIP COMPANY, INC. · 187 Davidson Avenue · Somerset · NJ 08873 · USA

ROTOR CLIP®

APPLICATION NOTES

RETAINING RINGS CURE FASTENER CONCERNS IN ANOTHER MEDICAL APPLICATION

Peristaltic pumps are used to move fluids along a tube in a variety of medical and industrial applications. They can pump sterile or harsh fluids without coming into contact with other components of the pump that can contaminate clean fluids or be damaged by acidic or viscous fluids.

The core of the pump in this design is a series of rollers that are fastened to a wheel. A tube containing the fluid comes in contact with the rollers as they turn. The rollers pinch the tube in order to force the contents in the tube to move along.

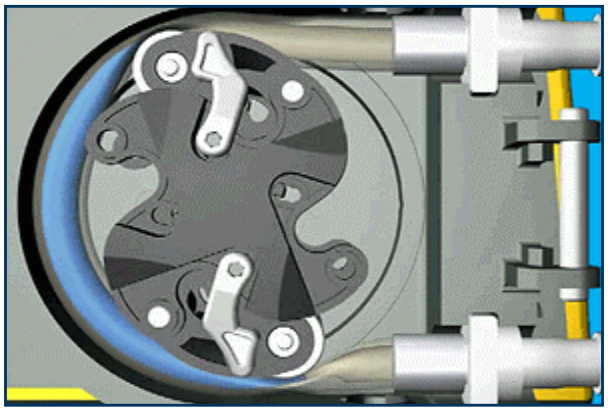

Illustration of how a Peristaltic Pump works: The rollers alternately depress the tube and allow it to return to it's natural state, creating a steady flow without contact with pump components. Source: WatsonMarlow

As the tube returns to its natural "un-pinched" state, between each roller, the force causes additional fluid to move through the passageway, thus keeping a steady flow through the pump. This is often referred to as a form of positive-displacement pumping.

This process is called peristalsis and is used in many biological systems, most famously in the gastrointestinal tract. Common applications for peristaltic pumps include heart-lung machines to circulate blood during bypass surgery, and in hemodialysis systems.

Designers were concerned about the extra costs associated with retaining eight seperate rollers on their own shaft using traditional fasteners, like screws, nuts and bolts. Limited space was also a consideration along with the costs associated with assembling so many small components.

The eight rollers are held in place by E retaining rings; an E ring also retains the entire wheel the rollers are attached to.

The E Retaining Ring was the fastener of choice, offering the designers the following advantages:

- Less shaft preparation (no threading, tapping or drilling)
- Reduced weight and size of finished designs
- Lower costs of raw material and labor in assembly of components.

For more information on all of our retaining rings or your own application uses, and to talk to one of our Technical Engineers, email us: sales@rotorclip.com