

Fluid Metering Inc. – Pumping & Dispensing Experts Since 1959.

Over 500,000 FMI Dispensers and Pumps used in Diagnostic, Medical, Analytical, Industrial Instruments.

Comparison between FMI technology and Peristaltic Pump Technology

Peristaltic pumps operate on the principal of a tube squeezed by rotating rollers connected to a motor.

Typically after a while the tube will not return to its original shape and the flow will be reduced. Flow reduction of 25% is common.

Some peristaltic pump manufacturers consider a tubing failure **only** when the flow reduction reaches 50%! .

Pressure, speed and abrasive fluids containing particles will accelerate failure even faster.

Ruptured tubes can create an environmental hazard and costly clean up.

Typical applications – precise and consistent Dispensing and Metering from 2 microliters to 4600 milliliters per minute.

Key FMI Features - Accuracy - better than 1% , No Valves, Ceramic and Fluorocarbon Fluid Path (typical).

Feature / Function	FMI Ceramic Pumps	Peristaltic Technology (typical)
Reliability	Ceramic and fluorocarbon fluid path. No tubes to squeeze, change or service.	Principle of operation has a self destructing fluid path. Constant crushing of the tube can cause a rupture creating an environmental hazard. Process can be dramatically effected by accelerating flow reduction.
Accuracy / Precision	Maintained for millions of service free cycles.	Accuracy deteriorates from the start. The longer the tube is used the higher the restriction and inaccuracy.
Flow Rate	Maintained for millions of service free cycles.	Flow rate deteriorates from the start. The longer the tube is used the higher the reduction. Over time flow can be reduced by 10-25% or higher.
Pressure	Up to 100 psi	Typically 25 psi and less. Higher pressure designs have a limited flow capacity (less than 200 ml's min.). The higher the pressure the shorter the tube life.
Slurries and Particles	Sapphire hard ceramic internals are unaffected.	Abrasive slurries grind the tube down reducing flow and generating particulates from the denigrated tubing. Major cause of tube failure.
Motor Speed	Rotating ceramic internals are unaffected by motor speed	The higher the speed the faster the tube deteriorates. At motor speeds of 600 rpm tube life is decreased by as much as 90%. High speed with higher pressure is the worst scenario.
Service, Reliability & Long Term Cost	No service required for millions of cycles.	Tube has to be monitored and changed on a regular basis. No indication of progressive flow deterioration unless constantly checked.
Durability & Long Term Cost	Precision ceramic internals provide millions of trouble free, service free cycles.	Standard tubing does not last long. Better tubes are expensive, \$4 - 5 per ft. Pump requires frequent manual service - changing the tubes. Implication of ruptured tube – environmental hazard and cleanup.