

Series MPA Peristaltic Pumps



MPA-6 Pump

The patented Maguire peristaltic pumps are designed to accurately meter precise amounts of liquid color into the main flow of natural material directly above the throat of your process machine. Metering is accomplished by the compression and release of a flexible pumping tube by six hardened dowel pins that rotate within a Celcon® housing.

Positive Displacement Pump

Series MPA pumps are true positive displacement pumps, with no seals, check valves or clearances to allow even the slightest internal leakage. The units are self-priming and will pass any entrapped air bubbles in the liquid through the pump without loss of prime. They can pump liquid with viscosity as high as heavy syrup.

Automatic Speed Control

The MPA pumps use automatic speed control to assure self-adjusting accuracy. This pump can be used for both injection and extrusion. The electronic controls are explained on page 21 of this catalog.

Three Tubing Sizes Available

Various tubing diameters and assemblies are available to provide a wide range of outputs.

Ideal for Most Liquid Color Applications

Maguire MPA peristaltic pumps are best suited for accurate metering at the very low rates (up to 3 gallons) typical of liquid coloring applications.

High rate extruders requiring higher rates of liquid color may be better served by our Model MPA-3-HO (3 - 5 gallons/hour) or Model MDA Drum Pump (up to 45 gallons/hour).

6-Roller Pump Head

6-roller pumps utilize six hardened dowel pins retained by a plastic cage and held firmly against the inside surface of the pump head housing by a flexible elastomeric center drive roller. A tube compression groove, machined into the pump head housing, provides a path for the pump tube.



Because tube compression is determined by the depth of this groove, tolerances will not change over time, and priming and pumping accuracy is never lost. In this patented design there are no bearings. The rolling dowel pins do not wear out. A clear viewing window allows observation of the roller and tubing.

How MPA Pumps Work:

The Maguire standard Digital Controller provides the precise motor speed regulation and metering control necessary to assure absolute accuracy of color usage. Because metering rate is directly related to motor shaft rotation, accuracy is obtained by precisely controlling drive motor rotation.

The controller divides each full motor rotation into 106 increments, each increment representing a small fraction of a gram of color being carefully measured. The controller contains a 1/27 HP DC Permanent magnet motor with variable speed control. In the standard configuration the motor is close-coupled to a heavy duty gearbox with a reduction ratio of 53:1.

As the motor turns, a "hall effect" pickup device on the motor

sends 2 pulses per revolution to the microprocessor. The gearbox ratio of 53:1 means that 106 pulses (2 x 53) are received for every single revolution of the motor shaft.

Easy set-up

The digital counter located on the face of the controller provides the means for pre-determining the exact degree of pump head rotation and, therefore, the precise amount of color that will be added. To determine the proper setting for the counter, a simple formula is used based on percent of color required, a predetermined metering rate, and total shot weight in grams (or pounds per hour for extrusion applications).

Easy Maintenance and Cleaning

Maintenance

No part will wear out or need replacing. Occasional cleaning may be necessary. Pump tubes must be replaced periodically. Typical tube life is 1 to 6 months.

Cleaning

Cleaning is accomplished with soap and water. Disassembly is easy and parts are large. The unit must be free of liquid color contamination to operate properly.

Inserting Tube

The tube is laid into the slot across the top of the pump head running from front to back in a straight path across the top of the dowel pin rollers. With rollers turning, the tube is drawn under the edge of the housing overhang. Unlike 3-roller pump designs the clear cover disk need not be removed.



The 6-roller pump head features straight-through tube path minimizing tube deflection resulting in longer tube life.

Model MPA-	Tubing I.D.	Maximum RPMs	Flow/hr @ 10 lb/gal		Minimum Dispense (One Cycle)
			Min (g)	Max (lb)	
18-G	1/8" (green)	30	36	2.9	.006 grams
34-G	1/8" (green)	56	36	5.4	.006 grams
34-R	3/16" (red)	56	81	11.6	.013 grams
51-G	1/8" (green)	90	36	8.6	.006 grams
51-R	3/16" (red)	90	81	18.0	.013 grams
51-C	1/4" (clear)	90	138	30.0	.022 grams