

## Microcassette pumpheads



The 300 series of interchangeable OEM pumpheads also includes the 304MC and 308MC microcassette pumpheads, with a choice of four rollers for higher flow or eight rollers for higher precision. Microcassette pumpheads are available with three or five pumping channels.

Designed to give affordable precision for multi-channel applications, each pumphead contains removable cassettes which may be preloaded with tubing elements. Up to two MCX or three MCX3 extension pumpheads may be added to a maximum twelve or fifteen channels depending on the drive selected.

Cassettes may be removed and tubing changed at any time without stopping the drive or disturbing neighboring channels, and each cassette will accept any of the twenty tube sizes available.

Double segment manifold tubing elements are available in Marprene, PVC and Peroxide cured Silicone and feature two pumping segments to give double tube life. Adjacent cassettes may contain tubing of a different type or size.

Microcassette pumpheads are compatible with all 300 Series motors and controllers.

### Ordering information

304MC four roller five channel pumphead	033.6450.000
308MC eight roller five channel pumphead	033.6850.000
304MCX four roller five channel extension pumphead	033.6451.000
308MCX eight roller five channel extension pumphead	033.6851.000
304MC3 four roller three channel pumphead	033.6460.000
308MC3 eight roller three channel pumphead	033.6860.000
304MCX3 four roller three channel extension pumphead	033.6462.000
308MCX3 eight roller three channel extension pumphead	033.6862.000

### Materials of construction

Bayonet mounting plate	Polycarbonate
Spindles, shaft, screws	Stainless steel
Cassette	Kematal
Sealed bearings	Carbon steel
Rollers, locking rods	MOS2 filled Nylon 6 (Nylatron)
Body, rotor	Aluminum

### 304MC Flow rates

	Double segment manifold tubing						
	0.13mm	0.19mm	0.25mm	0.38mm	0.50mm	0.63mm	0.76mm
Bore mm	0.13mm	0.19mm	0.25mm	0.38mm	0.50mm	0.63mm	0.76mm
Bore *	0.005"	0.007"	0.01"	0.015"	0.02"	0.025"	0.03"
<i>Flow rate: ml/revolution</i>	<i>0.001</i>	<i>0.003</i>	<i>0.005</i>	<i>0.008</i>	<i>0.015</i>	<i>0.028</i>	<i>0.042</i>
<i>Maximum continuous flow: ml/min</i>	<i>0.01</i>	<i>0.3</i>	<i>0.52</i>	<i>0.92</i>	<i>1.7</i>	<i>3.1</i>	<i>4.6</i>
Bore mm	0.88mm	1.02mm	1.14mm	1.29mm	1.42mm	1.47mm	1.52mm
Bore *	0.035"	0.04"	0.045"	0.05"	0.055"	0.058"	0.06"
<i>Flow rate: ml/revolution</i>	<i>0.058</i>	<i>0.074</i>	<i>0.09</i>	<i>0.12</i>	<i>0.15</i>	<i>0.16</i>	<i>0.17</i>
<i>Maximum continuous flow: ml/min</i>	<i>6.40</i>	<i>8.10</i>	<i>9.90</i>	<i>13.0</i>	<i>17.0</i>	<i>18.0</i>	<i>19.0</i>
Bore mm	1.65mm	1.85mm	2.05mm	2.38mm	2.54mm	2.79mm	
Bore *	0.065"	0.07"	0.08"	0.09"	0.1"	0.11"	
<i>Flow rate: ml/revolution</i>	<i>0.2</i>	<i>0.25</i>	<i>0.3</i>	<i>0.36</i>	<i>0.43</i>	<i>0.48</i>	
<i>Maximum continuous flow: ml/min</i>	<i>22.0</i>	<i>28.0</i>	<i>33.0</i>	<i>40.0</i>	<i>47.0</i>	<i>53.0</i>	

For tube selections, see Table F on inside back cover.

### 304MC Specifications

Bore mm	0.5mm	1.02mm	1.52mm	2.05mm	2.54mm	2.79mm
Bore"	0.02"	0.04"	0.06"	0.08"	0.1"	0.11"
<b>Maximum continuous speed: rpm</b>	<b>110</b>	<b>110</b>	<b>110</b>	<b>110</b>	<b>110</b>	<b>110</b>
<b>With Marprene tubing (Cam lever vertical, all cassettes full)</b>						
Required torque: kg cm	1.8	2.9	3.6	3.6	3.6	3.6
<b>Maximum pressure: bar</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1.3</b>	<b>1.3</b>	<b>1</b>
<b>Maximum vacuum: mmHg</b>	<b>400</b>	<b>400</b>	<b>300</b>	<b>300</b>	<b>200</b>	<b>200</b>
<b>Maximum vacuum: feet of water</b>	<b>16</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>8</b>	<b>8</b>
<b>With Silicone tubing (Cam lever vertical, all cassettes full)</b>						
Required torque: kg cm	1.6	2.6	3.2	3.2	3.2	3.2
<b>Maximum pressure: bar</b>	<b>2</b>	<b>2</b>	<b>1.3</b>	<b>1.3</b>	<b>1</b>	<b>1</b>
<b>Maximum vacuum: mmHg</b>	<b>400</b>	<b>400</b>	<b>300</b>	<b>300</b>	<b>200</b>	<b>200</b>
<b>Maximum vacuum: feet of water</b>	<b>16</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>8</b>	<b>8</b>

### 308MC Flow rates

	Double segment manifold tubing						
Bore mm	0.13mm	0.19mm	0.25mm	0.38mm	0.5mm	0.63mm	0.76mm
Bore"	0.005"	0.007"	0.01"	0.015"	0.02"	0.025"	0.03"
<b>Flow rate: ml/revolution</b>	<b>0.001</b>	<b>0.003</b>	<b>0.004</b>	<b>0.008</b>	<b>0.013</b>	<b>0.024</b>	<b>0.035</b>
<b>Maximum continuous flow: ml/min</b>	<b>0.01</b>	<b>0.30</b>	<b>0.47</b>	<b>0.83</b>	<b>1.40</b>	<b>2.60</b>	<b>3.90</b>
Bore mm	0.88mm	1.02mm	1.14mm	1.29mm	1.42mm	1.47mm	1.52mm
Bore"	0.035"	0.04"	0.045"	0.05"	0.055"	0.058"	0.06"
<b>Flow rate: ml/revolution</b>	<b>0.048</b>	<b>0.06</b>	<b>0.08</b>	<b>0.95</b>	<b>0.11</b>	<b>0.12</b>	<b>0.13</b>
<b>Maximum continuous flow: ml/min</b>	<b>5.30</b>	<b>6.60</b>	<b>8.80</b>	<b>10.0</b>	<b>12.0</b>	<b>13.0</b>	<b>14.0</b>
Bore mm	1.65mm	1.85mm	2.05mm	2.38mm	2.54mm	2.79mm	
Bore"	0.065"	0.07"	0.08"	0.09"	0.1"	0.11"	
<b>Flow rate: ml/revolution</b>	<b>0.15</b>	<b>0.18</b>	<b>0.22</b>	<b>0.26</b>	<b>0.30</b>	<b>0.33</b>	
<b>Maximum continuous flow: ml/min</b>	<b>17.0</b>	<b>20.0</b>	<b>24.0</b>	<b>29.0</b>	<b>33.0</b>	<b>36.0</b>	

For tube selections, see Table F on inside back cover.

### 308MC Specifications

Bore mm	0.5mm	1.02mm	1.52mm	2.05mm	2.54mm	2.79mm
Bore"	0.02"	0.04"	0.06"	0.08"	0.1"	0.11"
<b>Maximum continuous speed: rpm</b>	<b>110</b>	<b>110</b>	<b>110</b>	<b>110</b>	<b>110</b>	<b>110</b>
<b>With Marprene tubing (Cam lever vertical, all cassettes full)</b>						
Required torque: kg cm	4.1	4.5	5.5	5.8	6.0	6.0
<b>Maximum pressure: bar</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1.3</b>	<b>1.3</b>	<b>1</b>
<b>Maximum vacuum: mmHg</b>	<b>400</b>	<b>400</b>	<b>300</b>	<b>300</b>	<b>200</b>	<b>200</b>
<b>Maximum vacuum: feet of water</b>	<b>16</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>8</b>	<b>8</b>
<b>With Silicone tubing (Cam lever vertical, all cassettes full)</b>						
Required torque: kg cm	2.6	2.8	3.5	3.7	3.8	3.8
<b>Maximum pressure: bar</b>	<b>2</b>	<b>2</b>	<b>1.3</b>	<b>1.3</b>	<b>1</b>	<b>1</b>
<b>Maximum vacuum: mmHg</b>	<b>400</b>	<b>400</b>	<b>300</b>	<b>300</b>	<b>200</b>	<b>200</b>
<b>Maximum vacuum: feet of water</b>	<b>16</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>8</b>	<b>8</b>

Note: To work against higher pressures the cam lever may be moved beyond the vertical position. Torque requirement will be approximately 2 to 3 times that listed, and tube life could be shortened.

