102R low flow pumphead

**FEATURES AND BENEFITS**

- Low-flow compact pumphead
- Sprung roller design for longer tube life and precise flow rates
- Easy continuous tube loading
- Up to 106 ml/min continuous flow
- Up to 212 ml/min intermittent flow
- Pumphead accepts five bore sizes of tubing for flow ranging 0.02 ml/min to 212 ml/min
- Synchronous motor

**PERFORMANCE**

**Flow rates (ml/min) Tubing 1.6mm wall**

<table>
<thead>
<tr>
<th>Tube bore (mm)</th>
<th>Speed (rpm)</th>
<th>65</th>
<th>130</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(ml/rev)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>0.02</td>
<td>1.38</td>
<td>2.76</td>
</tr>
<tr>
<td>0.8</td>
<td>0.05</td>
<td>3.22</td>
<td>6.44</td>
</tr>
<tr>
<td>1.6</td>
<td>0.22</td>
<td>14.0</td>
<td>28.0</td>
</tr>
<tr>
<td>3.2</td>
<td>0.81</td>
<td>52.0</td>
<td>104.0</td>
</tr>
<tr>
<td>4.8</td>
<td>1.66</td>
<td>106.0</td>
<td>212.0</td>
</tr>
</tbody>
</table>

**Conditions:**

- Suction curves obtained with zero output pressure.
- Pressure curves obtained with zero lift.
- Pumphead speed 32 rpm

**Conversion Factors:**

- Suction pressure in bar x 760 = mm Hg
- Suction pressure in bar x 33.5 = Ft H2O
- Back pressure in bar x 14.5 = psi

**DIMENSIONS**
## TECHNICAL SPECIFICATION

### MATERIALS OF CONSTRUCTION

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotor</td>
<td>Ixef (polyarylamide)</td>
</tr>
<tr>
<td>Rollers</td>
<td>MoS2 filled nylon 6 (nylatron)</td>
</tr>
<tr>
<td>Track</td>
<td>Acetal copolymer (kematal) or PVDF</td>
</tr>
<tr>
<td>Tube clamps</td>
<td>Acetal copolymer (kematal)</td>
</tr>
<tr>
<td>Guard</td>
<td>Polycarbonate</td>
</tr>
<tr>
<td>Spindles, guard pins</td>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

## ORDER INFORMATION

### For 6mm drive shaft

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>Part code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kematal track with standard springs</td>
<td>013.2001.000</td>
</tr>
<tr>
<td>Kematal track with hard springs</td>
<td>013.2011.000</td>
</tr>
<tr>
<td>PVDF track with standard springs</td>
<td>013.3001.000</td>
</tr>
<tr>
<td>PVDF track with hard springs</td>
<td>013.3011.000</td>
</tr>
</tbody>
</table>

### For 8mm drive shaft

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>Part code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kematal track with standard springs</td>
<td>013.2101.000</td>
</tr>
<tr>
<td>Kematal track with hard springs</td>
<td>013.2111.000</td>
</tr>
<tr>
<td>PVDF track with standard springs</td>
<td>013.3101.000</td>
</tr>
<tr>
<td>PVDF track with hard springs</td>
<td>013.3111.000</td>
</tr>
</tbody>
</table>

### With silicone tubing (standard springs, clockwise rotation)

<table>
<thead>
<tr>
<th>Bore mm</th>
<th>0.5</th>
<th>0.8</th>
<th>1.6</th>
<th>3.2</th>
<th>4.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous speed: rpm</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Maximum intermittent speed: rpm</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
</tbody>
</table>

### With Marprene tubing (hard springs, clockwise rotation)

<table>
<thead>
<tr>
<th>Bore mm</th>
<th>0.5</th>
<th>0.8</th>
<th>1.6</th>
<th>3.2</th>
<th>4.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous speed: rpm</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Maximum intermittent speed: rpm</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
</tbody>
</table>

### Maximum continuous pressure bar

<table>
<thead>
<tr>
<th>1.6mm wall tubing</th>
<th>1.0</th>
<th>1.0</th>
<th>1.0</th>
<th>3.0</th>
<th>3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure bar</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
</tr>
</tbody>
</table>

### Maximum intermittent speed: rpm

<table>
<thead>
<tr>
<th>1.6mm wall tubing</th>
<th>65</th>
<th>65</th>
<th>65</th>
<th>65</th>
<th>65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure bar</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Required torque up to 0.5bar: kg cm

<table>
<thead>
<tr>
<th>1.6mm wall tubing</th>
<th>1.1</th>
<th>1.1</th>
<th>1.2</th>
<th>1.25</th>
<th>1.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure bar</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
<td>4.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>

### Required torque up to 1bar: kg cm

<table>
<thead>
<tr>
<th>1.6mm wall tubing</th>
<th>1.2</th>
<th>1.2</th>
<th>1.25</th>
<th>1.75</th>
<th>1.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure bar</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>4.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>

### Required torque up to 0.5bar: kg cm

<table>
<thead>
<tr>
<th>1.6mm wall tubing</th>
<th>3.5</th>
<th>3.5</th>
<th>3.6</th>
<th>4.2</th>
<th>4.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure bar</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
<td>4.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>

### Required torque up to 1bar: kg cm

<table>
<thead>
<tr>
<th>1.6mm wall tubing</th>
<th>3.5</th>
<th>3.5</th>
<th>3.6</th>
<th>4.2</th>
<th>4.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure bar</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
<td>4.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>

All flow rates shown were obtained pumping water at 20C (68F) with zero suction and delivery heads. Watson-Marlow, Bioprene and Marprene are trademarks of Watson-Marlow Limited. Disclaimer: The information contained in this document is believed to be correct but Watson-Marlow Limited accepts no liability for any errors it contains, and reserves the right to alter specifications without notice. LoadSure is a trademark of Watson-Marlow Limited. © STA-PURE P/L and ® STA-PURE PCS are registered trademarks of W.L Gore & Associates Inc. Please state the product code when ordering pumps and tubing.