If you use pumps, we can improve your products and save you money.
If you want a good fit, go to a store with a range of sizes and styles. For a perfect fit, go to a tailor.

It’s the same with pumps. Watson-Marlow Bredel make thousands of pump types, covering a huge range of sizes, flows, pressures and accessory options. We’re also the world’s largest custom peristaltic pump source for OEM applications, supplying units designed in the closest co-operation with our customers, so that the pump becomes a perfect part of their products.

Peristaltic pumps could not be simpler. They are nature’s way to transfer fluid: Squeeze a tube filled with fluid between your fingers, slide them along and the fluid moves. The only contact with the fluid is the tube. It is the perfect pumping principle.

- No pump or fluid contamination
- Ideal for shear-sensitive, abrasive and aggressive fluids
- Accurate and repeatable flow rates
- Self-priming, dry-running
- No valves, seals or glands
- Reversible
- Nothing to service: a new tube creates a new pump

Alternatives such as lobe pumps, diaphragm pumps, piston pumps, gear pumps – we have them all beaten, in industries from gold-mining to biotechnology, paints to polymers, food processing to medical equipment manufacture.

If your product needs to move a fluid, choose perfection: a custom-made peristaltic pump from Watson-Marlow Bredel. We supply the pump the customer wants on time every time – and we are the tubing specialists too.

Christopher Gadsden
Managing Director
Our approach

Finding the best solution

All Watson-Marlow Bredel pumps are a product of our mechanical, electronic and fluid engineering expertise that has been developed over 50 years of being the technological leader in peristaltic pumps.

With this knowledge, and experience we will consult with you, to help you select from our wide array of standard products, or custom engineer a solution for you. Our goal is to always get you the right pump for your application.

Peristaltic pumping lends itself to a staggering range of applications, and no company has more off-the-shelf solutions than Watson-Marlow Bredel. Our standard options combine to create literally thousands of different pump configurations to precisely match your specifications.

Thousands of Standard Options

- Accurate pumping from microlitres to 80m³/hr
- 25 basic pumphead types with 130 variants
  See pages 4-9
- 59 tube and hose sizes with continuous tubing, or quick change element offerings
- 15 tube and hose materials
- Over 300 drive speeds and voltages
- AC, DC, stepper, BLDC motors to optimise your controllability
- 2 to 10 roller pumpheads to match your flow and precision needs
- 1 to 48 channels to match simultaneous dispensing needs

Custom Pump Experts

If a standard pump is not perfect for your need our world class team of development engineers can design a solution that will. Customisation can range from a simple modification to an existing design, or a completely new design from scratch.

While you concentrate on the rest of your product design, our pump experts transform your pumping specification into design concepts and prototypes – testing and refining them until you have the best-engineered solution to your pumping needs.

Customisation Examples

- Pumps modified to accept customer specified tubes
- Extrusion of custom tube sizes
- Tube element pumps
- Drive speeds
- Pumphead materials
- Pumphead colours
- Custom mounting panels
- Add or delete channels
- Add or delete rollers
- Pumphead only
- Safety interlock switch
- Private label products
- Custom software
- Value engineered products
- Custom casework
- Completely new pump designs

Prescribing the pump for the purpose is vital before custom work begins
OEM design in practice

Every OEM application is different – it has to be: every customer’s requirement is different. But each project receives the same attention to detail and cost control. Watson-Marlow Bredel Pumps works hand-in-hand with customers to bring peristaltic pumping expertise to a variety of different applications and duties.

**Typical Applications**
- Food and Beverage flavourings
- Medical and Diagnostic Equipment
- Fermentation and Cell Culture
- Semiconductor
- Environmental Sampling
- Agriculture
- Filtration
- High throughput drug screening
- Printing
- Concrete pumping and pigment dosing

**Typical Pump Duties**
- Waste Removal
- Transfer
- Metering
- Dispensing/Dosing
- Sampling

Your Partner in Development

When Watson-Marlow Bredel receives an OEM enquiry, that is the start of a close business relationship.

**Investigative research**
An engineer will assess the customer’s exact requirements.

**Prototyping and testing**
Once the application is understood, we will design and put a pump in your hands to test in your device. We will conduct in-house testing in co-operation with you.

For example, we might supply an existing product so that you can check that the pumphead does the job before we begin development of a new drive.

**Preproduction and optimisation**
When the principle is established, we can work with you to adjust the design to maximise value-for-money. Examples include private labelling and materials changes to achieve price targets.

**Full scale production**
We will meet your full production needs, delivering pumps on time, every time.

Our quality systems: supply chain excellence

Watson-Marlow Bredel products are at the cutting edge of pump technology, using design, manufacturing and quality systems to match.

Built-to-Order: any product can be quickly manufactured and shipped, once an order is received.

Our factory consists of lean-manufacturing cells equipped to build and quality-test from start to finish. Skilled engineers respond to sales orders, retaining management, ownership and responsibility for products even after they are shipped. Every pump can be traced to the person who built it.

This system shortens lead times. We respond quickly, and lessen the customers need to carry stock, reducing overheads.

Cased product solutions

It starts with an OEM enquiry, and ends with speedy packaging and dispatch, plus unrivalled after-sales service.
Our standards

We conduct our business ethically, and stand by our word, our recommendations and our products.

Whether the solution is an off-the-shelf pump or a fundamental redesign, we work with the customer to ensure that the result is exactly what he requires.

From our client list …

ABB Instrumentation Ltd
Abbott Laboratories
Advanced Tissue Sciences
Akzo
Amersham Biosciences
Analytical Technology Inc.
Astra Zeneca
Art Robbins Instruments
Avery Dennison
Avery Pharmaceuticals
Bausch & Lomb
Baxter Healthcare
Bayer Corp
Beckman Coulter Inc
Becton Dickinson
BioSciences
Bee Robotics Ltd
BiokineticsAB
Boulle Medical AB
Bristol Myers Squibb
Buehler Ltd
Caliper Technologies
Cambridge Consultants Ltd
Cardiovention Inc.
Cellflex Biosciences Inc.
Celic Technologies
Ciba-Geigy
Coating Industries
Crelab AB
Curon Medical Inc.
Dohmann Enterprises Inc.
Dow-Corning
Eastman
Essen Instruments
Exxon
Fiatlab Instruments Inc.
Fresenius Medical Care
Genomic Solutions Inc
Gilson Medical Electronics
Grainger Integrated Supply
Hach Company
Harriss & Bruno International
Hemo Cleanse Inc.
Hibernicor Ltd
ideo Product Development

Model | Flow rates up to | Multi-channel | Page |
--- | --- | --- | --- |
400/A | Up to 30ml/min | No | 5 |
405/VM | Up to 34ml/min | Yes | 6 |
400/M | Up to 36ml/min | Yes | 4 |
400/SM4 | Up to 59ml/min | Yes | 7 |
405/N | Up to 83ml/min | Yes | 6 |
400/D | Up to 83ml/min | Yes | 4 |
406/B1 | Up to 182ml/min | Yes | 5 |
102R | Up to 212ml/min | No | 6 |
400/R1 | Up to 1050ml/min | Yes | 7 |
313D, 314D | Up to 3000ml/min | Yes | 7 |
525R | Up to 4750ml/min | No | 8 |
501RL | Up to 3000ml/min | No | 8 |
620R | Up to 17 litre/min | No | 9 |
701R | Up to 33 litre/min | Yes | 9 |
Bredel | Up to 1135 litre/min | Yes | 9 |
The selection of products on these pages hints at the breadth and depth of our capabilities. For OEM customers, they provide starting points for an infinite range of possibilities.

### 400/B1

**Compact, instrument-quality, multi-channel low-flow pump**

- **Flow**: up to 186ml/min, speeds to 350 rpm
- **Pressure**: up to 3 bar (45 psi)
- **Drives**: AC, DC, BLDC, stepper motor
- **Dimensions**: 70mm x 65mm (2.75in x 2.55in)
- **Single channel, six tube sizes available from 0.5-4.0mm ID**
  - Four roller pumphead
  - Accepts continuous tube in six standard sizes
  - Spring loaded adjustable occlusion for tube life and pressure performance

<table>
<thead>
<tr>
<th>Tube ID (mm)</th>
<th>0.5</th>
<th>0.8</th>
<th>1.5</th>
<th>2.4</th>
<th>3.2</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.016</td>
<td>0.037</td>
<td>0.13</td>
<td>0.26</td>
<td>0.41</td>
<td>0.52</td>
</tr>
</tbody>
</table>

### 400/D

**Compact, instrument-quality, single-channel low-flow pump**

- **Flow**: up to 83ml/min per channel, speeds to 250 rpm
- **Pressure**: up to 3 bar (45 psi)
- **Drives**: AC, DC, BLDC, stepper motor
- **Dimensions**: 70mm x 65mm (2.75in x 2.55in)
- **2 or 3 channels, four tube sizes available from 0.5mm-3mm ID**
  - Four roller pumphead
  - Spring loaded adjustable occlusion for tube life and pressure performance

<table>
<thead>
<tr>
<th>Tube ID (mm)</th>
<th>0.5</th>
<th>0.8</th>
<th>1.5</th>
<th>2.0</th>
<th>3.0</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.013</td>
<td>0.05</td>
<td>0.18</td>
<td>0.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 400/DM

**Compact, instrument-quality multi-channel, low-flow manifold pump**

- **Flow**: up to 36ml/min per channel, speeds to 100 rpm
- **Pressure**: up to 2 bar (30 psi)
- **Drives**: AC, DC, BLDC, stepper motor
- **Dimensions**: 70mm x 65mm (2.75in x 2.55in)
- **2 or 3 channels, 20 tube sizes available from 0.13-2.79mm ID**
  - Four roller pumphead accepts three tab manifold tubes
  - Spring loaded adjustable occlusion for superior tube life

<table>
<thead>
<tr>
<th>Tube ID (mm)</th>
<th>0.13</th>
<th>0.50</th>
<th>1.02</th>
<th>1.52</th>
<th>2.05</th>
<th>2.79</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.001</td>
<td>0.014</td>
<td>0.055</td>
<td>0.12</td>
<td>0.21</td>
<td>0.36</td>
</tr>
</tbody>
</table>
400/A

The smallest low-flow instrument-quality peristaltic pump on the market
Flow up to 30ml/min, speeds to 290 rpm
Pressure up to 2 bar (30 psi)
Drives DC, stepper motor
Dimensions 31mm x 48mm (1.2in x 1.9in)
Single channel, 30 tube sizes available from 0.25-2.06mm ID

• Four roller pumphead
• Spring loaded track for superior tube life and precision
• Opening the cover lifts the track for easier tube loading

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.25mm</th>
<th>0.51mm</th>
<th>0.76mm</th>
<th>1.02mm</th>
<th>1.22mm</th>
<th>1.52mm</th>
<th>2.06mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.0025</td>
<td>0.0097</td>
<td>0.020</td>
<td>0.034</td>
<td>0.046</td>
<td>0.068</td>
<td>0.104</td>
</tr>
</tbody>
</table>

400/M

Economy, compact enclosed low-flow pump
Flow up to 182ml/min, speeds to 350 rpm
Pressure up to 2 bar (30 psi)
Drives AC, DC, BLDC, stepper motor
Dimensions 65mm x 65mm (2.55in x 2.55in)
1, 2, 3 or 4 channels, six tube sizes available from 0.5-4.0mm ID

• Four roller fixed occlusion pumphead
• Safe and attractive enclosed design

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.5mm</th>
<th>0.8mm</th>
<th>1.6mm</th>
<th>2.4mm</th>
<th>3.2mm</th>
<th>4.0mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.016</td>
<td>0.037</td>
<td>0.13</td>
<td>0.26</td>
<td>0.41</td>
<td>0.52</td>
</tr>
</tbody>
</table>

300MC

Multi channel low flow cassette pumphead
Flow up to 53ml/min, speeds to 110rpm
Pressure up to 2 bar (30 psi)
Drives AC, DC, BLDC, stepper motor
Dimensions 94mm x 78mm
2, 3 and 5 channels with the option of 5 channel extension pumpheads

• Four and eight roller low pulse pumpheads
• Cassette loading, individual occlusion adjustment to allow channel to channel fine tuning
• Twenty tube sizes available from 0.13-2.79mm ID

4 Roller

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.13mm</th>
<th>0.50mm</th>
<th>1.02mm</th>
<th>1.52mm</th>
<th>2.05mm</th>
<th>2.79mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.001</td>
<td>0.015</td>
<td>0.074</td>
<td>0.17</td>
<td>0.30</td>
<td>0.48</td>
</tr>
</tbody>
</table>

8 Roller

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.13mm</th>
<th>0.50mm</th>
<th>1.02mm</th>
<th>1.52mm</th>
<th>2.05mm</th>
<th>2.79mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.001</td>
<td>0.013</td>
<td>0.060</td>
<td>0.13</td>
<td>0.22</td>
<td>0.33</td>
</tr>
</tbody>
</table>
Economy, compact twin-channel enclosed low-flow pump

- Flow: up to 83ml/min per channel, speeds to 250 rpm
- Drives: AC, DC, BLDC, stepper motor
- Dimensions: 65mm x 65mm (2.55in x 2.55in)
- 2, 4, 6 or 8 channels, up to four tube sizes available from 0.5-3.0mm ID
  - Four roller fixed occlusion pumphead
  - Safe and attractive enclosed design

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID (mm)</th>
<th>0.5mm</th>
<th>1.0mm</th>
<th>2.0mm</th>
<th>3.0mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.013</td>
<td>0.05</td>
<td>0.18</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Twin sprung roller low-flow pump

- Flow: up to 212ml/min, speeds to 130 rpm
- Drives: AC, DC
- Dimensions: 79mm x 63mm (3.12in x 2.5in)
- Single channel, five tube sizes available from 0.5-4.8mm ID
  - Spring-loaded, high accuracy two-roller rotor
  - Spring tube clamps or snap-in connectors

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID (mm)</th>
<th>0.5mm</th>
<th>0.8mm</th>
<th>1.6mm</th>
<th>3.2mm</th>
<th>4.8mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.02</td>
<td>0.05</td>
<td>0.22</td>
<td>0.81</td>
<td>1.66</td>
</tr>
</tbody>
</table>

Precision instrument-quality, low-flow low-pulse manifold pump

- Flow: up to 34ml/min, speeds to 100 rpm
- Drives: DC, BLDC, stepper motor
- Dimensions: 106mm x 106mm (4.2in x 4.2in)
- 2, 3 or 4 channels, twenty tube sizes available from 0.13-2.79mm ID
  - Low-pulse 10-roller pumphead
  - Individual occlusion adjustment to allow channel to channel fine tuning

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID (mm)</th>
<th>0.13mm</th>
<th>0.50mm</th>
<th>1.02mm</th>
<th>1.52mm</th>
<th>2.05mm</th>
<th>2.79mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.001</td>
<td>0.018</td>
<td>0.068</td>
<td>0.14</td>
<td>0.24</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Custom Products

We are experts at designing and building peristaltic pumps, and custom products are our specialty. The products shown here only scratch the surface of our capabilities. If you don’t see exactly what you are looking for, we can custom manufacture products to meet your needs. In many cases we may have already built a custom product that matches your application. If not, we can easily reconfigure the standard products shown – or we can even create a new design from scratch. Whether it’s increasing or reducing the number of channels, changing gear ratios, or changing the number of rollers, the possibilities are endless.
**313D and 314D**

Stylish and versatile, flip-top medium-flow pump

- Flow: up to 3 litre/min, speeds to 600 rpm
- Pressure: 2 bar (30 psi)
- Drives: AC, DC, BLDC, stepper motor
- Dimensions: 85mm x 82mm (3.37in x 3.25in)
- Stackable up to six channels, seven tube sizes available from 0.5-8.0mm ID
  - Three or four roller stackable pumphead
  - Quick and simple flip-top tube loading
  - Custom colours available to match your design

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.5mm</th>
<th>1.6mm</th>
<th>2.4mm</th>
<th>3.2mm</th>
<th>4.0mm</th>
<th>4.8mm</th>
<th>6.4mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.03</td>
<td>0.06</td>
<td>0.26</td>
<td>1.0</td>
<td>2.2</td>
<td>3.6</td>
<td>5.0</td>
</tr>
<tr>
<td>3 roller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ml/rev</td>
<td>0.03</td>
<td>0.06</td>
<td>0.25</td>
<td>0.85</td>
<td>1.9</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4 roller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* special model

---

**400/R1**

Precision instrument-quality, medium-flow single-channel pump

- Flow: up to 1050ml/min per channel, speeds to 350 rpm
- Pressure: 3 bar (45 psi)
- Drives: DC, BLDC, stepper motor
- Dimensions: 106mm x 106mm (4.2in x 4.2in)
- 1 or 2 channels, seven tube sizes available from 0.8-6.4mm ID
  - Four roller pumphead
  - Spring loaded adjustable occlusion for superior tube life and high pressure

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.8mm</th>
<th>1.6mm</th>
<th>2.4mm</th>
<th>3.2mm</th>
<th>4.0mm</th>
<th>4.8mm</th>
<th>6.4mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.06</td>
<td>0.20</td>
<td>0.50</td>
<td>0.86</td>
<td>1.3</td>
<td>1.8</td>
<td>3.0</td>
</tr>
<tr>
<td>3 roller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ml/rev</td>
<td>0.06</td>
<td>0.22</td>
<td>0.86</td>
<td>3.0</td>
<td>5.0</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td>4 roller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**400/GM4**

Precision instrument-quality, low-flow four-channel manifold pump

- Flow: up to 59ml/min per channel, speeds to 100 rpm
- Pressure: 2 bar (30 psi)
- Drives: DC, BLDC, stepper motor
- Dimensions: 106mm x 106mm (4.2in x 4.2in)
- 4 channels, twenty tube sizes available from 0.13-2.79mm ID
  - Four roller pumphead accepts two tab manifold tubes
  - Spring loaded adjustable occlusion for superior tube life

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.13mm</th>
<th>0.50mm</th>
<th>1.02mm</th>
<th>1.52mm</th>
<th>2.05mm</th>
<th>2.79mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.001</td>
<td>0.022</td>
<td>0.086</td>
<td>0.19</td>
<td>0.34</td>
<td>0.59</td>
</tr>
</tbody>
</table>

---

**7999_OEM_UK_2005 7/4/05 11:25 AM Page 11**

watson-marlow.co.uk • sales@watson-marlow.co.uk
**501RL**

Spring-loaded medium-flow pump

- **Flow**: up to 3 litre/min, speeds to 300 rpm
- **Pressure**: up to 2 bar (30 psig)
- **Drives**: AC, DC, brushless DC
- **Dimensions**: 117mm x 112mm (4.6in x 4.0in)
- **Single channel, eight tube sizes available from 0.5-9.6mm ID**
  - Two roller spring loaded rotor for optimum tube life
  - Clear-view, shatter-proof guard with tool-unlocking latch
  - Constructed of high-spec engineering plastics for ultimate corrosion resistance
  - Rapid, simple tube loading

**Performance with common tube sizes:**

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>0.5mm</th>
<th>0.8mm</th>
<th>1.6mm</th>
<th>3.2mm</th>
<th>4.8mm</th>
<th>6.4mm</th>
<th>8.0mm</th>
<th>9.6mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ml/rev</td>
<td>0.041</td>
<td>0.11</td>
<td>0.42</td>
<td>1.68</td>
<td>3.00</td>
<td>6.72</td>
<td>10.5</td>
<td>15.2</td>
</tr>
</tbody>
</table>

---

**SPX Hose Pumps**

Watson-Marlow Bredel Pumps offers ten sizes of heavy duty industrial hose pumps, using reinforced high precision hose elements.

- **Flow**: 0.038 - 1135 litre/min
- **Pressure**: up to 16 bar (320psig)
- **Drives**: AC, pneumatic, hydraulic, or diesel drives 1 or 2 channels

Hose pumps are ideal for indoor or outdoor pumping of highly viscous, chemically aggressive, and abrasive fluids.

**Performance**

<table>
<thead>
<tr>
<th>Hose ID</th>
<th>10mm</th>
<th>15mm</th>
<th>25mm</th>
<th>32mm</th>
<th>40mm</th>
<th>50mm</th>
<th>65mm</th>
<th>80mm</th>
<th>100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>litre/rev</td>
<td>0.22</td>
<td>0.83</td>
<td>0.30</td>
<td>0.63</td>
<td>1.33</td>
<td>2.90</td>
<td>6.70</td>
<td>11.7</td>
<td>20.0</td>
</tr>
</tbody>
</table>

---
620R

Heavy duty accurate and powerful high-flow pump
Flow up to 17 litre/min, speeds to 250 rpm
Pressure up to 4 bar peak (60 psi)
Drives AC, DC, BLDC
Dimensions 259mm x 189mm (10.2in x 7.5in)
Single channel, six tube sizes available from 6.4-17.0mm ID
- Retractable rollers for CIP or SIP cycles
- Two rollers for higher flows and four rollers for lower pulsation
- Use continuous tubing or LoadSure™ tube elements for simple one minute maintenance

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>Continuous Tubing</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4mm</td>
<td>13.0</td>
<td>37.0</td>
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<tr>
<td>17.0mm</td>
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</tbody>
</table>

701R

Heavy duty stackable high-flow pump
Flow up to 33 litre/min, speeds to 360 rpm
Pressure up to 2 bar (30 psi)
Drives AC, pneumatic
Dimensions 210mm x 270mm (8.3in x 10.2in)
One or two channels, five tube sizes available from 9.6-25.4mm ID
- Four geared rollers for low pulsation and optimum tube life
- Accepts continuous tubing or tube elements

Performance with common tube sizes:

<table>
<thead>
<tr>
<th>Tube ID</th>
<th>Continuous Tubing</th>
<th>Elements</th>
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<tr>
<td>9.6mm</td>
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<tr>
<td>25.4mm</td>
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</table>
Medtronic Xomed

Medtronic Xomed Inc, a world leader in medical technology, uses Watson-Marlow Bredel pumps in XPS 2000 and 3000 Microdebrider Systems: slender cutting tools which are inserted through the nostrils in ear, nose and throat surgery to remove polyps and other unwanted tissue from the sinuses in the front part of the head. The pumps are used to circulate saline solution through the tip of the instrument for cooling and washing during the procedure.

Medtronic Xomed chose Watson-Marlow Bredel pumps for their ability to load tubing sets easily and accurately, as the tube set is discarded after each procedure. The compact design of the 313D pumphead was an advantage, and its styling complemented the rest of the instrument. Medtronic Xomed uses a standard pumphead on the original XPS 2000 system, and we supply pumpheads in a custom colour to match the design of the new model.

Each year, 2.5 million patients benefit from Medtronic’s technology, used to treat conditions such as heart disease, neurological disorders, and vascular illnesses, as well as ear, nose and throat conditions.

Tetra Pak

Hygiene is critical when you are handling food and drink – and for no-one more than Tetra Pak, one of the world’s largest suppliers of packaging systems for milk, fruit juices and many other products. Tetra Pak is the only international company able to provide integrated processing, packaging and distribution solutions for food manufacturing.

Tetra Pak’s Chilled Systems division develops filling stations for cold products. The carton board is sterilised before folding and filling.

Watson-Marlow Bredel supplies a custom pump which sprays hydrogen peroxide on to the board before it passes through a UV-oven. When it comes out, the board is completely sterile, ready to receive the flash-pasteurised food in a sterile chamber. The result is nutritious food that stays fresh for months.

The pump uses an eight-roller rotor for low pulsation, and a spring-loaded track for accuracy and extended tube life. The pump has an IP67-protected drive for easy and effective cleaning.

Tetra Pak acknowledge Watson-Marlow Bredel contribution: “The worldwide success of Tetra Pak lies in the benefits of its aseptic technology,” they say.

Even milk can now be kept safely without refrigeration. “Aseptic technology is a gentle way of processing and packaging liquid food that keeps food fresh and flavourful for a year – without refrigeration or preservatives.”

The American Institute of Food Technology has named Tetra Pak’s aseptic carton packaging as “the most important advance in food science in the past 50 years.”
PerkinElmer Life and Analytical Sciences, leading manufacturer of life science/research instrumentation, chose Watson-Marlow Bredel peristaltic pumps for their MultiPROBE II™ robotic liquid handling systems.

Designed for high-throughput sample processing in clinical, pharmaceutical and biotechnical applications, MultiPROBE II Systems are used in sample preparation procedures. Liquid transfers can be performed in a multi-tipped mode from any combination of laboratory containers including 384-well formats for complete assay automation.

PerkinElmer required a long-lasting pump capable of high-throughput, high-volume liquid dispensing to wash interior and exterior surfaces of sampling tips and reduce carry-over. Using Watson-Marlow Bredel pumps, sample-to-sample contamination is reduced to less than 1 part in 1,000,000. The process is faster and more efficient than the alternative method of washing the tips with syringes. Extended tube life and easy serviceability allowed the company to include the pumps as a standard feature on all their MultiPROBE systems.

Beckman Coulter Inc is a leading provider of instrument systems and complementary products that simplify and automate laboratory processes in all phases of the battle against disease.

The company’s state-of-the-art Access® 2 immunoassay testing system is a powerful random access benchtop analyser that performs a variety of diagnostic assays. These include anaemia, cardiovascular, reproductive and thyroid conditions, infectious disease, blood viruses, skeletal conditions and tumour markers.

The Access® 2 uses a custom-designed six-channel peristaltic pump from Watson-Marlow Bredel to move samples and spent reagent to a waste collection bottle. The pump was designed to handle multiple flow streams and fit into a small space.

Watson-Marlow Bredel peristaltic pumps are used wherever quality and reliability are paramount – as here, powering coolant flow in a concrete-cutting machine in Japan. The pump is the circular housing, centre.

Installed on the UV varnish tower coater of MAN Roland R700 series printing presses, twin baseplate-mounted 701 pumps have reduced downtime and increased production speed. One pump accurately metres the water-based varnish from a container to a weir on the press, the other scavenges excess varnish for re-circulation.

Beckman Coulter's immunoassay testing system incorporates a custom-designed pump to handle tissue samples.

UK railways experience problems every Autumn when trackside trees shed their leaves. This installation uses a Watson-Marlow Bredel pump to feed gel-borne sand to the rails and increase grip for the trains.

Watson-Marlow Bredel peristaltic pumps are used wherever quality and reliability are paramount – as here, powering coolant flow in a concrete-cutting machine in Japan. The pump is the circular housing, centre.
Compared with other positive displacement pumps, peristaltic pumps win on every count.

Peristaltics

Watson-Marlow Bredel peristaltic pumps offer accurate and repeatable flow rates for transfer duties or demanding dispensing operations. Pumpheads can be ganged to provide matched or proportionate flows. They are easy to operate and maintain, and are capable of very sophisticated control, manually or by computer, with facilities such as ramping – slow dose start and finish to avoid splashing – standard on many models.

The pumping chamber in a peristaltic pump is the pumping tube, which is occluded as each roller passes, before its elasticity reasserts itself and more fluid is drawn in. This constant flexing means that tubes have a limited life. However, that limit is a great deal less restrictive than the need for servicing and cleaning exhibited by other pumps.

For example, Pumpsil, Watson-Marlow Bredel’s own platinum-cured silicone tubing, can be expected to last well over a month in normal working conditions before a simple tube change is advisable – but other pump types would require a checkover or thorough cleaning far more often. A 6.4mm bore length of our own Marprene pumping tube has an expected life of at least 10,000 hours – that’s well over a year with the pump running 24 hours a day, every day. And to complete the package, tube changing takes just a few moments with all our pumps.

Watson-Marlow Bredel peristaltic pumps offer accurate and repeatable flow rates for transfer duties or demanding dispensing operations. Pumpheads can be ganged to provide matched or proportionate flows. They are easy to operate and maintain, and are capable of very sophisticated control, manually or by computer, with facilities such as ramping – slow dose start and finish to avoid splashing – standard on many models.

They handle difficult fluids – whether shear-sensitive biological fluids or viscous slurries – with ease, as well as sludges and other suspended solids, and aggressive substances such as acids and caustics.

They provide precision dosing and metering, without gas locking or crystallisation. Cleaning and maintenance are quick and easy.

They self-prime to 9 metres (30 ft), can run dry and have no valves or seals to leak, corrode or clog.

The duty fluid is totally contained within the tube – so there is no contamination and virtually no maintenance is needed. They serve as their own check valves, and are fully reversible.

The peristaltic pumping principle is simple, elegant and unbeatable.
At the heart of every peristaltic pumphead is the tube. We have a state-of-the-art tubing plant which allows us to be a partner you can trust for guaranteed response time with the highest quality tubing on the market.

Pumpsil:
- Silicone is the standard laboratory tubing used for small bore sizes
- Ultra-smooth bore reduces protein binding and bacterial growth
- Validation made easy with ink-free LaserTraceability™ – Laser-etched lot number end-to-end ensures full traceability
- Thoroughly post-cured to minimise leachables or extractables
- Complies with USP Class VI, and FDA requirements 21 CFR 177.2600
- Manufactured in a Class J/10,000 clean room facility
- Immediate availability of standard and custom sizes from 15m boxes to 150m spools

To find out more about Watson-Marlow Bredel tubing, log on to www.pumpsil.com

Marprene:
- Watson-Marlow’s exclusive thermoplastic elastomer
- Very long tube life
- Highly resistant to oxidising agents
- USDA standards for food handling

Bioprene:
- Similar to Marprene, but complies with USP Class VI, and FDA requirements 21 CFR 177.2600
- Validation made easy with ink-free LaserTraceability™ – Laser-etched lot number end-to-end ensures full traceability
- Manufactured in a Class J/10,000 clean room facility

Sta-Pure:
- Composite construction of silicone and PTFE lattice
- Longer life than Silicone and the highest pressure capability

Chem-Sure:
- PTFE and high-grade fluoroelastomer create a tube with extraordinary chemical resistance
- Longer life than Silicone with greater pressure handling

Neoprene:
- Excellent resistance to abrasion and sustained pressure

PVC:
- Excellent pressure and suction performance. Low gas permeability. Glass-clear
The information contained in this document is believed to be correct, but Watson-Marlow Bredel accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

**WARNING**

These products are not designed for use in, and should not be used for, patient connected applications.

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