Perfusion Pencil® Multi-Barrel Manifold Tip

- **Rapid solution change with micro-liter dead volume**
  No piezo or stepper motor translation. No clumsy rotating valves.

- **Single-cell and patch delivery**
  For mounting on any micromanipulator. Easy to connect and clean.

- **Vacuum cross-contamination prevention**
  Use one tube to vacuum the tip volume clear between solution changes.

Perfusion Pencil® Ordering Information

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<tr>
<th>Part No.</th>
<th>Product Description</th>
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<tr>
<td>04-04-[]</td>
<td>Multi-barrel Perfusion Pencil® - 4-into-1 with 100, 250 or 360 µm i.d. tip</td>
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<td>04-08-[]</td>
<td>Multi-barrel Perfusion Pencil® - 8-into-1 with tip</td>
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<td>Multi-barrel Perfusion Pencil® - 16-into-1 with tip</td>
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<td>Replacement removable tips</td>
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[x] = specify -100, -250, or -360 µm i.d. removable tip or [ZDV] for new Zero Dead Volume Pencil (see ThermoClamp page)

U.S./Canada prices shown. International prices add 15%. Email or visit web store for latest prices.

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Perfusion Pencil® Cross Section

4 to 16 micro-bore tubes into 1 outflow

**360 Micron Removable Tip**

Flow rates (±0.05):
- Gravity: 1.15 ml/min
- 2 psi: 3.98 ml/min
- 8 psi: 10.66 ml/min

**250 Micron Removable Tip**

Flow rates (±0.05):
- Gravity: 0.35 ml/min
- 2 psi: 1.66 ml/min
- 8 psi: 5.16 ml/min

**100 Micron Removable Tip**

Flow rates:
- Gravity: zero flow
- 2 psi: 0.07 ml/min
- 8 psi: 0.25 ml/min

100, 250 and 360 micron internal diameter removable delivery tips available

All tubing now PTFE lined