

Liquid switching times in milliseconds without moving sewer pipes.



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.

Ordering Information

Part No.	Perfusion Pencil®
04-04-[x]	Multi-barrel Perfusion Pencil® - 4-into-1 with 100, 250 or 360 µm i.d. tip
04-08-[x]	Multi-barrel Perfusion Pencil® - 8-into-1 with tip
04-16-[x]	Multi-barrel Perfusion Pencil® - 16-into-1 with tip
04-[x]	Replacement removable tips
	[x] = specify -100, -250, or -360 µm i.d. removable tip or [ZDV] for 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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Pencil Tip 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 .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

