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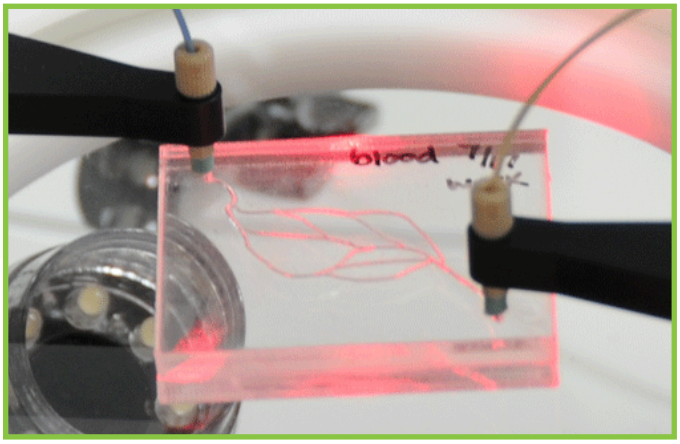
Connecting Science & Innovation

Microfluidic Connectors

Rapidly make non-permanent, leak-tight fluidic connections on the surface, or side, of a microdevice.



How it Works

Mount

The connectors mount to a flat surface with either a screw (1/4-20 or M6) or a magnet.

End Attachment

The end attachment portion of the connector is specific for a tubing or adapter size. This attachment is removable and can be easily exchanged. There are a variety of standard end attachments available, as well as the possibility for custom ones.

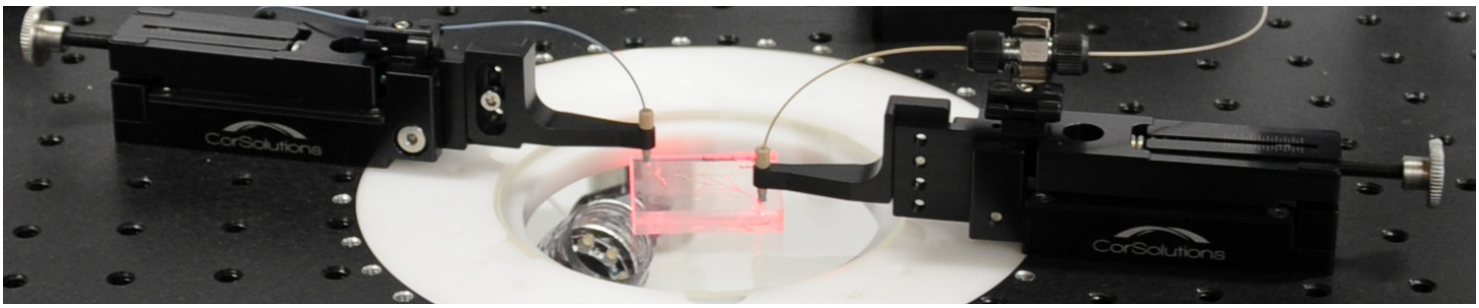
Compression Seal

The connector makes a compression seal between a gasket, held by the connector arm, and the microdevice. The amount of compressive force applied can be adjusted. Depending on the microdevice, the compression seal can remain leak tight at greater than 500 psi, or 34 bar.

Expanded view of gaskets (in red) are shown for 1/16-inch tubing (left) and 1/32" tubing (right)

Benefits

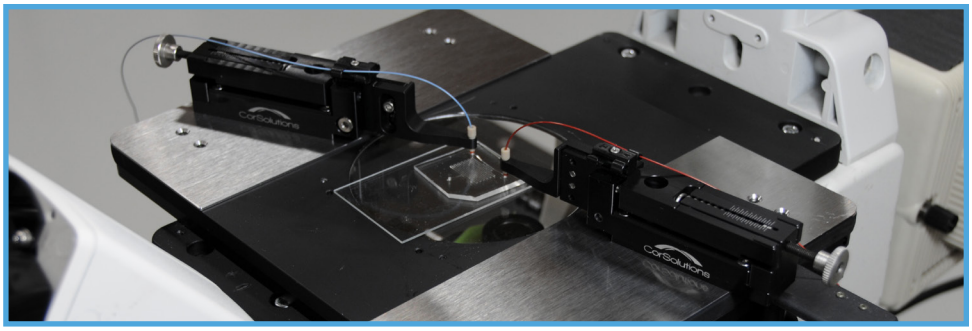
- Rapidly established, user-friendly connections
- Connections are non-permanent
- Allows for tighter density of microchip ports
- Compatible with a wide variety of fittings, adapters and tubing
- As the approach does NOT use adhesion, fittings are reusable
- Connections are compatible with all substrate materials including PDMS, glass, silicon and plastics
- Connections can remain leak-tight up to 500 psi
- Highly reproducible connections
- Can seal at any location on the surface or side of the device
- Top-side and back-side alignment
- Connections are lower dead-volume than conventional approaches
- Can be used for final performance assessment, and for chemical treatment of devices during fabrication



Screw-mount connectors with 1/32-inch end attachments.

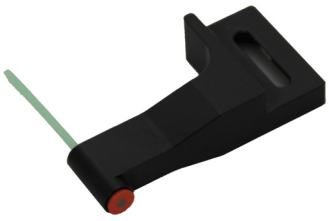
Microscope Fluidics Kits

Using the magnetic mount version of the microfluidic connector, any pre-existing microscope can be converted into a Fluidics Workstation.

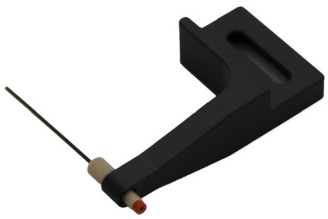


Standard End Attachments

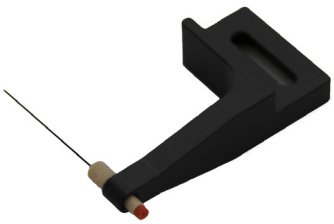
A variety of exchangeable end attachments are available.



For 1/16-inch tubing

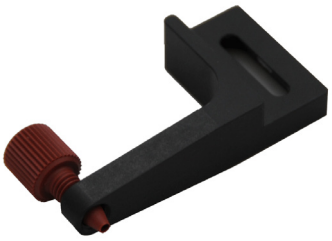


For 1/32-inch tubing



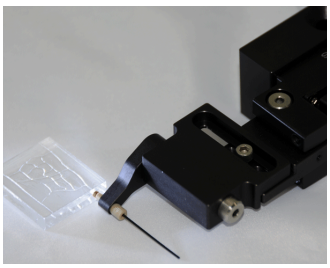
For capillary tubing

For longer reach

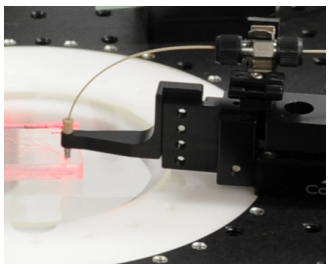


For 10-32 threads

Electrical probe



Side connections for ports on the edge of a microdevice

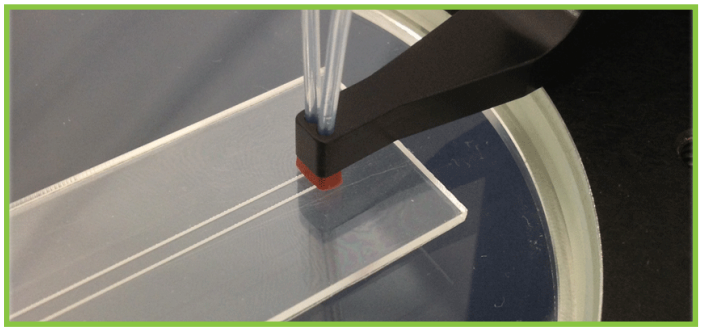


Voltage application clamp to apply voltage to a fluid stream

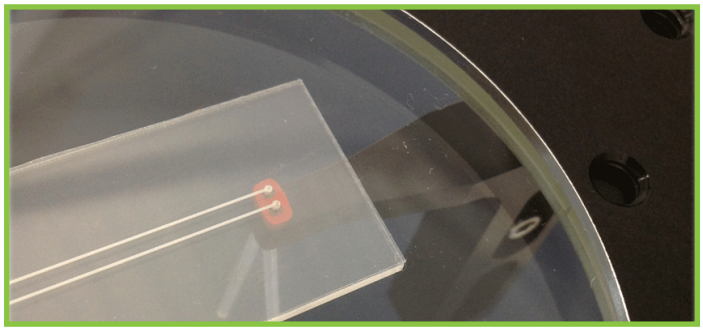
Custom and High Density End Attachments

Custom end attachments are also available including ones for high density, closely spaced ports.

A custom 3-port end attachment is shown (left). The spacing between the ports is approximately 2 mm. An underside view of the custom attachment and gasket is shown (right).



Top-view of high density connections. Here two connections, spaced 2 mm apart, are made with a single probe. The port size is 500 microns.



Under-side view of the same high density connections shown above.

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