Implantable carbon fiber microelectrode for electrochemical, electrophysiological or micro-biosensor applications

The carbon fiber is encapsulated in thick borosilicate glass for durable mechanical support and electrical insulation. A unique hermetic seal between the carbon core and the glass sheathing allows usage of these electrodes in any environment. A mating female socket is provided with pre-attached insulated lead wire. This miniature carbon fiber microelectrode excels in recording electrochemical, micro-biosensor or electrophysiological signals including spikes or local field potentials. Employing an appropriate head-stage probe, these signals can be recorded in a time-shared fashion on a millisecond base. Standard lengths are shown; other L_1 or L_2 lengths are available on special orders.

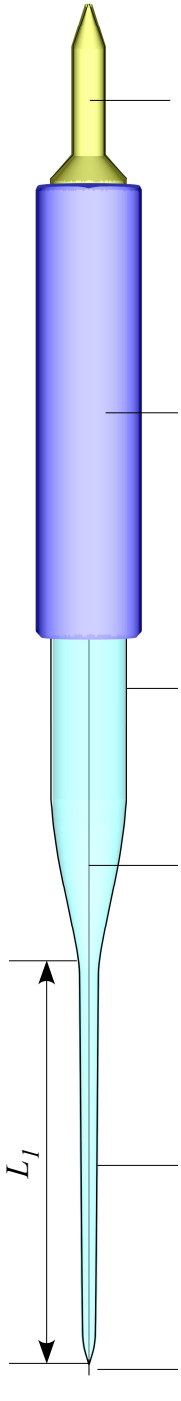
Dimensions
(diameter x length)

Insulated wire
length: 150 mm

Mating female socket, wired
(provided)

Tip of the microelectrode

Part no. ICFE10100



Gold-plated pin
0.4 mm x 2.2 mm

Heat-shrink tubing
1.50 mm x 6 mm

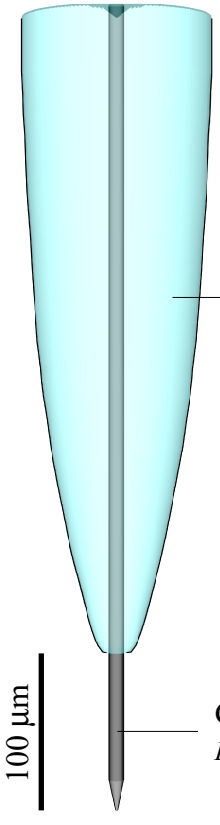
Borosilicate glass
1.0 mm x 4.5 mm

Carbon fiber
diameter: 10 µm

L_1

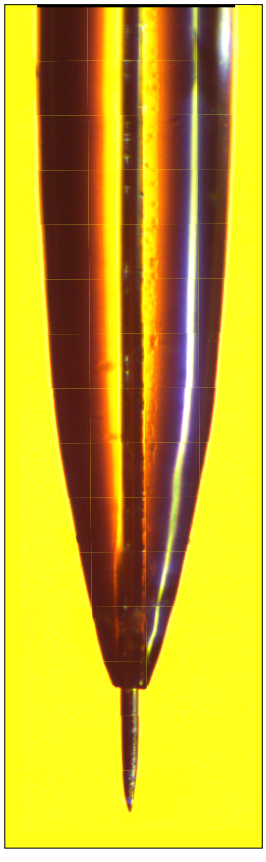
Shank
diameter: 130 µm
at half length,
length, L_1: 5 mm

Carbon tip
length, L_2: 100 µm



Solid borosilicate glass

Carbon fiber tip
L_2, standard: 100 µm



Technical data of 100 µm-long carbon tip:

Response to 1µM dopamine:	38 nA (FSCV, 400 V/s)
Diameter of carbon fiber:	10 µm
Exposed standard length:	100 µm
Active area, approx.:	2 850 µm^2
Impedance @ 1KHz	150 KΩ
Fiber type:	Pitch-type
Autoclavable to:	140 °C

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