

Semi-Chronic Recording System



The Semi-Chronic Recording System is a microelectrode recording system for:

- restrained or partially restrained animals
- minimizing brain movement in acute preparations while still exposing a wide area for depth or surface recording
- maintaining and monitoring brain temperature during acute experiments

The Semi-Chronic System permits radial as well as axial movement of the electrode anywhere within the inside diameter of a 1 or 2 cm column mounted on the animal's skull.

The System includes a Delrin column (1 or 2 cm dia), a circular movement fixture which can be rotated 360°, a clear plastic lateral movement plate which when pivoted, swings the electrode through an arc, a dummy electrode for mounting, and a Teflon plug which is inserted when the column is not in use. Also included is a guide fixture with Teflon bearing through which the electrodes are driven. The guide also mounts the drive system onto the lateral movement plate. The electrode can be advanced through the tissue by using the 50-12-2 Chronic Adapter together with our 50-12-1 Hydraulic Probe Drive. A guide tube can also be employed.

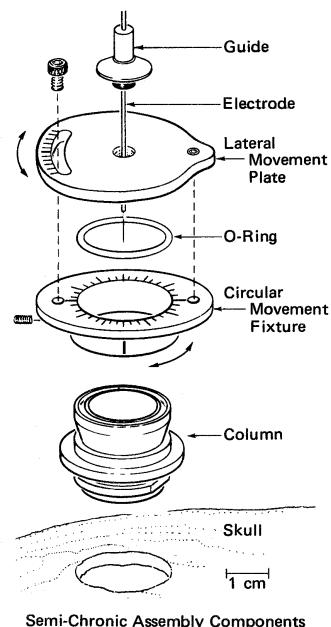
ILLUSTRATIVE PROCEDURE

Assemble the column, circular movement fixture and lateral movement plate as shown and screw the dummy electrode into the assembly. Using a stereotaxic, position and implant the unit over a 1 or 2 cm craniotomy and cement it in place with dental acrylic. Remove the circular movement fixture and lateral movement plate and insert the Teflon plug. Tighten the set screw on the column to hold the plug in place and allow the animal to recover from surgery.

To record, position the animal in a holding device or stereotaxic, reposition the circular movement fixture and lateral movement plate, and add warmed mineral oil or artificial CSF through the guide fixture hole until the column is filled. Slide the microelectrode through the guide fixture hole and screw into position on the fixture and/or pivot the lateral movement plate to select the recording target.

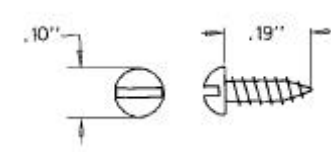
Advancement of the microelectrode is accomplished by mounting the #50-12-1 Hydraulic Probe Drive with the #50-12-2 Chronic Adapter to permit remote control of the microelectrode position.

Electrode connection to the preamplifier is made by clipping a lead onto the uninsulated portion of the microelectrode visible above the drive mounting plate. After recording, remove the circular movement fixture and lateral movement plate. Rinse the column thoroughly, replace the Teflon plug and tighten in place.



OTHER SUPPLIES

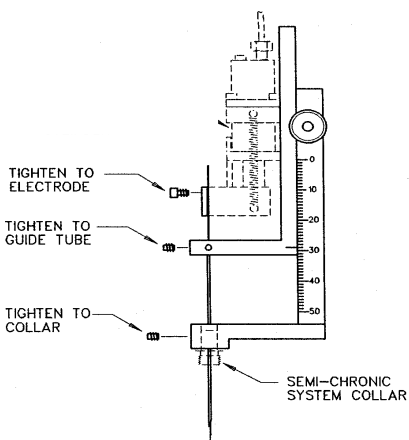
FHC also offers 40-77-8 self-tapping Stainless Steel Bone Screws (0-42 x 3/16" tapered threads). Specially designed to secure chronic fixtures firmly, the bone screws self-tap even to thin skulls.



Guide Tube Drive

Our Guide Tube Advance system adapts our hydraulic microdrive to chronic advance assemblies to give a precision drive system permitting the investigator to:

- Advance a guide tube (23ga Thinwall standard, other sizes optional) with microelectrode inside up to 50mm using a precise rack and pinion drive.
- Advance the microelectrode out of the guide tube using our stable, smooth, hydraulic system.



- 40-73-1 Semi-Chronic Assembly 1 cm
- 40-73-2 Semi-Chronic Assembly 2 cm
- 40-73-7 Delrin Columns 1 cm
- 40-73-8 Map Paper
- 40-73-9 Delrin Columns 2 cm
- 40-74-5 Guide Tube Drive
- 40-77-8 Stainless Steel Bone Screws - Pkg/100

The system is shown at left with our 40-73-2 Semi-Chronic Recording System collar, but we've also designed adaptors to fit the Guide Tube Drive on top of many other columns as large as 4 cm I.D.