

## Harvard/Instech Swivelless Swivel

- Breakthrough technology
- Practically unlimited number of infusion/electrical lines
- No more moving cages
- Less rotational friction than standard 22 gauge swivel, even with multiple lines!

In conjunction with Instech Laboratories, the leading manufacturer of dual channel fluid swivels, Harvard Apparatus is proud to introduce an entirely new approach to multichannel microdialysis, infusion, and monitoring of small laboratory animals. Unlike any other device on the market, the Swivelless Swivel removes all conventional limits on the number and type of lines that can be connected to a freely-moving animal.

All lines, either fluid or electrical, extend from the stationary base to the moving animal. There are no breaks for fluid swivels or electrical commutators. As the animal moves about, the system continuously senses its every turn and quietly drives an arm around the container to prevent the tether from tangling. Unlike other systems, the Swivelless Swivel does not rotate the animal's cage.

The total number of fluid and electrical lines that can be run depends only upon the diameter of the aggregate bundle, currently limited at 5 mm (one-fifth of an inch), but custom tethers are available. The mix of fluid, electrical, or other types of lines can be chosen by the investigator. For example, using standard FEP Teflon microdialysis tubing a researcher could



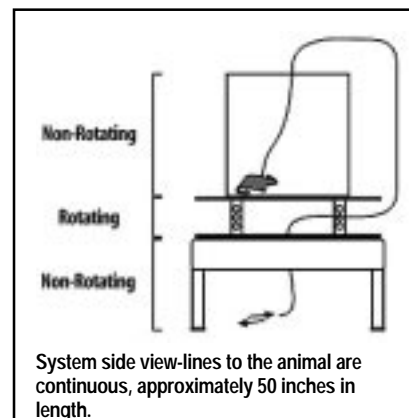
Swivelless Swivel (patent pending)

conceivably run 30 microdialysis probes simultaneously (60 fluid lines)!

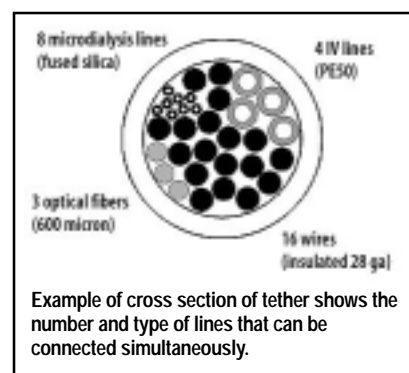
Despite all the extra lines, the rotational friction felt by the animal is typically less than that of a standard 22-gauge single channel fluid swivel.

A built-in adjustable counter-balanced lever arm further reduces stress on the animal and sensitive probes.

The Basic Swivelless Swivel System consists of an 11 inch diameter octagonal cage, a moving center section with the tether support,



System side view-lines to the animal are continuous, approximately 50 inches in length.



Example of cross section of tether shows the number and type of lines that can be connected simultaneously.

a torsion sensor, and a motor drive/power source mechanism. Also included with the cage are a removable waste-collection tray, water bottle, feeder, and 2-panel door for convenient access to the animal. The base of the unit is stationary and is elevated to permit access to the centrally located conduit where the lines enter and exit. Pumps, fraction collectors and amplifiers may be placed around or under the unit. They are sold separately.

### Specifications

|   |  |
|---|--|
| Maximum Number of Fluid & Electrical Lines    | As many as can fit through a 5.0 mm (0.20 in) diameter opening |
| Maximum Continuous Rotational Speed of Animal | ~30 rpm  |
| Cage Dimensions                               | 30 cm (11 in) dia. octagon x 25.4 cm (10 in) high              |
| Cage Floor Area                               | 600 cm <sup>2</sup> (95 in <sup>2</sup> )                      |
| Typical Line Length (animal to outlet)        | 125 cm (50 in)   |
| Power Source                                  | Wall-Mounted 24 VDC adapter                                    |
| Overall Size, H x W x D                       | 79 x 43 x 43 cm (31 x 17 x 17 in)                              |
| Overall Weight                                | 9 kg (19.8 lb)   |

### Catalog No.

|             |   |
|-------------|---|
| CGS 8026.64 | Basic Swivelless Swivel System  |
| CGS 8027.64 | Extra-large ID tether for Multi-Channel Infusion. Standard model connects to animal using a Covance Infusion Harness (included) with access to head area through offset opening. Tether can be customized upon request. |
| CGS 8028.64 | Infrared Communications package. Links to bar press module and communicates with leading behavioral operant conditioning control systems including Coulbourn, Med Associates and TSE.                                   |
| CGS 8029.64 | Bar Press Apparatus with One Red Indicator LED for Swivelless Swivel. Panel slides into octagonal cage and connects to communications package.  |