

Model 923-B Mouse Gas Anesthesia Head Holder

Adaptor Adjustment Features

Dorsal/Ventral dial - Calibrated in 100 micron increments, 1 mm per revolution.

Dorsal/Ventral travel - 30 mm.

Dorsal travel - 10 mm above ear bar zero.

Ventral travel - 20 mm below ear bar zero.

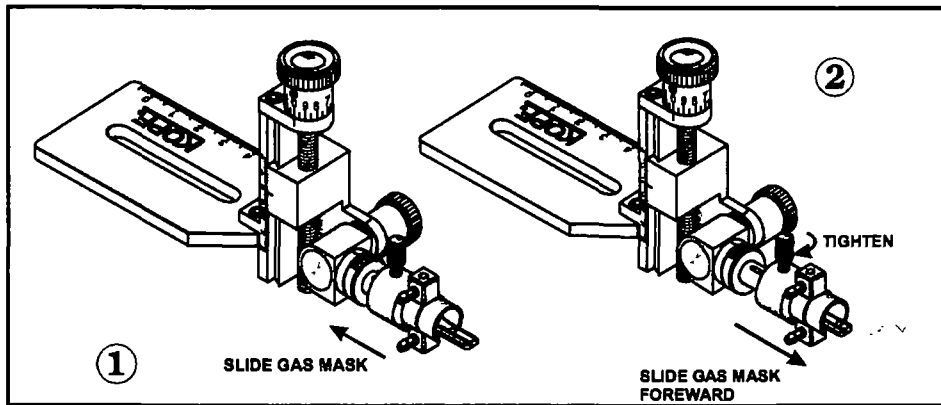
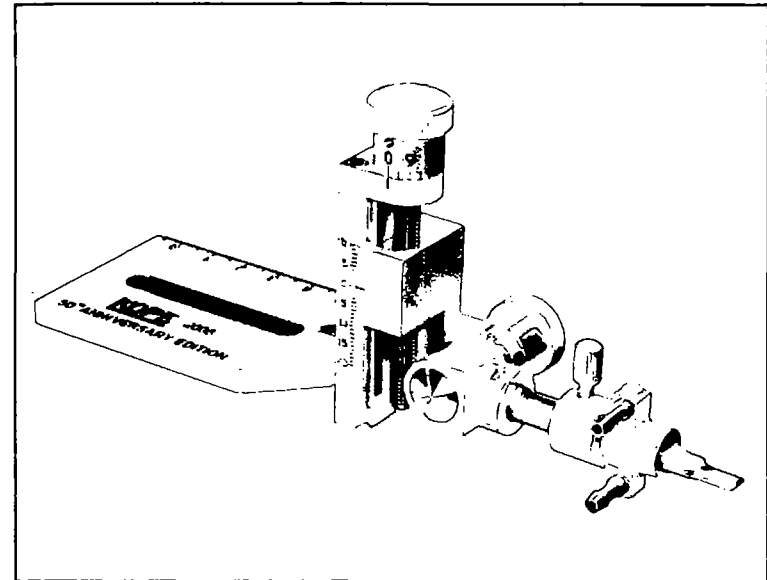
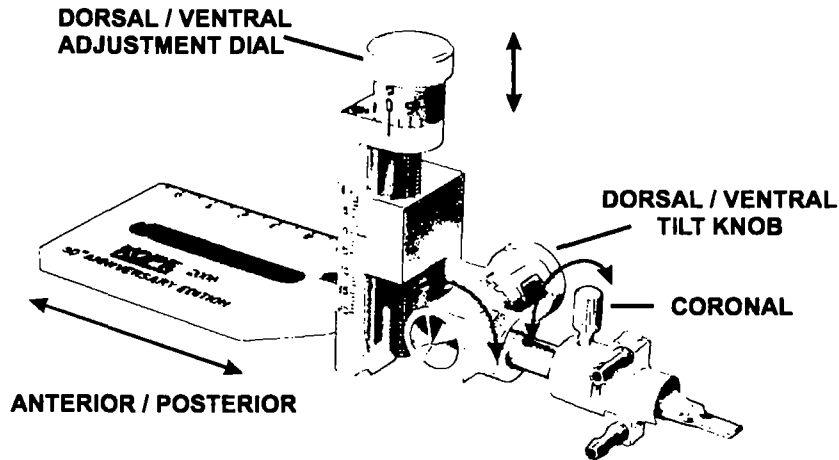
Dorsal/Ventral Tilt - 35° (5° graduations)

Coronal adjustment - 35° (5° graduations)

Anterior - Posterior - 44 mm.

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Precision Designs for Research

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Model 923-B Mouse Gas Anesthesia Head Holder

MODEL 923-B MOUSE GAS ANESTHESIA HEAD HOLDER

The KOPF Mouse Gas Anesthesia Head Holder offers maximum stereotaxic adjustment. Design features secure head position and include various mechanical adjustments for leveling the head without obstructing the ability to deliver gas anesthesia.

The adaptor is mounted on the stereotaxic frame and ear bars are installed in sidebars. The adaptor and ear bars have all been calibrated and set at ear bar zero settings.

Note: The animal must be anesthetized to surgical level prior to being placed in the instrument.

The gas mask should be slid anteriorly to expose the full palate bar. The tongue should be retracted from the side of the mouth (using tweezers) so that you can verify that you are not inadvertently pushing the tongue back into the throat when loading animal onto palate bar.

The palate bar is designed to reach deep into the mouth. The palate bar will fill the entire internal cavity of the mouth but will not induce trauma or choking. Gently slide the palate bar into the mouth and insert the incisors into the round hole, gently slide the gas mask over the animal's nose, tightening the locking screw to secure gas mask in position.

These procedures produce the following; (1) The gas mask pushes the entire head back forcing the incisors to hook the hole in the palate bar; (2) The head- being forced back puts the entire pressure of the clamping load onto the molars; (3) The mask forms a seal around the snout providing a leak-proof fit on the mouse facial features.

The head should then be roughly positioned between the ear bars or ear cups. Model 922 60° Non-Rupture or Model 921-F&G Zygoma/ear cups are recommended for use with this head holder (Ear bars are sold separate). The moveable zygoma/ear cup (Dorsal/Ventral) should be adjusted to the zero position initially so that it is in line with the fixed cup. The ear bars should be placed far enough apart to allow the head to be easily positioned between them. **Do not insert the ear bars or clamp the ear cups across the zygomatic arches at this time.**

The head can now be measured for level and position to conform to the stereotaxic plane as dictated by the particular reference system being used such as the atlas of the brain.

A blunt electrode held in an electrode holder can be mounted to the stereotaxic manipulator and used as a tool to assist with leveling the head.

Optimally, the scalp will be cut open, the skull exposed and any bleeding stopped. Check head position in the Dorsal plane.

The electrode is moved to lambda (the sagittal and lamboidal suture crossing) and another reading is taken. If the two readings are equal in both the horizontal and A/P planes the head is level and straight.

In some stereotaxic reference systems, these landmarks are to be positioned at the same level and in others, lambda is lower than bregma per specified distance.

If the head needs to be level (bregma and lambda equal) but is not, or if lambda needs to be lower than bregma, the head position can be adjusted using one or all of the following adaptor adjustment features.

All of these adjustments should be done without the ear bars or ear cups in their clamping positions. Always retract the ear bars or ear cups before making any adjustments to the position of the head or you will cause serious injury to the animal. Check and adjust the head in the coronal plane. Using the blunt electrode touch equal-lateral points across the midline approximately +/-2.0mm on each side. Adjust the head rotational position until these two points are also level.

Dorsal/Ventral adjustment dial is calibrated in 100 micron increments for ease in positioning. Moving the palate bar up will cause bregma to move up relative to lambda, and moving the palate bar down will move bregma down relative to lambda. This is a very convenient and precise way to adjust the relative positions of lambda and bregma.

Dorsal/Ventral Tilt is calibrated in 5° increments for positioning up to 25° either direction.

Coronal adjustment of the head is accomplished by turning the palate bar either side of midline up to 35°.

To adjust of tooth bar position in the Dorsal/Ventral Tilt and Coronal plane turn the Dorsal/Ventral Tilt Knob counter-clockwise to loosen lock mechanism. After tooth bar has been positioned, turn Dorsal/Ventral Tilt knob in a clockwise direction to secure tooth bar in place.

Another means for adjusting the head position is by loosening the adaptor plate screw (**Anterior/Posterior**) and sliding the entire adaptor forward or backward. This movement makes adjustment to the head in a straight line anterior-posterior for positioning the ear canal and or zygomatic arches with ear bar zero of the stereotaxic U-frame.

Once the head is leveled in the appropriate stereotaxic plane or position, the head should be fixed in position. This is done by inserting the ear bars in or around the ear canals or by clamping the zygomatic arches with the ear cups. Advance the ear bars cups inward equally referring to the centering scales on the ear bar slides and U-Frame until the head is held firmly in place. Do not apply too much pressure on the head as damage to the ear canals and zygomatic arches may occur.

Once the head is level side to side and in the proper orientation front to back for the stereotaxic atlas being used the surgical procedure can then begin.

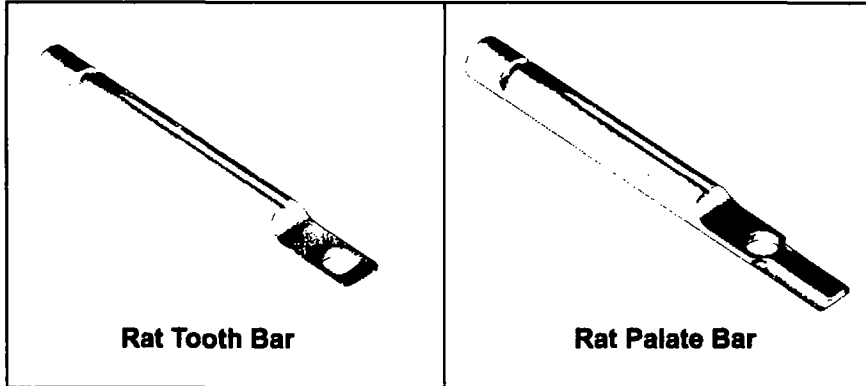
The animal should be monitored carefully for proper anesthesia level during the surgical procedure.

Model 929-B Rat Gas Anesthesia Head Holder special order with Palate Bar Support

For auditory experiments we offer a stereotaxic palate bar. The addition of the full palate bar support on the 929-B allows rigid stereotaxic fixation of the head without the need for ear bar support.

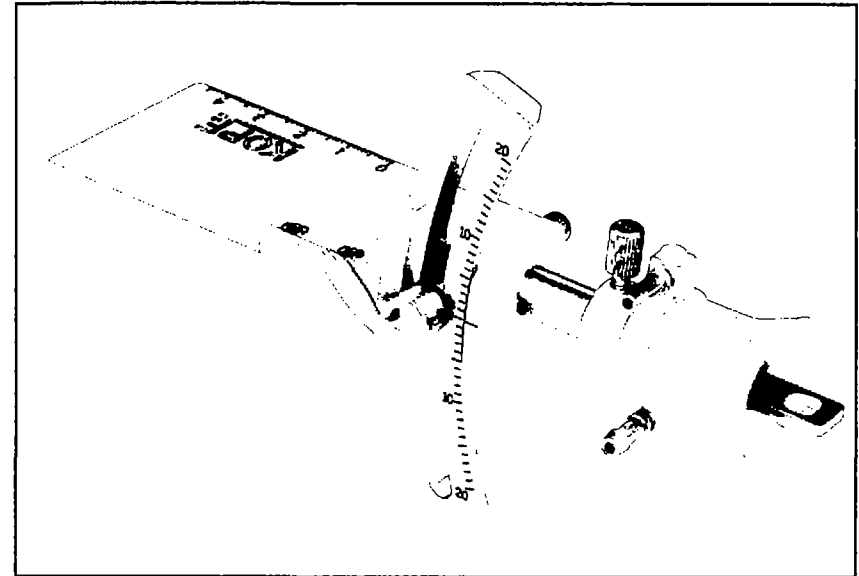
The system works by introducing a long reaching palate support plate deep into the mouth. The support plate is designed with 3 main clamping features; (1) Incisor Hole (2) Palate Support Plate (3) Molar Support Flats. When the palate bar is inserted deep into the mouth, the incisors fall into the incisor hole, the molar support flats located on palate bar pick up the first set of molars and the palate support plate is positioned dental/hard palate. These additional flats provide the extra support required to hold the head in a clamped position as the gas mask is slid forward and onto the snout of the rat.

The tapered internal shape of the gas mask applies both downward and rearward pressure to the snout / skull. This dual pressure application forces the entire bite area of the rats mouth rearward against the incisor hole, down onto the palate plate and finally onto the rearmost molar flats.



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Model 929-B Rat Gas Anesthesia Head Holder

RAT GAS ANESTHESIA HEAD HOLDER

Model 929-B Rat Gas Anesthesia Head Holder has recently been designed to provide a reliable means for stabilizing the head, while allowing the researcher versatility to angle and / or adjust head positioning without obstructing the ability to deliver gas anesthesia.

Adaptor features include an arch mounted tooth bar that provides $\pm 20^\circ$ of dorsal (nose-up, nose-down) movement focused about ear bar zero. This allows constant gas application regardless of head position. Additionally, as the head is moved through the arc of manipulation, the grasp on the snout remains undisturbed. The arch protractor scale is calibrated $1^\circ \pm 20^\circ$ above and below ear bar zero, with 1° minor divisions.

Gas is applied through a standard 1/8" hose barb positioned above the nose on the mask. The inlet fills a large gas chamber around the snout, a second hose barb below the mask is provided for vacuuming off excess, expelled gasses.

The gas mask and tooth bar have been designed and tested to accommodate 250-750 gram rats. It has been reported that 50% less gas was required to keep the animal sedated as compared to other gas adaptors. All of the animals tested fit comfortably into the fixture and were held rigidly without any movement.

CARE AND MAINTENANCE

Care and Maintenance for Stereotaxic Instruments

As in other fine pieces of equipment, normal care and maintenance should be followed:

- Do** lubricate moving parts with light oil
- Do** clean instruments with mild soap or zephirin.
- Do** store in dust-free areas.
- Do Not** drop any portion of the apparatus, as this may seriously disturb the calibration.
- Do Not** allow the instrument to accumulate blood, hair, dust or other matter, as this will disrupt movement and accuracy.
- Do Not** autoclave the equipment because this will severely damage bushing components. If sterilization is required, use gas or germicide not exceeding 120°F (48°C).

