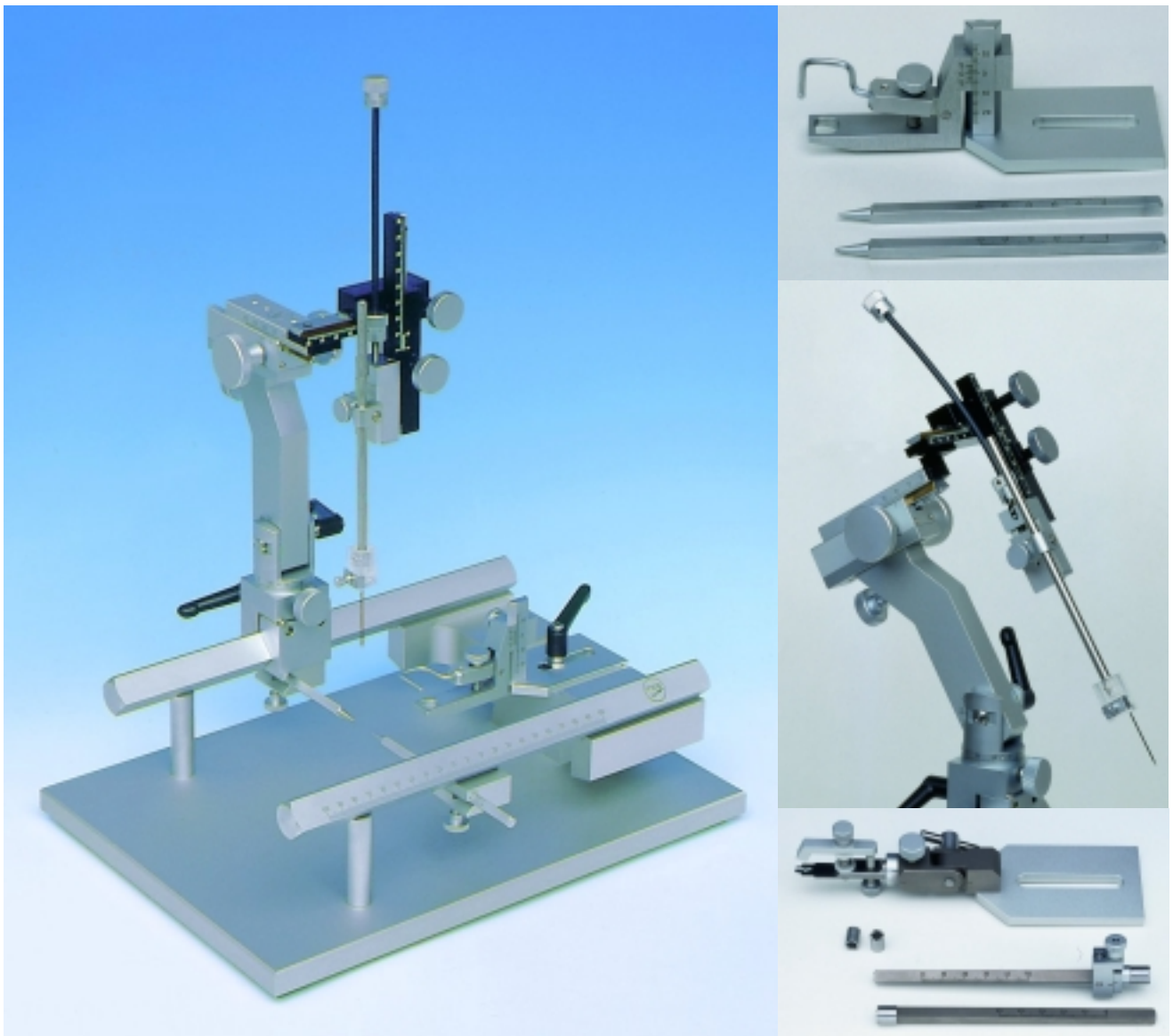


TSE Stereotaxic Instruments



For Large and Small Laboratory Animals

◆ TSE Stereotaxic Instruments

Our high-performance stereotaxic instruments are precision-crafted versatile tools for the accurate and reproducible placement of

- electrodes
- cannulae or
- cranial microprobes

in small and large laboratory animals.

A wide choice of basic components and accessories lets you adapt the systems to any species used in the lab.

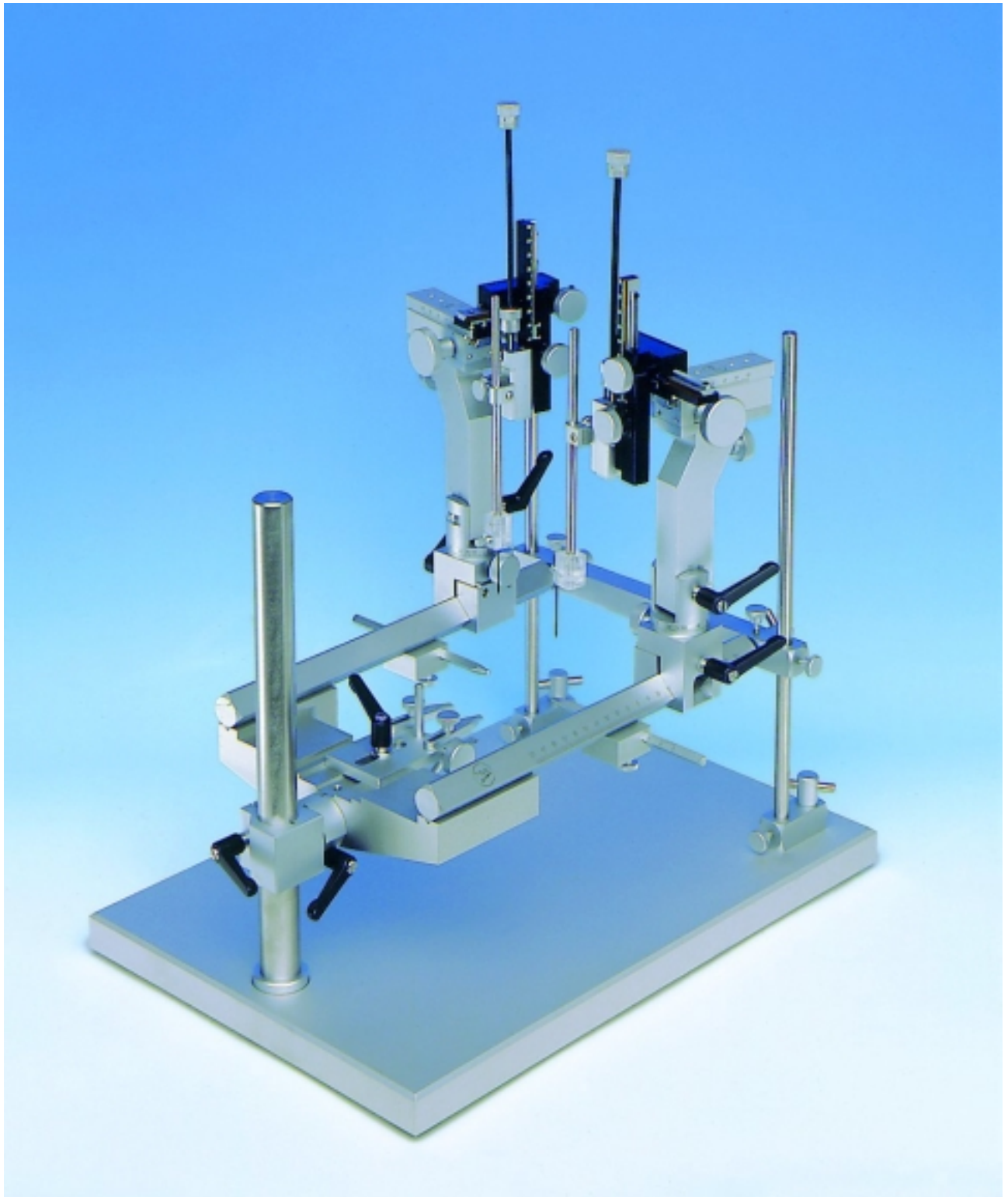
The durable construction of all systems and system components ensure reliable performance for many years.

The main features of our instruments are:

- Heavy base plates that guarantee maximum stability during operation.
- U-shaped rugged large and small frames for easy access to the animal.
- A variety of exchangeable animal adapters and ear bars.
- 3-dimensional manipulators in standard or precision configuration.
- All manipulators are suited for left & right-hand use.
- Fine engraved scales for easy and precise alignment of the verniers.
- Both large and small instruments accommodate up to 4 manipulators.

For ordering please refer to the detailed product list included in this brochure.

◆ **Stereotaxic Instruments for Small & Large Animals**



**Complete Stereotaxic System for Small and Large Animals
with 2 precision micromanipulators**

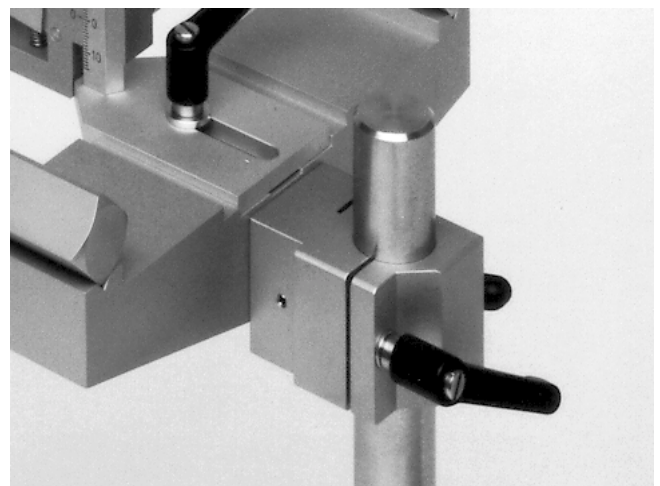
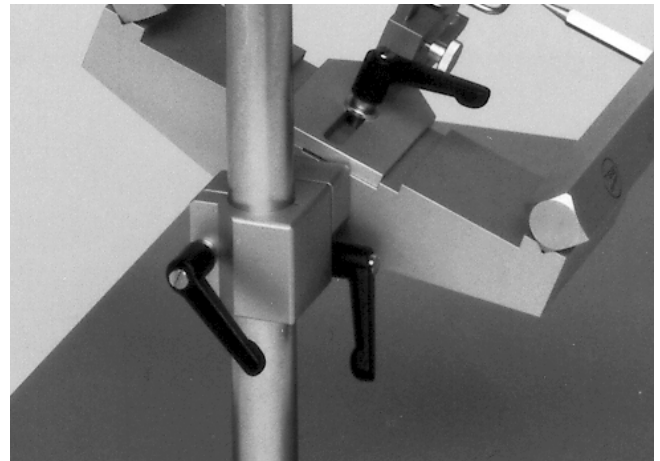
This multi-purpose instrument is suitable for use with small **and** large laboratory animals. By changing animal adapters and ear bars the system can be easily switched from monkey to mouse.

A complete configuration includes:

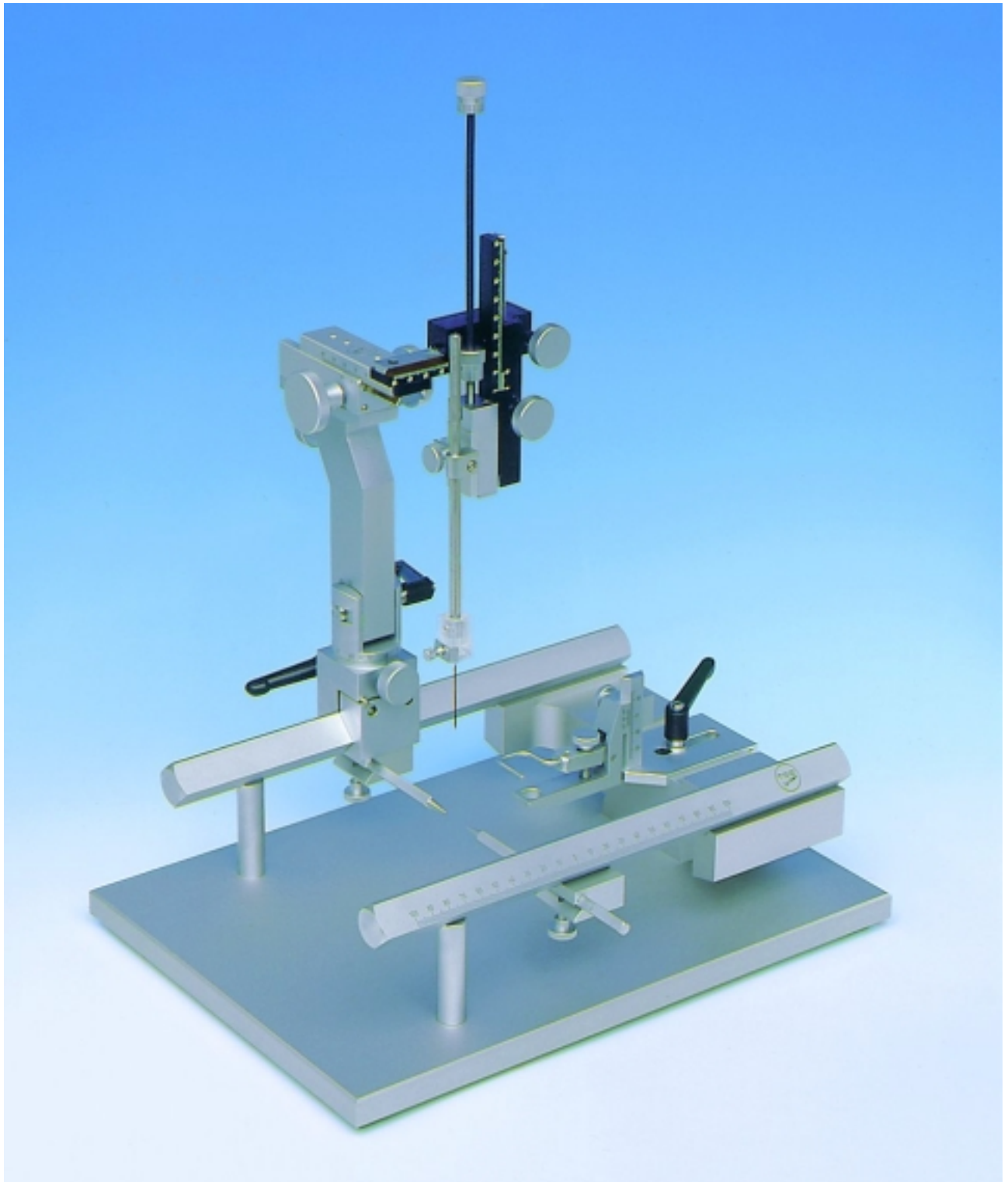
- A heavy base plate (size: 300x450mm) complete with mounting stand (**430005-GP/S**). The base frame is fixed to this stand with a height-adjustable clamp (maximum height: 300mm). The frame can also be tilted into any position.
- Alternatively the base frame can be fixed to space-saving screw-locked mini bases (**430005-GP/K**).
- A large u-shaped base frame (**430005-GR**)
 - Base frame bars are 300mm long (20mm square); shorter bars are available on request.
 - The distance between bars (center) is 182.5mm.
 - Both bars have 100mm calibration on both sides of ear bar zero.
- A set of detachable stabilization posts (**430005-GRS**) that prevent vibrations
- One or more universal micromanipulators (**430005-M/S**) or
- One or more universal *precision* micromanipulators (**430005-M/P**)
- One electrode holder for each manipulator (**430005-HE**)
- One adapter
- One set of ear bars (=2 pieces) - if not integrated into the adapter

The available adapter and ear bar models are listed in the product list.

The manipulators can be mounted from **both ends** of each bar.



◆ **Stereotaxic Instruments for Small Animals**



**Complete Stereotaxic System for Small Animals (Rat Configuration)
with 1 precision micromanipulator**

In small animal instruments the frame is directly fixed at a constant height to the base plate, forming the so-called **base unit**.

A complete small animal configuration includes:

- One base unit (**430005-GR+GP/K**)
 - Base plate (size: 250x350mm) with integrated base frame, ear bar holders (50mm distance between base plate and ear bar center) and stabilisators.
 - The base frame bars are 300mm long (20mm square); shorter bars are available on request.
 - The distance between the bars (center) is 182.5mm.
 - Both bars have 100mm calibration on both sides of ear bar zero.
- One or more universal micromanipulators (**430005-M/S**) *or*
- One or more universal *precision* micro-manipulators (**430005-M/P**)
- One electrode holder for each manipulator (**430005-HE**)

The manipulators can be mounted from **both ends** of each bar.

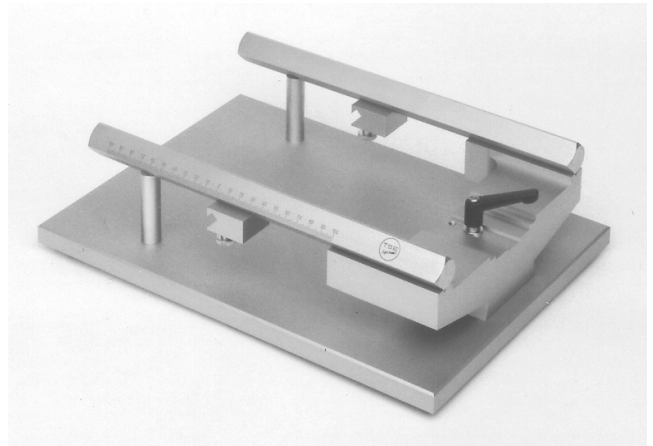
Several combinations of these basic components are available preconfigured as “**basic packages**” (see product list).

A basic package has to be completed by your choice of

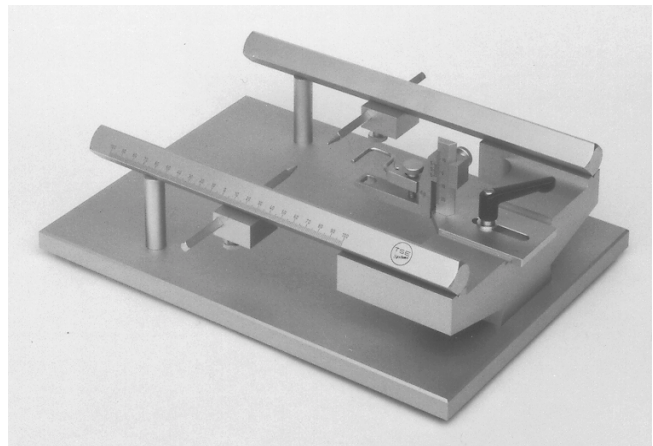
- adapter and
- ear bar set (=2 pieces).

Animal adapters and ear bars are placed into special holders integrated into the base frame and firmly fixed with locking screws.

The available adapter and ear bar set models are listed in the product list.



**Small animal base unit (without manipulator)
- without adapter and ear bars**



**Small animal base unit (without manipulator)
- with rat adapter and rat ear bars**

◆ Animal Adapters & Ear Bar Sets

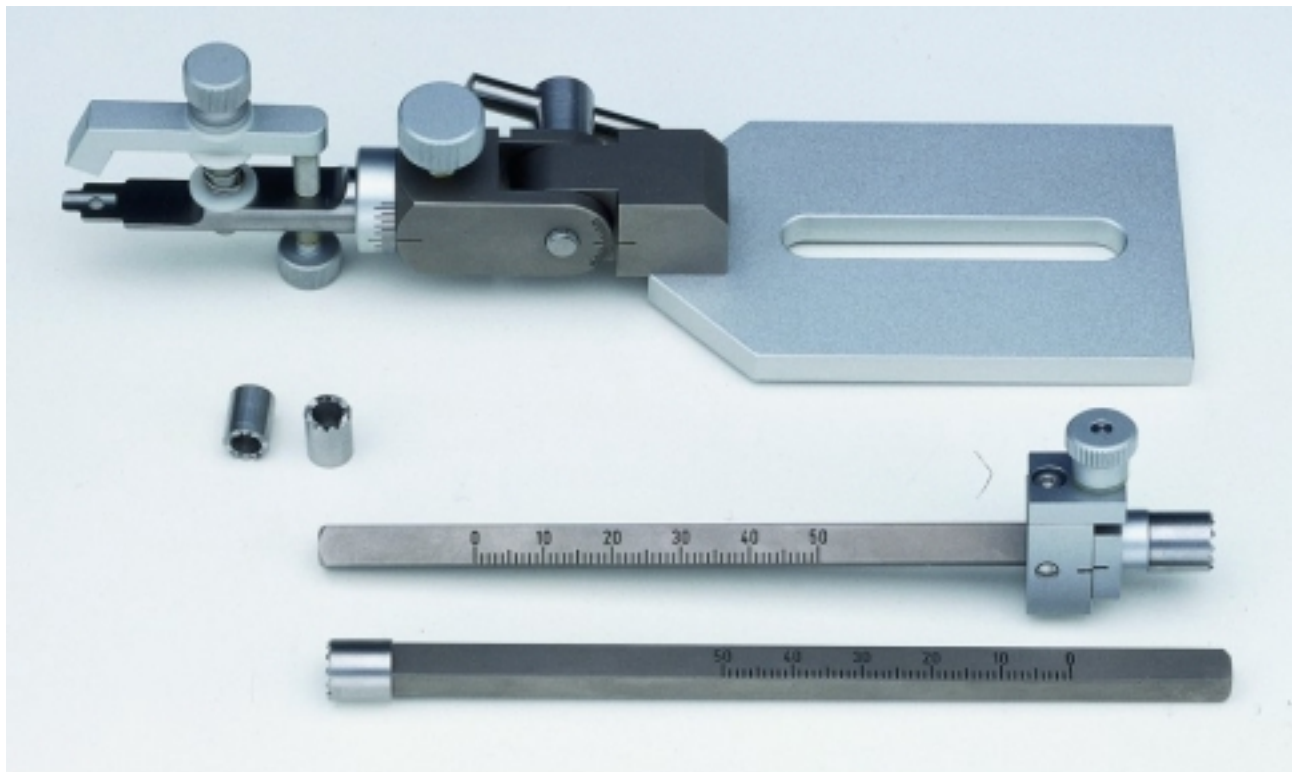
We provide adapters for mice, rats, guinea pigs, rabbits, cats, dogs, monkeys and neonatal lambs.

All adapters fit in both large and small frames, can be horizontally adjusted and are easily interchangeable.

A variety of ear bars are available for different use. They are manufactured in puncture or non-puncture configuration. Calibrated vernier scales allow precise and reproducible positioning of the animal's head.

The most common configurations are described in detail below.

Mouse / Neonatal Rat Adapter & Ear Bar Set



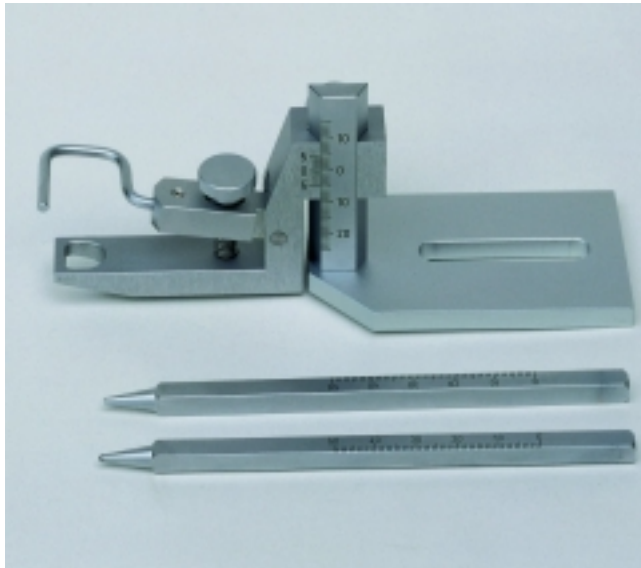
Adapter (430005-A/M) with ear bar set (430005-EB/M)

Our mouse & neonatal rat adapter locates the head by means of a **palate holder** and an adjustable **nose clamp**. It is calibrated for rotational ($\pm 45^\circ$) adjustment in two planes (5° increments).

The ear bars (length: 130mm, 6mm square) with 50 mm calibration are fitted with **ear cups** that are **rotational** for positioning of the head. The cups come in 2 sizes (7 and 9mm diameter). One of the bars is equipped with a slide drive for additional vertical adjustment in the range of ± 2.5 mm (up & down movement).



Rat Adapter & Ear Bar Set

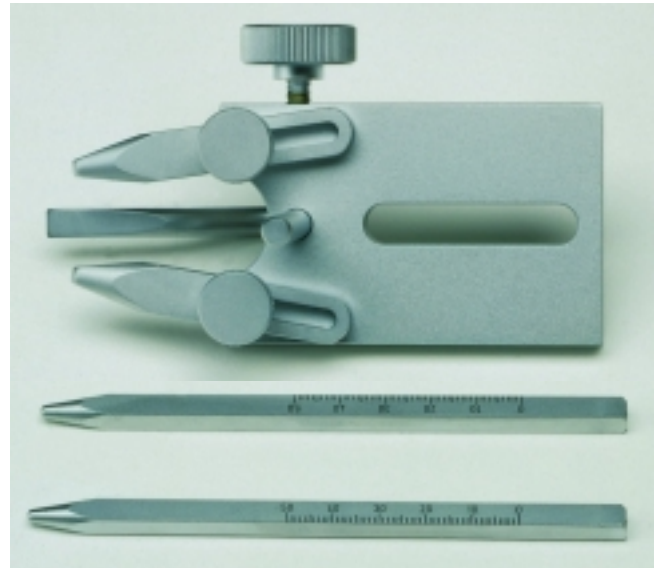


**Adapter (430005-A/R)
with rat ear bar set (430005-EB/R)**

The rat adapter includes a tooth plate and a nose clamp to fix the head. The nose clamp is vertically adjustable (40mm travel; 0.1mm steps with calibrated vernier scale).

The puncture rat ear bars (130mm long, 6mm square) have a 18° tip with 0.8mm radius and 50 mm calibration (*shown above*).

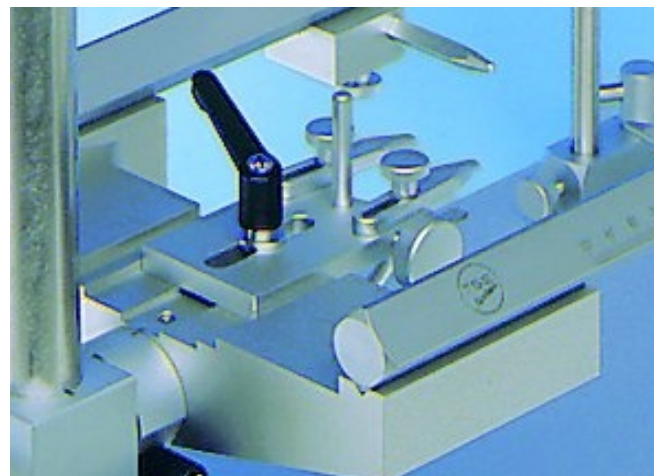
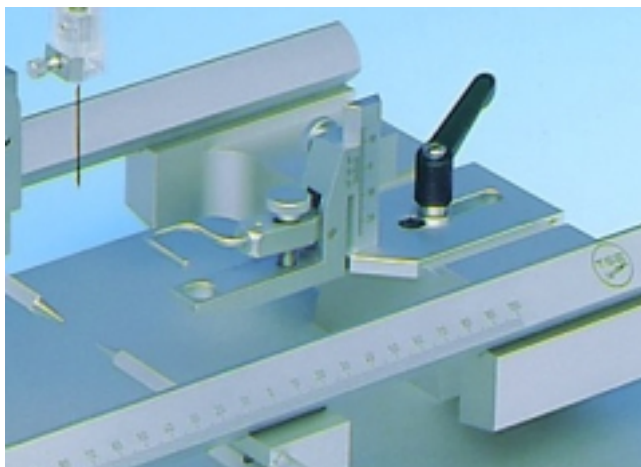
Cat / Monkey Adapter & Ear Bar Set



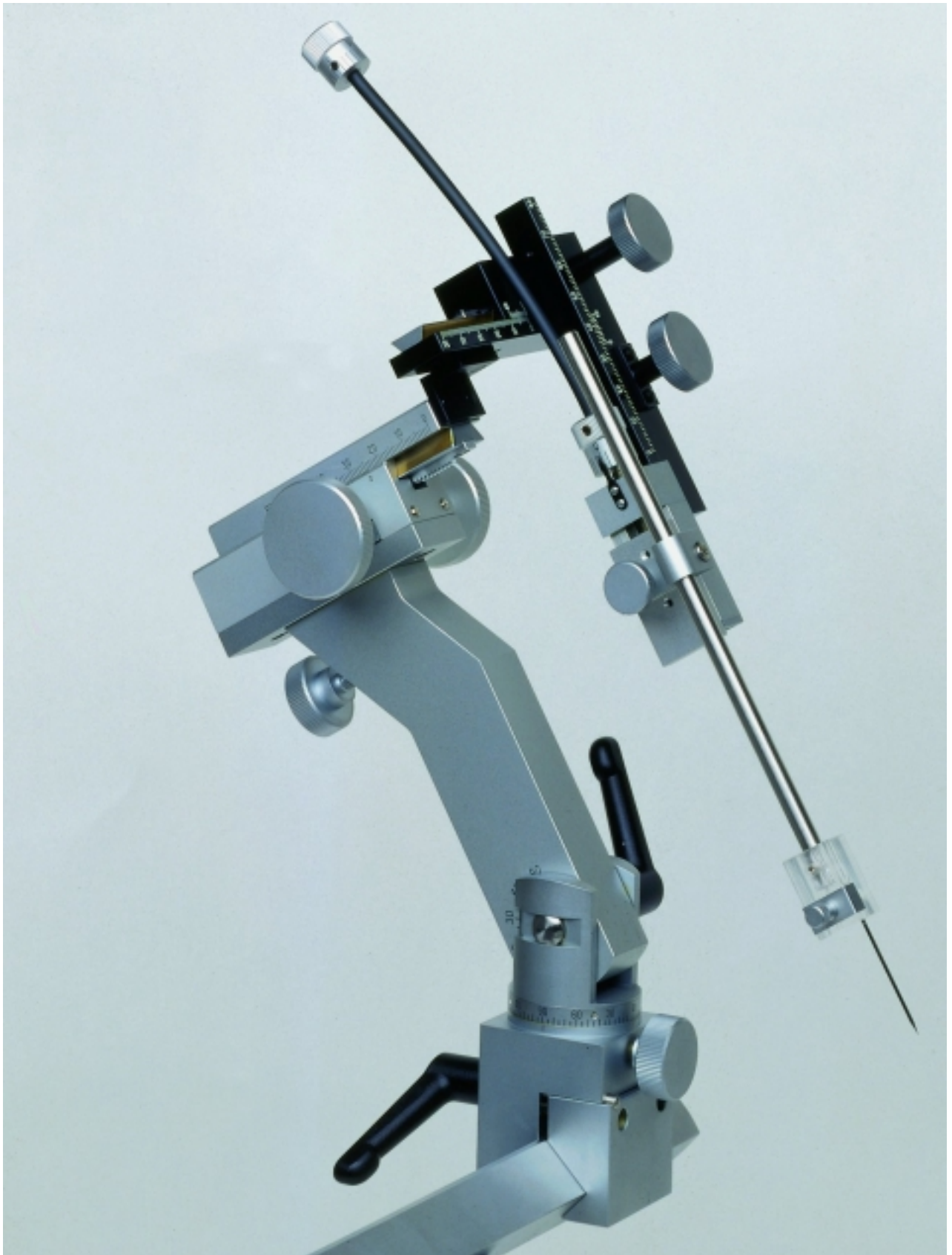
**Adapter (430005-A/CM) shown from above
with ear bar set (430005-EB/CM)**

This adapter is suited for cats and small monkeys. The animal's head is located by means of eye bars and a height-adjustable tooth bar.

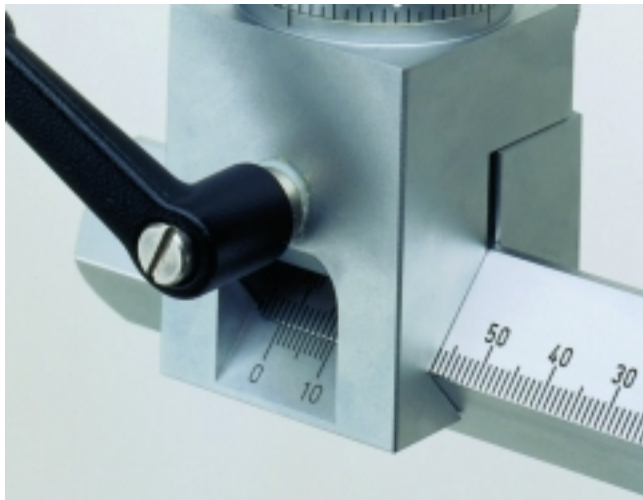
The solid 130mm ear bars with 50mm calibration are 6mm square and have a 20° tapered tip with 1.5mm radius.



◆ **Stereotaxic Micromanipulators**



Precision Micromanipulator (3+1)-axis (430005-M/P)



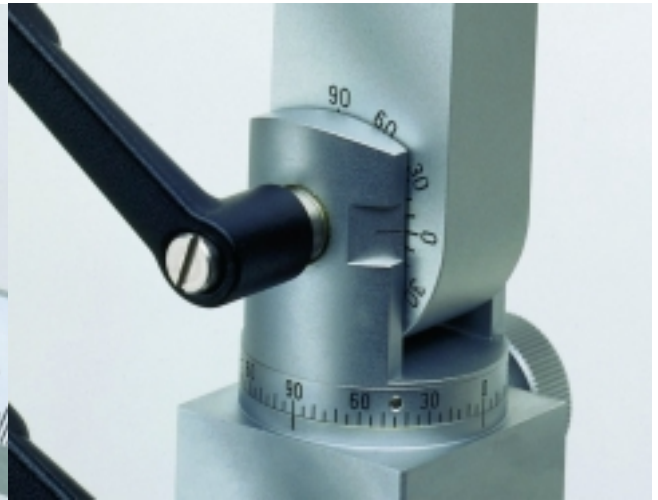
Manipulator clamp

Our universal precision micromanipulators hold micropipettes, standard electrodes and syringes or carry micropositioning devices.

The versatile devices suited for **left & right-hand** operation can assume many positions allowing access to all parts of the brain.

The manipulators fit any frame size due to a universal **clamping device**.

Shown on the left is the base clamp which is fixed to the desired position on the stereotaxic frame bar by means of a locking screw (gross position adjustment).



Joint

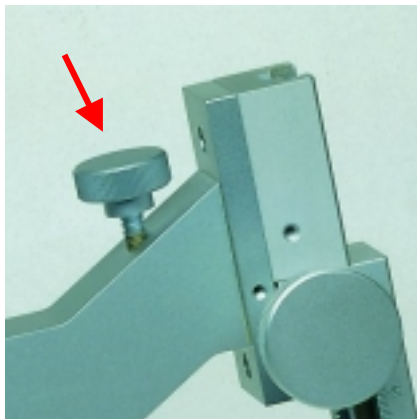
An easy-to-read vernier scale allows accurate adjustment of manipulator position in steps of 0.1mm.

The clamp is equipped with a massive **joint** calibrated in 2 planes. This joint enables the operator to choose almost any angle required to approach the target structure.

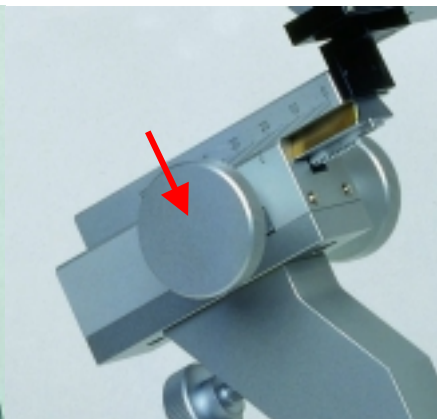
Angular settings

Horizontal	360° in 5° increments
Vertical	180° in 2.5° increments

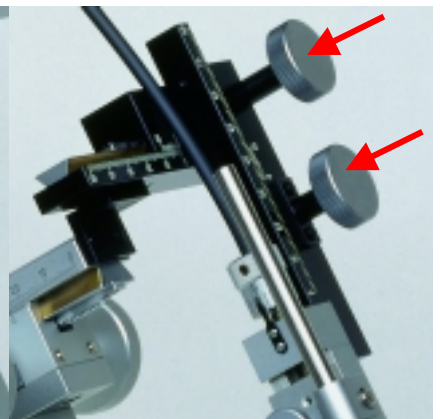
Reliable locking mechanisms ensure that each position is maintained with high stability.



Assembly rotation knob



Drive 1 control knobs



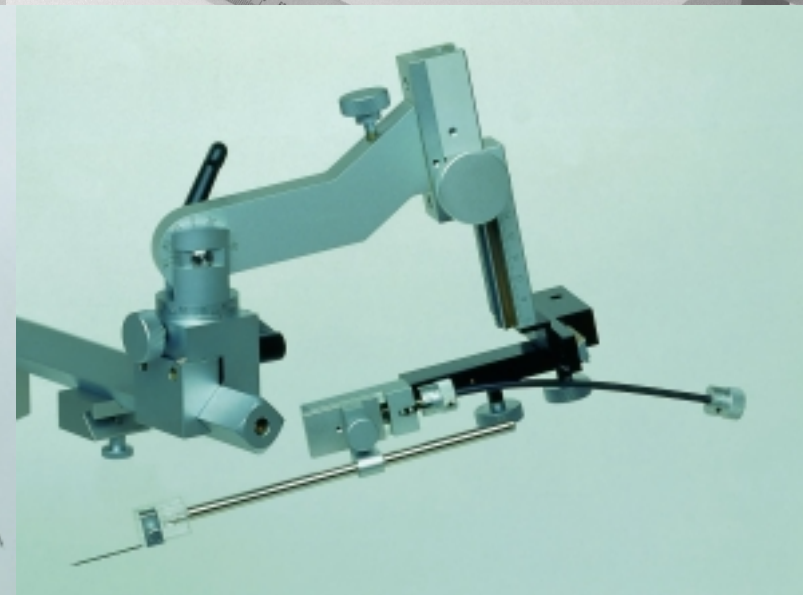
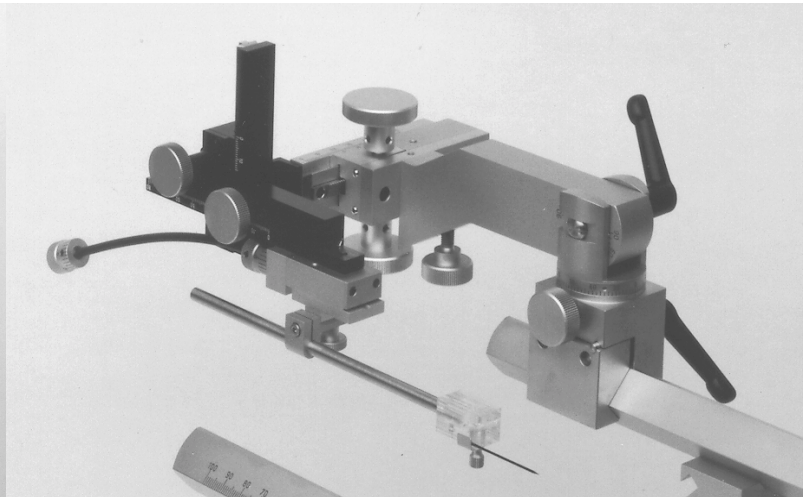
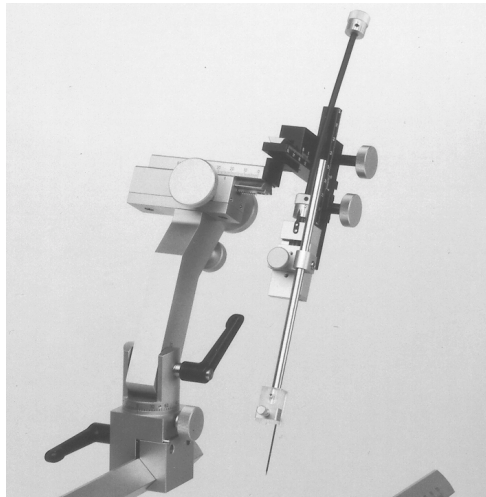
Drive 2 and 3 control knobs

The manipulator is available in two different configurations:

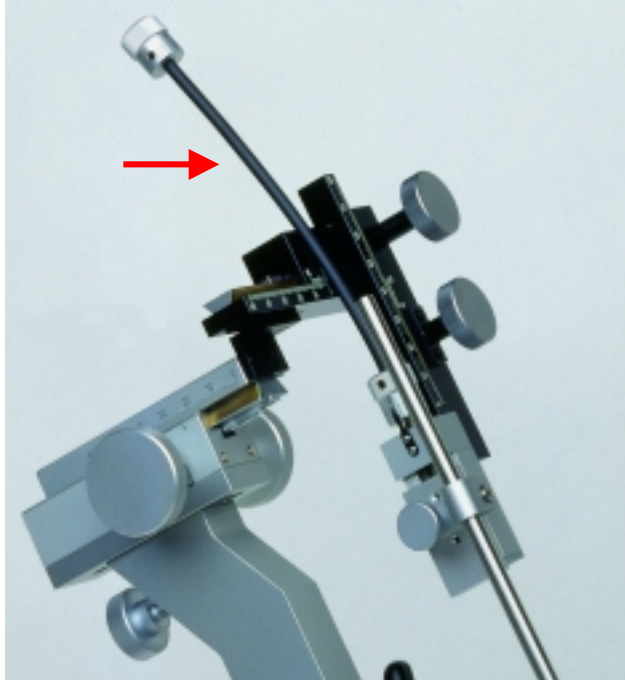
- ◆ **Basic 3-dimensional model (430005-M/S)**
- ◆ **Precision 3-dimensional model (430005-M/P)**

Features common to both types are:

- The manipulator assembly is mounted on top of a massive arm.
- The whole manipulator assembly can be rotated in steps of 90° (*page 11 left: the control knob is marked with red arrow*).
- The first axis is a precision dovetail slide drive with rack and pinion. Travel is 70mm (*middle*).
- The other 2 axes are formed by 2 rack and pinion drives of light construction mounted at right angles to each other (*right*). Horizontal travel is 40mm, vertical travel 75mm.
- Due to the drive knobs being situated on both sides of drive 1 and on top of the drive assembly for drive 2 and 3 the manipulator is suited for left **and** right-hand operation.
- All drives feature very smooth and uniform movements and are free of play.
- Vernier scales allow precise and reproducible adjustment of manipulator position in all 3 axes in tenth of millimeters.

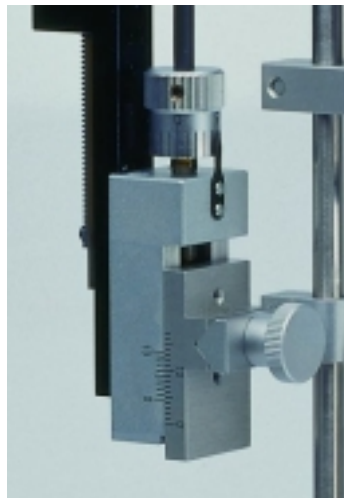


◆ **Precision 3-dimensional model (430005-M/P) – extra features**



The precision manipulator is especially suited whenever very small movements are to be performed.

- The precision manipulator features an additional **ultra-fine movement** in the third (vertical) axis.
- Travel is **0...6mm (standard)**, giving a total travel in this axis of **81mm**.
- A travel of 0...15mm (total travel 90mm) is optional.
- Operation is performed using a unique **flexible control!** This control (*red arrow in the left image*) allows to advance the electrode as close as possible to the target while simultaneously minimizing vibrations!
- A calibrated micrometer drive screw provides precise motion.
- Resolution is **10 μm** for 0...6mm travel (*standard configuration*).
- The optional 0...15mm travel features 20 μm resolution.

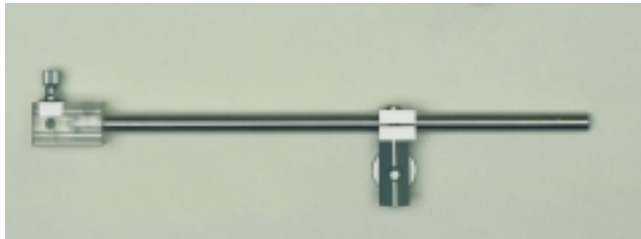


◆ Manipulator Accessories

Your stereotaxic setups are completed with our choice of accessories.

All devices can be easily mounted and removed to convert to another device or to install special assemblies which are suited to unique individual requirements.

Electrode Holder



Electrode holder (430005-HE)

The electrode holder features a plastic block end (6mm square) with integrated grooves on each side to load electrodes and micropipettes.

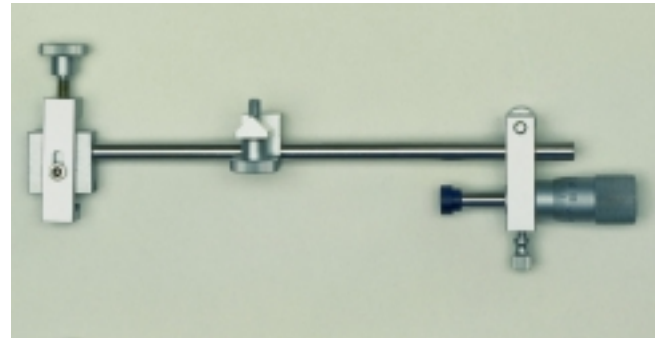
The electrodes are firmly clamped by a bracket. Up to 5 electrodes can be held on one side of the block simultaneously. In addition a second bracket can be mounted on the opposite side of the block.

Shaft length including load block is 180mm, allowing the use of short electrodes.



Mounting device

Microinjection Unit



Microinjection unit (430005-MIU)

A manual microinjection unit is available that holds all standard microliter syringes for accurate dosing of microliter volumes. It is configured with a micrometer screw for precise operation.



Unit mounted to manipulator

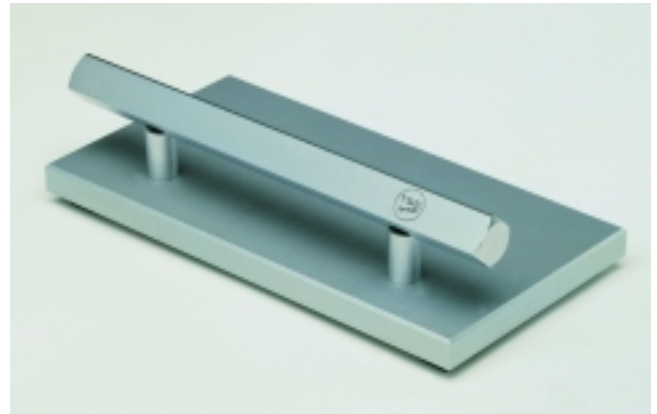
Micropusher

The micropusher (**430005-MP**) operates in conjunction with a syringe pump to automatically control a syringe (diameter from 6.0 – 10.0mm) from a distance and perform precise infusions. Accurate flow rates and controlled volumes without the need for tubing make this easy-to-handle instrument a helpful tool for your stereotaxic setup.

Manipulator Stand

A micromanipulator stand allows comfortable placement of the manipulator when not in use (**430005-MS**)

It can also be equipped with a calibration device (**430005-MS/K**).



Manipulator stand (430005-MS)

Other accessories are listed in the product list.

◆ Additional Equipment

Your stereotaxic setup is completed with

- stereotaxic drill instruments for precise high-speed drilling,
- radio frequency lesion generators,
- nano pumps that operate exclusively with microsyringes (1...10 μ l) useful whenever nanolitre volumes have to be infused,
- syringe pumps,
- patch-pipette pullers and
- glass capillaries.



Syringe Pumps 830000-series

All our syringe pumps combine very low flow rates with simple operation. We provide syringe pumps with flow rates from 0,001 μ l/h up to 147ml/min.

The dual pumps operate two syringes simultaneously (0,01 μ l/min...50 ml/min). Multi-syringe pumps offer holders for up to 8 syringes and feature extra low flow rates. Pumps can also be controlled externally with foot pedal and easy-to-use control software.

A complete specification list will be sent to you on request.



Patch-Pipette Puller 550775

This puller has been especially designed for the precise and reproducible fabrication of patch-clamp pipettes.

The instrument features a high quality constant current circuitry with excellent stability ($\leq 0,01$ A) and two selectable current ranges (0...19,99A and 0...30A). Pipettes are formed in a 2-stage pulling procedure. Separate heat settings for the 1st and 2nd pull, easily interchangeable precision spacer disks for determining the first pull distance and a two-dimensional filament adjustment will result in pipettes with tips of 1–2 μ m.

Suitable for use with all soft and hard glass types of 1...3mm diameter.

◆ Product List

Cat.No.	Description
Stereotaxic Systems for Small Animals - Basic Packages	These packages will be completed with your choice of adapters and ear bars
430005-S-3	Stereotaxic System for small laboratory animals with 1 manipulator <ul style="list-style-type: none"> - Base frame mounted on base plate with stabilisation and ear bar holders 430005-GR+GP/K - 1 micromanipulator 430005-M/S: 3-axis manipulator for left and right hand use, with clamp for all TSE stereotaxic systems - 1 electrode holder 430005-EH
430005-S-4	Stereotaxic System for small laboratory animals with 2 manipulators <ul style="list-style-type: none"> - Base frame mounted on base plate with stabilisation and ear bar holders 430005-GR+GP/K - 2 micromanipulators 430005-M/S: 3-axis manipulator for left and right hand use, with clamp for all TSE stereotaxic systems - 2 electrode holders 430005-EH
430005-S-1	Precision Stereotaxic System for small laboratory animals with 1 precision manipulator <ul style="list-style-type: none"> - Base frame mounted on base plate with stabilisation and ear bar holders 430005-GR+GP/K - 1 precision micromanipulator 430005-M/P: (3+1)-axis manipulator with additional fine adjustment on the 3rd axis (standard travel 0...6mm with 10 µm resolution; travel 0...15mm on request) for left and right hand use, with clamp for all TSE stereotaxic systems - 1 electrode holder 430005-EH
430005-S-2	Precision Stereotaxic System for small laboratory animals with 2 precision manipulators <ul style="list-style-type: none"> - Base frame mounted on base plate with stabilisation and ear bar holders 430005-GR+GP/K - 2 precision micromanipulators 430005-M/P: (3+1)-axis manipulator with additional fine adjustment on the 3rd axis (standard travel 0...6mm with 10 µm resolution; travel 0...15mm on request) for left and right hand use, with clamp for all TSE stereotaxic systems - 2 electrode holders 430005-EH
System Components	
<i>For Small Animals</i>	
430005-GR+GP/K	Base unit = small base frame mounted on base plate with stabilisation and ear bar holders
<i>For Large Animals</i>	
	Large animal systems have to be built together from the following components:
430005-GP/K	Base plate, small, with pillar and screws
430005-GP/S	Base plate, heavy, with mounting stand
430005-GRS	Stabilisation set for large base frame (to be used with heavy base plate)
430005-GR	Large base frame
Adapters	
430005-A/M	Mouse & neonatal rat adapter
430005-A/R	Rat adapter
430005-A/GP	Guinea pig adapter
430005-A/RA	Rabbit adapter (including ear bars)
430005-A/CM	Cat/monkey adapter
430005-A/L	Neonatal lamb adapter
430005-A/DS	Dog/sheep adapter
430005-A/P	Pigeon adapter
Ear bar sets (1 set=2 pcs.)	
430005-EB/M	Ear bar set for mouse & neonatal rat with height adjustment (up/down movement) at one ear bar, complete with 2 sets of ear cups (small and large)
430005-EB/R	Ear bar set for rat
430005-EB/GP	Ear bar set for guinea pig
430005-EB/CM	Ear bar set for cat/monkey
430005-EB/H	Ear bar set - hollow (4mm hole through)
430005-EB/L	Ear bar set for neonatal lamb



430005-EB/DS	Ear bar set for dog/sheep
430005-EB/P	Ear bar set for pigeon
430005-EB/S	Ear bar set <i>special type</i>
Micromanipulators & Accessories	
430005-M/S	3-axis micromanipulator for left and right hand use, with clamp for all TSE stereotaxic instruments.
430005-M/P	(3+1)-axis precision micromanipulator with additional fine adjustment at the 3rd axis, for left and right hand use, with clamp for all TSE stereotaxic instruments. Standard travel: 0...6mm with resolution: 10 µm. Travel 0...15mm on request.
430005-FT-06	Fine drive sold individually for other applications. Travel: 0...6mm. Resolution: 10 µm.
430005-FT-15	Fine drive sold individually for other applications. Travel: 0...15mm. Resolution: 20 µm.
430005-HC	Cannula holder specifically made to hold ALZET and PLASTICS ONE cannulae, complete with mounting device for connection to any TSE micromanipulator
430005-HE/005-020	Electrode holder for electrodes of 0,5...2,0mm diameter, complete with mounting device for connection to any TSE micromanipulator
430005-HE/020-045	Electrode holder for electrodes of 2,0...4,5mm diameter, complete with mounting device for connection to any TSE micromanipulator
430005-HM/010-070	Microdialysis probe holder for probes from 1,0...7,0mm (please specify required diameter), complete with mounting device for connection to any TSE micromanipulator
430005-MIU	Microinjection unit for microliter syringes, complete with mounting device for connection to any TSE micromanipulator
430005-MP	Micropusher for microliter syringes (diameter from 6,0mm to 10,0mm), complete with mounting device for connection to any TSE micromanipulator
430005-HU/070-110	Universal holder for diameter from 7,0 to 11,0mm, complete with mounting device for connection to any TSE micromanipulator
430005-HU/100-150	Universal holder for diameter from 10,0 to 15,0mm, complete with mounting device for connection to any TSE micromanipulator
430005-MD/6	Mounting device for shaft diameter 6mm, for connection of any holder (with 6mm shaft) to any TSE micromanipulator
430005-MD/6-8	Mounting device for shaft diameter between 6,1mm and 8,0mm, for connection of any holder (with shaft diameter between 6,1mm and 8,0mm) to any TSE micromanipulator. Please specify requested diameter.
430005-MS	Manipulator stand
430005-MS/K	Manipulator stand with calibrator
Stereotaxic Accessories	
430005-AM-M	Mouse & neonatal rat anesthesia mask, to be mounted to mouse & neonatal rat adapter 430005-A/M
430005-AM-R	Rat anesthesia mask, to be mounted to rat adapter 430005-A/R
430005-B	TSE stereotaxic drill instrument, complete with separate hand-piece and table adapter, up to 25.000rpm. Use the Universal Holder 430005-HU/100-150 (optional) for mounting the hand-piece to any TSE micromanipulator
430005-LG	TSE radio frequency lesion generator Type LG-500

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