
Animal Cradles

Compatible with the
Autopac and Manpac
Animal Positioning Systems

Version 002

Contents

1	Overview	3
1.1	Animal Cradles for Mouse Applications	3
1.2	Animal Cradles for Rat Applications	3
1.3	Animal Cradles for Guinea Pig and Rabbit Applications	5
1.4	Autopac Adapters	6
2	Technical Reference	7
2.1	The Front Pieces ('Tips') of the Mouse/Rat Modular Cradles	7
2.1.1	MT0405 Rat Head Tip 38 mm (T12559)	7
2.1.2	MT0406 Rat Brain/Body Tip SUC (T12560)	9
2.1.3	MT0407 Mouse Head Tip 23 mm (T12556)	11
2.1.4	MT0408 Mouse Body Tip 38 mm (T12276)	13
2.1.5	MT0409 Mouse Brain/Body Tip SUC (T12558)	15
2.2	Simple (Non-modular) Mouse/Rat Cradles	17
2.2.1	MT0410 Rat Body 60 mm Animal Cradle (T11611)	17
2.2.2	MT0411 Mouse Body 35 mm Animal Cradle (T13392)	18
2.3	Animal Cradle Sets (Deprecated)	19
3	Usage	20
3.1	First Time Usage	20
3.2	Mounting the 23 mm Resonator	22
3.3	Maintenance	23
3.3.1	Material Notes	23
3.3.2	Cleaning	23

1 Overview

1.1 Animal Cradles for Mouse Applications

SAP DESCRIPTION	BODY PART	SALES OPTION	PART NUMBER	TYPIC. PROBE DIAMETER	SUPPLIER	FEATURES	STATUS
MRI BIO A. BED M. BASE	n.a.	MT0415	T12555	n.a.	Lahr	thermal cradle	Release
MRI BIO A. BED M. TIP SUC	brain/body	MT0409	T12558	72 mm	Lahr	stereotactic fixation mounting of SUCs	Release
MRI BIO A. BED M. TIP 23	head	MT0407	T12556	23 mm	Lahr	stereotactic fixation, mount point for 23 mm res.	Release
MRI BIO A. BED M. TIP M. BODY 038	body	MT0408	T12276	40 mm	Lahr	tooth bar mounting point for 40 mm res.	Release
MRI M. HEART ARR.	heart	MT0047-01	div. (freq. dep.)	n.a.	BB-MRI	stereotactic fixation integrated 2x2 phased array SUC	Release
MRI A. BED M. BODY 35 (AUTOPAC)	body	MT0411	T13392	35 mm (B-GA6 & PHS)	Lahr	tooth bar	Release

Table 1: Autopac cradles for mouse applications

1.2 Animal Cradles for Rat Applications

SAP DESCRIPTION	BODY PART	SALES OPTION	PART NUMBER	TYPIC. PROBE DIAMETER	SUPPLIER	FEATURES	STATUS
MRI BIO A. BED R. BASE	n.a.	MT0416	T12554	n.a.	Lahr	thermal cradle	Release
MRI BIO A. BED R. TIP SUC	brain/body	MT0406	T12560	72 mm	Lahr	stereotactic fixation mounting of SUCs	Release
MRI BIO A. BED R. TIP 38	head	MT0405	T12559	40 mm	Lahr	stereotactic fixation mounting point for 40 mm resonator	Release
BIO A. BED R. HRT (AUTOPAC)	heart		T11739	72 mm	BB-CH	tooth bar, ECG connectors, animal sliding mechanism integrated 4x1 array SUC	Release
MRI A. BED R. 60 (AUTOPAC)	body	MT0410	T11611	60 mm	Lahr	tooth bar	Release

Table 2: Autopac cradles for rat applications

There are four basic animal cradle configurations for mouse and rat:

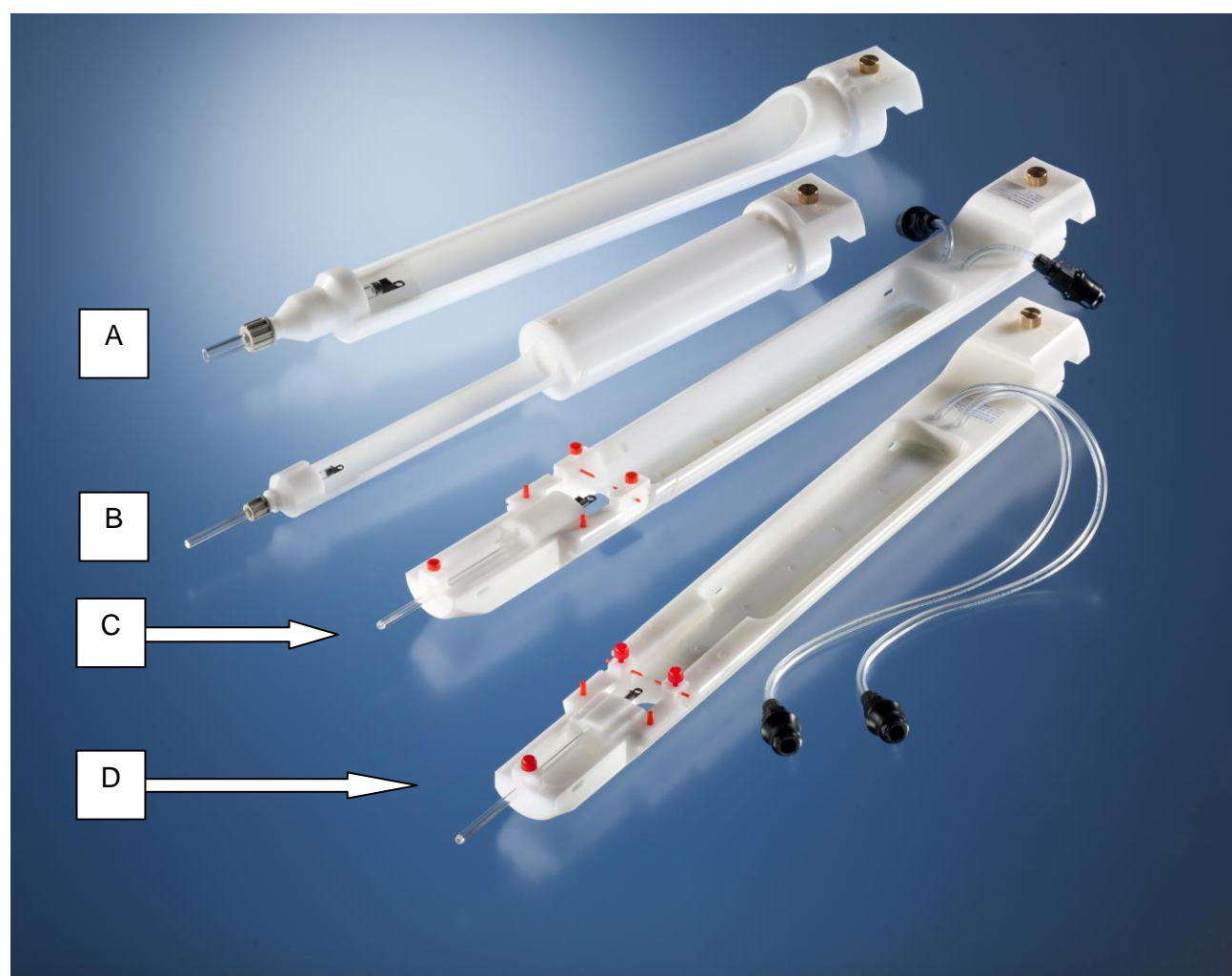


Figure 1: A) **MT0410 (T11611)** Animal Cradle Rat Body 60 mm (Autopac)
B) **MT0411 (T13392)** Animal Cradle Mouse Body 35 mm (Autopac)
C) **MT0416 (T12554)** Animal Cradle Rat Base
with mounted tip **MT0406 (T12560)** (for using brain surface coils)
D) **MT0415 (T12555)** Animal Cradle Mouse Base
with mounted tip **MT0409 (T12558)** (for using brain surface coils)

Animal cradles A and B are suitable for examinations of the rat/mouse body and do not require any further assembly steps.

The modular animal cradles C and D consist of an animal cradle base and a tip that is mounted on the front part of the base. The base can't be used without a tip for animal measurements. The tip can be chosen depending on the examined animal part and the resonator used. On the following pages, the different tips are listed with specifications of usage and assembly instructions.

1.3 Animal Cradles for Guinea Pig and Rabbit Applications

There are two animal cradles for other species than rat or mouse:

- Guinea pig / small rabbit: **MT0412 (T11612)**, for use with the 154 mm resonator
- Rabbit: **MT0417 (T11613)**, for use with the 197 mm resonator

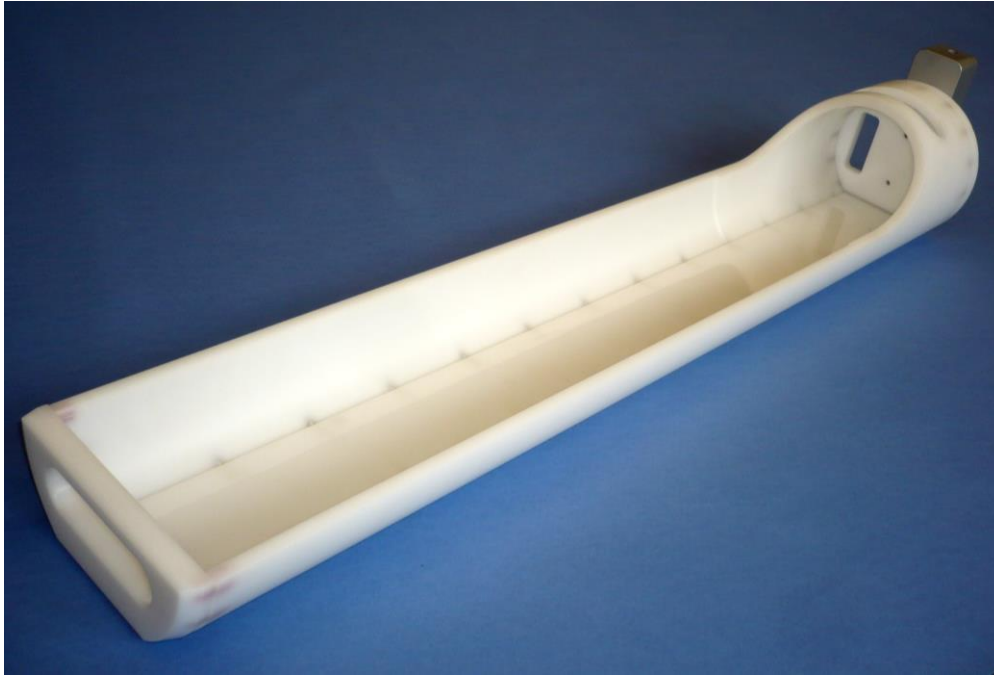


Figure 2: Guinea pig animal cradle T11612.

Both cradles are simple, i.e. no head fixation, no anesthesia devices, no integrated animal warming.

1.4 AutoPac Adapters

For manual slider systems, two adapters for Autopac cradles are available:

- Trapez adapter T12812 (manual plastic rail slider)
- Slider adapter T12811 (manual metal slider rail)



Figure 3: Trapez adapter T12812 (left) and slider adapter T12811 (right).

i No adapters are available for older type (acrylic) animal cradles.

2 Technical Reference

2.1 The Front Pieces ('Tips') of the Mouse/Rat Modular Cradles

2.1.1 MT0405 Rat Head Tip 38 mm (T12559)

Animal cradle tip dedicated for rat head application with Autopac.

2.1.1.1 Overview

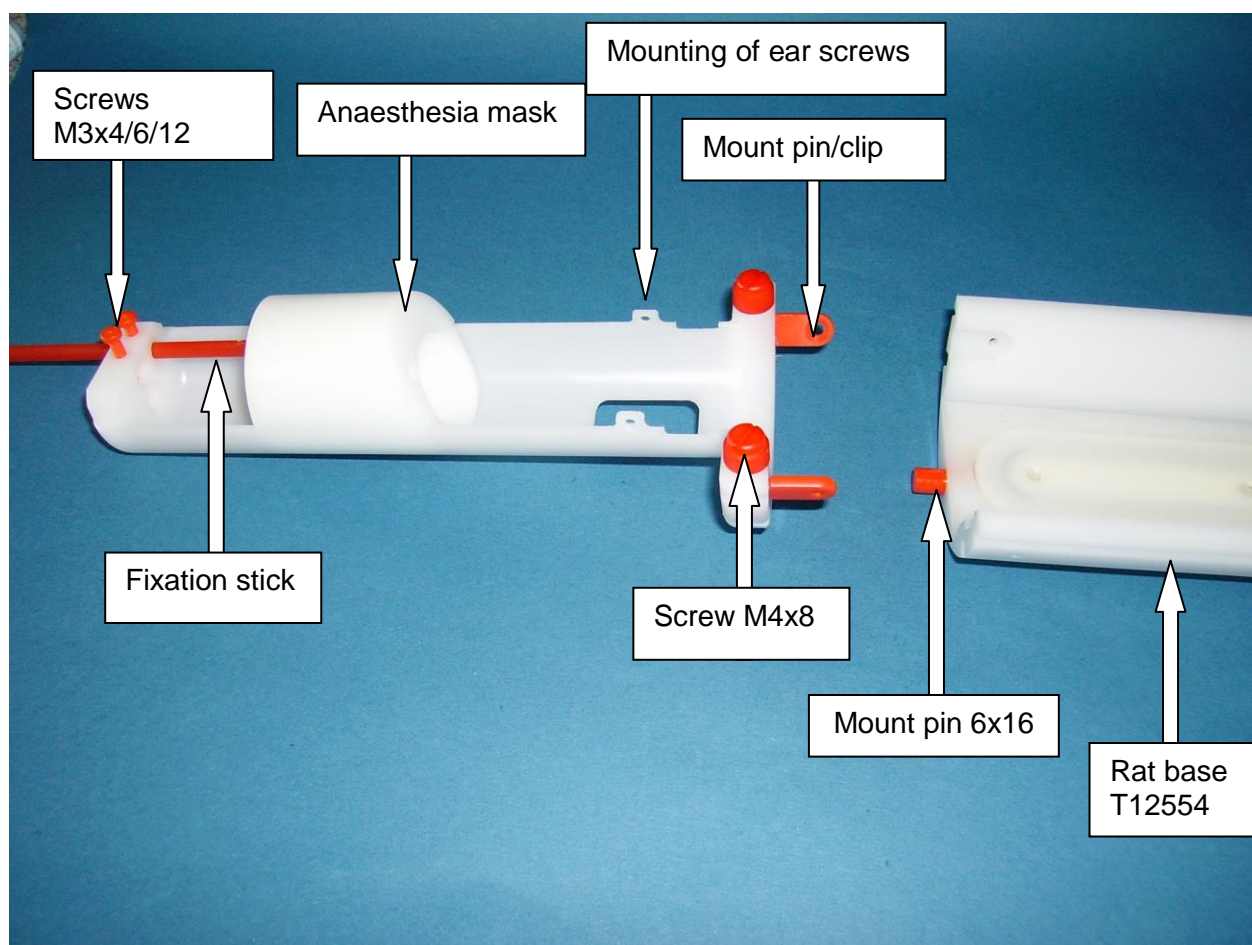


Figure 4: Rat head tip 38 (T12559, left), together with rat base cradle (T12554, right).

Animal	Rat
Body parts	Head
Typical probe	75/40 mm volume resonator (mount-on-Cradle)
Min. probe diameter	38 mm

A complete animal Cradle with a mounted Rat Head Tip 38 consists of

- Animal Cradle Rat Base **MT0416 (T12554)**
- Rat Head Tip **MT0405 (T12559)**

Please note that the mounting devices on the tip cannot be fastened with countersunk screws. Instead of that, use M4x8 screws as shown in Figure 4.

2.1.1.2 Features

- 3-point head fixation (tooth bar & ear screws)
- mounting points for 75/40 mm resonator
- animal is warmed through rat base Cradle water heating

2.1.1.3 Compatibility Notes

Animal Cradle tip dedicated for use with 75/40 mm resonator (mount-on-Cradle).

- Compatible with:
 - 72 or 86 mm inner diameter resonators
 - PharmaScan 89/38 mm resonator (mount-in-magnet)
- NOT compatible with 89/35 mm resonators (not supported for rat head applications)

The rat head tip T12559 is not interchangeable with the mouse body tip T12276 (different size of respiration mask and tooth bar).

2.1.1.4 Spare Parts

- Tooth Bar Rat (**T10149**)
- Plugs and screws set (**T12329**), contains: 6x ear screw rat, 2x screw M4x8, 1x screw M3x12, 1x screw M3x6, 1x screw M3x4, 1x fixation stick, 1x mount pin 6x16, 2x mount pin/clip, 4x countersunk screw M3x8;
- Hose set (**T12330**), contains: 1x hose coupling female, 1x hose coupling male, 1x elbow fitting, 3 m hose 1.6x3.2

2.1.2 MT0406 Rat Brain/Body Tip SUC (T12560)

Animal cradle tip dedicated for rat brain or body application with Autopac.

2.1.2.1 Overview

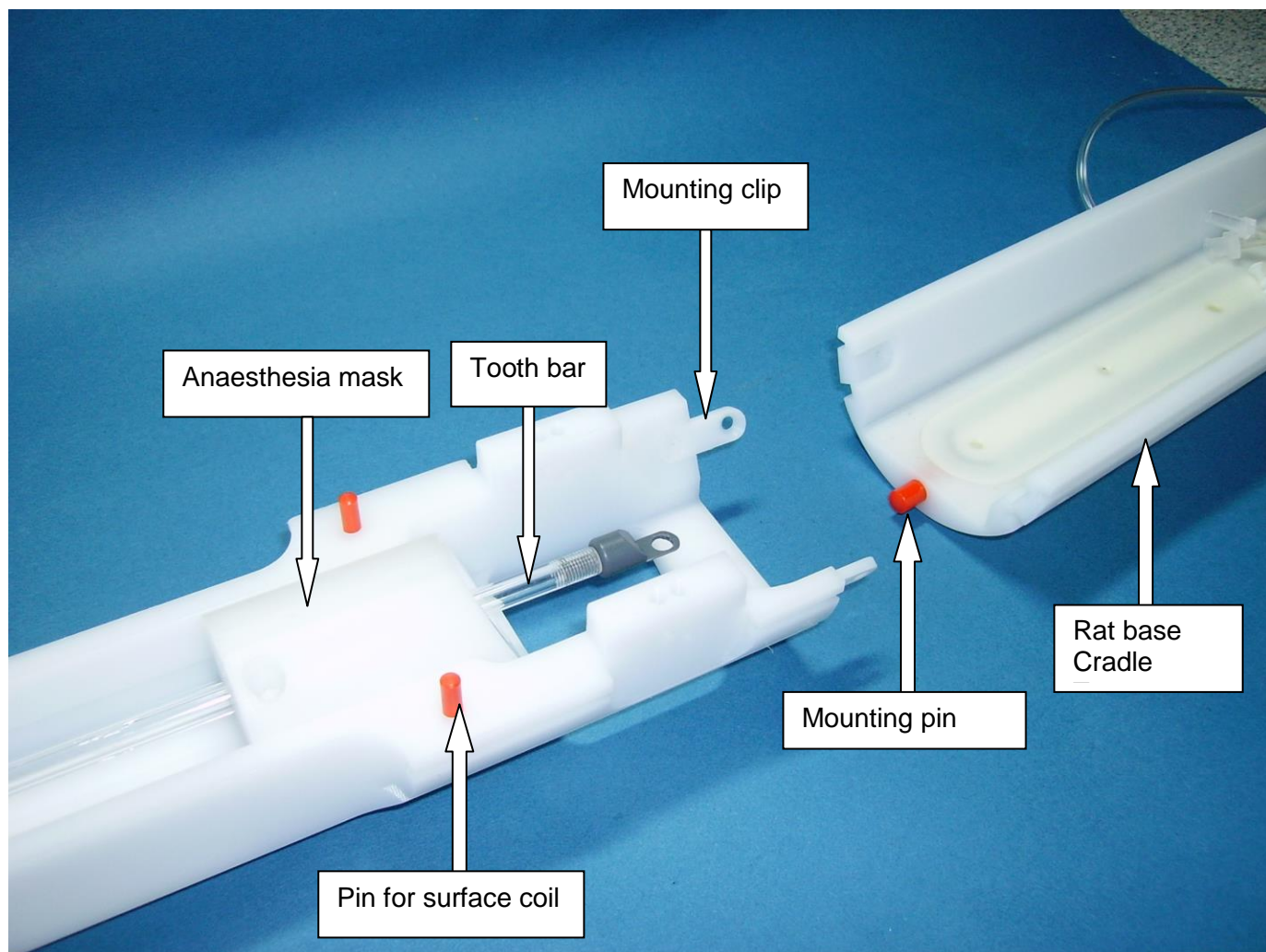


Figure 5: Rat tip SUC (T12560, left), together with rat base cradle (T12554, right).

Animal	Rat
Body parts	Brain / Body
Typical probe	72 mm volume resonator Rat brain quadrature and array surface coils (SUC)
Min. probe diameter	70 mm

A complete animal Cradle with a mounted Rat Brain/Body Tip SUC consists of

- Animal Cradle Rat Base **MT0416 (T12554)**
- Rat Brain/Body Tip SUC **MT0406 (T12560)**

2.1.2.2 Features

- 3-point head fixation (tooth bar & ear bars)
- mounting pins for surface coils
- animal warming through rat base Cradle water heating

2.1.2.3 Spare Parts

- Tooth bar rat (**T10149**);
- Plugs and screws set (**T10150**), contains 6x ear plug rat, 6x pin for surface coil, 4x screw M4x8, 1x screw M4x16, 1x red mount pin 6x16, 2x mount clip Nylon, 4x countersunk screw M3x8;
- Hose set (**T12330**), contains 1x hose coupling female, 1x hose coupling male, 1x elbow fitting, 3 m hose 1.6x3.2

2.1.3 MT0407 Mouse Head Tip 23 mm (T12556)

Animal cradle tip dedicated for mouse head applications with Autopac.

2.1.3.1 Overview

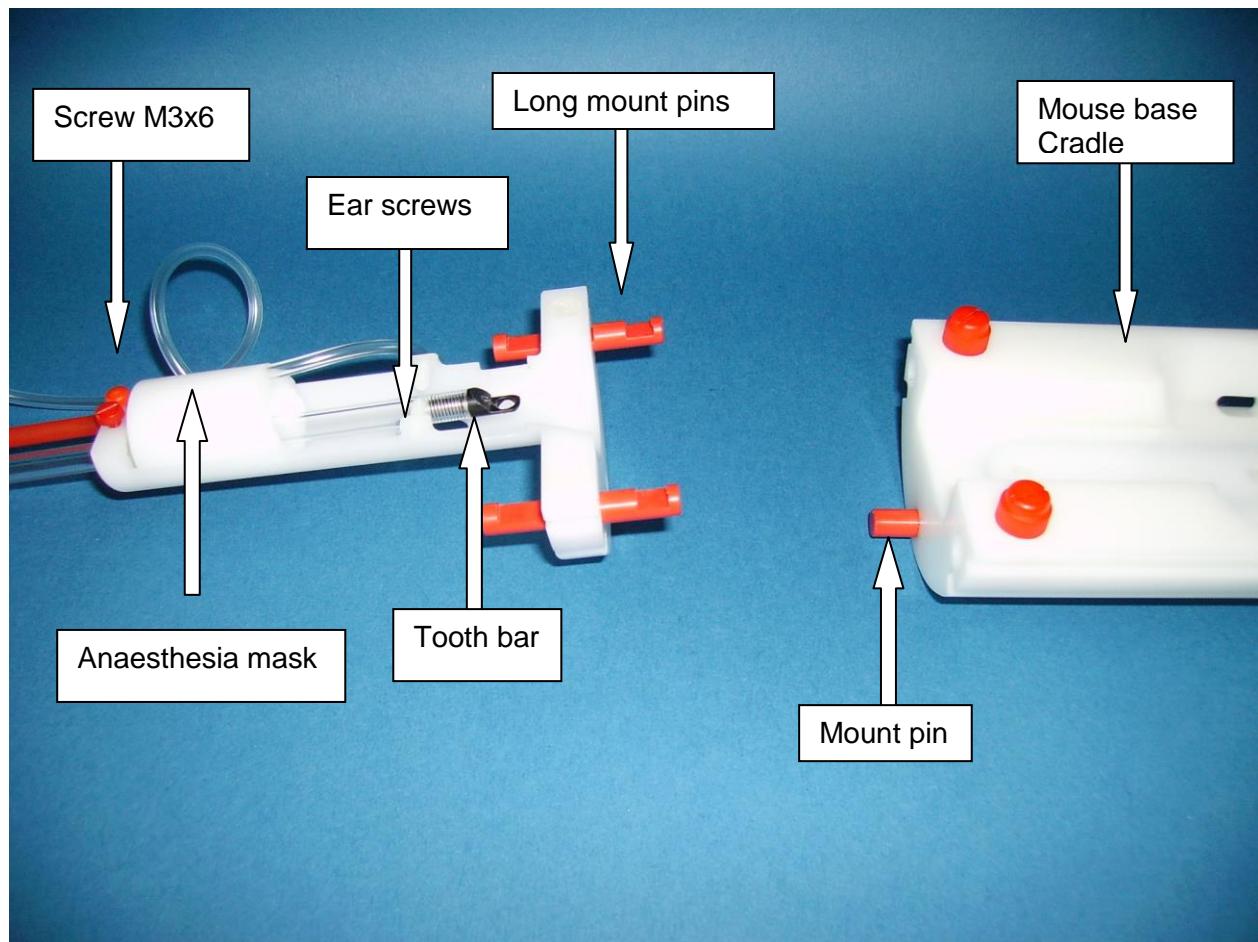


Figure 6: Mouse head tip (T12556, left), together with mouse base cradle (T12555, right).

Animal	Mouse
Body parts	Head
Typical probe	23 mm volume resonator (mount-on-Cradle)
Min. probe diameter	23 mm

A complete animal Cradle with a mounted Mouse Head Tip 23 consists of

- Animal Cradle Mouse Base **MT0415 (T12555)**
- Mouse Head Tip 23 **MT0407 (T12556)**

For mounting and using the 23 mm resonator see also section 3.2.

2.1.3.2 Features

- 3-point head fixation
- Mount interface for 23 mm resonator
- animal is warmed through mouse base Cradle water heating

2.1.3.3 Spare Parts

- Tooth Bar Mouse (**T10146**)
- Plugs and screws set (**T12328**), contains 6x ear screw mouse, 1x screw M3x6, 1x screw M3x3, 4x countersunk screw M4x8, 1x fixation stick, 1x mount pin 6x16, 2x mount pin 6x37
- Hose set (**T12326**), contains 1x hose coupling female, 1x hose coupling male, 1x elbow fitting, 3 m hose 1.6x3.2

2.1.4 MT0408 Mouse Body Tip 38 mm (T12276)

Animal cradle tip dedicated for mouse body application with Autopac.

2.1.4.1 Overview

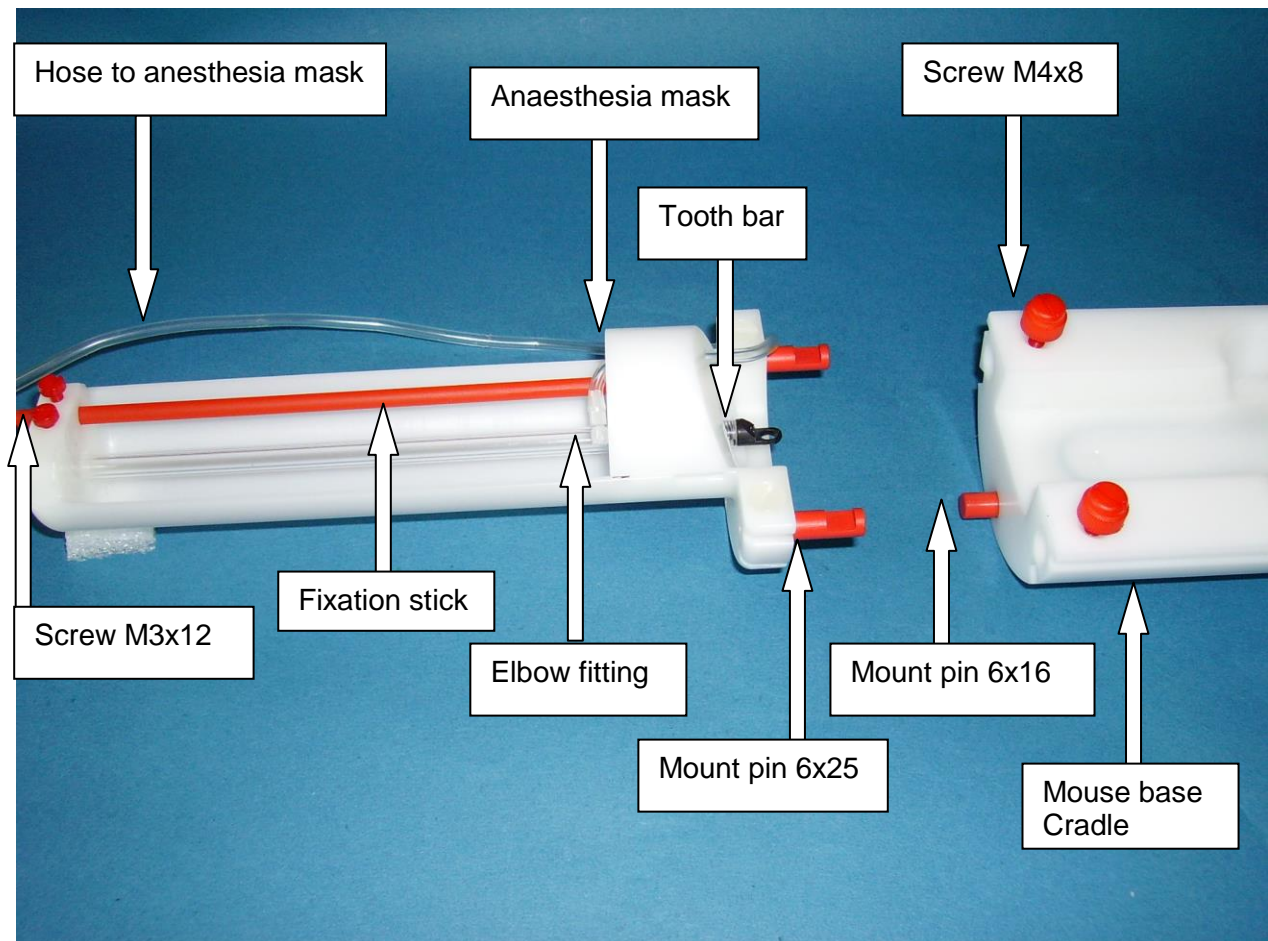


Figure 7: Mouse body tip (T12276, left), together with mouse base cradle (T12555, right).

Animal	Mouse
Body parts	Body
Typical probe	75/40 mm volume resonator (mount-on-Cradle)
Min. probe diameter	38 mm

A complete animal cradle with a mounted Mouse Body Tip 38 consists of

- Animal Cradle Mouse Base **MT0415 (T12555)**
- Mouse Body Tip 38 **MT0408 (T12276)**

2.1.4.2 Features

- 1-point head fixation (tooth bar)
- mounting points for 75/40 mm resonator

Heating blanket for animal warming is recommended!

2.1.4.3 Compatibility Notes

Animal cradle tip dedicated for use with 75/40 mm resonator (mount-on-cradle).

- Compatible with
 - 72 or 86 mm inner diameter resonators
 - PharmaScan 89/38 mm resonator (mount-in-magnet)
- Not compatible with 89/**35** mm resonator (use whole body mouse Cradle T13392 instead).

The mouse body tip T12276 is not interchangeable with the rat head tip T12559 (different size of respiration mask and tooth bar).

2.1.4.4 Spare Parts

- Tooth bar mouse (**T10146**);
- Hose set (**T12326**), contains 1x hose coupling female, 1x hose coupling male, 1x elbow fitting, 3 m hose 1.6x3.2;
- Mount pin (**T119181**), mount pin 6x25

2.1.5 MT0409 Mouse Brain/Body Tip SUC (T12558)

Animal cradle tip dedicated for mouse brain and body applications with Autopac.

2.1.5.1 Overview

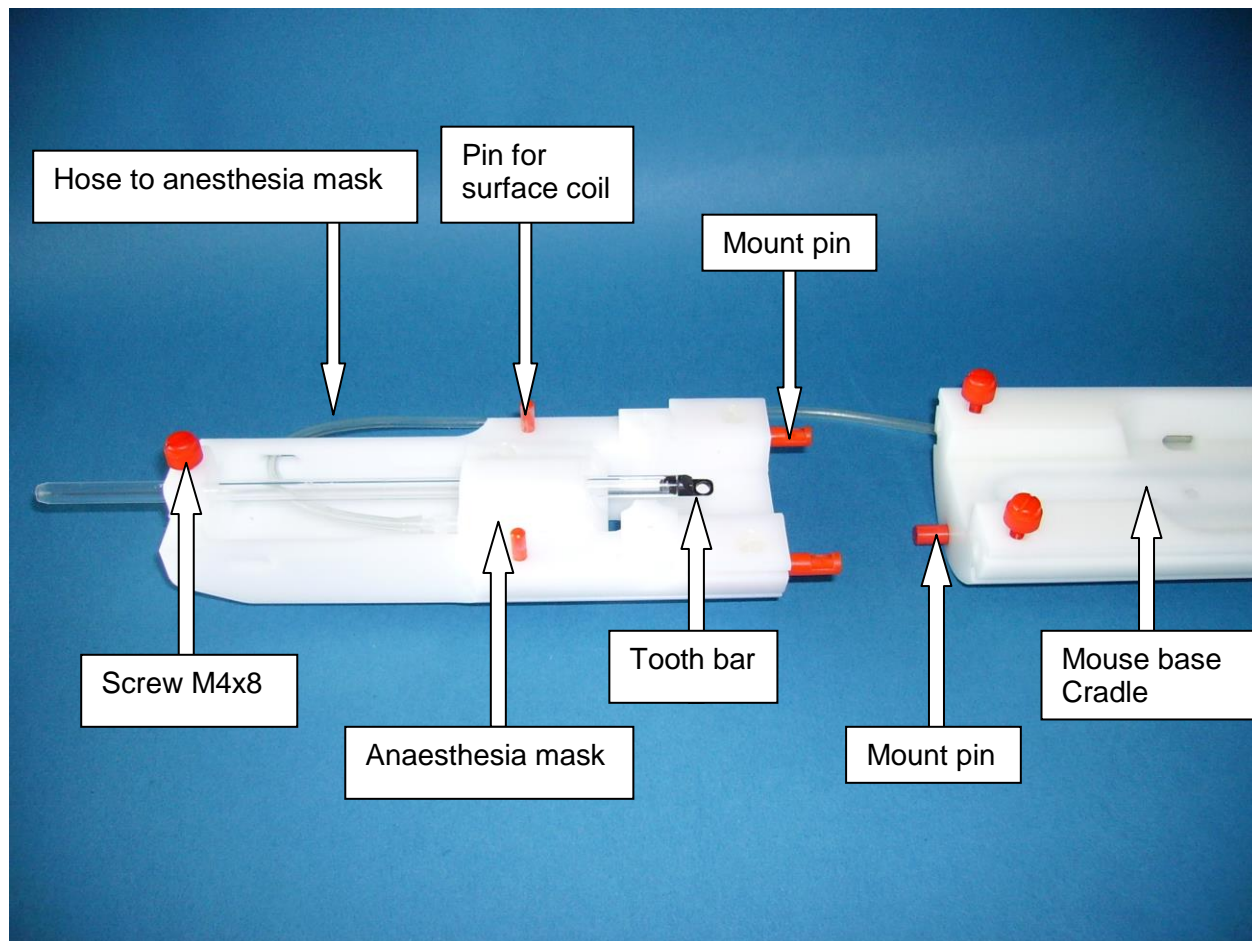


Figure 8: Mouse brain/body tip SUC (T12558, left), together with mouse base cradle (T12555, right).

Animal	Mouse
Body parts	Brain, body
Typical probe	72 mm volume resonator Mouse brain quadrature and array surface coils (SUC)
Min. probe diameter	70 mm

A complete animal Cradle with a mounted Mouse Brain/Body Tip consists of

- Animal Cradle Mouse Base **MT0415 (T12555)**
- Mouse Brain/Body Tip **MT0409 (T12558)**

2.1.5.2 Features

- 3-point head fixation
- mounting pins for surface coils
- animal is warmed through mouse base Cradle water heating

2.1.5.3 Spare Parts

- Tooth bar mouse (**T10146**);
- Plugs and screws set for SUC tip (**T12327**), contains 6x ear plug mouse, 6x pin for surface coil, 3x screw M4x8, 4x countersunk screw Nylon M4x8, red mount pin 6x16, 2x red mount pins 6x37;
- Hose set (**T12326**), contains 1x hose coupling female, 1x hose coupling male, 1x elbow fitting, 3 m hose 1.6x3.2

2.2 Simple (non-modular) Mouse/Rat Cradles

2.2.1 MT0410 Rat Body 60 mm Animal Cradle (T11611)

The animal cradle consists of a half shell made of Delrin® (polyoxymethylen, POM) with an inner diameter of 50 millimeters to hold the animal body during the experiment.



Figure 9: The rat body 60 mm animal cradle

Animal	Rat
Body parts	Body
Typical probe	60 mm volume resonator
Min. probe diameter	60 mm

2.2.1.1 Features

- 1-point head fixation (tooth bar)

Rat heating blanket for animal warming is recommended!

2.2.1.2 Spare Parts

- Tooth bar rat (**T9191**)
- Nut (**T9192**);
- Mount screw set (**T13163**), contains 1x brass screw, 4x Nylon screw M6x12

2.2.2 MT0411 Mouse Body 35 mm Animal Cradle (T13392)

The animal cradle consists of a half shell made of Delrin® (polyoxymethylen, POM) with an inner diameter of 28 millimeters to hold the animal body during the experiment.

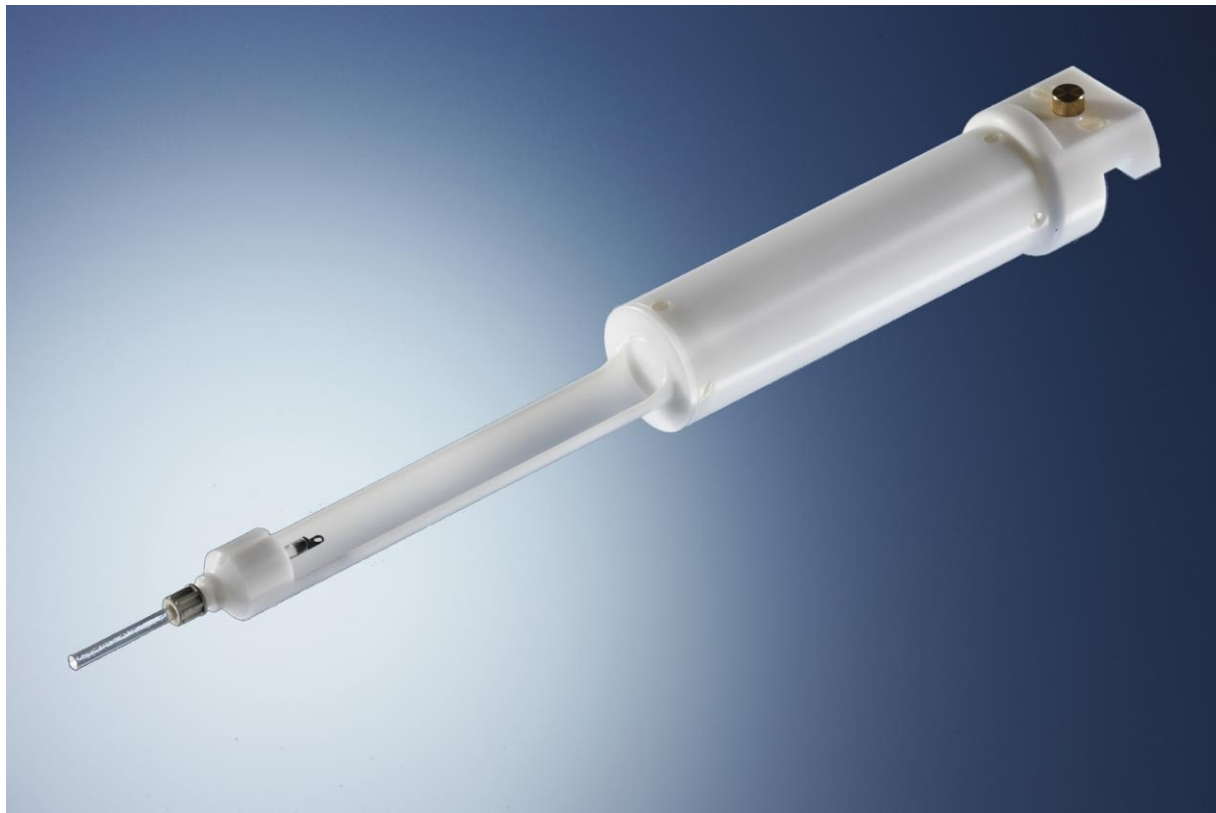


Figure 10: The mouse body 35 mm animal cradle T13392

Animal	Mouse
Body parts	Body
Typical probe	35 mm volume resonator
Min. probe diameter	35 mm

This cradle may be used in the **B-GA6** gradient together with the 59/35 mm resonator for mouse body examinations.

2.2.2.1 Features

- 1-point head fixation (tooth bar)

Mouse heating blanket for animal warming is recommended!

2.2.2.2 Spare Parts

- Tooth bar mouse (**T9181**)
- Nut (**T9182**)
- Hose set (**T12326**), contains 1x hose coupling female, 1x hose coupling male, 1x elbow fitting, 3 m hose 1.6x3.2)
- Mount screw set (**T13163**), contains 1x brass screw, 4x Nylon screw M6x12

2.3 Animal Cradle Sets (Deprecated)

There exist two animal sets:

- animal cradle set mouse **T11457** = T12555 + T12556 + T12558
(Base cradle mouse + mouse head tip 23 + mouse brain/body tip SUC)
- animal cradle set rat **T11477** = T12554 + T12559 + T12560
(Base cradle rat + rat head tip 38 + rat brain/body tip SUC)

3 Usage

3.1 First Time Usage

Before first usage, the animal cradle should be adjusted once to your Autopac (or compatible holder) system.

First, when you put the animal cradle on the Autopac arm it should be auto-leveled horizontally and also centered in left-right direction (even without tightening the brass screw (1), Figure 11). This is done by adjusting the two Nylon screws (2) as shown in Figure 11. Install the animal Cradle on the Autopac arm and check for the correct adjustment. Repeat until the animal Cradle is leveled horizontally and centered left-right.

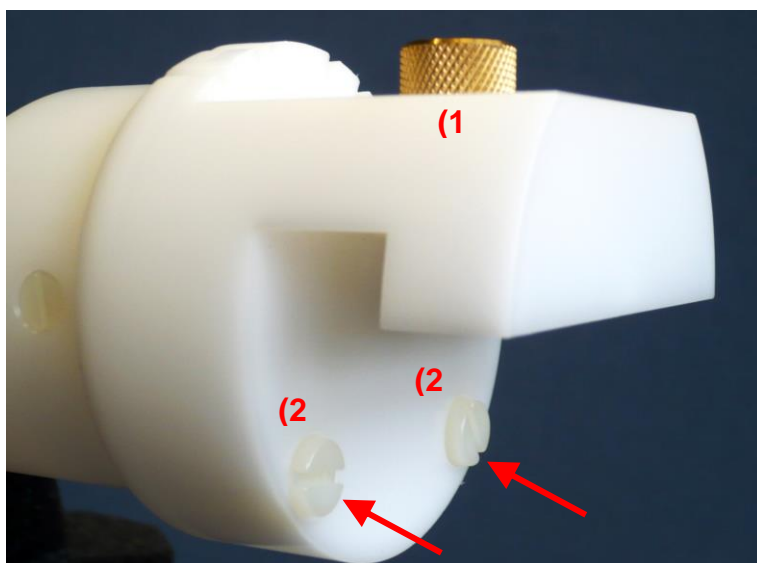


Figure 11: The up-down and left-right alignment of the animal cradle is done by adjusting the two screws (2) marked in red at the rear end

-
- i** The brass screw (1) will only lock the animal cradle onto the Autopac arm. Do not use excessive force to tighten. The animal cradle will auto-level if correctly adjusted.
-

In case the animal cradle axis is not in line with the Autopac arm axis, the height of the animal cradle may be adjusted using the two screws (3) as shown in Figure 12.

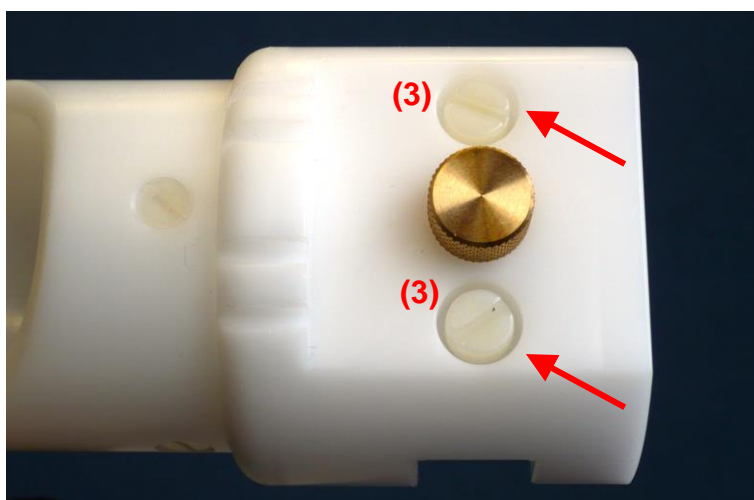


Figure 12: If the animal cradle axis is not in line with the Autopac arm axis, the height may be adjusted using the two screws (3) marked in red.

-
- i** If the animal cradle is hanging down, you will have to adjust the two Nylon screws (2) in Figure 11 only. Do not use the screws (3) in Figure 12 or the brass screw (1) in Figure 11.
-

3.2 Mounting the 23 mm Resonator



Figure 13: Mounting of the 23 mm resonator.
The resonator housing has a shift mechanism to slide the resonator over the animal's head after preparation.

Please note that the Mouse Head Tip 23 is equipped with special, longer mounting pins to provide mounting points for the 23 mm resonator.

When using the Mouse Head Tip 23 with a 23 mm resonator, note that the screws on either side of the resonator are fitted to it. Do not exchange them with screws of a different size. Otherwise, you will not be able to fix the tip to the resonator.

I Be sure to completely insert the ear screws all the way into the ear channel before sliding the resonator over the animal's head.

3.3 Maintenance

3.3.1 Material Notes

The animal cradle system consists of ultraviolet-resistant POM (polyoxymethylen, Delrin®). POM is physiologically completely harmless, possesses a very high dimensional stability, high scratching firmness, high thermo-stability and very low water absorption. However the animal Cradle should not be subjected to continuing mechanical loads at temperatures above 40° C.

POM is chemically resistant against low-level leaches and acids, fats, oils as well as non-polar solvents, but it is chemically inconsistent against benzene and chlorofluorocarbons. Please carefully consider the cleaning notes below.

The animal cradle is a very complex and sensitive accessory. It has to be treated appropriately. Falls, impacts on sharp edges or hard bodies, high mechanical loads exceeding the specified maximum animal weight etc. must be avoided.

3.3.2 Cleaning

For cleaning, neutral antistatic plastic cleaners or disinfection cleaners are recommended. Commercial household cleaners without polishing agents may be used as well. Use all cleaning solutions in small quantities only. Wipe surfaces carefully without applying excessive force or pressure.

Never use cleaners containing organic solvents such as benzene, acetone and chlorinated hydrocarbons. Also alcohol cleaners in high concentration must not be used. If not following these directions there is substantial risk of damaging or destroying the animal cradle.