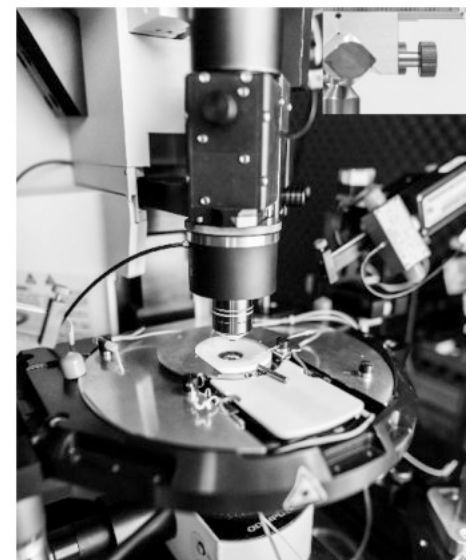
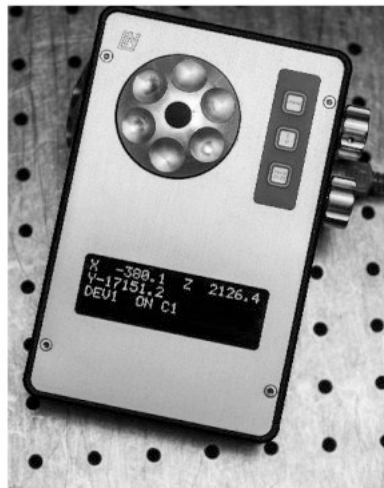
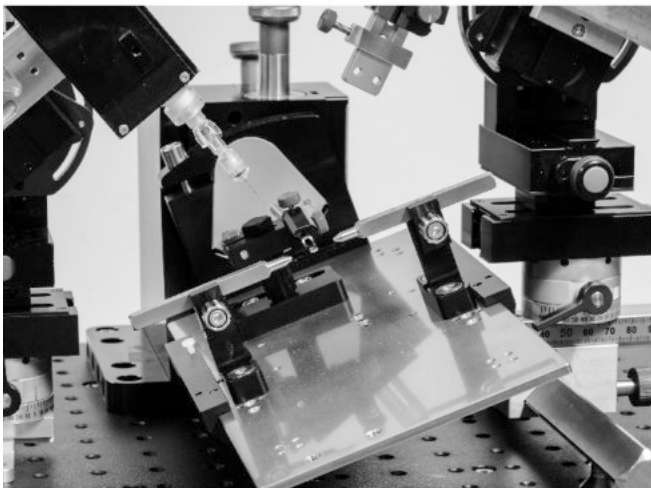
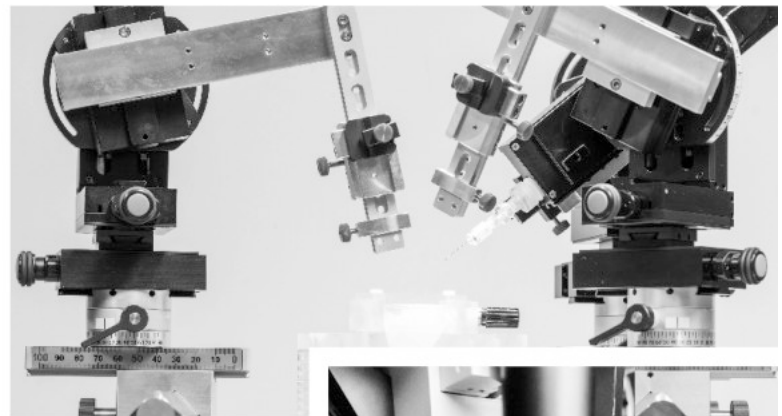
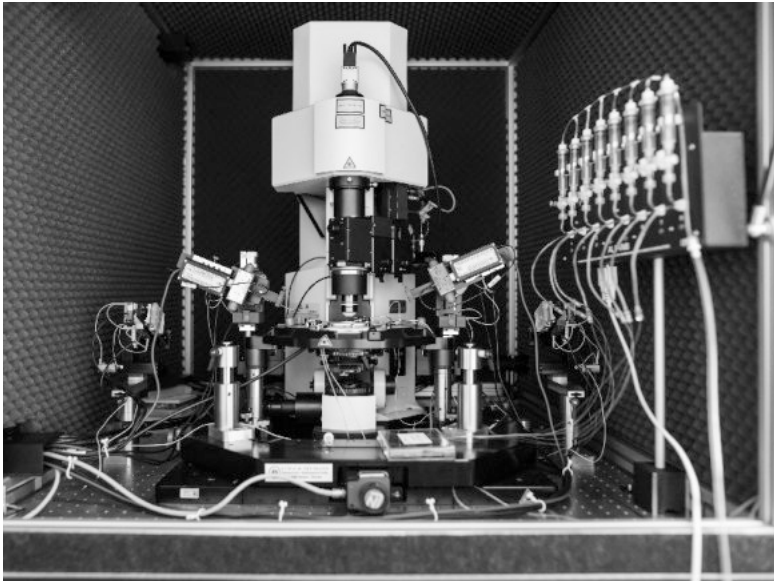




Luigs & Neumann

Feinmechanik und Elektrotechnik GmbH

Technology • Innovation • Manufacturing www.luigs-neumann.com



Product catalog
2019



Introduction / Index

Since the early eighties Luigs & Neumann has established itself as well known developer and producer of electrophysiological workstations. This wealth of experience and the feedback from scientists from all over the world are the basis of the high engineering standards and manufacturing quality of Luigs & Neumann. Our broad product range and the ability to create customer specific setups are a result of our flexible and innovative adaption to new scientific requirements. Our array of product includes patch manipulators, bath chamber systems and optical components as well as moving tables for 2-photon-systems and InVivo setups.

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Workstation Overview

The workstations otherwise also known as rigs are available in sets or can individually be equipped with a large range of different components to meet your specific requirements. The set-ups and components of the workstations shown throughout the following catalogue are examples that have proved themselves in use in a very wide range of working environments and should also be taken as guides to aid further users in the determination and description for their desired configuration.

Please contact Luigs & Neumann
to discuss the alteration and adaptation of any such given configuration, or
the creation of a new one, and the technical support team will be happy to advise and help.

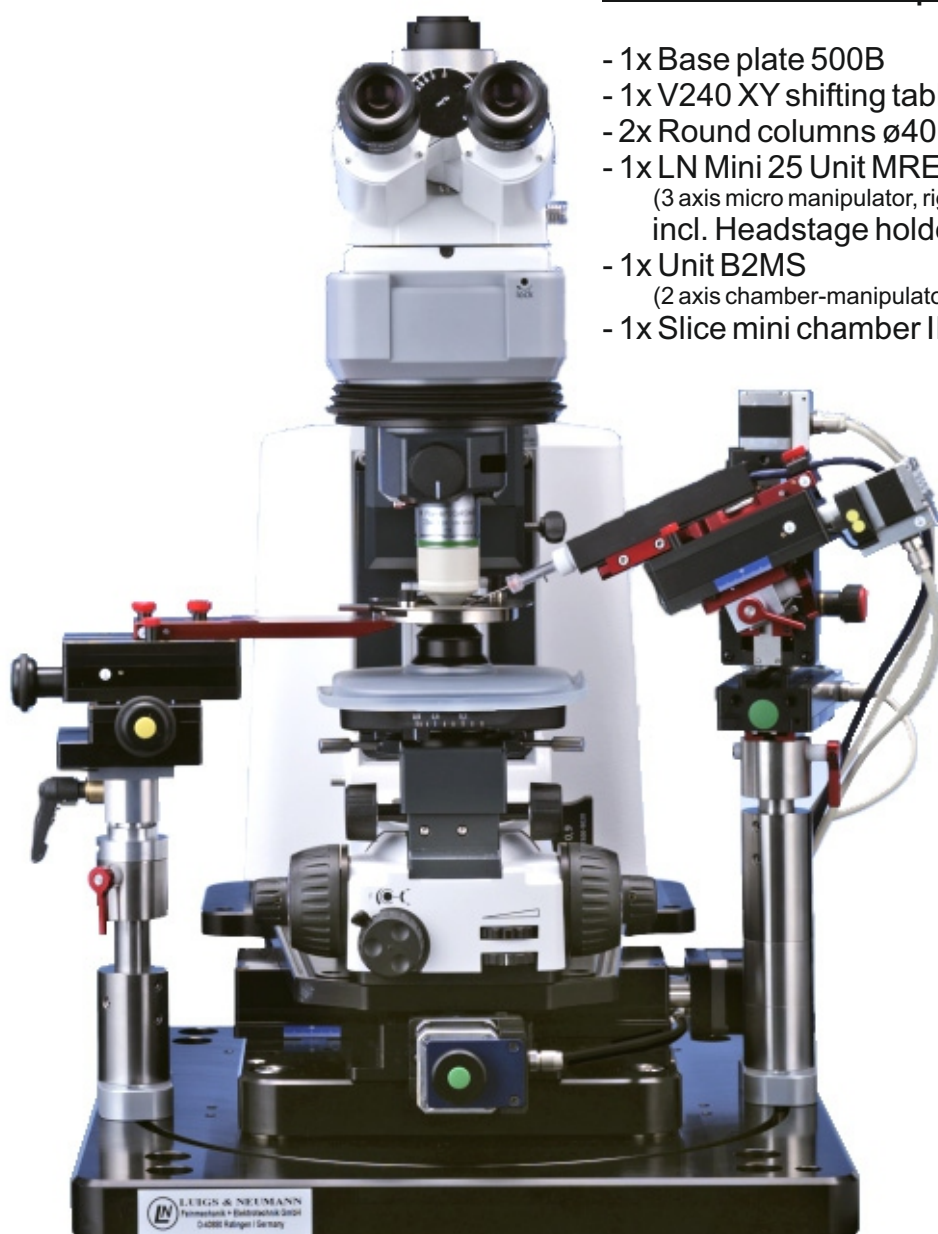


Infrapatch V240 set-up

The 240 standard Set- Up with ring slot for integration of up to eight LN Mini 25 Units. The microscope is movable (motorized) in three dimensions independent to the experiment. The workstation could be equipped with a Bridge 500 or movable Unit B2MS for moving the chamber individually.

Workstation comprised of:

- 1x Base plate 500B
- 1x V240 XY shifting table for microscope
- 2x Round columns \varnothing 40mm
- 1x LN Mini 25 Unit MRE
(3 axis micro manipulator, right side)
incl. Headstage holder
- 1x Unit B2MS
(2 axis chamber-manipulator)
- 1x Slice mini chamber II



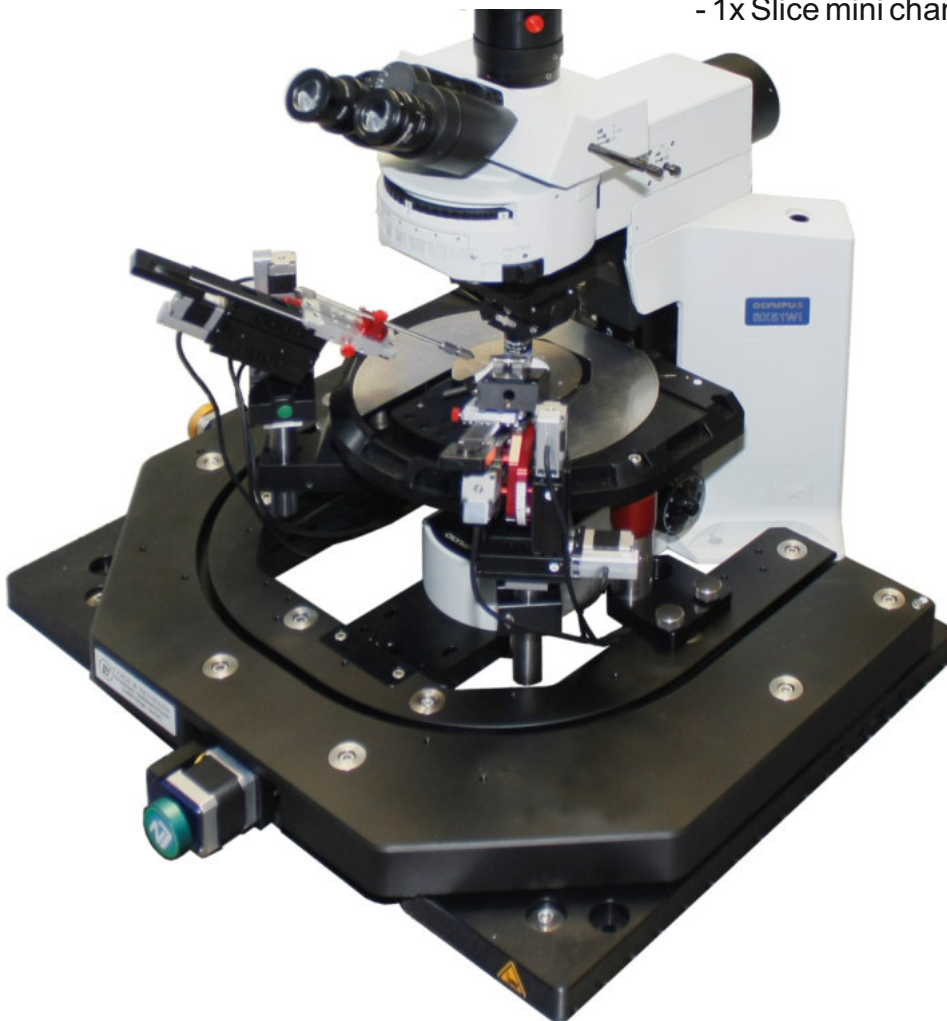
This assembly just shows one example of many different possibilities.
For more information please contact us.

Infrapatch V380FM-U set-up

This workstation allows to combine electrophysiological experiments with confocal or imaging (with heavy Fluorescence camera) applications. The rig enables to position up to 8 electrodes around your specimen. The microscope is mounted directly on to the breadboard. The shifting table V380FM-U enables the possibility to move the specimen simultaneously with the electrodes in the range of a micron. The very stable and solid Bridge 500 can hold different Slice chambers (heated / not heated) or cover slips / Nunc or Falcon dishes.

Workstation comprised of:

- 1x V380FM-U shifting table
- 2x Junior bridge 500 adapter
- 1x LN Junior RE
(3 axis Junior micromanipulator, right side)
- 1x LN Junior LE
(3 axis Junior micromanipulator, left side)
- 1x Bridge 500
- 1x Slice mini chamber II



This assembly just shows one example of many different possibilities.
For more information please contact us.

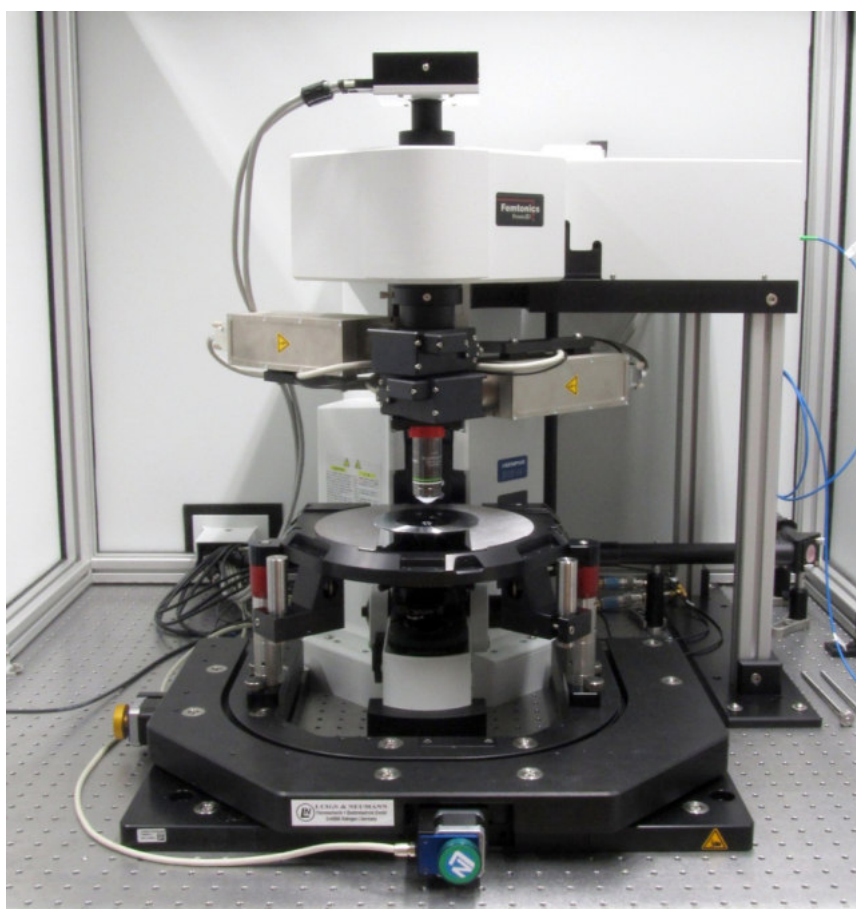


Confocal / 2-P set-up

The pictures show a set-up for a 2-Photon system from Femtonics. The system allows to position up to six micromanipulators around the microscope. Because of the additional detectors and optical light pass, the 380FM-U was modified with several adapters to fit to the 2-Photon system. The great product range of adapters, columns and small T-groove plates allows us to adapt any kind of custom 2-Photon/ confocal microscope to our system.

All workstations can be equipped for InVivo requirements.

We support the full range of 2-P companies e.g. Femtonics, Leica, Olympus, Zeiss LSM or Lavisision and so on.



Workstation comprised of:

- 1x V380FM-U shifting table
- 1x Bridge 500
- 2x Junior bridge 500 adapter
- 1x Slice mini Bathchamber II

This assembly just shows one example of many different possibilities.
For more information please contact us.

InVivo set-up

With the new adaptor we are able to adapt the Junior manipulator onto a Stereotaxic frame. The adapter allows you to shift the Junior Unit in X and Y direction. That allows you to position the Junior Unit above the animal under the use of any desired angle. For this we offer manipulators with either 3 or 4 axes.

The set-up is constructed based on customer requirements. It depends on whether an exact vertical axis or a variable angle is required. In connection with the LN-control system it is possible to drive the manipulator arbitrarily. The step size, step speed and step direction are variable. The keypad also has a display showing absolute and relative measurements. These values are shown in μm .

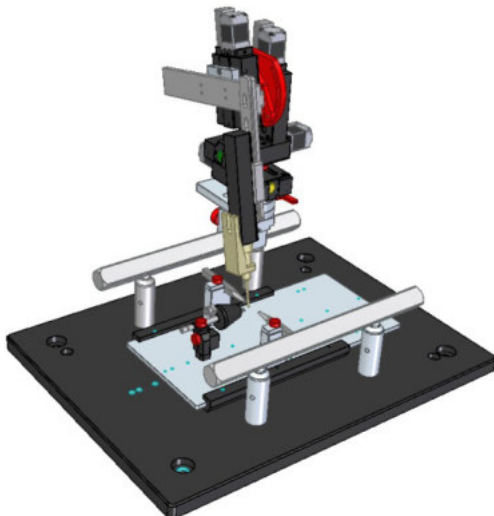
LNscope with InVivo Stereotaxic platform and InVivo angle table



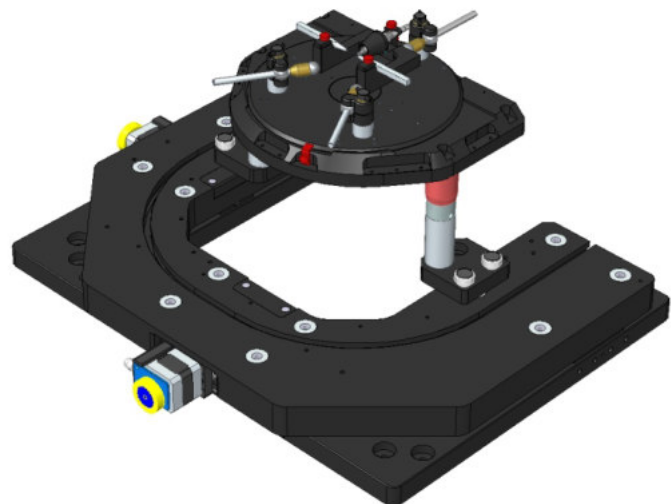
LN scope with headpostholder and virtual reality jetball



Stereotaxic platform with mouse fixation, Gas evacuation mask and 4 axes InVivo manipulator



V380FM-U shifting table and InVivo bridge with 3arm magnetic mouse head holder



This assembly just shows one example of many different possibilities. For more information please contact us.

AFM - Atomic Force Microscope

AFS - Single molecule Atomic Force Spectroscopy

This unique Atomic-Force-Spectroscopy (AFS), based on the Atomic Force Microscope Technology (AFM) was specially designed for studying single proteins placed under a calibrated mechanical load. The upside down design, where the cantilever, laser and sensor is fixed while the substrate with attached protein is moved by a ultra-precise linear Piezo, enables us to get a feedback response time better than 1ms and a position accuracy better than 1nm.

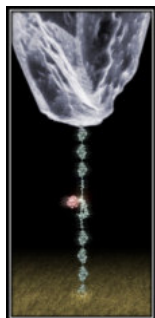
The software is based on IGOR and enables the operator to run automatic experiments over the day without putting hands on.

The AFS can be operated in two modes:

- force extension (constant velocity)
- force clamp (constant force)

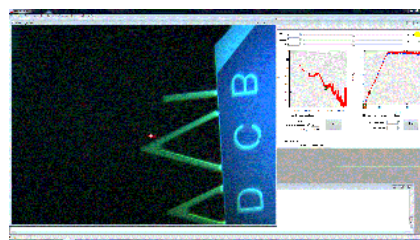
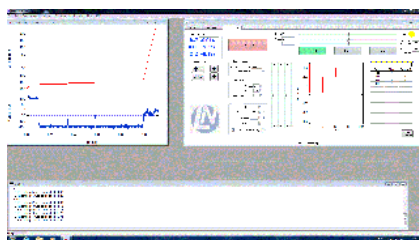
In force clamp mode the operator can design his own force protocol to measure protein folding, unfolding and protein chemical reactions. The software includes routines that unambiguously identify the mechanical fingerprints of the protein being studied, and thus is able to recognize and store data automatically. A tuneable Proportional-Integral-Differential system (PID) enables the operator to adjust the parameter for the Piezo, cantilever and probe to get the best feedback time for each individual experiment. The AFS comes as a complete workstation, incl. vibration damping table, PC Monitor and software. For further information please visit the web page of Professor Julio Fernandez, in which collaboration this system was designed.

<http://fernandezlab.biology.columbia.edu>



Main features:

- feedback time less than 1ms under optimal conditions (Typical 1-2ms)
- sub-nanometer resolution (Piezo noise)
- fully automatically
- detects and saves sawtooth pattern fingerprints automatically
- force clamp (constant force) and force extension (constant velocity) mode
- Protein folding and unfolding
- Free designable force protocol (for force, time and ramp function)
- Powerful analysis software
- User friendly software interface



**This assembly just shows one example of many different possibilities.
For more information please contact us.**



Workstation

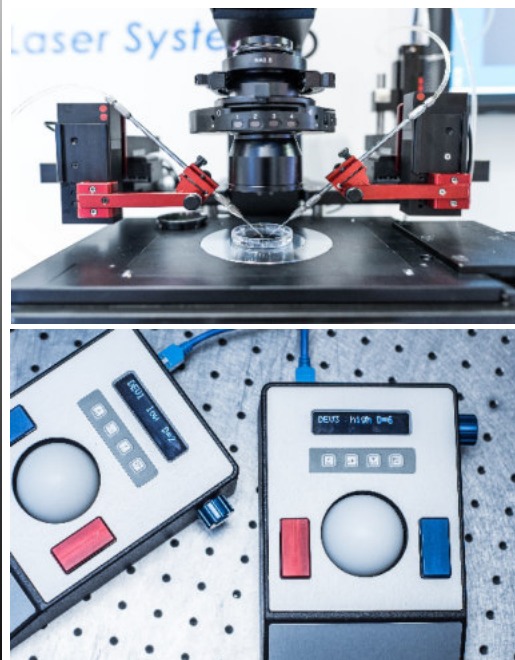
IVF / ICSI set-up

This Set-up was specially developed for the demands of microinjection. With this design we have put a high value on ergonomics, individualization and comfortable operation. All functions have been built the respective Trackball-Keypad with this Set-up, so that a genuine one-hand-operationality exists. The fact should be highlighted that the operation of the manipulator in three dimensions as well as the control of the dosing units (injection, aspiration and holding) is maintained through the Trackball and both function keys. Thereby the operators hand does not need to be raised from the keypad throughout the injection, so that full concentration can be given to the carrying out of the injection.

Many other helpful functions enormously assist and speed up the work-process, which is specially noticeable in routine work. Through its high level of flexibility this Set-up can be combined or re-arranged at will, and fulfills the most differing expectations. The field of application ranges from ICSI to Transfer to the injection of color-dyes.

- Manipulator Unit, left side
- Manipulator Unit, right side
- Bathchamber
- Controller
- Trackball, left side
- Trackball, right side
- Microscope adapter
- Injection, left side
- Injection, right side

Order-No.: 250-100 000 0010



This assembly just shows one example of many different possibilities.
For more information please contact us.



Workstation

Note



Base plate

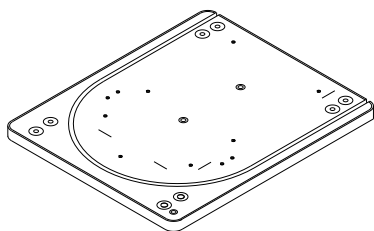
- Base plate 500B
- Base plate 500BL
- Base plate 500TV



Base plate

Base plate 500B

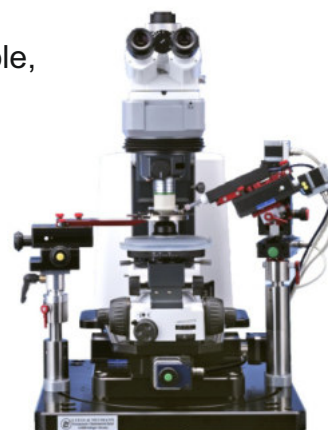
Base-plate prepared for the securing of the V240 shifting table, including ring-nut e.g. for supporting up to six Junior/Mini Units



Dimension : 480x400x29

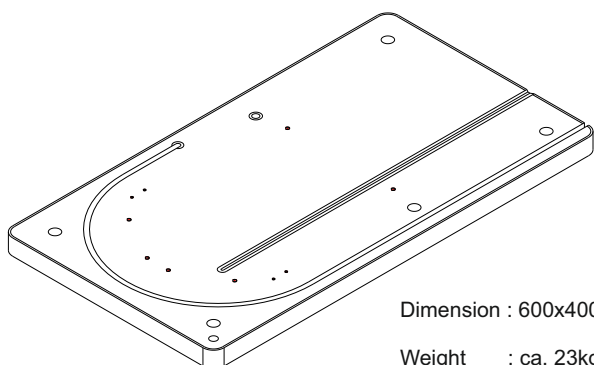
Weight : ca. 14kg

Order-no.: 200-100 200 0150



Base plate 500BL

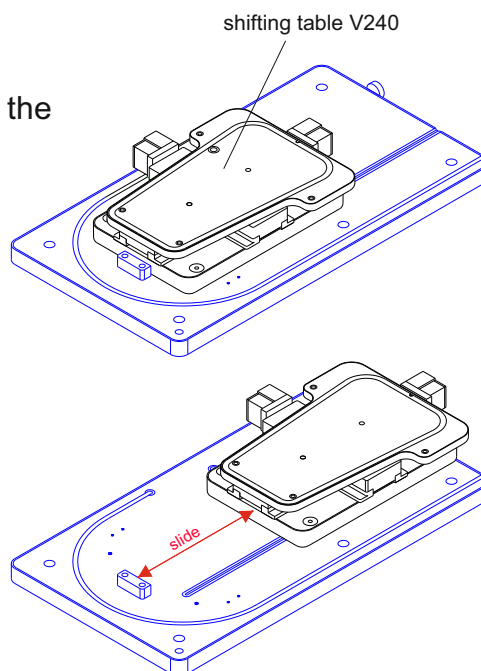
As the 500B, however with the possibility to move the microscope backwards using prism-guidance



Dimension : 600x400x29

Weight : ca. 23kg

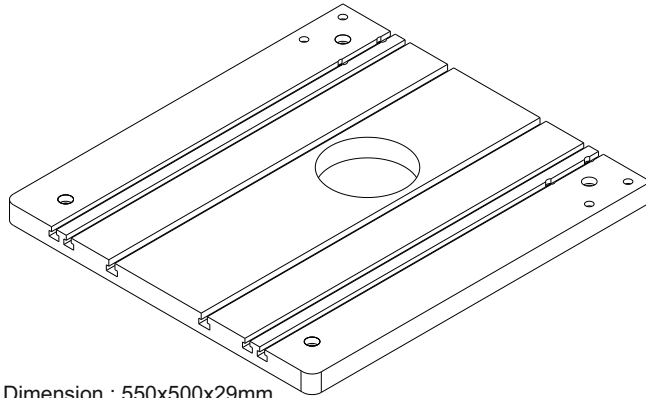
Order-no.: 200-100 200 0150-BL



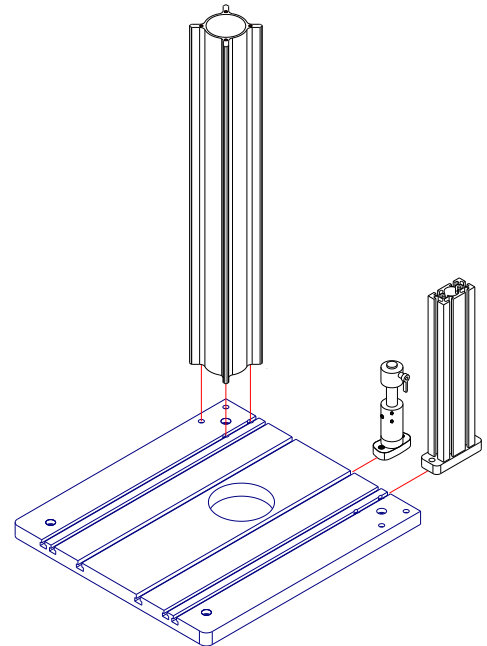


Base plate 500TV

With t-grooves, attachment of column X95, column 40x80 or round column 40.
Drillhole \varnothing 120mm for adaptation of TV or Laser.



Dimension : 550x500x29mm
Weight : ca. 20kg



Order-no.: 100-100 100 0111

Microscope fixing plates (Set):

Order-no.:

for ZEISS Microscope Axiovert 100/135	100-100 200 0000
for ZEISS Microscope Axiovert 200	100-100 200 0001
for ZEISS Microscope Axiovert Observer	100-100 200 0003
for Microscope Olympus IMT-2	100-100 200 0010
for Microscope Olympus Ix50	100-100 200 0011
for Microscope Olympus Ix70	100-100 200 0012
for Microscope Leica DMIR	100-100 200 0020
for Microscope Leica DMI 3000-6000	100-100 200 0021
for Microscope Nikon Diaphot 200/300	100-100 200 0030
for Microscope Nikon Te200	100-100 200 0031

Other models on request !



Base plate

Note

Shifting tables

In order to meet the increasing requirements of electrophysiology, our company is continuously improving the quality of our shifting tables concerning stability and movement accuracy. The result of this consistent improvement process is the current generation of moving tables which sets a new benchmark of stability, resolution, repeat accuracy and drift freedom. We offer a broad range of products, including normal microscope shifting tables as well as complex solutions for all established 2-P systems. One of the advantages of LN shifting tables is their modular set up that allows the easy adaption of LN systems to custom made confocal systems.

V240-InVivo

For positioning of a mouse or rat under a 2-Photon system



V240

For positioning of an upright or inverted Microscope



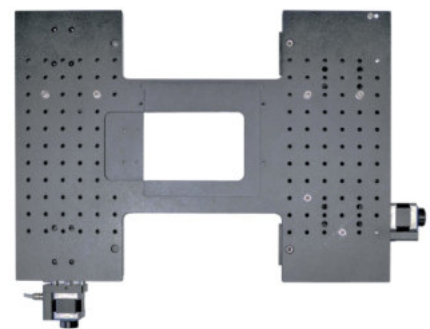
380FM-U

For positioning of manipulators and bath chamber with confocal set ups, 2-Photon system and stationary microscope



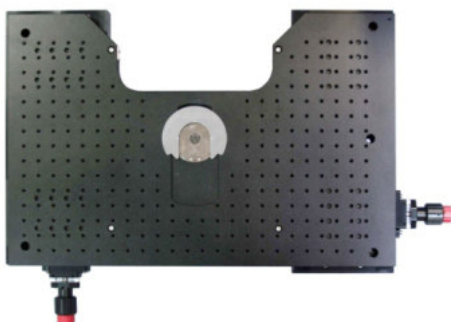
V540-Invers

Platform for positioning of manipulators and bath chamber for all inverted microscopes



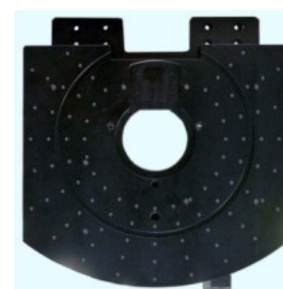
V540

Platform for positioning of manipulators and bath chamber for all upright microscopes



MT300xy

Platform for positioning of manipulators and bath chamber for the LNscope microscope

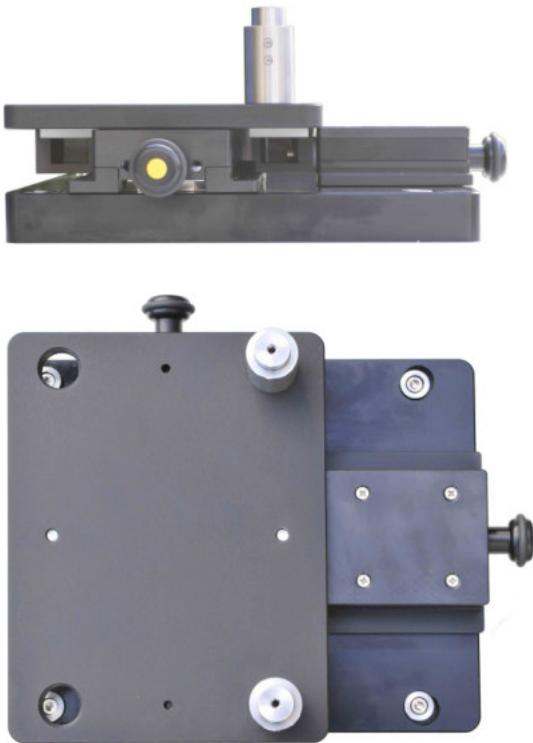




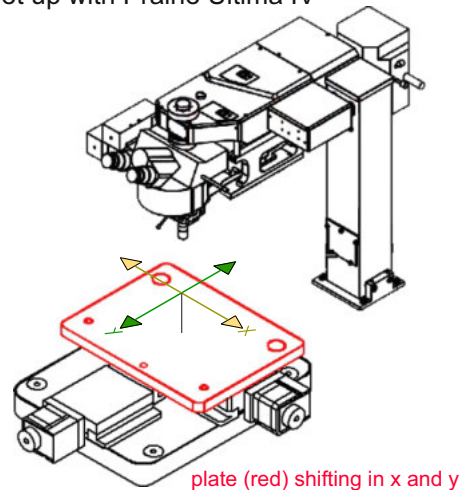
Shifting table

V240-Invivo

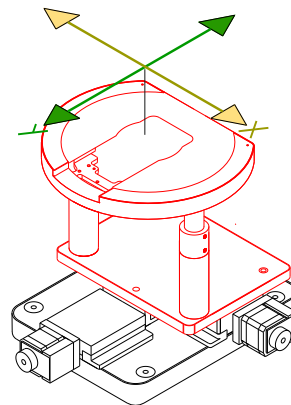
The V240-Invivo XY shifting table is used for the positioning of the specimen below a 2-P systems. We recommend the Invivo Bridge / Bridge 500 for an easy retaining of the compound. Several alternatives for the fixation of the animal are available. The shifting table offers drillholes for the assembly on an anti-vibration table (metric / inch). As well as a manual version, we offer an motor-driven version. It is possible to upgrade the manual version if necessary.



Example 1:
Set up with Prairie Ultima IV



Example 2:
V240-InVivo with Bridge 500



Data:

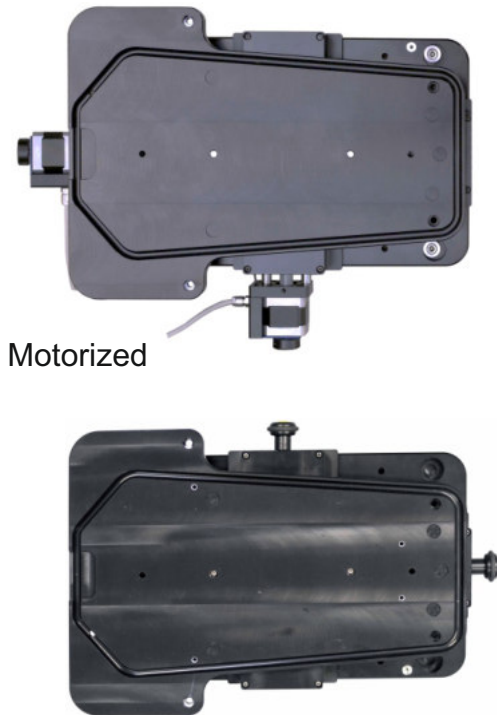
- Traverse path X / Y..... : 25mm / 25mm
- **Motor resolution**..... : **2,5nm**
- Reproducibility..... : < 1 μ m
- Weight..... : 12kg
- Dimensions (LxBxH)..... : 360x343x83mm
- Spindle lead..... : 0,5mm per rotation

manual:
Order-No.: 250-200 200 2000

motorized
Order-No.: 250-200 200 3000

V240

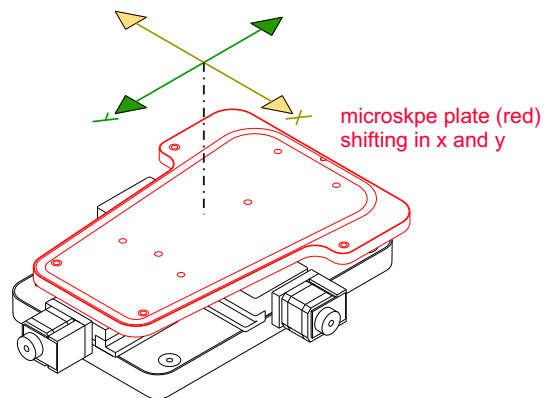
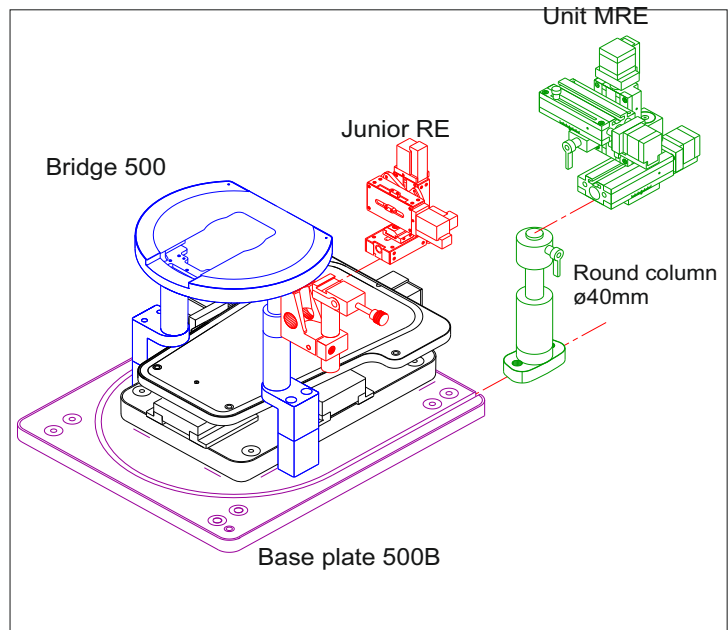
The V240 XY shifting table can be combined universally with any upright / inverted microscope in order to achieve an individual shift of XY. The microscope base is equipped with a drain channel that avoids the flooding of the mechanism with the medium, which would cause severe damage of the mechanism. The V240 can be attached to a base plate 500B or an anti-vibration table. The V240 is offered as manual and as motor driven version. It is possible to upgrade the manual version if necessary. The motor driven V240 can be moved manually with control buttons on the motor.



Motorized

Manual

Example: Set up with V240



Data:

- Traverse path X / Y..... : 25mm / 25mm
- **Motor resolution**..... : **2,5nm**
- Reproducibility..... : < 1 μ m
- Weight..... : 14kg
- Dimensions (LxBxH)..... : 456x343x83mm
- Spindle lead..... : 0,5mm per rotation

manual V240
Order-No.: 250-200 200 0000

motorized V240
Order-No.: 250-200 200 1000

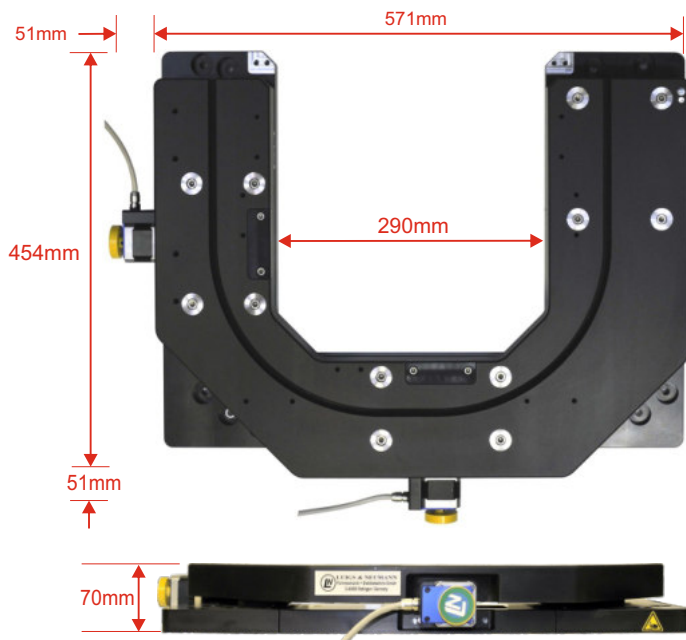


Shifting table

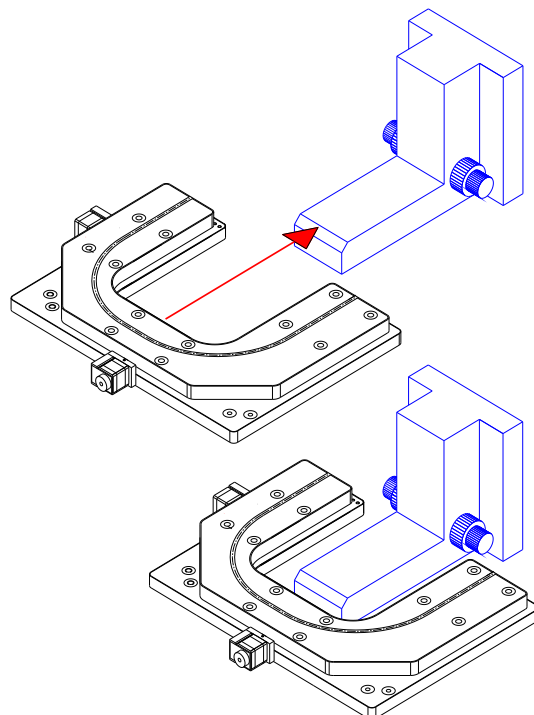
380FM-U

The 380FM-U is an enhancement of the successful 380FM-2P. Due to the new design of the 380FM-U it can be adapted to every confocal/2-photon microscope. The enlarged runners and base allow improved ergonomics with unchanged stability. Now it is possible to set up the table independently from the microscope. For maintenance purposes it is possible to remove the table without disassembling the confocal microscope. Several bridges allow a setup in combination with all existing microscopes/detectors. The motoric version can be controlled manually with the motor buttons. The manual version can be upgraded with motor.

The software connection with USB/RS232 can be achieved with all LN control systems. We offer Windows DLL, Labview VI and Windows toolbox. Additionally several third-party suppliers offer solutions for the software integration of our system.



The 380FM- U shifting table will be mounted separate from the microscope. That allows an independent assembling of the set up.



Data:

- Traverse path X / Y..... : 25mm / 25mm
- **Motor resolution**..... : **2,5nm**
- Reproducibility..... : < 1 µm
- Weight..... : 23kg
- Dimensions (LxBxH)..... : ca.: 622 x 505 x 70mm
- Spindle lead..... : 0,5mm per rotation

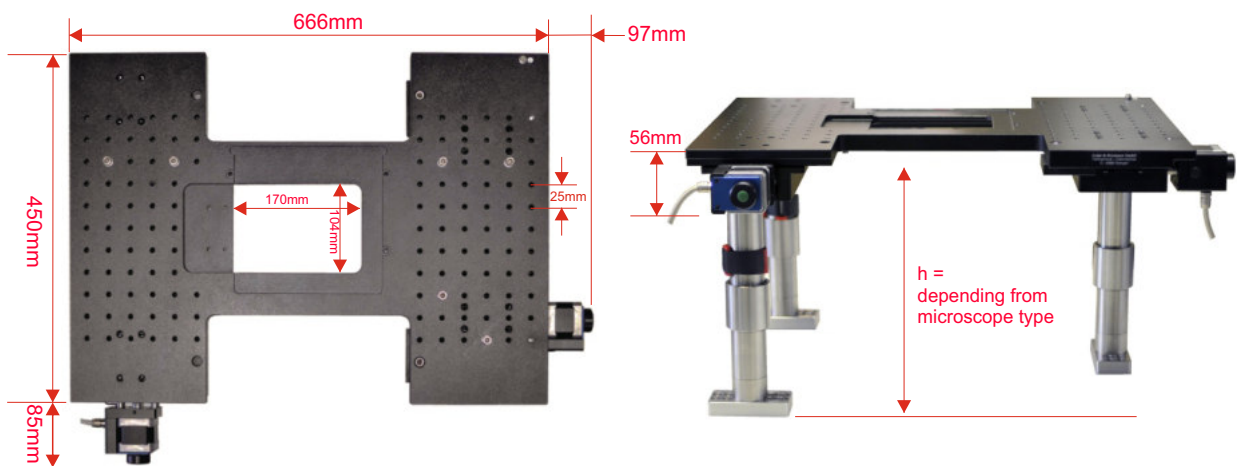


manual V380FM-U
Order-No.: 250-300 200 4000

motorized V380FM-U
Order-No.: 250-300 200 5000

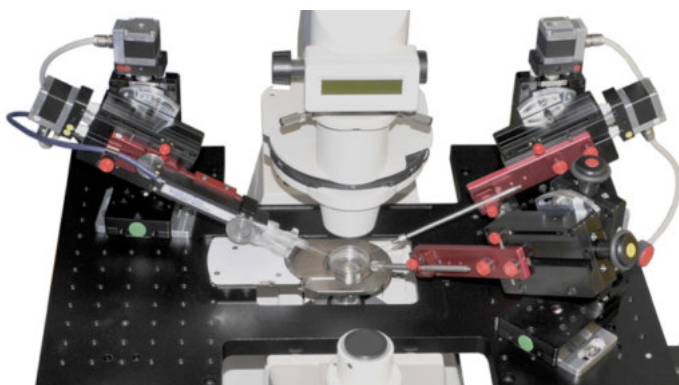
V540-Inverse

The V540-Inverse moving table offers an universal table platform for all inverse microscopes that allow a simultaneously movement of the manipulators with the compound. It is completely separated from the microscope and is equipped with very stable steel feet. The table platform offers enough space for up to four manipulator units. The V540-Inverse can be combined with several different LN bath chambers or special customer bath chambers (like MEA system). The V540-Inverse is available as manual and motorized version. The manual version can be upgraded if needed. The motorized V540-Inverse can be moved with the help of handwheel on the motor.



Data:

- Traverse path X / Y.....: 50mm / 50mm
- **Motor resolution**.....: **2,5nm**
- Reproducibility.....: < 1 μ m
- Weight.....: 18kg
- Dimensions (LxBxH).....: 763x535x56mm
- Spindle lead.....: 0,5mm per rotation



manual
Order-No.: 250-400 200 0000

motorized
Order-No.: 250-400 200 1000

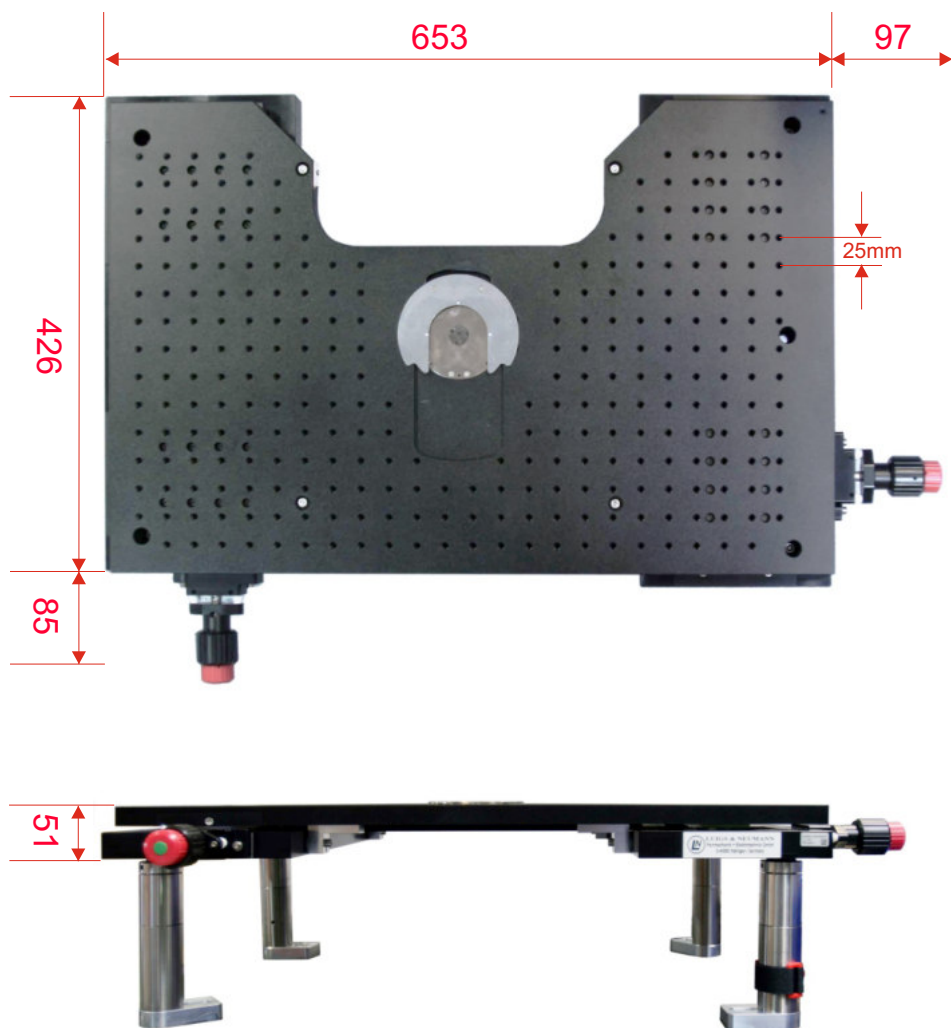


V540

The V540 moving table offers an universal table platform for all upright microscopes that allow a simultaneously movement of the manipulators with the compound. It is completely separated from the microscope and is equipped with four very stable steel feet. The table platform offers enough space for up to four manipulator units.

The V540 can be combined with several different LN bath chambers or special customer bath chambers (like MEA system).

The V540 is available as manual and motorized version. The manual version can be upgraded if needed. The motorized V540 can be moved with the help of handwheel on the motor.



Data:

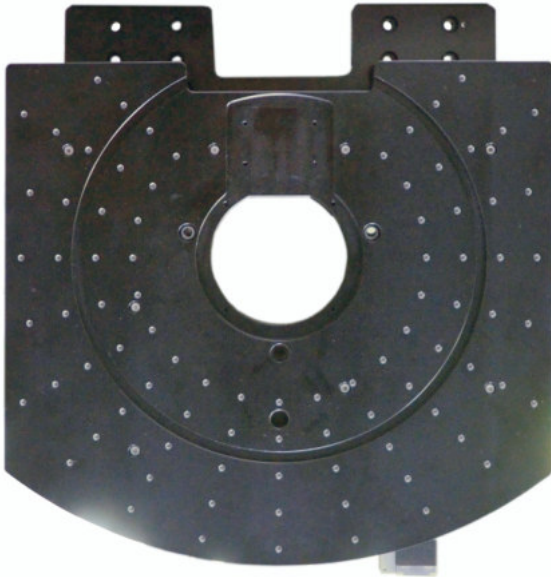
manual
Order-No.: 250-400 300 0000

motorized
Order-No.: 250-400 300 1000

- Traverse path X / Y.... : 50mm / 50mm
- **Motor resolution..... : 2,5nm**
- Reproducibility..... : < 1 µm
- Weight..... : 18kg
- Dimensions (LxBxH)... : 750x511x51mm
- Spindle lead..... : 0,5mm per rotation

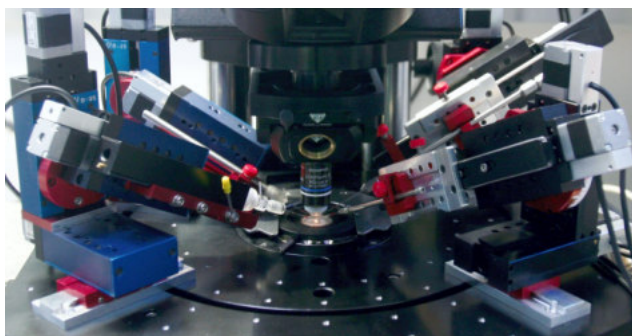
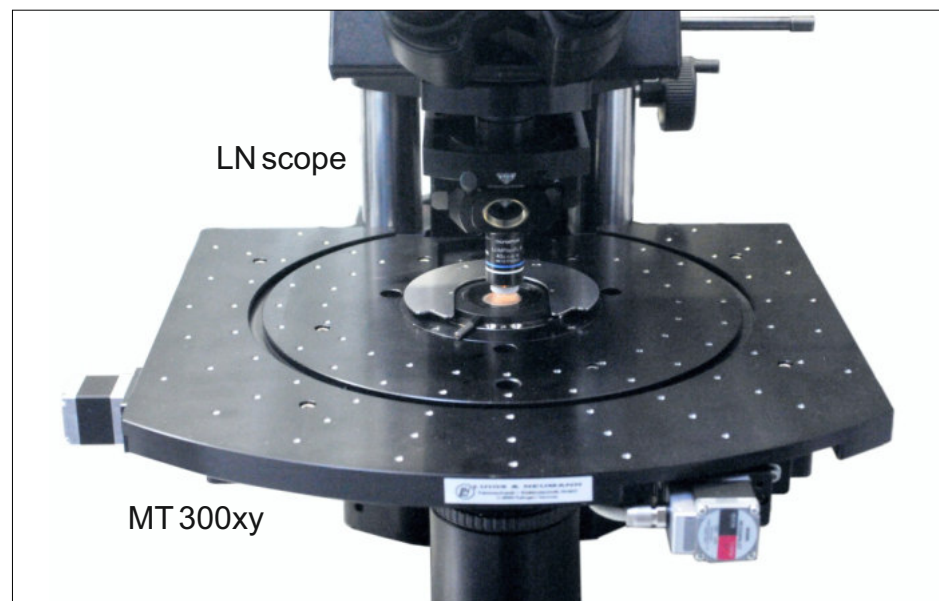
MT-300xy for LNscope

The latest LN microscope stage was design for our new LNscope to achieve a ultra stable and compact Unit. Because of the design of the LNscope the combination is ideal for the use of our manipulators.



Data:

- Traverse path X / Y.... : 25mm / 25mm
- Motor resolution..... : 4,8nm
- Reproducibility..... : < 1 μ m
- Weight..... : kg
- Dimensions (LxBxH).. : x x mm
- Spindle lead..... : 0,5mm per rotation



manual

Order-No.: 250-500 200 0000

motorized

Order-No.: 250-500 200 1000



Accessories

Upgrade-Kit for LN-shifting table

You are able to upgrade the manual shifting table as a motive one by a few steps. The length of the motor cable is 3.0m; incl. all needed adaptors and endswitch module.



Upgrade-Kit for **LN-shifting table** for 1 Axis

Order-No.: 250-200 100 3000-xx

- 01: V240-InVivo
- 02: V240
- 03: 380FM
- 04: 380FM-U
- 05: V540 / V540-Invers
- 06: MT300xy

Microscope plate

microscope to attach on to shifting table
V240 / V380 FM or Base plate 500B
* excl. Microscope mounting kit

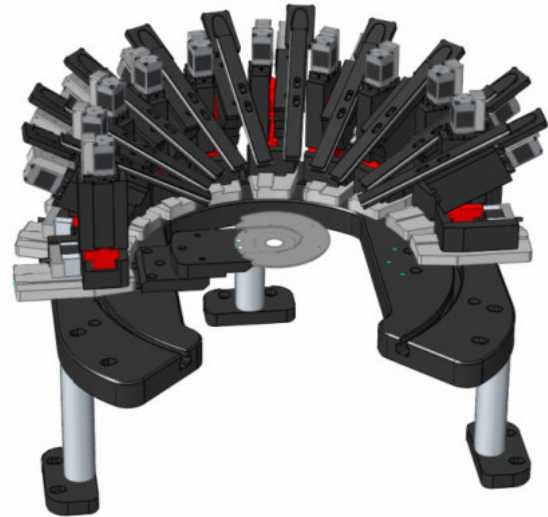
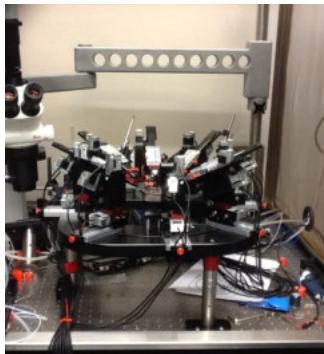
Order-No.: 250-100 100 0000



Microscope mounting kit

Microscope:	Order-No.:
Zeiss Axioskop FS.....	250-100 100 0010
Zeiss Axioskop 2FS:	
- for V240 / V380FM.....	250-100 100 0020
- for V380FM-U / Breadboard.....	250-100 100 0030
Zeiss Examiner.....	250-100 100 0040
Olympus BX50WI.....	250-100 200 0010
Olympus BX51WI:	
- for V240 / V380FM with LN-Focusaxis.....	250-100 200 0020
- for V240 / V380FM with original Focus	250-100 200 0030
- for V380FM-U / Breadboard.....	250-100 200 0040
Nikon FN1:	
- for V240 / V380FM.....	250-100 300 0010
- for V380FM-U (without LSM/2PH).....	250-100 300 0020
Leica DM6000 CFS:	
- for V380FM-U / Breadboard.....	250-100 400 0010

Multi patch prism for upright microscope



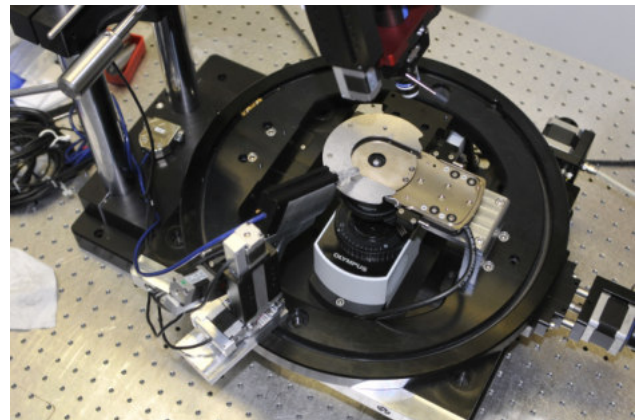
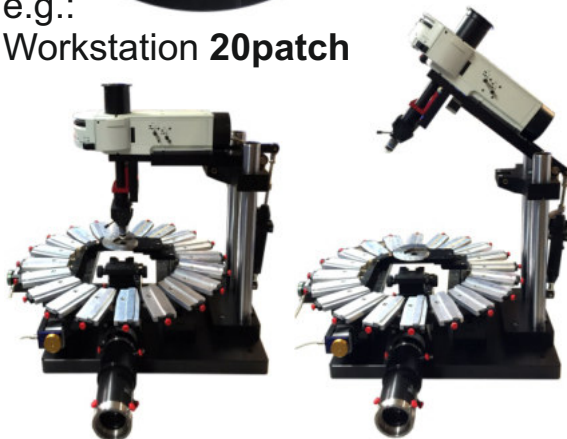
Mounted on to breadboard
200-100 500 0300-01

Mounted on to shifting table V380FM-U
200-100 500 0300-02

Multi patch prism (full ring) for Stereo microscope



e.g.:
Workstation 20patch



Mounted on to breadboard
200-100 500 0302-01

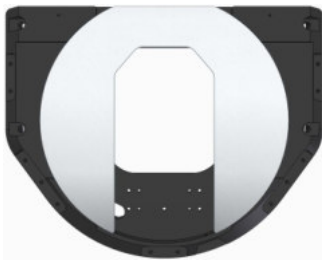
Mounted on to shifting table V380FM-U
200-100 500 0302-02



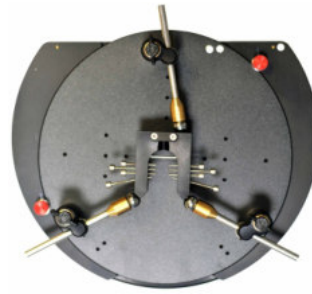
Shifting table

Note

LN Platform /LN Bridge

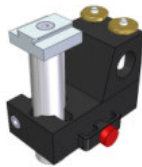


LN Bridge 500

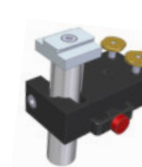


LN Invivo Bridge

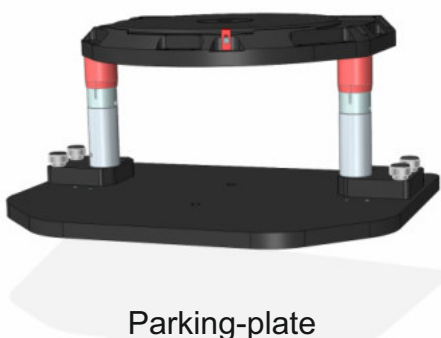
LN Bridge accessories:



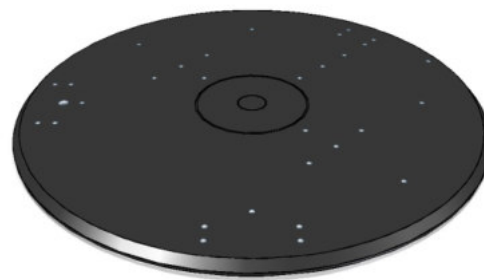
Junior bridge adapter



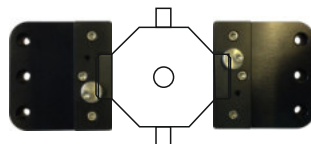
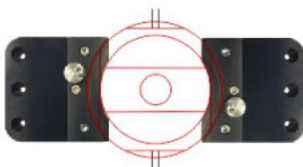
Junior Invivo-bridge adapter



Parking-plate



Anti-refelx-coated plate

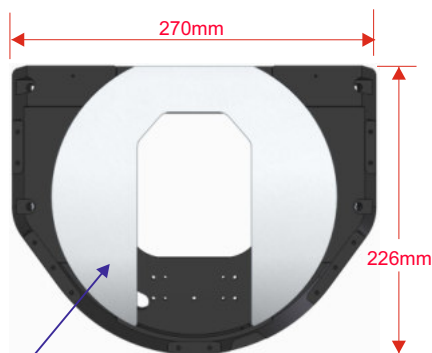
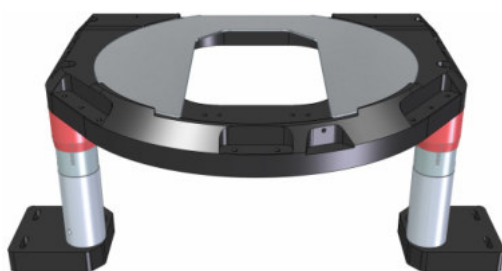


Holder for Warner bath chamber



Bridge 500

The Bridge 500 has been developed for the attachment of the Slice Mini Bath Chamber, emphasizing the need for maximum stability. We recommend to use the Bridge 500 in combination with the moving table V240 or 380FM-U for all applications that don't require individual movement of the bath chamber. Additionally the bridge 500 is equipped with a T-groove that allows the attachment of bridge adapter (for example LN Mini 15/8 manipulators or Junior Units). LN Mini bath chambers can be attached and the adaption of units from other producers is possible on request. This unit is especially useful for applications with confocal- or 2photon-systems that require an absolute minimum of vibration. There are two options concerning the base. The standard variant is screwed onto the moving table. The Bridge 500 allows the fast removal of the Bridge 500 (for example in order to interchange Bridge 500 and a InVivo Bridge quickly).



magnetic stainless steel plate

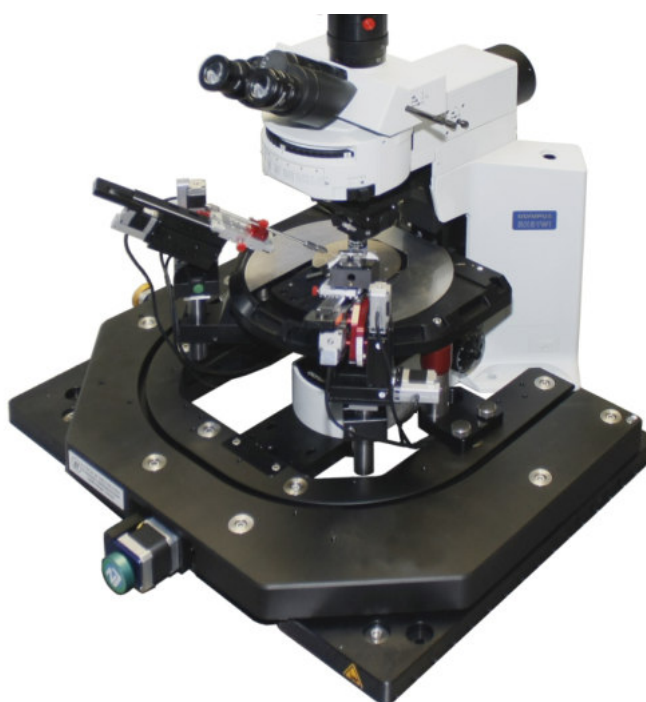


Special features:

- The magnetic stainless steel plate allows magnet brackets in order to attach the bath chamber.
- The T-groove allows the attachment of up to six LN Junior units or LN Mini 15/8 manipulators.
- Columns made of quality steel minimize thermic drift and offer outstanding stability.
- Available for all upright microscopes
- LN Mini bath chambers can be attached, bath chambers of other manufacture on demand.
- Hight adjustment

Scope of delivery :

- 1x Bridge 500, base plate incl. columns
- 1x Magnetic stainless steel plate for magnetic brackets



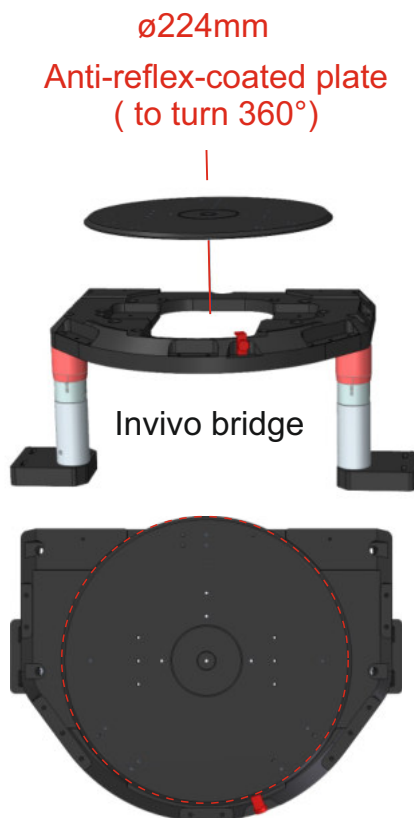
Bridge 500
Order-No.: 200-100 500 0200

InVivo bridge

The InVivo bridge allows the placing of mice or rats beneath a 2-P upright microscope. We offer two different brackets, the standard ear bars or the flexible head bracket. Additionally the anti-reflex coated panel can be rotated up to 360°. In order to fasten the animal to the device it is possible to remove the anti-reflex coated panel to allow the fastening of the animal beneath a stereo magnifier.

The bridge is height adjustable and offers a T-groove at the bottom side in order to attach different adapters.

Due to the fast change system the InVivo bridge can be exchanged with a Bridge 500 within a few minutes. This way work with a 2-P system with vital cuts or animals is possible.



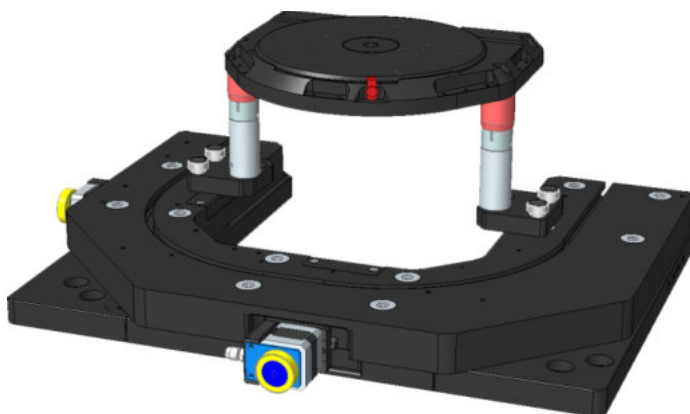
Special features:

- Anti-reflex coated plate
- Plate is rotatable up to 360° and removable
- Different brackets can be mounted to the panel
- T-groove at bottom side allows attachment of up to six LN junior units or LN Mini 15/8 manipulators
- High grade steel columns minimize thermic drift and offer superior stability
- Available for all upright microscopes
- Height adjustable

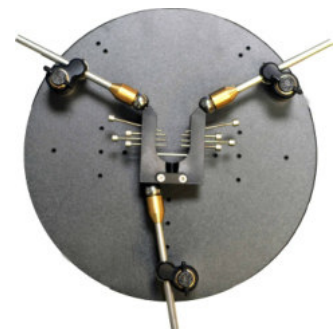
Contain:

- 1x InVivo bridge
- 1x Anti-reflex coated plate

e.g.: InVivo bridge with shifting-table 380FM-U



e.g.: InVivo-bridge with mouse-bracket



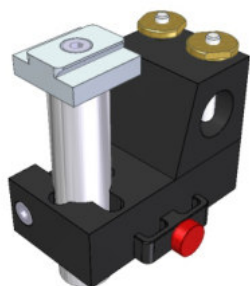
InVivo bridge
Order-No.: 200-100 500 0201



Bridge 500: Accessories

Junior bridge 500 adapter

The Junior Bridge adapter enables to assemble several manipulators directly onto the bridge 500. The adapter permits to flexibly adjust the manipulator in height and angle. The adapter's generously constructed dimensions in combination with the bridge 500 results in a drift free, firm and hereby vibration-free construction. We recommend using the adapter in combination with any of the Junior units, the bridge 500 and the 380 FM-U shifting table. This combination has been specifically developed for 2-photon microscopy.

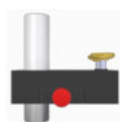
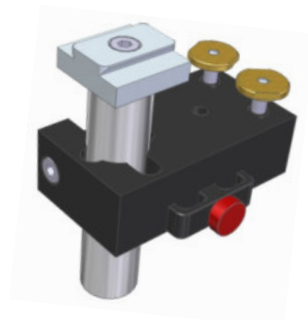


Junior bridge 500 adapter

Order-No.: 200-100 500 0061

Junior Invivo-Bridge adapter

The Junior Invivo-Bridge adapter enables to assemble several manipulators directly onto the Invivo-bridge. The adapter permits to flexibly adjust the manipulator in height and angle. The adapter's generously constructed dimensions in combination with the Invivo-bridge results in a drift free, firm and hereby vibration-free construction. We recommend using the adapter in combination with any of the Junior units, the Invivo-bridge and the 380 FM-U shifting table.

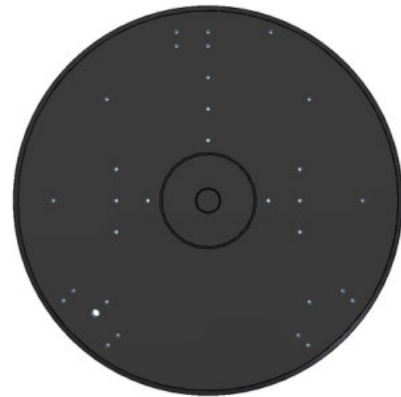
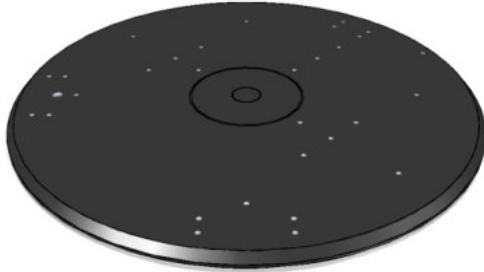


Junior InVivo bridge adapter

Order-No.: 200-100 500 0064

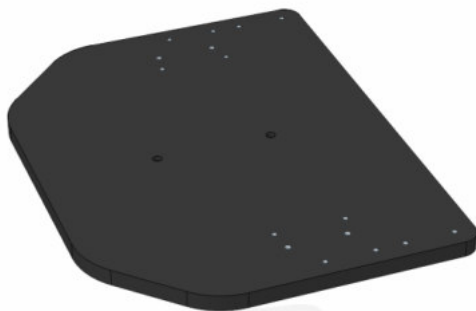
Invivo-bridge: Accessories

Anti-reflex-coated plate
ø224mm for bridge 500 InVivo



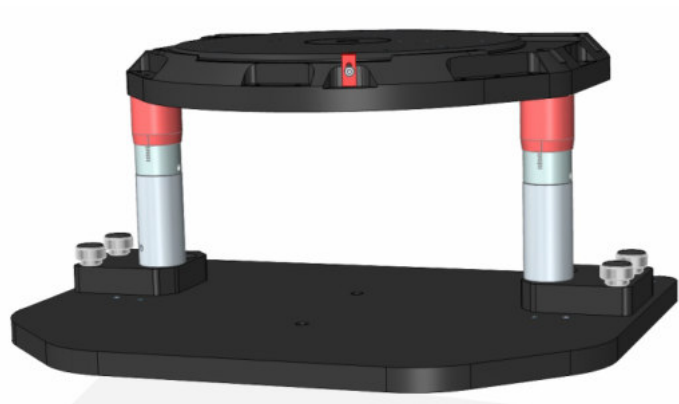
Anti-reflex coated plate
Order-No.: 200-100 500 0202

Parking-plate
for Bridge 500 and InVivo Bridge



Parking plate
Order-No.: 200-100 500 0205

On the Parking-plate can be mounted
the Bridge 500 or the Bridge-InVivo



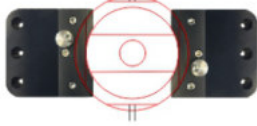


Platform / Bridge

Invivo-bridge: Accessories

Holder for Warner bath chamber
incl. Bridge cover plate

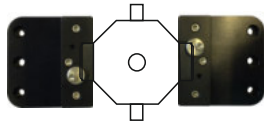
PM bath chamber



for PM bath chamber

Order-No.: 200-100 500 0025

PH bath chamber



for PH bath chamber

Order-No.: 200-100 500 0026

Assembly set
for Warner PH cell on to guide rail

Assembly Set

Order-No.: 200-100 500 0026

Bath chamber

The LN bathchamber system covers the complete spectrum of electrophysiological and medical applications. The adaption of the chamber to the different areas of applications creates the optimal solution. As an additional feature some chambers can be equipped with temperature control units.



Universal bath chamber



Slice mini chamber I/II



Mini PCT chamber



Universal mounting frame
160x110mm



Universal bath chamber

The universal bath chamber allows the use of microscope object slide (75x25), NUNC dishes, Falcon dishes (up to $\varnothing 60\text{mm}$) and the LN bath chamber inserts. Additionally the chamber can be used with the LN bridge 500, the LN bath chamber manipulator system and the original microscope tables of the microscope suppliers. The design of the chamber allows the direct attachment of the reference electrode and in/outflow using magnets on the steel surfaces.

Universal bath chamber



Contain:

- 1x Universal bath chamber
- 1x Plexiglas insert with drilling
- 1x Cover slips $\varnothing 50\text{mm}$ (100 pcs)
- 4x Magnetic brackets
- 1x Reference electrode

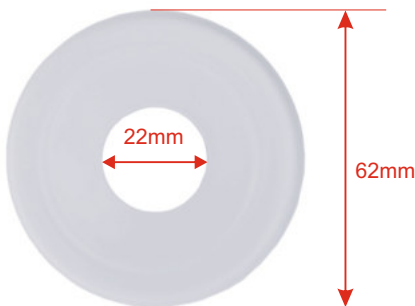


Universal bath chamber
Order-No.: 200-100 500 0120

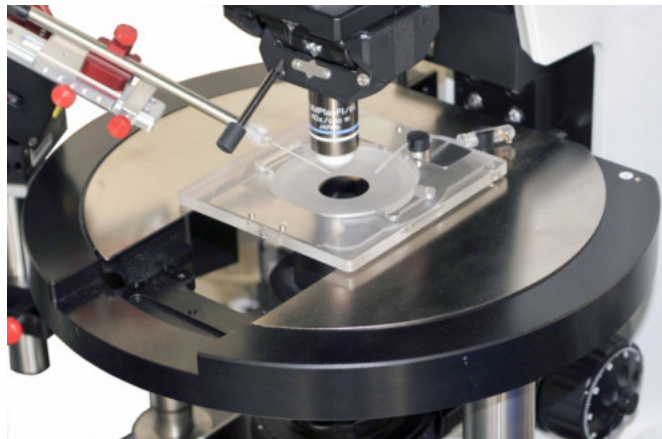
Technical Data:

- Dimensions (LxBxH)....: 106 x 97 x 7mm
- Weight..... : 70g

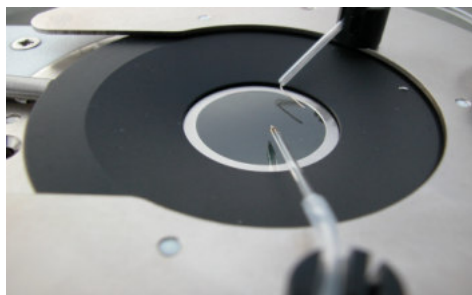
Plexiglas insert
with drilling



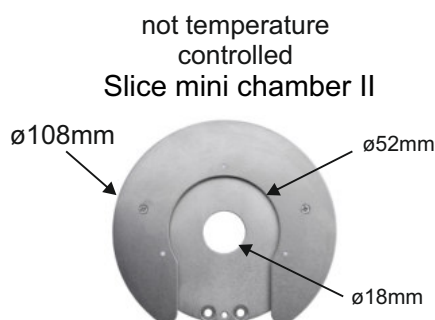
Order-No.:
200-100 500 0180-0D



Slice mini chamber I / II



The new slice mini bath chamber represents the culmination of years of experience in the design of bath chamber systems. Two different versions are available, one with and one without temperature control. The temperature-controlled mini bath chamber features the first appliance for the tempering of the ringer medium. Several different insulant materials have been used in order to improve the temperature performance of the chamber. The emitting properties has been enhanced, allowing the use of smaller peltier moduls, thereby further improving the efficiency of the temperature control. Additionally the revised design improved the stability of the chamber.



Slice mini chamber II
Not temperature controlled
Order-no: 200-100 500 0155

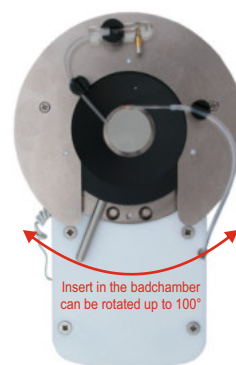
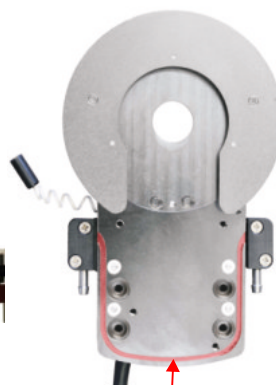
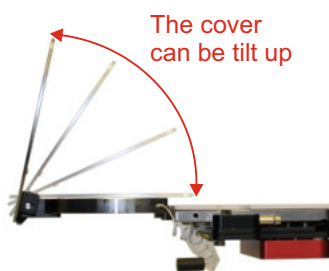
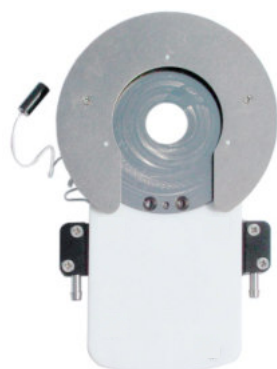
Technical Data:

- Temperature range: 5° to 42°C
- Choice between block or bath control
- Accuracy without perfusion: +/- 0.1°C
- Accuracy with perfusion: varies depending on the temperature of the ringer medium and the workflow speed
- Magnets for the attachment of reference electrode, capillaries or perfusion systems
- Rotation of the insert up to 100°
- Option: bath sensor

Contain:

- 1x Slice bath chamber I or II
- 2x Insert Type 0A and 0B
- 1x Cover slips ø50mm (100 pcs)
- 3x Magnetic bracket Type 1
- 1x Magnetic bracket Type 2
- 1x Reference electrode

temperature controlled
Slice mini chamber I



The design of the slice mini chamber I allows the control of the temperature of the ringer medium. This can be achieved by simply inlaying the tube into the designated bracket. Depending on the preset temperature this function can significantly improve the accuracy of the heating system.

Slice mini chamber I
Temperature controlled
Order-no: 200-100 500 0150

+

Temperature Controller TC07
Order-No. : 200-100 500 0145

A temperature controller typ TC07 has to be ordered additionally for the temperature controlled bath chamber.





Mini PCT chamber III / IV

The Mini PCT chamber is temperature-controllable from 5°C to 42°C and is suited for the use of Nunc dishes with a depth of 11 mm. Because the special characteristics of the Nunc dishes have been taken into consideration, a high level of accuracy in temperature control has been enabled. Including magnetic clamp and reference electrode.

Mini PTC chamber IV,
not temperature controlled



Mini PTC chamber IV
Not temperature controlled
Order-no: 200-100 500 0135

Mini PTC chamber III,
temperature controlled



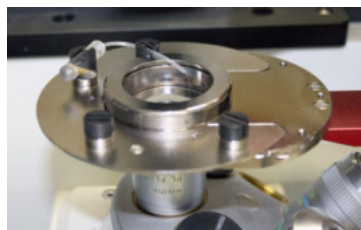
Mini PTC chamber III
Temperature controlled
Order-no: 200-100 500 0130
+
Temperature Controller TC07
Order-No. : 200-100 500 0145

Technical Data:

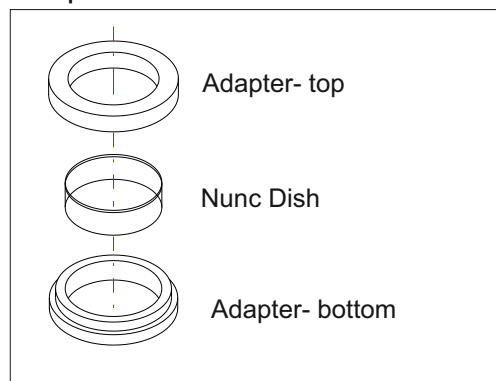
- Temperature range: 5° to 42°C
- Choice between block or bath control
- Accuracy without perfusion: +/- 0.1°C
- Accuracy with perfusion: varies depending on the temperature of the ringer medium and the workflow speed
- Magnets for the attachment of reference electrode, capillaries or perfusion systems
- Option: bath sensor

Contain:

- 1x PCT-Mini chamber
- 1x Adapter for Petri dishes ø35x10mm
- 4x Magnetic brackets
- 1x Reference electrode



Adapter for Nunc Dishe ø40x12mm

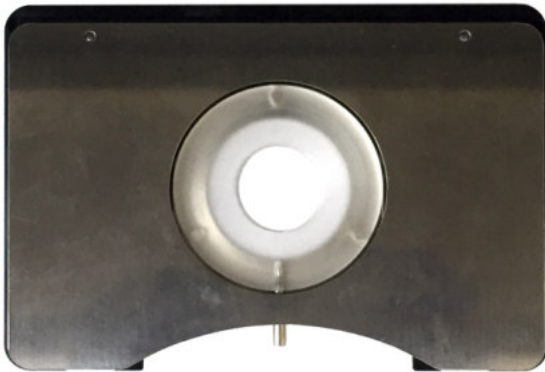


A temperature controller typ TC07 has to be ordered additionally for the temperature controlled bath chamber.



Universal mounting frame 160x110mm

UMF 1 for Slice insert



Order-No.: 200-100 500 0121

Insert for universal mounting frame 160x110



Insert for Slice

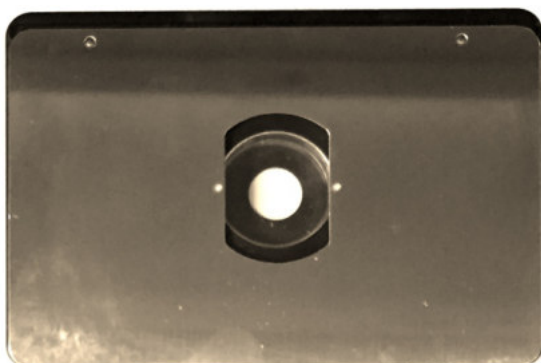
Order-No.: 200-100 500 0125-01



Insert for Warner RC25 chamber

Order-No.: 200-100 500 0125-02

UMF 2 for 35mm petri dishes



Order-No.: 200-100 500 0122



Bath chamber

Accessories

Magnetic bracket type 1

Slot width: 1mm and 1,4mm

e.g.: for the attachment of the in/outflow tube

1 Set (3 pieces)

Order-No.: 200-100 500 0191-01



Magnetic bracket type 2

Drill hole: ø6,3mm

e.g.: for the attachment of the reference electrode

1 Set (3 pieces)

Order-No.: 200-100 500 0191-02



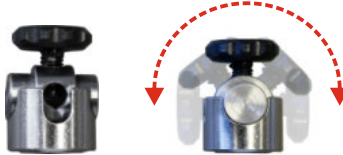
Magnetic bracket type 3

Drill hole: 3mm (0,5-3mm)

for the attachment from 0,5mm - 3,0 mm tube

1 piece

Order-No.: 200-100 500 0191-03

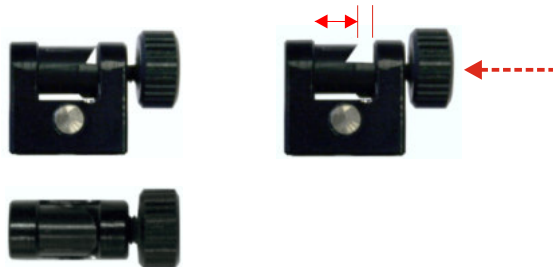


Magnetic bracket type 4

for the attachment from 0,5mm - 2,0 mm tube

1 piece

Order-No.: 200-100 500 0191-04



Reference-Electrode

incl. silver chloride wire

1 Set:

- x1 Reference-Electrode
- x1 Magnetic bracket type 1
- x1 Magnetic bracket type 2

Order-No.: 200-100 500 0192



Bath sensor

for slice mini chamber I and mini PCT chamber III
incl. 1 piece Magnet bracket type 2

Order-No.: 200-100 500 0189



Accessories

Block sensor

Order-No.: 200-100 500 0190



Cover slip ø50mm (100 pcs) for the LN-Inlays

Order-No.: 200-100 500 0182



High vacuum grease

for sealing / bonding the cover slip

Order-No.: 200-100 500 0183



PE-Perfusion tubing

1,57 AD x 1,14 ID (l=0,5m)

Useable for pre-heating of the ring medium
at the LN insert type D and E

Order-No.: 200-100 500 0184





Accessories

LN insert-set

for the slice mini and universal bath chamber

with
drilling
Outside \varnothing 62mm
Inside \varnothing 22mm



with
small rhombus
Outside \varnothing 62mm
Inside \varnothing 14mm



with
large rhombus
Outside \varnothing 62mm
Inside \varnothing 19mm



with
groove for
PE-Perfusion tubing



with
groove for
PE-Perfusion tubing



Teflon insert
Order-No.: 200-100 500 0180-0A

Aluminium insert teflon coated
Order-No.: 200-100 500 0180-0B

Ceramic insert
Order-No.: 200-100 500 0180-0C

Acrylic glass insert
Order-No.: 200-100 500 0180-0D

type 0

A= Teflon
B= Teflon coated
C= Ceramic
D= acrylic glass

Aluminium insert teflon coated
Order-No.: 200-100 500 0180-1B

Ceramic insert
Order-No.: 200-100 500 0180-1C

type 1

B= Teflon coated
C= Ceramic

Aluminium insert teflon coated
Order-No.: 200-100 500 0180-2B

Ceramic insert
Order-No.: 200-100 500 0180-2C

type 2

B= Teflon coated
C= Ceramic

Aluminium insert teflon coated
incl. PE-persusion tube
Order-No.: 200-100 500 0180-3B

type 3

B= Teflon coated

Aluminium insert teflon coated
incl. PE-persusion tube
Order-No.: 200-100 500 0180-4B

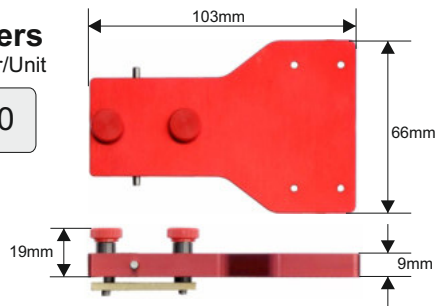
type 4

B= Teflon coated

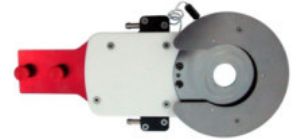
Accessories

**Guide-rail temp
for temp. controlled chambers**
e.g.: mounting on the LN Mini23 Manipulator/Unit

Order-No.: 200-100 500 0020



View: with bath chamber



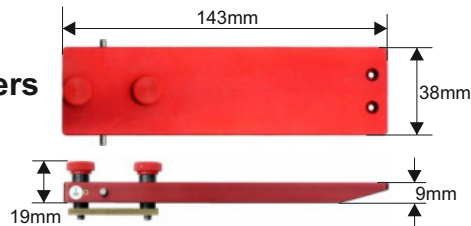
**Bath chamber fixture
for not temp. controlled chambers**
e.g.: mounting on the Bridge 500

Order-No.: 200-100 500 0021



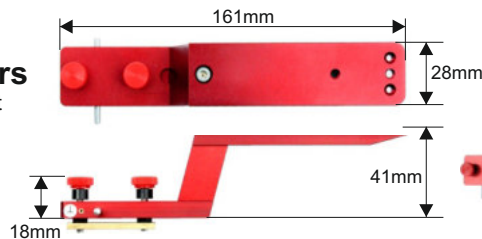
**Guide-rail
for not temp. controlled chambers**
e.g.: mounting on the LN Mini23 Manipulator/Unit

Order-No.: 200-100 500 0030



**Angle guide-rail
for not temp. controlled chambers**
e.g.: mounting on the LN Mini25/23 Manipulator/Unit

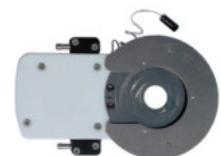
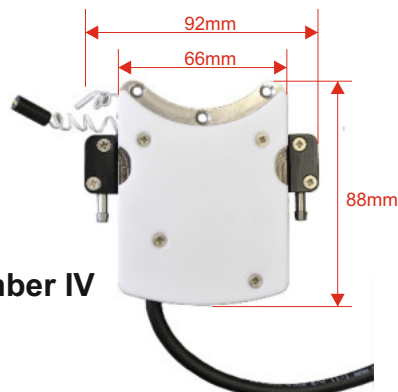
Order-No.: 200-100 500 0040



Upgrade kit for slice mini II

Order-No.:
mounting on the Guide-rail temp
200-100 500 0176-01

mounting on the Bridge
200-100 500 0176-02



Upgrade kit for PTC mini bath chamber IV

Order-No.: 200-100 500 0176-03



Bath camber

Column

We offer a variety of different columns that allow an individual set up. Our columns can be attached to antivibration desks, base plates or our extension kits (for inverse microscopes). Most of our columns offer the options of screw on or magnetic attachment.

**Round column
ø40mm**



40x80



X95



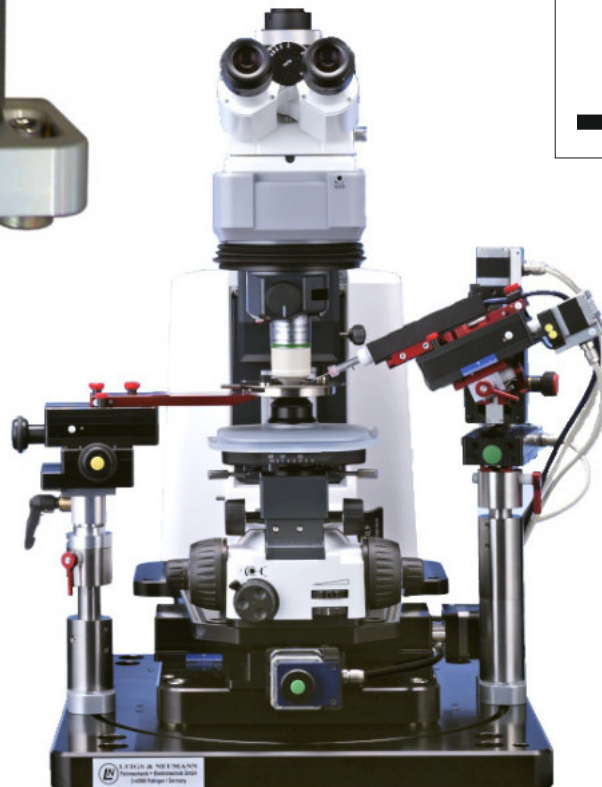
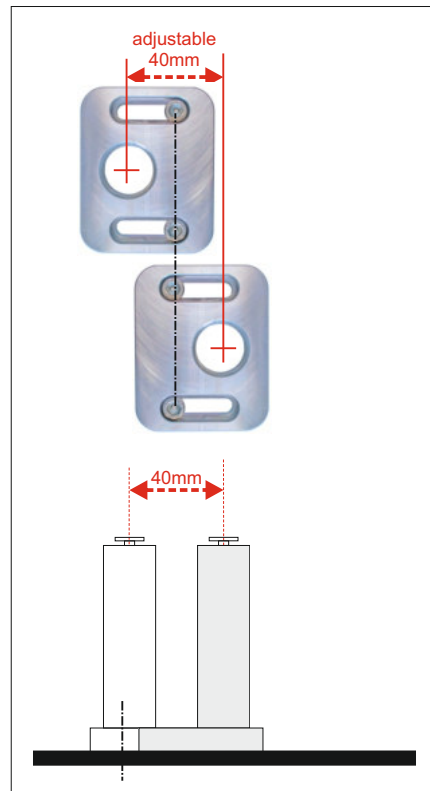


Round column \varnothing 40mm

The \varnothing 40 round colum is the consequent evolution of aluminium columns. Using steel instead of aluminium reduces temperature effects as far as possible. The column consists of different distance pieces, therefore it is possible to achieve every desired height. Additionally the top end of the column can be height adjusted up to 30 mm and fixed in the required position.



Standard LN-Columnbase



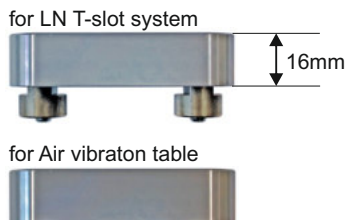
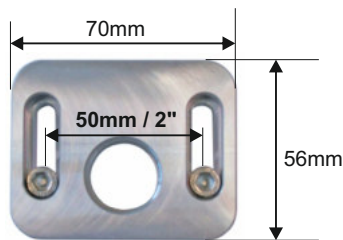
Round column ø 40mm

Round Column with
standard LN-columnbase



LN T-Slot system / Air Vibration Table

For the attachment on all Luigs & Neumann T-groove systems and for the attachment of all prevalent anti vibration tables with a screw thread distance of 25mm / 1".



Order No.:
200-100 200 0151

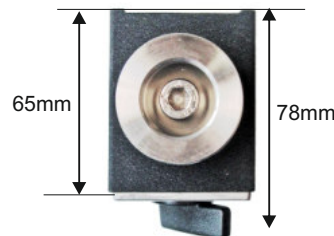
with
Standard LN columnbase

Round column with **magnet**
tall with a on/of lever switch



Roundcolumn with magnet

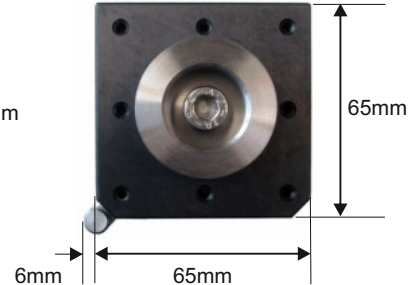
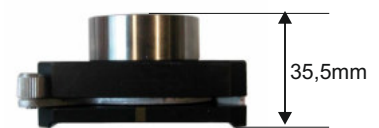
For the attachment on optical tables and vibration-free platform. Switchable ON/OFF magnetic circuit permits fine adjustment and precise positioning.



Holding Power
33 kgf (72 lb force)
Order No.:
200-100 200 0152-MT

with
Magnet - tall

Round column with **magnet**
flat with a on/of lever switch



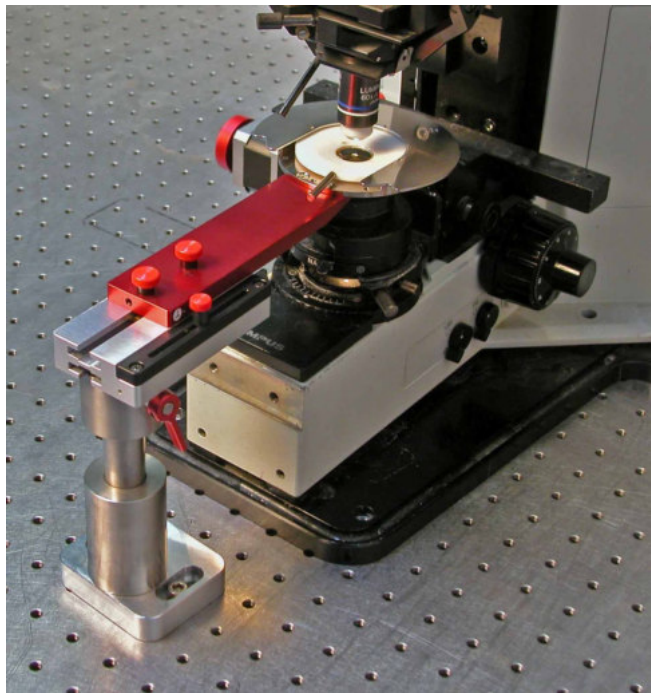
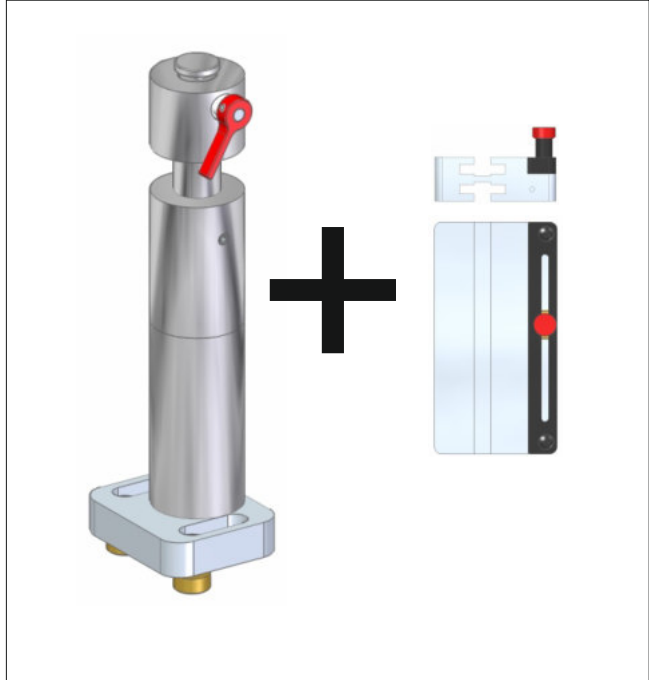
Holding Power
20 kgf (44 lb force)
Order No.:
200-100 200 0152-MF

with
Magnet - flat



Column

Round Column Ø40, incl. Coarse adjustment for LN-chamber for use without Bath Chamber Manipulator Unit B2RMS, height adjustable



Order No.:
200-100 200 154
200-100 200 154-MT (Magnet tall)
200-100 200 154-MF (Magnet flat)

Column - 40x80

e.g.: Unit MRE and B2MS mounted onto column 40x80

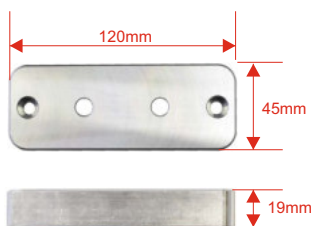
Column with six slots (T-grooves)



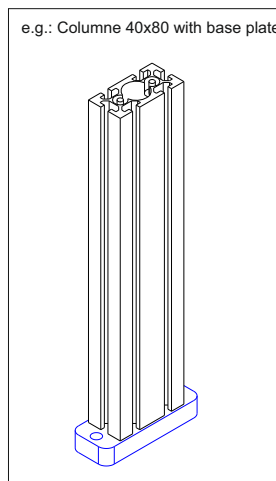
Column 40x80 S (L=350mm)
Order-no.: 200-100 200 0020

Column 40x80 L (L=450mm)
Order-no.: 200-100 200 0030

Base plate for column 40x80mm



e.g.: Column 40x80 with base plate



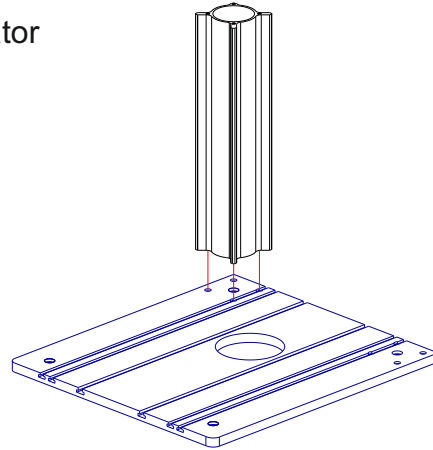
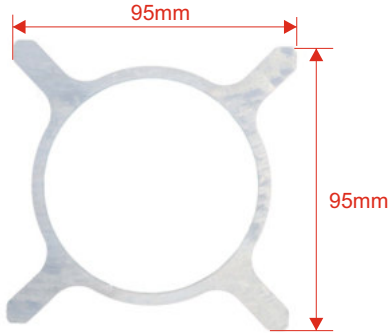
Order-No.:
200-100 200 0040



Column

Column - X95

For the Patch-Clamp-Tower with a swivel-manipulator



749mm
other lengths on request

Order-No.: 100-100 300 0200

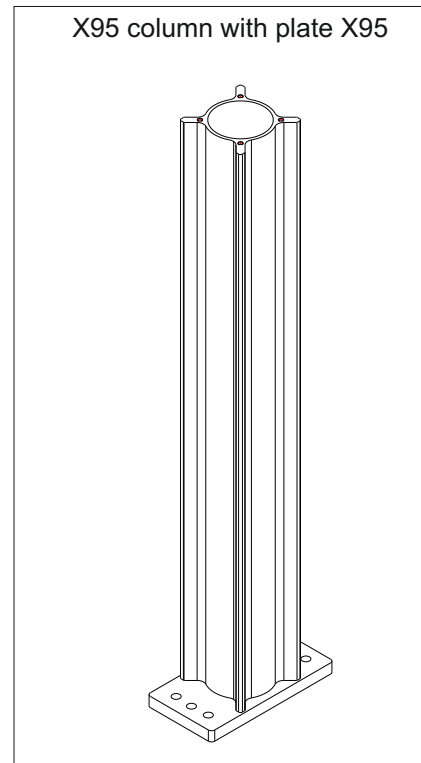


Plate for X95 column for attachment on several base plates and anti vibration table

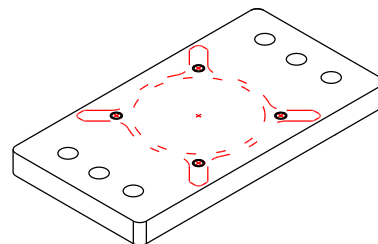
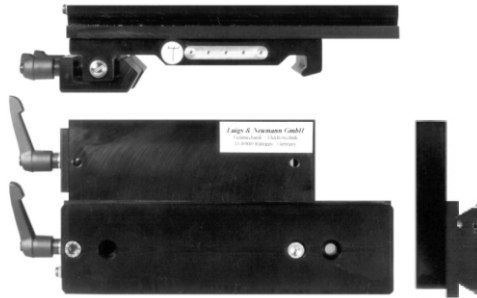


Plate X95

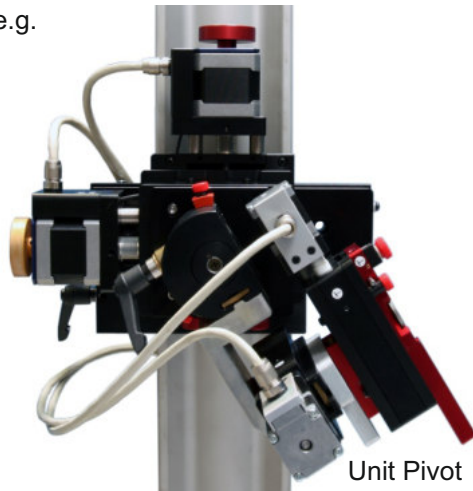
Order-No.: 100-100 300 0210

X95-Sliding clamp X

For mounting LN-Combi 25 manipulator unit (Unit Pivot) on X95 column



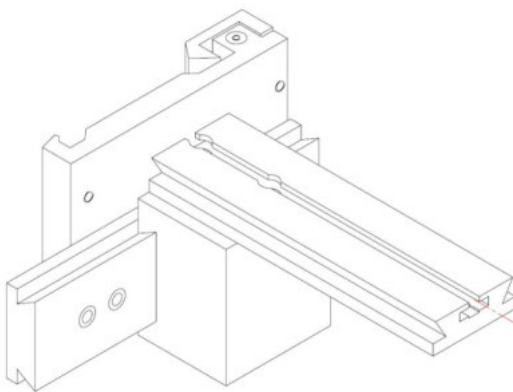
e.g.



Order-No.:
100-350 000 0120

X95-Sliding clamp XY

For mounting LN-Combi 25 manipulator unit for bath chamber or Mini Unit on X95 column



Order-No.:
100-400 000 0020



Column

Note



Manipulator units

Our preassembled units cover most applications of micromanipulation. The design of the adapters has been subject to constant improvements, with stability, ergonomics and functionality being the major focus. As a result, all adapters and manipulator axes feature earthing sockets, therefore minimizing the risk of electronic malfunctions. All manipulators are compatible with the entire LN product range and all our control units, allowing the upgrade of even the oldest of our setups.

Manipulator units

- * Unit Basic

- * Junior 3 axes
- * Junior 4 axes
- * Junior Multipatch
- * Junior 4 axes InVivo

- * Unit Mini 3 axes
- * Unit Mini compact
- * Unit Mini 4 axes
- * Unit Mini 4 axes-InVivo

- * Unit Bathchamber 2 axes
- * Unit Bathchamber 3 axes

- * Pivot-Manipulator

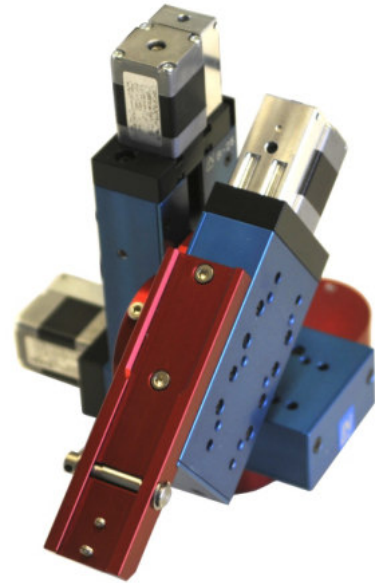
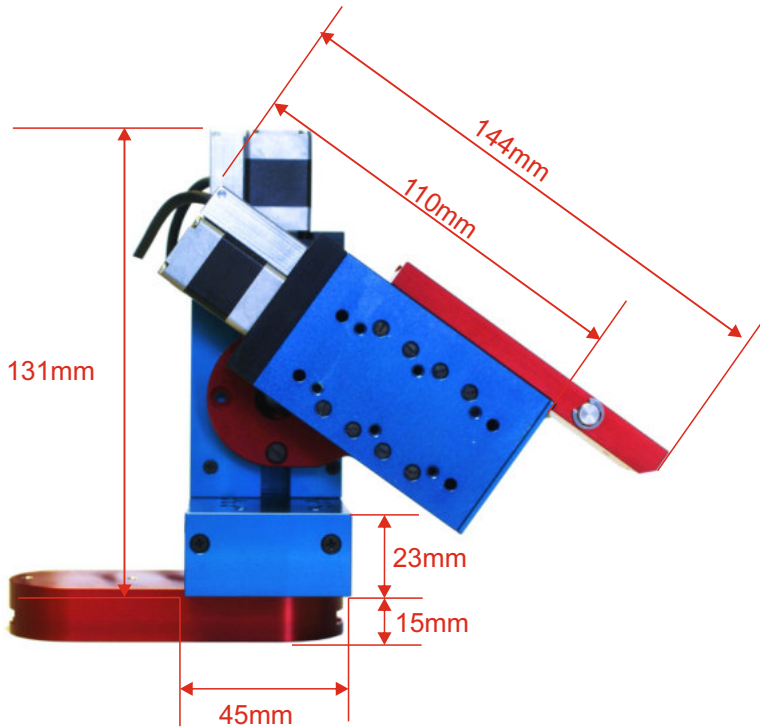


Unit Basic

The new entry of the LN manipulator system, the LN Basic manipulator. The new designed mechanic allows a more cost effective mounting of the manipuator. In combination with the new SM8 remote and SM8 control box we are able to provide a cost effective system, which is ideal for entry Patch Clamp recordings or Injection applications.

The manipulator is compatible with the SM7 system and available as a manual version.

Unit Basic



Contain:

- 3x Basic (X1/Y1/ Z1 axis)
- 1x Basic angle adapter
- 1x Basic column adapter
- 1x Basic Headstageholder
- 1x Ground set

Data:

- Traverse path : 23mm
- Motor resolution** : 4,8nm
- Reproducibility : <2µm
- Dimension (LxBxH) : 144 x 110 x 131mm
- Weight : 1,2kg
- Spindle lead : 0,4mm per rotation

Basic RE / LE

Motorized:

Order-No.:

Right side: 210-100 000 0100-RE

Left side : 210-100 000 0100-LE

Basic RM / LM

Manual:

Order-No.:

210-100 000 0110-RM

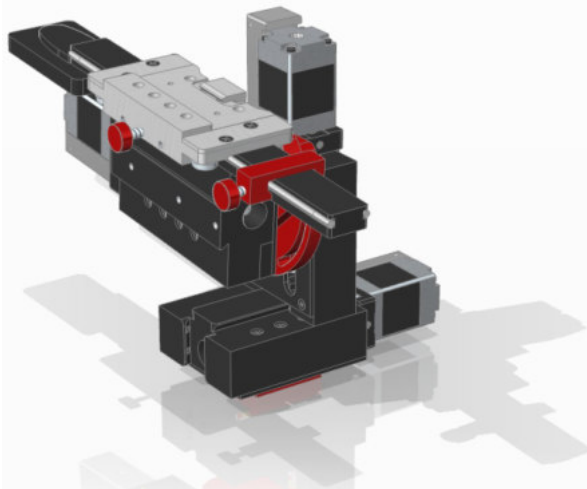
210-100 000 0110-LM

Junior 3 axes

The Junior Unit consists of three junior axes. Axis Y allow a movement path of 16mm and axis X and Z allows a 22mm movement. This permits the compact dimensions of the unit. The LN Junior Unit has been redesigned in order to reduce drift as well as to improve resolution and stability. Due to the compact dimensions, up to 8 units can be positioned around the bath chamber, and a shorter Y axis allows even up to 12 units. The unit is available with turn and backfold adapters or fast exchange rail. For applications that require highly sophisticated micro manipulation and economy of space we recommend a manipulator (for example: Multipatch Set Up, InVivo Setup).

The guide rail can be mounted on top (Pos. 1) or laterally of the x axis.

Pos.1
LN Unit Junior RE



Data:

Traverse path : X / Z = 22mm
: Y = 16mm

Motor resolution : **3,9nm**

Reproducibility : <math><1\mu\text{m}</math>

Dimension (LxHxB) : 115 x 112 x 131mm

Weight : 1,0kg

Contain:

1x Junior 22, X axis

1x Junior 16, Y axis

1x Junior 22, Z axis

1x Junior Butterfly adapter

1x Fast exchange rail

1x Ground set

Motorized

Unit Junior RE(Right side) / **LE**(Left side)

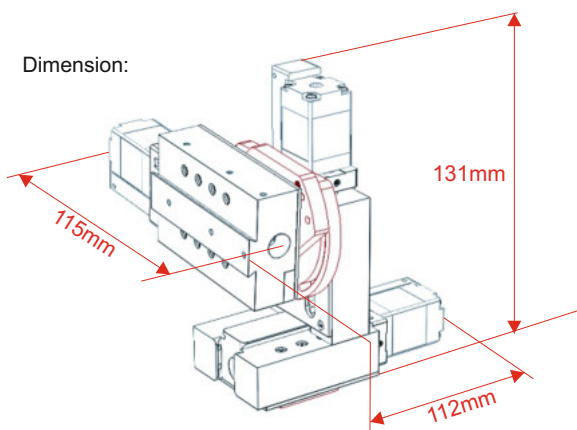
Order-no.:210-100 000 0070, Option...

Manual

Unit Junior RM(Right side) / **LM**(Left side)

Order-no.: 210-100 000 0072, Option...

Dimension:

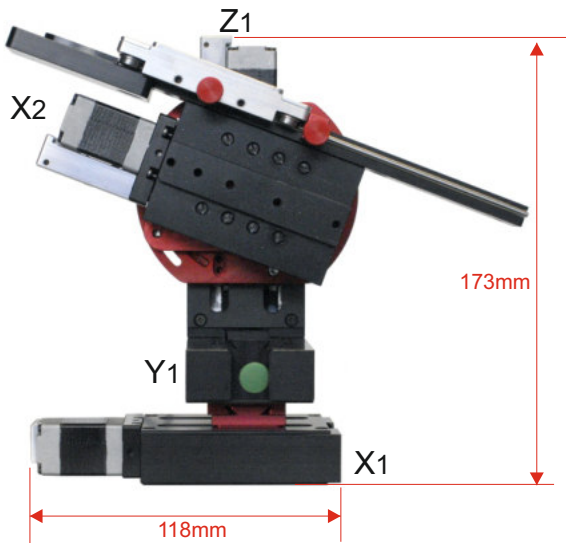




Junior 4 axes

The LN Junior Unit consists of four junior axes, where as X2, X1, Y1 and Z1 axis allow a movement of 22mm. This permits more compact dimensions of the unit. Due to the compact dimensions up to 8 units can be positioned around the bath chamber. The unit is available with turn and backfold adapters or fast exchange rail. This unit has been designed in order to meet the rising requirements of InVivo microscopy and it is possible to mount it directly on to the bars of a stereotactical frame. The guide rail can be mounted on top (Pos. 1) or laterally of the x axis.

Pos.1
Unit Junior 4LE



Data:

- Traverse path : X₂ = 22mm
: X₁/Y₁/Z₁ = 22mm
- Motor resolution : **3,9nm**
- Reproducibility : <1µm
- Dimension (LxBxH) : 118 x 118 x 173mm
- Weight : 1,3kg
- Spindle lead : 0,4mm per rotation

Contain:

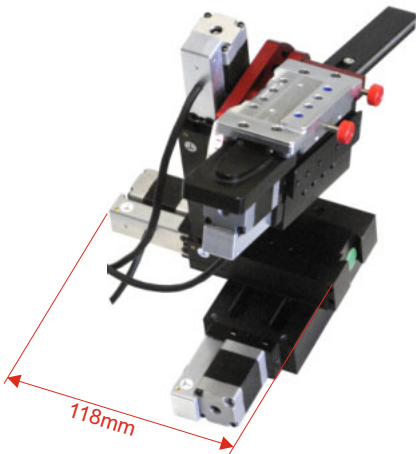
- 1x Junior 22x (X₂-Axis)
- 3x Junior 22 (X₁/Y₁/ Z₁ Axis)
- 1x Junior Butterfly adapter
- 1x Fast exchange rail
- 1x Ground set

Motorized:
Unit 4RE / 4LE

Manual:
Unit 4RM / 4LM

Order-no:
210-100 000 0080

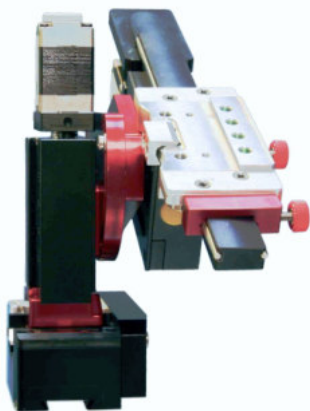
Order-no:
210-100 000 0082



Junior Multipatch, motorized

Our latest junior version displays our experience in performing multiple recordings in brain slices. We designed an ultra-stable, narrow and compact Y- axis which allows to position, with our new LNscope, up to 16 Manipulators around the chamber. The lateral range fits to the needs of performing multiple recordings and offers the same specifications in terms of stability, resolution and backlash as our standard Junior units.

Because of our modular design, even old Junior units could be upgraded to the new version by exchanging the y-axis.



Unit Multipatch

Contain:

- 1x LN Junior X
- 1x LN Junior Z
- 1x LN Multipatch Y
- 1x Junor Butterfly adapter
- 1x Fast exchange rail
- 1x Ground set

Data:

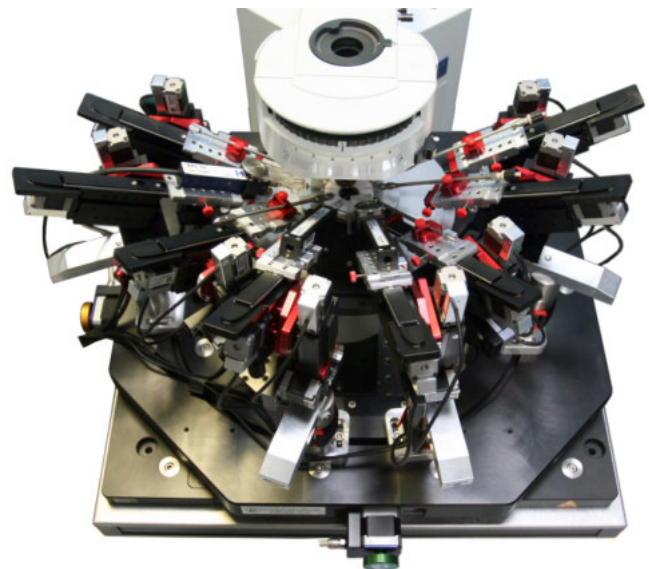
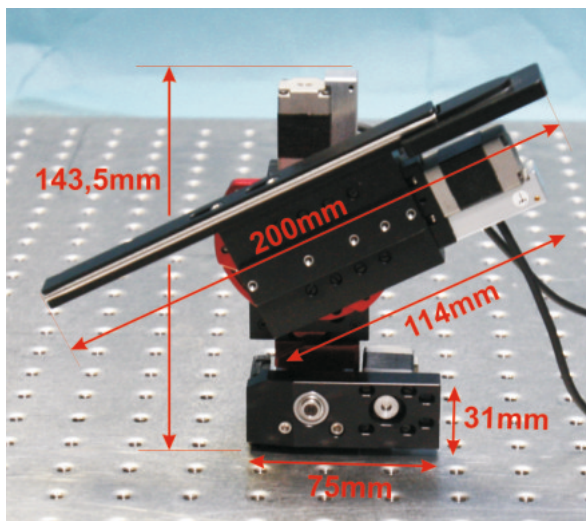
Traverse path : X/Z=22 and Y=8mm

Motor resolution : **3,9nm**

Reproducibility : <1µm

Weight : _____kg

Spindle lead : 0,4mm per rotation



Order-No.:

210-100 000 0090-R (Right side)

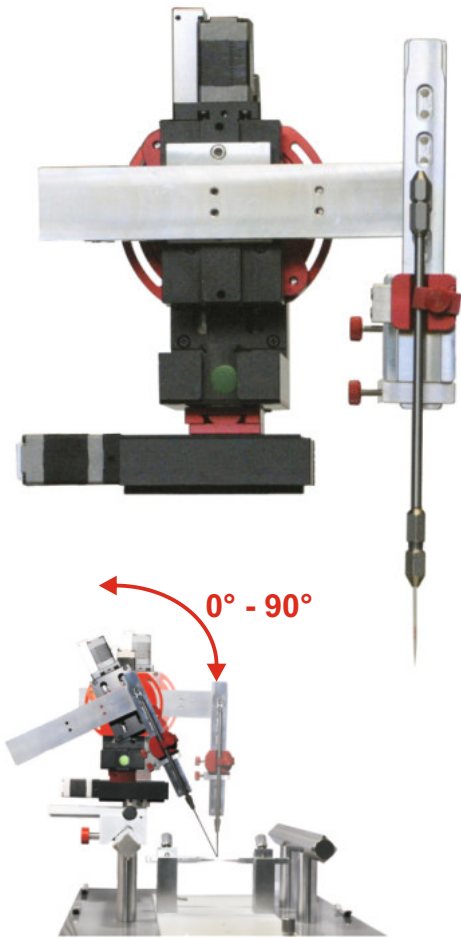
210-100 000 0090-L (Left side)



Junior 4 axes InVivo

The new development of the Junior axis has improved further in spite of the already existing excellent InVivo Unit regarding stability, freedom of drift and high resolution. By using the Junior adjustment rail, the Electrode / Headstage can be shifted at 120mm and, likewise, the angle of the Z2-Axis can be variably adjusted up to 90°.

This unit was developed with regard to the increasing requirements in the InVivo microscope and made the assembly on different stereotactical frames and for 2-P InVivo systems possible.



Data:

- Traverse path : $X_1/Y_1/Z_1/Z_2 = 22\text{mm}$
- Motor resolution** : **3,9nm**
- Reproducibility : $<1\mu\text{m}$
- Dimension (LxBxH) : 155-220 x 118 x 200mm
- Weight : 1,5kg
- Spindle lead : 0,4mm per rotation

Contain:

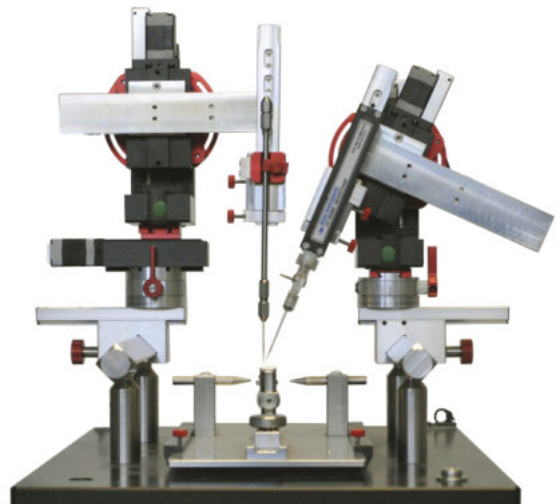
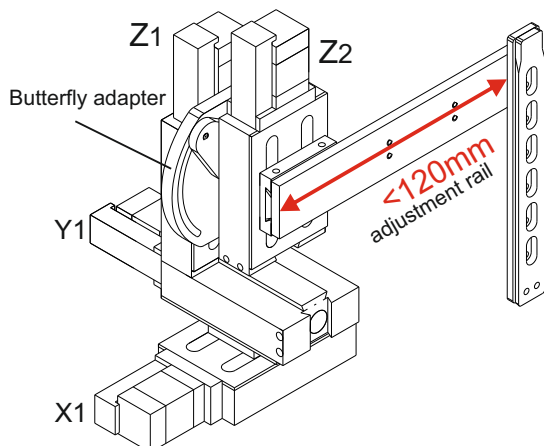
- 4x Junior 22
- 1x Junior Butterfly adapter
- 1x Junior adjustment rail
- 1x Ground set

Motorized:

- Unit 4RE / 4LE-InVivo**
- Order-no.: 210-100 000 0085

Manual:

- Unit 4RM / 4LM-InVivo**
- Order-no.: 210-100 000 0086



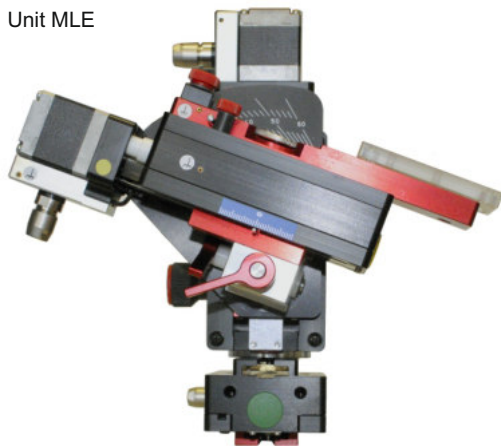


Mini 25, 3 axes

(Unit MRE/MLE and Unit MRM/MLM)

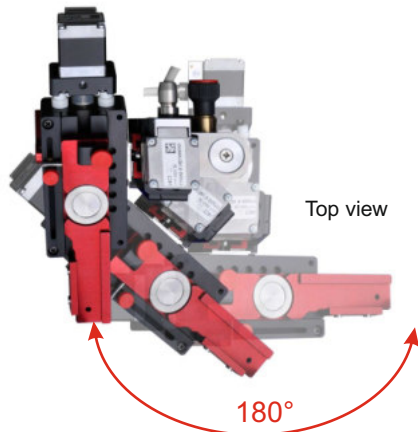
The LN Unit consists of three Mini 25 axes that are connected with the required adapters in order to form the complete unit. The design of the unit combines flexibility with stability, high resolution and freedom of drift. The patch angle of the X axis can be adjusted steplessly. All mechanical components are equipped with earthing sockets. The unit is available with turn and backfold adapters.

Unit MLE



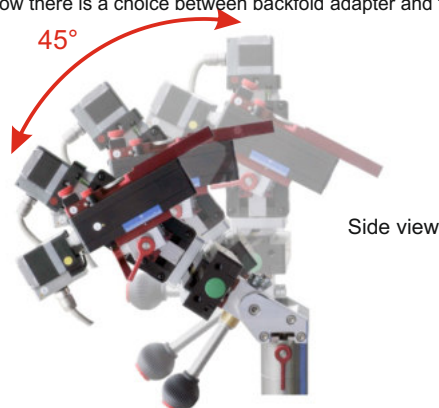
Option 1: with turnadapter-1

The turn adapter-1 allows to turn out the Z and X axis of the unit for e.g. easy electrode exchange or easy access to the bath. A fix stop enables to get back to same position.



Option 2: with backfold adapter

This adapter allows to fold the manipulator unit back. This adapter enables to mount up to 6 manipulators around the microscope whilst still able to exchange the electrodes during measurements. Now there is a choice between backfold adapter and turn adapter.



Data:

Traverse path $x/y/z$: 25mm, motorized
28mm, manual

Motor resolution : 4,8nm
 Reproducibility : <1µm
 Weight : 2,2 kg
 Spindel lead : 0,5mm per rotation

Contain:

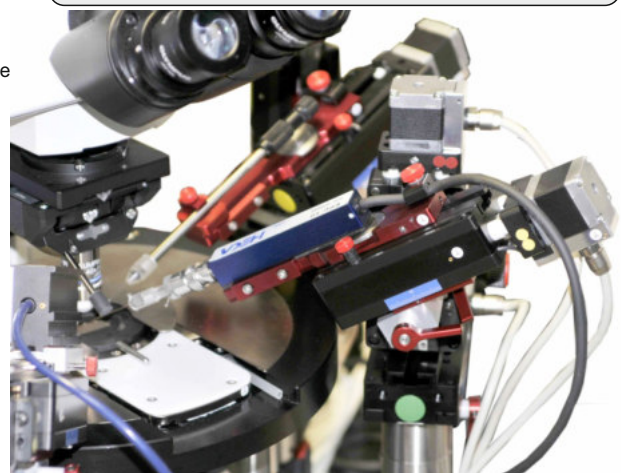
- 3x Mini 25 Axis
- 1x Turn or Backfold adapter
- 1x Adjustment Unit
- 1x Angle clamp with scale
- 1x Headstageholder, mini
- 1x Ground set

Option 1: with turn adapter-1

Option 2: with backfold adapter

Motorized
Unit MRE / MLE
 Order-no.: 210-100 000 0010

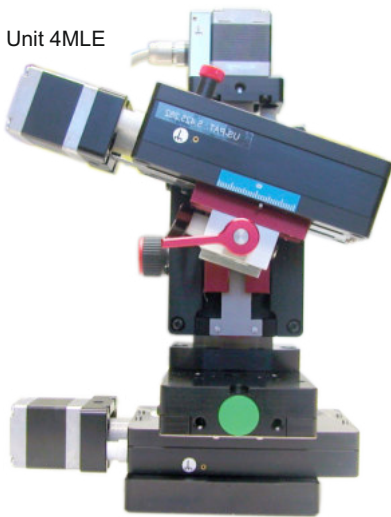
Manual
Unit MRM / MLM
 Order-no.: 210-100 000 0011





Mini 4 axes

This LN unit consists of a Mini 23xy, a Mini 23z and Mini 25 X axis, which are combined with the necessary adapters to form the complete unit. The design of the unit combines flexibility with stability, high resolution and freedom of drift. The patch angle of the X axis can be adjusted steplessly. All mechanical components are equipped with earthing sockets. The unit is available with Turn and Backfold adapters. We also offer an upside down configuration for use in InVivo set ups.



Unit 4MLE

Contain:

- 1x Mini 23xy (X₁/Y₁ Axes)
- 1x Mini 23z (Z₁ Axis)
- 1x Mini 25 (X₂ Axis)
- 1x Turn or Backfold adapter
- 1x Angle clamp
- 1x ThreeT-groove plate Mini XY23
- 1x Headstageholder, mini
- 1x Ground Set

- Option 1: with turn adapter
- Option 2: with backfold adapter

Data:

- Traverse path X₁, Y₁, Z₁ : 20mm (motorized) / 23mm (manual)
- X₂ : 25mm (motorized) / 28mm (manual)
- Motor resolution : 4,8nm**
- Reproducibility : <1µm
- Dimension (LxHxB) : 152 x 152 x 221mm
- Weight : 3,0kg

Motorized:

Unit 4MRE (Right Side)

Order-no.: 210-100 000 0050-RE

Unit 4MLE (Left Side)

Order-no.: 210-100 000 0050-LE

Manual:

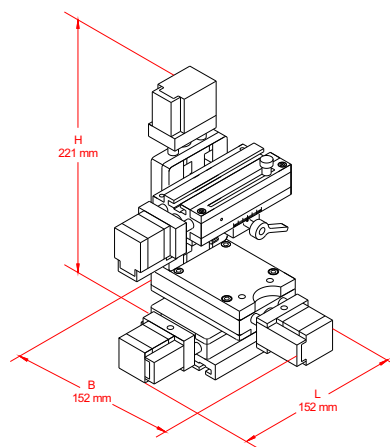
Unit 4MRM (Right Side)

Order-no.: 210-100 000 0051-RM

Unit 4MLM (Left Side)

Order-no.: 210-100 000 0051-LM

Dimension:



Mini 4 axes InVivo



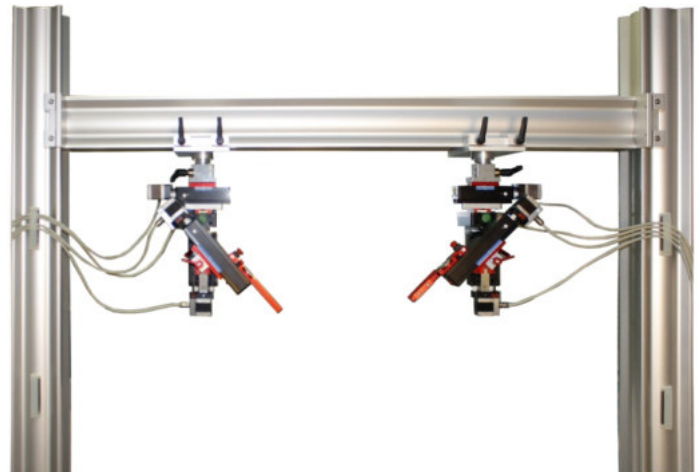
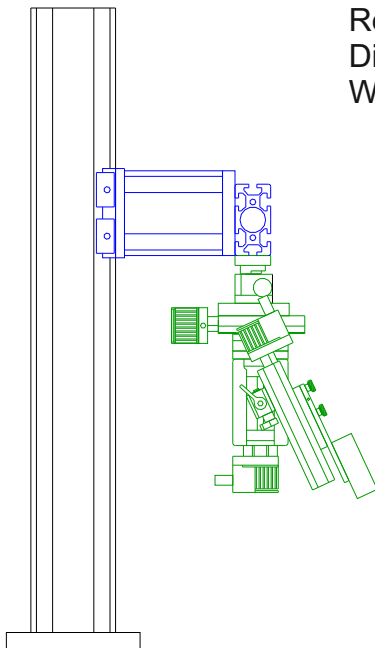
Contain:

1x Mini 23xy (X₁/Y₁ Axis)
 1x Mini 23z (Z₁ Axis)
 1x Mini 55T (X₂ Axis)
 1x Turn adapter, round column
 1x Angle clamp
 1x Headstageholder, Mini
 1x Ground Set

Data:

Traverse path X₁, Y₁, Z₁ : 20mm (motorized) / 23mm (manual)
 X₂ : 50mm (motorized) / 55mm (manual)

Motor resolution : **4,8nm**
 Reproducibility : <1µm
 Dimension (LxHxB) : 152 x 152 x 221mm
 Weight : 3,0kg



Motorized:

Unit 4MRE-InVivo (Right Side)
 Unit 4MLE-InVivo (Left Side)
 Order-no: 210-100 000 0055

Manual:

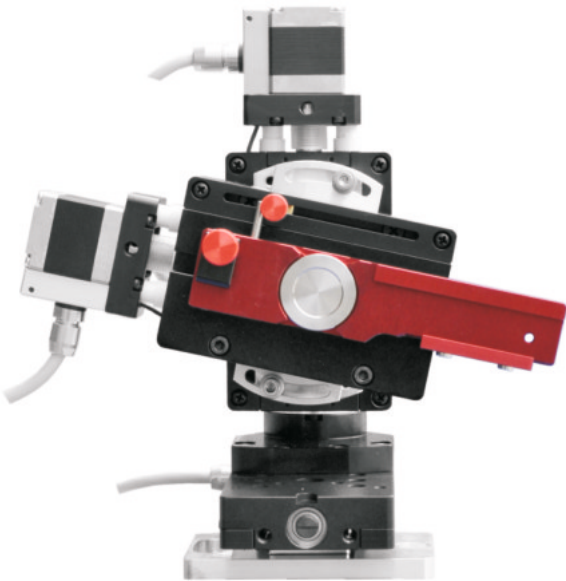
Unit 4MRM-InVivo (Right Side)
 Unit 4MLM-InVivo (Left Side)
 Order-no.: 210-100 000 0056



Mini compact

The design of the LN Mini compact allows it to be fitted onto a platform (for example the LN platform or the Gibraltar Stage) and is another version of the Mini Unit. It combines flexibility with stability, high resolution and freedom of drift. The X axis is steplessly adjustable between 0° and 40°.

Unit MLE_{compact}



Data:

Traverse path : X/Y/Z = 20mm (motorized)
X/Y/Z = 23mm (manual)

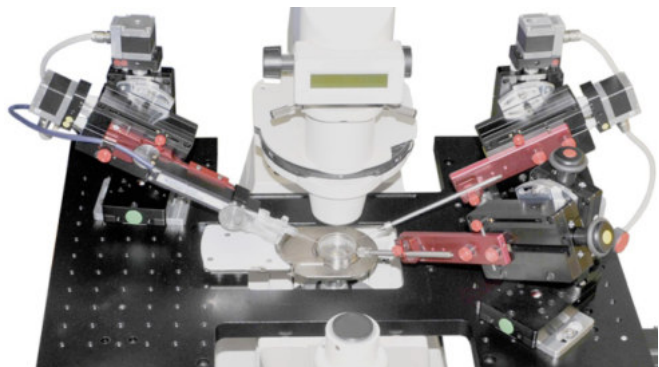
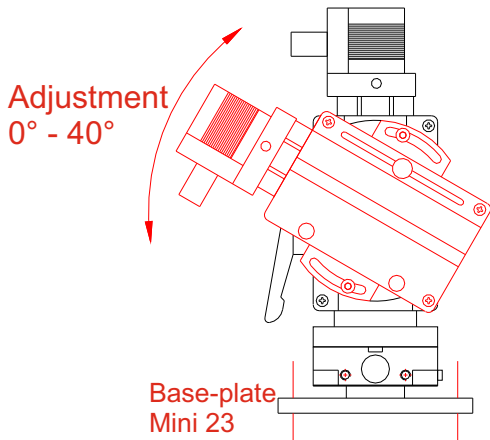
Motor resolution : 4,8nm
Reproducibility : <1µm
Dimension (LxBxH) : 151 x 151 x 210mm
Weight : 2,5kg
Spindel lead : 0,5mm per rotation

Contain:

- 3x Mini 23 Axis
- 1x Turn adapter
- 1x Angle adapter compact
- 1x Two T-groove plate Mini XY23
- 1x Headstageholder
- 1x Ground set
- 1x Compact Base-plate, Mini 23

Order-No.:

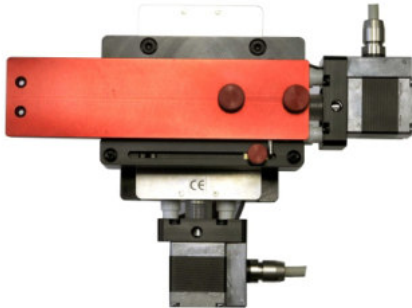
- Motorized: 210-100 000 0060
Right side : Unit MRE compact
Left side : Unit MLE compact
- Manual: 210-100 000 0061
Right side : Unit MRM compact
Left side : Unit MLM compact



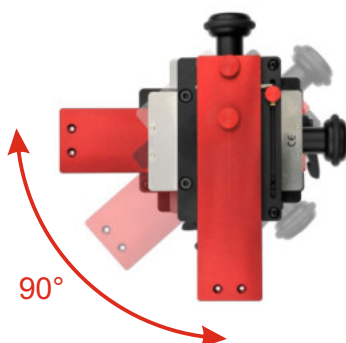
Bathchamber mini XY

This LN unit consists of a Mini 23xy and all adapters that are necessary to form the complete unit. The unit allows the individual movement of the bath chamber and makes it possible to swing out the bath chamber of the workspace. The Bathchamber Unit XY is available as motoric or manual version. The design of the unit combines flexibility with stability, high resolution and freedom of drift. All mechanical components are equipped with earthing sockets.

Unit B2ES (Motorized)



Unit B2MS (Manual)



LN Unit B2MS / B2ES

Data:

Traverse path : X/Y/Z = 20mm (motorized)
X/Y/Z = 23mm (manual)

Motor resolution : 4,8nm

Reproducibility : <1µm

Dimension (LxBxH) : 151 x 151 x 120mm

Weight : 1,9kg

Spindel lead : 0,5mm per rotation

Contain:

1x Mini 23xy

1x Bath Guide-rail

1x One T-groove plate, Mini 23

1x Three T-groove plate, Mini 23

1x Column turn adapter

Order-No.:

Motorized: Unit B2ES
210-100 000 0020

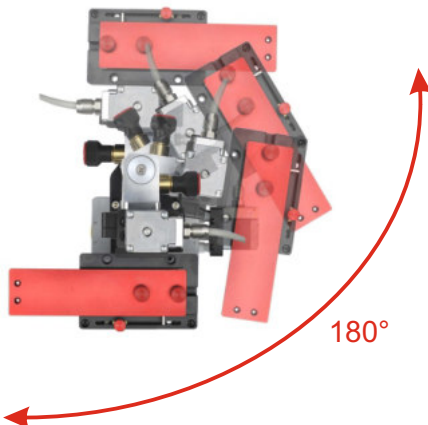
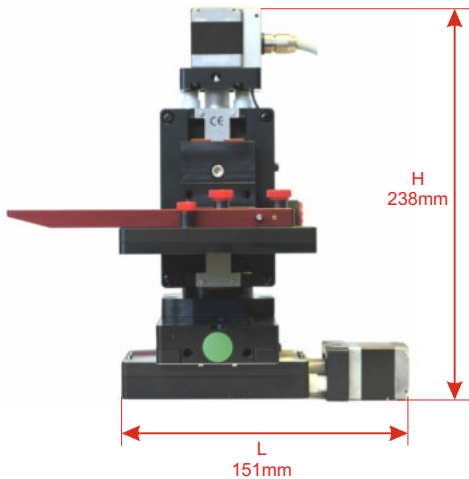
Manual: Unit B2MS
210-100 000 0021





Bathchamber mini XYZ

The LN Unit B3MS/B3ES consists of a Mini23xy and a Mini 23z Axis, which are combined with the necessary adapters to form the complete unit. The unit allows the individual movement of the bath chamber and makes it possible to swing the bath chamber out of the workspace. The Bathchamber Unit XYZ is available as motoric or manual version. The design of the unit combines flexibility with stability, high resolution and freedom of drift. All mechanical components are equipped with earthing sockets.



Unit B3MS / B3ES

Contain:

- 1x LN Mini 23 XY, manual / motorized
- 1x LN Mini 23 Z, manual / motorized
- 1x LN Mini Turn adapter
- 1x Angle plate XZ
- 1x One T-groove plate Mini 23
- 1x Bath guide rail
- 1x Three T-groove plate Mini23

Data:

Traverse path XYZ : 23mm(manual) / 20mm (motorized)

Motor resolution : 4,8nm

Reproducibility : <1µm

Dimension (LxBxH) : 151 x 151 x 238mm

Weight : 2,8kg

Spindle lead : 0,5mm per rotation

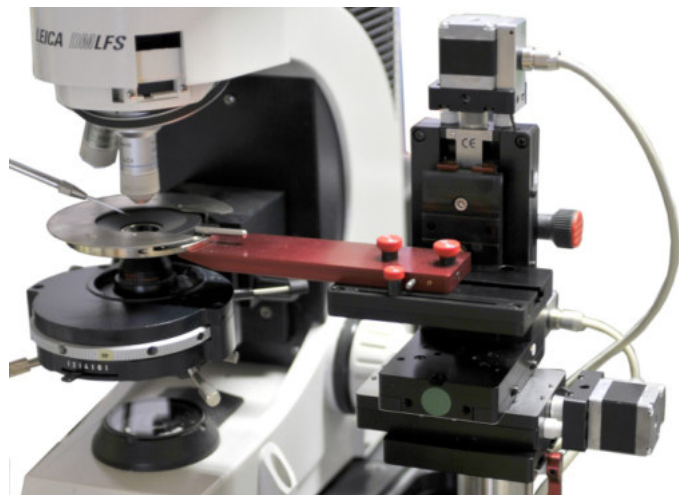
Order-No.:

motorized

B3ES 210-100 000 0040

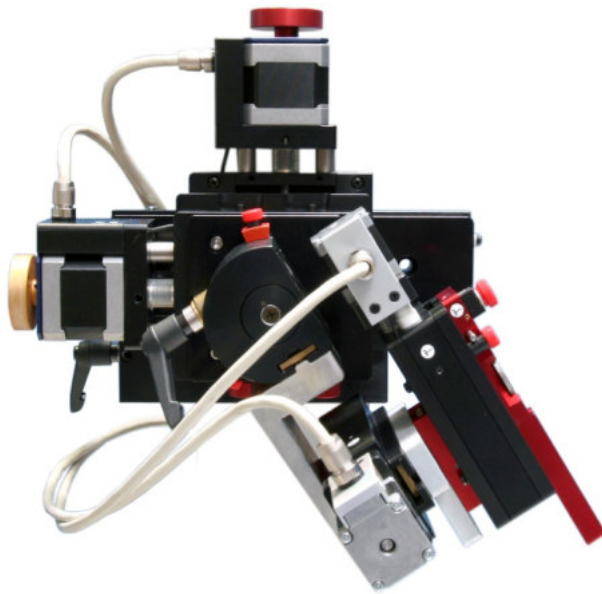
manual

B3MS 210-100 000 0041



Unit Pivot

The LN rotatable manipulator was designed for patch measurements on inverse microscopes. It allows working with very steep patch angles and is mounted onto a X-95 column. The unit consists of a Combi XY and two Mini 25 axes. The pivot point allows the elegant removal of the electrode out of the workspace, combined with the possibility to adjust the work angle with 2 adjustable stop positions. The LN rotatable manipulator comes with a rough adjustment in direction X. We recommend to use the unit in combination with the PCT bath chamber manipulator.



Pivot-Manipulator Mini with 4 axis

Contain:

- 1x LN Combi 25XYS, manual or motorized
- 2x LN Mini 25, manual / motorized
- 1x Pivot adapter
- 1x Guide Rail / Headstageholder
- 1x Sliding clamp X, incl. mounting clamp for X95-column

Data:

Traverse path X ₁ , Y ₁ , Z ₁ , X ₂	: 25mm motorized
Motor resolution	: 4,8nm
Reproducibility	: <1µm
Dimension (LxBxH)	:
Weight	:
Spindle lead	: 0,5mm per rotation



Order-No.:

motorized 100-350 000 0010





Manipulator - Single axis

Our manipulators are composed of individual axes which allow a high flexibility of build up options for our units. Our LN axes are available in several different types. They vary in traverse path, size, outer dimensions and carrying capacity. The axes are available as manual and motoric versions, with the option to upgrade the manual versions with motors. These systems can be combined to achieve a multitude of possible setups, allowing the installation of individual, customer-specific set ups.

Individual manipulators

- * LN 15/8
- * Junior
- * Mini 23
- * Mini 25
- * Mini 55
- * Combi 25
- * Mini Z Vario
- * Basic
- * Y-Multipatch



LN 15/8

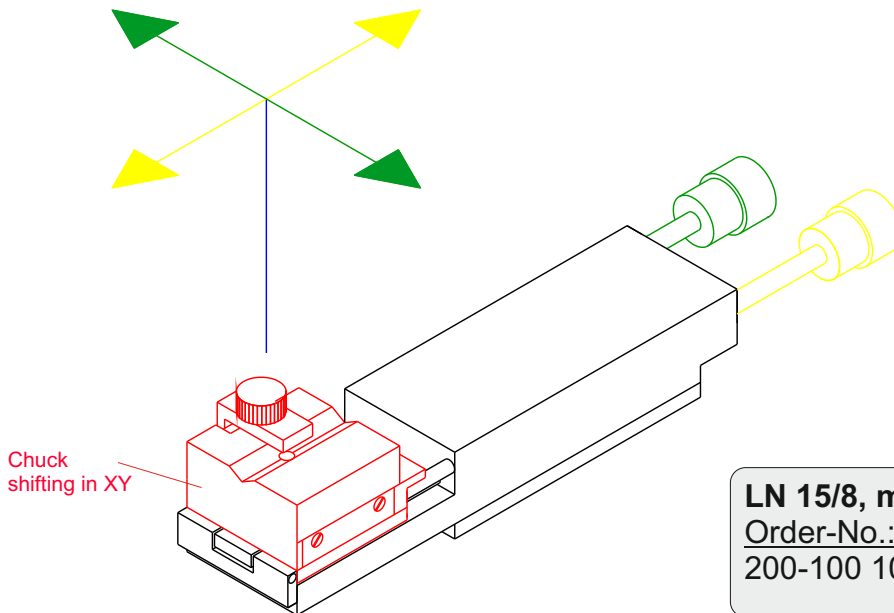
The LN15/8 is the ideal tool for positioning perfusion systems or capillary tubing. Simple handling, small size and high stability all combined in one. 15mm in forward travel and 8mm in lateral travel is available to the user. The manipulator can be integrated into any existing system due to the continual productline specifications throughout proceeding developments.

The chuck is implemented in the latest version of the LN 15/8.



Technical data:

- Traverse path X/Y..... : 15 mm / 8 mm
- Dimensions (LxBxH)..... : 120x28x20 mm
- Weight..... : 230g
- Spindle lead..... : 0,5mm per rotation



LN 15/8, manual

Order-No.:

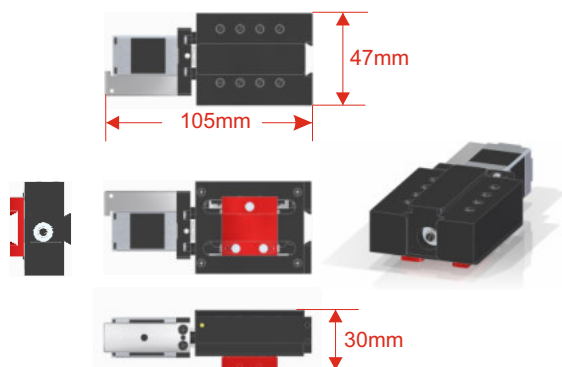
200-100 100 4000



LN Junior 16 / LN Junior 22

The LN junior manipulator axis is the 2nd Generation of our junior series. The manipulator was completely revised, maintaining only the dimensions and flexibility. The changes are related to a new step motor with four times as many full steps (200 per revolution; before only 50), a completely new guiding system, as well as a revised spindle system. The manipulator now offers outstanding qualities for freedom of drift, resolution and positioning accuracy. An individual system can easily be assembled by using dovetail prisms on the three sides of the manipulator axis. The junior is compatible with the all LN control systems. A manual version is also available, which has an adjustment knob instead of the step engine.

The manual version can be refitted with a motor.



Technical data:

- Traverse path.....: 16mm
- Motor resolution.....: 2,5nm
- Reproducibility.....: <1 μ
- Dimensions (LxBxH).....: 105x47x30mm
- Weight.....: 210g / 280g
- Spindle lead.....: 0,4mm per rotation

Order-No.: LN Junior 16

Motorized: 200-100 100 6100

Manual : 200-100 100 6000

Order-No.: LN Junior 22

Motorized: 200-100 100 7101

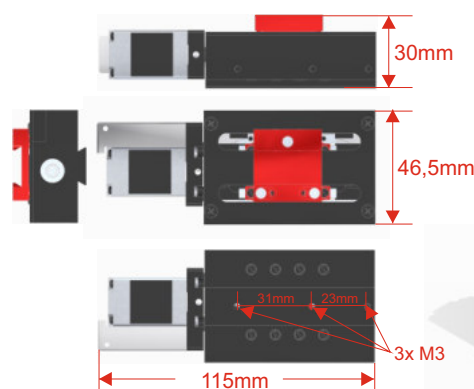
Manual : 200-100 100 7001

Technical data:

- Traverse path.....: 22mm
- Motor resolution.....: 3,9nm
- Reproducibility.....: <1 μ
- Dimensions (LxBxH).....: 118x47x30mm
- Weight.....: 240g
- Spindle lead.....: 0,4mm per rotation

LN Junior 22x

In constructing the junior 22x manipulator we came back on customer's requests for more travel. The modifications of the housing, the sledge and the guidance system have resulted to enable 22mm of travel. The manipulator axis was particularly developed for the requirements of the x-axis in junior unit. The headstage rail can therefore be mounted at two different places of the manipulator. Either from the front to achieve a lower angle or on top of the manipulator axle. If wanted it is possible to equip a complete 3- or 4-axes junior unit with junior 16 or Junior 22. The junior 22x is compatible with all LN control systems. A manual version can be refitted with a motor.



Technical data:

- Traverse path.....: 22mm
- Motor resolution.....: 3,9nm
- Reproducibility.....: <1 μ
- Dimensions (LxBxH).....: 115x46,5x30mm
- Weight.....: 305g
- Spindle lead.....: 0,4mm per rotation

Order-No.:

Motorized: 200-100 100 7100-X

Manual : 200-100 100 7000-X

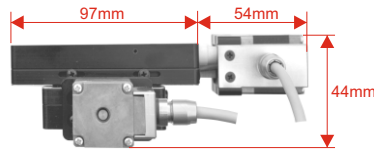


Mini 23xy / Mini23z

The Mini 23 manipulator is based on the technology of the Mini 25 manipulator. In doing so and by using larger leads it was possible to create a greater stiffness. The Mini 23 manipulator is used with all units that have a bath chamber as well as a platform for our 4-axes manipulator series. Regarding the latter the Mini 23 X and Z are additionally use to the Mini XY. The Mini Unit Compact is also made-up of the Mini 23 axes.

Mini 23xy

Motorized



Manual



Technical data:

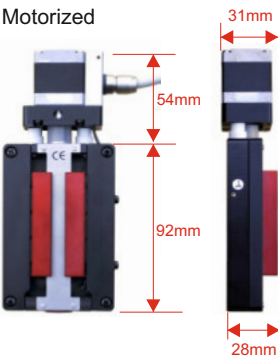
- Traverse path X / Y: 20mm, motorized
23mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility.....: <1μ
- Dimensions (LxBxH).....: 151x151x44mm
- Weight.....: 1,2kg
- Spindle lead.....: 0,5mm per rotation

Order-no.:

Manual : 200-100 100 3100
 Motorized: 200-100 100 3200

Mini 23z

Motorized



Manual



Technical data:

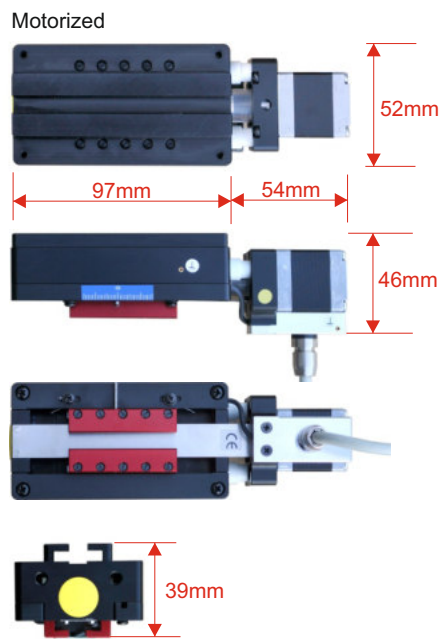
- Traverse path X / Y: 20mm, motorized
23mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility.....: <1μ
- Dimensions (LxBxH).....: 151x62x31mm
- Weight.....: 0,6kg
- Spindle lead.....: 0,5mm per rotation

Order-no.:

Manual : 200-100 100 3110
 Motorized: 200-100 100 3210

Mini 25

The Mini 25 manipulator axis forms the heart of the complete Mini unit series. The patented mechanics together with the new step motors offer outstanding mechanical qualities. A multitude of configurations can be achieved by using different adapters. Because of the new control system with its shorter ramps, the Mini 25 manipulator axis offers up to 28mm drive. In addition we offer a manual version with 30mm drive and which can be refitted with a motor.



Manual with coars and precise Handwheel



Technical data:

- Traverse path.....: 25mm, motorized
28mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility.....: <math><1\mu</math>
- Dimensions (LxBxH).....: 151x52x46mm
- Weight.....: 0,6kg
- Spindle lead.....: 0,5mm per rotation

Order-no.:

Motorized: 200-100 100 1000

Manual : 200-100 100 2000

Option for manual Mini25

Mini 25 Manual with coars and precise (5:1) Handwheel

coars : 2,6mm per rotation

precise: 0,5mm per rotation

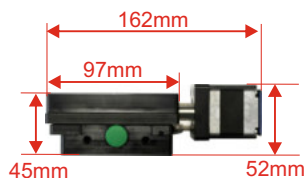
Manual with coarse/precise Handwheel:
Order-no.: 200-100 100 2001

Combi25

The Combi 25 Manipulator forms the base of the Pivot manipulators. Besides, the same draft is used like with Mini. However, with stronger Stepper Motor and stronger linear guides. The Combi is available as a cross XY, single axis and with or without dovetail guide.

Combi 25xy

Motorized



Manual



Technical data:

- Traverse path X / Y: 25mm, motorized
28mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility:.....: <1μ
- Dimensions (LxBxH).....: 162 x 162 x 52mm
- Weight.....: 1,9kg
- Spindle lead.....: 0,5mm per rotation

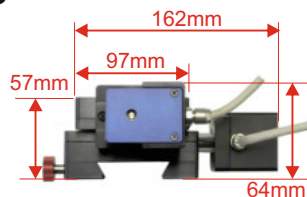
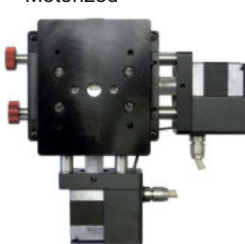
Order-no.:

Manual : 300-100 100 1000

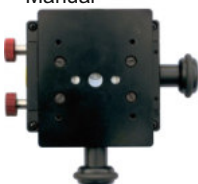
Motorized: 300-100 100 2000

Combi 25xys

Motorized



Manual



Technical data:

- Traverse path X / Y: 25mm, motorized
28mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility:.....: <1μ
- Dimensions (LxBxH).....: 162 x 162 x 64mm
- Weight.....: 2,5kg
- Spindle lead.....: 0,5mm per rotation

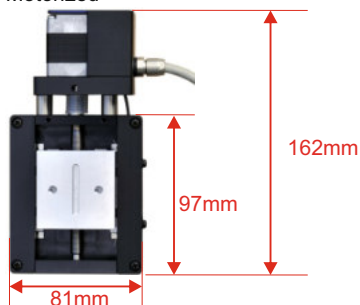
Order-no.:

Manual : 300-100 100 1100

Motorized: 300-100 100 2100

Combi 25z

Motorized



Technical data:

- Traverse path.....: 25mm, motorized
28mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility:.....: <1μ
- Dimensions (LxBxH).....: 81 x 162 x 43mm
- Weight.....: 1,0kg
- Spindle lead.....: 0,5mm per rotation

Order-no.:

Manual : 200-100 100 1200

Motorized: 200-100 100 2200

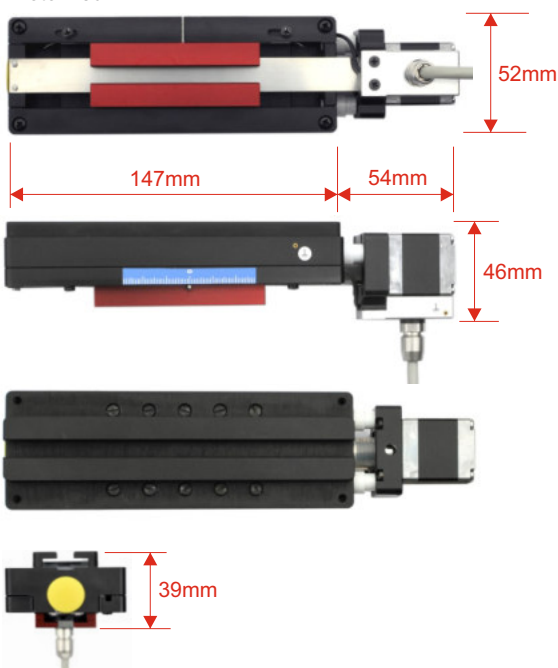


Mini 55T

The Mini 55T as a single axis with the design of the Mini 25. The patented mechanics together with the new step motors offer outstanding mechanical qualities. A multitude of configurations can be achieved by using different adapters. Because of the new control system with its shorter ramps, the Mini 25 manipulator axis offers up to 55mm drive. In addition we offer a manual version with 58mm drive and which can be refitted with a motor.

Mini 55T

Motorized



Technical data:

- Traverse path.....: 55mm, motorized
58mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility.....: <1μ
- Dimensions (LxBxH).....: 201x52x46mm
- Weight.....: 0,8kg
- Spindle lead.....: 0,5mm per rotation

Order-no.:

manual : 200-100 100 5100
 motorized: 200-100 100 5200



Manipulator-Single axis

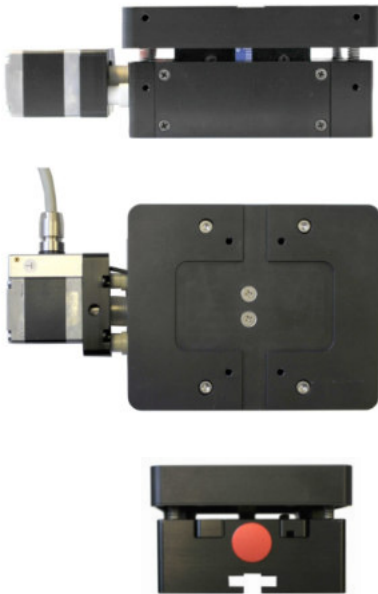
Mini Z^{Vario}

The Mini Z^{Vario} is a very compact and stable Z-axis with a variable range. The modular construction enables to provide a choice of 8, 6 or 2mm travel with the corresponding resolution.

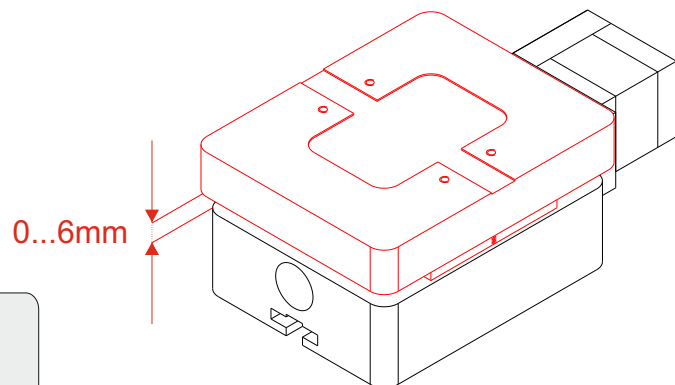
The Mini Z^{Vario} fits perfectly well to all applications, where high reproducibility and resolution is essential.

Technical data:

Motorized



- Traverse path : 6mm / 25nm resolution (Standard)
: 8mm / 35nm resolution (Option)
: 2mm / 10nm resolution (Option)
- Motor resolution : 4,8nm
- Reproducebility : < 0,25µm
- Dimensions (LxBxH) : 103x82x56mm
- Weight : 1kg
- Spindle lead : 0,5mm per rotation



Order-no.:

motorized: 200-100 100 5500
manual: 200-100 100 5400

Basic 25



Technical data:

- Traverse path.....: 23mm, motorized
25mm, manual
- Motor resolution.....: 4,8nm
- Reproducibility.....: <2 μ m
- Dimensions (LxBxH).....: 116x45x23mm
- Weight.....: 0,3kg
- Spindle lead.....: 0,4mm per rotation

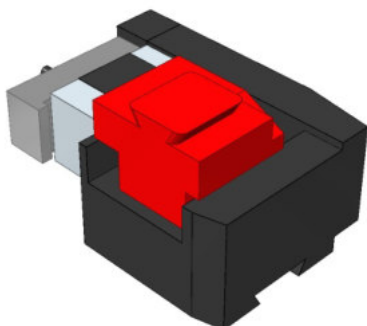
Order-no.:

Motorized: 200-100 100 8200

Manual : 200-100 100 8100

Multipatch Y-axis

We designed an ultra-stable, narrow and compact Y- axis which allows to position, with our new LNscope, up to 16 Manipulators around the chamber. The lateral range fits to the needs of performing multiple recordings and offers the same specifications in terms of stability, resolution and backlash as our standard Junior units.



Technical data:

- Traverse path.....: 8mm, motorized
- Motor resolution.....: 4,8nm
- Reproducibility.....: <1 μ m
- Dimensions (LxBxH).....: 75x50x35mm
- Weight.....: ___kg
- Spindle lead.....: 0,4mm per rotation

Multipatch Y-Axis, motorized

Order-no.:

Left side : 200-100 100 8000-LE

Right side: 200-100 100 8000-RE



Manipulator-Single axis

Motor upgrade kit for 1 axis

You are able to upgrade the manual manipulator axis as a motive one by a few steps. The length of the motor cable is 2.5m; incl. all needed adaptors and endswitch module.

Upgrade kit for manipulator 1 axis:
(motor unit with limit switch module)

	<u>Order-No. :</u>
LN Junior 16	200-100 100 6300
LN Junior 22	200-100 100 7300
LN Junior 25x	200-100 100 8300
Mini 23	200-100 100 3300
Mini 25	200-100 100 3000
Mini 55	200-100 100 5300
Combi 25	300-100 100 3000



Adapter

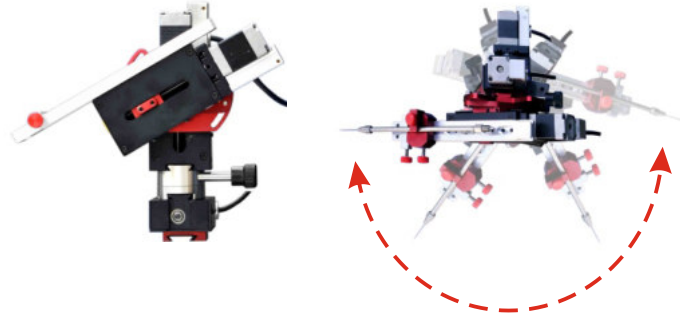
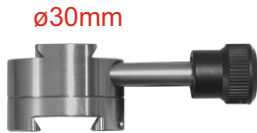
- Junior Adapter
 - * Turn adapter
 - * InVivo turn adapter
 - * Junior backfold adapter
 - * Junior Butterfly Standard adapter
 - * Junior Butterfly InVivo adapter
 - * Angle adjustment adapter
 - * Dovetail adapter, outside
 - * Dovetail adapter, inside
 - * Column adapter
 - * Base plate
 - * Guide rail / Headstageholder
 - * Tension block
 - * Fast exchange rail



Turn and Backfold adapter - Junior

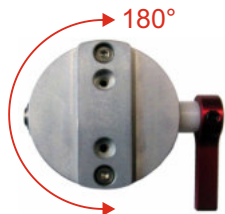
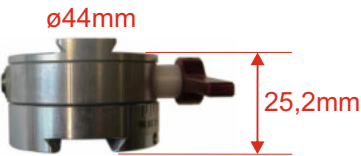
Junior turn adapter

The turn adapter enables the ZX-axis to swivel out horizontally and in doing so permits comfortable access to the electrodes. The adapter offers a position stop on the working position, so that after changing the electrode the same original position is reached. We recommend this adapter when using up to 3 manipulator



Order-No.: 200-100 500 0055-01

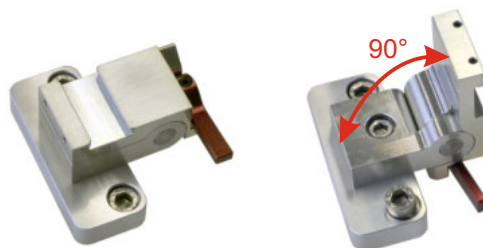
InVivo turn adapter



Order-No.: 200-100 500 0055-02

Junior backfold adapter

The backfold adapter-2 enables to fold back the complete junior unit, in order to have access to the electrode. This version of the adapter makes it possible to mount the junior unit onto a microscope table or any other platform. We recommend this adapter when using more than three junior units on a Newport table, LN shifting stage, Gibraltar or similar platform.



Order-No.: 200-100 500 0057

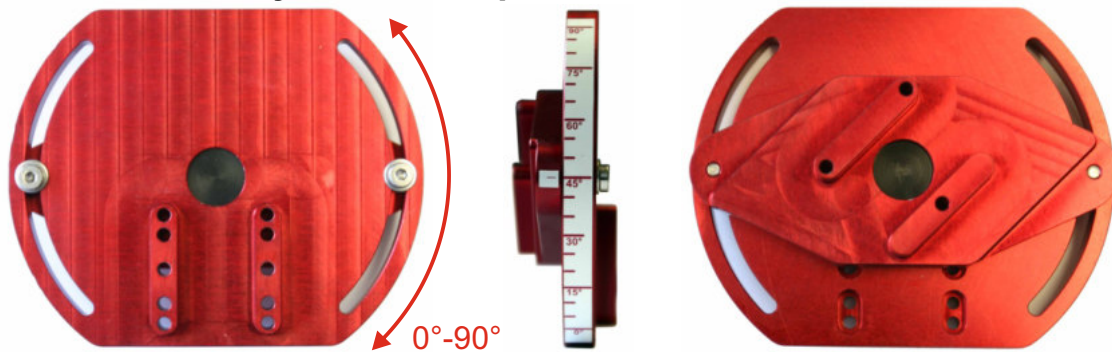
Junior Butterfly-Standard Adapter

The butterfly adapter enables a stepless patch angle. The adapter is installed between the junior Units Z- and X axes. The design prevents drift and vibrations by means of generously dimensioned plates made from strong aluminium.



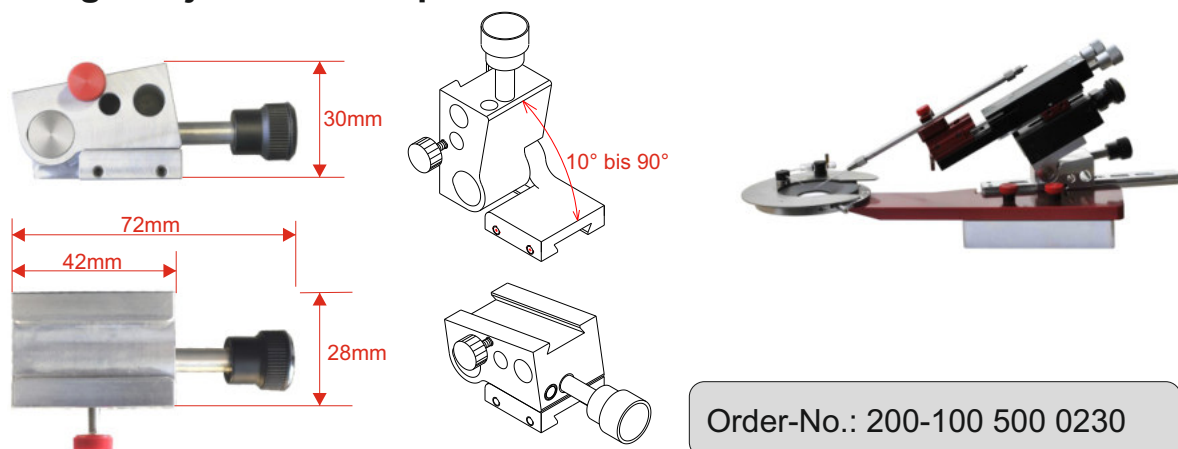
Order-No.: 200-100 500 0080-01

Junior Butterfly-InVivo Adapter



Order-No.: 200-100 500 0081

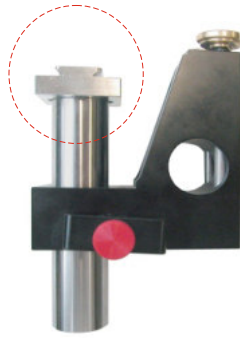
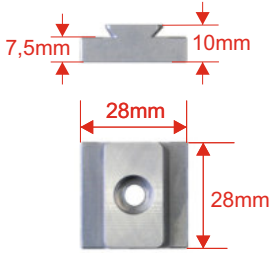
Angle adjustment adapter



Order-No.: 200-100 500 0230

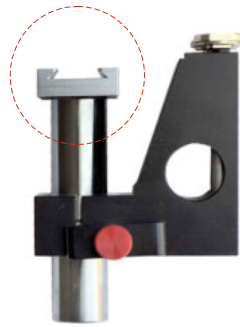
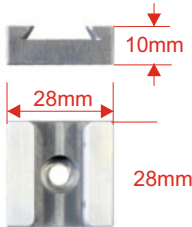


Dovetail adapter -outside



Order-No.: 200-100 500 0062

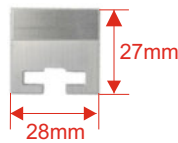
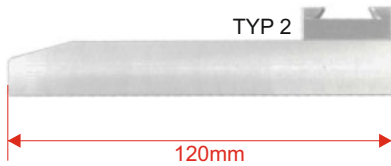
Dovetail adapter -inside



Order-No.: 200-100 500 0063

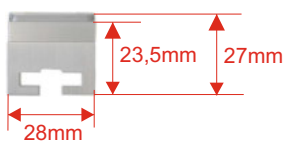
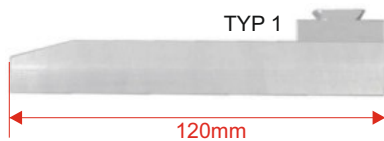
Junior column adapter

The junior adapter for the Column 40 is needed in the case that a junior manipulator block is to be mounted onto a Column 40 . The adapter offers a T-groove that helps to roughly position the manipulator block.



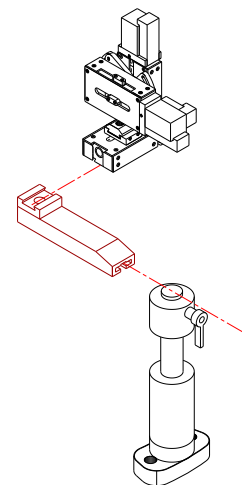
Junior column adapter with dovetail inside

Order-No.: 200-100 500 0070-02



Junior column adapter with dovetail outside

Order-No.: 200-100 500 0070-01



LN-Junior 3-axes baseplate

Adapter baseplate to fix Junior 3-axes Manipulator onto Breadboard, LN shifting stage, Gibraltar or similar platform.



Order-No.: 200-100 500 0050-01

LN-Junior 4-axes baseplate

Adapter baseplate to fix Junior 4-axes Manipulator onto Breadboard, LN shifting stage, Gibraltar or similar platform.



Order-No.: 200-100 500 0050-02

LN-Junior 3-axes baseplate for microscope table stage MT300xy

Adapter baseplate to fix Junior 3-axes Manipulator onto microscope table stage MT300xy



Order-No.: 200-100 500 0051



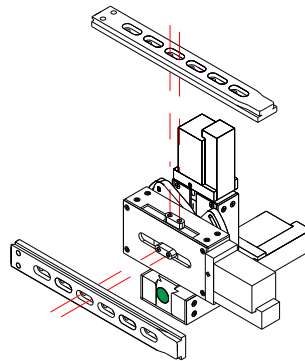
LN Junior guide rail

The Junior guide rail can accommodate a headstage holder or a tension block for a stimulation electrode. A variable position stop enables an exact repositioning after changing electrodes. Important: The sledge with the installed headstage can simply be traversed over the end of the guide-rail.

Junior guide rail with dovetail guide and endstop

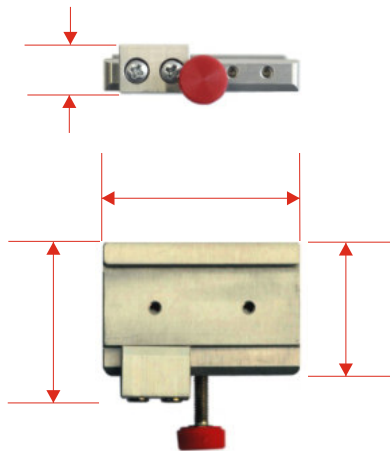


Order-No.: 200-100 500 0090

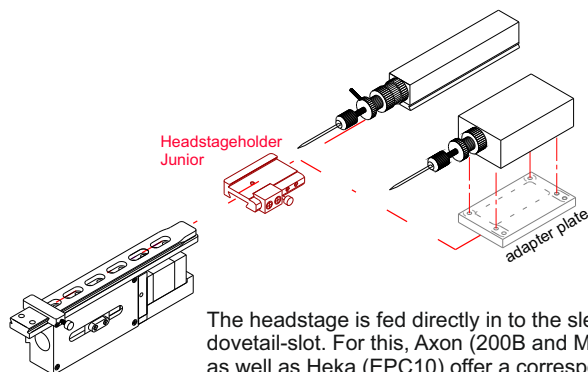


Headstageholder, Junior

Headstage holder for all most common Headstages. Includes adapterplate for headstages without dovetail, and ground-plug.



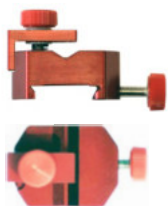
Order-No.: 200-100 500 0250



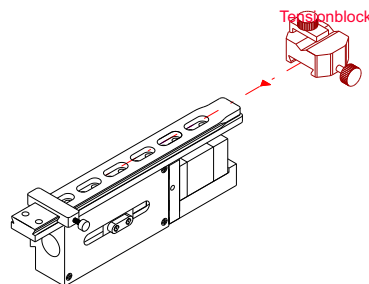
The headstage is fed directly in to the sledges dovetail-slot. For this, Axon (200B and Multiclamp) as well as Heka (EPC10) offer a corresponding receiver. An universal adapter-plate is available for all other headstages.

Tensionblock, Junior

For clamping pillars and tubes from 4 up to ϕ 8mm. To be mounted onto Junior guide rail

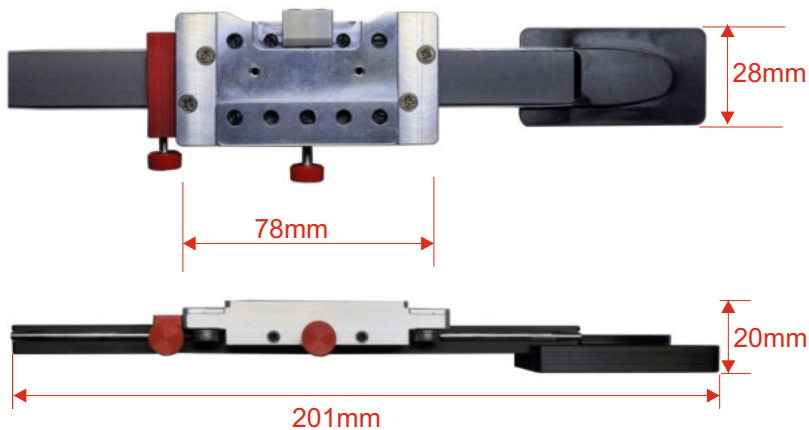


Order-No.: 200-100 500 0211

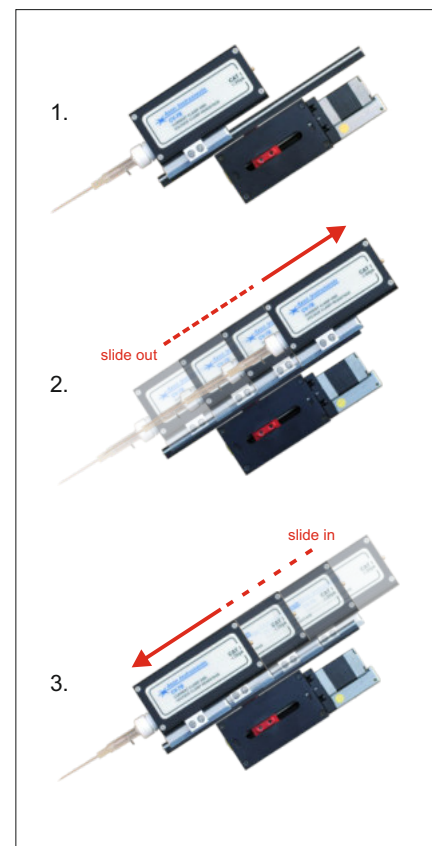
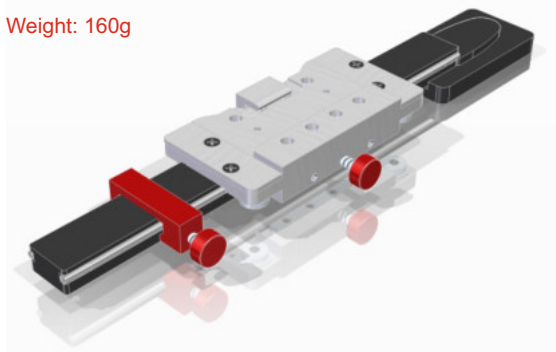


Fast exchange rail

The fast exchange rail is our answer to rising requirements concerning stability and handling. It allows to replace the electrode without any turn or backfold adapters, therefore reducing space requirements and improving usability. Vibrations that can be caused by turn/backfold adapters can be avoided and a judder free removal of the electrode from the workspace is possible. As an additional option it is possible to use our LN-tension block in order to fix material with a diameter from 4 up to 8mm.



Weight: 160g



Fast exchange rail

Order-No.:

for junior 200-100 500 0091-J



Note



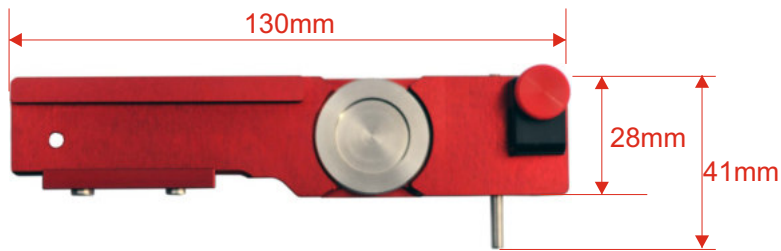
Adapter - Mini

- Guide rail / Headstageholder
- Tension block, mini
- Fast exchange rail
- Turn adapter, mini
- Turn adapter, column
- Backfold adapter, mini
- Angle clamp
- Single clamp
- T-plate XY
- Adjustment unit
- Angle piece XYZ
- Mini clamp adapter
- Angle plate ZX
- Bottom plate YZ
- Adapter plate mini 23 with one T-groove
- Adapter plate mini 23 with two T-grooves
- Adapter plate mini 23 with three T-grooves
- Base plate Mini 23/25

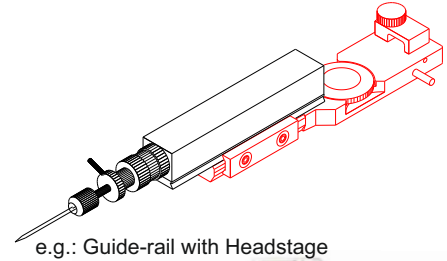


Guide-rail / Headstageholder, mini

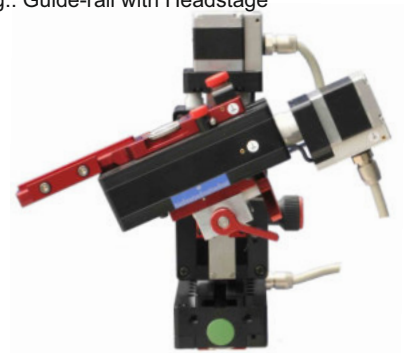
New Guide- Rail with integrated Headstageholder for all Headstages with Dovetail. With mounting supports for the Mini Units, includes stop- pin, ground- plug and incl. Adapterplate for Headstages without Dovetail.



Order-No.: 100-350 200 0400



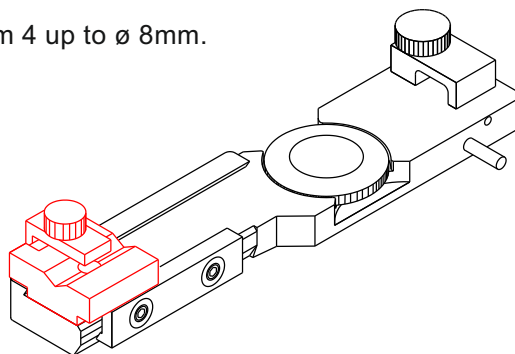
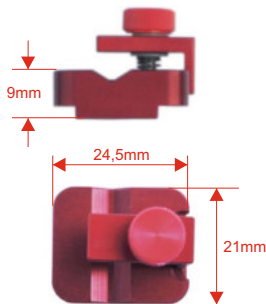
e.g.: Guide-rail with Headstage



e.g.: Guide-rail with Mini Unit

Tension block, Mini

For clamping pillars and tubes from 4 up to \varnothing 8mm.

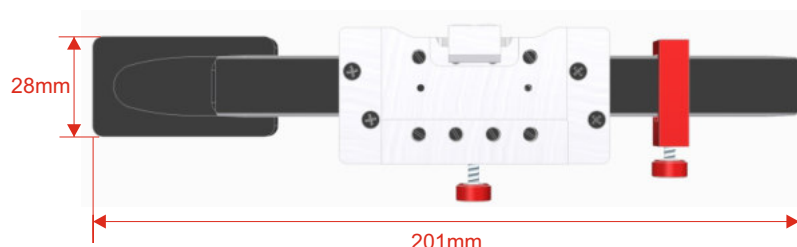


e.g.: Guide-rail with Tension block

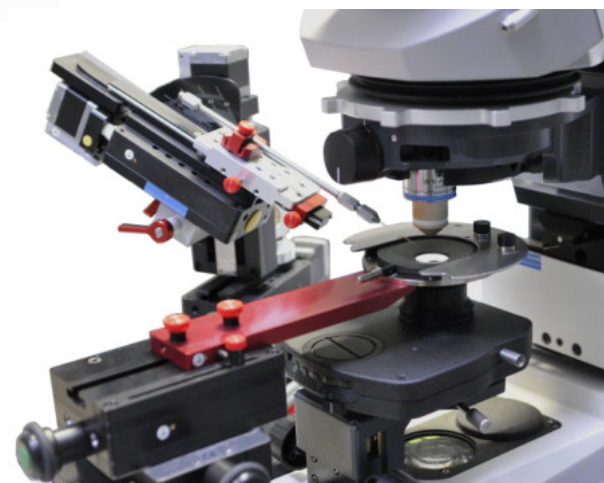
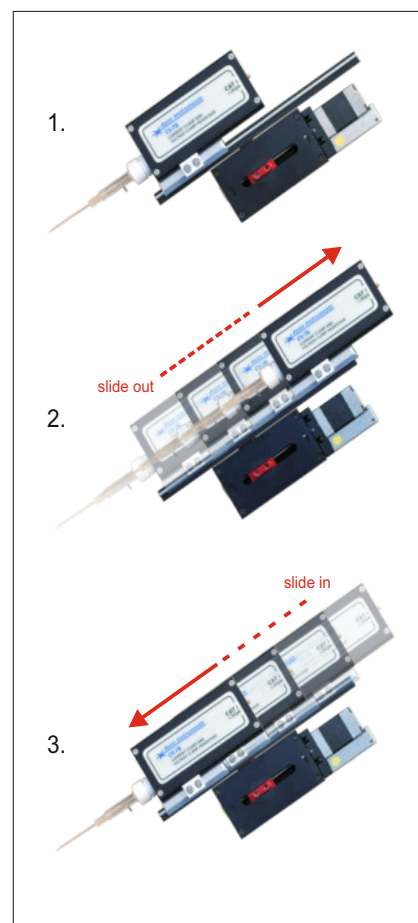
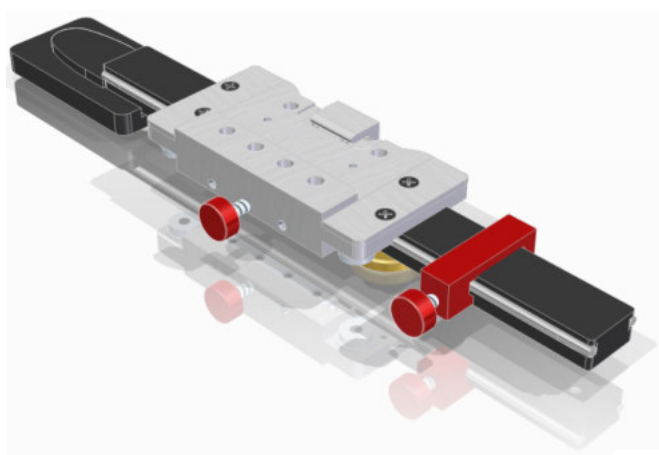
Order-No.: 200-100 500 0210

Fast exchange rail

The fast exchange rail is our answer to rising requirements concerning stability and handling. It allows to replace the electrode without any turn or backfold adapters, therefore reducing space requirements and improving usability. Vibrations that can be caused by turn/backfold adapters can be avoided and a judder free removal of the electrode from the workspace is possible. As an additional option it is possible to use our LN-tensionblock in order to fix material with a diameter from 4 up to 8mm.



Weight: 160g



Fast exchange rail

Order-no.

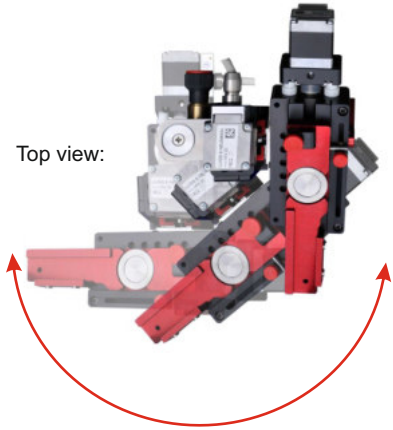
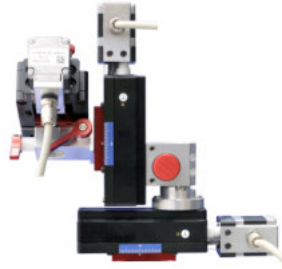
- Mini : 200-100 500 0091-M



Turn adapter, mini

with a secure stop 180°

e.g.: UNIT MRE



Top view:

ca. 180° horizontal

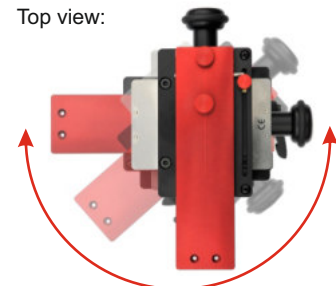
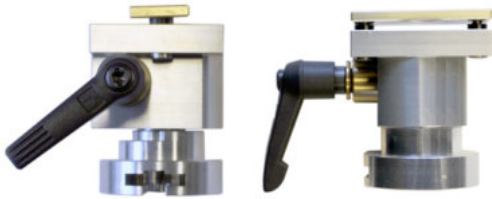
Order-No.: 200-100 400 0400

The Turn adapter mini 1 allows to turn out the Z and X axis of the unit

Turn adapter, round column

with a secure stop 180° and T-slot

e.g.:B2MS



Top view:

ca. 180° horizontal

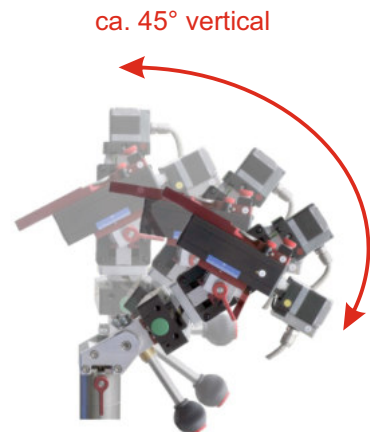
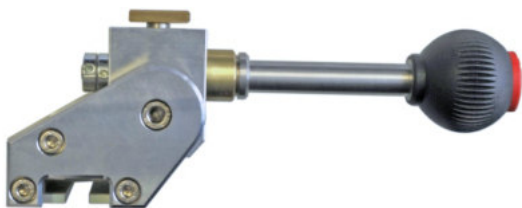
Order-No.: 200-100 400 0401

The Turn adapter mini 2 allows to turn out the complete Bathchamber Unit

Backfold adapter mini

e.g.: UNIT MLE

Side view:



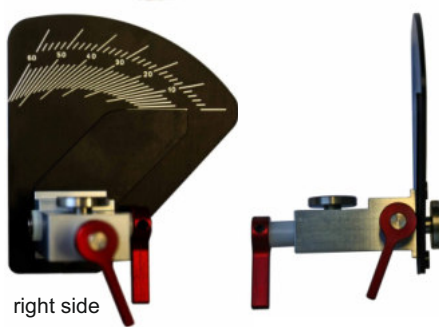
ca. 45° vertical

Order-No.: 200-100 400 0410

The Backfold adapter mini allows to fold back the manipulator unit.

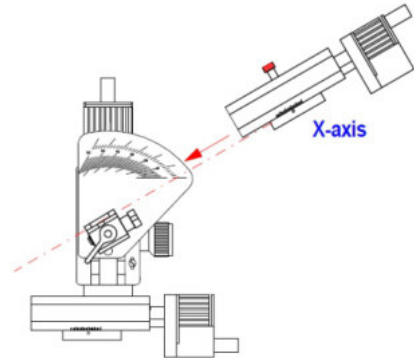
Angle clamp

Eccentric adapter between the Z- and X-axes for setting the angle (0°-60°) of operation



right side

e.g.: Unit MRE with Angle clamp



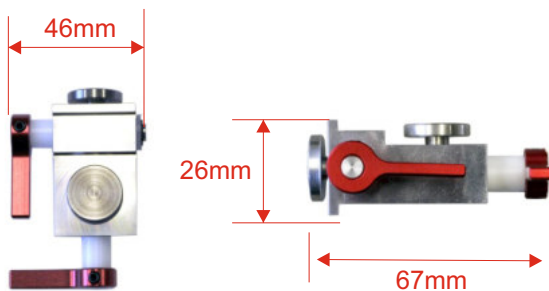
Order-No.:

Left side : 200-100 400 0201-L

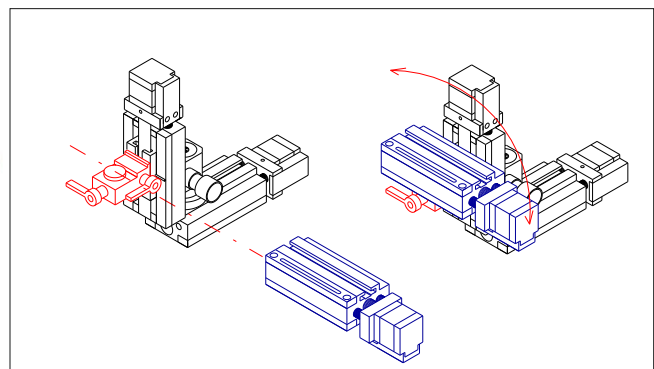
Right side : 200-100 400 0201-R

Angle clamp with out scale

Eccentric adapter between the Z- and X-axes for setting the angle of operation



e.g.: Unit MRE with Angle clamp



Order-No.:

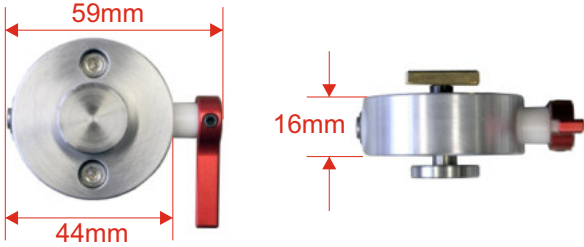
Left side : 200-100 400 0200-L

Right side : 200-100 400 0200-R



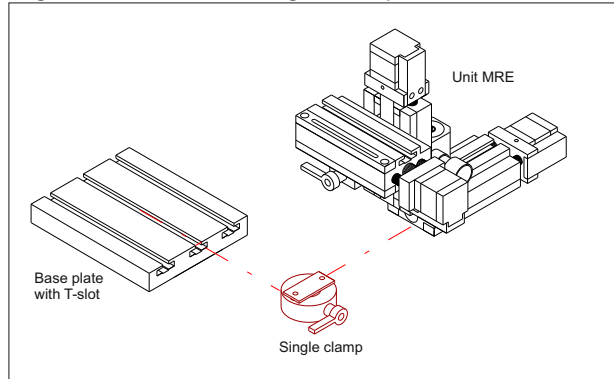
Single clamp

Eccentric adapter between a Mini Unit and a T-slot



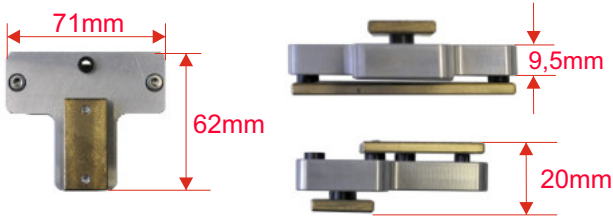
Order-No.: 200-100 400 0300

e.g.: Unit MRE with Single clamp



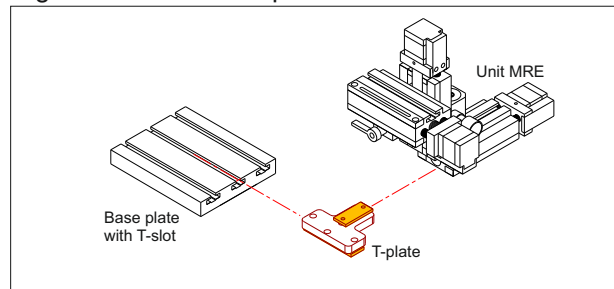
T-plate

For the integration of two Mini Manipulators within a secure XY co-ordinate system or for between a Mini manipulator and a T-Slot plate.

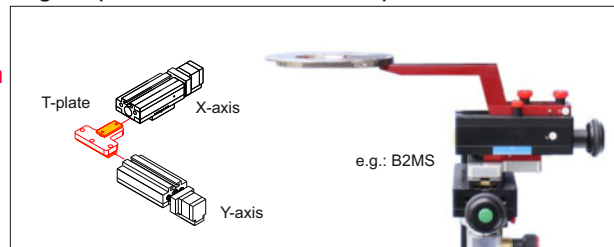


Order-No.: 200-100 300 0110

e.g.: Unit MRE with T-plate

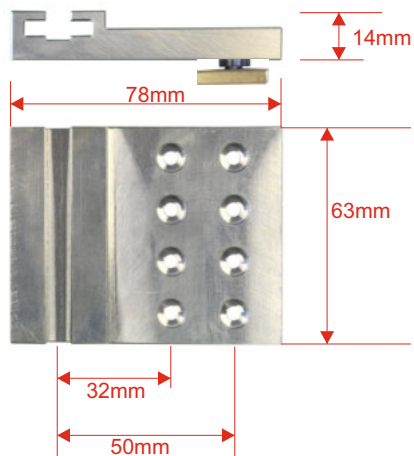


e.g.: T-plate with two Mini manipulator

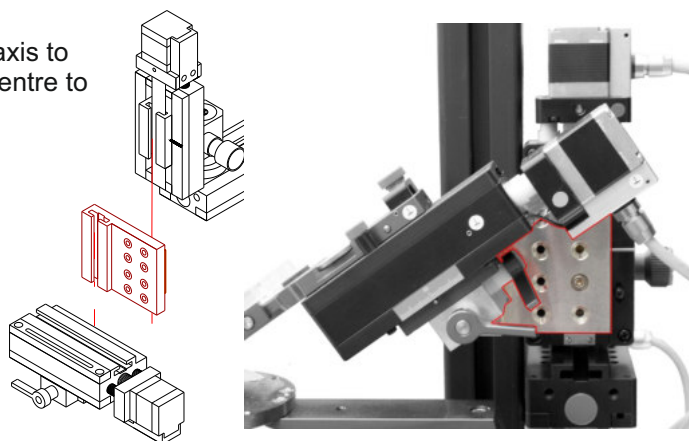


Adjustment Unit

A adjustment unit inserted between the Z/X-axis to increase or decrease the distance to optical centre to get the best stability.

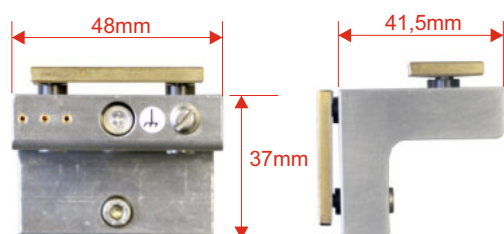


Order-No.: 200-100 300 0190

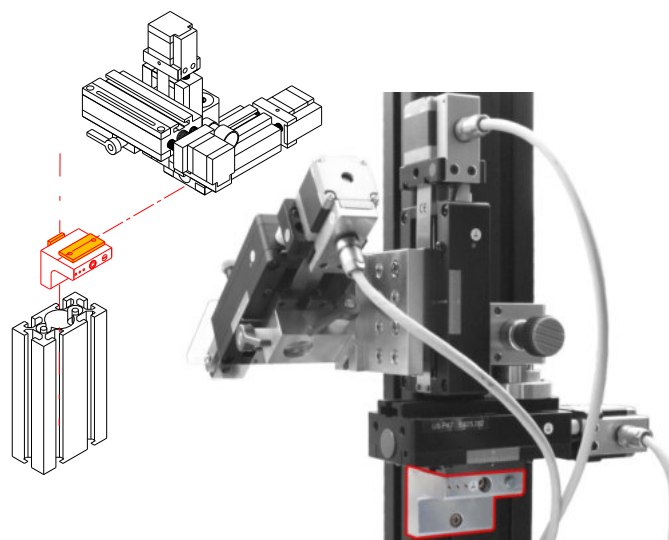


Angle piece XYZ

For securing the LN-Mini Unit to the column 40x80



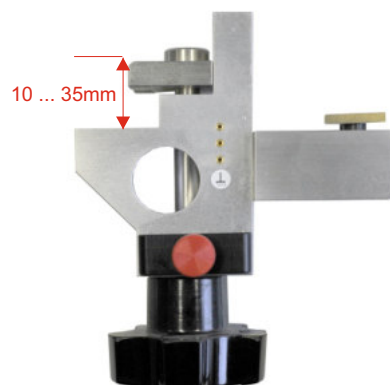
Order-No.: 200-100 300 0210



Mini clamp adapter

For mounting one LN-Mini Unit onto the original microscope table (fix stage)

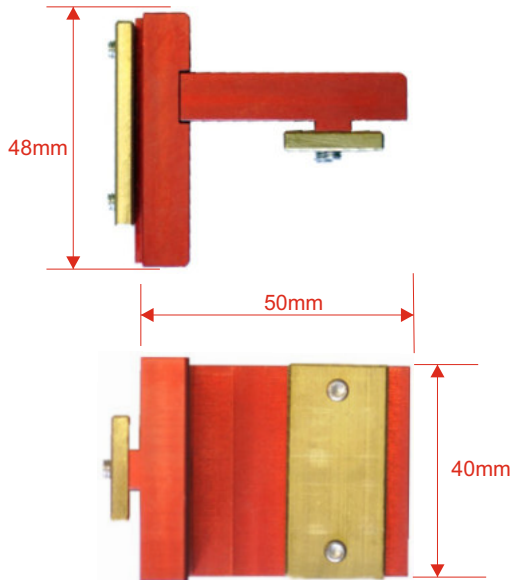
Order-No.: 200-100 300 0180



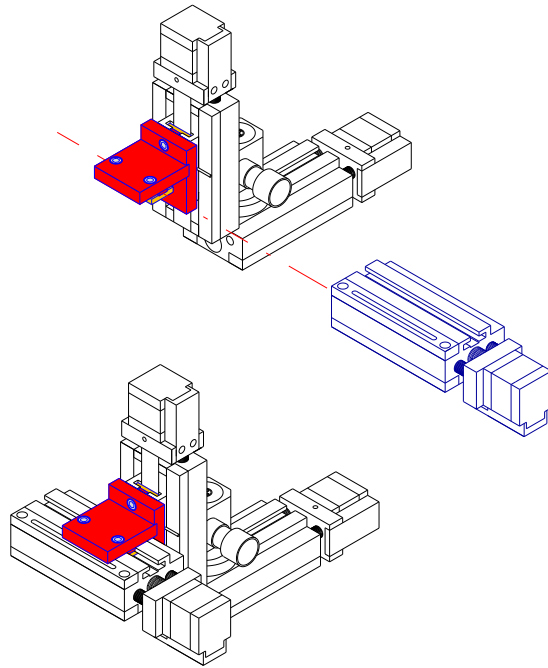


Angleplate ZX

Integration of two manipulators within a secure ZX co-ordinate system

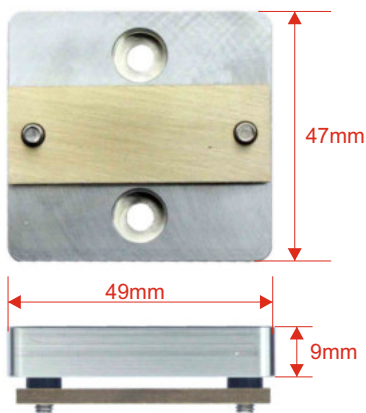


Order-No.: 200-100 300 0095

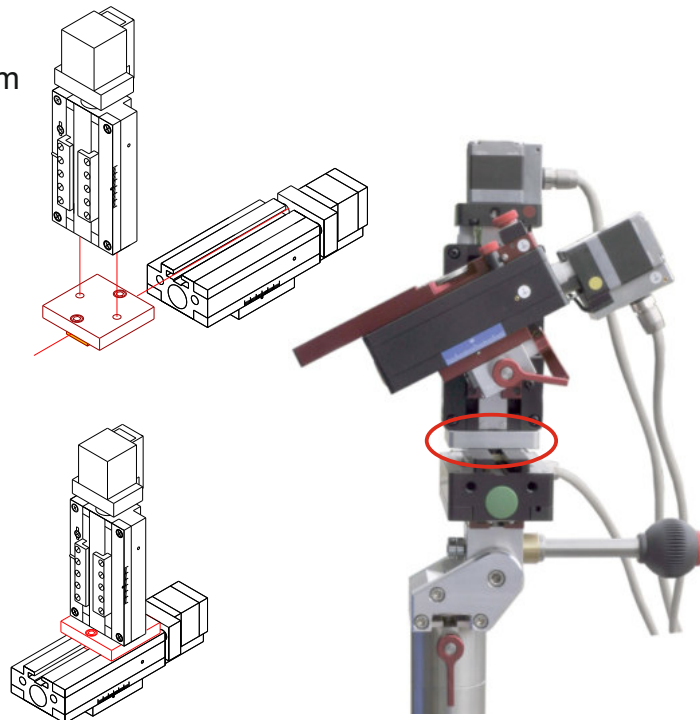


Bottom-plate YZ

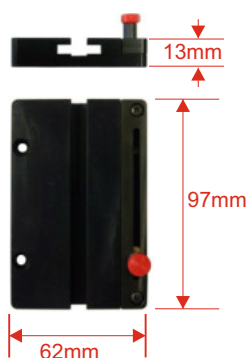
Integration of two manipulators within a secure YZ co-ordinate system



Order-No.: 200-100 300 0100

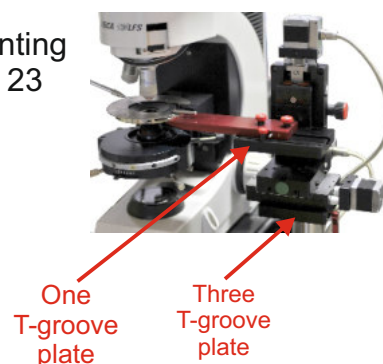


One T-groove-plate Mini 23

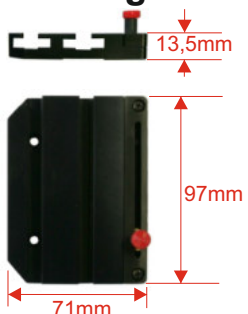


Baseplate with one T-groove for the mounting of the Mini-Chamber series on to the Mini 23

Order-No.: 200-100 100 3410



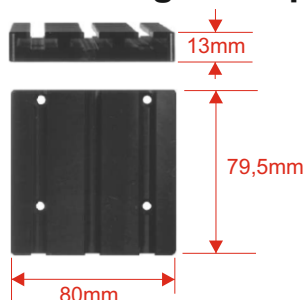
Two T-groove-plate Mini 23



Baseplate with two T-groove for the mounting of various adapters on the Mini 23

Order-No.: 200-100 100 3420

Three T-groove-plate Mini 23



Baseplate with three T-groove for the mounting of various adapters on the Mini 23
Horizontal or vertical mounting is possible

Order-No.: 200-100 100 3400

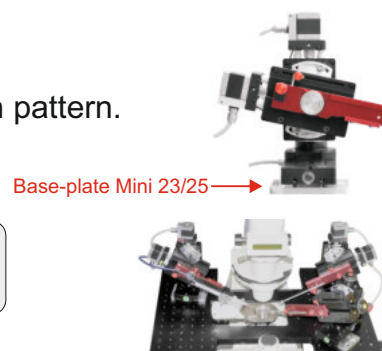


Base-plate Mini 23/25

Base-plate Mini 23/25 to fix Mini Unit onto a 25 mm pitch pattern.



Order-No.: 300-100 100 3430





Note

Focus axis

The motorized Focus Axis is a sensible addition to every set-up. The Focus Axis is coupled securely to the fine/coarse adjustment of the microscope so as to achieve the highest level of accuracy and reproducibility.

Technical data:

- Accuracy : under 1 μm (up to 50 nm, depending on the type of microscope)
- Reproducibility : under 1 μm (up to 100 nm, depending on the type of microscope)
- max. travel : 25 mm motorized (depending on the type of microscope)
- infinitely variable end-switches mechanical (microswitch)

Olympus BX51WI



Olympus IX51/71



Zeiss FS



Zeiss 2FS



Zeiss Examiner



Currently compatible with:

Order-No.:

- Zeiss	Axioskop FS	250-100 000 0010
	Axiotech Vario1	250-100 000 0020
	Axiotech Vario2	250-100 000 0030
	Axiovert 200	250-100 000 0031
	Axio Vert A1	250-100 000 0032
	Axioskop 2FS	250-100 000 0050
	Examiner	250-100 000 0051
- Olympus	BX 50 WI	250-100 000 0040
	BX 51WI	250-100 000 0041
	IX 51/71	250-100 000 0042
- Nikon	E600FN	250-100 000 0060
	FN1	250-100 000 0061
- Leica	DMLFS	250-100 000 0070

For other mikroskopes on request !



Note

Optic

LN scope



Dot-Gradient-Contrast (DGC)



Fourfold-changer



Modification of condenser carrier



Rectangular aperture



Rectangular aperture





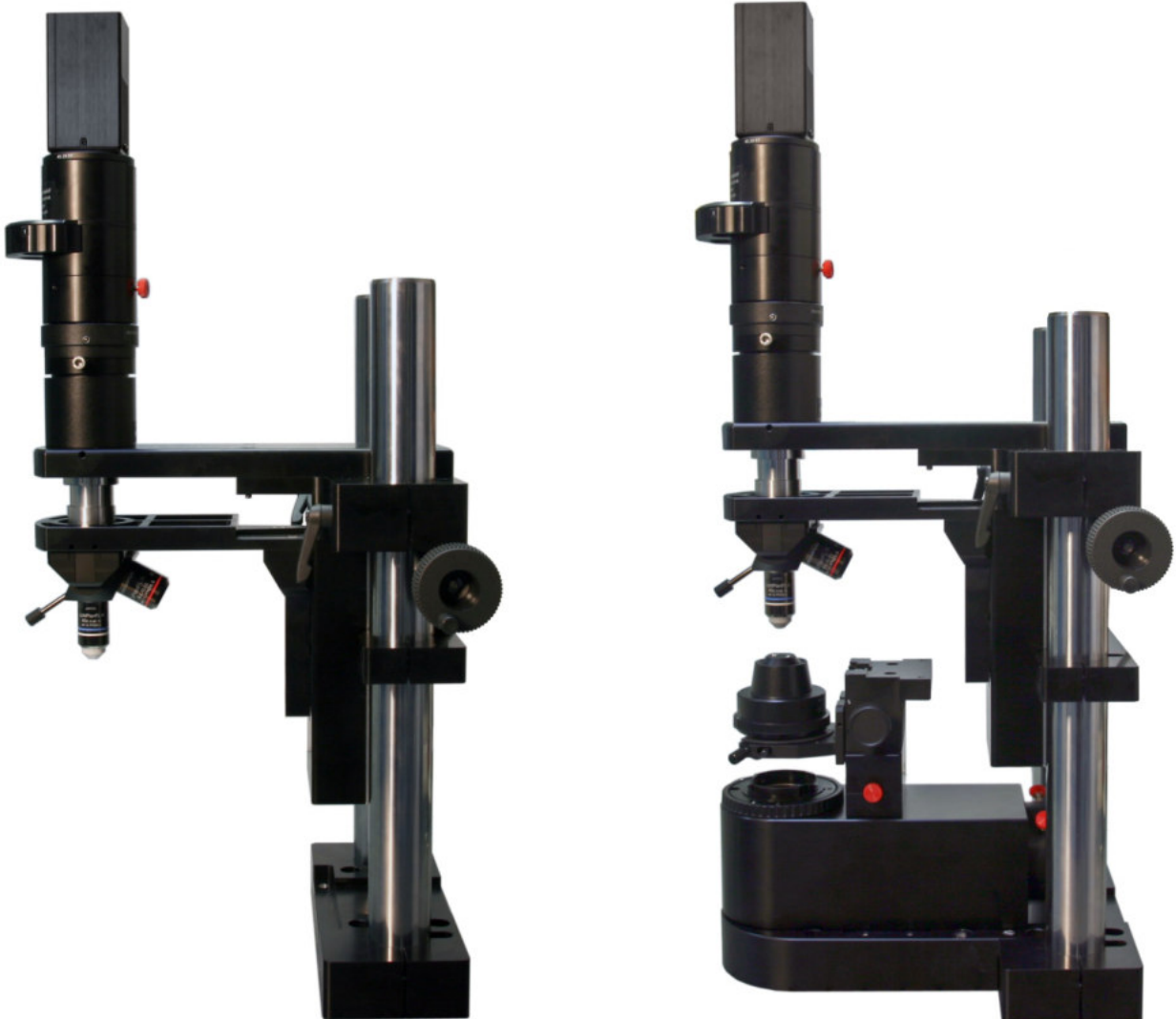
Optic

LNscope

Special features for the LNscopes

The LN-microscopes contains of the following features:

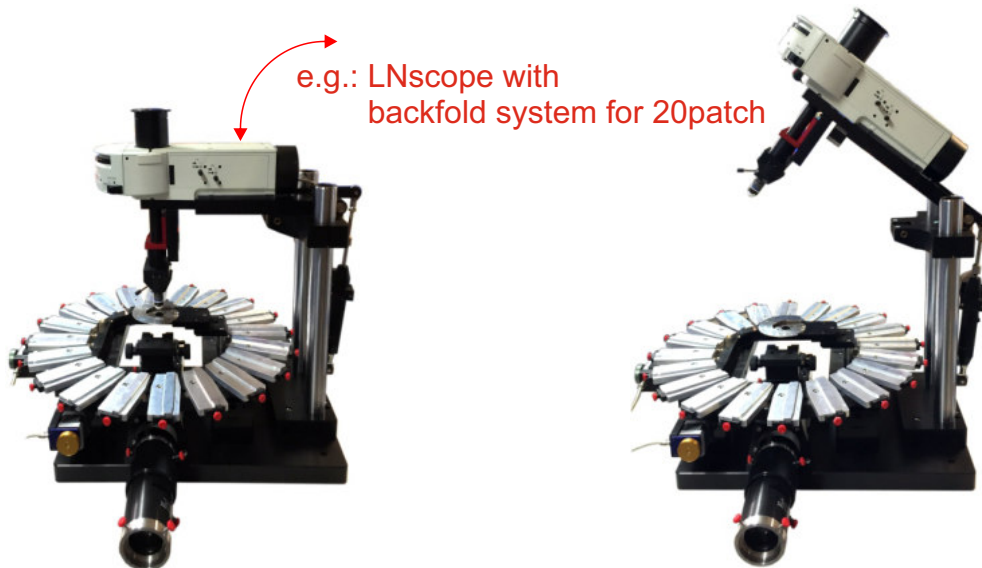
- Super optical imaging properties by using original microscope components
- Upgrade and retrofit of accessories from Olympus for the upright microscope BX51WI
- Suitable for microscopy tasks like bright field, imaging, laser scanning e.g. two-photon system
- motorized focus
- motorized positioning of the condenser (optional)
- flexible design of modular microscope body allows:
 - stepless height adjustment of objective and reflected light illuminator by a manual Z drive allows working with different heights of probes and platforms
 - fast exchange device for condenser and condenser carrier for the use of in vivo and in vitro platforms
 - Easy removal of the transmission light device for even more space while InVivo system like reality jet ball system or treadmill are used
- Sturdy construction with stainless steel guide columns, results in an outstanding stability, thermal drift and vibration free behaviour.
- Slim design for the use of up to 16 manipulator units
- Ground connection for electrophysiological measurements
- Z-Drive compatible with LN controls



Advantages over competitors

- the modular design of the microscope covers all task fields for which different microscope types are needed in the past
 - In vitro (slice and hole cell measurements)
 - In vivo (imaging and measurements of anesthetized animals on platforms or stereotaxic frame)
 - In vivo (imaging and measurements of awake animals on stereotaxic frame, virtual reality jet ball systems, treadmills or mobile home cage system)
- compatible with controls of LN manipulators. The customer can use one control for Microscope and Manipulator
- stepless height adjustment of objective and reflected light illuminator by a manual Z drive for maximum flexibility in height
- ground connection for electrophysiological measurements
- customized designs are easy to implement and available on request due to the modular design

**This assembly just shows one example of many different possibilities.
For more information please contact us.**





Dodt-Gradient-Contrast System (DGC)

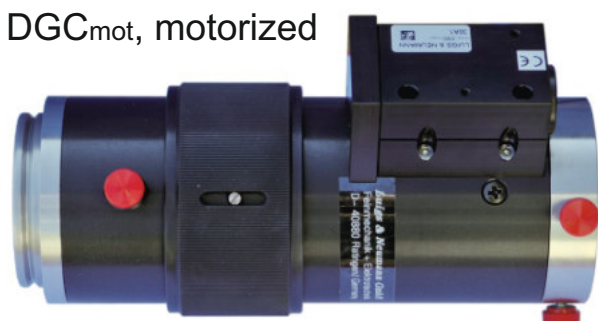
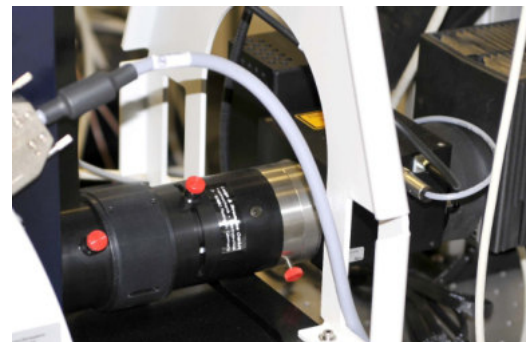
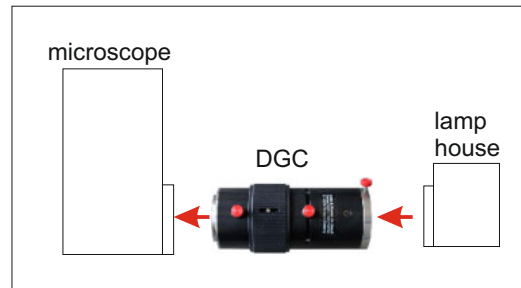
This contrast system was developed in response to increasing demands in microscopy by Prof. Dr. H.U. Dodt. It enables to visualize the structures in sliced tissue. Specific adjusting of the contrast enables various structures (horizontal or vertical) to be highlighted. The Contrast is mounted between the microscope stand and the lamp housing. Since absolutely no contrast procedure is provided by any manufacturer, an independent and for all microscopes adaptable system has been developed. In the same way it is also for the first time possible to obtain fluorescence and infra-red pictures simultaneously without any great effort.



DGC, manual
Order-No. : 200-100 200 0155

Technical data:

- Contrast method as from Prof. Dr. H.U. Dodt
- Developed for infrared microscopy
- Available for all upright / inverse microscopy
- Adjustments can also be set motorized
- Independent to constitution and structure of the base of the chamber (thickness / material)



DGC,motorized
Order-No.: 200-100 200 0157

Control and Keypad DGC_{mot}



Control and Keypad DGC_{mot}
Order-No.: 200-100 200 0158

+

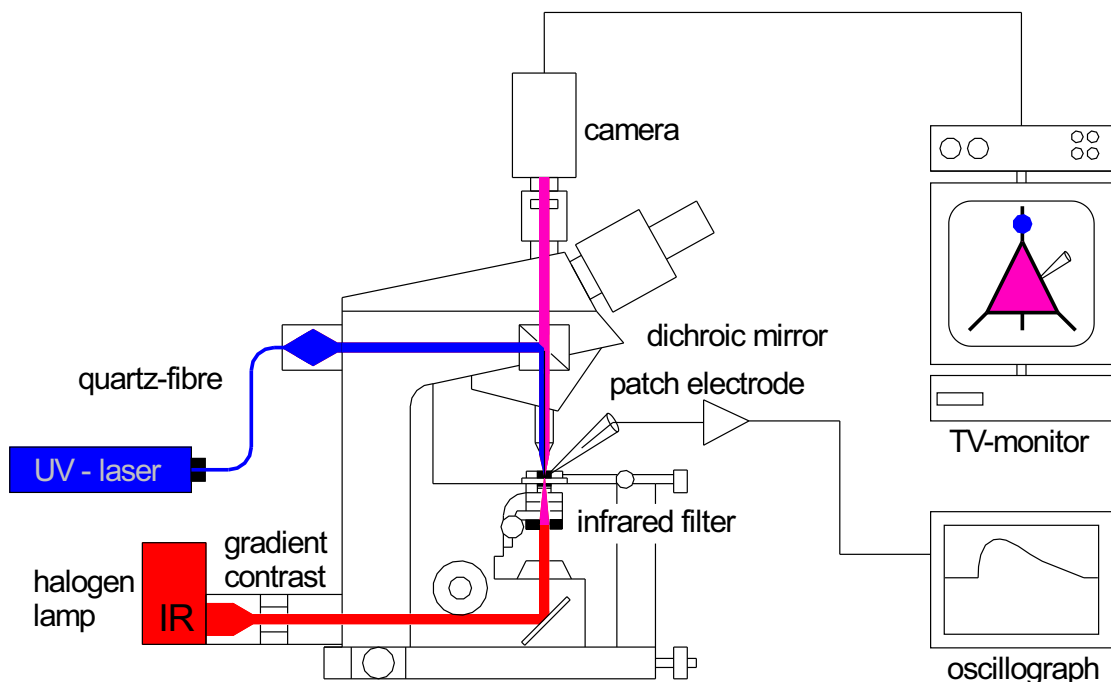
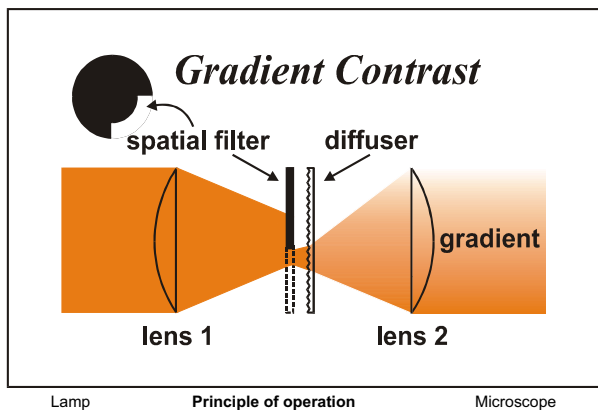
Dot-Gradient-Contrast System (DGC)

How it works

Unstained neurons in brain slices are phase objects. To render them visible, their phase gradients have to be converted into amplitude gradients by the optics, which also have to provide optical sectioning.

In the gradient-contrast system the aperture plane of the condenser is re-imaged with a lens system between the rear of the microscope body and the lamp house to make it accessible for spatial filtering. A light stop in the form of a quarter annulus is positioned in the illumination beam path.

At a small distance after the annulus, a diffuser is placed, generating a "gradient" of illumination across the condenser aperture plane (see schematic drawing). No spatial frequencies in the illuminating light are completely filtered out so that the image remains similar to the object. In addition, the curved form of the slit gives a gradient of illumination in two perpendicular directions in the image, left to right and up to down. This can be very helpful for visualization of dendritic branches running in different directions in the image. As the light-stop blocks much of the illuminating light, only a part of the normal, illuminating light cone is used and therefore less stray light is generated in the slice. This is the same principle as used in slit-lamps in ophthalmology. The contrast generated this way is so high, that gradient contrast alone allows visualization of neurons in thick slices with visible light even by the naked eye. Gradient contrast gives images of neurons similar to images obtained with differential interference contrast (DIC) but with superior contrast and light intensity. The gradient contrast illumination generates less stray light, so a 1.4 N.A. oil immersion condenser can be used to obtain superior resolution.





Fourfold-Changer

The Fourfold-changer offers an alternative to the existing optical adjustable magnification options of the microscope manufacturers. An individual magnification of 4x, 2x und 1x can be selected by manually turning the dial. This enables to make magnification adjustments on a large scale without having to move the objective out of the chamber. It is easily possible to change from the (1x) overview to the optically more detailed magnification (4x). This is equivalent to a magnification of 400 to 1600 with a 40x objective (using a 1-inch video-camera). The changer is only for use with video-systems.

Fourfold-changer



Technical data:

- Built-in 2x / 4x optics
- Adapter for various inserts (max. \varnothing 18mm)
- includes C-Mount Adapter (1" or 0,5")
- easily adaptable for different microscopes



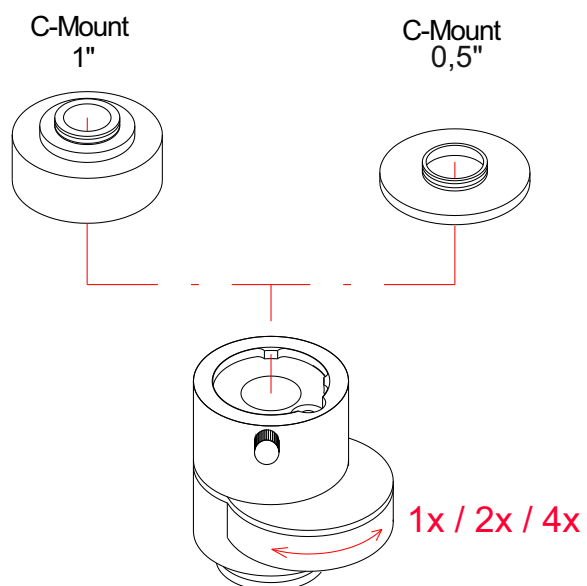
Fourfold-changer (1x, 2x and 4x optic)

with 1" C-mount

Order-No. : 200-100 200 0159-1

with 0,5" C-mount

Order-No. : 200-100 200 0159-5



Modification of condenser carrier

In the application of InVivo and in vitro on the same set-up, the condenser must be removed easily. With the modified condenser carrier the fast change of the condenser is done without tools.

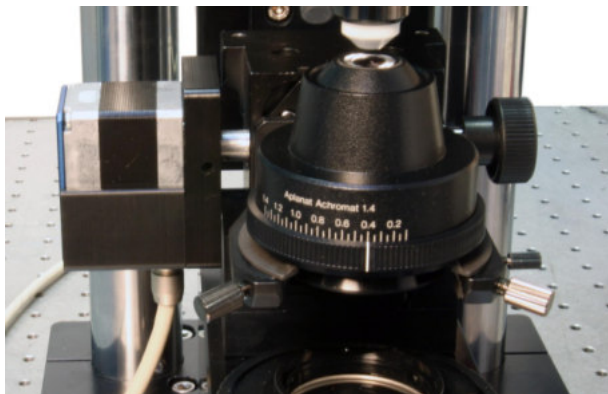


Modification of condenser carrier

without adapter for focus axis:
Order-No.: 200-100 200 0180

with adapter for focus axis Olympus BX51WI
Order-No. : 200-100 200 0181

Motorized condenser carrier for the microscope LNscope



Motorized condenser carrier for BX51WI

Order-No. : 200-100 200 0185

Other microscope on request

Rectangular aperture

Precision Rectangular aperture for individual adjustment of rectangular Windows from 0 to 4 mm.



Rectangular aperture

Order-No. : 200-100 200 0190



Note

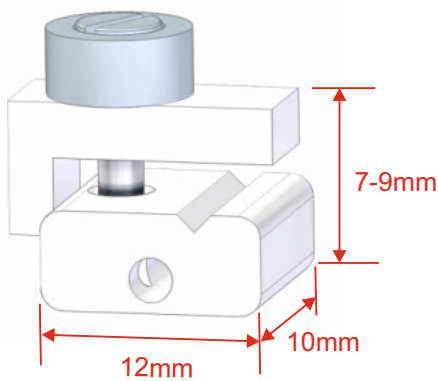
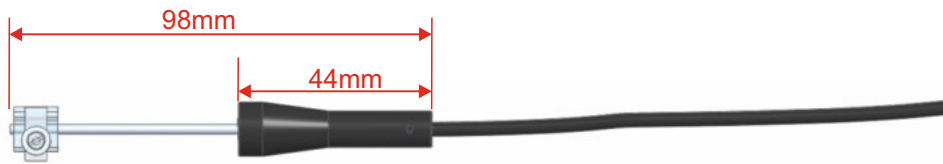
Accessories

- Electrodeholder for stimulation-electrode
- Modified electrodeholder
- Stabilization for electrodeholder
- Ground-tower
- Ground-set
- Capillary holder
- Infrared filter
- KG1-IR head protection filter
- Stand feet
- Faraday cage
- Anti-vibration-table
- Magnetic base flat
- Magnetic base tall



Stimulation electrode holder

Stimulation electrode holder with two gold contacts incl. connection cable for the attachment of stimulation electrodes.



For use of glass, foil- or metall electrodes (ø0-2mm)

with 2 gold contacts

Order-no.: 200-100 500 0195

without gold contacts

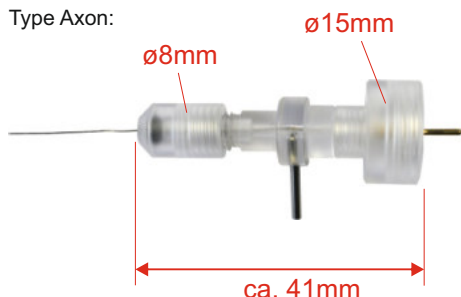
Order-no.: 200-100 500 0196

Electrode bracket and electrode bracket stabilisation

LN Modified-Electrode bracket

For the admission of capillaries $\varnothing 1,2\text{mm}$; $\varnothing 1,5\text{mm}$; $\varnothing 2,0\text{mm}$

Type Axon:



* Three point attachment consisting of:
2x O-Rings (with routed distance bracket) and
conus for positioning and centering.

* Axon: connecting nut made out of polycarbonate (PC)
instead of teflon, resulting in a better connection of
the electrode bracket with the housing.

* Standard: Axon and HEKA
Other suppliers an enquiry!

Order-No.:

200-100 500 0252-H (for Heka)

200-100 500 0252-A (for Axon)

LN-Electrode bracket stabilisation

The additional support of the electrode bracket improves the stability of the electrode and reduces drift. In connection with the modifield electrode bracket a extremely stable unit can be set up.

Type 1: Axon 200B:



Order-No.:

200-100 500 0251-10 (Heka EPC 7/8/9)

200-100 500 0251-11 (Heka EPC 10)

200-100 500 0251-21 (Axon 200B)

200-100 500 0251-22 (Axon Multiclamp)

200-100 500 0251-23 (Axoporator)

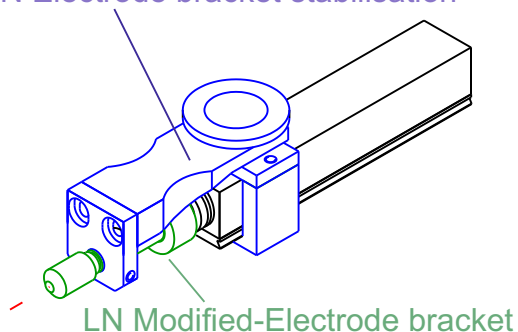
200-100 500 0251-24 (Axon HS-2)

200-100 500 0251-31 (NPI SEC-HSP)

200-100 500 0251-41 (Dagan)

Other suppliers on enquiry !

LN Electrode bracket stabilisation

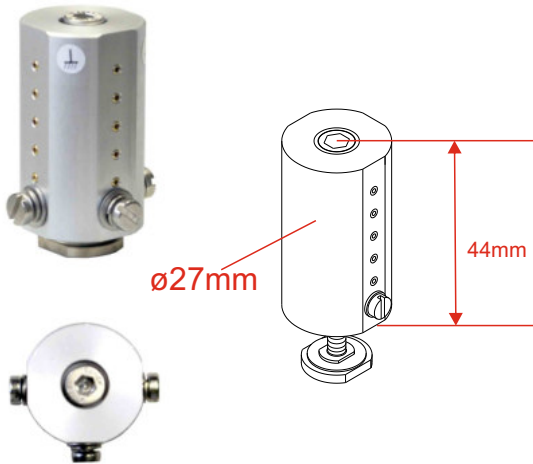


LN Modified-Electrode bracket

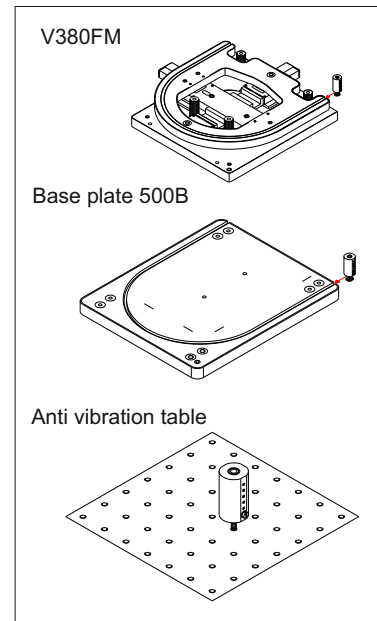


Ground-tower

This mass tower allows the track laying of all earthing cables at one point. This allows an easier earthing of the manipulators and prevents earthing loops created by multiple connections. The mass tower is installed in the T-groove prism of the 500 base plate, the 380 FM /U table or directly on to the anti vibration table. The tower offers 15 gold – and 3 screw contacts.



Order-No.:
200-100 500 0260



Grounding-Set

All relevant LN components are equipped with gold contacts for earthing, therefore it is for example to connect all manipulators with the mass tower. This cable set allows the set up of 6 cables with appropriate gold contacts.

Cable : 3,0m
Gold pin contact: 12 pieces

Order-No.:
200-100 500 0261



LN-Faraday cage



The LN-Faraday Cage combines excellent electronic noise shielding with the high effectiveness of a shading box for 2-Photon or Imaging Systems. Regarding the highly innovative construction and use of high-tech fabrics, the cage is light weight and flexible in use. One key feature is its level of customization. Because of its flexibility, high shieldings for customized or self-built 2-Photon Systems, can be realized. Because of its construction, the Faraday cage also shields the system against the environment of the lab (e.g. turbulences by aircondition, open doors and so on).

Product specification:

- Electric conductive fabric (with customized coating available)
- Because of closed cage superior electric shielding
- Light weight
- Customized dimension easy to achieve
- Available with fire resistant coating
- In addition shading box for fluorescence and Laser applications
- Aluminum frame

Inside:

- Purpose: Conductive fabric for general use
- Description of material: Ni/Cu/Ag plated Nylon fabric (Rip Stop)
- Shielding Effectiveness: average up to 100db from 300 MHz to 10GHz
- Temperature range: -30°C to 90°C

Outside:

- Purpose: Outside skin for EMI / RFI barrier
- Description of material: Ag plated Nylon fabric (Rip Stop) and black conductive Pucoating
- Shielding Effectiveness: >60db from 300MHz to 10GHz



Anti vibration isolation workstation

Newport IsoStation



The M-VIS3036-IG2-125N is a metric 750 mm x 900 mm x 858 mm working height Vision IsoStation vibration isolation workstation with a 59 mm thick IG Series breadboard and no pneumatic isolators. Perfect for smaller laboratories, the IsoStation's 750 mm width fits easily into the most compact spaces and through standard doorways. The Vision IsoStation features a unique platform interface that acts as a docking surface, an accessory mount and a restraint to keep the breadboard atop the frame. The interface also features integrated float height indicators and frame bubble levels to make set-up and installation easier than ever. Integrated leveling feet and casters are included with the base model and a new roll-off crate make the Vision IsoStation easy to unpack, install and move, even for one person.

The M-VIS3036-IG2-125N is compatible with a wide range of new Vision IsoStation accessories such as equipment shelves, monitor arms, a keyboard shelf, Faraday cage, hip guard, integrated accessory surfaces allowing you to put everything you need within arm's reach and I-125 isolator upgrade kits. All of these new features and accessories have been designed specifically to improve ease-of-installation, set-up and lab space utilization.

- Model : M-VIS3036-IG2-125N
- Length : 900 mm
- Width : 750 mm
- Thickness : 59 mm
- Mounting Holes : M6-1.0 holes on 25 mm grid
- Mounting Hole Type : Cut (not rolled) threads with countersink
- Borders around / Mounting Holes : 12.5 mm borders
- Working Surface : 400 Series ferromagnetic stainless steel
- Surface Flatness : ± 0.006 in. (± 0.15 mm) over 2 ft. (600 mm) square
- Top and Bottom Skins : 0.134 in. (3.4 mm) thick with integrated damping layer
- Core Design : Trussed honeycomb, vertically bonded closed cell construction, 0.010 in. (0.25 mm) Steel sheet materials, 0.030 in. (0.76 mm) triple core interface
- Hole/Core Sealing : Easy clean conical cup 0.75 in. (19 mm) deep Non-corrosive high impact polymer material
- Broadband Damping : Integrated Damping
- Float Height Indicator : Yes
- Load Capacity : 240 kg
- Mounting Hole Pattern : 25 mm grid



Remote control / Keypad / LN Cube

The LN Keypads were developed with regard to ergonomics and functions. More over an optimal keypad for each process was developed in co-operation with customers. Special working areas to be considered are: Electrophysiology, Neurology, Injection (ICSI) and InVivo Applications.



Remote control / Keypad SM-7



Keypad SM-8



Trackball SM-8

Control box

Cube SM-7



SM-7



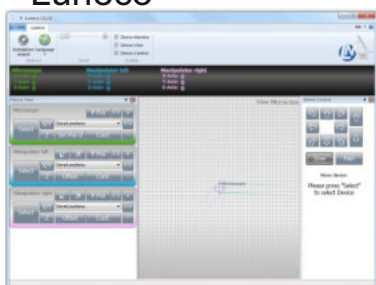
SM-8



SM-10

Software

* Luneco



Temperature controller

TC-07





Control unit

Remote Control SM-7 / Keypad SM-7

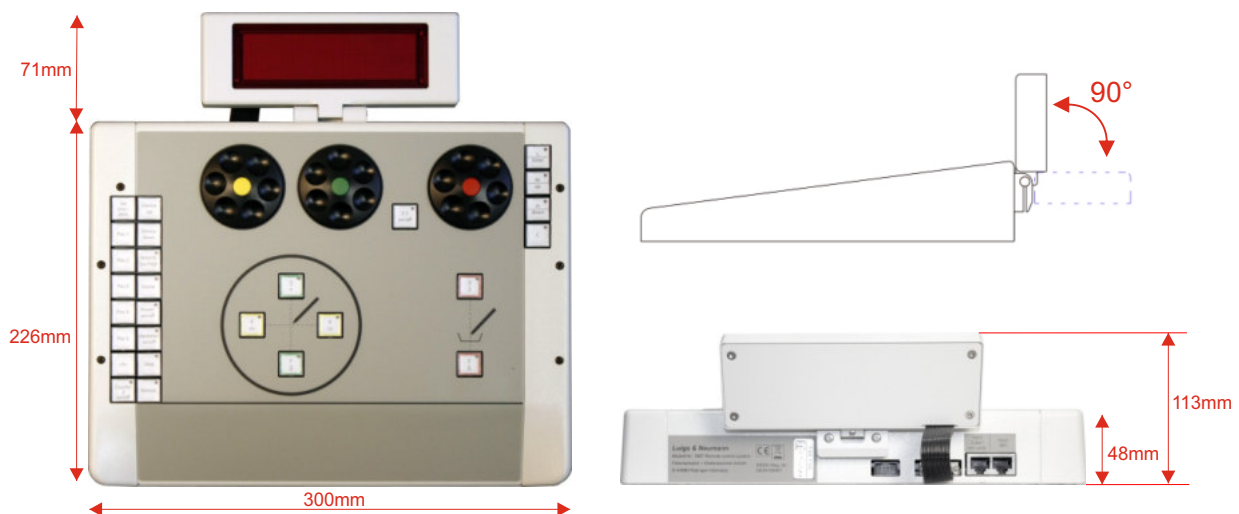
The Keypad SM-7 was developed with regard to the requirements in modern Electrophysiology and the work with slice. The design makes it possible to move more XYZ position systems comfortably and sub micrometers exactly.



Handwheels with variable adjustment resolutions permit a very precise positioning. The direction keys serve as a fast movement and offer two different speeds. The Keypad SM-7 has a menu in which all basic settings can be individually set, for example velocity, direction of movement, handwheel resolutions and so on. Two handcubes can be attached as an option. This makes the synchronous operation of two attached manipulator units possible. The display swivels and shows all the relevant data of the connected XYZ manipulators.

The following functions make the work with the keypad SM-7 easier:

- The **new display** shows up to 4 devices at the same time
- **New status indication line**
- 72 controlled motor-driven axes (up to 24 units)
- The motor-driven axis can be moved with the **direction keys** and the **handwheels**
- **C-Mode:** The velocity is dependent on the movement of the handwheel (Proportional Mode) additionally 3 free definable speeds for the handwheels
- **Parallel movement** from two Z-axes to an easier change of pipette / electrode
- **Horizontal-Funktion/Virtual X-axis:** This function makes it possible to move the X- and Z-axis simultaneously and thus replaces the four axis manipulator unit.
- **PoS-Function:** Two different speeds driven up to the stored position.
- **Step-Function:** The manipulator moves by pressing the direction keys with the preset step-distance and a preset step-speed
- **Single stage and Complete level Mode:** store the position in single axis or in complete Device Mode
- **Home Function:** allows the fast removal of the motor-driven axis from the working area to the change of pipette / electrode
- **4 position keys** for storing 5 positions
- **Zero-point Function:** a zero-point can be stored and driven up to for all motor-driven axes.
- **Counter-2:** additional counter
- **Power on/off:** all motors of the motor-driven units can be switched off singly
- **Handwheels** for exact movement ($< 1\mu\text{m}$)
- **Velocity High/ Low:** fast and low speed for the direction keys
- **Menu:** in which all basic settings can be individually set



Order-Nr.: 200-100 900 9050

Remote Control SM-8



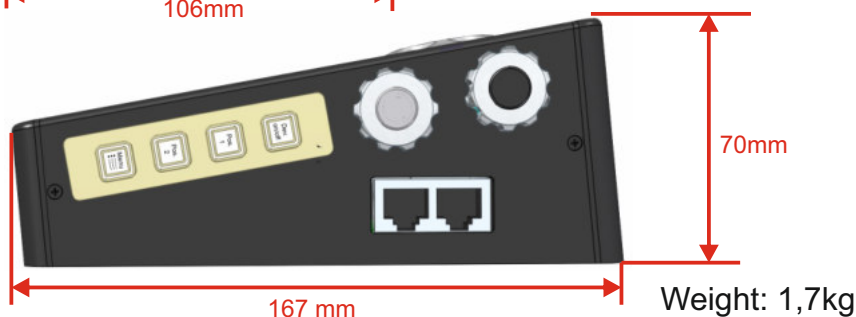
The new ergonomic SM8-Remote control combines the most important functions of the SM7- Keypad with the compactness of our SM5-Cube. The SM8-Remote control can be operated independently or in connection with SM7-Keypad or an SM8-Remote control. The handwheels of the SM8-Remote control allow the precise movement of the connected Units with the newly introduced 5 speeds. Home and position functions are also integrated like our new fourth virtual axis as well as the parallel movement of two Z-axis.

In connection with the new Luneco software many other possibilities are open.



Trackball SM-8

Order-no.: 200-100 500 9080





Control unit

LN Cube SM-7



The cube SM-7 is the ideal accessory unit for the keypad SM-5/SM-7. Hereby all important manipulating functions are handheld. The resolution can be selected collaterally to the keypad, where as traversing velocities of 0,25mm up to 1 micrometer per revolution are selectable.

In this case the cube SM-7 adapts the given settings from the keypad SM-5/SM-7. By using the cube when several manipulators are controlled by one keypad, it is possible to select the activated manipulator independently of the keypad SM-5 / SM-7 .

A display on the cube SM-5 shows which manipulator is currently activated. In practice this function permits the simultaneous control of several manipulators. At present three different versions of the cube SM-5 are available.



- * Up to two cube SM-7's can be connected to one keypad
- * Free choice of the active device / unit
- * Setting of the handwheel resolution by using the high/standard/low keys
- * Activation of the stepping function
- * Activation of a fourth (Z1/Z2) axis (e.g. LN Unit 4MRE)

Cube SM-7

Order-no.: 200-100 920 0010

Trackball SM-8



Mode of operation Trackball control

All manipulations, such as moving, holding and injection, are controlled by trackballs integrated with two keypads:

Hand position does not need to be changed. Trackball control ensures proportional movement of the capillaries which can be controlled precisely in the micron range.

Trackball SM-8

Order-no.: 200-100 900 9090



Control box SM-7

LN Control box SM7 Up to 9 axes



The SM-7 control system enables to connect three LN XYZ units. It is possible to connect several SM-7 control systems due to the new I²C bus system. One control system functions as master and the following ones are configured as slaves. The attached manipulators appear in the display of the remote control SM-7 as device 1,2,3,4 and so on. The control system consists of the most modern electronics and microprocessors, in order to achieve a high resolution, jerk and vibration-free driving of the micromanipulators. Our control systems are modularly developed, so that individual components can be exchanged without returning the entire equipment.

Control system SM7

Order-No.:

for 3 axes: 200-100 900 7311

for 4 axes: 200-100 900 7411

for 5 axes: 200-100 900 7511

for 6 axes: 200-100 900 7611

for 7 axes: 200-100 900 7711

for 8 axes: 200-100 900 7811

for 9 axes: 200-100 900 7911

Control box SM-8

LN Control box SM8 Up to 4 axes



The SM8-4 control system enables to connect a manipulator with up to 4 axes. The SM8 control system cannot be upgraded, however can be configured into a master / slave set-up. The control system's electronics are identical to the SM7 control system.

Control system SM8

Order-No.:

for 1 axis : 200-100 900 8100

for 2 axes: 200-100 900 8200

for 3 axes: 200-100 900 8300

for 4 axes: 200-100 900 8400

Control box SM-10

LN Control box SM10 Up to 18 axes



Control system SM-10

Order-No.:

for 3 axis : 200-100 900 6003

for 6 axes: 200-100 900 6006

for 9 axes: 200-100 900 6009

for 12 axes: 200-100 900 6012

for 15 axes: 200-100 900 6015

for 18 axes: 200-100 900 6018

Control box SM-10^{Compact}

for max. 8 axes



Control system SM-10^{Compact}

Order-No.: 200-100 900 6500



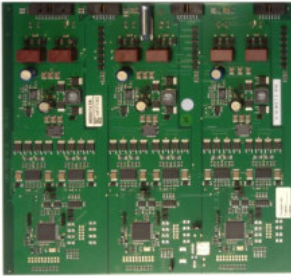
Circuit board SM10

for Control SM10
to upgrade for 3 axes

Order-No.:
200-100 910 0060

Circuit board SM7

for Control SM7



to upgrade for 1 axis

to upgrade for 2 axis

to upgrade for 3 axis

Order-No.:
200-100 910 0030
200-100 910 0040
200-100 910 0050

Adapter SM1 / SM5 / SM7 and Extension cable

Adapter SM1(15pol - 9pol)

Adapter to connect new manipulator to controller SM1



New manipulator
15 pol.

SM1-Controller
9 pol.

Order-No.:
200-100 950 0000

Adapter SM5/7 (9pol - 15pol)

Adapter to connect old manipulator to controller SM5, SM6, SM7 or SM8

9 Pol – 15 Pol



Old manipulator
9 pol.

SM5-Controller
15 pol.

Order-No.:
200-100 950 0010

Extension cable manipulator

Extension cable for manipulator Junior / Mini / Combi

Length: 3,5m



Order-No.:
200-100 950 0020

Temperature controller TC-VII

The temperature controller TC07 is used for the different available bath chambers of Luigs & Neumann.

The bath chambers vary according to their mechanical construction, the number of peltier elements and the number of temperature probes. The choice of the bath chamber and other options can be selected in the menu. The display shows the temperature data of the set value and actual value and the cooling and heating flow of the peltier module.

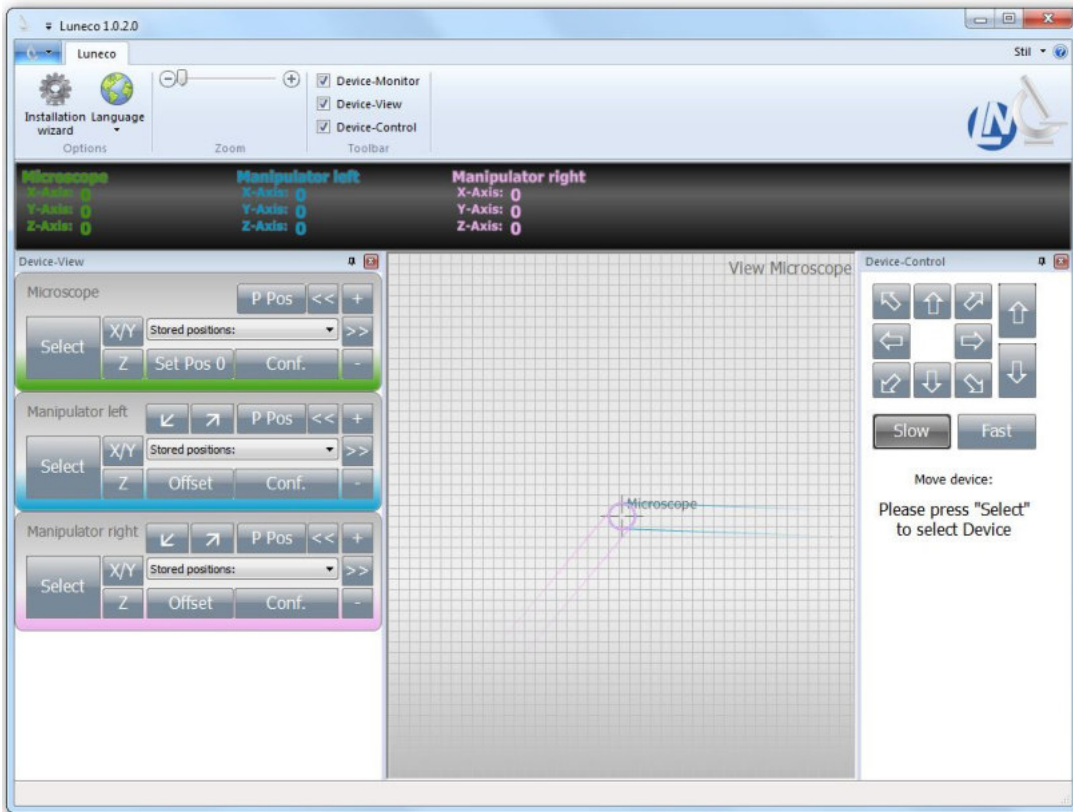


Dimensions (mm)	: ca. 485 x 310 x 88
Weight	: 5,1 kg
Housing	: 19" (84TE, 2HE)
Control range	: 0°C to 50°C
Temperature measurement accuracy	: 0,1°C
Intern resolution temperature measurement	: 0,01°C
Thermistor block accuracy	: +/-0,1°C
Bath Thermistor accuracy	: +/-0,1°C
Probe 3 + 4 input	: 10mV/°C
Supply voltage for thermocopler	: 12VDC/100mA
Analog output	: 100mV/°C
Digital output 1.....	: RS232/V24
Digital output 2.....	: USB (Com port)

Order-Nr.: 200-100 500 0145



Software Luneco



Due to the increased complexity of electrophysiological measurements, the requirements to automated movements have been increased. Due to this requirement, LN has developed Luneco which decreases the user a plurality of processes that have previously been controlled by the keypad. Here, particular emphasis was placed on a high level of integrity with existing systems and ease of operation.

Luneco allows the synchronization between microscope movements triggered by the keypad together with LN Patchmanipulator movements. Several electrodes can be moved with the microscope simultaneously, which allows automated multi patch measurements in different fields of view. In this case the position of the patch manipulator does not matter; a graphical calibration determines all relevant angles.

The movement sequences are optimized in terms of the requirements of electrophysiological Measurements in slices so that the patch manipulators never move the electrode in the slice, but always go to a certain security level. Therefore, a security level is definable.

Luneco facilitates the exchange of electrodes enormous. By coupling the motorized microscope Z-axis, the electrode may be automatically positioned by moving the microscope Z-axis above the slice. After the change of the electrode, the focus is returned to the original position. Here follows the electrode of the patch manipulator respecting the defined security level.

The virtual screen shows the position of the electrodes in relation to the Microscope middle graphically. Thus, the work with multiple patch manipulators is supported.

Luneco is based on a modular extendable architecture, so that future imaging or analysis modules can be easily integrated.

Order-no.: 200-100 960 0010

InVivo-accessories

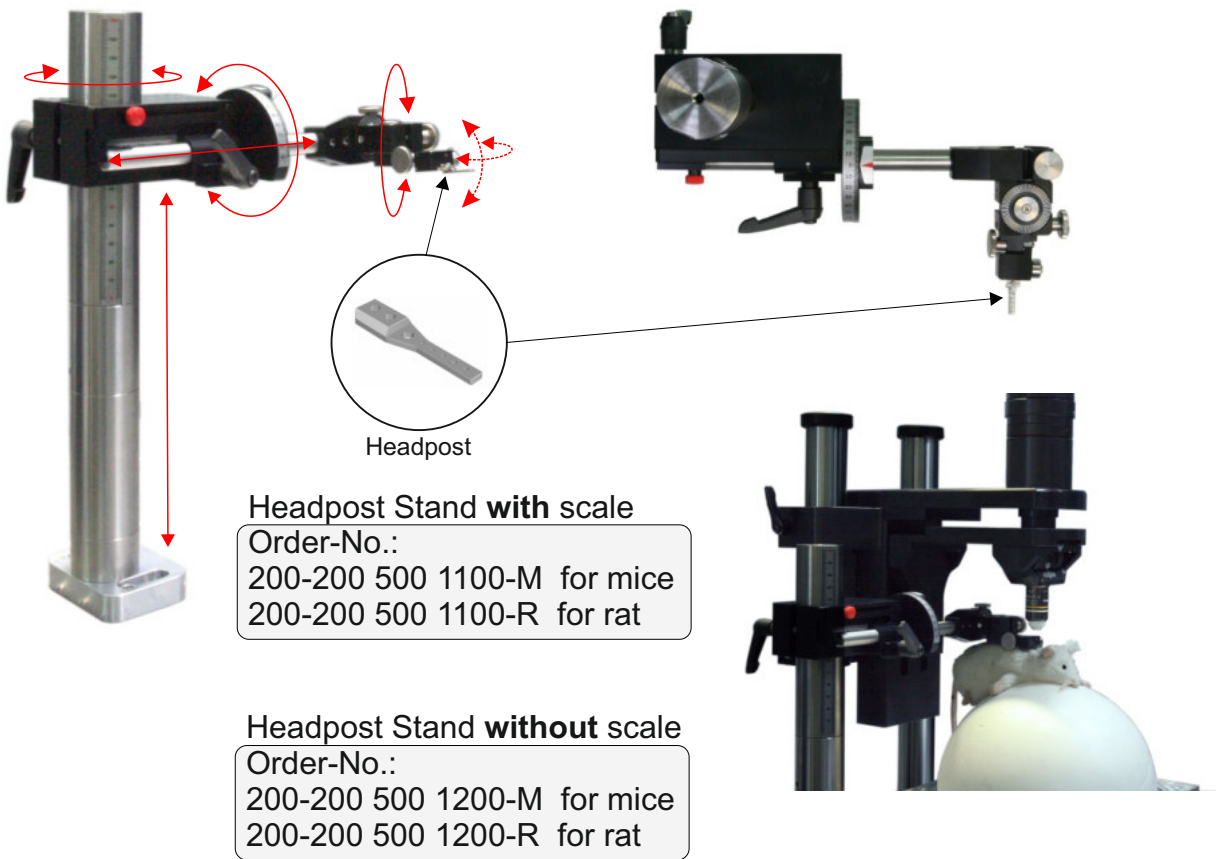
- Headpost
- 3d articulated arm
- Headpost holder
- 3-arm magnetic system
- Stereotaxic platform and accessories
- Head holder
- InVivo angle table
- X95 Portal
- Headpost positioning Unit
- Treadmill



Headpost stand

The Luigs-Neumann headpost was designed for chronic in-vivo experiments in awake mice or rats, performing e.g. on a spherical treadmill. According to the users purpose a dovetailed metal bar is cemented on the animals skull.

Quick and easy fixation by the dovetail has permitted reproducible fixation and positioning of awake animals. In combination with in-vivo two-photon hippocampal Ca²⁺ imaging of awake mice, this headpost model ensures perfect fixation of the animal's head.



Headpost stand Dome



for virtual reality jet ball Dome Phenosys system adjustable, with scale for headpost holder (6 degrees of freedom)

Headpost stand Dome for mice
Order-No.:
200-200 500 1110-M

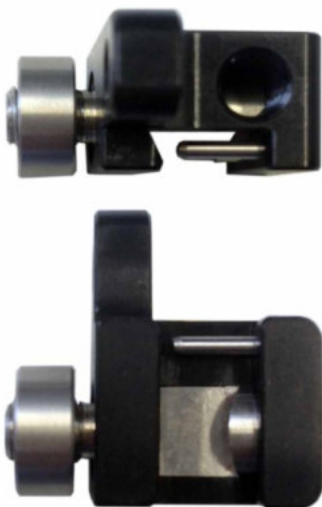
3D-articulated arm

360° fine adjustment and central locking mechanism



3D-arm
Order-No.: 200-100 500 2100

Headpost holder - dovetail type incl. 4 headpost



with 4x Headpost Order-No.:

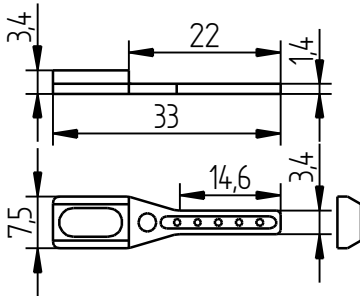
for mice 200-200 500 2105-M

for rat 200-200 500 2105-R

for mice (small S),
incl. adapter plate type 1.....200-200 500 2105-S

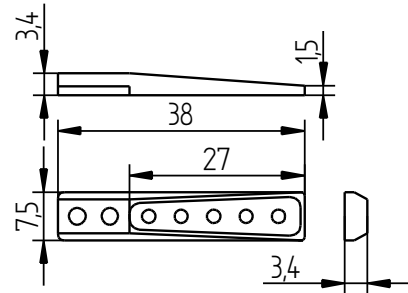


Headpost Dovetail - M (for mice)



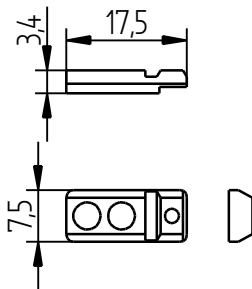
Order-No.: 200-200 500 2110

Headpost Dovetail - R (for rat)



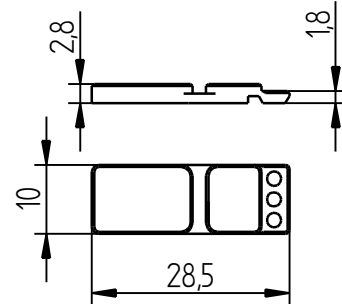
Order-No.: 200-200 500 2120

Adapter plate, type 1 for Dovetail head-post holder (headpost type small S only)



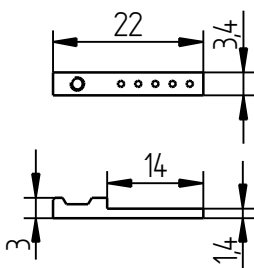
Order-No.: 200-200 500 2111

Adapter plate, type 2 for magnetic head-post holder (headpost type small S only)



Order-No.: 200-200 500 2131

Headpost small - S (for mice)



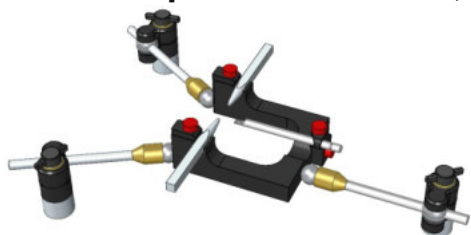
Order-No.: 200-200 500 2203

Headpost holder Magnetic type for mice incl. 4 headpost (small S) and adapter plate type 2



Order-No.: 200-200 500 2130

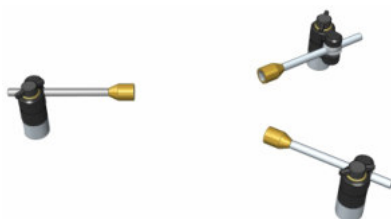
Mice shaped head holder, incl. 3-arm magnetic system



Order-No.: 200-200 500 2201

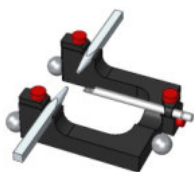
3-arm magnetic system

Allows the free positioning of the headholder on the InVivo system



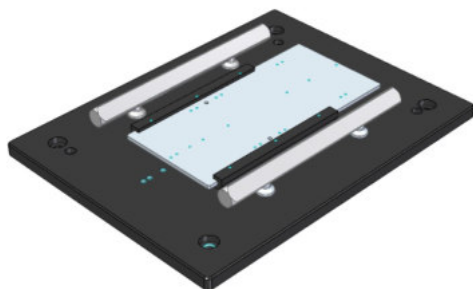
Order-No.: 200-200 500 2203

Mice shaped head holder



Order-No.: 200-200 500 2350

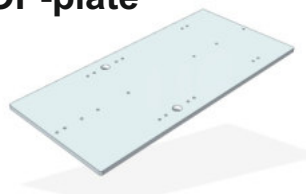
Stereotaxic platform, incl. OP-Plate / holder and OP-bar



for breadboard (**to be screw**)
Order-No.: 200-200 500 3110

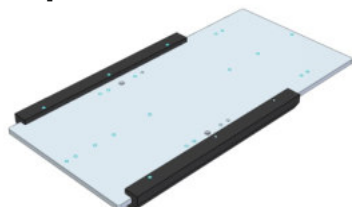
for metal top plates (**with magnets**)
Order-No.: 200-200 500 3110-01

OP-plate



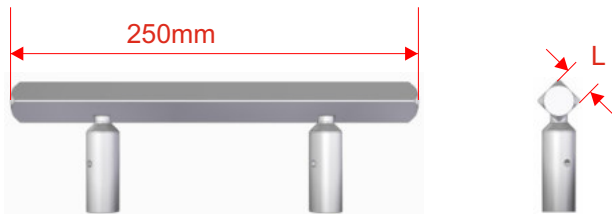
Order-No.: 200-200 500 2300

OP-plate Holder and OP-plate



Order-No.: 200-200 500 3300

AP bar



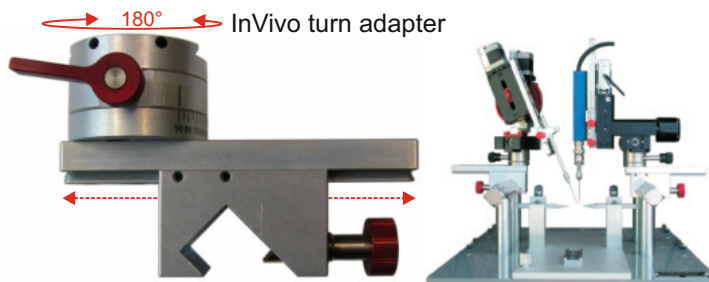
Order-No.:
L=19mm
 200-200 500 3401-01

L=22mm
 200-200 500 3401-02

L=27mm
 200-200 500 3401-03

Stereotaxic adapter

With the new adapter we are able to adapt the junior manipulator onto a Stereotaxic frame.



Stereotaxic adapter

with InVivo turn adapter

for Bar Type	Order-No.:
19 mm	200-200 500 3411-01
22 mm	200-200 500 3411-02
29 mm	200-200 500 3411-03

without InVivo turn adapter

for Bar Type	Order-No.:
19 mm	200-200 500 3410-01
22 mm	200-200 500 3410-02
29 mm	200-200 500 3410-03

InVivo angel table



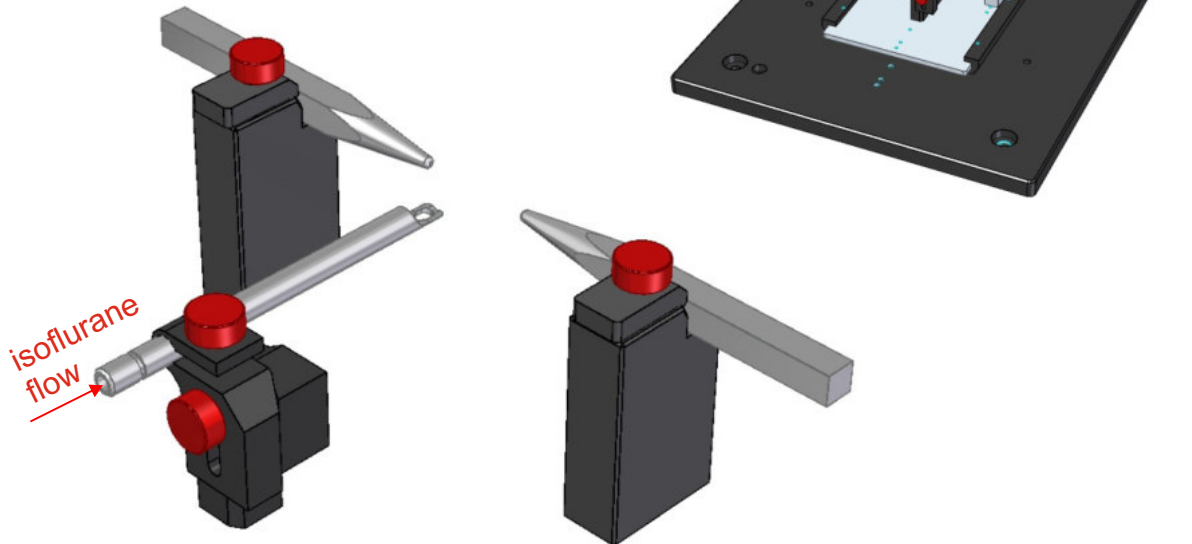
Order-No.: 200-100 500 3200

InVivo Set 1

2x Ear-bar holder (6-6,3mm Ear-bar)

1x Anesthesia tooth bar

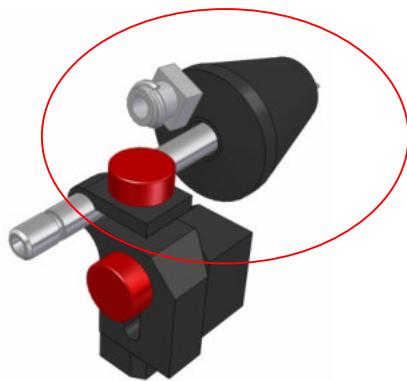
incl. mount onto OP-plate



Order-No.: 200-200 500 0010

Gas evacuation Mask

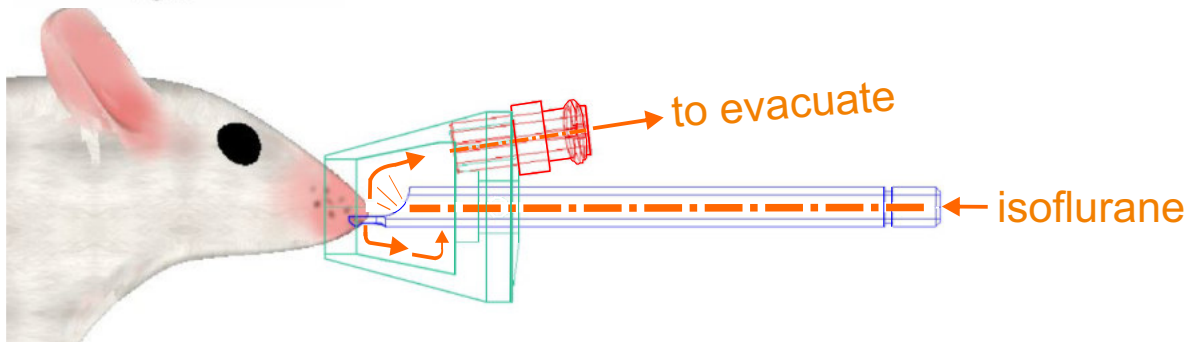
for mouse



Gas evacuation Mask with bite bar

without gas evacuation system
Order-No.: 200-200 500 0111

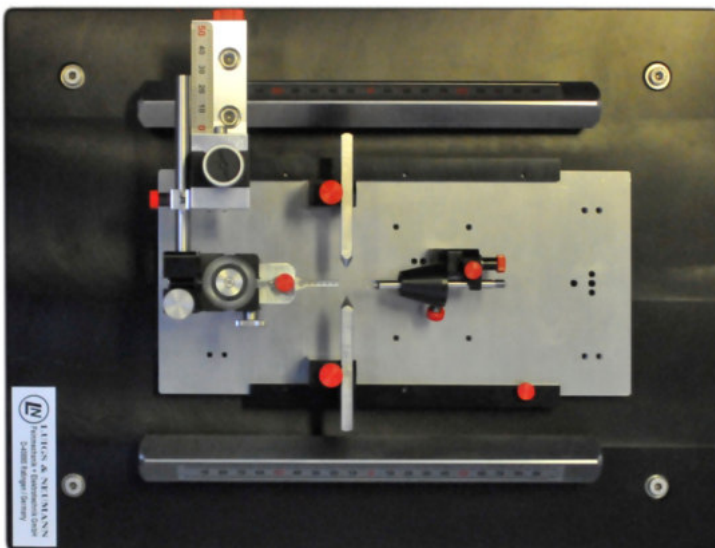
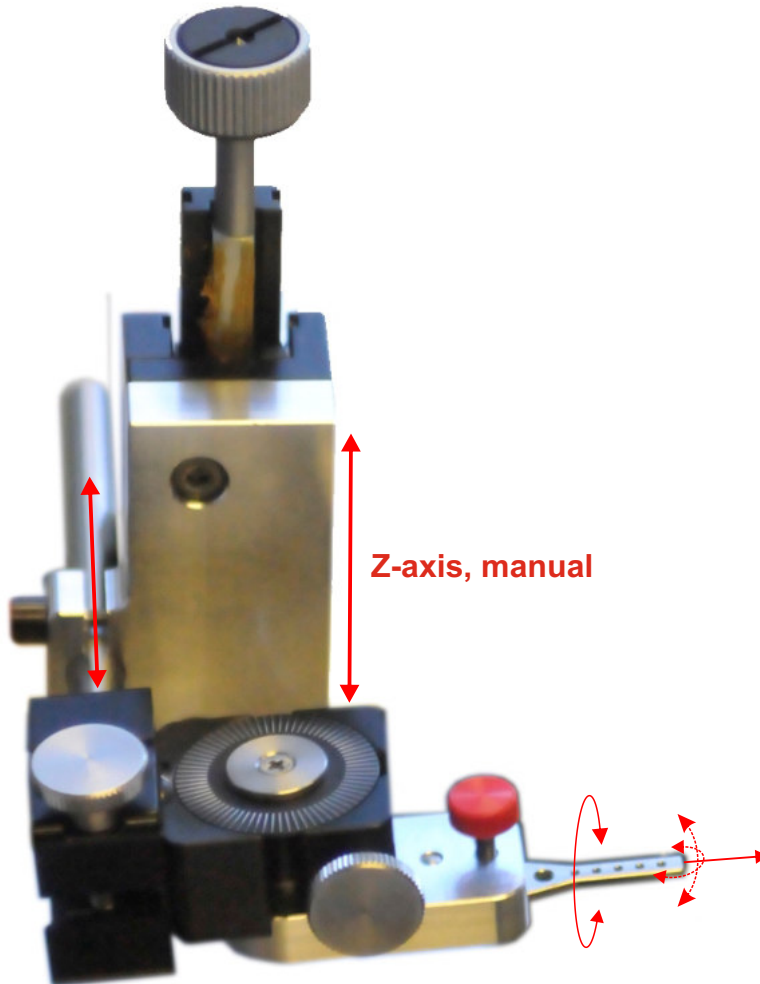
with LN gas evacuation system
Order-No.: 200-200 500 0112



Headpost positioning Unit

for reproducible mounting of headpost

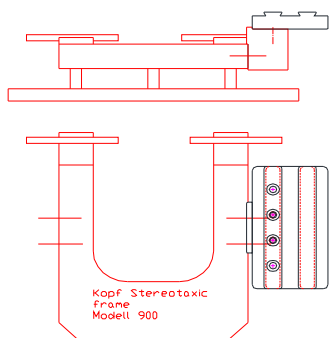
This headpost positioning unit allows high precision and consistent positioning of head implants during surgeries. It can be attached to Stereotaxic frames with AP bars. Available for 19, 22 and 27mm square.



Order-No.: 200-200 500 0200

U-shaped adapter

U-shaped junior mounting adapter for Junior onto KOPF Stretotaxic instrument Model 900 (U-shaped) and Stoelting lab standard Stretotaxic instrument (U-shaped)



Order-No.: 200-200 500 4010

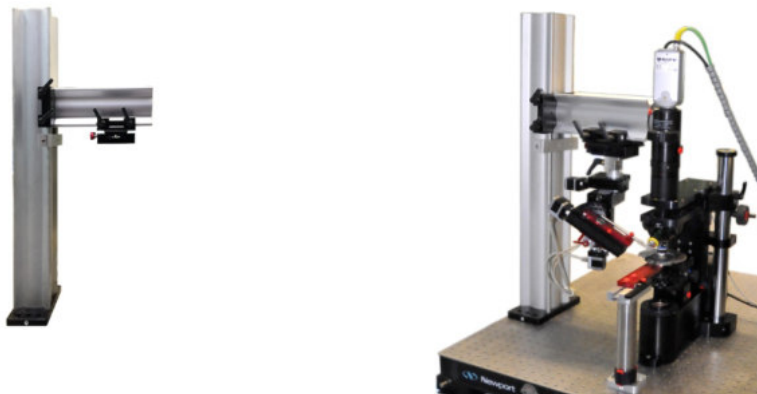
Dovetail-adapter KOPF

for mounting Junior Z manipulator onto KOPF Stretotaxic instrument (Model 1940)

Order-No.: 200-200 500 4020

X95 portal I

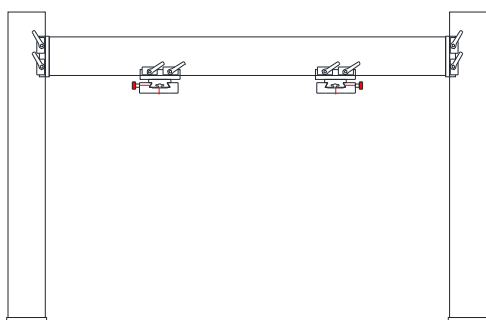
for one "Mini 4axes InVivo" manipulator Unit



Order-No.: 200-300 000 0100

X95 portal II

for two "Mini 4axes InVivo" manipulator Units



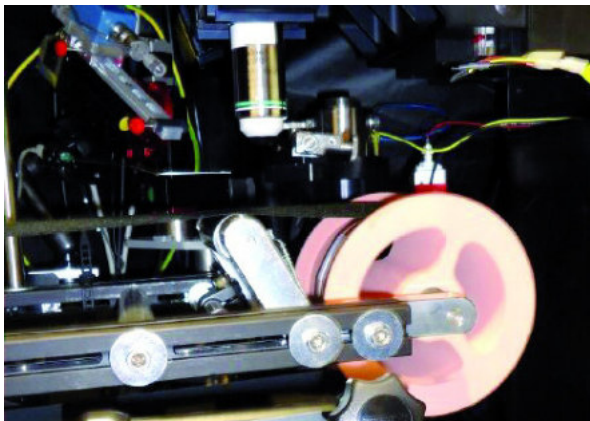
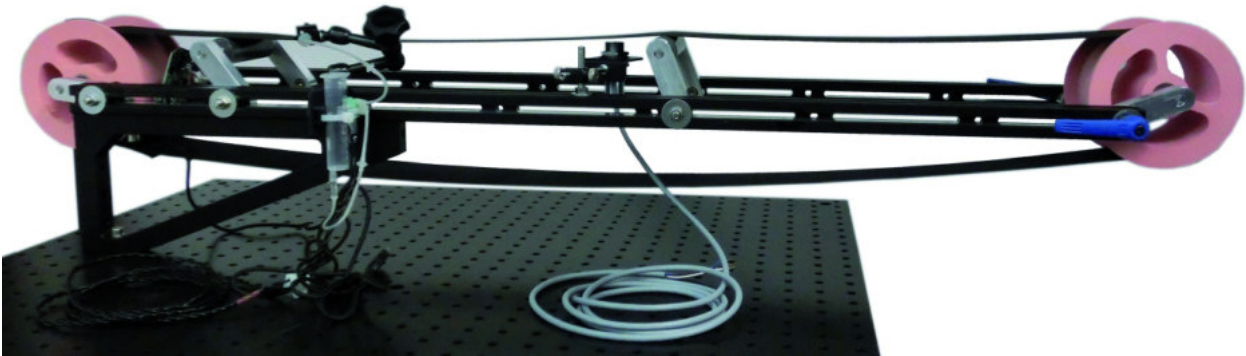
Order-No.: 200-300 000 0200

LN-Treadmill

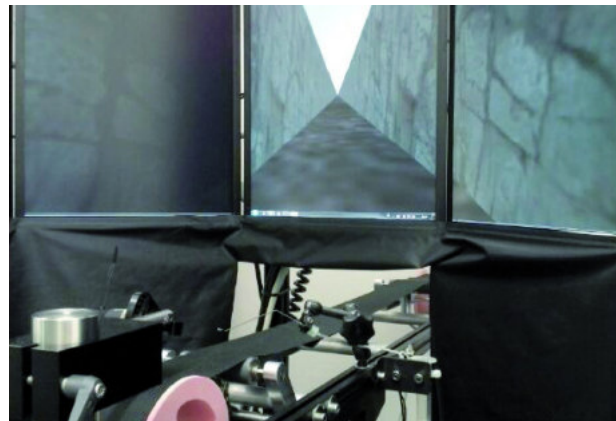
with virtual reality

Among behavioral neuroscience, novel experiments are planned and realized in awake animals under conditions in which the animal is head-fixed but able to move. These studies depend on accurate readout of the animals behavior e.g. movement speed and control of outside influences. There a long setup-compatible treadmill, with precise speed and position readout, external clues and rewards, will become a standard method of behavioral neuroscience.

Our treadmill was designed to investigate the integration of sensory and spatial information in the brain of mice. The system allows tactile, visual or olfactory stimulation of a head-fixed mouse, while the animal is moving a treadmill belt and navigating in a virtual environment. In parallel all established optical and electrophysiological measurements or manipulations for headfixed animals can be performed e.g. to study navigation strategies.



Treadmill at two Photon microscope



VR Screens
Running position of the mouse

- Stress-relieved voluntary running behavior
- Customized treadmill belts (up to 4m (13") of length)
- Individual visual and textile cues
- Lab approved, easy to use soft-and hardware
- Precise digital or analog position readout
- Automatic liquid reward at predefined position, distance or speed

Order-No.: 700-100 100 0010

Workstation - AFM - Atomic Force Microscope

AFS - Single molecule Atomic Force Spectroscopy

For further information please visit the web page of **Professor Julio Fernandez**, in which collaboration this system was designed.

<http://fernandezlab.biology.columbia.edu>

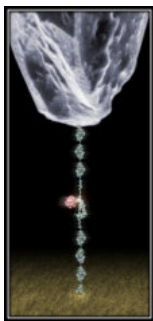
This unique Atomic-Force-Spectroscopy (AFS), based on the Atomic Force Microscope Technology (AFM) was specially designed for studying single proteins placed under a calibrated mechanical load. The upside down design, where the cantilever, laser and sensor is fixed while the substrate with attached protein is moved by a ultra-precise linear Piezo, enables us to get a feedback response time better than 1ms and a position accuracy better than 1nm.

The software is based on IGOR and enables the operator to run automatic experiments over the day without putting hands on.

The AFS can be operated in two modes:

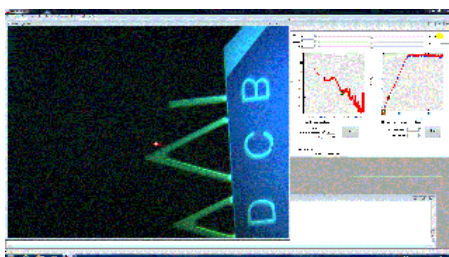
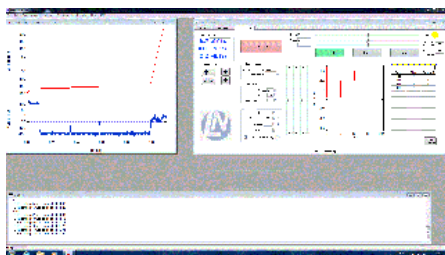
- force extension (constant velocity)
- force clamp (constant force)

In force clamp mode the operator can design his own force protocol to measure protein folding, unfolding and protein chemical reactions. The software includes routines that unambiguously identify the mechanical fingerprints of the protein being studied, and thus is able to recognize and store data automatically. A tuneable Proportional-Integral-Differential system (PID) enables the operator to adjust the parameter for the Piezo, cantilever and probe to get the best feedback time for each individual experiment. The AFS comes as a complete workstation, incl. vibration damping table, PC Monitor and software.



Main features:

- feedback time less than 1ms under optimal conditions (Typical 1-2ms)
- sub-nanometer resolution (Piezo noise)
- fully automatically
- detects and saves sawtooth pattern fingerprints automatically
- force clamp (constant force) and force extension (constant velocity) mode
- Protein folding and unfolding
- Free designable force protocol (for force, time and ramp function)
- Powerful analysis software
- User friendly software interface





Note





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