

**HiQSCREEN**

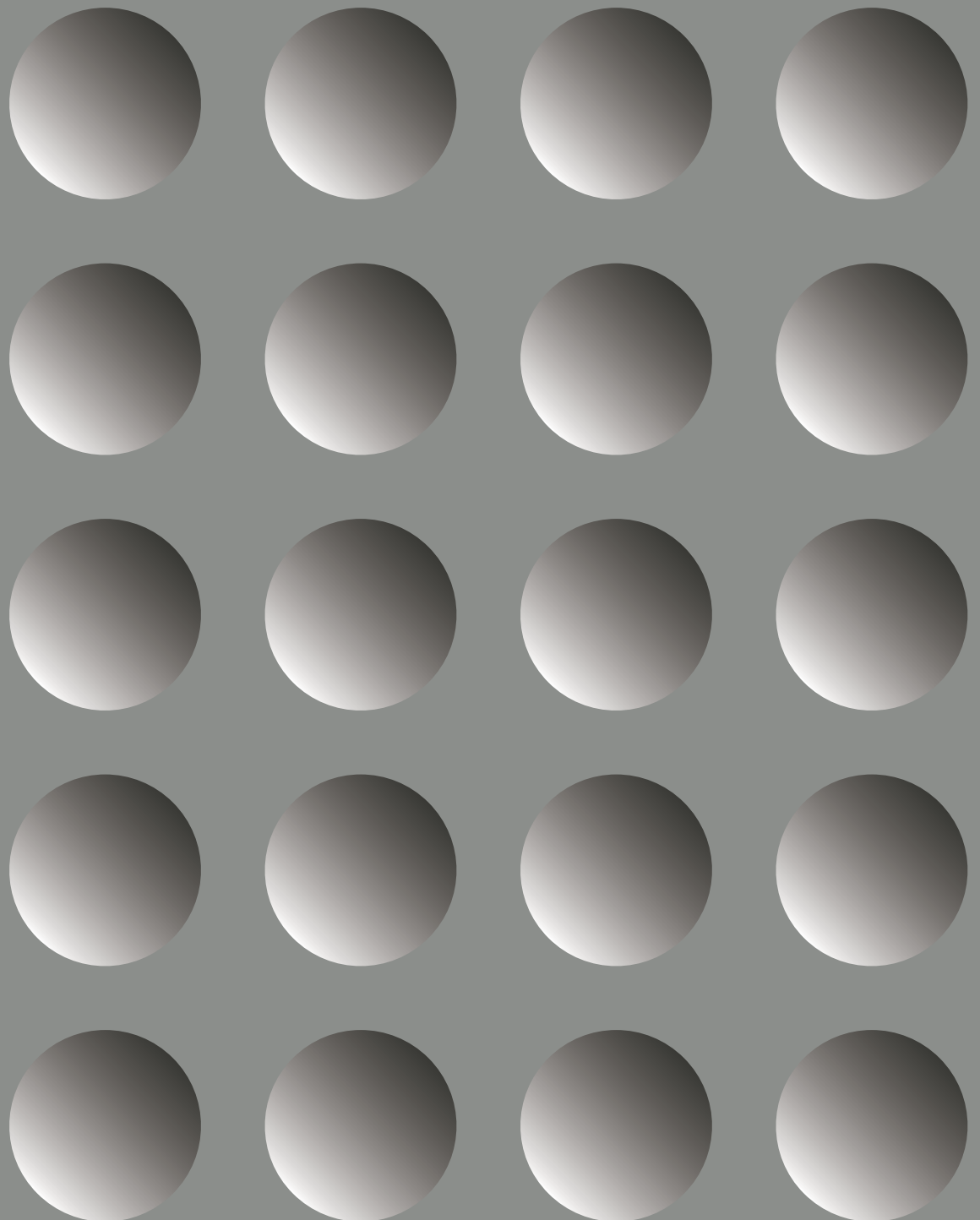
High Quality Screening for Drug Discovery

**multichannel\***  
**systems**

Innovations in Electrophysiology

# HiClamp\*

Automated Voltage-Clamp Screening for *Xenopus* Oocytes





## Turning electrophysiology upside down

HiClamp is built around an entirely new concept: Instead of applying solutions to the oocytes, the HiClamp carries the cells from one compound to the other.

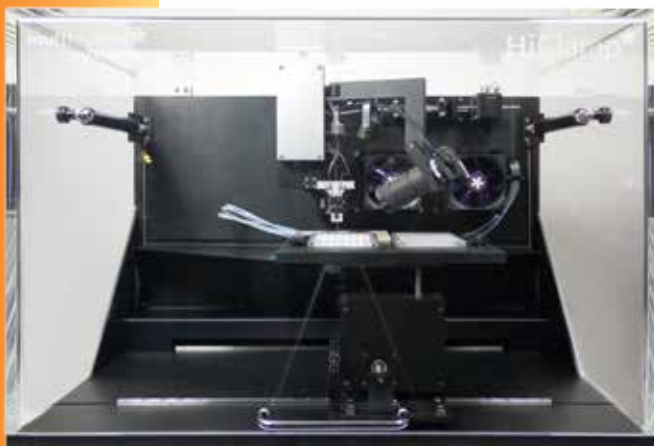
The advantages of the HiClamp are:

- Very fast drug application.
- Minimal compound usage.
- Non-destructive usage of compounds.
- Fully-automated system.

## Fast and reliable drug application

The unique design of the HiClamp allows to smoothly move the oocyte from one solution to another while performing continuous recording, thus optimizing drug application while minimizing contamination. The unique and patent-protected micro-stirrers were designed to provide you with the fastest and most reliable drug application.

The graph on the right hand side shows that the agitation of the well contents facilitates a rapid solution exchange. The pictures below the graph show the micro-stirrer in front of and in a well plate.



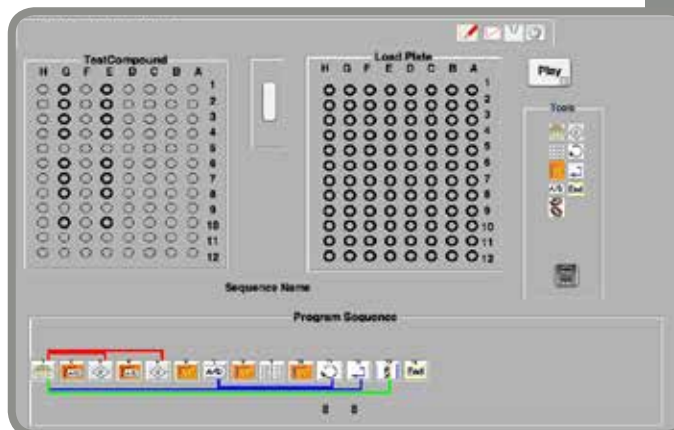
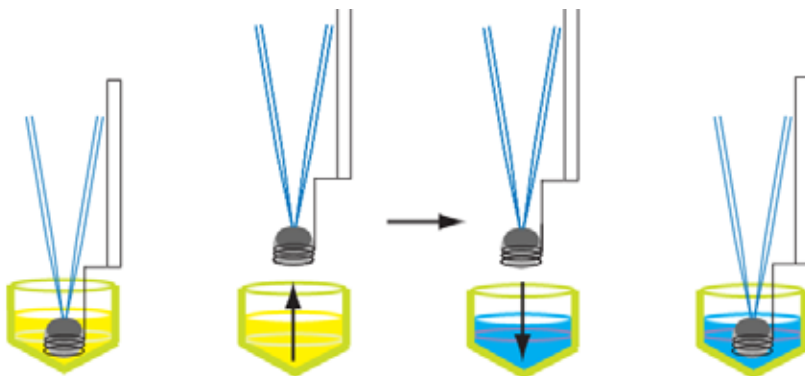
## Works with 200 $\mu$ l sample volumes

Designed to work with 96-well microtiter plates, HiClamp allows you to use up to 96 compounds per plate. Moreover, the volume in each well is minimized by the patent-protected micro-stirrer allowing you to perform multiple tests in only 200  $\mu$ l of your precious sample. As the oocyte is physically moved in and out of the well, the compound can be kept for multiple measurements. Just freeze-dry the well plate with the substance and perform another test with the same sample later. To avoid contamination the oocyte can be moved to a perfusion system allowing thorough washing between measurements.

## Principle of functioning

Oocytes are transferred automatically one after the other from a 96-well plate into a silver wire basket serving as reference electrode. After automatic impalement of the intracellular glass microelectrodes, the basket is moved together with the oocyte from one compound-containing well to the

other. Programmable washing steps effectively prevent cross contamination between different compounds. The built-in digital amplifier guarantees a stable and accurate voltage-clamp resulting in precise and reproducible current recordings.



## Fully automated system that even runs overnight

You will benefit from the first automate that you will run day and night. Everything works automatically; you just place the two 96-well plates with oocytes and compounds, respectively and start the whole run with a mouse click.

HiClamp is precisely built with the most error-proof programming and allows you to focus on your experiments while forgetting technological complexities.

## Extremely simple programming of experimental paradigms

HiClamp was designed with a unique user interface allowing you to establish your experimental paradigm without the help of a programmer. Using "lego" like building blocks, you just have to click on the icons and thereby define the sequence of your experiment. The icons will soon become self speaking and will open possibilities that you have not yet even thought of.



# Technical specifications

## HiClamp main device

|                |                                    |
|----------------|------------------------------------|
| Dimensions     | 640 mm x 600 mm x 440 mm (WxDxH)   |
| Weight         | 43 kg                              |
| Supply voltage | 115 VAC @ 60 Hz<br>230 VAC @ 50 Hz |

## Amplifier

|                      |  |
|----------------------|--|
| Type                 | Newly designed integrated digital TEVC amplifier |
| Operation            | Fully automatic and computer-controlled          |
| Reference electrodes | Two (independent); active bath clamp             |
| Max. sampling rate   | 20 kHz   |
| Data resolution      | 16 bit   |

## Current electrode output

|                    |                              |
|--------------------|------------------------------|
| Output range       | -105 $\mu$ A to +105 $\mu$ A |
| Current resolution | 1 nA                         |
| Voltage range      | -100 V to +100 V             |

## Voltage electrode input

|   |                    |
|---|--------------------|
| Input range                             | -500 mV to +500 mV |
| Voltage resolution                      | 0.015 mV           |
| Clamp voltage setpoint range            | -500 mV to +500 mV |
| Clamp voltage setpoint resolution       | 1 mV               |
| Typical rise time in voltage clamp mode | <1 ms              |

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