



MHW-3

Three-axis Water Hydraulic Micromanipulator

Acclaimed water hydraulic manipulator for patch clamping.

This was Narishige's first water hydraulic micromanipulator specially designed for patch clamping. Its water hydraulic system has a lower coefficient of expansion than an oil hydraulic system, and allows precise movement. A 5:1 cartridge is incorporated to minimize drifting. The large, rigid driving unit enables fine movements and coarse manipulations and a sturdy ball joint is also used. Installation is made more rigid by securing attachments with a double adaptor or an isolation table, eliminating direct attachments to the bar. The drum type control unit has a large handle for precise operation and high linear repeatability. Overall, design considerations are focused on precision movement and stability over long periods of time.



- * For attachment to the microscope, a suitable mounting adaptor is required (sold separately).
- * The micromanipulator can be mounted directly on the isolation table.
- * This model can be firmly fixed to any part of the isolation table with [GJ-12](#) thin-type magnetic stand (sold separately).
- * [AP-12A/AP-13-2](#) patch clamp headstage holders can be attached on the [B-9](#) ball joint, incorporated in the manipulator.
- * Combining the [B-9](#) ball joint included with the micromanipulator with [MHW-4](#) one-axis water hydraulic micromanipulator (sold separately) enables four-dimensional remote controlled movement.



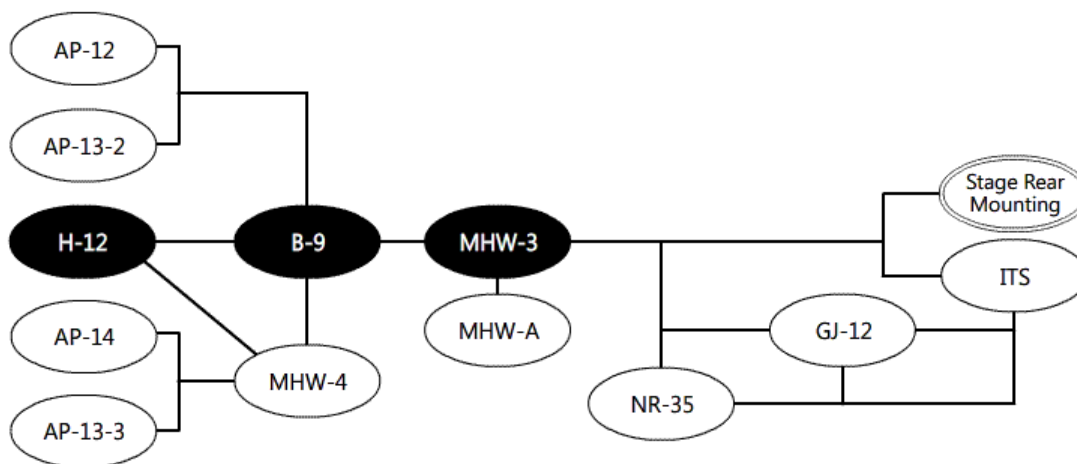
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Specification

Accessories included		B-9 Ball Joint H-12 Electrode Holder Hex Wrench
Movement range	Coarse	X30mm, Y30mm, Z30mm Full rotation of knob approx. 4mm
	Fine	X2mm, Y2mm, Z2mm Full rotation of knob 50µm Minimum graduation 0.2µm
Dimensions/Weight	Control unit	W115 × D115 × H132mm, 1.6kg
	Drive unit	W155 × D155 × H100mm, 900g
Hydraulic tube length		0.9m

System Diagram



- refers to the model itself with standard attachments
- refers to attachable main accessories
- ◌ refers to types of mounting adaptors

Specifications are subject to change without notice.

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