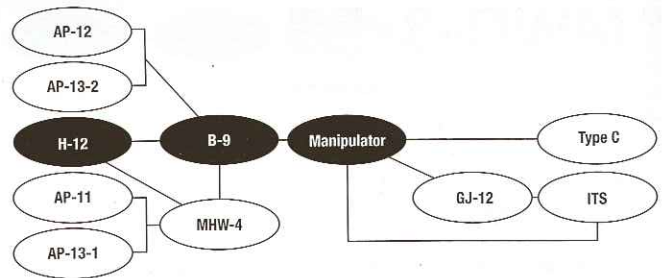


MHW-3

Three-axis Water Hydraulic Micromanipulator

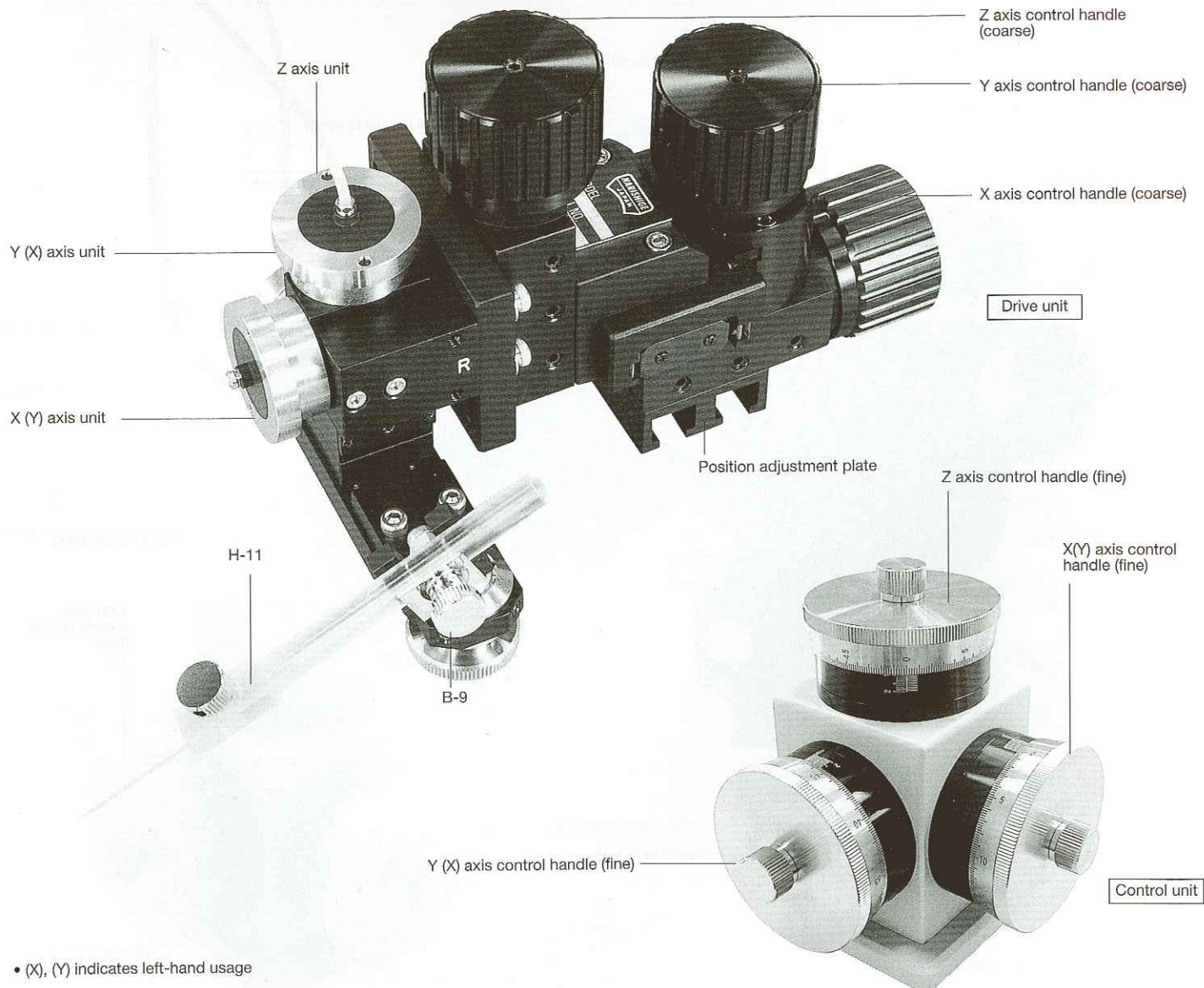
Acclaimed water hydraulic manipulator for patch clamping.

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 1:5 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, 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. This model set the standards for subsequent models of micromanipulator for patch clamping.



- For attachment to the microscope, a suitable 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-12/AP-13-2 patch clamp headstage holders can be attached on the B-9 ball joint, incorporated in the manipulator.
- Combining the ball joint that attaches the micromanipulator with MHW-4 single-axis water hydraulic micromanipulator enables four-dimensional remote controlled movement.

Accessories	B-9 Ball Joint, H-11 Electrode Holder, CF-3 Tube Fixture, Allen Wrench	
Movement range	Coarse:	X 30mm, Y 30mm, Z 30mm Full rotation of knob: approx. 4mm
	Fine	X 2mm, Y 2mm, Z 2mm Full rotation of knob: 50µm Minimum graduation: 0.2µm
Dimensions/ Weight	Control unit	W115 X D115 X H132mm, 1.6kg
	Drive unit	W155 X D155 X H100mm, 900g



• (X), (Y) indicates left-hand usage