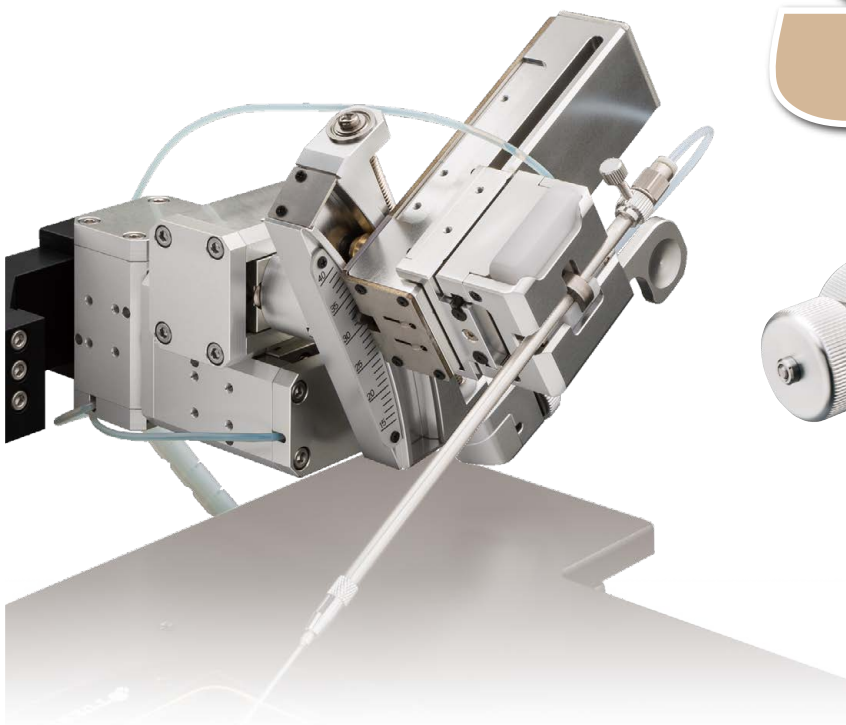


***NARISHIGE***

# ***M*** ***Manipulator & Injector*** ***S*** ***ystem***



*Micromanipulator*

Four-axis Hanging Joystick Oil Hydraulic Micromanipulator

**TAKANOME™**

**MTK-1**

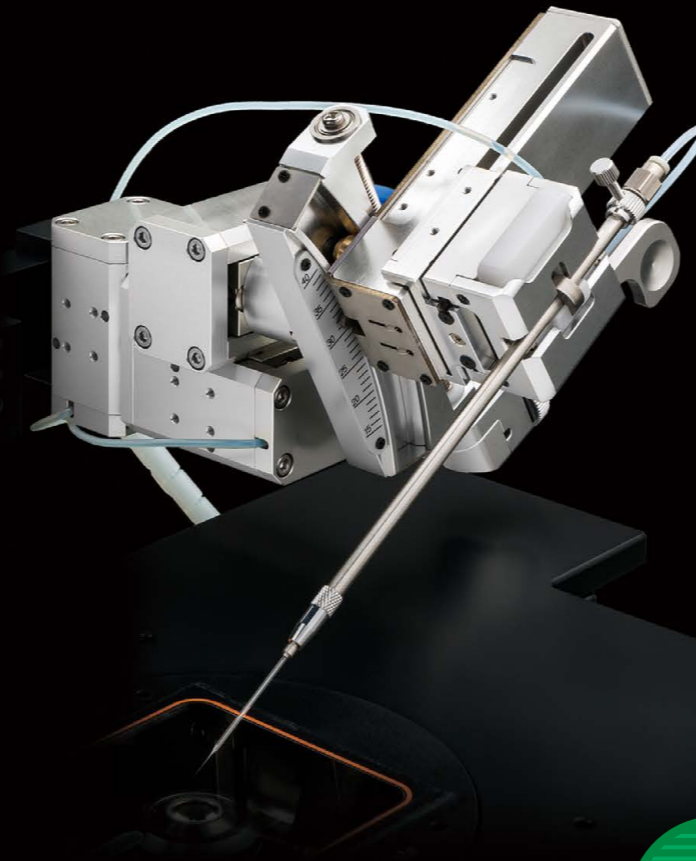
U.S. pat. 9925660

Lock-on Optical Axis



TAKANOME™ = 鷹の目 = Hawk eye

Hawks with keen eye sight lock on their target and never miss.



**1**

*Quick and simple pipette setting*

**2**

*Innovative angle adjustment*

**3**

*Simple installation*

**4**

*Improved rigidity in structure*

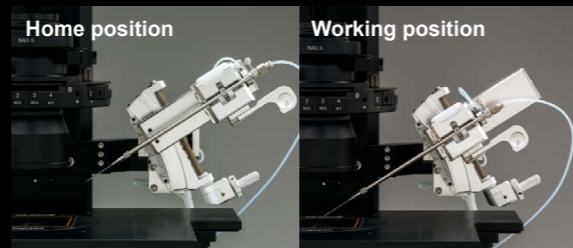
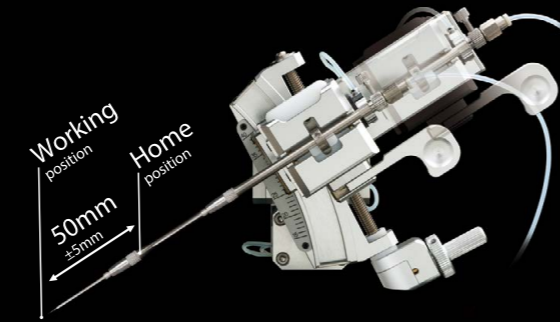
**5**

*Narishige original smooth hydraulic operation*

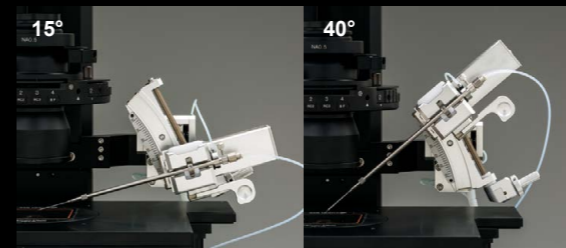
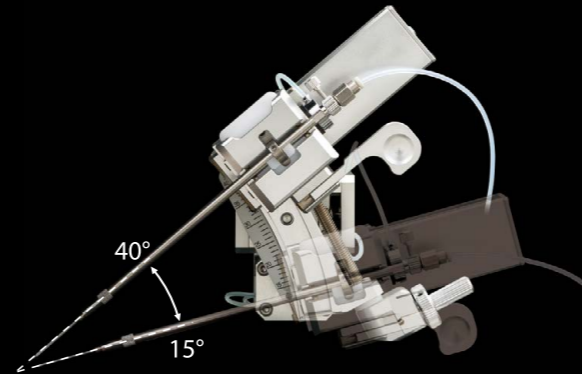
**TAKANOME™**

**Next Generation  
ICSI Manipulator System**

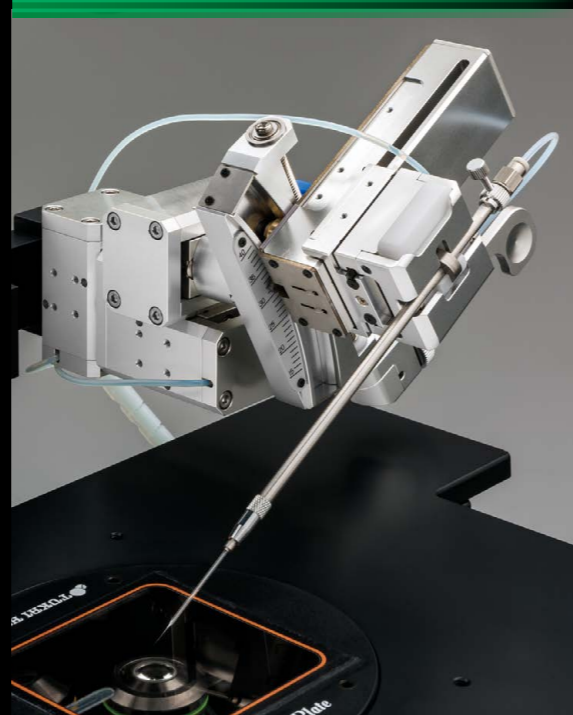
**Easy Pipette Exchange**  
Eliminates broken pipettes



**Innovative Angle Adjustment Mechanism**  
Pipette tip stays in place no matter what



**Solid and Stable Body**



Four-axis Hanging Joystick  
Oil Hydraulic Micromanipulator

**MTK-1**



**Traditional Oil Hydraulic Joystick**  
Easy operation and smooth response

**Reliable and Fast Pipette Exchange**

- 1 Pull the lever upward to "HOME" position (50mm).
- 2 Turn the T-axis knob all the way to upper position (10mm).
- 3 Remove the injection holder, exchange/insert the pipette, and place it back.
- 4 Press the tab of the lever to return it to "WORKING" position.
- 5 Use the T-axis knob to adjust the position of pipette tip.

**Simple Three-Step Installation**

- 1 Place the mounting adaptor. (No Adjustment Needed)
- 2 Place the drive unit onto the mounting adaptor. (No Adjustment Needed)
- 3 Use Positioning Gauge to set the pipette tip to be in the field of view.

SETUP EXAMPLE

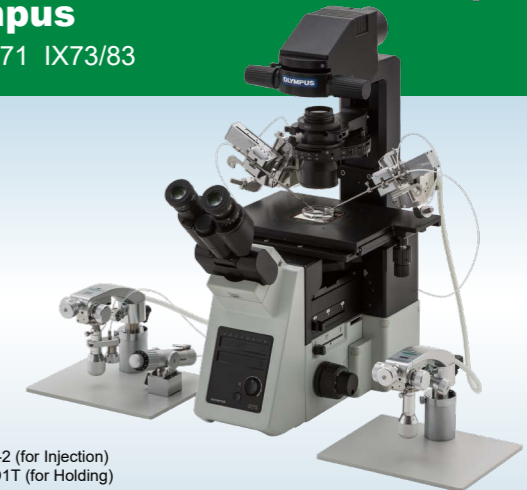
**Nikon**  
ECLIPSE TE2000 ECLIPSE Ti  
ECLIPSE Ti2 ECLIPSE Ts2R

Injector: IM-11-2 (for Injection)  
IM-HD1T (for Holding)



**Olympus**  
IX70 IX71 IX73/83

Injector: IM-11-2 (for Injection)  
IM-HD1T (for Holding)



**Carl Zeiss**  
Axiovert200 Axio Observer 3/5/7  
Axio Vert.A1

Injector: IM-11-2 (for Injection)  
IM-HD1T (for Holding)



**Leica**  
Dmi8

Injector: IM-11-2 (for Injection)  
IM-HD1T (for Holding)

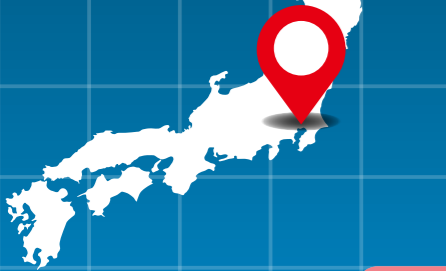


# SETAGAYA

## 世田谷 “SETAGAYA”

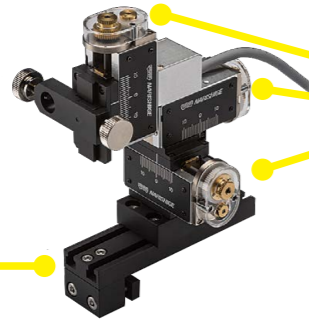
NARISHIGE started as a small machine shop in the community of SETAGAYA, Tokyo 65 years ago. To promise our leadership and support in the IVF community, we named our original manipulators “SETAGAYA”.

世田谷



### Coarse Manipulator

#### MOTOR-DRIVE



MM-94  
MM-94B MOTOR-DRIVE

**Drive Unit for Right and Left**  
Minimal adjustment necessary.

**Additional Backup Control Knobs**  
In case of power loss.

#### MANUAL TYPE



MN-4 MANUAL

**Reliable and Affordable Manual Type**  
Quick response and wide range of movement.

### Micromanipulator (Fine Drive)

**Symmetrical Design**  
Constructed perfectly for right and left-side.

**Improved Joystick**  
Design to sustain oil pressure rebound.



MMO-4 OIL

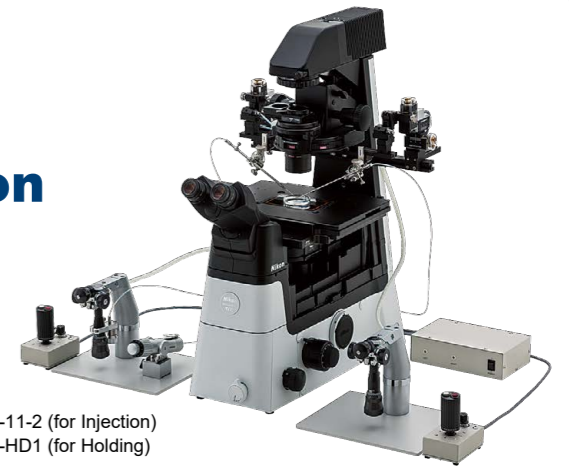
**Universal Joint UT-10**  
Angle gauge to precisely position the pipette.

### High Precision and Easy Control

Oil hydraulic micromanipulator offers smooth movement and no vibration so the pipette tip accurately approaches the target. Compact design and simple setup. Hanging joystick for 3D micromanipulation. Optimized design to reduce stress from long hours of operation.

#### Setup Example

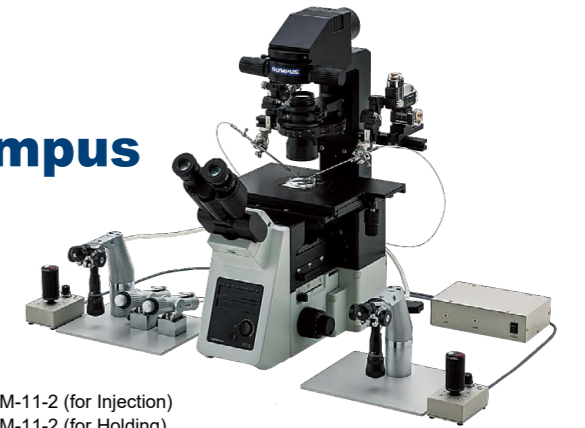
### Nikon



Injector: IM-11-2 (for Injection)  
IM-HD1 (for Holding)

#### Setup Example

### Olympus



Injector: IM-11-2 (for Injection)  
IM-11-2 (for Holding)

#### Setup Example

### Carl Zeiss



Injector: IM-11-2 (for Injection)  
IM-HD1 (for Holding)

#### Setup Example

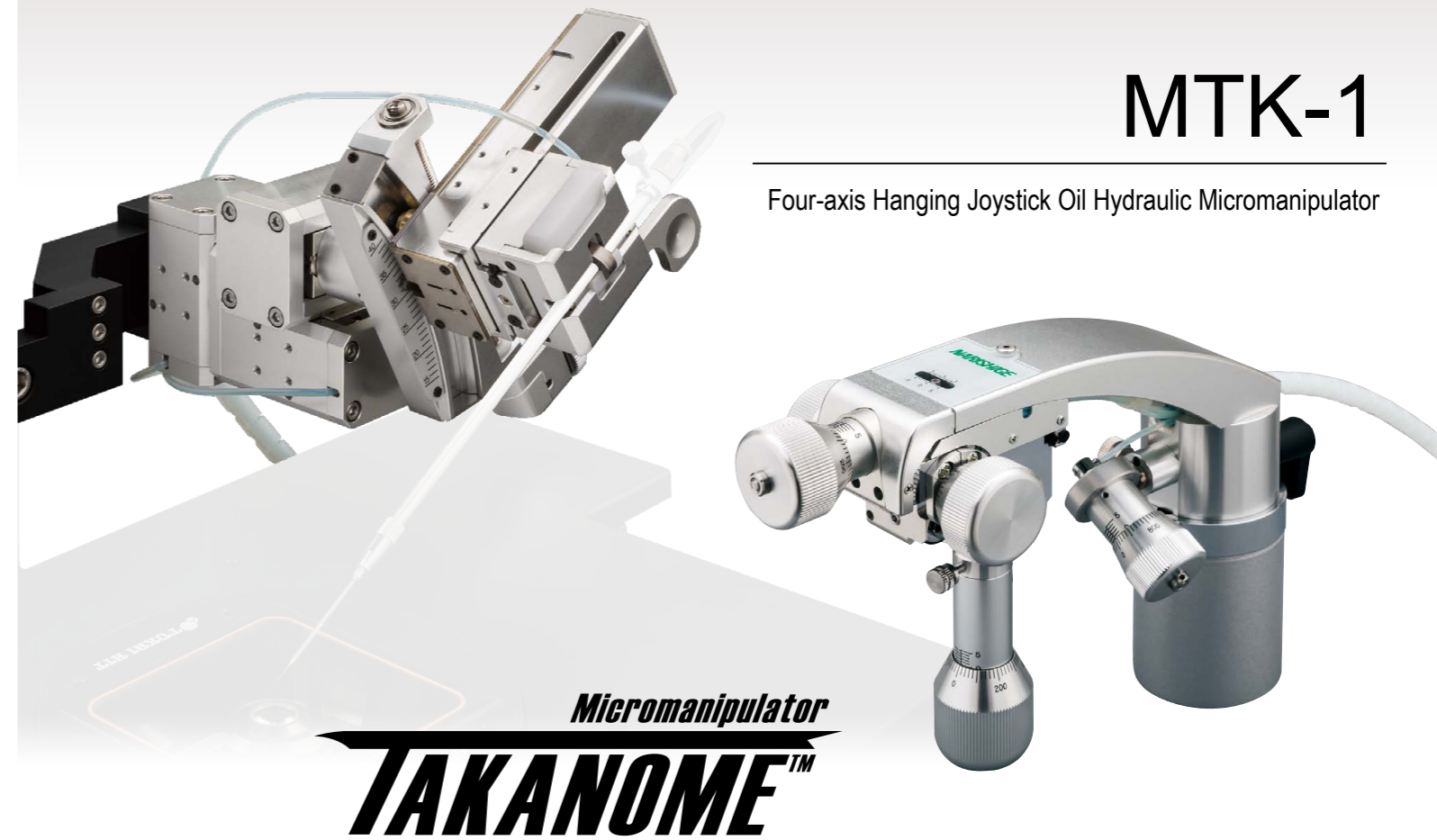
### Leica



Injector: IM-11-2 (for Injection)  
IM-HD1 (for Holding)

# MTK-1

Four-axis Hanging Joystick Oil Hydraulic Micromanipulator



Micromanipulator  
**TAKANOME™**

The optimal manipulator specifically made for handling suspension cells

Once having been set, the innovative fan-shaped driver never fails to return to where the pipette tip is supposed to be. The newly installed knob allows a pipette to move along its axis by using traditional and smooth oil hydraulic joystick. This manipulator will spare the laborious work of a pipette alignment with the optical axis, providing more time for objective operation.

TAKANOME ..... 2  
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## Manipulators

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## Injectors

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 IM-HD1 ..... 14  
 IM-HD1T ..... 15  
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INTEGRATED SYSTEM

# MTK-1

Accessories included	Dedicated mounting adaptor, IP Iron plate × 2 units, Positioning gauge, Anchor × 2 units, Hex wrench, Pipette scale × 2 sheets		
Movement range	X/Y/Z-axis	Oil hydraulic control 10 mm, Full rotation of knob 250 μm, Minimum graduation 5 μm	
	T-axis	Oil hydraulic control 10 mm, Full rotation of knob 1000 μm, Minimum graduation 20 μm	
	(for holder)	Manual (Return and home position) 50 mm Incident angle 15 – 40°	
Dimensions/Weight	Control unit	W85.6 × D225 – 235 × H151 – 171 mm, Approx. 1.9 kg	
	Drive unit	W108 – 138 × D145 – 155 × H100 – 150 mm, Approx. 820 g	
Hydraulic tube length	0.6 m		

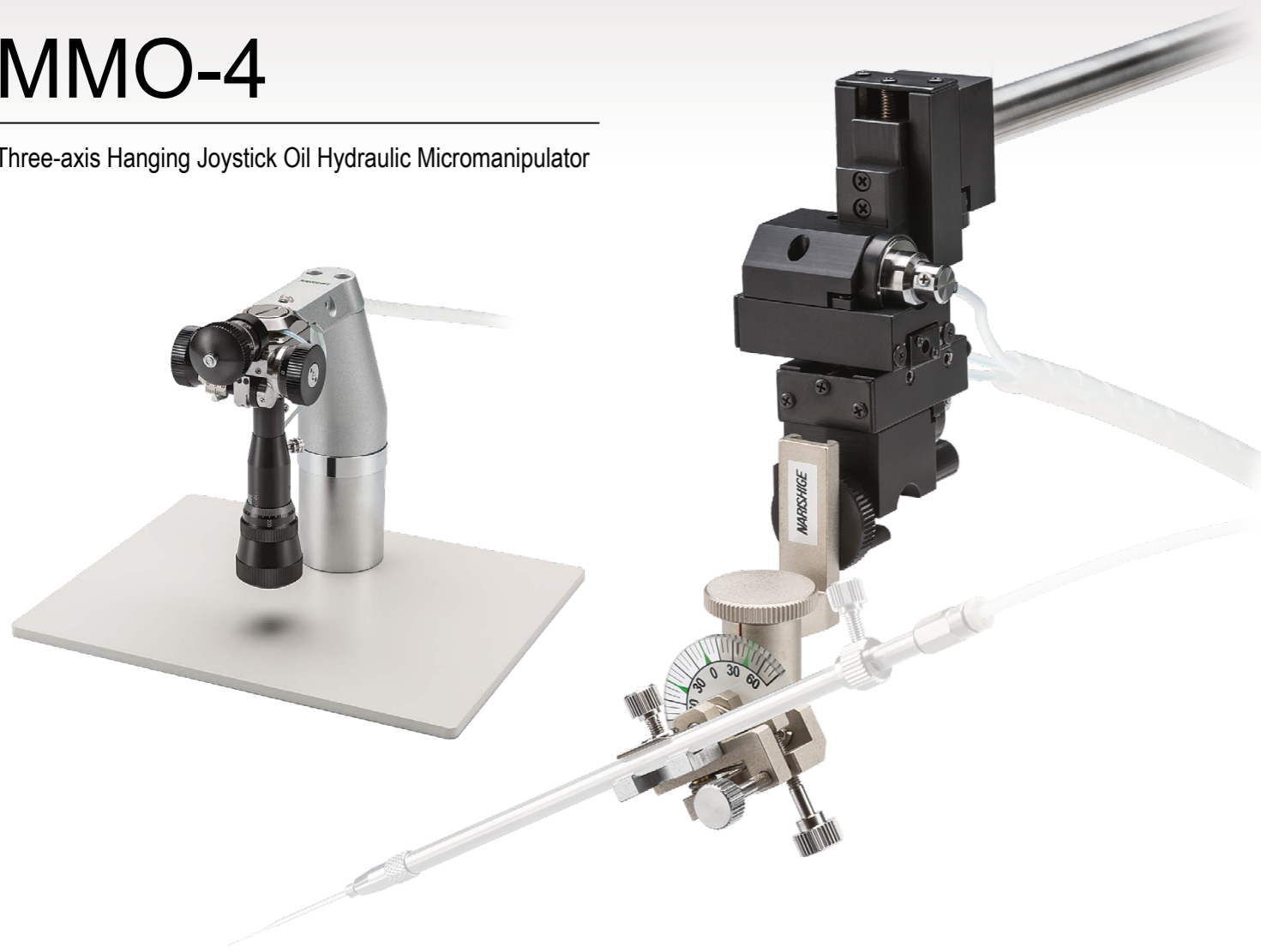
Microscope compatibility table (\*\*Select model based on your microscope)

MTK-1-**							
Nikon		Olympus		Carl Zeiss		Leica	
N1	ECLIPSE TE2000	O1	IX70	Z1	Axiovert 200	L2	DMi8
N2	ECLIPSE Ti	O2	IX71		Axio Observer 3/5/7		
N3	ECLIPSE Ts2R	O3	IX73/83	Z2	Axio Vert.A1		
N4	ECLIPSE Ti2						

\* This product is sold as a set including two manipulators for right/left side and the dedicated adaptor.  
 \* A microscope and injection holder (HI-9) are not included.

# MMO-4

Three-axis Hanging Joystick Oil Hydraulic Micromanipulator



Upgraded MMO-202ND, usability is greatly improved.

The MMO-4 micromanipulator features an oil hydraulic joystick enabling smooth three-dimensional movement with a single lever. Conversion from right to left-hand use is no longer necessary. Improved universal joint (UT-10) included, enables stable and accurate attachment of a pipette.

OIL HYDRAULIC FINE

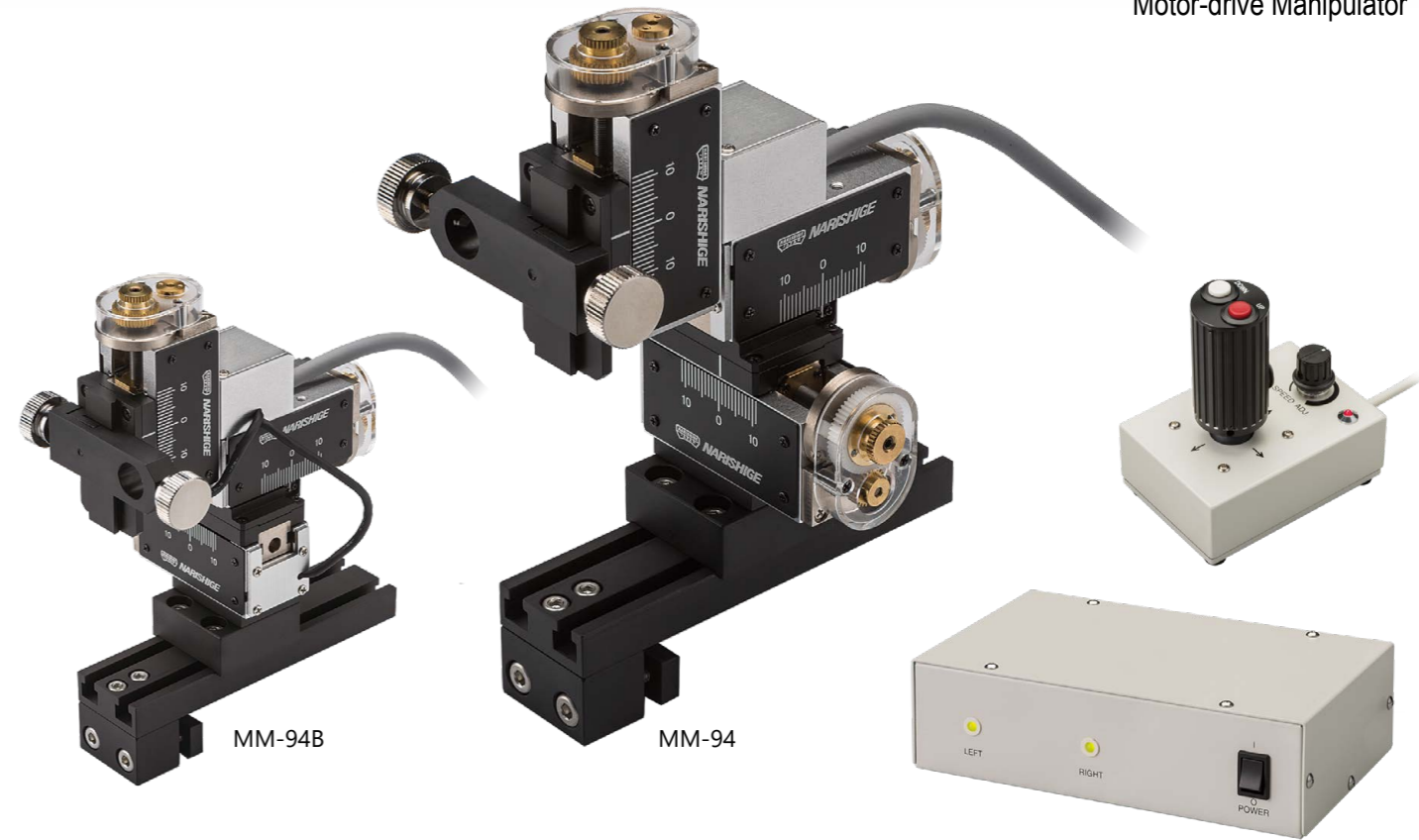
# MMO-4

Accessories included	IP Iron plate, UT-10 Universal joint (with Angle gauge)	
Movement range	Fine	X10 mm, Y10 mm, Z10 mm Full rotation of knob 250 μm Minimum graduation 2 μm
		Joystick (for maximum movement in X-Y plane) 2 mm
Dimensions/Weight	Control unit	W177 × D70 × H178 mm, 1.76 kg
	Drive unit	W70 × D40 × H87 mm, 168 g
Hydraulic tube length	0.9 m	

\* Injection holder (HI-9) is not included.

# MM-94 / MM-94B

Motor-drive Manipulator



Coarse manipulator with most popular motor-drive system.

This motor-drive coarse manipulator is used for initial positioning of the pipette within the microscope field of view. MM-94 is the set of dedicated drive unit for right-side, controller, and control unit. MM-94B is an add-on type manipulator for left-side use of MM-94, that is used with a control unit of MM-94.

MOTOR-DRIVE COARSE

# MM-94 / MM-94B

Accessories included	Power cord, Hex wrench	
Movement range	Coarse	X22 mm, Y22 mm, Z22 mm
Driving speed (X,Y)	1.4 mm/s, (Z) 2.8 mm/s (with use of high-speed button)	
	Speed adjusting switch (at maximum) 0.7 mm/s, (Z)1.4 mm/s Speed adjusting switch (at minimum) 0.1 mm/s, (Z) 0.2 mm/s	
Working voltage	AC100V – AC240V, 50/60Hz	
Power consumption	Approx. 10W	
Dimensions/Weight	Control unit*	W 204 × D 135 × H 62 mm, 1.05 kg
	Drive unit	W 85 × D 112 × H 144 mm, 0.59 kg
	Controller	W 70 × D 100 × H 120 mm, 0.53 kg

\* Control unit is not included in MM-94B.

# MN-4

Coarse Manipulator



## Manual coarse manipulator with excellent response in operation

The MN-4 manual coarse manipulator is combined with a hydraulic micromanipulator to position a pipette tip under the microscope field of view. Return and rotating mechanisms are equipped for easy exchange of a specimen or a pipette.

MANUAL

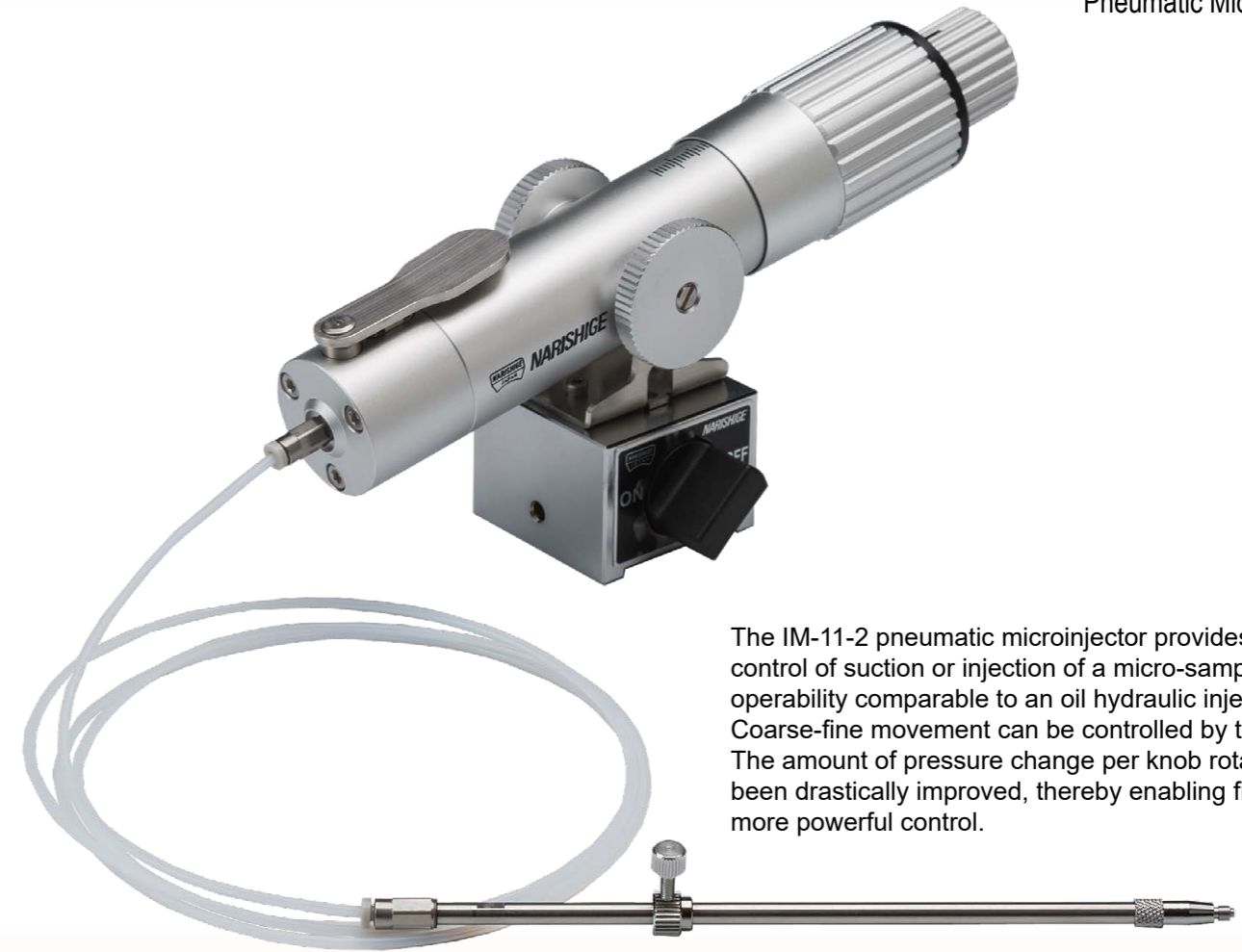
COARSE

# MN-4

Accessories included	Hex wrench
Movement range	Coarse X30 mm, Y30 mm, Z30 mm
Dimensions/Weight	W125 × D110 × H135 mm, 600 g

# IM-11-2

Pneumatic Microinjector



The IM-11-2 pneumatic microinjector provides precise control of suction or injection of a micro-sample with operability comparable to an oil hydraulic injector. Coarse-fine movement can be controlled by the knob. The amount of pressure change per knob rotation has been drastically improved, thereby enabling finer and more powerful control.

## Comfortable pneumatic control for both injecting and holding sides

PNEUMATIC

FOR INJECTION

FOR HOLDING

# IM-11-2

Accessories included	HI-9 Injection holder, Cleaning rod, CT-4 Tubing, CT-1-1.5 Tubing, IMO10 O ring, Silicone grease, HI01PK01 Silicone rubber gasket, Hex wrench
Movement range	Plunger 40 mm
Dimensions/Weight	W167 – 214 x D55 x H78 mm, 680 g
Hydraulic tube length	1.2 m (CT-4), 1.5 m (CT-1-1.5)

# IM-HD1

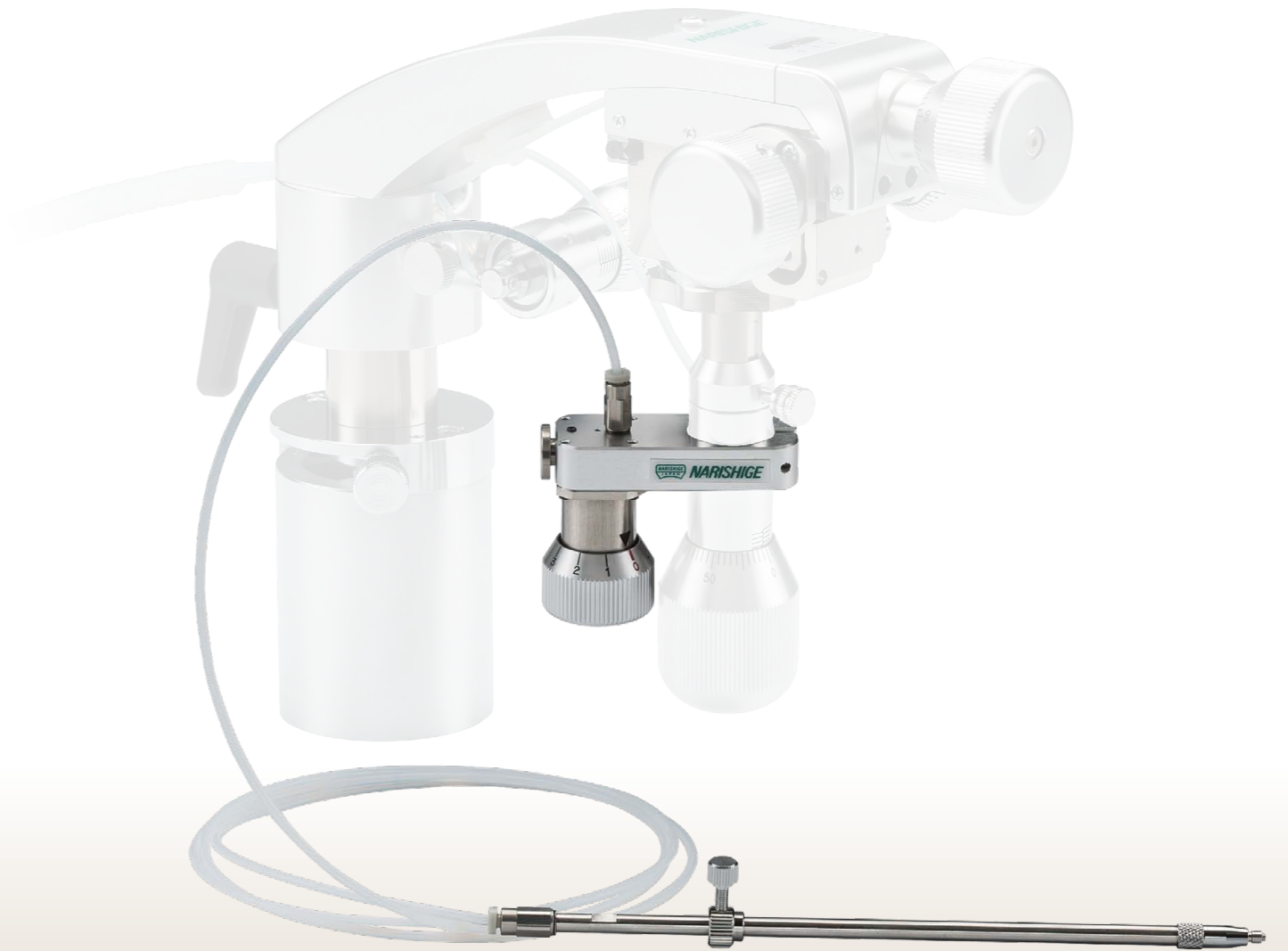
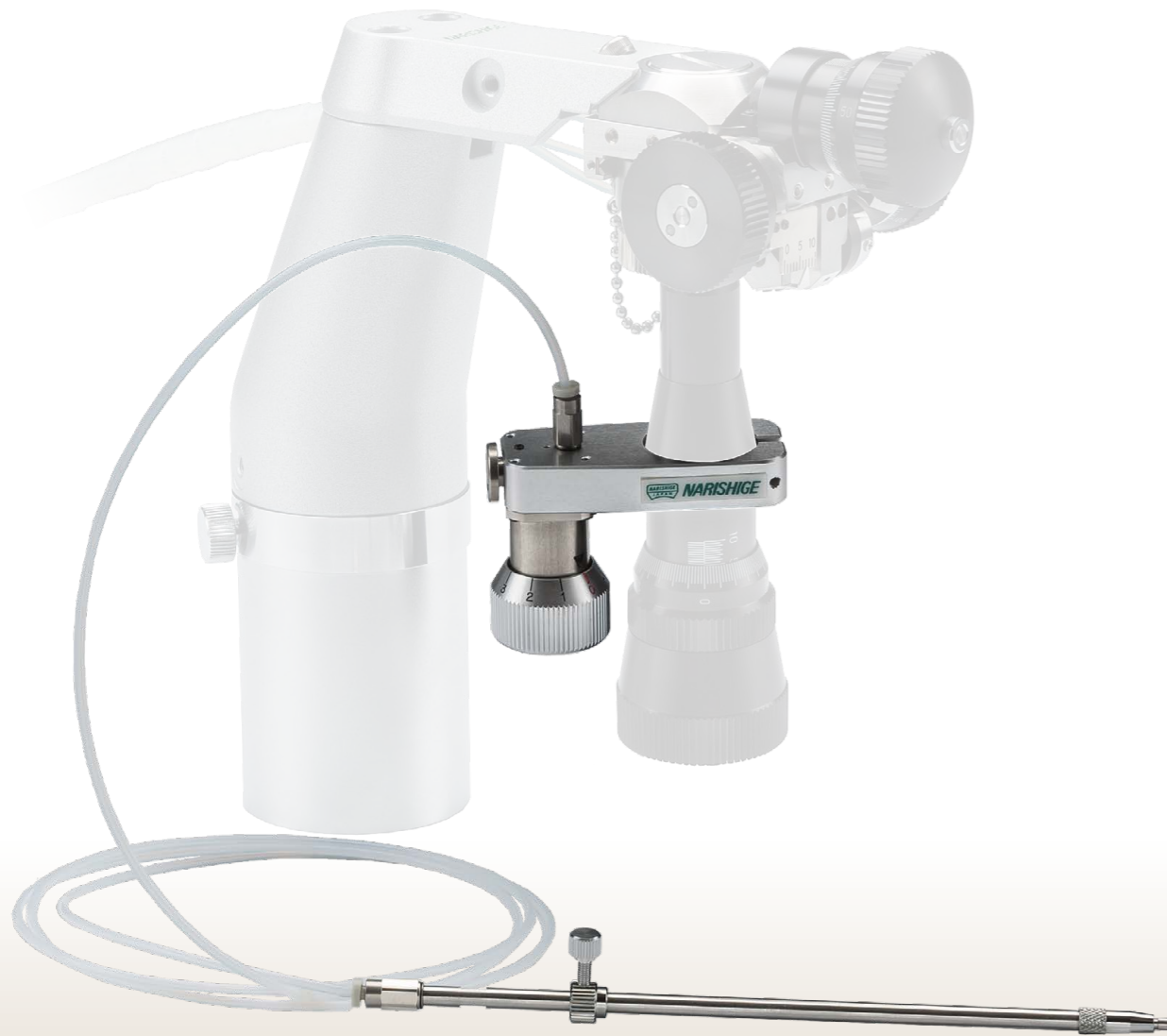
Pneumatic Injector (For holding side)

Injector for the holding side attachable to the manipulator joystick

This pneumatic injector is intended exclusively for holding an egg. It can be attached to the manipulator joystick, which allows holding and releasing an egg in a delicate and secure manner operated only with a forefinger. It enables doing micromanipulation and suctioning work at the same time.

# IM-HD1T

Pneumatic Injector (For holding side)



PNEUMATIC FOR HOLDING



## IM-HD1

Accessories included	HI-9 Injection holder, Cleaning rod, CT-4 Tubing, CT-1-1.5 Tubing, HI01PK01 Silicone rubber gasket, Hex wrench
Dimensions/Weight	W24 × D55 × H54 mm, 58 g
Tube length	1.2 m (CT-4), 1.5 m (CT-1-1.5)



PNEUMATIC FOR HOLDING

## IM-HD1T

Accessories included	HI-9 Injection holder, Cleaning rod, CT-4 Tubing, CT-1-1.5 Tubing, HI01PK01 Silicone rubber gasket, Hex wrench
Dimensions/Weight	W24 × D55 × H54 mm, 58 g
Tube length	1.2 m (CT-4), 1.5 m (CT-1-1.5)

# IM-21

Microinjector



Simplify troublesome oil filling  
and air bubble removing.

Compact, high-performance oil microinjector equipped with new functions which simplify troublesome oil filling. Useful for the purpose of ICSI in mammalian eggs.

\* Oil is not included nor available from Narishige.

OIL

FOR INJECTION

## IM-21

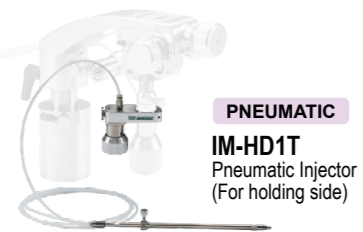
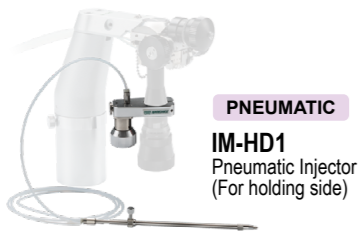
Accessories included	IM-H3 Injection holder set, Cleaning rod, HI01PK01 Silicone rubber gasket, IMO4 O ring, Silicone grease,
Movement range	Plunger 20 mm, Full rotation of knob 500 $\mu$ m
Control capacity	Full rotation of knob approx. 10 $\mu$ l
Dimensions/Weight	W127 – 147 × D56 × H78 mm, 620 g
Tube length	1 m

**NARISHIGE**

# SYSTEM DIAGRAM

## INJECTORS

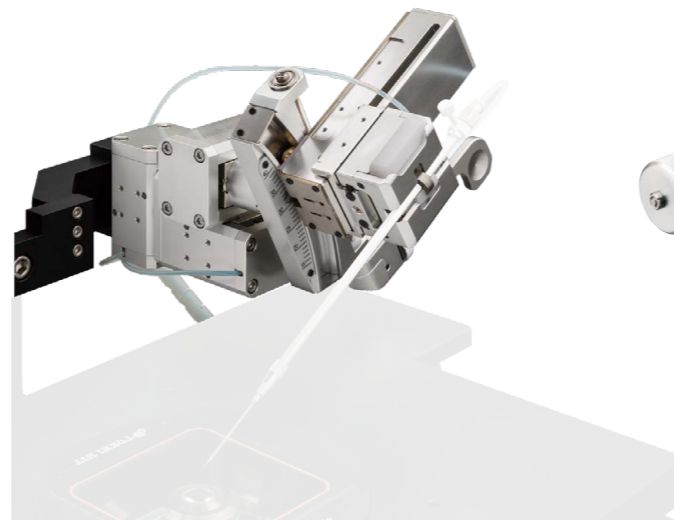
### For Injection



### For Holding

## MANIPULATORS

### INTEGRATED SYSTEM



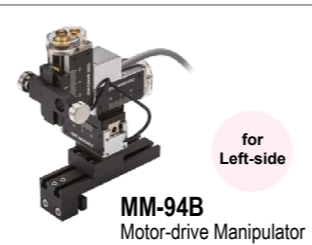
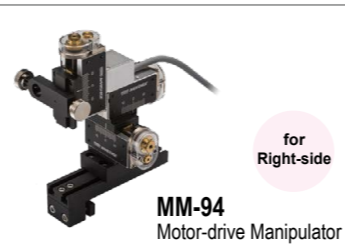
*Micromanipulator*  
**TAKANOME™**



### FINE



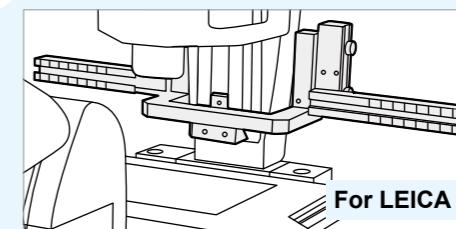
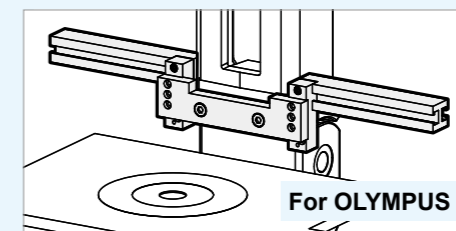
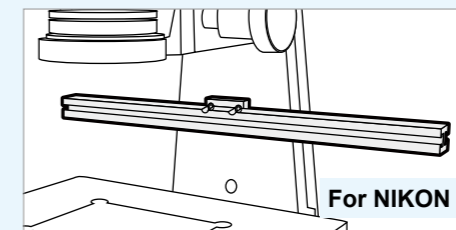
### COARSE



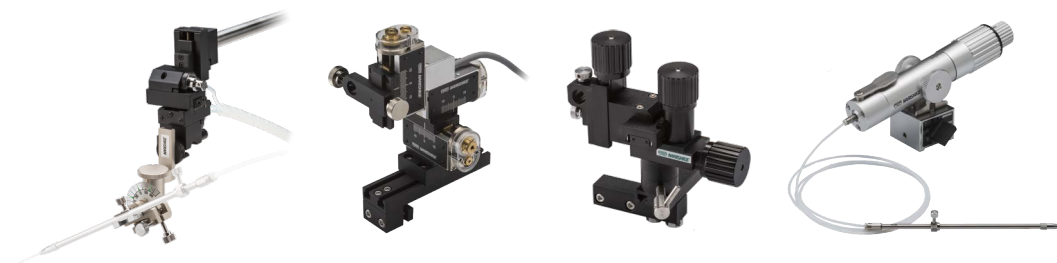
## MICROSCOPES



## ADAPTORS



\* **P-10 Manipulator Attachment** is required (two each for Nikon, one each for Olympus) to avoid interference with microscope condenser. Sold separately.



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Dealer/Distributor

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