



华粤行医疗
HARIOMED

Micromanipulator System

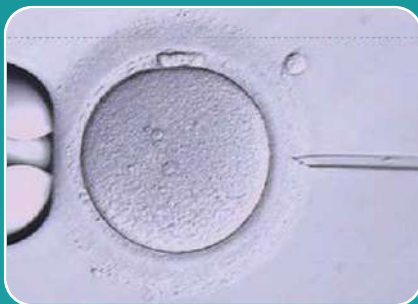
HARIOMED IMS-320D/IMS-320U





Main applications

- ① ICSI(Intracytoplasmic sperm injection)
- ② Pronuclear and cytoplasmic injection
- ③ Stem cell transfer
- ④ Nuclear transfer
- ⑤ Embryos biopsy
- ⑥ Single cell selection and isolation
- ⑦ Gene editing
- ⑧ Serial injection into fish embryos
- ⑨ Serial injection into insect embryos (eg. silkworm, bee, locust, butterfly, Drosophila)
- ⑩ Serial injection into C. elegans and chicken embryo



- ◎ Class I medical device under MDR (EU) 2017/745 annex VIII
- ◎ FDA 510(k) Exempt device, establishment registration and device listing have been completed

Motor module

H A R I O M E D



- Motor modules are precise, stable control and real-time response in X-Y-Z movement.
- Movement precision is less than $1\mu\text{m}$ and step size (computational resolution) is less than 20nm .
- Microinjector holder can swivel inwards or outwards along X axis for micropipettes and dishes changing.
- Adjustable angle is between 15° and 45° while angle graduation is 1° .
- It is no need to re-fine the needle tip in the microscope while adjusting the angles.
- It has high compatibility with major microscope brands.

Leica
MICROSYSTEMS

ZEISS
Seeing beyond

OLYMPUS

Nikon

NOVEL
OPTICS

SOPTOP

Lissview

Depending on the application, the following two holding devices are available as options:

Center-swivel holding device:
Adjustment range from -90° to 90°

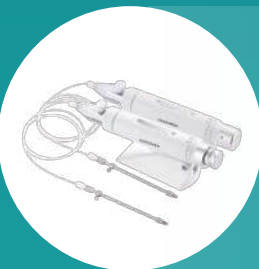


Dual-needle holding device:
Two needle holders can be installed.
Adjustment range from 15° to 45°



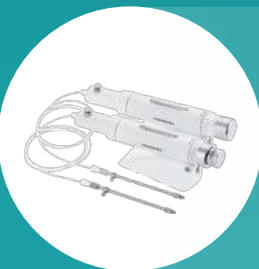
Microinjector

H A R I O M E D



Oil microinjector

- ① Available for single and dual model
- ② $1\mu\text{l}$ of resolution for precise control
- ③ Sensitive and easy handle
- ④ Marked with In & Out to avoid wrong tuning
- ⑤ 1 ml of cylinder volume for much fewer oil filling frequency than ever



Pneumatic microinjector

- ① Available for single and dual model
- ② $10\mu\text{l}$ of fine tuning resolution
- ③ Pressure release and balance via button
- ④ Visible residual volume for positioning the rod of the microinjector



- Inverted controller and upright controller could be chosen according to operator's preference.
- One joystick can easily achieve intuitional fine/coarse 3-D movement control and manipulation.
- We use soft silicone mat to keep your wrist comfortable.
- 9° tilt angle is ergonomic design to reduce fatigue.

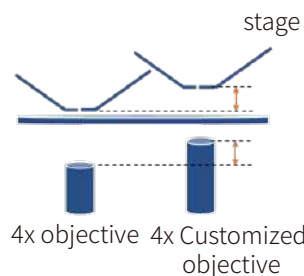
- ① The parameters setting menu displays all key status , like three-axis reference,joystick status, control mode.
- ② There are 6 buttons for velocity & positioning, switching for fine & coarse ,raising the micropipette , counting and standby respectively.
- ③ Users can store two programmed positions and restrict the moving range of the tips; home position and rinsing micropipettes are also user-friendly.
- ④ Up to 5 different individual settings are allowed to be saved to optimize for specific individual needs.

Multi-functional control panel



Others

Customized objective for adjusting micropipette



① 4x customized objective:

- The focal plane is located above the dish to avoid the micropipette breaks.

② Quick micropipette change:

- One button switch to home /lift position
- Using 4x customized objective to achieve quick micropipette change.

Piezo System IPS-540

H A R I O M E D



- ① IPS-540 assisted manipulation used for perforation of cell membrane and microinjection.
- ② Intuitive and easy operation interface.
- ③ Using for transfer of ESCs and iPS, mouse ICSI and nuclear transfer.

Femtoinjector IFS-600



H A R I O M E D



- ① Serial injection volumes from femtoliter up to microliter.
- ② Achieving high repeatability by programmed injection.
- ③ Automatic programmed and quantitative injection by connecting IMS-320D or IMS-320U series micromanipulator.
- ④ Available for built-in compressor and external pressure.
- ⑤ Available for foot pedal.



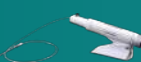


Product parameters

H A R I O M E D

Controller model	IMS-320D 	IMS-320U 
Joystick type	Inverted	Upright
Control method	Dual-model of speed/position, one joystick for movement control in X- Y- Z axis	
Dimensions (W × H × D)	202mm × 270mm × 225mm	200mm × 275mm × 130mm
Step size (computational resolution)	Less than 20nm	
Maximum speed	0 ~10,000 μm/s	
Weight	1.85kg	1.66kg
Power	24V DC/40W	

Motor module	
Travelling distance	20mm
Stepper motor	X, Y, Z module
Distance precision	less than 1μm
Dimensions	134mm × 55.5mm × 43mm
Direction of rotation	15°–45°
Weight	2.6kg



Microinjector type	 Senior oil microinjector IMS-O-505D	 Oil microinjector IMS-O-505S	 Senior pneumatic microinjector IMS-A-520D	 Pneumatic microinjector IMS-A-520S	 Pneumatic microinjector IMS-A-330S
Moving distance	Maximum distance: 50mm	Distance of coarse adjustment per revolution: 0.5mm	Maximum distance: 50mm	Distance of coarse adjustment per revolution: 2mm	Maximum distance: 30mm; distance per revolution: 3mm
Maximum Pressure	2MPa		0.1MPa		0.2MPa
Cylinder volume	1ml		2.5ml		6ml
Volume change per revolution	10μl/1μ	10μl	100μl/10μ	100μl	600μl
Dimensions/weight	265mm × 60mm × 85mm, 1.75kg		265mm × 60mm × 85mm, 1.85kg		225mm × 60mm × 85mm, 1.5kg



Model	IPS-540
Input voltage	100-250V/AC, 50/60Hz
Input current	<1.67A
Power	40W (MAX)
Interface	RJ45(for software upgrading), circular connectors, RS485
Amplitude	1~100
Speed	1~40
Frequency	1-10 or ∞
Function	Function A, Function B, Clean
Custom combinations	5
Weight	3kg
Dimensions (W × H × L)	175x175x115 mm



Model	IFS-600
Pressure supply	built-in compressor and external pressure
Input voltage	100-240V/AC, 50/60Hz
Power	120W (MAX)
Injection pressure	0.5kPa-600kPa, control precision 0.1kPa
Injection time	0.1s-99.99s, control precision 0.01s
Balanced pressure	0.5kPa-600kPa, control precision 0.1kPa
Cleaning pressure	600kPa (MAX)
Dimensions (W × H × L)	117x236x233 mm
Weight	4.5kg



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