



华粤行医疗
HARIOMED

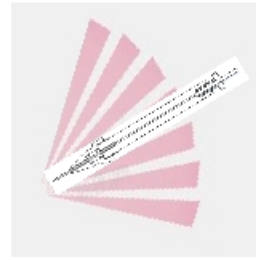
Micromanipulator System

HARIOMED IMS-320D/IMS-320U



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.



OLYMPUS



NOVEL OPTICS

SOPTOP



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



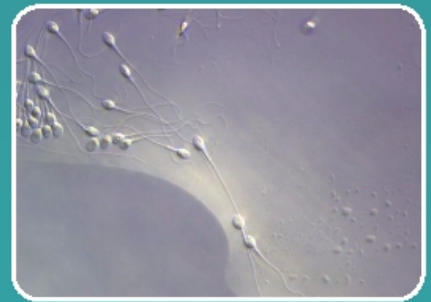
Pneumatic microinjector

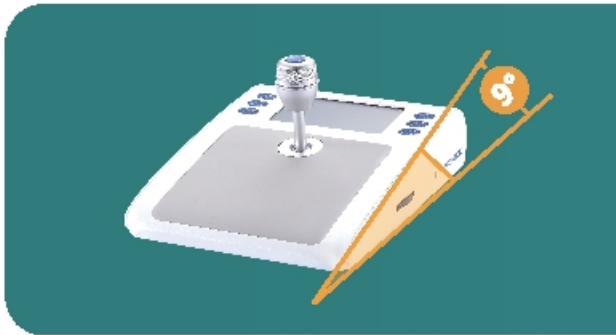
- ① Available for single and dual model
- ② $10\ \mu\text{l}$ of fine tuning resolution
- ③ Pressure release and balance via button
- ④ Visible residual volume for positioning the rod of the microinjector



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





- 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.

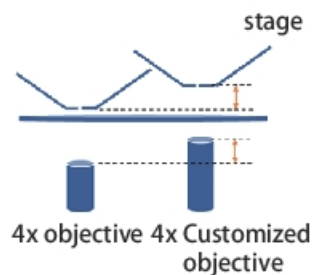
- ① The parameters setting menu displays all key status , like three-axis reference, joystick status, control mode. There are 6 buttons for velocity & positioning, switching for fine & coarse ,raising the micropipette , counting and standby respectively.
- ② Users can store two programmed positions and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

Intelligent Piezoelectric 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.

Intelligent Femto-Injection System 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 \square m/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 1 μ m |
| 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 | 10 μ l/1 μ | 10 μ l | 100 μ l/10 μ | 100 μ l | 600 μ l |
| 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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