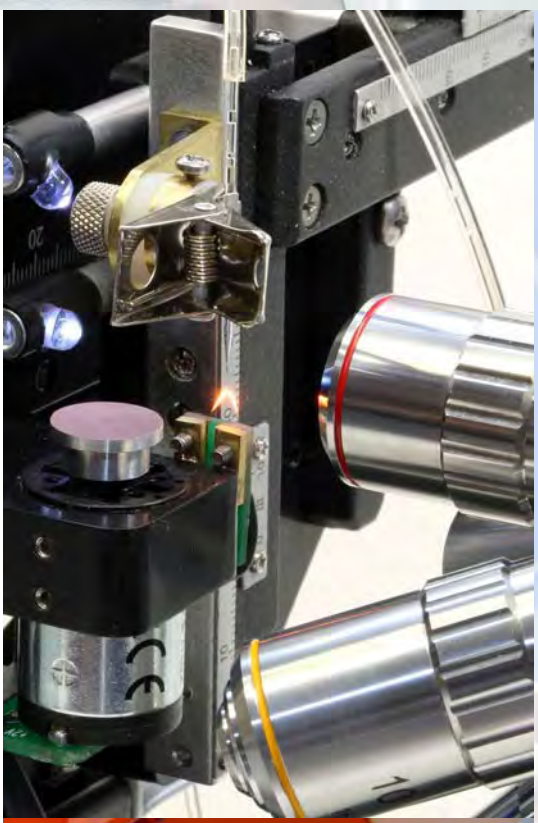

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Products and Applications for the Life Science Laboratory

Wireless Mouse Control Micromanipulators
Wireless Mouse Control Microinjection Combo
Microinjection Work Station
Microinjectors
Microperfusion Systems
Multi-Channel Microfluidic Pump
Single Barrel Micropipette Pullers
Multi-barrel Micropipette Pullers
Quartz Micropipette Puller
Microforge-Grinding Centers
Inverted Microscope

MDI®

MicroData Instrument, Inc.

Contents

MDI®

MicroData Instrument, Inc.

1207 Hogan Drive

South Plainfield, NJ07080, U.S.A.

Ordering Information

How to Order

Telephone orders must be confirmed in writing by e-mail or mail. All purchase orders must be signed by an authorized purchasing agent or person.

Export Order

Orders outside of the U.S.A. and Canada should be placed directly to this office or to the local representatives. Payment of U.S.A. currency must accompany all direct orders . Contact our sales department for quotation of shipping costs and payment options.

Prices and Specification

All prices are FOB factory. Prices and specification are subjects to change without notice. Shipping and insurance are additional.

Minimum Billing

Orders totalling less than $300.00 are charged an additional $15.00 for handling.

Warranty

All products are warranted to be free of defects in materials and workmanship for one year from date of shipment. Warranty becomes null and void because of abuse, disassembly, or unauthorized repair of product.

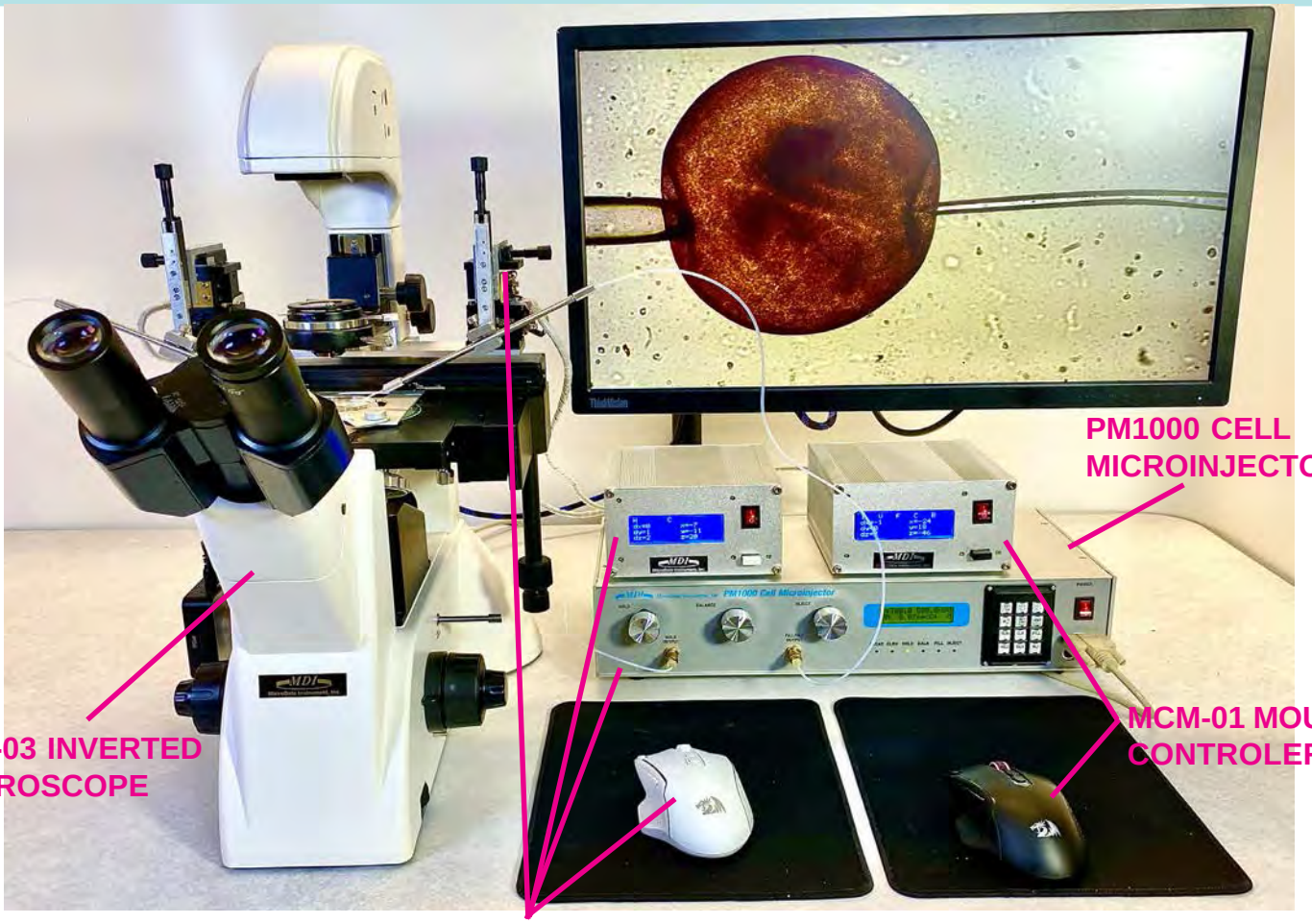
Service

Technical supports are available by e-mail or directly calling the office. Repairs and modifications are also available for all our products.

Return

Standard catalog items may be returned within 15 days from receipt, but customer must pay all shipments. Returns after 15 days and before 30 days will be subject to a 20% restocking charge. No return after 30 days. All return items and package should be maintained original condition and without damage. Used or contaminated pipettes, tubing and vials are not returnable. Modified or special order items are not returnable. Contact MicroData Instrument, Inc. for return authorization. Unauthorized return will be refused.

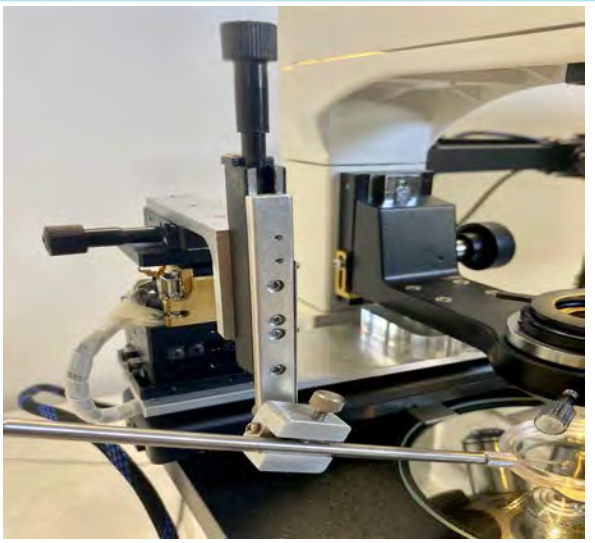
Mouse Control Micromanipulators and Microinjection Work Station



WIRELESS MOUSE COMPLETE CONTROL 3D MICROMANIPULATOR and MICROINJECTOR

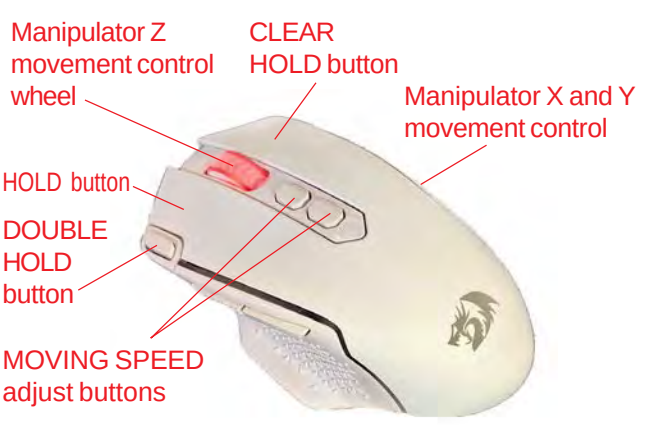
The MCM-01 3D Micromanipulators / Microinjector Mouse Controller is an innovative new product, which just using a wireless remote mouse can control both a micromanipulator 3-direction movements and the PM1000 Microinjector complete functions. The remote mouse can control the manipulator 3-direction movements precisely and smoothly much better than hydraulic joystick control or mechanic lever control. The remote mouse is lighter and convenient for one hand touch and moving control sensing. There are 5 buttons on the inject/manipulator remote mouse which can control PM1000 Cell Microinjector all five inject functions combine with injecting pipette 3D movement control. On the other hand, the holding pipette 3D movement can be controlled by another MCM-01mouse controller, which can also control PM1000 Cell Microinjector Hold/Release-Hold and Clear Hold functions. The pipette 3D movements and microinjection functions combination controlled by a wireless remote mouse provide an ideal and convenient new useful tool for both microinjection and ICSI.

MCM-01L Mouse Controller and Hold Pipette 3D Micromanipulator



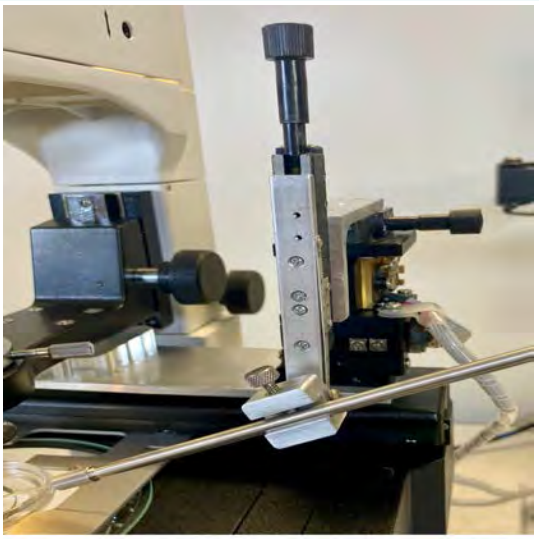
Left side 3D Micromanipulator with coarse 2D adjustment

Left side (Hold Pipette) Mouse controller



Wireless Mouse for left side (Holding) control

MCM-01R Mouse Controller and inject Pipette 3D Micromanipulator



Right side 3D Micromanipulator with coarse 2D adjustment

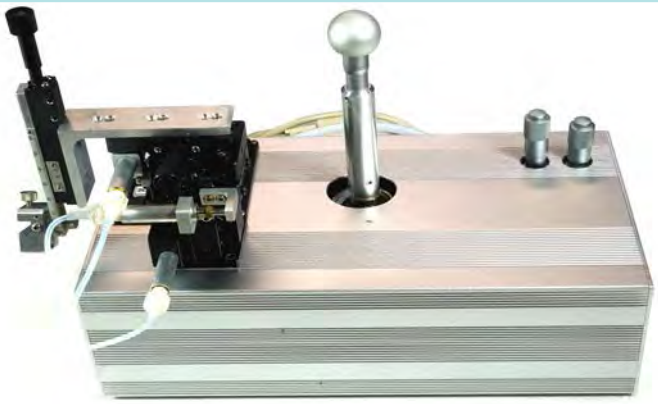
Right side (Inject Pipette) Mouse controller

Wireless Mouse for Right side (Injection) control

Specifications:

Mouse Control Movement Range:	8 mm for X (right/left), 8mm for Y (forward/backward) and 8mm for Z (hight/low). 4 um resolution for all directions.
Coarse Location Adjustment Range:	Y (forward/backward): 20 mm, Z (hight/low): 35 mm
Power Supply:	100-240 VAC. 50-60Hz. Max. 500MA.

3D Hydraulic Joystick Micromanipulators

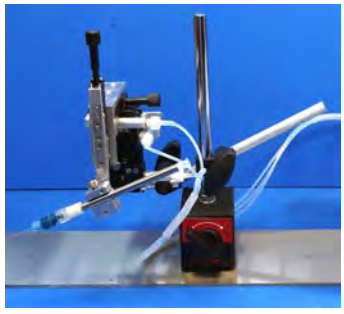


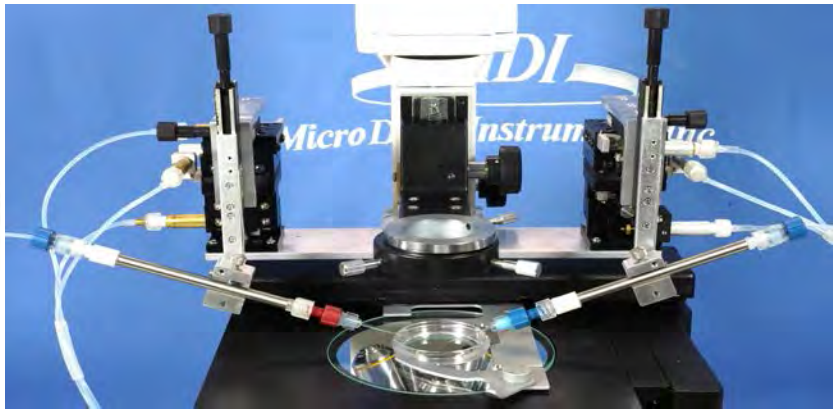
JHM-3 3D Hydraulic Joystick Micromanipulator

JHM-3R-PM2 3D Hydraulic Joystick Micromanipulator with PM-2000 Remote Keypad

JHM-3L-PM1 3D Hydraulic Joystick Micromanipulator with PM-1000 Remote Keypad

Optional magnetic stand (adjustable 0-35 cm high) or microscope bracket and pipette holder





Applications and Features

JHM-3 series Joystick 3D Hydraulic Micromanipulators are developed for manual moving and locating a micropipettes with accuracy, convenience and intuition on a microscope table one side or both sides. The X and Y horizontal movements can be manually controlled by moving the joystick required direction, while the Z vertical up and down can be controlled by turning the knob on top of joystick . There are two fine hydraulic control knobs on the control box for setting and adjustment of X, Y locations. There are two mechanic control knobs on the manipulator for Y and Z location coarse setting and adjustment. The hydraulic driving system offer smooth, vibration-free micromanipulator remote control movement. All three axes can be controlled easily and freely. An Easy-Pipette Holder-Clamp on the micromanipulator can clamp up to 1/4 inch diameter pipette holder rod. The pipette holder is easily and securely inserted in and out of the clamp, and can be conveniently turned and adjusted its angle with adjustable adaptive tension. The pipette holder can also be forward/backward adjusted its position inside the clamp.

The JHM-3 series Hydraulic Micromanipulators are easy to be maintained. Their structures are compact and reliable. All tubing can be easily connected and disconnected. The hydraulic fluid is easy to be replaced. There are DIY syringe kit for adding or replacing hydraulic fluid (water) easily. The JHM-3 series can be installed on both sides of adjustable bracket on the IMS-03 inverted microscope. They also can be installed and adopted on other inverted microscopes or stereo microscopes with optional brackets or magnetic independent stand.

Joystick Control Movement Range: 2.3 mm for X or Y, 6 mm for Z.
Hydraulic Control Knobs Adjustment Range: X, Y: 8 mm, Z: 6 mm
Coarse Location Adjustment Range: Y: 20 mm, Z: 35 mm
Hydraulic Fluid: Water (or optional oil).

IMS-03 Biological Inverted Microscope

IMS-03 Inverted Microscope

Applications

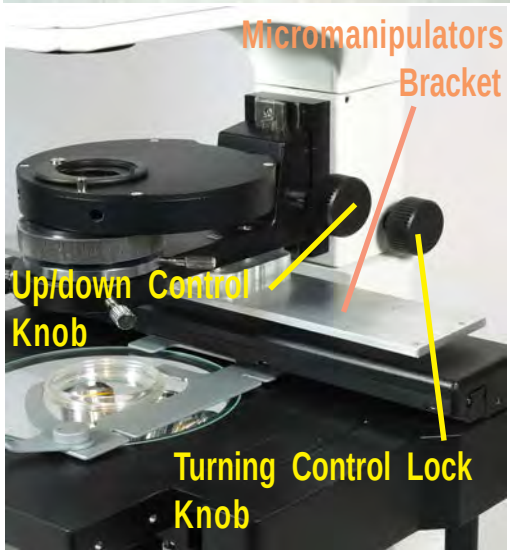
IMS-03 Biological Inverted Microscope is equipped with excellent UIS optical system including long working distance plan achromatic objective and extra large wide field plan eyepieces for easier observation. Compact and steady main body is embodiment for the shock resistance. The stage object moving mechanism is adopted coaxial high-strength steel wire control, which drives the object position very accurately and smoothly. There are a larger working table and an up/down adjustable bracket for installing micromanipulators on both sides, which can be easier to let pipette holders up to change disk and back to original position without take out the holders. The IMS-03 works perfectly as cell microinjection platform. The in / out turnable condenser system is suited for observation in a high culture dish and installing manipulators. This multifunction inverted microscope can be used in scientific biological research, cell microinjection, IVF, ICSI, live cell and tissue operation, culture observation and treatment, medical examination, etc.

Specifications:

Magnification:	100x - 400x, infinite tube length & conjugate distance of objective.
Trinocular:	Hinged binocular tube, observation angle 30 degree, pupil distance 53-75 mm.
Eyepieces:	Supper view wide field eyepieces:10x, F:22mm, interface:30mm, D:10mm. Optional WF20x
Objectives:	Long working distance plan achromatic objectives (cover glass thick:1.2mm):5x,10x-NA0.25WD4.3mm, 20x-NA0.4WD8mm, 40x-NA0.6WD3.5, phase contrast objective:10x-NA0.25 WD4.3 (Remark PHP2).
Condenser:	Long working distance condenser: working distance 55mm, turnplace phase contrast.
Object Stage:	Size:220x220mm. Movement range:77x134mm, precision wire control.
Manipulator Bracket:	For JHM-3, HM-3 or MM-3 micromanipulators .
Dish Holder:	Holder 1: 29x77.5mm, circular dish D68.5mm. Holder 2: 34x77.5mm, circular dish D68.5mm. Holder 3: 57x 82mm. Optional for circular dish D35mm or D50mm.
Focus Adjusting:	Coaxial coarse and fine focusing mechanism with tension adjustable and focus stop.
Illumination:	6V30W halogen lamp, adjustable brightness.
Weight/Dimention:	45 LB, 15" W x 20" D x 27" H.

Optional Accessories:

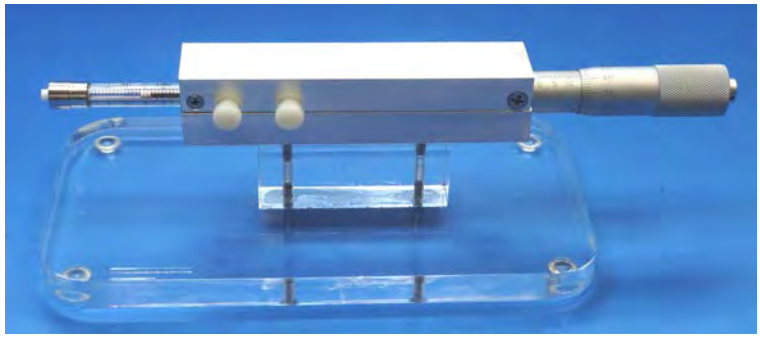
Eyepieces:	WF20x.
Cultrue Dish Holder:	35 or 50 mm diameter holder.
C-mount Adaptor:	For digital camera attachment.
D-Camera Adaptor:	For Canon or Nikon digital camera connection and convert optics.



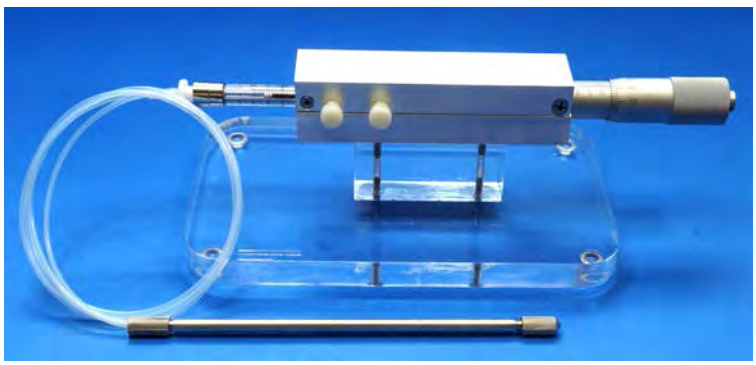
Bracket Up/down Control

Bracket Turning Control

MM-100 Manual Microinjectors



MM-100 Manual Microinjector



MM-100 Manual Microinjector
+ HOLD-1S Pipette Holder

MM-100 Manual Microinjector
+Syringe and T Connector
+HOLD-1S Pipette Holder

Applications

The MM-100 Manual Microinjector is designed for manual control microliter to nano-liter volume precision injection. The MM-100 Manual Microinjector is a manual pneumatic or hydraulic syringe driver for injection needle or holding pipette. It can be used for applications of precise tiny liquid volume injection with easily volume setting and adjustment. It also is a convenient intuitive tool for holding egg , sucking and pushing sperm in ICSI application.

The MM-100 Manual Microinjector is composed of precision turning micrometer and precision measuring instrument syringe with seamless engineering connection. There are four volume syringe sizes of 50 ul, 100 ul, 250 ul and 1 ml for selecting. The 1 ml size syringe selection will be non-rotation pushing connection, other sizes will be directly rotation pushing connection. All syringes come with universal male luer connector which can be connected to tubing / pipette holder and T-syringe for hydraulic liquid adding. Their specifications are listed in following table:

Specifications:

Syringe Volume	Volume per Revolution	Volume per Division	Total Inject Volume
50 ul	417 nl	8.3 nl	16.7 ul
100 ul	833 nl	16.7 nl	33.3 ul
250 ul	2.08 ul	41.7 nl	83.3 ul
1000 ul	8.3 ul	166.7 nl	333.3 ul

HOLD-1
Stainless SteelPipette holder (L 150 mm, D 6.36 mm) for 1-1.5 mm O.D. single pipette .
HOLD-1S, HOLD-1SE
Stainless Steel Pipette holder (L170 mm, D 4.8 mm) for single 1-1.5mm O.D. pipette.

Programmable Cell Microinjectors

PM 2000 Programmable Microinjector

PM 1000 Cell Microinjector

Applications

- Microinjection into adherent cells or into free floating cells with cell holding output.
- Intracytoplasmic Sperm Injection (ICSI).
- Cell surgery, RNA, DNA transfer, chromosome dissection.
- Cytoplasm or nucleus extraction.
- Cell selection, pick up and movement.

Features

- Precision and versatile pneumatic injection engine for cell surgery and cell physiological research.
- Accurate microinjection, suction, clearing , balancing and venting can be delivered from the cell injection port.
- Gentle sucking, cleaning, holding, releasing and pushing a cell can be delivered from another cell holding port.
- Highest repeatability with action sequences (for PM2000), pressure readings, savable timers and counters.
- All programming and actions are controlled by an advanced microprocessor.
- User-friendly keyboard, foot switch, remote keypad or mouse, full information LCD display and digital trigger signal in/out ports (for PM2000).

Utilizing an advanced microcontroller and precision pneumatic components, the PM2000 and PM1000 are just designed as two very precise and smart pneumatic engine for microinjection. The PM2000 and PM1000 can deliver from picolitter to unlimited wide range of liquid to a target and can be controlled precisely to pick up and transfer sperm. With a smooth and very fine adjustable suction, ejection and a computerize timing valve, every single sperm can be handled conveniently and precisely.

A 60 - 100 psi pressure input gas is the only gas source required for the PM2000 or PM1000 to produce a wide range of pressure and vacuum outputs. There are two output ports on the front panel, one for a cell injection (or suction) pipette and another for a cell holding pipette. The injection port can do clearing, injecting, sucking, venting and balancing capillary action for the injection pipette. The cell holding port can do gentle suction for holding a cell. Besides cell releasing function, a smart proportional and adjustable pressure can be produced to push a cell out off the tip gently or clear the holding pipette completely.

There is savable and programmable injection and fill (suction) timers in both PM2000 and PM1000, which can be programmed from 10 millisecond to continue or manual control time. Besides injection and fill timers, there are savable timers and counters for clear, clear hold functions in the PM2000. There are smart 'Three Pulses then Continue' clear and clear hold function for the PM1000 manual control. All pressures are adjustable and their readings are savable for the PM2000. While in the PM1000, injection, balance and hold pressures are adjustable. Both microinjectors perform real-time data acquisition for pressure monitoring. For the PM2000's pressure mode, the suction vacuum pressure, injection pressure, balance pressure and hold vacuum will be displayed simultaneously as well as previous saved pressures on one LCD, while the PM1000 can display balance, injection and hold pressures in same time. Both are convenience for user to adjust and compare pressure settings. Monitor the input pressure is available in the PM2000.

The PM2000 allows the user to program custom-designed action sequences. Within each sequence, a user can save 4 pressure readings, 4 preset timers and 4 counters for corresponding actions. There are 30 programmable action steps in each sequence and total 30 programmable sequences.

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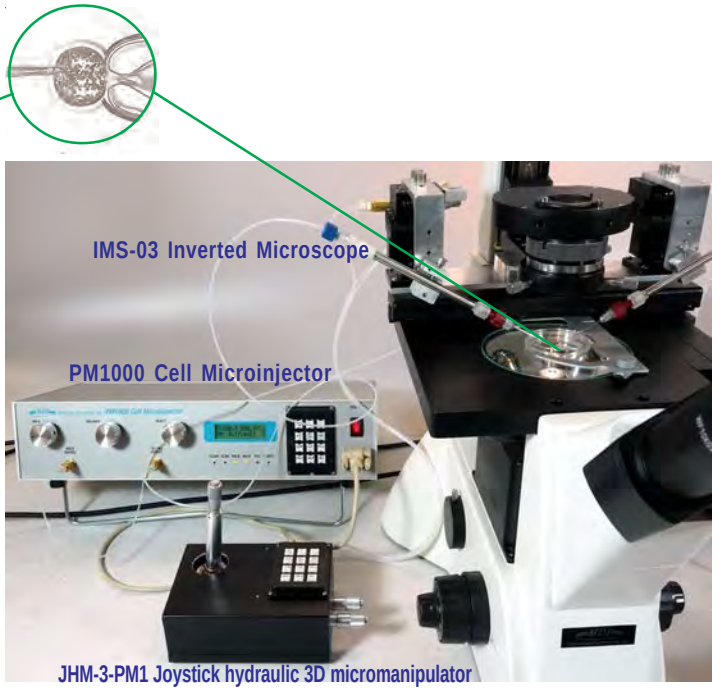
All 30 sequences will be saved even turn off the power. The last using sequence will be recovered automatically when turn on the power again. Therefore, a user can program all different pressures, timers, counters and action steps for different experiments (up to 30). The user can just turn on the power to continue the last experiment , or simply select a sequence number, any one of 30 different experiments can be precisely repeated on any time.

A simple and straightforward keyboard allows the user to program and perform actions for the PM2000 or PM1000. An LCD display window provides full information such as pressure, vacuum, time, count, sequence steps (PM2000) and actions, etc. Besides key pad, there is a programmable foot switch connector which can be used to control different one programmed function of Inject, clear, balance, hold, clear hold or vent. There is an extra foot switch or mouse connector in both PM2000 and PM1000. An optional special mouse can control injection, hold (AUTO for PM2000) and fill functions on a finger tip. There is a remote port of a DB9 connector can connect to an optional remote keypad or digital interface input in the PM2000 or PM1000. The mouse or a remote key pad can be placed nearby the microscope/micromanipulators to form a very convenient microinjection work station. The optional rare data code of the DB9 remote control port may be provided for more sophisticated computer interface control. Furthermore, there are BNC connectors in the PM2000 for the timing (injection, suction and sequence step) signal in and out to synchronize other electrophysiological instruments. While the PM1000 is very simple to use with adequate precision functions for cell surgery, the PM2000 will give users wider applications and more sophisticated programming and electrophysiology functions.

Specifications

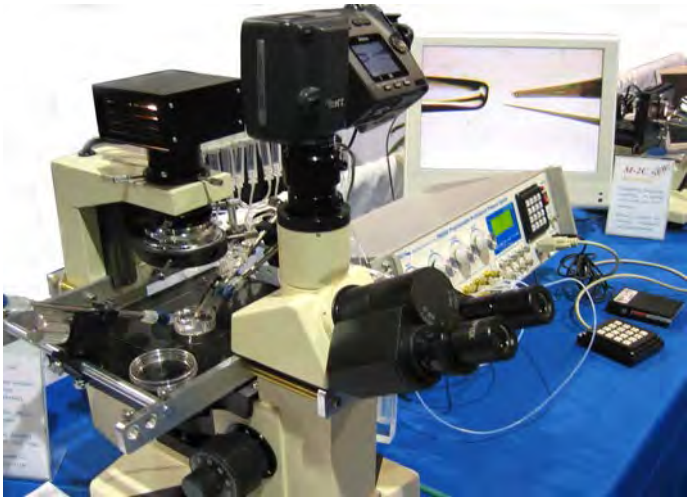
	PM2000 Cell Microinjector	PM1000 Cell Microinjector
LINE VOLTAGE	Specified 100, 120 or 240 VAC	Specified 100, 120 or 240 VAC
POWER CONSUMPTION	35 Watts	35 Watts
INPUT GAS PRESSURE	60 - 100 psi	60 - 100 psi
CLEARING PRESSURE	Same as input pressure	Same as input pressure
CLEAR HOLD PRESSURE	0-3 psi (regulated and displayed)	0-3 psi (regulated and displayed)
INJECTION PRESSURE	0.1 - 60 psi (regulated and displayed)	0.1 - 60 psi (regulated and displayed)
BALANCE PRESSURE	0 - 10 psi (regulated and displayed)	0 - 10 psi (regulated and displayed)
FILL VACUUM	0 - 26" Hg (regulated and displayed)	12 - 20" Hg (depending on input pressure without regulator or display)
HOLD VACUUM	0 - 25" of H2O (regulated and displayed)	0 - 25" of H2O (regulated and displayed)
TIMER SETTING	0.01 to 327.67 sec.(10 msec. resolution) CONTINUE or MANUAL control for all Inject, Fill, Clear and Clear Hold functions.	0.01 to 327.67 sec.(10 msec. resolution), CONTINUE or MANUAL control for Inject and Fill, manual pressing control for other fucions.
COUNTER SETTING	1 - 255 for all Inject, Fill, Clear and Clear Hold functions.	Count display for Injecting and fill only.
SAVABLE SEQUENCE/STEP	30 sequences, 30 steps for each sequence.	No.
FOOT SWITCH PORT	Standard one , optional two connectors of programmable trigger Inject, clear, balance, hold, clear hold or vent function.	Standard one , optional two connectors of programmable trigger Inject, clear, balance, hold, clear hold or vent function.
REMOTE CONTROL PORT	DB9 female connector for optional remote keypad with data input code provided. Optional remote mouse port.	DB9 female connector for optional remote keypad with data input code provided. Optional remote mouse port.
TRIGGER INPUT/OUT PUT PORT	Input AUTO trigger BNC and 2 BNCs for inject and fill signal output	No.
ACCESSORIES	One **IP- 1** (6' input tubing with connector). Two **OP- 2** (3' output tubing with connector). One **FSW** (foot switch).	One **IP- 1** (6' input tubing with connector). Two **OP- 2** (3' output tubing with connector). One **FSW** (foot switch).
OPTIONAL ACCESSORIES	**HOLD-1, HOLD-1.2, HOLD-1.5** 1, 1.2 or 1.5 mm O.D. pipette holder. Extra **FSW** foot switch. **PM-KP** remote control key pad.**MOUSE-1** (mouse). **RK-1** rack mounting kits with handles.	**HOLD-1, HOLD-1.2, HOLD-1.5** 1, 1.2 or 1.5 mm O.D. pipette holder. Extra **FSW** foot switch. **PM-KP** remote control key pad.**MOUSE-1** (mouse). **RK-1** rack mounting kits with handles.

Cell Microinjection Work Station Set Up



Programmable Multi-Channel Pressure Injection Systems

PM8000 8-Channel Pressure Injection System



PM6000 4-Channel Pressure Injection System

KEY FEATURES

- Multiple function system for microinjection and microperfusion.
- Up to eight inject/perfusion outputs, one hold cell output and one synchronized drain out channel.
- Manual control or automatic sequential step cycle operation.
- Programmable and savable timers, counters and step sequences.
- Programming foot switch, special remote keypad or mouse for convenient control.
- Programming, information and pressure real time display without interface outside computer.

The PM6000 (upgraded from previous model PM2000B) and PM 8000 Programmable 4 and 8-Channel Pressure Injector systems are designed for single to eight channel intracellular injection and extracellular perfusion. They are excellent microinjection and perfusion engines for pharmacological drug testing, molecular biological DNA, RNA transferring, intracytoplasmic sperm injection and cell electrophysiological applications. Combining an advanced microcontroller and precise pneumatic components, these systems can simultaneously control up to eight injection micropipettes or eight perfusion vials and one cell holding pipette and one drain pipette.

The four (PM6000) or eight (PM8000) injection/perfusion output ports can be controlled separately or combined together to perform actions such as injection, capillary action balancing, suction or clear up. The cell holding output port can produce an adjusted gentle suction to hold a cell or eject a pressure to push a cell or completely clear the holding pipette. Another drain output port can simultaneously produce an adjusted suction to drain and clear out liquid before next channel microperfusion. Both PM6000 and PM8000 can deliver different quantity agents and drugs from picolitters to continued perfusion.

All output pressures and vacuums are regulatable and can be real-time displayed on the front panel display. Previous pressure readings can also be recovered on the display for setting comparison.

Besides programmable timers and counters, there are 16 programmable and savable injection/perfusion sequences with 32 programmable steps in each sequence. Each sequence can be repeated continually or triggered manually. The interval time between steps can be programmed for automatic sequential cycle or manual trigger.

A programmable foot switch connector can select one of INJ, FILL, BALN, HOLD, CLER, CLRH, VENT and AUTO actions for foot switch control. A special remote mouse can control INJ, AUTO and FILL functions conveniently. A remote control port can be controlled by an optional remote key pad or provided rare data input code for more sophisticated computer interface control application . With exceptional versatility and extremely precise control, both PM6000 and PM8000 are ideal multichannel injection / perfusion engines.

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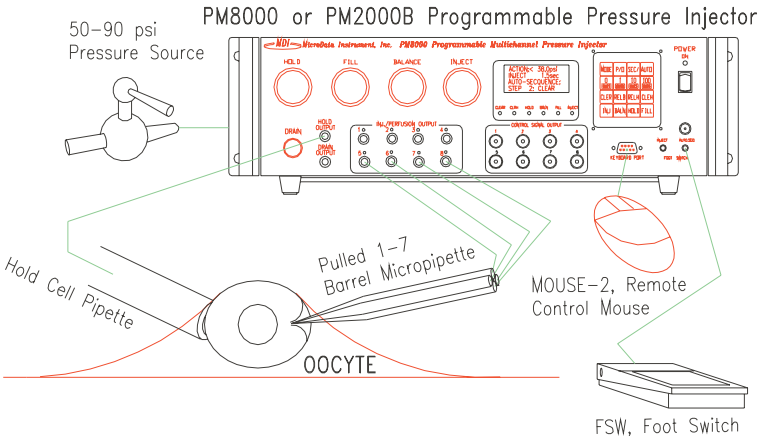
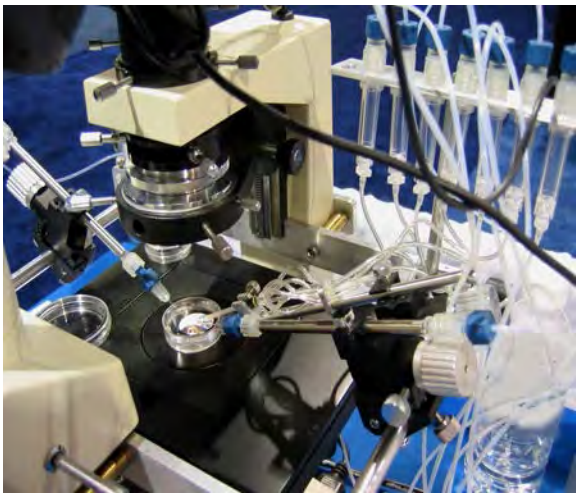
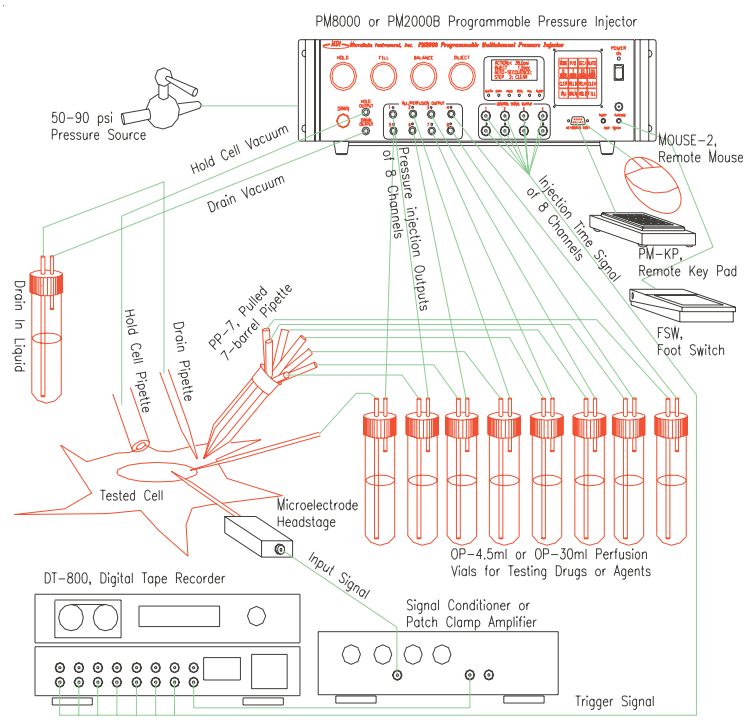
Connection for Intracellular Injection System :





Connection for Extracellular Microperfusion System :



Basic Accessories:

IP-1 Input tubing/connector.
OP-2 output tubing/connector (6 for PM6000, 10 for PM8000).
OV-1.5 perfusion 1.5ml vial (4 for PM6000, 8 for PM8000).
HOLD-4(7) 4(7)-barrel pipette holder.
PP-4(7) pulled 4-barrel pipettefor PM6000, 7-barrel for PM8000.
FSW foot switch. Power cord. User's manual.

Optional Accessories:

OP-4.5ml, **OP-10**ml, **OP-30**ml perfusion/drain vial.
STB-1.5 magnetic stand and 1.5ml vial bracket.
HOLD-1 single pipette holder..
PP-4, PP-7 pulled multibarrel pipette.
MOUSE-1 special remote mouse.
PM-KP remote key pad.
RK-1 rack mounted kit with handle for PM6000.
RK-2 rack mounted kit with handle for PM8000.

SPECIFICATIONS

Output Channels	4 (PM6000) or 8 (PM8000) injection / perfusion outputs, one synchronized drain out and one cell hold channel.
Input Gas Pressure	30 - 100 psi
Clearing Pressure	Same as input pressure
Clear Hold Pressure	0-3 psi (regulated and dislayed)
Injection Pressure	0.3 - 60 psi (regulated and dislayed)
Balance Pressure	0.05 - 10 psi (regulated and dislayed)
Fill Vacuum	0" - 24" Hg (regulated and dislayed)
Hold Vacuum	0" - 30" of water (regulated and dislayed)
Drain Vacuum	0" - 30" of water (regulated and dislayed)
Repeatability	+/- 0.1 psi
Display Accuracy	+/- 0.1
Timer Setting Range	10 msec - 327.67 sec. (10 msec. Resolution) for Inject, Fill, Clear and Clear Hold functions.
Counter Setting Range	1 - 255 for Inject, Fill, Clear and Clear Hold functions.
Savable Sequences	16 sequences
Programmable Steps	32 steps for each sequence.
Foot Switch Ports	One or optional two programmable foot switch control port(s).
Remote Control Port	DB9 connector for optional remote keypad or provided rare input data code for sophisticated computer interface.
Trigger Signal Ports	4 (PM6000) or 8 (PM8000) BNCs for injection synchronized signals output and one BNC for AUTO triger input.
Power Consumption	100, 120 or 220 VAC, 35 Watts

PMFP Programmable Multichannel Microfluidic Pump

KEY FEATURES:

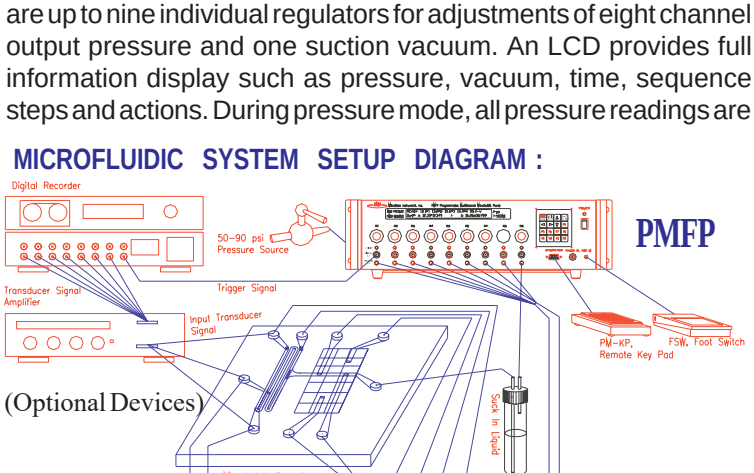
- Multichannel pressure outputs with versatile capabilities and compact size for microfluidic solution driving.
- Up to eight independent pressure output channels plus one adjustable vacuum suction output channel.
- Programmable and savable timers and automatic multistep sequences. Adjustable independent nine output pressures, one suction vacuum and savable readings.
- Nine independent synchronize signal outputs, trigger and interrupt signal input and trigger/interrupt foot switch.
- Convenient full function control key pad and remote port for remote key pad and rare data code provided computer interface application.

The PMFP Programmable Multichannel Microfluidic Pump is designed to drive solution for variers microfluidic devices, microfluidic logics, flow cells and microfluidic chips applications.
Up to eight pressure outputs and one suction vacuum output can be controlled separately or with different channels combination together to perform actions such as output different pressures and suction, different timing and different automatic sequences. There are up to nine individual regulators for adjustments of eight channel output pressure and one suction vacuum. An LCD provides full information display such as pressure, vacuum, time, sequence steps and actions. During pressure mode, all pressure readings are savable for next time repeat operation. The previous pressure reading can be recalled on the LCD for new pressure setup comparison.

The PMFP provides programmable timers for every independent output control. The PMFP also provide different sequence step time to deliver accurate timing and duration for each step channels action. The PMFP allows the user to operate manually or automatically multistep sequences running which are designed by user. There are 15 savable sequences with 20 programmable steps in each sequence. They can be used to perform and repeat different sequential pressure outputs precisely and automatically. Also, the sequential step cycles can be automatically performed or triggered each step manually. All preset timers, pressure reading memory and sequential steps are saved even turn off the power. The PMFP is capable to perform repeatable experiments at anytime.

An attached foot switch can trigger preset sequence steps or be used as an interrupt trigger during output actions. An optional remote keyboard give the user another convenient tool to control the whole operation. The remote key board port can be interfaced with a computer control. The exceptional versatility and precise multi-output pressure control are the hallmark of the PMFP.

MICROFLUIDIC SYSTEM SETUP DIAGRAM :



SPECIFICATIONS

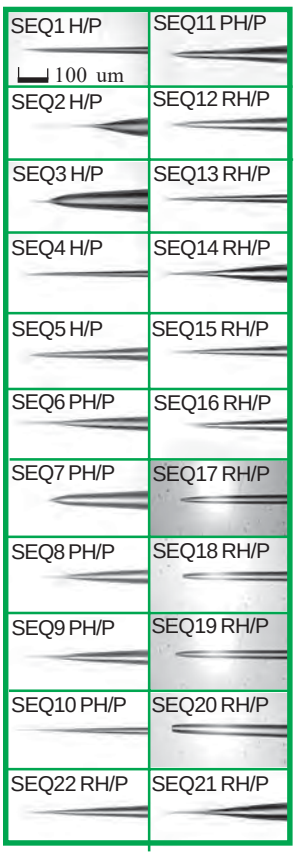
OUTPUT CHANNEL	Eight adjustable pressure output channels. One adjustable vacuum suction channel.
LINE VOLTAGE	100, 120 or 240 VAC
POWER CONSUMPTION	40 Watts
INPUT AIR PRESSURE	30 - 93 psi
PRESSURE OUTPUT	0.2 - 90 psi (regulated and displayed)
VACUUM OUTPUT	0-13 -psi (0"-25" Hg regulated and displayed)
REPEATABILITY	+/- 0.1 psi
DISPLAY RESOLUTION	+/- 0.1 psi for pressure
TIMER SETTING	0.01sec. to 327.66 sec. (0.01sec. resolution for whole range) to EXTEND or 0-MANU control.
SAVABLE SEQUENCES	15 Programmable sequences.
STEPS PER SEQUENCE	20 Programmable steps
REMOTE CONTROL PORTS	Remote DB9 connector, foot switch jack and Trigger BNC for negative TTL input.
OUTPUT SYNCHRO SIGNAL PORTS	Eight BNCs for pressure output port P1-P8 with positive TTL (0-5V) signals output. One BNC for vacuum suction output port P9 with negative TTL signal (5V-0) output.
WORKING TEMPERATURE	4C - 43C (39F - 105F)
COMPUTER INTERFACE	DB9 digital input interface with rare input control data code provided.

PMP-102 Programmable Micropipette Puller

Description and Applications

The PMP102 is a state of the art microprocessor controlled glass micropipette puller. It pulls a glass pipette horizontally to two identical micropipettes each time. Varied micropipettes, such as patch clamp electrodes, intracellular electrodes, injection micropipette, hold cell pipette and microneedles all can be pulled out by sophisticated preset sequences or sequences programmed and created by users. To achieve these versatility and the higher degree of reproducibility, many advanced technologies are applied on this micropipette puller.

Pulled Samples from Preset Sequences:



Product Features

● Exclusive Optical-Digital Taper Measurement

An exclusive optical-digital ruler in the PMP102 performs precise real-time taper the set point dynamically. As a result, the puller always provides precise heating power, despite of many times of pipette pulling or thermal/electrical characteristic changing. The heater can also be set to automatically search the melting point for different glass pipettes. Plus a powerful computerize tip sensing function, pulled measurement and pull length controlling the puller can finish multistep tip pulling precisely and automatically.

● Computerize Real-Time Feedback Heater Control

Inside the PMP102, there is an advanced microcontroller to perform real-time heater monitoring and close loop controlling. If a heating level is selected and preset, the microcontroller will measure the actual heating power during heating power on. The measurement is real-time displayed and feedback to the control unit to produce heat matching

● Expertise Preset Pulling Sequences and Physical Pulled Samples from 99 Programmable Savable Sequences for Reliable Reproduction and Creation

There are 30 expertise preset sequences and 30 backup sequences in total 99 user programmable and savable pulling sequences with 18 steps in each sequence. The 30 preset sequences are created and concluded by expertise endeavor with many successful practices, which cover mostly major kinds of different glass micropipette applications. Moreover, each finishing PMP-102 comes with 22 physical pulled samples from preset sequences on the unit. Users can easily select the right sequence by viewing the physical pulled samples. The preset sequences are convenient and important, not only because they can pull mostly different micropipettes but also they can be copied as templets to create new sequences with only minor parameter change. Users can easily program different pipette tip size, tip length and tip shape in different sequence for special applications. Time, heat level, heat control and action parameters all can be programmed in the unit.

● Pneumatic Pulling Force and Very Compact Size

A simple 30-60 psi pressure air source is only pressure input to the PMP-102. With precise regulated pressure controlling the PMP-102 pulls with more controllable, much even and consistent dragging characteristics than gravity or magnetic force. Within a very compact size, the PMP102 can precisely and automatically perform single to multistep pulling without manual interrupt. A precision micro-linear ball bearing rail and advanced pneumatic components are used to provide no fault pulling movement. A simple keypad and full information display LCD let users read all pulling parameters directly and control easily. With many advanced features, pulling an ideal micropipette is no longer an uncertainty of hand skill, but a reproducible automatic processing in the PMP-102.

Specifications:

Pipette	Single barrel, 1mm-3mm O.D. borosilicate or aluminosilicate glass capillary tubing.	**Sequences**	99 savable	**Pressure air input**	30-60 psi
Pulling force	Pneumatic	**Steps**	18 /per sequence	**Display**	20x4 LCD
Heater	Nichrome coil	**Preset sequences**	30 and 30 backup	**Actions**	Pull 1, Pull 2, Pull 2/Cool, Cool Air and Return.
Heater control	Microcontrollor	**Physical samples**	22	**Input Voltage**	Preset 110 or 240 VAC
Heating Level	76 general heat levels (24-99), 54 automatic heat levels (45-98).	**Taper length setting**	0.5 - 20 mm	**Power consumption**	Maximum 150 watts
		Pressure 1 regulator	0.1 - 10 psi, adjustable	**Dimension**	18"L x 8"W x 11"H
		Pressure 2 regulator	0.1 - 60 psi, adjustable	**Weight**	23 lbs.
		Cool air pressure	0.5 - 30 psi, adjustable		

海纳光学
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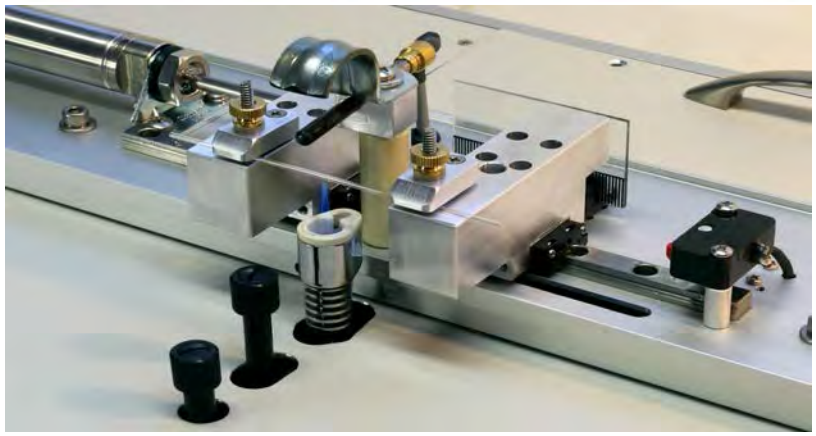
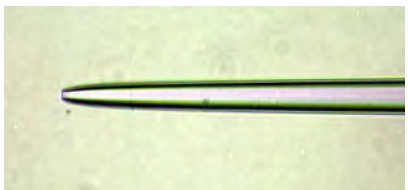
PMP-102Q Programmable Quartz Glass Micropipette Puller

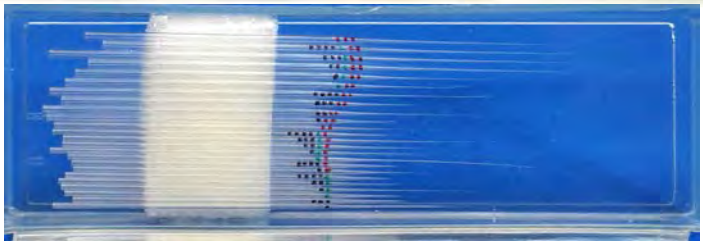


- Pull fused quartz, fused silica glass micropipette with regular cooking butane gas.
- High efficient micro torch with precision flame control without focusing problem.
- Manufacture preset sequences within up to 99 Programmable sequences.
- Precise tip length setting with horizontal symmetric double pull.



Quartz glass (fused quartz, fused silica) pipette has much lower dissipation factor and dielectric constant than that of other glass. Quartz pipette tip is much stronger than other glass too. In another word, the quartz pipette tip can be less noise in the patch clamp recording and not easy to break the tip when penetrating tough tissue. If these better electrical characteristics and better physical features of a glass pipette tip is the critical point of your application, you need pulled quartz pipettes or quartz glass pipette puller. The PMP-102Q is just developed and designed to pull quartz glass pipette. With very successful technique and features designed for PMP-102 Programmable Micropipette Puller, the PMP-102Q is continually adopted the advanced microcomputer control, optical ruler measurement, heat control and precision pneumatic pulling force control for the quartz glass pipette pulling. Another bright point of the PMP-102Q is using regular cooking butane gas cartridge as heating gas source instead of using expensive and complicate laser heating source. The butane flame is optimal controlled by the PMP-102Q and well fit in a convenient and compact platform. With total savable 99 programmable sequences, the flame, pull force, pulling distance, timing can be set and programmed in up to 18 different steps in each sequence. There are very useful standard sequences which are preset by MDI experts with numerous practices and experience. A regular cooking butane cartridge can be used for long time and easy to be handled as operating a butane cooking stove in a PMP-102Q. Without the focusing problem in a laser heater, the PMP-102Q can pull pipette with 0.1 mm OD to 1.5 mm OD thin wall quartz glass tubing. It can handle more pulling steps without a focusing problem. The PMP-102Q is a practical, compact, precise control and reliable new quartz glass pipette puller.

PMP-102LD Programmable Micropipette Puller



PMP-102LD Specifications:

Pipette	Single barrel, 1mm-3mm O.D. borosilicate or aluminosilicate glass capillary tubing.
Pulling force	Pneumatic
Heater	Nichrome coil
Heater control	Microcontrollor
Heating Level	76 general heat levels (24-99), 54 automatic heat levels (45-98)
Sequences	99 savable
Steps	18 /per sequence
Preset sequences	35 and 35 backup
Physical samples	22
Taper length pull	0.5 - 35 mm
Pressure 1	0.1 - 10 psi, adjustable
Pressure 2	0.1 - 60 psi, adjustable
Cool air pressure	0.5 - 30 psi, adjustable
Air pressure input	30-60 psi
Display	20x4 LCD
Actions	Pull 1, Pull 2, Pull 2/Cool, Cool Air and Return.
Input Voltage	Selected 110 or 240 VAC
Power used	Maximum 150 watts
Dimension	18"L x 8"W x 11"H
Weight	25 lbs..

Glass Pipette Samples Pulled by PMP-102LD (with sequence number color marks)

The PMP102LD is an upscale and heavy duty model of the PMP-102 Programmable Micropipette Puller. It keeps all advanced features of the PMP-102, plus applied more heavy duty linear bearing rail and pulling cylinder, higher power and larger heat coil and longer pulling distance ability. There are pipette setting special fixture and broken glass damage avoiding mechanical arrangement design. All these upgrades make the PMP-102LD suitable for pipette pulling larger production application.

PMP-102Q Specifications:

Pipette	Single barrel, thin wall 0.1-1.5mm O.D., 0.7-1.1mm I.D. Fused quartz, fused silica glass capillary tubing.	**Pre-pull pressure**	0.1 - 60 psi, adjustable.
		Mid-pull pressure	0.1 - 60 psi, adjustable.
		End-pull pressure	0.1 - 60 psi, adjustable.
Pulled tapper length	0.5 - 10 mm.	**Heat/Pull control**	Microcontrollor.
Sequences	99 programmable sequences.	**Actions**	Start, Pre-pull, Mid-pull, End-pull, End-pull/Stop Heat, Return, Stop.
Steps	18 steps per sequence.		
Heater	Micro-torch flame.	**Display**	20x4 LCD
Heater gas source	UN2037 butane gas cartridge.	**Power input**	110 / 240 VAC
Pulling force	Pneumatic force.	**Power consumption**	30 watts
Input air source	60-80 psi pressure air	**Dimension**	18L x 12W x 11H inch.
Gas pressure	0.1 - 10 psi, adjustable.	**Weight**	30 lb.

PMP-107 Programmable Multipipette Puller

Unpulled and Pulled 7, 4-barrel Pipettes

Description and Applications

The PMP107 is a state of the art microprocessor controlled multi-barrel glass micropipette puller. It can pull single barrel or multi-barrel (3, 4 or 7-barrel) glass pipette horizontally. Varied micropipettes from single to 7-barrel can be produced as patch clamp electrodes, intracellular electrodes, injection needles, holding pipette for precision multichannel drug, agents injection and perfusion. All can be pulled out by sophisticated preset sequences or sequences programmed and created by users.

Product Features

Programmable Rotation Twist and Precision Pulling

The PMP-107 can automatically heat, twist and pull one to seven barrel pipette. There is no need for any manual rotation or any inconsistent timing interrupt control. The whole pulling processing is programmable and under control of a preset sequence. The rotation (twist) angle is programmable. Rotation and pulling can act simultaneously or separately with preset pulling distance, which can twist a multipipette with adjustable spirality. The spiral pulling can adhere separate multibarrel tips to a precise point but still with separate requiring tiny openings.

Exclusive Optical-Digital Ruler Measurement

There is an exclusive optical-digital ruler in the PMP-107 to perform precise taper length setting, real-time measurement and tip sensing.

Computerize Real-Time Feedback Heater Control

An advanced microprocessor real-time heater monitoring and close loop precise controlling.

Expertise Preset Pulling Sequences and Physical Pulled Samples from 99 Programmable Savable Sequences for Reliable Reproduction and Creation

Every PMP-107 is well tested and preset pulling sequences for pulling single, 3, 4 and 7-barrel multipipettes. There are total 99 user programmable and savable pulling sequences with maximum 18 steps in each sequence, plus physical pulled samples of single and multi-barrel micropipettes. A user will easily select the right sequence or just change a few step parameters to fit their special need. The preset sequences are convenient and important, not only because they can pull different multibarrel pipettes but also as convenient copy templets to create new sequences with only minor parameter change for special applications. The PMP-107 has an easy copy program function.

Pneumatic Pulling Force and Compact Size

With only input simple 30-60 psi pressure air source, the PMP-107 can produce precise controlled pneumatic pressures pulling force, which gives more controllable, even and consistent dragging characteristics. Within a very compact size, the PMP-107 can precisely and automatically perform twisting and multiparameter multi-pulling without inconsistent manual interrupt. Using a PMP-107, pulling a multipipette is no longer an uncertainty of manual hard work, but a reproducible automatic processing.

Specifications

Pipettes applied	Single, 3, 4 or 7- barrel	**Cooling pressure**	Adjustable 1 - 30 psi
Pipette barrel O.D.	1-1.5 mm (1-5 mm for single barrel)	**Rotation control**	Programmable 90, 135, 180 or 225 turning degree
Pulling force	Adjustable pneumatic: P1(0.1-10 psi), P2(0.1-60 psi)	**Pressure air input**	30-60 psi
Heater	Nichrome coil	**Actions**	Pull 1, Pull 2, Pull 2/Cool, Rotation, Rotation/pull, Cool Air and Return.
Heater control	Microcontrollor	**Display**	20x4 LCD
Heating levels	74 (24-99) general , 64 (45-98) automatic.	**Input voltage**	110 or 240 VAC
Total sequences	99 programmable and savable	**Power consumption**	Maximum 150 watts
Sequence max. steps	18	**Dimension**	14L x 11W x 7H inch.
Preset sequences	16 for single, 3, 4 and 7-barrel.	**Weight**	About 18 lbs.
Taper length setting	Optical ruler 0.5 - 30 mm		

PMP-107Le Programmable Super Length Micropipette Puller

The PMP-107Le Programmable Super Length Micropipette Puller is specially designed to pull extra long taper and tip for single to multipipette without twisting (no rotation) which can be inserted a long carbon or metal fiber inside the pipette for making a long electrode. The pair of pipette clamps are open ends on the PMP-107Le, an extra long fiber can be left out of both ends of pipette for pulling an extra long electrode. Therefore, the PMP107Le is straight pulling super length puller and excellent for short to long electrode fiber inside pipette pulling.

The PMP-107Le is adopted with all advanced technical features and precision in the PMP-102. The PMP-107Le is equipped with larger and longer heat coil for more heating power range than the PMP-102. An up to 120 mm longer optical ruler and pulling mechanism let the PMP-102Le can pull up to 120 mm longer tip than the PMP-102 can pull. Manufacture preset program sequences give user more choice from short tip to super long tip pulling options.

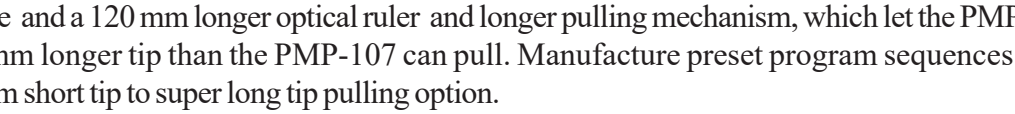
Specifications:

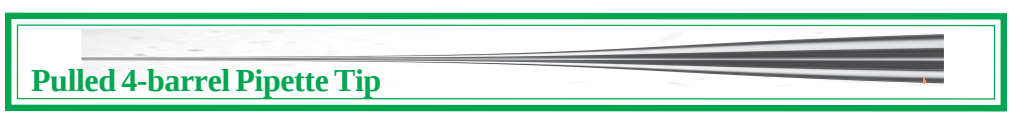
Pulling Pipette	Single barrel, 1mm-5mm O.D. or pre-attached multi-barrel boro-silicate or aluminosilicate glass capillary tubing.
Pulling force	Pneumatic
Heater	Nichrome coil
Heater control	Microcontrollor
Heating Level	76 general heat levels (24-99), 54 automatic heat levels (45-98).
Sequences	99 savable
Steps	18 /per sequence
Preset sequences	30 and 30 backup
Taper length setting	0.5 - 120 mm
Physical samples	22
Pressure 1 regulator	0.1 - 10 psi, adjustable
Pressure 2 regulator	0.1 - 60 psi, adjustable
Cool air pressure	0.5 - 30 psi, adjustable
Pressure gas input	30-60 psi
Display	20x4 LCD
Actions	Pull 1, Pull 2, Pull 2/Cool, Cool Air and Return.
Input Voltage	Preset 110 or 240 VAC
Power consumption	Maximum 150 watts
Dimension	18"L x 8"W x 11"H
Weight	26 lbs.

PMP-107Lr Programmable Super Length Multipipette Puller

The PMP-107Lr Programmable Super Length Multipipette Puller is specially designed to pull from short to extra long taper and tip for single to multipipette with twisting (rotation) function, which can pull single or bundled 3,4,7 barrel pipettes.

The PMP-107Lr actually is an extra long pulling version of the PMP-107. The PMP-107Lr has all advanced technical features and precision mechanics of the PMP-107, plus a larger and longer heat coil for more heating power range and a 120 mm longer optical ruler and longer pulling mechanism, which let the PMP-102Lr can pull up to 120 mm longer tip than the PMP-107 can pull. Manufacture preset program sequences give user more choices from short tip to super long tip pulling option.





Specifications

Pipettes applied	Single, 3, 4 or 7- barrel
Pipette barrel O.D.	1-1.5 mm (1-5 mm for single barrel)
Pulling force	Pneumatic: P1(0.1-10 psi), P2(0.1-60 psi)
Heater	Nichrome coil
Heater control	Microcontrollor
Heating levels	74 (24-99) general , 64 (45-98) automatic.
Total sequences	99 programmable and savable
Sequence max. steps	18
Preset sequences	16 for single, 3, 4 and 7-barrel.
Taper length setting	Optical ruler 0.5 - 120 mm
Cooling pressure	Adjustable 1 - 30 psi
Rotation control	Programmable 90, 135, 180 or 225 turning degree
Pressure air input	30-60 psi
Actions	Pull 1, Pull 2, Pull 2/Cool, Rotation, Rotation/pull, Cool Air and Return.
Display	20x4 LCD
Input voltage	Preset 110 or 240 VAC
Power consumption	Maximum 150 watts
Dimension	14L x 11W x 7H inch.
Weight	About 23 lbs.

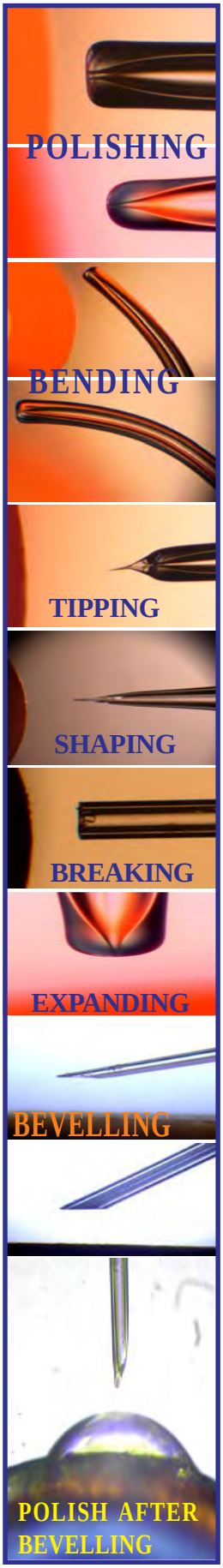
MFG-5 Microforge-Grinding Center

Microforge-Grinding Center
MFG-5

- Glass micropipette tip polishing, shaping, tipping, bending, bevelling and grinding all in one compact platform.
- Combine platinum heater and precision microgrinder as convenient center tools on a horizontal binocular or monocular microscope platform.
- Precise and convenient movements for heater/grinder and pipette locations and optical focus. Switching automatically between forge and grinder or two-step bevelling with tools movement.
- Universal Easy pipette holder for one to seven barrel pipette holding with 0-360 degree turnable position.
- Up to 800x magnification in long working distance objectives and wide field eyepiece. Scale eyepiece for precision measurement.
- Adjustable precision power supply for variable grinder speed and heating level. High power background and side LED lights for better image.
- Foot switches controllable. Syringe and special tubing for wed grinding. Optional pressure air switchable for pipette tip clearing, expanding and cooling.

MFG-5AP

MFG-5APT



MDI®

MicroData Instrument, Inc.

The MFG Microforge-Grinding Center series are creation design for micropipette/multipipette tip total modifications. It combines a precision microforge and a microgrinder in a horizontal microscope compact platform. It can be used for micropipette tip polishing, shaping, tipping, bending, breaking, bevelling and grinding. It is an ideal micropipette/multipipette tip modify center.

The platform of MFG-5 Microforge-Grinding Center is made from a high quality horizontal binocular microscope. A precision optical focus system with 2-axial micromanipulation pipette holder can handle a single pipette or a multipipette conveniently and precisely. The pipette holders is 360 degree turnable for different angle bevelling, pipette bending or polishing. Another 2-axial micromanipulator controls combination of a platinum mini-heater and a precision microgrinder. They are side by side together. Moving heater or grinder to focus position will automatically switch power supply for the aligned tool. There is a foot switch controls aligned heater/grinder on/off. An adjusting dial knob controls heater level or grinder speed.

There are two special super bright LEDs. One is an adjustable powerful back light , another is adjustable side light for a clear contour image. The MFG Microforge-Grinding Center is made with compact structure and is controlled by precise circuitry.

The Microforge-Grinding Center use high quality optical components which include 10x or 20x wide field eyepieces and long working distance plan achromatic 4x, 10x/0.25, optional long working distance 20x/4.8mm and 40x/3.3mm objectives. The 10x wide field scale eyepiece gives user another accurate measurement tool. Besides heater/grinder power on/off, another optional foot switch connector can be added for pressure air control. Outside pressure air can be input to the Microforge-Grinding Center and can be switched output to a tubing by stepping on another foot switch. The pressure air output can be used for clearing a pipette dust after grinding or expanding or cooling a pipette during pipette forging. A syringe and special connector tubing will come with the microgrinder for wed grinding and pipette cleaning.

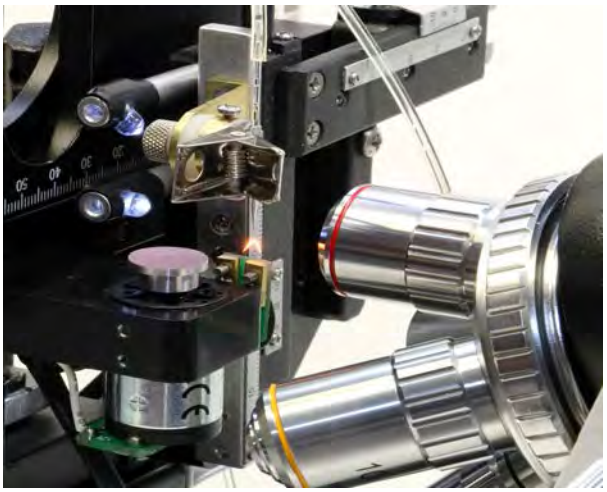
There are extra precision coarse and fine moving adjustments ball rail structure in the model **MFG-5P** or **MFG-5PT** compare with an adaptable tool moving adjustment in the **MFG-5**. The **M2G-5P** is a precision two-grinding motors (coarse/fine) microgrinder. It can switch between two precision grinding motors (coarse/fine) instead of switching between a forge heater and a grinder. The model with microforge only is the **MF-5**. The model with adding pressure air valve inside and foot switch outside is **MFG-5A**. As a convenient and precision micropipette tip microforge/microgrinder, the **MFG-5** can be combined with a **PMP-102** or a **PMP-107** micropipette/multipipette puller to compose of a complete and ideal micropipette production work station. To select the correct model, please see the following tables:

MFG Microforge-Grinding Center Specifications:

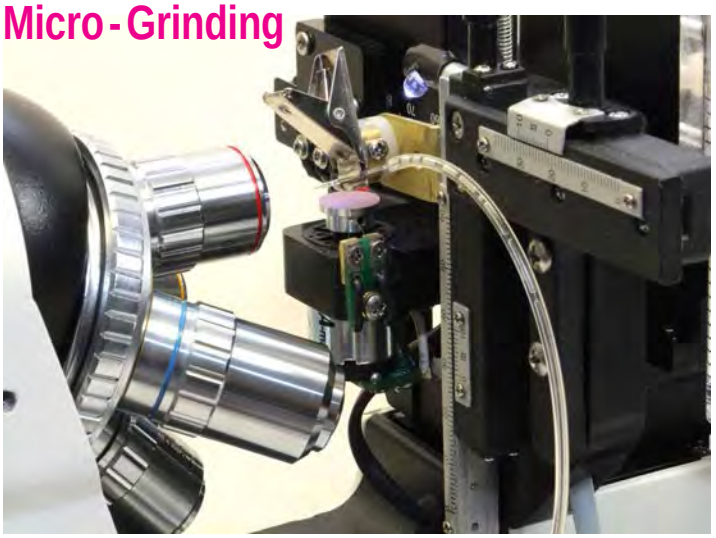
	MFG-5	MFG-5A	MFG-5AP
Body	Horizontal Binocular microscope.	Horizontal Binocular microscope.	Horizontal Binocular microscope.
Eyepiece	10x, 20xWF. Optional 10x Scaled.	10x, 20xWF. Optional 10x Scaled.	10x, 20xWF. Optional 10x Scaled.
Objective lenses	4x, 10x/0.25, Optional: 20x, 40x/0.6 Long Working Distance.	4x, 10x/0.25, Optional: 20x, 40x/0.6 Long Working Distance.	4x, 10x/0.25, Optional: 20x, 40x/0.6 Long Working Distance.
Light	Two adjustable back ground and contour power LED lights.	Two adjustable back ground and contour power LED lights.	Two adjustable back ground and contour power LED lights.
Pipette movement	Two-axial manipulator and coarse-fine focusing adjustment.	Two-axial manipulator and coarse-fine focusing adjustment.	Two-axial manipulator and coarse-fine focusing adjustment.
Heater/grinder movement	Two-axial manipulator with three-dimensional adjustment.	Two-axial manipulators with three-dimensional adjustment.	Precision ball rail manipulators with three-dimensional coarse/fine adjustment and setting.
Pipette holder	Turnable Easy-clamp for single or multipipette holding.	Turnable Easy-clamp for single or multipipette holding.	Turnable Easy-clamp for single or multipipette holding.
Heater	Precision platinum wire heater	Precision platinum wire heater	Precision platinum wire heater
Microgrinder	0.1,0.5,1,3um diamond grinding disks with precise micromotor direct-driving.	0.1,0.5,1,3um diamond grinding disks with precise micromotor direct-driving.	0.1,0.5,1,3um diamond grinding disks with precise micromotor direct-driving.
Air in/output	N/A	Pressure valve, air jet foot switch and in/output connectors,	Pressure valve, air jet foot switch and in/output connectors,
Accessory	One foot switch. Syringe with special connector tubing.	Two foot switches. Syringe with special connector tubing. In/output air tubing.	Two foot switches. Syringe with special connector tubing. In/output air tubing
Power Supply	30W, preset 120 or 240VAC	30W, preset 120 or 240VAC	30W, preset 120 or 240VAC

Model Selection:	MF-5s	MF-5	MF-5P	MFG-5	MFG-5A	MFG-5AP	MFG-5APT	M1G-5	M2G-5	M2G-5A	M2G-5AP	M2G-5APT
Platinum Filament Micro-Heater	1	1	1	1	1	1	1					
4 Grades Diamond Disk Microgrinder				1	1	1	1	1	2	2	2	2
Pressure Air In/output					v	v	v			v	v	v
Trinocular(T)Binocular(B)Monocular(S)	S	B	B	B	B	B	T	B	B	B	B	T
+Tool Precision Fine/Coars Movement			v			v	v				v	v

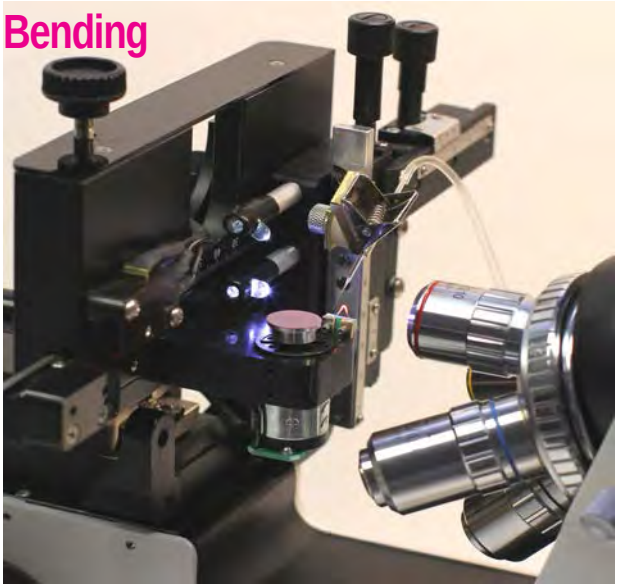
Micro - Forging



Micro - Grinding



Bending



MFG-5APT w/ Digital Camera

Precision Two-Grade Microgrinder

MFG-5APT Wet-Grinding

Microforge-Grinding Center MFG-5APD (with digital camera)

Specifications:

	MFG-5APD
Body	Horizontal Binocular microscope.
Eyepiece	WF10x/18, WF20x/18, . Optional 10x Scaled.
Objective lenses	4x/0.10 WD18 mm , 10x/0.25 WD6.5, Optional: 20x/0.40 WD 8.6mm, 40x/0.60 WD3.73 mm Long Working Distance.
Light	Two adjustable back ground and contour power LED lights.
Pipette movement	Two-axial manipulator and coarse-fine focusing adjustment.
Heater/grinder movement	Precision ball rail manipulators with three-dimensional coarse/fine adjustment and setting.
Pipette holder	360 degree Turnable Easy-clamp for single or multipipette holding.
Heater	Precision platinum wire heater
Microgrinder	0.1, 0.5, 1, 3um diamond grinding disks with precise micromotor direct-driving.
Air in/output	Pressure valve, air jet foot switch and in/output connectors,
Accessory	Two foot switches. Syringe with special connector tubing. In/output air tubing
Power Supply	30W, preset 120 or 240VAC.
Digital camera	Microscope can direct link to computer. Configuration: 2048x1536 pixels (3M pixels)-0.5x reduction lens to get larger field of view - 1mm/100 division calibration - frame - software compatible with Windows XP/7/8/10, Mac OS -capturing microforge/grinding images, recording live video, measuring lengths, angles, areas, editing images.

Accessories


HOLD-1


HOLD-1SE


HOLD-1S


HOLD-4
HOLD-7


HOLD-1S + OP-2


PMP SPARE HEAT WIRE
HC-2, HC-7 or HC-7L

MFG-5 GRINDING
DISKS & HEAT WIRE


OV-1.5b OV-1.5a OV-1.5

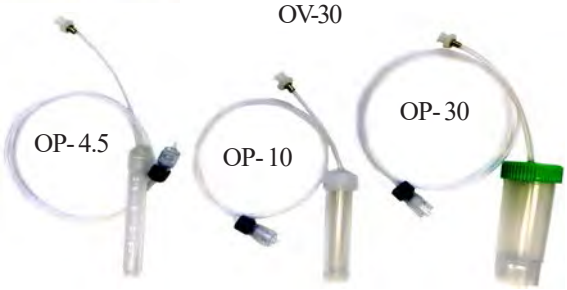

OV-30 OV-10 OV-5


UP-3, UP-4, UP-7


PP-7 (enlarged)
PP-4 (enlarged)


IP-1


OP-2


OP-4.5 OP-10 OP-30


Air Switch T-connector 1/4-3/8 Connector


PM-KP

FSW


MOUSE-1, MOUSE-2


RK-1
RK-2


Light and Quiet Portable
Air Compressor w/ 1 Gal. Tank


STB-1.5
STB-4.5
STB-10
STB-30

Accessories Description:

IP-1
Standard 6 feet 1/4" O.D. input tubing with connector to PM and 1/4" swift-fit connector for source air. Longer tubing can be selected.

OP-2
Teflon output tubing with connector to PM and male luer connector for pipette holders or vials. There are three sizes: 1.8, 2.0, 2.2 mm O.D..Teflon tubing can be selected.

OP-4.5, OP-10, OP-30
4.5 ml, 10 ml, or 30 ml vial with In/output tubing from top of vial, and connectors to fit for HOLD1-4-7, OP-2.

OV-1.5, OV-5, OV-10, OV-30
1.5 ml, 5 ml, 10 ml or 30 ml vial with input female luer on top and output male luer in bottom.

STB-1.5, STB-4.5, STB-10, STB-30
OV or OP-1.5, 4.5, 5, 10 or 30 ml vial holder. 5x or 8x vial holders can be selected.

Air Switch Quick connect 1/4"OD tubing, manual switch air on/off. **T-Connector** Quick connect 3-way 1/4"OD tubing.

1/4-3/8 Connector Quick connect 1/4"OD to 3/8" OD tubing.
UP-3, UP-4, UP-7 Un-pulled 3,4,7-barrel pipette.
PP-4 Pulled 4-barrel pipette. **PP-7** Pulled 7-barrel pipette.

HOLD-1
Stainless SteelPipette holder (L 150 mm, D 6.36 mm) for 1-1.5 mm O.D. single pipette .

HOLD-1S, HOLD-1SE
Stainless Steel Pipette holder (L170 mm, D 4.8 mm) for single 1-1.5mm O.D. pipette.

HOLD-4
Pipette holder (6.35 mm OD) for 4-barrel pulled pipette with 4x 1/32 I.D. Tygon tubing & female luer connector for 1 mm OD barrel.

HOLD-7
Pipette holder (6.35 mm OD) for 7-barrel pulled pipette with 4x 1/32 I.D. Tygon tubing & female luer connector for 1 mm OD barrel.

PM-KP Remote key pad for PM2000, PM2000B or PM8000.
RK-1 Rack mounting kits with handles for PM1000 or PM2000,
RK-2 Rack mounting kits with handles for PM2000B or PM8000.

FSW Foot Switch for PM series and Microforges.
HC-2 Heat coil for PMP-102.
HC-7 Heat coil for PMP-107.
HC-7L Heat coil for PMP-102LD, PMP-107Le or PMP-107Lr.

MOUSE-1, MOUSE-2
Special mouses can remote control of Injection, Hold and Fill or programed functions for PM1000 or PM2000, PM2000B, PM8000.

Optional pressure air source for PM or PMP series:
Light and Quiet Portable Air Compressor w/ 1 Gal. Tank
Ultra quiet - only 56 dB. Oil-free pump. Lightweight for easy transporting - 29.5 lbs.1 Gal. steel tank. Powerful 0.6 HP. 1.60 CFM at 40 PSI and 1.20 CFM at 90 PSI. Low amp draw - 4.5 Amp. California Air Tools Cat 1p1060s.

PMP-107 Programmable Multipipette Puller

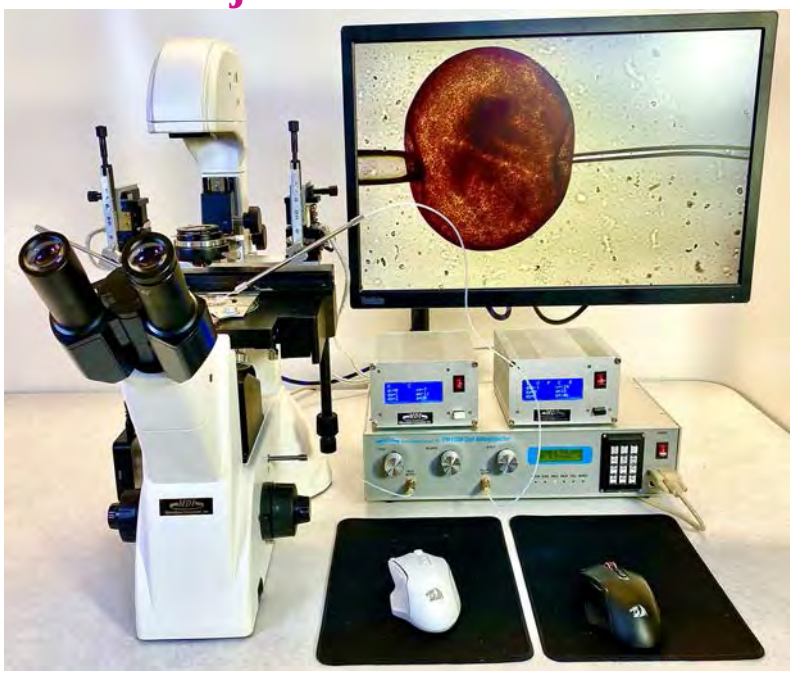
PMP-102Q Programmable
Quartz Micropipette Puller

PMP-102 Programmable
Micropipette Puller

PMP-107Le Programmable
Super Length Multipipette Puller

IMS-03 Inverted Microscope
Microinjection

Mouse Control Micromanipulators and Microinjection Work Station



WIRELESS MOUSE COMPLETE CONTROL
3D MICROMANIPULATOR and MICROINJECTOR

MDI
MicroData Instrument, Inc.