Instruction Manual

FastPrep®-24

Tissue and Cell Homogenizer

One Call

One Source

A World of Biotechnology Reagents

MP™

Precautionary Instructions

The precautionary instructions found in this section and throughout this manual are indicated by specific symbols. Understand these symbols and their definitions before operating this equipment. The definition of these symbols are as follows;

 =CAUTION

Text with a "CAUTION" indicator will explain possible Safety infractions that could have the potential to cause minor to moderate injury or damage to equipment.

 =WARNING

Text with a "WARNING" indicator will explain possible Safety infractions that will potentially cause serious injury and equipment damage.

NOTE :- Throughout this manual "NOTE" may be found. These Notes are helpful information to aid in the particular area of function being described.

⚠ CAUTION

- Read, understand and practice the precautionary and instead an operating instructions. Know the limitations and hazards associated with using this unit. Observe the precautionary and operational decals placed on the unit.
- DO NOT operate this unit in an environment where other devices are being used that intentionally radiate electromagnetic energy in an unshielded manner.
- DO NOT use sharp objects such as a pencil point or ballpoint pen to operate the buttons on the control panel as damage may result.
- This unit should be operated in temperatures between 15° C to 35° C, transported and stored in temperatures between 5° C to 43° C, with Relative Humidity ranging from 30%-60%.
- DO NOT disassemble, modify, or remodel the unit or accessories.

⚠ WARNING

- This device should be kept out of the reach of children.

UL® LISTED (LABORATORY EQUIPMENT) 3RRV

CE

The FastPrep®-24 is CE in compliance with the European Low Voltage and EMC Directives

MP™

FastPrep®-24

Tissue and Cell Homogenizer

Model #6004-500

MP™

Table of Contents

I. INTRODUCTION

The FastPrep®-24 Instrument is a high-speed benchtop homogenizer offering the ultimate in speed and performance for the lysis of biological samples. Indeed, simultaneous homogenization of 24 samples in 2ml tubes,12 samples in 15ml tubes ,48 samples in 2ml tubes or 2 samples in 50ml tubes takes place within 40 seconds.

The FastPrep®-24 Instrument uses a unique, optimized motion to disrupt cells through the multidirectional, simultaneous beating of specialized Lysing Matrix beads on the sample material.

Developed for difficult and resistant samples, the FastPrep®-24 Instrument lyses thoroughly and quickly any tissues and cells and thus allows easy and reproducible isolation of stable RNA, active proteins and full-length genomic DNA. Samples and buffers are added to a Lysing Matrix tube containing specialized Lysing Matrix beads. The ergonomic design of the instrument ensures an easy loading of the sample tubes that remains securely sealed during the processing. The homogenization speed and duration times are digitally controlled. After setting your speed and time with the touch of a button, just push "run", and in less than a minute your samples are completely lysed.

Different parts of FastPrep®-24 are shown below: (Fig 1 & 2)

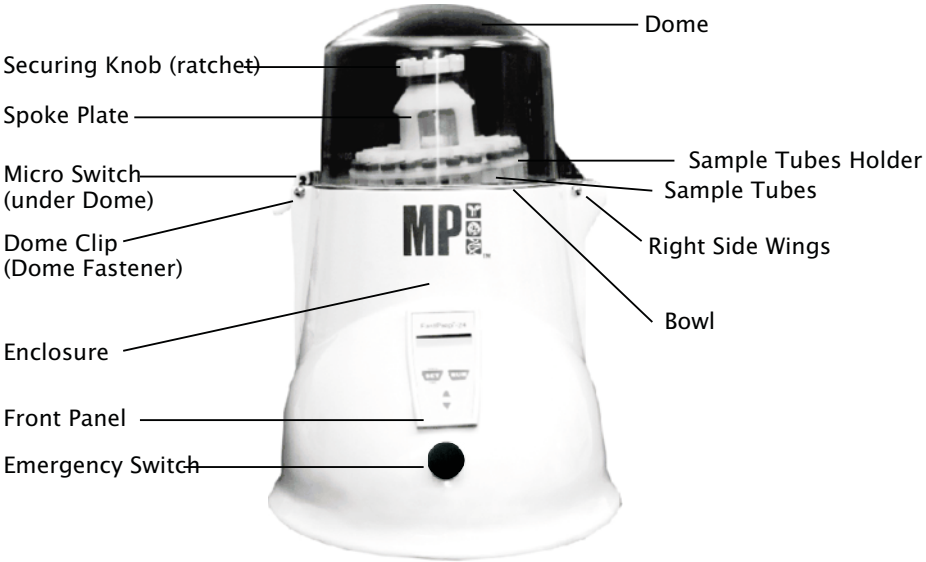


Fig. 1 (Front view)

II INSTALLATION

2.1 Unpacking

Carefully remove the FastPrep®-24 Instrument and accessories from the shipping carton.

The list of items included with quantity are given below.

1. AC Power Cord - 1
2. Springs - 8
3. Fuse 10 Amp - 2
4. Screw Driver - 1
5. Instruction Manual - 1
6. Securing Knob (ratchet) - 1 pack

Compare the packing list to the box contents. If there is a discrepancy. call MP Biomedicals.

⚠ **CAUTION**: Do not lift the device by cover.

2.2 Inspection

Inspect the unit for any damage that may have occurred during shipment. Should there be any damage, report it to the carrier and contact MP Biomedicals immediately. Save the packaging material in the event a return is necessary.

2.3 Set-up

To assure safe operation and best result, read this manual before operating the FastPrep®24 Instrument. The FastPrep®-24 Instrument comes fully assembled, requiring very little set-up. Install the system on a clean, dry-stable surface within 4 feet (1.2m) of a compatible electrical outlet.

Ventilation

Allow 1-2 inches (3-5 cm) of space around he FastPrep®-24 Instrument for proper ventilation. This unit is "FOR INDOOR USE ONLY". Avoid operating in areas of excessive humidity or extremes of temperature.

2.4 Connecting the Power

The FastPrep®-24 can work on 110 VAC/60 Hz or 220 VAC/50 Hz. Make sure the rocker switch located on the rear panel is OFF when connecting the power. Connect the power cord to the Instrument (power fixture is at the back side) and plug it in to a compatible outlet.

This symbolizes ~ Alternating Current

III OPERATION

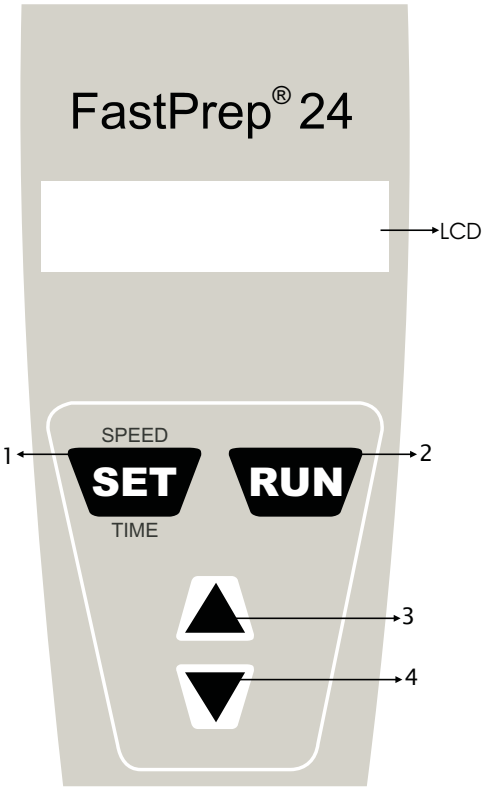


Fig. 2 (Control Panel)

3.0 CONTROLS & FUNCTIONS

Functions of control panel keys are given below (Ref. Fig. 2)

1. **SET** Key - Press this key to select Speed & Time as displayed on LCD and to choose program (model 6004)
   Speed: Selectable from 4.0 m/s to 6.5 m/s. In steps of 0.5 m/s (Default 4.0 m/s).
   Tube holder: Selectable list of tube holders
   Time: Selectable from I sec. to 60 sec. in steps of I second. (Default 20 seconds)

2. **RUN** Key - To Start or Stop the Instrument.

3. Key - To Increase the selected value of speed, tube holder & time.

4. Key - To Decrease the selected value of speed ,tube holder & time.

3.1 LOADING & SECURING THE SAMPLES

1. Loosen the securing knob (Ratchet Nut) by rotating counter-clockwise until it come out (Ref. Fig. 3)

2. Remove the securing knob (ratchet Nut).

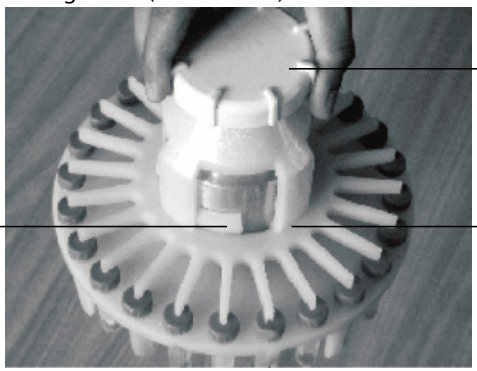


Fig. 3

3. Take out the assembly of spoke plate and test tube holder (Ref Fig. 6)

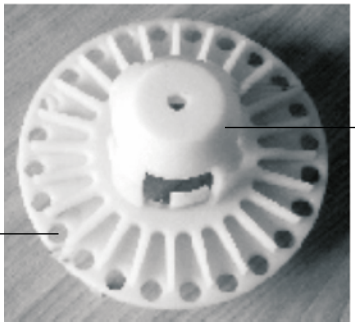


Fig. 4

4. Sightly uplift the spoke plate and rotate clockwise so that retention spokes move away from holes to leave them open for loading (Ref. Fig. 5).

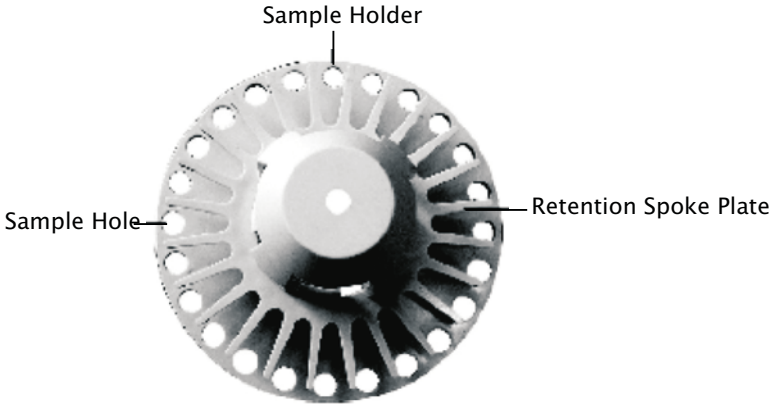


Fig. 5

5. Load sample tubes into the cavities of the sample holder, so that they fit snugly in the holes. It is **preferred** to position the tubes symmetrically.

6. When all the sample tubes are loaded, place this assembly into the FastPrep®-24 Instrument. Align the locking pin of Aluminium three steps with the holes under the Tube Holder, ensuring its proper placement (Ref. Fig. 6).

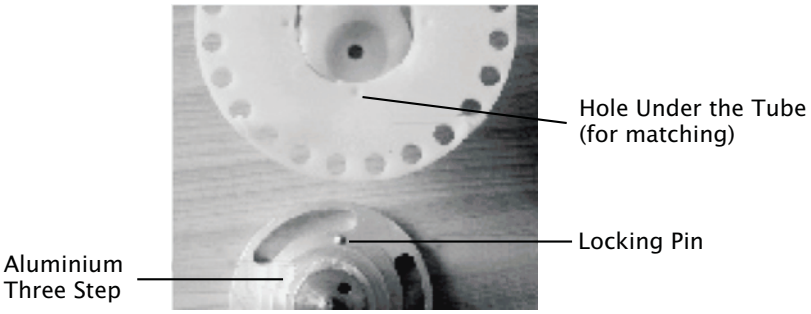


Fig. 6

7. Now uplift and rotate the spoke plate counter-clockwise so that the retention spokes take the position above each sample tube cap. Place the securing knob (ratchet nut) on this assembly to tighten it completely (Ref. Fig. 7). The securing knob should be ratcheted a few times (not just once) and that it is good practice to push down on the nut while twisting to secure the part.

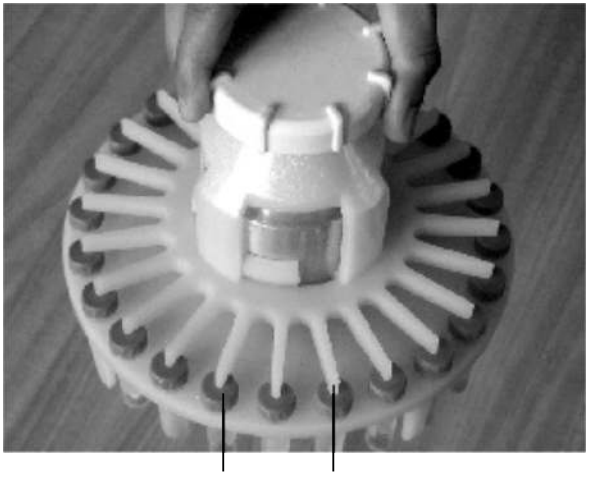


Fig. 7

8. Close the dome properly and secure the dome clip.

⚠ WARNING: Sample tubes must be secured properly before running the FastPrep®-24 Instrument.

3.2 PREPARING THE FastPrep®-24 FOR OPERATION

1. FastPrep is delivered with Emergency Switch so pull it out and then turn the main Rocker Switch ON (backside of the machine). You don't have to pull in the Emergency Switch each time you will switch off the FastPrep but just use the Rocker Switch.

3. Factory-set default values automatically program FastPrep®-24 to operate at speed 4.0 m/sec , Tube holder MP:24*2 and run time 20 seconds (to override these values. See programming)

This symbolizes  **On and**  **Off supply**

3.3 PROGRAMMING THE FastPrep-24®

Switch ON Power Supply using Rocker Switch Provided at the Back, Make sure Emergency Switch is pulled out.

On Power ON the LCD will Show **WELCOME** followed by **MP Bio**

User can take default setting or his own. Five different combination of setting can be saved as described in next section.

Press SET key to start programming

Once SET key is pressed, LCD will show **4.0 M/S** which means it's the default Speed, If Option 1 is needed than press SET key again, the **4.0 M/S** message on LCD will start flashing to indicate that it can be changed at this moment. Press ▲ or ▼ key to change the default Speed to User Selectable Speed. Once speed is selected, press SET again, flashing of 4.0M/S will stop to indicate that speed has been selected.

In case Default sample tube holder is to be changed, then press SET key, LCD will show 4.0 M/S, now use ▲ key to reach upto the message MP:24*2. Press SET key when this is displayed, LCD will start Flashing, to indicate the sample tube holder can be changed using ▲ or ▼ key, Once tube holder is selected, press SET key again Flashing of LCD will stop to indicate that tube holder has been selected.
NOTE: During tube holder selection LCD will be displayed as

MP:24*2 - QuickPrep™ Adapter,(Supplied with instrument)
BG:2*50 - BigPrep™ Adapter, (2 tubes of 50 ml)
TN:12*15 -TeenPrep™ Adapter, (12 tubes of 15 ml)
CY:24*2 -CryoPrep™ Adapter, (24tubes of 2 ml)
HG:48*2 - HighPrep™ Adapter, (48 tubes of 2ml)
CUSTOM - Custom holder

In case Default Time is to be changed, then Press SET key, LCD will show **4.0 M/S** now use ▲ key to reach upto the message **TIME 20** , press SET key when this is displayed, LCD will start Flashing, to indicate the Run time can be changed using ▲ or ▼ keys. Once Run time is selected, press SET key again, Flashing of LCD will stop to indicate that Run time has been selected.

Once speed, tube holder and time have been selected or saved, Press RUN key, LCD will show **SURE ?** , press RUN key to start the session.

If you are ready to start, then press the RUN Key again. The motor will start and display will show count down run time.
If you are not sure then press SET key for selection and changing of desired speed, tube holder and time.

When the time is over, LCD will display **REST 5 Mn**
indicating that the motor is at rest for 5 minutes, display will count down to 4, 3, 2, 1 minute. LCD will display **READY**, AND the program will go back to main menu with last selection.

Please note, when Speed, tube holder or Run Time Value is flashing [in Selectable Mode], than during this user can still start the unit directly by pressing **RUN** key twice, but these values of Speed or Time will be temporary and they will not be saved unless SET key is pressed and LCD stops flashing.

Press RUN Key to stop the instrument at any time during a run LCD will show Stop the program will go back to main menu with last selection .
Turn OFF the instrument by pressing rocker switch.

3.4 SAVEPROGRAMED COMBINATIONS (Model #6004-500 only)

During Program 1 to 5, Tube holder selection will be displayed as

PX TH MP -MP:24*2 - QuickPrep™Adapter,(Supplied with instrument)
PX TH BG -Bigprep™Adaptor,2 tubes of 50 ml
PX TH TN -Teenprep™Adaptor,12 tubes of 15 ml
PX TH CY -Cryoprep™Adaptor,24tubes of 2 ml
PX TH HG - Highprep™Adaptor,48 tubes of 2ml
PX TH CS -Custom holder

BG:2*50 - BigPrep™Adepter, (2 tubes of 50 ml)
TN:12*15 -TeenPrep™Adapter, (12 tubes of 15 ml)
CY:24*2 -CryoPrep™Adepter, (24tubes of 2 ml)
HG:48*2 - HighPrep™Adpter, (48 tubes of 2ml)
CUSTOM - Custom holder
PX= Program 1 to 5

In case Save Mode 1 to 5 is required, then Press SET key, LCD will show 4.0 M/S now use p key to reach up to the message "Program1 ", press SET key, display will show **P1 S 4.0** , and value "**4.0**" will be flashing, which indicates that the speed set in Program 1 is 4.0 M/S, use ▲ or ▼ key to change Speed Value. Once Speed has been Set press SET key to save in program 1, and now LCD will show P1TH MP. Letter MP will be Flashing, use ▲ or ▼ key to Set the desired tube holder.

Once tube holder has been set press SET Key to save in Program 1, and now LCD will show **P1 T 20** value "20" will be flashing, use ▲ or ▼ keys to set the desired Run Time. Press SET key to save the Run Time in **Program 1** , when SET key is pressed LCD will show .Program1 . Similarly follow same instructions to save in Program 2 to 5.

EMERGENCY NOTE: In case any difficulties **Push** the Emergency Switch to stop the instrument at any time (on the front panel of the instrument) Ref. Fig. 1
In this, the instrument will be completely isolated from AC mains. **Pull** the emergency switch again to make the instrument ready to Restart.

CAUTION:

1. Improper closing of dome will be indicated by display Cancel

2. Please do not run the instrument without the tube holder, as this may cause damage to the motor shaft.

3. To prevent sample overheating, instrument must rest for 5-10 minutes between runs.

4. The Instrument should be properly grounded for safe use.

Earth terminal

Temperature Indication:

In case LCD displays "SYS WARM" it is an indication that Critical Parts of the system are getting Hot. User should provide a PAUSE before next RUN.

In case LCD displays "SYS HOT!" it is an indication that temperature of critical parts is High. Unit will stop automatically and user will not be able to make any RUN untill temperare falls down to a safer value.

Overload Indication:
In case there is a wrong selection of Holder or there is a Over Load condition, LCD will display "OverLoad" . Its an indication that User must make proper selection of Tube Holder or reduce the number of tubes in Tube Holder.

IV SPECIFICATIONS

Controls:	Programmable run time, tube holder and speed; LCD readout
Time:	Range: 1-60 Sec
	Programmable in 1 sec increments
Speed :	Range: 4.0-6.5m/sec
	Programmable in 0.5 m/sec increments
Acceleration:	<2 seconds to maximum speed
Deceleration:	<2 seconds to stop
Weight:	17.9 Kg
Power Requirement:	110VAC/60Hz or 220 VAC/50 Hz, 400 W
Operating Temperature:	15ºC to 35ºC
Storage Temperature:	5ºC to 43ºC
Dimensions (LXWXH):	33.2 cm X 43.7 cm X 46.5 cm

V WARRANTY & LIABILITY

WARRANTY

This product warranty extends to the original consumer/ purchaser of the product.

WARRANTY DURATION

This product is warranted to the original consumer for a period of one (1) year from the original purchase date. Extended warranty duration on request.

WARRANTY COVERAGE

This product is warranted against defective materials. This warranty ceases if the product has been damaged by accident, in shipment, unreasonable use, misuse, neglect, improper service, commercial use, repair by unauthorized personnel or cause not arising out of defect in materials or workmanship. This warranty does not extend to any units which are used in violation furnished by manufacturer, or to units which have been altered or modified, or machine installed in a contaminated area with no removing possibility, or to damage to products or parts there of which have had the serial number removed, altered or defaced or rendered illegible. The warranty doesn't cover normal wear & tear or replacement of electrical cord, springs, rubber cups, dome, tube holders, tube-covers, motor and its attachments & other accessories.

WARRANTY DISCLAIMERS

The warranty is in lieu of all warranties expressed or implied and no representative or person is authorized to assume for manufacturer / any other liable in connection with the sale of our products. There shall be no claims for defects or failure of performance or product failure / any theory of tort, contract or commercial law including, but not limited in negligence, gross negligence, strict liability, breach of warranty and breach of contract. Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above laminations may not apply to you.

Manufacturer or its representatives are not responsible or liable for Indirect special or consequential damages arising out of or in connection with the use performance of the product or other damage with respect to loss of property or loss of revenues or profit.

LEGAL REMEDIES

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

WARRANTY PERFORMANCE

During the above one-year warranty period, a product with a defect will be repaired or replaced with a reconditioned comparable unit at distributors option when the product is returned to the distributor. The repaired or replacement product will be in warranty for the balance of the ony-year warranty period and an additional one-month period. No charge will be made for such repair or replacement.

CONSUMER SERVICE

For in warranty service for a product covered under the warranty period, no charge is made for service and return postage. Please return the product insured, packed with sufficient protection, postage insurance, prepaid to the address. Any duty / brokerage fee, if any, must be paid by the consumer.

OUT OF WARRANTY SERVICE

There will be charges rendered for repairs made to the product after the expiration of the aforesaid one (1) year warranty period, after purchaser is advised appropriately.

The distributor cannot assume responsibility for loss or damage during shipment. For your protection, carefully pack the product for shipment and insure it with the carrier. Ensure that you return the unit and accessories related to your problem and also that you indicate full return address. Also send a copy of sales receipt or other proof of purchase to determine warranty status. C.O.D. shipments cannot be accepted.

VI APPENDICES

APPENDIX I

MAINTENANCE & CLEANING

Maintenance: The FastPrep®-24 Instrument requires no scheduled maintenance. Clean surfaces immediately after contact with sample solutions or reagents.

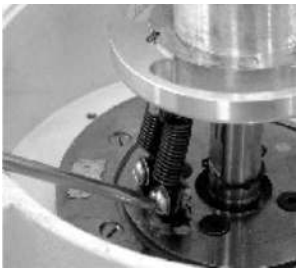


Fig. 8 (Spring Replacement)

Spring Replacement Instructions: For the long running life of the instrument 8 extra springs are provided. If a spring breaks follow the steps below: (Ref. Fig. 8).

1. Open the dome & Securing knob (ratchet) from the shaft.
2. Remove the sample holder (all plastic pieces).
3. Put the screw driver through the hole provided on the face of aluminium collared bush holding & unscrew the bottom spring holder & top end of spring's screw.
4. Remove damaged spring & replace it with the new spring. It is recommended that both springs to be replaced at the same time.
5. Now reassemble the instrument in reverse order.

Fuse Replacement:

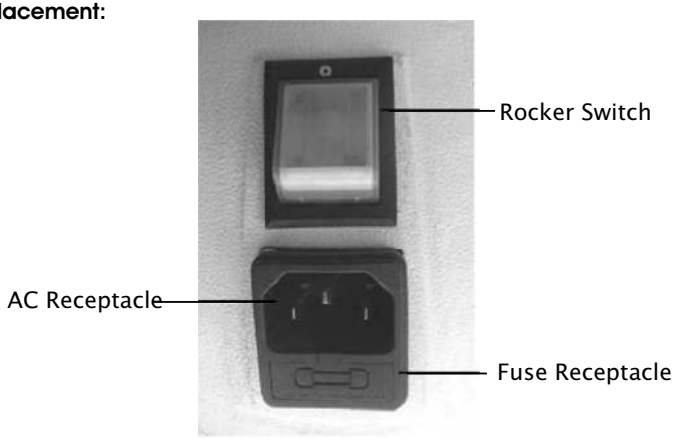


Fig. 9 (Fuse Replacement)

⚠**CAUTION:** Disconnect input power before replacing fuse. For continued fire protection replace only with specified type & rated fuse. Fuse rating is 10 Amp. 2 extra fuses are provided with accessories. If a fuse blows, follow the steps below for replacement (Ref. Fig. 9)

1. Ensure that input power is disconnected during replacement of fuse.

2. Take out fuse receptacle from the AC receptacle provided at the back side of main instrument. A spare fuse is provided in fuse holder. Remove the faulty fuse and replace with new one.

3. Now insert the fuse receptacle into the AC receptacle carefully.

4. Connect the power cord to the instrument & plug it into a compatible outlet and turn ON the rocker switch.

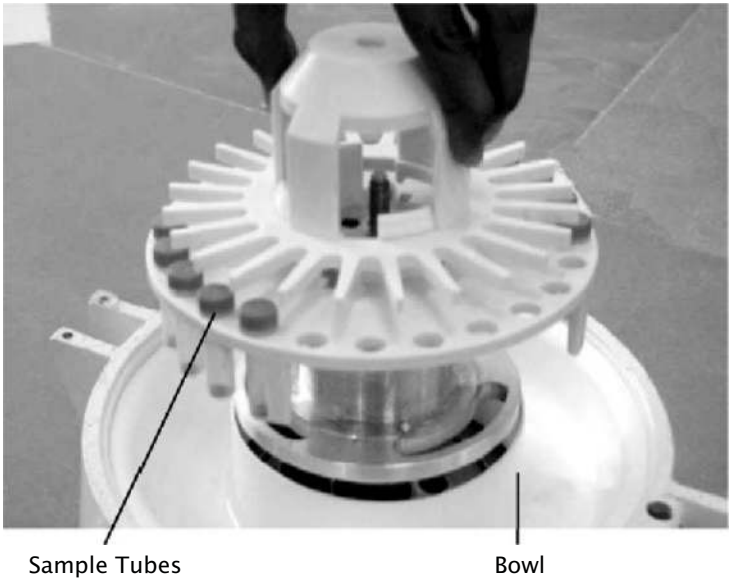


Fig. 10 (Cleaning)

Cleaning: The FastPrep®-24 Instrument should be cleaned if reagents or sample solutions spill on or inside the unit. If a sample tube leaks during a run, the solution will be sprayed on the bowl. Always clean up any spray or spills immediately using a damp paper towel. Always wear gloves and protective clothing when cleaning.

If potentially infections agents are used in the FastPrep®-24 Instrument, spills should be cleaned immediately, and appropriate decontamination carried out.

The FastPrep®-24 Instrument may not be resistant to all cleaning regimens required for all infections agents. Exercise appropriate caution and wear protective clothing, eyewear and gloves when working with potentially infectious samples. Contaminated units should be kept in an appropriate biosafety level facility, and should only be maintained or serviced by personnel trained in safe handling practices specific to the infectious agent.

APPENDIX 2

AN EXPLANATION OF FastPrep®24 INSTRUMENT SPEED SETTINGS

The cell disruption process during a FastPrep®-24 Instrument run is caused by the collision of matrix and sample within the FastPrep®-24 Instrument sample tube.

The rate of collision and energy of impact. (both of which determine the effectiveness of the disruption process) are a function of the FastPrep®-24 Instrument speed settings and specific gravity of the bead material used.

The FastPrep®-24 Instrument speed setting in meters per second refer to the maximum vertical velocity achieved by a sample tube during reciprocating motion.

The rate of collision is proportional to speed, while the energy of impact is proportional to the square of the speed. For example, a 50% increase in the FastPrep®-24 Instrument speed setting increased the rate of collision by 50% and at the same time increases the energy of impact by 125%.

The FastPrep®-24 Instrument has been specifically designed to allow operation with in an ideal range of parameters for disrupting membranes from a wide variety of cell types. When used with cell-specific protocols and kits (MP Biomedicals), cell membrane disruption and nucleic acid yield is maximized.

APPENDIX 3

FastPrep®-24 PRODUCT LINE

The FastPrep®-24 Instrument is part of complete PURIFICATION SYSTEM for the researcher. This system is composed of three families of products:

- FastPrep®-24 Instrument for lysis of cells prior to DNA, RNA and protein purification
- Lysing Matrix Tubes that contain small particles (the lysing matrix)
- FastPrep®-24 Kits that contain Lysing Matrix Tubes and purification reagents

A specific Lysing Matrix for each application

Lysing Matrix	Sample	Extraction
A	Animal, bacteria, yeast, fungi, plant	DNA
B	Bacteria, spores	RNA + proteins
C	Yeast, fungi	RNA + proteins
D	Animal and plant	RNA + proteins
E	Soil, sediments, water feces	DNA + RNA
F, G, H, I, J, K	All kind of samples : optimization	All kind of extraction : optimization

Sample and Application Specialized Lysing Matrix Tubes

Lysing Matrices are critical components of the FastPrep ®-24 sample Preparation system. MP Biomedicals receives matrix particles from proven vendor and ensures the unprocessed material meets high qualitative standards. Matrix particles are then prepared and dispensed under a rigorous set of proprietary conditions that offer customers a premium product that can be immediately used with confidence. Matrices are available separately for use with your own unique buffers, and are also available as components of the complete purification kits on the following pages.

Lysing Matrix A

Each impact-resistant 2.0 ml tube contains garnet matrix and one 1/4 inch ceramic sphere. Extra 1/4 inch ceramic spheres are packaged separately. Lysing Matrix A tubes have orange caps and found in the FastDNA® and FastDNA® SPIN Kits.

Lysing Matrix B

Each impact-resistant 2.0 ml tube contains 0.1 mm silica spheres. Lysing Matrix B tubes have blue caps and are found in the FastRNA®Pro Blue Kit for isolation of total RNA from gram positive and gram negative bacteria.

Lysing Matric C

Each impact-resistant 2.0 ml tube contains 1.0 mm silica spheres. Lysing Matrix C tubes have red caps and are found in the FastRNA® Pro Red Kit for isolation of total RNA from yeast and fungi.

Lysing Matrix D

Each impact-resistant 2.0 ml tube contains 1.4 mm ceramic spheres. Lysing Matrix D tubes have green caps and are found in the FastRNA® Pro Green Kit for isolation of total RNA from plants and animals.

Lysing Matrix E

Each impact-resistant 2.0 ml tube contains 1.4 mm ceramic spheres, 0.1 mm silica spheres, and one 4 mm glass bead. Lysing Matrix E tubes have purple caps and are found in the FastDNA® SPIN Kit for Soil for isolation of any type of DNA found in soil or other environmental samples.

Lysing Matrix F

Each impact-resistant 2.0 ml tube contains white granules and silicon carbide. Lysing Matrix F tubes have white caps.

Lysing Matrix G

Each impact-resistant 2.0 ml tube contains silicon carbide and 2 mm glass beads. Lysing Matrix G tubes have brown caps.

Lysing Matrix H

Each impact-resistant 2.0 ml tube contains 2.0 ml glass beads and 2 mm yellow zirconia beads. Lysing Matrix H tubes have yellow caps.

Lysing Matrix I

Each impact-resistant 2.0 ml tube contains 2 mm yellow zirconiabeads and a 4 mm black ceramic bead. Lysing Matrix I tubes have clear caps.

Lysing Matrix J

Each impact-resistant 2.0 ml tube contains 2 mm yellow zirconia beads and white granules. Lysing Matrix J tubes have pink caps.

Lysing Matrix K

Each impact-resistant 2.0 ml tube contains 0.8 mm zircon beads. Lysing Matrix K tubes have brown caps and are found in the GENECLEAN® for Ancient DNA Kit.

Addidtional Lysing Matrices

One the rare occasion that matrices A-E do not homogenize totally the sample, the researcher may wish to consider the texture of the sample and test lysing matrix F-K tubes. Smooth and/or muscular tissue may need a rough particle like garnet to tear it. Hard, brittle samples may need a 6 mm ceramic sphere, 2 spheres or even a cylinder.

FastPrep® Kits: Ready-to-Use Protocols

The Fastprep®-24 System includes a selection of kits for nearly every application.

Kit	Sample	Matrix	Most important factors
FastDNA® Kit FastDNA® SPIN Kit	All	A	1. Unsheared DNA 2. High quantity 3. Reproducibility
FastDNA® SPIN Kit for Soil	Soil	E	1. Purity 2. Reproducibility 3. High quantity
FastRNA® Pro Blue Kit	Bacteria	B	1. Purity 2. Reproducibility 3. High quantity
FastRNA® Pro Red Kit	Yeast	C	
FastRNA® Pro Green Kit	Plant/Animal	D	
FastRNA® Pro Soil Direct and Indirect Kits	Soil	E	
FastProtein™ Blue Matrix	Bacteria	B	1. Purity 2. Reproducibility 3. High quantity
FastProtein™ Red Matrix	Yeast	C	1. Purity 2. Reproducibility 3. High quantity

FastPrep Kits for DNA, RNA and Protein Isolation

FastDNA® and FastDNA® SPIN Kits

The FastDNA® and FastDNA® SPIN Kits quickly and efficiently isolate genomic DNA from a wide variety of sources., Designed for use with the FastPrep® instruments, plants, animal tissues, yeast, bacteria, algae, fungi and many other samples are easily lysed within 40 seconds.

Samples are placed into 2.0 ml tubes containing Lysing Matrix A (included in the kits), irregularly shaped garnet particles and a single ¼ inch ceramic sphere. While almost all samples are easily processed with this pre-filled combination, additional ¼ inch ceramic spheres are provided for hard samples such as bone, cartilage or seeds.

Homogenization in the FastPrep®-24 instrument with Lysing Matrix A takes place in the presence of sample-specific Cell Lysis Solutions (CLS). For plant tissues, CLS-VF is used in conjunction with a Protein Precipitation Solution (PPS). Yeast, algae and fungi are lysed in the presence of CLS-Y. For all other samples, CLS-TC is used during sample lysis. For maximum flexibility, all buffers are provided in the kit.

Following lysis, samples are centrifuged to pellet debris and lysing matrix. DNA is purified from the supernatant with silica-based GENECLEAN® procedure. SPIN Filters are included in the FastDNA® SPIN Kit to streamline the silica handing process. Eluted DNA is ready for digestion, electrophoresis, PCR and any other desired application.

Composition of the FastDNA Kit

FastDNA® SPIN Kit for Soil

The FastDNA®-24 SPIN Kit for Soil quickly and efficiently isolates PCR-ready genomic DNA directly from soil samples in less than 30 minutes. Designed for use with the Fastprep®instrument, plant and animal tissues, bacteria, algae, fungi spores and other members of a soil population are easily lysed within 40 seconds.

Samples are placed into 2.0 ml tubes containing Lysing Matrix E (included in the kit), a mixture of ceramic and silica particles designed to efficiently lyse all soil organisms including historically difficult sources such as eubacterial spores and endospores, gram positive bacteria, yeast algae, nematodes and fungi.

Homogenization in the Fastprep®-24 instrument with Lysing Matrix E takes place in the presence of MT Buffer and Sodium Phosphate Buffer, reagents carefully developed to protect and solubilize nucleic acids and proteins upon cell lysis. These reagents work together to allow extraction of genomic DNA with minimal RNA contamination.

Following lysis, samples are centrifuged to pellet soil, cell debris and lysing matrix. DNA is purified from the supernatant with a silica-based GENECLEAN® procedure using SPIN filters. Eluted DNA is ready for PCR, restriction digest, electrophoresis and any other desired application.

FastRNA® Pro Isolation Kits

The FastPrep®-24 System is also ideal for use in RNA isolation. Several kits are available for researchers requiring RNA isolation. These are :

- FastRNA® Pro Blue Kit (Bacteria)
- FastRNA® Pro Red Kit (Yeast)
- FastRNA® Pro Green Kit (Plant/Animal Tissues)
- FastRNA® Pro Soil - Direct Kit
- FastRNA® Pro Soil - Indirect Kit

Each kit includes Lysing Matrix B, C, D or E and proprietary RNApro™ solutions. These are for single-reagent purification and contain RNA stabilizers. Then the researcher just finishes with chloroform extraction and precipitation.

FastPROTEIN™ Blue and FastPROTEIN™ Red Matrix

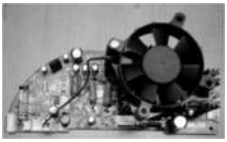
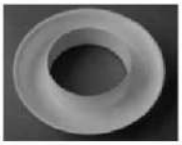
FastPROTEIN™ Blue Matrix and FastPROTEIN™Red Matrix are designed for bacteria and yeast protein extraction respectively.

These matrices are ideal for optimizing induction conditions and quickly lyse samples from a range of conditions and run on a protein gel.

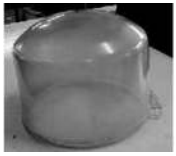
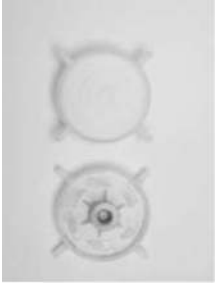
No special buffer is required for lysis. The researcher can use his/her own protein induction media as "lysis buffer". The FastPROTEIN™ Red Matrix kit includes a lysis buffer named "Yeast Breaking Buffer".

APPENDIX 4

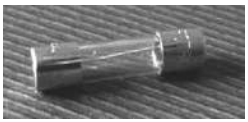
Accessories and Spare Parts for FastPrep®-24

Cat. No.	Description	Package Size
6004503A	 Driver PCB	EA
6004503B	 Display PCB	EA
6003502	 SMPS 48V	EA
6003504 A	 Motor	EA
6002505	 Bowl	EA

⚠ Warning: This Part Must be Replaced by Qualified Technician or MP Biomedicals Technical Service

Cat. No.	Description	Package Size
6002506	 Polycarbonate-Dome with cap and Stopper	EA
6002507	 Dome Rubber Gasket	pack of 2
6002508	 Dome Clip	EA
6002509	 Lock pins for Dome Locking	EA
6004510	 Rachet nut	pack of 2

⚠ Warning: This Part Must be Replaced by Qualified Technician or MP Biomedicals Technical Service

Cat. No.	Description	Package Size
6002511	 Rachet Bolt	EA
6002512	 Sample Holder Set	EA
6002513	 3 STEP-Assembly with studded bearings	EA
6002514	 Spring assembly set with hooks	EA
6002515	 Rubber Shoe	pack of 4
6002516	 Fuse 10 Amp-UL	pack of 4

⚠ Warning: This Part Must be Replaced by Qualified Technician or MP Biomedicals Technical Service

Cat. No.	Description	Package Size
6002518	 European AC Cord	EA
6002519	 3Pin flat Ac Cord-for USA (UL)	EA
6002520	 AC Receptacle with fuse	EA
6002521	 Rocker Switch-UL	EA
6003524	 Emergency Switch	EA

⚠ Warning: This Part Must be Replaced by Qualified Technician or MP Biomedicals Technical Service

IMPORTANT : As the design and manufacture of our product is subject to constant improvement, the product supplied may differ in some details from the specification

Instruction Manual

Ver. 3.0

MP™