

**EYELA**

For aluminum	<b>Pressured Gas Blowing Concentrator Test tube Concentrator</b>
Block bath	
Pressured Gas	
Blowing System	

# Instruction Manual

S-048	/	MGS-2200A
S-040	/	MGS-2200B·C
S-024	/	MGS-2200D·E
S-022	/	MGS-2200F
S-016	/	MGS-2200G·H
S-012	/	MGS-2200I



This instruction manual includes important information concerning the maintenance of the functionality of the product and safety use.

**IMPORTANT** “Please read this manual carefully, especially on “Safety precautions” before use.

Please keep this manual within easy reach of yourself whenever using the product.

# Safety precautions

## 1. Signal word for warning

Due to its function and characteristic, a part of this product is subject to have high temperature. Touching the part during operation may injure yourself. However, if you have proper information before use, you can avoid almost all these troubles.

Therefore, this manual categorizes the level of importance and danger as below with alert mark and signal word. Please follow the instructions and use the product safely.

Alert mark Signal word	Definition
 <b>WARNING</b>	Mishandling the product will cause users serious personal injury or loss of life.
 <b>CAUTION</b>	Mishandling the product may cause users serious personal injury or loss of life.
 <b>CAUTION</b>	Mishandling the product may injure users or cause property damage.

Though we are trying to look into conceivable risk of using the product, it is very difficult for us to expect all of it. It means that all the instructions in this manual do not cover all the types of risks that may be caused by the product. However, if you follow the instructions, you surely can handle and operate the product safely. Please use extreme care when handling this product and try to prevent all the potential accidents and mechanical failures.

Thank you for choosing the product of



## Introduction

This instruction manual describes the procedure of setup, operation, troubleshooting, maintenance, checkup and disposal of pressured gas blowing concentrator for aluminum block bath and pressured gas blowing-system test tube concentrator,

- S-048 / MGS-2200A
- S-040 / MGS-2200B · C
- S-024 / MGS-2200D · E
- S-022 / MGS-2200F
- S-016 / MGS-2200G · H
- S-012 / MGS-2200I

Please read this manual carefully before use.

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## Check-up list of packing

Please check the type and quantity of each part before setting up the instrument.

Connecting hose such as air is not included in the packing. Please prepare separately depending on your purpose. For setting up unit, cross-slot screwdriver for M4 is required.

© Contents of packing

	Name	Quantity
1	Manifold	1-set
2	Stand	1-set
3	Nozzle	See right table
4	Instruction manual	1
5	Warranty	1

© Number of nozzles

Model	Quantity
S-048	48
S-040	40
S-024	24
S-022	22
S-016	16
S-012	12

# 1 Outline of the product

## 1-1 Use application



### WARNING

Do not remodel the product.  
Make sure that it should not be used out of intended use.

Remodeling and improper use may cause electric shock or breakdown.

This product is pressured gas blowing concentrator for aluminum block bath MG-2200. By combining with aluminum block bath, this product can be used as test tube concentrator. Required time for concentration and purification can be shortened by blowing the air. Also, since the product uses inactive gas, it prevents the sample from being oxidized.

## 1-2 Specification

Product name		For aluminum block bath		Pressured gas blowing concentrator			
Model		Gas blowing-system		Test tube concentrator			
		S-048	S-040	S-024	S-022	S-016	S-012
Feature	Maximum introducing pressure ※1	0.1MPa					
Function	Pressured gas blowing-system	Blowing system can be controlled in each test tube					
	Available slide amount	120mm+depth of block port					
Con-figuration Spec.	Manifold ※2	170W×135D×22H (mm) SUS304					
	Blowing nozzle	1.69 (bore diameter)×190mm (length) SUS304					
	Number of nozzle	48	40	24	22	16	12
	Connecting bore	Flow amount controlling valve External diameter of nozzle φ9					
	Filter	0.2μ φ50 Disk filter disposal type					
	Available fluid	Air or inactive gas					
External measurement (mm)		245W×140D×600H					
Mass ※3		Approx. 2.5kg					

※1 Setting up with using flow amount controlling valve

※2 Projection is not included.

※3 Projection is included.

As a device of test tube concentrator, model and configuration are as shown on the table below.  
As for the specification of aluminum block bath, please refer to the instruction manual enclosed with aluminum block bath.

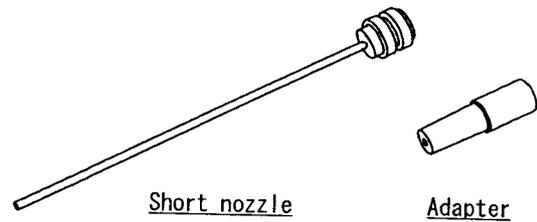
Model	Configuration	Aluminum block bath	Aluminum block	Pressured gas blowing concentrator
MGS-2200A	MG-2200		MGB-0548	S-048
MGS-2200B			MGB-1540	S-040
MGS-2200C			MGB-1240	
MGS-2200D			MGB-1524	S-024
MGS-2200E			MGB-1624	
MGS-2200F			MGB-1822	S-022
MGS-2200G			MGB-2116	S-016
MGS-2200H			MGB-2412	S-012
MGS-2200I			MGB-2512	

## 1-3 Option

As a optional accessory, nozzle set that is capable of accommodating the followings has been set up instead of standard nozzle.

- Universal pipette chip (1000  $\mu$  l)
- Pasteur pipette (Diameter: 7mm)

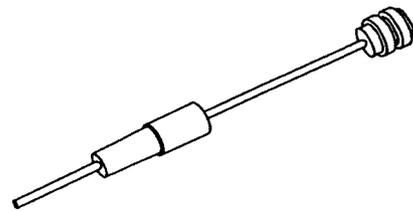
Name	Nozzle for attaching chip and pipette	
Catalogue No.	213160	
Configuration amount	Short nozzle	6 pcs
	Adapter	6 pcs



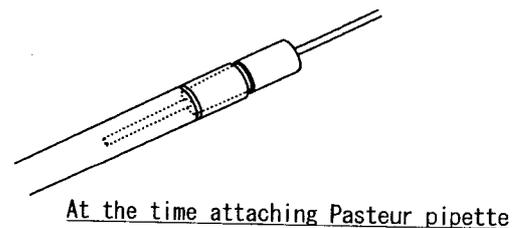
### How to attach

- (1) After attaching short nozzle on manifold, insert adapter into nozzle, for the direction as shown on right picture. As a rough guide, set up the adapter where nozzle sticks out at the same length as adapter.

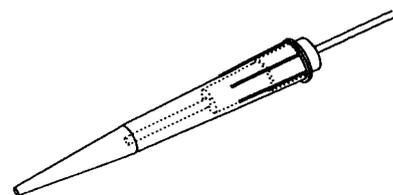
※To attach adapter, it is easier to remove manifold and set up with turning it inside out.



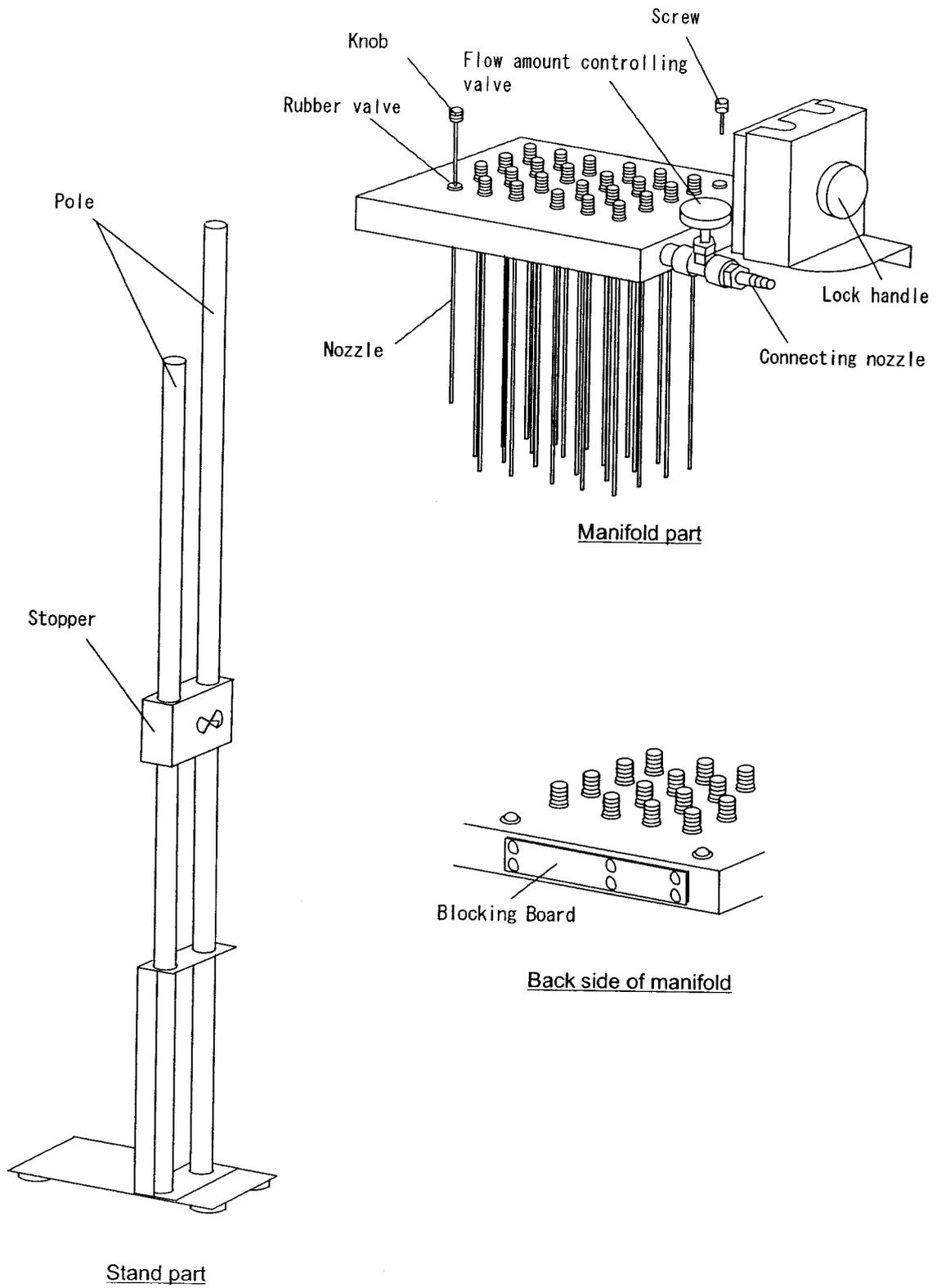
- (2) Insert pipette or chip into adapter with referring to the right picture. Since the insertion amount to the adapter increases / decreases because of pipette's fluctuant capability, arrange the position of adapter to get the edge of pipette all together.



※Due to compression caused by attaching nozzle, outer shape of adapter swells up which makes hard to be attached. In this case, stretch the adapter a little bit.



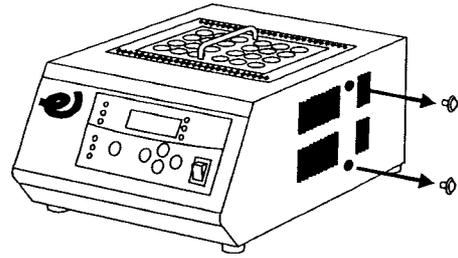
1-4 Name of each part



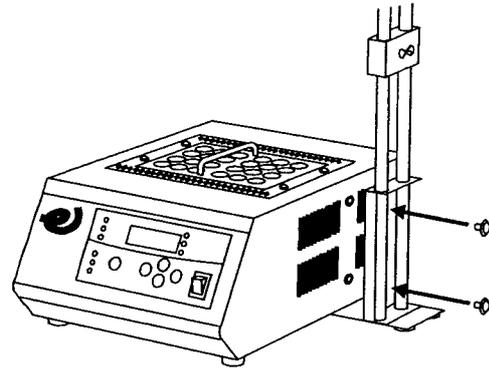
## 2 Setup

### 2-1 Setup

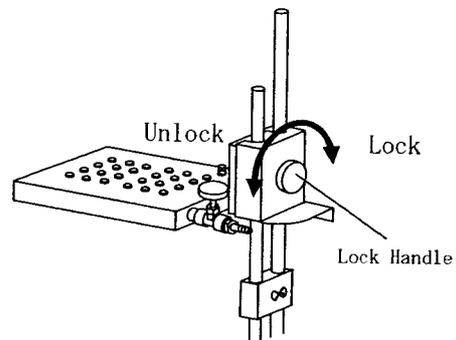
- (1) Remove two screws on the right side of aluminum block bath. Since they are required to set up stand part, be careful not to lose these screws.



- (2) Combine stand part with aluminum block bath and tighten with using removed screws. Ground the foot of the stand part on the floor.

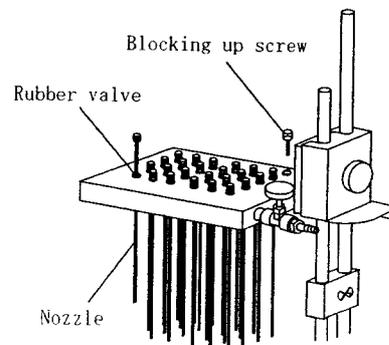


- (3) Loosen the lock handle of manifold and pass both poles of stand part through the handle. Then, tighten lock handle and fix it at your desired position. To tighten the lock, turn lock handle clockwise and turn the opposite direction to unlock. When inserting poles, hold the edge of lock handle and manifold part.



※Do not keep on turning lock handle to the direction to be unlocked. If you do so, screws and parts will be removed.

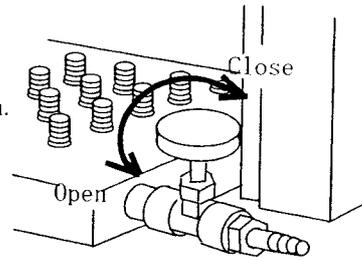
- (4) Get the nozzle pass through rubber valve and manifold. Insert nozzle vertically and softly. If you insert forcibly with inclining the device, rubber valve may be bended or manifold may be removed. In case that rubber valve is removed, please refer to "Replacing rubber valve" on page 10 and replace the valve.



※Blocking up screw is the part which blocks up the port for inserting temperature sensor when using humidification sensor (option). Insert these screws in full when you do not use humidification unit.

## 2-2 Utility connection

- (1) Make sure that flow amount controlling valve is closed and connect to the pipe that provides air or inactive gas. When turning flow amount controlling valve clockwise, it is closed, and it is open when turning it to the opposite direction. (Do not apply the pressure in this phase)

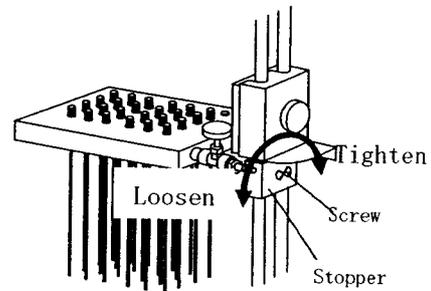


- ※Only air or inactive gas are used for this unit. Do not use liquid, inflammable, combustible gas or perishable gas.
- ※Since pressure adjusting mechanism is not equipped with this unit, provide the gas with reducing the pressure. Maximum introducing pressure is 0.1Mpa. (Can be set up with suing flow amount controlling valve.)

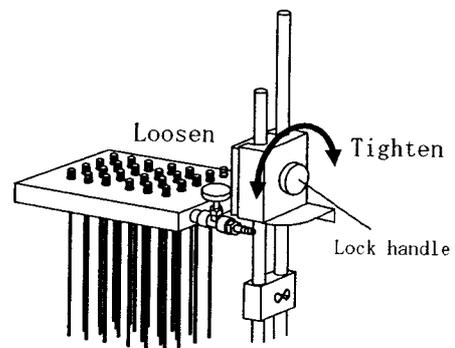
## 3 Operation

### 3-1 Preparation

- (1) Loosen the stopper and after setting up the low position limit of nozzle, tighten it. Screw of stopper is loosened when turning it counterclockwise, and it is tightened when turning it clockwise.



- (2) Loosen lock handle and pull manifold up, and then tighten the lock handle at the position where it does not disturb the setup of aluminum block or sample and fix it.

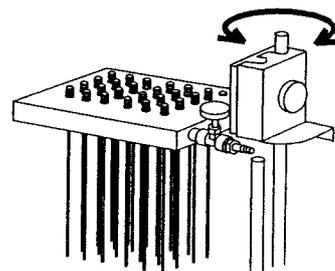


- ※When moving manifold up and down, hold lock handle and the edge of manifold with both hands. In case that manifold is moved in one hand or lock handle is not loosened enough, metal scratching sound may occur.

Manifold can be turned at the point out of the pole on front side. Around 30°C~90°C clockwise from this point, the position and the height can be fixed with the support of the pole on front side.

- ※To turn to the position where the manifold is supported and to turn back to the position to the opposite position, lift the manifold a bit and turn.

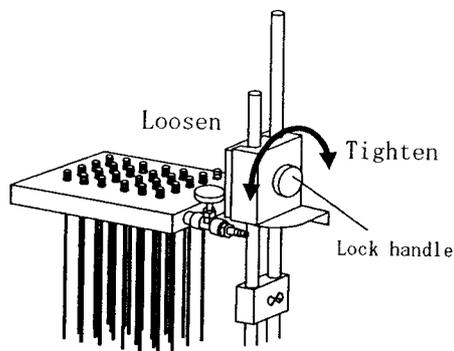
Manifold can be turned at your desired position



- (3) Prepare aluminum block bath and sample.  
Please handle these by following the instructions of enclosed instruction manual.

- (4) After setting up manifold at your desired position, tighten manifold and fix it.

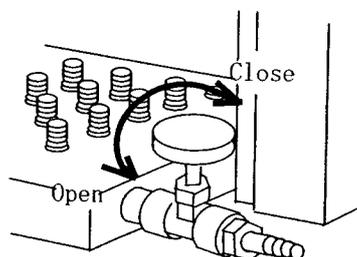
※To move manifold up and down, hold lock handle and the edge of manifold with both hands. In case that manifold is moved in one hand or lock handle is not loosened enough, metal scratching sound may occur.



- (5) Set up your desired pressure and make the condition that can be ventilated. Maximum introducing pressure of pressured gas blowing concentrator is 0.1Mpa. (Can be set up by tightening flow amount controlling valve.)

- (6) Operate flow amount controlling valve and set up your desired flow amount. In case that there is unused nozzle, please refer to the following and set up your desired number and position of nozzle.

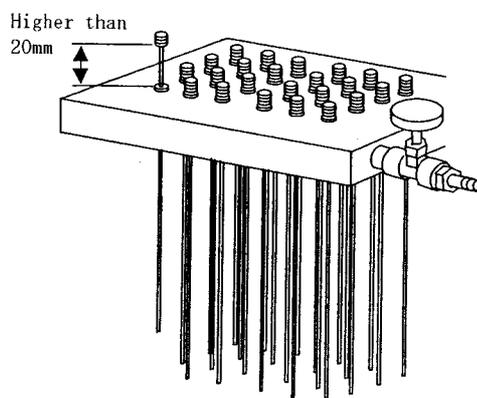
※Do not increase supply pressure after setting up flow amount. Preset pressure will exceed if using nozzle or flow amount is decreased.



「The system of blowing pressured gas for each sample」

When pulling nozzle up more than 20mm (as high as the port of nozzle can be seen), gas supplying to the nozzle can be stopped.

Do not supply the gas in the condition that all the nozzles are pulled up. Also, do not set up excessive flow amount with small number of nozzles. Pressure in the manifold gets higher and rubber valve part may have leak.



## 3-2 How to operate



### CAUTION

Stop using the product if you find any trouble.

When you find any trouble, turn off the power switch and refer to "Troubleshooting" on page 9.



### WARNING

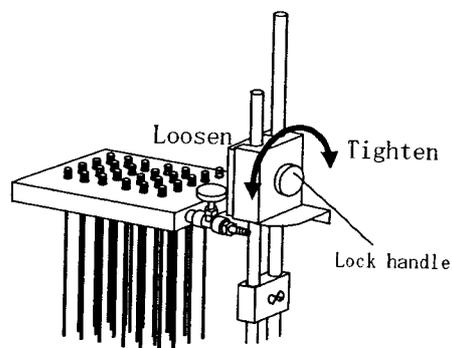
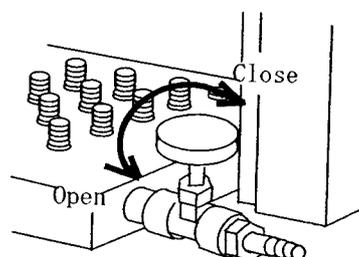
Do not touch aluminum block and block handle during use and for a while after use.

When preset temperature is high, aluminum block and block handle are subject to have high temperature, which may burn yourself.

- (1) Start the operation of aluminum block bath.  
For more details about handling aluminum block bath, please refer to the attached instruction manual and follow the instructions.

- (2) Adjust the position of manifold if needed depending on the amount of sample or evaporation.

※ To move manifold up and down, hold lock handle and the edge of manifold with both hands. In case that manifold is moved in one hand or lock handle is not loosened enough, metal scratching sound may occur.



### 3-3 Procedure after operation

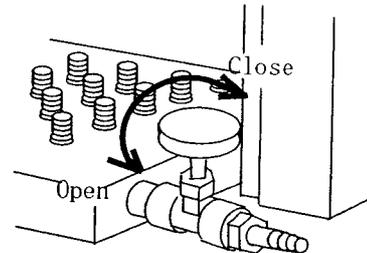


#### CAUTION

Do not touch aluminum block and block handle during use and for a while after use.

When preset temperature is high, aluminum block and block handle are subject to have high temperature, which may burn yourself.

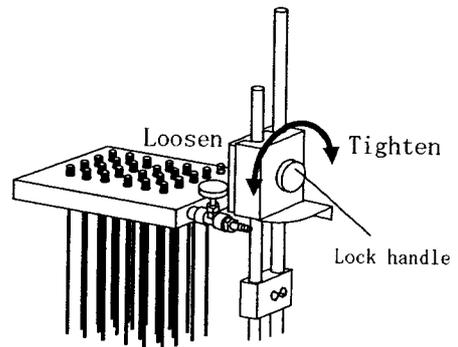
- (1) Close the flow amount controlling valve and stop flowing the air. When stopping operation, follow the proper instructions to stop supplying source.



- (2) Stop the operation of aluminum block bath. For handling aluminum block bath, please refer to the enclosed instruction manual.

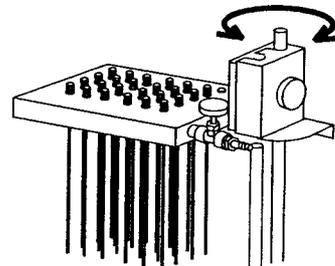
- (3) Loosen lock handle and pull manifold up, and then fix at the position where it does not disturb the setup of aluminum block or sample.

※When moving manifold up and down, hold lock handle and the edge of manifold with both hands. In case that manifold is moved in one hand or lock handle is not loosened enough, metal scratching sound may occur.



Manifold can be turned at the point out of the pole on front side. Around 30°C~90°C clockwise from this point, the position and the height can be fixed with the support of the pole on front side.

Manifold can be turned at your desired position



※To turn to the position where the manifold is supported and to turn back to the position to the opposite position, lift the manifold a bit and turn.

- (4) Proceed the proper instruction on aluminum block bath and sample. For more details about handling these, please follow the instructions of the instruction manual.

## 4 Troubleshooting

As for a trouble that is not mentioned below, stop the operation immediately and contact your local dealer or closest customer center.

Trouble	Cause of trouble	Solution
Gas is leaking from rubber valve	Supply pressure is high.	Adjust the supply pressure within the defined range. Maximum introducing pressure is 0.1Mpa.
	All nozzles are pulled up.	Lower the nozzle and flow the gas. If gas is supplied with all the nozzles pulled up, gas will leak from the rubber valve part.
	Setup flow amount is too big for the number of nozzle.	Decrease the flow amount by flow amount controlling valve. In case that the number of nozzle is too small for the flow amount, gas leak may occur from rubber bulb.
	Rubber valve is deteriorated	Replace rubber valve. As for replacement, please refer to "Replacing rubber valve" on page 10.
Gas is not supplied from all the nozzles.	Gas is not supplied from the source.	Check up the source and connecting pipe.
	Flow amount controlling valve is closed.	Set up the flow amount with flow amount controlling valve.
Gas is not supplied from some nozzles.	Nozzle is pulled up.	Lower the nozzle. If you pull the nozzle up, the gas supply to the nozzle will be stopped.
Flow amount of gas is too few.	Opening degree of flow amount controlling valve is too small.	Set up the flow amount with flow amount controlling valve.
	Gas pressure of the source is too low.	Adjust the gas pressure of the source. When the gas supply is low, supplying flow amount will lower.

## 5 Maintenance · checkup



### CAUTION

Do not remodel the product.

Remodeling undesignated part when checking up the product may cause glitch.



### CAUTION

Use appropriate product for cleaning and caring the unit in proper way.

When cleaning and caring the product, do not pour water directly on the external and internal part of the unit, and also do not use cleanser, thinner, petrol, lamp oil, acid and related products. These products may cause electric shock or damage the unit.

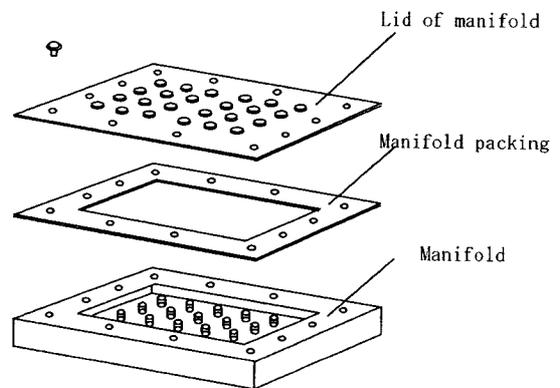
### 5-1 Replacing rubber valve

To replace rubber valve, remove manifold and all the nozzles from the stand. As for rubber valve and nozzle, the parts shown on right table are available.

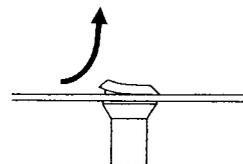
Product name	Catalogue No.
Rubber valve for MGS-2200 12 pcs	214460
Nozzle for MGS-2200 6 pcs	212490

- (1) Remove all the screws of lower surface of manifold. Do not remove manifold packing from the lid of manifold. Be careful not to lose screws.

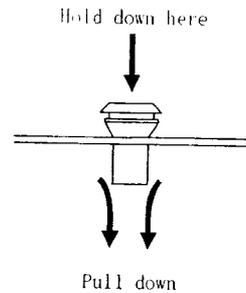
※Take care not to contaminate or damage manifold, which may cause gas leak.



- (2) Take rubber valve out from manifold and the lid of manifold. Pick the edge of rubber bulb and take it out.



- (3) Attach new rubber valve. Rubber valve can be fit in smoothly if you hold down the edge of the valve and pinch and pull up inside.



- (4) Fix manifold, manifold packing and the lid of manifold with attached screws. When attaching screws, equalize the position of screw port and the port for attaching the lid of manifold, then tighten with screws.

When the edge of all the nozzles are away from the center of block port, loosen the screws and arrange the position of manifold to adjust. In this case, it is easier if it's attached with nozzle.

※When setting it up, do not leave trash between each part.

## 5-2 Cleaning

For cleaning the unit, wipe with soft cloth after screwing water tightly. Use mild detergent to remove greasy dirt and wipe it off after using the detergent. Wipe off as quick as possible when sample adheres or spills over the machine.

## 6 Disposal of the product

When disposing the product, please follow the instructions as below.

Main components and disposal instructions.

Component	Mass	External measurement (mm)	Disposal method
Manifold	Approx. 2.5kg	245 (W) × 140 (D) × 600 (H)	Please contact waste disposer.
Stand			

※ Please separate packing material by separating each type of material.

## 7 After-sale service

- When the machine does not work properly, please check and see whether it has glitch or not by referring to pages of "Troubleshooting".
- If you are sure that it has malfunction, please contact your local dealer or customer service center mentioned on this manual.
- Repair work during guarantee period will be proceeded based on service warranty.
- Repair work after the guarantee period will be available with charge if required.

### Service Warranty

- Repair work is available with free of charge during the guarantee period (one year after the day of purchase), in the condition that the product is used as specified in this manual.
- Repair work for the following cases are charged even during the guarantee period.
  - Breakdown caused by error in use or improper remodeling.
  - Breakdown caused by moving the instrument from installation site and etc.
  - Breakdown caused by fire, earthquake, natural disaster, thunder, brine damage and other natural disaster.
  - Replacement of consumable product.
  - No presentation of warranty

Please stick the warranty on the column below.

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