

EX-1045B

THINKY

Non-contact Defoaming Mixer

AR-250 Operation Manual



THINKY CORPORATION

www.thinky.co.jp/english

1. About AR-250

AR-250 adapted THINKY patented “Planetary Centrifugal Mixing Theory” that mixes and de-aerate ingredients at same time, without any agitators, in seconds to minutes, in the container.

2. Main features of AR-250

2-1. Mixing Mode and De-foaming Mode

Mode	Rotation	Revolution
Mixing Mode	800	2000
De-foaming Mode	60	2200

Although processing under Mixing Mode de-aerate very well, De-foaming mode can still improve its de-aeration level pushing material strongly into the inner wall of the container that pushes air bubble out from the material. AR-250 realizes it increasing revolution (container orbital spin) speed while it lows rotation (container spin) speed. It transits to de-foaming mode automatically if timer is set.

2-2. Memory Slot

AR-250 has 5 memory slots to store your settings. It stores timer settings by mode.

2-3. Safety Feature

- 1) Lid Censer : It can not be run while the lid open. It can not be opened while it spins.
- 2) Vibration Censer : It stops if it censes the abnormal vibration of the unit.
- 3) Rotation/Revolution Speed Censer : It stops if it does not keep the spinning speed as designed.

2-4. Balance Adjustor Dial

AR-250 keeps its balance in mixing processing by Balance Adjustor Dial. Process desirable quantity of material, and it frees user from balancing problem.

2-4. Revolution Speed changer (Optional Feature)

AR-250 5th memory slot is usable for revolution speed change if the changer is activated. Select memory slot 5 and select de-foaming mode. Current revolution speed are displayed. Use timer Up and Down button to change the speed. Rotation speed follows revolution speed keeping its speeding ratio to revolution. Use mixing mode for timer settings. Processing at De-foaming mode is not capable at this time.

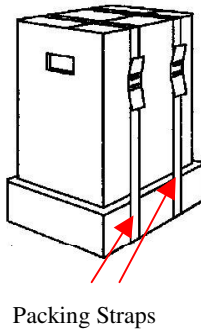
< Very Important Note >

READ OPERATION MANUAL BEFORE PROCESSING AND OBEY THE INSTRUCTIONS. IGNORANCE OF THE INSTRUCTIONS MAY CAUSE SERIOUS ACCIDENTS OR FAILURE OF THE UNIT. Keep the operation manual for future references. Contents of operation manual or AR-250 features are subjects to change without notices. Ask THINKY representatives for details.

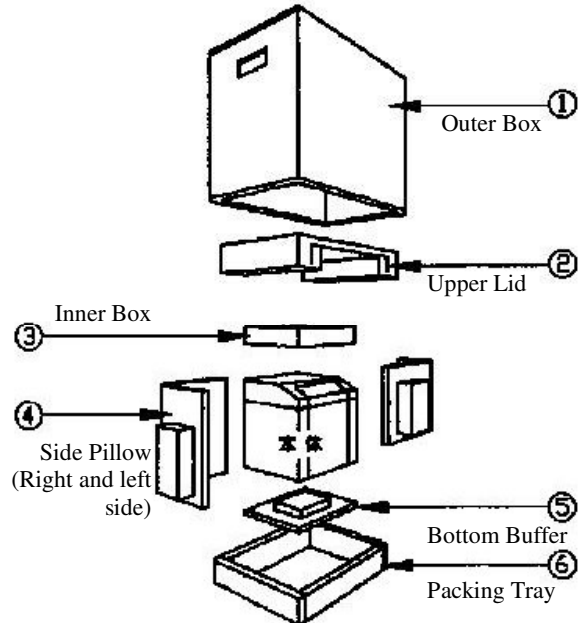
1. Unpack and Repack

1. Remove the packing straps and unpack as shown in Figure 2.
2. Keep the boxes for future use. For repacking, also follow the way as shown in Figure 2 and fasten straps as in Figure 1

[Figure 1]



[Figure 2]



2. Confirm Contents

Confirm each of following is included in the package.

- | | | |
|--------------------------|------------------------|----|
| <input type="checkbox"/> | AR-250 Unit | x1 |
| <input type="checkbox"/> | Operation Manual | x1 |
| <input type="checkbox"/> | 3phase AC Power Code | x1 |
| <input type="checkbox"/> | 250 ml HDPE jar | x3 |
| <input type="checkbox"/> | 150 ml HDPE jar | x1 |
| <input type="checkbox"/> | Adapter of 150 ml jar | x1 |
| <input type="checkbox"/> | Rubber Ring of Adapter | x1 |

8. Remove Shipping Locks

This product is delivered with the spinning portion locked in order to avoid accident during transportation. Performing mixing with the lock in place may cause damage of the machine. When installing the unit, remember to release the lock in the following

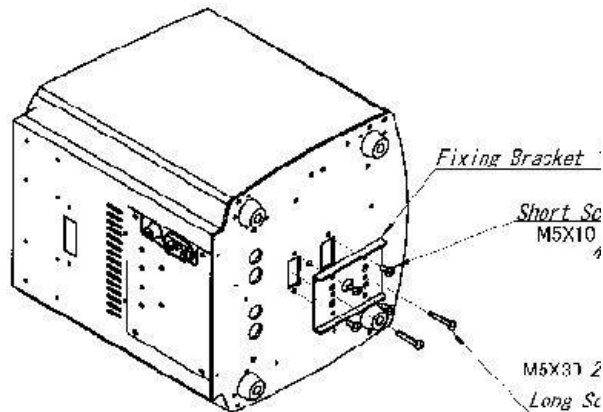
procedure.

① Remove the Bottom Fixing Bracket

Carefully lay the machine on its side.

Remove the Bottom Fixing Bracket "A" by loosening the 6 screws (four M5x10 and two M5x30), as shown in Figure 3.

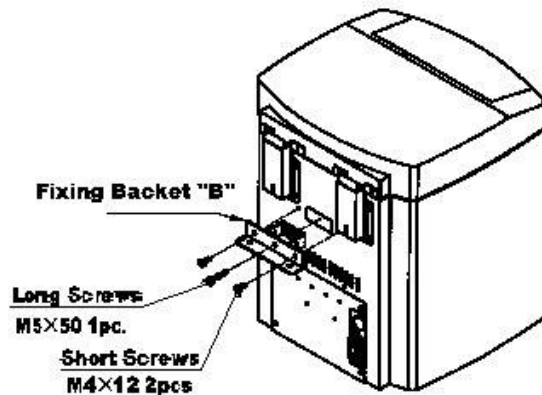
【Figure 3】



② Remove the Rear Fixing Bracket

Remove the Rear Fixing Bracket "B" by loosening the 3 screws (two M4x12 and one M5x50), as shown in Figure 4.

【Figure 4】



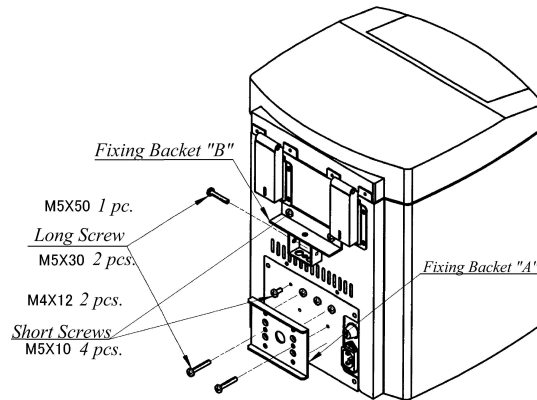
Caution

Remove the Bottom Fixing Bracket "A" first. Removing the Rear Fixing Bracket "B" first makes removal of the Bracket "A" difficult because the spinning mechanism inclines when the machine is laid on its side.

③ Store the Fixing Brackets

Attach the Bottom Fixing Brackets A, the Rear Fixing Bracket "B", and the screws to the bracket holder holes on the back of the main body, as shown in Figure 5.

【Figure 5】



Caution

- ◆ The fixing brackets and screws are necessary for future transportation of the unit. Be sure to attach them back in the way shown above.
- ◆ The fixing brackets also function as covers. Failure to attach them to the holder holes will leave the inside of the machine exposed, which is very dangerous. Be sure to secure the fixing brackets and screws properly to the instructed position.
- ◆ When transportation of the machine is necessary after installation, lock the rotator with the fixing brackets with the screws that are stored together with the brackets. Attach the brackets in the reverse order of the removal (i.e. attach the Rear Fixing Bracket "B" first and then attach the Bottom Fixing Bracket "A").
- ◆ When attaching the Rear Fixing Bracket "B", turn the spinning tray with hand to bring the scale of the balancer weight to the rear side (photo in the right). Match the screw holes of the bracket and the spinning mechanism to thread the screw (photo below).

(Position the screw hole of the spinning mechanism and attach the fixing bracket).



9. Installation

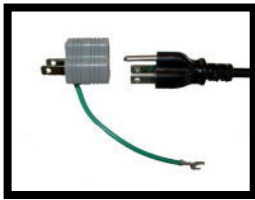
Plug the AC power code in the unit (Photo A) the tap (Photo B).



(Photo A)



(Photo B)



< Note >

Use 2 phase adaptor as needed

<  **Caution** >

Some regions regulate 2 phase connector. Please confirm your local law or regulations before use.

Step 5 : Power on

6. Turning Power On

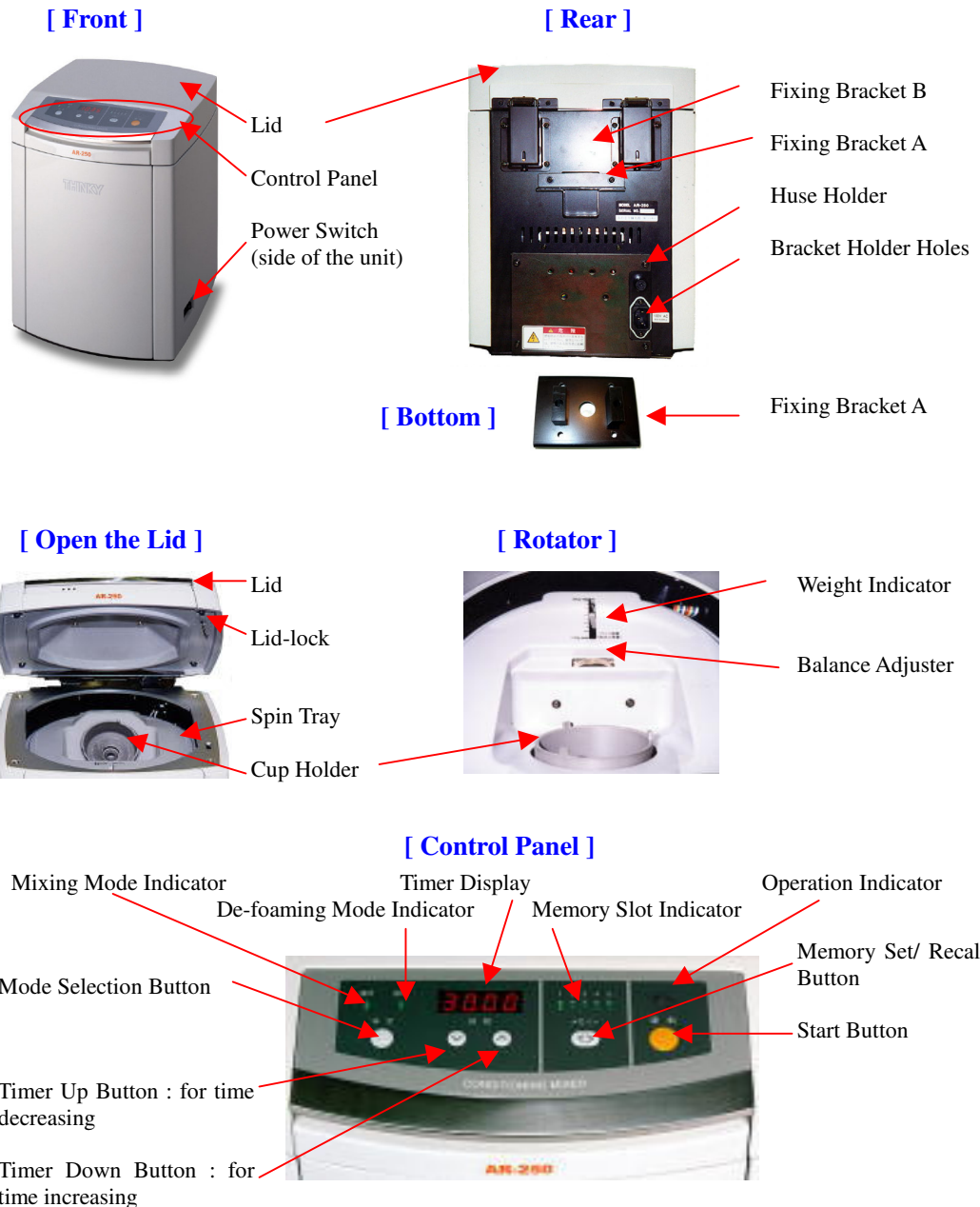
- (1) Referring to "9. Installation" of this manual, check connections of the power supply cable. (Use the 3P adaptor as necessary.)
- (2) Turn on the power switch located on the right side of the unit("1"-ON, "0"-OFF).
The LEDs on the control panel will be lit on.



Caution

- The Power supply cable of this product has a 3P plug with an earth pin. if the wall tap has an earth terminal, connect the cable plug directly into the tap without using the 3P adapter.
- If the wall tap does not have an earth terminal, use the 3P adapter to convert the plug to 2P.

4. Name of unit parts



5. Read Before Use : Cautions

To keep you and unit's safe, following instructions **MUST** be obeyed with **NO EXCEPTION**. It may cause unexpected result such as accidents or unit's damage if you obey the instructions.

[Installation]

- ❑ REMOVE "Shipping Lock" BEFORE PROCESSING and store properly.
- ❑ NEVER ATTEMPT TO PUT ANY OBJECTS TO THE WHOLE appeared after you remove the bracket attached the back of the unit. It will cause serious problem in the processing.
- ❑ Fasten "Shipping Lock" before shipping.
- ❑ PLACE THE UNIT ON VERY STABLE TABLE OR FLOOR. Unstable places such as on the wagon damage the unit.
- ❑ Keep following environment : temperature $5^{\circ}\text{C} - 35^{\circ}\text{C}$,

[Material Preparation]

- ❑ NEVER ATTEMPT TO PROCESS EXPLOSIVE MATERIAL OR HARMFUL MATERIALS TO HUMAN
- ❑ NEVER ATTEMPT TO PROCESS THE QUANTITY EXCEED GROSS WEIGHT 310 GRAM
- ❑ USE THINKY MANUFACTURERD ADAPTOR ONLY. The use of adaptors THINKY does not confirm the influence to the unit on balance voids warranty and THINKY may not accept maintenance service.
- ❑ USE INNER LID OF CONTAINER AND CLOSE THE SCREW CAP TIGHTLY to avoid leaking. Don't use the container and caps does not match or broken. It may cause material leaking into the unit and cause serious failure of the unit.
- ❑
- ◆ Do not use the machine in an area exposed to direct sunlight or where temperature may become below 5°C or over 35°C .
- ◆ Do not use the machine in an area of high humidity or of sudden temperature changes in which condensation may occur.
Always use the machine within the specified environment. Always keep the area around the machine clean. Dust may become a cause of machine failure.
- ◆ Always perform checks and confirmations before use. Before use, always check the machine thoroughly to secure safe operation. (Refer to the "Maintenance" section.)

When any trouble or abnormality is found, stop the machine and contact your local dealer or Thinky.

◆ **Always pay attention to temperature rise when mixing or mixing heat-producing materials.**

The standard container is made of HDPE (high-density polyethylene), Which starts softening and deforming at 80 ° C. When mixing large volume of high-viscosity resin or fine particles (bulking agent, ceramic particles, metal powders, etc.) or using materials that have not been used in this machine before, mix for a short period (15-30 seconds) at first, check for temperature rise and deformation of the container, and then set theremaining mixing time. Pay special attention to temperature rise when using materials with low boiling point.

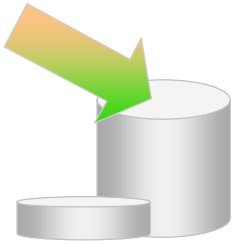
- ❑ ADJUST “Balance Adjuster” TO THE WEIGHT YOU MEASURED
- ❑ USE THINKY MANUFACTURERD ADAPTOR ONLY. The use of adaptors THINKY does not confirm the influence to the unit on balance voids warranty and THINKY may not accept maintenance service.
- ❑ KEEP CLEAN AND CLEAR AROUND THE UNIT ALL THE TIME
- ❑ NEVER ATTEMPT TO ADD MATERIALS INTO THE CONTAINER PLACED IN THE “Cup Holder “ OF THE UNIT.
- ❑ NEVER ATTEMPT ANYTHINGS THAT IS NOT INSTRUCTED IN THE OPERATION MANUAL.

< Very Important >

Never attempt to break down or customize the unit. It void warranty and THINKY may not accept maintenance services.

10. Basic Operation Flow

Step 1 : Put material in the Jar

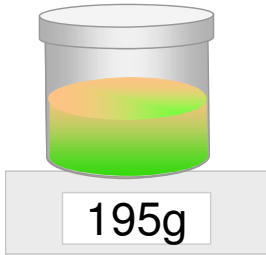


1. Take the appropriate container and check if it breaks or it can be closed the cap tightly.
2. Put them into the appropriate container.
150ml container : up to 150ml
250 ml container : up to 250 ml
3. Close the inner cap and outer cap.

THINKY TIPS : Put materials in the following order for better result.

- 1) Liquid material first and then powder
- 2) Lower gravity material first and then higher
- 3) Lower viscous material first and then higher

Step 2 : Measure the gross weight

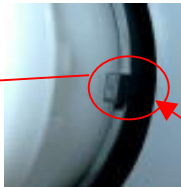


1. Measure the gross weight including material, container and adaptors.
2. Confirm it is less than 310g. In case it exceeds 310g, reduce the material.
3. Close the inner cap and outer cap

THINKY TIPS : Use 150 ml container for materials less than 50g for better result.

Step 3 : Place the container into the unit

[Place 250 ml jar]



1. Insert the jar into the “Cup Holder” locking the 3 notches of the jar and Cup Holder’s. It fits together.

Notch

[Place 150 ml jar]



1. Place 150 ml jar adaptor locking each notches.



2. Insert the 150ml container inside of the adaptor.

Step 4 : Adjust “Balance Adjustor Dial” ← Very important



1. Adjust “Balance Adjustor Dial” to the weight you measured.
2. Confirm Weight indicator if it matches to the measured weight.



Caution : Use “Balance Adjustor Dial” properly as instructed. If not, it will shorten the life of the unit or cause unexpected result to failure.

Step 5 : Start Processing

1. Close the “Lid”

2. Store settings in the memory slot

- a. Timer settings by mode can be stored at the slot.
- b. Select desired number of memory slot using Memory Button. Green light indicates the memory slot you select.
- c. After mode selection and timer settings, press Memory Button for 3 seconds. It stored in the memory slot with the beeping.
- d. When you select the memory slot, it calls your settings.
- e. Settings can be overwrite by pressing Memory Button for 3 seconds.



3. Select the mode

There are 2 modes to be selected, “Mixing Mode” and “De-foaming Mode”. Press “Set Up” button to change the mode. Green indicator lights under the name of each mode.



4. Set timer

Timer can be set by modes. Select mode and use Timer UP and Down Button for timer settings. TRY FROM 30 SECONDS TO CHECK FRACTION HEAT.



5. Press Start Button

Operation Indicator lights during processing.

6. Take the container out

It beeps at the complete stop of rotator. Now you can take the container out.

[Notice]

The result may be vary for condition of the materials, viscosity, Gravity, Volumes, and any factors that affects the mixing result.

3. Specifications

Product Name		Hybrid De-foaming Mixer "Awatori Rentaro"	
Model		AR-250	
Mixing System		Planetary Centrifugal Mixing Method	
Timer Setting Range		10 seconds - 30 minutes	
		Mixing Mode	De-foaming Mode
Revolution Speed		2000 rpm	2200 rpm
Rotation Speed		800 rpm	60 rpm
Standard Container		Material: HDPE(high-density polyethylene) Capacity: 250ml, 150ml	
Maximum Mixing Weight		Gross weight 310g (including material, container and adaptors)	
Capacity	Power	Single-phase 120 VAC $\pm 10\%$, 50/60Hz	
	Voltage	Standby: approx, 50 VA, Operation:max.900 VA	
Use Environment		Temperature: 5-35 ° C, Relative Humidity: 35-85% (No condensation)	
Dimensions of the unit		39H 300W 290D(mm)	
Weight of the unit		Approx. 22kg	

11. Solve problems

Please confirm which problems you have and apply the actions before contact THINKY representatives. In case the problem is not solved, please contact THINKY representative.

Symptom	Action	Page
1) NO power	-Plug the code out/in again. -Confirm if the power switch is ON position -Replace fuse as needed (Rating: 10A) -Try alternative power code.	
2) It does not start processing	- Confirm the lid closed. - Confirm if the shipping lock is removed. - Confirm if the timer set. It does not run in case timer is set to Zero on both of mixing/de-foaming mode.	
3) Unusual vibration or noise	- Confirm if the Balance Adjustor is set property to the GROSS WEIGHT of the container - Confirm it is placed on the stable table. Confirm if you get the same result when the unit is placed on the floor. - Confirm if you get the same result with another samples.	
4) Getting quite poor result than before	- Confirm the settings if it is the same set as usual. - Confirm if you get the same result with another samples.	

12. Error Messages

The Lid Sensor, Vibration Sensor, and Spinning Sensor are built in this products. When one or more of these sensors detect malfunctions or abnormalities during operation, the machine will show a message on the Control Panel and stops operation. Following are common causes and actions to be taken when error occurs. When the cause of the error is known, remove the cause and press any button EXCEPT the Start Button on the Control Panel to restart the machine. When the cause is not clear and cannot be resolved, please contact your local dealer or Thinky.

Error Message	Cause	Action
Err1	<ul style="list-style-type: none">• Tried to operate the machine with the Lid open.• Lid is opened during operation.	<ul style="list-style-type: none">• Shut the Lid and restart.
Err2	<ul style="list-style-type: none">• Abnormal vibration was detected during operation.• Vibration exceeded the tolerance	<ul style="list-style-type: none">• Check if the lid of the container is in place properly• Adjust spinning balance.
Err3	<ul style="list-style-type: none">• Rotation/Revolution speed does not increase properly after starting operation	<ul style="list-style-type: none">• Please contact your local dealer or Thinky
Err4-8	<ul style="list-style-type: none">• These errors are related to electrical circuits or control software.	<ul style="list-style-type: none">• Please contact your local dealer or Thinky

13. Maintenance

- ◆ Please check the following points before each use in order to operate the machine safely.
 - Make sure that the power supply cable is connected to the inlet of the machine and to the wall tap firmly.
 - Check for any materials littered or spilled on the Spin Tray or on inside and around of the cup holder. If any materials are found, wipe out immediately. Operating the machine with materials remained in these portions may cause failure of the machine or fire.
- ◆ Check exterior of the machine for severe damage (creep, large dent, etc.).
- ◆ When improper mixing or any other problem occurs and cannot be resolved, please contact your local dealer or Thinky.

14. Warranty and Services

- ◆ This product has been manufactured and shipped under strict quality control. However, should failure occurs in your products, please contact your local dealer or Thinky.

- ◆ The Warranty period of this products is 1 year from the date of delivery. For failures that are apparently caused by reasons attributed to Thinky (failures due to cause in manufacturing), which occurred during this warranty period, Thinky will provide repair service free of charge. (This policy is NOT applied to overseas usage.) However, the following are not covered by the warranty:

1. Wear of the driving belt.
2. Failure or accident caused by litter or spill of materials or solvents.
3. Damage by external impact to the product from usage, such as scar or dent.
4. Failure caused by misuse or abuse, such as unauthorized use or use beyond limitations.
5. Failure or damage caused by natural disaster such as fire, earthquake or flood.
6. Failure caused by unauthorized repair or modification or usage of abnormal power source.
7. Failure caused by usage of unauthorized containers or adapters.

【Contact Address】

For support, contact your local dealer or,

THINKY CORPORATION

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Phone: +81-3-5821-7455 Fax: +81-3-3865-7833

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