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A New Concept In Mixing: AWATORI RENTARO **AR-250**

THE ACTUALIZATION OF SIMULTANEOUS PROCESS OF HIGH SPEED MIXING AND REMOVING BUBBLES



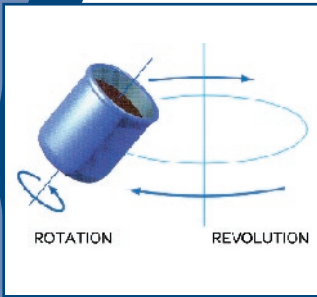
AR-250 SPECS

Formula		Rotation/Revolution mixing without Blades
Rev. Control		Optional
Timer Set Range		0 sec. to 30 min. (5 memories)
Mixing Mode	Revolution	2000 rpm
	Rotation	800 rpm
De-foaming Mode	Revolution	2200 rpm
	Rotation	60 rpm
Maximum Capacity		250ml or 250g
Vacuum Chamber		-
Vacuum Pump Power		-
Pump Oil		-
Maximum Vacuum Pressure		-
Power Supply		110VAC \pm 10% 50/60 (Voltage Trans. Optional)
Power Consumption	StandBy	50VA
	Operation	<1100VA
Use Environment	Temperature	5-30° C
	Humidity	35-85%
Safety Function		Door Sensor, Vibration Sensor, Rotation Sensor
External Dimensions (in.)		15-1/2H x 12W x 12D
Weight (lbs.)		49

THINKEY

High Performance Blending and Bubble Removal

The Motion Principle of Super Mixer



The Super Mixer Awatori (bubble removal) Rentaro makes it possible for the process of mixing and bubble removal to be carried out simultaneously, something which was deemed impossible up till now.

It's a conditioning mixer. It can be used for the mixing, bubble removal of not only epoxy but also synthetic resins like silicon, conductor and insulation paste, other medicines, chemical materials etc.

The Super Mixer series are high performance mixing and bubble removing equipment which was developed with the objective of efficiently mixing various paste materials like adhesives etc. while simultaneously removing the resultant bubbles. The motion principle of this is very simple. By rotating the materials container while revolving it on a set radius, a huge continuous centrifugal force is produced which mixes and simultaneously forces out the resultant or existent bubbles in the materials.

Illustration of Using the Super Mixer to Mix, Remove Bubble/Air

Example 1 - Mixing, Bubble (Air) removal from silver pates



Before Mixing

The silver fillers precipitate and separate from the resins component

After Mixing

The silver fillers are similarly separated, and while the dispersion conductivity is restrained, the bubble removal also prevents trapped air during syringe injection or printing. (Mixing mode: 30 seconds)



Example 2 - Mixing Bubble (Air) removal from epoxy resins + hardener + alumina powder



Before Mixing

Main component of epoxy (transparent) + hardener (colored green) + alumina powder (white)

After Mixing

The alumina powder (white) is separated, mixed with the hardener's green color and became a uniform light green color. (Mixing mode: 4 minutes) (Bubble removal mode: 2.5 minutes)



Example 3 - Mixing, Bubble (Air) removal from liquid Silicon 2



Before Mixing

Main component of silicon (colored white) + hardener (colored red)

After Mixing

The whiteness of the main component and hardener's redness is well mixed resulting in a uniform pink color. (Mixing mode: 4 minutes) (Bubble removal mode: 2 minutes)



Example 4 - Mixing, Bubble (Air) removal from epoxy resin + hardener (polyamide resin)



Before Mixing

Epoxy resin, main component (transparent) + hardener (brownish yellow)

With Super Mixer

Become transparent with air bubbles removed. (Mixing mode: 5 minutes) (Bubble removal mode: 2 minutes)



Manually

5 minutes of manual mixing. Appears cloudy white with much trapped air bubbles.

Example 5 - Mixing process (cross section of raw materials) of highly adhesive materials



Start

An amount of two-colored oil based clay is set in the container.



After 30 seconds

The brown part which was set on top drew an arc along the container and flowed into the white part.



After 2 minutes

As mixing continues, the swirls become finer.



After 7 minutes

Completely assimilated.

IT IS OUR CUSTOMERS WHO ENABLED THIS MIXER TO PERFORM AT ITS BEST

UNBELIEVABLE PERFORMANCE

The ability to simultaneously process high power mixing and bubble/air removal.

Rotation, revolution formula in the Super Mixer Awatori Rentaro creates an acceleration rate of more than 400G while revolving at a speed of 2,000RPM. This mixer is like a dream with its exceptionally strong mixing power and ability to simultaneously remove bubble/air.

AND THUS A ROTATION/REVOLUTION FORMULA MIXER IS BORN

At that time, there was an earnest request from medical personnel to develop a mixer which can besides simultaneously mix and remove bubble/air, also finish the process within 30 seconds as air bubbles trapped during mixing was a problem.

Our company accepted this request and started to develop the concept. However, it was not possible to achieve simultaneous process, as it is only natural that under stronger air pressure, mixing and bubble/air removal will produce opposite effects. Although the development was extremely difficult, our company finally discovered that simultaneous mixing and bubble/air removal can be achieved perfectly by combining the inherent elements of rotation and revolution. With this discovery in 1987, a mixer with a totally new formula that was previously unthinkable, the "Super Mixer Awatori Rentaro" was born.

ANOTHER 13 YEARS TO FURTHER PERFECTION

At Thinky, we believe that in order to market the Super Mixer Awatori Rentaro which like "magic", has made something normally impossible to being possible, it is necessary to further increase its perfection and 13 years have passed with us continuously putting in all our efforts to improve its performance.

Especially in the high-speed rotation, a mechanism of durability in addition to good efficiency and high safety level so that the self rotation part will rotate amidst an added acceleration speed of above 400G is an essential prerequisite. For this reason, accumulative and repetitive through research and experiments of raw materials, processing technology, control technology, evaluation technology, quality control are absolutely necessary.

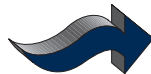
ACTUAL RESULTS PRODUCED BY THE SUPER MIXER AWATORI RENTARO

The birth of such a never-before high performance mixer has therefore led to its use not only in the medical field but it is also widely acknowledged by production industries and is actively used for semi-conductor materials, electronic parts materials, liquid crystal display, medical drugs, cosmetics, paints, foodstuffs, adhesives, cream solder, silver paste in major corporations and universities.

PROBLEMS OF MIXING AND BUBBLE/AIR REMOVAL ARE SOLVED WITH THE SUPER MIXER AWATORI RENTARO

Quality control problem arises with uneven manual mixing.

SOLUTION NO. 1



With Awatori Rentaro, uniform quality can be maintained by anyone simply by setting the parameters with a key switch.

Manual mixing especially for large quantities are both tiring and time consuming.

SOLUTION NO. 2



Awatori Rentaro takes only between 10 seconds to a few minutes to complete each process. Therefore, simply increase the mixing frequency to obtain the requires quantity.

Problems with stray bubbles when air removal is done by vacuum induction.

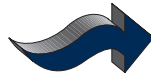
SOLUTION NO. 3



With the Awatori Rentaro, mixing and bubbles removed can be simultaneously processed in one touch. Without vacuum induction, no bubble with arise nor will any solvent be lost.

Want to increase the bonding power of adhesives.

SOLUTION NO. 4



The Awatori Rentaro's extraordinary mixing and bubble/air removal power flawlessly unite the main component and hardener. With this, reliability is increased considerably.

Want to increase the paste's insulation efficiency.

SOLUTION NO. 5

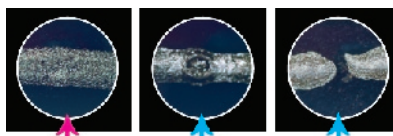


Defective insulation is caused by air bubbles in the paste. With Awatori Rentaro, air bubbles are completely expelled with its strong bubble/air removal power. Thus, insulation efficiency is guaranteed.

Other highly adhesive materials or powder forms etc that are difficult to blend can also be easily processed with Awatori Rentaro's speedy one touch processing.








USAGE EXAMPLE OF DISPENSING SILVER PASTE OF WHICH AIR BUBBLES HAVE BEEN REMOVED

When in storage, silver fillers in the silver paste will separate and sink to the bottom and thus it is necessary to mix the paste with a spatula before usage. However, this will result in trapped air bubbles that cause broken lines during injection.















When the silver paste is blended for 30 seconds to 1 minute with the Awatori Rentaro before use, the paste becomes creamy with air bubble removal at the same time. Thus after injection, as shown in the picture, injection without any trapped air is possible.

ADAPTERS FOR VARIOUS CONTAINERS

Type	Adapter	Various Containers	Remarks
250 AD-3S		 3ml Syringe	3ml syringe with cap to be loaded on AR-250 by using this adapter
250AD-5S		 5ml Syringe	5ml syringe with cap to be loaded on AR-250 by using this adapter
250AD-10S		 10ml Syringe	10ml syringe with cap to be loaded by AR-250 by using this adapter
250AD-30S		 30ml Syringe	30ml syringe with cap to be loaded on AR-250 by using this adapter
250AD-50S		 50ml Syringe	50ml syringe with cap to be loaded on AR-250 by using this adapter
250AD-201		 150ml Cup	Standard 150ml to be loaded on AR-250 by using this adapter

ADAPTERS FOR VARIOUS CONTAINERS

Type	Adopter	Various Containers	Remarks
250AD-20DT		 Dotite 20g Bottle	Dotite (Silver Paste) 20g bottle to be loaded on AR-250 by using this adapter
250-AD-20SUS		 10ml Stainless Container	10ml stainless container to be loaded on AT-250 by using this adapter
250AD-100DSP		 100ml Disposal Cup	1000ml disposal cup to be loaded on AR-250 by using this adapter. Due to no cap on disposal cup, maximum loadable volume is approximately 50ml (weight approximately 200g)
250AD-200DSP		 200ml Disposal Cup	200ml disposal cup to be loaded on AR-250 by using the adapter. Due to no cap on disposal cup maximum loadable volume is approximately 100ml (weight approximately 200g)
250AD-50SCR		 50ml Screw Bottle	50ml screw bottle to be loaded on AR-250 by using this adapter
250AD-NAN		 10ml, 20ml, 30ml, 50ml, 100ml Ointment Container	10ml, 20ml, 30ml, 50ml, and 100ml ointment container to be loaded on AR-250 by using this adapter



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