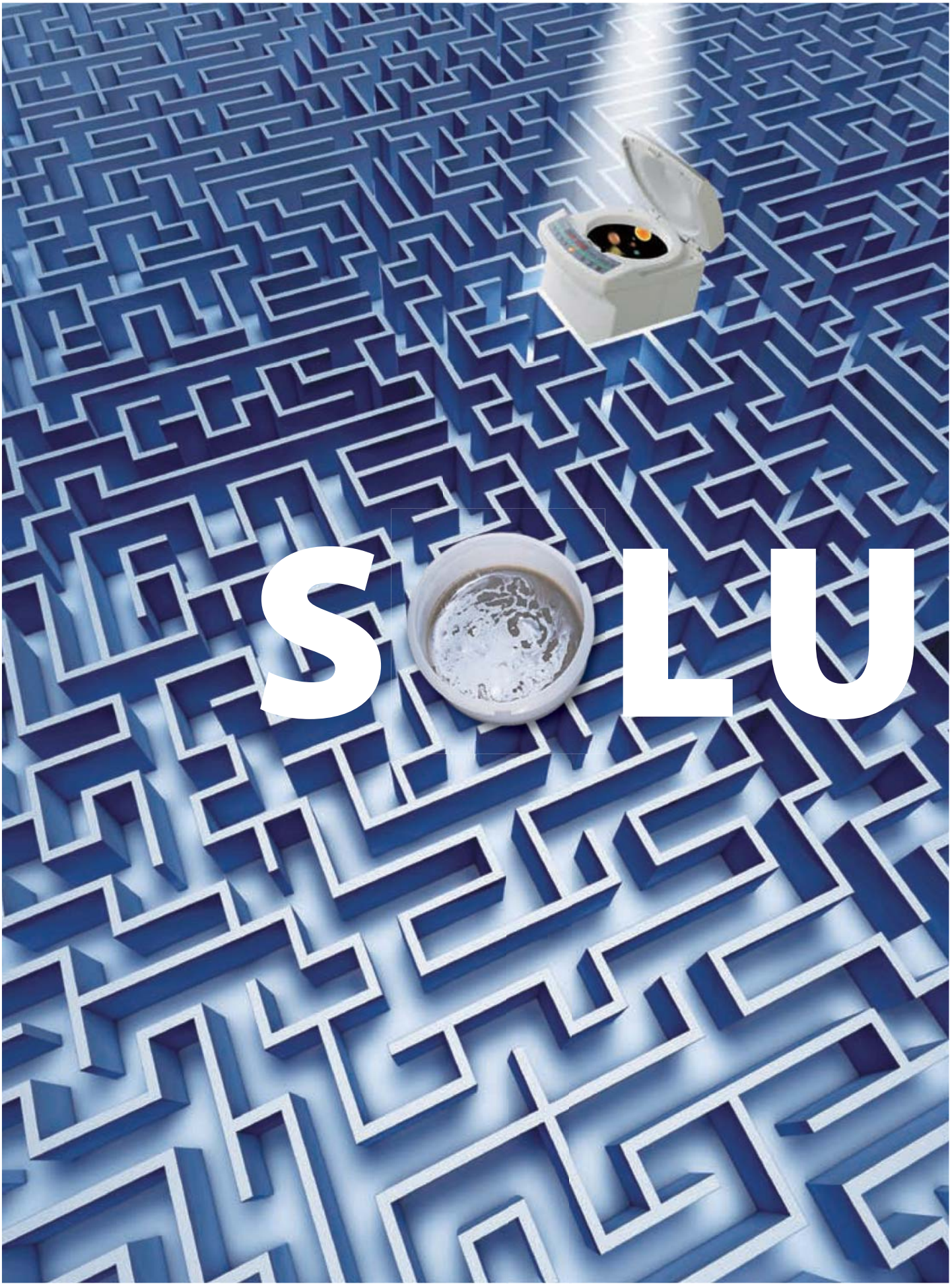
THINKY

Pioneering planetary centrifugal mixers

THINKY MIXER Series

Original material processing & in-depth know-how
mean outstanding technological innovation!


SOLU

1—To improve the quality of materials and expand research possibilities

2—To reduce production costs and increase production efficiency

3—To ensure more effective use of resources and reduce environmental impact

THINKY's unique technology opens a new window on your processing problems and helps establish firm foundations for the mass production of materials.

TION for MIXING

C O N T E N T S

Efficiency+Deaeration

Mixing+Deaeration

Pioneering planetary centrifugal (vacuum) mixers
THINKY MIXER Series

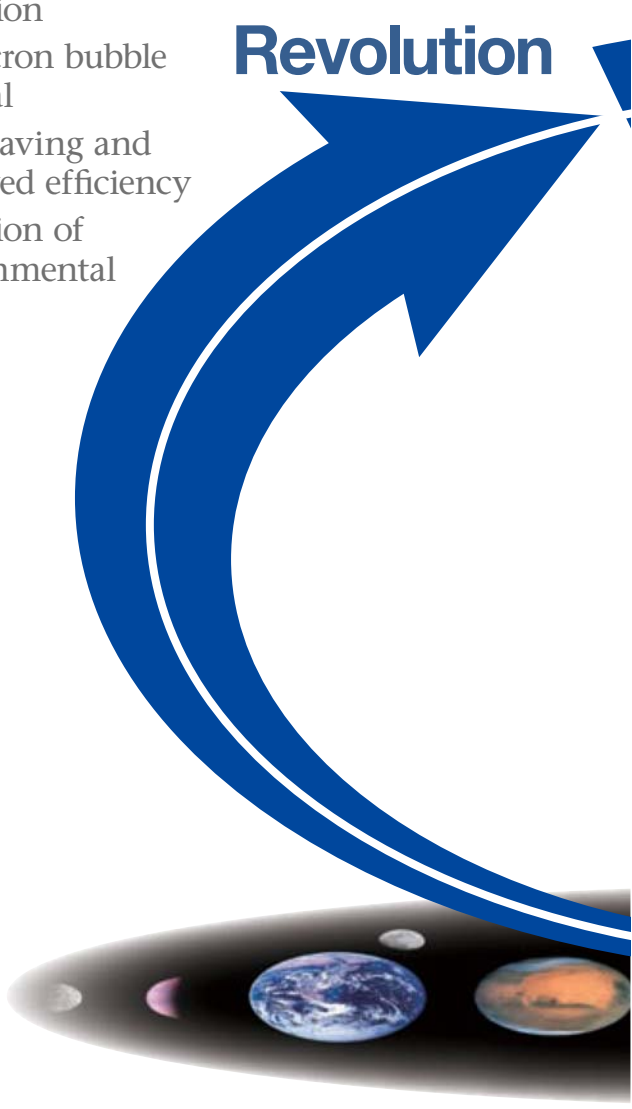
The unique THINKY Mixer is a no-touch, no-blade way of mixing materials employing rotation and revolution. In much the same way as the Earth revolves around the Sun, the mixing container orbits the center and also turns upon its axis; these two contradictory forces simultaneously and thoroughly mix, disperse and deaerate materials in the container.

- Uniform mixing of materials with different viscosities or specific gravities
- Dispersion of high-density material with no sedimentation
- Dispersion of nanoparticles with no aggregation
- Nano-level pulverizing and dispersing of insoluble compounds
- Mixing high volumes of particles into resin

As new materials are developed, new demands also increase; our planetary centrifugal THINKY Mixer Series with deaeration technology enables highly advanced and efficient material processing.

Our models with a vacuum pressure reduction function eliminate micron-sized bubbles. The time and costs required for cleaning machines and material waste are also kept to the minimum. These models have been enthusiastically taken up by a broad range of industries and are found in research and development labs and production facilities for semiconductors, liquid crystals, paints, pharmaceuticals, cosmetics, food products, and such electronic materials as resin and metallic paste.

- Particle level uniform dispersion
- Submicron bubble removal
- Labor saving and improved efficiency
- Reduction of environmental impact



Short Movie Now Spinning!!

You can see the rotation and revolution movement on our WEB site.

THINKY Search

Simple Operation

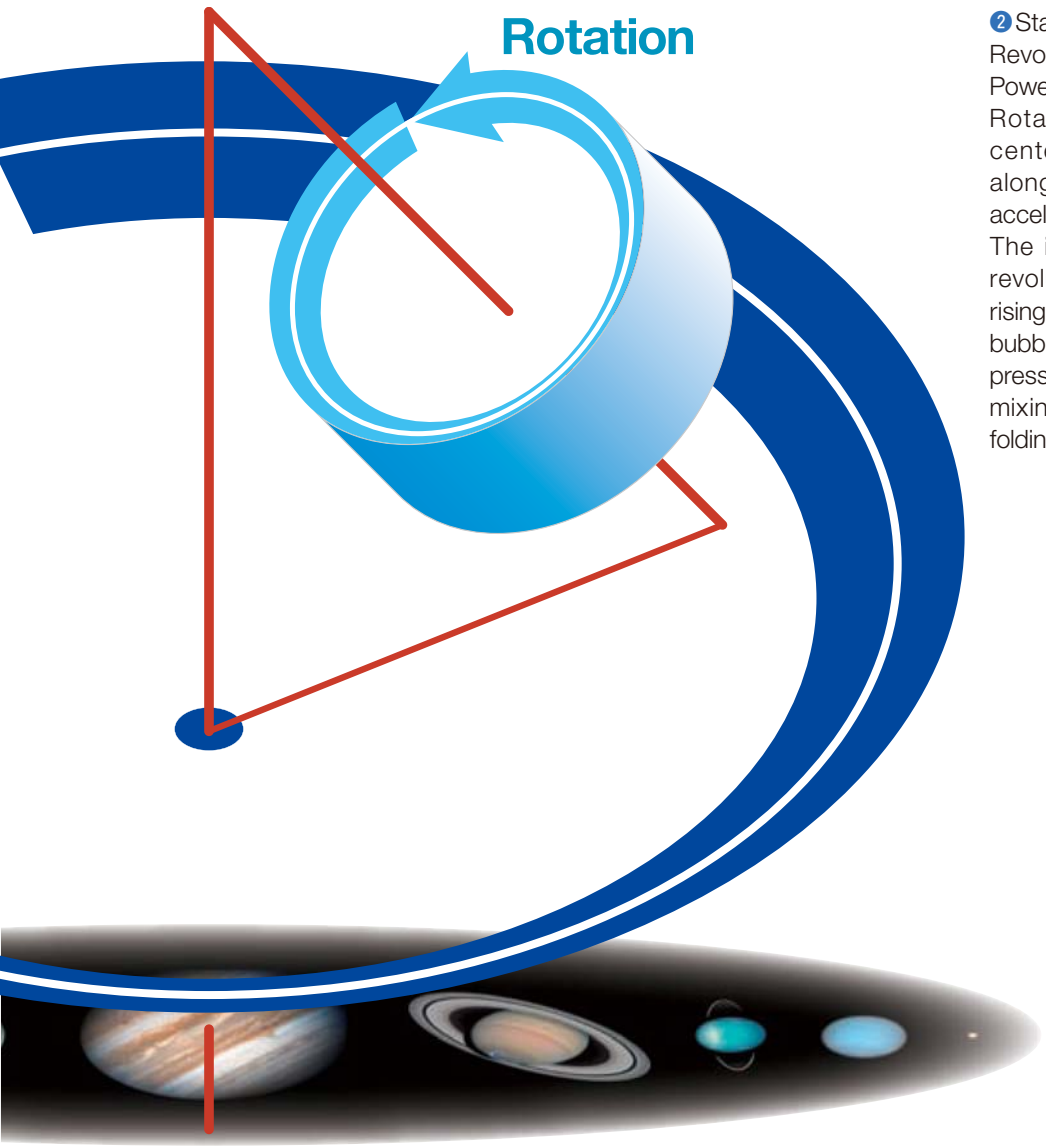
1—Place the container and material* into the unit. Adjust the weight balance**.
2—Use the memory and timer to set the number of rotations and mixing time, and switch on.
3—High quality mixing completes in a short time.

*Container types differ according to the model.
**Adjust the weight balance to take account of the material weight, container and adapter.


1


2

Rotation and Revolution: A universe within which two centrifugal forces powerfully and harmoniously orbit, turn and spin
THINKY Mixer with deaeration technology means no bubbles.



Mechanism of the THINKY Mixer

❶Place the container and materials into the holder angled at 45 degrees to the revolution axis.

❷Start operation

Revolution: Wide clockwise revolutions. Powerful acceleration of deaeration.

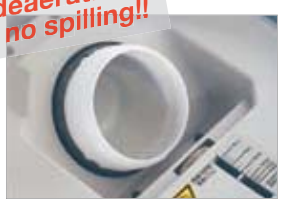
Rotation: Rotates counterclockwise centered on the container axis and along the revolution orbit. Power that accelerates mixing.

The interaction between rotation and revolution generates a spiral flow and rising and falling convection currents. Air bubbles within the material are efficiently pressed out to the surface, thus enabling mixing and dispersion without bubbles folding back into the mix.

●The THINKY Mixer Series and their related technology incorporate a number of industrial property rights including Japanese utility model registration No. 2018953 and patent No. 3896449; the latter is particularly significant and includes the technology for the vacuum system within the container holder, which in recent years has become an increasingly important tool of industry.

3

Vacuum deaeration ensures no spilling!!



◀**THINKY Mixer ARV Series**
The ARV Series has a vacuum pressure reduction function in addition to the rotation and revolution system, and generates powerful centrifugal forces, removing any concerns of material spillage; with just one switch, anybody can now carry out quick and easy simultaneous mixing and deaeration and ensure the highest quality.

◀**Conventional vacuum deaerators**
Conventional vacuum deaeration systems are costly in terms of time and labor, requiring constant monitoring to control spillage, and there are limitations on precision and accuracy.

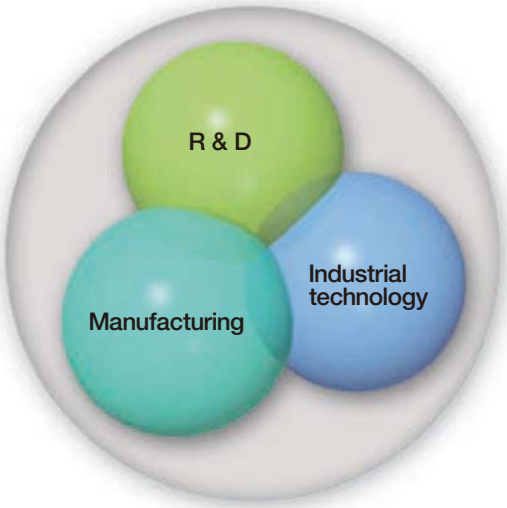
THINKY Mixers: Features and Applications

Short time simultaneous processing: uniform mixing, dispersion and deaeration

Features

- Uniform mixing and in a short time: many different materials can be mixed, from liquids and high-density materials to nano-level powders.
- Uniform mixing of materials with very different compound ratios and specific gravities.
- Powerful acceleration exceeding 400 Gs* allows simultaneous mixing and deaeration. Products with a vacuum pressure reduction function eliminate micron-sized bubbles. The product range also includes models with an atmospheric pressure deaeration mode, which is compatible with materials that are not suitable for vacuum deaeration, such as solvent components or water.
  *Acceleration differs according to the product.
- Mixes and disperses materials while maintaining their constituent shape (fibers and powders) and functions without causing breakdowns.
- Mixing and deaeration of very small volumes.
- Timer setting and memory function for registering procedures allows the creation of recipe manuals for each material.
- No blades means no tool cleaning.
- Simple structure ensures simple maintenance.
- More than 22,000 units were delivered worldwide; we enhance our product reliability with first class technical support and services that guarantee customer satisfaction.

THINKY Mixers: A key player on the industrial field



- Next-generation energy technology, e.g. fuel cells, solar cells, secondary cells
- Car electronics
- Next-generation energy saving technology, e.g. FPD, LED, OLED
- Communications technology
- Printed electronics, nano printing applications
- Aerospace industry
- Semiconductor industry
- Sensor technology, robotics
- Chemical products
- Dental engineering, bioengineering, bio-related
- Drug development, pharmaceuticals, reagents
- Food products
- Testing and analysis techniques

Mixing process of high-viscosity materials using oil-based clay (ARE-310)

The mixing of two layers of high-viscosity oil clay has started. In just seven minutes uniform mixing has completed. No air bubbles are found.

Start

THINKY Mixer Series Material Processing Example—1

Comparison: before and after mixing

Sample-1 Epoxy Resin (base + hardener) and alumina powder

2-part resin and white alumina powder are uniformly mixed to a solid green color.

Sample-2 Silver Paste

Silver particles are uniformly dispersed throughout the resin base, giving a smooth material surface with no air bubbles.

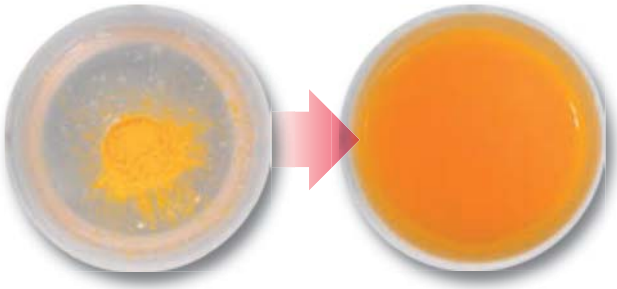
Sample-3 Cosmetic Foundation (wax and three types of iron oxides)

Four types of materials are uniformly mixed to a smooth cream consistency. Air bubbles are eliminated, giving vibrant color and a very smooth feel.

Sample-4 Ointment
(zinc oxide simple ointment and acrinol powder)

Yellow acrinol powders are uniformly dispersed to create a solid yellow color cream with a smooth feel when applied.

Sample-5 Low-Viscosity Silicone Resin and Silicate Fluorescent Material



The fluorescent material is uniformly dispersed with no sedimentation throughout the low-viscosity silicone resin (about 3 Pa s (3,000 cP)).

Early phase　　Progressive phase　　Completion of operation

THINKY Mixer Material Processing Example—2

Comparison: manual mixing vs. THINKY Mixer / Solder Paste Mixer

Sample-1 Solder Paste
(solder powder and flux)

Manual mixing

Solder Paste Mixer

Smooth surface. No bubbles.

Sample-2 Sealant for White LED
(silicone resin and fluorescent material)

Manual mixing

THINKY Mixer

Fluorescent powders with a higher specific gravity are uniformly dispersed without sedimentation in a low-viscosity silicone.

Sample-3 Polyimide

Manual mixing

THINKY Mixer

No bubbles. Uniformly mixed.

Sample-4 Silicone Resin and
Calcium Carbonate (volume ratio 1:5)

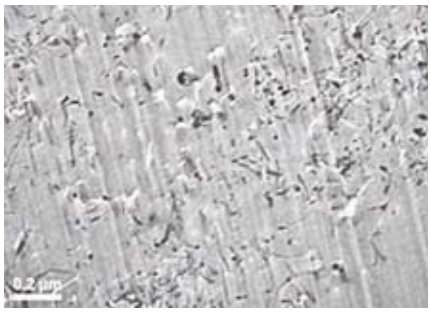
Manual mixing

THINKY Mixer

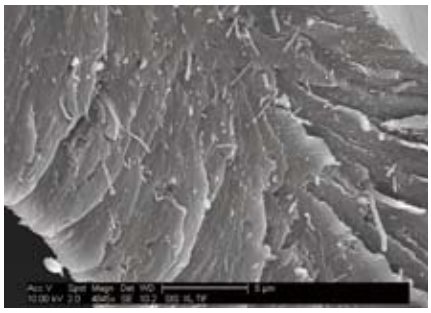
No lumps. Powders turn into a uniformly mixed paste.

THINKY Mixer Material Processing Example—3

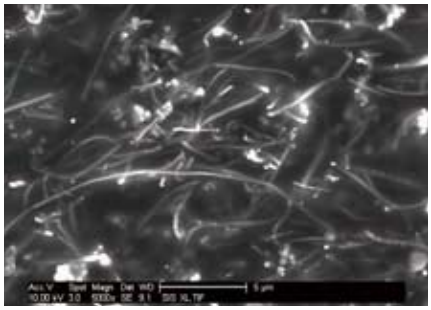
Uniform dispersion of ultra-fine powders and high performance nanomaterials



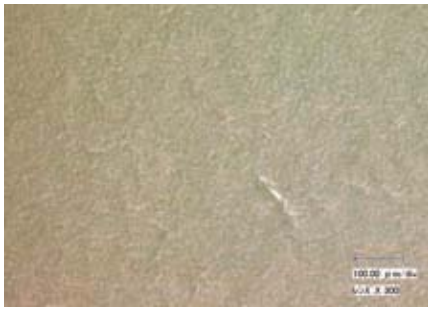
←MWNT
■ARE-310
MWNT is uniformly dispersed throughout two-part thermosetting resin.
(TEM photo by Dr. J. H. K.oo University of Texas at Austin)



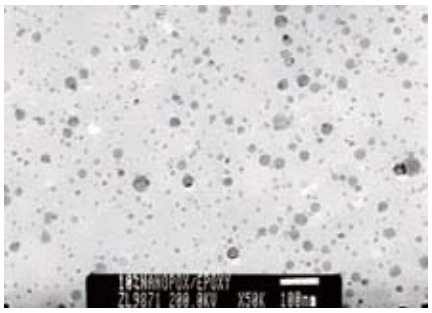
←CNF 5V%
■ARE-250*
Carbon nano fiber is uniformly dispersed throughout epoxy.
(SEM photo by George Hansen, Metal Matrix Composites Company)



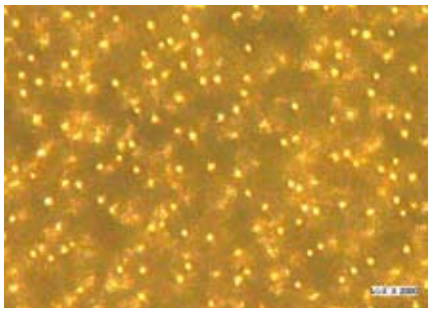
←CNF 10V%
■ARE-250*
Carbon nano fiber is uniformly dispersed throughout a polymer.
(SEM photo by George Hansen, Metal Matrix Composites Company)



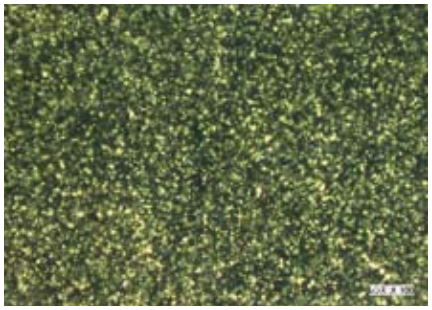
←Nano Ceramic and Water 70V%
■ARE-250*
Dispersion example of ceramic powders



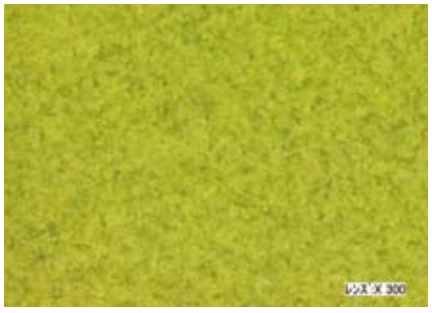
←Nano-silica
■ARE-310
Nano-silica is uniformly dispersed throughout epoxy resin.
(SEM photo by Dr. J. H. K.oo University of Texas at Austin)



←Au Ball
■ARV-3000TWIN
Dispersion example of Au powders (3μm) and LCD sealant (400 Pa s (400,000 cP))



←YAG Fluorescent Material
■ARV-310
Dispersion example of YAG fluorescent material and silicone resin (10 Pa s (10,000 cP))



←Silicate Fluorescent Material
■ARV-310LED
Dispersion example of orthosilicate fluorescent material (phosphor with about 15μm particle diameter) and low-viscosity silicone resin (3 Pa s (3,000 cP)) for LED

*ARE-250 is discontinued in Japan. Next model ARE-310 is now available in the series.

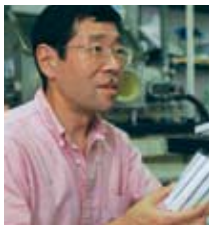
Introduction Examples

THINKY Mixer has changed our research work.

To carry out the next-generation of solar cell research on dye sensitized solar cells we need uniformly mixed nano-level titanium dioxide.

Problem: Ensure uniform dispersion of nano-level titanium dioxide particles in an airbubble-free paste.

Solution Example: The excellent dispersion of nanoparticles and deaeration capability ensured that the required paste was produced.

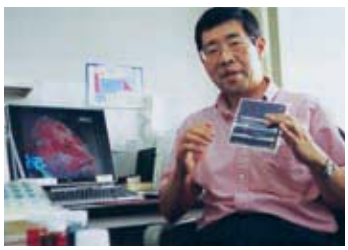


Tsutomu Miyasaka, PhD Engineering
Professor & Dean of Graduate School of Engineering, Toin University of Yokohama

A dye sensitized solar cell is the next-generation of solar cell, and many enterprises are engaged in research and development; one of the cell's characteristics is that without using such hard substrates as glass and silicone they can be made on a plastic film. They are light, flexible, easy-to-carry, and hard-to-break, and it is possible to generate electricity even when they are bent. Our solar cells can be made using an ordinary printing method and mass production is easy. Compared to conventional silicone solar cells, production costs can be reduced to about 10%. The problems to be tackled are to improve durability and power generation efficiency.

The key points are the ratio of water and alcohol when making a titanium paste, the type of dye, and the electrolytic solution ratio; all of these factors must be carefully balanced. Particularly the most important is to skillfully turn 20 nm titanium oxide particles into a milky liquid so as to create a level of viscosity suitable for coating plastic. To achieve this goal the THINKY Mixer is an absolutely essential piece of kit. Without the THINKY Mixer, we would be unable to make the precise titanium oxide paste that is fundamental to the technology. If we stretched ourselves technically and used a different method, we could just about make a paste with the required specifications, but it would take more than 10 times as long and costs would increase.

If our dye sensitized solar cells are put to practical use, they will soon be easily accepted by the general public as unbreakable solar cells. For example, they can be incorporated into curtains, or attached to a bag; I am always looking for further ways to use them.



THINKY Mixer is vital to deaerate polyimide ink, a revolutionary material for flexible printed-circuit boards.

Problem: Air bubbles in polyimide ink.

Solution Example: Deaeration time was reduced by 75% while maintaining excellent dispersibility.

Mr. Maw-Soe Win
Director in charge of Development & Sales Dept.
PI R&D Company., Ltd.

Polyimide ink is employed on the latest flexible printed-circuit boards that only recently have been used in electronic devices. Compared to conventional products, PC boards incorporating polyimide can be compact with no film loss, and are environmentally-friendly. Conventional polyimide material requires frozen storage and we had to allow a day for defrosting, but our polyimide ink can now be stored at normal temperatures, and used straightaway; this is a great advantage.

However, we have to be very careful about air bubbles in the polyimide ink; air bubbles may create problems on the PC board. And now the THINKY Mixer has solved this problem. When producing polyimide ink for ink product packaging we use the THINKY Mixer in the finishing process.

The viscosity of the ink is very high and a regular deaerator used to take as long as an hour to deaerate a batch; with a THINKY Mixer it now takes only 15 minutes. Polyimide can be uniformly dispersed to meet product specifications, and even deaeration can be carried out in a short time, resulting in cost reductions. The product package can be used as a processing container and therefore, we can ship products immediately after processing; this is also very convenient. We can say that THINKY Mixers have been useful for improving efficiency in many areas, such as process management, operation, and quality control. In the research stage, we are using the THINKY Mixer to analyze small quantities of dispersion samples and find the optimal state for a product. Without THINKY Mixers, it would be impossible to develop the new flexible PC boards.

Without our THINKY Vacuum Mixer it is virtually impossible for us to make precision resin stamps for microcontact printing.

Problem: To improve the standard of thermosetting resin deaeration and the efficiency of the whole process.

Solution Example: Simultaneous mixing and deaeration significantly increased workability, and the vacuum model's efficient deaeration improved the standard of forming.

Dr. Hirobumi Ushijima, Group Leader,
Bio-Photonics Group, Photonics Research Institute,
National Institute of Advanced Industrial Science and Technology

We are investigating the micro-contact printing method for fabrication of printed electronics devices. This method is different from nanoimprinting technique; it is a very simple nanoprint technology making use of the same principles found in relief printing. The process can be broadly broken down into three stages: 1) make a silicone rubber stamp; 2) apply ink to the stamp; and 3) press the stamp on the area to be printed. The THINKY Mixer is used in the first stage of stamp making.

For example, in the case of a transistor, individual stamps are made for each electrode or semiconductor pattern, and overprinting is carried out. If the size of the interconnect section is 10 µm or less, accurate printing is essential, and the presence of bubbles will cause a defect; therefore, we were seeking for a solution to remove bubbles. In addition, because of the material s thermosetting properties, we cannot generate much heat during mixing. Even a rise of 10 degrees is enough to start hardening with a consequent decline in workability. When we were tackling these problems, one of our regular dealers introduced us to THINKY Mixers, and immediately after, we decided to try them out.

At present, according to the stamp size and purpose, we are using the standard THINKY Mixer (ARE-250*) or Vacuum Mixer (ARV-310). Because of the short mix and deaeration time, the time the material is exposed to heat has been reduced. In patterning with several µm or less it is important to ensure the material reaches into every part of the mold and its viscosity has a great effect on formability. If the material is not adequately deaerated beforehand, then the longer time taken for post-deaeration leads to more cross-linking, and the failure to make a high-quality stamp. Before the hot molding stage we need to shorten the time taken for mixing of the pre-polymer and the cross-linker.

When we did not have a THINKY Mixer, the process was as follows: mix materials by hand, deaerate and pour the mixture into a mold, and deaerate once again, and then put a lid on and heat. Since using the ARE-250*, the first deaeration and mixing process can be carried out simultaneously, shortening the time, and we have been able to take more time for pouring the mixture into a mold and ensure no bubbles. Moreover, we took up the challenge of making larger stamps, and we introduced the Vacuum Mixer (ARV-310) to make sure we had enough time for the process. This is the only product we could find that enabled short-time simultaneous mixing and high-precision deaeration without excessive heat.

The minimum line width we have reached is currently 0.8 µm, and as a challenge we are considering 50 nm of line and space. I believe that in the future by making use of such a simple method as stamp printing in the manufacturing process of electronic devices and sensors, this technology will contribute to produce an active matrix liquid crystal display that is thin, lightweight and unbreakable even when dropped. I expect THINKY Mixers will play an even more active part in this development.

Viscosity measurement after mixing materials has been simplified; two types of THINKY Mixer have reduced the time and labor for making samples.

Problem: To mix resin material and silica powder uniformly in a short time.

Solution Example: Both work efficiency and reproducibility were improved. A vacuum model removed submicron air bubbles.

Mr. Masanori Ae, Manager, Engineering Dept.
Micron Company., Ltd.

Previously, when mixing epoxy resin and silica powder we mixed by hand and then measured the viscosity of the sample; this method took a lot of time and the materials were not mixed evenly. But after we introduced the AR-250**, we dramatically improved our work efficiency and reproducibility. However, when we carried out special viscosity measurements, microscopic air bubbles were an obstacle, and even with the AR-250** we spent a lot of time to ensure complete deaeration. But when we introduced the ARV-200***, this enabled excellent deaeration in just minutes. We can now obtain accurate data, and provide samples with more confidence than before.

**ARE-250: No longer available (Next model ARE-310) **AR-250: No longer available (Next model ARE-310) ***ARV-200: No longer available (Next model ARV-310)*

THINKY Mixer: Our Secret Story of Development

Taking on a challenge so difficult everybody thought it was impossible

R&D, Executive Hiroshige Ishii

The entire process, from the beginning of development to the completion of the first product, took a full 13 years. The development leader talks about the journey before the release of the THINKY Mixer.

Who can resist a challenge?

The trigger for the project was something I had heard from a dentist about making fillings and false teeth. For fillings and false teeth, the accuracy of the initially-formed tooth shape is extraordinarily critical and the success of the outcome is determined by that accuracy. Up to the present a material called alginate has been used as an impression agent to take on the shape of the tooth. Alginate starts out as a powder, is dissolved in water to form a paste, and then the paste is pressed against the tooth. It hardens in just 2 or 3 minutes. Whether used to make fillings or false teeth, it has an extraordinarily short pot life (usable time); therefore, it must be mixed as quickly as possible with no air bubbles. Twenty years ago, when we began developing our mixer for dental offices, it was said by dental office personnel, " You are only fully qualified when you can mix alginate.‡ This was such difficult work that it became a standard criterion for judging the technical level of dental hygienists. Even then, there were devices that mixed alginate; however, there was no big difference from manual mixing and eventually, they would not to be used very often. Future customers of our mixer told me, "If you could make such a machine, it would sell at any price.‡ If you hear that sort of thing, I think you will agree that as a manufacturer you want to take on the challenge. For that reason, we launched a development project.

Breakthrough from zero

We didn't have any knowledge about mixing and deaeration, and started from zero. First we decided to apply conventional methods and tried propeller type stirrers. However, the end result was even worse than kneading by hand; full of bubbles. It was also difficult to clean the machine after use. For deaeration we thought of using the vacuum deaeration method, but we found that in practice the mechanism was not easy, so we gave up the idea. In those days, to be honest, we often became pretty disillusioned and we felt we were banging our heads against a brick wall.
However, through repeated experimentation, we noticed that if we could knead without a propeller or spatula, this would be better, and if we could deaerate at the same time as mixing, this would be more efficient. The target was to knead alginate within 30 seconds, so we thought mixing and deaeration at the same time would lead to time reductions as well. At such a time, our R&D eyes came to rest on the possibility of the centrifugal deaerator. When we took alginate that had been mixed into a paste using a spatula and tried to just deaerate it with a centrifugal deaerator, it did take too long and the alginate may have hardened, but the bubbles were successfully removed. I thought that if there was some way to accomplish mixing within the centrifugal deaerator container, it might be possible to mix and deaerate both simultaneously and quickly. That thought became the root of the image I formed in my mind of the THINKY Mixer. What I imagined for providing the mixing force was a mechanism like a "planetary gear." Just like planets rotating while revolving around the sun, I thought that imparting rotation forces to the section of the mixer where the container is mounted on the centrifugal deaerator might make mixing possible. At first, we were anxious about how it would turn out, but we decided to utilize this design structure.

Flying apart — the struggle against G-force has just started

The most serious problem was the incredible G-force generated by the centrifugal force. Deaeration required an acceleration of at least 200 Gs, and this is almost 30 times the load for a space shuttle launch. With a regular centrifugal separator, the container is fastened securely, so it withstands high G-forces, but if the container were to be rotated, a drive section would also be required. When we tried incorporating drive mechanisms in the prototype, as soon as rotation began, the drive mechanism broke down and parts came flying out; many times we were nearly injured. I frequently asked major companies to help us with our designs, but they'd hear our idea and just say no. In the end, we realized we would have to do it ourselves. It took about a year from

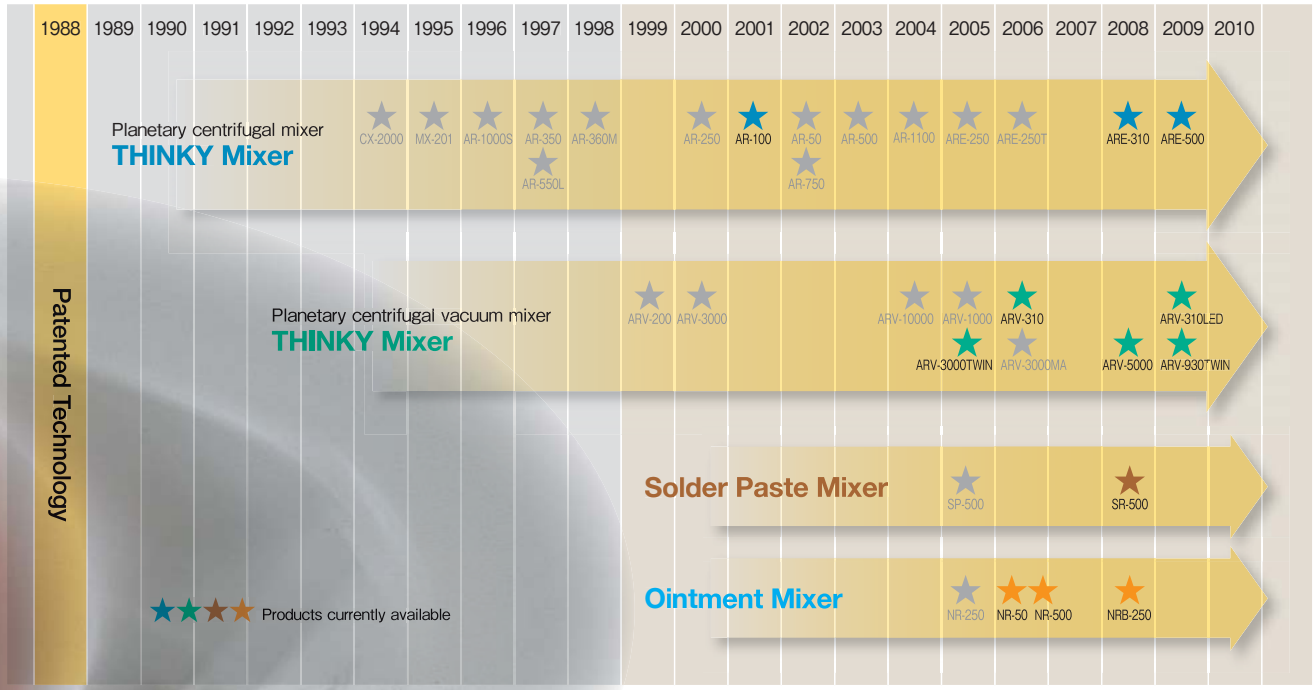
the project start until we reached the rough outline of the design mechanism, and it took another two years to get the angles of the container side and the joint section for transmitting the rotation just right, and to complete a prototype ready for evaluation that could mix and deaerate simultaneously.

A tough struggle before finally releasing the product onto the market

When we thought our mixer was complete, and we tested the prototype for 5 to 10 minutes, there were no problems; but when we ran it for 2 to 3 hours, smoke came pouring out from the rotation section, and finally it broke down. The cause was friction on the joint section. The oil film applied to the bearing completely dispersed due to the powerful centrifugal force. When we disassembled the joint section, we found that it was completely dry as though the section had been washed clean. As a result of this discovery, we created a structure that located the bearing in a sealed container full of oil and similar to a soup bowl; we continued carrying out test operations and learning through trial and error. Finally, we abandoned the joint section and adopted V belts for the first generation of the THINKY Mixer.

We managed to make a prototype and mixed epoxy resin and hardener; the moment we opened the container the contents at the bottom were so transparent, and free of air bubbles that for an instant we had the illusion that it had all leaked out somewhere. After we introduced our machine to the market, we diligently worked on addressing any teething problems and suggestions from customers and made repeated improvements, which are now incorporated in the present THINKY Mixers. If 200 Gs of acceleration acts on 100 grams of material, a load of about 20 kilograms is applied to the drive section. We worked quite hard to reach the point where the drive section could withstand that sort of weight and generate a usable centrifugal force; I'll be honest we are more than a little proud of our achievement.

Product History



THINKY Material Solutions

For all kinds of material processing +deaeration, we offer the best advice and guidance.

About 20 years has passed since the introduction of the first THINKY model onto the market, during which we have built up our own material processing know-how and continued technological development to improve the processing efficiency of THINKY Mixers and thus raise processing quality. Concerning any research, development or mass production projects that you are currently dealing with or plan to start, if you have a material processing problem, please feel free to contact us.

If you have any problems with your material processing, please feel free to contact us.

Why introduce a THINKY Mixer ? Material examples

【Mixing＋Deaeration】

- Two-part resin materials (e.g. epoxy, silicone, urethane)
- UV ink
- Foundations, lipsticks, lotions

【Dispersion ＋ Deaeration】

- Functional adhesives
- Conductive pastes, insulating pastes
- Metal pastes, e.g. gold, silver, platinum
- Glass pastes
- Ceramic pastes
- LCD sealants + spacers
- Pharmaceuticals, cosmetics

【Dispersion (Crushing) ＋ Deaeration】

- Inorganic nanomaterials
- Metallic nanomaterials
- Carbon nanomaterials
- Fluorescent materials

【Emulsification ＋ Deaeration】

- Food products
- Cosmetics
- Inks

【Pulverizing/Dispersion ＋Deaeration】

- Water-insoluble compounds, e.g. phenitoin, indomethacin, nifedipine (preparation of suspensions)
- Aluminum oxide
- Titanium oxide

【Antifoaming】

- Quality inspection of medical fluids
- Dispensing, formulation

Please contact THINKY Corporation

Phone:+81-3-5821-7455

THINKY Search

http://www.thinky.co.jp/en/

1 —[Before introduction] Demonstration with an actual machine and evaluation testing is always available.

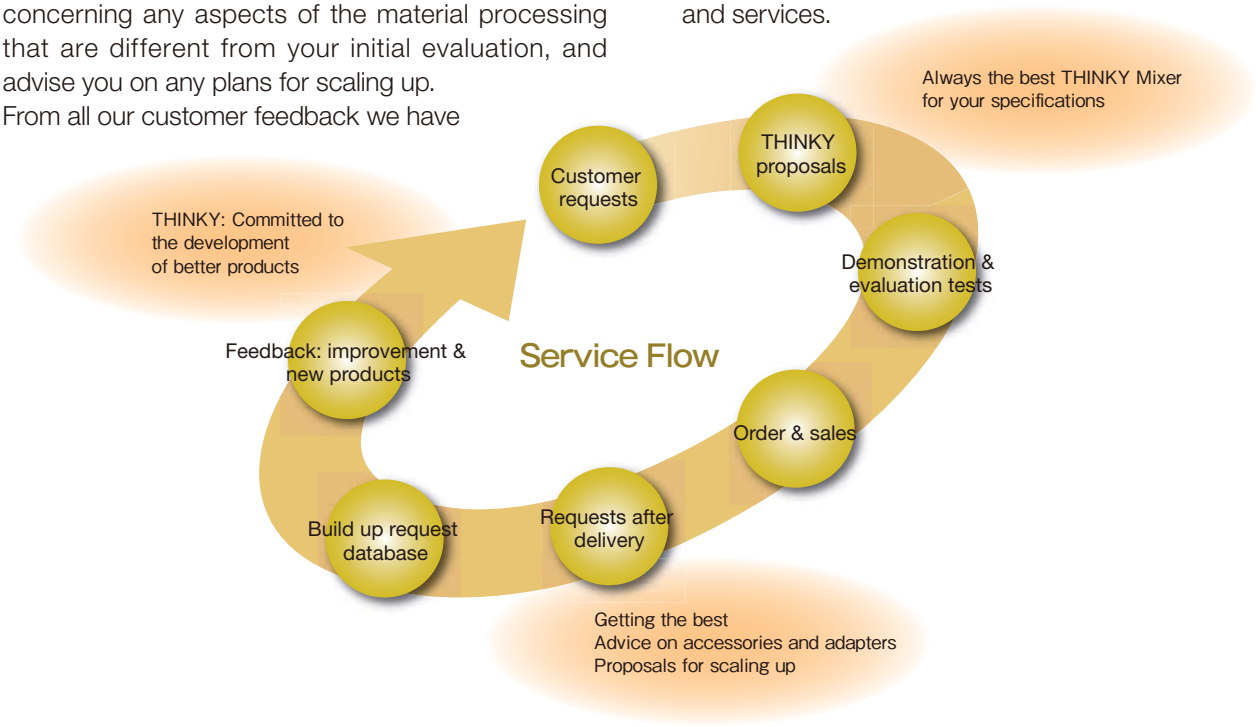
If you are considering introducing a THINKY Mixer, the first step is for you to have a demonstration and evaluate just what it can do for you. It is only after you have seen and understood just how your materials can be processed and feel absolutely confident that the THINKY mixer will meet your specifications, that we would advise you to choose a model and place your order.

We can arrange to lend and transport a model up to middle-size (processing volume 500 ml-class). If you want to try several models at the same time, or evaluate a large-size model, we would be grateful if you would bring material samples to our office. Please feel free to contact us with your queries.

Our Service System

With our reliable service system, we provide excellent customer backup.

For the total life cycle of your THINKY mixer our customer service team will respond to your requests. We first listen to a detailed breakdown of your requirements, purpose and conditions of use, and then suggest the optimal model. As a part of our sales service not only do we ask you to evaluate an actual machine with your material, but we also help develop recipes suitable for the material, and our technical experts offer advice on operation. After introduction of your THINKY mixer we welcome any queries and comments. We can also offer in-depth advice concerning any aspects of the material processing that are different from your initial evaluation, and advise you on any plans for scaling up.
From all our customer feedback we have created a database which is invaluable in the development of new products and improvements to existing models. The database also provides us with a wide range of technical data from which to draw upon and improve our response to customers and deliver increased customer satisfaction.
THINKY is firmly committed to our original pioneering spirit, and continue to make every effort to develop customer-oriented products and strengthen our customer service system. We look forward to hearing your opinions and requests concerning our products and services.



2—[After introduction] We will offer advice and guidance concerning changes to the materials and processing.

We know that the demands of business are never static; changes to materials or specifications since you evaluated the mixer, or a recipe that is no longer suitable are all everyday business problems that we can help you with. Or the purpose of the original introduction has changed e.g. scaling up, or you want to graduate from resin mixing alone to dispersion of nanopwders. On such occasions, please do not hesitate to contact THINKY. Our planetary centrifugal THINKY Mixer database incorporates decades of knowledge concerning not only mixing and deaeration, but also dispersion, crushing, pulverizing, minimizing to nano-level and the emulsifying of powders. Even after your materials and specifications change, our technical backup continues.

3—[After-sales service] In case of a rare unit failure, a substitute mixer can be arranged.

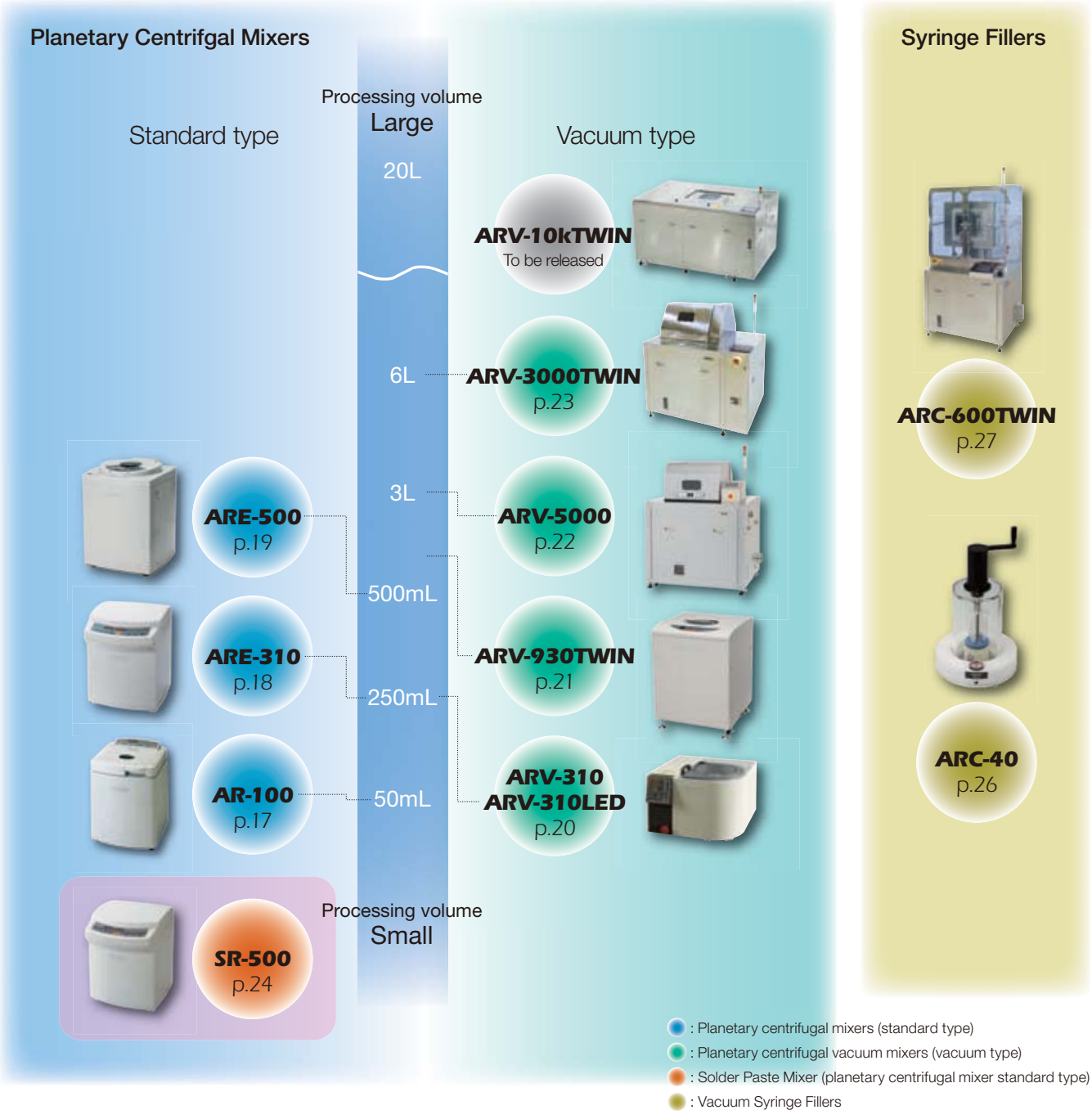
In the rare event of a malfunction we ensure your peace of mind by either repairing on the spot, or arranging an identical model replacement. Our after-sales service is second to none, and we always have backup machines on standby. Please feel free to contact us with your queries.

THINKY Mixer Series

Our versatile range ensures we meet our customer needs.

The planetary centrifugal THINKY Mixer Series is divided into two groups: a Standard type that provides simultaneous processing of mixing, dispersion, and deaeration; and a Vacuum type that demonstrates submicron-level deaeration performance with a vacuum pressure reduction function. Each type has a lineup of models with different processing volumes and functions; you can select the perfect mixer for your requirements.

We also offer a sister Solder Paste Mixer Series for processing solder pastes, and Syringe Fillers that allows syringe filling while maintaining the quality of the mixed and deaerated material.



Our most compact portable planetary centrifugal mixer

AR-100 THINKY MIXER

50mℓ	100g / 140g	Atmospheric pressure	465G	Adjustable
Max. processing volume	Max. processing weight (Net weight) / (Gross weight)	Pressure	Revolution acceleration (Deaeration operation)	Rpm

The AR-100, the smallest model of the THINKY Mixer Series, is designed for user-friendliness and the repeated processing of small batches of material. The space-saving and compact design is ideal for basic experiments conducted by researchers and engineers. By adopting disposable containers the AR-100 is perfect for experiments and research requiring frequent use of the unit.

Features

- About 460 Gs of acceleration generated by rotation and revolution speed allows powerful simultaneous mixing and deaeration.
- By changing the rpm, optimal mixing of any material is ensured.
- Timer setting with 5 recipe profiles.
- Easy-to-open and close sliding lid.
- A stroboscope allows observation of the material in a stationary state.

- Unit dimensions:
  H328 × W250 × D250 (mm)
- Unit weight: Approx. 15 kg
- Max. processing volume with a 100 ml disposable container:
  50 ml / 100 g (net)
  50 ml / 140 g (gross)

● Container holder,
Balance adjustment dial

● Control panel

● Accessories: Containers

User-friendly & very versatile standard type

ARE-310
THINKY MIXER

250mℓ — Max. processing volume
250g / 310g — Max. processing weight (Net weight) / (Gross weight)
Atmospheric pressure — Pressure
510G — Revolution acceleration (Deaeration operation)
Adjustable — Rpm

Equipped with a maximum of 400 Gs in mixing mode and an even more powerful 510 Gs deaeration mode, the ARE-310 gives simultaneous mixing and deaeration with simple operation. The rotation section, shaft and frame have outstanding rigidity and durability, and the vibration sensor and lid locking function ensures a high degree of safety. In spite of such a good capacity, the size is compact and the unit is not overly heavy. The rpm is adjustable, allowing the processing of a broad range of materials.

Features

- About 400 Gs of acceleration generated by rotation and revolution speed allows powerful simultaneous mixing and deaeration. A powerful 510 Gs in deaeration mode.
- Outstanding rigidity and durability; vibration sensor and lid locking function ensures a high degree of safety.
- 250 ml of processing volume, but light and compact. Convenient-to-carry and very versatile.
- By changing the rpm, optimal mixing of any material is ensured.
- 5 recipe profiles can be set for the timer; each profile has 5 programmable steps for continuous operation.
- Equipped with a specially-designed air cooling mechanism.

■ Unit dimensions:
H380 × W300 × D340 (mm)
■ Unit weight: Approx. 18 kg
■ Max. processing volume with a 300 ml container:
250 ml / 250 g (net)
250 ml / 310 g (gross)

● Container holder, Balance adjustment dial

● Control panel

● Accessories:
Containers, Adapter

Manufacturing model with maximum capacity 500 mℓ

ARE-500
THINKY MIXER

500mℓ — Max. processing volume
1.0kg / 1.1kg — Max. processing weight (Net weight) / (Gross weight)
Atmospheric pressure — Pressure
670G — Revolution acceleration (Deaeration operation)
Adjustable — Rpm

This compact floor-standing type comes at a very competitive price and is capable of processing up to 500 ml. The rpm is adjustable, enabling optimal settings for a wide range of materials. The high-durability drive system was developed with manufacturing production in mind.

Features

- Rotation/revolution no-blade mixing system.
- Maximum capacity for material processing: 500 ml or 1.1 kg.
- Simultaneous processing of mixing, dispersion and deaeration (defoaming).
- Membrane switches are easy to see and operate.
- Timer: 5 programmable steps of continuous control for each recipe profile.
- Cost effective performance.

- Unit dimensions:
  H692 × W500 × D500 (mm)
- Unit weight: Approx. 95 kg
- Max. processing volume with a 550 ml container:
  500 ml / 1.0 kg (net)
  500 ml / 1.1 kg (gross)

● Container holder,
Balance adjustment dial

● Control panel

● Accessories:
Containers, Adapter

No spillage, completely eliminate submicron air bubbles.

ARV-310/310LED THINKY MIXER

200mℓ | 250g / 310g | Vacuum | 420G | Adjustable

Max. processing volume | Max. processing weight (Net weight) / (Gross weight) | Pressure | Revolution acceleration (Deaeration operation) | Rpm

By coupling a vacuum pressure reduction function with the rotation and revolution system simultaneous mixing and deaeration is possible along with the complete elimination of submicron air bubbles. Because of the revolution centrifugal force there is no spillage of material during operation; just position the container and switch on. Even urethane materials and high-viscosity materials can be simultaneously mixed and deaerated in just ten seconds to several minutes. Automatic and easily-set sequences allow optimal conditions to be reproduced with high accuracy, enabling superior quality control.

Features

- A vacuum pressure reduction function removes submicron air bubbles and gives outstanding dispersion performance.
- No spillage of material during operation.
- By adjusting the rpm a broad range of materials with different properties can be processed.
- 9 recipe profiles: up to 5 programmable steps per recipe, allowing more varied process control.

- Unit dimensions:
  H450 × W555 × D645 (mm)
- Unit weight: Approx. 90 kg
- Max. processing volume with a 300 ml container,
  Atmospheric pressure operation:
  250 ml / 250 g (net)
  250 ml / 310 g (gross)
  Vacuum operation:
  200 ml / 250 g (net)
  200 ml / 310 g (gross)

ARV-310LED

ARV-310LED

- The ARV-310 LED model can dis-perse high-density powders such as LED fluorescent material, with no sedimentation.
  Specifications are different from the ARV-310.

- Container holder,
  Balance adjustment dial

- Control panel

- Accessories:
  Container, Adapter

Manufacturing model with a two-container system & 1 liter maximum vacuum processing

ARV-930 TWIN
THINKY MIXER

500mℓ ×2 — Max. processing volume
830g×2 / 930g×2 — Max. processing weight (Net weight) / (Gross weight)
Vacuum — Pressure
670G — Revolution acceleration (Deaeration operation)
Adjustable — Rpm

Incorporating a two-container system the ARV-930 TWIN can process up to 1 liter of materials and is suitable for manufacturing. Simultaneous uniform mixing and dispersion can be carried out with submicron-level deaeration. For deaeration, in addition to 400 Gs of vacuum processing, an atmospheric pressure deaeration mode that generates powerful acceleration to a maximum of 670 Gs is incorporated as standard; volatile materials, which are not suitable for vacuum deaeration, can be efficiently deaerated to a high standard. Moreover, THINKY's original cup holder vacuum system holds the decompression volume to a minimum, thus significantly reducing vacuum decompression time.

Features

- Submicron-level air bubbles eliminated: 1 liter maximum capacity.
- No material spillage during operation.
- Adjustable rpm allows optimal setting for any material.
- Cup holder vacuum system reduces pressure reduction time.
- High standard of deaeration for volatile materials.
- Same outstanding performance as the ARV-310 (200), compatible with large volumes.

- Unit dimensions:
  H900 × W660 × D670 (mm)
- Unit weight: Approx. 220 kg
- Max. processing volume with a 750 ml container:
  500 ml / 830 g × 2 (net)
  500 ml / 930 g × 2 (gross)

● Two-container system

● Control panel

● Accessories:
Container, Adapter

Large 3 liter volume & complete elimination of submicron air bubbles

ARV-5000 THINKY MIXER

3ℓ	4.7kg / 5kg	Vacuum	185G	Adjustable
Max. processing volume	Max. processing weight (Net weight) / (Gross weight)	Pressure	Revolution acceleration (Deaeration operation)	Rpm

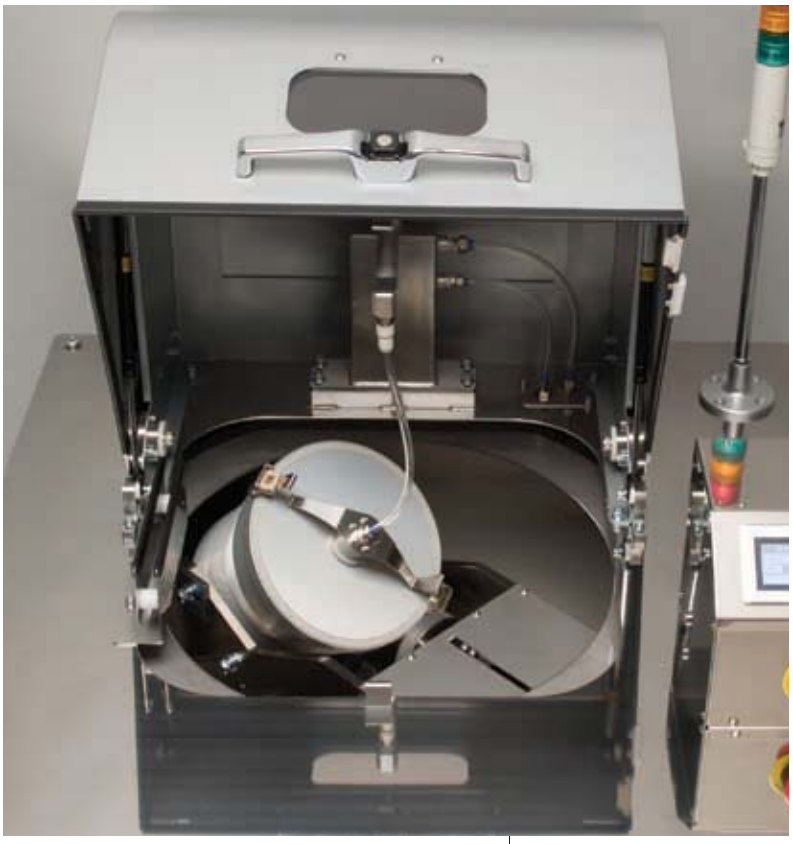
Mixing, dispersion, and deaeration (defoaming) with a large 3 liter and 5 kilogram capacity, the ARV-5000 supports mass production and improves productivity and efficiency. A large volume of mixing and deaeration (defoaming) can easily be carried out at one time.

Mixing, dispersion, and deaeration (defoaming) are simultaneously conducted in a short time. In combination with vacuum technology, the ARV-5000 completely removes submicron air bubbles even with highly-viscous materials.

Features

- Large capacity: 3 liter or 5 kg.
- Recipe setting for optimal material processing ensures no spillage during operation.
- Adjustable rpm allows optimal setting for any material.
- User-friendly touch screen.
- Rotation and revolution provides air-cooling function.
- Supports a wide variety of containers.

- Unit dimensions:
  H1,600 × W1,000 × D865 (mm)
- Unit weight: Approx. 500 kg
- Max. processing volume with a 4 liter container:
  3 liter / 4.7 kg (net)
  3 liter / 5 kg (gross)



● Container holder,
Balance adjustment dial

● Control panel

● Accessory example:
4 liter container

3 liter×2: Even more capacity with complete removal of submicron air bubbles

ARV-3000TWIN THINKY MIXER

3ℓ×2 — Max. processing volume
4.7kg×2 / 5kg×2 — Max. processing weight (Net weight) / (Gross weight)
Vacuum — Pressure
230G — Revolution acceleration (Deaeration operation)
Adjustable — Rpm

A large capacity and great performance: 3 liter / 5 kg×2, simultaneous mixing, dispersion and deaeration (defoaming) with no spillage. In a mass production process, the ARV-3000TWIN delivers a massive volume of material processing at one time, and contributes to improved efficiency, productivity and quality. The model incorporates advanced technology to create a high vacuum inside the mixing container or inside the container holder, and even for highly viscose materials submicron air bubbles are thoroughly eliminated in just minutes. Adjustable rpm allows optimal setting according to the mixing material.

Features

- Recipe setting for optimal material processing ensures no spillage during operation.
- Contributes to improving efficiency of the whole mixing and deaeration process, e.g. increase of processing volume, standardized operations, stabilized quality, reduction of material loss.
- Supports ODF process sealant deaeration applications, and major ODF sealant processes.
- Supports particle-less, clean room class 1000.

■ Unit dimensions:
H1,900 × W1,024 × D892 (mm)
■ Unit weight: Approx. 800 kg
■ Max. processing volume
With a 4 liter container:
3 liter / 4.7 kg × 2 (net)
3 liter / 5 kg × 2 (gross)
with a SUS container:
1.2 kg (sealant conversion, net)

● Control panel


● Accessory example:
SUS container


● Accessory example:
4 liter container

Temperature and viscosity adjustment + deaeration: Processing in only a few minutes

SR-500
Solder Paste Mixer

150mℓ — Max. processing volume
520g / 560g — Max. processing weight (Net weight) / (Gross weight)
Vacuum — Pressure
150G — Revolution acceleration (Deaeration operation)
Adjustable — Rpm

Off-the-shelf 500 -gram solder paste containers can be set directly into the machine just as they are. By revolving the container at a high speed and rotating at the same time, the SR-500 generates powerful acceleration and convection currents, and carries out mixing and deaeration simultaneously. Solder powder that settled during storage is uniformly dispersed and returns to a near factory delivered high-quality state. In addition, the SR-500 eliminates the fine air bubbles that are believed to cause solder ball scattering. When solder is taken straight from the refrigerator and put into the machine, the ideal temperature and viscosity can be reached in a short time.

Features

- Easy and quick. In just a few minutes anybody can make a uniform paste.
- 5 recipe profiles, each with 5 -level step mixing, ensure optimal temperature and viscosity adjustment.
- Solder straight from the refrigerator can be used immediately, without returning to room temperature.
- Adjustable weight balance allows mixing of solder paste in less than 500 gram batches.
- By using an optional adapter, solder paste filled in a syringe can be mixed.

- Off-the-shelf 500 gram containers can be spun just as they are.

■ Unit dimensions:
H380 × W300 × D340 (mm)
■ Unit weight: Approx. 18 kg
■ Max. processing volume:
150 ml / 520 g (net)
150 ml / 560 g
(gross *Excluding adapter)

● Container holder, Balance adjustment dial

● Control panel

● Accessories: Container, Adapter

THINKY Mixer Series
Container & Adapter List

One of the advantages of the planetary centrifugal THINKY Mixer is that mixing and deaeration can be carried out in a variety of containers including syringes and barrels. We make our own adapters for our containers, and we can also make customized adapters for your containers. THINKY: only the best for our customers.

We can make a customized adapter for your container.

▶Please contact THINKY Corporation

Phone:+81-3-5821-7455

THINKY Container List

●We have an assortment of disposable cups and resin containers.


100 m ℓ disposable container


200 m ℓ disposable container


500 m ℓ disposable container


150 m ℓ container


300 m ℓ container


550 m ℓ container


750 m ℓ container


1100 m ℓ container


4000 m ℓ container

Adapters for THINKY Containers

●Adapters for disposable cups and resin containers used with each model


For 150 m ℓ container


For 250 m ℓ container


For 500 m ℓ container

*For details, refer to the Container & Adapter List catalog.

Container Adapters

●We have adapters designed for a variety of container. If you are unable to find a suitable adapter in the list, please contact us.


For 100 m ℓ disposable container


For 200 m ℓ disposable container


For 500 m ℓ disposable container


50 m ℓ Laboran screw tube bottle


For 205 m ℓ paper cup


For Takemoto Yoki container CH200


For Dotite 20 g bottle


For Takemoto Yoki container CH300


For 300 m ℓ stainless steel container


Cooler adapter for 100 m ℓ disposable container


Cooler adapter for Takemoto Yoki container CH300

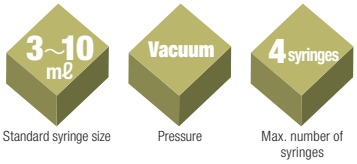

I-Boy widemouthed bottle 500


250 AD heatproof adapter


250 AD 5 S for 5 ml syringe with stainless steel container

Improved filling efficiency for small capacity syringes

ARC-40
Vacuum Syringe Filler



Standard syringe size | Pressure | Max. number of syringes

Materials mixed, dispersed and deaerated by planetary centrifugal THINKY Mixers and Solder Paste Mixers can be filled into syringes easily and quickly with no air bubbles. Simple structure makes it easy to clean the unit after use.

Features

- Easy filling of difficult 3, 5, and 10 ml small capacity syringes. No air bubbles.
- Multiple filling & improved efficiency: 4 syringes filled at one time.
- Transparent vacuum chamber filling allows visual progress check and simple work operation.
- Handles low-viscosity to high-viscosity materials.
- When coupled with a THINKY Mixer for mixing, dispersion, and deaeration, the ARC-40 ensures bubble-free filling into syringes.
- Easy cleaning after use.

■ Unit dimensions:
H460 × W250 × D250 (mm)
■ Unit weight: Approx. 6.4 kg
■ Max. processing volume:
Simultaneous filling of four 10 ml syringes

● Manual filling and checking

● A maximum of 4 syringes can be processed.

● Examples of filled syringes

Automatic filling control for large capacity syringes

ARC-600 TWIN
Vacuum Syringe Filler

60mℓ
Standard syringe size

Vacuum
Pressure

8 syringes ×2
Max. number of syringes

The ARC-600 TWIN is a vacuum filler designed to handle 16 syringes and enables simultaneous filling into various syringe types, while maintaining the quality of material mixed and deaerated by a planetary centrifugal mixer. The ARC-600 TWIN replaces time-consuming manual filling, increases efficiency and significantly reduces costs.

Features

- No air bubbles mixed in. No dripping.
- Simultaneously filling of 16 syringes. Supports large capacity syringes.
- Reduced filling time. Easy cleaning after use.
- Few consumables including cleaning parts.
- Excellent capability for filling of highly-viscose materials such as ODF (One Drop Fill) process sealant.
- Automated operations: filling control and vacuum pressure are all automated and systematized.

- Unit dimensions:
  H1,993 × W1,023 × D892 (mm)
- Unit weight: Approx. 800 kg
- Max. processing volume:
  600 g × 2 [LCD sealant conversion]

Control panel

Product Specification List

Please feel free to contact us with any queries concern or specifications when choosing your mixer.

		Planetary centrifugal mixers			Planetary centrifugal vacuum mixers	
Model		AR - 100	ARE-310	ARE-500	ARV-310	ARV-930TWIN
System		Rotation/revolution no-blade mixing	Rotation/revolution no-blade mixing	Rotation/revolution no-blade mixing	Vacuum Rotation/revolution no-blade mixing	Vacuum Rotation/revolution no-blade mixing
Operation Time Setting		Timer setting range: 0 sec. to 30 min. in 1 sec. increments	Timer setting range: 0 sec. to 30 min. in 1 sec. increments	Timer setting range: 0 sec. to 30 min. in 1 sec. increments	Timer setting range: 0 sec. to 30 min. in 1 sec. increments	Timer setting range: 0 sec. to 30 min. in 1 sec. increments
Continuous Operation Time		Max. 30 min.	Max. 30 min.	Max. 30 min.	Max. 30 min.	Max. 30 min.
Programming Function		5 recipe profiles	10 recipe profiles: STD mode: 5 recipes with 1 step STEP mode: 5 recipes with 5 steps	10 recipe profiles: STD mode: 5 recipes with 1 step STEP mode: 5 recipes with 5 steps	9 recipe profiles with 5 steps	9 recipe profiles with 9 steps (Standard mode, High function mode)
Revolution/ Rotation Speed (rpm)	Mixing Mode	Revolution: 400 to 2000 rpm (adjustable) Rotation: Approx. 1:2.5 revolution-to-rotation ratio	Revolution: STD mode 2000 rpm (fixed) STEP mode 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 1:2.5 revolution-to-rotation ratio (STD and STEP modes)	Revolution: 400 to 1000 rpm (adjustable) Rotation: Approx.1:1 revolution-to-rotation ratio	Revolution: 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 1:2 revolution-to-rotation ratio	Revolution: 0, 200 to 1400 rpm (adjustable) Rotation: Approx. 1:2 revolution-to-rotation ratio
	Deaeration Mode	Revolution: 2200 rpm (fixed) Rotation: 0 rpm (fixed)	Revolution: STD mode 2000 rpm (fixed) STEP mode 0, 400 to 2200 rpm (adjustable) Rotation: Approx. 1: 36.7 revolution-to-rotation ratio (STD and STEP modes)	Revolution: 400 to 2000 rpm (adjustable) Rotation: Approx. 1:32 revolution-to-rotation ratio		Revolution: 0, 200 to 1800 rpm (adjustable) Rotation: Approx. 1:33.3 revolution-to-rotation ratio
Max. Processing Volume	Atmospheric Pressure Condition	With a 100 ml disposable container: 50 ml / 100 g (net[*1]) 50 ml / 140 g (gross[*2])	With a 300 ml container: 250 ml / 250 g (net[*1]) 250 ml / 310 g (gross[*2])	With a 550 ml container: 500 ml / 1,000 g (net[*1]) 500 ml / 1,100 g (gross[*2])	With a 300 ml container: 200 ml / 250 g (net[*1]) 200 ml / 310 g (gross[*2])	With a 750 ml container: 500 ml ×2 / 830 g ×2 (net[*1]) 500 ml ×2 / 930 g ×2 (gross[*2])
	Vacuum Condition				With a 300 ml container: 250 ml / 250 g (net[*1]) 250 ml / 310 g (gross[*2])	With a 750 ml container: 500 ml ×2 / 830 g ×2 (net[*1]) 500 ml ×2 / 930 g ×2 (gross[*2])
Vacuum System					Rotation section vacuum chamber system	Vacuum system within container holder
Ultimate Vacuum					0.67 kPa / Approx. 5 Torr	0.67 kPa / Approx. 5 Torr
Vacuum Trap Connection					Connectable (optional)	
Vacuum Pump Capability					Pump capacity: 100 liters/minute	Pump capacity: 100 liters/minute
Power Supply[*5]		Voltage: Single-phase AC 120 V ± 10%, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max. 800 VA (operation)	Voltage: Single-phase AC 120 V ± 10%, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max. 900 VA (operation)	Voltage: Single-phase AC 100 V ± 10%, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max. 1400 VA (operation)	Voltage: Single-phase AC 100/230 V ± 10%, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max. 1200 VA (operation)	Voltage: Three-phase AC 200/220 V ± 10%, 50/60 Hz Power consumption: Approx. 120 VA (standby) Max. 4400 VA (operation)
Operating Environment		10 to 35°C, 35 to 85% RH (Ensure no water condensation)	10 to 35°C, 35 to 85% RH (Ensure no water condensation)	5 to 35°C, 35 to 85% RH (Ensure no water condensation)	10 to 35°C, 35 to 85% RH (Ensure no water condensation)	10 to 35°C, 35 to 85% RH (Ensure no water condensation)
Safety Mechanism		Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor
Transport Locking Mechanism[*3]		1 on the unit bottom and 1 on the rear	1 on the internal rotation body surface and 1 on the rear	1 on the unit rear, and 1 on the right inside and 1 on the left inside	1 on the unit front and 1 on the rear	1 on the right inside and 1 on the left inside
Others		Equipped with a stroboscope				Equipped with a stroboscope A forced-air-cooling compressor can be connected.
Unit Dimensions		H 328×W 250×D 250 (mm)	H 380×W 300×D 340 (mm)	H 692×W 500×D 500 (mm)	H 450×W 555×D 645 (mm)	H 900×W 660×D 670 (mm)
Unit Weight		Approx. 15 kg	Approx. 18 kg	Approx. 95 kg	Approx. 90 kg	Approx. 220 kg
Accessories 1		User Manual ×1 AC cable (including 3P adapter) ×1, ABS container ×3, PP 100 ml disposable container ×10	User Manual ×1 AC cable (including 3P adapter) ×1, HDPE 300 ml container ×3, 150 ml container ×1, Adapter for 150 ml container ×1 (including 1 rubber ring)	User Manual ×1 AC cable (including 3P adapter) ×1, HDPE 550 ml container ×3, 300 ml container ×3, Adapter for 300 ml container ×1 (including 3 types of O-ring (1 each))	User Manual ×1, AC cable (including 3P adapter) ×1, HDPE 300 ml container ×3 (Inner lid with hole ×3, Outer lid with hole ×3) 150 ml Container ×1 (Inner lid with hole ×1, Outer lid with hole ×1, Adapter ×1, and 1 spare rubber ring)	User Manual ×1, Power cable ×1, HDPE 750 ml container ×6 (O-ring ×4, Inner lid without hole ×2, Outer lid without hole ×2, Inner lid with hole ×4, and Outer lid with hole ×4) 550 ml container ×6 (Adapter ×2 and all the above lids)
Accessories 2			1 metal fitting is attached to the unit rear to release the lid lock, in case of power failure.	Phillips screwdriver ×1, L-shaped wrench large ×1, L-shaped wrench small ×1, Spanner ×1	Box wrench×1, Hexagon wrench×1, Pliers ×1, Vacuum pump oil, Waste oil receiver ×1, Funnel ×1	Phillips screwdriver ×1, Hexagon wrench ×1, Pliers ×1, Bolt ×2, Vacuum pump oil, Waste oil receiver ×1, Funnel ×1

ing your purpose

Solder Paste Mixer

ARV-5000	ARV-3000TWIN	SR-500
Vacuum Rotation/revolution no-blade mixing	Vacuum Rotation/revolution no-blade mixing	Rotation/revolution no-blade mixing
Timer setting range: 0 sec. to 30 min. in 1 sec. increments	Timer setting range: 0 sec. to 30 min. in 1 sec. increments	Timer setting range: 0 sec. to 30 min. in 1 sec. increments
Max. 30 min.	Max. 30 min.	Max. 30 min.
10 recipe profiles with 10 steps	10 recipe profiles with 10 steps For 300 g, 400 g, 500 g, and 600 g, one-container or two-container can be set.	10 recipe profiles: STD mode: 5 recipes with 2 steps STEP mode: 5 recipes with 5 steps
Revolution: 0, 200 to 800 rpm (adjustable) Rotation: Approx. 3:4 revolution-to-rotation ratio	Revolution: 0, 250 to 850 rpm (adjustable) Rotation: Differs depending on gear ratio	Revolution: STD mode STEP1 1000 rpm (fixed) STEP2 500 rpm (fixed) STEP mode 0, 200 to 1200 rpm (adjustable) Rotation: Approx. 1:3 revolution-to-rotation ratio
With a 4 L container (internal volume): 3 L / 4.7 kg (net*1) 3 L / 5.0 kg (gross*2)	With the specially designed SUS container: Max. 600 g ×2 (LCD sealant conversion / net*1) With a 4 L container (internal volume): 3 L ×2 / 4.7 kg ×2 (net*1) 3 L ×2 / 5.0 kg ×2 (gross*2)	With a 150 ml container: 150 ml / 520 g (net*1) 150 ml / 560 g (gross *Excluding adapter)
With a 4 L container (internal volume): 3 L / 4.7 kg (net*1) 3 L / 5.0 kg (gross*2)	With the specially designed SUS container: Max. 600 g ×2 (LCD sealant conversion / net*1) With a 4 L container (internal volume): 3 L ×2 / 4.7 kg ×2 (net*1) 3 L ×2 / 5.0 kg ×2 (gross*2)	
Vacuum system within container holder	Vacuum system within container holder	
0.67 kPa / Approx. 5 Torr	0.1 kPa / Approx. 0.75 Torr (set value)	
Connectable with external connection joint (optional)		
Pump capacity: 100 liters/minute	Pump capacity: 200 liters/minute	
Voltage: Single-phase AC 200 V ± 10%, 50/60 Hz Power consumption: Approx. 35 VA (standby) Max. 4500 VA (operation)	Voltage: Single-phase AC 200 V ± 10%, 50/60 Hz 30 A Power consumption: Approx. 138.6 VA (standby) Max. 10.4 kVA (operation)	Voltage: Single-phase AC 120/230 V ± 10%, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max. 900 VA (operation)
10 to 35°C, 35 to 85% RH (Ensure no water condensation)	5 to 35°C, 35 to 85% RH (Ensure no water condensation)	10 to 35°C, 35 to 85% RH (Ensure no water condensation)
Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor
1 on the right inside and 1 on the left inside	Depending on specifications	1 on the internal rotation body surface and 1 on the rear
External remote operation available*4		
H 1600× W 1000*×D 865 (mm) *Excluding handle	H 1627×W 1323×D 942 (mm)	H 380×W 300×D 340 (mm)
Approx. 500 kg	Approx. 800 kg	Approx. 18 kg
User Manual ×1, Power cable ×1, Containers and others: Depending on specifications, Vacuum tube ×1 pair	User Manual ×1, Power cable ×1, Containers and others: Depending on specifications	User Manual ×1, AC cable (including 3P adapter) ×1, 150 ml container ×3, Adapter for HDPE 150 ml container ×1 (including 1 O-ring) Silicon rubber sheet ×1, O-ring for fine adjustment ×1
Vacuum pump oil, Others: Depending on specifications	Vacuum pump oil, Others (depending on specifications)	1 metal fitting is attached to the unit rear to release the lid lock, in case of power failure.

Syringe Fillers

Model	ARC-40	ARC-600TWIN
Filling System	Manual filling	Automatic filling
Syringe Manufacturers	Musashi Engineering, Inc., Iwashita Engineering, Inc., and other manufacturers (*1)	Supports syringes depending on specifications
Syringe Volume	3 ml, 5 ml, 10 ml (*2)	30 ml to 120 ml (Standard: 60 ml)
Usable Container	250 ml container for THINKY Mixer 150 ml container (optional)	Specially designed containers 150 ml, 300 ml, 600 ml (Depending on specifications)
Max. Processing	10 ml ×4 syringes	600 g ×2 (LCD sealant conversion)
Number of Syringes per Process	1 to 4 syringes (Joint stopper used)	Simultaneous filling of 16 syringes (Depending on the specifications of container and syringe)
Connection with Vacuum Pump	By a 6 mm outer diameter tube (*Vacuum pump is sold separately)	Built-in
Chamber Ultimate Vacuum	Depending on vacuum pump capability (*3)	0.1 kPa or less (no filler)
Vacuum Pump Flow Rate	Depending on vacuum pump capacity	200 liters/minute
Operating Environment	10 to 35°C, 35 to 85% RH (Ensure no water condensation)	5 to 35°C, 35 to 85% RH (Ensure no water condensation)
Power Supply	None	Voltage: Three-phase AC 200 V ± 10%, 50/60 Hz 20 A Power consumption: Approx. 138.6 VA (standby) Max.6.9 kVA (operation)
Unit Dimensions	H 460 (up to the handle height) × W 250 × D 250 (mm)	H 2169 × W 1023 × D 892 (mm)
Unit Weight	Approx. 6.4 Kg	Approx. 800 Kg
Accessories	User Manual ×1 250 ml mixing container (Container ×2, Inner lid ×2, Outer lid ×2) Piston ×2, Joint stopper ×3 Cleaning container set (Cleaning container ×2, lid ×1, rubber ring ×1)	Depending on specifications

*1 Supports syringe made by above companies.
*2 For other sizes, please contact us.
*3 Do not reduce the pressure to a lower level than the saturated vapor pressure of water and organic solvent included in the material.

*1 : Net weight refers to material weight excluding container and adapter.
*2 : Gross weight refers to total weight of material, container and adapter.
*3 : Products are shipped and delivered in a locked state. Release the lock before use.
*4 : Option
*5 : In order to avoid machine breakdown, please use a transformer depending on the usage conditions.

A Japanese brand drawing universal attention
THINKY MIXER

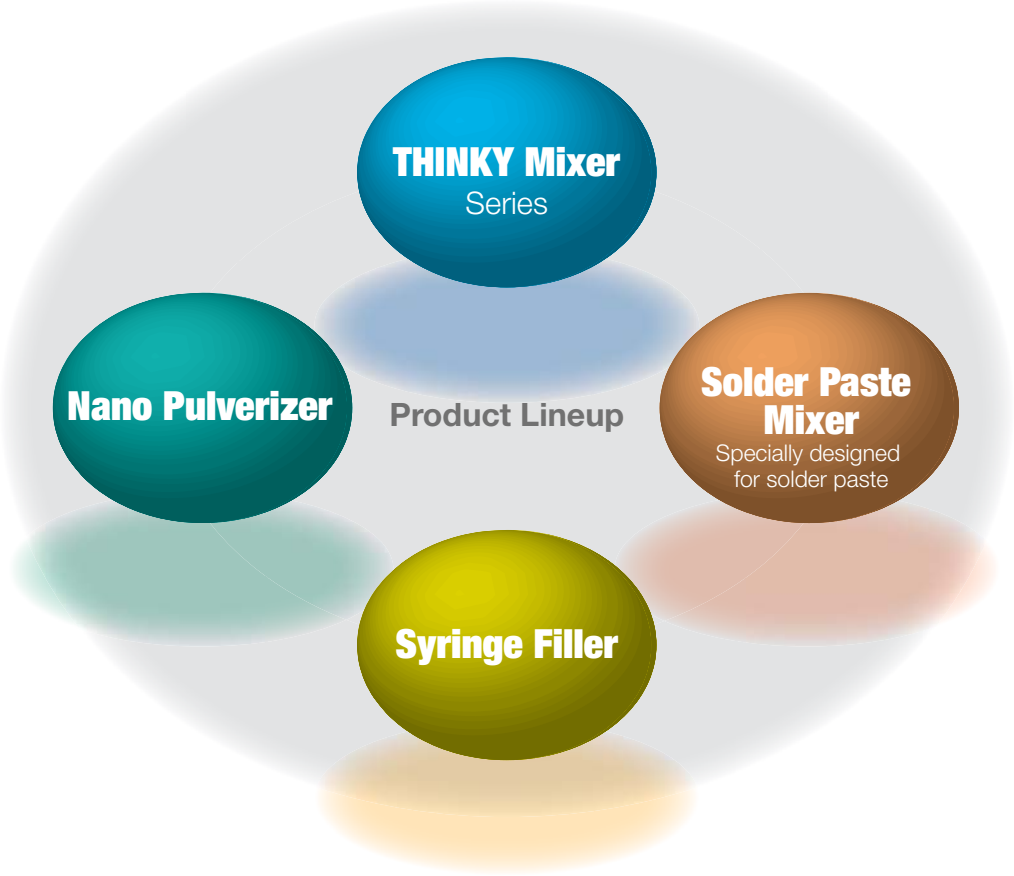
THINKY Mixers have been employed for material research and development, and in manufacturing facilities throughout the world; many cutting edge companies trust THINKY to help with their R&D and manufacturing problems. THINKY has earned the confidence of their customers and constantly receives requests for advice. THINKY is contributing to world technological innovation and material development through our material processing technology.

[North America]	● Thinky USA, Inc.	23151 Verdugo Drive, Suite 107 Laguna Hills, CA92653, USA
[Europe]	Belgium	
	Germany	
	France	
	Italy	
	United Kingdom	
	Croatia	
[Australia]	Australia	
[Middle East]	Israel	

[Asia]	●THINKY China	East building,HaiAn Kafunuo MansionShennan road, Qianhai road, Nanshan district, Shenzhen
	China	
	Taiwan	
	South Korea	
[Southeast Asia]	Singapore	
	Indonesia	
	Thailand	
	Malaysia	
	India	
	Vietnam	

THINKY Product Range

THINKY Corporation is committed to the development of world class and high performance planetary centrifugal mixers. We conduct our business activities with two central pillars: "To provide outstanding products that deliver outstanding customer satisfaction," and "To operate an environmentally responsible business."



THINKY

www.thinky.co.jp/en/

▶ For requests concerning demonstrations and evaluation testing, please contact THINKY Corporation Marketing Office

Phone:+81-3-5821-7455（Tokyo）

Or the sales agent below.

▶ For the latest information about products and exhibitions, visit:

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THINKY CORPORATION

Pioneer of planetary centrifugal mixers

Integrated Management System

Headquarters : 3-7-16 Iwamoto-cho, Chiyoda-ku, Tokyo 101-0032
Phone:+81-3-5821-7455 Fax:+81-3-3865-7833

THINKY USA Inc.: 23151 Verdugo Drive, Suite 107 Laguna Hills, CA92653, USA

THINKY CHINA : East building, HaiAn Kafunuo Mansion, Shennan road, Qianhai road, Nanshan district, Shenzhen

Sales agent

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