Online Catalog

Pursuing a bright future with mixing technology

THINKY

Oh!

Planetary centrifugal mixers contribute to society

Planetary centrifugal mixers / Syringe chargers

THINKY MIXER

Planetary Centrifugal System:
Revolutionized Process solution of Filling, Deagglom eration and

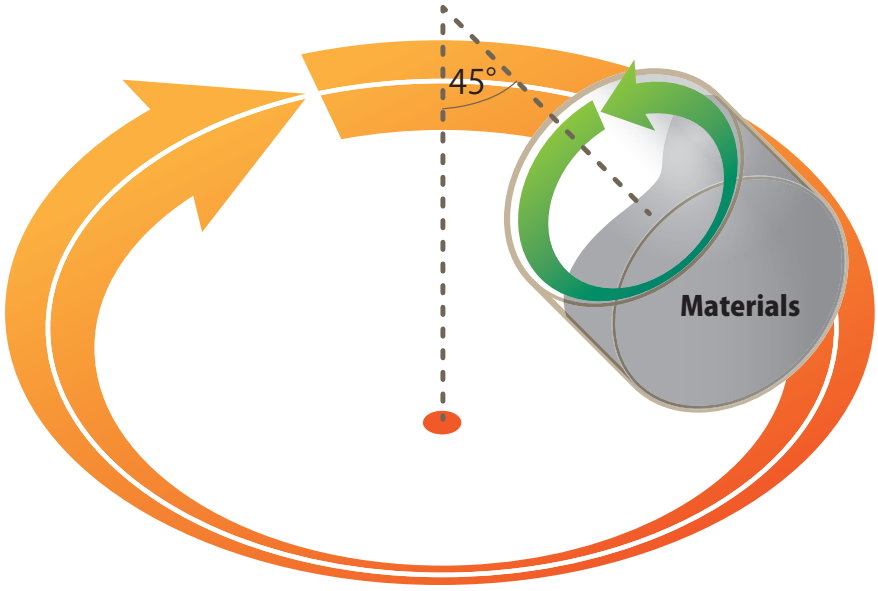
Mechanism of Planetary Centrifugal Mixer — THINKY MIXER

- *Set the container filled with materials into the cup holder positioned at an angle of 45 degrees with respect to the axis of revolution, and rotate.*

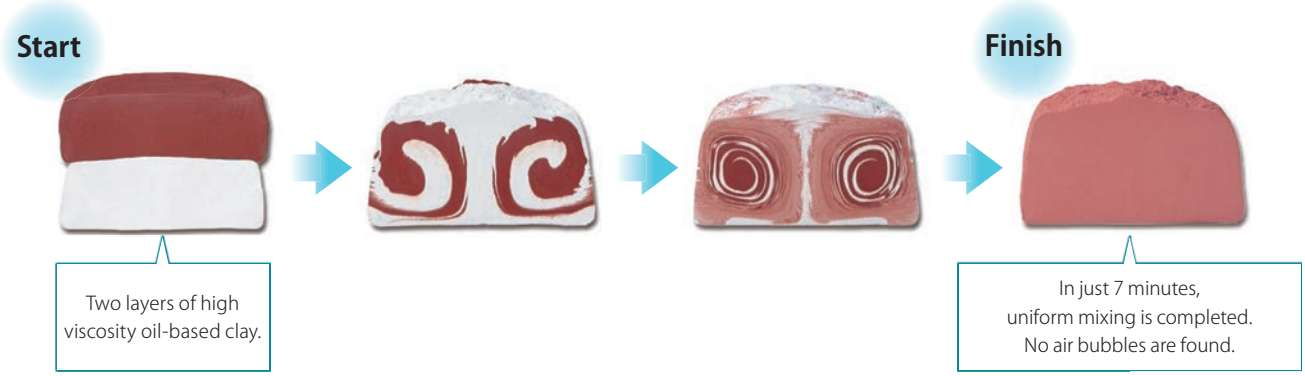
- *The interaction between rotation and revolution generates a spiral flow and rising and falling currents.*
  Air bubbles within the material are efficiently pushed out to the surface, enabling mixing and dispersion without generating air bubbles.

Revolution **Power to accelerate defoaming**

Rotation **Power to accelerate mixing**



Spiral flow and vertical convection of oil-based clay



Mixing, Defoaming, Dispersion Methods.

Customer industries and fields, and principal applications

■ Energy industry

Electrode/electrolytic materials.....Lithium-ion cells, fuel cells
Wiring materials.....Solar cells
Device materials.....Dye-sensitized solar cells
Superconductive materials.....Wire rods, electrode materials

■ Life science

Drug development (drug discovery, safety testing)
.....Poorly soluble compounds, suspension preparation
Prescription drugs.....Skin care drugs
Bioengineering.....MEMS and DNA analysis
Medical equipment.....Endoscopes
Biomaterials.. Artificial bones, upper and lower limb prostheses, dental materials
Cosmetics.....Lipsticks, foundations
Food products.....Thickening agents (nursing care food)

■ Electronics

Car electronics...Batteries, sensors, electromagnetic wave shielding materials
Indication and light-emitting devices.....FPDs, LEDs, OLEDs
Communications devices.....Optical fibers, repeaters
Printed devices.....OLEDs, sensors, MEMS
Electronic materials.Capacitors, crystal oscillator devices, mounting processes

■ Material science

Aerospace.....Adhesives, heat-insulating agents, fuel materials
Robotics.....Sensors, materials (resins, pastes)
Structures.....Nanocellulose

■ Other markets

Basic research at universities and examining bodies
Quality assurance divisions and analytical bodies

Usage purposes and principal materials

■ Agitation (mixing), defoaming

Two-part resin materials.....Epoxy, silicone, urethane
Inks.....Coloring, UV type, color samples
Cosmetics..Foundations, lipsticks, nail care products, lotions, gels
Skin care drugs.....Ointment preparation
Biomaterials.....Artificial bones, dental materials

■ Dispersion (deagglomeration)

Functional resins.....Conductivity improvement, anti-static measures, wear-resistance enhancement
Insulating/resistive pastes.....Resin, carbon, nanomaterials
Metal pastes.....Gold, silver, platinum, solder
Inorganic material pastes.....Glass, ceramics
Display materials.....Sealing materials, moisture-adsorbing materials, liquid crystal materials
LED sealing materials.....Silicone, fluorescent materials
Coating materials.....Coating materials (pigments)

■ Pulverization

Medical drugs, agricultural chemicals (Poorly soluble compounds)
.....Suspension preparation (discovery and safety testing of new drugs)
Battery materials.....Electrode materials, solid electrolytes
Inorganic material pastes.....Glass, ceramics, carbon
Cosmetics.....Skin whitening materials (hydroquinone), anti-aging materials

■ Emulsification

Inks.....Emulsion inks
Medical materials.....Peptide vaccines
Cosmetics.....Cream
Fuel.....Jet fuel

■ Defoaming, degassing, antifoaming

Chemical materials.....Dissolved oxygen reduction
Property improvement, yield improvement, degradation control
Pharmaceutical materials.....Void removal, bubble reduction
Drug effect stabilization, bubbling reduction, measurement error reduction
Electronic materials.....Void (bubble) reduction
Property improvement, dispensing/printing yield improvement
Display materials.....Bubble reduction, moisture control
Additive amount control improvement, aging degradation reduction
Optical materials..Bubble reduction, dissolved oxygen reduction
Scattering suppression, optical property improvement
Inks, coating materials.....Dissolved oxygen reduction
Color stabilization, aging degradation reduction
Quality assurance divisions
.....Void removal, bubble reduction, dissolved oxygen reduction
Measurement variation reduction, measurement accuracy improvement

"7 features"and "3 foundations" to bring innovative

7 features

Feature 1 Supports smooth collaboration between markedly short processing time and filling

Feature 2 Realizes simultaneous uniform mixing, dispersion, and deformation processes

Feature 3 Compatible with materials having different viscosities and specific gravities (powders are also dispersible)

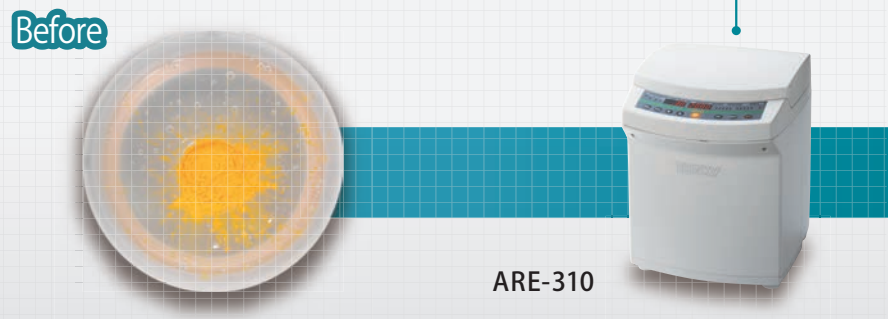
Feature 4 Reduces changes in material characteristics

Feature 5 Easy operation and guaranteed reproducibility

Feature 6 Contact-free and in-container processing for significant reduction of pre/post processes

Feature 7 Compatible with containers of every shape/form

Material mixed and defoamed in a THINKY MIXER can be filled by the syringe charger.



THINKY MIXER planetary centrifugal mixer is used worldwide

1. USA
2. Canada
3. Brazil
4. England
5. Ireland
6. Belgium
7. Netherlands
8. Germany
9. Austria
10. Switzerland
11. France
12. Italy
13. Czech Republic
14. Slovakia
15. Spain
16. Portugal
17. Croatia
18. Poland
19. Hungary
20. Romania
21. Bulgaria
22. Norway
23. Finland
24. Sweden
25. Denmark
26. Russia
27. Lithuania
28. Latvia
29. Estonia
30. China
31. Taiwan
32. Korea
33. Mongolia
34. Singapore
35. Malaysia
36. Thailand
37. Indonesia
38. Vietnam
39. Philippines
40. Australia
41. New Zealand
42. India
43. Sri Lanka
44. Kazakhstan
45. Uzbekistan
46. Saudi Arabia
47. UAE
48. Qatar
49. Israel
50. Turkey
51. South Africa
52. Morocco
53. Egypt
54. Japan

and other countries

no particular order

development and production of cutting-edge materials

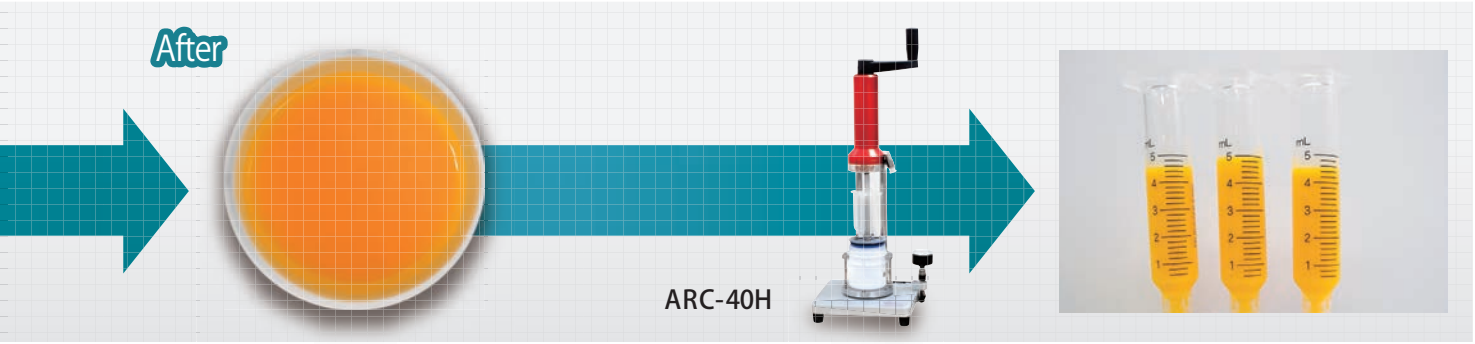
3 foundations

Foundation 1 Over 30 years as a pioneer in the industry

Foundation 2 Outstanding reliability represented by the highest record of adoptions in the world

Foundation 3 Thorough technical support before implementation

Simple Operation



Quality and reliability supported by customers

Tsutomu Miyasaka
Professor, Doctor of Engineering, Toin University of Yokohama

Without THINKY MIXER, the time required would be ten times or longer and costs would increase.

Hidehiro Kamiya
Professor, Doctor of Engineering, Institute of Engineering, Tokyo University of Agriculture and Technology

The mixer is effective in preparing a stable suspension and mixture.

Hirobumi Ushijima
National Institute of Advanced Industrial Science and Technology

THINKY Vacuum Mixer is essential for printed electronics that require highly precise resin printing plates.

Chiaki Sato
Associate Professor, Doctor of Engineering, Tokyo Institute of Technology

THINKY products are essential in the study of adhesion.

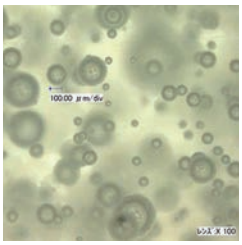
Material Processing

Examples of material processing

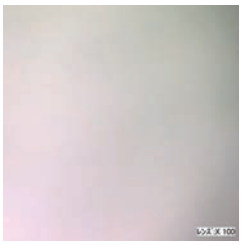
Mixing and defoaming of resin + resin

2-part Epoxy Resin

Manual mixing



THINKY MIXER



No bubbles.
Uniformly mixed.

Polyimide

Manual mixing

THINKY MIXER

No bubbles.
Uniformly mixed.

Mixing and defoaming of resin + powder

Uniform dispersion can be achieved without sedimentation.

Silver Paste

Before

After

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

Solder Paste (solder powder and flux)

Manual mixing

Solder Paste Mixer

Smooth surface.
No bubbles.

Epoxy Resin (base + hardener) and Alumina Powder

Before

After

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

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

Manual mixing

THINKY MIXER

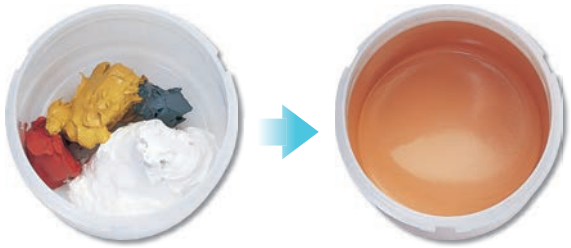
No lumps.
Uniformly mixed.

Mixing and defoaming of pastes

High viscosity materials that are difficult to mix manually can be easily processed.

Cosmetic Foundation (wax and three types of iron oxides)

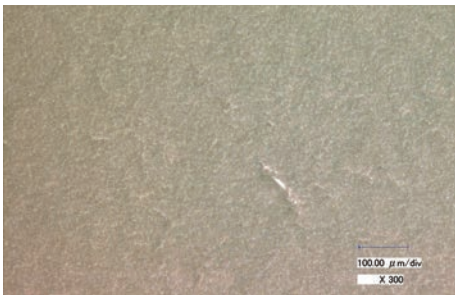
Before → After



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

Low viscosity liquid + powder (Slurry)

Nano Ceramics and Water 70 V%



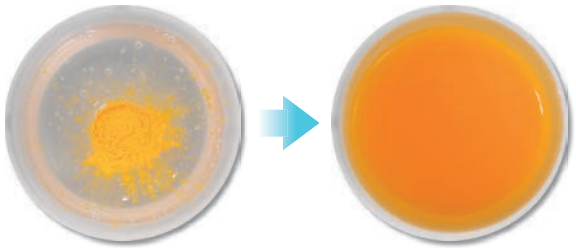
■ARE-310
Dispersion of ceramic powders

Resin + high specific gravity powder

Materials with different specific gravity are dispersed without sedimentation.

Low Viscosity Silicone Resin and Silicate Fluorescent Material

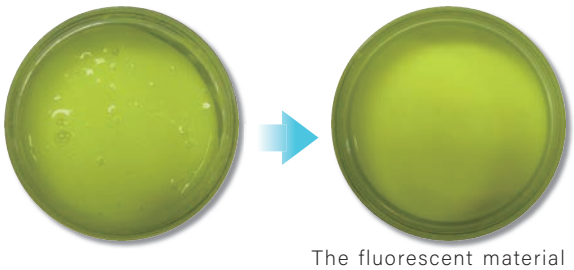
Before → After



The fluorescent material is uniformly dispersed without sedimentation in low viscosity silicone resin (about 3 Pa s (3,000 cP)).

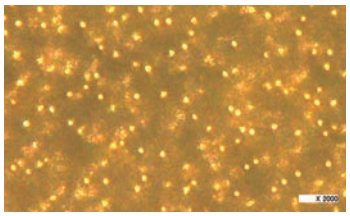
Sealant for White LED (silicone resin and fluorescent material)

Manual mixing → THINKY MIXER

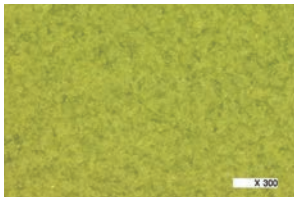


The fluorescent material with high specific gravity is uniformly dispersed without sedimentation in low viscosity silicone.

Au Ball



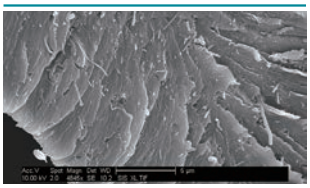
■ARV-3000TWIN
Dispersion of Au powders (3μm) and LCD sealant (400 Pa s)



■ARV-310LED
Dispersion of orthosilicate fluorescent material (phosphor with about 15 μm particle diameter) and low viscosity silicone resin (3 Pa s) for LED

Processing nano materials

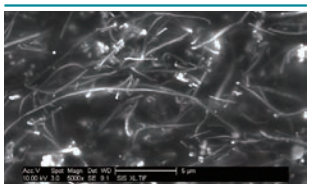
CNF 5V%



■ARE-310
Carbon nano fiber is uniformly dispersed in epoxy.

SEM photo by George Hansen, Metal Matrix Composites Company

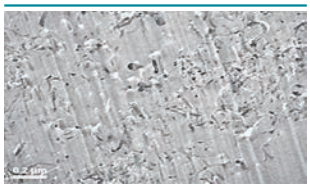
CNF 10V%



■ARE-310
Carbon nano fiber is uniformly dispersed in polymer.

SEM photo by **George Hansen, Metal Matrix Composites Company**

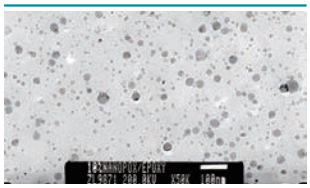
MWNT



■ARE-310
MWNT is uniformly dispersed in 2-part thermosetting resin.

SEM photo by Dr. J.H. Koo
University of Texas at Austin

Nano-silica



■ARE-310
Nano-silica is uniformly dispersed in epoxy resin.

SEM photo by Dr. J.H. Koo
University of Texas at Austin

THINKY MIXER

Large selection of products meets customer needs

The planetary centrifugal **THINKY MIXER** is divided into two groups: the "non-vacuum type," which provides simultaneous process of mixing, dispersing and deaerating/defoaming under atmospheric pressure; and the "vacuum type," which provides submicron level defoaming with a vacuum function. Each type provides product scale up from small to large models for laboratory use and products that support mass production lines.

Also, there are **Solder Paste Mixer** and LED type for high specific gravity powders, such as LED phosphor.
The vacuum **Syringe Charger** can easily feed materials with high viscosity and high thixotropy processed by THINKY MIXER or Solder Paste Mixer into syringes. Select the best model for your purpose, application or materials.

THINKY MIXER ■ Non-Vacuum type ▶ P. 9 - 12

Standard container capacity

AR-100 ▶ P. 10

ARE-250CE ★ ▶ P. 9

ARE-310 ▶ P. 9

ARM-310 ★ ▶ P. 12

THINKY MIXER ■ Vacuum type ▶ P. 13 - 16

Standard container capacity

ARV-310P ★ ▶ P. 13

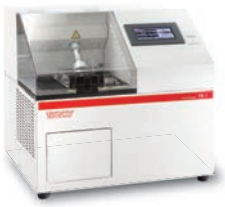
ARV-501 ★ ▶ P. 13

ARV-931TWIN ★ ▶ P. 14

Nano Pulverizer

NP-100 ★

Nano Premixer



PR-1 ★

Prototype of a planetary centrifugal system mixer

In 1987

300 ml ×2

ARE-400TWIN
▶ P. 10

650 ml

ARE-500★
▶ P. 11

650 ml

ARE-501
▶ P. 11

4 L

ARV-5000★
▶ P. 14

4 L ×2

ARV-3000TWIN
▶ P. 15

10 L ×2

ARV-10kTWIN★
▶ P. 15

Specialized model

Solder Paste Mixer

150 ml

SR-500★
▶ P. 12

High Specific Gravity Material Mixer
(Vacuum type)

300 ml

ARV-310LED
▶ P. 16

Container/Adapter

Syringe Charger

ARC-40H
▶ P. 17

ARC-600TWIN
▶ P. 17

★CE Certified model available

ARE-310 / ARE-250 CE

* The ARE-250CE is the CE-certified model of the ARE-310.

310 g Maximum capacity

300 ml resin container — Standard container

User-friendly & highly versatile standard type

- Over 400 G of acceleration generated by rotation and revolution speed allows powerful simultaneous mixing and defoaming
- A powerful 510 G in defoaming mode
- Outstanding rigidity and durability; vibration sensor and door locking function secure a high degree of safety
- Lightweight, compact body with maximum capacity of 310 g
- Optimal mixing for any material can be achieved by adjusting the RPM
- Each memory can process up to 5 steps for continuous operation (STP mode)
- Equipped with an original air cooling mechanism
- Different types of containers can be utilized with THINKY adapters
- 10 memories (STD x 5, STP x 5) can be set for operation (ARE-310 only)

ARE-310

CE CE-certified model ARE-250CE

Unit Dimensions	H390 × W300 × D340 (mm)
Unit Weight	Approx. 21 kg

Unit Dimensions	H380 × W300 × D315 (mm)
Unit Weight	Approx. 22 kg

Optional **ENs-10**

Heat discharger table dedicated for planetary centrifugal mixers

Cooling system for THINKY MIXER

Unit Dimensions	H145 × W310 × D320 (mm)
Unit Weight	Approx. 7 kg

Optional **ENs-10CE**

Heat discharger table dedicated for planetary centrifugal mixers

Cooling system for THINKY MIXER

Unit Dimensions	H145 × W310 × D320 (mm)
Unit Weight	Approx. 7 kg

AR-100

140 g Maximum capacity

100 ml disposable container — Standard container

Our most compact portable planetary centrifugal mixer

- The space-saving, compact design is best for fundamental experiments by researchers and engineers
- Have been utilized at universities and laboratories
- Specialized for low volume. Mixing capacity from a few grams
- Optimal mixing for any material can be achieved by adjusting the RPM
- 5 memories can be set for timer operation
- Easy to open and close the sliding lid
- Mounted stroboscope allows observation of the material during operation
- Different types of containers can be utilized with THINKY adapters

*This product is not suitable for continuous operation or frequent use; this is recommended for R&D purposes.

Unit Dimensions	H328 × W250 × D250 (mm)
Unit Weight	Approx. 15 kg

ARE-400TWIN

400 g ×2 Maximum capacity

300 ml resin container — Standard container

State-of-the-art twin system that can vary the rotation-revolution ratio

- Independent variable mechanism for rotation and revolution
- Twin system, maximum capacity of 400 g x 2
- Capable of mixing high viscosity material such as viscous grease
- Effective in setting memories for materials that are vulnerable to temperature rise
- Can display memory settings, rotations and material temperature in real time (USB Type B standard equipment) by connecting to PC
- Different types of containers can be utilized with THINKY adapters
- Sensor unit that can detect temperature of materials being mixed in real time (optional)

Unit Dimensions	H560 × W460 × D480 (mm)
Unit Weight	Approx. 70 kg

ARE-500

1100 g
Maximum capacity

650 ml resin container
Standard container

Many cases of adoption for production applications

- Successful introduction to production applications
- The high durability drive system was developed for manufacturing production
- Optimal mixing for any material can be achieved by adjusting the RPM
- Easy operation with membrane switches
- 10 memories (STDx5, STPx5) can be set for operation
- Different types of containers can be utilized with THINKY adapters

CE-certified model
Product name: ARE-500 CE

Unit Dimensions	H692 × W500 × D500 (mm)
Unit Weight	Approx. 95 kg

Optional

ARE-500 / ARE-501
Stand

Unit Dimensions	H240 ± 5 × W550 × D550 (mm)
Unit Weight	Approx. 15 kg

ARE-501

1100 g
Maximum capacity

650 ml resin container
Standard container

Production site's long-seller ARE-500, now with even higher functionalities

- Improved mixing performance by increasing revolution speed and optimizing rotation/revolution ratio
- With changeable rotational speed, optimal setting is possible for any material characteristics
- Condition setting made even easier with installed touch panel
- Succeeding the highly durable ARE-500 drive unit tempered at production sites
- Added communications function contributes to traceability management
- Different types of containers can be utilized with THINKY adapters

Unit Dimensions	H689 × W500 × D500 (mm)
Unit Weight	Approx. 100 kg

Optional

ARE-500 / ARE-501
Stand

Unit Dimensions	H240 ± 5 × W550 × D550 (mm)
Unit Weight	Approx. 15 kg

ARM-310

310 g Maximum capacity

300 ml resin container — Standard container

Highly competitive mixer for price wise.

- Highly competitive price.
- Supports a wide range of materials, especially low-mid viscosity materials.
- Cold-insulated, heat-resistant adapter enables support of various material characteristics.
- Wide variety of adapters for using various containers.
- Memory and step-operation functions for controlling operating conditions.
- CE certified model is available.

CE CE-certified model
Product name: ARM-310 CE

Unit Dimensions	H390 × W300 × D340 (mm)
Unit Weight	Approx. 21 kg

SR-500

680 g Maximum capacity

150 ml resin container — Standard container

Temperature and viscosity adjustment & defoaming in only a few minutes

- Capable of mixing with uniformity and defoaming in just a few minutes
- 5 steps can be registered in each memory to ensure optimal temperature and viscosity adjustment
- Solder Paste from the refrigerator can be mixed and warmed to room temperature rapidly
- Capable of mixing and defoaming with commercially available 500 g containers
- Capable of mixing and defoaming less than 500 g solder paste
- By using an optional adapter, solder paste filled in a syringe can be mixed

Optional **ENs-10**
Heat discharger table dedicated for planetary centrifugal mixers

Cooling system
for THINKY MIXER

CE CE-certified model
Product name: ENs-10CE

Unit Dimensions	H145 × W310 × D320 (mm)
Unit Weight	Approx. 7 kg

CE CE-certified model
Product name: SR-500 CE

Approx. 18 kg	H390 × W300 × D340 (mm)
Unit Weight	Approx. 18 kg

ARV-310P

310 g
Maximum capacity

300 ml resin container
Standard container

Remove submicron level air bubbles without spillage & Touchpanel and traceability function

- Unlike conventional vacuum defoaming devices, the planetary centrifugal system and the vacuuming pressure reduction function prevents spillage during operation and achieves rapid removal and dispersal of submicron level air bubbles
- Optimal mixing for any material can be achieved by adjusting the RPM
- Different types of containers can be utilized with THINKY adapters
- Real-time rpm and vacuum display
- 20 recipes can be programmed with online connection

CE CE-certified model
Product name: ARV-310P CE

Unit Dimensions	H450 × W555 × D645 (mm)
Unit Weight	Approx. 90 kg

ARV-501

700 g
Maximum capacity

550 ml resin container
Standard container

Vacuum-type ARE-500, a reliable model at production sites

- THINKY's original cup holder vacuum system minimizes the vacuum volume and significantly reduces the time required to achieve the set vacuum level and atmosphere releasing
- Succeeding the highly durable ARE-500 drive unit tempered at production sites
- With the new defoaming mode thanks to the strong centrifugal force that has been adopted as a standard feature, the model is now applicable to volatile materials as well.
- Built-in vacuum pump type for dedicated stand also available, reducing contact area to a minimum
- Added communications function contributes to traceability management
- Different types of containers can be utilized with THINKY adapters

Optional

ARV-501
Stand with Built-in Vacuum Pump
PU-501

Unit Dimensions	H300 × W493 × D493 (mm)
Unit Weight	Approx. 47 kg

CE CE-certified model
Product name: ARV-501 CE

Unit Dimensions	H815 × W500 × D595 (mm)
Unit Weight	Approx. 100 kg, 110 kg (CEmodel)

ARV-931TWIN

930 g ×2 Maximum capacity

750 ml resin container — Standard container

Manufacturing model with two-container system & 1.8 kg (930 g × 2) maximum vacuum processing

- Over 400 G of acceleration generated by rotation and revolution speed allows powerful simultaneous mixing and vacuum defoaming
- Defoaming mode generates powerful acceleration of 670 G at maximum for accurate defoaming of volatile materials
- Maximum capacity 1860 g / Removal of submicron level air bubbles
- Unlike conventional vacuum defoaming devices, the planetary centrifugal system and the vacuuming pressure reduction function prevents spillage during operation and achieves rapid removal and dispersal of submicron level bubbles
- Optimal mixing for any material can be achieved by adjusting the RPM
- THINKY's original cup holder vacuum system minimizes the vacuum volume and significantly reduces the time required to achieve the set vacuum level and atmosphere releasing
- Different types of containers can be utilized with THINKY adapters
- 20 recipes can be programmed with online connection
- Added communications function contributes to traceability management

CE CE-certified model
Product name: ARV-931 TWIN CE

Unit Dimensions	H900 × W660 × D670 (mm) (not including handle)
Unit Weight	Approx. 240 kg

ARV-5000

5 kg Maximum capacity

4 L resin container — Standard container

Uniform mixing and removal of submicron level air bubbles for up to 5 kg of materials

- Mass production model of ARE-310 and ARV-310P with maximum capacity of 5 kg
- Unlike conventional vacuum defoaming devices, the planetary centrifugal system and the vacuuming pressure reduction function prevents spillage during operation and achieves rapid removal and dispersal of submicron level bubbles
- Optimal mixing for any material can be achieved by adjusting the RPM
- Excellent operability with touch panel
- THINKY's original cup holder vacuum system minimizes the vacuum volume and significantly reduces the time required for vacuuming and atmosphere releasing
- Equipped with an original air cooling mechanism
- Various containers can be used
- Different types of containers can be utilized with THINKY adapters
- External host communication function (optional)

CE CE-certified model
Product name: ARV-5000 CE

Unit Dimensions	H1650 × W1050 × D925 (mm)
Unit Weight	Approx. 500 kg

ARV-3000TWIN

5 kg ×2
Maximum capacity

4 L resin container | Specially designed SUS container
Standard container

Uniform mixing and removal of submicron level air bubbles for up to 10 kg (5 kg × 2) of materials

- Mass production model of ARE-310 and ARV-310P with maximum capacity of 10 kg
- Unlike conventional vacuum defoaming devices, the planetary centrifugal system and the vacuuming pressure reduction function prevents spillage during operation and achieves rapid removal and dispersal of submicron level bubbles
- Optimal parameter settings for materials can be achieved with the variable rotation/revolution ratio mechanism
- Excellent operability with touch panel
- Improved efficiency, e.g. increased process volume, standardized operations, stabilized quality, and reduction of material loss
- THINKY's original cup holder vacuum system minimizes the vacuum volume and significantly reduces the time required for vacuuming and atmosphere releasing
- Capable of operating continuously during mass production with the unique heat dissipating mechanism
- Capable of processing One Drop Fill (ODF) sealant defoaming applications and adopting for major ODF sealant
- Clean room compatibility
- Different types of containers can be utilized with THINKY adapters

Unit Dimensions	H1600 × W1330 × D1015 (mm)
Unit Weight	Approx. 800 kg

ARV-10kTWIN

14.5 kg ×2
Maximum capacity

Specially designed 10 L SUS container
Standard container

Mass production model up to 29 kg (14.5 kg x 2) capacity while achieving the performance of laboratory models

- Mass production model of ARE-310 and ARV-310P with maximum capacity of 29 kg
- Unlike conventional vacuum defoaming devices, the planetary centrifugal system and the vacuuming pressure reduction function prevents spillage during operation and achieves rapid removal and dispersal of submicron level bubbles
- Optimal parameter settings for materials can be achieved with the variable rotation/revolution ratio mechanism
- Excellent operability with touch panel
- THINKY's original cup holder vacuum system minimizes the vacuum volume and significantly reduces the time required for vacuuming and atmosphere releasing
- Removal of submicron level air bubbles
- Capable of operating continuously during mass production with the unique heat dissipating mechanism
- Capable of processing at atmospheric pressure for processing materials with volatile components
- Different types of containers can be utilized with THINKY adapters

Optional **Raku-Raku Hand**

※Raku-Raku Hand is the registered trade mark of AIKOKU ALPHA CORPORATION.

Unit Dimensions	H3396 × W1600 × D1600 (mm)
Unit Weight	Approx. 90 kg

CE CE-certified model
Product name: ARV-10kTWIN CE

Unit Dimensions	H1280 × W1900 × D1370 (mm)
Unit Weight	Approx. 1500 kg

ARV-310LED

310 g Maximum capacity

300 ml resin container — Standard container

Dispersion of high specific gravity powder such as LED fluorescent substances without sedimentation

- A vacuum pressure reduction function removes submicron air bubbles and gives outstanding dispersion performance
- No spillage of material during operation
- Optimal mixing for any material can be achieved by adjusting the RPM
- 9 memories can be set for timer operation
- 5 steps can be registered in each memory

For delivery leadtime please contact us.

Unit Dimensions	H450 × W555 × D645 (mm)
Unit Weight	Approx. 90 kg

Vacuum Syringe Chargers

ARC-40H

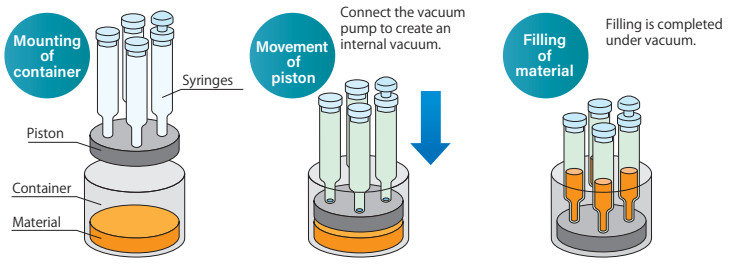
3~10ml	Non-Vacuum / Vacuum	4 syringes
Standard syringe size	Pressure	Max number of syringes

Improved filling efficiency for small capacity syringes

- Capable of filling materials into 3, 5, and 10 ml syringes, which are too small to fill manually
- Capable of filling low to high viscous materials
- Up to 4 syringes can be filled at one time
- With THINKY MIXERS, work efficiency from mixing/defoaming to filling is increased
- Capable of operating in both vacuum and atmospheric pressure

Unit Dimensions	H550 × W200 × D140 (mm) (Up to the handle height)
Unit Weight	Approx. 7.5 kg
Max processing volume	10 ml Syringes × 4 * Consult us for 20, 30, and 50 ml syringes. We will provide customization.

Illustration of operation



ARC-600TWIN

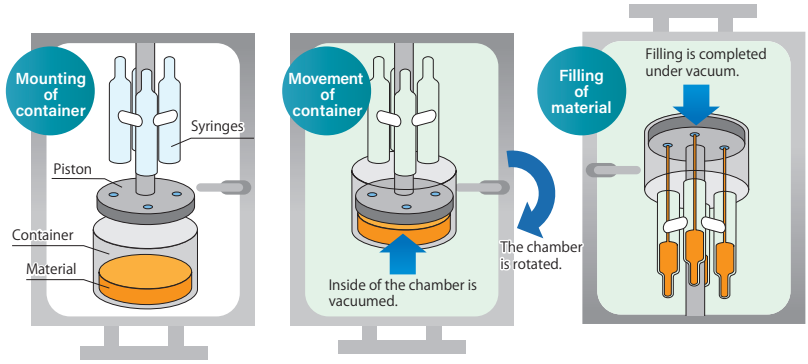
60ml	Vacuum	Customizable
Standard syringe size	Pressure	Max number of syringes

Automatic filling control for large capacity syringes

- No air bubbles. No dripping
- Simultaneously filling up to 16 syringes. Supports large capacity syringes
- Reduced filling time. Easy to clean after use
- Few cleaning parts and few consumables
- Excellent capability for filling high viscous materials such as One Drop Fill (ODF) process sealant
- Automated operations: filling process and vacuum pressure are all automated and systematized

Unit Dimensions	H2170 × W1125 × D1045 (mm)
Unit Weight	Approx. 650 kg
Max processing volume	Customizable

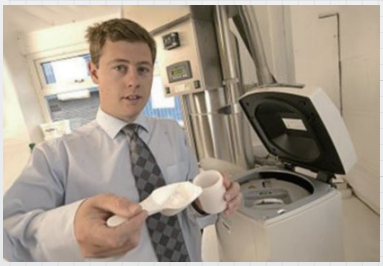
Illustration of operation



Introduction Examples

Users' Voice

Effective mixing of specialist glass powders with a high viscosity acrylic resin



Dr. Philip Frampton

James Kent Ltd
England, United Kingdom

Product in use:
*ARE-250CE**

Customer benefits

- Reliable quality mixing
- Consistent homogeneity
- Quicker process
- Improved degassing

※ *Equivalent to ARE-310*

Encounter with the ARE-250CE

James Kent (Ceramic Materials) Ltd had relied for many years on a manual mixing system for their research and quality control of specialist glass powders, but embarked on a search for a process solution that would be more effective, more consistent, quicker and simpler.

The glass powders produced by James Kent Ltd are tailored to customer need – primarily for dental fillers and restorers, they vary from 0.5 to 10 microns average particle size. For testing purposes, the glass powder needs to be mixed with a high viscosity acrylic resin monomer to check for high transparency and low discolouration – but the manual process, while well understood, continued to give problems of non-homogeneity and air inclusion, both of which preclude colour checking of the glass.

The search for an improved system led Dr. Philip Frampton to the **Thinky ARE-250CE**, which incorporates both planetary mixing and centrifugal degassing in one unit.

How ARE-250CE improved the mixing process

Tests with the Thinky equipment involved mixing 60% glass with 40% acrylic by weight in viscosities varying from "thick honey to stiff bubble gum," according to Dr. Frampton.

Empirical investigation supported by our advice rapidly determined suitable program parameters based on viscosity. These samples were then pressed and cured into standard £ 2 coin-sized discs for comparison with established colour standards.

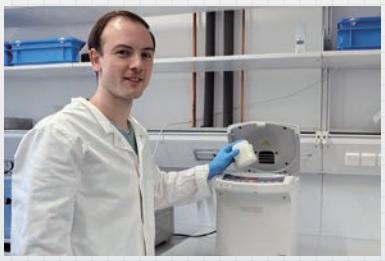
Comments from Dr. Frampton

"James Kent are one of probably only 4 or 5 companies in the world operating at the top level in this technology and we were looking to improve the mixing stage as a first step to overall improvement of our glass grinding process.
Intertronics'* expertise and supply of the Thinky mixer has allowed us to achieve that initial goal in a single operation.
Now that we have a reliable quality control process, we can move to purchase of a spectro-photometer. This will enable us to refine our operation further toward development of an even cleaner and finer grinding process."

The mixing of glass and ceramic powders into resins is a perfect job for a Thinky mixer!

* Intertronics is Thinky's distributor in U.K.
http://www.intertronics.co.uk/

Production of high-energy cathodes for lithium-ion batteries with novel electrode structure



M.Sc. Jonas Oehm,
Prof. Dr.-Ing. V. Knoblauch

M.Sc. Jonas Oehm is shown in the photo above.

Aalen University of Applied Sciences,
Institute for Materials Research, Germany

Product in use:
ARM-310CE

Research Outline

Due to the increased demand for mobile, rechargeable batteries with ever higher energy and power densities, intensive research is being conducted into modifying the electrode structure in order to increase the active mass loading. One possible approach is a three-dimensional structuring of the electrodes by using a cellular structure (e.g., a metal foam), which acts as a current collector. Due to the cellular structure, an electrically conductive structure is present within the active mass. This can increase the electrical conductivity of the electrode while increasing the integrity of the active mass layer. This should make it possible to increase the electrode thickness while reducing the amount of inactive components.

Importance of THINKY MIXER for Preparing Electrode Slurry

In the production of these foam electrodes with the highest possible active mass loading, the infiltration of the cellular structure with an electrode slurry is a decisive process step. The degree of infiltration depends to a large extent on the viscosity of the electrode slurry. In order to determine the optimum slurry composition for a given solids composition (e.g. 84 wt.% NMC, 8 wt.% conductive carbon black + graphite, 8 wt.% binder), three different cathode slurries with different solids contents were prepared using the **Thinky ARM-310 planetary centrifugal mixer** via a multi-stage process. The viscosity curve of the three slurries in Fig. 1 shows that the viscosity increases with increasing solids content. Fig. 2 shows the active mass loading of 1000 µm thick NiCr foam rounds (Ø 10 mm, 450 µm cell size) after infiltration and drying with the different slurries. With increasing solids content, the active mass loading increases. With further increase of the solid content in the slurry, an inhomogeneous infiltration of the slurry is to be expected due to the increasing viscosity. With the **Thinky ARM-310 planetary centrifugal mixer**, various slurries with different compositions could thus be produced in a very short time and a suitable composition was identified.

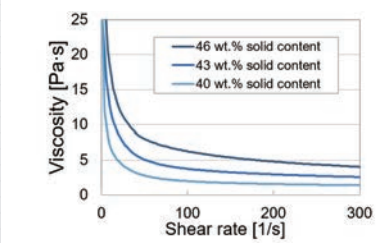


Fig. 1: Viscosity of differently NMC cathode slurries with a solid content composition of 84-8-8 (wt.%, NMC, conductive additive, binder) and various solid contents.

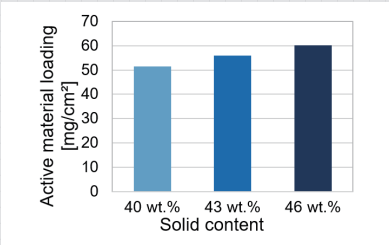
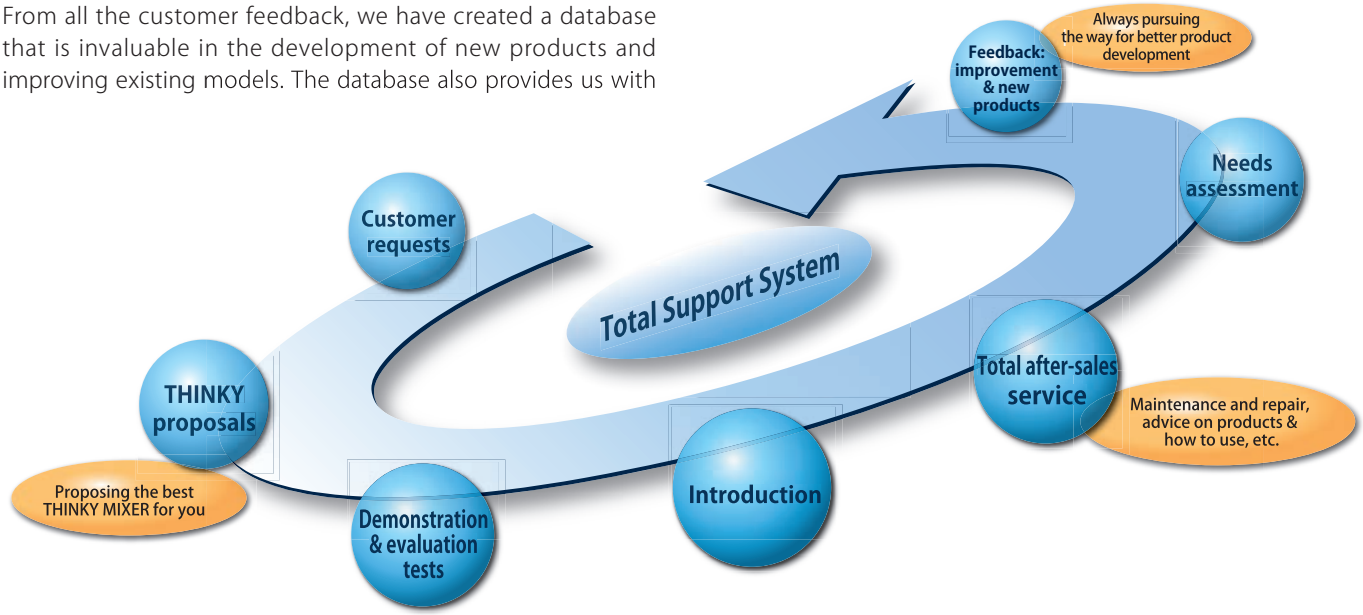


Fig. 2: Active mass loading of 1000 µm thick NiCr foams (10 mm) after infiltration with the slurries having different solid contents.

Total Support System

We provide excellent customer support with our total support system

For the total life cycle of your THINKY MIXER, our customer service team will respond to your requests.
We listen to your requirements, purpose and conditions of use, and then suggest the optimal model. As a part of our service, not only do we ask you to evaluate our unit with your material, but we also help develop recipes suitable for the material and our technical experts offer advice on operation. After installation of THINKY MIXER, we welcome any queries and comments. We can also offer in-depth advice on material processing that is different from your initial evaluation, and advise you on any plans for scaling up.
From all the customer feedback, we have created a database that is invaluable in the development of new products and improving 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 continues 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.



Our Fivefold Support System Enables Safer and More Convenient Device Use

1 A wide variety of dedicated adaptors

Supply us with a sample of an actual container and we make an adaptor for it.

2 A global distribution network and an extensive product lineup

With our business bases in California, U.S.A., and Shenzhen, Shanghai, and Beijing in China, we have established a network of distributors in more than 50 countries around the world. We also offer CE-compliant models for the European Union (EU).

3 Offering useful information

We offer useful and timely technical information for customers from the THINKY Library on our website.

4 PC connections and online connectivity possible

For product traceability at manufacturing sites, we offer consultations regarding PC connections or online connectivity at factories.

5 After-sales service

Our service department at the head office works with our worldwide distributors to offer services so that customers may be able to use our devices with no worries no matter where they are.

Original THINKY adapters

THINKY provides original containers and adapters to fit the characteristics of the material. We produce more than 150 custom-made adapters a year to meet customer needs.

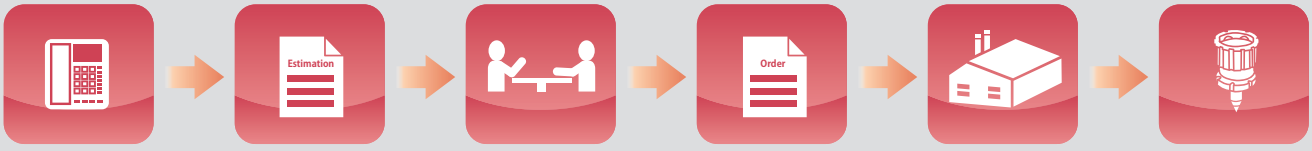
Creating a whole new adapter is always challenging.
Our professional team considers the material characteristics, customer issues and the operating environment in order to design and supply you with custom-made adapters for your materials.
We are grateful for the frequent compliments from customers who appreciate the high quality of adapters made by THINKY.

The number of customized adaptors has reached 1,500.

We are more than happy to customize an adaptor so that the container that customers are currently using can be set in our mixer as is.

By leveraging our wealth of experience and ideas as a maker who has dedicated itself to developing rotation/revolution mixers over many years, we will propose what is truly helpful for our customer.

Production flow of custom-made adapters



Contact

Contact the address shown on the back cover of this brochure or our sales personnel.

Interview and estimation

Sample containers are needed.

Meeting for detailed specifications

Order

Production

Completion

*For details, contact THINKY

Product Specification List / THINKY MIXER Non-vacuum type / Solder Paste

		Planetary Centrifugal Mixers THINKY MIXER (Non-vacuum type)				
Model		AR-100	ARE-310	ARE-400TWIN	ARE-500	ARE-501
		 ▶ p.10	 ▶ p.9	 ▶ p.10	 ▶ p.11	 ▶ p.11
System		Planetary, propeller-less mixing	Planetary, propeller-less mixing	Planetary, propeller-less mixing	Planetary, propeller-less mixing	Planetary, propeller-less mixing
Operation Time Setting		Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments
Continuous Operation Time		Max 30 min	Max 30 min	Max 30 min	Max 30 min	Max 30 min
Programming Function		5 memories	10 memories: STD mode: 5 memories with 1 step STEP mode: 5 memories with 5 steps	20 memories with 5 steps	10 memories: STD mode: 5 memories with 1 step STEP mode: 5 memories with 5 steps	20 memories with 10 steps
Revolution/ Rotation Speed (rpm)	Mixing Mode	Revolution: 400 to 2000 rpm (adjustable) Rotation: Approx. 0.4 revolution-to-rotation ratio	Revolution: STD mode 2000rpm(fixed) STEP mode 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 0.4 revolution-to-rotation ratio (STD and STEP modes)	Revolution: 0, 200 to 1600 rpm (adjustable) Rotation: 0, 200 to 1600 rpm (adjustable) Max up to 1.0 revolution-to-rotation ratio (When 600 rpm of revolution, minimum rotation speed is 200 rpm.)	Revolution: 400 to 1000 rpm (adjustable) Rotation: Approx. 1.0 revolution-to rotation ratio	Revolution: 1500rpm (400 to 1500 rpm (adjustable)) Rotation: 867rpm (Approx. 0.58 revolution-to rotation ratio)
	Defoaming Mode	Revolution: 2200 rpm (fixed) Rotation: 0 rpm (fixed)	Revolution: STD mode 2200 rpm (fixed) STEP mode 0, 400 to 2200 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio (STD and STEP modes)	———	Revolution: 400 to 2000 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio	Revolution: 2000rpm (400 to 2000 rpm (adjustable)) Rotation: 60rpm (Approx. 0.03 revolution-to rotation ratio)
Maximum Capacity *1		140 g	310 g	400 g × 2	1100 g	1100 g
Standard Container *2		100 ml disposable container	300 ml resin container	300 ml resin container	650 ml resin container	650 ml resin container
Power Supply		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 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 1400 VA (operation)	Voltage: Single-phase AC 100 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 1500 VA (operation)
Operating Environment		10 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)	5 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)
Safety Mechanism		Lid sensor, Vibration sensor, Speed sensor	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor	Lid lsensor, Vibration sensor, Speed sensor, mixing/defoaming clutch sensor	Lid lsensor, Vibration sensor, Speed sensor, mixing/defoaming clutch sensor
Transport Locking Mechanism *3		1 on the bottom and 1 on the rear	1 on the internal rotation body surface and 1 on the rear	1 on the rear	1 on the rear, and 1 on the right inside and 1 on the left inside	1 on the rear, and 1 on the right inside and 1 on the left inside
Others		Equipped with a stroboscope	———	Real-time temperature monitoring function *4 (used with dedicated sensor unit), LED lightstack *4, Emergency stop switch *4, RS485 connector *4, 150 ml container *4, 201 adapter *4, replacement rubber rings *4	———	External communication function
Unit Dimensions		H328 × W250 × D250 (mm)	H390 × W300 × D340 (mm)	H 560 × W460 × D480 (mm)	H692 × W500 × D500 (mm)	H686 × W500 × D500 (mm)
Unit Weight		Approx. 15 kg	Approx. 21 kg	Approx. 70 kg	Approx. 95 kg	Approx. 100 kg
Accessories 1		Instruction Manual × 1 AC cable (including 3P adapter) × 1, ABS container × 3, PP 100 ml disposable container × 10	Instruction 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)	Instruction Manual × 1 AC cable (including 3P adapter)×1, HDPE 300 ml container × 6, PC Management Software for setting Parameter and monitoring materials, USB cable (TypeB) × 1	Instruction Manual × 1 AC cable (including 3P adapter) × 1, HDPE 650 ml container × 2, 550 ml container × 2, 300 ml container × 2, Adapter for 300 ml container × 1 (including 3 types of O-ring (1 each))	Instruction Manual × 1 AC cable (including 3P adapter) × 1, HDPE 650 ml container × 2, 550 ml container × 2, 300 ml container × 2, Adapter for 300 ml container × 1 (including 3 types of O-ring (1 each))
Accessories 2		———	Key to unlock door during power failure (unit rear) × 1	L-shaped wrench (for M6) × 1, Key to unlock door during power failure × 1	Phillips screwdriver × 1, L-shaped wrench large × 1, L-shaped wrench small × 1, Spanner × 1, Hexagon head bolt M16 × 200 (for carrying the unit) × 4	Phillips screwdriver × 1, L-shaped wrench large × 1, L-shaped wrench small × 1, Spanner × 1, Hexagon head bolt M16 × 200 (for carrying the unit) × 4, CD × 1

*1 : Total mass to mount on the cup holder, including materials, containers, and adapters. *2 : Contact us because the actual volume of mixing may vary depending on the containers, materials, and conditions. *3 : Products are shipped and delivered in a locked state. Release the lock before use. *4 : Option † : Please contact THINKY about specification for explosion proof.

Mixer

	Solder Paste Mixer
ARM-310	**SR-500**
 ▶ p.12	 ▶ p.12
Planetary, propeller less mixing	Planetary, propeller-less mixing
Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments
Max 30 min	Max 30 min
10 memories: STD mode: 5 memories with 1 step STEP mode: 5 memories with 5 steps	10 memories: STD mode: 5 memories with 2 steps STEP mode: 5 memories with 5 steps
Revolution: STD mode 2000rpm(fixed) STEP mode 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 0.4 revolution-to-rotation ratio (STD and STEP modes)	Revolution: STD mode (STEP1 1000 rpm fixed, STEP2 500 rpm fixed), STEP mode (0, 200 to 1200 rpm adjustable) Rotation: Approx. 0.33 revolution-to-rotation ratio
————————	————————
310 g	680 g
300 ml resin container	150 ml resin container
Voltage: Single-phase AC120V ± 10%, 50 Hz Power consumption: Approx. 50 VA (standby) Max 900 VA (operation)	Voltage: Single-phase AC 120 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 900 VA (operation)
10 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)
	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor
1 on the internal rotation body surface and 1 on the rear	1 on the internal rotation body surface and 1 on the rear
————————	————————
H390 × W300 × D340 (mm)	H390 × W300 × D340 (mm)
Approx. 21 kg	Approx. 18 kg
Instruction 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)	Instruction 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
Key to unlock door during power failure (unit rear) × 1	1 metal fitting is attached to the unit rear to release the lid lock, in case of power failure.

Product appearance/specifications may change without notice.

Product Specification List / THINKY MIXER Vacuum type / High Specific Gr

		Planetary Centrifugal Mixers THINKY MIXER (Vacuum type)				
Model		ARV-310P †	ARV-501	ARV-931TWIN	ARV-5000 †	ARV-3000TWIN †
		 ▶ p.13	 ▶ p.13	 ▶ p.14	 ▶ p.14	 ▶ p.15
System		Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing
Operation Time Setting		Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 1 s to 30 min in 1 s increments	Timer setting range: 1 s to 30 min in 1 s increments
Continuous Operation Time		Max 30 min	Max 30 min	Max 30 min	Max 30 min	Max 30 min
Programming Function		20 memories with 5 steps	20 memories with 10 steps	20 memories with 10 steps	10 memories with 10 steps	20 memories with 10 steps
Revolution/ Rotation Speed (rpm)	Mixing Mode	Revolution: 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 0.5 revolution-to-rotation ratio	Revolution: 0, 400 to 1500 rpm (adjustable) Rotation: Approx. 0.58 revolution-to-rotation ratio	Revolution: 0, 200 to 1400 rpm (adjustable) Rotation: Approx. 0.5 revolution-to-rotation ratio	Revolution: 0, 200 to 800 rpm (adjustable) Rotation: Approx. 0.75 revolution-to-rotation ratio	Revolution: 0, 200 to 800 rpm (adjustable) Rotation: Differs depending on gear ratio
	Defoaming Mode	———	Revolution: 0, 400 to 2000 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio	Revolution: 0, 200 to 1800 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio	———	———
Maximum Capacity *1		310 g	700 g	930 g × 2	5 kg	5 kg × 2
Standard Container *2		300 ml resin container	550 ml resin container	750 ml resin container	4 liter resin container	Specially designed SUS containers / 4 liter resin containers
Vacuum System		Rotation section vacuum chamber system	Vacuum system within container holder	Vacuum system within cup holder	Vacuum system within container holder	Vacuum system within container holder
Ultimate Vacuum		0.67 kPa	0.67 kPa	0.60 kPa	0.67 kPa	0.1 kPa
Vacuum Trap Connection		Connectable*4	Ask to THINKY	Ask to THINKY	Connectable*4	Ask to THINKY
Vacuum Pump Capability		Pump capacity: 100 liters/minute	Pump capacity: 100 liters/minute	Pump capacity: 100 liters/minute	Pump capacity: 100 liters/minute	Pump capacity: 200 liters/minute
Power Supply		Voltage: Single-phase AC 100 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 1200 VA (operation)	Voltage: Single-phase AC 200 to 240 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 2000 VA (operation)	Voltage: Three-phase AC200V±10%, 50/60 Hz Power consumption: Approx. 120 VA (standby) Max 4400 VA (operation)	Voltage: Three-phase AC 200 V ± 10 %, 50/60 Hz Power consumption: Approx. 35 VA (standby) Max 4500 VA (operation)	Voltage: Three-phase AC 200 V ± 10 %, 50/60 Hz 30 A Power consumption: Approx. 138.6 VA (standby) Max 10.4 kVA (operation)
Operating Environment		10 to 35 ℃, 35 to 85% RH (without condensation)	10 to 35 ℃, 35 to 80% RH (without condensation)	10 to 35 ℃, 35 to 85% RH (without condensation)	10 to 35 ℃, 35 to 85% RH (without condensation)	5 to 35 ℃, 35 to 85 % RH (without 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, Lid sensor, Vibration sensor, Speed sensor	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor
Transport Locking Mechanism *3		1 on the unit front and 1 on the rear	1 on the rear, and 1 on the right inside and 1 on the left inside	1 on the right inside and 1 on the left inside	1 on the right inside and 1 on the left inside	Depending on specifications
Others		External communication function	Stand with Built-in Vacuum Pump*4 *5 External communication function	External communication function	External communication function*4	External remote operation available*4
Unit Dimensions		H450 × W555 × D645 (mm)	H815 × W500 × D595 (mm)	H900 × W660 × D670 (mm)	H1650 × W1050 × D925 (mm)	H1600 × W1330 × D1015 (mm)
Unit Weight		Approx. 90 kg	Approx. 100 kg	Approx. 240 kg	Approx. 500 kg	Approx. 800 kg
Accessories 1		Instruction 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)	Instruction Manual × 1, Power cable × 1, HDPE 550 ml container × 3 (Inner lid without hole × 1, Outer lid without hole × 1, Inner lid with hole × 2, and Outer lid with hole × 2), Vacuum tube × 1 pair, Vacuum-line × 1	Instruction Manual × 1, Communication Specifications Manual × 1, Power cable × 1, HDPE 750 ml container × 6 (O-ring × 4, Inner lid without hole × 2, Inner lid with hole × 4, and Outer lid with hole × 6) 550 ml container × 6 (Adapter × 2) Silicon Sheet × 4,Holder Adapter×1	Instruction Manual × 1, Power cable × 1, Vacuum tube × 1 pair	Instruction Manual × 1, Power cable × 1, Containers and others: Depending on specifications
Accessories 2		Box wrench × 1, Hexagon wrench × 2, Vacuum pump oil, Waste oil receiver × 1, Funnel × 1, CD × 1	Phillips screwdriver × 1, Hexagon wrench large × 1, Hexagon wrench small × 1, Spanner large × 1, Spanner small × 1, Waste oil receiver × 1, Funnel × 1, CD × 1	Phillips screwdriver × 1, Hexagon wrench × 1, Bolt × 2, Vacuum pump oil, Waste oil receiver × 1, Funnel ×1, CD × 1	Vacuum pump oil	Vacuum pump oil

∗1 : Total mass to mount on the cup holder, including materials, containers, and adapters. ∗2 : Contact us because the actual volume of mixing may vary depending on the containers, materials, and conditions.
∗3 : Products are shipped and delivered in a locked state. Release the lock before use. ∗4 : Option ∗5 : The voltage of the PU-501 (Stand with Built-in Vacuum Pump) is single-phase AC200±10%. † : Please contact THINKY about specification for explosion proof.

avity Material Mixer (Vacuum type) / Vacuum Syringe Chargers

	THINKY MIXER (Vacuum LED type)
ARV-10kTWIN†	**ARV-310LED**
 ▶ p.15	 ▶ p.16
Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing
Timer setting range: 1 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments
Max 30 min	Max 30 min
20 memories with 20 steps	9 memories with 5 steps
Revolution: 200 to 800 rpm Rotation: 0 to 350 rpm (Rotation RPM ≤ Revolution RPM)	Revolution: 0, 200 to 1200 rpm (adjustable) Rotation: Mainly optimized for mixing, dispersing and defoaming the LED materials
———	———
14.5 kg × 2	310 g
Specially designed 10 liter SUS containers	300 ml resin container
Vacuum system within container holder	Rotation section vacuum chamber system
0.1 kPa	0.67 kPa
Ask to THINKY	Connectable*4
Pump capacity: 200 liters/minute	Pump capacity: 100 liters/minute
Voltage: Three-phase AC 200 V ± 10 %, 50/60 Hz 100 A Power consumption: Approx. 100 VA (standby) Max 30 kVA (operation)	Voltage: Single-phase AC 100 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 1200 VA (operation)
5 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)
Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor
Depending on specifications	1 on the unit front and 1 on the rear
———	———
H1280 × W1900 × D1370 (mm)	H450 × W555 × D645 (mm)
Approx. 1500 kg	Approx. 90 kg
Instruction Manual × 1, Power cable × 1, Standard container: SUS container × 2, Others: Depending on specifications	Instruction 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)
Vacuum pump oil	Box wrench×1, Hexagon wrench×2, Vacuum pump oil, Waste oil receiver × 1, Funnel × 1

	Vacuum Syringe chargers	
Model	**ARC-40H**	**ARC-600TWIN**
	 ▶ p.17	 ▶ p.17
System	Manual Operation	Automatic Operation
Syringe Manufacturers	Nordson Corp. (EFD), Musashi Engineering, Inc., and other manufacturers◆1)	Supports syringes depending on specifications
Syringe Volume	3ml, 5ml 10ml◆2)	30 ml to 120 ml (Standard: 60 ml)◆4) (Customizable)
Standard Container	Specially designed containers 300 ml	Specially designed SUS containers (Customizable)
Max Processing	Simultaneous filling of four 10 ml syringes * Consult us for 20, 30, and 50 ml syringes. We will provide customization	Customizable
Number of Syringes per Process	1 to 4 syringes (Joint stopper used)	Simultaneous filling of 16 syringes◆4) (Customizable)
Connection with Vacuum Pump	By a 6 mm outer diameter tube (Vacuum pump is sold separately)	Built-in
Syringe Ultimate Vacuum	Depending on vacuum pump capability◆3)	———
Chamber Ultimate Vacuum	———	0.1 kPa or less (no filler)
Vacuum Pump Flow Rate	Depending on vacuum pump capacity	200 liter/minute
Operating Environment	10 to 35 ℃, 35 to 85 % RH (without condensation)	5 to 35 ℃, 35 to 85 % RH (without condensation)
Power Supply	None	Voltage: Three-phase AC 200 V ± 10 %, 50/60 Hz 20A Power consumption: Approx. 138.6 VA (standby) Max 6.9 kVA (operation)
Unit Dimensions	H 550 × W 220 × D 140 (mm) (Up to the handle height)	H2170 × W1125 × D1045 (mm)
Unit Weight	Approx. 7.5 kg	Approx. 650 kg
Accessories	Instruction Manual × 1 Specially designed container 300 ml (Container × 2, Inner lid × 2, Outer lid×2) Vacuum head × 1,Plug × 3 Piston × 2, Syringe cap 3 of each Syringe cap with check valve 3 of each Cleaning container set (Cleaning container × 2, lid × 2, rubber ring × 2)	Depending on specifications

◆1 : Supports syringe made by the 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.
◆4 : The syringe mount will need to be built to custom specifications, so depending on the syringe capacity, it may not be possible to fit 16 syringes in some cases.

Product appearance/specifications may change without notice.

Product Specification List / THINKY MIXER CE CE-certified model

	Planetary Centrifugal Mixers THINKY MIXER (Non-vacuum type)			Solder Paste Mixer	Planetary
Model	ARE-250CE	ARE-500CE	ARM-310CE	SR-500CE	ARV-310PCE
	 ▶ p.9	 ▶ p.11	 ▶ p.12	 ▶ p.12	 ▶ p.13
System	Planetary, propeller-less mixing	Planetary, propeller-less mixing	Planetary, propeller less mixing	Planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing
Operation Time Setting	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments
Continuous Operation Time	Max 30 min	Max 30 min	Max 30 min	Max 30 min	Max 30 min
Programming Function	5 memories with 5 steps	10 memories: STD mode: 5 memories with 1 step STEP mode: 5 memories with 5 steps	10 memories: STD mode: 5 memories with 1 step STEP mode: 5 memories with 5 steps	10 memories: STD mode: 5 memories with 2 steps STEP mode: 5 memories with 5 steps	20 memories with 5 steps
Revolution/ Rotation Speed (rpm) — Mixing Mode	Revolution: STD mode 2000rpm(fixed) STEP mode 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 0.4 revolution-to-rotation ratio (STD and STEP modes)	Revolution: 400 to 1000 rpm (adjustable) Rotation: Approx. 1.0 revolution-to-rotation ratio	Revolution: STD mode 2000rpm(fixed) STEP mode 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 0.4 revolution-to-rotation ratio (STD and STEP modes)	Revolution: STD mode (STEP1 1000 rpm fixed, STEP2 500 rpm fixed), STEP mode (0, 200 to 1200 rpm adjustable) Rotation: Approx. 0.33 revolution-to-rotation ratio	Revolution: 0, 200 to 2000 rpm (adjustable) Rotation: Approx. 0.5 revolution-to-rotation ratio
Revolution/ Rotation Speed (rpm) — Defoaming Mode	Revolution: STD mode 2200 rpm (fixed) STEP mode 0, 400 to 2200 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio (STD and STEP modes)	Revolution: 400 to 2000 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio	———	———	———
Maximum Capacity *1	310 g	1100 g	310 g	680 g	310 g
Standard Container *2	300 ml resin container	650 ml resin container	300 ml resin container	150 ml resin container	300 ml resin container
Vacuum System	———	———	———	———	Rotation section vacuum chamber system
Ultimate Vacuum	———	———	———	———	0.67 kPa
Vacuum Trap Connection	———	———	———	———	Connectable*4
Vacuum Pump Capability	———	———	———	———	Pump capacity: 100 liters/minute
Power Supply	Voltage: Single-phase AC 230 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 900 VA (operation)	Voltage: Single-phase AC 230 V ± 10 %, 50 Hz Power consumption: Approx. 50 VA (standby) Max 920 VA (operation)	Voltage: Single-phase AC230V ± 10%, 50 Hz Power consumption: Approx. 50 VA (standby) Max 900 VA (operation)	Voltage: Single-phase AC 230 V ± 10 %, 50 Hz Power consumption: Approx. 50 VA (standby) Max 920 VA (operation)	Voltage: Single-phase AC 230 V ± 10 %, 50 Hz Power consumption: Approx. 50 VA (standby) Max 1035 VA (operation)
Operating Environment	5 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)	10 to 35 ℃, 35 to 85% RH (without condensation)
Safety Mechanism	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor	Lid lsensor, Vibration sensor, Speed sensor, mixing/defoaming clutch sensor		Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor
Transport Locking Mechanism *3	1 on the bottom and 1 on the rear	1 on the rear, and 1 on the right inside and 1 on the left inside	1 on the internal rotation body surface and 1 on the rear	1 on the internal rotation body surface and 1 on the rear	1 on the unit front and 1 on the rear
Others	———	———	———	———	External communication function
Unit Dimensions	H380 × W300 × D315 (mm)	H700 × W500 × D630 (mm)	H390 × W300 × D340 (mm)	H390 × W300 × D340 (mm)	H450 × W555 × D645 (mm)
Unit Weight	Approx. 22 kg	Approx. 100 kg	Approx. 21 kg	Approx. 18 kg	Approx. 90 kg
Accessories 1	Instruction 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)	Instruction Manual × 1 AC cable (including 3P adapter) × 1, HDPE 650 ml container × 2, 550 ml container × 2, 300 ml container × 2, Adapter for 300 ml container × 1 (including 3 types of O-ring (1 each))	Instruction 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)	Instruction 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	Instruction 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)
Accessories 2	———	Phillips screw driver × 1, L-shaped wrench large × 1, L-shaped wrench small × 1, Hexagon head bolt M16 × 200 (for carrying the unit) × 4	Key to unlock door during power failure (unit rear) × 1	Key to unlock door during power failure (unit rear) × 1	Box wrench × 1, Hexagon wrench × 2, Vacuum pump oil, Waste oil receiver × 1, Funnel × 1, CD × 1

∗1 : Total mass to mount on the cup holder, including materials, containers, and adapters. ∗2 : Contact us because the actual volume of mixing may vary depending on the containers, materials, and conditions.
∗3 : Products are shipped and delivered in a locked state. Release the lock before use. ∗4 : Option ∗5 : The voltage of the PU-501CE (Stand with Built-in Vacuum Pump) is single-phase AC200±10%.

Centrifugal Mixers THINKY MIXER (Vacuum type)

ARV-501CE	ARV-931TWINCE	ARV-5000CE	ARV-10kTWINCE
 ▶ p.13	 ▶ p.14	 ▶ p.14	 ▶ p.15
Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing	Vacuum-type, planetary, propeller-less mixing
Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 0 s to 30 min in 1 s increments	Timer setting range: 1 s to 30 min in 1 s increments	Timer setting range: 1 s to 10 min in 1 s increments
Max 30 min	Max 30 min	Max 30 min	Max 10 min
20 memories with 10 steps	20 memories with 10 steps	10 memories with 10 steps	20 memories with 20 steps
Revolution: 0, 400 to 1500 rpm (adjustable) Rotation: Approx. 0.58 revolution-to-rotation ratio	Revolution: 0, 200 to 1400 rpm (adjustable) Rotation: Approx. 0.5 revolution-to-rotation ratio	Revolution: 0, 200 to 800 rpm (adjustable) Rotation: Approx. 0.75 revolution-to-rotation ratio	Revolution: 200 to 800 rpm Rotation: 0 to 350 rpm (Rotation ≤ Revolution)
Revolution: 0, 400 to 2000 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio	Revolution: 0, 200 to 1800 rpm (adjustable) Rotation: Approx. 0.03 revolution-to-rotation ratio	———	———
700 g	930 g × 2	5 kg	10 kg × 2
550 ml resin container	750 ml resin containers	4 liter resin container	Specially designed 10 liter SUS containers
Vacuum system within container holder	Vacuum system within cup holder	Vacuum system within container holder	Vacuum system within container holder
0.67 kPa	0.60 kPa	0.67 kPa	0.1 kPa
Ask to THINKY	Ask to THINKY	Connectable*4	Ask to THINKY
Pump capacity: 100 liters/minute	Pump capacity: 100 liters/minute	Pump capacity: 100 liters/minute	Pump capacity: 200 liters/minute
Voltage: Single-phase AC 200 to 240 V ± 10 %, 50/60 Hz Power consumption: Approx. 50 VA (standby) Max 2000 VA (operation)	Voltage: Three-phase AC 220 V ± 10 %, 50/60 Hz Power consumption: Approx. 120 VA (standby) Max 4400 VA (operation)	Voltage: Three-phase AC 200 V ± 10 %, 50/60 Hz Power consumption: Approx. 35 VA (standby) Max 4500 VA (operation)	Voltage: Three-phase AC 200 V ± 10 %, 50/60 Hz Power consumption: Approx. 100 VA (standby) Max 30 kVA (operation)
10 to 35 ℃, 35 to 80% RH (without condensation)	10 to 35 ℃, 35 to 85% RH (without condensation)	10 to 35 ℃, 35 to 85% RH (without condensation)	10 to 35 ℃, 35 to 85 % RH (without condensation)
Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Vibration sensor, Speed sensor	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor	Lid locking sensor, Lid sensor, Vibration sensor, Speed sensor
1 on the rear, and 1 on the right inside and 1 on the left inside	1 on the right inside and 1 on the left inside	1 on the right inside and 1 on the left inside	Ask to THINKY
Stand with Built-in Vacuum Pump*4 *5 External communication function	External communication function	External communication function*4	———
H815 × W500 × D601 (mm)	H900 × W660 × D820 (mm)	H1600 × W1000 × D865 (mm)	H1280 × W2033 × D1420 (mm)
Approx. 110 kg	Approx. 240 kg	Approx. 530 kg	Approx. 1500 kg
Instruction Manual × 1, Power cable × 1, HDPE 550 ml container × 3 (Inner lid without hole × 1, Outer lid without hole × 1, Inner lid with hole × 2, and Outer lid with hole × 2), Vacuum tube × 1 pair, Vacuum-line × 1	Instruction Manual × 1, Communication Specifications Manual × 1, Power cable × 1, HDPE 750 ml container × 6 (O-ring × 4, Inner lid without hole × 2, Inner lid with hole × 4, and Outer lid with hole × 6) 550 ml container × 6 (Adapter × 2) Silicon Sheet × 4,Holder Adapter×1	Instruction Manual × 1, Power cable × 1, Vacuum tube × 1 pair	Instruction Manual × 1, Power cable × 1, SUS container × 2
Phillips screwdriver × 1, Hexagon wrench large × 1, Hexagon wrench small × 1, Spanner large × 1, Spanner small × 1, Waste oil receiver × 1, Funnel × 1, CD × 1	Phillips screwdriver × 1, Hexagon wrench × 1, Bolt × 2, Vacuum pump oil, Waste oil receiver × 1, Funnel ×1, CD × 1,Lock Cover+Padlock × 1	Vacuum pump oil	Vacuum pump oil

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THINKY

For requests concerning demonstrations and evaluation testing, please contact THINKY CORPORATION

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or the sales agent below

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