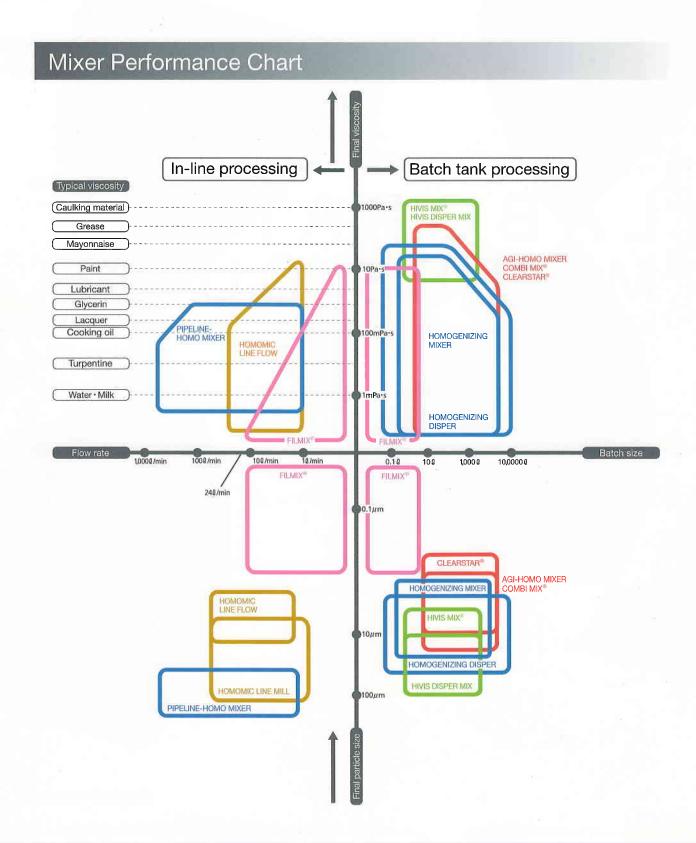


LABORATORY MIXERS GUIDE

State-of-the-Art Mixing Technology

PRIMIX Corporation's technology can be seen in advanced technological applications in many fields, most notably the IT, chemical, pharmaceutical, cosmetics, and food industries, to name a few. PRIMIX contributes to new product development and innovation in the fields of mixing, dispersion, emulsification, pulverization, and kneading with mixers such as the long selling Homogenizing Mixer, a triple-shaft planetary Hivis Disper Mix, and the newest innovation, the Filmix[®]. Furthermore, we have been highly recognized for our experience in scaling-up processes based on test data and mixing theory. PRIMIX promises to continue evolving through the pursuit of the best mixing technology.







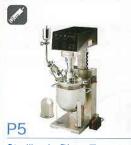






Emulsifier/Disperser









LABOLUTION®

Sterilize-in-Place Type LABOLUTION®

Model 20, Model 40

MARK II Model 2.5

Vacuum Emulsifying Mixer







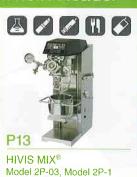




Multi-purpose Vacuum Emulsifying and Dispersing Device



Mixer/Kneader







*The capacity shown in the specifications is that for water. The actual capacity may depend on the material being processed.



At PRIMIX we have many demo R&D models available for use. Please feel free to discuss your mixing challenges with our Customer Relations representatives.













Ultra-High-Speed Multi-Use Mixing System

De Facto Standard of Emulsifiers / Dispersers

Features

- With a maximum speed of 22,000r/min (dependent on mixing head), data can be obtained in a wider domain. Precise data can be obtained for scale-up.
- Uses a feedback system that keeps rotor speed constant despite variations in load.
- Compatible with a wide variety of mixing heads (small-batch, continuous, and vacuum types).
- Standard-equipped with an SD card data-logging system (speed, load, temperature) and temperature sensor.



Applications

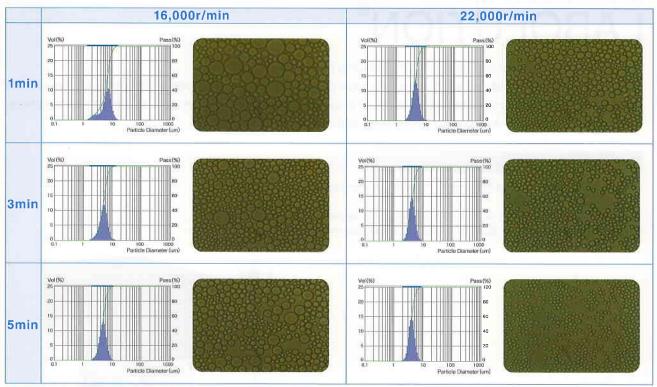
Chemical: silicone oils, waxes, inks, paints, dyes Cosmetic: lotions, creams, rinses, conditioners

Pharmaceutical: intravenous solutions, pill coatings, film coatings, capsule materials

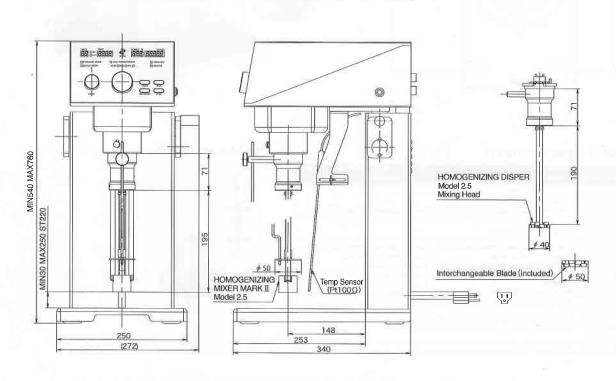
Food: dressings, ice creams, yogurts, coffee creamers

IT: ceramic materials, metallic materials, electronic materials, display materials

Emulsification Performance (Liquid paraffin emulsification test)



Power Supply	AC 95-110V 50/60Hz 1 phase 15A Cable length: 1.5m Plug: Grounded 2P plug (3-prong→2-prong adapter included)	
Motor	0.75kW Speed: 500-22,000r/min	
Mixing Head	HOMOGENIZING MIXER MARK II Model 2.5 Speed: 500-22,000r/min Rotation: Forward, reverse Capacity: 3L Materials: Wetted parts - SUS304 Sleeve bearing - PTFE	HOMOGENIZING DISPER Model 2.5 Speed: 500-10,000r/min Rotation: Forward Capacity: 5L Materials: Wetted parts - SUS316, SUS329J
Control Panel	Display: speed, power, temperature, timer, load Rotation control: adjustable in 100r/min increments	
Approx. Weight	23kg	





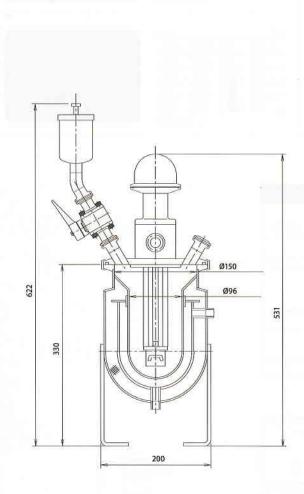
Sterilize-in-Place Type LABOLUTION®

SIP type for research on dosing and investigational drugs.

Since suspensions for sterile products cannot be passed through a sterilization filter, it is imperative that the product be prepared under sterile conditions. For such applications, it is possible to mount a mixing head that can be sterilized inside a high-pressure steam sterilizer.

Features

- Uses a feedback system that keeps rotor speed constant despite variations in load
- Standard-equipped with an SD card data-logging system (speed, load).
- Clean room compatible due to the use of a brushless motor.





Standard Specifications

Power Supply	AC 95-110V 50/60Hz 1 phase 15A Cable length: 1.5m Plug: Grounded 2P plug (3-prong→2-prong adapter included)	
Motor	0.75kW Speed: 500-22,000r/min	
Mixing Head	HOMOGENIZING MIXER MARK II Model 2.5 Speed: 500-22,000r/min Rotation: Forward, reverse Capacity: 3L Materials: Wetted parts - SUS304 Sleeve bearing - PTFE	HOMOGENIZING DISPER Model 2.5 Speed: 500-10,000r/min Rotation: Forward Capacity: 5L Materials: Wetted parts - SUS316, SUS329J
Control Panel	Display: speed, power, temperature, timer, load Rotation control: adjustable in 100r/min increments	
Approx. Weight	23kg	

Mixing Head













High-Speed Emulsifier/Disperser

Interchangeable Mixing Heads, Speed (rpm) Display, Forward / Reverse Switch, Timer

AUTO MIXER Model 20(20L), Model 40(50L)

For research, testing, and product development.

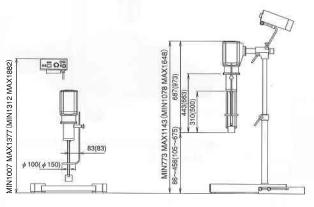
Multi-functional and highly reliable. Rotor/stator construction for high speed mixing. The rotor mixes fluid at 70Pa/s, and can be spun in reverse to efficiently mix in powder materials. Moreover, changing the mixing head to the Homogenizing Disper disperser enables a variety of processes including emulsification, dispersion, and pulverization.

Features

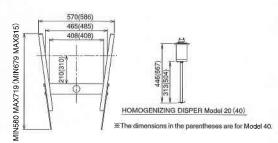
A feedback system ensures constant speed despite changes in viscosity and specific gravity of the material being processed, yielding accurate test data.

• Mixing heads are interchangeable between Homogenizing Mixer Mark II and Homogenizing Disper (option) depending on the purpose of processing.

 The forward and reverse directions can be used in cases such as powder mixing for efficient and uniform emulsification and dispersion.







Mixing Heads

VIVIIXIII g I leads		
HOMOGENIZING MIXER MARK II	HOMOGENIZING DISPER (Option)	PIPELINE-HOMO MIXER (Option)

	Model 20	Model 40	
AC 100 V 50/60 Hz 1 phase Cable length: 1.5m Plug: Grounded 2P plug (3-prong → 2-prong adapter included) Making blood Option		AC 200 V 50/60 Hz 1 phase Cable length: 1.5m Plug: Grounded 3P Iwist-lock, water-resistant rubber cap	
Motor	0.75 kW Speed: 500-9,000r/min Mixing Head Option HOMOGENIZING DISPER Speed: 500-8,000r/min	1.5kW Mixing Head Option Speed: 500-8,000r/min HOMOGENIZING DISPER Speed: 500-7,000r/min	
Materials	Wetted parts - SUS304 Sleeve bearing ^{±1} - CAC502A Baffle plate ^{±2} - PTFE	Wetted parts - SUS304 Sleeve bearing*1 - CAC502A Baffle plate*2 - PTFE	
Control Panel	Instruments: ammeter, tachometer, timer Operation: RPM dial, forward/reverse switch, Mixer/Disper changeover switch, timer start switch, timer set switch changeover switch, timer start switch, timer set switch		
Capacity	20L (recommended vessel: \$\phi 300\text{mm} \times 410\text{mm}\$) 50L (recommended vessel: \$\phi 400\text{mm}\$)		
Approx. Weight	30kg 40kg		

^{*1} Also available in PTFE and SUS304.

^{*2} Also available in SUS304.













High-Speed Emulsifier/Disperser

HOMOGENIZING MIXER MARK II

Model 2.5(3L)

Half a century has passed since the Homogenizing Mixer, the best-selling high-speed emulsifier/disperser, was developed and introduced.

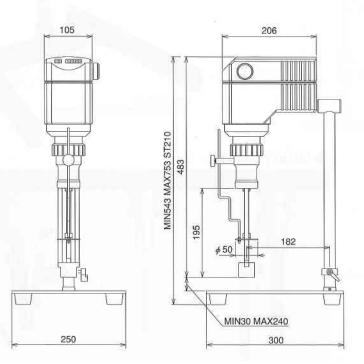
Despite the ever-changing world around it, the Homogenizing Mixer has been used in a variety of industrial fields such as chemicals, pharmaceuticals, cosmetics, and foods. The mixer has earned its well-established and long-standing reputation by achievements in areas such as new product development and product quality improvement.

Features

The mixing head can be removed easily for cleaning.

 The mixing head uses rotor/stator construction for high-speed mixing, emulsification, and dispersion.

 The brushless motor used does not generate dust, reduces noise, and stabilizes rotation speed at low speeds.





Standard Specifications

	Model 2.5*1
Power Supply	AC 100V 50/60Hz 1 phase Cable length: 1.5m Plug: Grounded 2P plug (3-prong → 2-prong adapter included)
Motor	0.2kW Speed: 600-12,000r/min
Materials	Wetted parts: SUS304 Sleeve bearing*2: CAC502A
Control Panel	Instruments: ammeter, tachometer Operation: RPM dial
Capacity	3L (recommended vessel: \$\phi\$145mm\times225mm)
Approx. Weight	12kg

^{*1} The mixing heads of the Homogenizing Mixer Mark II Model 2.5 and Homogenizing Disper Model 2.5 are not interchangeable.

*2 Also available in PTFE and SUS304











High-Speed Disperser

HOMOGENIZING DISPER

Model 2.5(5L)

The Homogenizing Disper is a small scale laboratory unit for uniform dispersion applications. The mixing head can be removed, and the unit can be cleaned with ease.

Features

- High-speed mixing for uniform dispersion, and the mixing blades can be easily interchanged.
- The mixing head can be removed for ease of cleaning.
- The brushless motor used does not generate dust, reduces noise, and stabilizes rotation speed at low speeds.

Mixing Heads

HOMOGENIZING DISPER	Clover Impellers (option)
	Clover impeller blades are collapsible and can be inserted into containers with small openings.

Standard Specifications

Power Supply	AC 100V 50/60Hz 1 phase Cable length: 1.5m [1] Plug: Grounded 2P plug \2/ (3-prong → 2-prong adapter included)
Motor	0.2kW Speed: 600-6,000r/min
Materials	Wetted parts: SUS304, SUS329J1
Control Panel	Instruments: ammeter, tachometer Operation: RPM dial
Capacity	5L
Approx. Weight	12kg

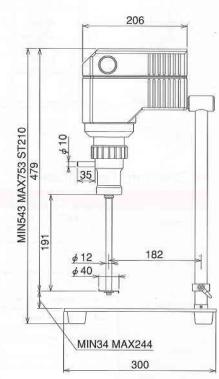
Flow Pattern



The disperser generates strong vortex motion.









Desktop Vacuum Emulsification/Dispersion Machine

AGI-HOMO MIXER Model 2M-03, Model 2M-05, Model 2M-1

The Agi-Homo Mixer is available in three sizes. It is a compact vacuum emulsifying/dispersing device ideal for investigating prescriptions.

Features

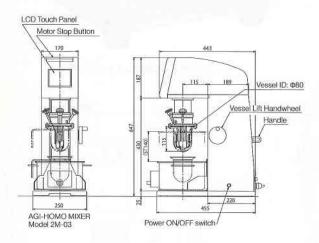
- R&D vacuum emulsifying device for the preparation of viscous creams, ointments, and gels.
- Choose from processing volumes of 300mL, 500mL, and 1L.
- The mixing is performed by two mixing heads: the Homogenizing Mixer and the Paddle Mixer. Both the Homogenizing Mixer and Paddle Mixer can be operated in the forward and reverse directions for more efficient vacuum emulsification.
- The design of the machine and touch panel were renewed to improve ease of operation.
- Data can be logged on an SD card during operation without special software (option).
- A transparent water bath can be used to observe the contents of the vessel during both heating and cooling (option).
- The lift can also be adapted with an electronic drive (option).
- The new construction makes disassembly and cleaning much easier.



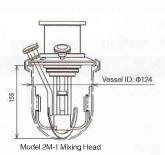
AGI-HOMO MIXER Model 2M-1

Applications

Cosmetics: Basic cosmetics (cream, lotion, sunscreen, foundation, face wash) Pharmaceuticals: Creams, ointments, suppositories, gels, jellies, syrups Food: Dressing, mayonnaise, jams, flour paste, soft capsules







Standard Specifications

	Model 2M-03	Model 2M-05	Model 2M-1
Power Supply	AC 100V 50/60Hz 1 phase Plug: Grounded 2P water-resistant rubber coated cap		cluded 💬
Mixing Head	HOMOGENIZING MIXER MARK II Model 2.5 Motor: 0.22kW Speed: 1,400-12,000r/min Materiai: SUS304 (wetted parts), other Sleeve bearing: PTFE	PADDLE MIXER Motor: 0,12kW Speed: 20-150r/mi	
Control Panel	Display: Speed, vessel temperature, ampo Operation: Run/stop, forward/reverse, time Settings: Speed, timer		
Vessel	Processing capacity: 0.21-0.3L Volume: 0.5L Material: Heat-resistant, hardened glass	Processing capacity: 0.33-0.5L Volume: 0.9L Material: Heat-resistant, hardened glass	Processing capacity: 0,5-1,0L Volume: 1,6L Malerial:Heat-resistant, hardened glass
Annroy Weight		33kg	1



Vacuum Emulsification Machine (for laboratory use)

Mixing Heads are Interchangeable for 2L and 5L sizes.

AGI-HOMO MIXER Model 2M-2, Model 2M-5

A compact laboratory vacuum emulsifying machine with functions required for pharmaceutical and cosmetic research.

Features

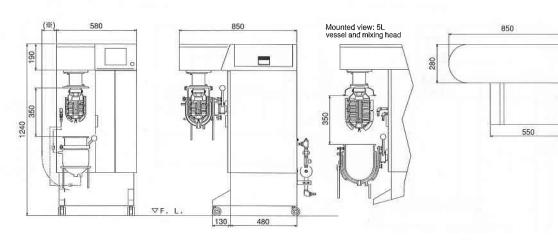
- Very easy to set up: just connect the water and electricity. A vacuum emulsification machine that is all-in-one with a vacuum pump and a water circulation unit.
- The vessel and mixing head (Homogenizing Mixer and Paddle Mixer) can be changed between 2L and 5L sizes.
- The hardened glass vessel can be heated, cooled, and drawn to vacuum. The condition of the product can be observed during mixing.
- The Paddle Mixer is equipped with scrapers that remove material from the inner wall of the vessel to maintain a uniform temperature throughout the mixture.
- Production can be expanded to 10,000L.



▲ AGI-HOMO MIXER Model 2M-2

Applications

Cosmetic: basic cosmetics (creams, milky lotions, lotions), foundations, conditioners, face wash foams, etc. Pharmaceutical: ointments, creams, syrups, suspensions Food: dressings, mayonnaise, jams



	Model 2M-2	Model 2M-5
Power Supply	AC 95-110V 50/60Hz 1 phase 15A Cable length: 3m Plug: Grounded 2P, water-resistant rubber cap, ⊕ 3-prong →2-prong adapter included □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	
Mixing Head	HOMOGENIZING MIXER MARK II Model 2.5 Motor: 0.4kW Speed: 1,000-f2,000r/min Materials: SUS304 (wetted parts) Sleeve bearing: PTFE PADDLE MIXER Motor: 0.4kW Speed: 15-120r/min Materials: SUS304 (wetted parts) Sleeve bearing: PTFE	
Control Panel	Display: Speed, temperature, current, run time, errors Operation: Run/stop, lift up/down, vacuurn pump, constant temp, water bath Settings: Speed, temperature, timer	
Vessel	Processing capacity: 2L Volume: 4L Material: Hardened glass (with jacket)	Processing capacity: 5L Volume: 7L Material: Hardened glass (with jacket)
Data Recorder	Speed, temperature, current	
Internal Devices	Constant temp, water bath, vacuum pump	
Approx. Weight	170kg	





Small-Volume Vacuum Emulsifying Device/System

CLEARSTAR® Model 5

Vacuum emulsifying mixer enabled with circulation outside of the vessel.

Features

- Scalable to mass production.
- Configured with an Anchor Mixer and the newly redesigned Neo Mixer® at the base. This allows for greater shear and finer atomization of material.
- By circulating the material outside of the vessel with the flow generated by the Neo Mixer[®], a uniform mixture can be produced in a shorter period of time.
- Data logging capability through a USB connection.
- Designed for easy disassembly.
- The seals used allow the vessel to be filled completely for cleaning.

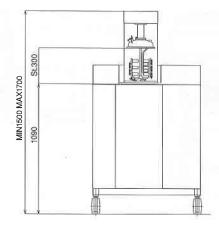


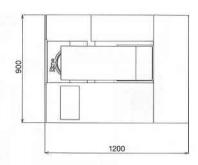
Applications

Pharmaceutical: ointments, gels, eye ointments, suppositories, topical agents, jellies, injection fluids, intravenous fluids, syrup, cream

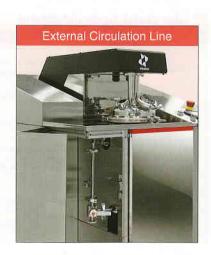
Cosmetic: basic cosmetics (cream, sunscreen, foundation, face wash), hair care products (shampoo, treatments, conditioner), mascara, lipstick, lip cream, toothpaste

Food: mayonnaise, jams, flour paste, dressings, soft capsules, chocolate, soups





Power Supply	AC 200V 50/60Hz 3 phase Power cable: 5m Plug: Grounded 3P, water-resistant rubber cap (§)	
Mixing Head	NEO MIXER® Motor: 5.5kW fully enclosed, fan- cooled, indoor-use Speed: 30m/s Material: SUS316L, SUS329J1	ANCHOR MIXER Motor: 0.4kW fully enclosed, fan-cooled, indoor-use Speed: 3m/s Material: SUS316L Scraper: PTFE
Control Panel	Display: Speed, vessel temperature, current, run time, errors Operation: Run/stop, forward/reverse, timer, lift up/down, vacuum/pressure pump on/off Settings: Speed, timer	
Vessel	Processing capacity: 1.5-5L. Volume: Approx. 8L. Material: SUS316L (wetted parts), SUS304 (jacket)	
Approx. Weight	400kg	













Multi-Purpose Vacuum Emulsifying and Dispersing Device

COMBI MIX® Model 3M-5

By combining different mixing heads, this R&D machine can be used in a wide range of applications from emulsification and dispersion to high viscosity mixing, heating and cooling, and vacuum conditions.

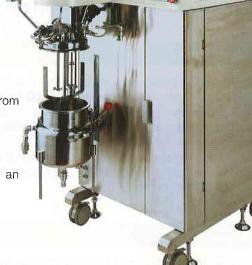
Features

The mixing head is selected based on the material to be processed from the following:

High-speed dispersers: Homogenizing Mixer, Neo Mixer®, etc. Mid-speed dispersers: Homogenizing Disper, Turbine Mixer Low-speed dispersers: Anchor Mixer, Anchor Mixer with Ribbon

EC sensor attachment (option) for catching the inversion point of an inverted emulsification is available.

Actual scale-up experience: up to 10,000L



Applications

Pharmaceutical: photography emulsions, wax, various adhesives, sealing materials,

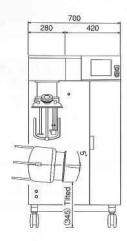
caulking material, inks, paint, dyes

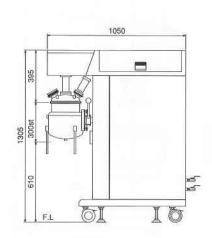
Cosmetic: various creams, toothpaste, lotion, shampoo, lipstick

Pharmaceutical: various ointments, suppositories, poultice

Food: dressing, flour paste

Electronic material: magnetic materials, ceramics, etc.





Power Supply	AC 200V 50/60Hz 3 phase Cable lenght: 5m Plug: Grounded 3P, water-resistant rubber cap (1)		m
Mixing Head	HOMOGENIZING MIXER MARK II 2.5 Motor: 0.4kW Speed: 2,000-12,000r/min Material: SUS304 (wetted parts) Sleeve bearing: CAC502A	HOMOGENIZING DISPER Motor: 0.4kW Speed: 2,000-8,000r/min Material: SUS304 (wetted parts), SUS329J1	ANCHOR MIXER Motor: 0.4kW Speed: 20-200r/min Material: SUS304
Control Panel	Display: Speed, temperature, current, errors Operation: Run/stop, lift up/down, light on/off, vacuum pump on/off Settings: Speed, timer		
Vessel	Processing capacity: 2.5-5L Volume: 8L Material: SUS304 With jacket, insulation panel		
Internal Devices	Vacuum pump		
Approx. Weight	300kg		













Small-Batch Mixer/Kneader

HIVIS MIX® Model 2P-03, Model 2P-1

The blade rotates on its axis while orbiting the vessel, resulting in uniform mixing, kneading and vacuum deaeration.

Features

 Wide variety of uses from mixing of dry powder particle materials to kneading of high-viscosity material of 1,000 Pa·s (1,000,000 cP).

The vessel can be sealed, allowing for mixing in a vacuum. An optional container with jacket makes available quick heating or cooling.

 Contains two twisted blades that move simultaneously on their own axis while orbiting the vessel in a planetary motion, eliminating dead space for highly uniform mixing.

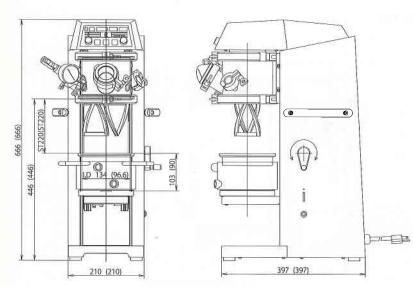
Applications

Chemical: adhesives, putties, caulking materials, inks, ceramics

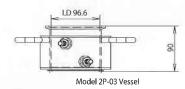
Cosmetic: foundations, face packs, toothpaste

Pharmaceutical: poultice, ointments Food: roux, packaged foods

IT: metal pastes, fluorescent pastes, solder pastes, rechargeable batteries

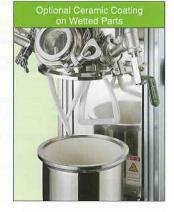






HIVIS MIX Model 2P-1

	Model 2P-03	Model 2P-1
Power Supply	AC 100V 50/60Hz 1 phase Cable length: 1.5m Plug: Grounded 2P plug (3-prong→2-prong adapter included)	
Mixing Head	Motor: 0.22kW Orbital rotation: 8-100r/min Axial rotation: 19-243r/min Mixing head: 2 twisted blades Material: SUS304 (wetted parts)	Motor: 0.22kW Orbital rotation: 8-100r/min Axial rotation: 19-243r/min Mixing head: 2 twisted blades Material: SUS304 (wetted parts)
Control Panel	Instruments: power display, tachometer, temp. indicator, timer Controls: RPM dial, timer adjustment dial, REC button	Instruments: power display, tachometer, temp. indicator, timer Controls: RPM dial, timer adjustment dial, REC buttor
Vessel	Processing capacity: 0.3L Volume: 0.7L	Processing capacity: 1L Volume: 1,4L
Approx. Weight	31kg	35kg













Triple Shaft, Planetary Type Disperser/Kneader/Mixer

HIVIS DISPER MIX Model 3D-5

Makes high-speed dispersion possible during kneading, contributing to the development of next generation products.

Features

- The twisted blade rotates on its axis while orbiting the vessel, creating a uniform temperature within highly viscous materials.
- Compared to the previous flat blade, the twisted blade applies force to the materials vertically for uniform kneading. Furthermore, this blade gradually applies shear to the material, greatly reducing fluctuations in the load to the mixer.
- The ease-of-use has been improved through the use of a touch panel.
- Scale-up experience: up to 1,250L.

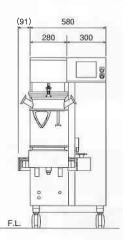


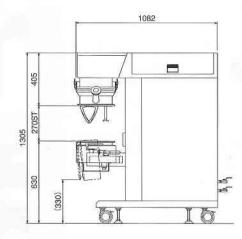
Chemical: inks, ceramic materials, ferrites, magnetic materials, epoxy resins,

cultured marble, adhesives

Cosmetic: foundations, packs, makeup Pharmaceutical: ointments, poultices Food: roux, packaged foods

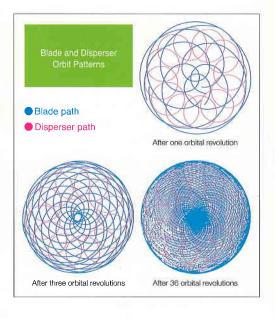
IT: capacitors, rechargeable batteries, solder pastes, semiconductors



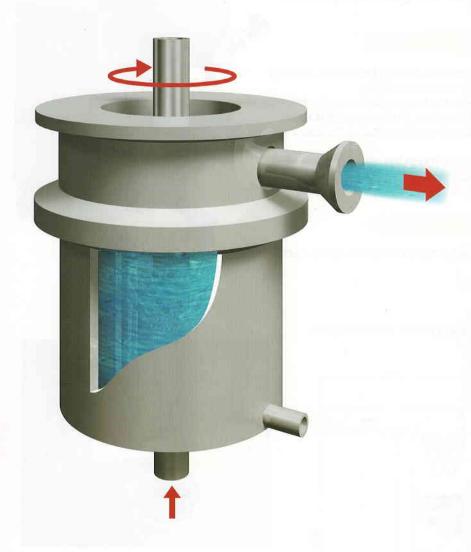




Power Supply	AC 200V 50/60Hz 3 phase Cable length: 5m Plug: Grounded 3P water-resistant rubber cap	
Mixing Head	PLANETARY MIXER Motor: 1.5kW Orbital rotation: 5-75r/min Axial rotation: 12-187r/min Material: SUS304 (wetted parts)	HOMOGENIZING DISPER Motor: 0.4kW Orbital rotation: 5-75r/min Axial rotation: 1,200-(7,500)r/min Material: SUS304 (wetted parts)
Control Panel	Display: Speed, temperature, current, run time, errors Controls: Run/stop, lift up/down, light on/off, vacuum pump on/off Settings: Speed, timer	
Vessel	Processing capacity: 3.5L-5L With jacket Volume: 6L	
Internal Devices	Vacuum pump	
Approx. Weight	340kg	



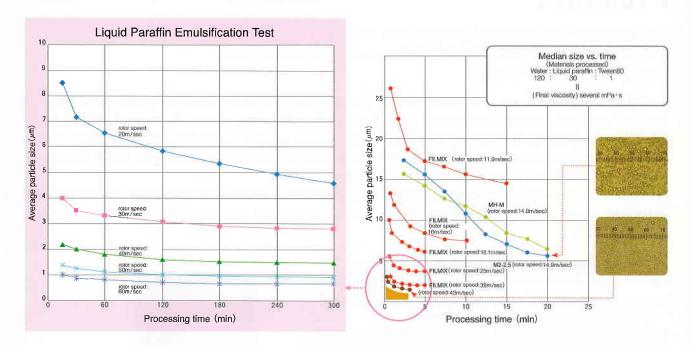
FILMIX® has shattered conventional wisdom in mixing, giving rise to totally new technologies.



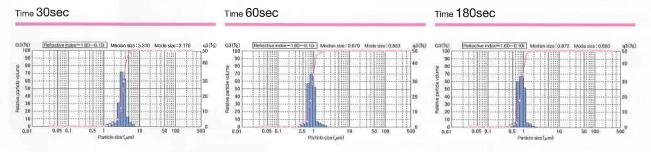


FILMIX® Data Sheet

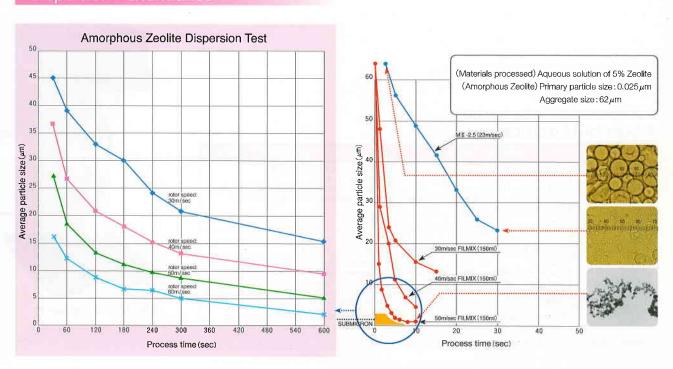
Emulsification Performance



Sharp particle size distribution (Model 80-50, ϕ 76 wire, 18mm film thickness)



Dispersion Performance













High-Speed Thin-Film Mixer

FILMIX®

The machine that shattered conventional mixer logic. The innovations in Filmix® represent a complete departure from mixing methods of the past.

The FILMIX® achieves sharp particle size distribution curves unattainable by previous high-speed mixers through its use of the thin-film circulation principle. When the cylindrical PC wheel spins at high speed, the liquid material forms a thin film along the sides of the vessel. This process used in the FILMIX® imparts significant shear stresses to the material between the stationary vessel and the thin film spinning around the wheel, dispersing the droplets and particles of the material into extremely fine constituents.

Furthermore, the division of flow into upper and lower parts at the vessel wall and the flow of material spinning with the PC wheel creates an intricate, turbulent flow, achieving uniform dispersions in very short periods of time.

- Can be used for particle engineering (particle reduction to the nano-scale, particle size distribution alignment).
- Able to break apart secondary particles in a matter of seconds.
- Dispersion without damaging crystals or breaking macromolecules.
- Instant, uniform dispersion.
- Prevents reagglomeration of dispersed particles.
- Emulsification without the need of emulsifying agents.

Chemical: inks, toners, resins, coating materials

Cosmetic: basic cosmetics (creams, milky lotions, lotions) Pharmaceutical: DDS medication, liposome, lipid emulsions

Food: seasonings, additives

IT: ceramic materials, metallic materials, electronic materials,

display materials



FILMIX®Model 40-40

Standard Specifications

	Model 30-30	Model 40-40
Power Supply	AC 95-110V 50/60Hz 1 phase 15A Cable length: 1.5m Plug: Grounded 2P plug (3-prong → 2-prong adapter included) Power rating: 750W	AC 200V 50/60Hz 1 phase 15A Cable length: 1.5m Plug: Grounded 3P 250V 20A Twist-lock plug Current rating: 6A* at 30m/s, 4.5A at 40m/s
Motor	0.75kW	0.75kW
Speed	0.7-29.9m/s	5-40m/s
Materials	SiC (weir, inner vessel), Zirconia (PC Wheel)	Wetted parts: SUS304
Control Panel	Controller 7 Segment LED Display: Temp., power output, load, speed, timer Speed adjustment: Increments of 100r/min Data logging device: SD card	Separate Control Unit 7 Segment LED Display: Temp., current, speed, run time (countdown) Operation: Run/stop, speed/run time adjustment die Data logging device: SD card
Vessel	Processing Capacity: 7-13mL Volume: 20mL With jacket	Processing Capacity: 15-30mL Volume: 47mL With jacket
Approx. Weight	Main Unit: 23kg Mixing Head: 1.3kg	Main Unit: 18.5kg Control Unit: 5.5kg
Dimensions	W250 x D340 x H540mm	W250 x D300 x H500mm



Photo not to scale



PRIMIX Corporation http://www.primix.jp

Headquarters Osaka Plant

8-16-43 Ebie Fukushima-ku Osaka 553-0001 Japan Tel:+81-6-6458-7531 Fax:+81-6-6458-7850

Saitama Branch Office Saitama Plant

2-8-40 Yoshino-dai Kawagoe-shi Saitama 350-0833 Japan

Tel:+81-49-223-1621 Fax:+81-49-225-0189

Tokyo Branch Office

3-16-4 Shibaura Minato-ku Tokyo 108-0023 Japan Tel:+81-3-3455-6011 Fax:+81-3-3455-6071

Nagoya Branch Office

2-9-16 Sakae Naka-ku Nagoya-shi Aichi 460-008 Japan Tel:+81-52-253-6261 Fax:+81-52-201-233

Osaka Branch Office

5-6-16 Fukushima Fukushima-ku Osaka 553-0003 Japan Tel:+81-6-6458-7533 Fax:+81-6-6453-2867

*The specifications, design, etc. contained in this catalog are subject to change without notice.

*The product photographs in this catalog are not to scale and should not be used for size comparisons.

