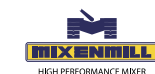


**Energy conservation through
production process improvement
contributes to preventing
global warming.**

**Secure process improvement
and carbon credits with
MIXENMILL System of REVOROX.**

REVOROX believes that the only way for the next generation to be proud is to prevent severe global warming. Therefore, REVOROX strives to improve all systems to achieve more efficient and productive results and are always doing their best in research and development of nano dispersion technology based on these systems.

**Always New,
More Than Expected**



PASSON
HIGH SHEAR MIXER FOR HIGH VISCOSITY

POLIMIX
HIGH SHEAR MIXER WITH POWDER SUCTION

INLINE MIXER
CIRCULATION TYPE MIXER FOR HOMOGENIZING

TANDEM MIXER
POWERFUL DOUBLE HIGH SPEED MIXER

HOMO MIXER
BATCH TYPE MIXER FOR HOMOGENIZING

(주)레보록스 경기도 화성시 향남읍 만년로 151번길 70 증거리 385-1 (우) 18625
REVOROX Inc. 70, Mannyeon-ro 151 beon -gil, Hyangnameup, Hwaseong-si, Gyeonggi-do, Korea

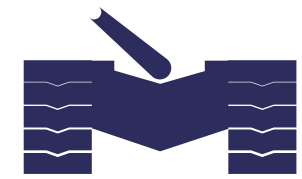
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Ver.202502_ENG



MIXENMILL

믹센밀

**Nanodispersion
Emulsification System**

MIXER FOR LI-ION BATTERY/
ELECTRONIC MATERIAL/CHEMICAL



A company that prioritizes
the preservation of the global
environment through
production process innovation.

**K&S Company,
a specialist in
nano dispersion
emulsification systems,
would like to introduce
themselves to you as
an eco-friendly
company, REVOROX.**



To transform into a more
environmentally friendly company,
K&S Company, a specialist in industrial
nano-mixing process systems,
changed its corporate name to REVOROX,
embodying the philosophy of
'Innovation and Trust'. Starting anew,
REVOROX aims to fulfill our mission
of bestowing a clean Earth to the
next generation by expanding its business
scope to the environmental sector.
With continuous technological innovation
and fervent passion, we will become a
company beloved by our customers.



MIXENMILL is the
family brand of **REVOROX's**
industrial nano dispersion,
emulsification, and milling system

**A powerhouse in industrial nano dispersion
and milling that encompasses not only nano mixing
but also nano crushing –MIXENMILL.**

The key to process-improvement proposed by
MIXENMILL System is an innovative mechanism that can reduce working time
by up to 50% simply by adding one piece of equipment to our existing system.
Break free from cumbersome and inefficient repetitive work with
the powerful MIXENMILL mixing system, which solves the
challenging processes of nano emulsification,
dispersion, milling, and homogenization in an astonishingly short time.
From planning new materials, products, and new processes,
we provide the right solutions to you.

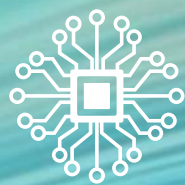
Reducing mixing process time affects not only your company's competitiveness but also ESG management.

APPLICATION AREA

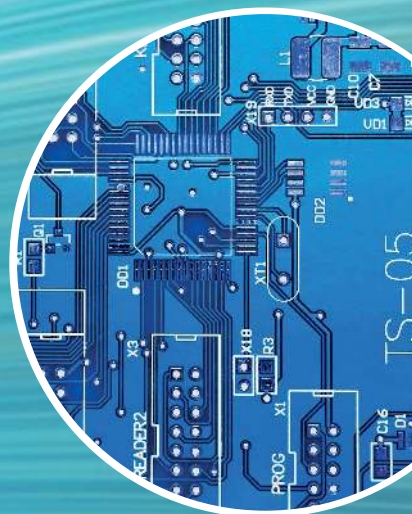
Products
and
Industries



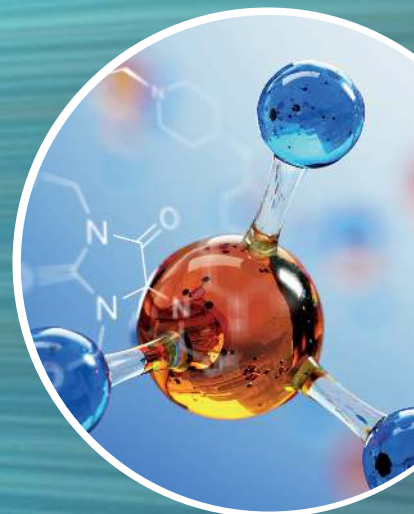
**LI-ION
BATTERY**
Typical applications



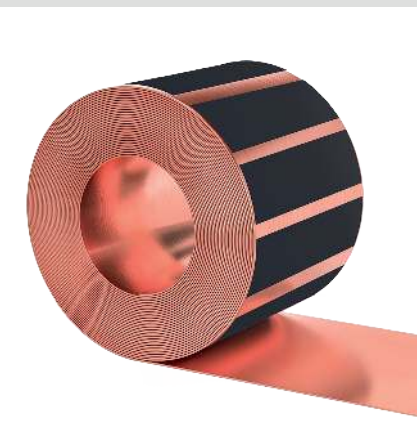
**ELECTRONIC
MATERIAL**
Typical applications



CHEMICAL
Typical applications



**Lithium-ion battery NCM
series cathode material.**
(Active material + Binder
+ Conductive additive)
All cathode materials at once!



**Lithium-ion battery
anode material**
(Active material + Binder
+ Conductive additive)
All anode materials at once!



**Dispersion of new materials
for next-generation
batteries (solid state,
lithium-sulfur, etc.)**
R&D and customized production



**Lithium-ion battery LFP-
based cathode materials**
(Active material + Binder
+ Conductive additive)
All LFP-based materials are treated at once!

Products
and
Industries



LI-ION BATTERY
Typical applications



**Lithium-ion Battery
Separator**
Uniform dispersion of fabric
coating solution.



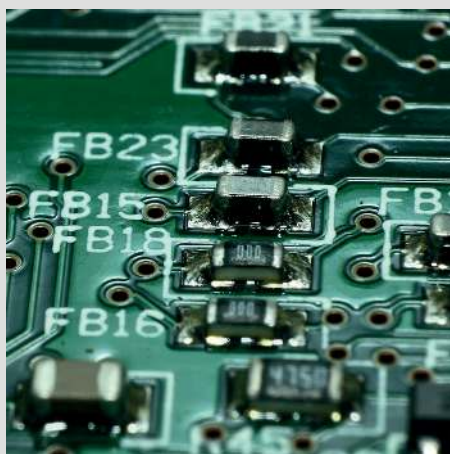
CTN dispersion
Mass production with
uniform dispersion.



**Graphene exfoliation
and coating**
Realization of practical
applications of new materials
with uniform dispersion.



Hydrogen fuel cell
Excellent dispersion of EG
and carbon absorption.



MLCC slurry
Uniform dispersion of finely divided ceramic and metal powders.



Luminescent material for display
homogeneous dispersion of polymer resin and powder.



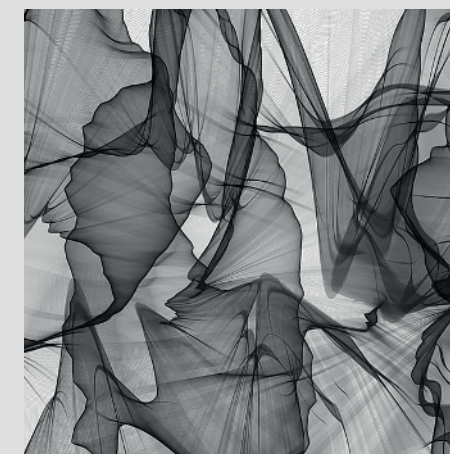
Coating solution for EMI film
Uniform dispersion of electronic materials coating solution.



Bunker fuel oil C dispersion
Dispersion equipment optimized for dispersing or emulsifying high-viscosity bunker fuel oil C.



Manufacturing of CMP pad raw materials
Perfect dispersion of silica and simultaneous transfer to coater.



Graphite dispersion
Control of dispersion level enables production of graphite tailored to specific applications.



Anti-static coating solution
Uniform particles and even dispersion of the coating solution.



Nano carbon & ceramic composite material
Uniform dispersion of nano dispersion liquid



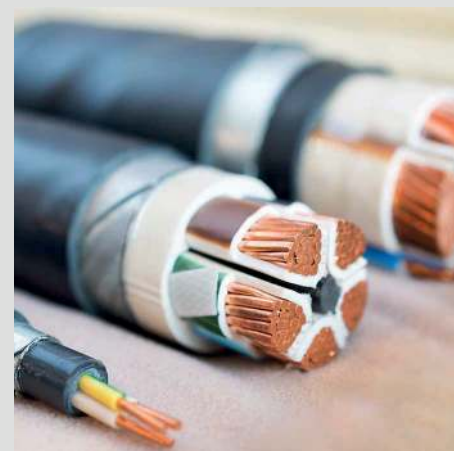
Adhesive, cohesive production
Perfect dispersion of high viscosity substances and additives, and easy cleaning and maintenance.



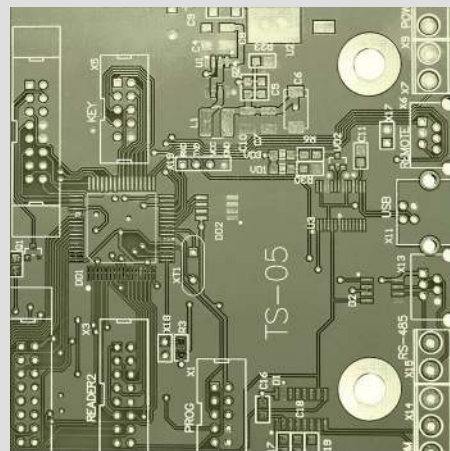
Ceramic powder dispersion
Various sizes and types of ceramic powder can be perfectly dispersed.



Display coating solution (ceramic + binder)
Uniform dispersion of organic beads and solvent.



Nano composite insulation material (ceramic + resin)
Uniform dispersion of resin and ceramic powder.



Ceramic binder for substrates
Rapid dissolution of binder powder.



Paint and ink dispersion
Maximizing the efficiency of the finishing process by dispersing and homogenizing difficult-to-disperse pigments.



Synthetic rubber and fiber production
Synthetic rubber, fiber, which are high in viscosity and difficult to disperse, can be easily produced in bulk.



Coating solution and film manufacturing
Producing final products with smooth and even coating surfaces through perfect dispersion.

MIXENMILL PASSON

고점도하이셰어믹서
High Viscosity High Shear Mixer



A powerful one-pass
performance,
nano dispersion
emulsification
homogenization system
designed for high
viscosity materials.

Products & Industries Typical applications

LI - ION BATTERY

**A new concept and solution for high viscosity
conductive additive paste production process!**

Conductive additives must be well-dispersed to achieve uniform coating and high electrical conductivity. However, graphene exfoliation or the CNT dispersion results in lower production efficiency as viscosity increases over time; dispersion quality decreases as well. MIXENMILL PASSON succeeded in creating high-level dispersion properties with the development of its three-dimensional impeller series and parallel operation and it has been specifically developed to be effective in the graphene exfoliation and dispersion of slurry from nano materials.

Anode material, cathode material paste /
cathode conductive additive (carbon black) /
anode conductive additive (graphene)

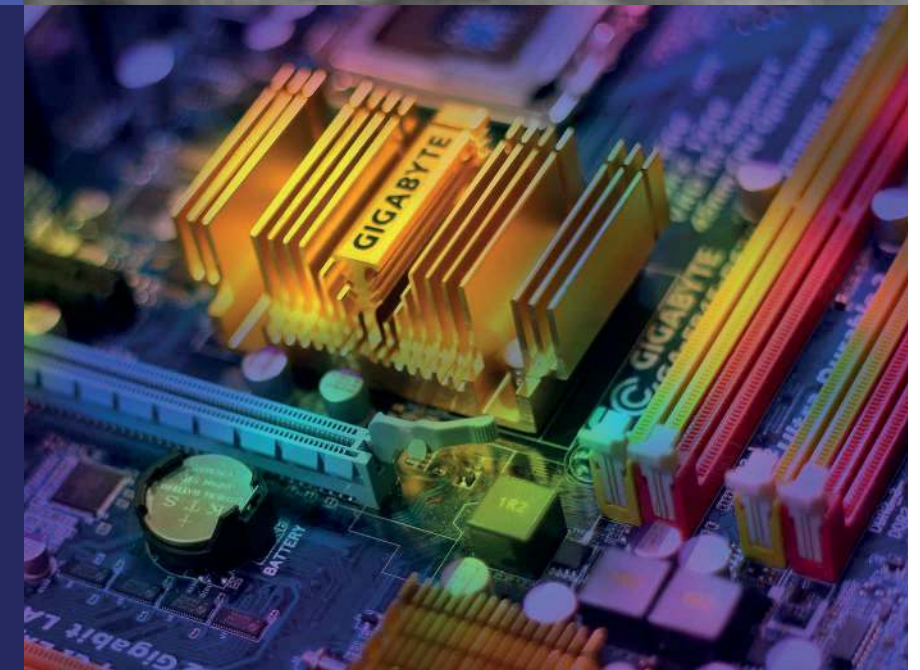


ELECTRONIC MATERIAL

Shielding Coating Solution.

The production of shielding coating solution that disperses metal powders such as copper or nickel in rubber-based materials and solvents is very challenging due to the very high viscosity of the rubber component and the difficulty of dispersing metal powders. Hence, it is not easy to produce high-quality of coating solution. MIXENMILL PASSON's series and parallel operation impeller provides dimensionally different powerful dispersion, which can perfectly handle the homogenization of high viscosity materials and the fast dispersion of metal powders.

High-viscosity resin



CHEMICAL

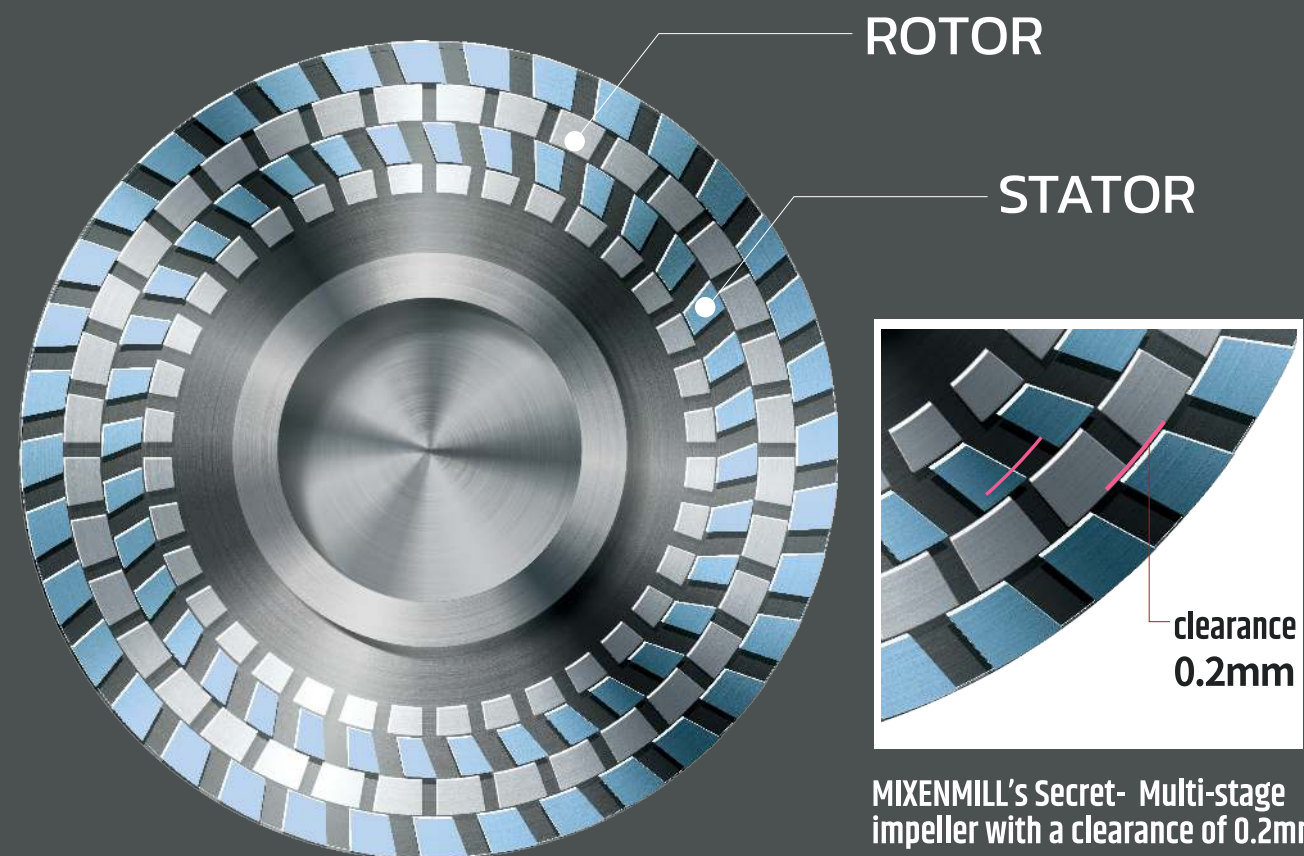
**Perfect high-speed dispersion of powerful
high-viscosity material 'resin'.**

Resin, which is widely used in the manufacturing industry, has high viscosity and is very difficult to process when additives need to be dispersed. Typical mixing resulted in DEAD ZONE in the tank, which caused poor dispersion of additives and resins as well as layer separation, causing many disruptions in production. MIXENMILL PASSON has an incomparable, powerful dispersion force that can cut production time in half.

Petrochemical and rubber dispersion / two-component
dispersion of high viscosity materials / high viscosity
industrial adhesive manufacturing plant / dispersion of
other high viscosity chemicals / strength in dissolution



MIXENMILL **PASSON** Component



ROTOR

STATOR

clearance
0.2mm

MIXENMILL's Secret- Multi-stage impeller with a clearance of 0.2mm.

The secret of amazing shear strength is a gap of 0.2mm. MIXENMILL's PASSON is composed of a rotor and stator formed with fine gaps of 0.2mm stacked in multiple layers. These ROTOR and STATOR allow high viscosity materials transferred into the chamber to be dispersed three-dimensionally (vertical, horizontal) through strong rotation.



Excellent high-shear disperser for high-viscosity materials.

MIXENMILL's PASSON, which demonstrates excellent effects on high-viscosity materials through multi-stage precision dispersion, is a simple one-pass type that can dramatically reduce labor by up to 50%. Discuss your process requirements with us and experience dispersion quality beyond your expectations with MIXENMILL.

MIXENMILL **PASSON** High Viscosity High Shear Mixer

ONE-PASS, BEYOND THE EXPECTED!!

Handling process.



PLANETARY MIXER

Add sample into tank

Premixing
(Planetary mixer)

PASSON

Put it in the PASSON

dispersion inside
the chamber

discharge
of the
final product

transfer of contents through pump

*The process diagram above is for reference only, and the pump and planetary mixer are optional and may be excluded upon actual delivery.



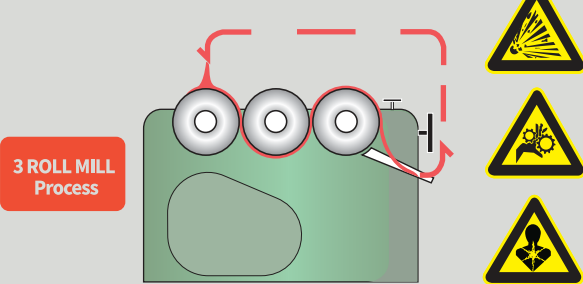
Heat generated by increasing dispersing power is controlled through a cooling jacket.

There are materials that are sensitive to temperature changes depending on the substance being processed. Since PASSON allows the material being processed to pass through the chamber without staying inside, it has a superior cooling effect compared to batch type mixers that trap heat by dispersing materials contained in the tank.

MIXENMILL **PASSON**

Treatment Process

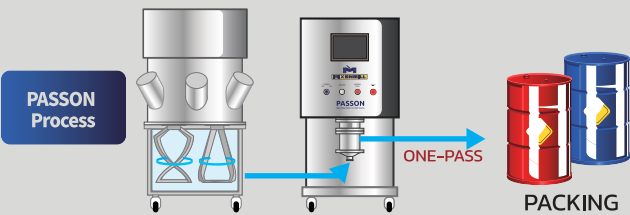
Milling by 3-ROLL MILL



3 ROLL MILL Process

- ①Open structure of operating parts.
 - May result in safety accidents such as getting caught or stuck.
 - Risk of worker safety during handling of hazardous substances.
 - Risk of ignition and explosion from flammable substances.
- ②Manually repeating the processing of the treated product.
- ③Existing limit of mass production

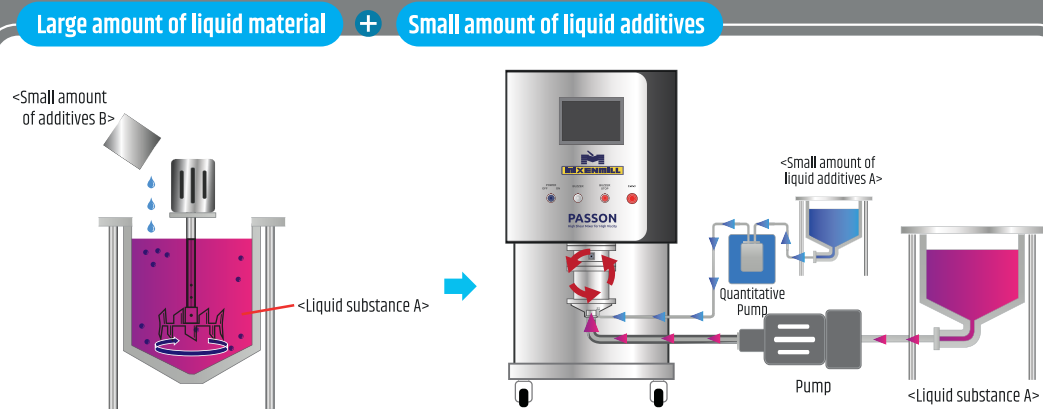
Pre-Mixing & High Shear Mixing by PASSON



PASSON Process

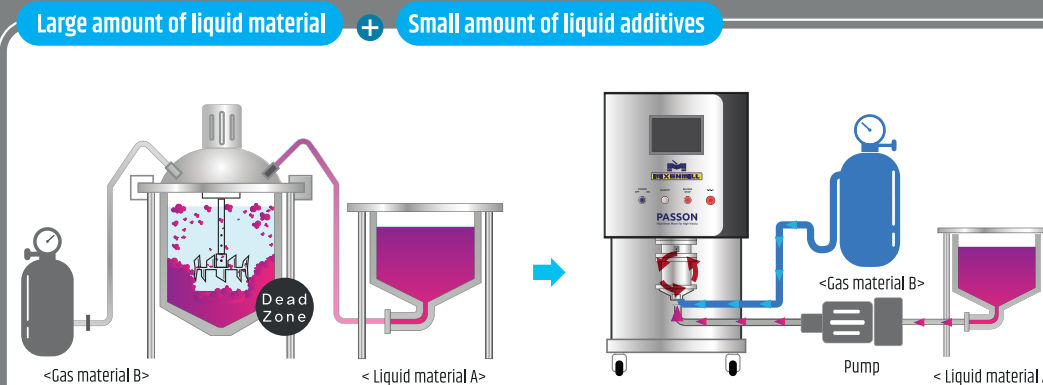
- ①Sealed structure of operating parts.
 - Structure protecting hands from reaching operating (rotating) parts.
 - Enables safe handling of hazardous and flammable substances.
- ②Perfect dispersion is possible with just one-pass.
 - Automatic circulation type dispersion is possible even when circulation type dispersion is required.
- ③Mass production is possible, which dramatically increases production efficiency.

2-component procedure of liquid state substances



- ※ Conventional process : it is very difficult to evenly mix a large amount of liquid feed with small amount of additive.
- ※ PASSON process : A perfect single solution may be obtained by mixing liquid substance and small amountof additives in a quantitative ratio.

2-component procedure of gas state substances



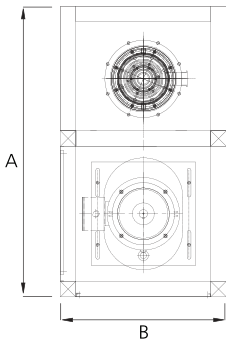
- ※ Conventional process : It is very difficult to react gas materials to the liquid materials as the volume becomes larger.
- ※ PASSON process : A perfect single solution may be obtained by mixing a liquid materials with gas materials in a quantitative ratio. Mixing more than 4 types of materials is possible making it an innovative process.

MIXENMILL **PASSON** High Viscosity High Shear Mixer

Specification

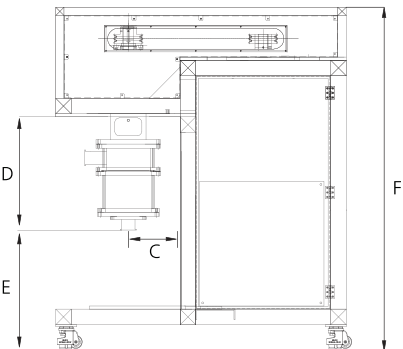
Model	Power	Volum	Speed
PS003	3HP	0.5~1 L/min	0~3,500 rpm
PS010	10HP	5~20 L/min	0~3,500 rpm
PS020	20HP	10~30 L/min	0~3,500 rpm
PS030	30HP	20~70 L/min	0~3,500 rpm
PS040	40HP	30~100 L/min	0~1,750 rpm

- * production volume varies significantly depending on the dispersion efficiency of the PASSON



Size

Model	A	B	C	D	E	F
PS003	580	500	115	407	248.5	1552.5
PS010	1350	765	235	435	562	1425
PS020	1400	800	250	544	583	1528
PS030	1780	1000	385	650	640	2175
PS040	2160	1180	520	784	697	2824



- * Specifications may change depending on configured options.
- * Please contact separately for the above model.

Status of patent and design applications.



Impeller for dispersion emulsifier.



Dispersion emulsifier with cooling system.



One-pass type dispersion / emulsification device.



One-pass type dispersion and emulsification device.



One-pass type dispersion / emulsification device for international patent application.



One-pass type dispersion / emulsification device for Taiwan patent registered.



One-pass type dispersion / emulsification device for China patent registered.



One-pass type dispersion / emulsification device for Japan patent registered.



5 types of impellers for dispersion emulsifier.

MIXENMILL POLIMIX (POWDER+LIQUID+MIXING)

피우더 흡입 분산믹서

High Shear Mixer with Powder Suction



Vacuum type of
nano dispersion
emulsification
machine that
inhales the powder
and disperses
it strongly.

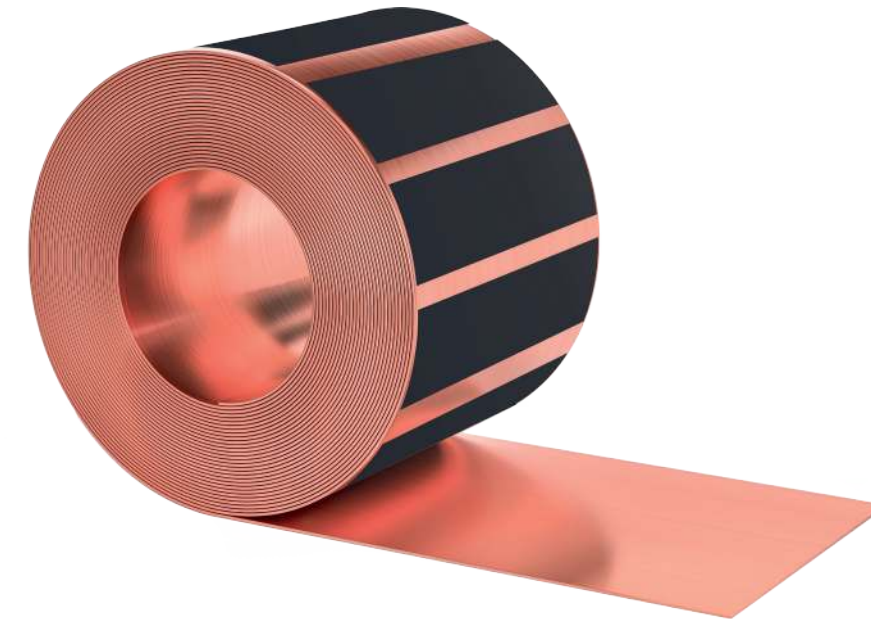
Products & Industries Typical applications

LI-ION BATTERY

Even cathode and anode material binders can be produced quickly and homogeneously in bulk!

In the dissolution process of PVDF or CMC, which is mainly used as a binder for anode and cathode materials, is an important process of quickly and efficiently dissolving low-density powder in liquid. General agitators such as PD mixers, which are often used in conventional processes, take a lot of time because it is difficult to dissolve binder powders that are easily aggregated, and the dissolution quality is not excellent. MIXENMILL POLIMIX vacuums in the thickening agent powder that is difficult to disperse and simultaneously dissolves it in liquid, similar to a vacuum cleaner.

Binder, CMC, PVDF/cathode binder (NMP+PVDF)/cathode active material lithium production/anode binder (water+CMC) /anode active material silicon, silica/ceramic powder for separator.

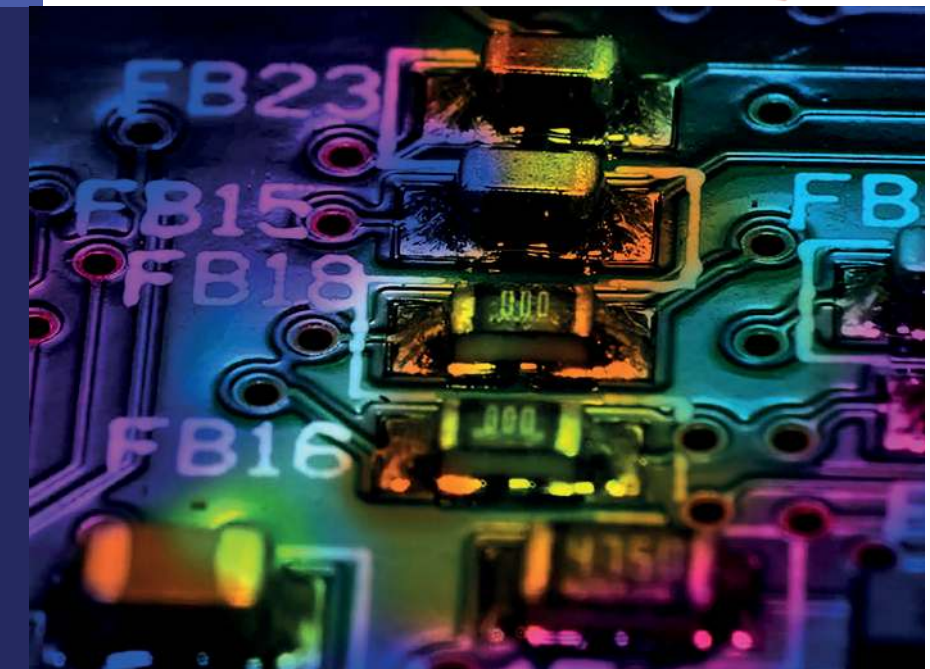


ELECTRONIC MATERIAL

The resolution to shorten the MLCC slurry production process and increase production efficiency!

Conventional MLCC slurry production is mostly done through several stages of processing and dispersion equipment, and production efficiency is greatly reduced due to time-consuming and complex work processes. MIXENMILL POLIMIX dramatically reduces these processes to further enhance your competitiveness.

Suspension thickening agent / PVDF powder in NMP/ Solvent + metal powder + ceramic powder + binder powder



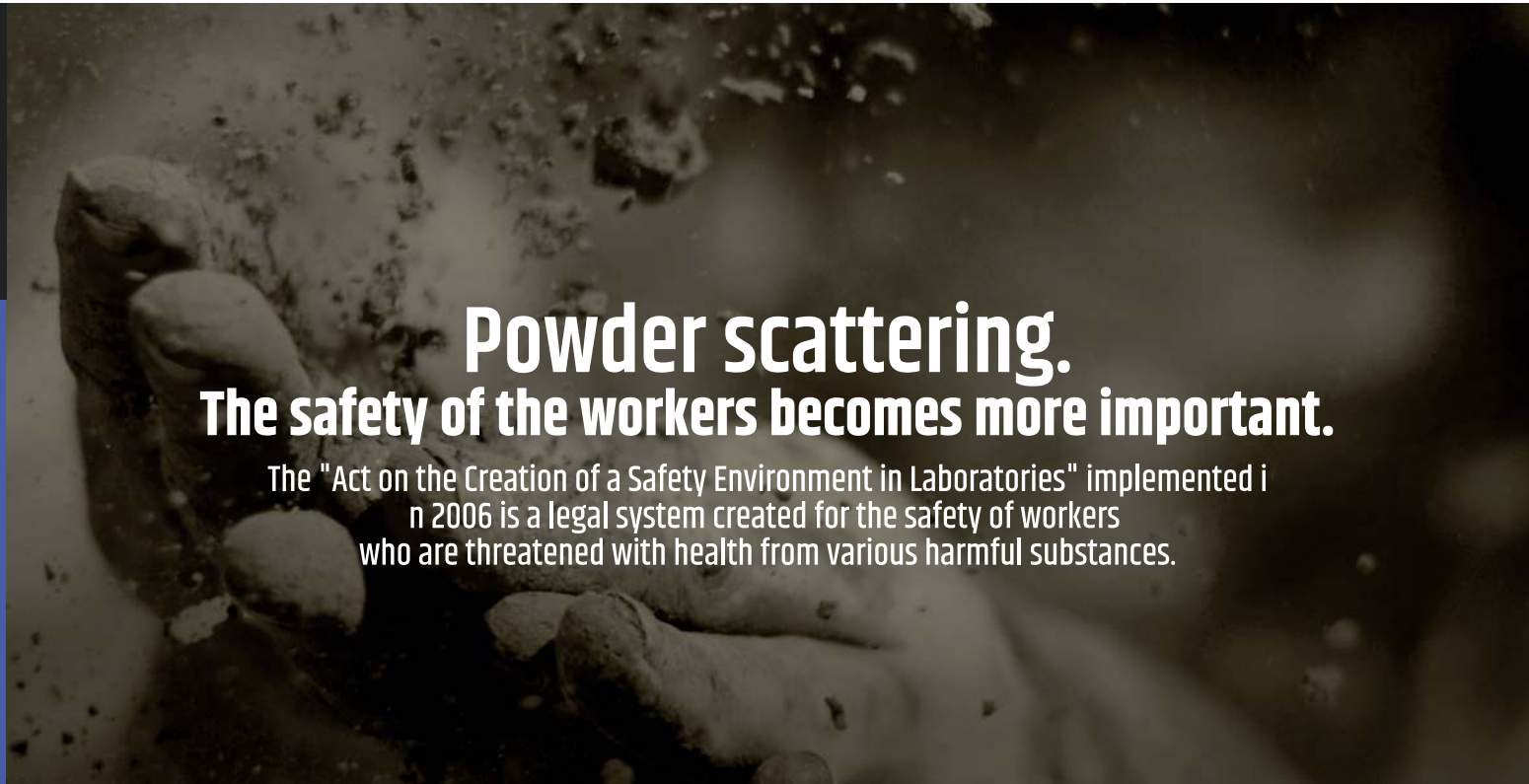
CHEMICAL

No scattering of dust! Fumed silica is also clean and can be completely dispersed quickly!

Fumed silica has various uses, but it is synonymous with lightweight materials and produces a lot of dust when directly injected into liquid, so respiratory protection equipment such as respirators is essential for worker safety. Also, contamination of the workplace is very serious due to scattering dust, so it is difficult to introduce. MIXENMILL POLIMIX vacuums and disperses fumed silica powder, which produces a lot of hazardous dust during injection due to its low weight, similar to a vacuum cleaner, preventing workplace contamination due to hazardous dust.

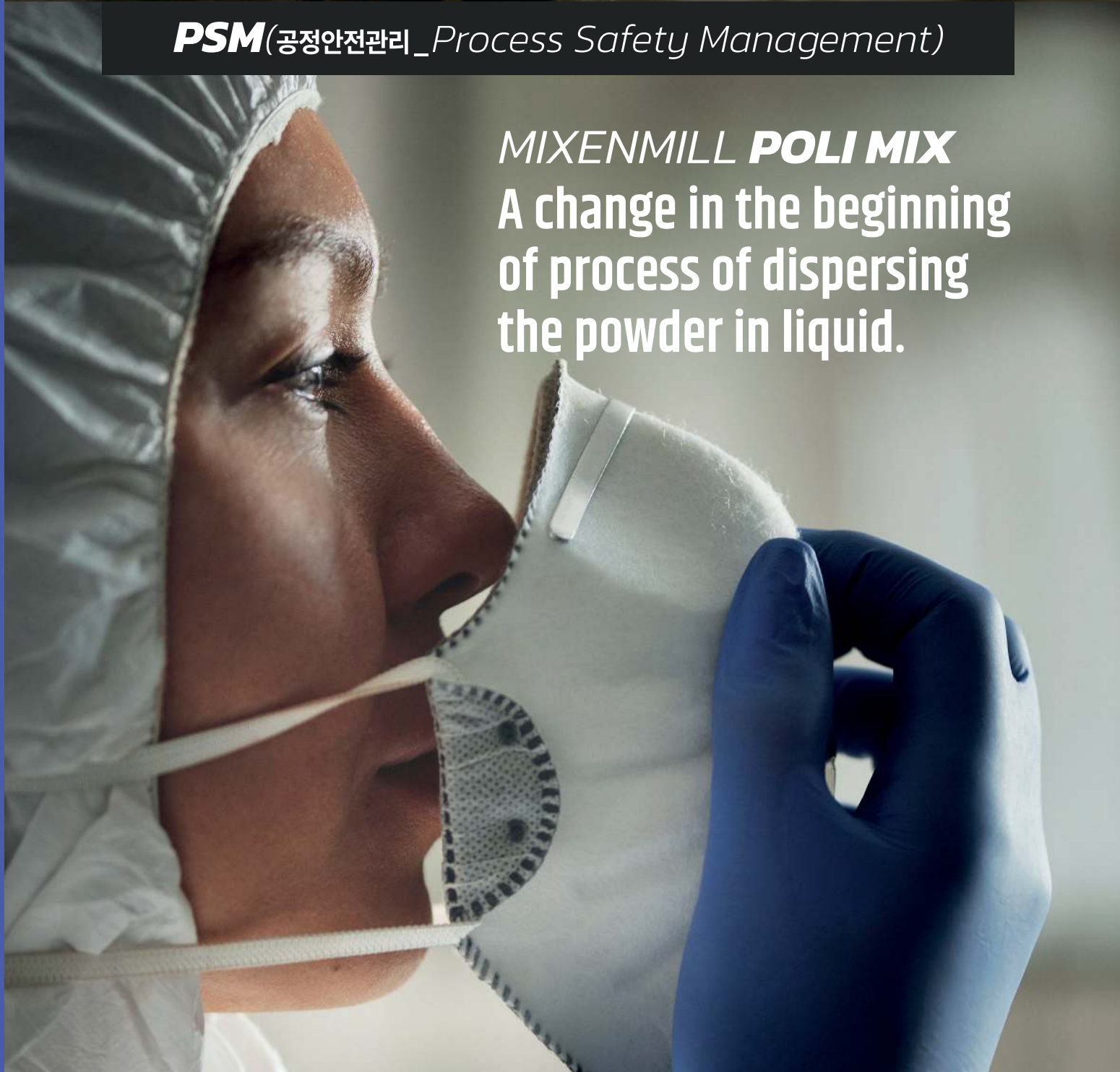
AEROSIL dissolution and dispersion / graphite + water dispersion / dissolution and dispersion of various metal powder chemical / strength in silica-based powder, alumina, zirconia, carbon black powder, etc.





Powder scattering. The safety of the workers becomes more important.

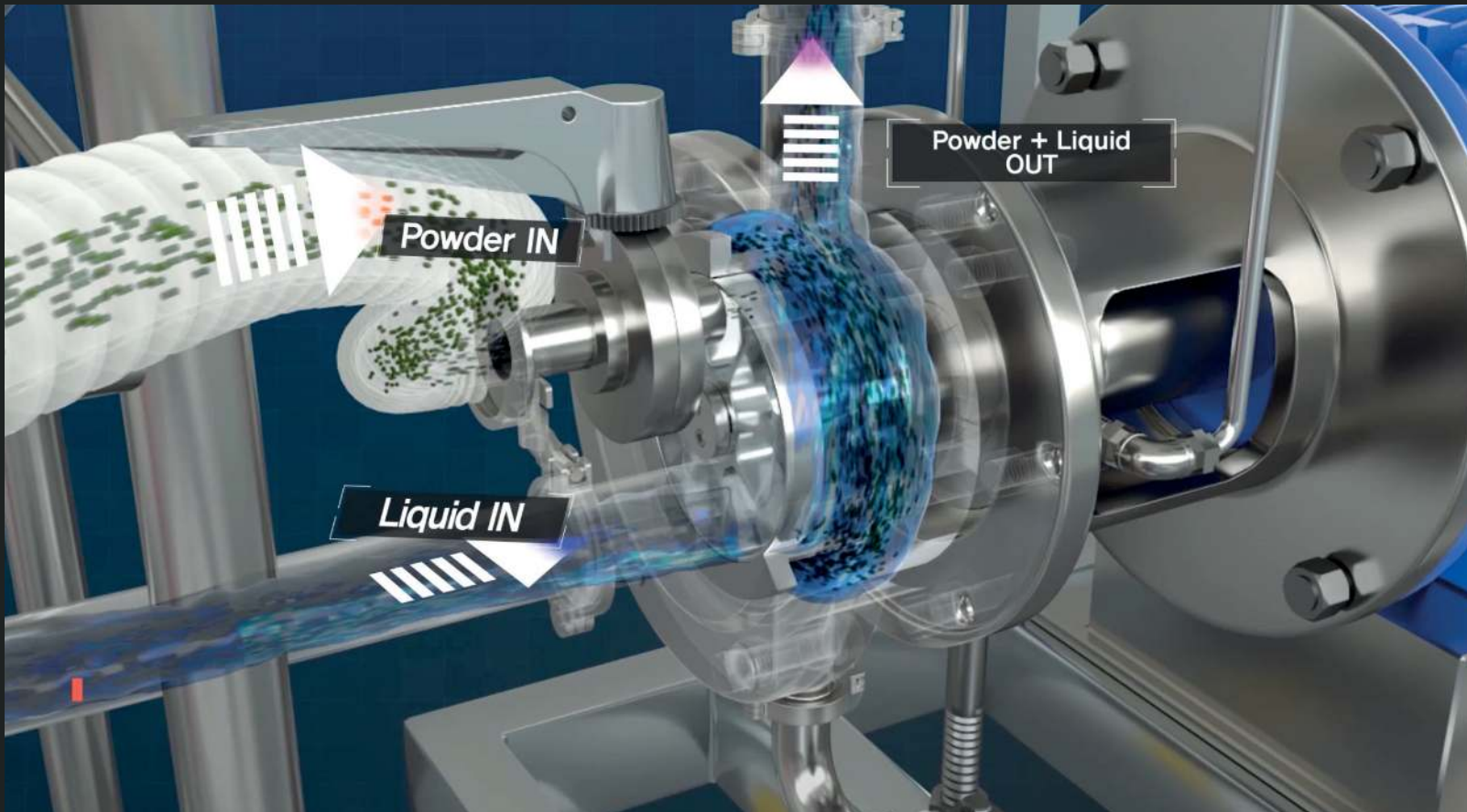
The "Act on the Creation of a Safety Environment in Laboratories" implemented in 2006 is a legal system created for the safety of workers who are threatened with health from various harmful substances.



PSM(공정안전관리_Process Safety Management)

MIXENMILL **POLI MIX** A change in the beginning of process of dispersing the powder in liquid.

MIXENMILL **POLI MIX** Component



Powder process specialized mixer
which applies the same principle as a
vacuum cleaner -MIXENMILL POLIMIX

MIXENMILL POLIMIX is a mixer specialized in powder processes that applies the principle of a vacuum cleaner to disperse powder directly into a liquid, thus achieving excellent dispersion efficiency by solving the problem of powder aggregation before it coagulates in the solution, regardless of the weight of the powder. You can put the powder directly into the hopper or use the flexible hose to suck directly into a container or bag. Also, unlike batch types, the wall of the container or the agitation's rotating shaft does not form a lump of powder and it makes it easy to clean.

Vacuum Aspiration



POLIMIX, which solved the powder scattering problem.

MIXENMILL POLIMIX is a best-selling equipment equipped with a specially designed flow-impeller that creates an aspiration effect with powerful rotation of approximately 3500 rpm while circulating the solution. It has exceptional dispersibility and is developed to prevent scattering dust that can be hazardous to the human body or working environment. Equipment suitable for the regulation of the working environment in the laboratory and factory can prevent powder dust explosion accidents as well as safety of workers.

MIXENMILL **POLIMIX**

Dispersion process

2 ways to supply powder

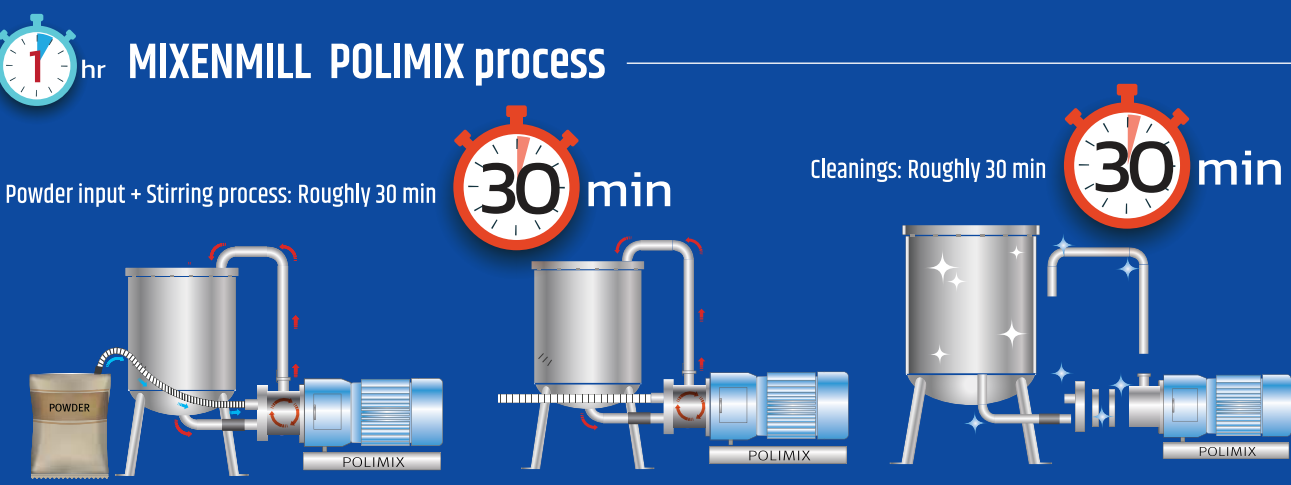


Inhale like a vacuum cleaner through the powder hose:
Use when the powder is very light and the input amount is small.

Supply via hopper instead of hose.
If the powder has a certain density or if the amount of powder is too large to be sucked through the powder hose for a long time during operation.

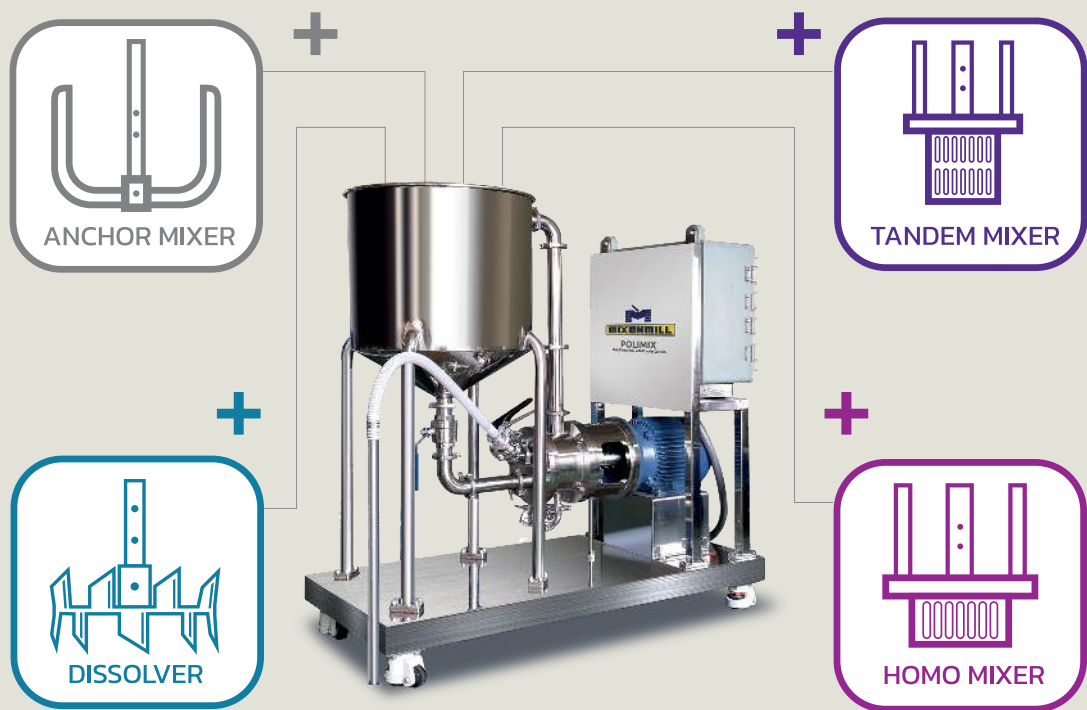
It can reduce powder dispersion time significantly.

Most powders have the property of aggregation when added into the solution. High dispersibility and time are required to disperse powder particles once they are agglomerated again. With REVOROX's newly developed MIXENMILL POLIMIX, the total powder dispersion time is greatly reduced and dispersion efficiency is greatly increased (depending on the process, it may be reduced by one-tenth, which is 10 times higher process efficiency).



MIXENMILL **POLIMIX** *High Shear Mixer With Powder Suction*

MIXENMILL **POLIMIX** Option_ Various Pre-Mixing Methods



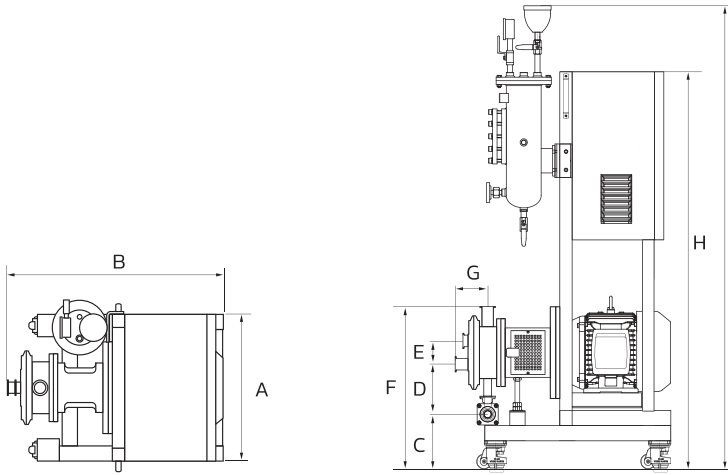
Specification

Model	Power	Volum (Water Standard)	Speed	Powder Incorporation
PM 010	10 HP	500 L	0~3,500 rpm (RPM can be changed)	100~200 (kg/h)
PM 020	20HP	1,000L	0~3,500 rpm (RPM can be changed)	200~300 (kg/h)

Size

MIXING PART									
Model	A	B	C	D	E	F	G	H	I
PM 010	480	705.3	179.5	164	76	532	106	1300	1516

* Specifications may change depending on configured options.
* Please contact separately for PM020.



MIXENMILL INLINE MIXER

순환식하이셰어믹서

Circulation Type Mixer for Homogenizing

Powerful
dispersion
performance
from multiple
layers of
impellers -
Incomparable
dispersion
results from
pumping,
circulation,
and precise
dispersion.



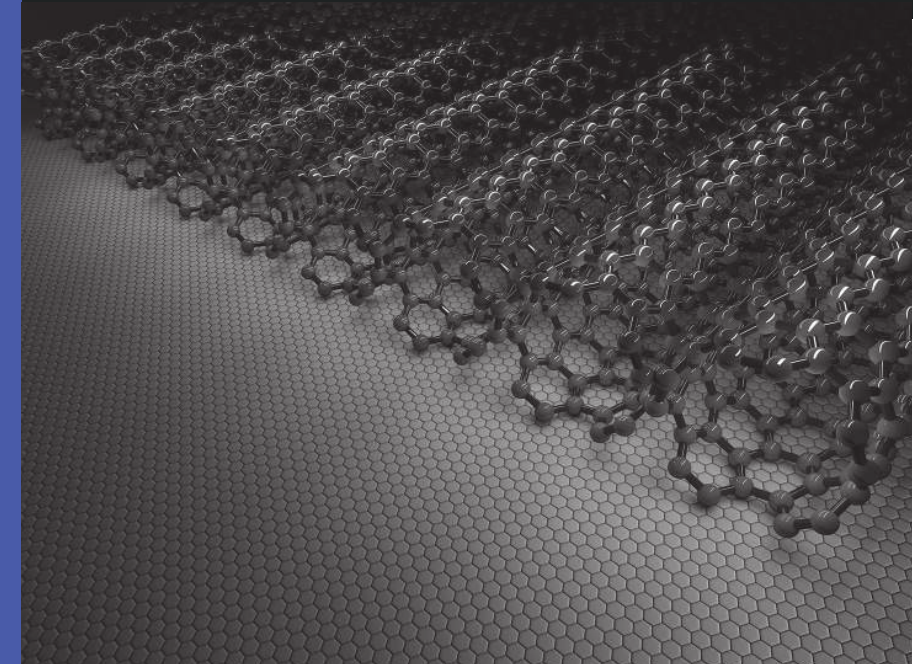
Products & Industries Typical applications

LI-ION BATTERY

Smart choice of pre-dispersion of CNT and homogenization.

CNT, which are often used as anode conductive materials, are mainly dispersed and produced through milling equipment or MFD (Microfluidizer). However, if the material state before feeding into such equipment is not homogeneous or if pre-dispersion is not well performed, the process can take a long period of time to finish, and in the case of MFD, malfunctions such as nozzle clogging may also occur. MIXENMILL INLINE MIXER enables homogeneous pre-dispersion of CNT through a strong dispersion force, and greatly improves the timesaving and quality of the final dispersion.

Cathode conductive material (MWCNT) / Pre-mixing (post-processing MFD) / cathode active material alumina / anode active material silicon / anode conductive additive SWCNT



ELECTRONIC MATERIAL

Disperses high viscosity resin quickly and powerfully.

Resin is a material with a high viscosity used as a binder in the electronic materials industry, and it has various applications and types. MIXENMILL INLINE MIXER is ideal for the difficult process of adding and dispersing other substances into resin to achieve uniform properties. The powerful dispersing force using circulation and pumping provides a perfect and homogeneous dispersion result without any dead zones.

Resin + Ni powder / metal, ceramic.



CHEMICAL

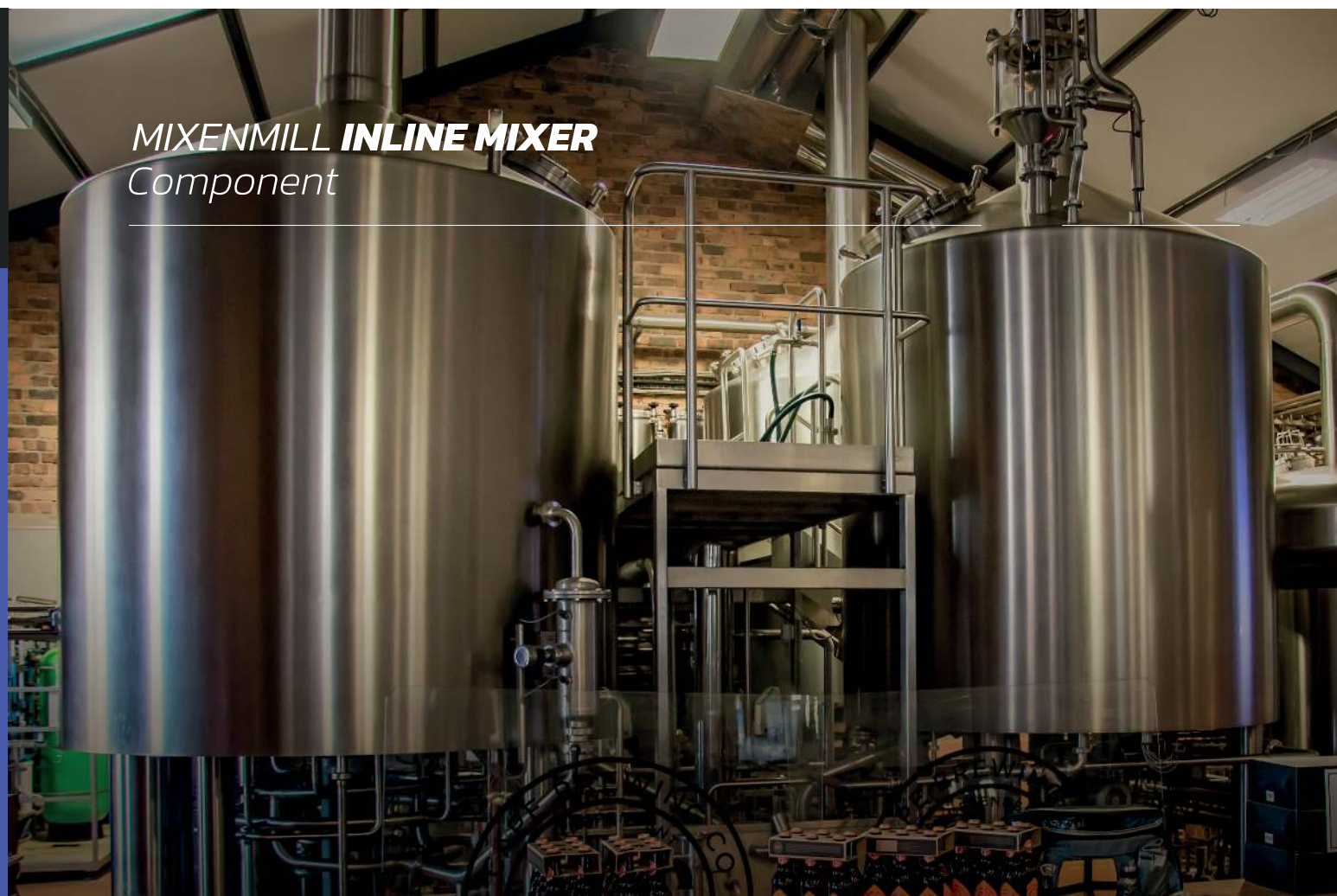
Perfect high-speed dispersion of adhesives and cohesives.

Adhesives are produced by adding additives to main materials such as monomers or polymers and undergoing emulsification and dispersion processes. The MIXENMILL INLINE MIXER reduces processing time to less than an hour and provides complete quality without layer separation. In particular, the strong pumping function enables transportation to the next process without a separate pump, enhancing production competitiveness. The MIXENMILL INLINE MIXER is more efficient in production at a large capacity of more than 200L.

Adhesive monomers, polymer/ceramic and glass dispersion/silicon oil emulsions and dispersion / high viscosity, low viscosity emulsification dispersion / bunker C oil, coke dispersion/silicon-based binder and graphite CMC dispersion.



MIXENMILL **INLINE MIXER** Component



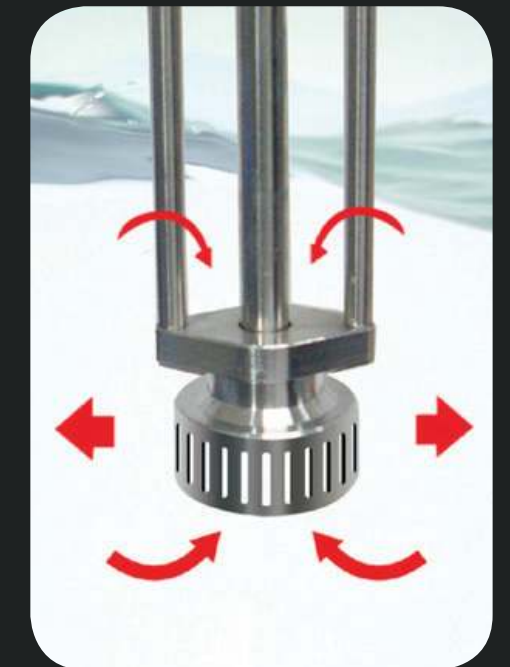
Homo mixer's upgraded version-
MIXEN MILL INLINE MIXER
is suitable for industrial-scale
production.

Pumping and high shear at the same time!
MIXEN MILL INLINE MIXER is a device that circulates substances using pumping and disperses and emulsifies them with precise ROTOR and STATOR. Compared to a homo mixer, ROTOR and STATOR are installed with 2 to 4 more layers, enabling stronger dispersion and emulsification with better overall efficiency. The built-in pumping function also makes it easy to transfer to the next process through a 3-way valve after the operation.

MIXENMILL **INLINE MIXER** Circulation Type Mixer for Homogenizing

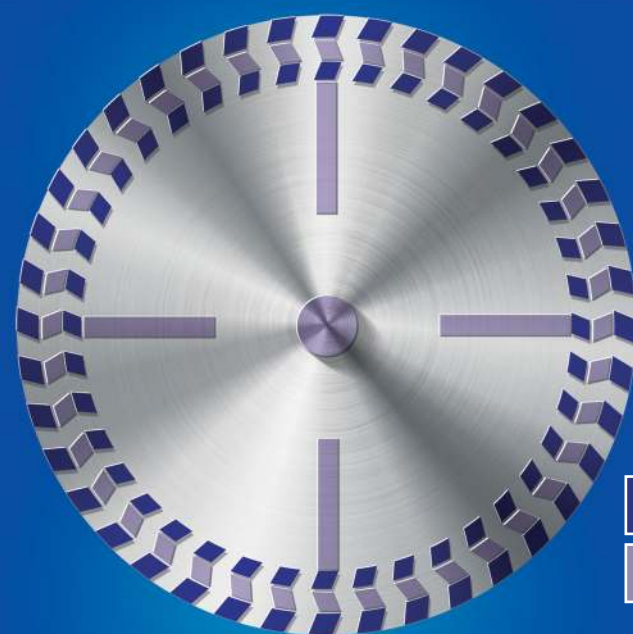


Operation mechanism of INLINE MIXER
When the pumping and circulation process of the device is used for production purposes, increased numbers of ROTOR and STATOR makes HOMO MIXER a more advanced model.



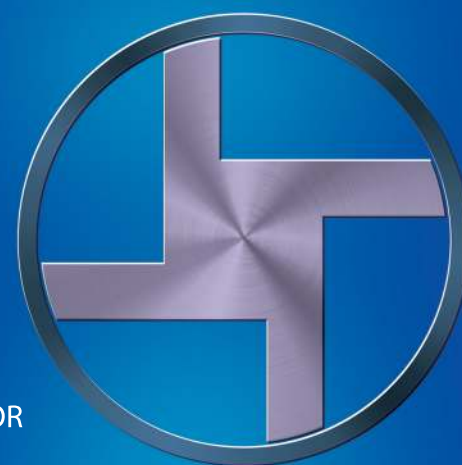
Operation mechanism of HOMO MIXER
The device may easily be used with BATCH type materials. ROTOR and STATOR are composed in a set, which sucks up the ingredients before distributing them, makes the device useful when inserting powder to a liquid or pigment dispersion.

Compare Rotor & Stator



INLINE MIXER

■ STATOR
■ ROTOR



HOMO MIXER

MIXENMILL **INLINE MIXER** without dead zone.

Compared to batch type mixer or dissolver or anchor mixer, MIXENMILL INLINE MIXER is suitable for mass production because it has almost no dead zone and is easy to clean with CIP (Cleaning in Place) design and is used in various fields.

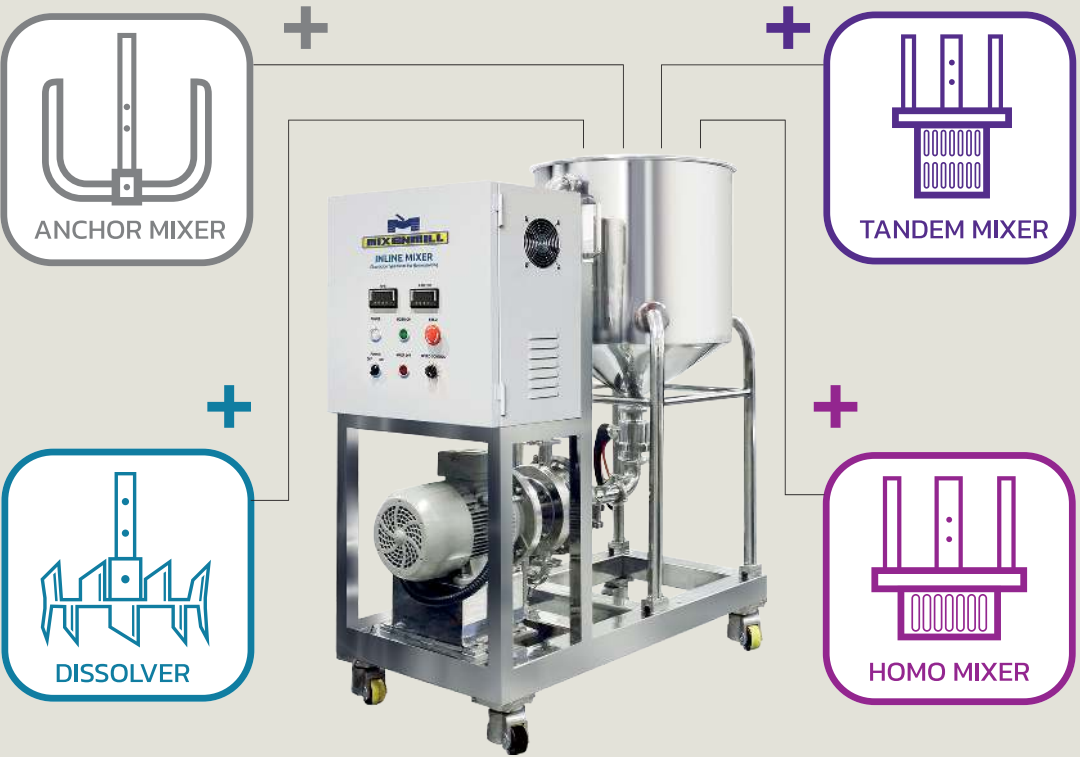


Special tank application



Hopper application

MIXENMILL **INLINE MIXER** Option Various Pre-Mixing Methods



Create a stronger performance with various tank options and PLC applications.

By using suitable pre-mixing according to the materials or substances, it is possible to improve the process time and produce better quality. In addition, the PLC application can be fully and automatically controlled through a touch screen with functions such as temperature, pressure, water level, and transfer through the automatic valve.



MIXENMILL **INLINE MIXER** Circulation Type Mixer for Homogenizing

Specification

Model	Power	Speed	Stage	Inlet/Outlet	Volume(물기준)
IM 001	1HP	0~4,800 rpm	2	1 S / 3/4 S	2 L
IM 002	2HP	0~3,500 rpm	2	1.5 S / 1 S	50 L
IM 005	5HP	0~3,500 rpm	2	2 S / 1.5 S	500 L
IM 010	10HP	0~3,500 rpm	3	2.5 S / 2 S	1,000 L
IM 020	20HP	0~3,500 rpm	3	3 S / 2.5 S	2,000 L
IM 030	30HP	0~1,750 rpm	3	4 S / 3 S	3,000 L
IM 050	50HP	0~1,750 rpm	3	5 S / 4 S	5,000 L

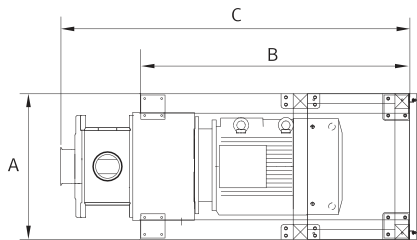
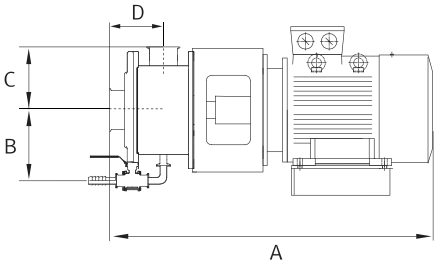
- * STAGES are number of ROTOR & STATOR as a set.
- * The S Inlet/Outlet port gauge is for Sanitary Inch.
- * The processing capacity is equal to Hopper or batch process(when attached to a tank) maximum water standard, and is a different concept with flow rate.
- * Please contact us for information on advanced models.
- * The speed may be changed beyond standard rate depending on the material or the process.

Size

MIXING PART

Model	A	B	C	D
IM 001	465.5	90.2	90.2	69
IM 002	524.5	136	136	83.5
IM 005	622	150.5	150.5	92
IM 010	713.5	148	178	110.5
IM 020	923.7	168	188	158
IM 030	1046.5	237.5	201	165
IM 050	1152.5	246.5	289.5	168

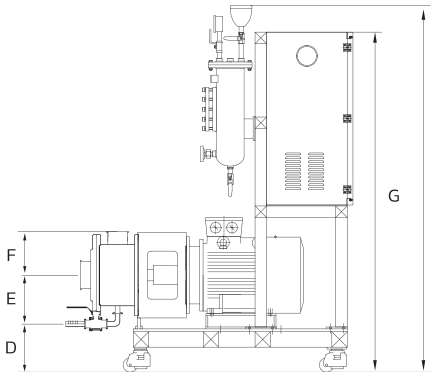
- * The specification may vary depending on the composition options.
- * Contact us for more information on IM075 and IM100 models.



INLINE MIXER

Model	A	B	C	D	E	F	G	H
IM 001	340	490	507.5	162.8	131.7	90.2	1362	1362
IM 002	380	413	537.5	102.5	192.5	136	1074.5	1320
IM 005	480	610	681	154.5	207	150.5	1300	1516
IM 010	600	610	724.8	177	204.5	178	1300	1516
IM 020	600	760	945	205	206.5	188	1515.5	1591.5
IM 030	600	760	1000	194	237.5	201	1515.5	1591.5
IM 050	730	887	1150	281.5	205	289.5	1697.5	1697.5

- * The specification may vary depending on the composition options.
- * Contact us for more information on IM075 and IM100 models.



MIXENMILL TANDEM MIXER

믹센밀의 역발상 혁신제품

Tandem Type Mixer for Homogenizing

Powerful double vortex
performance with
simultaneous suction
and dispersion of light
suspended particles and
subdued substances-
The best seller of
MIXENMILL developed for
the first time in the world.



Products & Industries

Typical applications

LI-ION BATTERY

The best for small-volume production of anode materials and cathode materials binders!

The dissolution process of PVDF or CMC which is mainly used as a binder for cathode and anode materials, is an important part of the process to dissolve powder quickly and efficiently with low-density in the liquid phase. MIXER MIXENMILL TANDEM MIXER uses a powerful dual vortex, both above and below, to quickly and easily disperse powders that are floating or clumped on the liquid surface. It is especially effective for small-scale production of 200 liters or less.

Cathode binder NMP+PVDF / anode binder (water+CMC) / anode active material graphene, silicon / separator alumina (ceramic material) / anode conductive material SWCNT



ELECTRONIC MATERIAL

More efficient production of small amounts of coating solution for film!

If the material is not fully dispersed during coating solution or film production, unstable strength, poor color or stripes, or uneven surface of the product will cause quality problems of the final product. The MIXENMILL TANDEM MIXER is more economical and efficient because it quickly and evenly disperses various additives to high viscosity materials such as binders and solvents and can be used directly in a small container without a separate outlet like a 200L drum.

Coating solution solvent binder / organic bead



CHEMICAL

Manufacturing of coating solution - Approximately 30% improvement in productivity compared to using an ultrasonic disperser.

Coating solutions have become diverse in terms of their uses and functions, and the materials and production processes have become more complex. Perfect dispersion and even homogeneity of most of the coating solution that mix additives such as solvents, binders, and organic beads, play a critical role in the condition and function of the coating surface. Ultrasonic dispersers require separate filtering if the homogeneity is poor, but KINSOL TANDEM MIXER quickly disperses and homogenizes the liquid phase and additives with powerful double vortex from the top and bottom.

Homogeneous dispersion of resin and powder / petrochemical and oil based emulsion dispersion / graphite, carbon black, graphene dispersion / cellulose dispersion / fertilizer and pesticide dispersion



MIXENMILL **TANDEM MIXER** Component

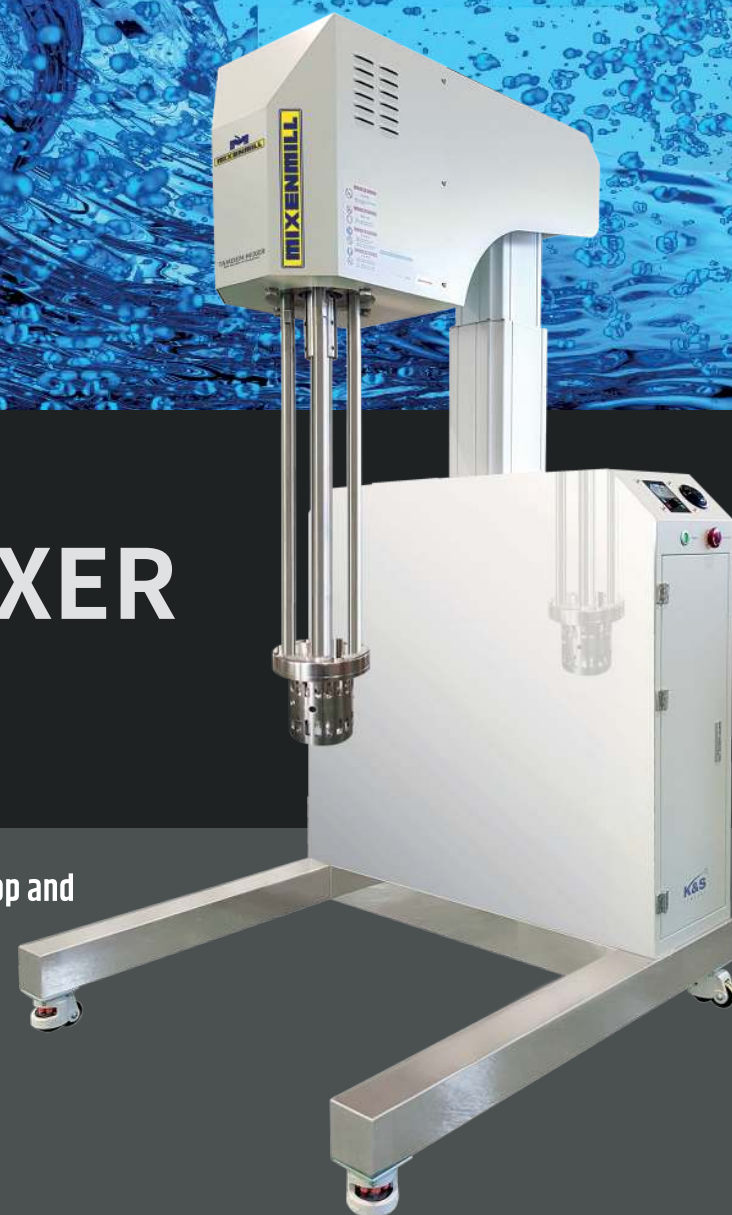
"
**Amazing mechanisms and
dispersive power**
"

which the powerful upper
and lower double vortex produces.

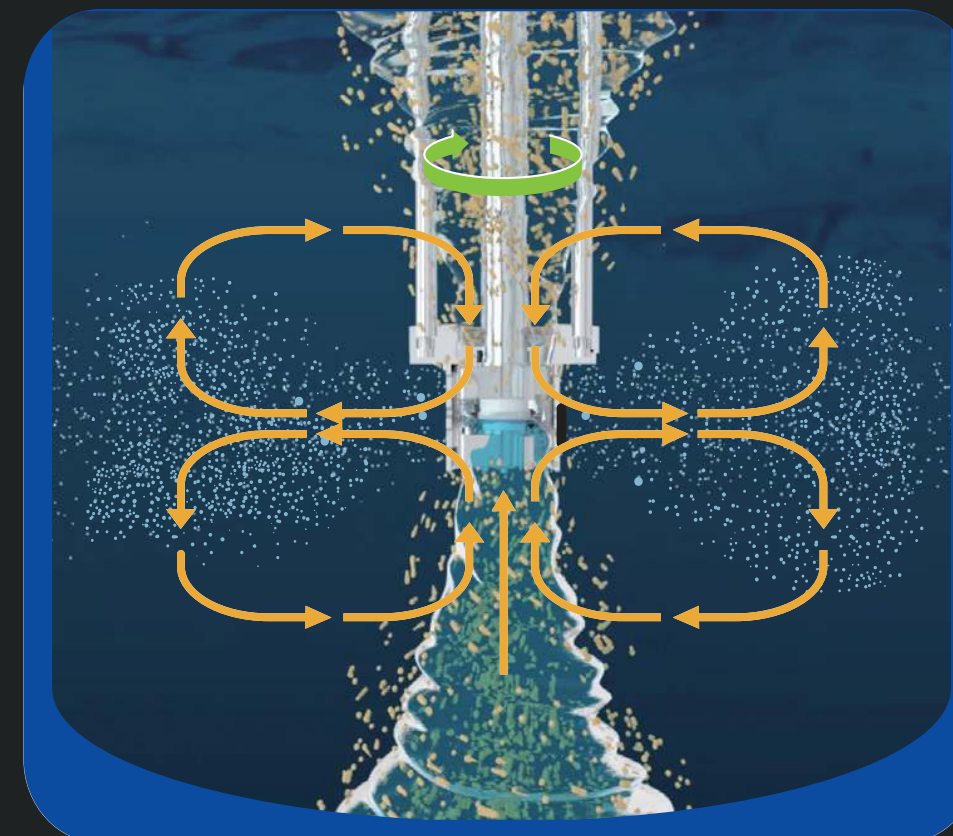
MIXENMILL TANDEM MIXER MIXENMILL's reverse innovation product.

**A powerful double vortex made from the top and
bottom - MIXENMILL TANDEM MIXER.**

The MIXENMILL TANDEM MIXER is a mixer that has two rotors (rotating blades) installed vertically, creating the Kerrblack Hole phenomenon, which pulls the material floating on the liquid surface downward and sucks up the material settled at the bottom, resulting in rapid and powerful emulsification and dispersion.



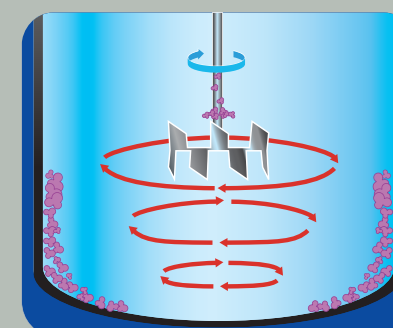
MIXENMILL **TANDEM MIXER** Tandem Type Mixer for Homogenizing



**Strong dispersing, emulsifying, and
dissolving power equivalent to
operating two homo mixers.**

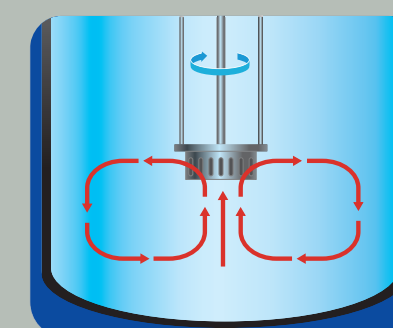
By incorporating a double vortex (top and bottom), this mixer is capable of emulsifying and dispersing powders and oils floating on the surface of the liquid, as well as powders and various additives remaining at the bottom of the liquid. You can enjoy better efficiency, equivalent to 2 basic mixers, in a single piece of equipment. By optionally replacing the impeller to match material viscosity, you do not need to scrape the inner wall of the tank, even when adding high-viscosity materials such as gum powders.

Flow Compared to General Emulsifiers/Dispersers



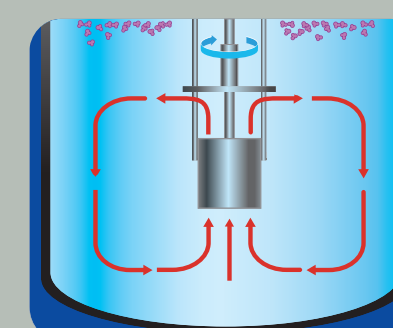
General Blade Stirrer (Dissolver) [Our Disperser]

The blade stirrer is not capable of performing fine dispersion/emulsification, and dead zones increase while efficiency decreases as the viscosity of the material increases, thereby requiring more time.



General Homogenizer [Our Homogenizing Mixer]

The only disadvantage to our basic model is that it is not as efficient when working with powders or oils that have low specific gravity because the material is introduced from the bottom.



HOMO MIXER TYPE with Baffle Plate

Most commonly used in the food and cosmetic industry, but not suitable for emulsifying and dispersing floating powders and oily substances because it pulls materials upward to emulsify/disperse.

Specification

Model	Power	General Volum (물기준)	Immersion Depth (max/min)	Speed	Electrical Data
TM 1HF	0.5 HP	5 L	260 mm / 70 mm	0~6,000 rpm	SINGLE -PHASE 220V
TM 001	1 HP	10 L	350 mm / 100 mm	0~5,100 rpm	
TM 003	3 HP	30 L	630 mm / 160 mm	0~3,500 rpm	3 -PHASE 220/380/440V 선택
TM 005	5 HP	80 L	760 mm / 170 mm	0~3,500 rpm	
TM 010	10 HP	150 L	900 mm / 180 mm	0~3,500 rpm	

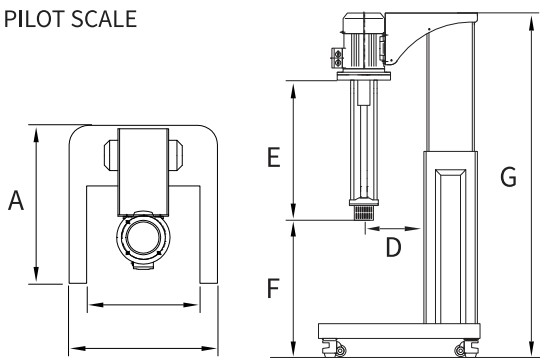
- * IMMERSION DEPTH is a maximum and minimum high of the SHAFT which can be submerged in the SAMPLE.
- * VOLUME is a model specific capacity of water amount which is generally used.
- * Please contact us for information on advanced models.

Size

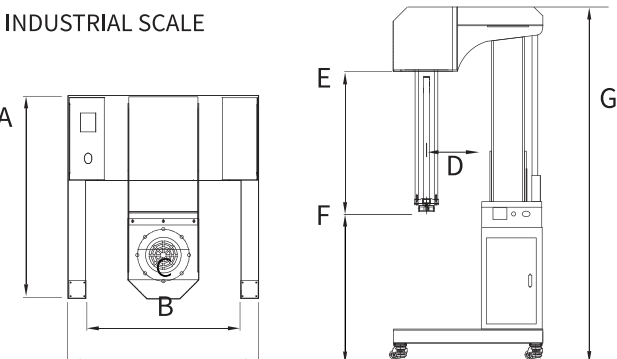
Model		A	B	C	D	E	F	G
PILOT SCALE	TM 1HF	400	380	300	150	350.5	313.5	880
	TM 001	600	560	420	229.5	424.5	625	1300
INDUSTRIAL SCALE	TM 003	600	560	420	311	503	544	1613
	TM 005	1000	950	800	333	797	907	2139
	TM 010	1330	1050	870	335	990	1111	2594

- * The specification may vary depending on the composition options.
- * Contact us for more information on lift options.
- * Please contact us for information on advanced models.

PILOT SCALE



INDUSTRIAL SCALE



MIXENMILL DISPERSER

저중점도 전용믹서
Powerful High Speed Mixer



MIXENMILL DISPERSER

MIXENMILL Dispenser is a compact equipment suitable for laboratories and boasts strong power and durability by adopting a powerful AC motor. The Mixenmill disperser is capable of stable mixing without shaking or vibration even at high speeds and can be conveniently used with dedicated LIFT and CONTROLLER. It is compatible with a variety of impellers, making it suitable for various applications.

Compatible impellers and accessories



MIXENMILL HOMO MIXER

BATCH TYPE 유화, 분산기의
STEADY SELLER

Batch Type Mixer for Homogenizing

Ultra-precise
performance created
by MIXENMILL technology.
The strongest
multipurpose homo mixer
with strong emulsifying
and dispersing power -



Products & Industries

Typical applications

CHEMICAL

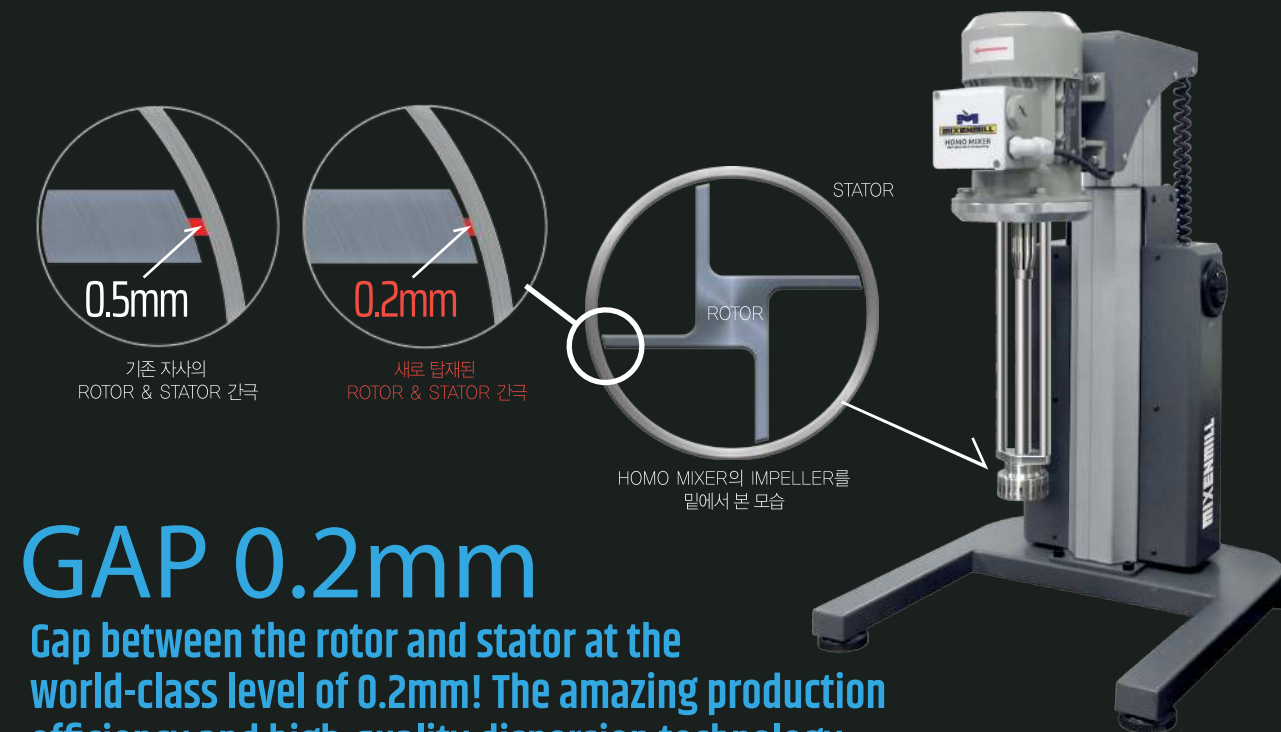
Powerful emulsification dispersers suitable for various tape adhesive production processes!

Adhesive for tape is mainly made by mixing resin or binder with solvents and various additives. The viscosity and materials are very diverse. Therefore, it is not easy to find equipment that is suitable for the process, has excellent homogeneity and excellent dispersion. MIXENMILL HOMO MIXER boasts outstanding dispersing and homogenizing performance that cannot be compared with agitators or low-speed mixers, thanks to the precise gap (0.2mm) between the rotor and stator. Depending on the characteristics and viscosity of the material, combining INLINE MIXER or POLIMIX with MIXENMILL HOMO MIXER can bring even greater production process efficiency.

Fertilizer, insecticide dispersion / Ink jet dispersion /
Paint, varnish, paint dispersion / dissolution of ore t
ypes such as graphite, talc, calcium carbonate /
Pigment and dye emulsification.



MIXENMILL **HOMO MIXER** Component

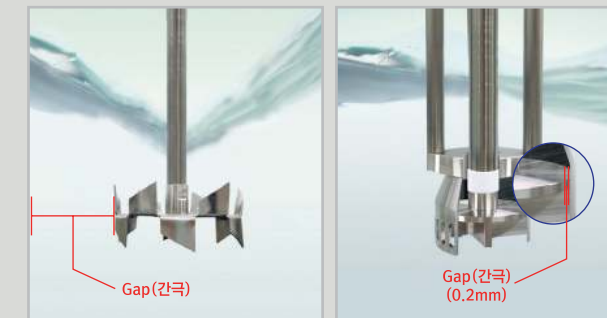


GAP 0.2mm

Gap between the rotor and stator at the world-class level of 0.2mm! The amazing production efficiency and high-quality dispersion technology produced by this precision technology!

MIXENMILL **HOMO MIXER** Batch Type Mixer for Homogenizing

DISPERSER VS HOMO MIXER



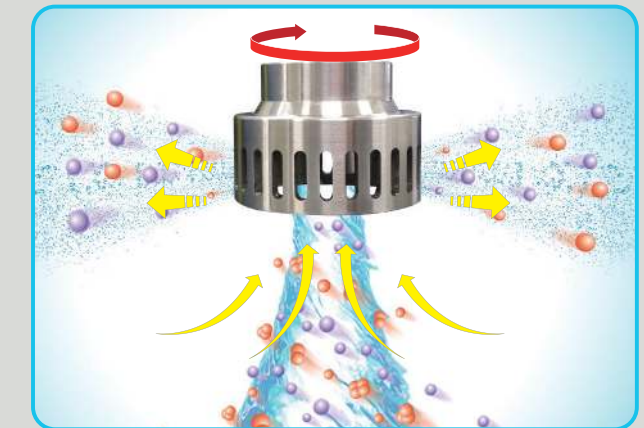
[DISPERSER]

[HOMO MIXER]

Assuming that the same rotational force is applied, when the gap between the ROTOR and the STATOR is narrower, the more powerful shear force occurs. In the case of the disperser, the Blade of the ROTOR spins with a large gap between the container walls, whereas the ROTOR and the STATOR in the HOMO MIXER spins at a high speed with a small gap(0.2mm) which provides greater shear power and emulsifying dispersing results.

Simultaneous suction and distribution!

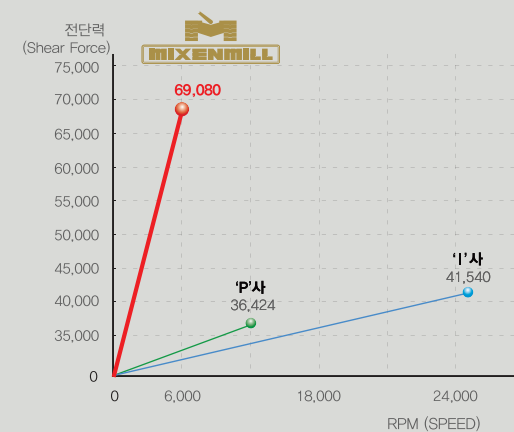
Perfect homogenization with powerful suction and shear forces!



Impeller rotation direction Material movement direction

Especially with the impeller, the high speed rotational force of the ROTOR inhales the particles from the bottom and splits them between the gap of the ROTOR and STATOR. While this process is in progress the particles are pumped out simultaneously allowing an overall flow. With this phenomenon, even the crumpled particles that have been precipitated is grinded which leads to excellent dispersion and emulsification.

Shear power comparison of MIXENMILL HOMO MIXER device vs third party device

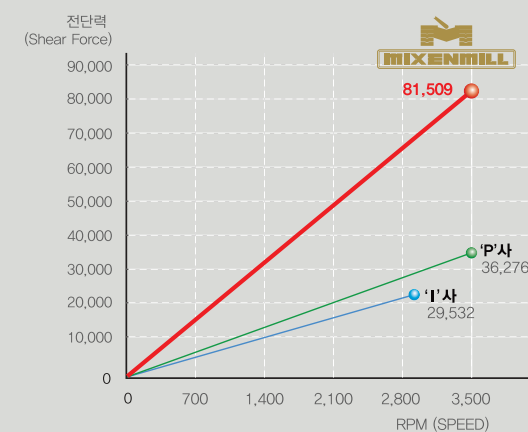


< LABORATORY HOMO MIXER >

MIXENMILL : HM1QT (0.25HP / MAX rpm 6,000 / Clearance 0.2mm)

'P' COMPANY (JAPAN) : M××× (0.5HP / MAX rpm 12,000 / Clearance 0.5mm)

'I' COMPANY (GERMANY) : U××× (0.5HP / MAX rpm 24,000 / Clearance 0.5mm)



< INDUSTRIAL HOMO MIXER >

MIXENMILL : HM005 (5HP / MAX rpm 3,500 / Clearance 0.2mm)

'P' COMPANY (JAPAN) : M××× (5HP / MAX rpm 3,500 / Clearance 0.5mm)

'I' COMPANY (GERMANY) : U××× (5HP / MAX rpm 2,850 / Clearance 0.5mm)

MIXENMILL HOMO MIXER with various options.

MIXENMILL HOMO MIXER provides products in various forms suitable for industrial characteristics.



GMP waterproof type

Explosion proof type

Canopy applied type

Vacuum defoamation type

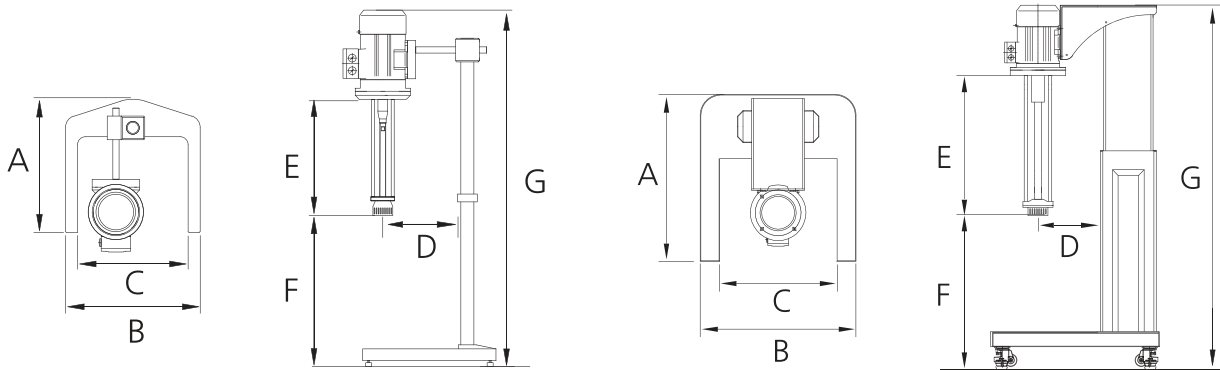
Specification

Model	Power	General Volum (물기준)	Immersion Depth (max/min)	Speed	Electrical Data
HM 1QT	0.25 HP	5 L	180 mm / 60 mm	0~6,000 rpm	SINGLE -PHASE 220V
HM 1HF	0.5 HP	10 L	260 mm / 70 mm	0~5,100 rpm	
HM 001	1 HP	30 L	350 mm / 100 mm	0~3,500 rpm	3 -PHASE 220/380/440V 선택
HM 003	3 HP	80 L	630 mm / 160 mm	0~3,500 rpm	
HM 005	5 HP	1500 L	760 mm / 170 mm	0~3,500 rpm	
HM 010	10 HP	5000 L	900 mm / 180 mm	0~3,500 rpm	

* IMMERSION DEPTH is a maximum and minimum hight of the SHAFT which can be submerged in the SAMPLE.
* VOLUME is a model specific capacity of water amount which is generally used.
* Please contact us for information on advanced models.

Size

LAB SCALE



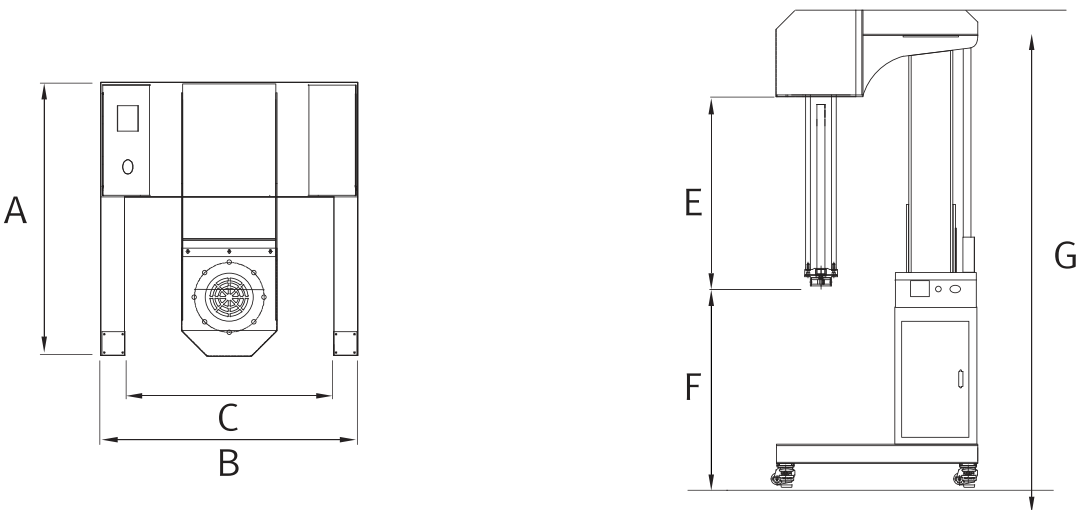
Manual Lift

Automated Lift

LIFT TYPE	Model	A	B	C	D	E	F	G
수동	HM 1QT	340	340	280	150	294	380	902
	HM 1QT	400	380	300	135	294	349	837
전동	HM 1HF	400	380	300	143.5	350.5	313	919
	HM 001	600	560	420	299.5	431.5	618	1300

* The specification may vary depending on the composition options.
* Contact us for more information on lift options.

INDUSTRIAL SCALE



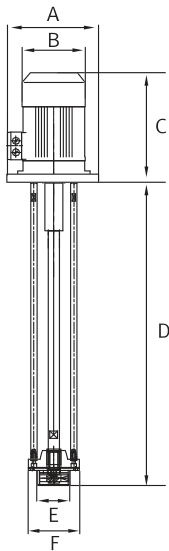
Model	A	B	C	D	E	F	G
HM 003	1000	950	800	311	639.3	889	1938.3
HM 005	1000	950	800	333	802	902	2139
HM 010	1330	1050	870	335	991.5	1110	2593.7

* The specification may vary depending on the composition options.
* Contact us for more information on HM050.
* Contact us for more information on lift options.

MIXING PART

Model	A	B	C	D	E	F
HM 1QT	156	124	256	294	Ø50	Ø60
HM 1HF	191	139	216	350.5	Ø61	Ø102
HM 001	250	158	224.5	413.5	Ø72	Ø134
HM 003	320	178	259	655	Ø80	Ø169
HM 005	350	190	317	810	Ø100	Ø196
HM 010	400	230	351	1001.5	Ø120	Ø224

* The specification may vary depending on the composition options.
* Please contact us for information on advanced models.



Synergy!!

MIXENMILL COMPLEX EQUIPMENT

MIXENMILL SOLUTION SYSTEMS for maximum efficiency.

Various equipment of MIXENMILL exhibits greater synergy when combined.

If you had to ensure quality through complex and numerous mixing processes and long hours of repetitive work, now consider MIXENMILL's proposed compound equipment. MIXENMILL's compound equipment, proven in various industrial fields, opens up new avenues for increased production efficiency through various solutions such as vacuum, pressure, heating, cooling, automatic operation through PLC (Programmable Logic Controller) application, automatic supply, and weighing. We compress multiple processes into one to provide space for production and reduce costs and energy. Moreover, MIXENMILL's compound equipment, which enhances business competitiveness, will be an excellent choice for automation, unmanned operation, and consistent mass production in the era of the fourth industrial revolution.

Please inquire now and let us help you build the most ideal system for your company.



MIXENMILL **COMPLEX EQUIPMENT** *Typical applications*

LI-ION BATTERY

ASSON + DISPERSING MIXING SYSTEM

DISPERSER: Pre-mixing conductive material slurry

PASSON: As a system that disperses the agitated conductive material slurry according to the set process conditions, realized automation by controlling temperature, pressure, time, etc. with PLC.



ELECTRONIC MATERIAL

POLIMIX + PASSON MIXING SYSTEM

POLIMIX: Injecting fumed silica into resin without generating dust and pre-mixing with dispersion.

PASSON: Uniformly disperse pre-mixed silica in the resin without any coagulation while circulating.



CHEMICAL

PASSON + DISPERSING MIXING SYSTEM

DISPERSER: Agitates the resin slurry.

PASSON (Multi-Injection): A continuous system in which agitated resin slurry and additive (hardener) are injected into PASSON at a quantitative rate while being uniformly mixed.

