

MICRO BUBBLE GENERATOR



Karyu
Turbo
Mixer

NIKUNI

Bubble Generator

Micro-bubble Generator

Eliminates the need for troublesome piping connections or adjustments - Increases the scope of pressurized water applications

Features

- Anyone can produce highly dense, micro-bubbled water by performing a simple procedure.
- This bubble generator can supply stabilized pressurized water even when the external environment (water level height, pressure, air volume, etc.) varies.
- Takes in water and air with a pump's suction power and without using a large-size dissolving tank, compressor, or ejector, thereby reducing the bubble generator size, providing increased space savings, and substantially decreasing the system cost.

Excellent bubble generator for exercising three functions: suction, mixing, and force-feed functions.

NIKUNI Karyu Turbo Mixer

This product makes use of vortex turbine pump characteristics to effectively mix a gas and liquid or two different liquids that are not readily soluble, dissolve them, and force-feed them. It eliminates the need for a chemical charging pump, compressor, large-size dissolving tank, pressurization tank, agitator, static mixer, and other ancillary equipment, permits equipment downsizing, system simplification, and substantial cost reduction, and this product is used in water treatment and various other processes.

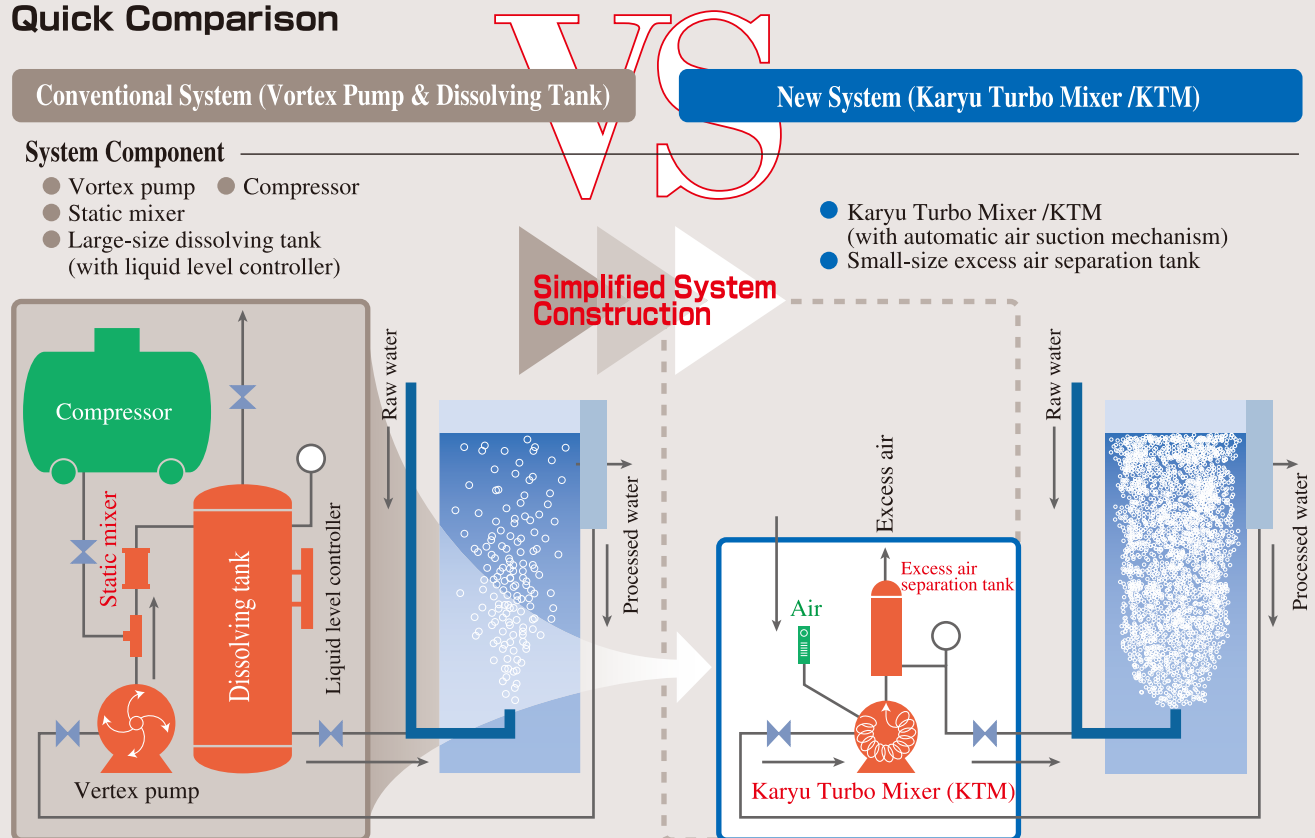
Advantages of dissolved air flotation method

Reduced time requirements : The buoyant force of air bubbles is used to forcibly float a solid material. Therefore, solid/liquid separation can be achieved within a short period of time.

Reduced processing space requirements : Even when the processing volume is relatively large, processing can be performed continuously in addition to rapid separation. Therefore, the space requirements for the system can be reduced.

Arbitrary gas selection : Oxygen, ozone, carbon dioxide, chlorine gas, and other gases can be selected as desired in addition to air. Therefore, solid/liquid separation and other various reaction processes can be performed.

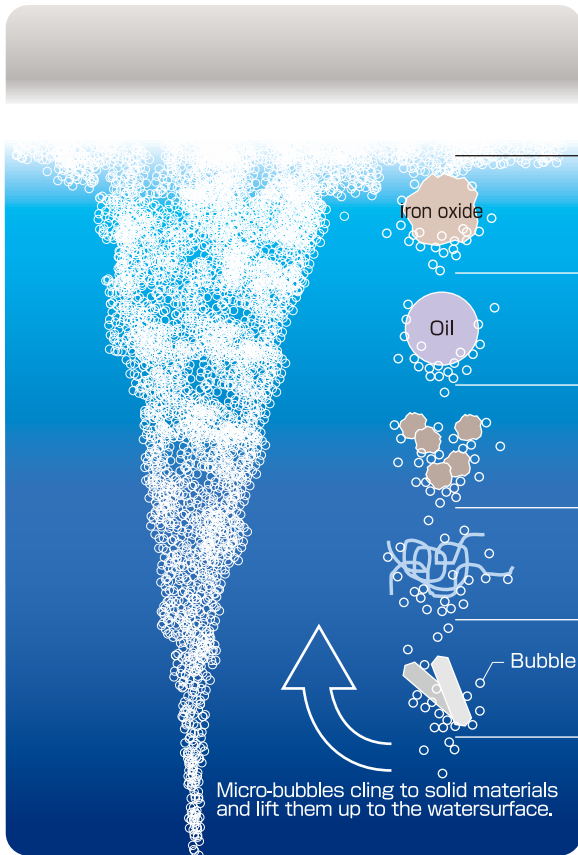
Quick Comparison



Uses

The dissolved air flotation method is used to generate very small air bubbles in water, uses their buoyant force to float coagulate or solid items or deposited tiny solid materials and dissolved elements, and collect them when they surface. Micro-bubbles generated by the bubble generator play important roles in the following scenes.

Major applications



- 1 For removing impurities from well water in preparation for various industries including semiconductor pure water production
- 2 For pretreatment of kitchen waste water containing oils and fats
- 3 For excrement (of livestock) treatment after rough separation by vibratory screen
- 4 For recycling of high-grade paper fiber
- 5 For food, crystal, and chemical removal in pretreatment for waste water treatment
- 6 For removing sediments, suspended substances, sludge, and algae for pond/lake purification

- 7 For providing a micro-bubbled bath at a hotel or the like
- 8 For using the water surface as an image projection screen for various events
- 9 For decorating the water surface of a pond or swimming pool

Example of KTM Micro-Bubble Generator Installation



■ Measurement of Density

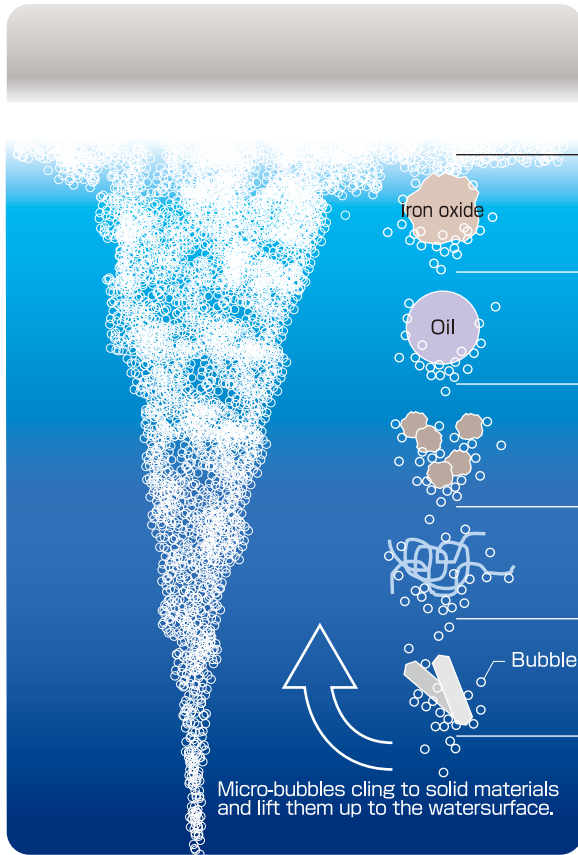
Item (Unit)	Regulated bath	Conventional system	Nikuni KTM system	Measurement method
pH [-]	6.5(12℃)	6.6(11℃)	7.1(12℃)	K 0102-12.1(7.2)
COD [mg/l]	520	160	100	K 0102-17
BOD [mg/l]	820	280	180	K 0102-21, 32.3
Floated substance [mg/l]	1120	150	21	K 0102-14.1
Hexane extract [mg/l]	35	27	4	K 0102-24.2



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Three-in-One Karyu Turbo Mixer (KTM)

Suctioning Mixing Force-Feeding

KTM automatically suctions "not-easily-mix" two different liquids or gas and liquid.

→ Feed pump, air compressor and ejector are no more necessary.

Liquid mixture is swirled and repeatedly pressurized for better mixture, agitation and dissolution.

→ Agitator, static mixer and large-size dissolving tank are no more necessary

Thanks to its high pumping capacity, KTM provides high-pressure feeding of dissolved liquid mixture.

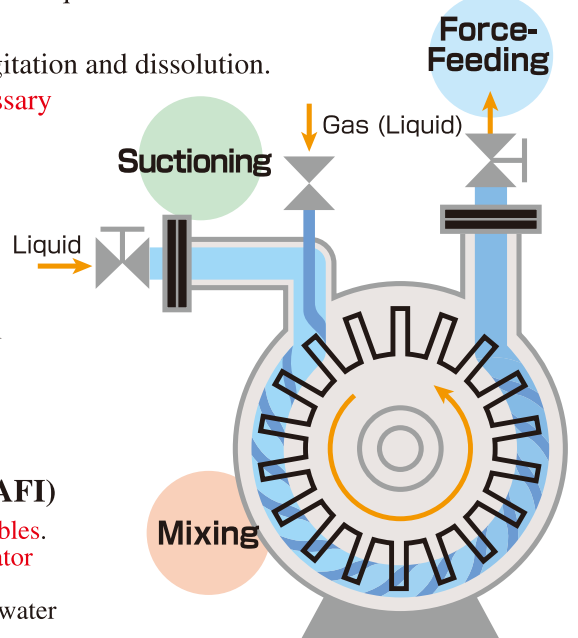
→ Transfer pump is no more necessary.

Features

- Anyone can produce highly dense, micro-bubbled water by performing a simple procedure.
- Stable supply of pressurized water is possible even when the external environment (water level, pressure, air volume, etc.) may vary.
- Takes in water and air with a pump's suction power without using a large-size dissolving tank, compressor or ejector, making the system compact and space-saving with substantial reduction in system cost.

Advantages of NIKUNI Dissolved Air Floatation Innovation (DAFI)

- Simple construction and easy operation ensure a **stable supply of micro-bubbles**.
- Simple construction and easy operation **eliminate the needs for skilled operator and full-time supervisor**.
- Excellent air-liquid dissolving capacity with a large quantity of pressurized water enhances **the efficiency of recovery**.
- Ideal for retrofitting to increase process capacity. **Installation is possible even in a limited space**.
- Source of power consumption is KTM unit only, leading to **substantial reduction in electricity cost**.
- Trouble-free operation requires no full-time supervisor, **significantly reducing the cost of maintenance**.
- Quiet operation without compressor. **No noise insulation measure is required for night shift**.
- Quantity of retained water is limited, **ensuring sufficient quantity of pressurized water immediately after start of operation**.
- **Flexible selection of gas is possible** depending on application, such as air, oxygen gas, ozone gas, etc.



Karyu Turbo Mixer (KTM)

Selection Guide

Just only
KTM

50Hz		
Standard model	Pressurized Water Flow m ³ /h	Motor Power kW
KTM20N(D)	1.0	0.75
KTM25N(D)	1.5	1.5
KTM32N(D)	3.0	2.2
KTM40N(D)	4.8	3.7
KTM50S1(G)	8.0	5.5
KTM50S2(G)	12.0	7.5
KTM50S3(G)	15.0	11.0
KTM65S2(D)(G)	20.0	15.0
KTM80S"(D)(G)	42.0	22.0

● Standard material Regeneratvies turbine pump : SCS13/SUS304
* SCS14/SUS316 or FC (Ferrous) material is also available.

60Hz		
Standard model	Pressurized Water Flow m ³ /h	Motor Power kW
KTM20N(D)	1.3	0.75
KTM25N(D)	2.5	1.5
KTM32N(D)	4.0	2.2
KTM40N(D)	7.0	3.7
KTM50S1(G)	11.5	7.5
KTM50S2(G)	15.0	11.0
KTM50S3(G)	18.0	15.0
KTM65S2(D)(G)	28.0	18.5
KTM80S"(D)(G)	58.0	30.0

Marks 1. (D) means motor (200V - 400V multi voltage) integrated type model is available.
2. (G) means gland-packing type is also available.

Whole unit
with KTM

50Hz		
Standard model	Pressurized Water Flow m ³ /h	Motor Power kW
MBG20N07CE	1.0	0.75
MBG25N15CE	1.5	1.5
MBG32N22CE	3.0	2.2
MBG40N37CE	4.8	3.7
MBG51S55CE	8.0	5.5
MBG52S75CE	12.0	7.5
MBG53S11CE	15.0	11.0
MBG65S15CE	18.0	15.0
MBG80S22CE	42.0	22.0

● Standard material * Models with higher capacities than shown above are also available. Please contact us for details.

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MBG25N15CE	2.5	1.5
MBG32N22CE	4.0	2.2
MBG40N37CE	7.0	3.7
MBG51S55CE	11.5	7.5
MBG52S75CE	15.0	11.0
MBG53S11CE	18.0	15.0
MBG65S15CE	28.0	18.5
MBG80S22CE	58.0	30.0

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