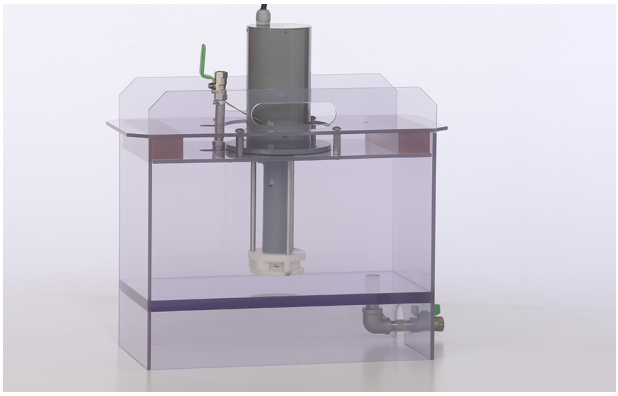
acniti LLC
1-2-9 Nyoidani
Minoh Osaka
562-0011
Japan

microstar ozone: hammermill nanobubble generator | acniti

Traditional nanobubble generators rely on pumps and pressure, which wastes energy and stirs up water. The microStar uses patented hammermill rotation - a shaft spinning at 3,400 RPM crushes ozone gas into high-concentration nanobubbles with zero turbulence. Available in three sizes, from lab research to industrial disinfection and seawater treatment.



microStar research setup

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microstar ozone: hammermill nanobubble generator | acniti

microstar ozone - low-energy hammermill nanobubble generator

- Most energy efficient nanobubble generator in the market
- Strong in dissolving high concentrations of ozone
- Optimized for the creation of ozone nanobubbles
- Excellent research ultrafine bubble tool
- creating no turbulence in the water
- Proven track record in the oyster shell industry
- Suitable for removing external infections with norovirus, legionella, lysteria and salmonella in live animals.
- Motor life expectancy 80.000 hours
- Minimum rotation speed to generate nanobubbles 2000 RPM.

hammer-rotation

The patented **hammermill rotation technology** redefines nanobubble generation by eliminating the need for high-pressure pumps. A motor-driven shaft with precision-mounted hammers spins at **3,400 RPM** inside a vertical tube, crushing injected gas into ultra-fine nanobubbles through mechanical shearing—not hydraulic force.

no turbulence

Water and gas enter from the top, while hammers at the shaft bottom dissolve and fragment gas molecules into high-concentration nanobubbles with **zero turbulence**. Because the system doesn't circulate large volumes of water or require pressurization, it delivers the **lowest energy consumption per nanobubble** in the industry. Think of projects like washing eggs to remove bacteria or bacteria bed filters, which should not be disturbed but require adequate amounts of gas.

The microStar series leverages this hammermill design for **ozone gas applications** and harsh environments like **seawater treatment**, where corrosion resistance and energy efficiency are critical. Contact us for more details about this unique product. Currently, we have three sizes available. The smallest unit is ideally suited for research purposes; the two larger units can be used for production purposes.

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models & specs

FS	30	2	AC	-	S	W	1	-	Sp
1	2	3	4		5	6	7		8

1. Nanobubble generator

indication	name
FS	microStar

2. Motor nominal input

indication	motor nominal input
30	30 Watt
40	400 Watt
15	150 Watt
75	750 Watt

3. Motor voltage

indication	motor voltage
1	100V~110V (AC models only)
2	200V~220V (AC and DC models)

4. Motor Power

indication	power type
AC	AC-powered motor
DC	DC powered motor, high-spec, higher nanobubble concentration.

5. microStar model

indication	nozzle
"S"	short type
"L"	long type (not available now)

6. Nanobubbles discharge

indication	# directions
"W"	2 directions
"S"	1 direction

7. microStar Throughput and Bubble Discharge Size

indication	throughput / maximum micro bubble discharge size (reference value)
"1"	Standard / 1-30µm peak
"2"	Medium / 20-60µm peak
"3"	Large / mixing purpose only (no UFB generation) * special order model

8. microStar special specs, special sign for customized model

indication	specifications
"Sp"	special

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microstar fs302ac-sw1: ozone nanobubble 14 lpm 115v | acniti

	General		
1	Model name	microStar Ozone - Low-Energy Hammermill Nanobubble Generator	
2	Model number	UFB_fs302AC-SW1_set	
	Liquid	**Metric**	**Imperial**
3	Flow / minute	14 Liter	3.7 Gallon
4	Flow / hour	840 Liter	222 Gallon
5	water temperature minimum	0 °C	32 °F
6	water temperature maximum	40 °C	104 °F
7	Strainer availability and size		
	Ambient	**Metric**	**Imperial**
8	Ambient temperature minimum	-20 °C	-4 °F
9	Ambient temperature maximum	40 °C	104 °F
	Gas	**Metric**	**Imperial**
10	Minimum flow / minute	0.5 Liter	0.1 Gallon
11	Maximum flow / minute	1.0 Liter	0.3 Gallon
12	Minimum flow / hour	30 Liter	7.9 Gallon
13	Maximum flow / hour	60 Liter	16 Gallon
14	Pressure minimum	50 kPa	7 PSI
15	Pressure maximum	200 kPa	29 PSI
16	Gas quality	O2, O3, CO2, Air, N2	
17	Gas remark		

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	Electrical	Metric	Imperial
18	Unit phase Ø voltage	115 VAC	
19	Unit power consumption	30 watts	
20	Wetted parts	PVC, Stainless Steel, POM	
21	Pump model		
22	Pump phase Ø voltage		
23	Pump phase Ø voltage 60Hz		
24	Pump pressure setting		
25	Control	Frequency Drive	
	Connections		
26	Water inlet		
27	Water outlet		
28	Gas inlet		
	Dimensions & weight	**Metric**	**Imperial**
29	Dim. (w) x (d) x (h)	150 x 150 x 330 mm	5.9 x 5.9 x 13.0 inch
30	weight	3.5 Kg	7.7 lbs.
31	HS code	8479.82.0040	
32	Shipping dim. (w)x(d)x(h)	58 x 43 x 29 cm	23 x 17 x 11 inch
33	Shipping weight	16.2 Kg	36 lbs.
	Remarks		
34	Other remarks	✓ Acniti provides a presetup frequency drive and transformer to convert to the local electricity network. The units are a plug and plays. ✓ Seawater use possible	

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microstar fs302ac-sw1: ozone nanobubble 14 lpm 230v | acniti

	General		
1	Model name	microStar Ozone - Low-Energy Hammermill Nanobubble Generator	
2	Model number	UFB_fs302AC-SW1_230V_set	
	Liquid	**Metric**	**Imperial**
3	Flow / minute	14 Liter	3.7 Gallon
4	Flow / hour	840 Liter	222 Gallon
5	water temperature minimum	0 °C	32 °F
6	water temperature maximum	40 °C	104 °F
7	Strainer availability and size		
	Ambient	**Metric**	**Imperial**
8	Ambient temperature minimum	-20 °C	-4 °F
9	Ambient temperature maximum	40 °C	104 °F
	Gas	**Metric**	**Imperial**
10	Minimum flow / minute	0.5 Liter	0.1 Gallon
11	Maximum flow / minute	1.0 Liter	0.3 Gallon
12	Minimum flow / hour	30 Liter	7.9 Gallon
13	Maximum flow / hour	60 Liter	16 Gallon
14	Pressure minimum	50 kPa	7 PSI
15	Pressure maximum	200 kPa	29 PSI
16	Gas quality	O2, O3, CO2, Air, N2	
17	Gas remark		

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	Electrical	Metric	Imperial
18	Unit phase Ø voltage	230 VAC	
19	Unit power consumption	30 watts	
20	Wetted parts	PVC, Stainless Steel, POM	
21	Pump model		
22	Pump phase Ø voltage		
23	Pump phase Ø voltage 60Hz		
24	Pump pressure setting		
25	Control	Frequency Drive	
	Connections		
26	Water inlet		
27	Water outlet		
28	Gas inlet		
	Dimensions & weight	**Metric**	**Imperial**
29	Dim. (w) x (d) x (h)	150 x 150 x 330 mm	5.9 x 5.9 x 13.0 inch
30	weight	3.5 Kg	7.7 lbs.
31	HS code	8479.82.0040	
32	Shipping dim. (w)x(d)x(h)	58 x 43 x 29 cm	23 x 17 x 11 inch
33	Shipping weight	16.2 Kg	36 lbs.
	Remarks		
34	Other remarks	✓ Acniti provides a presetup frequency drive and transformer to convert to the local electricity network. The units are a plug and plays. ✓ Seawater use possible	

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microstar o3 fs752dc-1: hammermill nanobubble gen. | acniti

	General		
1	Model name	microStar Ozone - Low-Energy Hammermill Nanobubble Generator	
2	Model number	UFB_FS752DC_steel_motor_set	
	Liquid	**Metric**	**Imperial**
3	Flow / minute	300 Liter	79 Gallon
4	Flow / hour	18,000 Liter	4,755.1 Gallon
5	water temperature minimum	0 °C	32 °F
6	water temperature maximum	40 °C	104 °F
7	Strainer availability and size		
	Ambient	**Metric**	**Imperial**
8	Ambient temperature minimum	-20 °C	-4 °F
9	Ambient temperature maximum	40 °C	104 °F
	Gas	**Metric**	**Imperial**
10	Minimum flow / minute	0.0 Liter	0.0 Gallon
11	Maximum flow / minute	30 Liter	7.9 Gallon
12	Minimum flow / hour	0.0 Liter	0.0 Gallon
13	Maximum flow / hour	1,800.0 Liter	476 Gallon
14	Gas quality	Air, O2, O3, N2, CO2	
15	Gas remark		
	Electrical	**Metric**	**Imperial**
16	Unit phase Ø voltage	Input: 3 Ø 200 VAC => Output: 3 Ø 200VDC	

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	Electrical	Metric	Imperial
17	Unit power consumption	750 watts	
18	Wetted parts	Ethylene propylene, FKM, Fluor, PVC, SUS316L, SUS316, POM	
19	Pump model	Motor model: 4 poles SPM type brushless DC motor	
20	Pump phase Ø voltage		
21	Pump phase Ø voltage 60Hz		
22	Pump pressure setting		
23	Control	Frequency Drive	
	Connections		
24	Water inlet	submerge to appropriate depth as per manual	
25	Water outlet		
26	Gas inlet	22mm	
	Dimensions & weight	**Metric**	**Imperial**
27	Dim. (w) x (d) x (h)	230 x 230 x 640 mm	9.1 x 9.1 x 25.2 inch
28	weight	18 Kg	39.7 lbs.
29	HS code	8543.70-001	
30	Shipping dim. (w)x(d)x(h)	40 x 40 x 80 cm	16 x 16 x 31 inch
31	Shipping weight	26 Kg	57 lbs.

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	Remarks	
32	Other remarks	✓ The microstar 752 series generates effectively nanobubbles in a 10 meter diameter circel with a depth of 2 meter for short model (SS / SW). ✓ The micorStar 752 series are available with a 2-way (W) or 1-way water outlet (S). ✓ MicroStar is not suitable for underwater / submersible use. ✓ The microstar DC series requires a cooling fan on top op de motor, which needs a single phase 100 ~115 or 200~240 ac volt input. 10~15 Watt ✓ Regular maintenance: replace packing and oil seal

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microstar o3 fs752dc-ss3: hammermill gen. 400 lpm | acniti

	General		
1	Model name	microStar Ozone - Low-Energy Hammermill Nanobubble Generator	
2	Model number	UFB_FS752DC-SS3_set	
	Liquid	**Metric**	**Imperial**
3	Flow / minute	400 Liter	106 Gallon
4	Flow / hour	24,000 Liter	6,340.1 Gallon
5	water temperature minimum	0 °C	32 °F
6	water temperature maximum	40 °C	104 °F
7	Strainer availability and size		
	Ambient	**Metric**	**Imperial**
8	Ambient temperature minimum	-20 °C	-4 °F
9	Ambient temperature maximum	40 °C	104 °F
	Gas	**Metric**	**Imperial**
10	Minimum flow / minute	0.0 Liter	0.0 Gallon
11	Maximum flow / minute	110 Liter	29 Gallon
12	Minimum flow / hour	0.0 Liter	0.0 Gallon
13	Maximum flow / hour	6,600.0 Liter	1,743.5 Gallon
14	Gas quality	Air, O2, (O3), N2, CO2	
15	Gas remark		
	Electrical	**Metric**	**Imperial**
16	Unit phase Ø voltage	Input: 3 Ø 200 VAC => Output: 3 Ø 200VDC	

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	Electrical	Metric	Imperial
17	Unit power consumption	750 watts	
18	Wetted parts	Ethylene propylene, FKM, Fluor, PVC, SUS316L, SUS316, POM	
19	Pump model	Motor model: 4 poles SPM type brushless DC motor	
20	Pump phase Ø voltage		
21	Pump phase Ø voltage 60Hz		
22	Pump pressure setting		
23	Control	Frequency Drive	
	Connections		
24	Water inlet	submerge to appropriate depth as per manual	
25	Water outlet		
26	Gas inlet	22mm	
	Dimensions & weight	**Metric**	**Imperial**
27	Dim. (w) x (d) x (h)	230 x 230 x 640 mm	9.1 x 9.1 x 25.2 inch
28	weight	18 Kg	39.7 lbs.
29	HS code	8543.70-001	
30	Shipping dim. (w)x(d)x(h)	40 x 80 x 40 cm	16 x 31 x 16 inch
31	Shipping weight	26 Kg	57 lbs.

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	Remarks	
32	Other remarks	✓ The microstar 752 series generates effectively nanobubbles in a 10 meter diameter circel with a depth of 2 meter for short model (SS / SW). ✓ MicroStar is not suitable for underwater / submersible use. ✓ The microstar DC series requires a cooling fan on top op de motor, which needs a single phase 100 ~115 or 200~240 ac volt input. 10~15 Watt ✓ Regular maintenance: replace packing and oil seal

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