Ultrasonic wave

ULTRASONIC CLEANING SYSTEM

GENERAL CATALOG

KAIJO®

Ultrasonic wave

KAIJO CORPORATION

Kaijo is a global leading manufacturer of ultrasonic cleaning system and contribute in keeping leadership in the ultrasonic cleaning technology.

Top global companies in various fields strongly support our products. We contribute to the market globally through our reliable technology and equipments.

Vibrator applied Technology

- Magnetostrictor ferrite applied technology
- Bolted Langevin transducer applied technology
- Various shapes horn applied technology
- Hi Megasonic multipath reflection patent
- Various vibration modes applied technology
- Homogenized acoustic pressure welding technology

Circuit Technology

- PLL circuit (Phase-locked loop)
- PCC circuit (Output constant control)
- Electric resonance/mechanical resonance/ load characteristics control

Meet Market Demand

- Technique for selecting chemicals
- Vibration plate, various configuration design technique
- Cleaning bath, various configuration design technique
- Throw-in transducer, configuration design technique
- Enhancement of maintenance service
- Clean room facilities

Analysis Technology

- Cleaning test facilities
- Cleaning process evaluation facilities
- Particle cleaning evaluation facilities
- Finite element method analysis
- Boundary element method analysis
- Fluid analysis

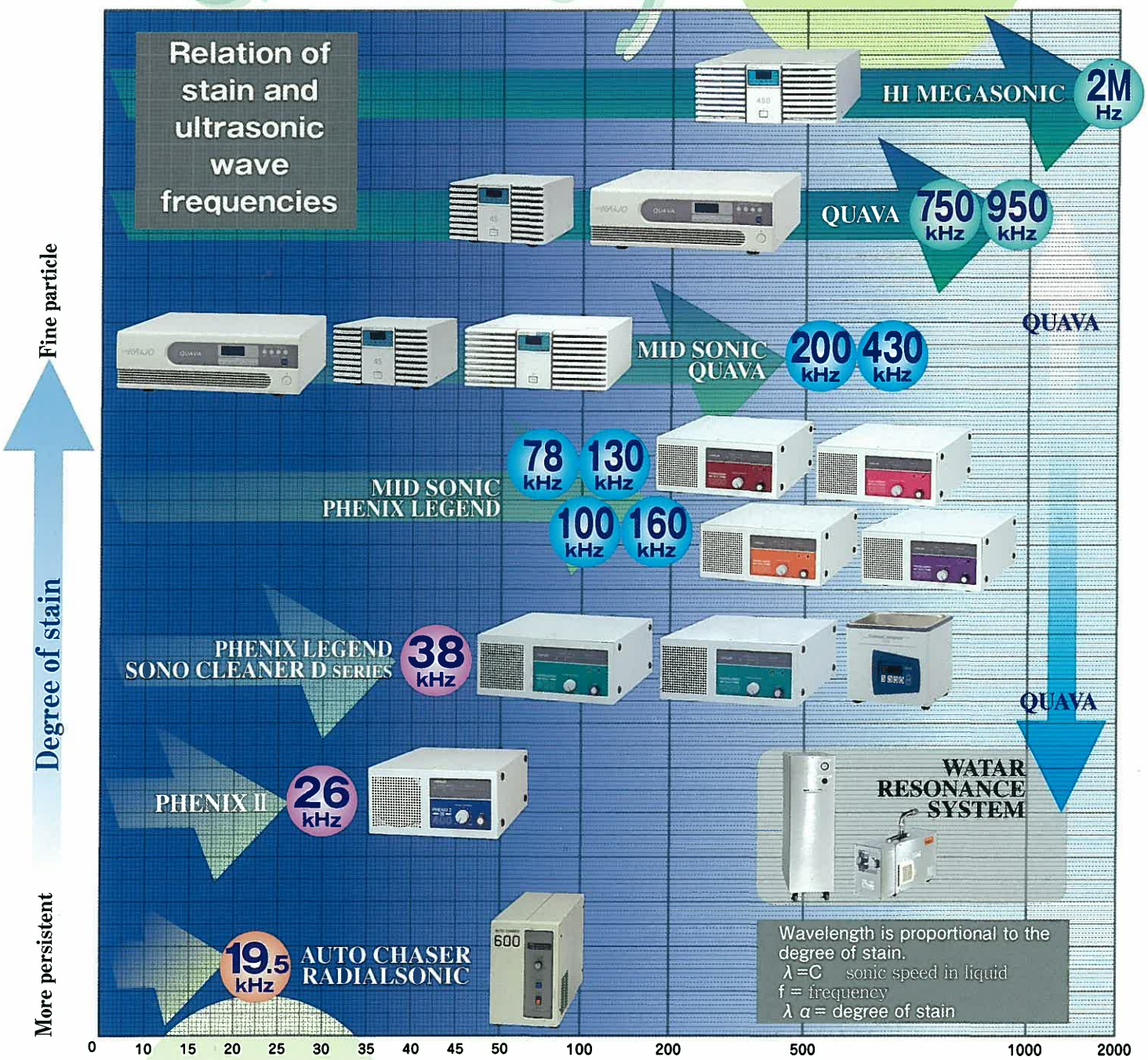
What is the ultrasonic cleaning system?
Oscillating cleaning liquid by ultrasonic waves generate high pressed bubbles (cavitation bubble) in the liquid. This phenomenon is termed cavitation.
The collapse of cavitation bubbles release energies that remove stains from components. Stains in the narrow gaps where brushing is difficult to reach are remarkably cleaned off by this method. At high ultrasonic frequencies such as 1MHz, cavitation occurs less, instead accelerated the liquid speed or chemical reaction clean off stains with less damages to components.

The low ultrasonic frequencies clean off large stains, whereas the high ultrasonic frequencies clean off particle size stains. To meet various needs from customers and clean off any type of stains, Kaijo is able to offer a wide range of ultrasonic cleaning products from low to high frequencies.

Line up

Line-up of ultrasonic cleaning products

More than 430kHz is the optimum high frequencies to clean off sub-micron particle on silicon wafer, flat panel substrate and hard disc component.



Less than 200kHz is the optimum low frequencies to clean and degrease eyeglasses, noble metal, parts for watches, mechanical parts.

26~950 kHz **QUAVA SERIESE**

UL CE FCC PATENTED PRODUCT

New Generational Ultrasonic Cleaning System Covered from 26kHz to 950 kHz of Ultrasonic Frequency!! Various Generation Mode realize Optimized Cleaning Efficiency for both powerful and precise cleaning!

NEW ULTRA SONIC GENERATOR QUAVA

NEW

Iterabyte
28nm

Powerful Oscillation with Max. 1200W!! Reduce the Number of Ultrasonic Generator from 430kHz to 950kHz!

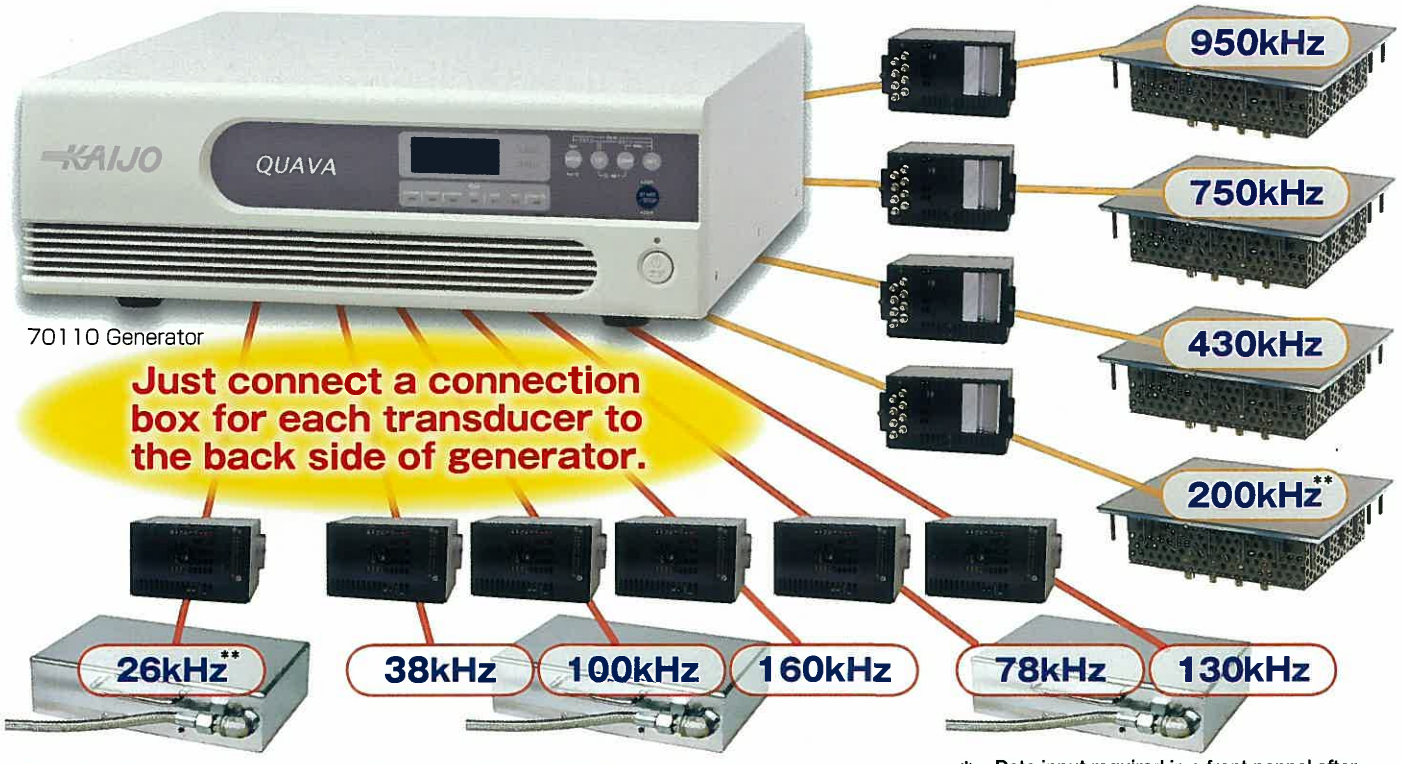
- No adjustment required in generator unit exchange.
- Precise adjustment available for output control less than 100W.
- Reduce damages with SOFT START / SOFT STOP Function.
- Power source of AC200V to 240V ± 10% available for the use of foreign countries.

Generator model	70110
Maximum output power	1200W ＊
Minimum output power	10W ＊
Adjusted output range	10 to 100W (0.1W intervals), 100 to 1200W (1W intervals) ＊
Frequency	26 to 950kHz ± 7%
Mode	PLL mode / FM mode / Burst mode / INT mode
Frequency control	Automatic tracking PLL system
Power source	AC200 to 240V ± 10% 50/60kHz 1φ
Consumption current	10A
Output display	Seven-segment digital display in 4 digits
Ambient temperature	0 ~ 40℃
Humidity	0 — 80% (except dewing)
Accessories	Remote circuit, External interface, Various abnormal displays, Analog output terminal, Forced stop terminal
Outer dimentions(mm)	430 (W) × 418 (D) × 148 (H)
Weight	Approx.17kg

＊ The above numeric value might be different depending on specifications and the oscillation mode.

Matching Box Type	Low frequency	430kHz	750/950kHz-8	750/950kHz-16
Frequency	Below 430kHz	430kHz	750/950kHz	750/950kHz
Output connector	1-8 Terminals	1-8 Terminals	1-8 Terminals	9-16 Terminals

10-kinds of Selectable Frequency.



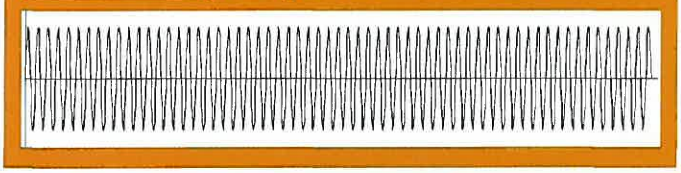
Just connect a connection box for each transducer to the back side of generator.

Just change transducer for different frequency.

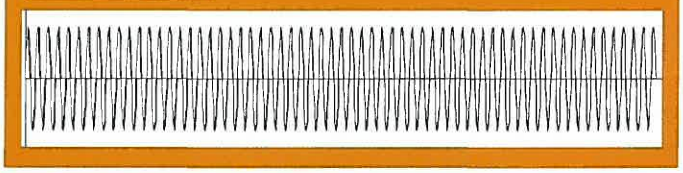
* Data input required in a front pannel after transducer replaced.
** 26kHz and 200kHz will shortly be released.

4-kinds of oscillation methods. Selectable Ultrasonic Oscillation.

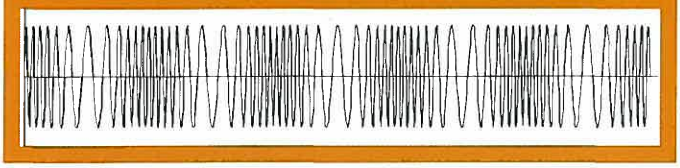
PLL Tracking optimum frequency of transducer to supply stable ultrasonic wave.



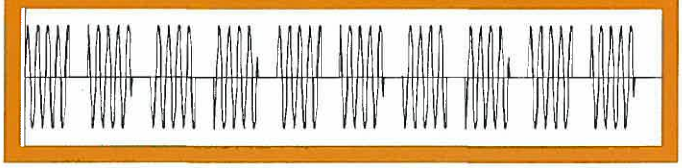
FIXED Supplying fixed ultrasonic frequency



FM Reduce standing wave to reduce uneven cleaning

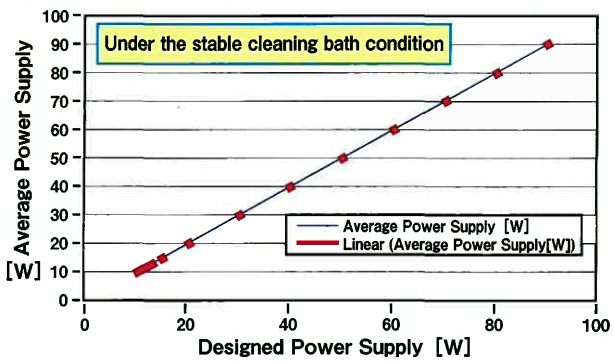


BURST Improving cleaning efficiency to avoid stagnant bubbles in cleaning bath.



Stability in low output power (less than100W)

0.1W CONTROL



78 kHz 100 kHz 130 kHz 160 kHz PHENIX LEGEND SERIES

Offer Solutions for unsolved problems of ultrasonic cleaning!!
Less noise, eliminating erosion and powerful cleaning are accomplished.

Powerful ultrasonic cleaning system Series

PHENIX LEGEND
100kHz

75106L Generator　75106H Generator　76106L Generator　76106H Generator

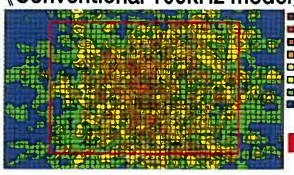
Newly developed "Water Resonance System" is able to generate and uniform powerful ultrasonic waves throughout the cleaning bath.

- Exercise its function on cleaning of HDD mechanical parts, metal and glass parts.
- 5 times greater sound pressure than our conventional model improved cleaning efficiency.
- Less operation noise.
- Uniform ultrasonic waves field in a tank.
- Less erosion and longer product lifetime. (Product lifetime is 3 to 10 times,which is longer than our conventional model.)
- 100℃ of maximum liquid temperature

75203 Transducer

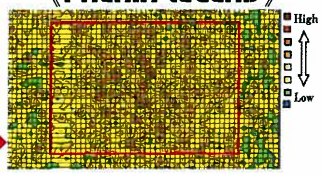
Sound pressure comparison (Top view)

《Conventional 100kHz model》



Ultrasonic waves are generated only above the transducer.

《PHENIX LEGEND》



Ultrasonic waves diffuse throughout the cleaning bath (water resonance).

* Red square in this graph shows the surface of transducer radiation.

Generator model	75106L	75106H	76106L	76106H
Max output power	AUTO・・・1200W (FM・・・800W)			
Frequency	78kHz ± 10%	100kHz ± 10%	130kHz ± 10%	160kHz ± 10%
	Frequency Modulation range : 36kHz ± 0.5 ~ 3.5kHz (10-step switching)			
Mode	AUTO / Frequency Modulation			
Frequency control	Auto PLL (at AUTO mode)			
Power source	AC200V ± 5% Single phase 50/60Hz			
Consumption current	12A			
Output display	10 lights level indicator - LED type			
Ambient temperature	0 ~ 40℃			
Humidity	0 ~ 80%(No dew condensation)			
Accessories	Remote terminals , Sensor teminals for low defect output , Outage terminals , FM status lamp			
Outer dimensions(mm)	350(W) × 440(D) × 165(H)			
Weight	17kg			

Transducer model	75206	75203	76207	76208
Frequency	78kHz	100kHz	130kHz	160kHz
Outer dimensions(mm)	365(W) × 280(D) × 100(H)	380(W) × 280(D) × 80(H)	365(W) × 280(D) × 100(H)	380(W) × 280(D) × 80(H)
Weight	17kg	12kg	17kg	12kg

38 kHz PHENIX LEDGEND 38kHz

Realize uniform, powerful and effective cleaning by ± 3.5kHz of wide modulated width.

- Remote terminals, Sensor terminals for defect low output, Outage terminals for easy machine control.
- 100℃ of maximum liquid temperature

64106 Generator model

74106 Generator model

Throw-in type Transducer

Cleaning bath

Transducer plate

	Combination mode	Generator mode	Cleaning bath model	Throw-in transducer mode	Frequency	Power·capacit	Outer dimensions (W X D X H mm)	T-Weight
64106 (600W)	CA-64801VS	64106	64801VS	—	38kHz	AC200V 7A	370 X 270 X 402	—
	C-64200VS		—	64200VS			320 X 220 X 80	9kg
74106 (1200W)	CA-74801VS	74106	74801VS	—	38kHz	AC200V 12A	430 X 405 X 402	—
	C-74200VS		—	74200VS			380 X 355 X 80	17kg

Generator model	64106	74103
Max output power	AUTO・・・600W (FM・・・400W)	AUTO・・・1200W (FM・・・800W)
Frequency	38kHz ± 7% Frequency Modulation range : 36kHz ± 0.5 ~ 3.5kHz (10-step switching)	
Mode	AUTO / Frequency Modulation	
Frequency control	Auto PLL (at AUTO mode)	
Power source	AC200V ± 5% Single phase50/60kHz	
Consumption current	7A	12A
Output display	10 lights level indicator - LED type	
Ambient temperature	0 ~ 40℃	
Humidity	0 ~ 80% (No dew condensation)	
Accessories	Remote terminals, Sensor teminals for low defect output, Outage terminals, FM status lamp	
Outer dimensions (mm)	350(W) X 440(D) X 165(H)	
Weight	17kg	17kg

* Other types of throw-in transducers, cleaning bathes and transducer plates are customizable. Please consult with Kaijo or our agent for more information on details.

Engineering & Development Award for 2007 was given by Acoustical Society of Japan.

Water resonance system (WRS・WRS-F)

Model 40007A

Model type F 11015

WRS model	40006A	40007	A40008
Model name	Water Resonance System		
Control method	Auto adjustment mechanism		
Power source	AC100 ~ 115V Single phase(50/60Hz)	AC200 ~ 230V 3phase(50/60Hz)	
Electric capacity	1kVA	0.8kVA	0.8kVA
Liquid temperature	10 ~ 70℃ 10 ~ 30℃		
Cleaning water	Water,DIW		Hydro carbon
Flexible hose inner diameter	Hose nipple (SUS304) R1/2, φ19mm (inner diamenter)		
Ambient temperature	0 ~ 40℃		
Humidity	0 ~ 80℃ (No dew condensation)		
Outerdimensions(mm)	Main body : 172(W) X 508(D) X 295(H)		Main body : 170(W)X390(D)X270(H) Function box : 290(W)X100(D)X270(H)
Weight	17kg		Main body : 10kg Function box : 8kg

WRS-F model	Main Specifications		
	11010A	11010A	11015
Processing Amount	300 ℓ /H		300 ~ 2400 ℓ /H
Applicable Liquid	Pure water (DIW) 10 ~ 40℃ (0.2 ~ 0.4MPa)		
Required Air	100nℓ /min (0.5 ~ 0.9MPa)		
Pressure Loss	< 500KPa		
Outer dimensions (mm)	300 (W) X 350 (D) X 465 (H)		415 (W) X 400 (D) X 1030 (H)
Option	Type A : DO meter,Digital type flow meter and Water leak sensor attached. Type B : Float type flow meter attached.		

Note: Water Resonance System is affected in resonance and effective area by the shape and material of the cleaning bath and the cleaning objects. Please consult with Kaijo or our agent for more information on details.

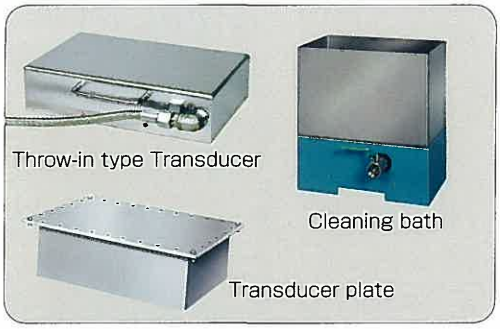
26 kHz PHENIX Ⅱ・26kHz

PCC circuit and Kaijo PLL circuit keep constant powerful cleaning. Not only frequencies but also output power are controlled.

● 100℃ of maximum liquid temperature

63103 Generator model

73103 Generator model



Throw-in transducers with the production results

PHENIX Ⅱ 26kHz		
Transducer model	Outer dimensions (W×D×Hmm)	T-Weight
43VBLTS	135×330×90	7kg
(Max output	190×210×90	6kg
power：200W)	160×260×90	7kg
53VBLTS	135×495×90	9kg
(Max output	220×240×90	8kg
power：400W)	230×300×90	10kg
63VBLTS	140×775×90	18kg
(Max output	310×315×90	17kg
power：600W)	245×480×90	19kg
73VBLTS	180×1105×90	28kg
(Max output	400×400×90	25kg
power：1200W)	340×445×90	25kg

	Combination model	Generator model	Cleaning bath model	Throw-in transducer model	Frequency	Power·capacity	Outer dimensions(W×D×Hmm)	T-Weight
43103 (200W)	CA-4359VS	43103	4359VS	—	26kHz	AC100V 5A	280×235×352	—
	C-4356VS		—	4356VS			190×145×90	5kg
53103 (400W)	CA-5359VS	53103	5359VS	—	26kHz	AC100V 8A	330×310×402	—
	C-5356VS		—	5356VS			240×220×90	8kg
63103 (600W)	CA-6353VS	63103	6353VS	—	26kHz	AC200V 7A	370×270×402	—
	CA-6359VS		6359VS	—			480×340×402	—
	C-6356VS		—	6356VS			360×220×90	15kg
73103 (1200W)	CA-7359VS	73103	7359VS	—	26kHz	AC200V 12A	450×430×402	—
	C-7356VS		—	7356VS			410×390×90	25kg

Generator model	43103	53103	63103	73103
Max output power	200W	400W	600W	1200W
Frequency	26kHz ± 7%			
Frequency control	Auto PLL			
Power source	AC100V ± 5% Single phase50/60kHz		AC200V ± 5% Single phase50/60kHz	
Consumption current	5A	8A	7A	12A
Output display	10 lights level indicator - LED type			
Ambient temperature	0 ~ 40℃			
Humidity	0 ~ 80% (No dew condensation)			
Accessories	Remote terminals, Sensor teminals for low defect output, Outage terminals			
Outer dimensions (mm)	300 (W) × 270 (D) × 165 (H)	300(W) × 425(D) × 165(H)		350(W) × 440(D) × 165(H)
Weight	7kg	11kg	13kg	17kg

＊Other types of throw-in transducers, cleaning bathes and transducer plates are customizable. Please consult with Kaijo or our agent for more information on details.

38 kHz SONO CLEANER D SERIES

Generator and transducer are combined all in one unit and designed for easy operation.

Japanese radio low certificated models

Ministry of Internal Affairs and Communications have certificated the standard models larger than 100D for Japanese radio low. Appling to the Bureau of Telecommunications is not necessary. 50D model has been inspected and passed for electrical appliance and material safety law.

Touch panel

Adopting the seat switch improved operation method. (Except 50D)

Excellent cleaning power and low noise

Newly designed BL transducer element generates powerful ultrasonic waves in the liquid, and that creates excellent cleaning power. Further more, adopting 38kHz has reduced noise.

400D

200DL

200D

Generator model. *1	CA-24800(50D)	CA-34800(100D)	CA-44800(200D)	CA-44800L(200DL)	CA-54800(400D)
Outer dimensions (WxDxH) mm *1	210 × 210 × 199	247 × 209 × 234	324 × 264 × 289	530 × 163 × 289	530 × 325 × 306
Inside bath size (WxDxH)mm	157 × 157 × 77	226 × 188 × 100	299 × 238 × 151	498 × 143 × 153	498 × 298 × 150
Bath capacity	1.6ℓ	3.9ℓ	9.6ℓ	7.4ℓ	20ℓ
Drain	—	1/2 inch	1/2 inch	1/2 inch	1/2 inch
Timer	Spring 30 minutes	Digital 99 minutes	Digital 99 minutes	Digital 99 minutes	Digital 99 minutes
Heater	—	Digital control・100W	Digital control・200W	Digital control・200W	Digital control・400W
Nominal oscillation frequency	38kHz				
Power source *2	AC100V 0.5A	AC100V 1.8A	AC100V 4.5A	AC100V 4.5A	AC100V 10A
Weight	1.7kg	4.3kg	7.7kg	8.3kg	16.2kg

100D

50D

*1: Projection area is excluded. *2: Various power sources are customizable. Please consult with Kaijo or our agent for more information on details.

● 70℃ of maximum liquid temperature

19.5 kHz HORN TYPE

Either wet cleaning or dry cleaning methods are selectable.

- Amplitude of vibration is 10 times wider (20-30 μ m pp) than the conventional throw-in transducer type or the cleaning bath type for expanded cleaning power.
- Continuous operation is possible! Special alloy has enhanced durability of the horn.
- Amplitude of vibration is adjustable by a control for more appropriate cleaning level.
- Horn can be changed easily and adjustment for matching the generator is no longer needed.

☐ Horn type combination

Combination Number	Generator model	Transducer model	Frequency	Output power	Power source/ capacity
C-5281	5271	5281	19.5kHz	300W	AC100V 6A
C-5381	5371	5381	27.5kHz		
C-6281A	6271	6281A	19.5kHz	600W	AC200V 7A
C-7281	7271	7281		1200W	AC200V 12A
C-7181	7171	7181	14.5kHz		AC200V 12A

Combination number	C-5281	C-6281A	C-7281	C-7181
Generator mode	5271	6271	7271	7171
Transducer model	5281	6281A	7281	7181
Horn type	Standard or customized type			
Max output power	300W	600W	1200W	
Nominal oscillation frequency	19.5kHz			14.5kHz
Power source	AC100V 6A	AC200V 7A	AC200V 12A	
Generator size (mm)	200(W)×430(D)×305(H)	220(W)×504(D)×341(H)	250(W)×520(D)×375(H)	
Transducer size (mm)	110(W)×332(D)×130(H)	200(W)×354.5(D)×154(H)	200(W)×353(D)×154(H)	200(W)×471(D)×154(H)
Accessories	Remote short plug, spanner or motor wrenches x 2 pieces			
Other functions	Amplitude control circuit, Oscillation level indicator, Remote control connector (Remote consent), Protection circuit (temperature rise: thermo-lamp, over-current: warning lamp), Ultrasonic wave test switch			
Liquid temperature range	0 ~ 40℃			
Generator weight	12.5kg	18.7kg	31.5kg	
Transducer weight	5kg	7.2kg	12kg	17kg
Max amplitude at com tip	20μmp-p			

Note : Horn is not included in the above specification.

6271 Generator

6281A Transducer plate

Horn

* Various horn types are customizable.

High frequency ultrasonic cleaning system(microcomputer control)

950 kHz Hi Megasonic Series UL CE FCC

Hi Megasonic Series meet high level cleaning requirement of silicon wafer and flat panel field that removing less than 45 nm particles.

68101 Generator

45nm

78101 Generator

A precision cleaning system developed for the unique requirements of the Semiconductor ,FPD Hard Disc,and Crystal industries. Kaijo,a world leading manufacturer of semiconductor cleaning equipment,has developed a new HI MEGASONIC® cleaning system. KAIJO HI MEGASONIC® series utilizes high frequencies to remove particles to less than 45nm.

new

HI MEGASONIC

Cleaning bath

Cleaning bath

Transducer plate

- 950kHz High frequency removes sub-micron particles by 10^5G acceleration.
- Constant output is controllable with the digital display (with upper and lower limits detector function).
- Internal CPU enables mutual communication to the host computer.
- Central control for output power / Feedback of operation status (self-analysis function).
- POWER MOS FET has improved efficient oscillation.
- Uniform cleaning and less damages to micro patterns.
- HDD cleaning is also feasible.

Generator model	68101	78101
Max output power	600W	900W
Frequency	950kHz	
Oscillation method	Voltage Control Oscillator (VCO)	
Frequency control	Auto PLL	
Output display	7 segments 3 digits LED	
Remote control mechanism	Yes	
Ambient temperature	0 ~ 40℃	
Humidity	0 ~ 80%	
Power source	AC200V 6A	AC200V 9.5A
Outer dimensions (mm)	320(W)×520(D)×144(H)	460(W)×500(D)×143(H)
Weight	17kg	25kg

Transducer plate model for 6"wafer	7857S
Max input power	300W × 4
Frequency	950kHz
Effective area (mm)	136 × 163
Material of plate	SUS316L
Transducer elements	PZT
Max liquid temperature	70℃
Outer dimensions (mm)	185(W) × 215(D) × 55(H)

Transducer plate model for 8"wafer	8857S
Max input power	300W × 6
Frequency	950kHz
Effective area (mm)	165 × 215
Material of plate	SUS316L
Transducer elements	PZT
Max liquid temperature	70℃
Outer dimensions (mm)	255(W) × 305(D) × 55(H)

* Various types of baths or transducer plates are customizable. Please consult with Kaijo or our agent for more information on details.

2MHz Hi Megasonic Series 2MHz

Challenge to eliminating damages to patterns!

- 2MHz eliminate damages in less than 65nm patterns.
- Achieved uniform cleaning by improving the surface of the transducer.
- Operating condition are controllable in real-time.
- Either built-in to other system or using as a stand-alone is capable.
- Suitable for 200mm and 300mm wafers cleaning.

69101 Generator

Cleaning bath

Transducer plate

Generator model	69101
Max output power	450W
Frequency	2MHz
Oscillation method	VCO
Frequency control	Auto PLL
Output display	7 segments 3 digits LED
Remote control mechanism	Yes
Ambient temperature	0 ~ 40℃
Humidity	0 ~ 80%
Power source	AC200V 6A
Outer dimensions (mm)	320(W) × 520(D) × 144(H)
Weight	17kg

Transducer plate model for 8"wafer	79S 型
Max input power	150W × 6
Frequency	2MHz
Effective area	170 × 215
Material of plate	SUS316L
Transducer elements	PZT
Max liquid temperature	70℃
Outer dimensions (mm)	255(W) × 305(D) × 55(H)

*The 79S transducer plate requires two units of 69101 generator.

* Various Cleaning bath and transducer plate are customizable.
Please consult with Kaijo or our agent for more information on details.

750kHz Hi Megasonic Series UL CE FCC

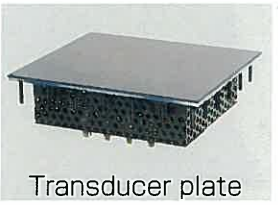
Geared to clean 300mm wafer!

- Constant output is controllable with the digital display (with upper and lower limits detector function).
- Internal CPU enables mutual communication to the host computer.
- Central control for output power / Feedback of operation status (self-analysis function).
- POWER MOS FET has improved efficient oscillation.
- Uniform cleaning and less damages to micro patterns.

78102 Generator

Cleaning bath

Cleaning bath



Transducer plate

Generator model	78102
Max output power	900W
Frequency	750kHz
Oscillation method	VCO
Frequency control	Auto PLL
Output display	7 segments 3 digits LED
Remote control mechanism	Yes
Ambient temperature	0 ~ 40℃
Humidity	0 ~ 80%
Power source	AC200V 9.5A
Outer dimensions (mm)	460(W) × 500(D) × 143(H)
Weight	25kg

Transducer plate model for 12"wafer	98SL
Max input power	300W × 16
Frequency	750kHz
Effective area	275 × 319
Material of plate	SUS316L
Transducer elements	PZT
Max liquid temperature	70℃
Outer dimensions (mm)	410(W) × 340(D) × 65(H)

*The 98SL transducer plate requires 2 x 78102 generators.

* Various Cleaning bath and transducer plate are customizable.
Please consult with Kaijo or our agent for more information on details.

950 kHz Hi Megasonic US SHOWER

PATENTED PRODUCT

Suitable for flat panel and wafer cleaning!

- Available to equipped with in FPD cleaner with backside cleaning of substrate.
- Precise cleaning by Hi Megasonic cleaning of less than 0.2 μ m particles.
- Less substrate damage due to high frequency(950kHz).

6879BK

7879BK

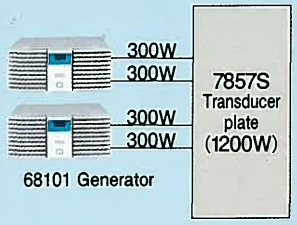
78101 Generator

US shower model	6879BK	7879BK	78BK30-660
Max output power	600W	900W	600W × 2
Frequency	950kHz		
Effective area(mm)	330mm	496mm	660mm
Liquid volume	20 ~ 25 ℓ /min	25 ~ 30 ℓ /min	40 ~ 45 ℓ /min
Material of chassis	SUS316L		
Material of plate	SUS316L		
Interior treatment	Multiple electrolytic grinding		
Liquid temperature	MAX. 70℃		
Connection cable	Transducer : 5m × 2 Sensor : 5m × 1	Transducer : 5m × 3 Sensor : 5m × 1	Transducer : 5m × 4 Sensor : 5m × 2
Protection circuit	Liquid level warnings (Lower limit)		
Weight	5kg	6kg	7kg

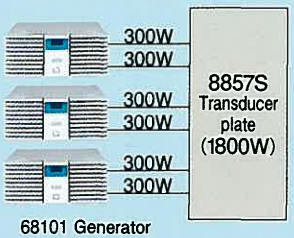
* Other types of transducer plates are customizable.
Please consult with Kaijo or our agent for more information on details.

Hi Megasonic Combination example

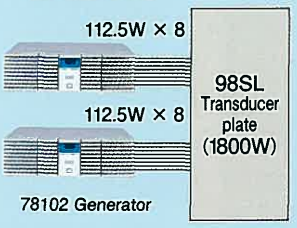
■ for 6″ wafer (C-7857S-62)



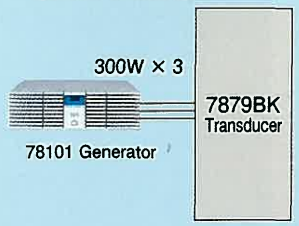
■ for 8″ wafer (C-8857S-63)



■ for 12″ wafer (C-98SL-72)



■ for FPD panel (C-7879BK-71)



200 kHz MID SONIC SERIES

Suitable for damage less cleaning, hard disc parts, flat panel and aluminum parts!

- Effective for precise cleaning for fine stain with powerful cleaning.
- Less damage for substrate by high frequency.
- Maximum liquid temperature is 70℃.

66101 Generator

Generator model	66101
Max output power	430W
Frequency	200kHz
Oscillation method	VCO
Frequency control	Auto PLL
Output circuit method	POWER MOS FET D grade PP
Power source	AC200V ± 5% Single phase 50 ／ 60H
Consumption current	6A
Remote control mechanism	Yes
Output display	7 segments 3 digits LED
Ambient temperature	0 ～ 40℃
Humidity	0 ～ 80% (No dew condensation)
Outer dimensions (mm)	320(W) × 520(D) × 144(H)
Weight	17kg

430 kHz MID SONIC SERIES

Super precision cleaning for flat panel or hard disc component!

- Effective cleaning for fine stain.
- Less damages to cleaning objects.
- Maximum liquid temperature is 70℃.

67101 Generator

67101 (430kHz)	Generator model	Transducer plate model	Output power	Power･Capacity
C-67S-61	67101 × 1	67S	600W × 1	AC200V 6A
C-77S-62	67101 × 2	77S	600W × 2	AC200V 12A

＊Other combinations of throw-in transducer and cleaning bath are customizable.
Please consult with Kaijo or our agent for more information on details.

Throw-in Transducer

Cleaning bath

Transuducer plate

Generator model	67101
Max output power	600W
Frequency	430kHz
Oscillation method	VCO
Frequency control	Auto PLL
Output circuit method	POWER MOS FET D grade PP
Power source	AC200V ± 5% Single phase 50 ／ 60H
Consumption current	6A
Remote control mechanism	Yes
Output display	7 segments 3 digits LED
Ambient temperature	0 ～ 40℃
Humidity	0 ～ 80% (No dew condensation)
Outer dimensions (mm)	320(W) × 520(D) × 144(H)
Weight	17kg

＊Accessories for 67101 Generator : Remote circuit (oscillate at SHORT), Sensor terminals for defect low and high output (Hight.Go.Low), defects indication and terminals, Output short, Output open, Thermo terminal 1,2, Analog output terminal, 8 steps of external output control, Timer, External interface (RS-485).

High frequency ultrasonic cleaning system

430 kHz 950 kHz MEGATUBE

Realize Uniform cleaning with tube type nozzole designable in any form depending on cleaning objects.

- Tube shape is designable in any form and equipped in any position.
- Uniform and damage-less cleaning is practicable.
- Available intecommunication with host computer by built-in CPU, concentrated control of output, and Feedback of operating state (self-diagnosis function).

27101 Generator
28101 Generator

Generator Model	27101	28101
Max output power	50W	45W
Effective output power	50W	30W
Frequency	430kHz	950kHz
Frequency control	Auto PLL	
Output display	7 segments 3 digits LED	
Remote control mechanism	Available	
Protection circuit	Abnormal output power warnings, Abnormal transducer warnings, Abnormal heat warnings	
Ambient temperature	0 ~ 40℃	
Humidity	0 ~ 80%(No dew condensation.)	
Power source	AC 100V ± 5% Single phase50/60kHz	
Consumption current	2.5A	2A
Outer dimensions (mm)	220(W) × 260(D) × 140(H)	
Weight	5kg	

Transducer model	27P015Mt	28P015Mt
Max input power	50W	30W
Generator model	27101	28101
Frequency	430kHz	950kHz
Chassis material	PCTFE	
Plate material	Tantalum	
Nozzle material	Quartz (φ7X φ4 Tube)	
Ambient temperature	10 ~ 40℃	
Liquid volume	2 ~ 3.5ℓ/min	1 ~ 1.5ℓ/min
Outer dimensions (mm)	φ57X89(H) excluding nozzle	φ36X66(H) excluding nozzle

※Nozzle is optional.

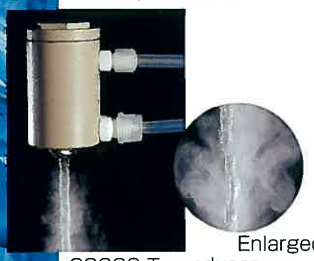
High frequency ultrasonic cleaning system

430 kHz 950 kHz KAIJO SPOT SHOWER CE FCC PATENTED PRODUCT

Ultrasonic applied cleaning liquid jet from nozzle. Effective cleaning for Semiconductor Wafer, LCD, HDD and etc.

- Available intecommunication with host computer by built-in CPU, concentrated control of output,and Feedback of operating state (self-diagnosis function).
- 3 digits digital display and operating state control are available.
- Upper and lower limit of transducer abnormality can be displayed and contact output is available.

27101 Generator
28101 Generator



Enlarged
28200 Transducer

Generator Model	27101	28101
Max output power	50W	45W
Effective output power	50W	30W
Frequency	430kHz	950kHz
Frequency control	Auto PLL	
Output display	7 segments 3 digits LED	
Remote control mechanism	Available	
Protection circuit	Abnormal output power warnings, Abnormal transducer warnings, Abnormal heat warnings	
Ambient temperature	0 ~ 40℃	
Humidity	0 ~ 80%(No dew condensation.)	
Power source	AC 100V ± 5% Single phase50/60kHz	
Consumption current	2.5A	2A
Outer dimensions (mm)	220(W) × 260(D) × 140(H)	
Weight	5kg	

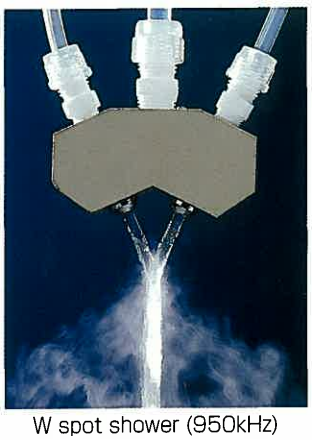
Transducer model	27200	28200
Max input power	50W	30W
Generator model	27101	28101
Frequency	430kHz	950kHz
Material of Chassis	PEEK	
Material of plate	Tantalum	
Ambient temperature	10 ~ 40℃	
Liquid volume	2 ~ 3.5ℓ/min	1 ~ 1.5ℓ/minutes
Outer dimensions (mm)	φ57×89(H)	φ36×66(H)

High frequency ultrasonic cleaning system

430kHz 950kHz KAIJO W SPOT SHOWER

HDD both sides cleaning

28101 Generator
27101M Generator



W spot shower (950kHz)

Enlarged

- 2 units of Kaijo spot shower are equipped with one chassis. W spot shower is able to clean both sides of HDD at one time. 950kHz and 430kHz models are manufacturable.

Transducer model	28101	27101M
Max input power	30W × 2	20W × 2
Generator mode	28101 × 2	27101M × 2
Frequency	950kHz	430kHz
Material of Chassis	PEEK	
Material of plate	Tantalum	
Ambient temperature	10 ~ 40℃	
Liquid volume	2 ~ 3ℓ/minutes	3 ~ 4ℓ/minutes
Outer dimensions (mm)	84(W) × 32(D) × 59(H)	

High frequency power meter

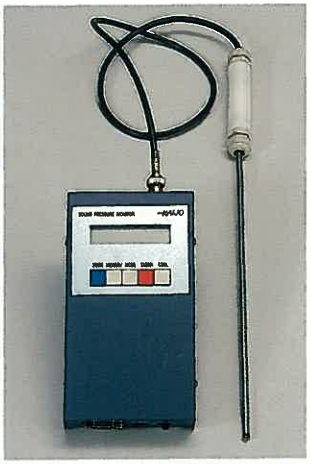
- LED digital display eliminates misreading.
- Upper and lower control limits is configurable through the installed comparator.
- Warning appears when connecting to the buzzer or the indicator light, which is enabled by no-voltage contact points corresponding to each control limit in and out (upper limit and lower limit). Easy to control.

8501C-MR

Model		8501C-MR
Measurement range		1W ~ 1999W
Measuring frequency range		10kHz ~ 100kHz
Max rated input power		1000Vrms
Max rated input current		30Arms
Distortion of measuring input waveform		50%
Load impedance range		5Ω ~ 245Ω
Load power range		0.3 ~ 1
Measuring accuracy		±5%of rdg ± 2 Count
Comparator	Settingpoints	2points(Upperlimit・Lower limit)
	Setting range	Upper limit and lower limit
	Output	Relay contact (rare panel, M3 bolted terminal block) HI.GO,LO 3a contact
Analog data output		0 ~ 5V
Power source		Single phase AC90 ~ 110V 50／60Hz
Consumption current		10VA
Outer dimensions (mm)		320(W) × 72(H) × 200(D) (Exclude protrusion)
Weight		2.4kg

＊ Simple type of level meter is available.
Please contact Kaijo or our agent for more information.

Ultrasonic Sound Pressure Meter 19001D


19001D

- Digital Display.
- Best for measuring Sound Pressure of Ultrasonic Cleaning Equipment.
- The same data can be obtained in case of using different meter.

Model	19001D
Measuring frequency range	14.5kHz ~ 2.0MHz
Power Source	AC100V or AA battery × 4
Consumption current	3W
Outer dimensions(mm)	100(W) × 182(D) × 34(H)
Sensor Length	410mm (Cable:1.5M)
Weight	MAIN : 390g (With out battery) Sensor : 160g
Output	Sound Pressure value Sound Pressure Average Sound Pressure Maximum
Data output	USART

SONOCLEN

- Ultrasonic applied equipment maker, Kaijo, strengthen powerful cleaning and water-soluble detergent with anti-rust treatment.

Model	Usage	Appearance	Features
SONOCLEN	Precision parts cleaning Jewelry polishing Temporary anti-rust treatment of metal	Auburn water-soluble liquid	-Does not corrode Metal. -Coat the surface by thin anti-rust films after cleaning.
SONOCLEN#1	Copper alloy defatting Acid film removal Ceramic and artificial tooth cleaning	Gray-brown viscous water-soluble liquid	-Remove tough acid films. -Usable for defatting.
SONOCLEN#201	Buff powder removal Resin products Grinding powder removal by dissolving	Transparent water-soluble liquid	-Effective on stains of synthetic resin. -Does not impinge metal.
SONOCLEN#208	Grouts and chemical stains removal	Transparent water-soluble liquid	-Usable for Immersion cleaning -Phosphorus-free detergent.
SONOCLEN#277e	Removal and defatting of grinding glass powder. Metal defatting.	Pale yellow water-soluble liquid	-Optimum for grease in general.

■ Caution : ＊ Wear protection glasses and rubber globes when handling.
＊ Wash off the detergent with plenty of water when it touches your skin.
If the detergent get into your eyes, wash it off with plenty of water immediately and see your doctor.
＊ If you happen to drink the detergent, drink plenty of water and expel them, and immediately see a doctor.

■ Disposal : ＊ Please comply with your local disposal rules and law.

CAUTION: Please read operation manuals and instructions carefully before use.

Installation safety

* Make sure that the system is grounded. * Pull out power plugs before installation. * Acid or alkalis should not exist in the air, where the system is installed. * Locate generators in the place more than 15 cm away from the wall or objects.

Operation safety

* Check the system has been grounded. * Do not disassemble the system. * Please contact us if you change cleaning liquid. * The cleaners are not designed for complete waterproof type. * Do not use the system when grinding and cutting powder are deposited in the bath. * Please contact us if you are to use the system for a continuously long time.

Catalog

* Please understand that specifications or appearances in the catalog are subject to change without notice. * Please contact Kaijo or our agent for delivery time. * This catalog is valid only in Japan.

Purchase

* The Serial Number (Manufacturing Number) is important for the quality control. Make sure to check the Serial Number when you purchase the products.

ISO 14001

KAIJO®
URL:http://www.kaijo.co.jp

KAIJO CORPORATION

HEAD OFFICE:INDUSTRIAL CLEANING EQUIPMENT DIVISION
3-1-5, SAKAE-CHO HAMURA-SHI, TOKYO, JAPAN 205-8607
TEL 81-42-555-6456 FAX 81-42-555-0291
OVERSEAS MARKETING & SALES DEPARTMENT
TEL 81-42-555-4794 FAX 81-42-555-0291

KAIJO (THAILAND) CO., LTD TEL 66-2-673-9496 FAX 66-2-673-9499

OVERSEAS DISTRIBUTOR

10050.5-NI
NO.S-130-78