

**Grinding / Crushing / Dispersing**  
(AIMEX Co. Ltd. )

***Beads Mill Nano Grinding & Dispersing System***



- System Integration / Design / Sales / Engineering Support / Powder Processing Service
- Nano Creating (Grinding / Dispersion / Emulsifying / Classification) Systems
  - Powder & Particles Processing Equipment / Systems



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## ■ Applications

For the Industries such as

- \* Bio,
- \* Dyestuff (DFB Dye, Florescent Dye),
- \* Fine Chemical (Activator, Anti-Oxidizing Chemical, Sealant, Anti-Flowing Chemical for Plasma & Liquid Cristal Dsplays),
- \* Battery (Lithium, Tantalum, Nickel Hyrrogen, Fuel Cell),
- \* Fine Ceramics (Ceramic Paste, Cumulative Layer Condenser, Semiconductors. Electric & Electronics Parts),
- \* Pharmaceutical,
- \* Paper Mill (Painting, Pressure & Heat Sensitive Papers, Nano Fibers),
- \* New Material (Light Catalyst, Light Sensitive Material, Light Sensitive Drum),
- \* Agricultural (Agricultural Chemicals, Hydration Chemicals. Emulsifer),
- \* Fiber (Nylon Thread, Polyester, Acryl, Film),
- \* Food (Spice, Chocolate, Mayonnaise, ermenting / Additive. Health Food, Soybean),
- \* Pigments/Ink/Paint (Organic Inorganic Materials, Oxidized Titanium, Iron Oxide, Calcium Carbonate, Electric Conductor, Insulation Materials),
- \* Cosmetics (Skin Cream, Manicure, Lipstick, Foundation, Eye-shadow),
- \* Recording Media (Color Filter, Organic EL)

**Alpha Mill-1L**

**CONTINUOUS OPERATION WITH MICRO BEADS (Φ0.03 ~ 0.5mm)**

- \* **MOST EFFECTIVE PROCESSING**  
 USING ORIFICE CONTRACTILE FLOW MAKES HIGH-EFFECTIVE PROCESSING  
 THE PROCESSING TIME IS CUT BY 50 ~ 65%
- \* **HIGH QUALITY PRODUCTION THROUGH UNIFORM PROCESSING**  
 THE MEDIA PACKING PHOENOMINON IS PREVENTED, BY COMPULSORY BEADS  
 CIRCULATION.  
 ABNORMAL HEAT, AND WEAR-OUT IS PREVENTED.  
 SHARP PARTICLE DISTRIBUTION IS ACHIEVED BY IDEAL BEADS CIRCULATION
- \* **LONGER MACHINE LIFE BY LESS WEAR-OUT DESIGN**  
 NEW LESS WEAR-OUT DESIGN MAKES ROTOR LIFE LONGER, AND PREVENTS  
 RAPID PERFORMANCE DETERIORATION



ALPHA MILL-1L SPECIFICATION

VESSEL CAPACITY	APPROX. 700ml
MATERIAL	ZrO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , SiN <sub>4</sub> , METAL
MOTOR CAPACITY	3.7kW
RECOMMENDED BEADS SIZE	Φ0.03 ~ 0.5mm
DIMENSION	W1200 x D1000 x H1700mm
BEADS SEPARATION METHOD	CENTRIFUGE

**Batch type Ready Mill (Model RMB)**

**BEST LABORATORY BEADS MILL FOR EXPERIMENTAL USE**

- \* **VERY SIMPLE & EASY OPERATION FOR DATA COLLECTION**  
 VERY SIMSPL E BUT EFFECTIVE STRUCTURE FOR OVERHAUL & ASSEMBLY, AND CLEANING  
 IT WORKS WITH 100V POWER SUPPLY
- \* **HIGH COST PERFORMANCE**  
 SIMPLE STRUCTURE AT VERY REASON-ABLE PRICE & OPERATION COST WITH HIGH PERFORMANCE.
- \* **WIDE VARIATION, OPTIONS**  
 WIDE RANGE OF VESSLE SIZE IS AVAILABLE  
  
 MANY OPTIONS IN MATERIALS, ATTACHMENT, SPECIFICATIONS, ARE AVAILABLE
- \* **SMALL SAMPLE**  
 TEST CAN BE DONE WITH ONLY 30ML SLURRY SAMPLE



ROTATION DISKS



RMB TYPE SPECIFICATION

VESSEL SIZE	100, 200, 400, 800 ml
PROCESS VOLUME	50 ~ 400 ml
MOTOR CAPACITY	0.4 KW
RECOMMENDED BEADS SIZE	Φ0.03 ~ 2.0mm
WEIGHT	35kg
Rpm	MAX. 2650 rpm

BEADS SEPARATOR, FILTERING MACHINE



### ■ Continuous Vertical-Type Ready Mill (Model RMV-03)

- \* **CONTINUOUS TESTS** CAN BE MADE WITH SMALL VOLUME SAMPLES.
- \* THE INEXPENSIVE, **HIGHLY COST-EFFECTIVE** COMPACT MILL IS REALIZED.
- \* THE CLEANING OF COMPONENTS IS SO EASY, AND CAN BE USED FOR **A WIDE RANGE, & PURPOSE OF TESTS.**
- \* IT CAN BE **SCALED UP** FOR A PRODUCTION UNIT WITHOUT PROBLEMS.
- \* IT CAN BE USED AS A BATCH-TYPE MILL.
- \* **φ0.3mm TO 2.0mm BEADS** CAN BE USED.



VESSEL CAPACITY	PROCESS VOLUME	MOTOR CAPACITY	RPM	WEIGHT
0.32 L	2~10 L/hr	0.4kW	MAX3,000r.p.m	35kg

### ■ Continuous Horizontal-Type Ready Mill (Model RMH-03)

- \* IT IS SUITABLE FOR **TEST OPERATION & SMALL SIZE PRODUCTION.**
- \* **φ0.2 TO 2.0mm BEADS** CAN BE USED.
- \* THREE KINDS OF SHAFT SEATS CAN BE SELECTED.
- \* **MANY OPTIONS** CAN BE OFFERED FOR SHAFT SEAL TYPE, ELECTRICAL SPECIFICATION, PUMP TYPE, CONTROL PANELS, MONITORING SYSTEMS, & OTHERS.



VESSEL CAPACITY	PROCESS VOLUME	MOTOR CAPACITY	ELECTRICITY	DIMENSION	WEIGHT
0.310 L WITH COOLING JACKET	2~10 L/hr	0.4kW	AC100V	W650 X D280 X H300mm	40kg

## ■ Ultra Visco Mill (Model UVM Series / UVM-2)

- \* **0.2mm BEADS** CAN BE USED.
- \* **SLURRY WITH HIGH VISCOSITY** CAN BE PROCESSED.
- \* BY SEPARATING THE GAP SEPARATOR MOVEMENT FROM AGITATION AXEL, IT ACHIEVES THE **SLOW ROTATION** OF SEPARATOR, AND MINIMIZES THE SLIT SPACE.
- \* THE **DISK WITH PINS** CREATES HIGHLY EFFECTIVE PULVERIZING POWER.



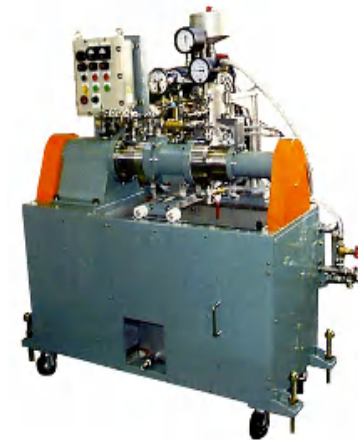
THE INCORPORATION OF THE DISK WITH PINS ENABLES A HIGH PULVERIZATION EFFETS BY DISK SPEED OF 6 TO 12 m/sec, AND THIS MODERATE ROTATION SPEED DECREASES THE ABRASION OF THE MECHANICAL PARTS & BEADS, AND GENERATION OF THE HEAT.

THE LESS CLOGGING OF SLURRY EMISSION SLIT ALLOWS A LARGE AMOUNT OF PROCESSING FLUIDS.

THE LESS FORM GENERATION IN SLIT MAKES THE BETTER PROCESSING FOR FORM-GENERATING FLUIDS.

### APPLICATIONS :

FOR THE PULVERIZATION, CRUSHING, DISPERSION, AGITAION & SOLIDIFICATION OF COSMETICS, DYE, INKS, CARBON, PAINT, PAPER COATING MATERIAL, CERAMICS, MAGNETIC PAINT, ELECTONIC MATERIAL, FIBER, LIGHT SENSITIVE MATERIAL, BATTERIES, LIGHT CATALYSTS, AGRICULTURAL CHMICALS, MEDICINE, FOOD, & OTHERS



**■ New Visco Mill (NVM / NVM-2)**

- \*  $\phi$  0.45mm BEADS CAN BE USED.
- \* IT ACHIEVES THE **SLOW ROTATION** OF SEPARATOR
- \* THE INCORPORATION OF THE **DISK WITH PINS** ENABLES A DISK SPEED OF 6 TO 12 m/sec, AND **HIGHER REPLENISHMENT RATIO** OF SMALL BEADS.
- \* IT REALIZES THE **HIGH PERFORMANCE** MODEL, WITH **LOW ABRASION, LOW HEAT GENERATION, AT LOW COST.**

THE INCORPORATION OF THE DISK WITH PINS ENABLES A HIGH PULVERIZATION EFFETS BY DISK SPEED OF 6 TO 12 m/sec, AND THIS MODERATE ROTATION SPEED DECREASES THE ABRASION OF THE MECHANICAL PARTS & BEADS, AND GENERATION OF THE HEAT.

IT IS DESIGNED FOR THE SIMPLE STRUCTURE AND EASY MAINTENANCE AT A REASONABLE INITIAL AND RUNNING COST.

**APPLICATIONS :** SAME AS THE ULTRA VISCO MILLS



MODEL	VESSEL CAPACITY L	PROCESS VOLUME L/hr	MOTOR CAPACITY kW	MAX BEADS REPLANISH-MENT L	DIMENSIONS mm			WEIGHT kg
					W	L	H	
NVM-2	2	6~36	3.7~5.5	1.3	1,100	750	1,400	300
NVM-5	5	11~67	5.5~7.5	3	1,400	850	1,500	540
NVM-10	10	18~110	7.5~11	6	1,700	950	1,600	700
NVM-20	20	30~180	11~18.5	12	1,900	1,000	2,000	1,000
NVM-30	30	40~240	18.5~22	18	2,300	1,050	2,100	1,500
NVM-45	45	54~320	22~37	27	2,700	1,200	2,200	2,400
NVM-60	60	66~395	30~45	35	3,000	1,250	2,200	3,200
NVM-100	100	91~545	45~55	60	3,350	1,400	2,200	4,000

## ■ Soft-Fine Visco Mill (SVM)

- \* SOFT DISPERSION TYPE FOR RE-CONDENSED PARTICLES
- \* IT WAS DEVELOPPED TO PREVENT RE-CONDENSATION OF THE FINE PARTICLES.
- \* THE SOFT-FINE VISCO MILLS ARE APPLICABLE FOR RELATIVELY SOFT PARTICLES.
- \* THE LOW VISCOSITY OPERATION CAN BE EXPECTED

IT CAN BE USED FOR NANO LEVEL PULVERIZING OF SOFT MATERIALS.

THE MATERIAL IS ONCE SENT TO THE DISPERSANT CONTAINER IMMEDIATELY AFTER THE GRINDING TO OPTIMIZE THE EFFECTS OF THE DISPERSAN, AND THE RESEND THE MILL FOR ADDITIONAL GRINDING.

THE SOFT PULVERIZING PROCESS LASTS LONGER WITH LESS SCRUBBING, AND CONTAMINATION.



SVM-075



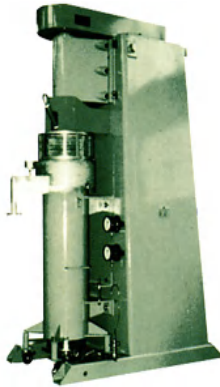
SVM-015

MODEL	VESSEL CAPACITY L	PROCESS VOLUME L/hr	MOTOR CAPACITY kW	MAX BEADS REPLANISH-MENT L	DIMENSIONS mm			WEIGHT kg
					W	L	H	
SVM-015	0.15 L	0.15~0.5 L/hr	AC SERVO 0.75 kW	0.128	450	220	350	25
SVM-075	0.75 L	6~120 L/hr	3.7~5.5 kW	0.65	850	500	1140	190



### ■ Screenless-type Sand Grinder (SLG)

- \* IT CAN BE USED FOR HIGH VISCOSITY UP TO 10,000cp MATERIALS.
- \* THE SEPARATION OF THE PROCESSING SLURRY AND BEADS IS DONE THROUGH AN ADJUSTABLE SLIT (GAP SEPARATOR) AT THE UPPER PART OF THE VESSEL, AND NO SCREEN IS USED.

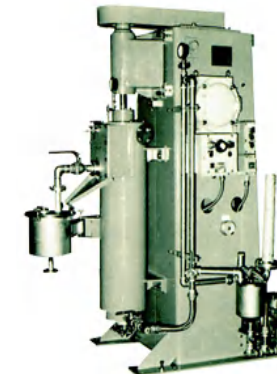


### ■ Open-type Sand Grinder (SLG)

- \* 360 DEGREE SCREEN IS LOCATED AT THE UPPER PART OF THE VESSEL
- \* THE CONDITION OF THE PROCESSING FLUIDS, COMING OUT FROM THE SCREEN CAN BE OBSERVED FROM OUTSIDE.

### ■ Closed-type Sand Grinder (ESG)

- \* IT IS DESIGNED AND DEVELOPPED FOR LOW VISCOSITY, HIGH VOLATILE SLURRY.
- \* IT CAN BE USED FOR THE VISCOSITY UP TO 5,000cp MATERIALS.
- \* THE MACHINE IS TOTALLY CLOSED FROM OUTSIDE AIR TO AVOID THE CLOGGING BY DRYING OF HIGH VOLATILE SOLVENTS.



**APPLICATIONS :** PIGMENT, DYE, CARBON, HEAT SENSITIVE MATERIAL, ELECTRONICS MATERIALS, DRUG, FOOD, COSMETICS, INK, PAINT, & OTHERS

## ■ Batch-type Sand Grinder (BSG)



- \* IT IS SUITABLE FOR **TEST & SMALL SIZE DISPERSING AND GRINDING OPERATION.**
- \* **ULTRA SMALL BEADS (φ0.1mm) CAN BE USED.**
- \* **THE OPERATION IN COOLING CONDITION CAN BE OFFERED.**
- \* **AGITATION SHAFT & VESSEL CAN BE MOVED.**
- \* **ALL PROCESSING FLUIDS CAN BE COLLECTED AFTER THE OPERATION.**
- \* **THE INCORPORATION OF THE DISK WITH PINS ENABLES A HIGH PULVERIZATION EFFECTS BY DISK SPEED OF 6 TO 12 m/sec, AND THIS MODERATE ROTATION SPEED DECREASES THE ABRASION OF THE MECHANICAL PARTS & BEADS.**
- \* **THE DE-FORMING AND DISPERSION IN VACUUM CONDITION CAN BE OFFERED (OPTION).**

MODEL	VESSEL CAPACITY L	MAX BEADS REPLANISH-MENT L	VESSEL MOVEMENT	MOTOR CAPACITY kW MAIN BODY HYDRAULIC UNIT	DIMENSIONS mm			WEIGHT Kg
					W	L	H	
BSG-5	7.5	2.5	MANUAL / HYDRAULIC	1.5 TO 3.7 0.4	1270	800	1850 – 2500	500 / 600
BSG-30	36.0	15.0	HYDRAULIC	5.5 TO 7.5 0.75	1800	1080	2060 – 2750	1250
BSG-100	118.9	50.0	HYDRAULIC	18.5 TO 22.0 1.5	2350	1300	2700 - 3600	2800

**BEADS SELECTION**

	GLASS BEADS	LOW ALKALI BEADS	NON-ALKALI	ZIRCONIA / SILICA TYPE	ZIRCONIA TYPE	ALUMINA BEADS	HIGH-PURITY ALUMINA BEADS
INGREDIENTS	SiO <sub>2</sub> Al <sub>2</sub> O <sub>3</sub> Na <sub>2</sub> O K <sub>2</sub> O CaO MgO	SiO <sub>2</sub> Al <sub>2</sub> O <sub>3</sub> B <sub>2</sub> O <sub>3</sub> Na <sub>2</sub> O K <sub>2</sub> O CaO MgO	SiO <sub>2</sub> CaO Al <sub>2</sub> O <sub>3</sub> B <sub>2</sub> O <sub>3</sub> MgO	ZrO <sub>2</sub> SiO <sub>2</sub>	ZrO <sub>2</sub> Y <sub>2</sub> O <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> OTHERS	Al <sub>2</sub> O <sub>3</sub> (99.9%)
GRAVITY (FILLING DENSITY)	2.5 (1.56)	2.6 (1.62)	2.6 (1.62)	3.85 (2.35)	6.0 (3.72)	3.6 (2.24)	3.9 (2.42)
HARDNESS	Hv550	MOHS SCALE 6	Hv660	MOHS SCALE 7	Hv1150 1250	Hv1050 1100	Hv1750 1800
PARTICLE DIAMETER (φ mm)	0.09 – 0.15	0.42 – 0.60	0.71 – 1.00	0.10 – 0.20	0.03	1.00	0.10
	0.30 – 0.42	0.60 – 0.85	0.85 – 1.18	0.20 – 0.30	0.05	2.00	0.20
	0.42 – 0.60	0.71 – 1.00	1.00 – 1.40	0.30 – 0.40	0.10		0.30
	0.60 – 0.85	0.85 – 1.18	1.40 – 2.00	0.40 – 0.60	0.20		0.40
	0.71 – 1.00	1.00 – 1.40	1.70 – 2.36	0.60 – 0.80	9.25		0.50
	0.85 – 1.18	1.40 – 2.00	2.00 – 2.80	0.80 – 1.00	0.30		0.80
	1.00 – 1.40		2.00 – 2.80	1.00 – 1.25	0.40		1.00
	1.40 – 1.70		2.36 – 3.35	1.25 – 1.60	0.50		2.00
	1.40 – 2.00			1.60 – 2.00	0.65		0.40
	2.00 – 2.36			2.00 – 2.50	0.80		0.50
	2.00 – 2.80				1.00		0.80
	2.00 – 3.35				1.25		1.00
	2.36 – 3.35				1.50		2.00
					1.75		
				2.00			

**Inquiry Sheet**

Please fill your requirement / Information & return to us.

Customer	Company			Dept. Position				
	Address			Phone				
	Name			E-Mail				
Required System & Request	Category	A) Grinding B) Dispersing / Emulsifying C) Classification / Sifting D) Feeding / Transportation E) Separation / Concentration F) Drying G) Others						
	System	A) Cavitation Mill Dispersing System B) Beads Mill Ultra Fine Grinding System C) Jet Mill Ultra Fine Grinding System D) Grinding Mill Powder Pulverization System E) Super Micro Sieve F) Hydro-Cyclone Classification System G) Vibration Sifter H) Micro Powder Air Classifier I) Constant Micro Feeder J) Others						
	Request	A) Sales Material B) Proposal C) Test D) Process Service E) Rental F) Others						
Materials & Target	Name			Properties Y or N	Bulk Density		Moisture	
	Condition	A) Powder B) Particle C) Solid D) Others			Hygroscopic		% if Yes	
	Particle Shape	A) Spherical B) Unspecified C) With Protrusion D) Single Particle E) Aggregates F) Unknown			Abrasiveness		Aggregation	
				Solvent	A) Water B) Ethanol C) IPA D) MEK E) Acetone F) Toluene G) Xylene H) Ethyl Acetate I) Others			
	Size	Original Powder	Required					
	D <sub>50</sub>			Slurry	Density wt%		Viscosity cps	
	Top							
	Others			Detergent				
Test & Work	Required Volume	Test sample			Production			
	Test / Work Schedule				Attendance			
Remarks								

Excel version is available at <http://www.ftajapan.com/inquiry.xls> , if required.

## ■ Major Systems & Services offered by FTA



### Grinding / Crushing / Dispersing / Emulsifying

**Dispersing / Emulsifying / Mixing** Wet Operation  
Cavitation Mill Nano Dispersing System

**Nano Grinding / Crushing / Dispersing / Mixing** Wet Operation  
Beads Mill Nano Grinding System

**Grinding / Crushing** Dry Operation  
Jet Mill Ultra Fine Grinding System

**Dispersing / Emulsifying / Mixing** Wet Operation  
Ultrasonic Processor Nano Forming System

**Grinding, Crushing** Dry Operation  
Grinding Mill Powder Pulverization System



### Classifying / Sifting

**Classification / Sifting** Dry & Wet Operation  
Super Micro Sieve & Screen

**Classification/Separation/Concentration** Wet Operation  
Hydrocyclone Classification System

**Sifting / Screening / Classifying** Dry & Wet Operation  
Powder & Particles Vibration Sifter

**Classifying** Dry Operation  
Micro Powder Air Classifier



### Other Powder Processing Systems & Services

**Concentration**  
Screw Decanter Concentration System

**Constant Feeding**  
Powder & Particles Constant Micro Feeder