

Separation / Concentration

Kokusan Seiko Co., Ltd.

# **Screw Decanter Concentration System**

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



**FT Associates, Inc. (FTA)**

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## ■ Special Features

### \* CONTINUOUS OPERATION

AS NO FILTERS ARE USED, NO CLOGGING OCCURS AND THE SEPARATION OF LIQUID AND SOLIDS CAN BE CARRIED OUT SMOOTHLY AND CONTINUOUSLY.

### \* STRONG, EFFECTIVE CENTRIFUGAL FORCE

THE POWERFUL CENTRIFUGAL FORCE MAKES POSSIBLE THE SEPARATION AND DEHYDRATION OF SUB-MICRON PARTICLES.

### \* ADAPTABLE FOR ALL DENSITIES

A VERY WIDE RANGE OF PRE-TREATMENT LIQUID DENSITIES, FROM 0.1% TO 60% CAN BE HANDLED, AND VARIATIONS IN DENSITY HAVE VERY LITTLE EFFECT ON SEPARATING PERFORMANCE.

### \* AUTOMATIC OPERATION

THE CONSTRUCTION OF THE UNIT IS SIMPLE, AND NO AUXILIARY EQUIPMENT IS NEEDED DURING OPERATION. 24 HOURS UNMANNED OPERATION IS POSSIBLE.

### \* SIMPLIFIED MAINTENANCE

THE SIMPLE CONSTRUCTION OF THE UNIT ELIMINATES BREAKDOWNS, AND DAY-TO-DAY MAINTENANCE IS EXTREMELY EASY.

### \* SIMPLIFIED CONTROL SYSTEM

THE SUPERIOR SAFETY DEVICE PROTECTS THE UNIT FROM OVERLOADING. IN ADDITION, THE STOPPING OF THE LIQUID SUPPLY AND OF THE MOTOR CAN BE CONTROLLED.

### \* ADAPTABLE TO PARTICLES OF ALL SIZES

ADJUSTMENT OF THE ROTATING SPEED (CENTRIFUGAL EFFECT) OF THE BOWL MAKES POSSIBLE THE SEPARATION AND DEHYDRATION OF SOLIDS MEASURING FROM SEVERAL MILLIMETERS TO SEVERAL MICRONS.

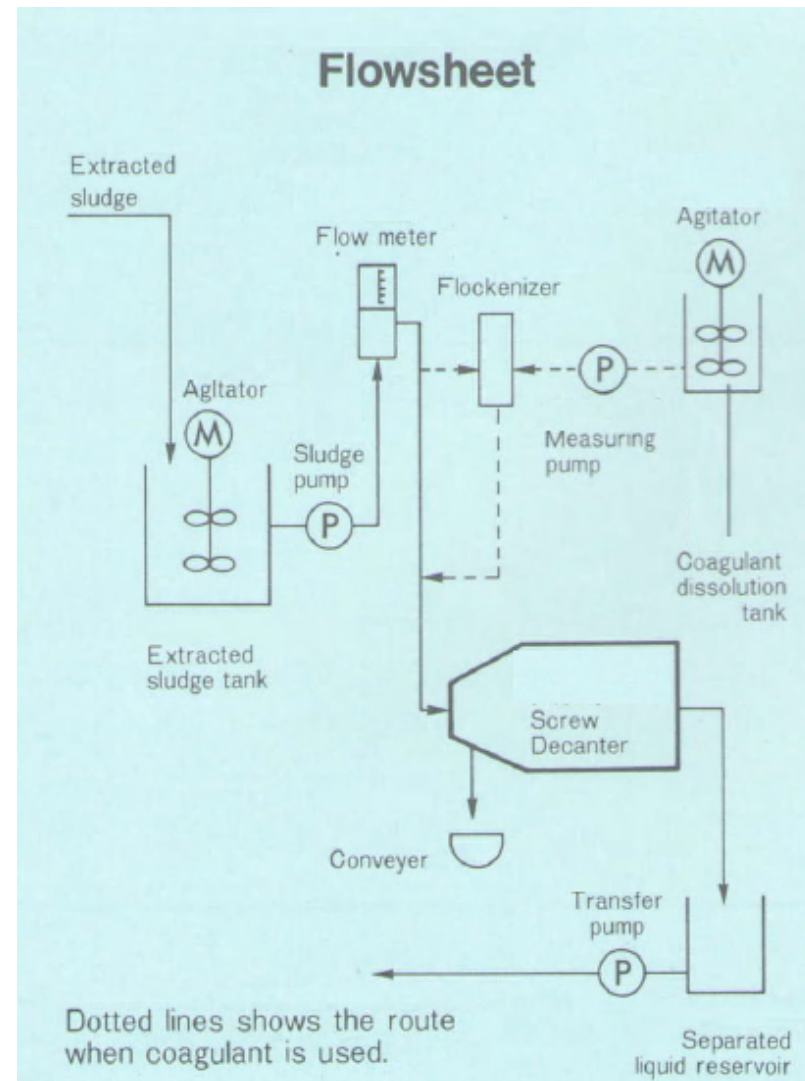
( ■ Special Features )

**\* CLASSIFICATION OF FINE PARTICLES**  
LIGHT AND HEAVY PARTICLES CAN BE CONTINUOUSLY AND ACCURATELY CLASSIFIED USING SPECIFIC GRAVITY.

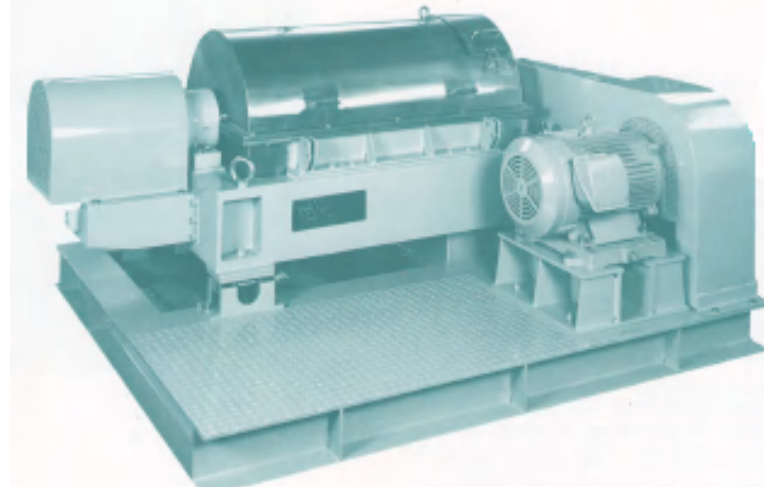
**\* CLEAN ENVIRONMENT**  
ROTATING PARTS ARE COMPLETELY COVERED BY CASING, SO THAT NO SOLID PARTICLES OR CLEARED LIQUID LEAKS, THUS ENSURING A CLEAN ENVIRONMENT.

**\* COMPACTNESS**  
THE UNIT TAKES UP LESS INSTALLATION SPACE THAN ANY OTHER TYPE OF SEPARATING AND DEHYDRATING EQUIPMENT, THUS MINIMIZING INCIDENTAL CONSTRUCTION COSTS.

**\* SILENT OPERATION**  
THE PRECISE BALANCE OF THE ROTATING PARTS AND THE ANTI-VIBRATION DEVICE, KEEP VIBRATION TO A MINIMUM. SOUND-PROOF COVER (OPTION) MAY ALSO BE USED SHOULD THE CUSTOMER SO DESIRE.

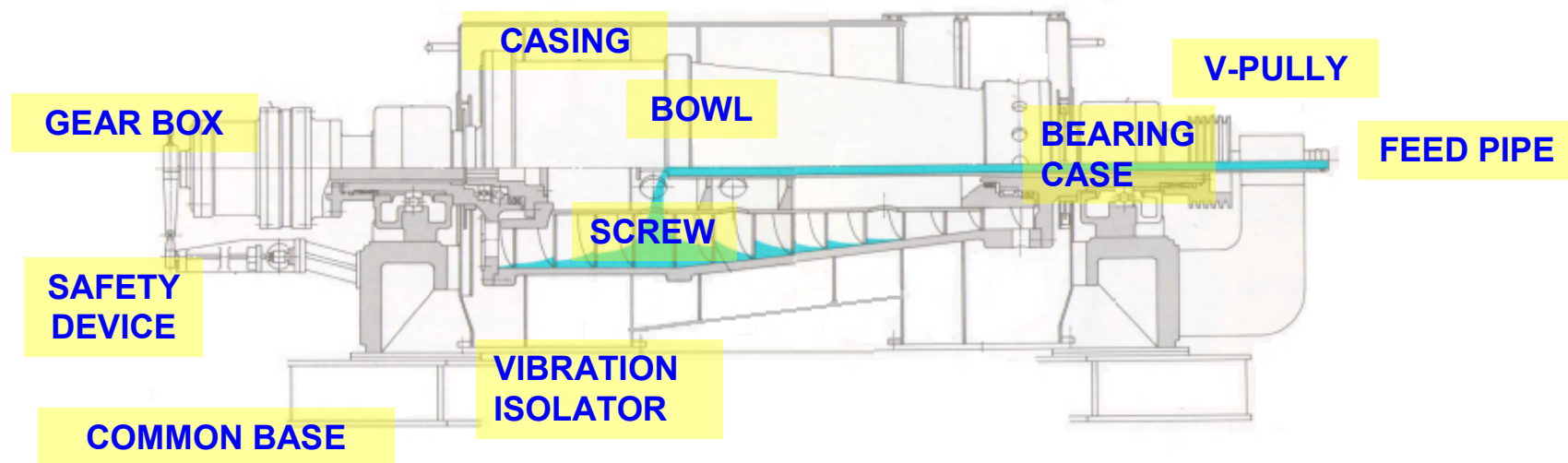


■ Structure

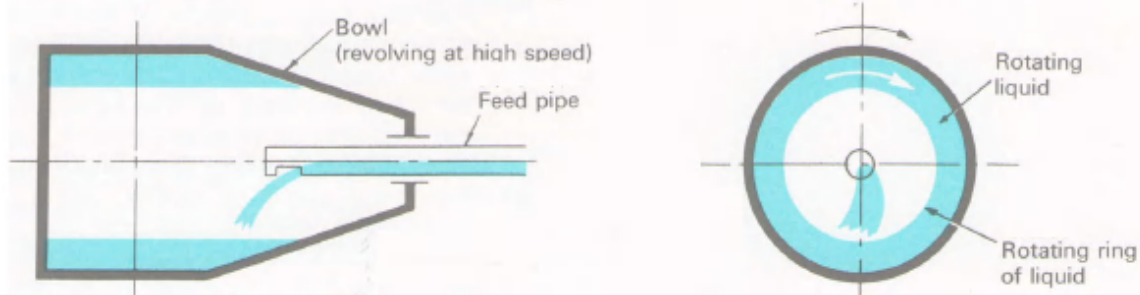


■ Options

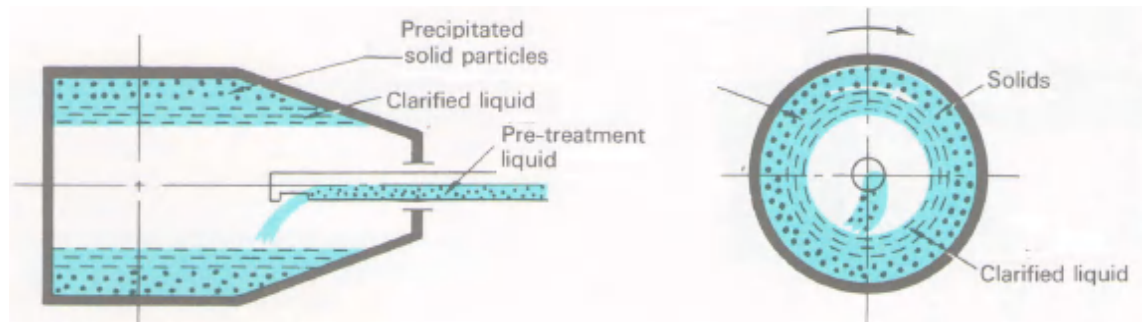
- CONTROL PANEL
- FLOWMETER
- NOISE-PROOF COVER
- TORQUE METER
- ABNORMAL REVOLUTION DETECTOR
- ABNORMAL VIBRATION DETECTOR
- BEARING TEMPERATURE DETECTOR
- FORCED LUBRICATOR
- TIMER
- AUTOMATIC WASHER
- FLEXIBLE JOINT



**Principles of Separation**



THE PRE-TREATMENT LIQUID (SUSPENSION) IS FED VIA THE FEED PIPE INTO THE BOWL, WHICH IS REVOLVING AT HIGH SPEED.



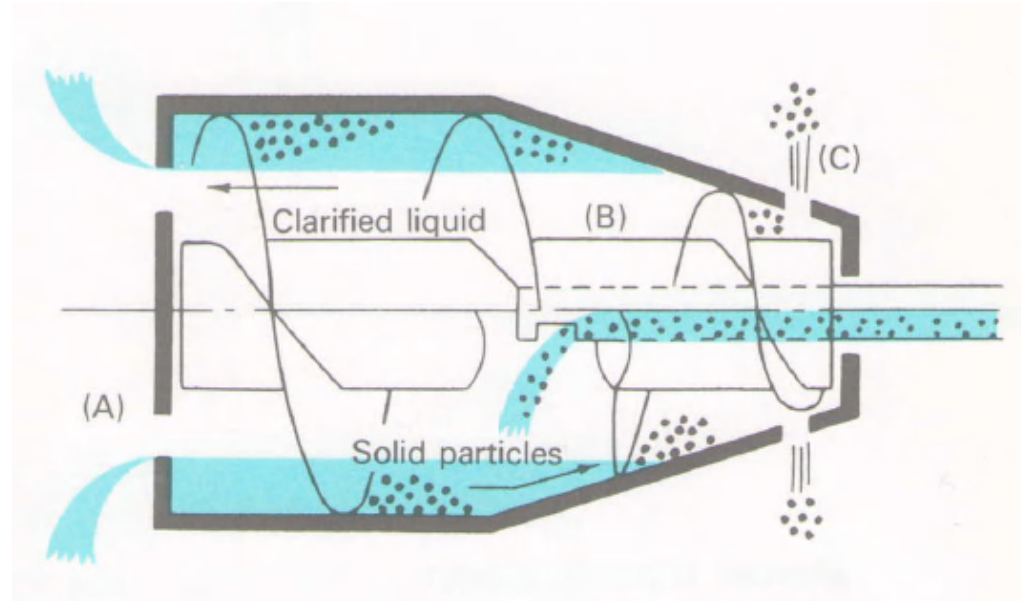
THE CENTRIFUGAL FORCE EXERTED ON THE LIQUID AS IT FORMS A REVOLVING RING INSIDE THE BOWL, IS ENORMOUS; AS MUCH AS 3500 TIMES THE FORCE OF GRAVITY (3500 X G). THIS MASSIVE CENTRIFUGAL FORCE CAUSES THE SOLID PARTICLES WITH A HIGH DENSITY PRESENT IN THE LIQUID TO QUICKLY PRECIPITATE, SO THAT TWO SEPARATE LAYERS, ONE OF SOLID PARTICLES AND ONE OF CLEARED LIQUID, ARE FORMED ON THE INNER WALL OF THE BOWL.

**( ■ Principles of Separation )**

THE CLEARED LIQUID AND SOLID PARTICLES SEPARATED ARE CONTINUOUSLY DISCHARGED FROM THE EQUIPMENT.

FOR THE DISCHARGE OF THE SEPARATED CLEARED LIQUID, A DISCHARGED OUTLET (A) LOCATED AT THE WIDE END OF THE BOWL PROVIDES AN OVERFLOW FOR THE LIQUID UNDER CENTRIFUGAL PRESSURE.

FOR THE DISCHARGE OF THE SEPARATED SOLID PARTICLES, THE SCREW CONVEYOR (B) TURNS AT A FRACTIONALLY DIFFERENT SPEED TO THE BOWL, THUS CONVEYING THE SOLID PARTICLES TOWARD THE CONICAL END OF THE BOWL, WHERE THEY ARE DISCHARGED BY CENTRIFUGAL FORCE THROUGH THE SOLIDS DISCHARGE OUTLET (C) LOCATED AT THE NARROW END OF THE BOWL.

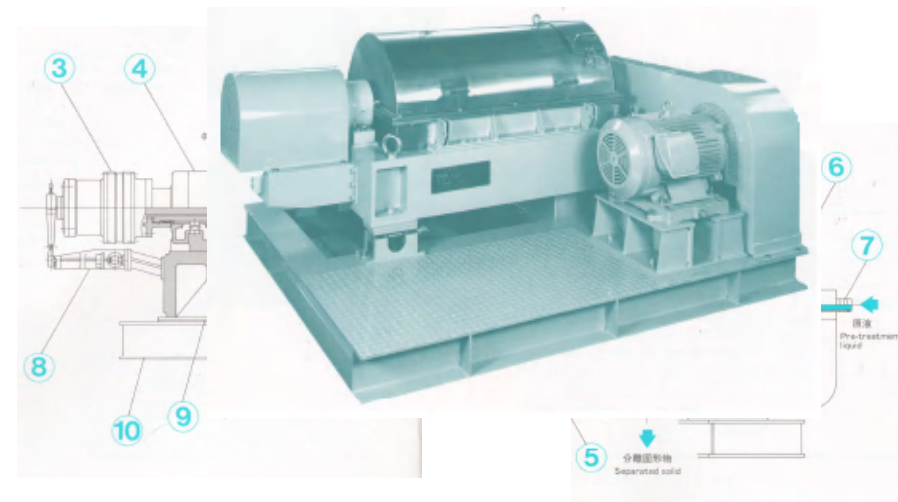


THE MECHANISM ALLOWS THE CONTINUOUSLY SUPPLIED PRE-TREATMENT LIQUID TO BE CONTINUOUSLY SEPARATED, AND THE SEPARATED SOLIDS AND CLEARED LIQUID TO BE DISCHARGED FROM THEIR RESPECTIVE OUTLET.

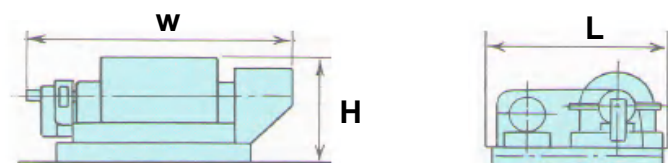
## ■ Application

SEWAGE/WASTEWATER TREATMENT (SLUDGE THICKENING AND DEWATERING),  
FOODSTUFF/PHARMACEUTICALS, TREATMENT, VALUABLES RECOVERY, ETC  
PLASTICS, GENERAL CHEMISTRY, ELECTRONICS PLANT EFFLUENT

- BARIUM SULFATE
- DYESTUFF
- FRUIT JUICE
- GLASS POWDER
- IRON POWDER
- PAPER MILL
- POLYETHYLENE
- POLYSTYRENE
- POLYVINYL CHLORIDE
- PVC
- SEMICONDUCTOR (SI,GAAS,SIO2,SIC,CMP)
- SOYBEAN/MILK/SOYBEAN PROTEIN
- STARCH (CORN/POTATO/SWEET POTATO))



**Major Models**



TYPE	CAPACITY (M <sup>3</sup> /h)	MAX. BOWL SPEED (rpm) (max)	MAX. CENTRIFUGAL FORCE (xG) (max)	DIMENSIONS (mm) W x L x H	WEIGHT WITHOUT MOTOR (Kg)	MOTOR (KW)
SD-12S	2 ~ 3	3990	3200	1700 x 1320 x 695	880	7.5
SD-14S	3 ~ 5	3990	3200	1910 x 1530 x 730	1030	11 ~ 15
SD-16S	5 ~ 8	3650	3200	2300 x 1530 x 845	1300	15 ~ 22
SD-18S	8 ~ 12	3650	3200	2435 x 1960 x 980	2050	22 ~ 30
SD-20S	10 ~ 20	3350	3200	2820 x 1900 x 1020	3000	30 ~ 45
SD-26S	20 ~ 30	2930	3200	3300 x 2030 x 1055	3200	37 ~ 55
SD-12DSG	2 ~ 4.5	3990	3200	1900 x 1700 x 680	1260	11
SD-14DSG	3.5 ~ 8	3990	3200	2180 x 1700 x 780	1700	15
SD-16DSG	5 ~ 10	3650	3200	2740 x 1800 x 890	2000	15 ~ 22
SD-18DSG	7 ~ 12	3650	3200	2900 x 1920 x 995	2450	22 ~ 30
SD-20DSG	8 ~ 15	3350	3200	3040 x 2000 x 1040	3250	30 ~ 45
SD-22DSG	16 ~ 25	3090	3200	3200 x 2300 x 900	3350	45 ~ 75

**LARGER SYSTEM IS AVAILABLE.**

**MODEL S : SUITABLE FOR THE DEHYDRATION OF POLYMAERS & CRISTALLIZED PARTICLES (PVC, PS, GYPSUM, & OTHERS)**

**MODEL DSG : SUITABLE FOR ALL KINDS OF SEPARATIONS IN CHEMICAL, FOOD, MINING INDUSTRIES. (SODIUM GLUTAMATE, PULP, & OTEHRS)**



**( ■ Major Models )**

TYPE	CAPACITY (M <sup>3</sup> /h)	MAX. BOWL SPEED (rpm) (max)	MAX. CENTRIFUGAL FORCE (xG) (max)	DIMENSIONS (mm) W x L x H	WEIGHT WITHOUT MOTOR (Kg)	MOTOR (KW)
SD-10DSL	~ 2.5	5010	3500	1810 x 1200 x 702	780	5.5
SD-12DSL	2 ~ 4.5	4170	3500	2090 x 1450 x 730	1260	11
SD-14DSL	3.5 ~ 8	4170	3500	2380 x 1550 x 840	1700	15 ~ 18.5
SD-16DSL	5 ~ 10	3820	3500	2500 x 1440 x 795	2000	15 ~ 22
SD-18DSL	7 ~ 12	3820	3500	2800 x 1900 x 995	2450	22 ~ 30
SD-20DSL	8 ~ 15	3510	3500	3035 x 2000 x 1080	3250	30 ~ 45
SD-21DSL	12 ~ 18	3510	3500	3300 x 2200 x 1195	3600	30 ~ 45
SD-22DSL	16 ~ 25	3230	3500	3200 x 2300 x 900	3350	45 ~ 75
SD-10DSE	2	3790	2000	2200 x 1300 x 680	1400	5.5~7.5 & 1.5 (SUB)
SD-12DSE	5	3160	2000	2500 x 1800 x 820	1700	11 & 2.2 (SUB)
SD-14DSE	6	3160	2000	2700 x 1700 x 920	2200	11~15 & 2.2 (SUB)
SD-16DSE	12	2890	2000	3100 x 1800 x 920	2500	22 & 5.5 (SUB)
SD-18DSE	18	2890	2000	3600 x 2000 x 1000	3000	30 & 5.5 (SUB)

**LARGER SYSTEM IS AVAILABLE.**

**MODEL DSL : SUITABLE FOR THE SEPARATION & DEHYDRATION WITH CHEMICALS (STOCK RAISING DRAINAGE, SURPLUS SLUDGE, & OTHERS)**

**MODEL DSE : ENERGY SAVING SCREW DECANTER, GOOD FOR MANY APPLICATIONS (ORGANIC SLUDGE, & OTHERS)**

## ■ Special Models

- \* **CONCENTRATE SCREW DECANTER (MODEL SD-DSC)**  
POSSIBLE TO CONCENTRATE SLUDGE WITHOUT THE ADDITION OF CHEMICALS
  
- \* **THREE-PHASE SEPARATING SCREW DECANTER (MODEL SD-DST)**  
CAPABLE TO SEPARATE LIQUID/LIQUID MATERIALS (LIKE OIL & WATER)
  
- \* **CENTRIPETAL PUMP SCREW DECANTER (MODEL SD-DSS)**  
WITH LONG BOWL & FIT WITH CENTRIPETAL PUMP

SEALED TYPE, SANITARY-TYPE, VARIABLE-SPEED TYPE, R&D TYPE SCREW DECANTERS ARE ALSO AVAILABLE.

## ■ For Our Proposal

PLEASE LET US KNOW YOUR REQUIREMENT FOR OUR PROPOSAL

- \* **REQUIRED MACHINE CAPACITY – FLOW RATE (IN M<sup>3</sup>/HOUR)**
- \* **SOLID CONCENTRATION IN SLURRY TO BE TREATED (IN WT%)**
- \* **VISCOSITY OF THE SLURRY (IN CPS)**
- \* **ACIDITY OF SLURRY (IN PH)**
- \* **OPERATION TEMPERATURE FOR SLURRY**
- \* **OTHERS REQUIREMENT**

**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	Viscosity		Adhesion	
	Size	Original Powder	Required		A) Water B) Ethanol C) IPA D) MEK E) Acetone F) Toluene G) Xylene H) Ethyl Acetate I) Others			
	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