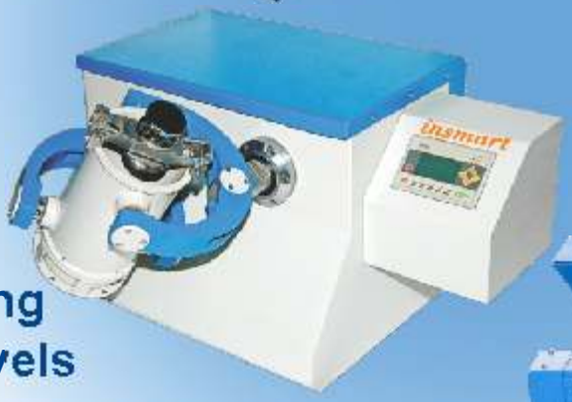
insmart Systems

Reliable Analytical Support



Ultrafine Grinding upto Nano Levels

Pulverising

Mixing

Planetary Micromilling

XRF

Sample Preparation

Quality Assurance and Analysis for

Cement Iron & Steel Aluminium Copper Glass Ceramic Plants

Application Areas:

Geology, Mineralogy, Metallurgy, Defence, Nuclear Science, Bio & Pharma

www.insmartsystems.in

insmart JAW CRUSHER

Optional Dust Extraction System

For fast & effective primary reduction, directly from as large as 50 -100 mm to less than 2 mm size of soft, brittle, hard and very hard materials.

Principle of Operation

Material (lump) to be crushed is fed into the crushing zone through a hopper. The crushing zone consists of two parallel and two tapered jaws. One Jaw is provided with oscillatory motion, where as the other jaw is hinged to adjust the gap (to adjust output size) through an adjustable screw mechanism. Provision is made to extract the dust, if (vacuum) suction system is attached.

Feed Material

Materials having medium to substantially high hardness and brittleness like Bauxite, Bakelite, Concrete, Geological ores, Ferro alloys, Quartz, Glass, Granite, Silicates, Cement clinker, Slag, Coal, Coke, Corundum etc.

FEATURES:

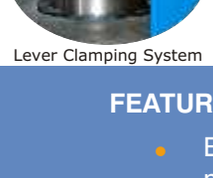
- Extremely fast & efficient primary crushing.
- Rigid & dust tight design.
- Size reduction from 50 -100 mm to 6-10 mm in first pass and less than 2 mm in second pass.
- Jaw gap (setting output size) built in measurement scale.
- Interchangeable optional material of construction.
- Illuminated crushing zone to ensure the proper gap and cleaning of residue material.
- Start & Stop push button, overload protection for motor, switches for bulb and vacuum, fault indication lamp are provided.
- **One year warrantee** against any manufacturing defects.

OPTIONAL FEATURES:

- Dust extraction system
- Extra blade set of different material.

MODEL NO.		FEED SIZE	OUT PUT SIZE	MATERIAL OF CONSTRUCTION OF JAW	POWER	WEIGHT & DIMENTIONS
IJC -1	1st Pass	Up to 65 mm (2½ inches)	2-10 mm	Mn Steel, hardened Crome Steel, Stainless Steel, lined Tungsten Carbide, Zirconium oxide	4 Pole, 10 Amp MCB (3 Phase + Neutral with earthing) A.C., 50/60 Hz, 440V, Motor - 1.5 kW (2 HP) 1440 RPM	**Machine:** 150 Kg 645x300x516mm **Packed:** 225 Kg 850x430x750 (Wooden Box)
	2nd Pass	Up to 10 mm	Less than 2 mm (Adjustable)			
IJC -2	1st Pass	Up to 100 mm (4 inches)	2-10 mm	Mn Steel, hardened Crome Steel, Stainless Steel, lined Tungsten Carbide, Zirconium oxide	4 Pole, 16 Amp MCB (3 Phase + Neutral with earthing) A.C., 50/60 Hz, 440V, Motor - 2.2 kW (3 HP) 1440 RPM	**Machine:** 350 Kg 1120x450x840mm **Packed:** 500 Kg 1325x663x1120 (Wooden Box)
	2nd Pass	Up to 10 mm	Less than 2 mm (Adjustable)			
IJC -3	1st Pass	Up to 150 mm (6 inches)	2-10 mm	Mn Steel, hardened Crome Steel, Stainless Steel, lined Tungsten Carbide, Zirconium oxide	4 Pole, 20 Amp MCB (3 Phase + Neutral with earthing) A.C., 50/60 Hz, 440V, Motor - 3.7 kW (5 HP) 1440 RPM	**Machine:** 500 Kg 1120x663x1120 mm **Packed:** 700 Kg 1325x870x1230(Wooden Box)
	2nd Pass	Up to 10 mm	Less than 2 mm (Adjustable)			

insmart VIBRATORY CUP MILL



Lever Clamping System

Vibration Mechanism

For efficient dry or wet grinding of brittle and very hard samples to analytical fineness.
Most suitable for "XRF" sample preparation.

Principle of Operation
Grinding is done by heavy impact and friction. Sample is kept in the annular space between the bowl, ring and the hammer. A cover is kept on the top of the bowl then the bowl is clamped on vibratory platform and subjected to heavy vibrations. The vibratory platform imparts the kinetic energy to the ring and the hammer.

Hardened Steel Bowl Set
(Working Capacity 450 ml)

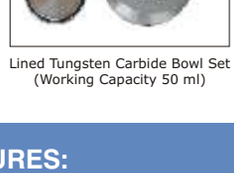
Hardened Steel Bowl Set
(Working Capacity 150 ml)

Lined Tungsten Carbide Bowl Set
(Working Capacity 150 ml)

Agate Bowl Set
(Working Capacity 150 ml)

Lined Tungsten Carbide Bowl Set
(Working Capacity 100 ml)

Hardened Steel Bowl Set
(Working Capacity 50 ml)



Lined Tungsten Carbide Bowl Set
(Working Capacity 50 ml)

FEATURES:

- Extremely fast grinding by impact and rubbing of trapped material under the grinding ring and hammer.
- Analytically pure grinding without any loss of material.
- Reproducible grinding.
- Dry as well as wet grinding is possible.
- Start & Stop Push button, Motor overload protection with door safety system and fault indication lamps are provided.
- Soundproof enclosure facilitates noise below 71db during operation.
- **One year warrantee** against any manufacturing defects.

OPTIONAL FEATURES:

- Variable speed model available for Set of agate.
- RS 232 : Interface for output of process data.
- Pneumatic clamping for bowl set
- Electromagnetic door safety lock
- Password facility for Authorised operation.

MODELS:

1. REGULAR - VCM-RFS with fixed speed
2. VCM-VS with speed selection

SPECIFICATIONS		
Application		For very fast grinding of medium, hard and very hard material, sample grinding for "XRF".
Useful capacity		450, 150, 100, 50ml (user to specify)
Feed size		8-10 mm
Time required For grinding		3 to 10 minutes (depending on the material characteristics)
Output size		Upto 5 microns (depending on material properties).
Grinding elements		1 bowl+2 ring + 1 disc - for 450 ml / 1 bowl+1 ring + 1 disc for 150 ml / 1 bowl + 1 disc for 100/ 50 ml
Material of grinding element		Hardened steel with tough core / AISI304-SS / Lined tungsten carbide / Tungsten carbide lined with Ti Al N coating / Agate / Zirconia (Stabilised) / Toughened Alumina / Corundum (natural and sintered).
Timer		0-255 (minutes & seconds)(digital setting)
Power	VCM-RFS	4 Pole, 10 Amp MCB (3 Phase + Neutral with earthing) A.C., 50/60 Hz , 440V, Motor - 1.5 kW (2 HP) 1440 RPM
	VCM-VS	2 Pole, 10 Amp MCB (single Phase + Neutral with earthing) A.C., 50/60 Hz , 230V, Motor - 1.5 kW (2 HP) 1440 RPM
Weight & Dimentions		**Machine**: 275 Kg, 800x600x1060mm **Packed**: 425 Kg, 939x762x1371mm (wooden box)

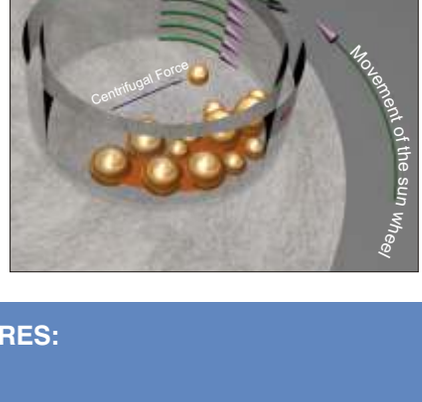
insmart PLANETARY MIC

Model No. : PBM07, Regular with Ventilator
Max. overall capacity 500 ml x 4 nos.

For analytically pure and contamination free batch grinding of test samples in dry as well as in suspension from as large as 10 mm particle size down to extreme end fineness. Most suitable for thorough mixing, homogenising, emulsifying and dispersing.

Principle of Operation

Grinding is carried out by high-energy frequent impact of balls. The energy level of balls are as high as ***50 times*** (at 400 r.p.m.) the gravitational acceleration. Thus, ***Insmart*** planetary system makes grinding extremely fast and efficient. Rotation of base plate provides the centrifugal force to the grinding balls and independent rotation of bowls (in opposite direction) makes the balls to hit the inner wall of the bowls several times more, because of the short returned path. Since the bowls are rotating in opposite direction a considerable part of grinding is done due to friction.



FEATURES:

- FINAL FINENESS:- Less than 1 micron upto **nano levels.**
- CONTAMINATION:- Analytical pure grinding.
- SPEED RATIO:- 1:1, 1:2, 1:3 or 1:4 between sun disc and bowl (user to select).
- HOMOGENIZING:- Homogenizing is achieved by continuous mixing during grinding process.
- Reproducible Grinding / Homogenizing.
- Permanently Lubricated Bearings.
- COOLING:- An air exhaust system is provided to enhance the grinding time. (ventilator).
- MAINTENANCE FREE:- Systems is driven through a self-diagnostic type micro-controller based A.C. frequency controlled drive, having various setting and indicating parameter.
- Machine can run uninterruptedly upto 10-12 hours.
- **One Year warrantee** against any manufacturing defects.

OPTIONAL FEATURES:

- RS 232 port.
- Continuous purging of inert gas, while grinding in single bowl system.
- Special bowl set designed for inert/ special atmosphere grinding - suitable for charging and removal in a glove box.
- Special bowl set designed for low temperature operation (liquid nitrogen).
- Measurement of temperature and pressure of gas inside the bowl while in operation.
- Embedded Thermo-electric device for external cooling of bowls during grinding (cold air circulation).

SPECIFICATION	
APPLICATION	For fine and ultra fine grinding of soft medium and hard materials.
FEED SIZE	Up to 10 mm
OUTPUT PARTICLE SIZE	1 micron or smaller (depending on characteristics of material, number & size of balls, time and speed selection)
SPEED (setting and digital display)	Sun Disc speed for regular model 40 to 400rpm / for mini models 40 to 600 rpm
DIRECTION ROTATION	PROGRAMMABLE: Forward/Reverse/Alternate with LED indication
TIME (Setting & digital display)	RUN TIME (1-999Min/Sec) + OFF TIME (1-999Min/Sec) = 1 CYCLE, NO. OF CYCLES (1 TO 999) TOTAL TIME=(RUN TIME+OFF TIME)*NO. OF CYCLE
NUMBER OF BOWLS	1 (single), 2 (twin), 2 to 4 large (250 ml useful capacity), 4 or 8 small (80 ml. useful capacity)
MATERIAL CONSTRUCTION	Hardened steel with tough core /AISI 304-SS/ Agate / Polyurethane / Ceramic / Lined Tungsten carbide / Zirconia / Toughened alumina / Corundum (natural and sintered)
POWER SUPPLY (to be provided by user)	SINGLE PHASE 230V A.C. 50/60 HZ, 10 Amp 2 Pole MCB with Proper earthing
MOTOR & DRIVE	1.5Kw (2HP). Microprocessor based variable frequency drive.
WEIGHT & DIMENSIONS	Machine : 300kg 860x560x730mm Packed : 470kg 1066x787x1016 mm (wooden box)

RO MILLING SYSTEMS

Model No.: MBM 07
Single Bowl (mini)
Max. overall capacity 500ml

Model No.: MBM 07
Twin Bowl (mini)
Max. overall capacity 250ml x 2 nos.

Model No.: MBM 07
Four Bowl (mini)
Max. overall capacity 80ml x 4 nos.

MATERIAL OF BOWLS & BALLS:

- Hardened Steel
- Stainless Steel
- Stabilized Zirconia (ZrO2-98%)
- Tungsten Carbide Lined
- Agate
- Corundum
- Toughened Alumina
- High Density Polyethylene
- Polyurethane
- Tungsten Carbide lined with Ti Al N coating
- Bowl Capacities - 50 ml to 500 ml

SAFETY FEATURES:

- DOOR SENSOR:- If door is not closed properly machine will not start.
- MOTOR OVER LOAD PROTECTION:- The system is built in with self diagnostic, over load, high voltage and low voltage protection.

OPTIONAL SAFETY FEATURES:

- VIBRATION DETECTION SYSTEM:- Undesired vibration due to imbalance load is detected by a sensor to switch OFF the machine Automatically.
- DOOR LOCK:- An electromagnetic automatic lock is provided, it locks the safety cover as soon as start command is given.
- Fault indication with audio-visual alarm.

Sr. No.	Material of bowl / Overall Capacity / Useful capacity	500 ml Upto 250 ml Nos.	250 ml Upto 125 ml Nos.	80 ml Upto 40 ml Nos.	50 ml Upto 25 ml Nos.
1.	Agate (Ball dia. in mm and quantity)	Ø12 - 15 Ø16 - 12 Ø20 - 4	Ø12 - 15 Ø16 - 8 Ø20 - 2	Ø12 - 10 Ø16 - 8	Ø12 - 6
2.	Tungsten Carbide (Ball dia. in mm and quantity)	Ø6 - 50 Ø8 - 30 Ø16 - 10	Ø6 - 40 Ø10 - 20 Ø16 - 4	Ø6 - 30 Ø10 - 10 Ø16 - 2	Ø6 - 20 Ø10 - 4
3.	Hardened steel/ Stainless steel (Ball dia. in mm and quantity)	Ø10 - 20 Ø16 - 14 Ø20 - 8	Ø10 - 20 Ø16 - 8 Ø20 - 2	Ø10 - 12 Ø16 - 4	Ø10 - 6 Ø12 - 2
4.	Alumina/ Corundum (Ball dia. in mm and quantity)	Ø12 - 16 Ø16 - 10 Ø20 - 6	Ø12 - 16 Ø16 - 4 Ø20 - 2	Ø12 - 10 Ø20 - 2	Ø12 - 6
5.	Zirconia (Ball dia. in mm and quantity)	Ø6 -14 Ø10 - 24 Ø20 - 10	Ø6 - 40 Ø10 - 16 Ø20 - 2	Ø6 - 24 Ø10 - 10 Ø20 - 1	Ø6 - 20 Ø10 - 10

MATERIAL SPECIFICATION

Grinding set	Composition app.	Hardness	Density app.
Agate	99.9% $Si0_2$	7.0 Mohs	2.65 gm/cc
Sintered Corundum1	99.7% Al_2O_3	9.0 Mohs	3.9 gm/cc
Zirconia	98.0% $Zr0_2$, 1% Y_2o	8.5 Mohs	5.7 gm/cc
Stainless steel	77.3%Fe, 18.0% Cr, 2.5% Ni	53 HRC= app.	7.8 gm/cc
Chrome steel	86.0%Fe, 11.5% C_1	60 HRC= app.	7.8 gm/cc
Tungsten Carbide	94.0%WC, 6.0% C_0	HV= 1300 kg/mm	14.4 gm/cc
Polygate	Abrasion resistant Elastomer	95 A°	1.00 gm/cc

Balls:

Bowls:

insmart MIXING, BLENDING AND

MXM 50
Turbo Mixer

For fast & efficient dry or wet mixing, blending and homogenizing result of various material of different sizes and densities.

MXM 5
Turbo Mixer

Principle of Operation:

Turbo mixer works on the principle of inversion kinematics. The material (solid Powders and, or Liquids) kept in the jar spins about its own axis and simultaneously the top and bottom end of the jar moves in astonishing three dimensional motion. Thorough mixing, blending and homogenizing are result of rotational and multiple directional reversal of the material inside the jar.

FEATURES:

- Extremely fast and contamination free mixing, blending with homogenizing effect.
- Maintenance free, Simple Operation.
- Trolley to facilitate easy handling of high capacity jar during loading and unloading of the charge.
- Reproducible Mixing, Blending.
- **One year warrantee** against any manufacturing defects.

MODEL	OVER ALL CAPACITY	USEFUL CAPACITY	POWER REQUIRED	MOTOR (kW)	Max R.P.M. OF JAR	MATERIAL CONSTRUCTION OF JAR
MXM- 2	Upto 2 liter	1.6 Liter	2 Pole, 6Amps MCB 230 V + Neutral A.C.	0.75 KW (1HP) 50/60 Hz	50	Stainless Steel, Hardened Steel, Polyurethane
MXM- 5	2 - 5 liter	1.6 to 4 Liter	2 Pole, 6Amps MCB 230 V + Neutral A.C.	0.75 KW (1HP) 50/60 Hz	50	Stainless Steel, Hardened Steel, Polyurethane
MXM- 10	10 liter	8 Liter	2 Pole, 6Amps MCB 230 V + Neutral A.C.	0.75 KW (1HP) 50/60 Hz	50	Stainless Steel, Hardened Steel, Polyurethane
MXM- 20	20 liter	16 Liter	2 Pole, 10 Amps MCB 230 V + Neutral A.C.	1.5 KW (2HP) 50/60 Hz	40	Stainless Steel, Hardened Steel, Polyurethane
MXM- 30	30 liter	24 Liter	2 Pole, 10 Amps MCB 230 V + Neutral A.C.	1.5 KW (2 HP) 50/60 Hz	40	Stainless Steel, Hardened Steel, Polyurethane
MXM- 50	50 liter	40 Liter	4 Pole, 16amps MCB3. (3Phase+Neutral) A.C.	75 KW (5 HP) 50/60 Hz	30	Stainless Steel, Hardened Steel, Polyurethane

HOMOGENIZING SYSTEMS

MXL - 005

HIGH ENERGY IMPACT MILL

For extremely fast and thorough mixing, grinding of dry as well as wet materials for small and very small quantities.

The jar is made to vibrate vigorously at a frequency of approximately 20 Hz. The front and rear end of the jar makes a figure of 8 in different directions while vibrating.

Jar capacities can vary from 5 ml to 70 ml.

Jar does not rotate.

Machine works on fixed speed.

FEATURES:

- Extremely fast and contamination free mixing, blending with homogenizing effect.
- Maintenance Free, Simple Operation.
- Reproducible Mixing and Blending.
- **One year warrantee** against any manufacturing defects.

MODEL	OVER ALL CAPACITY	USEFUL CAPACITY	POWER REQUIRED	MOTOR (kW)	MAX SPEED OF JAR	MATERIAL CONSTRUCTION OF JAR
MXL- 005	70 ml	5 - 25 ml	4 Pole, 6 Amps MCB 3 Phase+Neutral with Earth A.C.	0.50 KW (½HP) 20 Hz,	20 Hz Vibration	Polystyrene, H.S., S.S., W.C.

SPECIFICATION	
APPLICATION	Grinding, Mixing, blending with homogenizing effect
FEED MATERIAL	Solids and, or Liquids
TIMER	0-255 (Minutes & Seconds) (Digital Setting)

insmart ANALYTICAL SIEVE SHAKER

For extremely fast and perfect sieving of granular material.

Sieve Shaker

Insmart analytical Sieve Shaker is specially designed for processing large quantities of material, which required sieving.

Sieving is done by three dimensional electromagnetic motion. The material to be sieved is propelled upward periodically from the woven sieve cloth, as it returns to the mesh of the sieve it is forced through the apertures to the collecting bin located on the base. Samples are kept on the sieve, which are placed on the collecting bin, and a cover is kept on the top of the sieve. The machine can accommodate four sieves with four collecting bins at a time.

Ro-Tap Sieve Shaker

The unit can accommodate eight nos of full 2" height, 8" diameter test sieves excluding top cover and bottom pan. Timer is provided for varying the screening time depending upon the particle configuration. The system is meant for dry screening only. It is operated on circular motion with hammering given at the top. It operates on a circular revolution of 280 - 320 rpm, with 140 - 160 rpm of taping approximately.

Wet Sieve Analysis Unit

The unit can accommodate 8 nos of standard test sieves of 2" height and 8" diameter. Further it is provided with a spray nozzle (eye type) for uniform spray of water for efficient screening. The system is fixed to the fabricated unit for proper Gy-ratory motion for effective screening. This unit is exclusively meant for wet screening only. Timer provision exists for pre-determined screening time and works on 230 V, single phase, 50 cycles AC power supply.

FEATURES:

- Extremely fast sieving of material.
- Analytical pure sieving without any loss of material.
- Dust tight design.
- Easy cleaning of sieve and collector bin.
- Maintenance free.
- Shorter sieving times and sharper separations result.

SPECIFICATION

	Sieve Shaker	Ro-tap Sieve Shaker	Wet Sieve Analysis Unit
Application	very fast and efficient sieving of any material		
Capacity	200 grams in each sieve	200-250 grams per batch	250-300 grams per batch
Power	230V, 50Hz, single phase AC	0.5 HP, 230V, 50Hz, single phase AC	0.5 HP, 230V, 50Hz, single phase AC
Timer	Digital timer facility	Digital timer Display	Digital timer Display
Amplitude control	amplitude control and pulsing		

insmart ROTARY SAMPLE DIVIDER

Constructed with the objective of qualitative and quantitative dividing and reducing of dry, granular or powdery samples of all kinds of materials. The rotary sample system warrants highest dividing accuracy. By dividing and pouring together, we may obtain 2, 4, 8, 16, 32 or even more equal divided portions.

Application:

- The sample dividers are dust proof and allow easy cleaning.
- The rotary tube system warrants highest dividing accuracy
- Optional use of 8 powder bottles, serving as recipients will save time otherwise spent in decanting
- By dividing and pouring together you will obtain 2, 4,6,8,16,32, or even more equal divided portions.
- By means of the allotters you can accurately divide even ultra-fine materials.
- The maximum of charge amounts to 4000ml with a grain size up to 6 mm



insmart RIFFLE SAMPLE SPLITTER

Riffle Sample Splitters are classified as precision "rifflers" because of their ability to accurately divide granular materials for sampling purpose. Precision splitting or riffling is accomplished simply by loading the hopper with material to be divided, leveling sample, and lifting the palm operated gate release. Alternating fixed-width chutes deliver half the sample to each pan. The hopper gate mechanism assures even sample distribution and eliminates particle segregation. The unit meets standard methods for reducing samples of aggregate to testing size. Rifflers with gap width of 3 to 50 mm are available for drawel of representative samples for further test work.

Application:

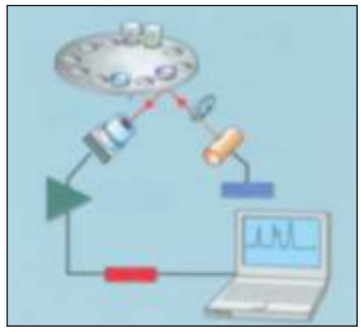
- Fertilizer Sampling
- Heavy metals or nuclear material analysis
- Powdered metal Analysis
- Sampling of beach sands
- Iron ore assay preparation
- Chopped wire and plastic sampling
- Seeds and food stuffs sampling

Specification:

- Sizes: 3mm, 6mm, 10mm, 12mm, 20mm, 50mm with scoop and collection boxes.
- Available in SS-304 / Polyurethane .

insmart PELLET PRESSES

40 Tons Automatic Pellet Press



Features:

- Preparation of **PELLETS** for "**XRF**" analysis.
- For Preparation of mounts.
- Digitally adjustable tonnage (2 to 40 Tons).
- Digitally set compaction time.
- Automatic De-compression.
- Auto ejection.
- Self-standing, floor mounted.
- Protection for over heating of oil & motor.
- Fault indication lamp.
- **One year warrantee** against any manufacturing defects.

Optional Feature:

- Ring cleaning system.

Die Set:

Type - A
Pellet with Aluminium Cup base or bare pallet (without Ring)

Type - B
Pellet with S.S. Ring
Ø 35X Ø 40 X 13

Type - C
Pellet with S.S. Ring
Ø 35X Ø 51 X 8

TECHNICAL SPECIFICATIONS	
MAX FORCE (LOAD)	400 KN (40TONS) (With Digital display of set and actual load)
Hydraulic Cylinder Speed	3.2 mm/sec (during upward motion) / 5.3 mm/sec (during return)
Hydraulic Pump Capacity	4 LPM at 250 bars.
Hydraulic Pressure	250 bar (Max.)
Safe Operating Pressure	200 bar. (with Digital display of set and actual load)
Power of Hydraulic Pump	3 H.P.
Piston Stroke	50 mm
Pellet dia/ type	40 MM. OR (user to specify ring or aluminum cup)
Floor area	725 mm x 625mm
Working height	1050 mm
Power	4 pole, 16 AMPS MCB (3Phase + Neutral with earthing), 415 v A.C., **Motor** - 2.2kW (3HP) 1440 RPM
Hydraulic Oil	Grade 68 or equivalent (approximately 35 liters, user to provide)
Weight & Dimensions	**Machine**: 405 Kg, 730x630x1480 mm, **Packed**: 585 Kg, 950x825x1575 mm (wooden box)

insmart PELLET PRESSES

25 Tons Automatic Pellet Press

Features:

- Preparation of **PELLETS** for "**XRF**" analysis.
- For Preparation of mounts.
- Digitally adjustable tonnage (2 to 25 Tons).
- Digitally set compaction time.
- Automatic De-compression.
- Auto ejection.
- Self-standing, floor / table mounted.
- Protection for over heating of oil & motor.
- Fault indication lamp.
- **One year warrantee** against any manufacturing defects.

** Selection of Die Set is a pre-requisite while ordering as Die sets are not interchangeable in this model.

TECHNICAL SPECIFICATIONS	
MAX FORCE (LOAD)	250 KN (25TONS) (With Digital display of set and actual load)
Hydraulic Cylinder Speed	0.8 mm/sec
Hydraulic Pump Capacity	0.85 LPM at 200 bars.
Hydraulic Pressure	200 bar (Max.)
Safe Operating Pressure	160 bar. (with Digital display of set and actual load)
Power of Hydraulic Pump	1 H.P.
Piston Stroke	50 mm
Pellet dia/ type	40 MM. OR (user to specify ring or aluminum cup)
Floor area	490 mm x 450mm
Working height	560 mm
Power	2 pole, 10 AMPS MCB (1Phase + Neutral with earthing), 230 v A.C.
Hydraulic Oil	Grade 68 or equivalent (approximately 3 liters, user to provide)
Weight & Dimensions	**Weight:** 185 kgs **Machine**: 490x450x810 mm

25 Tons Manual Pellet Press

Features:

- Preparation of **PELLETS** for "**XRF**" analysis.
- For Preparation of mounts.
- Digitally adjustable tonnage (2 to 25 Tons).
- Digitally set compaction time.
- Automatic De-compression.
- Auto ejection.
- Self-standing, floor / table mounted.
- Protection for over heating of oil & motor.
- Fault indication lamp.
- **One year warrantee** against any manufacturing defects.

** Selection of Die Set is a pre-requisite while ordering as Die sets are not interchangeable in this model.

TECHNICAL SPECIFICATIONS	
MAX FORCE (LOAD)	250 KN (25TONS) (With Digital display of set and actual load)
Hydraulic Cylinder Speed	Manual
Hydraulic Pump Capacity	13 CC at 200 bars.
Hydraulic Pressure	200 bar (Max.)
Safe Operating Pressure	160 bar. (with Digital display of set and actual load)
Power of Hydraulic Pump	Manual
Piston Stroke	50 mm
Pellet dia/ type	40 MM. OR (user to specify ring or aluminum cup)
Floor area	480 mm x 370mm
Working height	450 mm
Power	2 pole, 6 AMPS MCB (1Phase + Neutral with earthing), 230 v A.C.
Hydraulic Oil	Grade 68 or equivalent (approximately 3 liters, user to provide)
Weight & Dimensions	**Weight:** 145kgs **Machine**: 490x450x810 mm

insmart DISC MILL

Optional Dust Extraction System

For fast and efficient primary grinding of brittle bulk materials from as large as 20 mm to a fine size of upto 200 mesh (75 micron).

Principle of Operation

Material to be ground is fed centrally into the dust proof grinding zone through a hopper. Grinding zone consists of a pair of grooved vertical discs, one grooved disc rotates against a fixed disc to produce grinding action in the feed material and the grinding action is done due to shearing, pressure and friction. The gap between discs can be varied to change the output size, through an adjustable screw mechanism. Provision is made to extract the fine flying dust generated during grinding. Dust extraction system can be hooked to the disc grinder.

Feed Material

Material having medium to substantially high hardness and brittleness like Bauxite, Bakelite, Concrete, Geological Ores, Ferro alloys, Quartz, Glass, Granite, Silicates, Cement Clinker, Slag, Coal, Coke, Corundum etc.

FEATURES:

- Extremely fast & efficient primary crushing.
- Rigid & Dust Tight design.
- Feed Size up to 20 mm.
- Out Put Size up to 200 mesh (75 Microns).
- The maximum throughput of 50 Kg to 200 Kg /hrs (depending on the material characteristic and size of output setting).
- Easy adjustment for setting Gap of discs from 0.1 mm to 5 mm.
- Interchangeable Optional material of construction of disc.
- Overload Protection for Motor.
- **One Year Warrantee** against any manufacturing defects.

OPTIONAL FEATURES:

- Dust extraction system.
- Grinding discs of different material are available.

MODEL NO.	FEED SIZE	OUT PUT SIZE	MATERIAL OF CONSTRUCTION OF JAW	POWER	WEIGHT & DIMENTIONS
IDM -1 with fixed Speed	Up to 20 mm	Up to 200 mesh (75 microns)	Mn Steel, Meehanite Steel, Hardened Chrome Steel, Stainless Steel, Coated Tungsten Carbide, Lined Tungsten Carbide	4 Pole,16 Amp MCB (3 Phase + Neutral with earthing) A.C. 50/60 Hz, 440 V, Motor-2.2 Kw (3 HP) 1440 r. p. m.	**Machine:** 210 Kg 760x850x550 mm **Packed:** 300 Kg 990x990x800 (Wooden Box)
IDM -2 with Speed selection 300-500 disc r.p.m.	Up to 20 mm	Up to 200 mesh (75 microns)	Mn Steel, Meehanite Steel, Hardened Chrome Steel, Stainless Steel, Coated Tungsten Carbide, Lined Tungsten Carbide	2 Pole,16 Amp MCB (Single Phase + Neutral with earthing) A.C. 50/60 Hz, 220 V, Motor-2.2 Kw (3 HP), 1440 r. p. m.	**Machine:** 210 Kg 760x850x550 mm **Packed:** 300 Kg 990x990x800 (Wooden Box)

insmart POT MILL

For analytically pure and contamination free micro milling of ceramic or metallic powder in dry as well as in suspension from as large as 200 micron particle size down to extreme fineness (Less than 1 micron).

Most suitable for micro milling of hard material like Carbide, Boxides & Ceramics etc.

Principle of Operation

Micro Milling is carried out by rolling of the balls on material as well as frequent impact of balls.

The sample kept in the pot along with balls of suitable material and pot rotates on P.U. coated support rolls. The pot rotational speed can be set from 20-to 200 rpm. Pot rotates about its axis, while balls inside the pot spin about their own axis in the same direction, the material gets trapped between the inner wall of bowl & balls and gets rolled over by weight of balls and thus gets pulverized.

- Pot Material (inner lining).
  a) Tungsten Carbide
  b) Toughened Alumina
  c) Stabilized Zirconia
- Pot capacity 500 ml to 5000 ml (5 liters).
- Long continuously running hours: - upto 7 days

FEATURES:

- **Micro Milling**: End fineness, smaller than 1 micron.
- **Analytically Pure Milling**: Since the material is kept in isolated bowl.
- **Reproducible Milling**: Pot speed can be set from 20 to 200 rpm by selecting suitable roll speed through digital display settings. On - off cycle can be programmed for long running hours. Reproducible grinding results are achieved by selecting the previous set parameters.
- **Homogenizing**: Homogenizing is achieved by continuous mixing during milling process.
- **Maintenance Free**: System is driven through a self-diagnostic type micro controller based A.C. Frequency controlled drive, having various setting and indicating parameters.
- Permanently lubricated bearings.
- **One-year warrantee** against any manufacturing defects.

SPECIFICATION	
APPLICATION	For fine and ultra fine milling of soft medium and hard materials.
FEED SIZE	Upto 200 microns
OUTPUT PARTICLE SIZE	1 micron or smaller (depending on characteristics of material, time and speed selection)
SPEED (setting and digital display)	Plate speed for regular model 20 to 200rpm
DIRECTION ROTATION	SELECTABLE: Forward/Reverse/Alternate
TIME (Setting & digital display)	RUN TIME + OFF TIME = 1 CYCLE, NO. OF CYCLES (0 TO 255) (0 to 255 MIN.) TOTAL TIME=(RUN TIME+OFF TIME)*NO. OF CYCLE
NUMBER OF POT	1 No.
MATERIAL CONSTRUCTION OF POT AND BALLS	Hardened steel with tough core /AISI 304-SS/ Agate / Poly urethane / Ceramic / Lined Tungsten carbide / Zirconia (stabilised) / Toughened alumina / Corundum (natural and sintered)
POWER	SINGLE PHASE 230V A.C. 50/60 HZ

insmart FULLY AUTOMATIC " XRF" SAMPLE PREPARATION SYSTEM

The system consists of

- AUTOMATIC SWING GRINDER
- AUTOMATIC PELLET PRESS
- AUTOMATIC POWDER TRANSFER UNIT (optional Robotic movement).
- AUTOMATIC SELF CLEANING with dust extraction system.

AUTOMATIC SWING GRINDER

Grinding of feed material (feed size upto 5 mm) is performed in a Tungsten Carbide Lined Bowl set. Pre-weighed quantity of sample (20 - 40 gms) is fed into the Automatic Swing Grinder by an automatic weighing and feeding system. The machine has a built-in binder feeding system. Set quantity of binder is fed along with the sample. Machine grinds the sample for a pre-set time to get the required fineness. Automatic powder receiving system collects the ground sample and transfers into the Automatic Pellet Press. The self cleaning system cleans the machine thoroughly.

AUTOMATIC PELLET PRESS

The Automatic Pellet Press has a magazin to store approx 200 steel rings (Ø 40 x 35 x 14 mm). The Automatic steel ring feeding system places the steel ring into the die cavity one by one. The material transfer unit pours the ground material (received from Swing Grinder) into the steel ring kept in the die. The Automatic cap closer system places the cap on the top of the die and locks it in position. Load of set tonnage (maximum 40 Tons) is applied automatically for a pre-set time. Cap is removed automatically and the ejected pressed pellet steel ring is picked up and kept on a exit conveyor. The exit conveyor takes the pressed pellet upto XRF Analyzer. The self cleaning system cleans the die area thoroughly.

AUTOMATIC SELF CLEANING SYSTEM

The entry, exit and other surfaces of the system through which the sample passes are cleaned by moving/rotating brushes along with compressed air and vacuum suction system. The dust laiden air is passed through a cyclonic separator and bag filter unit to let out the clean dust free air. The system assures contamination free sample preparation.

SPECIFICATIONS	
Feed Size	Upto 5 mm
Weigh Feeder Capacity	200 gms with ± 2 gms accuracy
Output particle size after grinding	Upto 300 mesh (programmable with time)
Compaction force	Upto 40 tons. (Programmable)
Magazin storage capacity for steel rings	200 Nos
Total time for preparation of pellet including self cleaning time	6 minutes (Average)
Overall space required	2 M X 2 M X 3 M (Height)
Overall power required	7.5 KW 3-phase 440 V, 50 Hz A.C.

insmart VALUED CLIENTS

Cement
- ACC
- Ambuja
- Binani Cement
- Birla White
- Chettinad Cement
- Dalmia Cement
- Heidelberg
- India Cement
- J.K. Cement
- Jaypee Group
- Lafarge India
- Madras Cement
- My Home Cement
- Penna Cement
- Reliance Cementation
- Shree Cement
- UltraTech Cement
- Vasavdatta Cement

Steel & Ferro Alloys
- Chattisgarh Ispat
- Bhushan Steel
- BMM Ispat
- Electro Steel Castings
- ESSAR Steel
- Essel Mining & Ind
- India Techno Mech
- Ispat Industries
- Jindal Steel
- JSPL
- JSW Steel
- Navbharat Ferro Alloys
- SNAM Alloys
- SAIL
- RINL
- Tata Steel
- Kirloskar Ferro Alloys
- Uttam Galva Steel

Aluminium
- BALCO
- HINDALCO
- MALCO
- NALCO

Mineral
- AMD
- Aryan Mining
- GSI
- IBM
- Indian Rare Earths
- MOIL
- MSPL
- NMDC
- Sesa Goa
- ONGC
- UCIL
- Vedanta Group

Copper
- Birla Copper
- Hindustan Copper
- Hindustan Zinc

Glass
- Gold Plus Glass Industries
- Gujrat Glass
- HNG Float Glass
- Piramal Glass
- Saint Gobain

Fertilizers
- Coromandal
- IFFCO

Ceramics
- Endeka Ceramics
- Engel Hard
- Murugappa Morgan
- OCL
- Tata Refractories

XRF
- Bruker AXS
- Panalytical
- Oxford
- Rigaku
- Shimadzu
- Spectro - Amtek
- Thermo ARL

Mineral Labs
- MEL
- SHALINA Lab
- SGS

Research & Education
- Bhaba Atomic Research Center
- Banaras Hindu University
- CSIR Labs
- Delhi University
- DRDO (DMRL, LASTEC, HEMRL, RCI)
- IIT (Chennai, Delhi, Guwahati, Mumbai, Kharagpur, Roorkee)
- IGCAR
- IMMT - Bhubneshwar
- JNU
- National Institute of Oceanography
- National Physics Laboratory
- N.I.T. (Rourkela, Trichi)
- NGRI
- Osmania University
- RRCAT

Certification Agencies
- Inspectorate Griffith
- Intertek (Caleb Bret)
- Mitra SK
- SGS

Export
- Advance Techno Lab, Malaysia
- Chemaf, Congo
- Heidelberg Cement, Bangladesh
- Holcim, Bangladesh
- Interpadu, Malaysia
- Marina Guevara, Maxico
- National Steel, Saudi Arabia
- PT Earthstone, Zambia
- Saint Gobin, Bhutan
- SPRL, Congo
- SIRIM bhd, Malaysia
- Shadeed Iron & Steel, Oman
- Triple Mandiri Santosa, Indonesia

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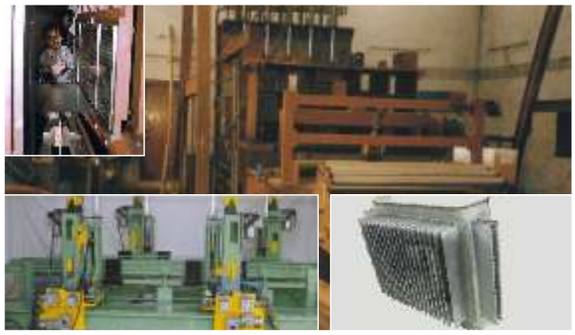
OTHER PRODUCTS



Fully Automatic Sheet Metal Fabrication line for manufacturing Corrugated Tanks

On - line cleaning & Resistivity Measurement System for Graphite Electrodes

Fully automatic sheet metal - circle cutting line for LPG Cylinder circle cutting

TURNKEY PROJECTS

- **Custom built Hydraulic Presses & Systems**
- Magnetic field Presses (upto 2 TESLA)
- Cold Isostatic Presses (upto 4000 bar)
- Hot Iso-static Presses
- Hot Compaction Presses with vacuum & inert atmosphere (upto 800°C)
- Metal Injection Moulding Systems
- Ceramic Injection Moulding Systems

insmart Systems

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