

Our Aim...
Total Customer satisfaction...

**MFRS OF : CRUSHING & MIXING
MACHINERY FOR FOOD, PHARMA
& CHEMICAL INDUSTRIES**



Mini Pulverizer



Impact/Impex Pulverizer



Model	Motor (HP)	RPM (Machine)	Fineness (Mesh Size)	RPM (Machine)
VIP-12	7.5	2800-3500	100-300	50-60
VIP-16	10	2800-3500	100-300	80-100
VIP-20	10-15	2200	75-300	80-300
VIP-25	20-30	2000	75-300	150-450
VIP-32	50-60	1800	75-300	400-900
VIP-42	80-100	1800	75-300	800-1500

About Impex Pulverizer/Mini Pulverizer

Varahi impex pulverizer is to make powder of different material. Pulverization in this is done by continuous impact of rotating hammers against grinding liners. Raw material feed in rotary feeder from inlet hopper and spills into the grinding chamber. Strong hammering breaks lumps into small particles. At the same time air stream blowing through the pulverizer carries the ground material towards outlet. Whizzer classifier doesn't allow oversize particles to pass and returned them into the grinding chamber. They are re-grind and reduced up-to acceptable size. Fan is working for convey particles passed from Whizzer and send it to cyclone collector. Three-way connection Cyclone & dust collector (fabric type) provides clear air to the mill and keeps entire operation free from dust too.

About major components/unit of Impex pulverizer/Mini Pulverizer/Miracle Mill / Hammer Mill.

Main Body : Main body (grinding chamber) made out of CI. It includes replaceable grinding liner/plates of different require shapes for different material. Metal trap would remove heavy foreign material.

Feeder : Automatic feeder having with variable speed star Feeder is provided for controlled feed.

Rotor : Rotor is made from thick plate fitted on main shaft. Hammers are hinged on it. It prevents breakage of hammers. Main shaft is supported by heavy-duty bearings fitted in dust tight housings.

Whizzer : whizzer is conical shaped having adjustable whizzer blades for adjust desire fineness in the range of 100-300 meshes, depending upon the material.

Blower: Blower is heavy-duty long life bolted blade to get replace quickly.

Cyclone Collector : Made for excellent and efficient separation.

Important Technical Information : Pulverization in IMPEX PULVERIZER is achieved by the impact of rotating hammers and grinding plates. Raw material from the feed hopper enters the rotary feeder and spills into the grinding chamber. Continuous and strong beating reduces the lumps into small particles and the air stream blowing through the pulverizer carries the ground material towards outlet. The oversize particles are rejected by the whizzer classifier and returned to the grinding chamber. They are beaten further and reduced to cyclone collector dust collector provides clear air to the mill and also complete pulverizing operation free from dust.

Body : Main body (grinding chamber) made out of CI with replaceable grinding plates of different designs suit able for different products. A metal trap is provides to remove heavy foreign material.

Feeder : Automatic feeding arrangement with variable speed rotary valve is provided for controlled feed. **Rotor** : Made of thick plate mounted on main shaft with hinged hammers to prevent breaking hammers. This shaft is support on two dust tight housings fitted with heavy doth bearings.

Whizzer : Conical whizzer provided with adjustable whizzer blades to control less in the range of 100- 300 mesh, depending upon the material.

Blower : Heavy duty type with changeable blades.

Cylone : Made for better separation efficiency. Dust collector : Provided with bag house to retain fine particles.

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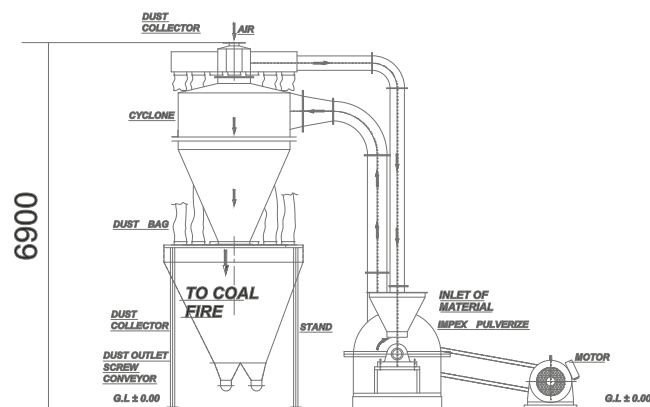
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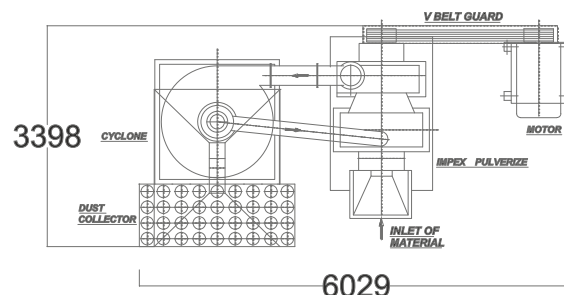
Cylone : Made for better separation efficiency. Dust collector : Provided with bag house to retain fine particles.

Production Capacity : fineness and HP of motor and nominal only - Provided with bag house two and vary from case to case depending upon several factors.

COAL FIRING PLANT / STEEL ISPAT ROLLING MILL



IMPEX PULVERIZER VIP - 42 " MODEL(ELEVATION)



IMPEX PULVERIZER VIP - 42 " MODEL(TOP VIEW)



Ribbon Blender

Use of Blender

Blender is used to blend powder product like Pharmaceutical, Chemicals, Dyes, Pigments, Organics, Agriculture products, Minerals, Pesticides & Food products.

About Ribbon Blender

Varahi Ribbon Blender is one kind of mixer to mix different powders. Horizontal mixer is precisely designed to maintain combination of three major dimensions is Diameter, Ribbon width and Pitch. It is for effective distribution of very small amount of additive added is getting effected and assures homogeneity of final output. Powder is get Rotary as well as horizontal motion in positive direction to get effective blending which is happened by design perfect sizing of inner and outer ribbons.

Benefits of our Design

We designed machine to help our customer to get very good productivity. Easy dismantle for cleaning and quick reassemble is possible by Fabricated U-trough, bolted ribbons and arms, Shaft on heavy duty bearing and housing, bolted End plates, bolted stuffing box.

Optional Features

- Batch type working
- Fluid coupling to start blender in loaded condition.
- Liquid spray arrangement.
- Material construction as per requirement.
- Special changes to fit in Layout.
- Special size on demand.
- Outer Jacket for heating/cooling.
- Roster type Blender



Ribbon Blender Inner



Jet Mill

Operating pressure in between 7-8kg/cm², Average feed size of materials is 200 mesh, Adequate quantity of air. Controlled feed and microfine setting play an important role. All the data given are nominal only. It may vary widely from case to case depending upon many factors.

Use of jet Mill

Varahi jet mill is to micronise Pharmaceuticals, Chemicals, Pigments, Minerals, Agrochemicals, Minerals and thermoplastics. It is also for heat sensitive, corrosive and abrasive Materials.

About Jet Mill

Micronizing as well as classification is to be done in varahi Jetmill by taking advantage of fluid energy. Mill is designed to inject high pressure air or Steam in to cylindrical chamber through Specially designed Nozzles are placed at equally spaced on peripheral wall to have each Jet is tangential at imaginary smaller circumference. Ventury system is control fed role of material very precisely to get productivity. Jets are generate high velocity vorlex during material feeding which create vacuum to suck product into high speed vortex. Suspended particle of the material are collide with each other and reduce themselves by attrition as well as collision whenever it comes in strong velocity gradients near the jet. Micronized particles to get out with jet fluid through center of chamber and get collected into the cyclone collector system. Heavier or oversize particles are stay in to chamber until micronized due Centrifugal force.

Benefits of our Design

Unique design to micronise wide range of dry solids material very economically and efficiently. Particle collide with each other without any moving part, which results absolute productivity and negligible maintenance. Provided interchangeable liners. Easy dismantle for cleaning and quick reassemble Is possible for cleaning and material change. Compact design require less floor space.

Benefits of our Jetmill

For example, 2 micron size particle improve product quality to great extent as compared to 325 -mesh particle in terms of efficiency, dispersion, behavior and intimate blends of different material. It is due to increase in number of particles and surface area It is also increase suspensibility. dispersion rate, surface area of particle and bulk density. Models selection different project and order

Design General or Pharma

Construction: MS, SS, OR Polymer.

Wear reduction Liners OR lined chamber with different material. Different design Grinding chamber and venturi feeding system. Discharge : Top or Bottom.

Material collection : Cyclone, dust collector, pulse jet dust collector or their combination

Technical Data of Jet Mill

Sr.	Model	Capacity Approx	Air Comp. HP	Air CFM FAD	Appx Space for Mill at Bagging HT= 1000 mm
		kg/hr.	Pr.7 kg/cm ²		LXWXH Mtrs.
01	VMF-4	3	20	45	1.0x1.0x1.5
02	VMF-6	10	30	75	2.0x1.0x1.5
03	VMF-8	22	40	125	3.0x1.0x2.0
04	VMF-10	40	50	200	4.5x2.0x4.0
05	VMF-12	65	60	265	4.5x2.0x4.0
06	VMF-15	100	75	380	5.0x2.0x4.0
07	VMF-18	160	120	530	5.0x2.0x5.0
08	VMF-20	210	150	650	5.0x2.0x5.0
09	VMF-24	400	250	1050	5.0x3.5x6.0
10	VMF-30	720	450	1725	6.0x3.0x7.5

- Production capacity, fitness and HP are normal only and vary from case to case depending upon several factors.
- Specifications and design are subject to change without notice
- Different design can be offered for different applications
- Average feed size of materials is 200 mesh with operating pressure in between 7-8kg mc², but result widely depend on material characteristics



Hammer Mill

About Miracle Mill/hammer Mill : Miracle mill/ Hammer Mill is useful for high production. Fineness isn't possible to achieve as much as pulverizer. Miracle mill / Hammer mill is similar to impex pulverizer. Perforated liner is fitted in bottom half of grinding chamber. Hole diameter and pitch can be decide based on mesh size requirement. Whizzer isn't require because material is classified by perforated liner.

Main Body : Main body (grinding chamber) made out of M.s 11 includes replaceable grinding liner/plates of different require shapes for different material. Metal trap would remove heavy foreign material.

Feeder : Automatic feeder having with variable speed star Feeder is provided for controlled feed.

Rotor : Rotor is made from thick plate fitted on main shaft. Hammer are hinged on it. It prevents breakage of hammers. Main shaft is supported by heavy duty bearings fitted in dust tight housings.

Blower : Blower is heavy duty long life bolted blade to get replace quickly.



Air Classifier



Screw Conveyors



All the data given are nominal only. It may vary widely from case to case depending upon many factors.

Use of Air Classifier

Varahi Air Classifier is to Classify Cement, Flour, Chemicals, Pigments, food colors, Minerals, Sand, Cement, etc. up to 250 mesh

About Air Classifier

Centrifugal type closed circuit Air Classifier is to separate coarse and fine dry powder material from 60-350 meshes. This machine is not grinding material but for getting uniform size of powder at out-let. It can either remove coarser particles like free iron, their oxides, grit, silica, heavy impurities, or fine/light foreign material as to de-dust a product. Deflector blades produce centrifugal force and air current to separate particles and impurities on weight basis. Material fed into inner tube from inlet hopper. Rotating distributor plate distributes powder radially outward into upward sweep of circulating air stream generated by deflector blades. Every particle is got downward gravity force and upward air stream force. Gravitational force is higher on grits and impurities due to higher weight. Upward air stream force is not enough against gravity force. Particles prevails gravity force than flows downward force and pass it through tail cone. Light weight (fine) particles move upward because air stream force is more than gravity force on it. Both raw of Whizzer blades are provide to adjust resistance to particles by add/remove blades. It helps to reduce or increase the escape of particles towards deflector blades. Whatever Particles pass through both whizzers will discharged into circular space between inner and outer drum due to centrifugal force and discharged through center fine cone. Air after releasing fine in outer cone returns through the deflectors vanes to the inner cone, setting up a continuous air circuit. Thus heavy particle discharge through tail cone and fine are through fine cone. Fine and coarse grade separation ratio is varying from 95-5 to 60-40. Pattern of classification can be change by regulation and controlling air stream. Air stream can be reduce by closing air dampers and increase by opening. Dual purpose is removing heavier impurities for better quality and removes grit of particle for better size distribution.

Classifier Design

Self-contained unit is consists one or two disc with whizzer blades rotate inside cone. Top chamber is consists rotating deflector blades. Material feeding tube is mounted co-axially inside hollow shaft. Fed material distributor is fitted bellow lower whizzer hub. Heavy-duty bearing is fitted in housing for support vertical hollow shaft. Hollow shaft, whizzer blades, distributor plates, and deflector blades are rotated by motor to produce the internal air circuit. Upper/lower whizzer cones, outer/inner drum, damper, deflector vanes, fine/tail cone, bearing housing and hopper are fitted in body.

Jaw Crusher

All the data given are nominal only and based on stone of 1600 kg/m² density . It may vary widely from case to case depending upon many factors.

Use of Jaw Crusher

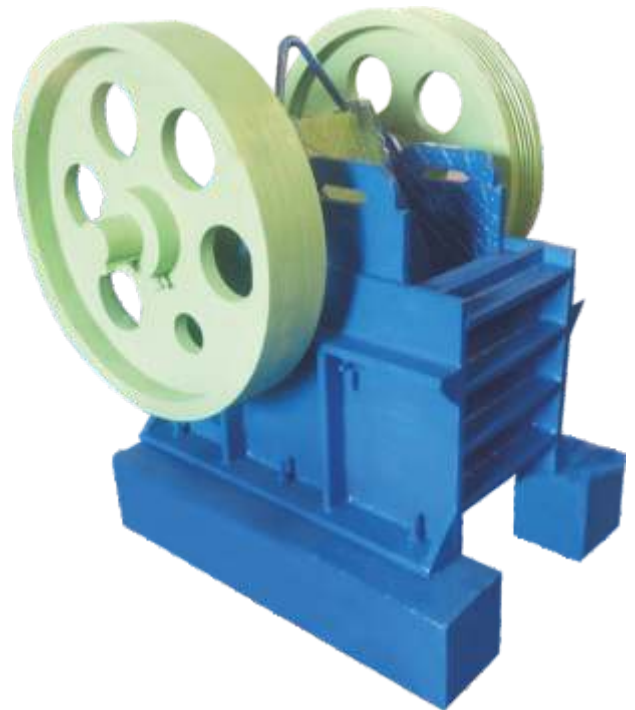
Varahi Jaw Crusher is to crush for Crushing wide variety of hard material. Lime Stone, Marble, Granite, Rock, Dolomite, Bentonite, Coal, Ferro-Alloys etc.

About Single Toggle Jaw Crusher

Heavy duty with robust design single toggle Jaw Crusher is having Mild steel fabricated body. Body is strengthened to withstand heavy load. Main (Eccentric) shaft is running on antifriction bearings. Jaw plates and chick plates are made from highly wear resistance manganese steel. Oscillating Jaw is fabricated from mild steel, which is fitted on main shaft. Both flywheels are work as pulleys. Flat OD wheels are for flat belt drive and V-grooved wheels is for V-belt drive. Out let gap can be varied easily by add OR remove mild steel plates between toggle plate and main body.

About Double Toggle Jaw Crusher

Heavy duty with robust design double toggle Jaw Crusher is having Mild steel fabricated strong box beam designed body to withstand heavy load. Eccentric shaft made from alloy steel is running on antifriction bearings. Jaw plates and chick plates are made from highly wear resistance manganese steel. Fix jaw is fabricated from mild steel and fitted on machined surface of body. Oscillating jaw is fabricated from mild steel and fitted on hinge pin with low-pressure bearing. Hinge pin on center of crusher to help direct crushing without rubbing. Double toggle provide balance distribution of maximum load on eccentric shaft. Liter spring provide cushioning to the toggle, which is compensator for wear ant tear. Both flywheels are work as pulleys and reduce power requirement. Flat OD wheels are for flat belt drive and V-grooved wheels is for V-belt drive. Out let gap can be varied easily by add OR remove mild steel plates between toggle plate and main body.



Technical Data

Model	Opening of Jaws(mm)	Max size of Feed(mm)	Approx Prod in tonnes/hr at setting mm							RPM	HP
			15	20	25	40	50	60			
VJC-8X4 ST	200X100	75	0.5	0.8	1.2	-	-	-	300	5	
VJC-10X6-ST	250X150	125	1.5	2	3	4	-	-	300	10	
VJC-12X7-ST	300X175	140		6	8	10	-	-	300	15	
VJC-16X9-ST	400X425	180		10	12	14	16	18	300	25	

Gyro Screen / Vibro Shifter

Other size unit can be offer based on request.

Production is totally depend on material and size of screen. All the data given are nominal only. It may vary widely from case to case depending upon many factors.

Use of Vibro Shifter

Varahi gyro screen is for screening starch, pharmaceuticals, animal feeds, food product, agro product, agro chemicals, fertilizers, gum power, matel power, chemicals, Minerals. Agrochemicals, dyes, pigment, ceramics, minerals, paints, polymers, magnetic material papers etc.

About Vibro Shifter

New technology shifter is giving horizontal, vertical and circular mechanical vibration. Vibro shifter is for screening dry power or wet medium. It is also useful for separation solid with: screen above its center of mass. Whole mass is suspended on coil springs, which gives thrust to screening unit by its own compression and decompression. Spring allow unit to vibrates freely and also prevent transmission of vibration on floor. Number of screen decks and spacing frame assembled on circular base frame. Screen is uniformly tensioned in all direction by center support. Specially designed vibrating motor generates vibration. Eccentric shaft is fixed on both side extended motor shaft. Eccentric weight is rotate with motor and generates vibration of whole masks.

How Vibro Shifter Works

Material for screening is to be fed into upper screen deck. Fine material enter into lower deck after pass from top screen and coarser remain over screen. Material over each deck is automatically discharge from individual discharge spout. Over size material discharge rate can be increase by increasing horizontal throw. Horizontal throw is increases by rotation of upper eccentric mass. Maximum vertical vibration is desirable for clean the screen and dislodge material. Vertical and Horizontal plane vibration is change by lower weight. Angular position of upper and lower eccentric weight is for control circular motion of particles in the screen for getting better screening efficiency.

Automatically discharge from individual discharge spout. Over size material discharge rate can be increase by increasing horizontal throw. Horizontal throw is increase by rotation of upper eccentric mass. Maximum vertical vibration is desirable for clean the screen and discharge material. Vertical and tangential plane vibration is change by lower weight, Angular position of upper and lower eccentric weight is for contro circular motion of particles in the screen for getting better screening efficiency. &200 mm. Range of screen length from 4200 to 600 mm and area from 0.8m² to 12.5m². Production is totally depend on material and size of screen.



Model	Motor (HP)	Screen Area (M2)	Screen Dia (MM)
VVS-1800	5	1.85	1800
VVS-1500	3	1.75	1500
VVS-1200	2	1.13	1200
VVS-900	1	0.06	900
VVS-600	1	0.28	600

Pulse Jet Dust Collector

Varahi Pulse Jet Dust Collector is available in different sizes. It is a selectable feature of our standard product. it can design upon customer requirement.

PJDC Size and construction can be design based on customer input (DATA) like Dust load, material Fineness, Air flow, material temperature, moisture, efficiency, type of application, outlet emission and site dimensions.

It is available in different like circular or square housing, Top OR side removal, Body made from different material.

Selection of Filter bags fabrics is done base on chemical characteristics of dust, temperature, antistatic charge and other factor. Fabrics are like Polyester, Polypropylene, cotton etc.

Use of Pulse Jet Dust Collector

Varahi Pulse Jet Dust Collector is useful to clean air by separating dry powder/dust from it. It is very much useful to filter air comes from grinding machine as well as separate fines either useful or as waste. Dust collector collects very fine material and release clean air in atmosphere.

About Pulse Jet Dust Collector

Dust-laden air enters in Varahi Pulse Jet Dust Collector. Air is either with positive or negative pressure depending upon system. Velocity get reduce after expansion inside hopper. Due to low velocity bigger dust particle got settle by gravity in hopper. If diffuser is provided nearer at inlet, will absorbs velocity impact. Fine particle remains in air will move upward (in beg housing section). Clean air passes through filter bags to clean air side where fine retain on outer surface of fabric. Both side pressure difference got increase when dust increase on fabric. Filter begs need to clean for minimize pressure difference. Normally closed solenoid valve actuated by signal from remote sequence timer. Pressure got decrease in the tube between solenoid and right angle diaphragm valve after solenoid valve open. It causes diaphragm valve to open permits a momentary air jet from air supply. High velocity air through pipe comes out from nozzles inserted inside the venture. Pressurized and high velocity airflow inside the filter bags causes controlled inflation of bag. So, that Accumulated dust is dislodge and collected in the hopper. Clean air comes outside from bags towards plenum. Sequential timer can operates on time sequence or by measuring pressure difference. Separate line of blow tubes and valves continuously clean each raw of bag by automatic operation. Filtration efficiency depends on type of filter bag, efficiency, frequency of intensive cleaning. Filtration cycle should select practically, so that most of filtration area is available clean most off time.

About Pulse Jet Dust Collector Design

Varahi Pulse Jet Dust Collector is having many filter bags. Filter bags and other assembly enclosed in a metal housing. It consists plenum at top, bag housing at middle and material collection at bottom section. Plenum section is holding air pipes/orifice nozzle and supports air receiver tank, blow tubes and solenoid valve. Bag housing is separated from plenum by tube sheet. Bag assembly stays inside beg housing which are clamped with ventures, bag retainer, filter bags and clamps on tubes sheet. Material collection hopper at bottom is with inlet, diffuses and outlet. Sequential timer, air pressure gauge, and blower fitted on frame. Rotary air lock valve need s mount at outlet of PJDC to discharge powder and prevent air leakage.

Options

- Circular or Square housing.
- High filtering area for high dust and air load.
- Bag removal from Top or side.
- Different casing material construction.
- Various fabrics for filter bags like polypropylene, polyester, cotton etc.

Model	BL.HP
VPDC-20	2
VPDC-25	3
VPDC-30	5
VPDC-48	7.5



Rotary Valve



Model	Motor
5 x 10	3
6 x 12	5
8 x 14	10
10 x 16	15
10 x 20	20
12 x 20	30
22 x 14	15

Ice Crusher

In many application like chemical reactions or preservation of perishable goods, ice is used but it has to be broken Down into small pieces of about 10mm to 25mm sizes for best results.

Breaking of ice is done by machines known as *ice Breaking* When quantity of ice required is quite high, breakers can break down the entire slab of ice weighing as much as 250 kg but in majority of applications, especially in chemical industries, such big machines are not required. Instead, smaller machines are developed which can take pieces of ice weighing about 15 to 20 kg. and break them down to 10mm to 25mm there will, of course, be some big pieces and fines also

Ice breaker is a small machine meant for industrial use. It has a rotary drum with number of pointed spikes. The drum rotates at a slow speed driven by an electrical motor of 2 hp, through V - belts and T pulleys. From the top of the machine ice pieces weighing about 15 to 20 kg are fed and broken ice immediately can be collected on floor. The feeding point is at a convenient height.

The production capacity of VARAHI ice Breaker is about 2 to 3 tonnes per hour. The limitation to production is normally posed by the limitation of feeding rate and of lifting rate of crushed ice as a normal practice. Ice is crushed only when required to avoid its melting and hence its production rate is quite satisfactory for most of the applications.

The machine is mounted on a frame made from MS channel. The frame has two rubber wheels and fixed supports for easy transportability and it can be moved by one man from place to place, if required. The rotating drum with spikes rotates on two heavy duty self-aligning ball bearings. The body of the machine is made from MS/SS. The top of the machine is also covered. The rotary drum with pulley blocks and bearings can be easily lifted out of the machine from its place for changing the bearings.



Model	200
Capacity	2.3 tones per hour
Drive	2 HP
Size	800x1600x1100 mm
Weight	200 Kg. Approx

Lump Breaker

Lump breaker is an efficient alternative to manual breaking of partially dried lumps of soft chemicals like dyes, pigments, colours etc.

Application

The drying of wet cake in tray dryer is a slow and costly process, lumps of wet cake are put in trays and kept in the dryer for drying. The drying process becomes slow as it proceeds. Eventually a time comes when dried outer crust prevents the drying of core. At this time, the trays are manually broken and trays are again kept in the dryer. This manual breaking can be avoided by using VARAHI lump breaker.

Operations

An empty tray is kept in the spillage collection tray kept below the machine. A tray with partially dried lumps is emptied in the machine. Broken lumps are collected in the bottom tray which is removed and kept in the tray just emptied is then kept below the machine and another full tray is emptied in the machine. The operation is repeated till all trays with partially dried lumps are thus processed.

Advantages

- Labour hours spent in breaking is reduced by about 80 %
- Ideal time of tray dryer due to manual breaking is reduced by about 80%
- Production tray dryer goes up by about 15 %
- Heat losses from dryer during ideal time are reduced
- Tray to tray transfer of material minimizes material handling
- (Damage done to trays due to manual breaking is avoided).
- As the machine is fitted with rubber tyres, it can be moved easily from place to place
- Fast to wash
- Low power cost
- Broken lumps of uniform and optimal size facilitate complete drying and subsequent grinding

Specifications

- Model : VLB25 X 60-A
- Overall size : 1320(L) mm x 980 mm (W) x 780mm (H) : Power : 2 HP



Our Global Network..



VARAHI ENGINEERS AND FABRICATORS

MFRS OF : CRUSHING & MIXING MACHINERY FOR FOOD, PHARMA & CHEMICAL INDUSTRIES

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