



IMPACT PULVERIZER

AUTO SUCTION HAMMER MILL

HAMMER MILL

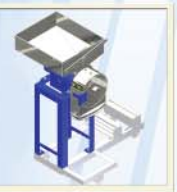
BOTTOM DISCHARGE HAMMER MILL

SPICE MILL

POUNDING MACHINE

FOUR HAMMER POUNDING MACHINE

DRY & WET PULVERIZER



WET PULVERIZER

MINI PULVERIZER

JACKETED MINI PULVERIZER

BLACK PEPPER DAL MAKING MACHINE

MULTI CAMBER PULVERIZER

MINI DAL MILL

EMERY SCOURER

DAL POLISHER



VIBRO SCREEN

CENTRIFUGAL SIEVES / SIFTER

RIBBON BLENDER

SINGLE PADDLE MIXER 'U' TYPE

DOUGH KNEADER

SEMI AUTOMATIC CHAPATI MAKING M/C

RAW CHAPATI MAKING MACHINE

AUTOMATIC CHAPATI MAKING MACHINE



NOODLE MAKING MACHINE

NOODSLE STEAMING MACHINE

ECONOMIC STEAMER

IDLI DHOKLA MOMOS STEAMER

SHEVAYA MACHINE

VERMICELLI MAKING MACHINE

TRAY DRYER DRYING OVEN

VEGETABLE PEELER



POTATO CHIPS CRISPS MAKING MACHINE

HAND OPERATED POTATO CHIPS MAKING MACHINE

FRENCH FRY MAKING MACHINE

BANANA WAFER MACHINE

RECTANGULAR FRYER

CIRCULAR BATCH FRYER

CONTINUOUS FRYER

COATING PAN



MKEEN MAKING MACHINE

CENTRIFUGAL DRYER MACHINE

DOUGH KNEADER WITH EXTRUDER

PAPAD MAKING MACHINE

CONTINUOUS PAPAD DRYER

PANI PURI MAKING MACHINE

ECONOMIC MIXER GRINDER BLENDER

MIXER GRINDER BLENDER



STIRRER

MULTIPURPOSE VEGETABLE CUTTER

VEGETABLE SLICER, DICER, GREATER

GREEN CHILL ONION CHOPPER

DRY FRUIT TUKDA MACHINE

DRY FRUITS CHIPS MAKING MACHINE

DRY FRUITS CHIPS MAKING M/C WITH MOTOR

MULTIPURPOSE DRY FRU CHIPS & POWDER MACHIN



CENTRIFUGAL JUICER

MASTICATING JUICER

VEGETABLE & FRUIT PULPER

HOT BEVERAGE VENDING MACHINES

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DE TO CONTINUOUS IMPROVEMENTS, WE RESERVE THE RIGHTS TO ALTER AND OR AMEND DIMENSIONS DESIGN WITHOUT PRIOR NOTICE.

MINI DAL MILL

Pulses are basically grain legumes. They occupy an important place in human nutrition due to their high protein content than cereal grains. In Indian dietary regime it occupies an important place. Since majority of Indians are vegetarians, they depend largely on grain legumes (pulses) for their dietary protein. Legumes contribute a major portion of lysine in the vegetarian diet. They are also a fairly good source of vitamins like thiamine, machine, riboflavin and much needed iron. Therefore its quality availability to the common man is a major challenge. Since recovery was poor in traditional technologies, adoption of modern technology will go a long way in meeting the need of the common man.

Jas enterprises offer mini dal mill. This mini dal mill is simple



Front View of Mini Dal Mill

in construction and easy to operate & maintain. It consist of horizontal tapered roller is covered with emery coating, surrounded by a screen through which the husk is discharged. The shelled pulses are passes through an aspirating fan on the oscillating sieve unit, where appropriate grading of pulses is done. It is run by Automatic arrangement are made for collection of de husked and split pulses, un-de-husked and split pulses, un de husked pulses, broken, husk in separate containers and bags. This machine offers dust free operation, does not cause pollution, retains proteins, natural shine et cetera

Advantage & Special Feature of Mini dal Mill

- Suitable for processing of all types of pulses.
- Easy to operate.
- Operates by Electric motor / oil engine
- Recovery of head pulses - 78% to 80%
- Recovery of broken - 1 to 3%
- De husks and splits almost all pulses
- Spacial provision for bangel gram (Chana , Cheack peas) by stone chakki for de husking and splitting.
- Retains proteins and natural shine
- Dehusked and split pulses
 - o Un de husked pulses
 - o Broken
- Pollution free operation
- Compact size

Construction of Dal Milling (Pulse Milling)

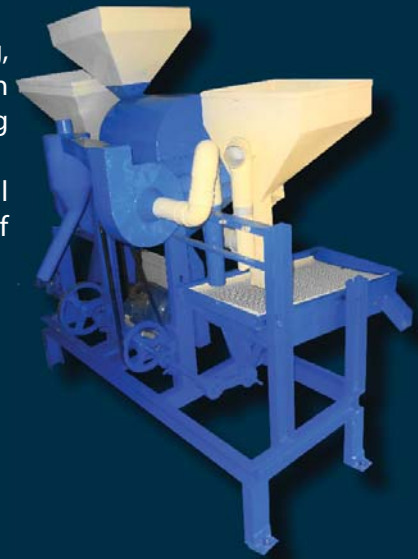
This mini dal mill is simple in construction & easy to operate & maintains. It has been developed for de husking and splitting of food legumes viz. pigeon pea gram and black gram. It consists of horizontal tapered roller the roller is covered with emery coating surrounded by screen through which husk powder is discharged. The shelled dals pass through aspirating fan on oscillating sieve unit where appropriate grading of dals is done.

The vibratory sieves are provided with different size holes to match the requirements of the type of dal being processed. The vibration are included a cam operated link which is mounted on a counter shaft (motor derived shaft) with this mini dal mill Jas enterprises is provided paddle type screw mixer in all mild steel construction with worm shaft.

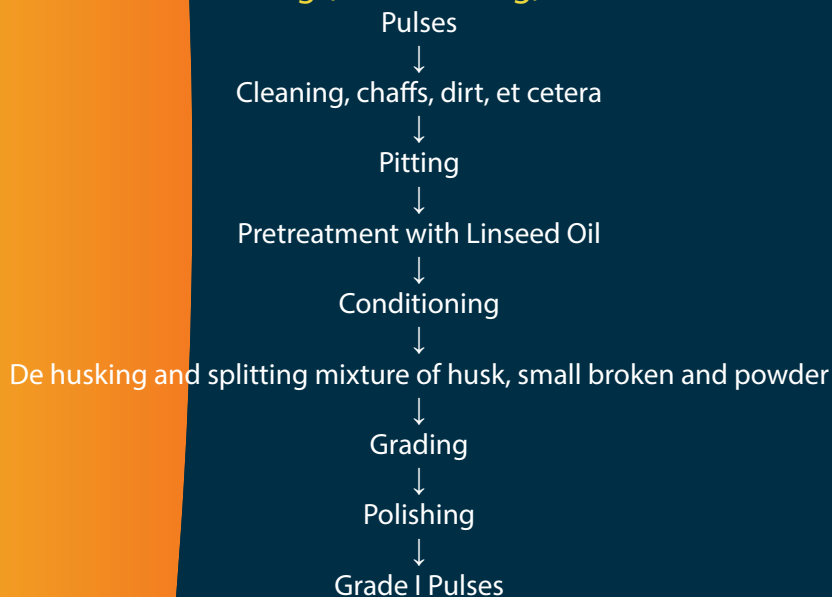
Process of Dal Milling (Pulse Milling)

Basic processes in dal milling are cleaning, grading, conditioning, de husking, splitting, and separation, polishing and bagging. Major variation is involved with de husking process only. Sometimes linseed oil is also used during dry milling operation to impart shine or better appeal to the milled dal.

The removal of the outer layer of husk and splitting the grain into two equal halves is known as milling of pulses. To facilitate de husking and splitting of pulses alternate wetting and drying method is used.



Flow Chart of Dal Milling (Pulse Milling)



Description of various Mini dal mill's Unit of Operations:

Cleaning and grading:

This unit consists of a vibratory inclined sieve, hopper, grain collector, waste collector and motor. The vibratory sieves are providing with different size holes to match the requirements of the type of dal being process. The vibrations are inducing by a cam-operated link, which is mounts on a motor driven shaft.

Pitting:

An emery roller machine is used for cracking the husk layer and for scratching of clean pulses passing through it. This is done for loosening the husk from sticking to the cotyledons in order to facilitate subsequent oil penetration in the following unit operations. Gradually the clearance between the emery roller and cage (housing) is narrowed from inlet to outlet. Cracking and scratching of husk takes place mainly by friction between pulses and emery as the material is passed through the narrowing clearance. During the operation some of the pulses are de husked and split which are separated by sieving.

Pretreatment with Oil & Water:

A screw conveyor allows passing the scratched or pitted material through it and mixing of some edible oil like linseed oil is complete. The linseed oil is use at the rate of 1.5 to 2.5 kg/tones of pulses(please refer our guideline for lintel). These are keeping on floors as required to diffuse the oil.

De-Husking and splitting:

For de husking of conditioned pulses emery stone coated emery rollers are used. In one pass about 50% of pulses are de husked. De husked pulses are split into two parts. De husked split pulses are separated by sieving and the husk is aspirated off. Anti shoplifting pulses and tail pulses are again de husked and milled in a similar way. For complete de husking and splitting the whole process is repeated two to three times

Pre Milling of Pulses:

To obtain best results during de-husking and splitting of pulses in the pulse de husking machine in Jas brand mini dal mills, latest model improved version, pre milling including grading of pulses size wise is very essential.

The raw pulses are first clean of dust, chaff, stones and other extraneous materials. Sieves grade cleaned pulses or pulses graded and soaked in water in cement's tanks having 6" depth. Height of pulses soaked be 5" and the water level should be 1" above the pulses.

Soak pulses are taken out of the water after specific time and put on the sieve. Swollen pulses which do not pass through sieve (from which un-swollen pulses earlier passed through the same) are ready for heaping in shade whereas the pulses which pass through the same sieves. Then these pulses are ready for heaping in shade. Degree of happing of swollen pulses in shade should be 30 to 40. This process should be continuing until the pulses are swill to the desired extent.

There after the pulses are in thin layers in the open sun drying. Duration of sun drying of pulses vary according to weather condition prevailing at the time of processing.

After sun drying, the pulses are again heap in shade so moisture contents in the pulses may become uniform as need in them for de-husking.

Then the pulse are graded again fed in to the pulse de husking machine in jas mini dal mill in graded lots to achieve he best results with minimum brokenness.

For the guidance of the entrepreneurs, the process of details of pre-milling of pulses after proper cleaning is show here after in a tabulated chart.

Note: -

- Period of soaking in water will vary according to weather condition and quality of pulses.
- Duration of sun drying will vary according to weather condition.
- Pulses should not be warm at the time of De-husking/splitting.
- Pulses should be de-husk and split in graded lots only.
- Pulses shown at one & two must be dry within 3 days to get better results. Their processing in any season should be avoiding.
- The de-husked pulses mixed with the un-husked pulses and the husks are again de-husked in the Jas brand mini Dal mill as usual. In second pass all, the pulses are de-husked.

Application of Jas brand mini dal mill

Our mini dal mill can produce almost all dals like Bengal gram (The chickpea {Cicer arietinum } (also garbanzo bean Indian pea ceci bean) pigeon pea, also known as toor dāl or arhar dāl (India), Congo pea or gungo pea (in Jamaica), Pois Congo (in Haiti), gandul (in Puerto Rico), gunga pea, or no-eye pea, Masoor { lentil (Lens culinaris)}, Khesari, Matar (Peas), Soya bean, Vigna mungo, known as Urad, urad dal, udad dal, urd bean, urd, urid, black matpe bean, black gram, black lentil, maas (in Nepali), đậu đen (Vietnamese, literally: black bean) or white lentil, is a bean grown in southern Asia. Green Gram (Moong, Mung beans), Moth Beans, et cetera

Guideline for pre treatment

Serial No.	Name(s) Of Pulses	Pretreatment with Oil	Period of heaping in shade	Duration of sun drying	Period of heaping in shade	Percentage of moisture for splitting needed for splitting & De-husking	Size grading for De-husking & splitting	Splitting only
1	2	3	4	5	6	7	8	9
1	Bengal Grams (Chana) (chick-pea)	Soaking in water for 30 to 40 minutes	1 Hour.	2 to 3 days	6 to 8 hours.	10 to 12%	Needed	No Needed
2	Arhar/ Tur/ pigeon peas/ red grams	Soaking in water for 60 to 90 minutes	3 Hour.	2 to 3 days	6 to 8 hours.	11 to 12%	Needed	No Needed
3A	Masoor (lentil) Fresh crop before rains	Lot of 100 kg Of pulses to be mixed in 5 kg Of water	To be kept for 10 to 11 hours under dry sacks	No Needed	No Needed	10 to 12%	Needed	No Needed
3B	Masoor (lentil) Fresh crop after rains	To Sprinkle water to get the desired moisture	To be kept for 10 to 11 hours under dry sacks	No Needed	No Needed	10 to 12%	Needed	No Needed
4A	KHESARI fresh crop before rains	Lot of 100 kg of pulses to be mixed in 5 kg Of water	To be kept for 10 to 11 hours under dry sacks	No Needed	No Needed	10 to 12%	Needed	No Needed
4B	KHESARI fresh crop After rains		To be kept for 10 to 11 hours under dry sacks	No Needed	No Needed	10 to 12%	Needed	No Needed



Jas Enterprises

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Serial No.	Name(s) Of Pulses	Pretreatment with Oil	Period of heaping in shade	Duration of sun drying	Period of heaping in shade	Percentage of moisture for splitting needed for splitting & De-husking	Size grinding for De-husking & splitting	Splitting only
1	2	3	4	5	6	7	8	9
5A	Mung (Green Grams) fresh crop before rains	Lot of 100 kg Of pulses to be mixed in 5 kg Of water	To be kept for 10 to 11 hours under dry sacks	No needed	No needed	10 to 12%	Needed	No Needed
5B	Mung (Green Grams) fresh crop After rains	To Sprinkle water to get the desired moisture	To be kept for 10 to 11 hours under dry sacks	No needed	No needed	10 to 12%	Needed	No Needed
6A	Urid (Black Grams) fresh crops before rains	Lot of 100 kg Of pulses to be mixed in 5kg Of water	To be kept for 10 to 11 hours under dry sacks	No needed	No needed	10 to 12%	Needed	No Needed
6b.	Urid (Black Grams) fresh crops after rains	To Sprinkle water to get the desired moisture	To be kept for 10 to 11 hours under dry sacks	No needed	No needed	10 to 12%	Needed	No Needed

Further process details of pulses at Serial No. 5A, 5B, 6A & 6B Moong (Green Grams) & Urid (Black Grams)

Oil treatment	Period heaping in shade	Sun drying	Heaping in shade	De-husking
10	11	12	13	14
100 Kilo-grams(220.462 lb.) of split pulses to be massaged by 200 Grams of edible oil, grade wise	5 to 6 hours	2 to 4 days	6 to 7 hours	Needed

Standard accessories of Mini Dal Mill (Pulse Mill)

- Motor pulley.
- Adjustable rail for fixing motor.

Extra Accessories of Mini Dal Mill

• Suitable 4 pole totally enclosed fan cooled three phase or Single Phase Squirrel cage motor {Electricity (Special power can be accommodated): 110/220/380/415 Volts, 50/60 Hz , 3 or 1 Phase }

• Suitable miniature circuit breaker as per IS: 8828 with 3 meter cable & 3 pin top for single Phase Electric Motors or starter and an ampere meter for three phase electric motor.

- Foundation bolts
- V. Belts
- Magnetic Hopper
- "Jas" Brand Dal (Pulse) Polisher Machine

De husking and splitting of pre - conditioned pulses per hour of Mini dal Mill

Serial .No.	Name of Pulses	Jas -MDM-6265 Capacity in Kg/Hr.	Jas -MDM-6565 Capacity in Kg/Hr.
1.	Gram (Channa), Bokla	90 to 120	200 to 210
2.	Khesari, Matar (Peas), Soya bean	90 to 100	175 tp 200
3.	Pigeon Pea (Red Grams, Arhar, Toor dal)	70 to 80	175 to 190
4.	Lentil (Masoor)	100 to 125	250 to 350
5.	Black Gram (Urad)	60 to 80	150 to 200
6.	Green Gram (Moong, Mung beans), Moth Bean	60 to 80	150 to 200
	Required Space	Length 1650 mm x width 900 mm x height 1350 mm	Length 2135 mm x width 1220 mm x height 1750 mm

