

# **BLAKE JAW CRUSHER**

## **APPLICATIONS**

It is used for reducing run-of-mine ore or coal to a size small enough to be taken by the next crusher in the series during the first stage of crushing.



## **TECHNICAL SPECIFICATIONS**

1. **Toggle Type:** Single or double toggle
2. **Feed size:** 100 mm
3. **Product Size:** (5-15) mm
4. **Capacity:** 20-30 kg/hr.
5. **Jaw Type:** One fixed jaw and one movable jaw with Mn steel Liner. Provisions for output gap adjustment is available.
6. **Feed materials:** Coal, iron ore, Mn ore, Chromite ore, Rock, Mg ore, Aluminium ore etc.
7. **Motor capacity:** Preferably with (415-440) V/3Ph/50Hz electric supply, and onsite isolator switch.

## **STANDARD OPERATING PROCEDURE**

1. Switch 'ON' the Main supply.
2. Switch on the machine followed by MCB.
3. Before charging the feed material, note down the following points
  - Properly check the nuts & bolts at the joints.
  - Proper placement of product collector bath.
  - Check the contact points for any wear, & friction.
4. After completion of the crushing operation, Switch 'OFF' the machine along with MCB connection, then cut the main supply.
5. Before leaving, clean the equipment properly.

# ROLL CRUSHER

## APPLICATIONS

It is a type of secondary crusher used for further crushing of materials that obtain from primary crushing process.



## TECHNICAL SPECIFICATIONS

1. **Size:** 300 mm dia. X 200 mm dia.
2. **Motor:** 2 nos. 1 hp / (415-440) v / 3 Ph / 50cycles / TEFC (Totally Enclosed Fan Cooled)
3. **Rolls:** 10 – 12 % Mn - Steel
4. **Bearing:** Double Row Spherical Roller Bearings
5. **Capacity:** Around 20-30 kg/hr
6. **Feed size:** 15 mm
7. **Product size:** 1 mm
8. **Feed materials:** Coal, Iron Ore, Mn Ore, Chromite Ore, Rock, Mg Ore, Aluminium Ore etc.

## STANDARD OPERATING PROCEDURE

1. Switch 'ON' the Main supply.
2. Switch 'ON' the machine followed by MCB.
3. Before charging the feed material, note down the following points
  - Clean the stuck materials in between two rolls before running the equipment.
  - Properly check the nuts & bolts at the joints.
  - Proper placement of product collector bath.
  - Check the contact points for any wear, & friction.
4. After completion of the crushing operation, Switch 'OFF' the machine along with MCB connection, then cut the main supply.
5. Before leaving, clean the equipment properly.

# BALL MILL

## APPLICATIONS

It is used for fine grinding of medium sized particles that obtained after secondary crushing.



## TECHNICAL SPECIFICATIONS

1. **Size:** 300 mm (Initial Dia.) X 300 mm (Initial Length)
2. **Motor:** 1hp / 415v / 3ph / 50 cycles / 1440rpm / TEFC (Totally Enclosed Fan Cooled)
3. **Bearings:** Double Row Spherical Roller Bearings
4. **Grinding media:** Forged steel balls
5. **Control Panel:**
  - a. MCB will be located outside with a connected lead wire.
  - b. RPM can vary with the help of AC Control Drive.
  - c. Push button to start/stop, luminous.
6. **Capacity:** 20-30 kg/ hr., and **L/D Ratio:** 1.2 to 1.5
7. **Feed size:** 25 mm (Max)
8. **Feed Materials:** Coal, iron ore, Mn Ore, Chromite ore etc.

## STANDARD OPERATING PROCEDURE

1. Switch 'ON' the Main supply.
2. Switch 'ON' the machine followed by MCB.
3. Before charging the feed material, note down the following points
  - Clean the inner side of the cylindrical shell properly.
  - Set the RPM of the shell below the critical speed of the mill.
  - Properly check the nuts & bolts at the joints.
  - Proper placement of product collector bath.
  - Check the contact points for any wear, & friction.
4. After completion of the grinding operation, Switch 'OFF' the machine along with MCB connection, then cut the main supply.
5. Before leaving, clean the equipment properly.

# RO-TAP SIEVE SHAKER

## APPLICATIONS

It is used for automatic sieving of finely grind materials in a stacked column of standard sieves from the top (larger openings) to the bottom (smaller opening) according to the particle size.



## TECHNICAL SPECIFICATIONS

1. **Ro-Tap Sieve Shaker:** A Ro-Tap sieve shaker having provision to hold a stack of 10 nos. of 200mm dia. standard sieves, 1 no. receiver pan and top lid.
2. **Capacity:** The unit should be run with a motor of suitable capacity, running on 230V/1Ph/50Hz electric supply.

## STANDARD OPERATING PROCEDURE

1. Switch 'ON' the Main supply.
2. Switch 'ON' the machine from the plug point.
3. Before charging the feed material, note down the following points
  - Clean the inner side of the stacked sieves along with the PAN properly.
  - Set the timer as per requirement.
  - Check the number of sieves along with PAN, that should be less than 10.
  - Properly check the nuts & bolts at the joints.
  - Check the contact points for any wear, & friction.
4. After completion of the sieving operation, Switch 'OFF' the machine along with Plug point, then cut the main supply.
5. Before leaving, clean the equipment properly.

# WILFLEY TABLE

## APPLICATIONS

It is well known as shaking table. It is mainly used for the following areas such as

- To recovery of coarse mineral, and valuable minerals when the floatation unit is not working at a point of high recovery
- For efficient concentration of low grade mineral feeds to produce a high grade concentrate.
- For the concentrating of mineral feeds of low specific gravity such as graphite, molybdenum etc.



## TECHNICAL SPECIFICATIONS

1. **Size:** 2' Width x 4' Length
2. **Capacity:** 50 to 200 kg/hr
3. **RPM:** 250 to 300
4. **Amplitude:** 6 mm to 12 mm
5. **Motor:** 0.75hp / 415v / 3ph / 50 cycles / 1440 rpm / TEFC (Totally Enclosed Fan cooled)

## STANDARD OPERATING PROCEDURE

1. Switch 'ON' the Main supply.
2. Switch 'ON' the machine followed by MCB.
3. Before charging the feed material, note down the following points
  - Properly clean the deck & riffles.
  - Set the RPM up to 550, and not more than that.
  - Properly check water connection.
  - All the nuts and bolts are properly tightened (Don't use extra force to tighten the bolts).
  - Properly place the collector vessels for the collection of tailings, middlings, and concentrate.
  - Table needs to be properly lubricated in the half bush (brass) bearings below the table, the toggle plate seats in the motion box, and also Check the contact points for any wear, & friction.
4. After completion of the experiment, Switch 'OFF' the machine along with MCB connection, then cut the main supply. Also, close the water valve.
5. Before leaving, clean the equipment properly.

# FROTH FLOATATION CELL

## APPLICATIONS

Froth flotation is a process for selectively separating hydrophobic materials from hydrophilic. This is used in mineral processing, paper recycling, and waste-water treatment industries.



## TECHNICAL SPECIFICATIONS

1. **RPM:** (0 – 1500) with the help of AC Control Drive
2. **Capacity:** 500 gm, 1000 gm and 2000 gm
3. **Size:** 2 l, 5 l, 10 l cells
4. **Motor:** 0.5 hp / 415v / 3 phase / 50 cycles / TEFC (Totally Enclosed Fan cooled) / (1440-2200) RPM

## STANDARD OPERATING PROCEDURE

1. Switch 'ON' the Main supply.
2. Switch 'ON' the machine followed by MCB, and the compressor for air blow.
3. Before charging the feed material, note down the following points
  - Properly clean the inside chamber of floatation cell, and collection bath.
  - Set the RPM of the stirrer as per requirement.
  - Properly check the water connection.
  - Properly check the nuts & bolts at the joints.
  - Properly place the collector vessels for the collection of skimmed froth.
  - Check the contact points for any wear, & friction.
4. After 10 minutes of stirring, add a mixture of kerosene (collector, 10 ml), and pine oil (frothing agent, 10 ml) in 1:1 ratio, then pass the compressed air till froth is obtained on the surface of the solution.
5. Collect the froth in the tank with the help of metallic strip.
6. After completion of the experiment, Switch 'OFF' the machine along with MCB connection, then cut the main supply. Also, close the water valve.
7. Before leaving, clean the equipment properly.

# MAGNETIC SEPARATOR

## APPLICATIONS

Magnetic separation is a process in which magnetically susceptible material is extracted from a mixture using a magnetic force. This separation technique can be useful in mining iron as it is attracted to a magnet.



## TECHNICAL SPECIFICATIONS

1. **Size:** 300 mm dia. x 200 mm length.
2. **RPM:** 21
3. **Intensities:** 2000G to 15000 G (variable).
4. **Motor:** 0.5 hp / 3ph / 415v / 50 cycles / 1440 rpm / TEFC (Totally Enclosed Fan Cooled).

## STANDARD OPERATING PROCEDURE

1. Switch 'ON' the Main supply.
2. Switch 'ON' the machine followed by plug point.
3. Switch 'ON' the magnet and motor.
4. Before charging the feed material, note down the following points
  - Properly clean the feed hopper, conveyor belt, & discharge end.
  - Set the magnet field by using the magnet controller meter.
  - There should be no mobile phones or magnetic devices nearby the equipment.
  - Properly check the nuts & bolts at the joints.
  - Proper place the collector vessels for the collection of magnetic and non-magnetic materials.
  - Check the contact points for any wear, & friction.
5. After completion of the experiment, Switch 'OFF' the magnet and motor. Also, switch 'OFF' machine along with plug point connection, then cut the main supply.
6. Before leaving, clean the equipment properly.

# VERNIER CALIPER

## APPLICATIONS

The Vernier Caliper is a precision instrument that can be used to measure internal and external distances extremely accurately. The measurements are interpreted from the scale by the user.



## TECHNICAL SPECIFICATIONS

1. **Range:** 0 - 150 mm
2. **Accuracy:** +/- 0.03mm / 0.001 inch.
3. **Digital Vernier Caliper:** 6 inch

## STANDARD OPERATING PROCEDURE

1. Put the battery into the case.
2. Switch 'ON' the digital caliper.
3. During the measurement, note down the following points
  - Tier the scale to zero.
  - Measurement can be done either in mm or in inch unit.
  - The digital screen will show the correct measurement.
4. After the measurement was done, switch 'OFF' the digital caliper.
5. Then, remove the battery from the case.