



MINE

Mineral processing is a major division in the science of Extractive Metallurgy. Extractive metallurgy has been defined as the science and art of extracting metals from their ores, refining them and preparing them for use.

In mineral processing, a number of unit operations are required to prepare and classify ores before the valuable constituents can be separated or concentrated and then forwarded on for use or further treatment. The field of mineral processing has also been given other titles such as mineral dressing, ore dressing, mineral extraction, mineral beneficiation, and mineral engineering. These terms are often used interchangeably.

Finding new mineral reserves is critical. Locating, extracting and processing these natural resources is a multiyear process that involves complex scientific, environmental and social planning.

HIRA's mission is to product useful device to sustainable mining business and environmental stewardship.



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CORE CUTTING MACHINE

Core Cutting Machine is mainly used to cut rock, concrete and core specimens of various sizes and to obtain two half cylinders from core specimens.

Made of 5 mm sheet metal.

Cutting capacity up to \varnothing 110 mm and 1200 mm length.

Movement is given by means of a gear motor to Core Cutting motor.

The Core Cutting Machine has a water cooling system which prevents the heating of the cutting stone.

The forward and backward speeds of the movement which has given by the gear motor can be adjusted separately. The forward and backward distances can be adjusted with switches.

The motion motor which moves the Core Cutting motor by means of forward and backward reducer is 0.55 kW.

The Core Cutting motor has an IP 55 protection class, with a power of 5.5 kW and a rotation speed of 4000 rpm.

It has a long-lasting electric pump with cooler.

In the reducer which is used to reduce the motor output cycle by means of gears by passing through certain steps, rate of the input/output cycle is 7.5.

The Core Cutting Machine do not make cutting head oscillating movement.

There is shield apparatus to prevent scattering of particles.

There is a V bedding system on the purpose of to obtain a half cylinder that up to 1200 mm to cut the core. The V bedding system has a specimen rest support and precautions have been taken to prevent the specimen from slipping during cutting of the specimen.

It is painted with electrostatic dye to resistant the scratch.

Thermic magnetic switch for motor protection is available.

The Core Cutting Machine has 4 feet with a height of 90 cm.

It can circulate its own water thanks to the water tank and water pump to be installed on the Concrete Cutting Machine.

The Concrete Cutting Machine is equipped with Quintet three-phase industrial type male plugs with grounded and 3 phase, neutral, earth connection.

The Concrete Cutting Machine is supplied with the wrench and equipment for removing and installing the Core Cutting Blade.



HR-M1200

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Power Supply
HR-M1200	Concrete Cutting Machine	170x60x130	380 V, 50-60 Hz, 3 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)
HR-M1200/1	Core Cutting Blade	350

ROTARY SAMPLE DIVIDER

A perfect and comparable analysis is closely related to the correct sampling. Based on that, rotary sample divider is designed for sampling, dustless separation and reduction of large quantities of powder or granular bulk materials.

This machine is used in various area such as materials Portland cement clinker, chemicals, construction materials, fertilizers, fillers, flours, grains, metal powders, minerals, nut, sand, seeds, soil, dust washing etc. in areas of agriculture, biology, chemical, plastic, building materials, engineering, electronic, environment, recycling, food, geology, metallurgy, glass, ceramic.

The added material is divided equally into the buckets which rotating in a "circle" motion.

Sample buckets are made of 304 quality stainless steel with a sheet thickness of 2 ± 01 mm and are made up of 8 divisions, each with 10 lt chambers in triangular prism shape. Depending on demand, production can be done in special dimensions.

The feeding chamber is made of 304 quality stainless steel, and the other parts are made of electrostatic powder paint on steel.

Sample buckets have handles to easy and safe carrying.

Feeding speed and quantity are adjustable steplessly with the help of magnetic vibration system.

Sample feeding system is vibratory. Feeding system can be adjusted with horizontal to 0°C and 10°C from the base of the device.

Dividing speed of sample buckets can be adjusted between 0 and 60 rpm steplessly with electronic speed control panel. The sample buckets can be rotated with the rotation adjusted drive motor.

The sample buckets are attached to each other with removable, made of steel suitable material with edge of the buckets to avoid the material coming from the feeder during the sample flow to the gap between sample buckets.

Sample feeding Speed can be adjusted steplessly by vibration coil and variac system.

Rotary table control and vibration control panel is easy to use.

The grain size capacity of the Rotary Sample Divider is 0-50 mm.

Rotary Sample Divider is equipped with a mobile chassis on four wheels and has a stabiliser safety system on the wheel.



HR-M8000

Technical Specifications:

Product Code	HR-M8000
Product Name	Rotary Sample Divider
Material Feed Size	0-50 mm
Rotation Speed	0-60 rpm
Capacity	80 lt
Electrical Unit	220 V, 50-60 Hz, 1 ph
Dimensions (cm)	110x170x185
Weight (kg)	380

HİRA TESTING EQUIPMENT

SMALL ROTARY SAMPLE DIVIDER

Small Rotary Sample Divider has 8 pieces 250ml graduated bottles.

The Divider can divide 0-6 mm grain size material to 8 pieces equivalent samples up to 4 lt automatically.

Can be prepared samples which equiponderate with $\pm 1\%$ sensitivity on the 250 ml graduated bottles.

Small Rotary Sample Divider is equipped with 5 lt stainless steel feeding chamber and magnetic vibrating feeder.

Technical Specifications:

Product Code	Product Name	Power Supply
HR-M8250	Small Rotary Sample Divider	380 V, 50-60 Hz, 3 ph

Spare Parts & Accessories:

Product Code	Product Name	Capacity (ml)
HR-M8250/1	Graduated bottles	250



**HR-M8250
with
HR-M8250/1**

ROLLER CRUSHER

The Roller Crusher is used for the rapid, safe and efficient crushing and secondary crushing of medium-hard, hard, brittle and tough materials. It is a very useful for bulk working and pilot plant working. Application Examples: Alloys, basalt, cement clinker, ceramics, chamotte, coal, coke, construction materials, feldspar, glass and various materials.

Size of roller is 250*150 mm.

The size of the crushed parts is maximum 12 mm and the size of the crushed material is 3 - 0,2 mm, depending on the clearance between rollers.

The body of the crusher is designed as steel construction.

Rolls are tapered. It is possible to adjust the roller distances by means of an arm.

The lid that covers the rollers where the material inlet hopper is also connected does not leak dust. The carrier body is completely closed and there is a collecting container inside.

The revolutions of the rolls are supplied by a reducer with appropriate strength.

The tension in the roller is absorbed by a spring system.

Capacity for 2 mm thick material is 0,3-0,5 m³.



HR-M7000

Technical Specifications:

Product Code	Product Name	Power Supply
HR-M7000	Roller Crusher	380 V, 50-60 Hz, 3 ph

BALL MILL

Ball Mill is suitable for both wet and dry milling processes.

Supplied with 22 lt capacity cylindrical tank, receiver and balls.

Rotational Speed is 70 rpm.

The mill cover is 10x30 cm wide and sealed with a dust proof rubber.

The balls are made of corrosion resistance steel.

Spare Parts & Accessories:

Product Code	Product Name	Pieces	Dimensions (mm)
HR-M2200/1	Ball Set	43	Ø 38,10
		67	Ø 31,75
		10	Ø 25,40
		71	Ø 19,05
		94	Ø 15,87



HR-M2200

Technical Specifications:

Product Code	Product Name	Int. Dimensions (cm)	Ext. Dimensions (cm)	Weight (kg)	Power Supply
HR-M2200	Ball Mill	Ø 30,5 x 30,5	55x135x145	300	220 V, 50 Hz, 1 ph
HR-M2200/60Hz	Ball Mill	Ø 30,5 x 30,5	55x135x145	300	220 V, 60 Hz, 1 ph

BOND GRINDING TEST MILL

The FC Bond Mill was designed by F. C. Bond for use in determining the Bond Index, a measure of grindability and power required for grinding applications. The FC Bond Mills are used in laboratories throughout the world. A copy of Fred C. Bond's Method of Crushing and Grinding for determination of the Bond Index is included with each mill. This mill can be used to calculate the grindability of all ores.

This Bond Mill can be used continuously or it can be used for any number of revolutions, according to the type of grind desired. The grinding mill is located in a sound and dust proof cabinet for CE safety standards.

The cover of the mill is 10x30 cm wide and sides are isolated by dust proof material. The device is supplied with an emergency stop button and safety on/off switch.

The rotation speed can adjustable. The standard default speed is 70 rpm. The balls are made of corrosion resistance steel.

The device is complete with 22 lt capacity cylindrical tank, receiver and balls.

Spare Parts & Accessories:

Product Code	Product Name	Pieces	Dimensions (mm)
HR-M2200/1	Ball Set	43	Ø 38,10
		67	Ø 31,75
		10	Ø 25,40
		71	Ø 19,05
		94	Ø 15,87



HR-M2500

Technical Specifications:

Product Code	Product Name	Int. Dimensions (cm)	Weight (kg)	Power Supply
HR-M2500	Bond Grinding Test Mill	Ø 30,5 x 30,5	350	220 V, 50-60 Hz, 1 ph

JAW CRUSHER

Jaw crusher is used for crushing the natural rocks, ores and minerals to millimetric scale by crushing.

It is a very useful for sample preparation in laboratories and industrial plants. Application Examples: alloys, basalt, cement clinker, ceramics, chamotte, coal, coke, construction materials, feldspar, glass and various materials.

It has suitable base for stable fitting the ground. If necessary, can be screwed on the floor or wheel connections can be made to become mobile.

Material Feeding dimension is \varnothing 90 mm. After crushing, %75 of the all specimens become smaller to 2 mm and also lower than 2 mm.

The capacity of crushing is 200 kg per hour and it is suitable for adding specimens continuously.

3 kW motor is used.

Jaw crusher consists of three main parts; Feeding Funnel, Body and Collector. All of this main parts are manufactured of metal alloy materials which are durable. All of this main parts are electrostatic painted.

The Feeding Funnel has an interior design which allows the user to put his hand inside and which prevent to rebounding the fed material by hitting to jaws. At the same time it is connected to the main body with hinge so that it can be opened easily during cleaning.

The Feeding Funnel can be locked to the body by a locking mechanism to prevent accidental opening of the crusher during the operation of the crusher. In case of manual opening of the lock, it has a safety arrangements to stop the device instantly.

The Body is designed the way that as dust will not leak out during operation. The noise emission level according to the working atmosphere is maximum 85 dB.



HR-M9000



HR-M9000

Drive of the mechanical parts that move the crusher jaws is made by V-belt system which attached to motor and there is also a central lubrication system that is easy to maintain for all moving parts.

The device has an electronic-mechanical equipment that can protect itself and stop working if wedge of the material and in such situations as overheating of the crusher during operation of the device.

The jaws can be easily removed from the place where they are mounted because the device is suitable for cleaning, maintenance or changing purposes.

Crusher material is 16-18 1,5 Chrome Manganese Steel of the Jaw Crusher. Wear Plates of the Jaw Crusher are manufactured from 450 Brinell material.

The distance between jaws can be adjusted between 0-15 mm and uninterruptedly.

Zeroing setting can be made for the distance between jaws. And also both the zero point and the distance between jaws can be easily read from the outside with an analog display. There is a Collector at the bottom of the Jaw Crusher.

Spare Parts & Accessories:

Product Code	Product Name
HR-M9000/1	Spare Jaws (2 pieces)

Technical Specifications:

Product Code	Product Name	Jaws (mm)	Dimensions (cm)	Weight (kg)	Power Supply
HR-M9000	Jaw Crusher	90x90	45x90x80	250	380 V, 50-60 Hz, 3 ph



HR-M9000

PNEUMATIC VIBRATORY DISC MILL

The Pneumatic Vibratory Disc Mill is used for the very rapid, safe and efficient grinding of medium-hard, hard, brittle and tough materials. It is a very useful for sample preparation in laboratories and industrial plants. Application Examples: Alloys, basalt, cement clinker, ceramics, coal, coke, construction materials, feldspar, glass and various materials.

Material feed size is between 0,075 - 5 mm.

The Pneumatic Vibratory Disc Mill can grind between range as 1-10 minutes depend on the type and size of specimen.

Loss of material is minimum during the pulverizing.

Grinding Jars are tightened and connected with air bellows pneumatically.

The material is placed between the jars and pulverized by vibration.

The jars are easily taken out and thus facilitating cleaning.

The complete system is taken into a sheet construction cabinet and the lid is closed. The device has a door safety switch and There is an Adjustable Timer.

The Pneumatic Vibratory Disc Mill stop when the door opens or the air pressure decrease, automatically.

Air Compressor should be ordered separately.



HR-M5000

GRINDING JARS

The Grinding Jars is used for the very rapid, safe and efficient grinding of medium-hard, hard, brittle and tough materials on the vibratory disc mill.

Three types for grinding Jars with capacity of 250 cc, 100 cc and 50 cc.

Made of hardened steel.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Power Supply
HR-M5000	Pneumatic Vibratory Disc Mill	100x75x130	380 V, 50-60 Hz, 3 ph

Spare Parts & Accessories:

Product Code	Product Name	Size (cc)
HR-M5000/1	Grinding Jar	50
HR-M5000/2	Grinding Jar	100
HR-M5000/3	Grinding Jar	250



**HR-M5000/1
HR-M5000/2
HR-M5000/3**

PNEUMATIC DISC MILL

Pneumatic Disc Mill is used for pulverizing the soil, rock, cement, limestone, ceramic, metal oxides etc. rigid fragile materials.

Supplied with 800 cc Standard Steel Grinding Set.

100 cc Steel Grinding Set is available as an optional and should be ordered separately.

Loss of material is minimum during the pulverizing.

The Steel Grinding Set vibrates the Grinding Jar and Pulverizing is carried out by means of a disk in the Jar.

With the belt pulley system, achieves three-dimensional vibration by moving the shaft.

Material feed size is <20 mm and the final fineness for % 85 of grinded material is < 0.075 mm depending on feed material and instrument configuration/settings.

The Pneumatic Disc Mill is designed the way that as dust will not leak out during operation. The noise emission level according to the working atmosphere is maximum 85 dB.

Internal body is covered with fireproof acoustics noise insulation material and dust and dirt entry onto the materials such as motor and shaft are prevented.

The cover mechanism has been designed appropriately in terms of occupational health and safety.

The Pneumatic Disc Mill has a locking mechanism and a cover for ve sound insulation.

There is an Adjustable Timer.

The Pneumatic Disc Mill stop when the door opens or the air pressure decrease, automatically.

Air Compressor should be ordered separately.



HR-M6000



HR-M6000/2



HR-M6000/2

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Power Supply
HR-M6000	Pneumatic Disc Mill	100x75x130	380 V, 50-60 Hz, 3 ph

Spare Parts & Accessories:

Product Code	Product Name	Size (cc)
HR-M6000/1	Steel Grinding Set	100
HR-M6000/2	Steel Grinding Set	800

LARGE CAPACITY SAMPLE SPLITTER

Large Capacity Sample Splitter is used to obtain the representative samples in required quantity for the related tests from the aggregates parts which comes to laboratory.

Widths of Slots are adjustable between 12,5 mm with 100 mm.

Large Capacity Sample Splitter consist of three parts;

- Carrier,
- Splitter,
- Collecting pan

All parts are manufactured from steel and electrostatic painted.

Large Capacity Sample Splitter splits the sample to two equal volumes.

Large Capacity Sample Splitter has been designed so that no samples remain on the surfaces during operation.



HR-M4000



Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-M4000	Large Capacity Sample Splitter	82x52x110	55

MAGNETIC PEN

It is designed as a pen with a pocket clip and a small magnet at the end.

There is a spring wire clip on it.

When the Pencil Magnet is held by this wire clip, rock etc. brought close to the magnet are drawn towards the magnetic minerals found in the samples.



HR-M0500

Technical Specifications:

Product Code	Product Name
HR-M0500	Magnetic Pen

HİRA TESTING EQUIPMENT

PRESSURE FILTER DEVICE

The outer diameter of the Cylinder Reservoir of Pressure Filter Device which made the filtration is 250 ± 5 mm and manufactured from 304 stainless steel. The size of the Cylinder Reservoir is 400 ± 5 mm and the thickness is 6 mm.

The inside surface of the Reservoir, the top and bottom surfaces are smooth.

The bottom part of the Reservoir where the filter paper will be placed is made of silicone and stainless thin wire braided material which will provide the drainage of water and liquid with special grooves.

There is a cover that compress from the top of the Cylinder Reservoir of Pressure Filter Device which made the filtration. Silicone gaskets are used to provide the sealing under this cover.

There is a gauge on the top of cover, showing a pressure of at least 10 bar. At the same time there is an inlet which discharges the air in the compressor.

There is a safety valve that discharges in high pressure applications.



HR-M3000

To transfer the air in the compressor, a pressure resistant 3 m special hose is used. The other end of this hose has a connecting apparatus for air compressor.

There is a safety system to prevent the flow down the material when the liquid is poured into the Cylinder Reservoir.

There is a valve through which the air can be evacuated from the cover.

At the last stage, there is a handle which can lift a little the Cylinder Reservoir to get the material that on the filter paper.

There is a hose on the underside of the device to flow the filtered liquid from the filter paper.

The device is wheeled. Wheels can be locked.



HR-M3000

Technical Specifications:

Product Code	Product Name
HR-M3000	Pressure Filter Device

GEOLOGIST HAMMER

Geological hammers are a necessity for field work. Specially forged or manufactured for breaking rock in a variety of ways.

Whether using the hammer to expose fresh rock surfaces or as a means to extract samples for further analysis, they are of chief importance to the geologist.

All geological hammers come with at least one flat face which is primarily for breaking rock where accuracy is not required or to break down larger pieces into smaller fragments.

Chisel end hammers are for cutting rock where as pointed tip hammers are for accurate delicate work or extraction of crystals or fossils.

Technical Specifications:

Product Code	Product Name
HR-M3500	Geologist Hammer, Pointed Tip
HR-M3600	Geologist Hammer, Chisel End



HR-M3500



HR-M3600

PELLET PRESS

Solid, high-quality pellets are an important precondition for reliable and meaningful XRF analysis. Pellet Presses are used for preparation of pellets for spectral analyses.

Can be used construction materials, metallurgy, geology, ceramics plastics, environment, recycling, chemistry, glass, etc. fields.

The Pellet Press is a compact benchtop unit with particularly simple and safe operation. With a pressure force of 20 ton it is ideally suited for the preparation of solid samples for XRF analysis. The pellets produced are of high quality and are characterized by their high degree of stability.

Maximum pressure is 20 ton.

It offers precise loading with double-flow pump.

Pellet Press has 4-side closed Plexiglass Covers and Aluminum Frame.1

Two models are available as Manual or Digital.

On the Manual Pellet Press; the piston pressure can be read off from the clearly visible manometer scale.

On the Digital Pellet Press; the measurements are carried out very precisely thanks to the Load cell.

Digital Pellet Press consists has a digital LCD screen which the load values can be read sensitively.



HR-M0200

Technical Specifications:

Product Code	Product Name	Power Supply
HR-M0200	Manual Pellet Press	---
HR-M0250	Digital Pellet Press	220 V, 50-60 Hz, 1 ph

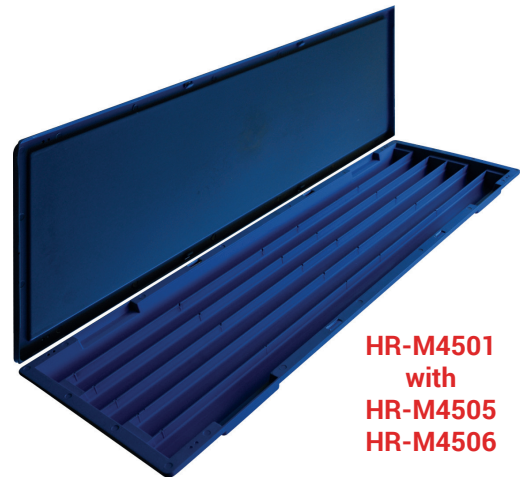
CORE BOX

Core Box is made of sturdy, yet lightweight plastic material.

Core Box provides stable stacking and can withstand the weight of several boxes full of cores stacked on its top.

A lid comes with each Core Box that is easily removed.

Provides the best protection and is easy to transport.



**HR-M4501
with
HR-M4505
HR-M4506**

Technical Specifications:

Product Code	Product Name	Type	Core Dia. (mm)	Capacity (m)	Dimensions (cm)	Weight (kg)
HR-M4500	Core Box	BQ	26-36	6x1	107x34x5	1,6
HR-M4501	Core Box	NQ	37-48	5x1	107x34x6	1,8
HR-M4502	Core Box	HQ	49-64	4x1	107x34x8	2
HR-M4503	Core Box	PQ	65-86	3x1	107x34x10	2,1

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-M4505	Lid	107x34x2	0,9
HR-M4506	Separator	---	---