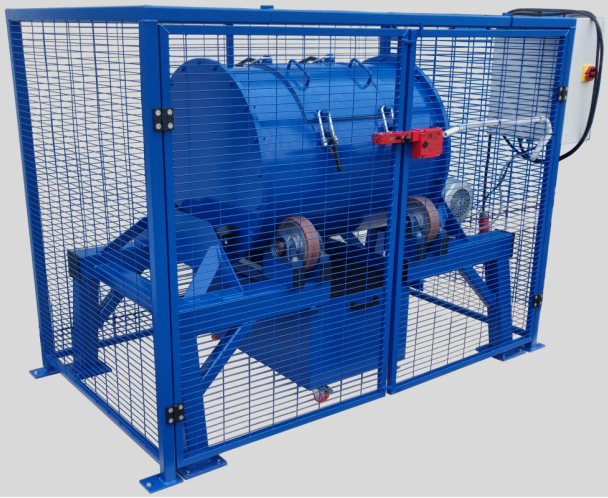
LAARMANN®

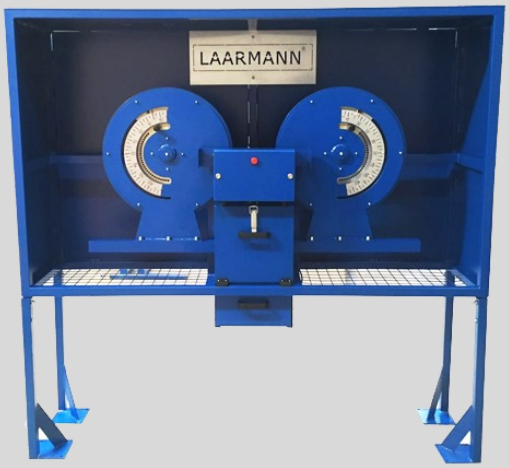
Innovators in Solids

BOND TESTING EQUIPMENT

process and laboratory machines

BOND TESTING EQUIPMENT BASED ON THE BOND CRUSHING AND GRINDING CALCULATIONS





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Flexible ball / rod mill

The LAARMANN® ball / rod mill is designed to meet the industrial requirements to grind coal, cement and a wide variety of ores related to the Bond ball mill and Bond rod mill work index

Thi index is used to calculate the power draw requirements of a rod mill. Furthermore it allows more precise calculation of the required comminution energy. The RWI index is used for a secondary crusher product size in the range 25mm down to 2,1mm and BWI index is used from 2,1mm down to 100µm which is the usual product size. The ball / rod mill consists of a gear motor mounted on a high precision solid steel underframe complete with outlet funnel and a set of separation screens plus sample collector.

Method of operation

The mill incorporates a yoke and locking mechanism to facilitate easy access to the contents of the mill.

An appropriate ball or rod charge is provided with the mill. The motor incorporates a solid-state controller to accurately control the drum speed. This controller has an internal overload protection and can be used to set different drum speeds. The mill can be adjusted to rotate at variable speed.

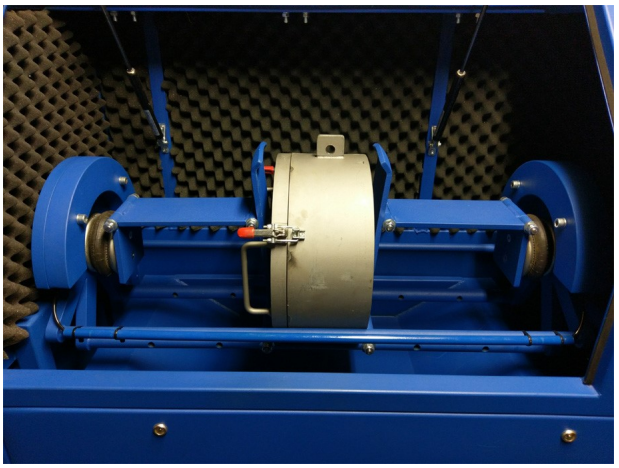
The lid incorporates a quick release locking mechanism.

Features and benefits

- Variable speed setting
- Standard drum sizes from 1 - 20 litres
- Modular drum with an adjustable volume from 1 to 12,7 litre
- Ergonomic sample separation set consisting of outlet funnel and screens with handle
- Guide rail for easy slide and removal of screen set
- Removable sample collector
- High precision solid steel underframe, easy to clean
- Solid acoustic noise reduction hood with safety switch to stop the motor when hood is opened
- Operation control panel

Ball and rod mill

Ball and rod mill old version



drum

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Applications

- Cement, cement clinker, concrete
- Coal, coke
- Minerals, ores, slags
- Soil samples, sludges
- Glass, ceramics, corundum
- Pharmaceuticals, chemicals
- Food, animal food
- Creams and emulsions
- Paint

Ball and rod mill data

TECHNICAL DATA	
Electrical details	230V/50Hz/60Hz
Speed variable	0-80 rpm
Motor power	0.75KW

TRANSPORT DATA	
Net dimensions wxdxh	app. 1500 x 675 x 1200 mm
Net weight	300 kgs (only machine)

PERFORMANCE	
Working principle	Grinding
Feed size maximum	Depending on drum volume
Quantity maximum	Usually 40% of drum volume
Quantity minimum	300 ml
Endfineness	10 µm
Start / Stop function	By on/off button
Endfineness adjustment	By variable speed setting and ball / rod charge
Drum size	1,6,12, 21 litre
Drum diameter	300mm

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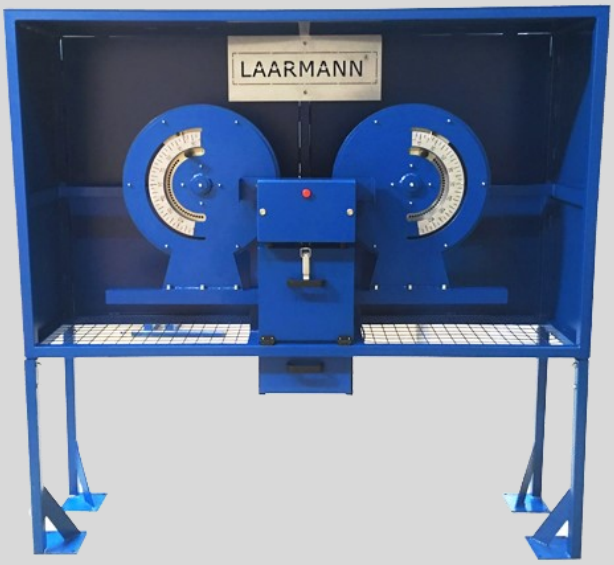
Bond crushing work index (CWi)

The Bond crushing work index (CWi) describes the competency of the ore at larger particle sizes. It is used for the calculation of the actual crusher power requirements.

The Bond impact tester consists of two pendulum mounted hammers.

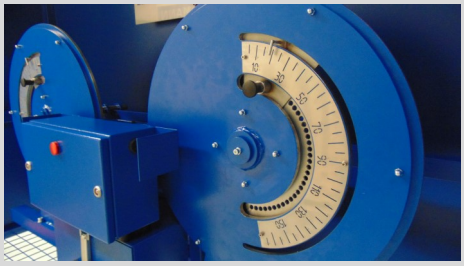
- Pendulum mounted hammer with scale
- Sample to be placed on the platform for specimen
- Test: At least 10 specimens preferably 20 specimens to be tested.

Each brocken stone has to pass a 3 inch square mesh and be retained on a 2 inch square mesh



Impact tester


Pendules A


Pendules B


Impact tester with sample

Impact tester data

TECHNICAL DATA	
Height	2180 mm
Width	2000 mm
Depth	420 mm

TRANSPORT DATA	
Gross weight	260 Kg
Net weight	150 Kg (only machine)

PERFORMANCE	
Working principle	Crushing by impact
Feed size maximum	76 mm
Test repetition	at least 10, preferably 20 test runs

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Bond Index Abrasion Tester

The Bond Abrasion Tester is a process and laboratory machine, which is designed to determine the abrasion index of a mineral sample to be determined in accordance with F.C. Bond´s abrasion test method.

The Bond Abrasion Tester utilizes an electrically driven drum and rotating abrasion paddle. The mineral sample is lifted by a mesh drum liner and dropped on to the steel paddle, which rotates in the same direction. The paddle is made to exacting standards of material and size and two square inches of this is exposed to wear. After running the test, the weight loss of the paddle is noted in grams, this represents the Abrasion Index (Ai) of the material tester utilizes an electrically driven drum and rotating abrasion paddle.

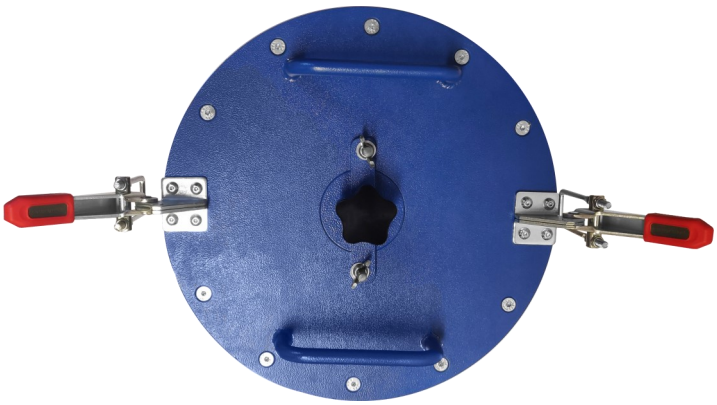
The mineral sample is lifted by a mesh drum liner and dropped on to the steel paddle, which rotates in the same direction. The paddle is made to exacting standards of material and size and two square inches of this is exposed to wear. After running the test, the weight loss of the paddle is noted in grams, this represents the abrasion index (Ai) of the material.

Abrasion tester

Feed bottle and paddles

Insert product with feed bottle

Abrasive



Drum door

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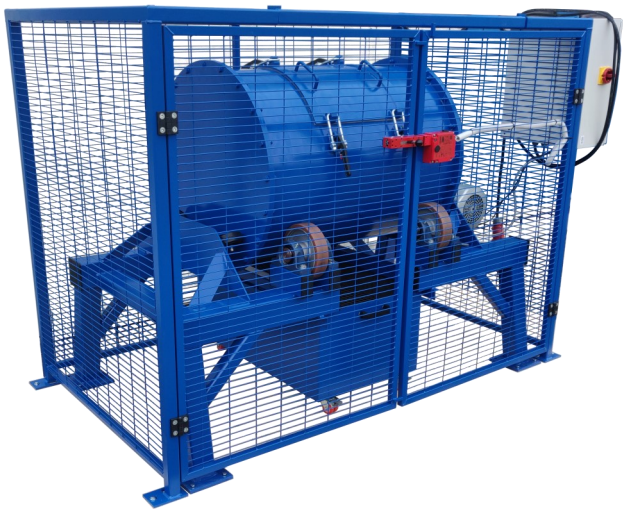
Bond LMBM Ball Mill

This abrasion machine is designed to conform to ASTM C131, C 535 and AASHTO T96. These methods cover the prodcedure for testing crushed rock, crushed slag, uncrushed an crushed gravel for resistance to abrasion in the Los Angeles Testing Machine with an abrasive charge. This machine can be used for determining the abrasion limits given in ASTM C33.

Features and benefits

- Equipped with an automatic digital control panel
- Solid acoustic noise reduction cabinet, conforming to CE safety regulations
- Set of 12 abrasive charges
- Cylinder rotates at 31-33 rpm

Ball mill 300L



Ball mill 450L with cage

Ball and rod mill data

TECHNICAL DATA	
Electrical details	230V/50Hz/60Hz
Speed variable	31-33 rpm
Motor power	0.75 KW

TRANSPORT DATA	
Net dimensions wxdxh	app. 1000 x 1180 x 1250 mm
Net weight	370 kg (only machine), 530 kg inc. sound cabinet

PERFORMANCE	
Working principle	Grinding
Quantity maximum	Usually 40% of drum volume
Diameter inside of cylinder	711 mm

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