Edition
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Good Vibrations

Information for the international industry about sampling, handling and preparation of solids

Jaw Crushers

Superior Primary Jaw Crushers and Hammer Mills Engineered for rapid reductions of large particles

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LAARMANN

Innovators in Solids

New:

Jaw Crusher JC1200
Easy to clean
Easy to adjust

Jaw Crusher JC2500
The Crusher
with no Mercy

EDITORIAL

Guido van Laarhoven
Managing Director

Holger Neumann
Managing Director

Dear all,

The minerals, mining and industrial markets in Europe now have ready access to the Essa brand of specialized laboratory and sampling equipment. Operating globally, Essa is a world leading specialist in the design and manufacture of mechanical sampling and sample preparation equipment. Committed to innovation they are continuously working with customers to deliver reliable and intelligent solutions.

Reliable equipment. Global teamwork. Intelligent solutions.

LAARMANN
Innovators in Solids

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Laarmann Innovators in Solids

In early 2009 Laarmann opened their European regional office in Roermond, Netherlands. This office provides now customers in Eastern and Western Europe with comprehensive product supply and support. Much of this equipment is new to the European market so an applications laboratory has been set up. Customers can experience firsthand the enhanced performance and benefits that the Essa equipment range provides.

Essa continues to be at the forefront in sample preparation product development. The company pioneered large capacity pulverizing systems. Their commitment to continually improve sample preparation techniques is highlighted in the recent release of a next generation pulverizing mill, high-capacity fine jaw crusher and innovative robotic systems.

The demands of modern industry require high production rates, reduced lead times, and improved quality and lower costs. Automation offers solutions to these continuously growing demands. Recognizing that automation and robotics are the future of sample handling and preparation, Essa has engineered processes to automate key items of its extensive range of mineral laboratory sample preparation equipment.

The success of these automation projects has been based on practical experience within the mining industry teamed with creative engineering to meet challenging customer requirements.

"The worldwide increasing requirements in the field of sample preparation, fits the global strategy of Essa" said Holger Neumann, Managing Director of Laarmann.

"We would like to be closer to our customers and to be able to respond faster and better to their needs and to optimize our service" he said. The recent establishment of an Laarmann subsidiary to service France and the French regions confirms this commitment to service — and the growing network of new Essa distributors across Europe will only enhance this level of personal and professional service.

Superior Primary Jaw Crushers engineered for rapid reduction of large particles

Jaw Crusher JC1200

The new **Jaw Crusher JC1200** (available now) with its unique features:

- stepless gap setting by handwheel
- front door for easy cleaning of jaw Plates
- Self feeding safety hopper

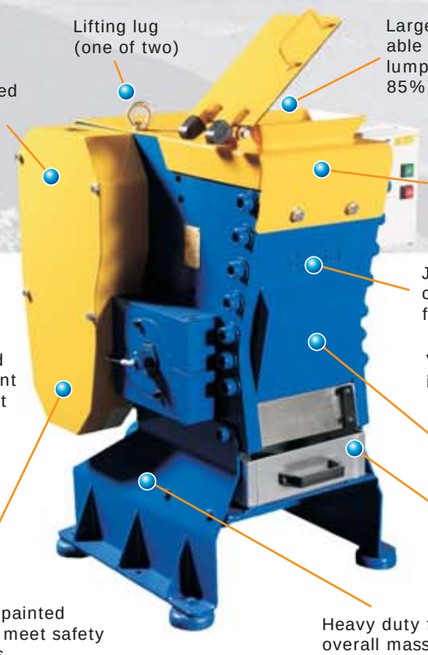
Facts and Features

TECHNICAL DATA	
Jaw Inlet	130 x 100 mm
Maximum feed size	85% of Jaw Inlet
Adjusting range of Jaw outlet	2 to 25 mm
Product sizing at minimum adjustment	4 mm nominal
Throughput	250 kg per hour
Dust Extraction points	One (1)
Dust Extraction flow	150 itres per second
Electrical requirements (3 phase)	2,2 KW
Toggle speed	600 rpm
Approximate Mass	250 kgs

JC1200: View Front door closed ready for Crushing

JC1200: View Front door open ready for Easy Cleaning

Jaw Crusher JC2500



TECHNICAL DATA	
Jaw Inlet	130mm x 250mm
Maximum Feed Size	110mm i.e. 85% of jaw inlet
Usual Product Size	90% less than 2mm
Maximum Product Size	15mm
Throughput	180kg/hr at usual product size
Dust Extraction Points	Two: one at 100mm and one at 50mm O.D. connection spigot
Dust Extraction Flow	225L/sec
Electrical Requirements (3 phase)	7.5kW
Approximate Mass	880kg (920kg crated)

(Alessandro Elli Seneco Italy, Klaus Ebenauer Litech Austria, Holger Neumann Laarmann Deutschland, Guido van Laarhoven Laarmann Holland, Thomas Jäger Laarmann Deutschland)

Exhibitions

The Laarmann Group, exhibited examples of the latest machinery from the organisation's extensive range of ancillary equipment at last year's Solids show at Ahoy exhibition center in Rotterdam. Laarmann displayed one new type of Heavy Duty Cutting Mill **(picture CM1000)** including slow speed and increased motor power, and with more improved features.

Several orders were secured during the exhibition including a large Jaw Crusher Type JC2000 **(picture JC2000)**. Essa Ltd. products, integrated systems and after sales service are all available from Laarmann Group B.V., together with local support from a network of local agents and authorized distributors throughout Europe, and the Middle East regions.

Holger Neumann / Laarmann Deutschland
Alessandro Elli / Seneco Italy enjoying the nice Parma Ham

Laarmann was successfully participating at the Solids exhibition in Rotterdam exhibitions center.

INTERNATIONAL EXHIBITIONS 2010

Visit us in 2010 at the following International exhibitions:

23.-26.03-2010 in Munich Germany
www.analytica.de

27.-29.04.2010 in Nuremberg Germany
www.powtech.de

01.-04.06.2010 in Paris France
www.forumlabo.com

08.-10.06.2010 in Skelleftea Sweden
www.eurominexpo.com

22.-24.06.2010 in Nottingham UK
www.hillhead.com

Hammer Mill HM450

High performance, Fine Product, Reliable Operation
The Essa 450mm diameter heavy Duty Hammer Mill is designed to reduce hard and brittle sample materials with a feed size of 50mm down to minus 250 microns.

450mm diameter grinding chamber for high capacity grinding

The machine is supplied as standard complete with:
- 7,5 KW Direct drive motor
- rotor with hammer tips
- bottom sieve
- Dust hood
- Heavy Duty base frame

A Blow down air system to reduce cross contamination between samples is also supplied as standard.

A Pneumatic break system is available as an optional extra.

Facts and Features

TECHNICAL DATA	
Milling chamber	450mm Milling chamber
Maximum feed size	50mm
Usual Product Sizing	80% minus 250 µm nominal
Maximum Product Size	35 mm nominal
Throughput	800 kg per hour
Dust Extraction points	Two (2)
Special feature	Compressed air blow down
Electrical requirements (3 phase)	7,5 KW direct drive
Speed	1440 rpm
Approximate Mass	520 kgs

For accurate dependable results you can't buy a better test sieve than Endecotts. The combination of its many features and the quality of manufacture make it the perfect measuring instrument.

Each sieve is manufactured under the most stringent Quality Assurance procedures using the finest materials. The wire cloth is checked throughout manufacture either by optical projection or highly sophisticated computer scanning techniques. Precision measurement of apertures and the sieve frame dimensions ensures that our exacting standards are met and only then do we issue the Endecotts Certificate of Compliance.

The company has an enviable reputation as manufacturers of the world's finest test sieves. Skill, experience and modern production techniques help to ensure the finished product not only looks and feels right from the moment you open the box, but provides accuracy second to none.

Endecotts are currently the only test sieve manufacturer to be accredited with the BSI Kitemark — a proud position held since 1954 — confirming compliance of our sieves to BS 410-1 & 2 and ISO 3310-1 & 2). This requires the company to commit itself to regular manufacturing quality audits and independent test and calibration of sample products.

More information on: **www.endecotts.com**

Laarmann Deutschland GmbH is now the exclusive importer of Endecotts products for Germany, Austria and Switzerland.

Container Labs

Transportable Field Laboratory Administration Module

Essa's linear automation systems link high capacity sample preparation equipment with proven mechanical sampling devices using reliable sample transfer mechanisms.

Simply load your dried field sample into a crusher and collect the assay portion and pulp residue at the other end.

Linear automation systems offer many of the benefits associated with more flexible robot-based automation cells but at a fraction of the cost.

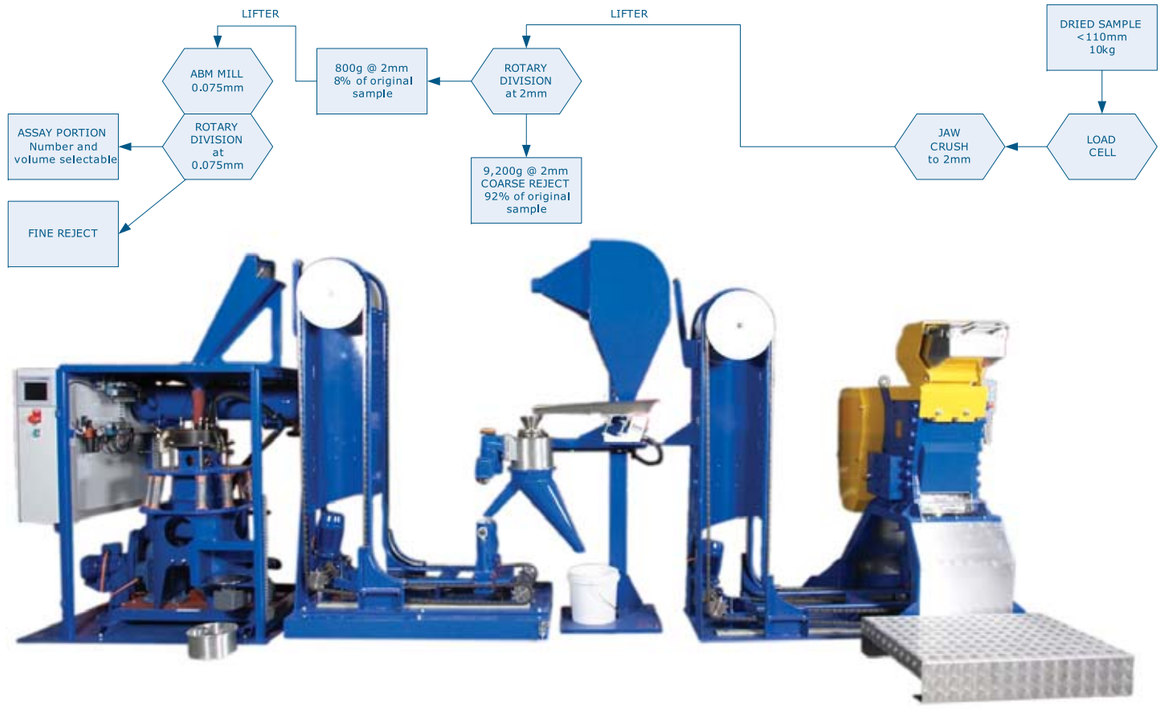
Greater consistency, improved traceability, better hazard management and insulation from labour availability and cost fluctuations are benefits from automating sample preparation processes.

These systems are specifically designed for medium throughput mineral laboratory sample preparation requirements. They are ideal for processing mineral ores such as gold, nickel and iron ore.

They are well suited for use at remote mining and exploration sites and do not require skilled labour to operate.

System Features

- Up to 15kg of lump ore can be fed into the system
- Rapid crushing to 2mm from 110mm prior to dividing
- System output of 75 micron with selectable pulp weight and number of collected portions
- Coarse reject automatically removed via conveyor
- In built air blast cleaning minimises contamination
- Small footprint
- Readily transportable and ideal for remote location work
- Simple and fast installation
- Manual handling of samples greatly reduced
- Less risk of human error - skilled labour not needed
- Designed for easy maintenance as all component equipment is at floor level
- Modular design incorporating proven Essa equipment



The containerised laboratory described in our May 29th news story successfully made the arduous sea and land journey from Perth, Australia to Tabriz in north western Iran.

Two Essa Australia employees, Paul Errington and Alexander Lyashenko, travelled to Tabriz earlier this month to assist with the installation and commissioning of Georgian-based OJSC Mining-Geological Project's new laboratory.

Below is a selection of their photographs.

Thyssen

Essa do Brasil Ltda has just been awarded a significant contract to design, supply and install two automated bulk material sampling systems at ThyssenKrupp's massive new integrated steel slab plant located at Baia Sepetiba, in the state of Rio de Janeiro. The contract value is approximately 1.5 million Brasilian Reals.

When operating in 2010, it is planned that five million tonnes of steel per annum will be produced at this plant. It is the first large steel mill built in the country since the mid-1980s and the largest industrial investment the Latin American country has seen for a decade. Building this new plant ThyssenKrupp describes as being a "once-in-a-century event".

At full operating capacity, this plant will employ some 3,500 people and the total investment in the plant to date is approaching 4 billion Euros. Sixty percent of the plant's output will be exported to North America and forty percent processed at ThyssenKrupp's plants in Germany, where they are investing 400 million Euros to expand their value-adding processing and coating lines.

The mill, situated on a nine square kilometre site on Sepetiba Bay, will include two blast furnaces, a meltshop with two converters and two continuous casters, all meeting the latest Brazilian and European environmental standards.

The mill is to be built together with the Brazilian iron ore producer Vale.

Essa do Brasil has been working closely with ThyssenKrupp Fordertechnik staff in Belo Horizonte to retrofit falling stream sampling systems to recently completed materials handling systems which were originally designed to accommodate cross belt samplers. Both ThyssenKrupp and their raw material supplier, however, acknowledge the benefits of a correctly designed falling stream sampling system over cross belt samplers. Hence the opportunity arose for Essa to become involved in the project.
In order to meet the technical demands of the project and tight time frame to deliver the systems, Essa do Brasil has relied heavily on the exceptional design expertise of Essa Australia in delivering these types of automated sampling systems to clients over the last 25 years.

Labtium

A unique baptism ceremony took place in northern Finland during May. Jarkale, Lohkare and Murikka were welcomed into the world by Father Slava Skopets of Lapland's Orthodox congregation. These "babies" had no time for sleep, feeding or cuddles – they were thrown straight into work. Repetitive, manually demanding work in a noisy and hazardous environment.

Jarkale, Lohkare and Murikka, who are known as Boulder, Block and Rock in English, are, in fact, industrial robots employed in Europe's latest automated mineral sample preparation laboratory.

On May 26th the Finnish georesearch laboratory, Labtium Oy, officially opened their robotised preparation line to handle geological samples. Located in Rovaniemi, the provincial capital of Lapland, the laboratory ceremony took place in front of Labtium senior management and staff, invited customers and the project cooperation partners.

Essa Australia and their Danish mineral automation partners, FLSmidth Automation, were the selected partners for this project, the first of its kind in operation in Europe.

Kevin Thorne, Essa's Automation Manager, attended the opening ceremony and enjoyed a day of presentations, meals, practical demonstrations and a very different 21st century baptism.

Read the Labtium Oy marketing release describing their new automated facilities below.

Following is the Labtium Oy marketing release describing their new automated facilities:

SAMPLE PREPARATION – A FORGOTTEN MUST

The objective of a precise sample preparation scheme is to produce a representative and meaningful test sample (usually 100 - 150 g) from a large bulk sample. The grain size of the prepared sample must be so fine that the element of interest (or host mineral) can be properly liberated from the bulk matrix and distributed in the pulp to produce a homogeneous distribution sufficiently representative for analysis.

This is particularly important for low-concentration ores (such as gold and the platinum group elements) where the number of mineral particles producing ore concentration is always low.

It is commonly accepted that poor sample preparation is, next to poor sampling, the largest source of bias in an exploration or resource evaluation project. Sample preparation methods should therefore be selected as carefully as the final analytical methods.

In exploration and mining the sample preparation of field samples has been commonly considered as a tedious necessity. Many times not enough planning of the procedures has been carried out to produce a laboratory sample representative enough for the chemical assays.

Sample preparation has been traditionally carried out manually which involves high occupational health risks by exposure to mineral dust, noise and poor ergonomics. Also the capacity is restricted not only due to machinery availability but also due to available manpower.

In many laboratories the sample preparation is the bottleneck of production. The risk of sample mixing can be substantial if the processes are not carefully optimized and strict quality control is not implemented.

In exploration and resource evaluation the size of field samples have also increased due to the increasing awareness to attain a representative sample. In many cases, instead of carrying out initial sample splitting at the drill rig or sampling site, the inherent handling problems are transferred to laboratories to handle the sub-sampling in controlled laboratory conditions and equipment. So the size of the field sample can vary tremendously and samples up to 10 kg or more are received by laboratories.

ROBOLABTIUM

The sample preparation methodology in Labtium has always been versatile but the scale and degree of automation limited. After privatisation in 2007, the company made a decision to invest in sample preparation automation in order to handle the problems described above. The development of mineral laboratory automation technology around the world was tracked for years before the final decision was made.

The Australian manufacturer of sample preparation equipment, Essa, and Danish automation company, FLSmidth Automation, were selected partners for the automation project.

The final concept and layout of the system was designed together with the automation partners and it included totally new, unique solutions.

The system consists of three separate production cells. The first cell includes sample in-feed in drying containers on trolleys, three Essa JC2500 jaw crushers, two rotary sample splitters, a cleaning unit for the containers and a bagger for reject samples.

The second cell consists of six Essa LM2-A pulverizing mills, two cleaning units for the pulverizing pucks and bowls and one out-feed station.

The third cell consists of a sample dosing unit for splitting/dosing pulps to two different subsamples - in this case to archive a sample in a vial and a second sample for fire assay. In this cell there is also a dosing unit for the addition of fire assay flux to the sample, mixing and dosing into a fusion crucible. The actual fire assay (fusion, de-slagging and cupellation) is still carried out manually with a "human touch".

The optimal capacity of the system is 36 samples per hour. The system has been installed and commissioned at Labtium's new premises in Rovaniemi.

Different types of geological samples including rocks, drill core sample, percussion chip samples, weighing up to 10 kg, can be processed. One person takes care of the loading of samples into containers and trolleys, drying, in-feeding the trolleys (four trolleys, 192 samples) to the crusher cell, organizing the bagged rejects and vials. Due to the buffering capability of the in-feed system the crusher cell can be run unattended.

Through the use of a totally automated sample preparation system a number of benefits are attained. The consistency (accuracy/repeatability) of the process is something that can never be attained in manual sample preparation where a number a different people are carrying out the work. Even though the procedures are well documented and regulated the individuals do not carry out tasks exactly the same way and human errors are still possible.

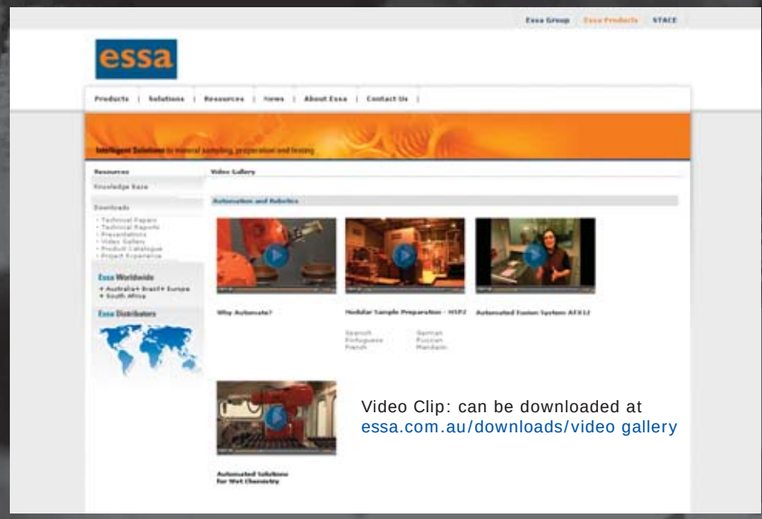
The most critical aspect in the whole process, maintaining the sample representativeness during the reduction of particle and sample size is carried out using state-of–the-art rotary splitters.

Contamination control is a profound issue in the QC of sample preparation. This can be carried out more precisely and consistently in automated systems. Loss of fines, segregation of materials by density, shape and size of the particles, cross contamination from previous sample can be minimized by sealed compartments and optimizing the system parameters such as slitters, controlled de-dusting, cleaning of the machine working surfaces.

The Labtium concept utilizes a unique glass bead blasting process in cleaning of the pucks and bowls. The quality of this cleaning procedure can also be monitored by the human eye which is not possible in flow-through type pulverisers.

The increased capacity gained from automation will enhance the turnaround times and cost-efficiency. However still the most important benefits are the improved working conditions - by sealing the equipment noise and exposure to mineral dust can be controlled and minimized. Laboratory staff are liberated from the physically hard repetitive work and utilised for more challenging and versatile work.

The benefit of robotized sample preparation for the client is shorter turnaround time and better quality control in sample preparation.



Video Clip: can be downloaded at essa.com.au/downloads/video gallery

Lab Wizz 320

Micro Ball Mill

Superior Mill engineered for rapid sample preparation procedures such as

Dry Grinding / Wet Grinding / Ultra Fine Grinding / Cryogenic Grinding

Turbulent Blending / Laminar Blending / Liquid-Liquid Dispersion / Gas- Liquid Dispersion

Mechanical Alloying

Cell disruption for DNA / RNA extraction

The Lab Wizz can handle simultaneously two or more samples from 0.2 ml up to 160 ml

Lab Wizz with open "EASY SLIDE COVER"

Lab Wizz with closed "EASY SLIDE COVER"

GRINDING, BLENDING, CELL DISRUPTION OF SAMPLES

The Essa **LAB WIZZ** is designed for **"1001 laboratory applications"**.
Typical Processing times are between 15 and 45 seconds. The **LAB WIZZ** can prepare 2 or more samples from 0,2ml of up to 160 ml. It is designed as well for high-sample-throughput.

HIGH OPERATOR CONVENIENCE AND MAXIMUM SAFETY

Maximum Grinding performance and maximum safety is important for ESSA Mills. Due to an integrated motor break the machine can only be started when the **"Easy Slide Cover"** is closed. The unique **"Easy Clamp system"** allows the simple and safe clamping of all grinding jars up to 160ml.

The integrated stainless steel drawer can be taken off for cleaning purposes.

The grinding chamber, easy clamp system as well as the swinging arm is made from high precision stainless steel to meet all food and pharmaceutical requirements. The housing of the

LAB WIZZ is made from stainless steel as well. Due to the new motor concept and a direct motor drive, the ESSA **LAB WIZZ** is maintenance free.

Selection Guide Jar Filling

Recommended Ball Fillings for grinding jars and for static mixer								
		Recommended ball filling						
Grinding jar volume	Feed size	2 mm	3 mm	12 mm	15 mm	20 mm	25 mm	30 mm
2.00 ml	1 mm	3-4 pcs.	2-3 pcs.					
25.00 ml	6 mm	to be calculated in ml		2-4 pcs.	1-2 pcs.	1 pc.	1 pc.	
50.00 ml	8 mm			5-8 pcs.	3-4 pcs.	1 pc.	1 pc.	1 pc.
60.00 ml	9 mm			5-8 pcs.	3-4 pcs.	1 pc.	1 pc.	1 pc.
80.00 ml	9 mm			6-10 pcs.	3-5 pcs.	1-2 pcs.	1 pc.	1 pc.
100,00 ml	10 mm			10-16 pcs.	6-8 pcs.	1-2 pcs.	1 pc.	1 pc.
160.00 ml	12 mm	only helical mixing element						

Micro Ball Mill Lab Wizz 320 / one for all Applications

ADVANTAGES OF THE LAB WIZZ

Due to the unique combination of a wide range of grinding jars of various materials the LAB WIZZ is capable to practically meet all demands of today's laboratory needs.

THIS MAINLY INCLUDE:

Grinding (wet and dry) / cell disruption / mixing XRF Prep / turbulent blending (Static Mixer) and cold grinding.

Due to the combination of high energy vibration and the punch of the grinding balls the LAB WIZZ cannot only grind hard and brittle materials but as well all medium soft, soft materials and elastic materials.

LAB WIZZ APPLICATION AREAS

Grinding jars of various materials up to 160 ml

Micro vial adapter plate for micro vials

Holder for mixing of dry substances (XRF Prep)

160 ml jar with helical static mixer for turbulent blending

4 liters Ice bath with cover for cryo applications

GRINDING AND MIXING EXAMPLES BEFORE / AFTER

Linoleum: 50ml steel jar / 20 mm steel ball 200 micron after 60 seconds

Leaves: Micro vial adapter plate / Micro vials / 3mm tungsten carbide bead per vial. Completely homogenized

Minerals: Pebbles 50ml steel jar / 20 mm steel ball 40 Micron after 45 seconds

Wood / 50ml steel jar / 20 mm steel ball 200 Micron after 90 seconds

Honey / Water: 160ml steel jar / Static Mixer Homogeneneous Mixture

Rubber: 50ml steel jar / 20 mm steel Ball after cryogenic grinding

FEATURES AND BENEFITS

Universal and highly efficient grinding, blending and disruption; Large range of grinding jars and accessories; Large range of grinding balls and accessories; Extremely short processing times; Designed for high sample throughput; Reproducible results by digital pre-setting of all working parameters

FAST CLAMPING JARS FOR GRINDING APPLICATIONS

Dry grinding / Wet Grinding / Ultra Fine Grinding / Mechanical alloying

GRINDING JARS FOR STATIC MIXING APPLICATIONS

All LAB WIZZ Static Mixers, have some helical mixing element which directs the flow of material radial toward the pipe walls and back to the centre. Additional velocity reversal and flow division results from combining alternating right- and left-hand elements, thus increasing mixing efficiency. All material is continuously and completely mixed, eliminating radial gradients in temperature, velocity and material composition.

MICRO VIAL HOLDER FOR CELL DISRUPTION

Designed for high analytical screening, the LAB WIZZ efficiently and safely disrupts samples of spores, microorganisms, plant and animal tissue or soil samples at a time.

The samples along with extraction media and small metallic or ceramic balls are placed in micro vials. After 2 minutes of preparation in the LAB WIZZ more than 95% of the cells are disrupted. Because balls and vials plates are disposable the method is ideal for PCR, PAGE, and Probe applications where cross contamination between samples cannot be tolerated.

ICE BATH FOR CRYOGENIC GRINDING

For heat sensitive materials such as plastics and rubber it is possible to embrittle the material with liquid nitrogen and perform an additional external freezing of the fast clamping jars. Those jars are either made from Teflon or from stainless steel and are suitable for cryogenic grinding applications.

STAINLESS STEEL MICRO VIALS

Stainless steel Micro vials are used for cryogenic grinding of small sample amounts or for standard grinding applications of small samples such as soil or grain using a steel or tungsten carbide bead.

Steel vials ensure a much higher heat transformation in order to optimize the heating and cooling.

The stainless steel Micro vials are available with a grinding ball pre-filling optional.

Product Overview


Jaw Crusher JC1000


Jaw Crusher JC2000


Jaw Crusher JC2500


Jaw Crusher JC3000


Jaw Crusher JC5000


Jaw Crusher JC2000


Rolls Crusher RC2000


Rolls Crusher RC3000


Disc Mill DP200


Hammer Mill HM450


Auto Batch Mill ABM


Auto Batch Mill ABM


Cone Crusher CC300


Cutting Mill CM1000

Micro Ball Mill Lab Wizz


Ring Mill LM1


Ring Mill LM2


Ring Mill LM5


Automated Bead Fusion


Robotic High Capacity XRF


Fully Automated Sampling


Modular Sample Preparation
MSP2 and MSP5


4 and 5 stage Linear Automation
System designed for automatic


Sample Divider


Sample Divider


Sample Divider


Rotary Tube Slurry


Riffle Splitters


Laboratory Ball Mill


Drill Rig Rotary Tube


Vezin Sampler


Ball Screw Linear Sampler


Ball Screw Linear


Rotary Sample Collector


Laboratory Flotation Bench

Will the Essa equipment suit your requirements?

Send us a test sample for evaluation

Our Applications laboratory is pleased to conduct pre-purchase trials on customer free supplied samples

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For further information visit our homepage:

www.laarmann.eu

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