

Essa® LABORATORY PRODUCTS

# Practical innovations in drying, crushing and pulverising



# Accurate sampling and preparation are core to mineral discovery

## Leading the way

Over the past 30 years, FLSmidth has led the way in engineering sample preparation equipment. We pioneered the development of large-capacity fine pulverising systems using our unique bowl and disc grinding elements. Today our pulverising mills are used extensively on mine sites, exploration camps and in commercial and research laboratories around the world.

We offer a total package of sample preparation solutions that cater to a full spectrum of requirements.

The Essa® mills and bowl systems are complemented by a comprehensive range of equipment, including:

- Crushers: jaw and rolls
- Pulverising mills: batch and semi-automated auto batch
- Sample dividers
- Drying ovens
- Dust extraction and collection systems, including ducting and work stations

Many customers have recognised the potential and are utilising our sample preparation equipment for cement and industrial applications. We are continuously enhancing our product range, through product improvement and development, to better service these diverse markets.

## Metallurgical testing equipment

We provide industry-standard equipment for laboratories and pilot plants, designed to meet the evolving demands of new processing techniques and technologies.

Our range of metallurgical laboratory and pilot-plant equipment includes:

- Ball and rod mills
- Bond testing apparatus
- Bottle rollers
- Flotation test cells
- Pressure filters

## Specialist equipment and consumables for the assay laboratory

In addition to sample preparation and metallurgical testing equipment, we have responded to the need for quality apparatus in other areas of the laboratory.

We offer a selection of laboratory equipment, including:

- Fire assay furnaces and crucibles
- Crucible loading and pouring systems
- XRF press
- Test sieves and sieve shakers.



# Heavy duty, **industry-proven** crushers and mills



JC5000



JC3000



JC2000



JC1000



JC2501



RC3000



LM5



LM201



JC1250



RC2000



LM2



ABM200R

Field of Operation	Coarse Crushing				Fine Crushing				Pulverising			
Principle of Operation	Jaw Crusher				Jaw Crusher		Rolls Crusher		Ring Mill			
Model	JC5000	JC3000	JC2000	JC1000	JC2501	JC1250	RC3000	RC2000	LM5	LM2	LM201	ABM200R
Feed Size	<250 mm	<170 mm	<110 mm	<85 mm	<110 mm	<80 mm	<40 mm	<30 mm	<20 mm	<20 mm	<20 mm	<10 mm
Maximum Product Size	75 mm	50 mm	35 mm	25 mm	15 mm	15 mm	4:1 Reduction Ratio		-	-	-	-
Minimum Product Size	30 mm	25 mm	6 mm	6 mm	85% <2 mm	85% <2 mm	1 mm	1 mm	90% <75 µm	95% <75 µm	95% <75 µm	95% <75 µm
Continuous or Batch	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Batch	Batch	Batch	Batch
Batch Capacity	-	-	-	-	-	-	-	-	1000 g to 3500 g	40 g to 1600 g	40 g to 1600 g	1600 g
Throughput at Minimum Product Size	15,000 kg/hr	3,000 kg/hr	500 kg/hr	250 kg/hr	180 kg/hr	140 kg/hr	Dependant on gap setting		-	-	-	-
Dust Extraction Points	0	2	2	1	1	1	2	2	1	0	0	1
Dust Extraction Flow	-	240 L/sec	240 L/sec	90 L/sec	150 L/sec	150 L/sec	240 L/sec	170 L/sec	340 L/sec	-	-	150 L/sec
Timer Setting	Stop/Start	Stop/Start	Stop/Start	Stop/Start	Stop/Start	Stop/Start	Stop/Start	Stop/Start	1 sec to 60 hr	1 sec to 60 hr	1 sec to 60 hr	PLC
Electrical Requirement (3 phase)	22 kW	7.5 kW	4 kW	2.2 kW	7.5 kW	7.5 kW	2 @ 4.0 kW	2 @ 1.1 kW	4.0 kW	2.2 kW	2.2 kW	2.2 kW
Compressed Air Required?	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes

# Dry, divide and process your samples **with confidence**



DO2



RSD020



CPF015



CPF035

## DO-Series Drying Ovens

These high-capacity, high-efficiency stainless steel lined electric sample drying ovens are available in two sizes: complete with one or two heavy-duty, wheel-in/wheel-out trolleys.

## Rotary Sample Dividers

These dividers are built for the accurate division of bulk laboratory samples into representative sub-samples. The comprehensive range is designed to handle either traditional stainless steel bucket sets (RSD) or up to four segments with the residue passing to reject (RSDR). All units cater to sample volumes ranging from five to 60 litres and operate in accordance with internationally recognised sampling standards.

## Introducing a new range of Certified Pressure Filters

Robust and durable, the Certified Pressure Filters are designed with regulatory compliance, ergonomics and operator safety in mind.

The new design, which we believe will be a market leader, is compliant with ASME VIII Division 1 and CE requirements. We have also taken the opportunity to improve the design from an ergonomic and safety perspective, meeting current occupational health and safety requirements, as well as productivity expectations. The pressure filters are available in 15 L and 35 L capacities.



## Genuine Essa® Pulverising Mill Bowls

The core of our extensive range of Essa® bowls is based on our unique 'bowl and disc' style grinding head. We delivered this high-capacity, high-production bowl to the sample preparation market over 30 years ago. Today, it remains the preferred bowl of choice in most of the world's leading commercial assay labs.

The bowls' through-hardened steel construction ensures optimum life. They are available in 640, 800, 1600 & 3500 g nominal capacities in either chrome or standard steel. Essa® traditional 'ring and roller' style bowls are available in the smaller 50, 100, 125, 300 & 400 cc nominal capacities. These too are hardened steel, with tungsten carbide available in the 125 cc size.

# Laboratory preparation and analysis solutions

## SAMPLE DRYING

- Large capacity electric drying ovens
- Oven trolleys and trays

## COARSE CRUSHING

- Laboratory jaw crushers
- Pilot plant and sampling station jaw crushers

## FINE CRUSHING

- High reduction ratio laboratory jaw crushers
- Laboratory and plant rolls crushers

## PULVERISING

- Manual and semi-automated high-capacity pulverising mills
- Steel, ceramic and specialty-steel pulverising bowls

## DIVIDING

- Rotary sample dividers
- Riffle splitters

## PRESSING

- Combined mill and press
- XRF press
- Automated soft press for XRD

## SIEVING

- Stainless steel test sieves
- Sieve shakers

## FIRE ASSAYING

- Flux mixing, multiload and multipour systems
- Furnaces, furnace tools, muffles and vents
- Crucibles and cupels

## METALLURGICAL TESTING

- Laboratory ball and rod mills
- Pressure filters
- Bottle rollers
- Flotation test machine
- Bond test work equipment

## DUST EXTRACTION AND COLLECTION

- Dust collectors and ducting
- Ventilated workstations

## ANALYSIS

- Automated Blaine and free lime analysers
- At-line container laboratory
- Automated carbon and sulphur analyser

# Your global partner

For more than 135 years FLSmidth has sold equipment, plants and services to the cement and mining industries.

Today we sell productivity.

Through advanced technology and unique process knowledge, our 12,000 employees across more than 50 countries provide sustainable productivity enhancement to our customers.

We seek to increase our customers' output and decrease their total cost of ownership.



■ Supercentre  
 ■ Project and technology centre  
 ■ Production  
 ■ Sales and services

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The figures quoted are nominal only performance expectations that can vary according to the physical characteristics of the material being prepared, the condition of the equipment, the gap adjustment and the method of feeding the equipment. FLSmidth are able to conduct tests at their workshop to determine how the sample preparation equipment will perform when processing your material. Alternatively, check with FLSmidth at the time of ordering whether the equipment is suitable for your intended application.