



## IIT SETS NEW LOW ENERGY STANDARDS IN HIGH QUALITY POWDER MILLING & SIZING

Specialist new technology for the grinding and classification of bulk raw materials into fine powders has the potential to bring significant cost and production benefits for a wide range of global industries.

Engineering specialist, the Gateshead-based International Innovative Technologies Ltd. (IIT), is set to become a worldwide force in powder milling with the introduction of its patented new milling and classification equipment for the fine grinding of minerals and other hard materials.

As well as being able to handle the milling requirements of hard materials and other powder products, the special low energy performance of the new IIT plant and equipment has the potential to convert what might currently be regarded as uneconomic waste material into a commercial product - giving the technology significant 'green' credentials and potential for recycling applications.

In addition, the compact size, ease of installation and the opportunity to use the innovative technology for localised milling and material handling solutions add to the system's environmental advantages.

### New patented milling system

The patented new IIT m-series is suitable for the milling of a wide range of natural raw materials and other industrial products including metal oxides, bauxite, calcium carbonate and limestone products, silicon carbide, coal, fly ash, blast furnace slag, nickel slag and steel slag. The technology also has applications in the glass, GRP and composites industries.

Compact and powerful, the centrifugal grinding mechanism of the m-series is extremely efficient with the vertical material flow path and special roller assembly ensuring that the force produced is translated into maximum particle grinding power.

In particular, the self-contained grinding modules comprise very hard rollers linked to swinging arms and an innovative centrifugal mechanism which develops very high grinding forces. Multi stage grinding is achieved through the incorporation of a number of grinding modules in series with particle size controlled by the number of modules and



rotational speed.

As a result, the new technology is capable of grinding hard materials of up to 9.5 on the Mohs scale with 90% passing 45 microns and below. Extremely low electrical energy input is required relative to particle size and volume of powder output, with specific energy consumption typically between 5kWh/T and 10kWh/T.

### New c series classifiers

The new c-series of classifiers is specifically designed to tightly control the particle size distribution of finer products and particularly for cut-points in the range of 10 – 160  $\mu\text{m}$ , although dedicated models can also be used effectively for finer material applications.

These robust, high throughput air-stream units can accommodate the requirements of most fine powder production applications and are capable of maximising separation efficiency without compromising system energy requirements.

The c-series construction comprises a classifier body and wheel which are aerodynamically formed to reduce system pressure drop, maintaining the power demand of the system fan at an optimum level. Additionally, unlike other designs, IIT's c-series classifiers have no secondary airflow requirement which can increase power consumption and affect system efficiency.

As a result, the advanced design of the new range of classifiers ensures that particle size remains consistent under steady state



conditions. Particle size cut-point changes are also easily controlled by a smooth, stepless adjustment of the classifier wheel speed – even during operation – with the higher the wheel speed, the finer the product.

To cope with the demands of the most abrasive powders, the classifier wheel blades are made from specially hardened steel to reduce attrition and ATEX rated models can also be provided for use with hazardous materials.

The new c-series classifiers are available for stand alone particle sizing applications and can also be supplied as part of complete material processing solutions in combination with IIT's complementary s-series of high efficiency cyclones and patented m-series milling technology.

Fully integrated electronic control and process monitoring systems for the new IIT technology have been developed in collaboration with Siemens Industry Sector in the UK and Siemens motors, drives and control and instrumentation systems are an integral part of the new milling and processing systems. [www.iituk.com](http://www.iituk.com)  
Tel: +44 (0) 191 491 3136  
Email : [enquiries@iituk.com](mailto:enquiries@iituk.com)