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Considering A Mobile Mill System

A discussion on the practical benefits of a mobile milling system.

What are the advantages of a mobile system?

Regardless of which industry you may be in, with resources stretched and a potential downturn in customer demand, anything that will improve the flexibility of a production facility is welcome. Many traditional mill systems are dedicated to a single process line. However, a mobile, integrated milling system that can be relocated easily and be interchanged quickly between products can provide a cost effective solution.

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Kemutec supplies Kek brand Sifters and Mills, PPS Air Classifier Mills, Gardner Mixers and Blenders and Mucon Valves and Discharge Aids.

Mobile systems can range from very simple portable units to quite complex integrated processing systems but they have similar inherent advantages and oft en tend to be more "space efficient" than tr aditional methods. The very fact that the system is mobile means that it is easier to move and re-site, this flexibility opens up a whole host of potential opportunities for the user. This could range from re-sitting the mill system to accommod ate a peak in demand

This Mobile Kek Universal Mill system improves flexibility and is easily relocated between production areas.

on another line or simply to transfer to a dedicated cleaning area, which, in turn reduces the onboard CIP requirement.

In addition to the obvious process advantages identified above, there can also be project control benefits including: clearer definition of "scope of supply" and system end points: minimal potential interface issues with other suppliers' equipment; improved control over manufacturing schedule and quality, with all integration and testing done on the supplier's factory floor prior to di spatch; full system CE-marking prior to dispatch; and quicker, more complete FATs.

The following case studies illustrate two practical examples of how a mobile mill system can overcome specific production process issues.

Case Study 1: The multi product contained mill system

The requirement for this mill system was to provide a contained size reduction process, flexible enough to handle multiple pharmaceutical products yet mobile enough to be re-sited within several clean room locations.

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The key to meeting these challenges was to design for the most arduous material, and then build in variability within the process settings to accommodate the lesser demands. Of course, all this had to be packaged into a design, which could allow quick and simple re-positioning of the whole unit.

The result was a nitrog en inerted impact mill system within a glovebox with the following processing criteria: milling of various pharmaceutical powders down to a typical d50 of 30 microns.; handling toxic powders with OEL's of sub 10µg/m^3; elimination of the risk of milling explosive materials with an MIE < 3mJ.

Case Study 2: Rapid response Air Classifier Mill system

Experiencing a spike in demand and recognizing the high value for powder paints in smaller capacities, a leading manufacturer in the Powder Paint and Coatings industry needed a new small batch production system which could accommodate quick pr oduct change over requirements.

Following the manufacturers specified criteria, an integral compact designed Air Classifier Mill was proposed to fit within the specified footprint and meet throughput capacities while efficiently producing powder paints.

Given the ergonomic complexity of the system within a glovebox, a full-scale mock up was built and demonstrated to the end user prior to the manufacturing stage. Not only did this ensure a workable design, it served to familiarize the operators with the system at an early stage.

In today's tough trading environment, customers demand choice and options. A mobile, skid-mounted system helps take the "fixed" out of "asset."

Above: A full-scale mock-up of a mobile universal mill system ensures a workable design before manufacture.
Right: A mobile mill system allows for quick and simple re-site of the whole unit to several clean room locations or production areas.

The compact PPS Air Classifier Mill minimizes premium floor space while maximizing throughput capabilities.

The resulting Air Classifier Mill is a completely self-contained package. The whole system, including infeed, controls and filtration is mounted on a mobile frame while providing user-friendly sequential controls, easy clean features, all at a competitive price. The compact design minimized premium floor space while maximizing throughput capabilities, reducing manual interaction and associated labor. Upon installation the Air Classifier Mill exceeded expectations by paying for itself immediately. When asked about their ROI, the Project Site Engineer stated, "Not only has the mill experienced ZERO downtime in the 18 months since installation, it has decreased production time from two weeks to 48 hours."

Conclusion

In the right application, a mobile designed mill system can offer the following advantages: highly mobile, flexible process capabilities that give users maximum return for minimum outlay; a clearer definition of scope of supply with less potential for grey areas and quality due to full integration at the main supplier's factory; easier, quicker, and cheaper FAT's; the ability to give full CE approval at suppliers, thus eliminating the need for post installation inspection, and less on–site time required for installation.

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