Mammoth

The Mammoth is an intelligent powder dosing system, suited to high throughput analytical laboratories in which precision, accuracy, speed and quality control are paramount.

Simple operation
The Mammoth is designed to handle the weighing and dosing aspects of sample preparation for a range of analytical methods, including ICP, AAS, XRF, fusion and Leco, all while minimising error in the laboratory.

The fully automated, enclosed instrument can handle a variety of powder samples, processing them in plain view of laboratory staff. The samples can be dispensed into one of seven different container types. Sample bags are placed into one of 78 RFID coded holders.

Blank sample vessels are introduced through out-feed drawers. Advanced software automatically communicates with laboratory information management systems and dosing strategies are actioned by the Mammoth according to test batch procedures. With 10 separate dosing heads, the Mammoth provides fine dosing control in the range from 100mg to 3g aliquots.

When the dosing is complete, the operator simply removes the prepared samples from the Mammoth's out-feed drawers.

Laboratory best practice
The Mammoth's dosing unit contains three independent four-digit balances and an advanced three-stage vibration isolation system to deliver outstanding accuracy when it comes to sample size. Once dosing is initiated, each sample is identified by RFID and barcode scanning, ensuring complete sample traceability.

The Mammoth also provides the lowest cross-contamination levels available in any instrument in its class. High-pressure pulsating air jets and an advanced vacuum system offer suitable cleaning for most analytical methods. A liquid spray-jet option is available for enhanced cleaning. The Mammoth's patent-pending cleaning solution is far superior to any other solution that exists today.

Laboratory best practice is further enhanced by the Mammoth's dedicated standards compartment, which houses eight dosing heads. Standard samples are easily introduced and actuated independently, eliminating carryover.

PRODUCT DATASHEET

SAMPLING, PREPARATION AND ANALYSIS

Benefits
- Fully automated instrument, requiring minimial technican time for operation
- Innovative patent-pending cleaning system
- Lowest cross-contamination levels of any instrument in its class
- Reduces the technician's risk of exposure to sample-handling related hazards
- Provides fine dosing control in the range from 100mg to 3g
- Outperforms traditional sampling methods when it comes to speed, accuracy and sample traceability

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Consistently high quality results

Safety first

The Mammoth's fully-enclosed design delivers many benefits and significantly reduces the technician's risk of exposure to sample-handling related hazards and the dangers that can sometimes come from working with unknown samples.

The instrument comprises an in-feed magazine, weighing module and out-feed magazine all of which have in-built safety features, designed to protect the operator and the quality of the sampling. The safety features include hand-detection light shields in the in-feed magazine and safety locks at every access point. The Mammoth also significantly reduces the risk of repetitive strain injury (RSI) and the risk of exposure to dangerous samples.

Unit	Dimensions (L x W x H) mm
Infeed magazine	2330 x 1000 x 1240
Weighing module	800 x 930 x 1700
Outfeed magazine	800 x 930 x 1700

Running Time Estimations	1 type of aliquot	2 types of aliquot	3 types of aliquots	4 types of aliquots
Time per batch of 84 samples	74 min	80 min	100 min	133 min
No of dosed aliquots per hour incl. QC	70	120	145	145

The Mammoth accommodates best laboratory practices by incorporating automatic dosing of six QC samples including standards, duplicates and repeats.

Maximum efficiencies and savings

The Mammoth outperforms traditional sampling methods when it comes to speed, accuracy and sample traceability, yet only requires only a few hours of an operator's time each day.

While sample throughput is influenced by sample density, number of aliquots, number of replicates, cleaning cycle type and dosing speed, the Mammoth's performance has been benchmarked as follows.

- Typical dosing time is 30-50 seconds
- Typical throughput time is 80 seconds

The Mammoth further maximises efficiencies in laboratories through its ability to deliver consistently accurate sampling. This reduces the time and expense associated with reagents and ultra-pure acids which are often added in excess to account for possible weighing errors that can result from human error in a manual sampling process.

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