

PharmaResearch[®]

Tableting Process Analysis



Powerful
Research
Tool

Assistance for development

PharmaResearch® collects and analyses all process data from instrumented tablet presses. PharmaResearch® can be connected to both eccentric and rotary KORSCH presses.

The tablet press can have the following instrumentation: upper and lower compression force, pre and main

compression force, ejection force, scrape-off force, upper and lower punch displacement, and die wall pressure.

Each of these measurements forms a signal which will be recorded and analysed.



PharmaResearch® assists during the research and development phase and delivers all required information.

Research & Development



The production of clinical batches can be monitored with PharmaResearch®. The setting of limits permits process monitoring with press stop if required.

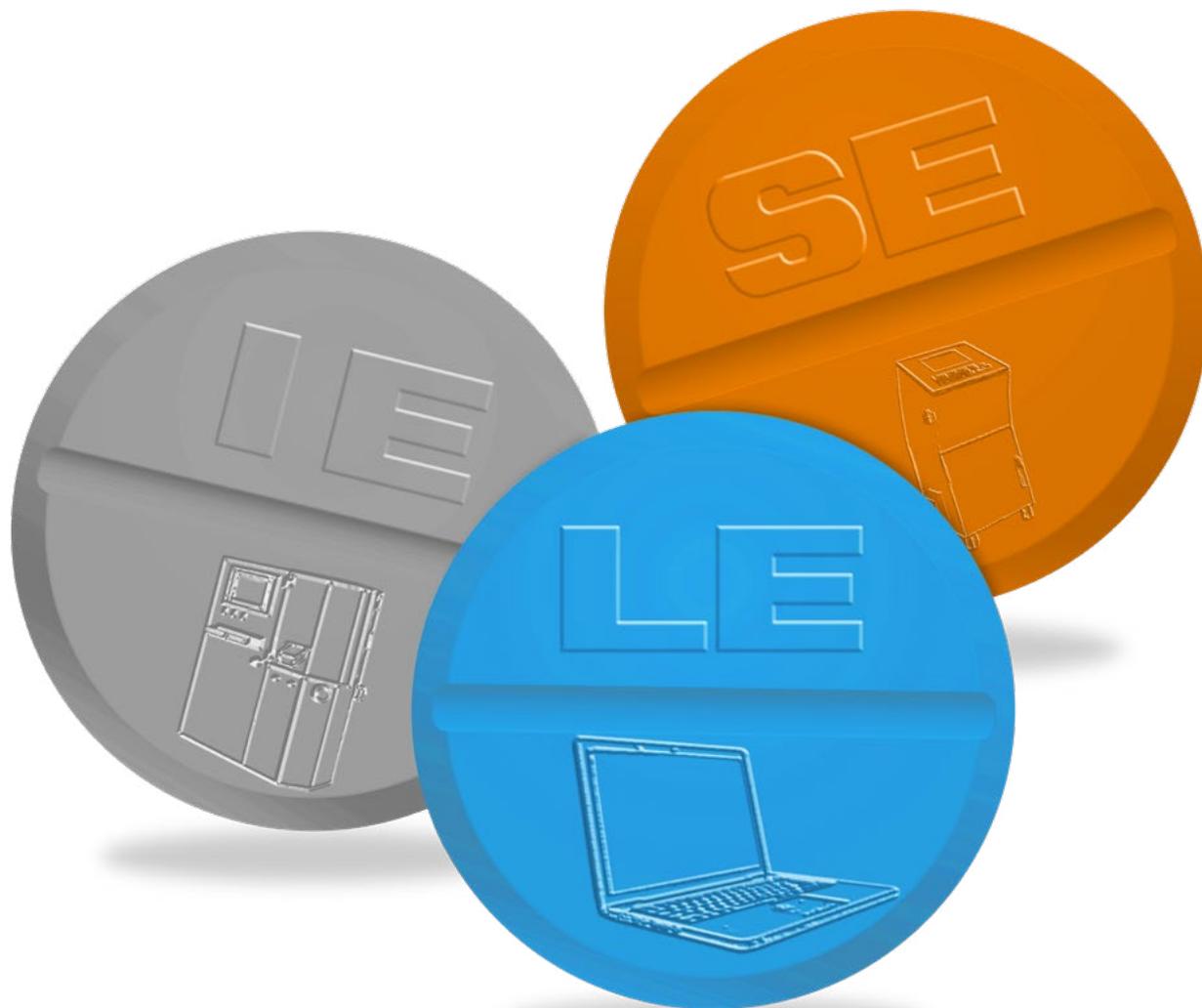
Clinical Batches



Through the detailed analysis of the product properties, the different production problems can be investigated and compared to known standards.

Process Support

Three Different Executions



The PharmaResearch® is available in three (3) different platforms to permit an ideal configuration for every application.

- **SE: Stand-Alone Execution:** This self-contained, portable version permits the PharmaResearch® to connect to and work with multiple machines.
- **IE: Integrated Version:** The PharmaResearch® software is embedded in the HMI of the tablet press to permit an integrated data acquisition and analysis capability on the full range of KORSCH machines, and can be combined with the regulation system PharmaControl®.
- **LE: Laptop Version:** The PharmaResearch® LE is a practical and cost effective solution which is ideal for use in the laboratory setting.

Software Solution

The basic configuration of PharmaResearch® permits signal conditioning and recording, analysis in the EDA (Extended Data Analysis) module, and data export into MS-Excel. PharmaResearch® can also be connected to a network for central data recording, printing, etc.

PharmaResearch® is delivered with 2 programs:

- The basic program PharmaResearch® for the data acquisition, visualization and recording
- EDA (Extended Data Analysis) for automated data analysis

PharmaResearch® Software

The PharmaResearch® SE and LE versions permit the unit to control basic functions of the tablet press, including press speed, to streamline the interface.

The PharmaResearch® data acquisition system presents the press force and punch displacement waveforms in real time and permits data to be collected on-demand.

The signals can be collected and recorded on-demand (manually) or cyclically (automatically).

The PharmaResearch® data acquisition system permits the entry of press force limits which will stop the press. This is an important tool when the PharmaResearch® is used to monitor a clinical batch with data collected at periodic intervals.

The tableting ability of your active ingredient and its properties e.g. capping, elastic relaxation, die wall pressure, yield pressure and many more are documented and shown. Assistance here is also provided by our knowledge database that contains reference data.

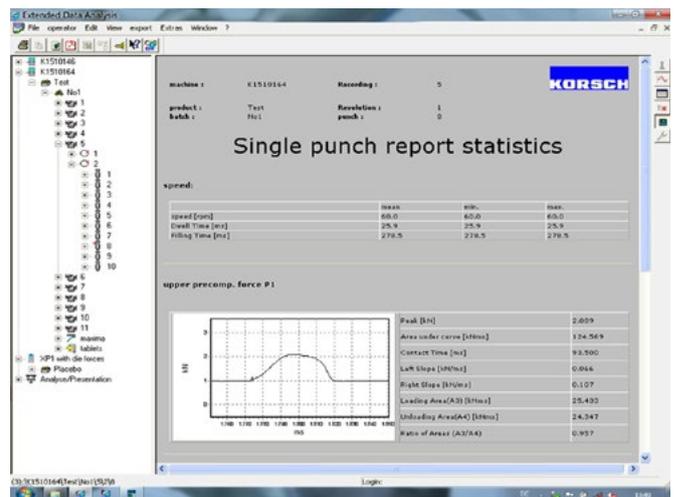


Extended Data Analysis (EDA)

The data collected with PharmaResearch® program will be fully and automatically evaluated in the EDA program.

The values, measured directly or derived, will be automatically calculated and statistically evaluated (e.g. maximum and minimum values, standard deviation) and a report will be generated.

The systematic recording of product properties allows the characterization of each formulation modification and the comparison between different products.



Optional Software Modules

The KORSCH PharmaResearch® offers a range of optional software modules to permit more advanced data analysis, as follows:

- Overlay Technology
- Correlation Analysis
- Advanced Compaction Analysis

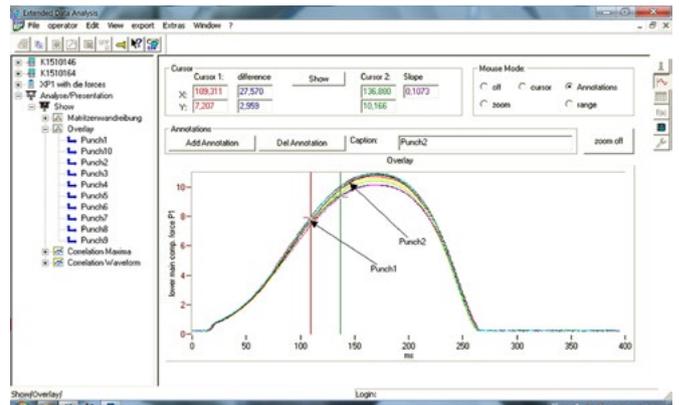
Overlay Technology

This module allows the comparison of any number of signal waveforms from the data library coming from different machines, punch stations, turret revolutions, recordings, batches or products.

For example, measurements made on a single punch press can be compared with comparable settings on a rotary press. Press force measurements made on the same machine but with different ingredients or formulations can also be easily compared.

This function can serve as the basis for developing a baseline fingerprint for each product.

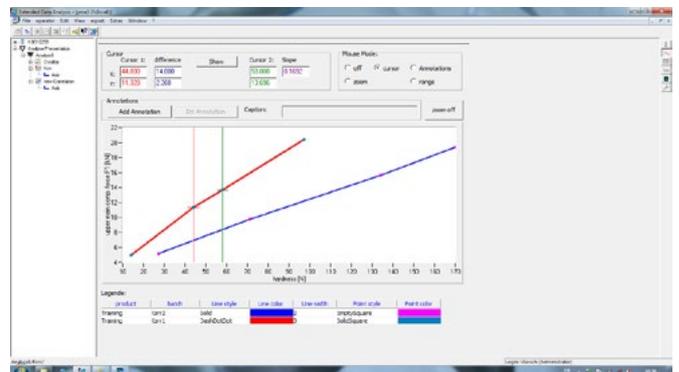
Different calculations can be done with the operations previously made in EDA, and also derived values can be determined. This is particularly helpful to determine the compressibility of the product



Correlation Analysis

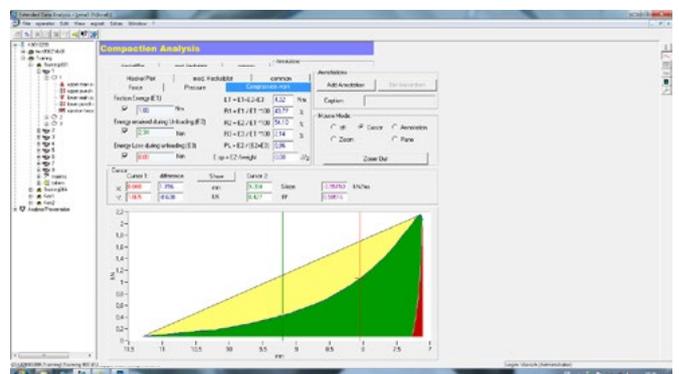
This module permits the correlation of the compression force parameters with the physical properties of the tablets, with a powerful graphing capability to present the data.

Any correlations are possible with direct or derived quantities, such as tensile strength versus ejection force, compression pressure versus porosity, etc.



Compaction Analysis

This software module permits the evaluation of the compression work and the generated energies. Additional evaluations such as Heckel plot, energy balance, contact time, quick relaxation, and many more are also possible.



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