Tableting Solutions for Research and Development
Beyond Technology

The new business model from Romaco sets valuable incentives for meeting customer requirements. For the design of innovative solutions, Romaco relies on its unique knowledge portfolio. With its diverse brands, Romaco focuses on important technological fields of competence. The single product lines offer the optimum prerequisite for the development of comprehensive solutions. Romaco promises its customers professional project handling, fast delivery times and a reliable service. Through this, Romaco provides its customers with a considerable boost to their earning and financial power.

Creating Value – best price/performance ratio
Romaco wins over its customers by offering an outstanding price/performance ratio over the entire life cycle of its products. In this way, customers can systematically optimise their cash flow. With efficient production and service management, Romaco prepares its customers for future long-term commercial success.

Delivering Solutions – high application expertise
Romaco offers integrated solutions for the growing markets of pharmaceuticals, cosmetics, food and industrial applications. Here, the customer benefits from the synergetic effects that result from the close collaboration of all the Romaco brands. This internal technology transfer imparts a considerable development potential and is the basis for comprehensive solutions.

Exploiting Technologies – strong brands
Romaco is synonymous with European engineering on the highest level. With its seven brands, the company is widely recognised around the world. Continuity and progress are the keys to a strong positioning on the market. Romaco relies on the profound knowledge and the long-time experience of its employees.
» Research and development are of major importance for our business success. The innovative scale-up solutions and the testing laboratory KiTech of Romaco Kilian have supported us for some time now to cope with any challenges and to optimise our tableting processes. «

Mr Przyklenk, Head of Production & Senior Development Manager, Hennig

Customer-oriented solutions:

The test laboratory KiTech offers a test platform to enable you to familiarise yourself with the different Romaco Kilian technologies. Develop and optimise your tableting processes and equipment with Romaco Kilian. In KiTech, you can test your procedures and products, optimise flow properties or filling behaviour, create test batches, perform scale-up or project studies. There are different presses, for R&D, small scale and production available together with dedicated measuring equipment and experienced process specialists. Six fully equipped press rooms with the latest technology and three conference rooms for project-related discussions complete the offer.

In the optimisation of the tableting process and troubleshooting during tablet production, Romaco Kilian is a competent partner for its customers.
KiTech Services

- Consultation for powder optimisation
- Compression trials with laboratory or production machines
- Scale-up analyses
- Perfect simulation of all larger rotary tablet presses
- Development of solutions for customer-specific applications and challenges

- Presentation and testing of the latest technology
- Different fill shoe systems for the minimisation of the compression force standard-deviation, also when changing the tablet weight
- Training of the customer’s staff on-site or at Romaco Kilian in Cologne

Customer benefits

- Benefit from the expert knowledge of Romaco Kilian with more than 100 years of experience in tableting
- Learn from the Romaco Kilian specialists in the fields of pharmaceutics, mechanics, electronics and mechatronics
- The fastest solutions for customer-specific challenges

- Availability of the latest machines for R&D applications
- Enhancing the production efficiency
- Compression tooling of any kind available
- Benefit from the expert knowledge of the Romaco Kilian partners: Conduct of numerous studies, e.g. with the University of Bonn (Pharmaceutical Technology) and business cooperations
Versatile, multi-functional tablet presses for the application in research and development

Research and development play a key role in the pharmaceutical industry. With the innovative tableting solutions from Romaco Kilian, companies are able to lay the foundation of a successful and growing business. With their fully instrumented measuring systems, the R&D and scale-up equipment from Romaco Kilian meet all customer requirements in the field of research and development and clinical sample production.

Single punch tablet presses for R&D applications and sample production

- Pressing of up to five tablet layers with up to five products
- Completely automated and instrumented
- Different fill shoe systems for precise product feeding analysis
- Production simulation with any types of tooling
- Compact presses with very little footprint
- Also available in containment configuration

“ANALIS” software solutions for R&D applications

- Basic galenics-package: The modular software package for data acquisition and processing of compression tests
- Open system, PC based with interfaces to all common industrial standard systems
- Intuitive operation
- Standard reports such as Heckel-plot, force vs durability as well as customized reports
- Additional software module: In combination with a STYL’ONE R&D press, “ANALIS” can run trials fully automated, with pre-defined different parameters
- Extended galenics-package: turns your laboratory press into a fully automated laboratory robot Tab-in-Tab testing on a laboratory scale in order to avoid “capping” or to see the core behaviour when pressing
- Multi-layer testing with minimum quantities of product
- Simulation of different rotary production presses and analysis of the scale-up behaviour up to over 300,000 tablets per hour
- GMP production module with weight monitoring for sample production
Rotary tablet presses for R&D applications

- Easy handling and robust design similar to large production machines
- Unique scale-up possibilities due to a scientific approach
- Perfect simulation of all larger rotary presses
- Extensive user-specific data acquisition possibilities
The Romaco Kilian STYL'ONE is a single stroke tablet press which is perfectly suited for R&D applications and the production of clinical batches. The machine particularly impresses with its versatility and can be used for all types of tablets. Tests can be conducted within a short time and provide particularly precise results.

**STYL'ONE is available in two configurations:**
- **STYL'ONE Classic:** The most flexible and affordable solution for product characterisation
- **STYL'ONE Evolution:** The best easy-to-use solution with guaranteed scale-up at real-time production speed

All STYL'ONE presses are designed for single-layer pressing (SL) and can be easily upgraded according to the future requirements with multi-layer (ML), tab-in-tab, stearate spraying system, etc.

**STYL'ONE Classic: The most flexible R&D tablet press on the market**
STYL'ONE Classic is a single stroke tablet press for the production of single-layer tablets at a speed of up to 900 tablets per hour.
- Dwell time programmable at intervals of five milliseconds to two seconds
- Pre-pressure and main pressure forces of the appliance is 50kN by default
- Different filling systems and types of tooling
- Easy upgrading to multi-layer or Tab-in-Tab press for the production of complex types of tablets

**STYL'ONE Classic Multilayer (ML): The worlds fastest single stroke multi-layer press**
Multi-layer tablets are increasingly used for therapeutic applications. They often consist of different agents, each with its proper release profile. Romaco Kilian already integrated the multi-layer technology into its portfolio decades ago and has developed it continuously ever since. A result is the STYL'ONE which is the most powerful single stroke press for the complex production of multi-layer tablets worldwide.
- Special fill shoe system: Compression of up to five layers with up to five different products
- Multi-layer tableting with a maximum output of 450 tablets per hour
- Vacuum system to avoid cross-contamination between the tablet layers

*Multiple fill shoes*  *Innovative filling system*  *Easy core positioning*
The single stroke tablet press with the best scale-up properties

The STYL'ONE Evolution from Romaco Kilian is an "all-in-one" single stroke tablet press which facilitates development from the early test stage of the API formulation through to the complex multi-layer tablet formulation. The STYL'ONE Evolution is available in three configurations:
- Single-layer press (can be easily upgraded to multi-layer press)
- Multi-layer press (can be easily upgraded for core-tablets)
- Core-press (Tab-in-Tab)

Excellent scale-up possibilities
- Pressing analysis and production optimisation with minimal quantities of product, also for fault analysis of production processes in R&D.
- The pressing profiles of all tablet presses from Romaco Kilian are available as options.
- Product simulation and analysis of all larger industry presses.
- Output of up to 1,200 tablets per hour, produced at a typical production speed of 300,000 tablets per hour on a production press.
- Complete instrumentation for all measurements.

Technical highlights
- The machine is scalable.
- Easy mounting and dismounting of different types of tooling.
- Easy access to all product contact parts.
- Availability of different fill shoe systems.
- Extensive, specially developed "ANALIS" software for detailed pressing process analysis: Easy creation of customised reports.
- The machine is also available as containment version for highly potent products.

Definition of compression process
High tech core setting unit
Innovative filling system
Basic galenics-package
- Easy and intuitive operation
- Either integrated as part of the press or as press-independent additional software
- PC based, with interfaces for data export to other common systems
- Pre-defined standard reporting for fast compression analysis
- Data such as compression force and ejection force can be collected and saved for further analysis in every step of the tests, for single tablets or for defined batches.
- Easy way to configure customer-specific analysis reports
- Enables the import of data and its analysis

Extension module
- Automation of the R&D protocol saves time and powder
- Generates specific pressing profiles (e.g. cosmetics, food, fundamental research)

Multi-layer and Tab-in-Tab module
- Individual customer parameters determine the process of the pressing tests, each layer of a multi-layer tablet can be pressed with different profiles

Production module
- For the documentation of clinical samples, all common quality data will be collected
- Weight monitoring, stearate spraying system, tablet sorting (good/bad)
- Best batch quality

Advantages
- Shorter development times
- Easy data exchange from and to overall systems
- Different testing programmes can be run fully automatically

Exploiting Technologies
"ANALIS" software solutions for the R&D process

Definition of the layers
On-line help
Compression curves
Compact rotary press for R&D applications

The KTP 180 is a rotary tablet press for the pharmaceutical industry. The equipment offers unique scale-up possibilities which are based on a scientific approach. The compact machine is the ideal solution for R&D applications and is also suited for clinical batches and small batch production. It is available in two configurations:
• KTP 180 (Laboratory)
• KTP 180 (Production)

Unique features from Romaco Kilian offer efficient processes for R&D applications

• Monitoring system and data acquisition
• Completely automated machine without hand wheels
• Operation via an integrated HMI with a 12” touchscreen
• Monitored machine parameters in the R&D version: upper and lower compression forces, ejection force, pre-pressure force, upper and lower punch displacement measurements
• Data acquisition system integrated into the operating software

Very good accessibility and easy operation

• Fast and easy cleaning of the production area with opened windows: Minimisation of change-over and cleaning times
• Mechanical area completely accessible for maintenance work
• Easy access to all product contact parts and assembly and disassembly without tools

Technical highlights

• Exchangeable die table in a very compact design
• Unique scale-up possibilities due to a scientific approach
• Patented wear-free brake magnets
• Optional individual selection by means of compressed air
Creating Value – Romaco generates added value for the customer across the entire life cycle of its solutions

- Romaco is interested in a long-term solution partnership with its customers.
- Romaco is familiar with its customers’ critical success factors throughout the different life cycle phases of our jointly developed solutions.
- The range of services from Romaco is specifically designed for these phases and is delivered through the appropriate modular components.
- Romaco optimises the internal processes so that the customer can benefit from more secure decisions within the time gained.
- In April 2014 the new business unit Romaco Systems was founded within the Romaco Group: the aim of this unit is to integrate the offering of the Romaco Group into comprehensive solutions.

We understand the business model of our customers and with a diverse portfolio we offer the best price/performance ratio for generating additional cash flow.

Benefit for the customer

Across the entire life cycle
- Minimal life cycle costs and low TCO guarantee fast amortisation of the financial investment.
- The wide range of customer service products ensures sustainable value creation.

In the investment phase (designing value)
- Professional consulting to increase decision-making security.
- Short processing and delivery times give maximum scope for investment decision and thus optimum decision flexibility.
- Customised solutions development for the optimum preparation of the implementation phases (ramp-up and production).
- Reliable and customer-orientated project management according to efficient milestone principles provides professional delivery.

In the ramp-up phase (leveraging value)
- The production phase is reached more quickly due to shortening of ramp-up.
- Transfer of expertise provides increased security to the customer in implementing production systems at the highest level.
- Minimisation of ramp-up costs.

In the production phase (harvesting value)
- Maintenance of the value stream due to quick customer service response times.
- Best delivery times in service, format and spare parts.
- Consulting on the optimisation of the OEE.
- Continuous training of the customer team.
- Extension of the life span.

Creating Value describes our constant willingness to secure our customers’ – and our own – financial success.
Pharmaceutical manufacturers who choose Romaco Kilian get more than just a high-quality machine. The service of Romaco Kilian is based on more than 100 years of experience in tableting and goes beyond maintenance work and spare parts supply. The Romaco Kilian specialists will find solutions even for the most complex applications and products and will maximise the production speed and the product quality of their customers.

**Additional services at a glance:**

**The Romaco Kilian academy: Training on different levels on the following topics:**
- Machine operation
- Optimisation of the compression process
- Special training for customer-related tableting challenges
- Access to all fields of knowledge: Pharmaceutics, mechanics, electronics

**Spare parts, format parts and change parts**
- Consistent quality monitoring
- Fast and reliable delivery thanks to short cycle times
- High percentage of internal production with durable special materials, manufactured according to lean principles
- Each part will be inspected at Romaco Kilian before delivery
- An experienced repair team refurbishes the parts according to the original specifications

**Maintenance**
- Telephone support: qualified and prompt troubleshooting
- Internet remote maintenance: digital access for fast and safe fault diagnosis
- On-site service: the technicians of Romaco Kilian will provide assistance on customer demands
- Maintenance contracts: preventive action to minimise the failure rate
- Machine calibrations

**Set-up**
- Set-up and training of the operating personnel
- Validation support
- Ramp-up service: immediate achievement of the highest degree of efficiency with the new equipment

**Machine upgrades and retrofits**
- "Retrofit project": state-of-the-art electrical components for old machines
- Individual solutions: customised retrofits and upgrades for every machine type
- Extensive portfolio: options for electronic retrofitting and control-unit upgrades
- Flexibility in the design of the upgrades: on customer’s site or at Romaco Kilian in Cologne