



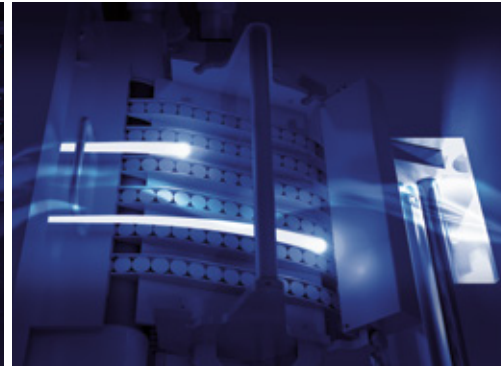
***KTP 590X***



## 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 synergistic 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.



»All tablet presses are equal, but some  
tablet presses are more equal than others«  
The KTP Series

Freely quoted from Animal Farm by George Orwell



## Delivering Solutions

### KTP series

The iF Design Award-winning tablet presses of the KTP series from Romaco Kilian are versatile high speed tablet presses for the pharmaceutical industry. The series is characterised by high equipment availability, hygienic design and a fast and easy format change. Kilian has applied its extensive know-how to many different product characteristics together with current customer requirements for efficiency, product optimisation and in-line quality acquisition.

### KTP 590X targets

The single rotary press KTP 590X is optimised for fast change over between mono- and bi-layer mode and high speed tableting. These characteristics make the KTP 590X a flexible, high performance tablet press for all kinds of production requirements, whether you are focused on high volume batch production or you have to produce many low volume batches. The KTP 590X gives you the utmost flexibility for your production.

### KTP 590X models

KTP 590X is a new tablet press in the KTP family and it is equipped with proven technology and design features.

The following KTP 590X variations are available:

- Mono- & bi-layer tablet production
  - for highest flexibility
- Bi-layer tablet production
  - high speed tableting in a compact format
- Mono-layer tablet production
  - especially for products with challenging compression properties



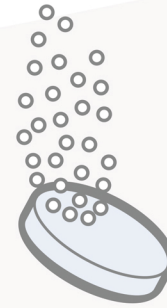
### Single-layer tablets

- Single-layer tableting with a maximum output of 691,200 tablets per hour
- Optimised filling system for products with various flow properties
- Compression of any tablet shape possible
- Self learning control and regulation system



### Bi-layer tablets

- Bi-layer tableting with a maximum output of 691,200 tablets per hour
- Full size fill shoes for both layers, assuring outstanding performance
- Vacuum system to avoid cross-contamination between the tablet layers



### Effervescent tablets

- Three press stations (tamping, pre-pressure, main pressure) for high speed production
- Special KILIAN "28/41" tooling for increased dwell time (even longer than with 1"-441)
- TabTrans – tablet transfer system for reliable and break-free tablet transfer to downstream equipment





### **Mono- and bi-layer tablet production**

Key purpose of the KTP 590X is the alternating production with

- fast change over between mono- and bi-layer tableting
  - high speed tableting for mono- and for bi-layer tablet production
- combining flexibility and productivity to allow ad-hoc re-scheduling of the production plan.

Fast change over from mono- to bi-layer production and vice versa:

- No dismantling of any press station
- No repositioning of fill shoes

Hence conversion between different production modes takes roughly the same time as a change over between two bi-layer batches with format change.

### **Bi-layer tablet production**

KTP 590X as “pure” bi-layer tablet press for:

- High speed bi-layer tableting
- Fast change over
- Investment security – an upgrade to alternating mono-/bi-layer production is possible

High speed bi-layer tableting:

- normal-sized highly efficient KTP fill shoes
- pre-compression and main compression stations with up to 100 kN compression force
- 25 kN tamping station

### **Mono-layer tablet production**

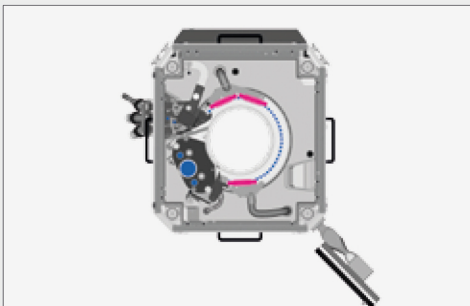
All three KTP series models (KTP 420X, KTP 590X and KTP 720X) are designed for the production of mono-layer tablets.

This range of models allows you to elect the tablet press which perfectly fits your requirements with regards to:

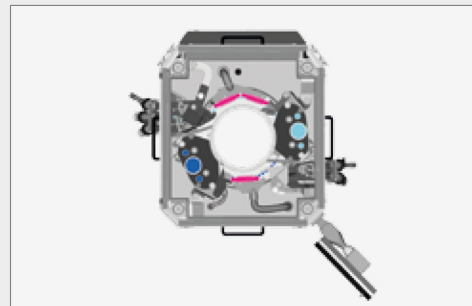
- Output
- Footprint
- Investment security

KTP 590X for “pure” mono-layer tablet production is characterized by:

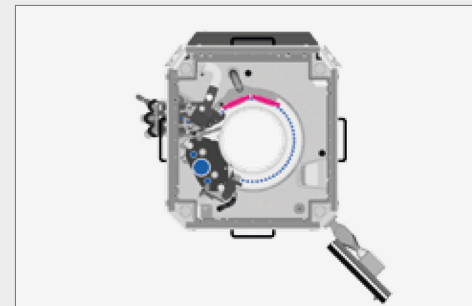
- Nominal output up to 691,200 tabs/h
- Small footprint – only one set of peripherals (e.g. deduster) required
- Optional 3rd compression station for optimised mono-layer product quality and production performance
- Investment security – optional preparation kit makes upgrade for alternating mono-/bi-layer production possible



*Mono-layer tablet production with 3 compression stations*



*Bi-layer tablet production with tamping, pre-pressure and main pressure stations*



*Mono-layer tablet production with 2 compression stations*







## High-tech concepts for effervescent products

Romaco is the leading supplier in the effervescent sector. Our all-in-one solutions integrate four process steps: tableting, as well as primary, secondary and final packaging. Various transfer systems round off the portfolio. The fragile effervescent products can be packed in heat-sealed strips or tablet tubes. Each effervescent line is individually configured according to the application – the sole criterion is our customer's requirement.

## Solutions inside KTP 590X

Effervescent powder is often hygroscopic, sticky and has poor flow properties. The Kilian KTP 590X can also operate with three pairs of compression rollers in mono-layer mode and is hence ideal for compressing effervescent products.

- Tableting in three steps: tamping, pre-compression, main compression
- Extended dwell time due to "28/41" tooling increases time for de-aeration and reduces risk of capping
- Special fill shoe and paddle wheel design
- Constant powder distribution in the die
- Homogeneous compression
- Optional stearate spraying system reduces ejection force

## Solution for tablet transfer to primary packaging machine

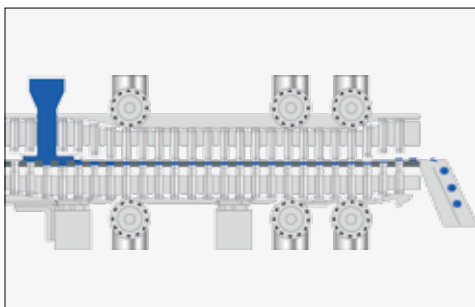
Romaco's special transfer technology TabTrans is much more than just a conveyor belt for effervescent tablets. It assures fast controlled and damage-free transfer of the fragile tablets from the tablet press to the primary packaging machine.

This includes

- De-dusting
- Integral process control (IPC) with selective sampling
- Built-in metal check unit for detecting foreign particles

TabTrans is a compact all-in-one unit and significantly reduces the overall production line length.

*Delivering Solutions  
Applications*



*Mono-layer with 3 compression rollers*



*Kilian "28/41" tooling*



*TabTrans*



*Cool - Fast - Clean*



## Reliability of production

... the basis of product quality

- Hermetical separation of the process area avoids cross contamination
- Constant temperature conditions inside the process area for reliable production
- Constant brake force for better relative standard deviation due to unique lower punch brake magnets
- Special punch bellow system for black-spot-free tablets



Reliability – Special punch bellow system

## Output

... maximisation through optimised product flow

- Optional fill shoe solutions for poorly flowing products with pre-compacting tendency (FIIIc – with 3 wheels) or bridging tendency (FIIo – open)
- Low temperature for better production conditions of hygroscopic or adhesive products through magnetic punch brake system, external gearbox for fill shoe, cooling ring for die table and cooling device for torque drive
- Special tooling such as “28/41” instead of “EU-D” in order to increase the dwell time by up to 50%
- Individual solutions for output optimisation by trials at KiTech (Kilian Test Laboratory)



Output – Low temperature

## Maximum yield

... means minimised product loss

- Minimised distance between fill shoe and die table through Romaco premium plating of the die plate and stainless steel sealing segments
- Easy adjustment of gap between die table and sealing segment (in 0.01 mm steps)
- Powerful torque drive for quick start-up
- Cover segment behind fill shoe and product scraper with magnets
- Optimised recycling groove for less product loss due to centrifugal force

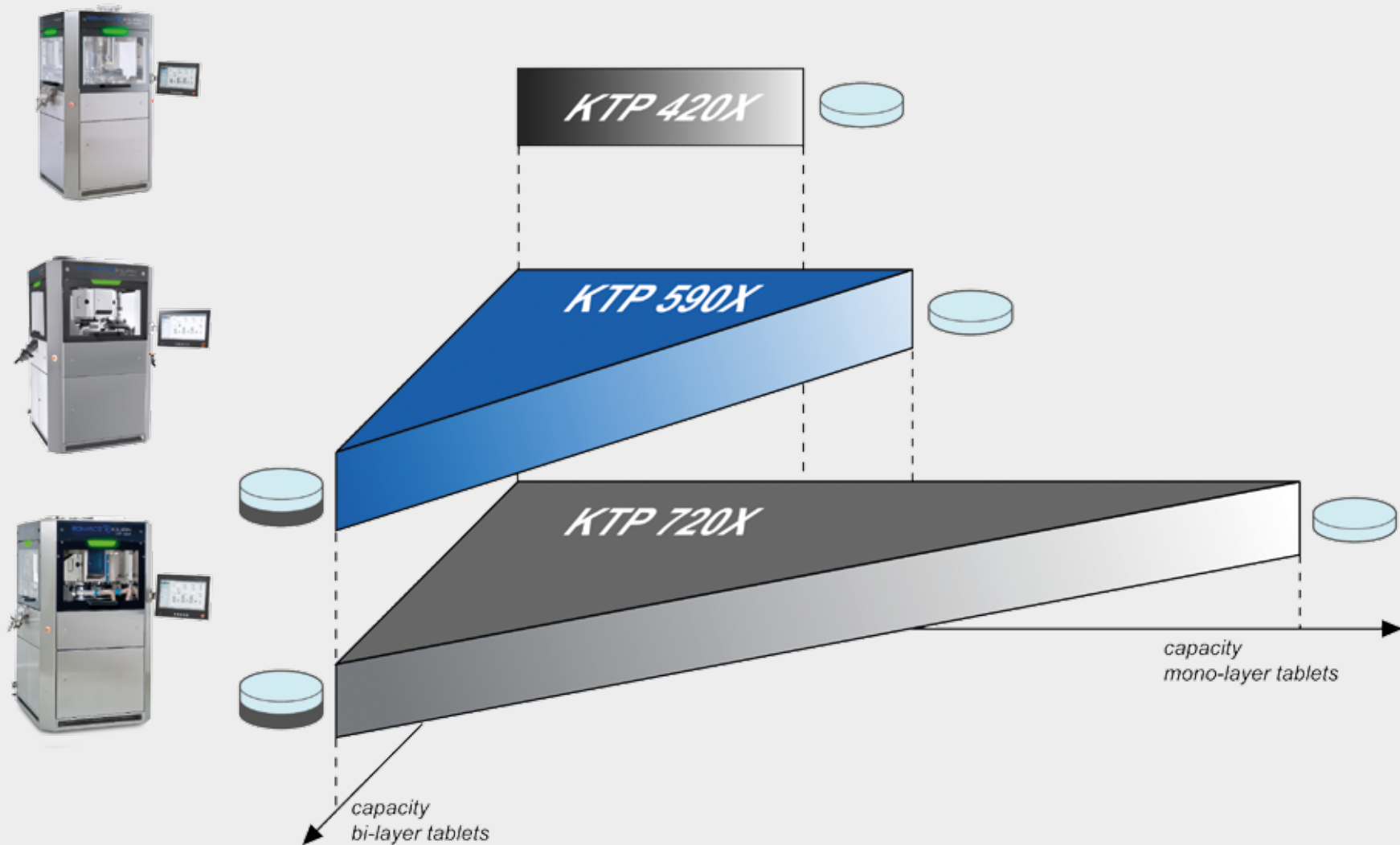


Maximum yield – Adjustable fill shoe

*Exploiting Technologies  
Cool - Fast - Clean sets  
productivity standards*



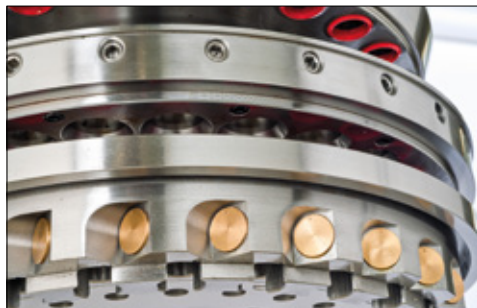
*Positioning KTP 590X*



## Availability

... through less downtimes

- Longer production interval before scheduled cleaning due to hermetical separation of the process area
- Less maintenance due to
  - Long-life pressure rollers
  - Wear-free torque drive
  - Wear-free lower punch brakes
- Faster support through Remote Assist with Call4Service button



Availability – Wear-free lower punch brakes

## Change over

... in order to restart production asap

- Fast and easy cleaning
  - Hygienic design
  - Washable tablet chute
  - Fill shoe without gear box allows washing inside a washing machine
- Fast and easy disassembly and installation
  - Universal tablet scraper for all tablet shapes
  - Minimum number of product contact parts
  - Swivel arm for fill shoe and tablet chute for better access



Change over – Minimum number of contact parts

## Operability

... intuitive and ergonomically designed operating interface

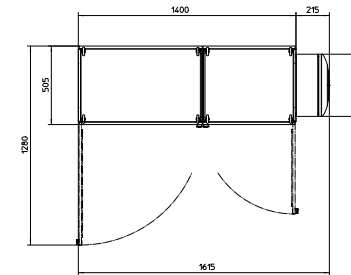
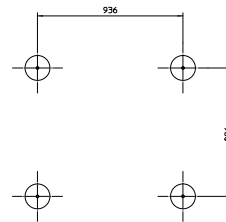
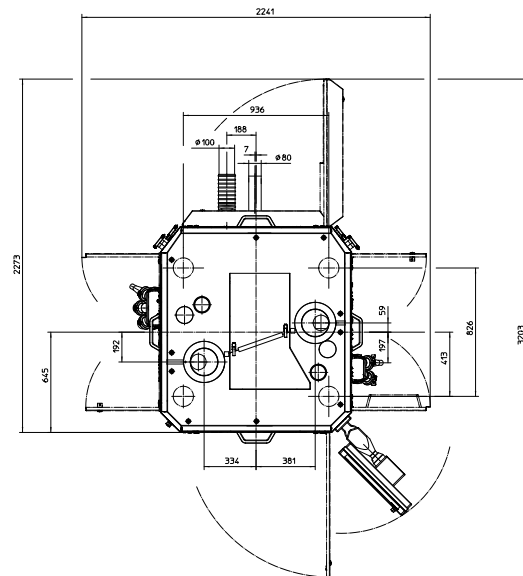
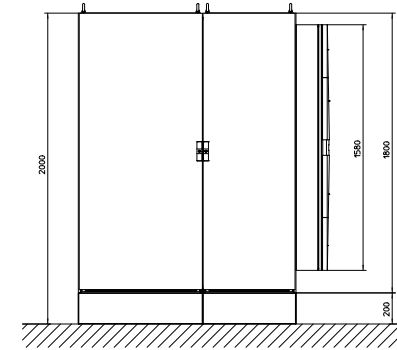
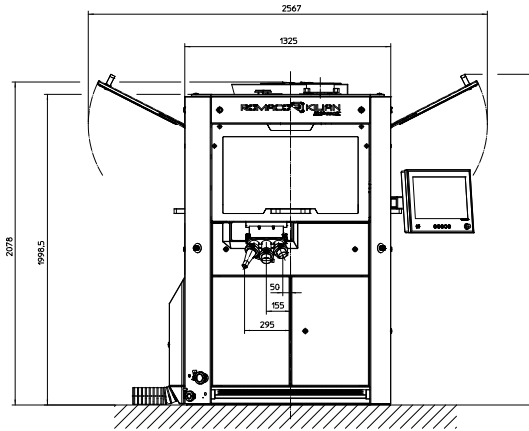
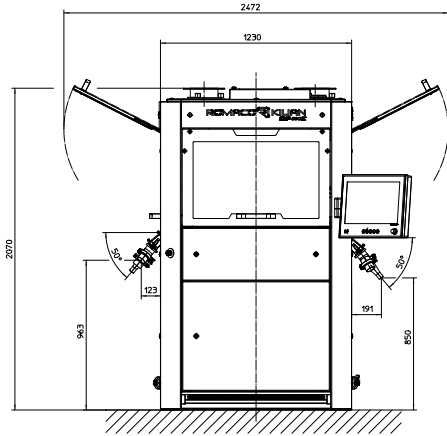
- 21" HMI screen for clarity
- Touch screen with swiping technology for easy operation
- Optimised GUI for quick operation (with two clicks to almost every menu point)
- All important information on a single screen avoids unnecessary swiping and searching
- Optional external HMI for individual positioning and operator-related ergonomic working conditions
- Paperless batch report
- Self optimising regulation system
- Human RQ & Trending software available



Operability – Intuitive and ergonomical

*Exploiting Technologies  
Cool - Fast - Clean sets  
productivity standards*





**Technical Data****KTP 590X**

Number of press stations	96	64	44	71	64	54	44	44	33
Tool type* (EU and TSM)	RS12	B	D	B	B	B	D / 28/41	441	35/45
Die type	Segment	Segment	Segment	BBS	BB	B	D	D	52/23
Max. die filling (mm)	18	18	20	18	18	18	20	20	20
Max. tablet diameter (mm)	12	16	24	11	13	16	24 / 25	24	33
Max. output Mono-layer** (tablets/hour)	691,200	460,800	290,400	511,200	460,800	388,800	290,400	290,400	118,800
Max. output Bi-layer** (tablets/hour)	691,200	460,800	290,400	511,200	460,800	388,800	290,400	290,400	118,800
Max. pre-compression force*** (kN)	100								
Max. main-compression force*** (kN)	100								
Standard voltage (V), Frequency (Hz)	400, 50/60								
Compressed air (bar)	6								
Weight (kg)	5,690								

\* Special tools/formats available on request

\*\* The output depends on tablet size and compressed material

\*\*\* Maximum punch load dependant on tablet design



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 **KILIAN**

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