

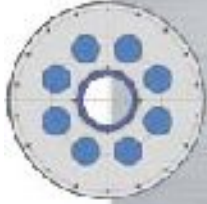
# “About Windmills and Revolvers“

**Rotary index drives for  
multi-model plants**



## Requirements on multi-model plants

- ⇒ Not just one model but several are planned to be produced in a “chaotic mixture“ by one manufacturing system in the future.
- ⇒ A “chaotic mixture“ without losing cycle time necessitates simple, precise and fast tool changing systems which, moreover, can be integrated into existing concepts with a view to their design.
- ⇒ It is not without reason that revolver systems, i.e. rotary index drives, for change systems won through with respect to machine tools where cycle time and precision are also in the fore.

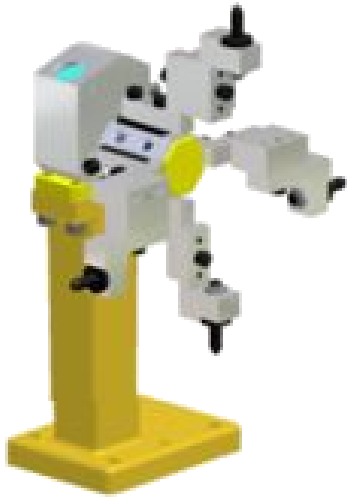


# Requirements on rotary index drives for tool changing systems in body shops



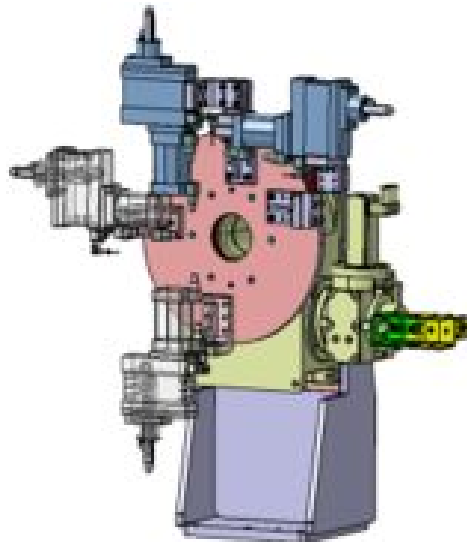
- ⇒ Robust design and encapsulated mechanics adjusted to the rough operating conditions in body-in-white
- ⇒ Repetitive change positions with a position tolerance  $\leq 0.1$  mm
- ⇒ Mechanically locked end position with high load rigidity, which compensates the reactional forces to be expected in the manufacturing process (e.g. spot welding).

# Solutions EXPERT-TÜNKERS and TÜNKERS



“Revolver“

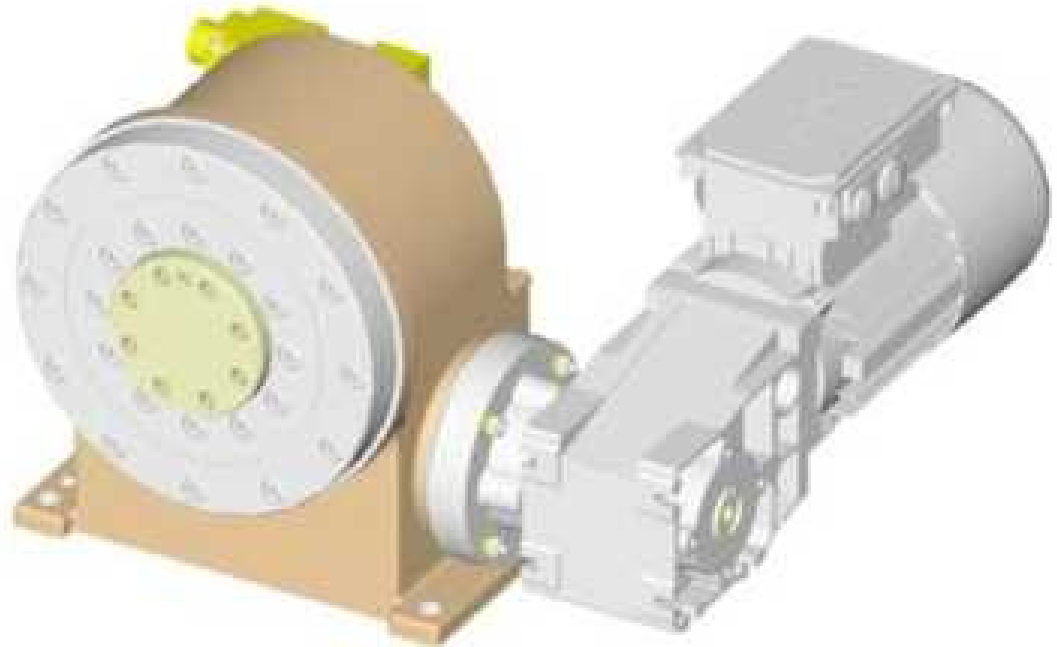
“Windmill“



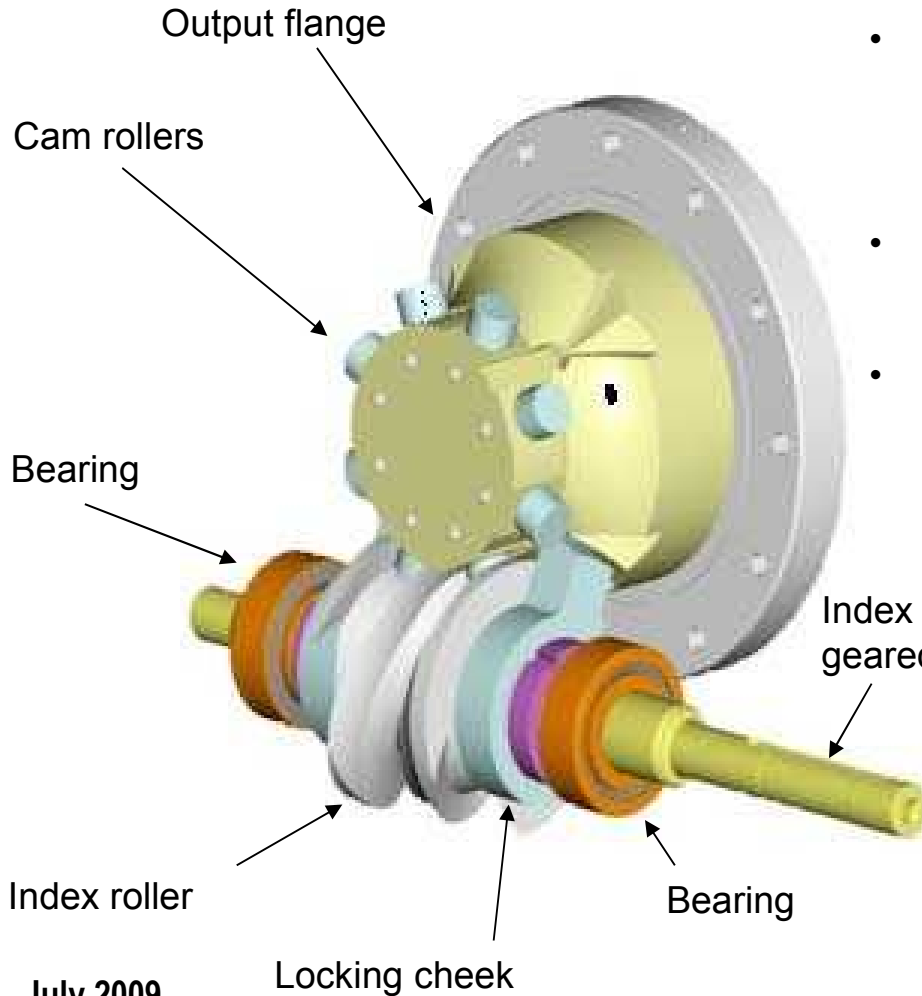
- **TÜNKERS**  
Pneumatic rotary index drive in compact design with fine positioning and mechanic lock, for instance, for exchanging centring pins / contours
- **EXPERT-TÜNKERS**  
Electric rotary index drive with fine positioning and integrated locating system, for instance, for exchanging clamps or similar tools

# “Windmill drive“ EGV series

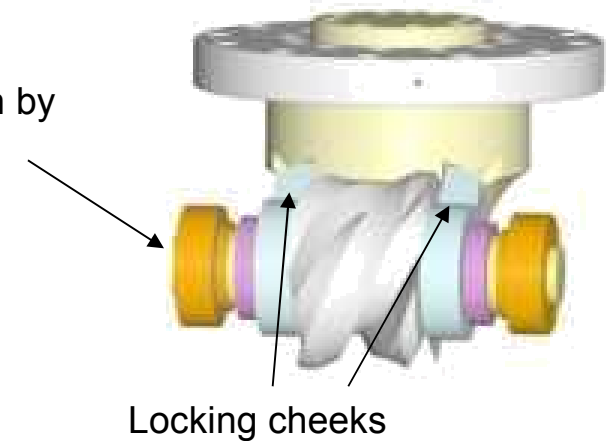
Extremely compact index drive. The output flange is mechanically locked in the dwell period via a supporting element on the driving roll.



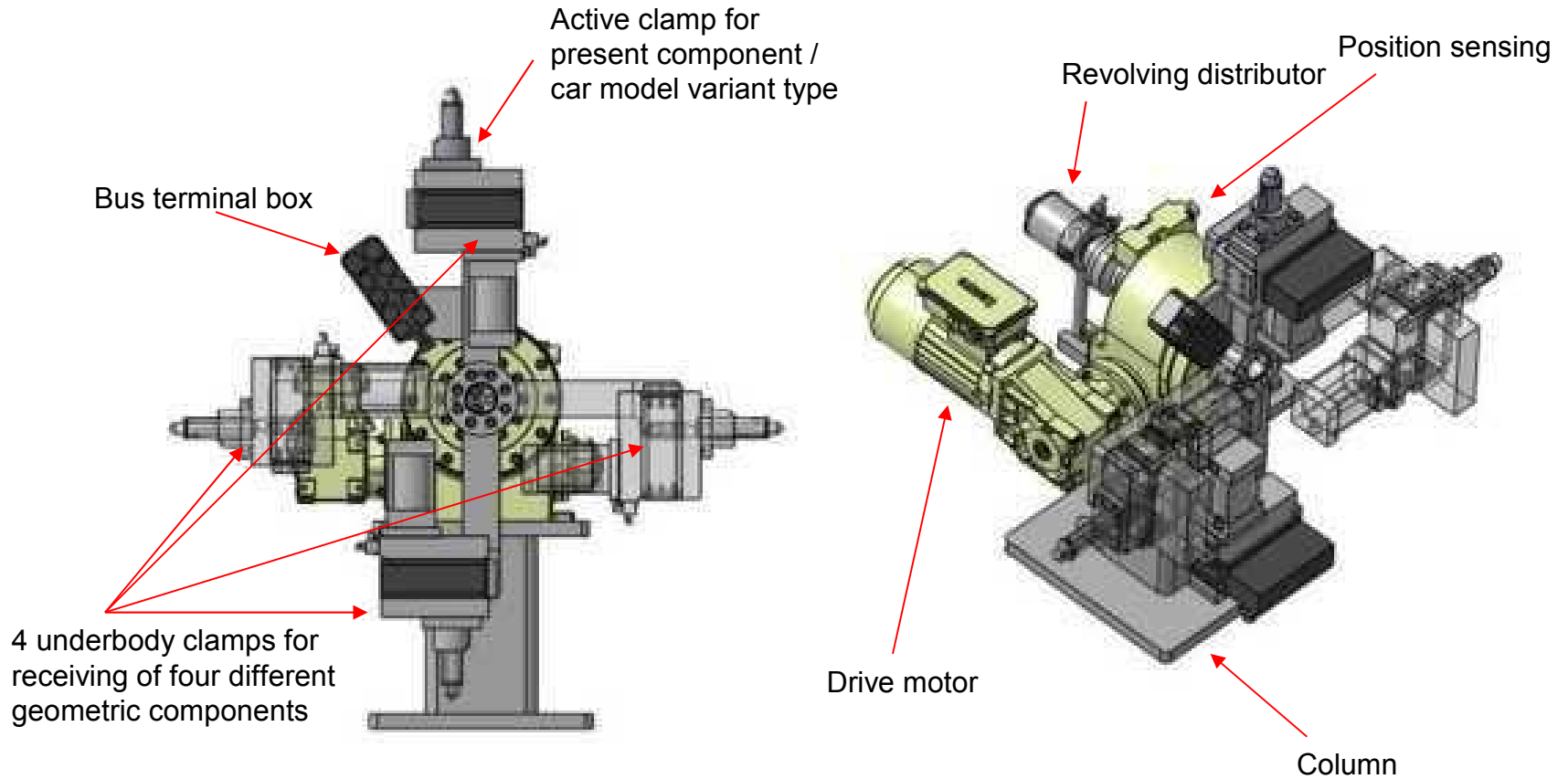
# Construction principle EGV series



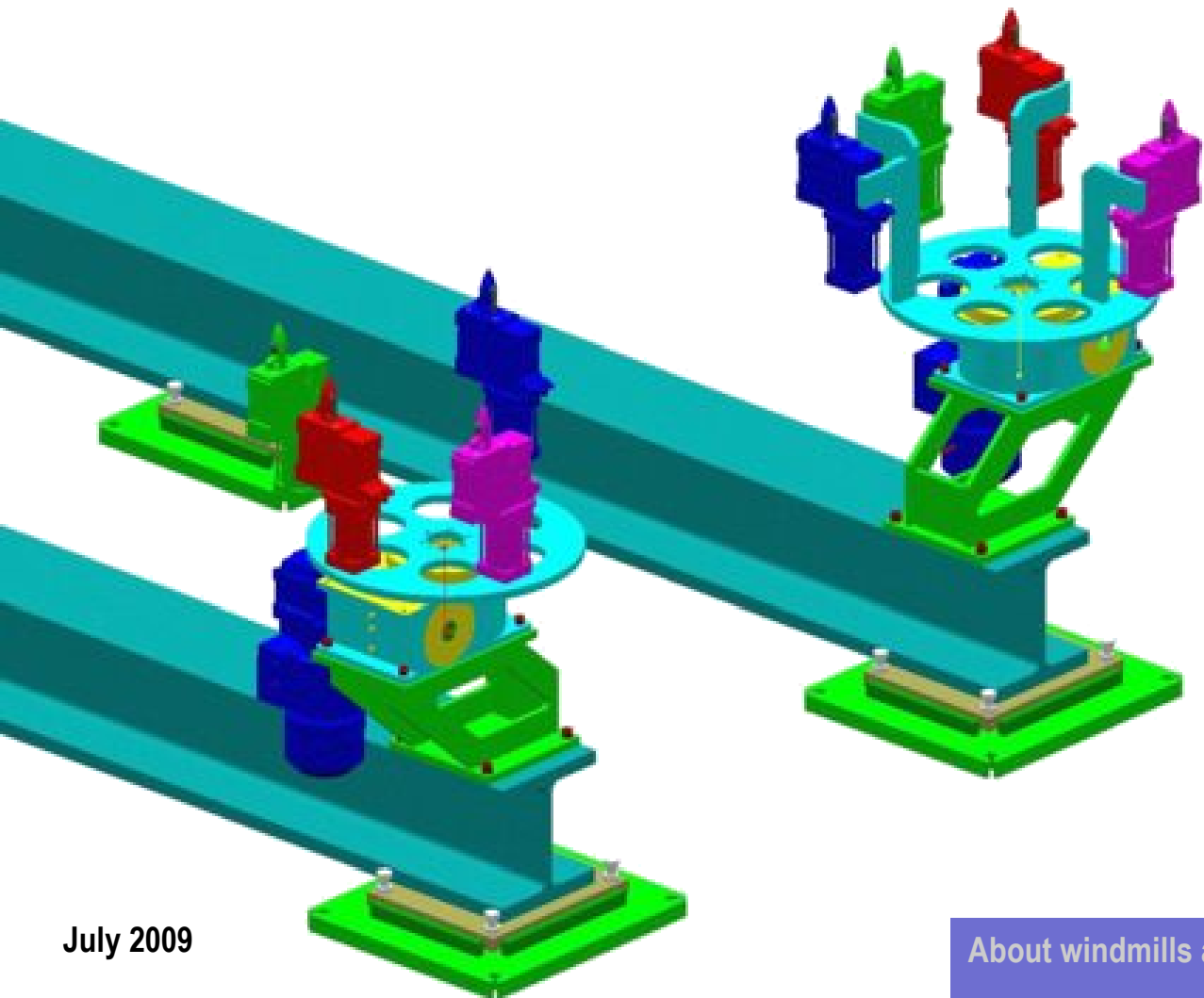
- Accelerating and decelerating moments are transmitted via the pairing grooved roller / cam rollers with clearance, as is the case with standard index drives.
- The locking cheeks on the roller engage into the pockets of the output flange in the dwell period.
- Thus, a rigid transmission of high static moments is safeguarded in this position.



# Example for complete system with underbody clamps

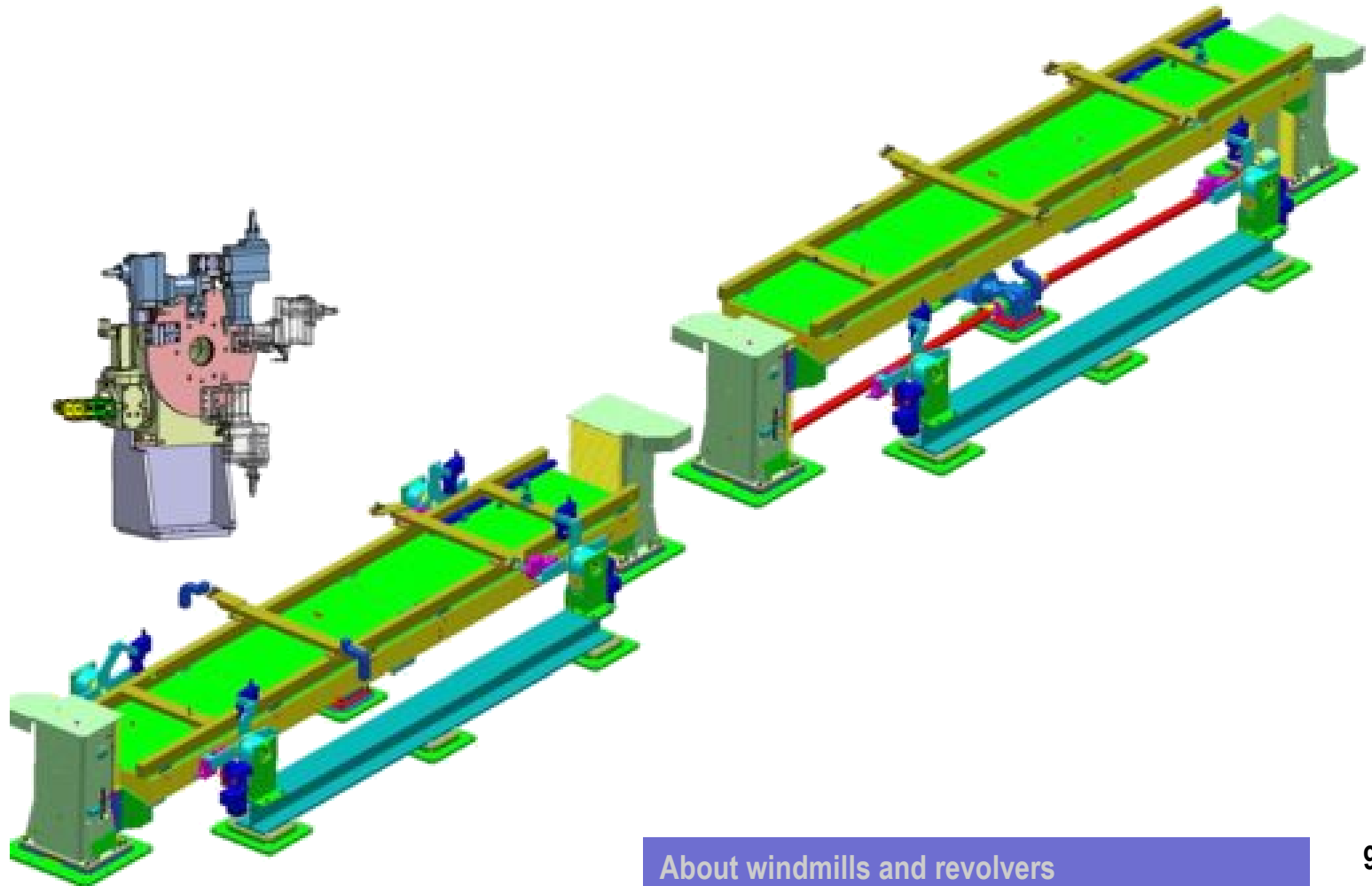


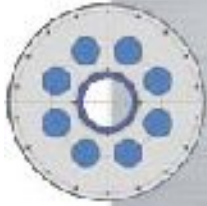
# EGV series Application example Horizontal rotary table



# EGV series

Application example of overall design of flexible  
underbody clamping and conveying technology





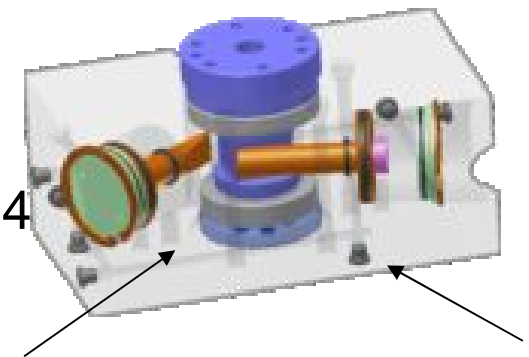
# EGV series Advantages

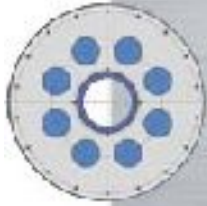


- Extremely compact design – small space required in the installation
- Approved EXPERT-TÜNKERS curve-driven technology
- Easy dwell period positioning without complex servo technology
- Repetitive and most precise positioning due to mechanically locked end position
- Application as horizontal and vertical axis

# Construction principle “Revolver“ TÜNKERS pneumatic rotating index drive

- ⇒ Rotating index drive with compact aluminium housing in encapsulated design
- ⇒ Stable support due to thrust and radial bearing for absorption of lateral load moments of up to 4,000 Nm
- ⇒ Driven via two pneumatic slide drives reciprocally activating and locking the pivot in the end positions
  - ⇒ approved construction principle based on chuck technology!
- ⇒ End position locked free from play
- ⇒ Centre transit for media supply
- ⇒ Optional spacing of 90°, 120°, 180° (2, 3, 4





# “Revolver“ application for contour blocks

## Features:

- Two different contour blocks are mounted to clamp arm and jaw via rotary actuators. The relevantly required pair of contour blocks can be moved into working position via the control.
- Clamping of different component contours, e. g. due to car models, with one clamping tool.
- Revolver with pneumatic slide drive, end positions mechanically locked.
- Compact design with robust support.
- Easy control.

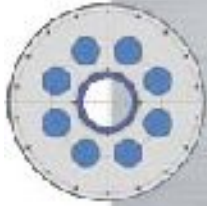


Model A



Model B



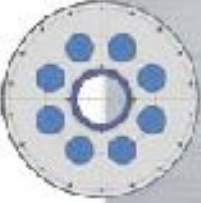


# “Revolver“ application for centring pins

## Features:

- Centring-pin revolver with pneumatic slide drive
- End positions (2, 3, 4) each mechanically locked
- Compact design with robust support
- Easy control with 5/2 directional valve – with 2 impulses per cycle
- Application, e.g. for exchanging 4 different centring pins for 4 different components
- Optionally flanged to SZKD63 for retractable locating pins





**Thank you for your attention.  
Please address any further queries to:**



**TÜNKERS  
Maschinenbau GmbH**

**Rainer Kempken**

Telephone: +49 (0) 2102 4517 223  
rainer.kempken@tuenkers.de

**Joachim Bocionek**

Telephone: +49 (0) 2102 4517 140  
joachim.bocionek@tuenkers.de

Am Rosenkothen 4 – 12  
D - 40880 Ratingen

Telephone +49 (0) 2102 4517 0  
Telefax +49 (0) 2102 4517 9999  
E-mail info@tuenkers.de  
Internet www.tuenkers.de

**EXPERT-TÜNKERS GmbH**

**Frank Giebenhain**

Telephone: +49 (0) 6251 592 175  
fgiebenhain@expert-tuenkers.de

**Thomas Hoppe**

Telephone: +49 (0) 6251 592 232  
thoppe@expert-tuenkers.de

Seehofstrasse 56-58  
D - 64653 Lorsch

Telephone +49 (0) 6251 592 0  
Telefax +49 (0) 6251 592 100  
E-mail info@expert-tuenkers.de  
Internet www.expert-tuenkers.de