



Company presentation

Februar 14

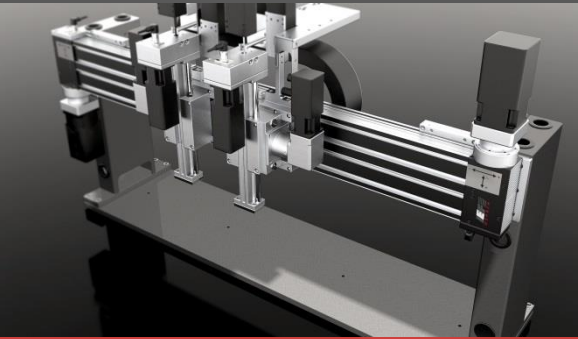
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1. Company profile



Facts & figures

- over 30 years of experience
- more than 5,000 m² production area
- turnover 2013: € 21 million, thereof
 - 40% components for automation
 - 60% systems in the sector palletising, conveyor technology, test and inspection systems
- percentage of turnover 2013 of the biggest customer: 16%
- percentage of turnover 2013 of export: 43%

Main branches

- | | |
|-------------------------------------|-----|
| ▪ automotive industry | 26% |
| ▪ semiconductor | 21% |
| ▪ mechanical engineering | 19% |
| ▪ precision engineering | 15% |
| ▪ electrical industry | 7% |
| ▪ medical & pharmaceutical industry | 5% |
| ▪ apparatus engineering | 3% |
| ▪ tool & mould making | 2% |
| ▪ standard parts | 1% |

1. Company profile



Employees

- 134 employees, thereof
 - 16 in research & development
 - 11 computer scientists
 - 17 design engineers (Solid Works 3D)
 - 7 service employees for customer service in Europe
- average period of employment: 13 years
- average age: 43 years
- percentage of sickness absence: 2.1 %

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2. Sales and service centres Germany



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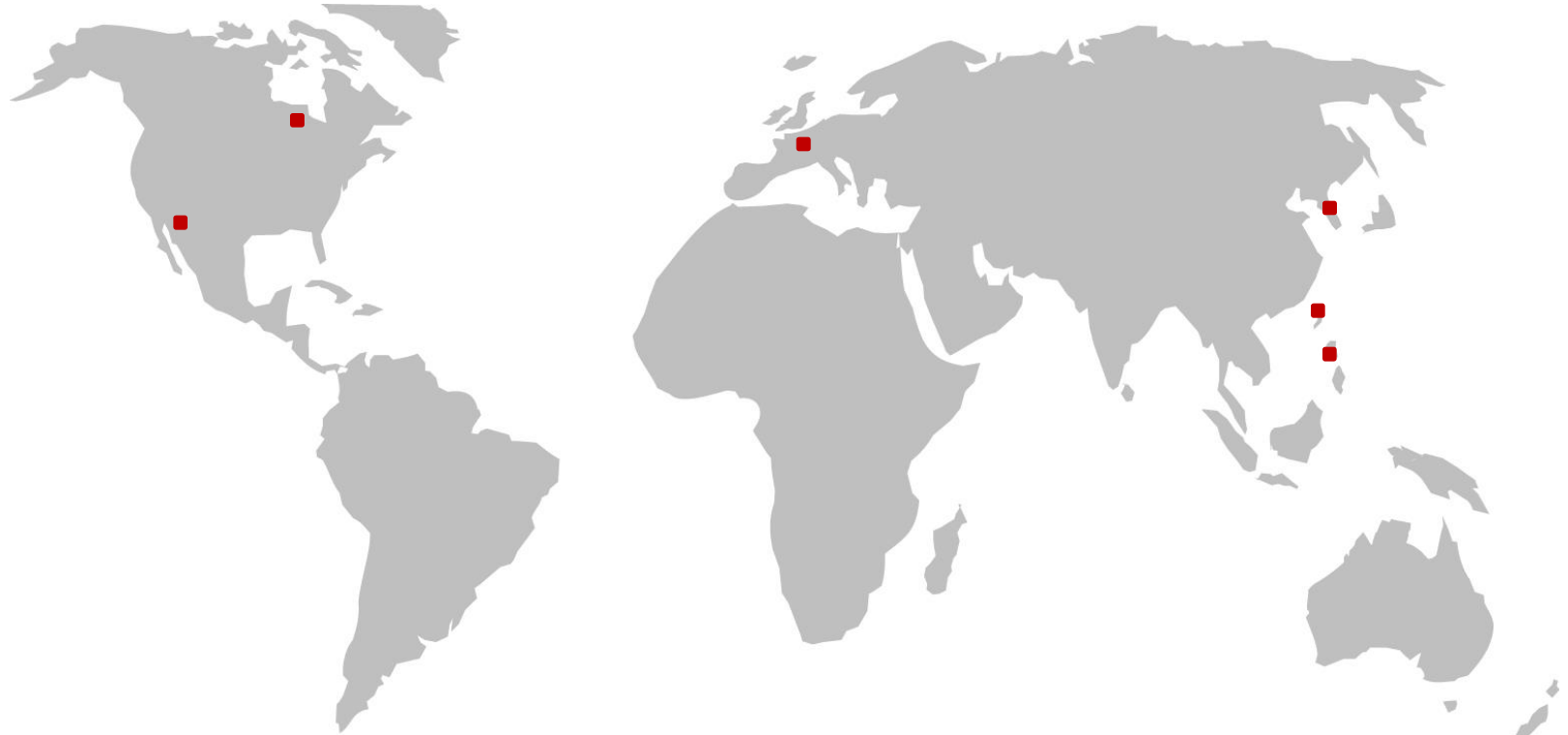
2. Sales and service centres Europe



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2. Sales and service centres worldwide



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2. Sales and service centre Philippines



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3. Certification



... already since 1996

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4. References



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5. Guide rails



Type M/V plastic-coated sliding guides

- friction coefficient 0.06 – 0.1 with a surface pressure of 0.5 N/mm
- speed up to 15 m/min
- with high transverse forces or lateral accelerations, vibrations and shocks respectively
- for high frequency, extremely short strokes

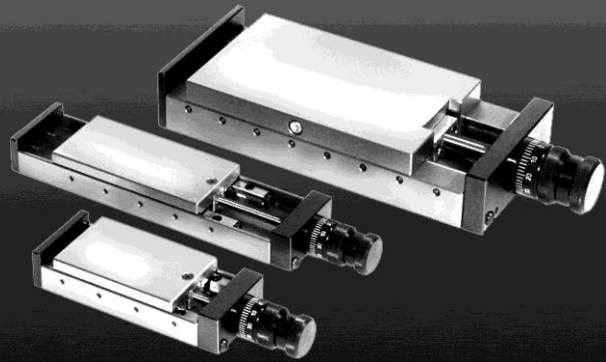
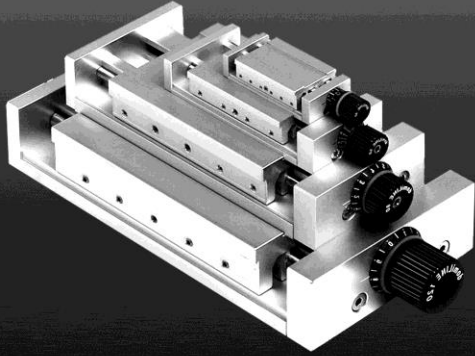
Type R+K cross roller guide rails

- low friction coefficient ($M = 0.003$)
- speed of up to 50 m/min
- **type R** (roller guide) with high loads and ultimate precision requirements
- **type K** (roller guide) for smooth-running movements and lower load requirements

Type N/O needle roller guide rails

- low friction coefficient ($M = 0.003$)
- speed up to 50 m/min
- ultimate precision and stiffness
- almost wear-free due to „rolling friction“
- for very high loads

6. Manual linear adjusters



Standard adjusters

Endless variety! The spindle-driven slide system domiLINE made of aluminium.

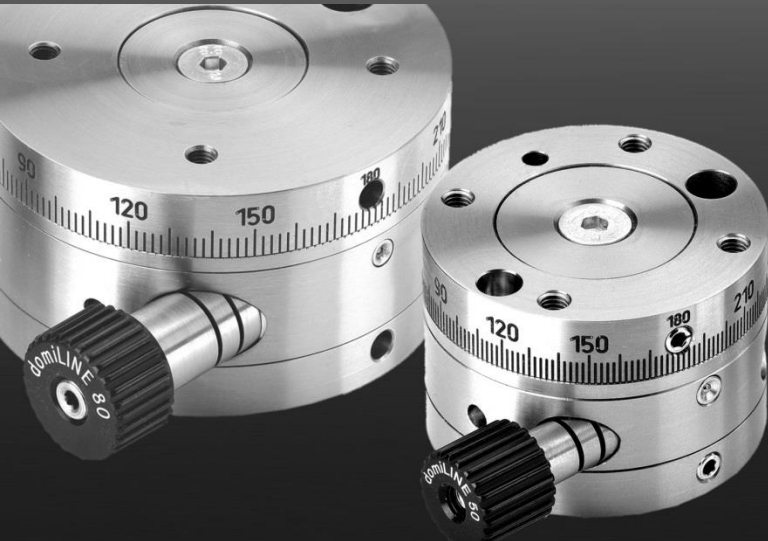
Precision adjusters

The precision adjusters are made of high-quality grey cast iron GG 25. On request they can also be manufactured chemically nickel-plated or in aluminium anodized.

Coordinate tables

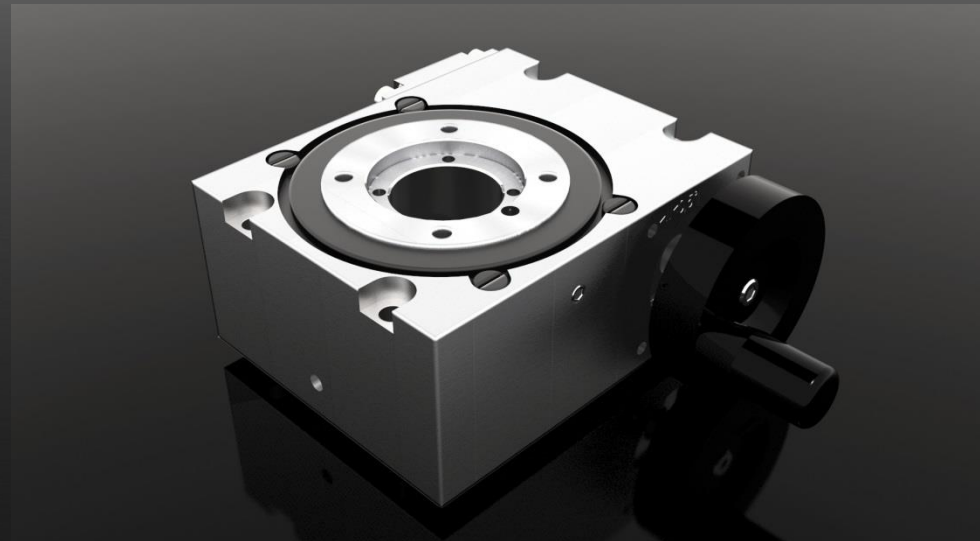
Coordinate tables – very robust! They are ideally suitable for drilling or milling applications.

6. Manual rotary adjusters



Standard

The rotary adjusters of MDV-series made of stainless steel are equipped with fine and fast adjustment functions. For versatile use.



... with hollow shaft

The rotary adjusters of MDV-series 80/100 and 100/140 are equipped with a hollow shaft, e.g. for the placement of tubes and cables. They are made of aluminium and stainless steel.

7. Linear drives



Spindle drives maximum load

Spindle drives combine big strokes with high precision and high loads.

- strokes up to 1.7 m
- load up to 5000 N
- speed up to 1.2 m/s
- up to +/- 0.003 mm repeat accuracy

Toothed belt drives maximum distance

Toothed belt drives are ideally suitable for the handling of lightweight up to heavy components across large distances.

- strokes up to 5500 mm
- load up to 800 N
- speed up to 5 m/s
- up to +/- 0.04 mm repeat accuracy

Direct drives maximum dynamic

Direct drives are suitable for fast handling with ultimate precision.

- strokes up to 3700 mm
- load up to 500 N
- speed up to 5 m/s
- acceleration up to 70 m/s²
- up to +/- 0.003 mm repeat accuracy

7. Linear drives



Cantilever axes

The modules are driven via toothed belt or spindle drive. Depending on the version they are also suitable for bigger loads in vertical applications.

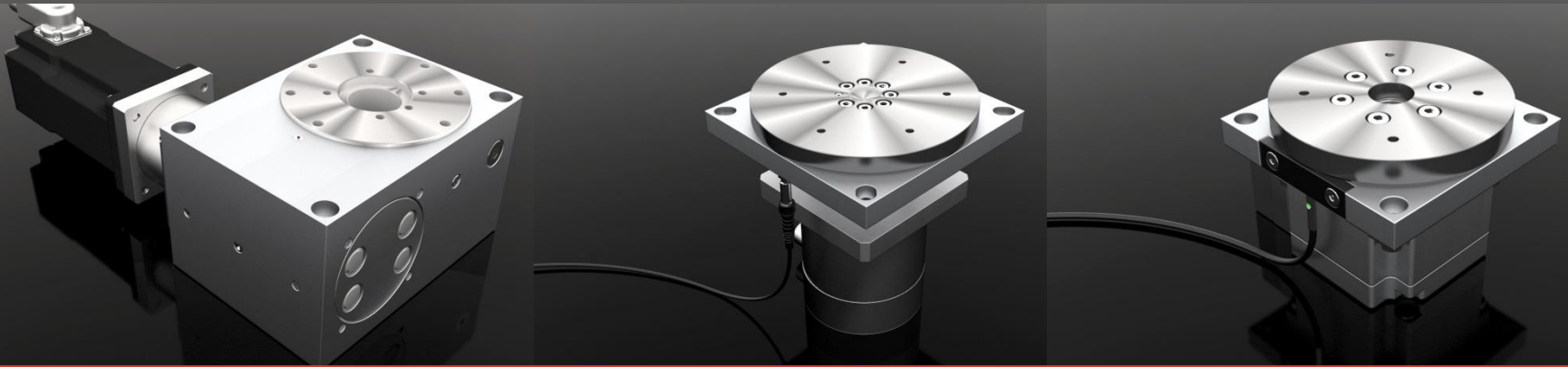
Cantilevers with toothed belt drive

- max. stroke: 1500 mm
- max. speed: 1.2 m/s
- max. load: 400 N

Cantilevers with spindle drive

- max. stroke: 185 mm
- max. repeat accuracy: +/- 0.003 mm
- max. load: up to 50 N
- prepared for the assembly of IEF standard motors / customer-specific motors possible

8. Rotary tables



DT

- motor drive
- inductive reference point switch
- high axial load
- output torque up to 40 Nm

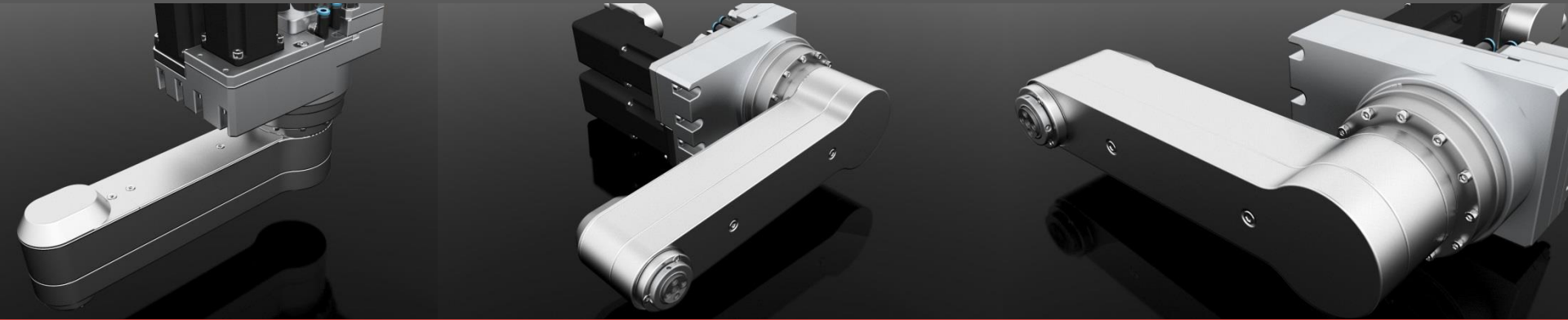
TP

- optimal adaption to necessary torques or rotation speeds respectively
- easy assembly of motors
- high loads

miniTURN

- flexible assembly possibilities
- high-performance, precise system
- freely programmable
- central hollow shaft

9. Swivel drives



rotaryARM

The swivel arm module rotaryARM in connection with linear units is a very fast pick & place system for all tasks, that require a fast and precise automation solution. It has a range of 297, 399 or 537 mm.

The main features are:

- NC-swivel arm module with optional turning axis
- endless rotation with swivel and turning axis
- short cycle times by overlaying speeds of swivel arm and linear axis
- rotary feedthrough for pneumatics and electrics integrated in the swivel arm, thus no additional energy guidance necessary
- servo motors with high-resolution absolute encoder
- high stiffness and low own weight

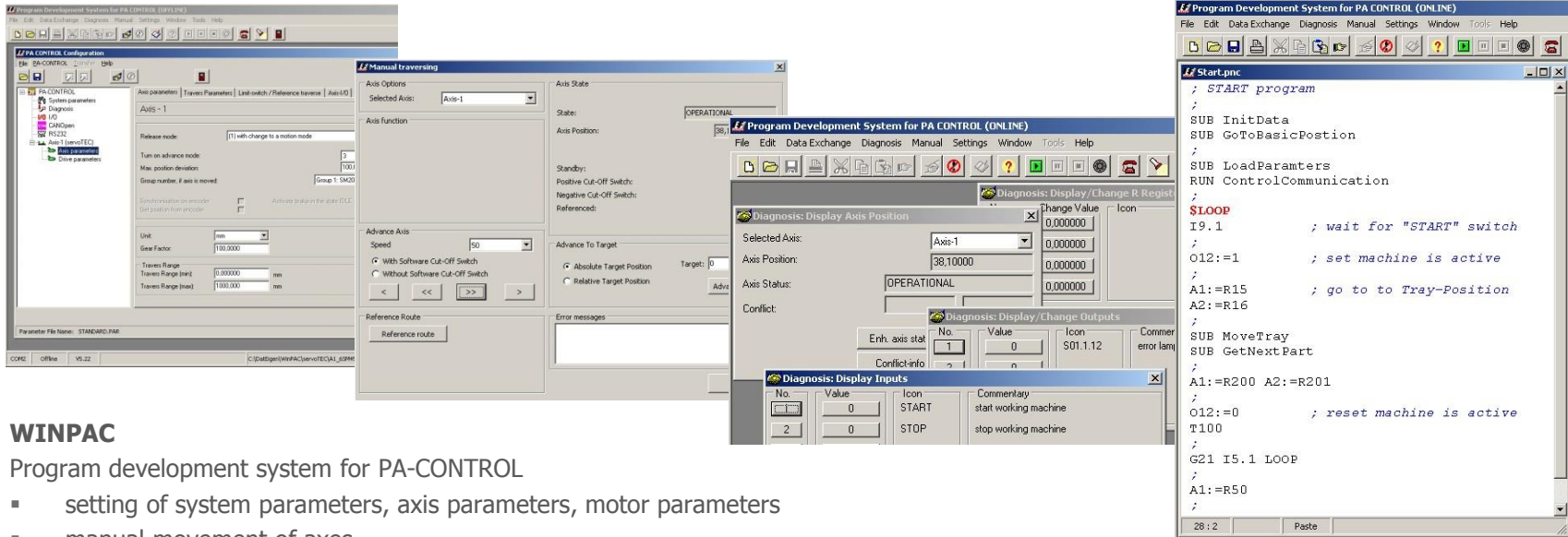
10. Control technology



PA-CONTROL Touch

- 16 axes can be controlled through CANopen (servoTEC S2, intelliMOT)
- 47 parallel programmes with subroutine technics
- 5120 digital I/Os, AD/DA converter, numerator, temperature control
- automatical configuration of hardware
- connects the advantages of an NC-control with the ones of a PLC
- creation and integration of own graphics
- fast overview of process conditions possible
- extended diagnosis possibilities
- language-independent presentation by symbols

10. Control technology



The screenshot displays the WINPAC software interface, which is used for the development and control of PA-CONTROL systems. The main window is titled "Program Development System for PA CONTROL (ONLINE)". It features several sub-windows and panels:

- PA-CONTROL Configuration:** A tree view on the left shows the system structure, including parameters, diagnosis, and manual traversal.
- Manual Traversing:** A window for manual movement of axes, showing "Axis Options" (Selected Axis: Axis-1), "Axis State" (OPERATIONAL), and "Axis Position" (38.10000).
- Diagnosis: Display Axis Position:** A window showing the current position of the selected axis (Axis-1) as 38.10000.
- Diagnosis: Display/Change R Register:** A window showing the current register value (0.000000).
- Diagnosis: Display/Change Outputs:** A window showing the current output status (Enrh. axis stat: 1).
- Diagnosis: Display Inputs:** A window showing the current input status (No. 2, Value 0, Icon STOP).
- Start.pnc program:** A window showing the main program code, including initialization, parameter loading, and a loop for manual movement.

WINPAC

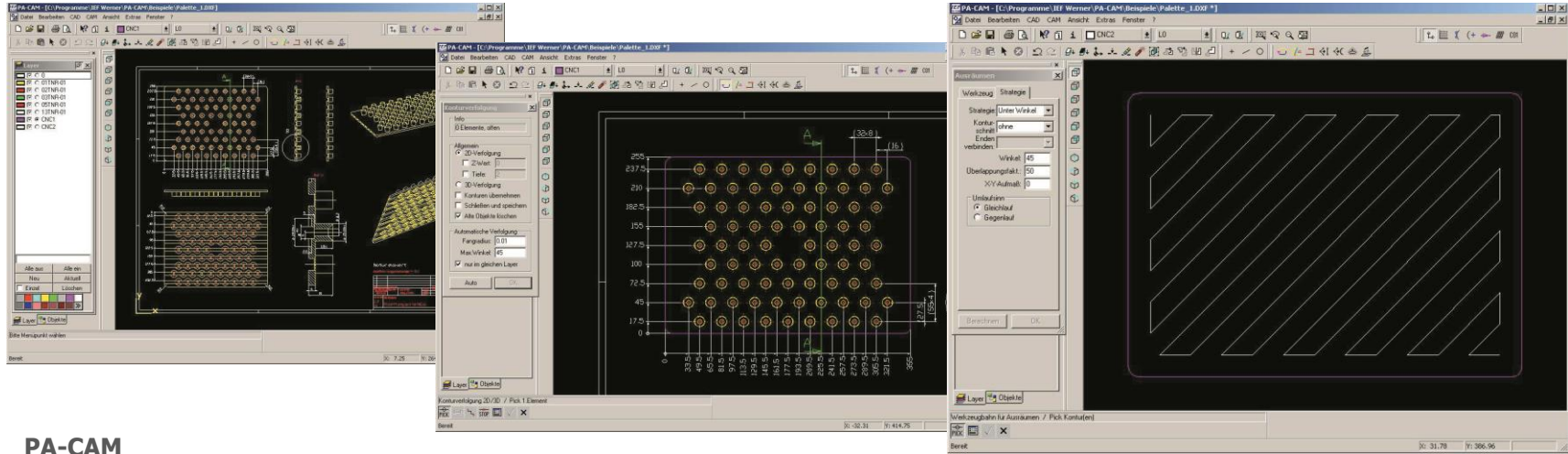
Program development system for PA-CONTROL

- setting of system parameters, axis parameters, motor parameters
- manual movement of axes
- program creation (copy functions, searching and replacement in a project, ...)
- hardware and program diagnosis
- wide instruction sets
- program packages: TEACH-Software, Interpolation, ...
- remote diagnosis via modem

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10. Control technology



PA-CAM

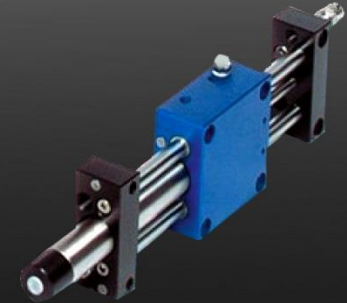
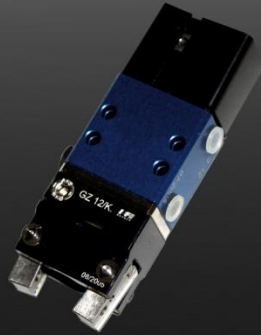
CAD/CAM software for fast generation of CNC programs

- contour tracing
- tool path generation
- fully automatic program generation
- transfer and reworking of CAD data
- script technology for custom-designed adaption
- 2D / 3D processing

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11. Pneumatic modules



Gripping modules

- available in three sizes
- outside as well as inside clamping
- gripping force safety device
- accurate adjustment of gripper fingers by indexing at the finger mounting
- combination of gripper and drive possible

Turning modules

- adjustable swivel angles
- acknowledgeable end stops
- hydraulic shock absorbers
- high absorption forces of bearings
- damping and acknowledgement of intermediate positions

Shift modules

- fully developed linear elements
- robust guides
- standardised fixing holes with highly accurate centerings
- unlimited combination possibilities

12. Conveyor belts MINITRANS



Small conveyor belts

- 4 sizes
- working range of 500 – 4000 mm
- load up to 100 kg
- knife edge
- variable belt widths
- regulation of speeds

13. Servo presses

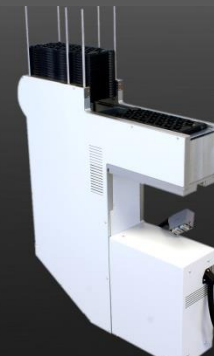


aiPRESS

aiPRESS servo presses are used to produce accurate and reproduceable joining connections. The joining forces of this range are ideally suitable for any kind of precision manufacturings (e.g. for micro assembly). With this product variable forces can be realised as well as freely-programmable paths.

- slim design
- high-precision ball screw
- high stiffness by massive C-frame with quill guide
- Configuration of the drive train according to customer requirements
- high repeat accuracy of the press process

14. Palletizers



varioSTACK

Pallet size:

- Euro/4 (600 x 400 mm)
- Euro/8 (400 x 300 mm)

Pallet weight:

- max. 10 kg

Pallet changing time:

- < 4 seconds

varioSTACK-T

Pallet size:

- Euro/4 (600 x 400 mm)
- Euro/8 (400 x 300 mm)

Pallet weight:

- max. 10 kg

Pallet changing time:

- < 4 seconds

ecoSTACK

Pallet size:

- Euro/4 (600 x 400 mm)
- Euro/8 (400 x 300 mm)

Palettenstapelgewicht:

- max. 60 kg

Pallet changing time

- < 5 seconds

smallSTACK

Pallet size:

- JEDEC
(322,6 x 136 x 6,35 |
10,16 mm)

Pallet weight:

- max. 500 g

Pallet changing time:

- < 5 seconds

14. Palletizers



euroSTACK

Pallet size:

- Euro/1 (1200 x 800 mm)
- Euro/2 (800 x 600 mm)
- Euro/4 (600 x 400 mm)
- Euro/8 (400 x 300 mm)

Pallet weight:

- max. 40 kg

Pallet changing time:

- 0 - 6 seconds

PSU

Pallet size:

- Euro/2 (800 x 600 mm)
- Euro/4 (600 x 400 mm)
- Euro/8 (400 x 300 mm)

Pallet weight:

- max. 30 kg

Pallet changing time:

- < 5 seconds

PSO

Pallet size:

- Euro/4 (600 x 400 mm)
- Euro/8 (400 x 300 mm)

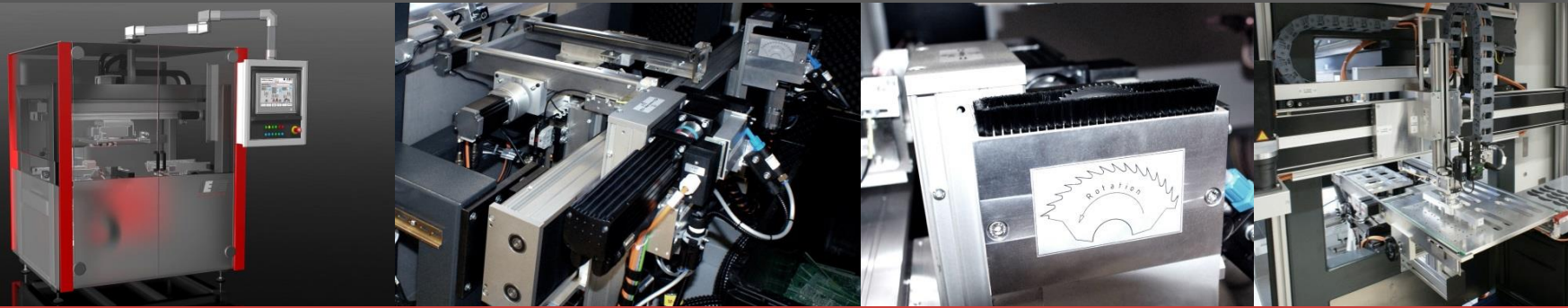
Pallet weight:

- max. 5 kg

Pallet changing time:

- 0 seconds

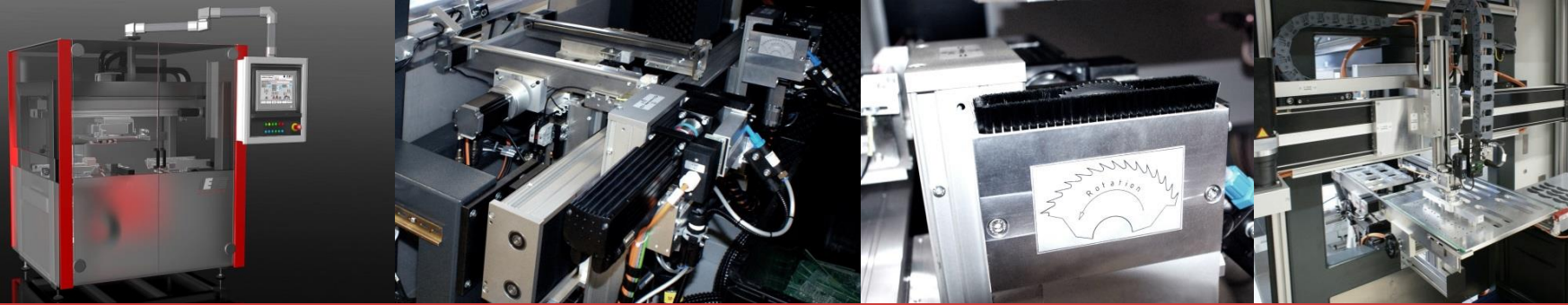
15. Depanelling equipment



The depanelling equipment 3010 High-Volume is designed for feeding, separating and unfeeding of printed circuit boards manufactured in panels.

- inline or offline operation
- any desired contour separable (contouring control module)
- separation via end mill and / or saw blade
- ultimate precision and reliability by the use of a solid welded frame and IEF NC-axes with ball screws
- high performance
- pre-scoring, pre-punching or pre-milling of the V-groove is not necessary
- sawing and / or milling possible without modifications
- automatic tool / milling change with 10-fold magazine per milling spindle (optional)

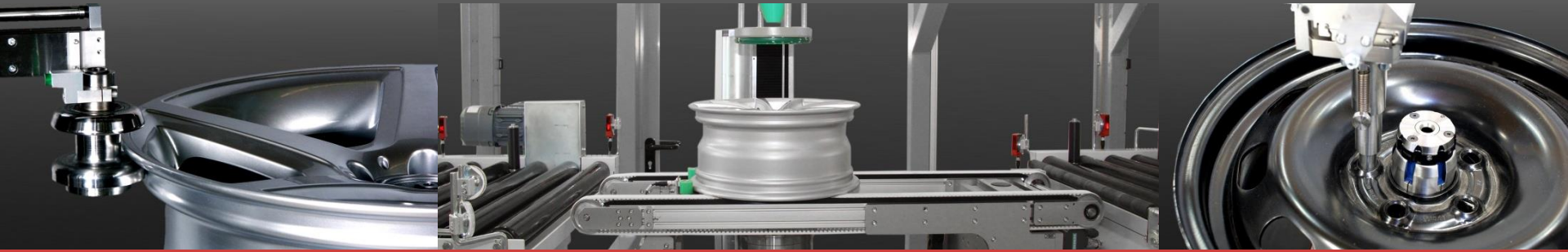
15. Depanelling equipment



The depanelling equipment 3010 High-Volume is designed for feeding, separating and unfeeding of printed circuit boards manufactured in panels.

- fast modification to another panel by the use of interchangeable kits and quick-change adapter
- simultaneous use of two independently controllable separation tools possible due to double spindle
- high performance dust suction system with ionisation
- flexible panel gripping technology concept: Sucking, gripping, ...
- NOK-devices can be sorted out after separation (optional)
- OK-devices can be placed down, transferred or palletised (optional)
- efficient vacuum generation with vacuum pump

16. Wheel gauging systems



IEF-Werner is world market leader in the segment of wheel gauging systems.

Passenger cars

The wheel gauging system R2010 for 100% inspection is a fully-automatic machine for the integration in production lines.

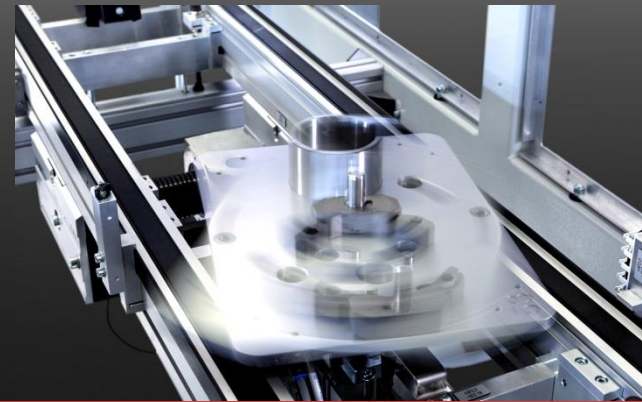
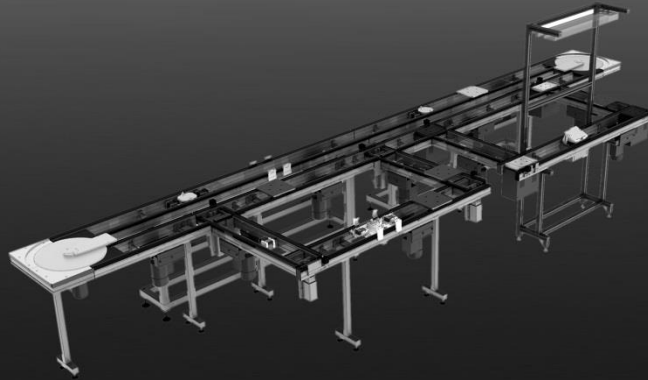
Laboratory

The wheel gauging system R2010 in the version as SPC-system (Statistical Process Control) for the measuring laboratory is suitable for wheels, rims and discs.

Typical measuring characteristics

- radial runouts / axial runouts
- 1. - 10. harmonic analysis (Fourier Analysis) of radial runouts / axial runouts
- rim width
- offset
- diameter / circumference
- centre hole diameter
- hump circumference / hump height
- flange width / flange height
- material thickness
- bolt hole position and geometry
- flatness of attachment face
- panel characteristics

17. Transport systems posyART



Features

- individual process linking
- robust construction by the use of welded frames
- size of workpiece carriers up to 400 x 400 mm
- belt speed 6 - 16 m / min
- simple assembly, disassembly and maintenance of posyART modules
- decoupling from cycle and buffer generation: Flexible organisation of circulation
- engineering support for optimal solution finding
(e.g. integration in customer-specific automatic station)

18. Semiconductor



IEF supplies test and handling units for the semiconductor industry.

TRITAS

Kitless Test Handling System.

ITAS

In-Tape Analysing System.

Customer-specific equipment

for testing of semiconductor products based on customer specifications.

Typical measuring characteristics

- precise measuring of components
- measuring of component positions
- inspection of pin positions
- measuring of socket
- labelling inspection
- surface inspection

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