



**ROBOT- AND PALLETIZING SYSTEMS**  
**PALLETIZING, DEPALLETIZING**  
**AND PRODUCT HANDLING**

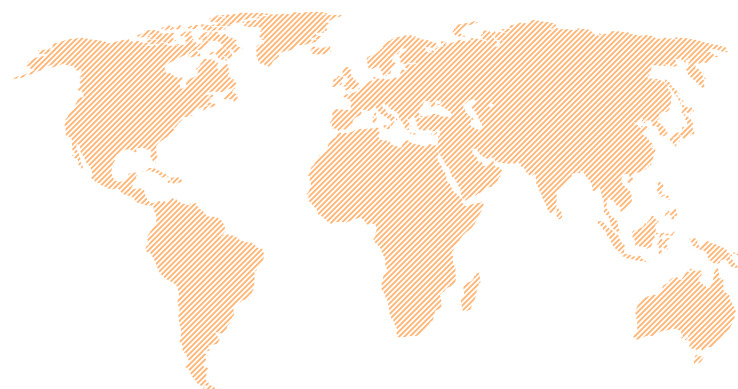
**TRAPO** | TAILOR-MADE INDIVIDUAL- AND TOTAL SYSTEMS

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EDITORIAL

TRAPO AG offers maximum flexibility when it intelligently automates intralogistical tasks – in a perfect interplay of conveying systems, robots and tailor-made gripper technology as well as of palletizing and depalletizing systems. Thereby sustainably optimizing robot applications and –systems, palletizing- and depalletizing procedures. They are fully automatically matched to the manufacturing circumstances regarding mechanical and technical control.

Proven technologies and pioneering developments: With the HLP Series and the High-Speed Layer Palletizer **HLP 6000**, TRAPO AG introduces a modular system which functions flexibly within manufacturing regarding product and application.

In the infeed area, according to product and task, product layers are formed as a preliminary stage employing the option of either the flexible, omni-directional table **OMNI CON®**, the **High-Speed Parallel Kinematic from the HKS Series** with pulse conveyor or **traditional methods**.

Discover the total portfolio of TRAPO palletizing-, depalletizing- and handling competence all along the entire line and be impressed by solutions which prove themselves worldwide in continuous operation. Day for day they fulfil their tasks with exemplary reliability, greatest efficiency and greatest possible flexibility.







»» EXPECT FROM US HIGHLY FUNCTIONAL,  
FLEXIBLE AND ECONOMIC SOLUTIONS  
ALL ALONG THE LINE. ««

Jörg Thomas | Head of Sales

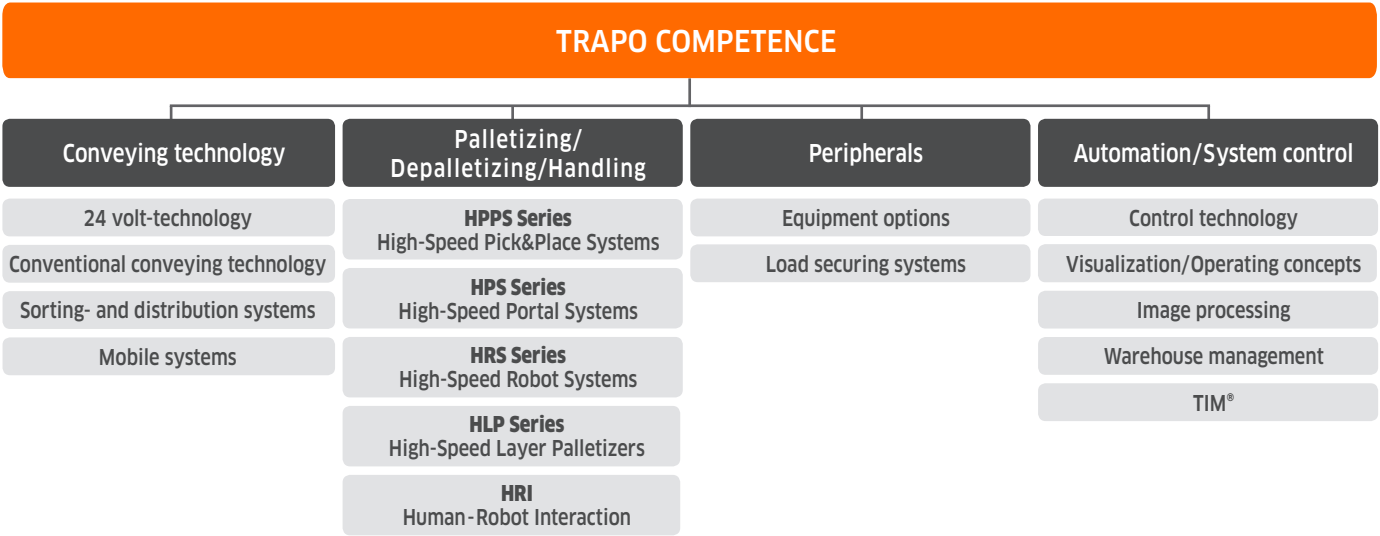
# OUTSTANDING COMPETENCES ALL ALONG THE LINE

With decades of competence and worldwide expertise in the core areas of conveying technology, robotics, palletizing, depalletizing and automation TRAPO AG presents itself as a renowned total systems provider. Our systems impress with their flexibility, maximum performance and economy.

PICKING | PACKING | PALLETIZING | WRAPPING



## ALL ALONG THE LINE – TRAPO COMPETENCE



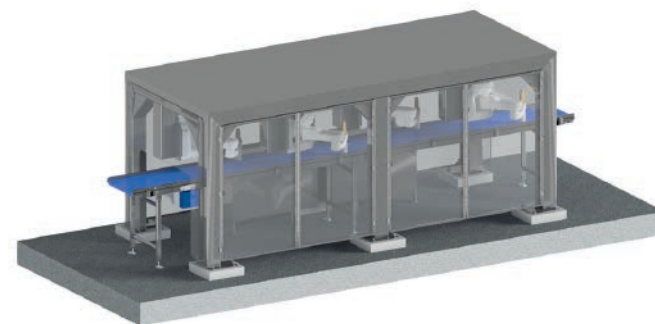
## HIGH-SPEED PICK&PLACE SYSTEMS (HPPS SERIES)

### SECURE HANDLING

As a total systems provider TRAPO AG supplies modular High-Speed Pick&Place Systems which unite components such as robots, frame units, camera systems and conveying technology. The modular design can be adapted to various conditions and as such covers practically any area of application. The TRAPO HPPS Series forms the heart of the modular picker cell. The high-speed picker line unites maximum performance, individual TRAPO gripper technology and proven know-how such as in hygienic design.

#### Our knowledge – your benefit:

- › High-speed picker line with modular structure
- › High flexibility at up to 200 picks/min per robot
- › Picker cell extendable at any time
- › Special TRAPO competence in the hygienic design area, clean-room application and stainless steel manufacture
- › Individual gripper technology through in-house gripper development- and production
- › Hygiene plus (FDA-compliant): The entire picker cell easily cleaned during daily cleaning procedures
- › Flexible feed of trays for product placing



› High-speed picker line



› High-speed robot



› Camera system



› 200 picks/min

## TAKE THE DIRECT ROUTE

### HIGH-SPEED PORTAL SYSTEMS (HPS SERIES)

Our high-performance portal robots act gently on two or three linear axes in cubic space. We design and manufacture the portal robots in our in-house production facilities in Gescher-Hochmoor.

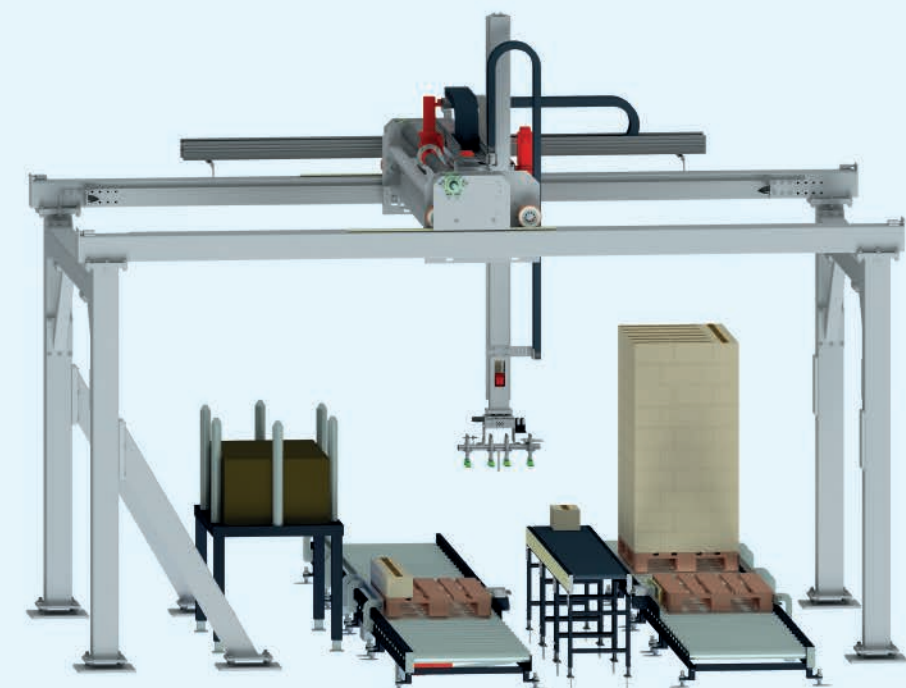
We are also a specialist in portal robots made of stainless steel for special applications in sectors which have special hygiene and corrosion requirements.

#### HPS Series:

- › **HPS 100** moves workpieces up to 100kg
- › **HPS 250** moves workpieces up to 250kg
- › **HPS 500** moves workpieces up to 500kg

#### Our knowledge – your benefit:

- › Modular construction
- › Suitable for various packs and load carriers
- › Gentle product handling
- › On request: Suitable for clean-rooms
- › Higher weights are implementable as a special construction on request
- › Portals are flexible in length, height and width





## EXTENSIVE AND FLEXIBLE HIGH-SPEED ROBOT SYSTEMS (HRS SERIES)

4- or 6-axes articulated-arm robots of various well-known marques function highly-flexibly. The high-speed systems palletize, sort, pick and place individual pieces, rows, part or complete layers both swiftly and highly-precisely.

### Our knowledge – your benefit:

- › Small footprint
- › On request: suitable for clean-rooms
- › Flexibly employable for various applications
- › Modular construction: Maximum adaptability to product characteristics
- › Product- and sector-independent: Mature gripper technologies transport most varied goods.
- › Suitable for different pack units and load carriers
- › Gentle product handling
- › Freely selectable layer patterns
- › Placed on rails, the articulated-arm robot stops at different palletizing stations.
- › Application-oriented, flexible combination of optimally-complemented high-capacity palletizer- and robot technical characteristics



## THE PERFECT INTERPLAY ROBOT AND GRIPPER

Tailor-made gripper technology perfects utilization options, function and performance of a robot system. Employment of the gripper, optimally developed by TRAPO is decisive when it comes to sustainably raising performance and quality.



### Combination gripper

Time- and cost-intensive changing of the grippers is eliminated: Combination grippers unite the function of several grippers. This is decisive if several tasks must be performed or if space is restricted. They adapt to different products and moreover grip pallets, tool carriers, slip-sheets or lids.



### Mechanical gripper

Mechanical grippers prove themselves when sacks or other products such as barrels, canisters or cartons need handling and palletizing.



### Fork gripper

Retractable fork grippers handle open containers or larger containers.



### Vacuum gripper

Goods are securely picked and forwarded with vacuum grippers. Handling weights are increased by the number of suckers and matched vacuum creation.



### Magnetic gripper

Magnetic grippers for ferro-magnetic materials gain their holding strength from permanent- or electromagnets. In practice, for example during handling of perforated plates, or to support suction of heavy plates.



### Needle gripper

Needle grippers optimize the handling of unstable or air-permeable goods, such as textiles, stone wool, rubber plates or fabrics.





»» THE HLP SERIES COMBINES THE CHARACTERISTICS OF MODULAR AND FLEXIBLE SYSTEMS WITH PRECISE PRODUCT HANDLING AND UNITES THEM IN COMPACT HIGH-SPEED PALLETIZERS! «««

Dr. Stefan Kurtenbach | Head of Research & Development

## PALLETIZE FLEXIBLY HIGH-SPEED LAYER-PALLETIZERS

Palletizers of the High-Speed Layer Palletizer Series function with high and low infeed. The product family of high-speed palletizers is optionally equipped with y-axis, rotary module or even with a traversing axis – so one or several palletizing stations can be served as required.

### THE HLP 6000: HIGH-SPEED PALLETIZING

**HLP 6000** >  
*High-Speed Layer Palletizer*

The HLP 6000 high-speed palletizer from the HLP Series offers high performance on a compact footprint – and serves a virtually unlimited range of products: Highly flexible, as it can be adjusted to any product. Perfect, clean layers and stacks can be formed at maximum speed with the customer employing a high degree of product diversity and different formats.

With this considerable advantage the HLP 6000 plays its unique selling point, its absolute flexibility: For, until now, a great deal of change was necessary in order to implement complex layer patterns. The HLP 6000 places perfectly thus realizing any layer patterns of different formats.

#### Our knowledge – your benefit:

- > Small footprint
- > Extremely compact
- > Modular system
- > Several infeeds
- > Infeed below/above
- > Most varied slip-sheet versions
- > High speeds
- > Option of palletizing on several palletizing stations
- > Palletizing capacity of up to 10 layers/min.

#### Characteristics:

- > Layer weight up to 200kg
- > Low-friction recirculating ball bearings
- > Integrated drop guard
- > Different pallet formats possible with a layer gripper – without mechanical retrofitting, Special pallets on request
- > Clean pallet optics through centering of the products in the gripper



## PERFECT INTERPLAY

### HIGH PERFORMANCE MEETS FLEXIBILITY

Each product with its specific characteristics prescribes the requirements to a palletizing plant. Solutions for this need are created by TRAPO AG with combinations which make the perfect overall system.

Several combination options are available:

#### Feeding

- › Maximum flexibility: Several feeds possible, also feed from above and below
- › Any pallet size can be moved, e.g. Euro, Industry, Düsseldorf-type and others
- › Slip-sheet handling of most varied types

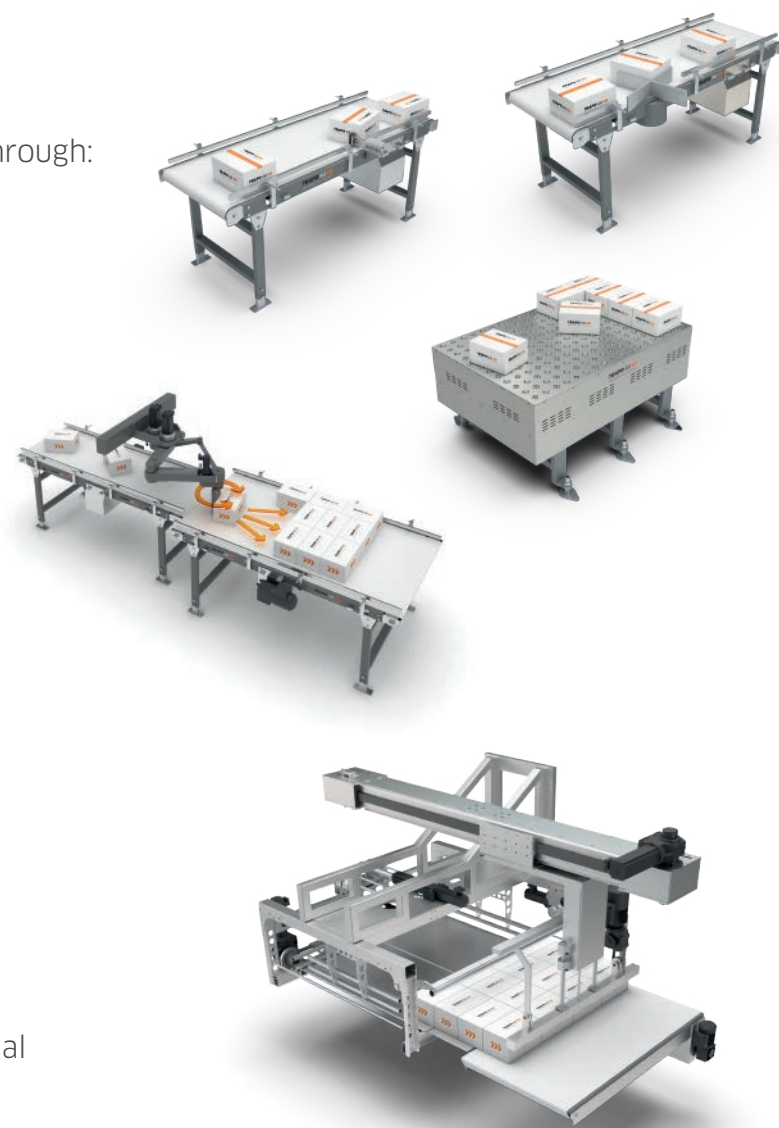
In the infeed area reliable layer formation through:

- › **Conventional methods**  
Turntable, turnstile, hub, turning tappet, contraflow conveyor
- › The flexible, especially gently-functioning **OMNI CON®**
- › The **parallel kinematics (HKS Series)** programed for high-speed

#### In the guide area

Independent of capacity and product, as desired, the following are employed:

- › A simple slide plate with x-axis
- › A dual slide plate with x-axis and additional z-axis
- › A dual slide plate with x-axis and additional intermediate slide plate



## PALLETIZERS:

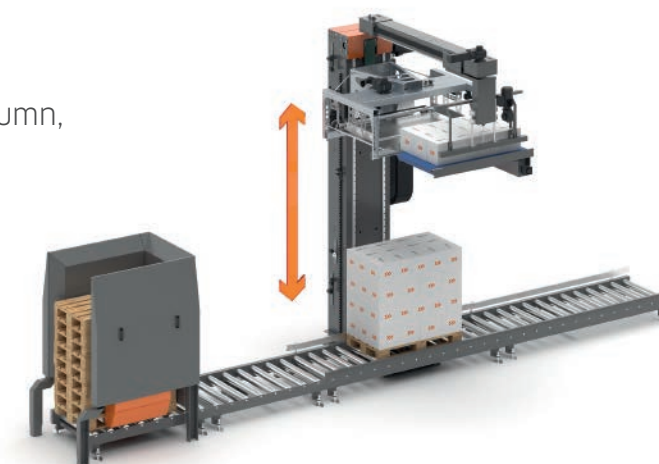
### THREE BASIC MODULES

#### In the palletizing area

Basic modules of the HLP 6000 are the lifting column, layer gripper and feed track.

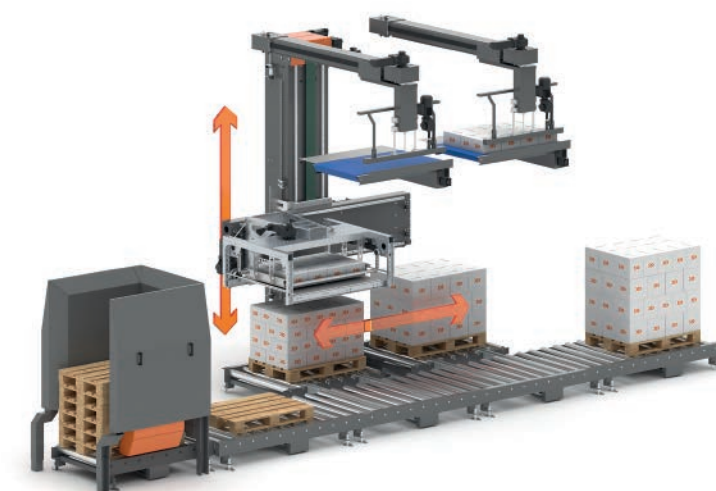
#### › Basic variant

HLP 6000 with guide area above and palletizing position below



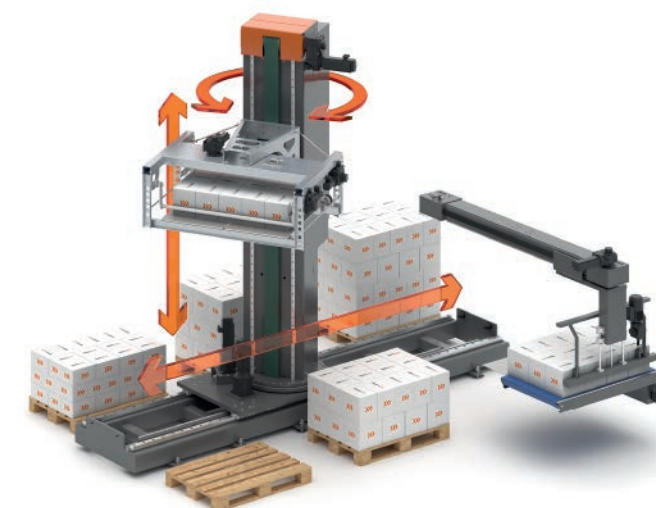
#### › Variant with y-axis

HLP 6000 serves several palletizing stations, guide area below or above, palletizing positions below.



#### › Variant with rotary module and traversing axis or a combination of both

The traversing high-speed professional travels on a prescribed stretch. The rotatable variant functions in a radius of 180°.



# FLEXIBLE LAYER FORMATION + PRODUCT DISTRIBUTION

## OMNI CON® + HIGH-SPEED KINEMATIC-SYSTEMS

### (HKS SERIES)

As a total systems provider TRAPO AG answers the demands of most varied applications for implementation of complex layer patterns at maximum speed.

**OMNI CON® complements the total portfolio for perfect material flow.**

With maximum flexibility, speed and precision it moves objects at the same time and yet independently of each other.

**High-Speed Kinematic Systems (HKS Series) position exactly.**

They create the layers, as with OMNI CON®, according to application and product. Thus widely-varying products can be moved and positioned.

According to layer pattern specification and product dimensions, OMNI CON® and parallel kinematics program themselves – thanks to TRAPO’s own software.

**OMNI CON® at a glance:**

- › Flexible, gentle product positioning with any desired layer pattern
- › Complex layer formation
- › Conveyed goods movement with 3 degrees of freedom
- › Movement of products possible in any xy-direction and rotation about the z-axis
- › Any desired layer pattern and any pallet sizes, even special sizes, are mappable



- › OMNI CON® is employed for layer formation and product distribution.

**HKS Series at a glance:**

- › Layer formation at maximum speed
- › Drives for Tool Center Points (TCP) via the infeed
- › Acceleration-optimized, product-caring track
- › Flexible, product-caring positioning with any desired layer pattern
- › Optional: z-axis for gripper lifting



- › High-Speed Kinematic Systems with acceleration-optimized, product-caring track

# EQUIPMENT OPTIONS AND

## TRANSPORT SECURITY

Profit from our numerous equipment options and customer-specific additional modules:

- › Automatic feed and removal of pallets or other load carriers such as pallet cages, trays, etc.
- › Layer recognition through image processing or sensor technology

All TRAPO systems impress with the additional integration of:

- › Sack equalization
- › Empty-pallet magazine with individual sorting and empty-pallet feed
- › Positioning of slip-sheet
- › Securing with hot- or cold glue
- › Control functions: weighers/ metal detectors
- › Product printing/ Labeling



- › Stretch hooders are universally employable for secure wrapping of pallets.

TRAPO load security takes care of optimal load security through different transport securing systems:

- › Wrappers, stretch hooders and strappers of different renowned marques
- › Weather protection
- › Low film consumption
- › High energy efficiency



- › We reliably code products of all kinds and enable seamless tracing of loads.



- › Our large product range for securing your product also encompasses fully-automatic pallet wrappers with many optional equipping components.



## PRECISE PALLETIZING AND DEPALLETIZING WITH ROBOT-, PORTAL- AND PALLETIZING SYSTEMS

Our robot applications and -systems optimize their palletizing- and depalletizing systems sustainably and can be adapted fully-automatically to production conditions in the mechanical and technical drive area. From various positions they pick individually, in rows or in layers, small-load carriers (KLT), cartons, sacks, cans, buckets, trays, cartons or barrels and much more.

The tailor-made programming of precise flows in the entire system requires multi-level expert competences. As a special provider for automation of production and logistics, TRAPO AG integrates hard- and software of different, separate systems.

## FLEXIBLE AND PRODUCT-INDEPENDENT SOLUTIONS FOR ALL REQUIREMENTS

TRAPO AG solutions enhance work performance and productivity in your production facility. Our palletizing- and depalletizing systems are optimally matched to different pack units and load carriers which vary in shape, mass and surface properties.



## WELCOME TO THE WORLD OF TIM®



As a professional in CONVEYING TECHNOLOGY | ROBOTICS | AUTOMATION TRAPO AG develops and supplies individual machines and complete lines.

With the TRAPO Intelligent Managementsystem, TIM® for short, customers have their key production data in view.

TIM® is the industry-independent, customer-configurable data managementsystem developed by TRAPO AG and creates the link to the production plants.

On the path to digitization TRAPO now supplies a tool which leads to greater flexibility and effectiveness within the overall system. As a result, the performance is kept consistently high and is further optimized – for more benefit and to sustainably increase production volumes.

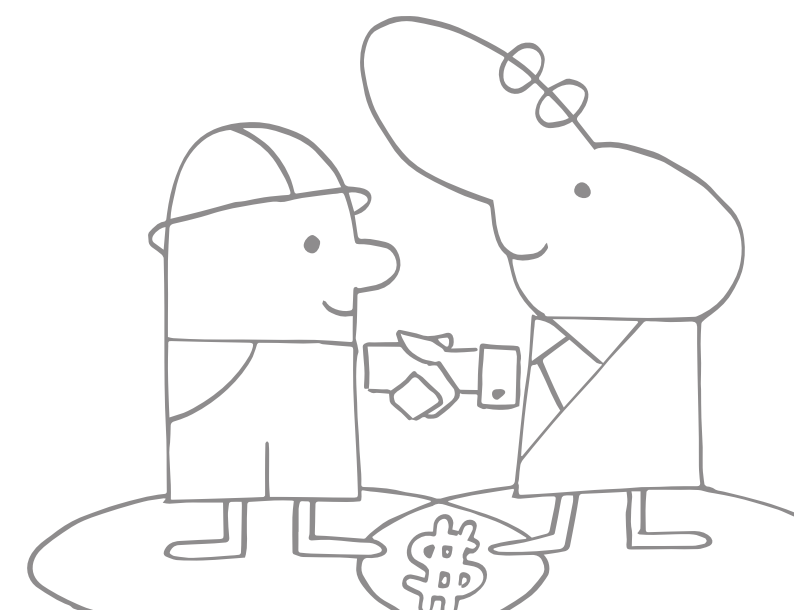
**The data remain securely on a cloud. TIM® offers optimal online-support – tailor-made to management – and matched to the user level.**

The following for example are requested in real-time:

- Management-relevant production data
- Plant condition and plant components
- Sales- and production figures
- Operating equipment-, plant component- and plant condition

**TIM® monitors and optimizes**

- **Always informed:**  
About operating equipment-, plant component- and plant condition
- **Neatly calculable:**  
Plant condition and plant components
- **At maximum capacity:**  
Optimize production
- **In view:**  
Sales- and production figures



# ALL UNDER CONTROL

## TRAPO AUTOMATION TECHNOLOGY

When production plants communicate in order to grip or to palletize/depalletize products, the TRAPO competence team is on site in order to shape the optimal, efficient interplay of conveying technology and handling systems.

### Individual safety precautions

In optimized production processes intelligent systems communicate with each other and with the products. This planning and interlinking requires, apart from programing, special protection and individual safety precautions. TRAPO competence creates trust there and offers a decisive safety benefit: with in-house developed solutions and proven systems.

As the main contact, we coordinate control technology and the hardware for conveying and robot systems as well as for palletizing systems and load security – and create impressive solutions.



› When automating complex systems we rely on detailed visualization, a high level of operator-friendliness and a low maintenance requirement.

### Multi-talent image processing

Image processing supports efficient and smooth material flow. Cameras recognize products, identify parts and act independently within the programed assignment. These precise, application-specific solutions are individually matched to demands.

### Automation and system control

The TRAPO control- and monitoring software unites the control of all systems on a clear centralized or decentralized terminal.

- › High system availability
- › Reliable system-diagnosis
- › Clear visualizations for each system component
- › Fully-automatic display of maintenance intervals

# OUR INTELLIGENT SOLUTIONS

## GRIP WORLDWIDE

Customer satisfaction is crucial for us. We craft concrete packages of measures in order to convince our customers where they will benefit from them most – with a strong Sales- and Service presence.

In addition – being a complete system provider we not only offer tailor-made individual solutions but also complete lines in the fields of conveying technology, robotics and automation.

### We are at home in these sectors

Automobile and wheel industry | Food industry | Pharmaceutical and Medicine | Chemical Industry | Intralogistics | Building materials industry | Packaging industry | Special Machine Building | Furniture industry

