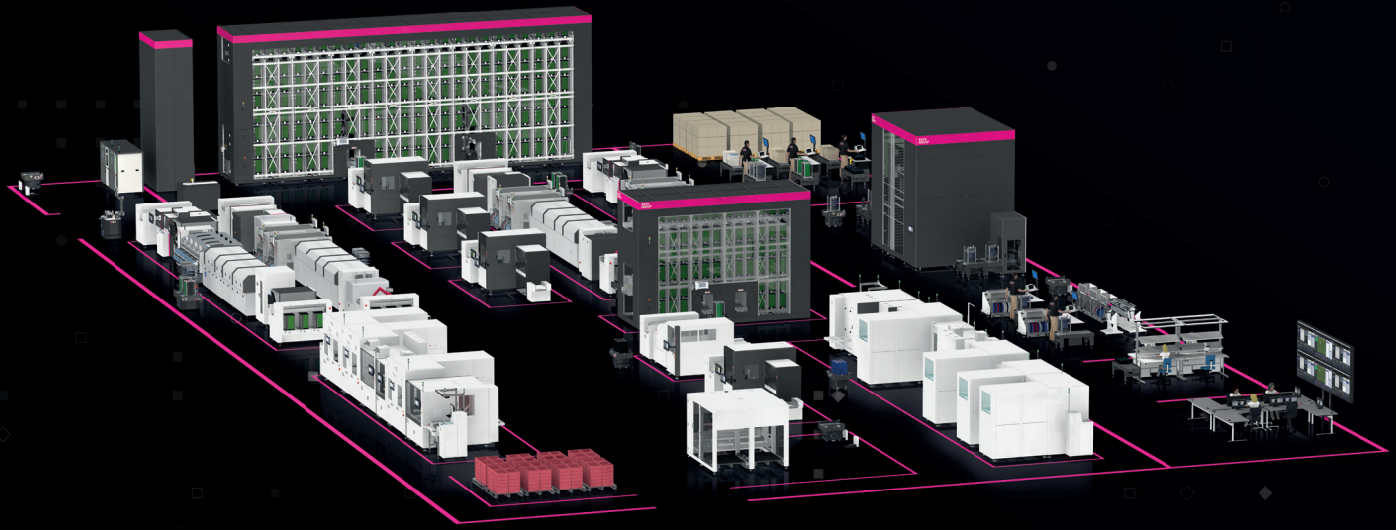
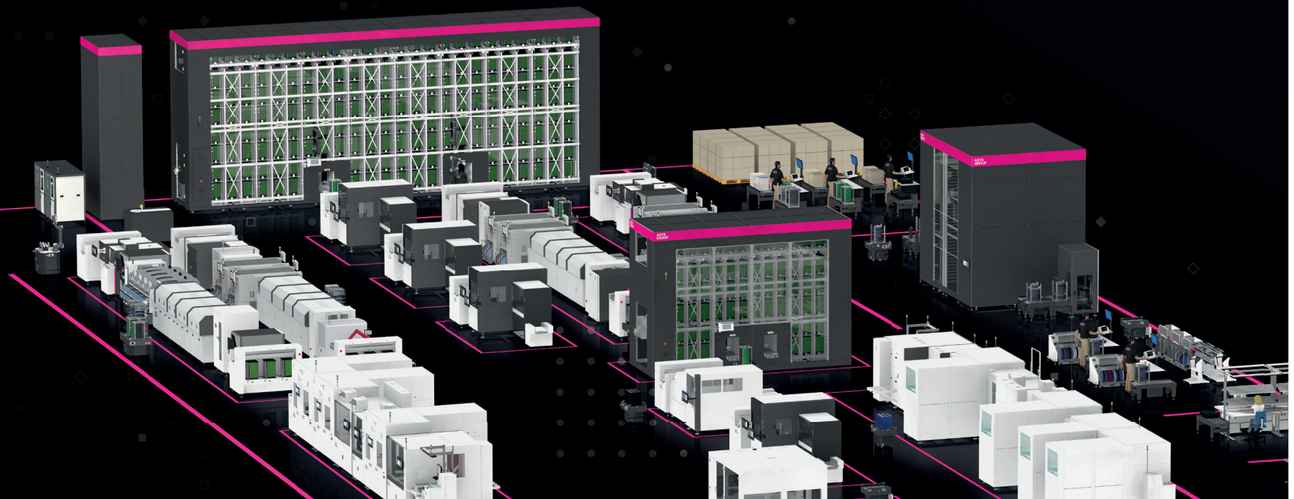
ASYS GROUP

ASYS GROUP
MATERIAL LOGISTICS



MATERIAL LOGISTICS
More Transparency and Effciency on the Shop Floor

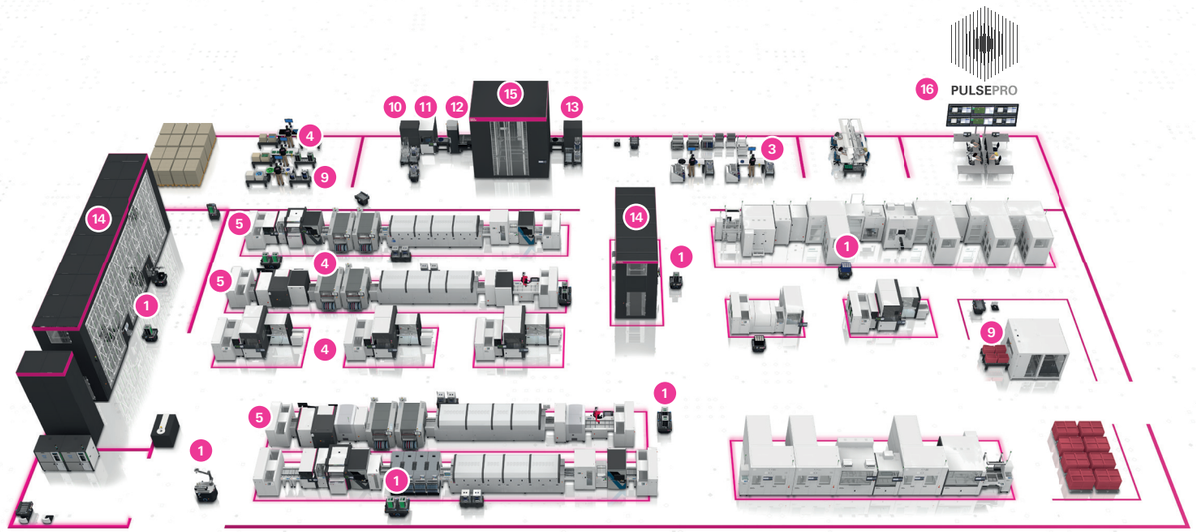
We are your competent partner when it comes to your smart factory. We cover more than two thirds of the equipment of an SMT production line with our broad product range. In addition, we offer customized and turnkey material logistics solutions for different levels of automation. We offer the largest product portfolio and the most experience on the market when it comes to the automation of material logistics in SMT production. Here we bundle the know-how and experience of ASYS automation systems, as well as our subsidiaries like Totech and motives. Thanks to a modular approach, we are able to implement material logistics solutions in various degrees of automation. In this way, existing factories with their prevailing conditions are adapted step by step to the specific requirements of our customers.



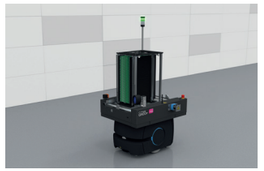
MATERIAL LOGISTICS
PRODUCT AREAS

Discover our unique products in the fields of Transport, Storage, Material Inbound and Software.

The Highlights of the Overall Solution

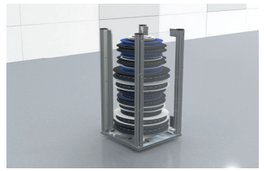


The broad product portfolio of the ASYS Group offers solutions for a wide variety of applications and use cases. From the connection of inbound goods to multi-level storage concepts, line supply with PCB magazines or the separation of frontend and backend by using flexible storage systems.

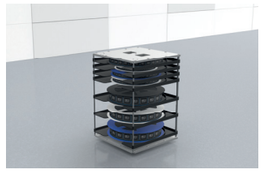


1 AMR

2 Trolley



3 Reel-Container



4 Reel-Magazine

5 Magazine Loader / Unloader

6 Reel-Magazine Loader

7 S10 Series

8 Cabinet

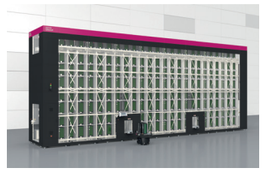
9 Material Station

10 M-Station Reel

11 Scan&Label

12 Component Counter

13 Loading / Unloading Station



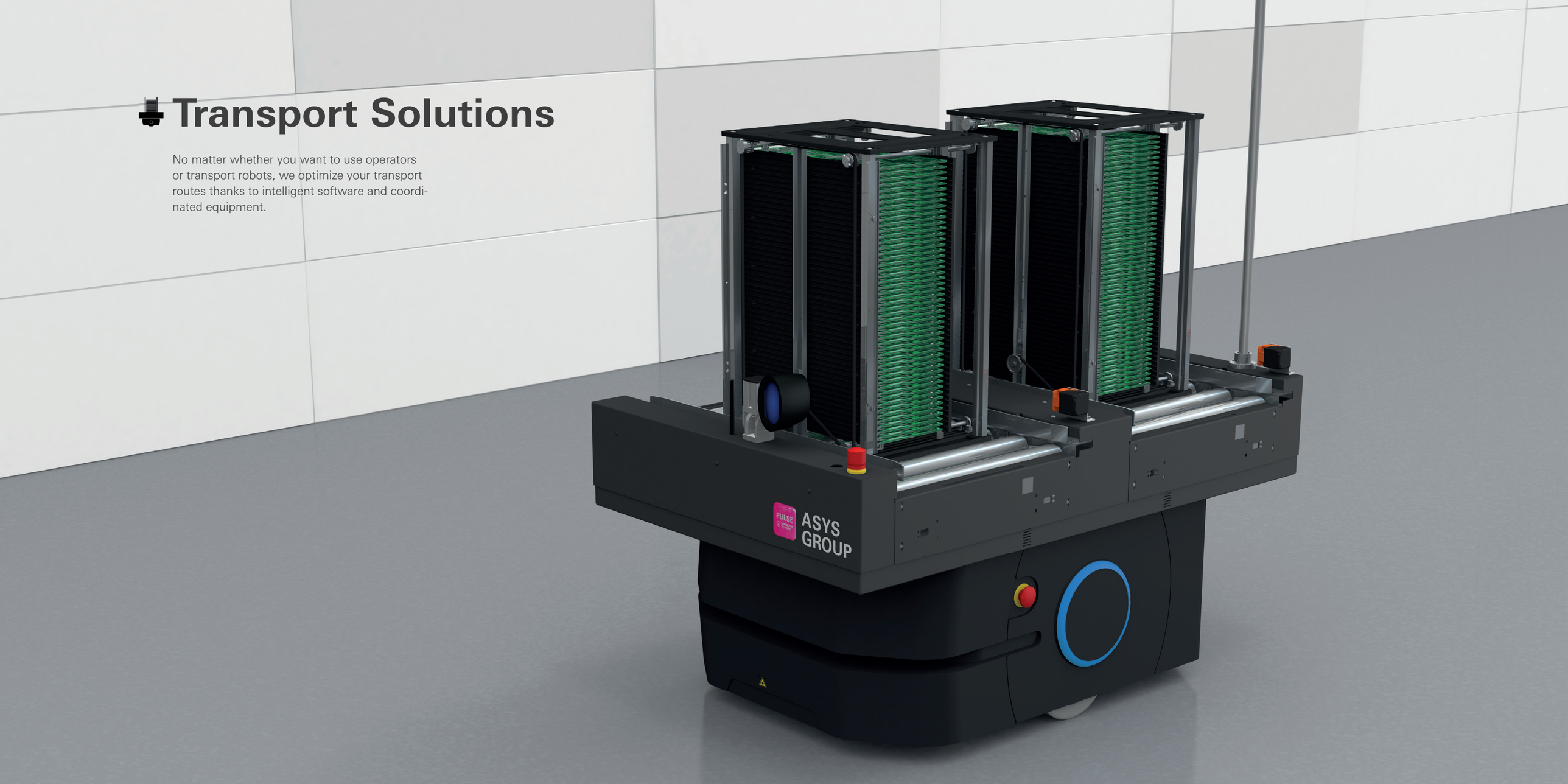
14 Material Warehouse

15 Dry Tower

16 ASYS Software Suite

Transport Solutions

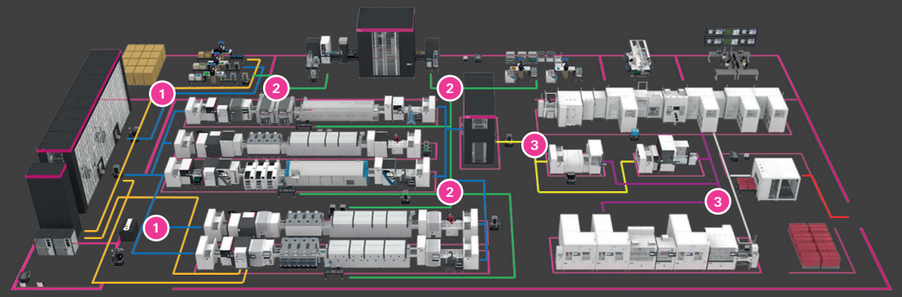
No matter whether you want to use operators or transport robots, we optimize your transport routes thanks to intelligent software and coordinated equipment.



ASYS Transport Solutions for the Smart Factory

In production, all materials, such as PCBs in different production states, components in form of component reels, JEDEC trays or sticks as well as consumables, for example for the printing process, must be considered. We supplie standardized and automatable containers for their autonomous transport. The material is distributed via autonomous transport systems – the ASYS AMRs (Autonomous Intelligent Vehicle). Thanks to various platforms, they can realize any material transport as required. An important task here is to provide the line with the material „just-in-time“. The goal is to reduce line stops to a minimum and maximize process efficiency.

No matter whether you want to use operators or transport robots, we optimize your transport routes thanks to intelligent software and coordinated equipment.



Material Flows in the Smart Factory – From Manual to Fully Autonomous

1 Printed Circuit Board Magazines

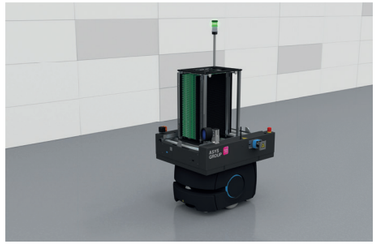
2 SMD Component Reel Container

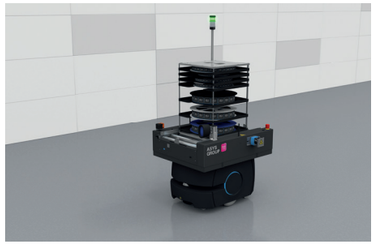
3 KLT Boxes

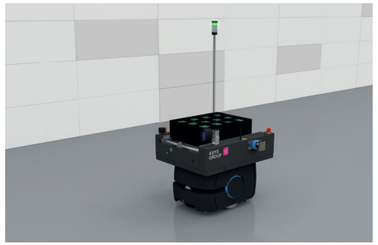
Automation Solutions for Every Application

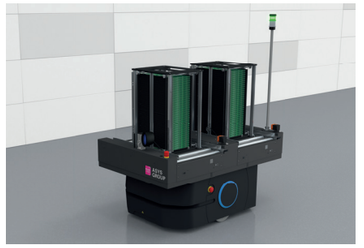
Autonomous Mobile Robot

As an application for the transport tasks, we have developed various transport platforms. Our AMR, with the transport platform in the driving direction, serves as a universal transport robot. This can pick up different load carriers, such as PCB magazines, component reel containers, but also KLT boxes or tray stacks. The design of the transport roller track guarantees process-safe transport of up to 50 kg.







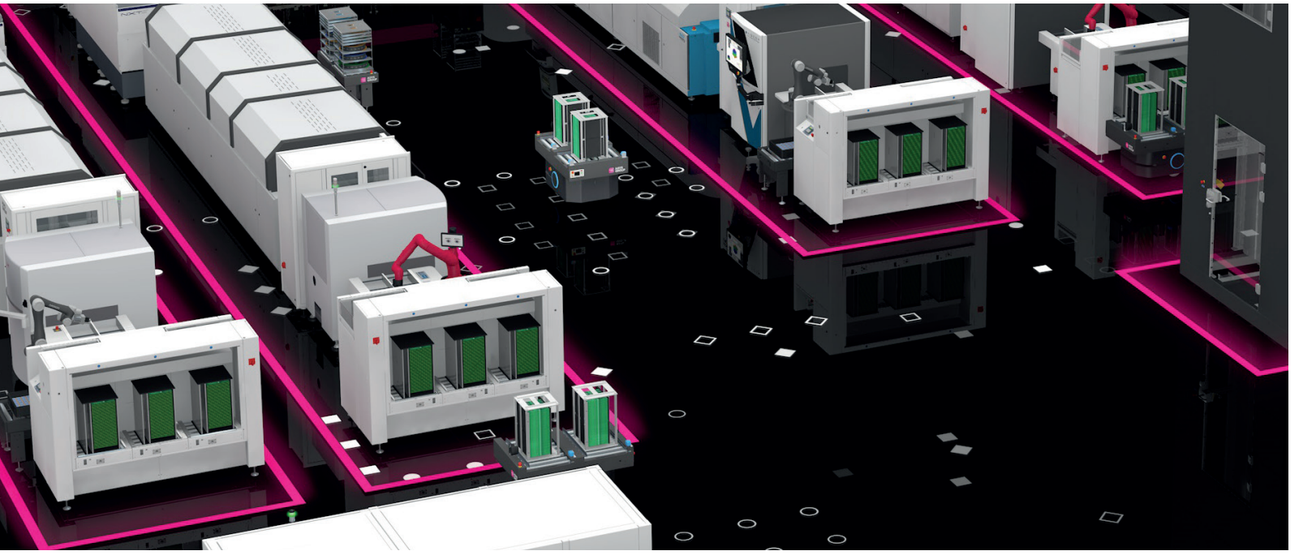


The double superstructure with transverse platform is particularly suitable for supplying the line loaders and unloaders as well as the reel magazine loader with its parallel magazine positions, but also for the simultaneous transport of several load carriers. For this purpose, two roller sections are positioned at right angles to the AMR driving direction.

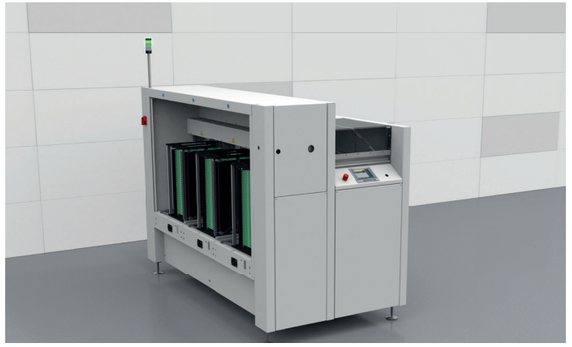
Trolley

The Trolley serves as a manual transport system in the production for magazines, component reel containers, KLT boxes and trays.

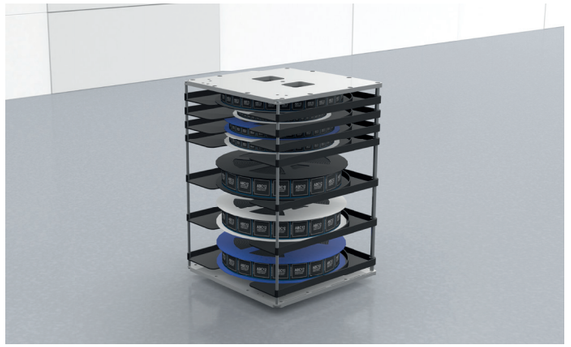
Line loader with pick-up platform



Magazine Loader
The Magazine Loader is used to automatically feed PCB´s into a SMT-production line or into individual process machines e.g. stencil printers, pick and place systems, reflow ovens or test systems. The PCBs are taken out of the magazine with an extractor mechanism and pulled onto the handover conveyor.



Consumption-oriented post supply



Reel-Magazine
Using a special reel magazine container, the component reels are provided as needed, at the right time, in the right quantity, at the right place - to the operator directly on the line. For unique identification, the reel magazine has an RFID tag with a unique container ID.

Reel-Magazine-Loader
The magazines are filled in the reel magazine loader by feeding the individual component reels coming from the Dry Tower via a cross pusher from the reel section of the system and, depending on the configuration of the reel magazine, placing them into this. Up to two magazines can be placed on the line in parallel.

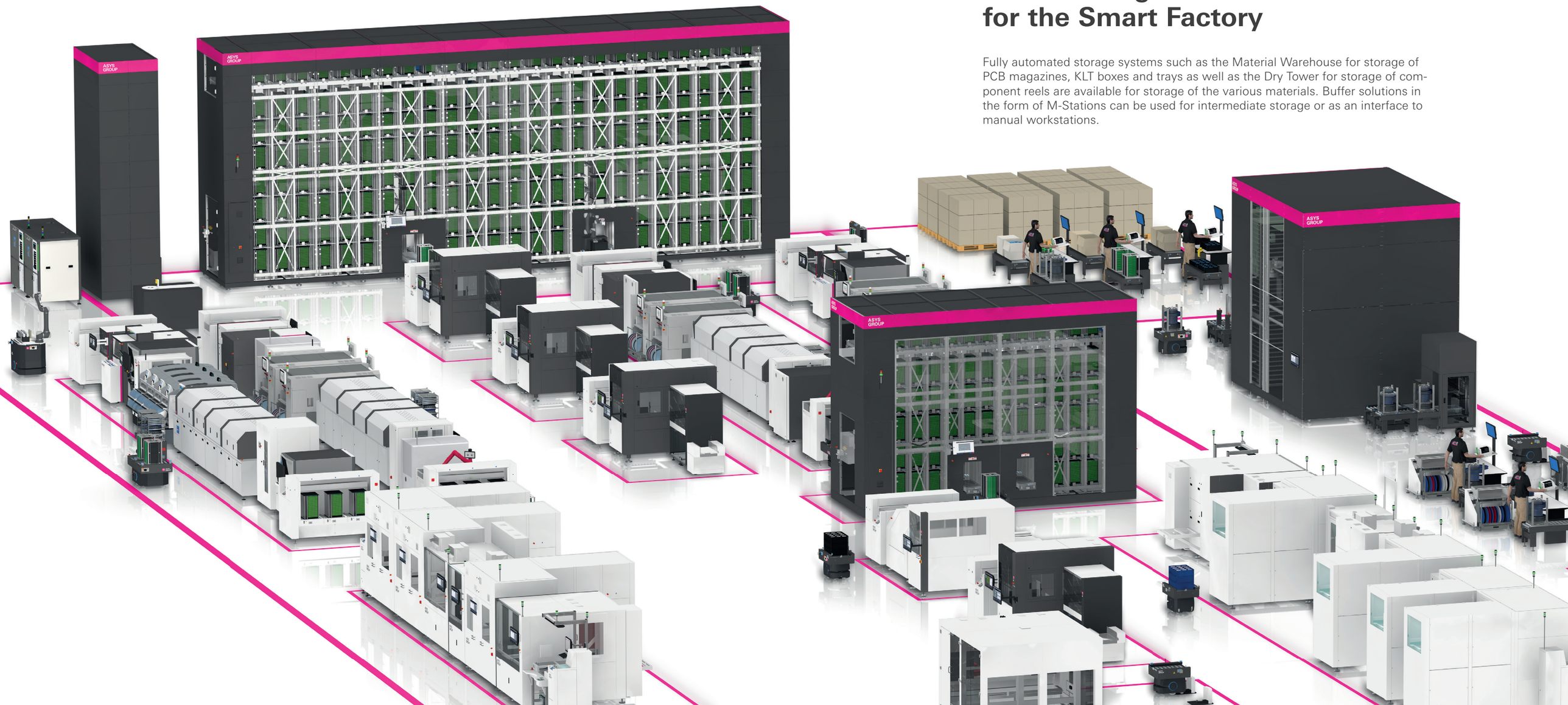
M-Station Pick-by-Light
After the delivery of the magazine to the station at the placer, the RFID tag on the magazine is read again and the magazine is uniquely identified. Now, the reel which has to be replaced is uniquely identified via the booking process, i.e. scanning at the placer, and is queried at PULSE PRO. This identifies the exact position of the new reel in the reel magazine and visually signals the operator clearly the position of the correct reel. With random access to each reel, the operator has direct access to that reel and can replace it just-in-time with no search or travel time.

Storage Systems

With our central storage systems, local storage areas close to the line can be reduced. They can be supplied autonomously and are able to store component reels, boxes and magazines in a traceable manner.

ASYS Storage Solutions for the Smart Factory

Fully automated storage systems such as the Material Warehouse for storage of PCB magazines, KLT boxes and trays as well as the Dry Tower for storage of component reels are available for storage of the various materials. Buffer solutions in the form of M-Stations can be used for intermediate storage or as an interface to manual workstations.



Material Warehouse

Up to 75% space saving through compact storage using the available room height

Full traceability of stored material thanks to clear identification

The material flows can be automated step by step and thus adapted to individual customer requirements

Fully automated, centralized & space-optimized storage for magazines, KLT boxes & trays
In the Material Warehouse, printed circuit board magazines or other materials are automatically stored in KLT boxes in a shelf system according to a chaotic storage concept and can be retrieved at any time. Thanks to clear identification, each magazine is completely traceable. Optionally, the storage conditions can be adapted to the respective requirements of the stored material, e.g. temperature or humidity can be regulated to meet MSD requirements.

Stepwise Automation & Compact Storage
Like our automation solutions, the Dry Tower and Material Warehouse are scalable. Thus, the material flow can be automated step by step and thus adapted to individual customer requirements. This ensures long-term investment security. Different magazine sizes or other goods carriers for small parts (e.g. trays, KLT boxes) can be stored without any problems, and the storage systems can also be adapted in width with regard to cycle times and shop floor layouts, or can grow with the product. Minimize the storage space - we achieve this by working upwards. Thanks to intelligent handling and software solutions, the material can be removed from any storage location in the system in the shortest possible time.

Dry Tower

Volume-optimized storage for minimum space requirements: up to 10,375 reels on 2.2m² floor space

Automated picking leads to a minimum demand of personnel

Simultaneous loading and unloading

Fully automated, centralized & space-optimized storage of component reels

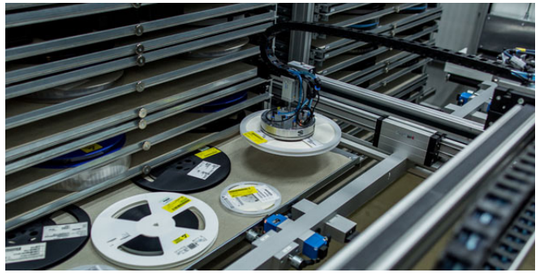
The Dry Tower from ASYS/Totech is a fully automated system for the storage of component reels and JEDEC trays and enables autonomous material handling without operator interaction. The system has a proven and advanced drying technology and offers the possibility of controlled storage as well as active re-drying of moisture-sensitive MSL components. Furthermore, due to its consistently modular design, it can be adapted to a wide variety of requirements in terms of size and storage needs. Starting with the storage of the components in the system up to the removal for production, all relevant data of the component processing are stored in a database. This results in a fully automated and reliable storage system that is customized for intelligent SMT electronic manufacturing.

Drawers –
Maximum volume consolidation

The Dry Towers consist of up to four cabinets equipped with an optimum number of drawers. The materials placing strategy guarantees volume optimised storage.

Conveyor Technology –
Individual and customized solutions

The Dry Tower can be equipped with custom-engineered conveyor technology for batch processing of reels and boxes, catering for decentralised loading/unloading as well as line supply. Our system allows for maximum flexibility in your component logistics, as each batch is automatically transferred by roller and belt conveyors, lifts or autonomous transport system to the best available position.



5-axis Gripper System –
Gentle component transportation

The gripper systems are driven by low-noise and low-maintenance servomotors and move simultaneously within a 5-axis system. Vacuum grippers transport component packages like reels, trays or boxes quickly and safely.

Climate Control –
Perfect storage conditions for electronic components

When moisture-sensitive components are stored in the unit, the processing time sequence as well as the humidity absorption is automatically stopped. Combined with a 40 °C or 60 °C heater, the entire storage system, or just a separate area within it, can be tempered.

M-Station

Simple Intermediate Storage thanks to Modular Systems
With the M-Stations, we have developed compact intermediate storage buffer sections for work on and around the line. The individual modules of the M-Stations can be combined to form a tailor-made storage solution.

Scalable to Complete Solutions
M-Stations can grow into isolated solutions that can be used for material entry, line support or feeder set-up.

Storage and Drying of Moisture-Sensitive Component

Cabinets
The CONSIDUS dry storage systems from ASYS Prozess- und Reinraumtechnik ensure optimum dry storage conditions. The cabinets can be adapted to the specific requirements of the stored goods. The entire cabinet volume can be heated to 40° for active component drying.

S10 Series
Our S10 portfolio offers not only consumables but also storage and set-up systems. The S10 mobile is a set-up and storage system directly on the line. Stencils, pastes or squeegees can be stored, prepared or cleaned here. The S10 modular is a storage system for stencils and, thanks to its modularity, can be extended to larger cabinet units. The S10 select is a storage system for solder paste and other consumables based on the FIFO principle.

Intelligent Storage Systems for Consumables

Material Inbound

The Material Inbound can be configured individually depending on the scenario. The modules are the Material Station, M-Station Reel, Scan&Label, Component Counter and Loading / Unloading Station. The station can be approache manually, by trolley or by AMR.

Material Inbound

We offer a Material Inbound solution that enables traceability of materials, such as consumables, raw PCBs or component reels, from the beginning due to an integrated, fully automatic Scan&Label station. Other materials are possible on request. The ASYS material inbound scenario for component reels includes a component counter that counts the existing components on a reel and feeds exact values into any inventory database. It is also possible to feed in component reels that have been scaled down. This ensures a valid and coordinated process that eliminates the need for manual inventory of the component reels.

1 M-Station Reel

The M-Station Reel is a roller conveyor for the transport of single component reels. It connects all elements of the inbound section, such as Scan&Label, Loading Station, Component Counter or Dry Tower.

2 Scan&Label

The Scan & Label cell is the central element in the Inbound area. With this system, component reels in particular are received fully automatically without manual intervention, booked in the higher-level system and then labeled with a unique ID. Due to the modularity of this system, we have the possibility to integrate different inbound systems.

3 Component Counter

With the Component Counter, the number of individual components on a component reel can be checked and the stock in the database corrected if necessary. This applies both to new component reels, but also to partially used reels that come back from the line and get stored again.

4 Loading / Unloading Station

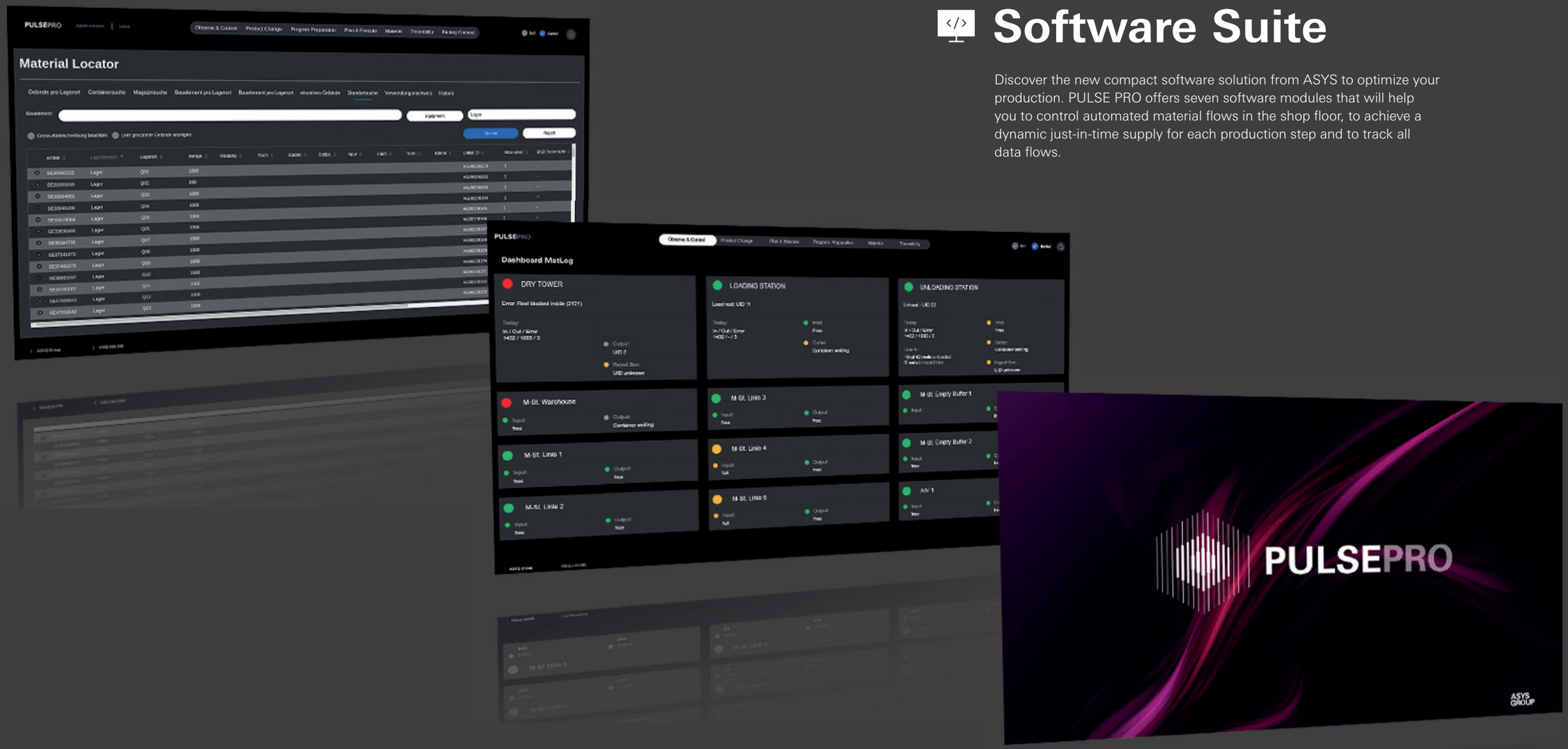
The containers can be automatically unloaded in the Loading Station and loaded in the Unloading Station. A corresponding level of autonomy can be created via the upstream roller tracks, because a certain number of containers can be stored here.

Keeping an Eye on the Material

We support different solutions, which enable you to keep an eye on your material stock. The automatic counting of component rolls, the allocation of labels with a unique ID, the reading and evaluation of RFID tags and, last but not least, smart software for material monitoring, management and calculation of requirements.

Software Suite

Discover the new compact software solution from ASYS to optimize your production. PULSE PRO offers seven software modules that will help you to control automated material flows in the shop floor, to achieve a dynamic just-in-time supply for each production step and to track all data flows.



Software Module
Material

Overview of quantities and states of all materials in the entire shop floor

Autonomous magazine control and material replenishment for components and printed circuit boards

Monitoring the floor life time of moisture-sensitive components

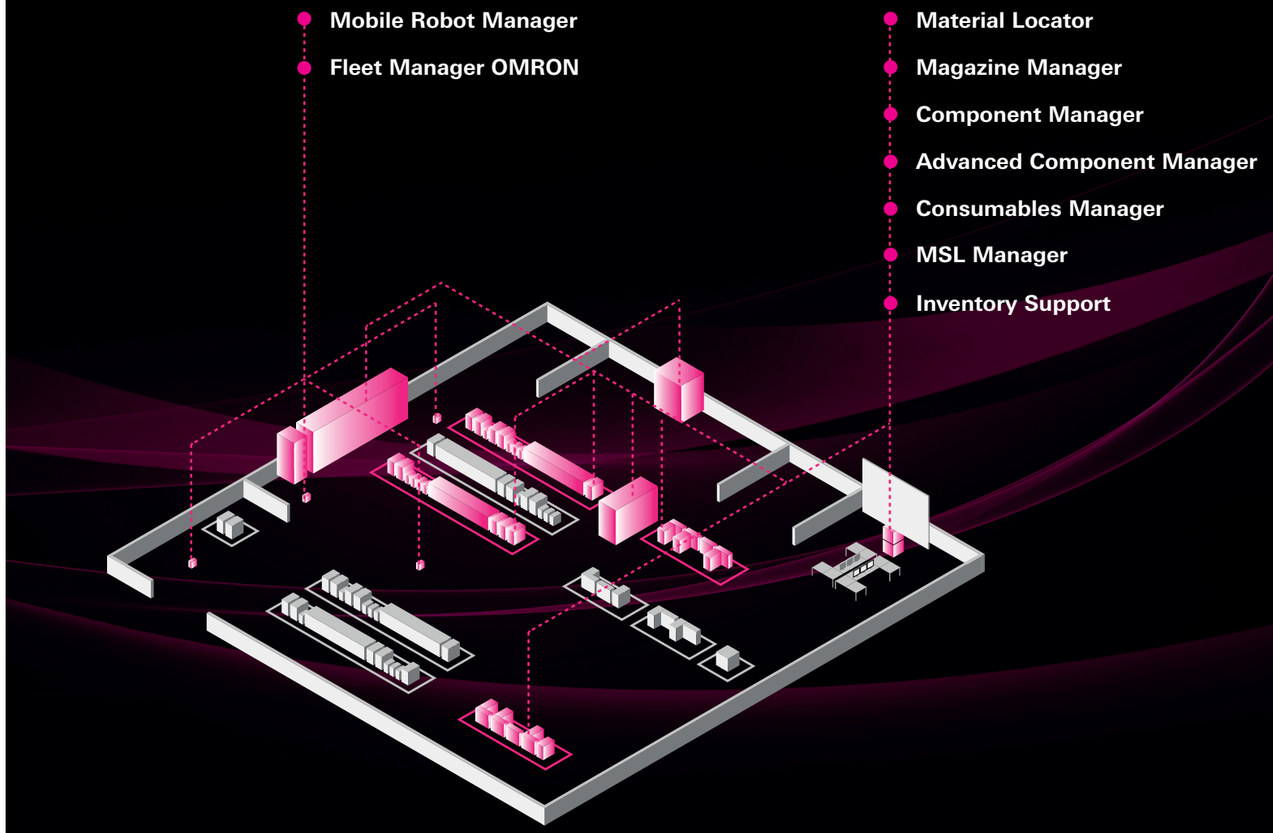
Integration and connection of all modules for autonomous transport

The quantities and states of all materials on the entire shop floor are clearly documented in the PULSE PRO module „Material“.

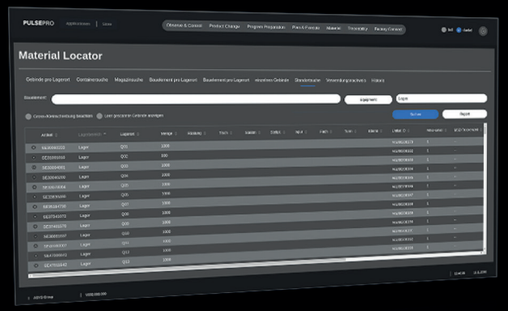
All component reels, trays and PCBs are managed on the basis of Unique ID (UID) and the replenishment of material is controlled autonomously, which reduces the operator‘s workload.

Furthermore, the floor life time of moisture-sensitive components is monitored. Based on the order planning, full or empty magazines are autonomously controlled within the entire shop floor between lines and storage locations. Therefore all modules are integrated and connected for autonomous transport.

Material Apps



Material Locator
The „Material Locator“ app ensures that all material movements and quantity/condition changes are recorded in real time and can be called up directly. Necessary for this material tracking is the unique ID on all materials, such as component reels, PCBs or magazines. The simple, always up-to-date overview in the Material Locator sustainably relieves the operator and helps to reduce downtime.



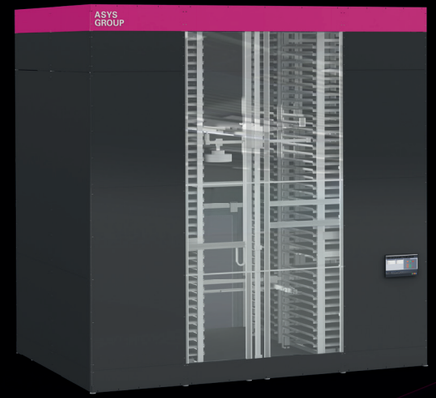
Magazine Manager
With the „Magazine Manager“ the entire magazine flow is controlled. This offers the possibility of a completely autonomous magazine control for the production.

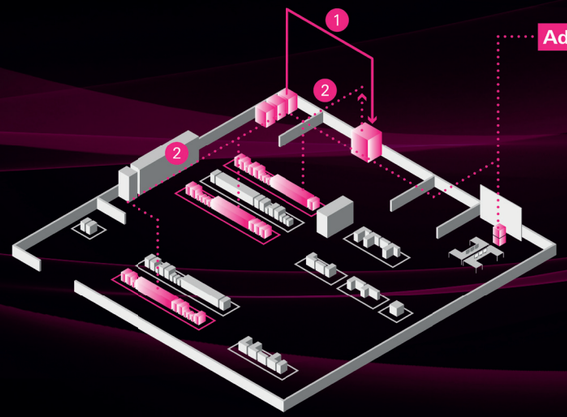
Mobile Robot Manager
The „Mobile Robot Manager“ app receives and configures the travel orders from a superordinate system.

Fleet Manager OMRON
The app „Fleet Manager OMRON“ organizes and distributes the tasks of the AIV's taking into account the state of charge and current location.

Component Manager
With the „Component Manager“, the material flow of the components is calculated in advance and controlled either manually and/or with AIVs, depending on the degree of automation of the production. In this way, the material is brought to the line in real time according to demand and the high storage costs caused by intermediate storage on the line are eliminated.

MSL Manager
The „MSL Manager“ displays the MSL start/stop times and manages and monitors the floor life time of moisture-sensitive components.





Advanced Component Manager

Advanced Component Manager
With the „Advanced Component Manager“ the material flow is controlled in two stages between hierarchically arranged warehouse structures. The material remains in the main warehouse until it is needed. The flexibility within the production is maintained.

Consumables & Tool Manager
Consumables (e.g. paste, paper) and production tools (e.g. stencil, squeegee) can be fed manually or autonomously just-in-time to the line.

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Visit our website:
www.asys-group.com

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