Solutions for
your transport packaging

Requirements
of your product packaging

For storage and transport, paper and cardboard products must be reliably protected against dirt, dust and moisture. An increasing variety of pallet formats calls for high flexibility. High-performance conveyor systems are essential for handling loads weighing sometimes in the tons. In the efforts towards securing loads, sustainability and cost reduction play an increasingly important role.
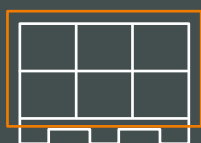
How you can profit from our solutions

Whether in paper processing, in the cardboard industry, or in the printing business, for the engineering and production of excellent technical solutions for pallet logistics, MSK is a partner that is valued around the world.

- Efficient MSK load-securing systems
- Fully automated conveyor and handling systems
- Integration of peripheral devices
- Easy operation, data transfer and data security throughout the entire pallet handling logistics process, thanks to MSK EMSY software

Through MSK you have access to the entire product range from a single source. Since the systems are fully planned, programmed and built by MSK, complete service for your overall system is possible too. Regular maintenance and 24/7 access to MSK technical support, ensure on site availability and performance.

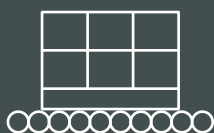# MSK solutions
All from one source

Confidence in
MSK technology

MSK systems are used by a wide range of international paper, cardboard and printing companies and brand manufacturers.
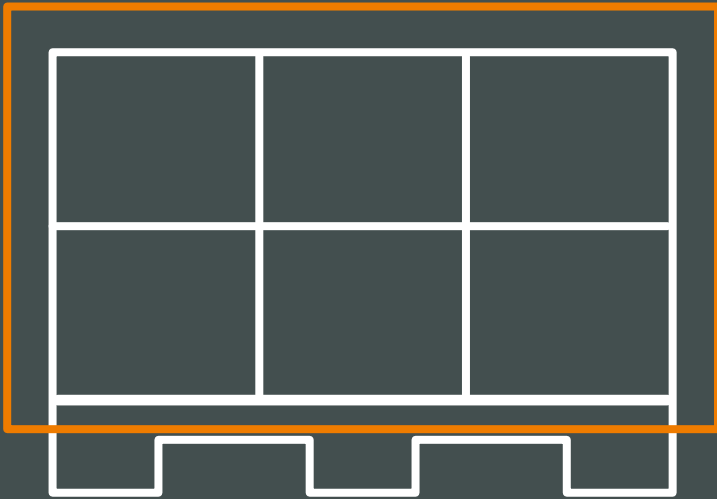
What are your needs?

We are curious about the packaging and logistics requirements of your product. Get in touch with us! We will be happy to advise you.

MSK solutions
Packaging systems

MSK Flowtech
Fully automated shrink-film sleeving machine

MSK Multitech
Fully automated shrink-hood machine

MSK shrink frames
Safe shrink technology

MSK Tensiontech
Fully automated stretch-hood machine

MSK Flowtech
Fully automated shrink-film sleeving machine

Greatest possible **flexibility** when packing a wide variety of pallet formats

Ideal for the packaging of folio-size products

Fully recyclable films, and films made of recycled materials available

Lowest possible film consumption when packing a wide variety of pallet formats

Horizontal arrangement of film rolls for easier replacements

Maintenance-free time-belt technology

Top sheet applicator ▶

Top sheet applicators are equipped with an automatic length and width recognition of the pallet, which ensures that the top sheet film is cut to the perfect size. The lateral and horizontal arrangement of the film roll next to the conveyor section allows it to be changed quickly and easily. Film roll diameters of up to 1000 mm also allow significantly longer replacement intervals.

◀ **Customized film sleeve**

With highly varying pallet dimensions, the MSK Flowtech also proves its great level of flexibility even under high performance. The machine recognizes the pallet dimensions fully automatically, and supplies a tailor-made film sleeve.

◀ **Film sleeving system**

The film sleeve is put tightly around the transport unit. Thanks to the sleeve adjusting to the individual pallet dimensions, pre-shrinking of the corners is not necessary.

▲ **Greatest possible flexibility**

The MSK Flowtech shrink-wrapping system offers the greatest possible flexibility when packaging a wide variety of pallet formats. This system is ideally suited for the packaging of folio-size products.

up to 6
film formats

for highest flexibility

Reliable film cutting with a blade ▶

After the film sleeve is welded together, it is neatly cut off with a knife. There is no soot generation as with thermal cutting processes. The knife can also be easily replaced.

Film folding device (EP 2 815 985 B1) ▶

The overlapping film sleeve on the top side of the paper unit is folded neatly on the top of the pallet by the film folding device. Even with limited film formats, this cares for a reliable packing result during the subsequent shrinking process and saves up to 20 % of energy.

◀ Horizontal film rolls

Film roll diameters of up to 1000 mm or weights of up to 1 tonne are possible due to the horizontal arrangement. The line processes up to six different film formats. The film roll replacement takes place without any loss of time: The film rolls remain in the horizontal position, only the film curtain changes. The rolls can be exchanged easily and outside the safety area by means of a quick replacement device.

▲ **Load centering device
(EP 1 716 063)**

With the help of the MSK load centering device, non-centered paper units or displaced loads can automatically be aligned precisely and can be centered prior to the packaging. This ensures high transport safety to the packaging line and a better packaging result.

MSK Multitech
Fully automated shrink-hood machine

High load stability and transport safety for your product

Excellent promotional effect while offering protection against moisture and dirt

Readability of barcodes and logos through the film

Ideal for packaging paper rolls and printed products

Films made of recycled materials and fully recyclable films possible
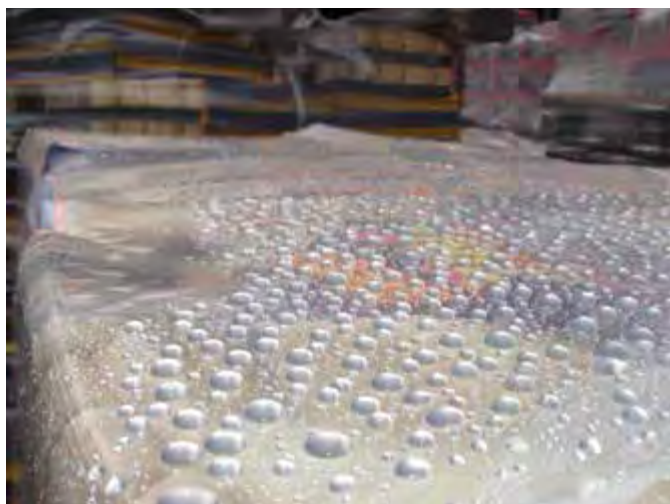
Reliably calculable film consumption

Ease of maintenance via lowerable machine head (EP 2 336 034) and maintenance-free time-belt technology

Load stability with optimum promotional effect ▶

The MSK shrink packaging gives the load optimum support on the pallet. At the same time the products have an excellent display effect, because they are clearly visible under the smooth film packaging.

▲ **Protected all around**

Highly sensitive paper and cardboard products are protected against dust, dirt and moisture all around with MSK shrink packaging. The method provides, in combination with the shrinkage on the upper board of the pallet, a reliable welding of the bottom film and shrink-hood.

▲ **Lasting film savings**

The MSK Multitech hood applicator fully automatically tailors film hoods for up to four different film formats or film thicknesses. Thus reducing film consumption to a minimum. Loads are packaged in only one layer of film – an advantage over spiral stretch wrapping, which involves multiple layers of wrapping.

▲ **In-line systems: Alternatives for high packaging performance**

With in-line systems, the hood covering and hood shrinking processes occur simultaneously in consecutive positions. With these processes operating in parallel, high packaging performance can be achieved.

> 130
pallets / hour

As an in-line system, the MSK Multitech offers the highest packaging performance.

◄ Compact model: Space-saving design

With the compact model, hood covering and shrinking take place in one spot. This means the model is suited optimally for limited space conditions and medium-level packaging performance.

Special MSK process for reliable film welds ▶

Using a special MSK process, the MSK Multitech assembles film hoods with a high-quality film weld seam.

Lowerable machine head (EP 2 336 034) for easy maintenance and replacement of the welding bar ▶

The machine head of the MSK Multitech can be lowered to operator level. Floor-level access without platforms or ladders on MSK packaging systems offers a high level of operator and maintenance friendliness. This makes equipment maintenance simpler and faster.

MSK shrink frames
Safe and sustainable shrink systems

Savings in energy and film costs

Greatest possible load stability

5 years warranty on MSK heating elements

Low energy consumption

Heat recycling for optimal energy efficiency

Thinnest film possible thanks to gentle and targeted film heating

Shrink frames available in gas or electrical version

Highest safety standards

Use of hot air only

Efficient MSK technology ▶

A special MSK air mix system heats the film precisely and gently. This preserves the film's elasticity and fatigue resistance. MSK recycling of heat thereby ensures optimal energy efficiency. We offer 5 years of warranty for our maintenance-free MSK heating elements.
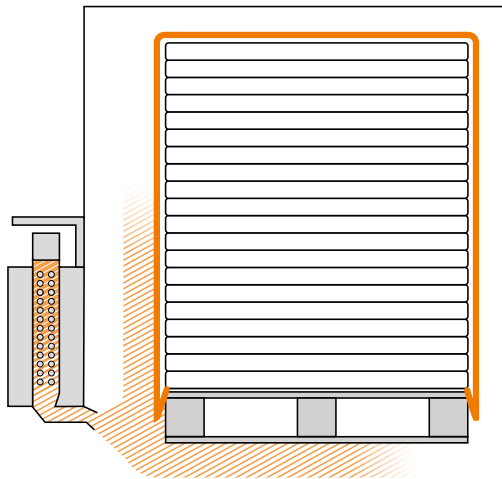

◀ **Energy-saving MSK Covershrink module**

The patented MSK Covershrink (EP 2 740 673 B1) reduces the gas consumption of an MSK shrink packaging system by up to 40 % depending on the film thickness and pallet format. Additionally, it helps ensure noticeably reduced noise emissions.
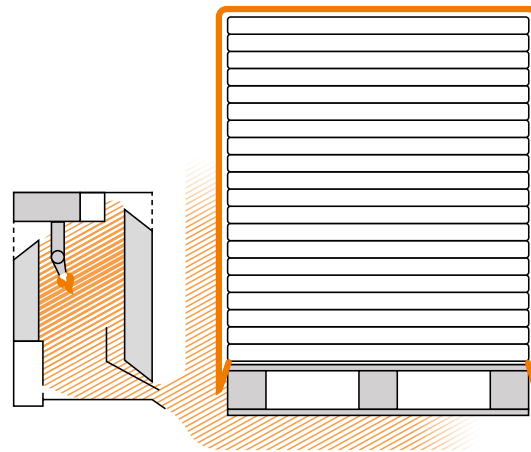
◀ **Shrink-wrapping with electric heating system**

The MSK Corritech electric shrink frame model with eCovershrink works completely without the use of gas, helping companies on their way to climate neutrality. This allows highly stable shrink wrapping to be realized, while sustainably waiving fossil fuels – without compromises.

▲ **Electric heating system MSK Corritech**

The MSK Corritech shrink frame heats the film by an electric heating system.
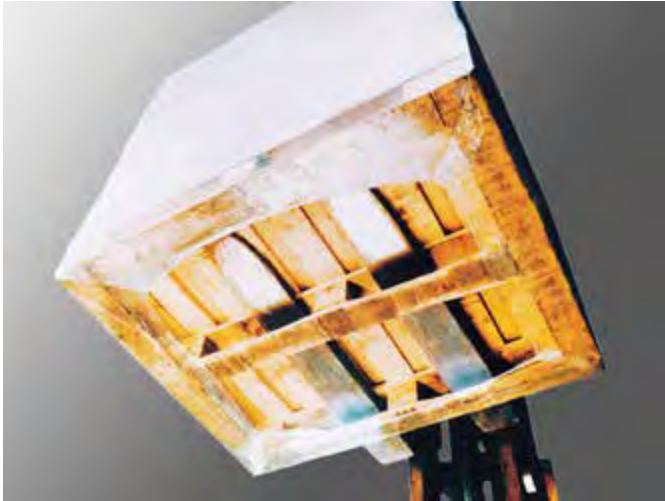
▲ **Encapsulated heating system MSK Recotech / Synchrotech**

The MSK Recotech safety shrink frame is fit with an encapsulated heating system. Moreover, the MSK Synchrotech system allows separate upper and lateral shrinking, and is thus product specifically controllable.

Shrink press ▶

In the case of compressible loads, the products are compressed during or after the shrink process with a preselected compression pressure of up to max. 5 tons. As the product is compressed to its minimum size, the vertical clamping forces of the shrink film are fully effective. In addition, the top shrink is optimally sealed.

◀ MSK Undershrink process

The MSK Undershrink process fixes the packaging film well below the runner boards of the pallet while the pallet is being shrink-wrapped. This gives the shrink film an optimal hold, and offers the greatest possible load stability for the packages on the pallet. With this method, the film thickness can be reduced on average by up to 20 %.

◀ Film-free pallet feet with MSK Formtech

The developed and patented MSK Formtech (EP 3 147 226) provides film forming between the pallet blocks,which allow for the automated pallet handling in high-bay storage systems, AGVs, and automated truck loading systems for standard pallets.

◄ MSK Anti-Collage-process

The film is shrunk and does not stick to the goods or sub-packaging. This ensures an optimal display effect and trouble-free unpacking. Without requiring the use of an expensive "separating" film.

Hybrid systems for maximum flexibility ▶

MSK offers a hybrid solution that can package pallets with stretch-hood film, shrink-hood film, or even stretchable shrink-hood film. This way, depending on customer needs and production planning, different films can be processed, using the same packaging system.

MSK Tensiontech
Fully automated stretch-hood machine

Enhanced theft protection via enclosed hood

Drastically reduced film roll replacement frequency

Readability of barcodes and logos via transparent packaging

Suitable for packaging printed products

Reliably calculatable film consumption

Suitable for film made with recycled material

Easy maintenance due to lowerable machine head and maintenance-free time-belt technology

www.mskcovertech.com

Enlosed film hoods for enhanced theft-protection ▶
Compared to spiral-stretch wrapping, an enclosed stretch-hood offers better protection against theft. Additionally, the products are protected against dirt from five sides and at the same time optimally recognizable.

◀ **MSK Stretch-process**
The film hood is stretched individually for each pallet dimension in any coordinates in longitudinal and transverse direction. This enables the use of thinner film and the packaging of a wide range of pallet formats.

◀ **Patented MSK method**
The patented MSK process for film gathering (EP 1 353 847) and the MSK Vertical stretch process (EP 1 717 148) were specifically developed to lower film consumption while at the same time enhancing load stability.

MSK solutions
Conveyor systems

MSK Transtech
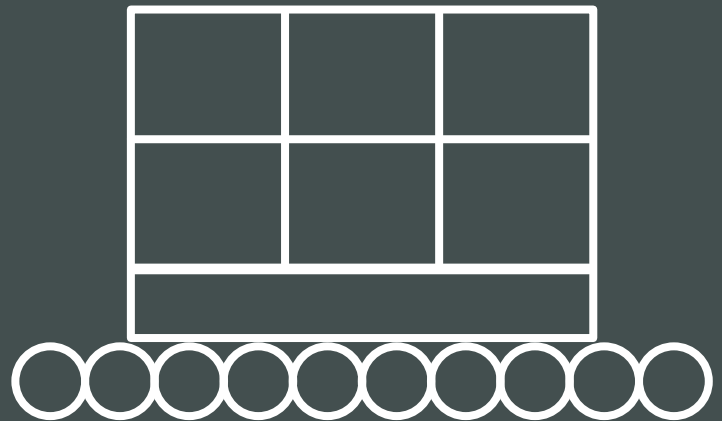Stationary pallet conveyors

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MSK Linktech/AGV
Mobile pallet conveyors

MSK Vertical conveyors
Pallet conveying system over different floors

Integration of peripheral devices
Networked pallet handling

MSK Transtech /
MSK Linktech
Logistics systems for pallet loads

Integrated pallet logistics system, from received goods all the way to truck loading

Transparent and seamless load tracking

Customizable and fully automated complete systems

Communication interfaces to internal ERP systems and peripheral devices

Long-lasting premium components

Smooth and reliable production flow without forklift traffic

Easy maintenance

◀ Manual pallet feeding station
Ground-level belt conveyors made of steel plates allow easy manual pallet feeding into the packaging line via forklift truck or hand pallet truck. The conveyor module is easy to maintain and suitable for all common pallet formats.

Sheeter connection in the paper and cardboard industry ▶
Developed specifically for the paper and cardboard industry, an MSK portal system downstream from the sheeter separates the pallets by taking each individually and transferring it to a pallet conveyor. On the pallet conveyor the pallets are positioned in either a lengthwise or crosswise transport direction.

Pallet separation via conveyor belt ▶

The separation of paper pallets after the sheeter is achieved by MSK through a special transition between conveyor belt segments. The slight difference in speed of the second segment allows the paper stacks to be separated.

▲ **Customer-specific solutions**

The development of customer-specific layout solutions with special variants of roller and chain conveyors,plastic belt conveyors, slat conveyors,vertical conveyors, accumulation conveyors, turntables, corner transfer units, etc. is part of our engineering know-how. The entire MSK conveyor technology is manufactured in-house.

▲ **Easy maintenance**

Spare parts such as mats or shafts can be easily replaced from above. The conveyors have self-tensioning devices so that manual retensioning is not necessary.

**◄ AGV
(automated guided vehicles)**
The individually controlled automated guided vehicles are known for their high flexibility and ability to adapt to varying transport tasks.

**▲ Mobile MSK Linktech
shuttle cars**
Wherever the use of stationary conveyors is not possible, MSK shuttle cars transport small and large pallets, and packaged and unpackaged loads, achieving speeds of up to 100 m per minute. They contribute to much lower hazard potential for humans and machines, transparent flow of materials, and minimize the generation of noise and exhaust.

▲ Empty pallet feed
MSK conveyor systems also fully automatically feed empty pallets to the sheeter.

MSK elevators / vertical conveyors ▶

Using MSK elevators, pallets can be transported across different floors and reach their destination safely. The MSK EMSY software provides high quality service in tracking information data in the logistics process.

▲ **Sheet counter**

The integration of sheet counters in the paper industry is part of MSK's range of services. MSK EMSY records and transmits the data for the further logistics process.

▲ **Labeling systems**

Fully integrated into MSK systems, robotic or standard labeling systems label pallets immediately before or after packaging, as required by your logistics. Important information data is thus securely linked directly to the load and logged in the control system.

◄ Top-board applicator

Top-boards are applied fully automatically in combination with a top-board magazine for a wide range of pallet sizes.

Strapping ▶

A strapper integrated into MSK packaging lines additionally secures the packages for transport.
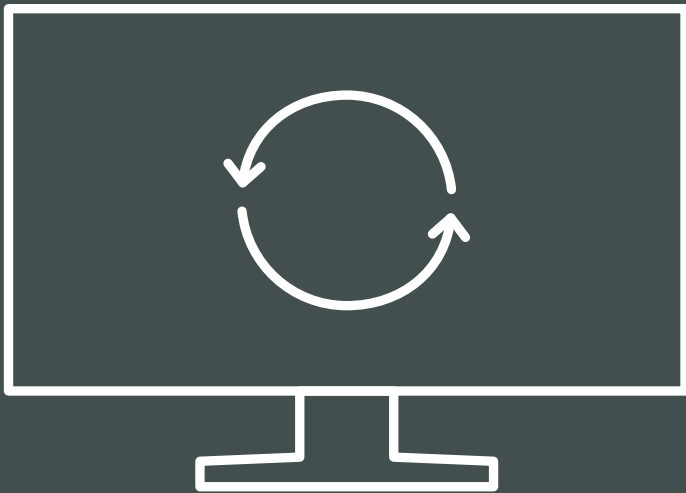

Automated flow of goods into the warehouse ▶

MSK conveyor systems enable complete pallet logistics all the way to the warehouse. The MSK EMSY software, which is networked with the customer's system, receives commands for the destinations of a pallet and in turn reports positions and data of a pallet back to the ERP system. Shipping documents can also be generated automatically in this way.

MSK solutions
Software

MSK EMSY

Easy machine control

MSK EMSY smart

Mobile status monitoring

MSK EMSY move

Mobile operation

MSK EMSY analytics

Analysis of overall system efficiency

MSK EMSY Software
The latest generation of machine operation

Statistical analysis

Interfaces to all known PLC systems

Settings options through the customer editor and individual upgrade options

Monitoring of energy, film, and air consumption

Automated machine settings reduce consumption

Easy operation of the packaging system

Support for maintenance, spare parts requirements, and trouble-shooting

Statistical analysis ▶

MSK EMSY provides statistics on faults, maintenance, production, as well as running, waiting and down-times, and displays these graphically for the operator. Consumption data such as film, electricity, gas, and compressed air for each pallet can also be processed statistically. Assessments per shift, week, or month, etc. are also possible. The data can be exported into standard programs.

▲ **Easy machine control with MSK EMSY**

With the MSK EMSY visualization software, the machine processes virtually run themselves! This helps reduce operator training periods. In addition to easy parametrization for a variety of product dimensions and configurations, the software also assists in troubleshooting, supplies consumption statistics, allows remote maintenance, secures data through automatic backups, and much more.
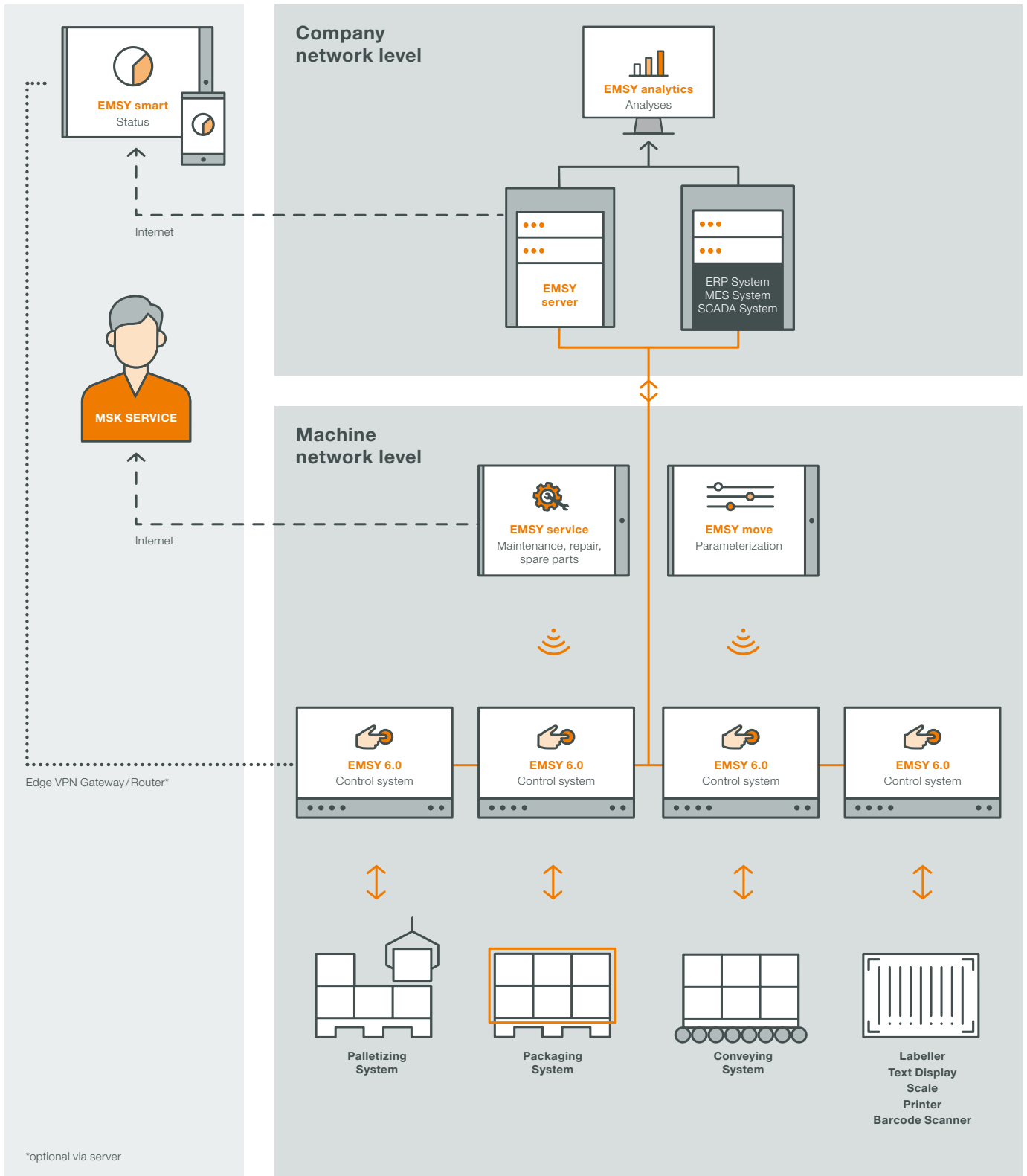
▲ **A picture is worth a 1,000 words**

The state-of-the-art touch panel and 3D animations ensure easy and intuitive operation of complex packaging machines. The clearly structured user interface, with its helpful images and user support for virtually all EMSY functions, considerably shortens the time necessary to get familiar with the system, and simplifies trouble-shooting. All essential status information is available at a glance.

Outside Company

Inside Company

**Company
network level**

EMSY analytics
Analyses

EMSY smart
Status

Internet

EMSY
server

ERP System
MES System
SCADA System

MSK SERVICE

**Machine
network level**

Internet

EMSY service
Maintenance, repair,
spare parts

EMSY move
Parameterization

Edge VPN Gateway/Router*

EMSY 6.0
Control system

EMSY 6.0
Control system

EMSY 6.0
Control system

EMSY 6.0
Control system

Palletizing
System

Packaging
System

Conveying
System

Labeller
Text Display
Scale
Printer
Barcode Scanner

*optional via server

Individual upgrade options
MSK EMSY makes communication between users and the machine easier. Information from all kinds of peripheral devices is managed by the software and can be forwarded to your system (MES, ERP, SCADA, etc.). The software allows interfaces to all known PLC controls and operating systems. Through numerous upgrade options, the system can be optimally adapted to individual requirements.
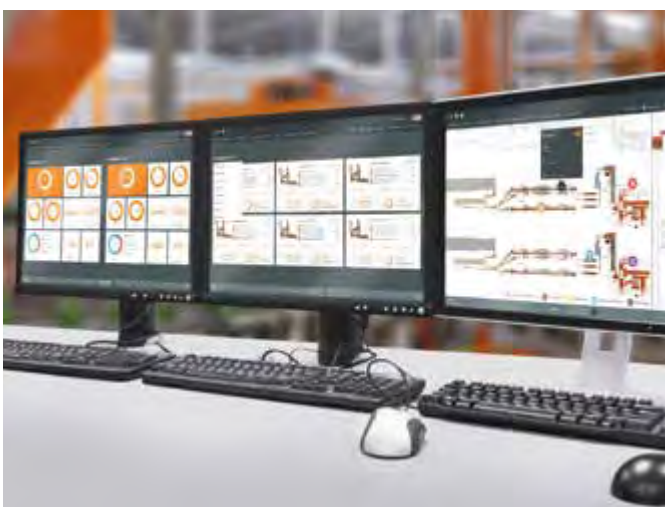
◄ MSK EMSY smart

The user-friendly app for smartphone or tablet offers quick status of the packaged pallets or products in real time wherever you are, without having to be on site at the MSK system.

◄ MSK EMSY move

By using a modern industrial tablet, MSK EMSY move offers mobility and security to the operation of system extensions. This software is a convenient solution particularly for long conveyor lines and palletizing or packaging systems with multiple modules.

◄ MSK EMSY analytics

MSK EMSY analytics provides transparency for the overall efficiency of an entire system, and reveals ways to raise efficiency even more.

▲ **Complete automation of pallet logistics**

In order to automate the entire material flow and pallet handling from received goods, to truck loading or to the finished goods warehouse, and to reduce the use of forklifts, MSK creates customized and fully automatic complete systems with pallet conveyor technology, palletizing systems, pallet packaging lines, and numerous peripheral devices such as labelers, scanners, and more – all controlled by MSK EMSY.

>**6,000**

different MSK systems sold to date

savings through technology

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