

Technology  
study

Boosting efficiency for the e-commerce boom

# Smart grippers for logistics

The logistics industry is facing new challenges: the boom in e-commerce is leading to ever-increasing shipment volumes and more complex requirements for packaging, shipping and supply chain management. While customers expect shorter delivery times, companies are struggling with the variety of package sizes and shapes that require efficient warehousing and transportation solutions. At the same time, demands for sustainability and cost efficiency are increasing. By using modern technologies such as automated gripping, AI-supported EOL handling and innovative sorting solutions, logistics can successfully master this change.



## Robotics in warehousing and fulfillment

Automation increases efficiency, reduces costs, accelerates delivery times and optimizes picking and packing



## Supply chain resilience

Adaptive grippers solutions secure the supply chain by handling goods quickly, precisely and reliably



## Dynamic gripper solutions

Flexible and adaptable gripper solutions for warehouse and logistics processes reduce the use of different systems



## Sustainability

Smart automation in logistics saves energy, reduces material usage and minimizes downtimes



## Matrix Area Grippers FMG

*As adaptable as the product variety of your customers.*



### Mixed-Palletizing

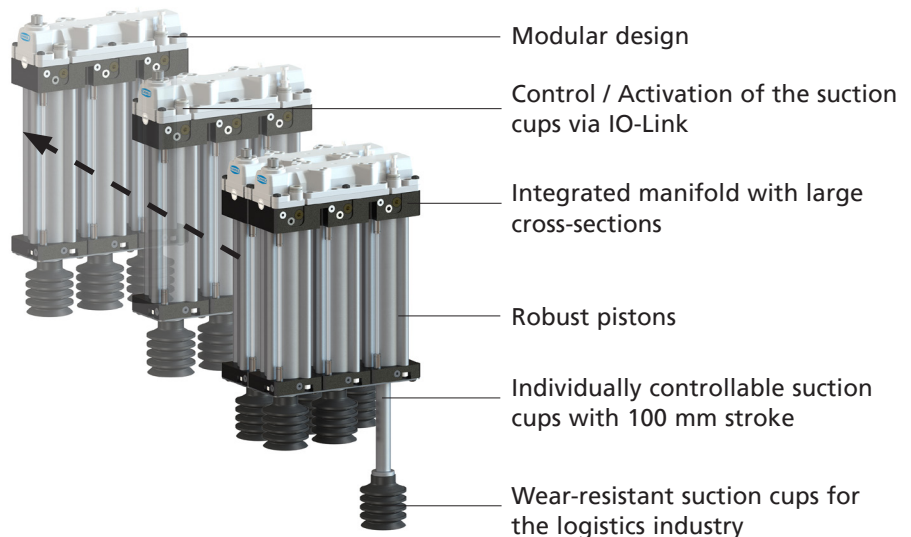
When supplying customers in small batch sizes, warehouses are faced with the challenge of efficient order picking of mixed pallets. Seasonal product changes lead to high packing pattern variance. An optimal packing pattern with high packing density, stability and lower shipping costs can only be achieved if additional products are precisely integrated during palletizing. Individually activated suction cups achieve maximum adaptability with minimal interference contours.

### Bin-Picking / Order-Picking

The shift in consumer behaviour towards e-commerce and "fast delivery" increases the need for automated picking systems, especially during the peak season. Picking various products requires flexibility and a low interference contour. The modular Matrix Area Gripper FMG minimizes the interference contour when dipping into totes and enables flexible suction cup configurations – adapted to the product portfolio.

### Matrix Area Gripper FMG for logistics applications

- ✓ Simple integration, vacuum distribution and integrated valve technology
- ✓ IO-Link interface
- ✓ Three individually activatable vacuum cups per module with 100 mm stroke
- ✓ Modules can be flexibly combined to form area grippers
- ✓ Special bellows suction cup with 4.5 folds
- ✓ Integrated filters



With the matrix area gripper FMG for logistics, Schmalz is expanding its innovative FMG series to include a variant with a 100 mm stroke and high volume flow. This makes the module ideal for taking mixed palletizing and pick & place applications to a new level. Thanks to the ability to dip into chimneys, gaps and totes, this flexibility enables a higher packing density and stability for mixed pallets.

## Gripping system for parcel induction and singulation processes

### Induction and Singulation

Online retail is the biggest growth driver in the parcel and post business worldwide. Products of different sizes and packaging materials have to be separated from the bulk goods in large sorting centres so that the label can be read and the product sorted by destination address. Due to the very large parcel volumes, there are high requirements in terms of performance, wear-resistance and ease of maintenance. Thanks to the 3D-printed gripper-body, the modular gripper system for induction and singulation applications can not only be optimally adapted to the respective portfolio, but also optimally solve the challenges of the application thanks to the configurable features.



*No more delayed package deliveries – even during peak season – thanks to a powerful and reliable gripping system.*

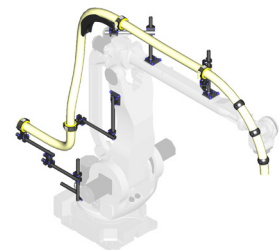


**Flexible gripper body** – adaptation to product portfolio, robots and processes for optimum efficiency.

**High volume flow** – fast and secure gripping of products.

**High holding force** – tight grip even with short cycle times and high accelerations.

**High process reliability** – minimization of downtime thanks to suction cup quick changer and leakage monitoring.



### Vacuum suction cups

The optimum suction cup for every type of packaging. (High wear resistance, holding force, dust-resist)

### Valve | Sensors

Intelligent valves with integrated sensors enable the individual control of suction cups for a precise grip.

### Vacuum generator

The large Schmalz portfolio of vacuum generators offers the optimum solution for every application in terms of process reliability and efficiency.

### Hose management kit

The entire gripping technology can be purchased from one supplier ready for installation with a hose management kit customised to the robot and the application.

# Hybrid Area Gripping Systems FLSG for palletizing and depalletizing tasks

*It couldn't be safer – maximum process stability guaranteed.*



## Mixed-Palletizing

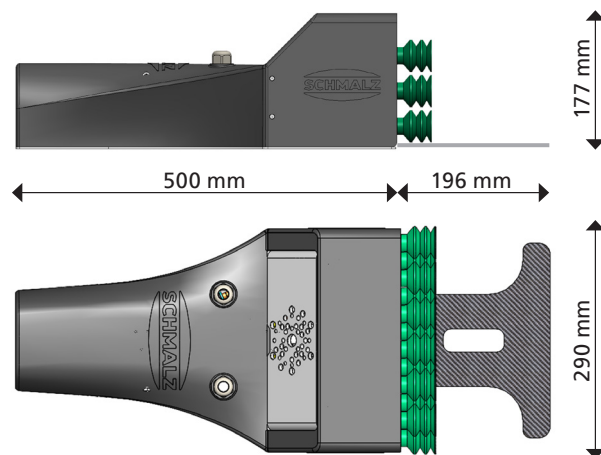
In addition to the challenges of mixed-palletizing of cartons, fragile / ready-to-shelf packaged products cannot be handled safely from above using vacuum technology alone. By supporting the products with the base plate, this challenge can be solved and safe and flexible handling can be achieved.

## End-of-Line Palletizing

Not only in logistics, but also in upstream processes such as after filling and secondary packaging, the products have to be palletized at the end of the line. As this process step involves the same products that are later picked in distribution centers from unmixed to mixed pallets, the gripper is also a safe solution for handling these products.

## Hybrid Area Gripping Systems FLSG for picking tasks and the gripping open containers

- ✓ Horizontal gripping with underfeed tray
- ✓ Vertical gripping with Area Gripper
- ✓ Simple connection to industrial robots
- ✓ Simple control via digital I/Os
- ✓ Gripper weight 9,5 kg, load capacity (horizontally) 25 kg, load capacity (vertically) 30 kg



The Hybrid Area Gripping System FLSG is a new innovative solution for handling open boxes and ready-to-shelf packaging. Picking and palletizing tasks for changing workpieces are completed with one gripper. Classic gripping with vacuum is supported by an extension when the workpiece is gripped from the side. This additionally stabilizes the workpiece.

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