

piSAFE®

# Unique Fail-Safe Vacuum Unit



# Designed with outstanding safety and energy saving features

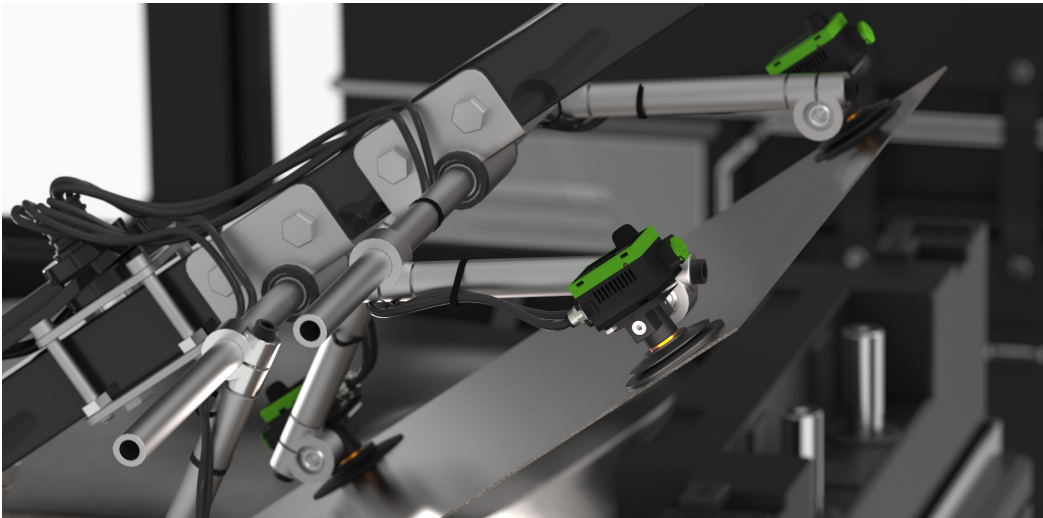
The products in our piSAFE® program are specifically developed to provide configurable and low weight solutions that can be adapted to your needs. While maintaining market leading vacuum performance through Piab's patented COAX® technology the flexible design and ease of maintenance makes it a perfect choice for challenging robotic applications and ergonomic handling devices where safety is a key concern. Whether you want a centralized or decentralized vacuum gripping system, interfaces towards standard End-of-Arm-Tooling systems or stand-alone mounting, the piSAFE® program provides a high vacuum safety and high performing configuration.

## Automotive EOAT systems

### Decentralized vacuum systems

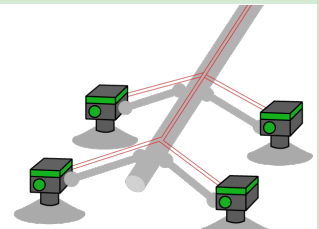
The decentralized approach provides safety with one vacuum source per suction point and eliminates flow losses in long vacuum hoses, which helps to save energy. With integrated COAX® cartridges, options with energy saving functions and release functions, such as Atmospheric Quick Release (AQR) low energy consumption is easily maintained. piSAFE® is a state-of-

the-art product and the world's most energy efficient concept for vacuum handling of sealed parts, such as glass and metal sheets. A large variety of mounting options including standard interfaces for EOAT helps to ensure that piSAFE® can easily fit your systems. The modular design with quick connect function enables fast maintenance.



EOAT in Automotive

Decentralized

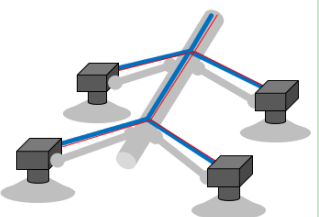


### Centralized vacuum systems

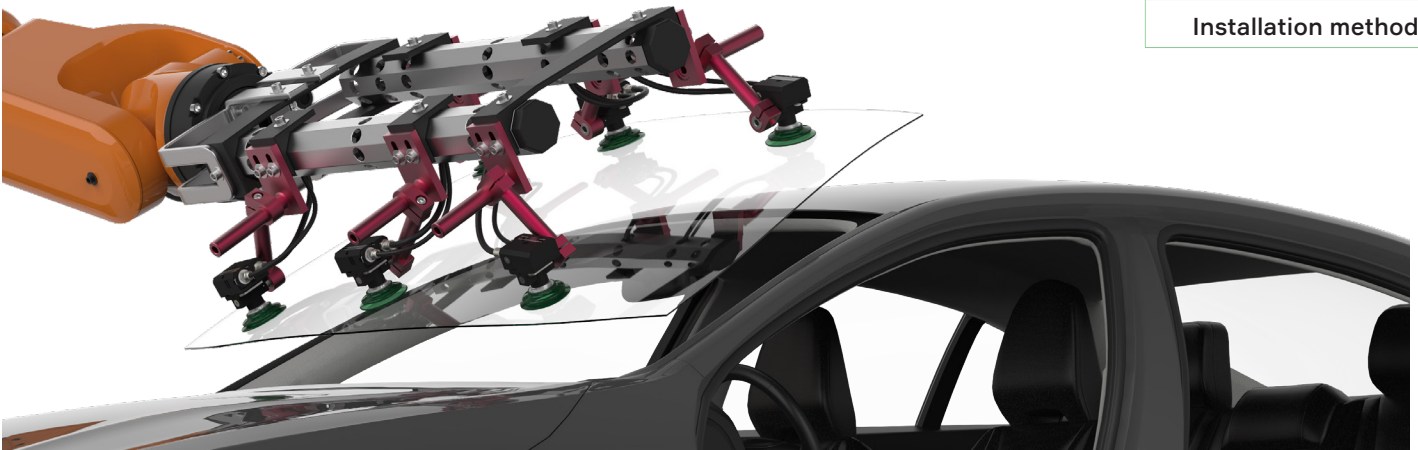
While centralized systems are effective, the shared vacuum source connected to multiple suction points presents a risk of not being able to serve the full vacuum system if an individual cup is not in contact with the object as planned. Utilizing Piab's vast experience within vacuum automation, we have made sure that piSAFE® presents the same safety standards, regardless if you

use a centralized or decentralized vacuum system in your production. By configuring piSAFE® with the Atmospheric Quick Release Normally Closed (AQR NC) which uses low pilot air pressure, several piSAFE® units within a larger systems will ensure a simultaneously controlled release using very little additional compressed air.

Centralized



Installation method



# Features

- 1 Configurable with vacuum ejectors based on COAX® technology with integrated pneumatic controlled functions for compressed air energy-saving.
- 2 The modular design facilitates opportunities for multiple mounting options and ensuring easy maintenance through Piab's unique Quick Connect interface as well as decreased downtime during maintenance.
- 3 Air consumption is reduced up to 98% per cycle.
- 4 Lightweight materials lower the weight for EOAT and can support longevity as well as performance of robotic and offers great potential for increasing robot efficiency.
- 5 Can replace more expensive mechanical pump or vacuum-tank safety arrangements in robotic tools and ergonomic equipment.
- 6 Configurable with different types of release functions supporting maximum release speed providing you with a full control in your application.
- 7 The noise level and the carbon footprint is reduced by Piab's state of the art energy saving feature.
- 8 Suitable in robotic applications where high demand for safety is required. Suitable for ergonomic lifting devices/manipulators and cranes which must comply with lifting norms such as (DIN/SS) – EN 13155 and ASME Standard B30.20.
- 9 A highly secure vacuum system configured with an normally closed Atmospheric Quick-Release or Blow-Off check valve.

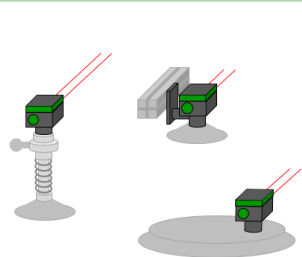
## Conventional installation

### Decentralized vacuum systems

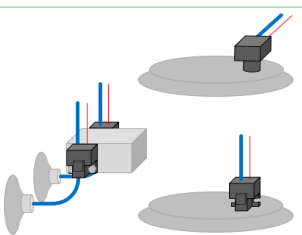
Generally decentralized systems do not always provide an opportunity to connect a vacuum ejector directly to a suction cup. Regardless of how a piSAFE® is placed in a decentralized vacuum system, energy efficiency and safety function are assured. The piSAFE® program for decentralized vacuum systems can be configured to fit your machinery, whether mounted on a profile, in a custom production line or in other ways disconnected from the suction cups. For any requirements, piSAFE® will provide you with a highly

secure vacuum ejector. The integrated COAX® cartridges and options with or without energy saving systems and variations of quick release functions offer a very efficient vacuum system for non-leaking applications. The modular design with quick connect function enables fast maintenance. The Atmospheric Quick Release Normally Open (AQR NO) function will eliminate hassle of self adhesion when suction cups are mounted upside down in fixtures and energy saving system is used.

Conventional/Stand-alone



Vacuum system type



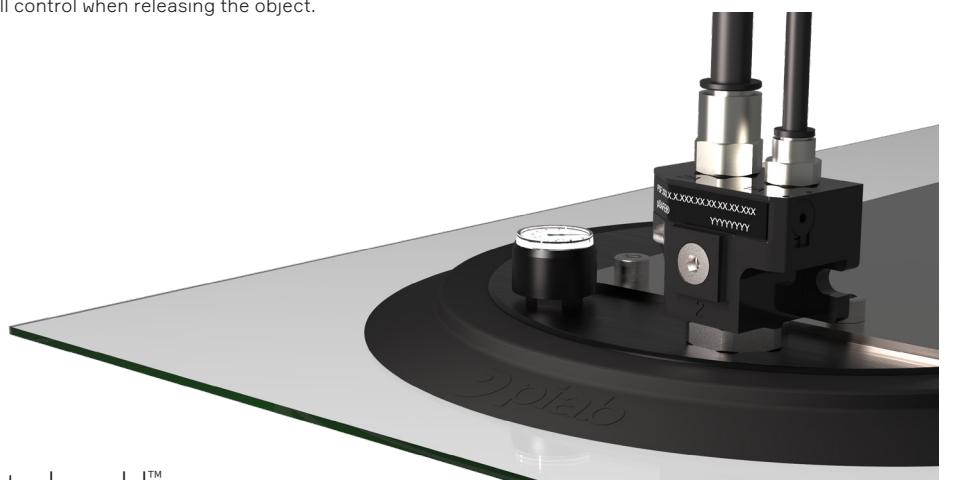
Installation method



### Centralized vacuum systems

In a centralized vacuum system, it's important to keep the number of components to a minimum without comprising the vacuum performance and safety. Piab's miniature sized vacuum safety valve for centralized vacuum systems has a built-in positive pressure blow-check valve, which is activated on a separate port. This provides an even and simultaneous release, ensuring full control when releasing the object.

In addition to the release function, the sensing port provides the opportunity for complete control of the vacuum part which exist in every suction point. The piSAFE® program for centralized vacuum systems enables no scrap during handling and safer vacuum operations regardless if you need it for a new or already existing system.



Smart solutions for the automated world™

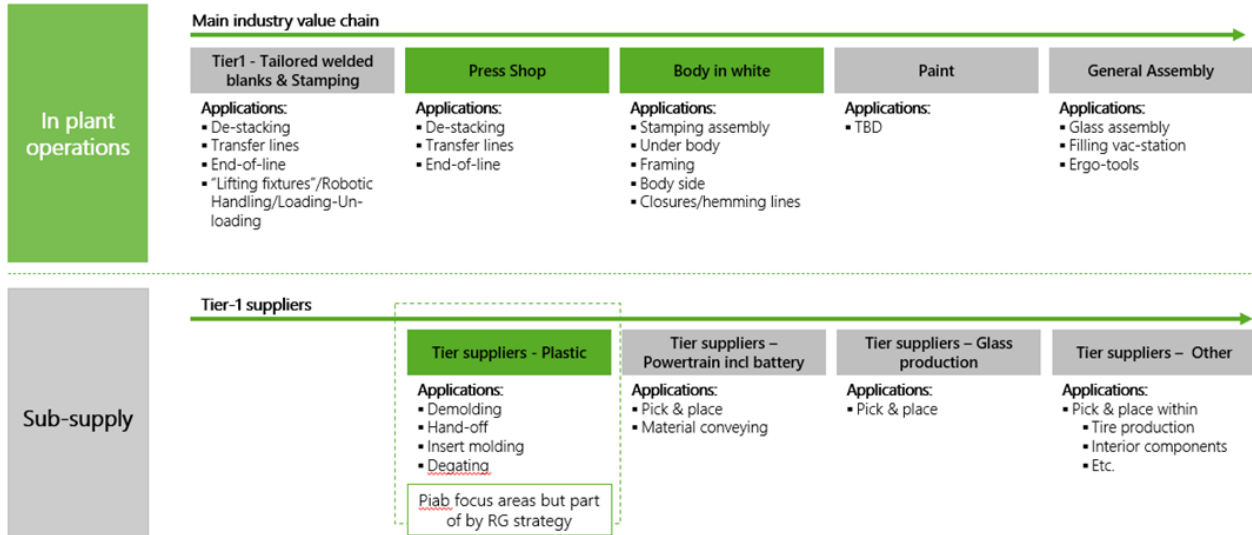
# Target applications

Automotive inc sub segments such as;

## Relevant Automotive industry applications for Piab

Piab offering to address specific applications and common process challenges

■ Focus area  
■ Future opportunities



The piSAFE products will also add value within similar applications within similar industries with a high degree of value adding production processes and high demand of safety such as;

- White Goods
- Aerospace
- Laser Welding
- Ergonomic Part Handling





# Product Overview

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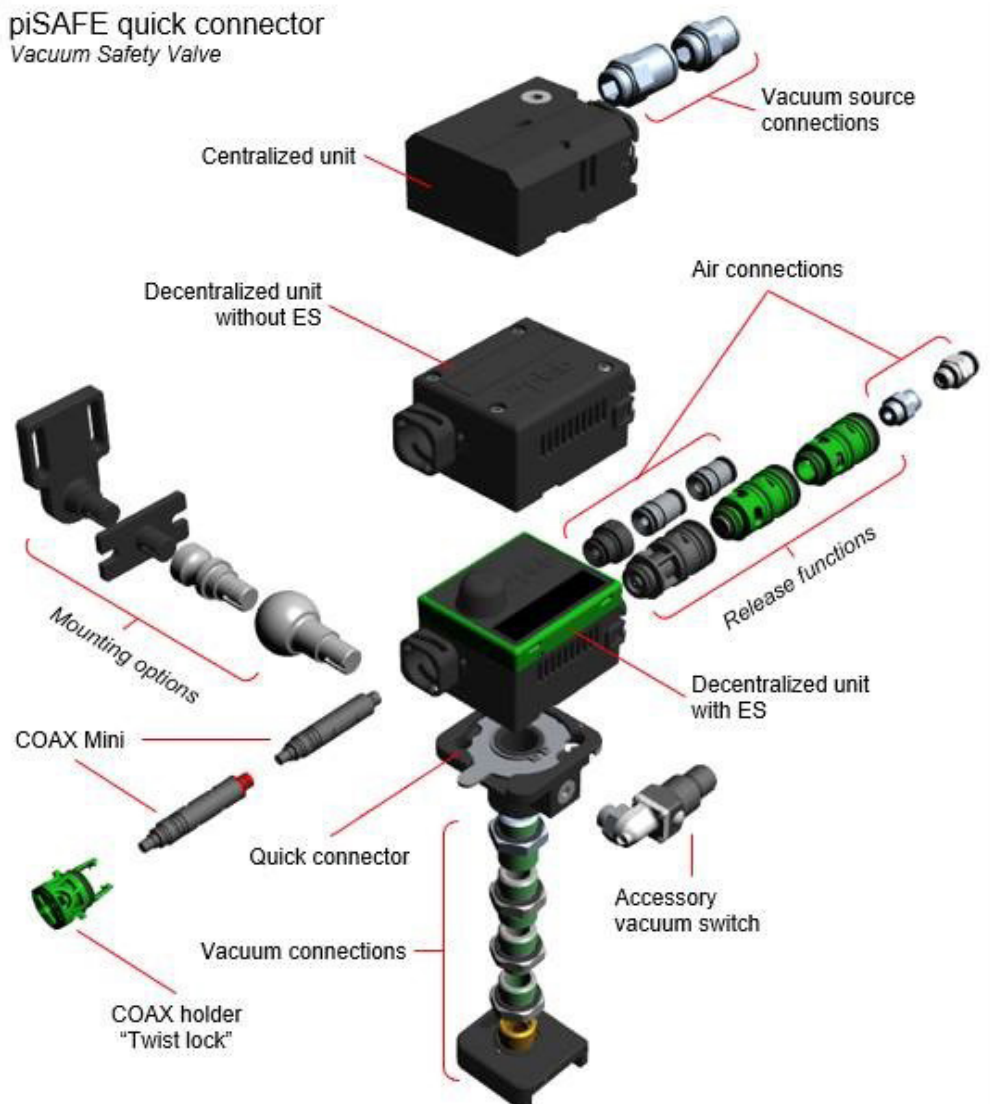
challenging robotic applications and ergonomic handling devices where safety is a key concern.

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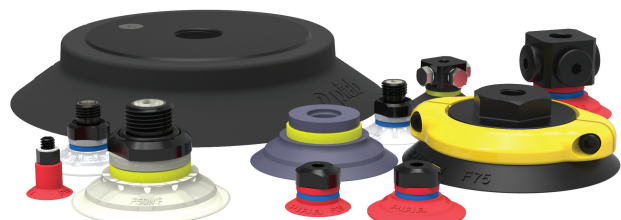
piSAFE Stand alone  
Mini Vacuum Safety Valve



piSAFE quick connector  
Vacuum Safety Valve



## Suction cups – Flat Concave family (FC)



## Suction cups – Flat family (F)



## Suction cups – Bellows family (B)



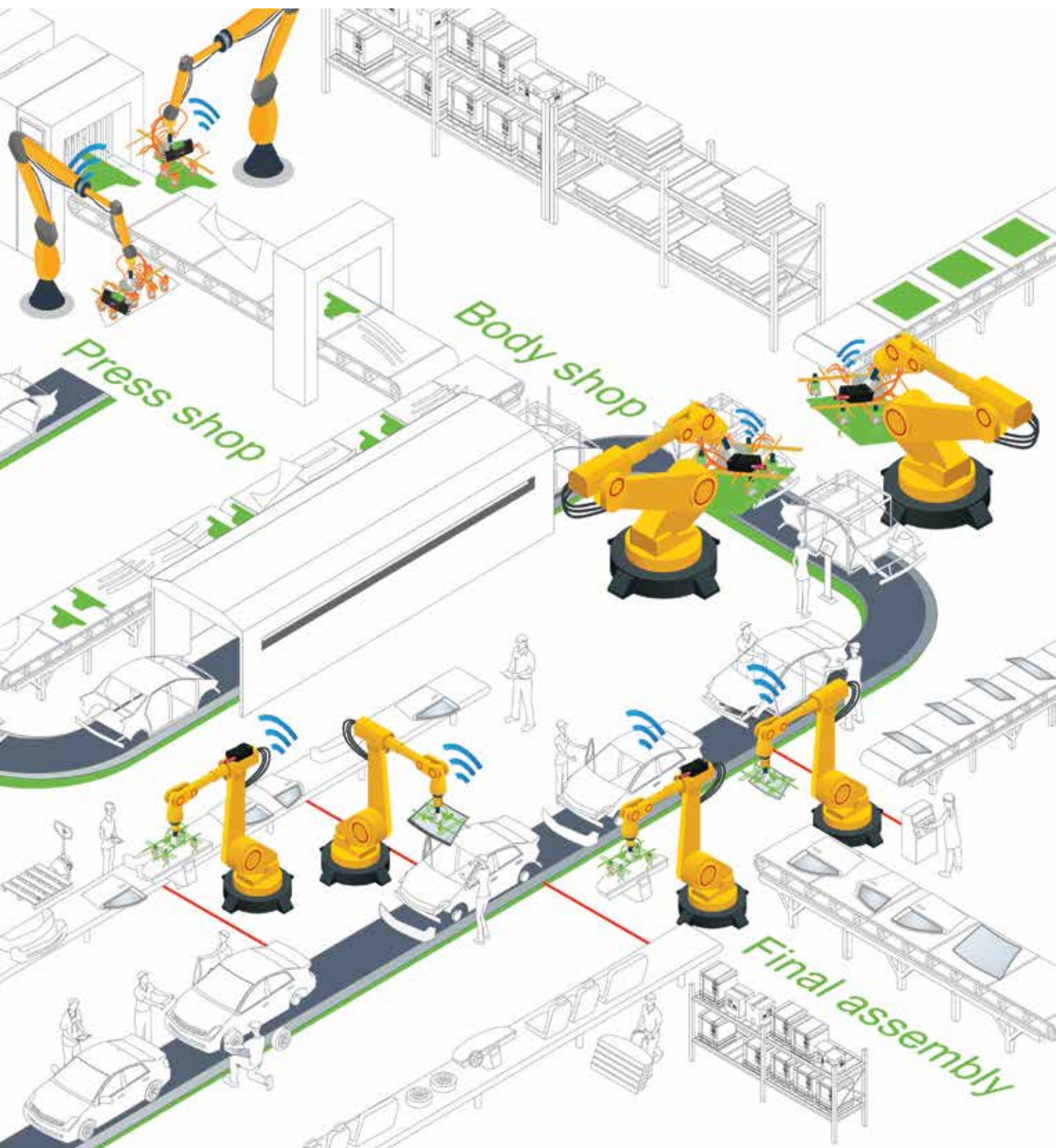
## Suction cups – Multibellows family (BX/BL)



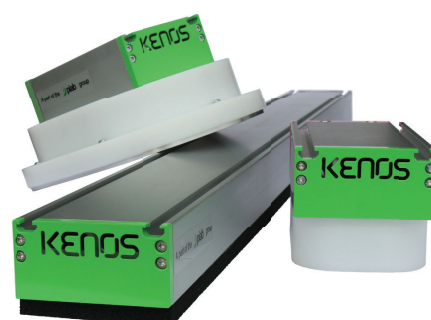
Smart solutions for the automated world™

Suction cup accessories





Suction cups – Universal family (U)





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