

AIR GRIP WORLD

Robotics for Micro Breweries



Tobias Kieferl, February 2021

YASKAWA



E M E A

A TRUE EUROPEAN PARTNER

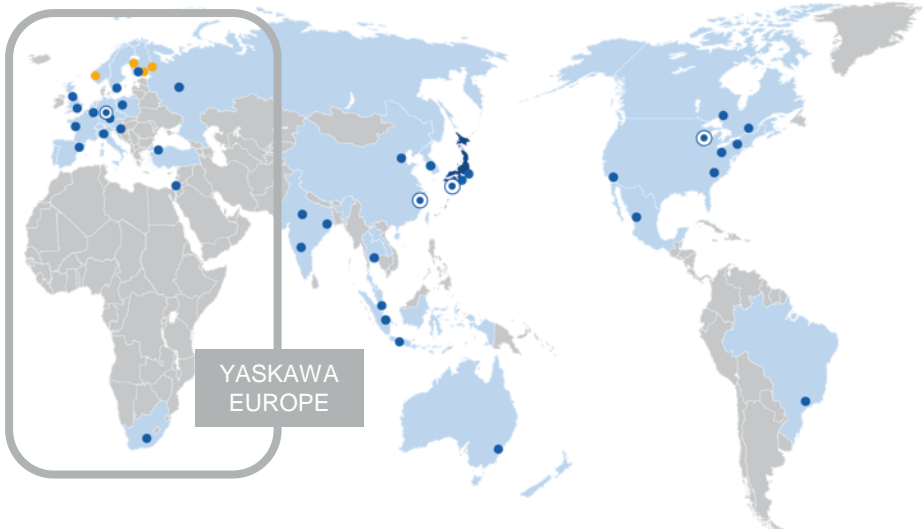
YASKAWA – A GLOBAL PLAYER



€ 3,8 Billions
Sales p. a.

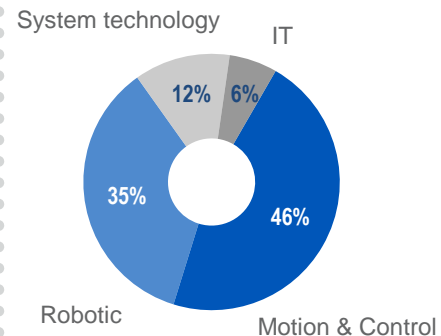


14.500
Employees



LEADING WORLDWIDE AUTOMATION SUPPLIER

Business units



4 times awarded
TOP 100 GLOBAL INNOVATORS

(2015, 2016, 2017, 2018)

1915

Development of motors for mining

1960s

Launch of DC servo motors

1970s

Development of first MOTOMAN Robot

1990s

Launch of frequency converters and AC servo drives & motors

2000s

Robot portfolio: >100 different robots

2010s

Introduction of dual arm robot and first matrix converter

2019s

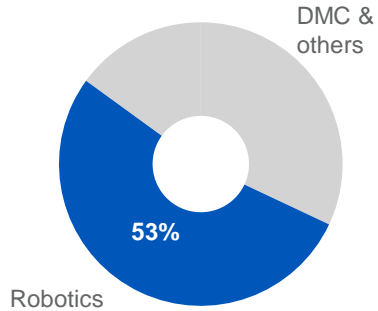
1. European robotics production facility in Kočevje/Slovenia

2020s

Introducing of first HC20 collaborative robot with 20kg payload



ROBOTICS DIVISION EUROPE



Robotics

Design, assembly and commissioning of **Turnkey Systems**



Red Dot Award 2020



Red Dot Award 2019



Red Dot Award 2018



Key Markets:

- Automotive Tier 1
- Automotive OEMs
- General industry: Machine builders, System integrators



1135
employees

Robots with customer- and application-specific options for **System Integrators**

Key Industries:



Welding (automotive)



Exhaust systems



Machine tending



Packaging/handling



Painting/coating



ROBOTICS – EUROPEAN OPERATIONS



HQ, System Business

Allershausen,
Germany



Systems

Nantes,
France



Positioners, Systems

Risto,
Slovenia

Torsås,
Sweden



Controller, Systems, Positioners

Kočevje,
Slovenia



Manipulators

YASKAWA

Air Grip

AIR GRIP TOOL – BOTTLE HANDLING

Air Grip stands for fast, reliable and flexible bottle handling

It's a designed special gripper tool for handling bottles, either glass or plastic

Air Grip advantages:

- Bottle necks held securely at high speed
- Stable and robust gripping heads
- Minimal maintenance needs
- Long life span
- Easy to clean
- Lightweight
- Prevents jammed caps



AIR GRIP - MAINTENANCE



Stop of the production line = cost!

Maintenance = cost!

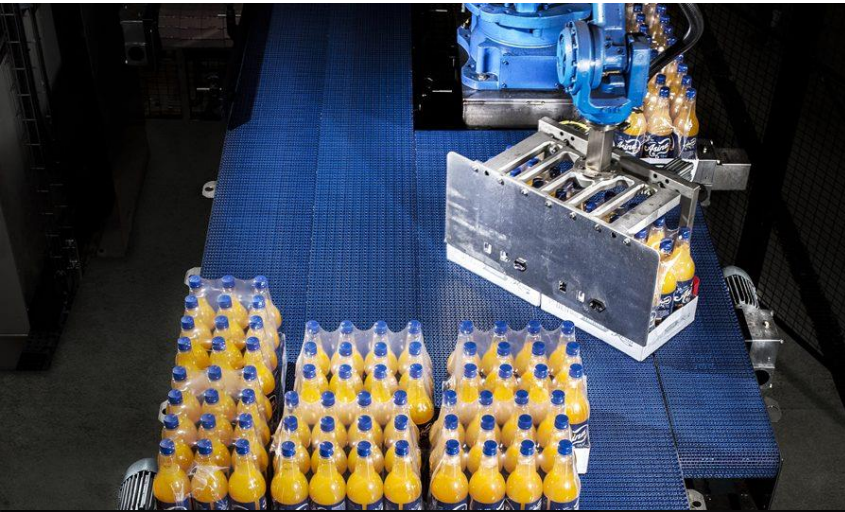
Air Grip advantages:

- Short maintenance
- Easy removal of block for maintenance
- Dismantling without tools
- Easy to clean
- Long life (10.000 bottles/h for a 2-shift work year)
- Damaged cuff still holds the bottle
- Efficient and trouble-free
- Flexibility to change between the number of bottles per lift and patterns of bottles



It's designed for speed and reliability that brewery business requires. Bottles are lifted securely, and production line stops are minimized!

PALLETISING - BEVERAGE INDUSTRY

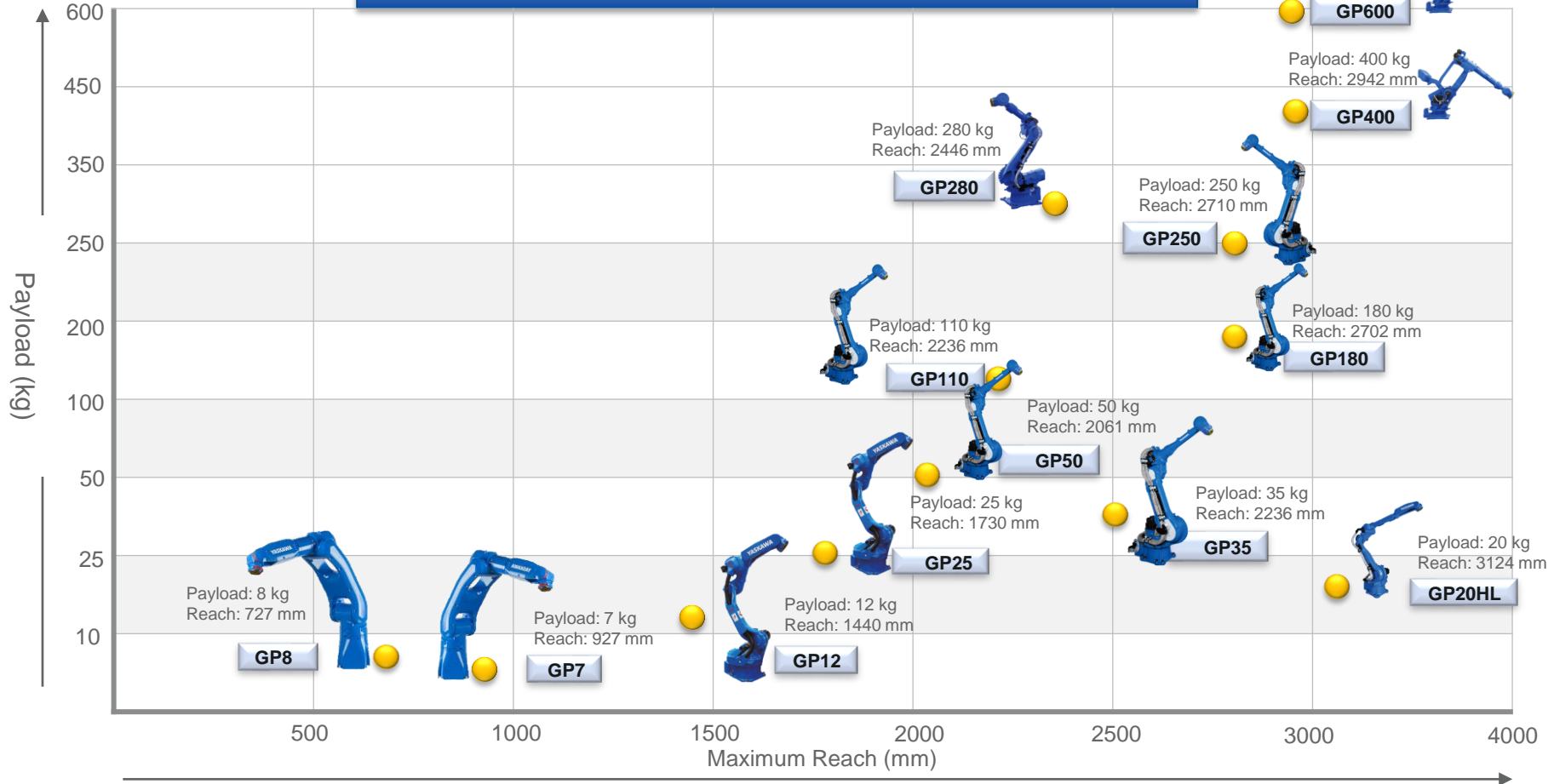


HANDLING ROBOT LINE-UP

Controlled by
YRC1000
micro

Controlled by
YRC1000

Selection of YASKAWA's Handling Robot



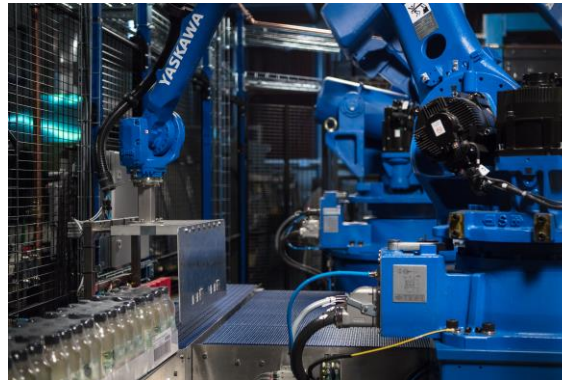
GP-SERIES

Controlled by
YRC1000
micro

Controlled by
YRC1000

Product Details

- **High speed 6-axis robot for general applications**
 - Fast, flexible and reliable
 - Ideal for a variety of applications, multi-purpose robot
 - Small interference radius reduces floor space requirements
 - Improved wrist provides higher handling capacity
 - Small footprint
 - High axis speed and accelerations
- Payloads from 7 – 600 kg



MPL/ PL-SERIES

Controlled by
DX200

Controlled by
YRC1000

Product Details

- **High speed 4-axis robot for palletizing application**
 - High speed, flexible and powerful
 - High acceleration and axis speed
 - Compact and slim design with high reach on a small footprint
 - Small interference radius reduces floor space requirements
 - Internal cable and wire routing

- Payloads from 80 – 800 kg



PRODUCT DETAILS

Palletizer

Controlled by
DX200

Controlled by
YRC1000

MPL80II

Payload **80 kg**
Reach **2.061 mm**



MPL100II

Payload **100 kg**
Reach **2.150 mm**



MPL160II

Payload **160 kg**
Reach **3.159 mm**



MPL300II

Payload **300 kg**
Reach **3.159 mm**



MPL500II

Payload **500 kg**
Reach **3.159 mm**



MPL800II

Payload **800 kg**
Reach **3.159 mm**



YRC1000 CONTROLLER

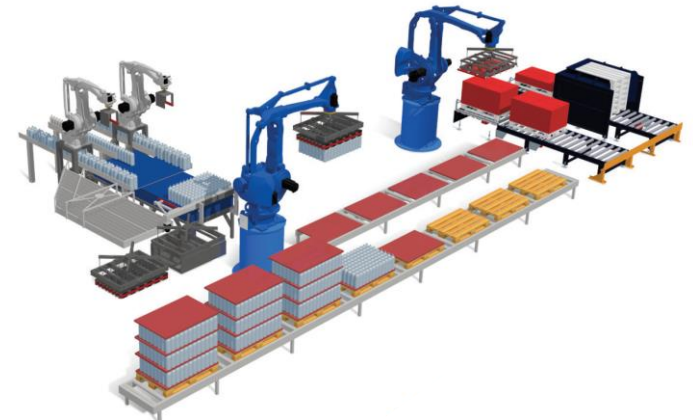
Including accessories

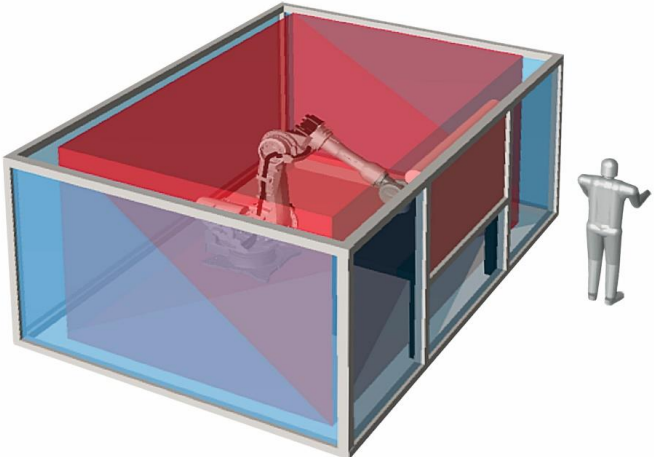
YRC1000 CONTROLLER

Controlled by
YRC1000

Product Details

- **High-performance controller**
 - Worldwide standardized design
 - Compact cabinet dimensions
 - FSU already integrated
- **Programming Pendant**
 - Small and lightweight
 - Intuitive programming and user-friendly interface
 - Reliable and protected
- **Combined Yaskawa accessories**
 - VIPA operator panel with HMI
 - MicroPLC
 - Inverter drive





FUNCTIONAL SAFETY UNIT (FSU)

FUNCTIONAL SAFETY UNIT (FSU) - FUNCTIONS



AXIS RANGE LIMIT FUNCTION



SPEED LIMIT FUNCTION

- With condition monitoring



AXIS SPEED MONITOR FUNCTION

- With condition monitoring



TOOL ANGLE MONITOR FUNCTION



ROBOT RANGE LIMIT FUNCTION



TOOL CHANGE MONITOR FUNCTION

ROBOT RANGE LIMIT FUNCTION



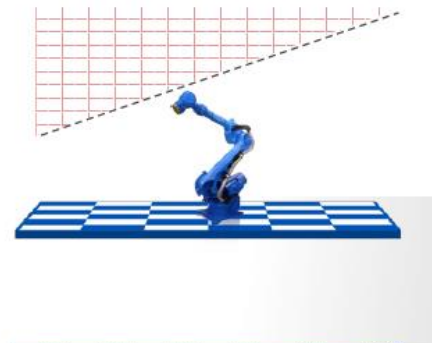
Safe zones can be defined ...



A. ...as one that the manipulator may **not** leave.



B. ...as one that the manipulator may **not** enter.



C. ...e.g.: endless walls / slopes can be defined as **limits**.

If the manipulator tries to leave a defined zone, the FSU stops the motion immediately!

YASKAWA

Air Grip World

AIR GRIP WORLD

All-in-one robot station

- **Key facts**
 - Located right after the bottle filling machine
 - Sorting table driven by Yaskawa servo drives
 - Handling of filled bottles (all sizes, plastic & glass)
 - Boxes set up station and bottle filling station
 - Sealing the box and placing them ready for delivery
 - Small footprint: from 5 m x 2,5 m

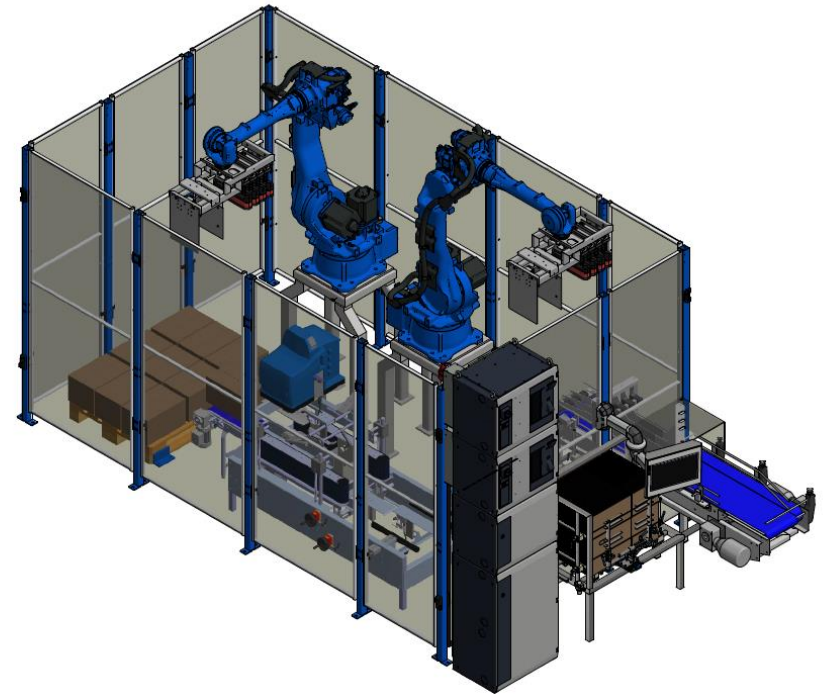
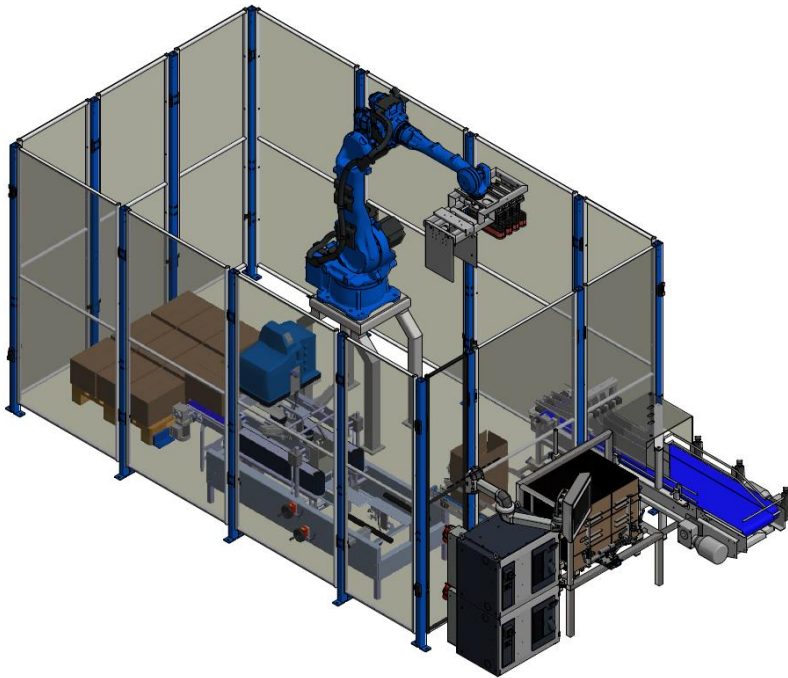


Packaging and palettizing as a combined solution!

AIR GRIP WORLD – TWIN SYSTEM

Air Grip World as a modular system

- Installed on a flexible platform
- Optionally with one or two robots, with different payloads
- Configuration of the safety system depends on the installation and customer requirements



Air Grip World

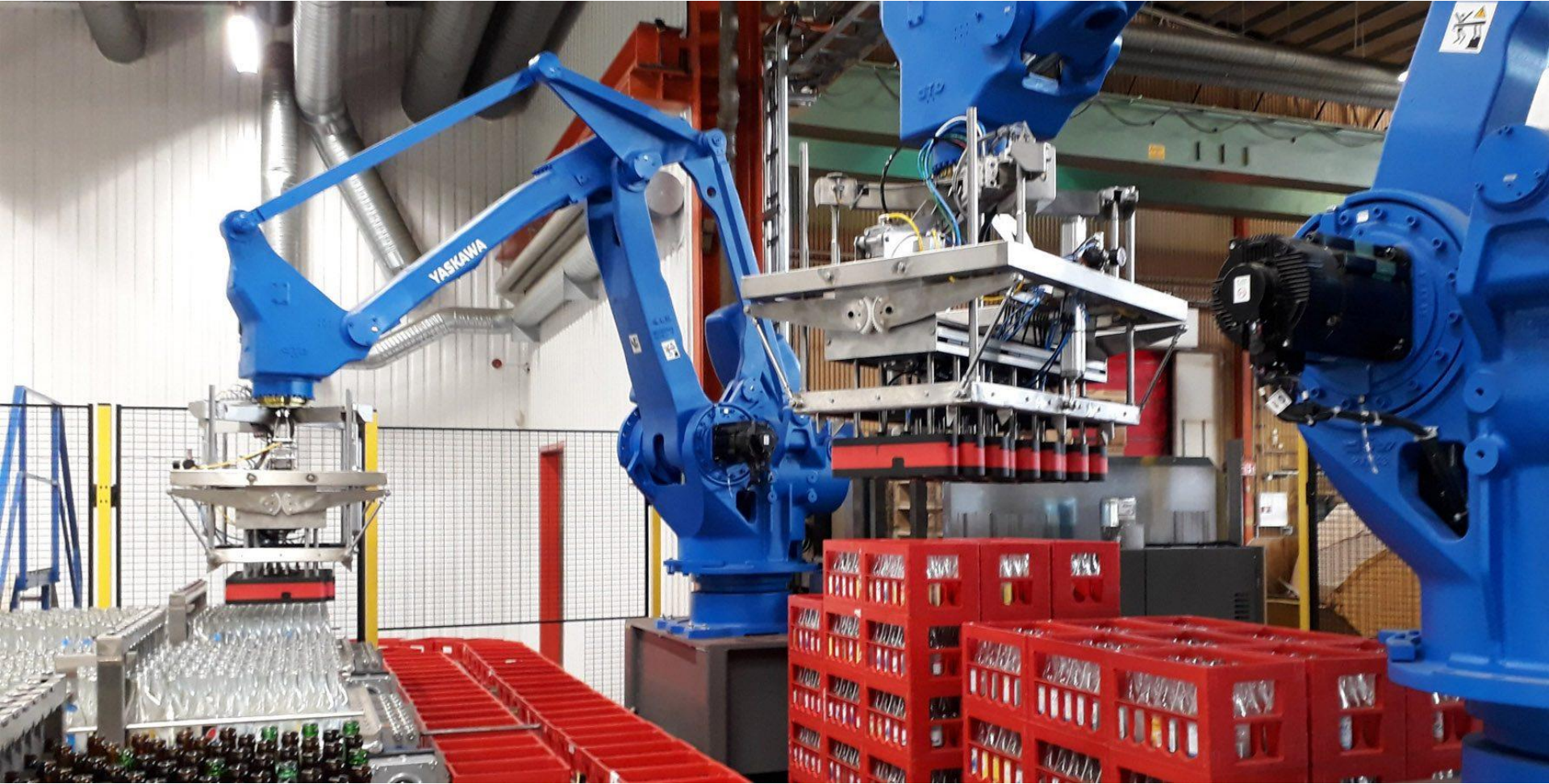
Advantages

- EASY to install and operate
- EASY to place – small footprint
- EASY to transport
- HIGH capacity 12.000 bottles/h

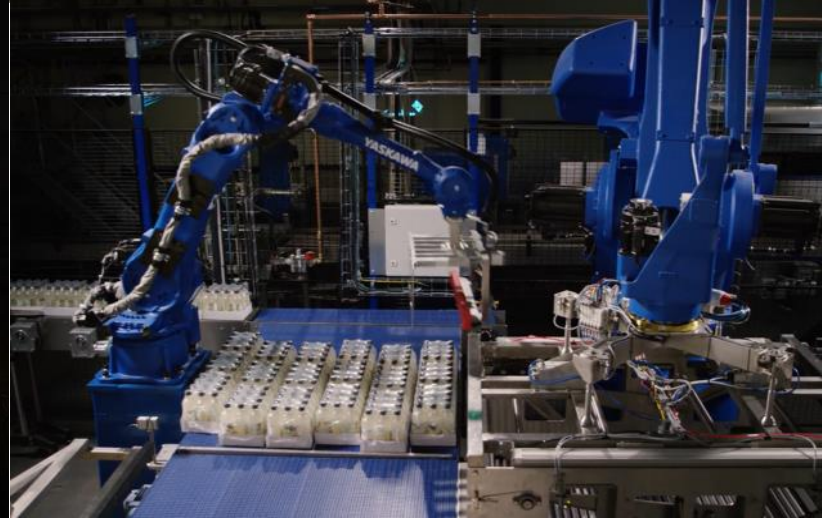
Air Grip



PALLETISING - BEVERAGE INDUSTRY



PALLETISING - BEVERAGE INDUSTRY



YASKAWA

Tobias Kieferl
Product Manager
Robotics Division

www.yaskawa.eu.com

Tobias.Kieferl@yaskawa.eu.com