

MINI GUIDE

The Guide to Bin Picking in Pharma

DISCOVER HOW 3D VISION ENABLED ROBOTICS ARE ENTERING
PHARMACEUTICALS AND BIOTECH

Pickit

Robot Vision Made Easy

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01 WHY PHARMA ENTERS BIN PICKING

Bin picking **automation** to help the pharmaceutical industry cope with **unprecedented demands**.

COVID-19 has put a lot of pressure on pharmaceutical companies. In the pandemic, the industry experienced spiking demands for test kits, masks, sanitizers. Not to mention medical equipment shortages and the vaccine race. Once vaccine productions begin, the healthcare sector needs to gear up to meet another round of unprecedented demands.

This event is triggering pharma leaders to think about what more should be automated for faster, safer results. Lines must become more agile, with the capability to respond to changing demands quickly.

In laboratories, in cleanrooms, in-house transportation, and pharmaceuticals manufacturing, the trend towards the use of robots and robotic dispensing in hospitals and clinics is rising.

Bin picking (also known as material separation) has the highest potential for automation. The main reasons for pharmaceutical companies to look into bin picking automation:

1. Efficient processes with reduced human intervention
2. Majority of materials for manufacturing arrive in bins
3. Low footprint needs
4. High variability needs
5. Feeders are not flexible enough
6. Feeders are not reliable enough

There was a serious threshold to automate bin picking in pharma: robots couldn't deal with delicate materials in the right way.

Not anymore. Enter bin picking in pharmaceuticals.



Manual material separation for COVID-19 testing kits. Image source: <https://m.yna.co.kr/view/IPT20200329000004365>

3D vision helps to **reduce the manual intervention** of humans within the manufacturing process **to a minimum.**

The process of picking the parts from trays or containers and placing them in the assembly line for further packaging (also known as material separation) has the highest potential for automation.

The same type of problem – scattered parts in a bin that need to go in the next stage of the production process – has been solved already in manufacturing by robots with “eyes,” practiced primarily in heavy industries.

3D vision systems, or robot “eyes,” are essential for applications, where the location and position of the parts vary.

[Pickit 3D](#) is a pioneer in robotic plug&play 3D vision specialized in bin picking applications. Pickit guides robots

to pick parts directly out of the bin, tray, box, pallet, or conveyor and place them with the required orientation into a machine. Changeover happens with the push of a button: instead of taking up space in the factory to stock different jigs, fixtures, and feeders, you store the vision algorithms on a PC.

But 3D vision for pick and place robots in healthcare? That was not common. It was too early – pharmaceutical companies were still exploring their way with robots, and 3D vision guided robotics seemed too advanced.

Also, it was hard to automate material separation reliably because you have to deal with delicate materials. Check out the next chapter to see how this is changing right now.

3. THE PROVEN CASES

ROBOTIC RETRAYING CELL

Watch application video [here](#)



A case of **Pickit with Essert Robotics** has successfully demonstrated detraying (or retraying) robotic cells in a pharmaceutical company. Material separation for further processing works relatively easily with tablet blisters or rectangular pharmaceutical packaging. However, when it comes to transparent syringe bodies, which are delivered as bulk goods in containers or boxes, there are often employees who have to manually move the syringes into the provided trays. Essert – the machine builder made use of the Pickit vision system as one of the components to develop the overall modular and more scalable ecosystem.

BIN PICKING IN PHARMACIES

Watch application video [here](#)



Robotic pick and place solution includes the innovative initiative of using vision enabled robots to pick and place medication packs from wholesale containers and transfer them to the storage system using the Pickit system. Pickit system works with 98% accuracy picking 400 packs per hour each pack being up to 500g.

Apostore robotic pick and place include integrated delivery note system, scanning to prevent mix-ups, automatic bin changer. The setup of the robotic pick and place for pharmacies takes approximately 2 days.

04 HOW DOES IT WORK?

Let's take a closer look at syringes bin picking to understand two important factors that are crucial for a safe process.



Factor #1. Material detection

Detecting transparent parts using machine vision has always been a challenge and in the pharmaceutical industry, transparent parts are unavoidable. Identifying transparent parts like syringes were made possible due to the stoppers and caps, which were enough for the high resolution camera in combination with Pickit's smart matching algorithms.

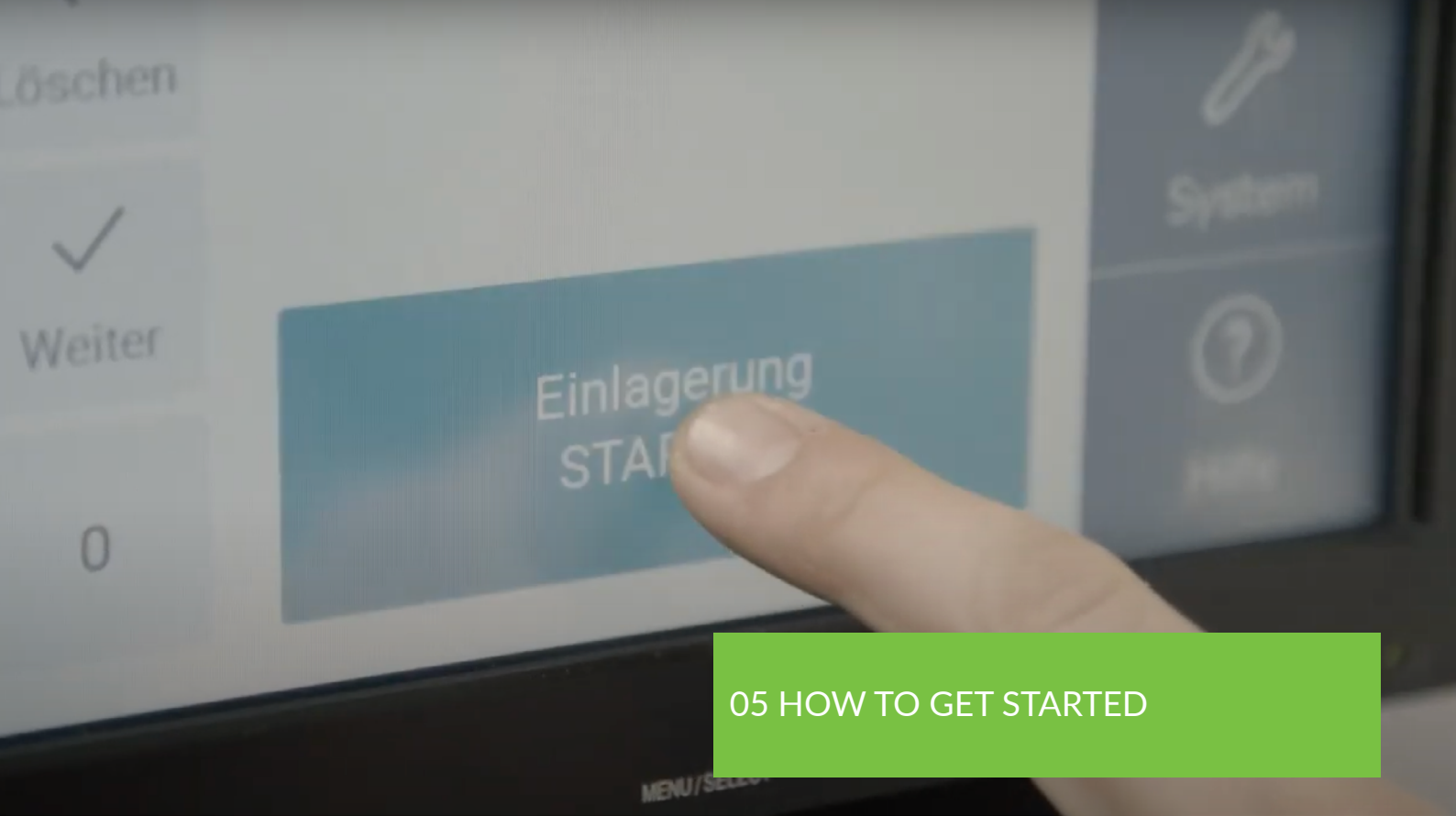
Picking small parts from a cluttered bin is challenging for any vision system. However, Pickit and a fast two-arm robot manage to keep a steady and reliable flow of over 25 parts per minute without human intervention.



Factor #2. Handling with care

Another critical aspect is collision-free bin picking. Pickit allows to model the robot tool that is used for picking, which can be used to prevent collisions between the tool and the bin or other objects. The tool model is also useful for visually confirming the correct location of a pick point.

Bin picking cycle times are typically 10 sec or more, which might be a downside for processes with very tight cycle times. However, the Essert Robotics case of Pickit and YuMi robot combination shows that high cycle times are achievable.



05 HOW TO GET STARTED

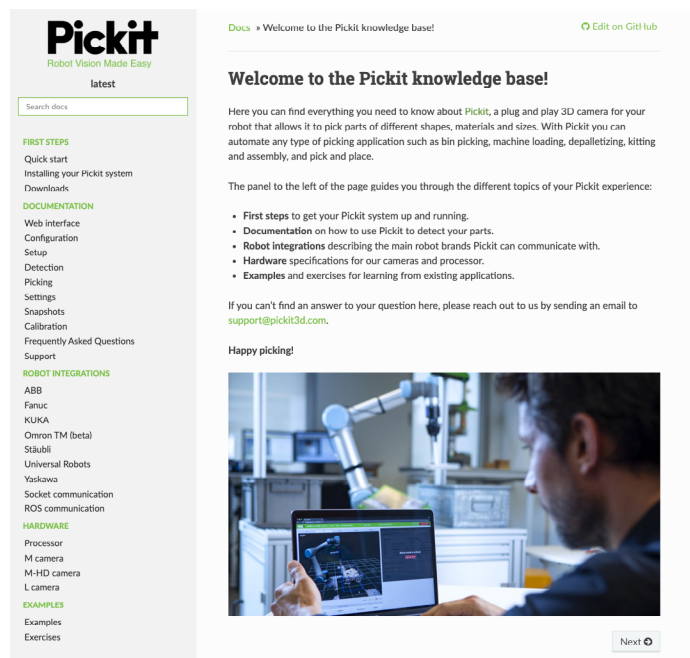
1. LEARN MORE

Looking forward to deepening your knowledge about the world of 3D vision? We have plenty of resources for self-education in our knowledge base with 100+ articles.

support.pickit3d.com

Check out the Pickit website with a plethora of information and videos, including case studies and footage of real-life applications.

pickit3d.com



Works with
your robot

UNIVERSAL ROBOTS

KUKA

OMRON

Doosan Robotics

ABB

TM

YASKAWA

FRANKA EMIKA

STÄUBLI

neuromeka

AUBO

HYUNDAI

Hanwha

NACHI

FANUC

2. EVALUATE YOUR APPLICATION

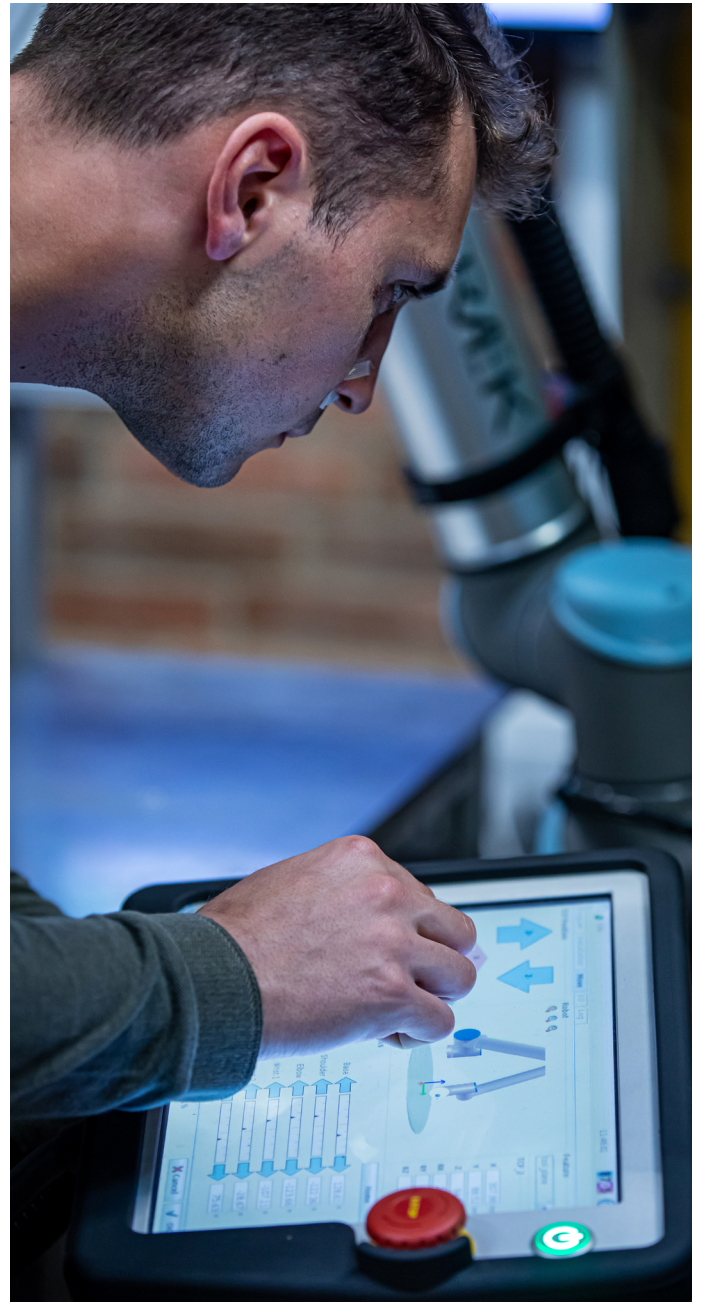
You have an application in mind, but you're not sure if it is a good fit, which gripper you should choose or you have other questions regarding the design of your production cell?

Get in touch with our engineers who help deploy, scale, and optimize 3D vision solutions for automotive suppliers, OEMS integrators, ranging from global top 100 companies to SMEs with less than 100 employees.

Contact us: Pickit3d.com/contact

Pickit Robot Vision Made Easy

Pickit is a 3D vision solution for pick and place robots. Pickit focuses on the ease of use whether it is the robot tool setups, teaching new parts to pick or easy testing of picking strategies. Pickit supports 15 brands of robots, both industrial and collaborative.



References

Let us know if you want to talk to our customers who already went on an automation journey with 3D vision.

