

ZENROBOTICS

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# ROBOTIC RECYCLING REVOLUTION

ZENROBOTICS®



# MAKING THE MOST OUT OF WASTE

Digitalization. Environment. Circular economy. Waste management is at the intersection of these global mega-trends and the potential is huge. Tightening regional regulation, such as the Chinese Sword, urge companies to invest in new technology.

Automation, artificial intelligence (AI) and data offer new and improved ways for operating and taking the most out of existing resources, instead of wasting them.

## LEADING ROBOT SOLUTION FOR RECYCLING

ZenRobotics is a pioneer in applying AI and cutting-edge robotic technology to a complex waste-processing environment. Our unique solution combines our own AI software with proprietary robots specifically designed to fit waste sorting.

With years of experience we understand how robots have to perform in waste sorting. Our solution makes recycling more efficient, accurate and profitable. **With us, you can future-proof your processes as robots adapt to a wide range of sorting needs, today and tomorrow.**

**DESIGNED FOR WASTE SORTING, OUR INTELLIGENT HEAVY-DUTY ROBOTS MAXIMIZE THE EFFICIENCY OF WASTE SORTING.**



# ROBOTS SIMPLY DO WHAT YOU ASK THEM TO DO

AI-powered robots enable efficient and autonomous operation, making waste sorting more profitable and flexible. You can easily control sorted fractions, purity and throughput and react to changes in the waste stream. The robots simply do what you want them to do.

We offer a solution for various waste streams. Today, our customers use robots for sorting commercial and industrial waste, scrap metals, construction and demolition waste, various grades of wood, rigid plastics, inert and more. **The sorting capabilities can be redefined for every new market situation – even on a daily basis.**

Robots are a good alternative for manual processes as **AI allows the robots to identify and sort objects just as well as humans do – only faster and safer.**

“**OUR ROBOTS BRING ENDURANCE  
A HUMAN JUST CANNOT DELIVER:  
NON-STOP ACCURACY AND SPEED.**”



## WHY YOU SHOULD CONSIDER ROBOTS

### LOW COSTS

High efficiency, minimizing manual processes and 24/7 operation result in low operational costs.

### HIGH REVENUE

Consistent quality and high-quality output ensure higher revenue and profits.

### BETTER SAFETY:

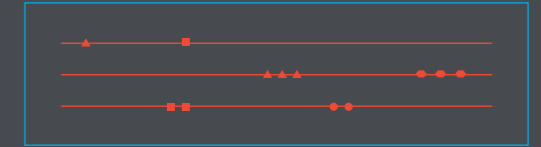
Eliminating manual processes lowers operational costs and ensures that your employees do not manually handle dangerous materials.

# UNLIMITED SORTING CAPABILITY WITH AI

Waste sorting requires good understanding of the sorted materials, a skill previously limited to human workers only. We have harnessed the power of AI to provide robots increased efficiency, accuracy, and the ability to learn new waste types.

AI is the core of our technology. Since the beginning, our products have been a unique combination of our own AI software and heavy-duty robot design. We have developed our very own software to work with various sensors for optimal performance. **Software upgrades make the system future-proof for the decades to come.**

WE HARNESS THE POWER OF AI TO MAKE WASTE SORTING MORE EFFICIENT AND PROFITABLE.



## ZENBRAIN KNOWS YOUR WASTE

The AI software, called ZenBrain, analyzes sensor data in real-time, creating an accurate real-time analysis of the waste stream. Based on the analysis, the robots make autonomous picking quickly and with high precision.

AI provides more varying recognition capabilities and allows the robots to be quickly trained on-site when conditions change. The possibility to adapt to changes and a different waste stream is a prerequisite of modern waste sorting technologies.

# HEAVY PICKER

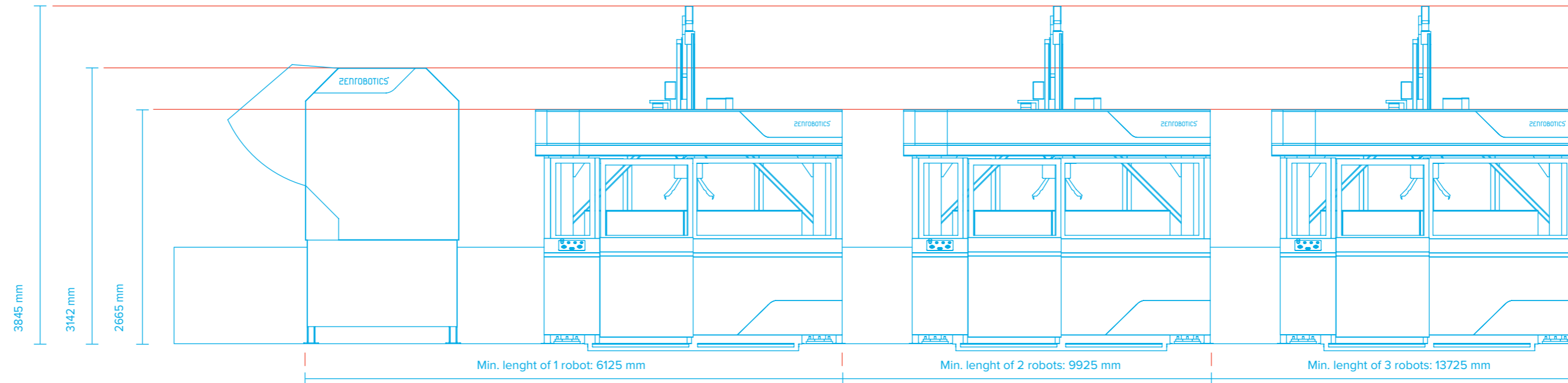
SORT BULKY OBJECTS WITHOUT SHREDDING

ZenRobotics Heavy Picker is the strongest waste sorting robot, fit for heavy and bulky materials. It can sort many different waste types and various objects simultaneously in one spot, reducing the need for complex pre-processing of waste. A single robot arm can sort simultaneously 4 different fractions with very high precision, reaching up to 98% purity.

Heavy Picker reclaims raw materials from waste with heavy-duty robots and AI. It combines data from multiple sensors to create an accurate real-time analysis of the waste stream. The sensor unit includes NIR, 3D, hi-res RGB camera, imaging metal detector and VIS sensors.

## MORE SPEED WITH HEAVY PICKER+

Intelligent motion control allows more efficient trajectories that increase sorting speed on average by 15%. A three-armed Heavy Picker+ makes 900 picks more in an hour. That's up to 6900 picks per hour in total!



**1-3**

ROBOT ARMS / UNIT



**GRIPPER**

TYPE: FINGER



**6000**

PICKS / h / 3 ARMS



**30 kg**

MAXIMUM OBJECT WEIGHT

## HEAVY PICKER IS IDEAL FOR

- Commercial & Industrial Waste
- Construction & Demolition Waste
- Scrap Metals
- Rigid Plastics (PE, PP, PVC, PET)
- Wood (A/B/C Wood)
- Inert
- Bags by color

## BENEFITS

- 24/7 non-stop operation
- Many waste applications
- High-purity fractions
- Hybrid sorting – positive and negative sorting at the same time
- Replaces manual processes
- Reduces excavator hours
- Increases safety

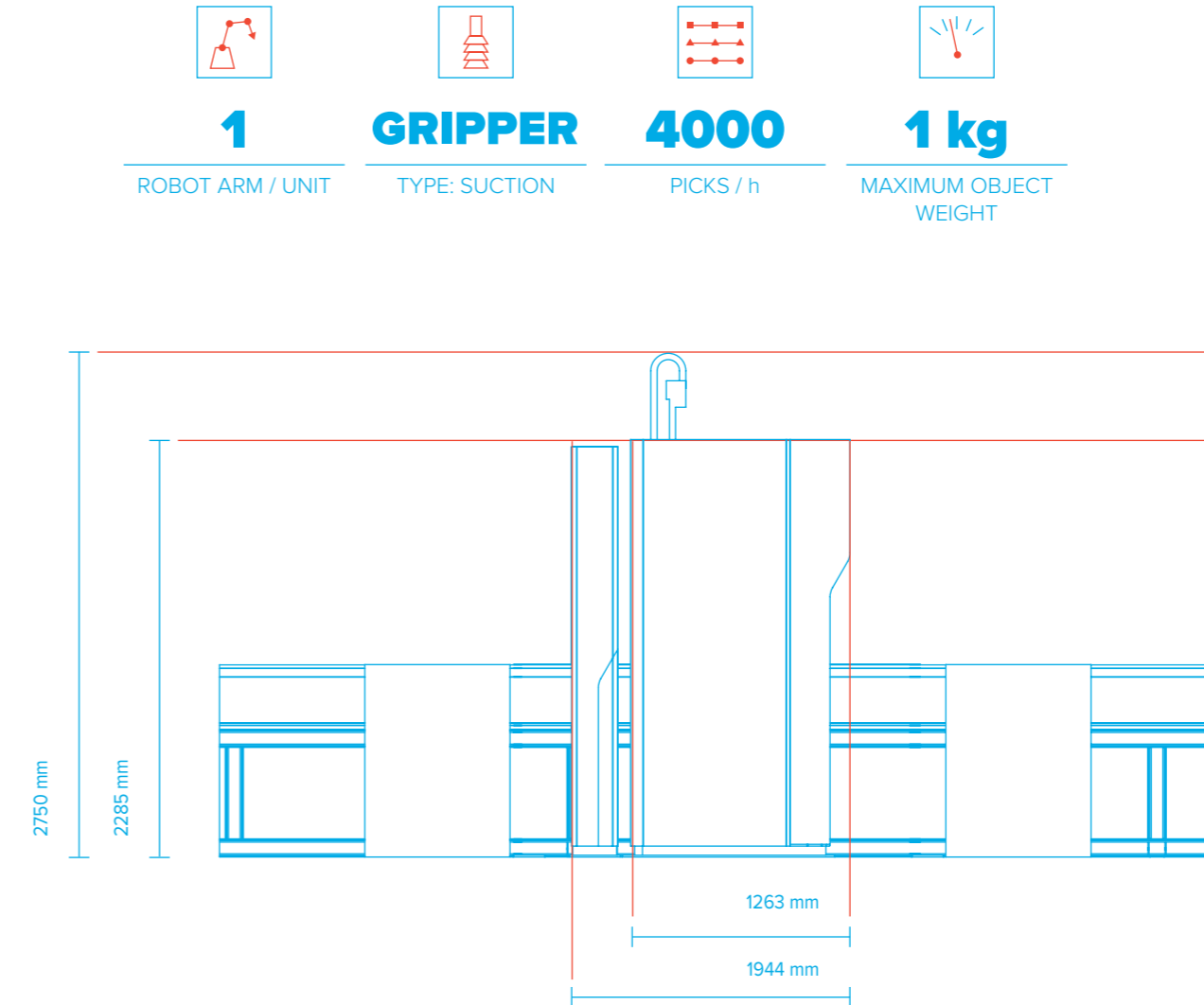
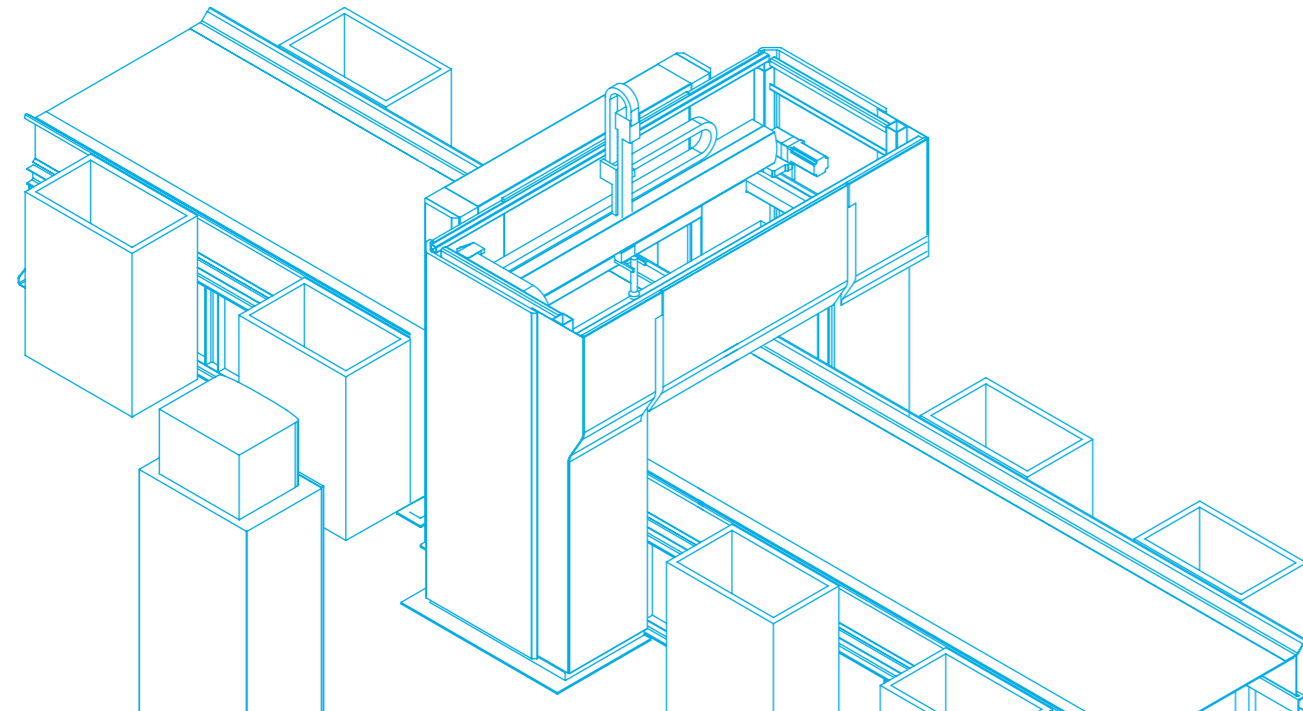
# FAST PICKER

## HANDS-FREE SORTING FOR MRF'S

Designed to improve the efficiency of MRFs, ZenRobotics Fast Picker is ideal for lightweight material such as packaging waste (LWP), dry mixed recyclables (DMR) and municipal solid waste (MSW). It can be easily integrated to side streams, reject recovery lines, and quality control after optical sorting. ZenRobotics Fast Picker allows autonomous picking 24/7 and increases recovery while maintaining high purity in recyclables.

## COMPACT DESIGN FOR EASY INTEGRATION

Fast Picker's robust and compact design is optimal for demanding waste treatment environments and can be retrofitted for different conveyor widths. Therefore, it fits most picking stations without additional modifications.



## FAST PICKER IS IDEAL FOR

- Quality Control
- Reject Recovery
- Polymer Lines
- Fiber Lines

## BENEFITS

- Autonomous operation 24/7
- Replaces manual processes
- Increases product recovery and purity
- High accuracy and efficiency
- High-quality fractions and increased profits
- Robots can be used for various applications in one plant
- Improves occupational safety
- Easy installation to existing MRF's

# WE'RE ON A MISSION TO REVOLUTIONISE WASTE RECYCLING

ZenRobotics' AI-powered waste sorting robots make recycling more efficient, accurate and profitable. We are the pioneers in robotic recycling and trusted by waste companies around the world.

## JOIN THE REVOLUTION.

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### Contact us

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