Artificial Intelligence learning the Wastes Automatically

Smart Waste Sorting Robot Dr.B

Dr.B the Sorting Robot

Dr.B

ACI ENTECH
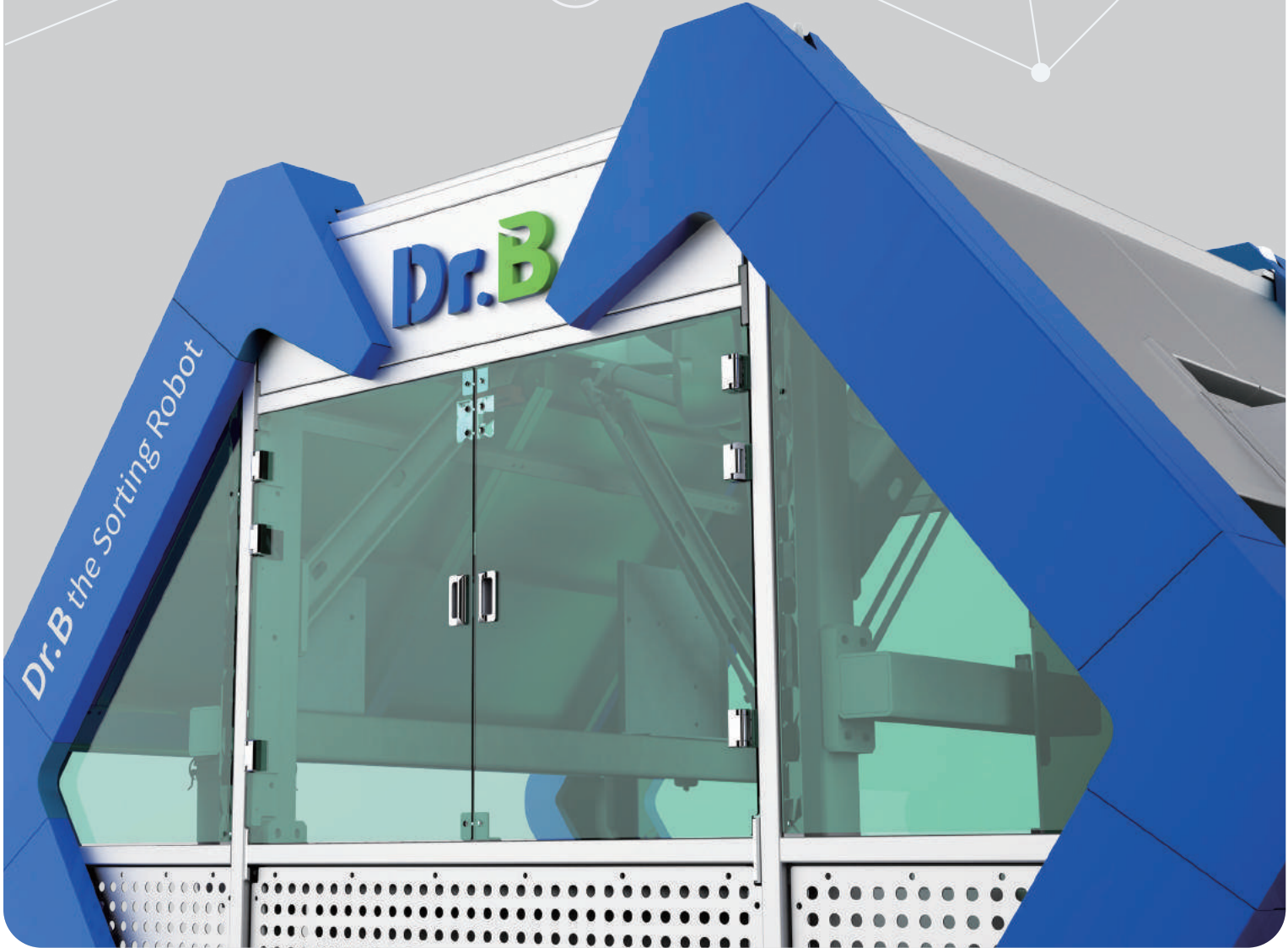
Smart Waste Sorting Robot
with AI Engine Dr.B

Dr. B is the top-of-the-line Waste Sorting Robot with Artificial Intelligence.
The Robot learns the new materials with auto machine learning algorithm.
Dr B the Sorting Robot recognizes and sorts the wastes by the shape and color like Milk Pack,
PET Clear Bottle, PET Colored Bottle, HDPE Natural Colored Bottle, Office Paper, Aluminum Can
with the camera and AI Engine. Robot sorting speed is 2 to 4 times faster than the human's, and the
information once learned remains in the system to ensure the high-purity sorting.
Dr. B is installed after conventional automatic optical sorter to purify the plastics, cans and
papers upto 99% plus.

▶ **Dr.B DELTa Dual**
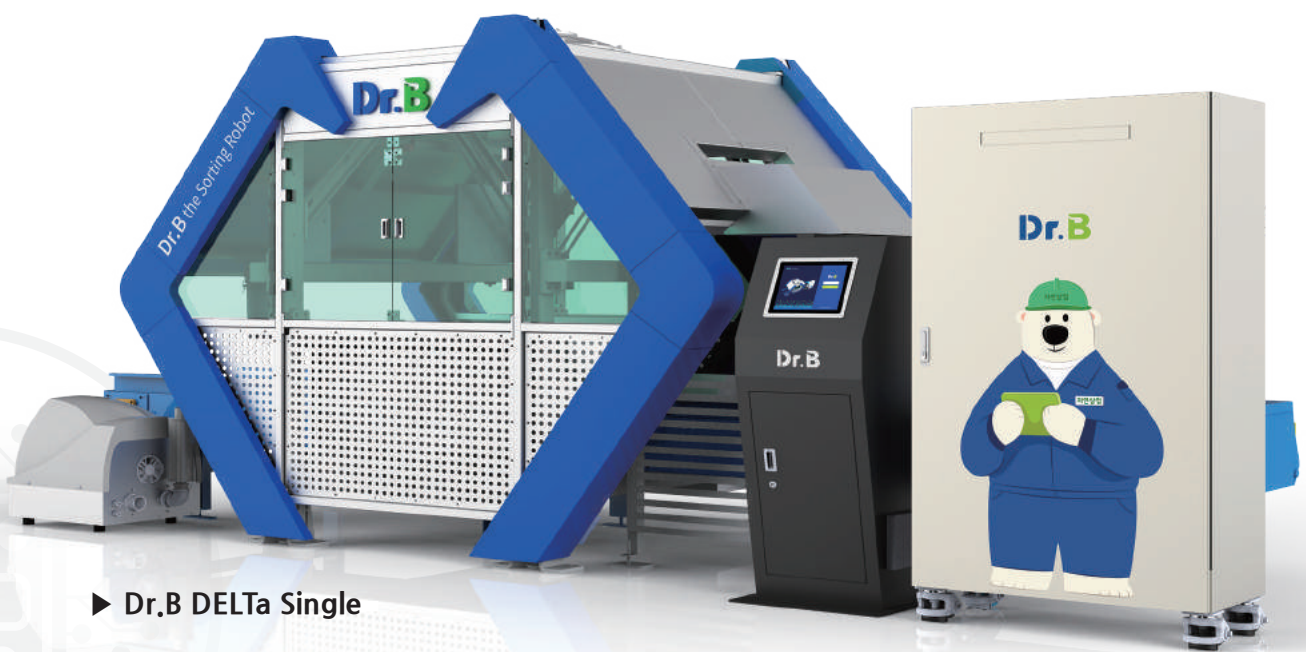
▶ **Dr.B DELTa Single**

[Dr.B Product Technology]

01. Artificial Intelligence Technology of Dr.B the Sorting Robot
Dr.B employs an artificial intelligence recognition system similar to human learning methods by using AutoML-based deep learning technology with 2D image information collected from the vision system.

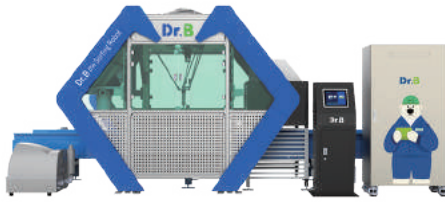## 02. Dr. B the Sorting Robot's Technology of Artificial Intelligence
The recognized object is compared with the screening data of the Control PC and then picked with the robot arms.

[Dr.B Product Features]

•**Sorting Efficiency :** One unit sorts up to 4 categories at 70 to 120 picks per minute

•**Operating Hours :** Provides continuous and consistent sorting performance by operating 24 hours a day

•**Operation Mode :** 100% autonomous

•**Diversity :** Achieves high sorting efficiency and purity with automatic learning of various materials

•**Learning Ability :** Achieving high sorting efficiency through fast learning process when new items are discovered

•**Sorting Purity :** Achieving 99.99% purity possible

•**Compatibility :** Maintaining 99.997 % of sorting purity in combination with conventional automatic optical sorter

•**Manpower Saving :** Replacing labors in industrial safety risk areas and QC areas

•**Value Adding :** Selective/intensive sorting of recyclables with high unit price is possible

• **Safety Design :** Safe work space by applying high safety design

[Dr.B Products & Specifications]

Dr.B DELTa Robot

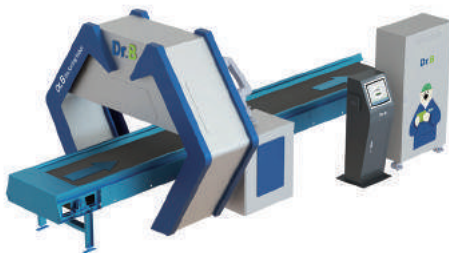| Item	Single	Dual
Sorting Line Configuration	Robot - Sorting Conveyor - Sorting Chutes	
Applications	Sorting big and bulky items and bags in the sorting line	
Sorting Items	PET(Clear/Colored), PE(HDPE/LDPE), PP, PS, Mixed Plastics, CANs, Paper, Black Plastics and others - can add more items	
Max Capacity (Guarantee Capacity)	70 picks/min (60 picks/min)	70 picks/min (60 picks/min)/per Robot
Sorting Chute	2 ~ 4 Chutes (depending on Item Size)	2 Chutes per Robot (depending on Item Size)
Max Picking Weight	0.5 kg per pick	
Max Picking Size	250mm	
Sorting Radius	1,300mm	
Machine Dimension (L x W x H)	3,320 x 2,080 x 2,580 mm	4,765 x 2,780 x 2,580 mm
Machine Weight (Main Body)	1,400 kg	2,000 kg
Max Conveyor Speed	1 m/sec	
Width of Conveyor Belt and Structure	800mm / 1,058mm	1,200mm / 1,360mm
Compressed Air Consumption @ 100 psig (7 bars)	100 liters (0.1 m³/min)	200 liters (0.2 m³/min)
Required Compressed Air Quality	Oil filtered dry air, pressure: 100 psig (7 bar), ISO 8573.1 Class 1.4.2	
Input power	380V , 60Hz, 3-phase 4-wire type	
Circuit Breaker Capacity	50A	100A
Power Consumption	14kW for Robot Main Body (Option : 37kW air compressor)	28kW for Robot Main Body (Option : 75kW air compressor)

Main Components

- Delta Robots and Externals
- Kiosk with Edge Computer
- Dr.B Control Unit
- Dr.B AI Vision System
- Suction Gripper Unit
- Suction Air Blower
- Main Frame

Dr.B ARTi Robot

Item	Single	Dual
Sorting Line Configuration	Robot (Single or Dual) - Sorting Conveyor - Sorting Chutes	
Applications	Sorting big and bulky items and bags in the sorting line	
Sorting Items	PET(Clear/Colored), PE(HDPE/LDPE), PP, PS, Mixed Plastics, CANs, Paper, Black Plastics Bags, WEEE, Cardboard, Newspaper, Books, Glass and others - can add more	
Max Capacity (Guarantee Capacity)	30 picks/min (25 picks/min)	30 picks/min (25 picks/min) /per Robot
Sorting Chute	Multi Chutes (depending on Item Size)	
Max Picking Weight	0.5 kg per pick	
Max Picking Size	1,000mm	
Sorting Radius	930mm	
Machine Dimension (L x W x H)	2,700 x 1,800 x 2,580 mm	3,700 x 2,800 x 2,580 mm
Machine Weight (Main Body)	500kg	800kg
Max Conveyor Speed	0.5m/sec	
Width of Conveyor Belt and Structure	MAX, 800mm / 960mm	MAX, 1,600mm / 1,760mm
Compressed Air Consumption @ 100 psig (7 bars)	100 liters (0.1 m³/min)	200 liters (0.2 m³/min)
Required Compressed Air Quality	Oil filtered dry air, pressure: 100 psig (7 bar), ISO 8573.1 Class 1.4.2	
Input power	380V , 60Hz, 3-phase 4-wire type	
Circuit Breaker Capacity	50A	100A
Power Consumption	7.5kW for Robot Main Body (Option : 37kW air compressor)	15kW for Robot Main Body (Option : 75kW air compressor)
Working Atmosphere	In House ; 0-45°C	

Main Components

- Articulated Robots and Externals
- Kiosk with Edge Computer
- Dr.B Control Unit
- Dr.B AI Vision System
- Suction Gripper Unit
- Suction Air Blower
- Main Frame

*The sorting robot is installed on new conveyor at additional cost, and sorting chute and encoder are added on conveyor.