

Simple  friendly

RZM

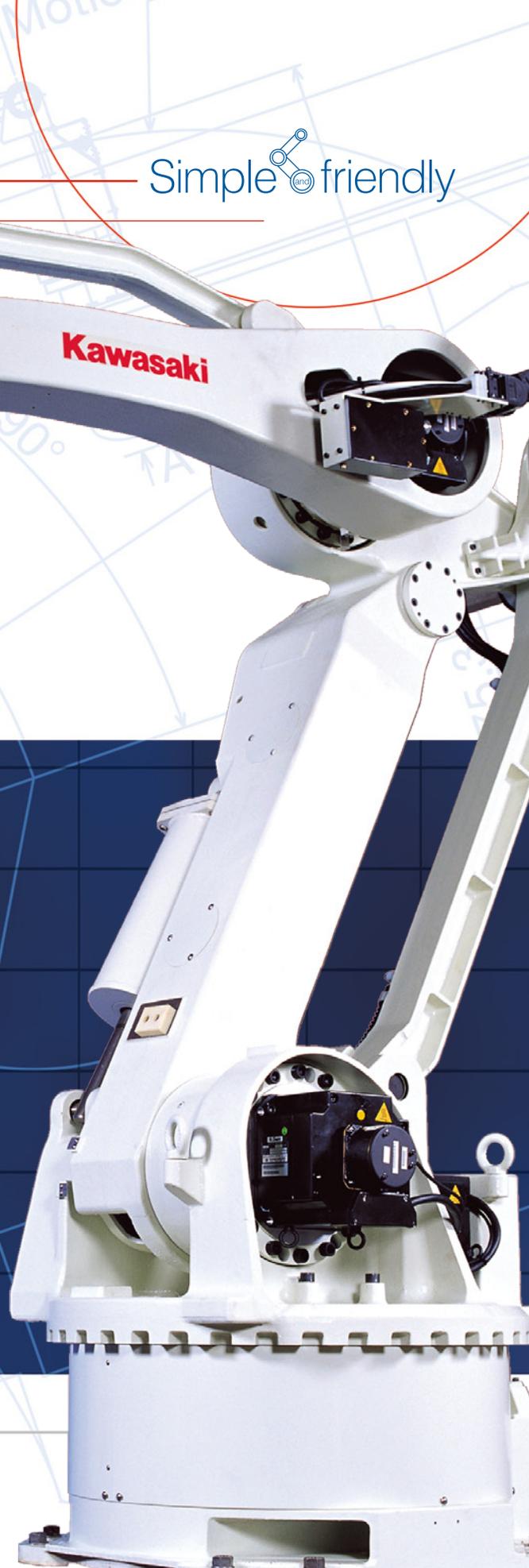
High-Performance Palletizing Robots

up to 500 kg payload

simply the highest performance robots

 **Kawasaki**

Kawasaki Robotics (USA), Inc.





HIGH-PERFORMANCE PALLETIZING ROBOTS

Designed specifically for palletizing applications, the Palletizer Series features five unique robots with payload capacity from 80 kg to 500 kg to suit most needs. With industry leading work range and reliability, Kawasaki's high-speed palletizing robots help companies improve production line efficiency.

HIGH-PERFORMANCE

In today's highly competitive marketplace, meeting the demand for just-in-time deliveries, flexible packaging, the freshest products, and the highest production line efficiencies are all key to a company's success. Kawasaki Robotics helps support these success factors with robots designed specifically for palletizing applications. Robot models RD80N, ZDE130S, ZDE250S, MDE400N and MDE500N offer a wide range of payload options (80 kg to 500 kg) along with industry leading reach, speed and quality to deliver high-performance automation technology for most any palletizing application.

HIGH-SPEED OPERATION

The Kawasaki Palletizing Robots are among the fastest and most reliable machines in the industry. The RD80N Robot is capable of 900 cycles per hour with an 80 kg payload and the ZDE130S Robot is capable of 1,800 cycles per hour with a 60 kg payload.

COMPACT APPLICATIONS

The Kawasaki RD80N is designed specifically for applications where a compact, high-speed, palletizing robot is required. Despite its slim space-saving design, the RD80N can manipulate loads up to 80 kg and create pallet stacks over seven feet tall. The unique 5-axis design can be floor or ceiling mounted and is ideal for palletizing, depalletizing, material handling, and case packing applications.

LARGE WORK ENVELOPE WITH HIGH PAYLOAD

The ZDE130S and ZDE250S robots can manipulate products vertically up to 3,075 mm, while the MDE400N and MDE500N robots have up to 3,521 mm of vertical range. The high vertical reach capability is ideal for tall pallet creation and multi-lane applications where the robot is required to reach over incoming and outgoing production lines. Kawasaki Palletizing Robots have a horizontal reach of up to 3,255 mm, which is the longest reach in their class. This extra long reach allows for one Kawasaki robot to be used in applications where five or more outgoing pallet lanes are required. This unique capability contributes to the flexibility and efficiency of the Kawasaki Palletizing Robot design.

The Z-Series models are ideal for typical medium to heavy palletizing loads, while the high capacity M-Series robots can handle up to 500 kg. The high payload capabilities of these robots allow for multiple product picks and complete pallet layer handling, resulting in fewer cycles per completed pallet.



Palletizer Series

Simple friendly



STANDARD FEATURES

4 or 5-Axis Articulated Arm

Payload Capacity 80-500 kg

Electric AC Servo Drive Motors/Encoders

Common E Controller

Large Working Envelope

High Duty Cycle

- High wrist torque and inertia capacity
- High speed wrist
- Maximum payload capacity rated at full speed and full reach

Space Saving Design

- Small footprint
- Minimal dead zones

Production Advantages

- High speed operation
- Rapid and adaptive acceleration and deceleration rates
- All digital servo control
- 5 or more lane pallet stacking capability
- Automatic program back-up feature

Low-Cost Maintenance

- 5,000 hour (RD/MD models) and 10,000 hour (ZD models) maintenance intervals
- Fittings for easy lubrication (one grease type)

Programming

- Simplified “Block Step” teaching
- Advanced Kawasaki “AS Language”
- PC (Process Control) programs
- Ethernet TCP/IP, RS-232 port for PC communication
- Programmable graphical user interface (GUI)
- On-screen diagnostics
- Pallet building software

Safety

- Three-position teach pendant safety switch
- Rotational hard stops and software limits
- Continuous monitoring of speed and position
- Hardwired emergency circuits for peripheral devices
- UL approved



(See E Controller brochure or visit www.kawasakirobotics.com for controller features and specifications.)

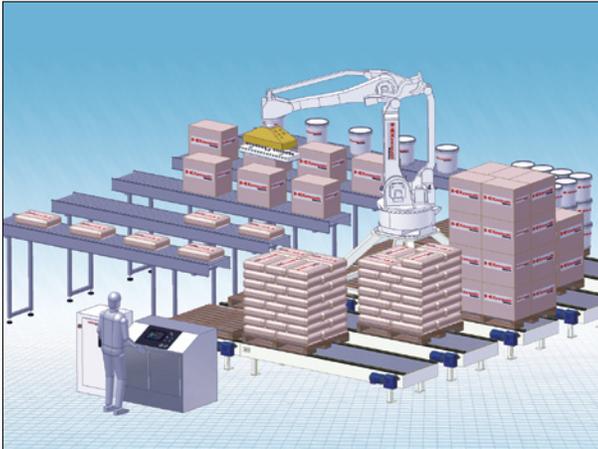
APPLICATIONS

Palletizing
Depalletizing
Packaging



simply the highest performance robots

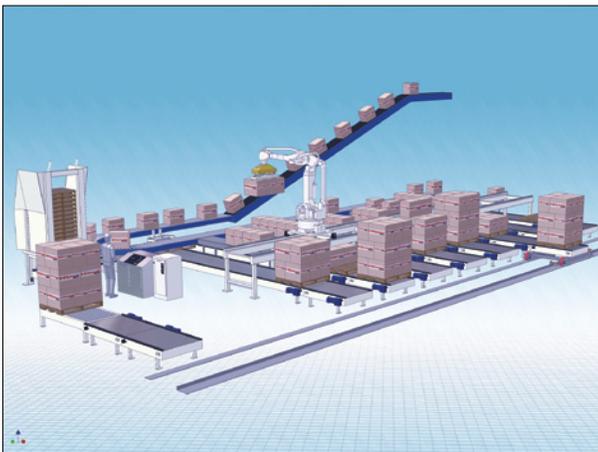
SYSTEM LAYOUT EXAMPLES



Multi-product palletizing - 5 lanes in & out *

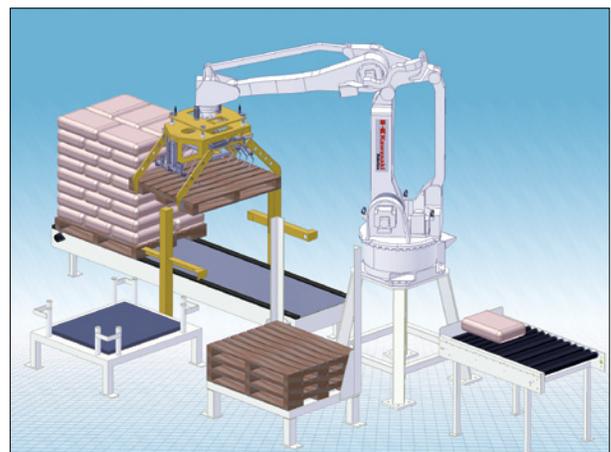


Glass bottle palletizing - full layer handling *



Box palletizing with 7th axis rail *

* Required safety fence not shown for picture clarity



Bag palletizing with pallet handling *

SIMPLE PALLETIZING SOFTWARE

Available as an option, Kawasaki's palletizing software K-SPARC allows layout planning and operations to be simulated on your computer. You simply select the workpieces, pallets, and stacking patterns you want to use and the software lets you choose the layout, configure the pick and place positions and register the dimensional data of the items. You can review layouts displayed on screen as well as simulate robots. The software also allows you to easily create robot operation programs. With its enhanced usability, K-SPARC supports more pallet stacking patterns than conventional palletizing software, making it easier to teach robots.

K-SPARC is an application program built on K-ROSET, Kawasaki's offline teaching software. This makes K-ROSET functions, such as cycle time analysis and interference check, available to users.



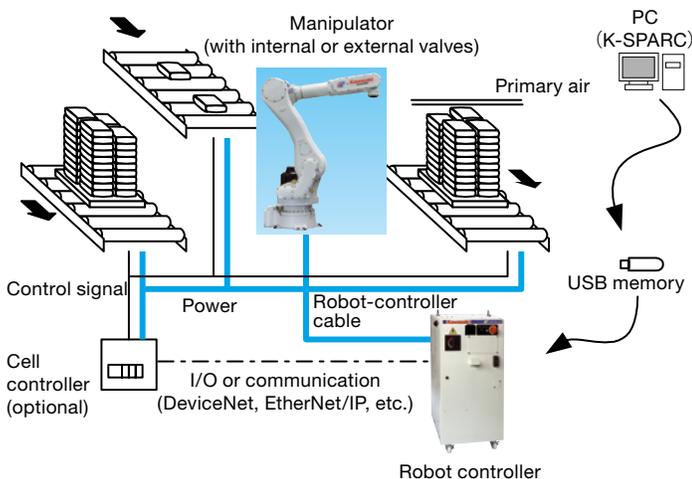
High-Performance Palletizing Robots

KAWASAKI ROBOT PALLETIZING ADVANTAGES

- The long arm design allows for system designs using five or more full size outgoing pallets.
- Kawasaki's AS Language is a powerful yet user friendly means of programming which allows for quick robot program creation and "on-the-fly" editing.
- K-SPARC, Kawasaki's palletizing software, enables users to quickly and easily simulate layout planning and operations, as well as create robot operation programs.
- The high payload capabilities make it possible for the robot to manipulate multiple products during one pick cycle, resulting in higher throughput.
- The robot controller can operate the entire system, eliminating the need for additional hardware.
- The powerful Kawasaki E Controller offers a variety of communication, interfacing, and networking options (see E Controller brochure or visit www.kawasakirobotics.com).



SYSTEM CONFIGURATION EXAMPLE



CAPE PALLETIZING SOFTWARE INTERFACE

Kawasaki's K-CAPE is a software tool that allows users to import pallet pattern data from the commonly used CAPE pallet design optimization software to generate robot programs. Once the pattern data is imported, the user can place the pallet and robot within a virtual environment and K-CAPE will automatically determine the order to build the pallet and generate the code for the robot program in Kawasaki's AS Language. The code is then exported and loaded to the Kawasaki robot controller, with the operator on the floor only needing to teach the robot a pick up location for incoming boxes and the pallet location to start palletizing.

PALLETIZER SERIES SPECIFICATIONS



MODEL	RD80N	ZDE130S	ZDE250S	MDE400N	MDE500N	
Type	Articulated					
Degrees of Freedom	5 axes	4 axes	4 axes	5 axes	5 axes	
Payload	80 kg	130 kg	250 kg	400 kg	500 kg	
Horizontal Reach	2,100 mm	3,255 mm	3,255 mm	3,142 mm	3,142 mm	
Vertical Reach	3,311 mm	3,075 mm	3,075 mm	3,521 mm	3,521 mm	
Repeatability	±0.07 mm	±0.5 mm	±0.5 mm	±0.5 mm	±0.5 mm	
Motion Range	JT1	±180°	±180°	±180°	±180°	
	JT2	+140° ~ -105°	+90° ~ -50°	+90° ~ -50°	+90° ~ -45°	+90° ~ -45°
	JT3	+40° ~ -205°	+15° ~ -120°	+15° ~ -120°	+14° ~ -125°	+14° ~ -125°
	JT4	±360°	±360°	±360°	±360°	±360°
	JT5	±10°	---	---	±10°	±10°
Maximum Speed	JT1	180°/s	135°/s	95°/s	80°/s	70°/s
	JT2	180°/s	110°/s	90°/s	70°/s	65°/s
	JT3	175°/s	130°/s	95°/s	70°/s	45°/s
	JT4	360°/s	400°/s	190°/s	180°/s	160°/s
	JT5	---	---	---	---	---
Wrist Moment of Inertia	JT4	13.7 kg·m ²	50 kg·m ²	100 kg·m ²	200 kg·m ²	250 kg·m ²
Maximum Palletizing Capacity		2800 cycles/hr ** (80 kg load)	1,800 cycles/hr * (60 kg load)	850 cycles/hr * (250 kg load)	740 cycles/hr * (400 kg load)	600 cycles/hr * (500 kg load)
		900 cycles/hr * (80 kg load)	1,500 cycles/hr * (130 kg load)			
Motors	Brushless AC Servomotor					
Brakes	All axes					
Hard Stops	Adjustable mechanical stopper JT1/JT2/JT3	Adjustable mechanical stopper JT1		Adjustable mechanical stopper JT1		
Limit Switch	---	End of stroke limit switch JT1		End of stroke limit switch JT1		
Mass	540 kg	1,350 kg	1,350 kg	2,650 kg	2,680 kg	
Body Color	Kawasaki Standard					
Installation	Floor	Floor (includes fork pockets)		Floor (includes fork pockets)		
Environmental Conditions	Temperature: 0 ~ 45° C					
	Humidity: 35 ~ 85 % (no dew, nor frost allowed)					
	Vibration: Less than 0.5 G					
Protection Classification	Wrist: IP67 Base: IP65	Wrist: IP67 Base: IP65 * Equivalent		Wrist: IP55 Base: IP65 * Equivalent		
Built-in Harness	Sensor harness 12 inputs, 24VDC, GND	Sensor harness 4 inputs, 24VDC, GND Valve harness 8 outputs		Sensor harness 4 inputs, 24VDC, GND Valve harness 8 outputs		
Internal Wiring	14 wires, inside arm	---		---		
Built-in Utilities	Pneumatic piping (ø10 x 2 lines)	Pneumatic piping (ø12 x 2 lines)		Pneumatic piping (ø12 x 2 lines)		
Options	IP67 entire arm Linear track options Riser (300/600 mm) Base plate	Linear track options Base plate Signal harness (up to 24 inputs and 8 outputs) Double/single solenoid valves (2 units max.) Internal wiring (37 wires inside robot arm) Air cleaning equipment (filter, regulator, mist separator) Pneumatic piping for blower (ø1 inch x 1 line) Rust resistant specification		Linear track options Base plate Adjustable mechanical stopper JT2/JT3 Limit switch JT2/JT3 Sensor harness 16 inputs (replaces built-in standard) Double/single solenoid valves (2 units max.) Air cleaning equipment (filter, regulator, mist separator) Pneumatic piping for blower (ø1 inch x 1 line)		
	Double/single solenoid valves (4 units max.)					
	Air cleaning equipment (filter, regulator, mist separator)					
Controller	E32	E33		E34		

* Based on a robot stroke of 400 mm vertically and 2,000 mm horizontally

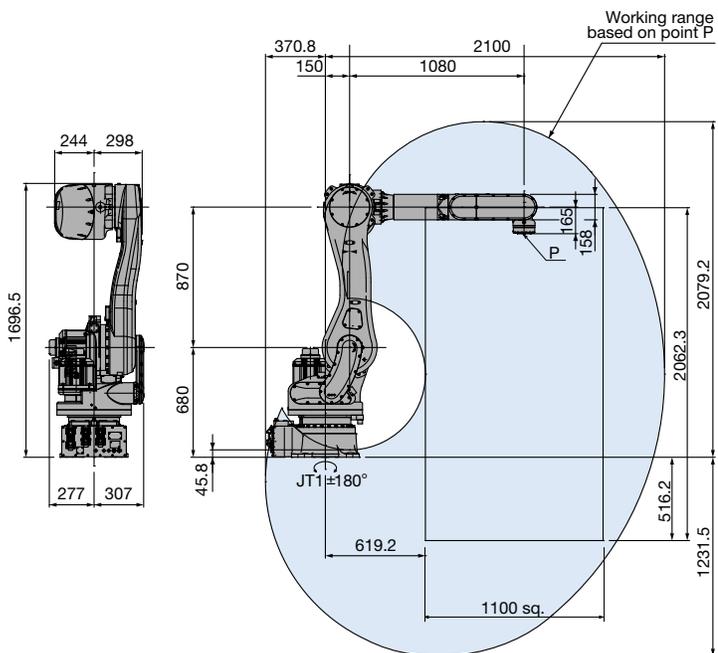
** Based on a robot stroke of 75 mm vertically and 900 mm horizontally

Palletizer Series

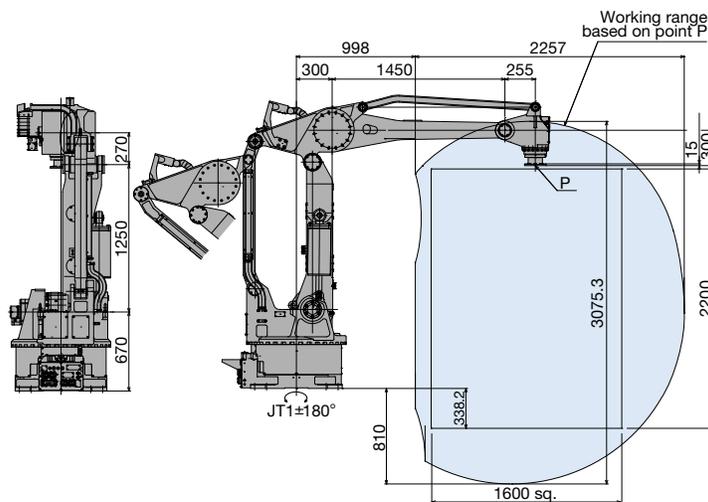
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MOTION RANGE & DIMENSIONS

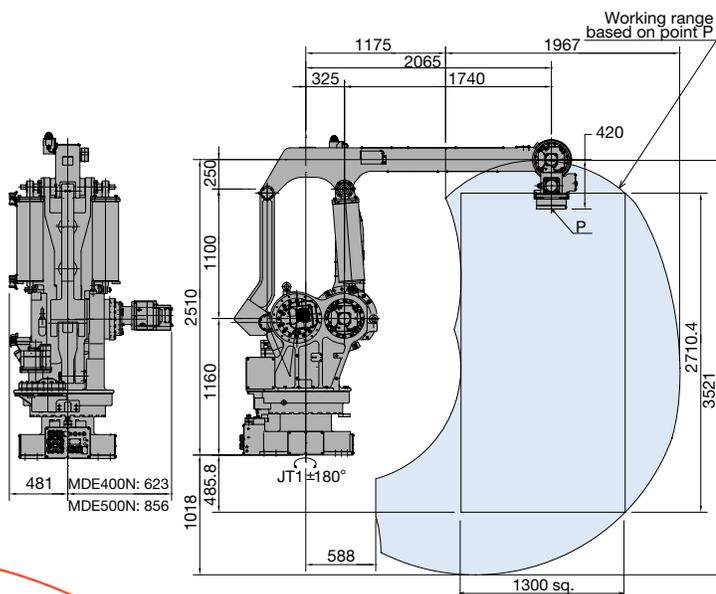
RD80N



ZDE130S, ZDE250S



MDE400N, MDE500N



(mm)



simply the highest performance robots



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