

M-420iA/M-421iA™

Basic Description

The M-420iA series is FANUC Robotics' latest-generation, high-performance, high-speed family of industrial robots. Based on a simple and reliable design, the M-420iA and M-421iA provide sophisticated motion control and consistent performance with high productivity. The series is supported by the SYSTEM R-J3iB intelligent robot control system.

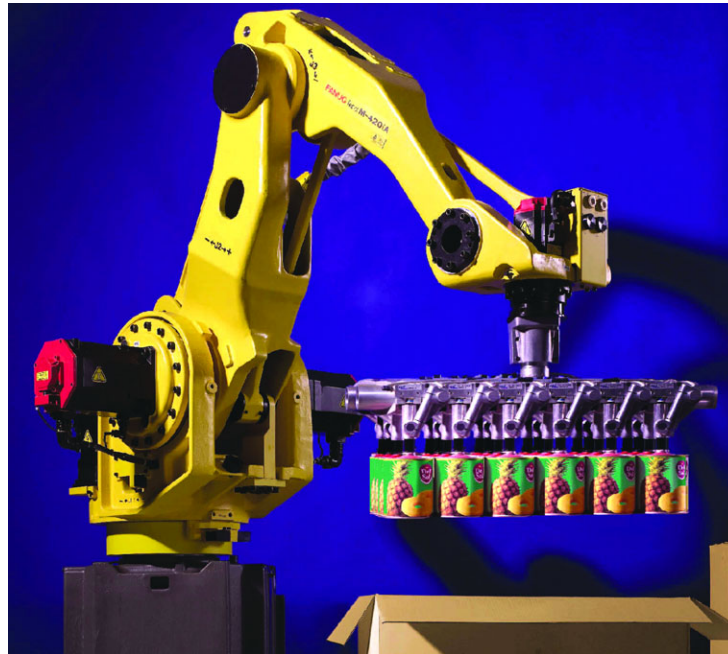
The M-420iA is a four-axis, modular construction, electric servo-driven robot designed for high-speed case packing and material handling applications. The M-421iA is a two-axis variant designed for the high-speed top-loading packing market.

M-420iA/M-421iA, the Solution for:

- High-speed packaging
- High-speed palletizing
- Machine loading
- Mechanical assembly

Benefits

- Features highest motion speeds in its class for maximum performance and productivity.
- Highest payload in its class helps achieve maximum throughput by handling multiple parts.
- Four-axis dexterity enables access to multiple packaging lines with one unit.
- Additional auxiliary amplifiers available in R-J3iB Controller offer ability to control complete high-speed packaging line with robot controller.
- FANUC visLOCi & visTRACi (V-500iA series of vision products) provide the ability to pack randomly-oriented products.



Features

- M-420iA - 4 axes of motion, 40 kg capacity.
- M-421iA - 2 axes of motion, 50 kg capacity. Waist and wrist rotation removed from four-axis unit.
- iPendant, a color, Internet-ready teach pendant for even easier programming and custom cell user interface design.
- Large work envelope with 1855 mm horizontal reach developed around packaging applications.
- Repeatability of +/- 0.5 mm at full speed and full payload within entire work envelope.
- Linear motion speeds up to 4200 mm/sec.
- Dedicated pneumatic and electrical (8 digital inputs/8 digital outputs) connections at wrist to simplify user's end-of-arm tooling design and integration.
- Material handling style teach pendant with large LCD screen and ergonomic design offers intuitive control over automated process.

- Sealed bearings and brushless AC motor drives provide protection and improve reliability.

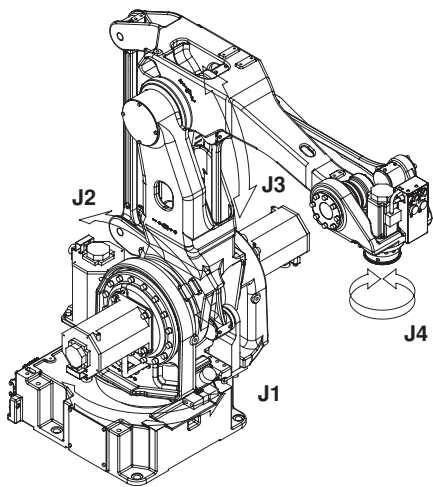
Options

- M-420iA high-speed wrist option, J4 wrist speed increases from 350 to 720 degrees/sec. for applications that require high-speed wrist motions. Maximum payload decreases from 40 kg to 30 kg.
- iPendant is also available with touch screen support.
- Various robot connection cable lengths for flexible cabinet placement and optional track rated cables.
- A cleanable unit coated with white polyurethane to meet requirements in typical secondary food packaging applications.
- Monochrome pendant available.

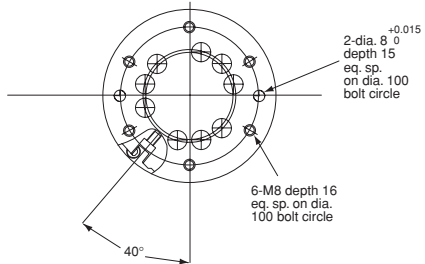
FANUC
Robotics

M-420*i*A Dimensions

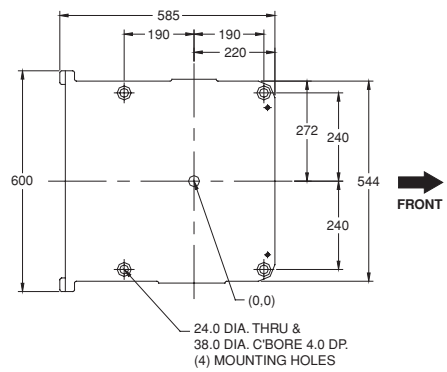
Isometric



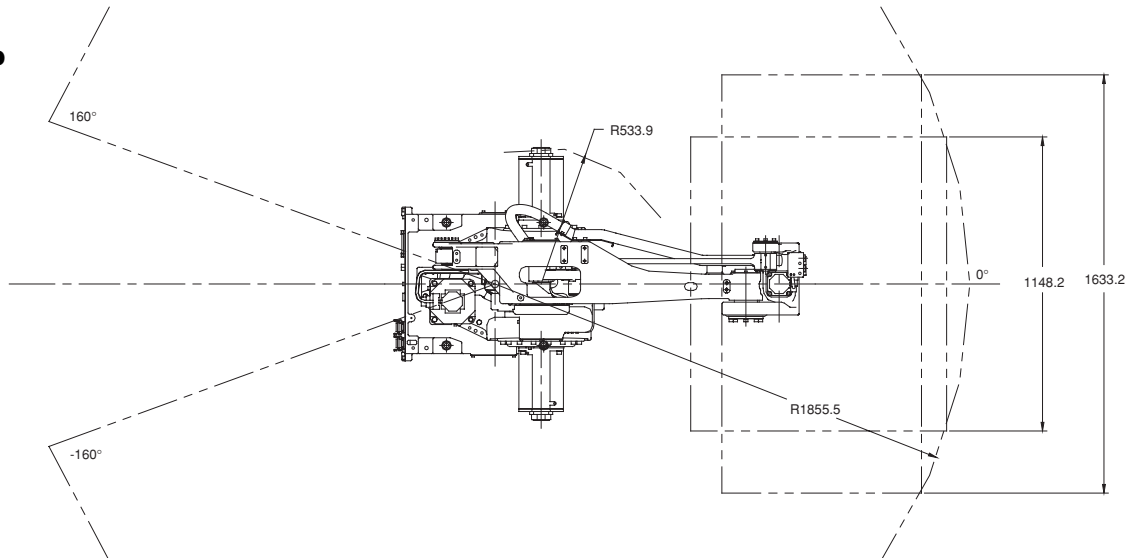
Wrist



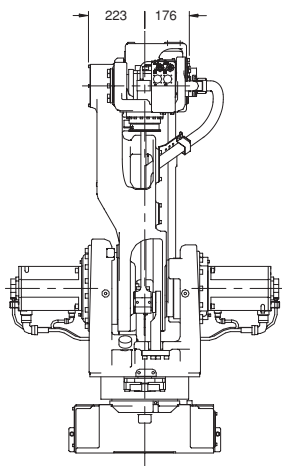
Footprint



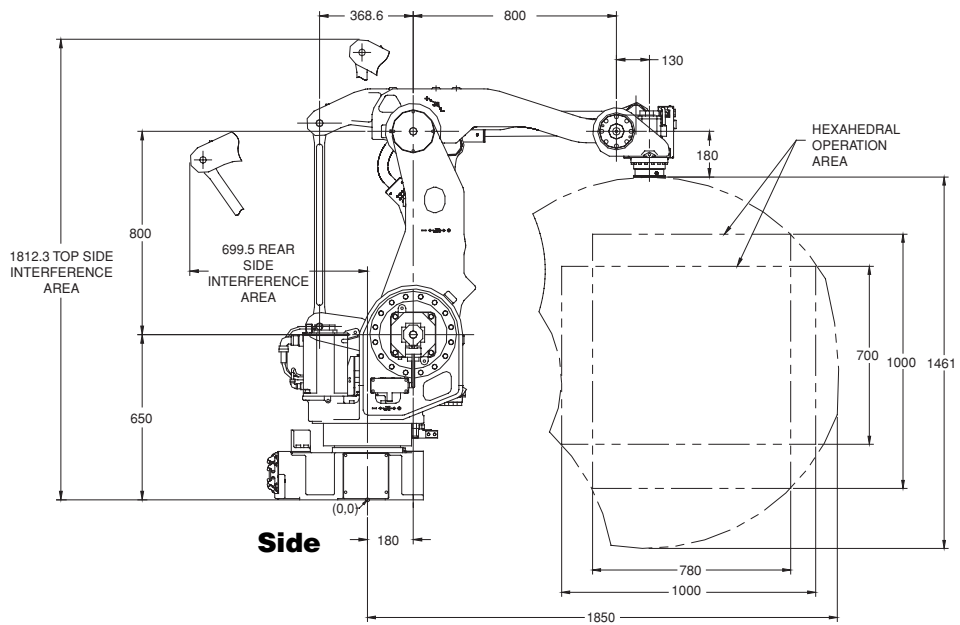
Top



Front



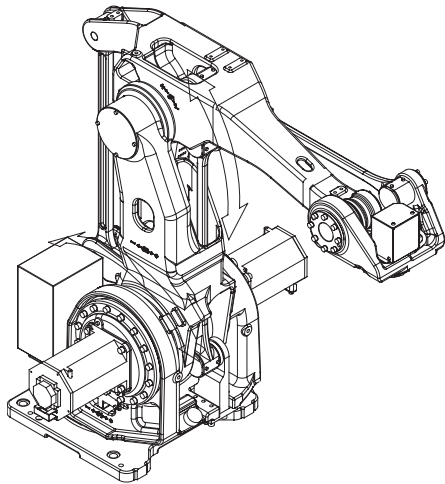
Side



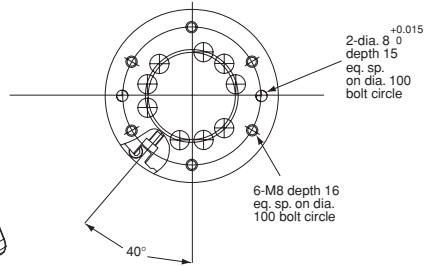
Note: Dimensions shown in millimeters.

M-421iA Dimensions

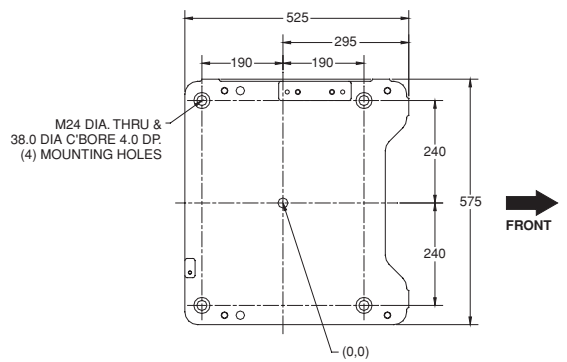
Isometric



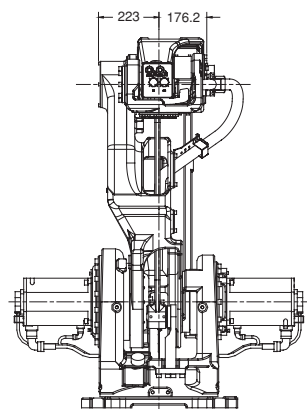
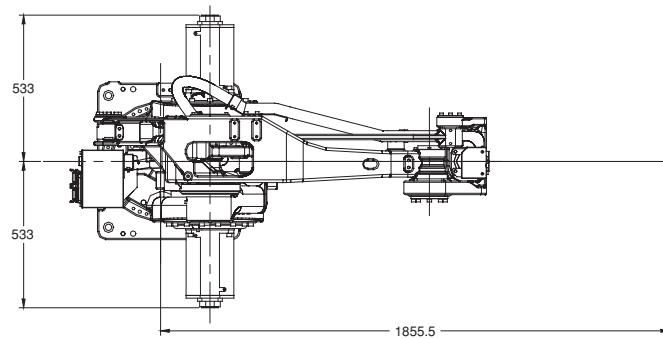
Wrist



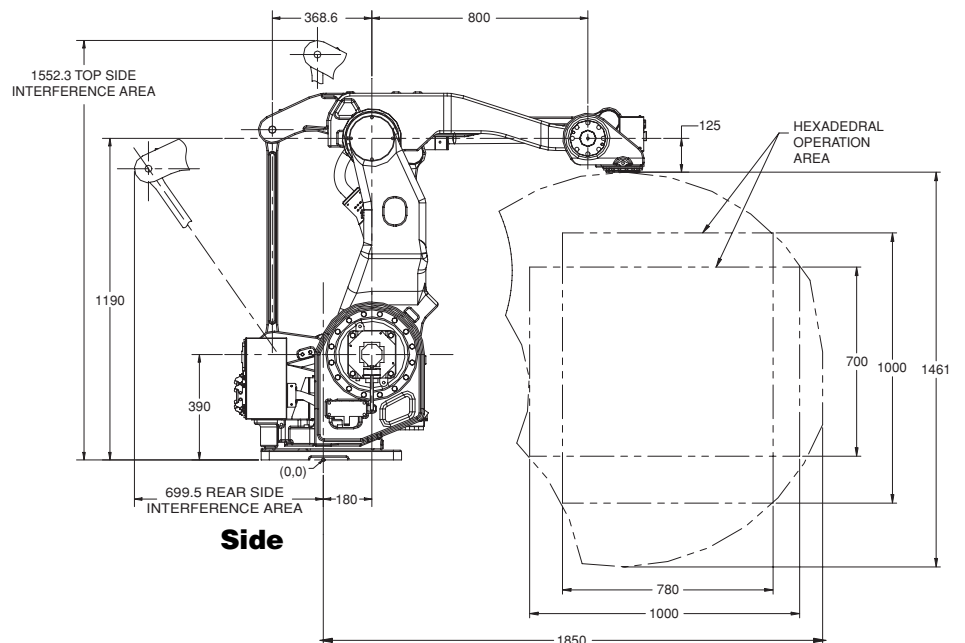
Footprint



Top

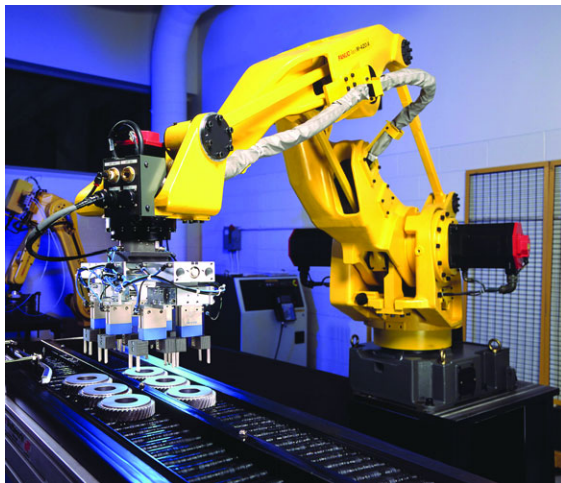


Front



Side

Note: Dimensions shown in millimeters.



High-Speed Material Handling



High-Speed Packaging

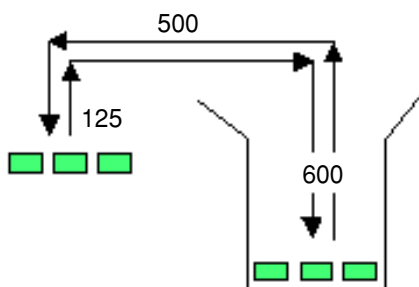


High-Speed Mini-Palletizing

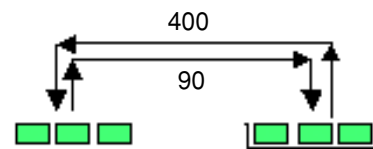
M-420iA/M-421iA Specifications

Items	M-420iA	M-421iA
Axes	4	2
Payload - Wrist (kg)	40	50
- High-Speed Wrist (kg)	30	-
- J3 Arm (kg)	10	10
Reach (mm)	1855	1855
Repeatability (mm)	±0.5	±0.5
Interference radius (mm)	543	-
Motion range (degrees)	J1	320
	J2	115
	J3	110
	J4	540
Motion speed (degrees/sec.)	J1	180
	J2	200
	J3	200
	J4	350
High-Speed	J4	720
	J4	-
Wrist moment (kgf-m)	J4	10
	J4	-
High-Speed	J4	7
	J4	-
Wrist inertia (kgf-cm-s ²)	J4	26
Mechanical brakes	All axes	All axes
Mechanical weight (kg)	620	520
Mounting method	Floor	
Installation environment:		
Ambient temperature °C	0 to 45	
Humidity	Normally: 75% or less Short term (within a month): 95% or less No condensation (No dew or frost allowed)	
Vibration (m/s ²)	4.9 or less	

Fastest cycle times in its class:



50 Cycles/Minute
30 kg Payload



80 Cycles/Minute
10 kg Payload

Note: Dimensions shown in millimeters.



FANUC Robotics America, Inc.
3900 W. Hamlin Road
Rochester Hills, MI 48309-3253
(248) 377-7000
Fax (248) 276-4133

Charlotte, NC
(704) 596-5121

Toronto, Canada
(905) 812-2300

Chicago, IL
(847) 898-6000

Montréal, Canada
(450) 492-9001

For sales or technical information, call:
1-800-47-ROBOT

Cincinnati, OH
(513) 754-2400

Aguascalientes, Mexico
52 (449) 910-8000

Los Angeles, CA
(949) 595-2700

Sao Paulo, Brazil
(55) (11) 3619-0599

marketing@fanucrobotics.com
www.fanucrobotics.com

Toledo, OH
(419) 866-0788