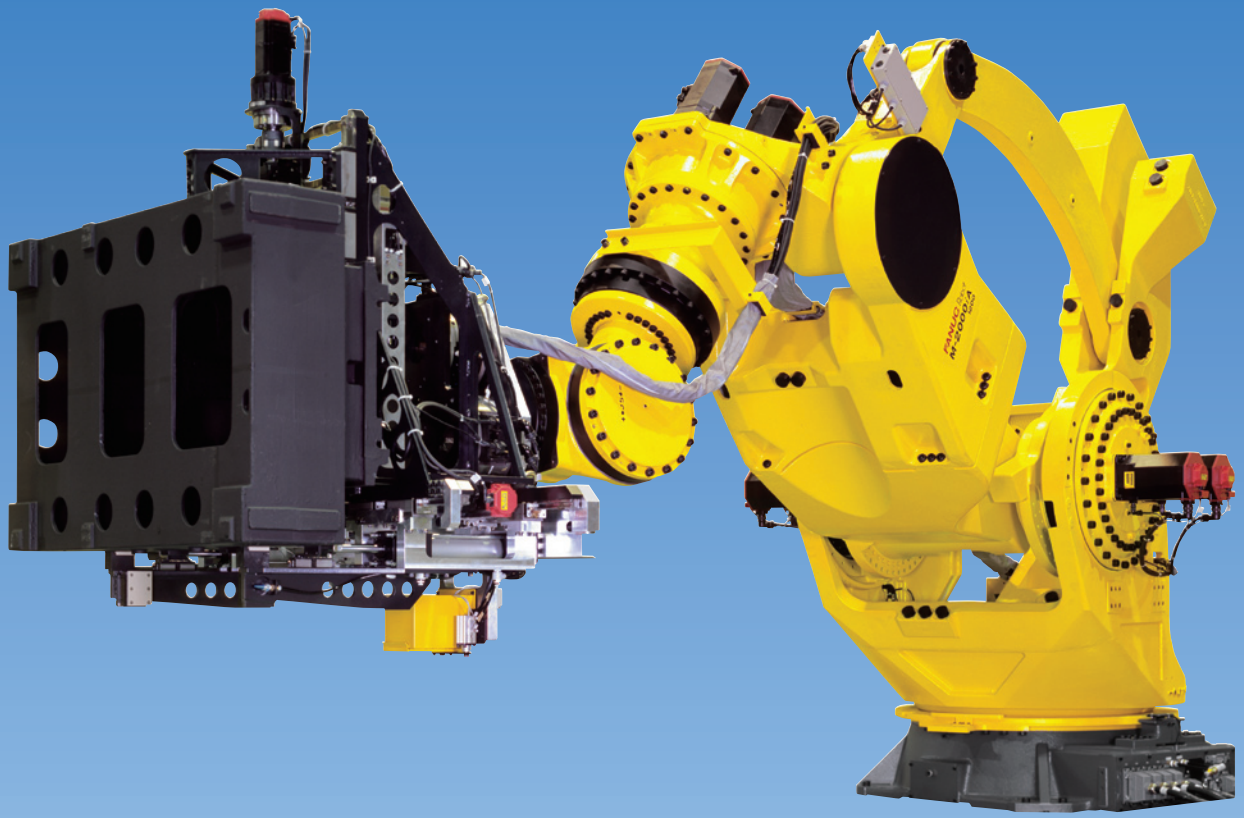
Intelligence, Robotization and Networking for 21st Century

FANUC Robot *i* series



Intelligence, Robotization and Networking for 21st Century

FANUC Robot *i* series

The FANUC Robot *i* series is a series of highly reliable intelligent robots with the sophisticated advanced controller R-30*i*A with intelligence and networking for versatile applications.

Intelligence

Vision and force sensing provide superior performance with integrated human skills.

Integrated Vision Function *i*RVision

All controllers come standard with Vision function *i*RVision, making your system significantly intelligent.

Networking

Networking promotes the integrated management at production floors.

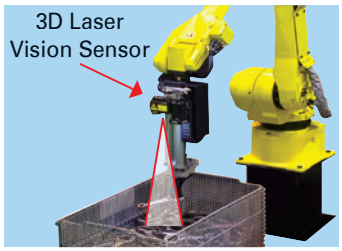
Robotization

Versatile process solutions for applications with flexibility contribute efficient automation of any requirements in production.

Intelligence

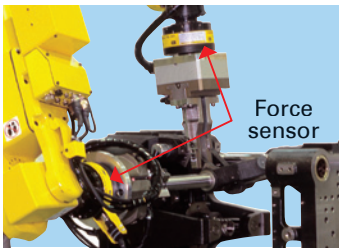
3D Laser Vision Sensor / Bin picking

Robot handles randomly piled parts by using 3D Laser Vision Sensor.Since a special parts feeder is not required, an automatic system can be constructed at low cost.



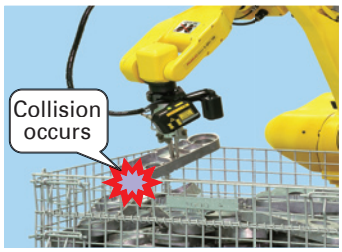
Force Sensor / Parts fitting and insertion

Robot does precise fitting and insertion of machine parts by using force sensor. Not only simple insertion but also complex insertion with phase matching is available. It can automate high-skill jobs.



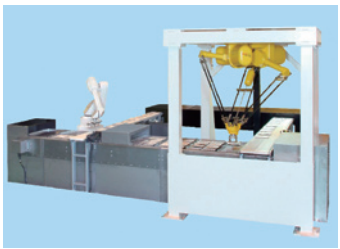
Highly sensitive collision detection

When interference occurs between robot and peripheral equipments, this function stops a robot immediately and minimize damage. Special hand protection equipment is not required and enables immediate recovery of production.



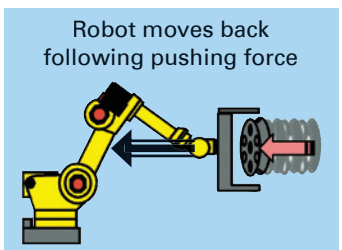
Visual line tracking

By detecting parts continuously fed from upper stream of a conveyer with a vision sensor, plural robots connected through a network track and pick up the parts cooperatively. The robots adapt to parts variation and flow rate changes.



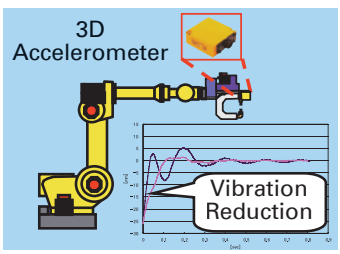
Cartesian SoftFloat

When a robot detects the external force, SoftFloat function can move a robot following the force with specified direction.
SoftFloat function eliminates a mechanical floating unit from a robot hand and reduce system cost.



Learning Vibration Control

By monitoring vibration with 3D accelerometer while repeating spot welding motion, learning control achieves high speed motion with vibration reduction. Higher acceleration can reduce cycle time drastically. The sensor can be removed in mass production.



Networking

Versatile functionality for communication in the robot controller R-30*i*A enable to network multi robot system with PC, PLC and peripherals for control and production management.

Powerful network communication

Dedicated communication processor assures high-speed, high-stable communication with no negative influence with robot motion. Using several field I/O network,powerful network solution becomes available between robot, PLC and peripherals. High-speed I/O controller and integrated PMC (programmable machine controller) in the robot controller can reduce external PLC and achieve commonI/O interface to line PLC.

Strong Ethernet functions

R-30*i*A has two Ethernet ports as standard and performs high speed communication to both host level network and factory level network between robots. R-30*i*A supports Internet Protocol (IP) and can communicate host devices by standard functions (FTP, HTTP, Socket). R-30*i*A also supports several utilities (Password, DNS, DHCP) for easy and safe communication.

*i*Pendant

*i*Pendant performs teaching operation and robot system control panel. *i*Pendant can refers to various types of data when connected to the factory LAN or Internet. From the factory floor, an operator accesses to the diagnosis database by *i*Pendant and can take an appropriate action to recover production.

DCS (Dual Check Safety)

DCS is a safety function based on international standard ISO10218-1. Redundant safety software provides robot zone check, speed check and direct connection to safety network. Reduce system cost by replacing safety device to DCS.

USB port (Controller, *i*Pendant)

Programs or data can be saved or loaded through the USB port on the operator's panel of the controller. If the controller is apart from the robot, the USB port of the *i*Pendant can be used to save or load programs or data.

Robotization

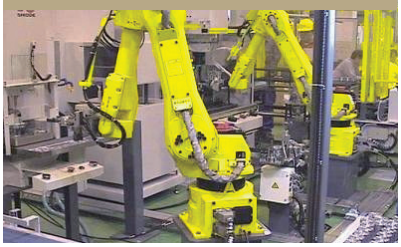
Various application packages and software tools make the most of the flexibility of articulated robots for gantry loaders and scalar robots for which use conditions are restricted.
FANUC provides the robot system best suited to customers' needs.

Spot welding

Arc welding

Assembly

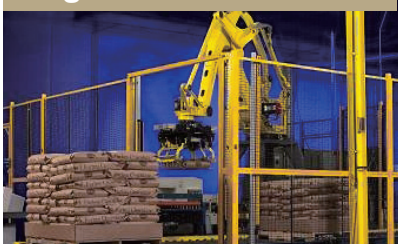
Load / Unload



Bin picking

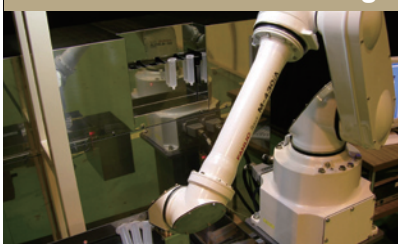
Deburring

Logistics



Food packing

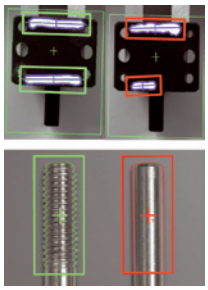
Medical Goods Handling



Sophisticated Packages for Intelligence

Integrated Vision Function *i*RVision/Force Sensor FS-15*i*A, FS-40*i*A, FS-100*i*A , FS-250*i*A

- *i*RVision enhances reliability and durability against severe environment.
- Unique and robust image processing finds target objects stably.
- Quick and easy operation.
- Quick and handy calibration tool.
- The vision function supports error proofing of handled parts as well as visual guidance of the robots.



- Force sensor for robotization of skilled job.
- The force sensor realizes delicate compliant robot motion and robotizes skillful operations such as precise fitting or insertion with phase matching.
- The force sensor expands the area of robotization in precise assembly.

ROBOGUIDE

- PC tool for quick and easy investigation of robot system.
- Easy set up of peripheral environment and machines without special skills.
- Graphical operation reduces teaching time of robot programs.
- ROBOGUIDE becomes available off-line verification not only in office but also on factory site.

- Robot simulator for practical use
  - Highly accurate cycle time simulation
  - Overheat and robot life time estimation
  - Actual robot program simulation
  - Simulation with actual PLC and I/O device

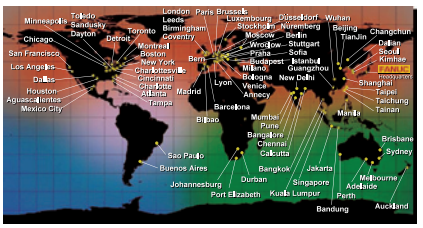
Safety & Reliability and Maintenance & Support

Industrial standards conformance for safety, quality and environment

FANUC Robot *i* series are manufactured at ISO9001 and ISO14001 certified fully automated factory with robotization under strict quality control.
FANUC Robot *i* series has compliance with the European safety standards(machine directive, EMC directive, and low voltage directive) and has been certified with the CE marking, TÜV marking and TÜV EMC marking, when choosing the European specification for the robot.

World wide customer service

FANUC operates customer service and supports system anywhere in the world through subsidiaries and affiliates. FANUC provides the highest quality service with the quickest response at the location nearest you.



FANUC Training Center

FANUC Training Center offers variety of intensive training courses from introductory to sophisticated knowledge and skills for teaching, operation, engineering and maintenance training on FANUC robot and its application. Experience with on-site robot training enhances your plant operation.

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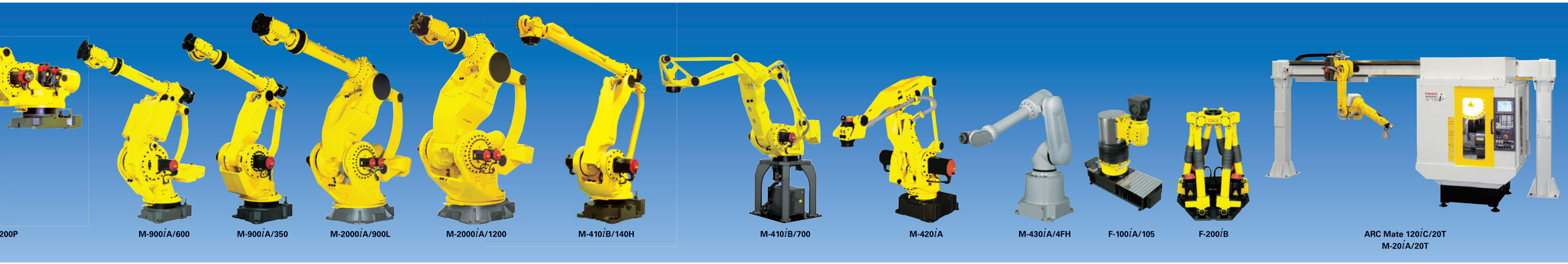
FANUC OCEANIA PTY. LIMITED	10 Healey Circuit, Huntingwood, NSW 2148, Australia	Phone: 61-2-8822-4600	Fax: 61-2-8822-4666
FANUC SOUTH AFRICA (PROPRIETARY) LIMITED	17 Loper Ave. Aerport Industrial Ests, Spartan Ext.2 P.O.Box 219, Isand,1600, Republic of South Africa	Phone: 27-11-392-3610	Fax: 27-11-392-3615

Robot *i*(E)-20, 2010.09, Printed in Japan

Intelligence, Robotization and Networking for 21st Century FANUC Robot *i* series

Robot model	M-1*i*A		M-3*i*A		LR Mate 200*i*C			ARC Mate 50*i*C		ARC Mate 100*i*C M-10*i*A			ARC Mate 120*i*C M-20*i*A		M-710*i*C			R-1000*i*A	R-2000*i*B					
	M-1*i*A/0.5S	M-1*i*A/0.5A	M-3*i*A/6S	M-3*i*A/6A	LR Mate 200*i*C	LR Mate 200*i*C/5H	LR Mate 200*i*C/5L	50*i*C	50*i*C/5L	100*i*C/10S M-10*i*A/10S	100*i*C M-10*i*A	100*i*C/6L M-10*i*A/6L	120*i*C M-20*i*A	120*i*C/10L M-20*i*A/10L	M-710*i*C/50	M-710*i*C/70	M-710*i*C/20L	R-1000*i*A /80F	R-2000*i*B /165F	R-2000*i*B /185L	R-2000*i*B /210F	R-2000*i*B /250F	R-2000*i*B /165R	R-2000*i*B /200R
Controller axes	4axes	6axes	4axes	6axes	6axes	5axes	6axes	6axes		6axes			6axes		6axes			6axes	6axes					
Max. load capacity at wrist	0.5kg (standard) 1kg (option)		6kg		5kg			5kg		10kg	10kg	6kg	20kg	10kg	50kg	70kg	20kg	80kg	165kg	185kg	210kg	250kg	165kg	200kg
Motion range J1	Diameter 280mm, Height 100mm		Diameter 1350mm, Height 500mm		5.93rad (340°)			5.93rad (340°)		5.93rad (340°)			5.93rad (340°)		6.28rad (360°)			6.28rad (360°)	6.28rad (360°)					
Motion range J2					3.49rad (200°)		4.01rad (230°)	3.49rad (200°)	4.01rad (230°)	4.36rad (250°)			4.54rad (260°)		3.93rad (225°)			4.28rad (245°)	2.37rad (136°)				3.23rad (185°)	
Motion range J3					6.77rad (388°)		6.51rad (373°)	6.77rad (388°)	6.51rad (373°)	5.93rad (340°)	7.76rad (445°)	5.41rad (310°)	8.00rad (458°)		7.68rad (440°)	7.54rad (432°)		6.28rad (360°)	6.32rad (362°)	6.04rad (346°)	6.32rad (362°)	6.23rad (357°)	6.37rad (365°)	
Motion range J4	12.57rad (720°)		12.57rad (720°)		6.63rad (380°)	4.19rad (240°)	6.63rad (380°)	6.63rad (380°)		6.63rad (380°)			6.98rad (400°)		12.57rad (720°)		6.98rad (400°)	12.57rad (720°)	12.57rad (720°)					
Motion range J5	—	5.24rad (300°)	—	5.24rad (300°)	4.19rad (240°)	12.57rad (720°)	4.19rad (240°)	4.19rad (240°)		4.89rad (280°)	6.63rad (380°)		6.28rad (360°)		4.36rad (250°)		4.89rad (280°)	4.36rad (250°)	4.36rad (250°)					
Motion range J6	—	12.57rad (720°)	—	12.57rad (720°)	12.57rad (720°)	—	12.57rad (720°)	12.57rad (720°)		12.57rad (720°)			15.71rad (900°)		12.57rad (720°)		15.71rad (900°)	12.57rad (720°)	12.57rad (720°)					
Max. speed *3 J1	—		—		6.11rad/s (350°/s)		4.71rad/s (270°/s)	6.11rad/s (350°/s)	4.71rad/s (270°/s)	3.84rad/s(220°/s)	3.67rad/s(210°/s)		3.40rad/s (195°/s)		3.05rad/s (175°/s)	2.79rad/s (160°/s)	3.05rad/s (175°/s)	2.97rad/s (170°/s)	1.92rad/s (110°/s)	1.66rad/s (95°/s)	1.66rad/s (95°/s)	1.66rad/s (95°/s)	1.92rad/s (110°/s)	1.57rad/s (90°/s)
Max. speed *3 J2					6.11rad/s (350°/s)		4.71rad/s (270°/s)	6.11rad/s (350°/s)	4.71rad/s (270°/s)	4.01rad/s(230°/s)	3.32rad/s(190°/s)		3.05rad/s (175°/s)		3.05rad/s (175°/s)	2.09rad/s (120°/s)	3.05rad/s (175°/s)	2.44rad/s (140°/s)	1.92rad/s (110°/s)	1.48rad/s (85°/s)	1.57rad/s (90°/s)	1.48rad/s (85°/s)	1.75rad/s (100°/s)	1.48rad/s (85°/s)
Max. speed *3 J3					6.98rad/s (400°/s)		4.71rad/s (270°/s)	6.98rad/s (400°/s)	4.71rad/s (270°/s)	4.71rad/s(270°/s)	3.67rad/s(210°/s)		3.14rad/s (180°/s)		3.05rad/s (175°/s)	2.09rad/s (120°/s)	3.14rad/s (180°/s)	2.79rad/s (160°/s)	1.92rad/s (110°/s)	1.54rad/s(88°/s)	1.66rad/s (95°/s)	1.54rad/s (88°/s)	1.92rad/s (110°/s)	1.66rad/s (95°/s)
Max. speed *3 J4	52.34rad/s (3000°/s)	25.13rad/s (1440°/s)	69.81rad/s (4000°/s)	34.90rad/s (2000°/s)	7.85rad/s (450°/s)			7.85rad/s (450°/s)		7.15rad/s(410°/s)	6.98rad/s(400°/s)		6.28rad/s (360°/s)	6.98rad/s (400°/s)	4.36rad/s (250°/s)	3.93rad/s (225°/s)	6.11rad/s (350°/s)	4.01rad/s (230°/s)	2.62rad/s (150°/s)	2.09rad/s (120°/s)	2.09rad/s (120°/s)	2.62rad/s (150°/s)	2.09rad/s (120°/s)
Max. speed *3 J5	—	25.13rad/s (1440°/s)	—	34.90rad/s (2000°/s)	7.85rad/s (450°/s)	12.57rad/s (720°/s) 20.94rad/s (1200°/s)	7.85rad/s (450°/s)	7.85rad/s (450°/s)		7.15rad/s(410°/s)	6.98rad/s(400°/s)		6.28rad/s (360°/s)	6.98rad/s (400°/s)	4.36rad/s (250°/s)	3.93rad/s (225°/s)	6.28rad/s (360°/s)	4.01rad/s (230°/s)	2.62rad/s (150°/s)	2.09rad/s (120°/s)	2.09rad/s (120°/s)	2.09rad/s (120°/s)	2.62rad/s (150°/s)	2.09rad/s (120°/s)
Max. speed *3 J6	—	25.13rad/s (1440°/s)	—	34.90rad/s (2000°/s)	12.57rad/s (720°/s)	—	12.57rad/s (720°/s)	12.57rad/s (720°/s)		10.65rad/s(610°/s)	10.50rad/s(600°/s)		9.60rad/s (550°/s)	10.50rad/s (600°/s)	6.20rad/s (355°/s)	3.93rad/s (225°/s)	10.47rad/s (600°/s)	6.11rad/s (350°/s)	3.84rad/s (220°/s)	3.32rad/s (190°/s)	3.32rad/s (190°/s)	3.32rad/s (190°/s)	3.84rad/s (220°/s)	3.32rad/s (190°/s)
Repeatability	±0.02 mm		±0.1 mm		±0.02 mm		±0.03 mm	±0.02 mm	±0.03 mm	±0.05 mm	±0.08 mm	±0.1 mm	±0.08 mm	±0.1 mm	±0.07 mm		±0.15 mm	±0.2 mm	±0.2 mm	±0.3 mm				
Mechanical unit mass	14kg Note1)	17kgNote1)	160kg	175kg	27kg	26kg	29kg	27kg	29kg	130kg			250kg		560kg		540kg	620kg	1,170kg	1,290kg	1,240kg	1,270kg	1,480kg	1,540kg
Application Arc welding								●		●			●		●		●							
Application Spot welding															●			●	●	●	●	●	●	●
Application Handling	●		●			●				●			●		●		●	●	●	●	●	●	●	●
Application Sealing						●				●			●		●		●	●	●	●	●	●	●	●
Application Assembling	●		●			●				●			●		●		●	●	●	●	●	●	●	●
Application Others					Mold release spray Deburring					Mold release spray Deburring			Mold release spray Deburring		Mold handling Deburring Laser cutting				Mold handling Press to press handling					
Intelligent robot 3D Laser Vision sensor	● Note2)		● Note1)		●			—		●			●		●			●	●	●	●	●	●	●
Intelligent robot Force sensor	● Note2)		● Note1)		●			—		●			●		●			●	●	●	●	—	—	—
Remarks	Note1) Not include weight of stand Note2) Locate a sensor outside of robot. It is not possible to mount sensor to robot arm *2		Note1) The robot arm acceleration should be restricted for the sensor. *1, *2		Dust/drip-proof package (option), Incorporated solenoid valve (option), 5 axis high speed wrist (option) The following variations are provided for special purpose applications. Water-proof type for washing : LR Mate 200*i*C/5WP Clean class 100 type : LR Mate 200*i*C/5C, /5LC Clean class 10 type : LR Mate 200*i*C/5C, /5LC 2nd Food type : LR Mate 200*i*C/5F *2			TIG welding package (option) *2		TIG welding package (option) Material handling conduit (option) Dust/drip-proof package (option) *1, *2			TIG welding package (option) Material handling conduit (option) Dust/drip-proof package (option) *1, *2		Dust/drip-proof package (option) Water-proof type for washing (option) The following variations are provided for special purpose applications. Short arm type : M-710*i*C/50S Compact type for narrow space : M-710*i*C/70W *1			Spot welding solution arm (option)*1	Dust/drip-proof package (option) Spot welding solution arm (option) The following variations are provided for special purpose applications. Long arm R-2000*i*B/125L : Payload 125kg Long arm R-2000*i*B/175L : Payload 175kg Cable integrated R-2000*i*B/165EW : Payload 165kg Cable integrated R-2000*i*B/200EW : Payload 200kg Small sized R-2000*i*B/170CF : Payload 170kg Upside-down R-2000*i*B/150U : Payload 150kg High-speed palletizing R-2000*i*B/100H : Payload 100kg Press handling R-2000*i*B/100P : Payload 100kg *1					

*1 : Controller is R-30*i*A *2 : Controller is R-30*i*A Mate *3 : In case of short distance motion, the axis speed doesn't reach maximum one.



M-900iA				M-2000iA		M-410iB					M-420iA		M-430iA			F-100iA			F-200iB	Top Mount Robot				Robot model
M-900iA/350	M-900iA /260L	M-900iA/600	M-900iA /400L	M-2000iA /900L	M-2000iA /1200	M-410iB/140H	M-410iB/160	M-410iB/300	M-410iB/450	M-410iB/700	M-420iA	M-421iA	M-430iA/4FH	M-430iA/2PH	M-430iA/2P	F-100iA/104 F-100iA/104L	F-100iA/105 F-100iA/105L	F-100iA/105S F-100iA/105LS		ARC Mate 120iC/20T M-20iA/20T	M-710iC/50T	M-710iC/70T	R-2000iB /200T	
6axes				6axes		5axes	4axes				4axes	2axes	5axes	6axes		4axes	5axes		6axes	6axes	6axes		6axes	Controller axes
350kg	260kg	600kg (standard) 700kg (option)	400kg	900kg	1200kg (standard) 1350kg (option)	140kg	160kg	300kg	450kg	700kg	40kg	50kg	4kg	2kg		136kgf (1333 N) Note1)			100kg	3kg Note1) 20kg Note2)	50kg	70kg	200kg	Max. load capacity at wrist
6.28rad (360°)				5.76rad (330°)		6.28rad (360°)					5.59rad (320°)	–	6.28rad (360°)		6.28rad (360°)	250 mm(104) 500 mm(104L)	250 mm(105) 500 mm(105L)	250 mm(105S) 500 mm(105LS)	ϕ500×300mm Min.Pitch&yaw: ±0.174rad (±10°) Min.roll: ±0.349rad (±20°)	Max.10m	Max.10m		Max.10m	J1	Motion range
2.62rad (150°)		2.69rad (154°)		2.79rad (160°)		2.71rad (155°)	2.51rad (144°)		2.53rad (145°)	2.51rad (144°)	2.01rad (115°)		4.01rad (230°)		4.01rad (230°)	6.64rad (380°)				5.24rad (300°)	4.56rad (261°)		4.28rad(245°)	J2	
3.90rad (223.4°)	3.69rad (211.3°)	2.79rad (160°)		2.88rad (165°)		1.95rad (112°)	2.37rad (136°)		2.36rad (135°)	2.37rad (136°)	1.75rad (100°)		6.69rad (383°)		6.98rad (400°)	270mm				10.23rad (586°)	8.57rad (491°)		7.09rad(406°)	J3	
12.57rad (720°)				12.57rad (720°)		0.35rad (20°) Note1)	9.42rad (540°)				9.42rad (540°)	—	5.24rad (300°)	6.63rad (380°)	6.63rad (380°)	12.56 rad (720°)	6.46 rad (370°)	12.56 rad (720°)		6.98rad (400°)	12.57rad (720°)		12.57rad(720°)	J4	
4.36rad (250°)		4.26rad (244°)		4.19rad (240°)		12.57rad (720°)	—	—	—	—	—		9.42rad (540°)	5.24rad (300°)	5.24rad (300°)	—	3.14 rad (180°)	12.56 rad (720°)		4.88rad (280°) Note3) 6.28rad (360°) Note4)	4.36rad (250°)		4.36rad(250°)	J5	
12.57rad (720°)				12.57rad (720°)		—	—	—	—	—	—		—	9.42rad (540°)	9.42rad (540°)	—	—	—		9.42rad (540°) Note3) 15.7rad (900°) Note4)	12.57rad (720°)		12.57rad(720°)	J6	
1.75rad/s (100°/s)		1.40rad/s (80°/s)		0.79rad/s (45°/s)		2.44rad/s (140°/s)	2.27rad/s (130°/s)	1.48rad/s (85°/s)	1.22rad/s(70°/s)	1.05rad/s(60°/s)	3.14rad/s (180°/s)	—	5.24rad/s (300°/s)		5.24rad/s (300°/s)	200 mm/s				—	—		—	J1	Max. speed *3
1.66rad/s (95°/s)	1.83rad/s(105°/s)	1.40rad/s (80°/s)		0.52rad/s (30°/s)(standard) 0.44rad/s (25°/s)(option)		2.01rad/s (115°/s)	2.27rad/s (130°/s)	1.57rad/s (90°/s)	1.22rad/s (70°/s)	1.05rad/s(60°/s)	3.49rad/s (200°/s)		5.59rad/s (320°/s)		5.24rad/s (300°/s)	0.960 rad/s (55°/s)			Horizontal: 1500mm/s Vertical: 300mm/s	3.05rad/s (175°/s)	3.05rad/s (175°/s)	2.09rad/s (120°/s)	1.22rad/s (70°/s)	J2	
1.66rad/s (95°/s)		1.40rad/s (80°/s)		0.52rad/s (30°/s)		2.36rad/s (135°/s)	2.36rad/s (135°/s)	1.75rad/s (100°/s)	1.22rad/s (70°/s)	1.05rad/s(60°/s)	3.49rad/s (200°/s)		5.59rad/s (320°/s)		5.93rad/s (340°/s)	85 mm/s				3.14rad/s (180°/s)	3.05rad/s (175°/s)	2.09rad/s (120°/s)	1.57rad/s (90°/s)	J3	
1.83rad/s (105°/s)	2.09rad/s (120°/s)	1.75rad/s (100°/s)		0.87rad/s (50°/s)		2.36rad/s (135°/s)	5.24rad/s (300°/s)	3.32rad/s (190°/s)	3.14rad/s (180°/s)	2.09rad/s (120°/s)	6.11rad/s (350°/s)	—	6.28rad/s (360°/s)	8.73rad/s (500°/s)	5.24rad/s (300°/s)	1.22 rad/s (70°/s)				6.28rad/s (360°/s)	4.36rad/s (250°/s)	3.93rad/s (225°/s)	1.92rad/s (110°/s)	J4	
1.83rad/s (105°/s)	2.09rad/s (120°/s)	1.75rad/s (100°/s)		0.87rad/s (50°/s)		7.33rad/s (420°/s)	—	—	—	—	—	—	34.91rad/s (2000°/s)	8.73rad/s (500°/s)	5.24rad/s (300°/s)	—	0.436 rad/s (25°/s)	0.855 rad/s (49°/s)		6.28rad/s (360°/s)	4.36rad/s (250°/s)	3.93rad/s (225°/s)	1.92rad/s (110°/s)	J5	
2.97rad/s (170°/s)	3.49rad/s (200°/s)	2.79rad/s (160°/s)		1.22rad/s (70°/s)		—	—	—	—	—	—	—	—	29.67rad/s (1700°/s)	12.57rad/s (720°/s)	—	—	—		9.60rad/s (550°/s)	6.20rad/s (355°/s)	3.93rad/s (225°/s)	2.71rad/s (155°/s)	J6	
±0.3 mm			±0.5 mm	±0.5 mm	±0.3 mm	±0.2 mm	±0.5 mm				±0.5 mm		±0.5 mm			±0.035 mm			±0.1 mm	±0.08 mm Note5)	±0.07 mm Note5)		±0.3 mm Note5)	Repeatability	
1,720kg	1,800kg	2,800kg	3,150kg	9,600kg	8,600kg	1,200kg (without ciontroller)	1,940kg (Including ciontroller)		2,430kg (Including ciontroller)	2,700kg (Including ciontroller)	620kg	520kg	55kg	57kg	45kg	111 kg(104) 130 kg(104L)	120 kg(105) 139 kg(105L)	121 kg(105S) 140 kg(105LS)	190kg	185kg	410kg		1,100kg	Mechanical unit mass	
																				●	●			Arc welding	Application
●	●	●	●													●	●	●	●		●		●	Spot welding	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●	●	●		●	Handling	
●	●	●	●																●	●	●		●	Sealing	
●	●	●	●																●	●	●		●	Assembling	
Mold handling Press to press handling													Food and Pharmaceutical Handling			Fixturing			Lifter,Locater, Deburring, Inspection, Measurement					Others	
●	●	●	●	●	●	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●		●	3D Laser Vision sensor	Intelligent robot
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—		—	Force sensor	
Dust/drip-proof package (option) Spot welding solution arm (option) The following variations are provided for special purpose applications. Press handling M-900iA/200P : Payload 200kg Press handling M-900iA/150P : Payload 150kg *1				*1		Note1) The wrist interface is always toward to downward. The angle is variable up to 20 degrees width. *1					The following variations are provided for special purpose applications. 2nd Food type : use food grease and enhance anti-corrosiveness High speed wrist : J4-axis max speed 12.57 rad/s (720°/s). *1		*1			Max.static load capacity at wrist : 158kgf(1548N) Note1) Max.impulse load capacity at wrist : 180kgf(1764N) Note1) Note1) at center of faceplate *1			*1	Note1) Standard welding torch mode Note2) High inertia mode Note3) The specification of "Cable integrated J3 Arm" Note4) The specification of "Conventional dress-out" Note5) This value is not available for gantry. *1				Remarks	