



ENGINEERED SOLUTIONS

LoadMate *Plus*TM



LoadMate Plus

Quick setup machine tending

LoadMate Plus is Mitsubishi Electric Automation's engineered solution offering for machine tending, specifically created to be easy to set up and use. Our team has done the engineering necessary so you can start running and making parts quickly after delivery. Share your application and our experts will help you choose the best configuration. Since we are the Original Equipment Manufacturer (OEM), you can trust you will have the best support for your robot and CNC.

Flexible

Multiple arrangements and compatibility with a variety of robots

Configurable

Options for cabinet sizes, enclosures, extensions, and more to match your shop needs

Customizable

Robot working area available for various part types or applications

Mobility

Easily move around as jobs require with lockable wheels for stability in operation

Safety

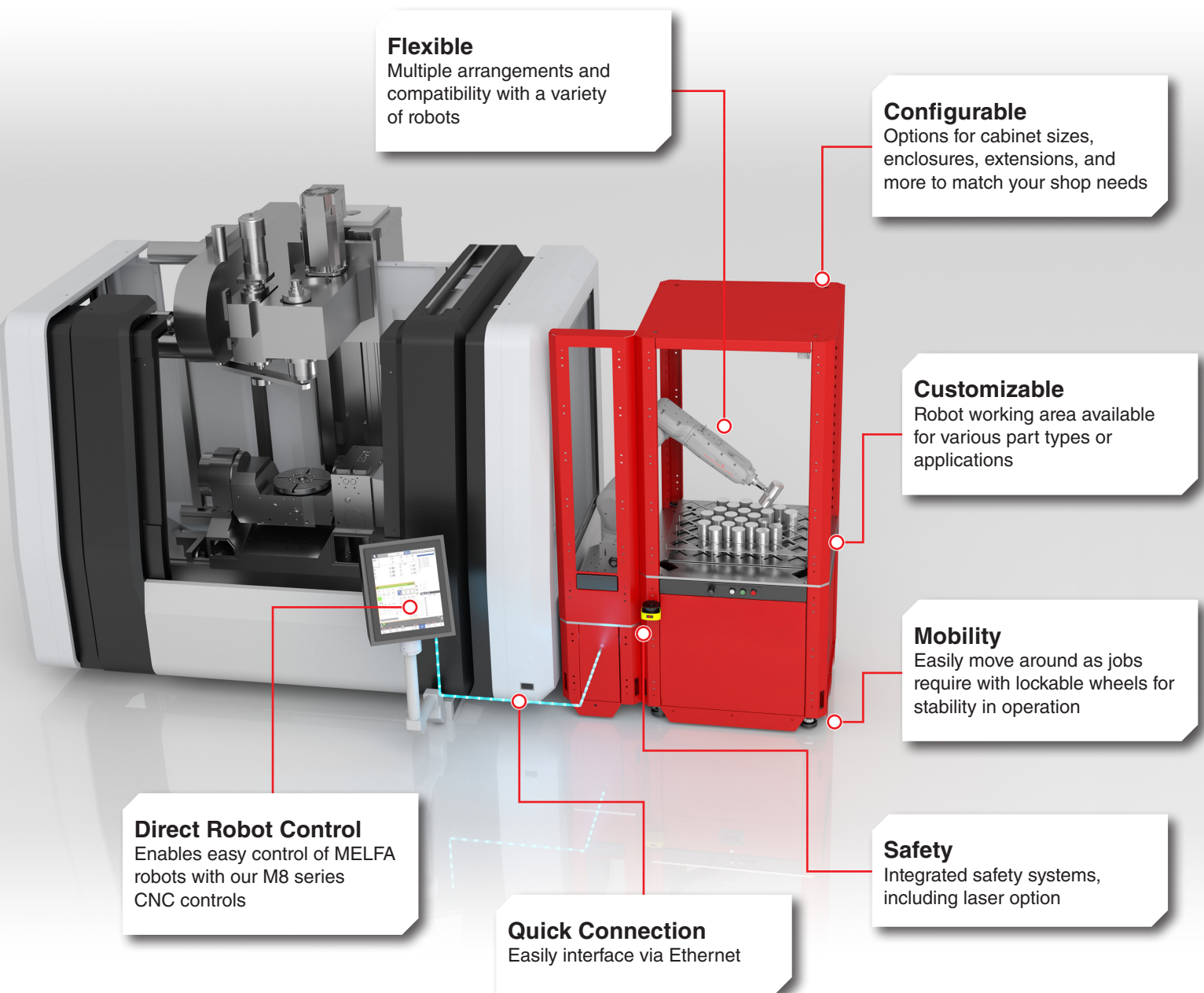
Integrated safety systems, including laser option

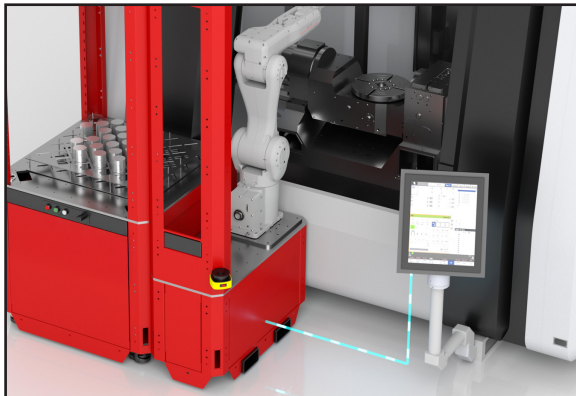
Quick Connection

Easily interface via Ethernet

Direct Robot Control

Enables easy control of MELFA robots with our M8 series CNC controls



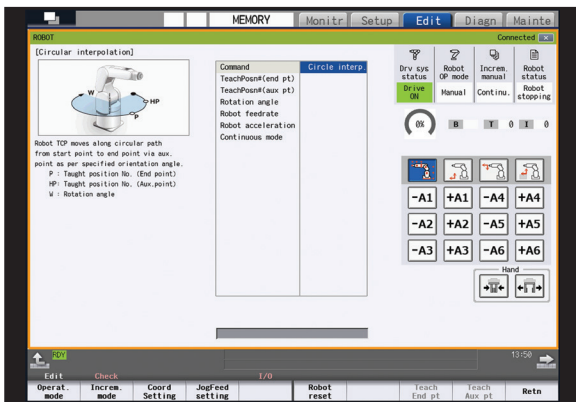


KEY BENEFITS: FLEXIBLE CONNECTIVITY



Plug and play machine tending

- **Simple connection via Ethernet** – Integrating the LoadMate Plus machine tending robot with Mitsubishi Electric's M8 Series CNC is as simple as plugging in an Ethernet cable. Manufacturers are able to get their investment up and running quickly. Discrete I/O is also available for integrating with other controls, making it easy to connect to any machine in the shop.



EASY PROGRAMMING



Program and adjust on the fly with no need for robot expertise

- **Direct Robot Control CNC software** – Through the Direct Robot Control (DRC) feature of our M8 Series CNC, operators can control and program the robot with menus and G-code from the same screen used for the machine tool. No robot programming experience or teach pendant is required, allowing manufacturers to use existing staff to automate and make adjustments on the fly.



TOTAL SUPPORT

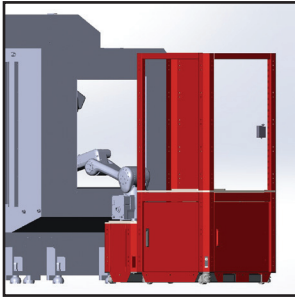


Automation experience from Mitsubishi Electric helps keep you running and growing

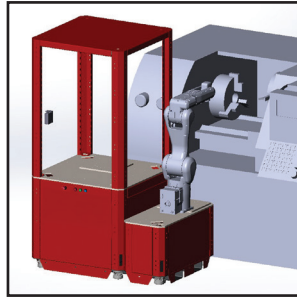
- **Mitsubishi Electric stands ready to support and assist** – With decades of experience in automation, Mitsubishi Electric Automation has the know-how to help optimize your production and assist in automating your manufacturing. Plus, with an available 3-year robot warranty, and technicians who can service both robot and CNC, you can be sure your production will continue uninterrupted.

WORKS WITH A VARIETY OF MACHINE TOOLS

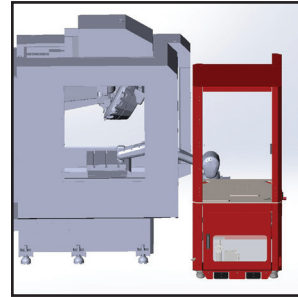
Consult with Mitsubishi Electric for the right configuration for your machine tool or application.



MILL



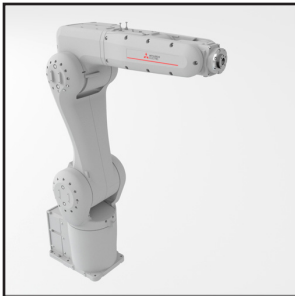
LATHE



DRILLING/TAPPING

KEY ROBOT OPTIONS

All robot options can be found in our technical specification guide.



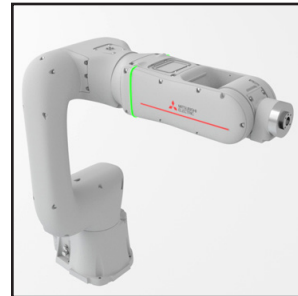
RV-CR SERIES

Slim and compact robot offering a high level of utility and design in a cost-effective package. Perfect all around, versatile robot.



RV-FR SERIES

Available in a variety of reaches, payloads, and protection ratings (including Food Grade/Chemical Resistant) for jobs that require it.

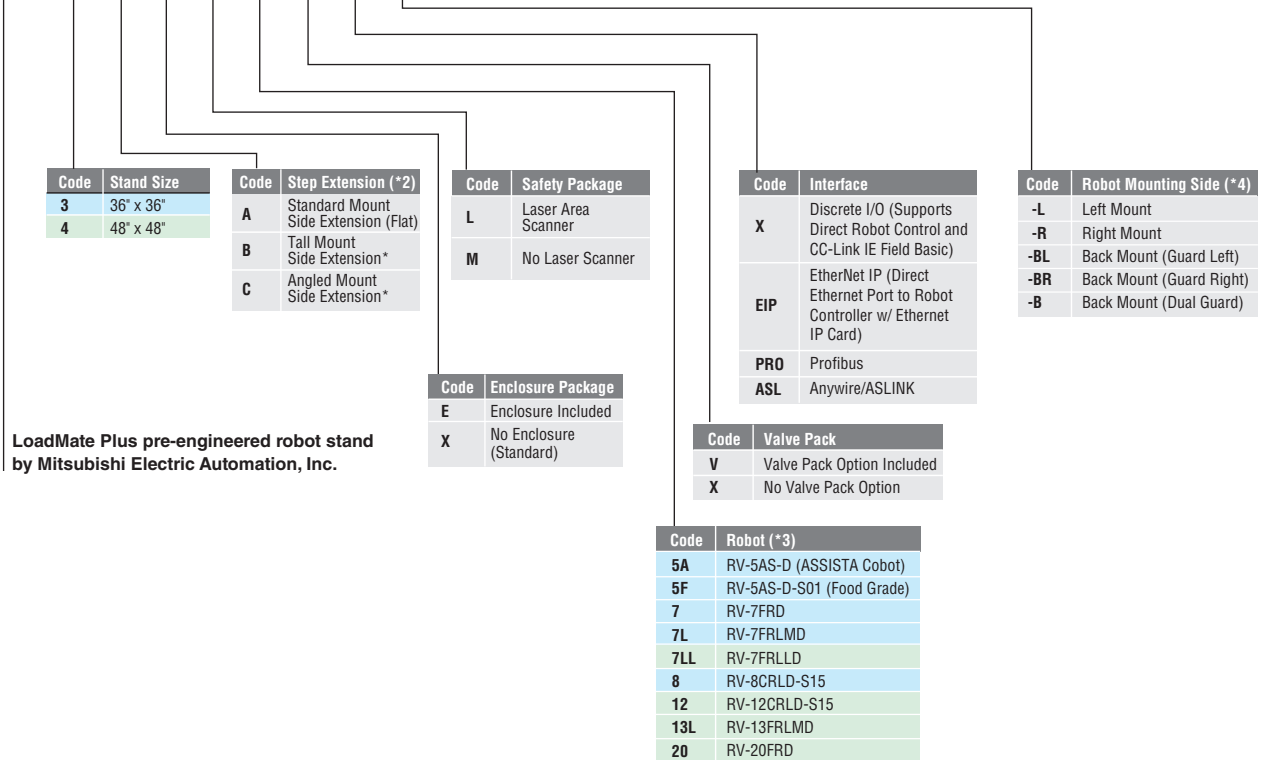


ASSISTA COBOT

Our industrial Cobot combines the safety and ease-of-programming of a collaborative robot with the durability and higher cycle speeds of industrial robots.

LOADMATE PLUS PART NUMBER NOMENCLATURE GUIDE

LDM (Example: LDM 4 A X M 20 V X -L)



Notes:

- Robot stand size has a direct relationship with robot type used. 36" x 36" base is limited to the RV-8CRLD-S15 as the largest robot for this stand size. The 48" x 48" base can be selected using any robot size listed.
- See robot step extension options to determine what step type is best for your application.
- Robot models 7LL, 12, 13L and 20 cannot be used on a 36" x 36" base and must be used on a 48" x 48" base. All robot models can be used on a 48" x 48" base.
- Consult MEAU Engineering for clarity on robot placement on the Step Extension.

LoadMate Plus Robot Specifications

Model Number	RV-5AS	RV-8CRL	RV-12CRL	RV-7FR	RV-7FRL	RV-7FRL	RV-7FRL	RV-13FRL	RV-20FR						
Stocked Item	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes						
Payload Capacity	5 kg	8 kg	12 kg	7 kg	7 kg	7 kg	13 kg	20 kg							
Maximum Reach	910 mm	931 mm	1,504 mm	713 mm	908 mm	1,503 mm	1,388 mm	1,094 mm							
Max. Composite Speed	1,000 mm/s	10,500 mm/s	TBA	11,604 mm/s	10,977 mm/s	15,300 mm/s	9,700 mm/s	4,200 mm/s							
Environment	N/A	Oil mist	Standard / oil mist / cleanroom												
Protection Level	IP54	IP65	IP40 (standard) / IP67 (oil mist) / ISO class 3												
Position Repeatability	± 0.03 mm	± 0.05 mm													
Controller Type	CR800														
Axes	6 (J1 – J6)														

Stand Dimensions

Model Number	3x3 With Step Extension	4x4 With Step Extension
Stocked Item	-	-
Dimensions (L x W x H)	36" x 52" x 82"	48" x 64" x 82"
Weight	1,095 lbs	1,367 lbs
Payload Capacity	1,190 lbs	1,025 lbs

OPTIONS BREAKDOWN

Stand Size

Choose the right-size base stand to fit your application, for positioning the robot on the base stand, or for use as a robot work or parts loading/unloading area. Includes wheels with secure locking mechanism for easy movement between machines and stability when in operation.

Symbol	Description
3	36" x 36"
4	48" x 48"

Step Extension

Side table attached to the base stand for mounting the robot. Allows for better robot reach on certain applications, or for the base stand to be used as a robot work area or parts loading/unloading area. Robot can be mounted at various heights and angles to match the application. Work with engineering to determine the optimum placement.

Symbol	Description
A	Standard mount side extension (6" high)
B	High mount side extension (even with main stand table)
C	Angled mount side extension

Enclosure

Safety glass enclosure around the top of the base stand. If configuration includes a step extension, safety glass can also be included on the extension.

Symbol	Description
E	Enclosure included
X	No enclosure

Safety Packages

Choose between a laser safety system that uses a 2D area scanner and includes a safety module that allows the LoadMate Plus to be easily integrated and control a larger cells safety system, or the safety module only.

Symbol	Description
L	Safety module with 2D area laser scanner
M	Safety Module Included: No Laser Scanner

Robot

Works with a variety of robots to match the application. Larger robots available should the application require it.

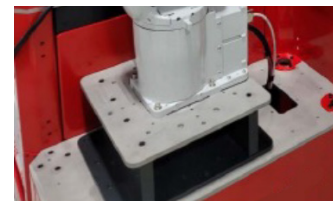
Symbol	Description
5A	RV-5AS-D ASSISTA Collaborative Robot
5F	RV-5AS-D-S01 ASSISTA Collaborative Robot (Food Grade)
7	RV-7FRD
7L	RV-7FRLMD
7LL	RV-7FRLLD
8	RV-8CRLD-S15
12	RV-12CRLD-S15
13L	RV-13FRLMD
20	RV-20FRD

Valve Pack

Robot end-of-arm mounted valve pack for integrating end of arm tooling with the robot.

Symbol	Description
V	Valve pack option included
X	No valve pack included

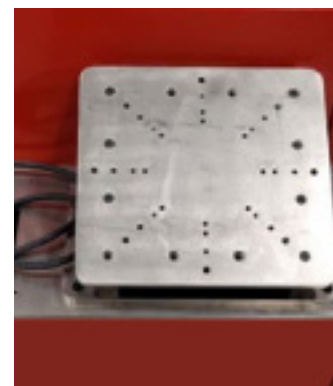
Step Extensions



Option A: Standard step extension



Option B: High mount, flush with the main worktable



Option C: Angle mount, 45° mount angled away from the worktable

Interface

Methods for connecting and interfacing with different CNC. Discrete I/O and Direct Robot Control for Mitsubishi Electric M8 Series CNC standard.

Symbol	Description
X	Discreet I/O
EIP	EtherNet IP
PRO	Profibus
ASL	Anywire/ASLINK

Mounting Side

For applications where the LoadMate Plus stand will be side-mounted to the CNC Machine Tool or other equipment. Mounting location on the machine determines certain aspects of the stand configuration. R/L defined based on facing the front of the machine, the side from this view. For reference, the below image is right-mount.

Symbol	Description
-L	Left Mount (as viewed from the operator station where the emergency stop and, push buttons and main power shut-off is located)
-R	Right Mount (as viewed from the operator station where the emergency stop and, push buttons and main power shut-off is located)
-BL	Back Mount (Guard Left) (robot is mounted on the most rear portion of the extension)
-BR	Back Mount (Guard Right) (robot is mounted on the most rear portion of the extension)
-B	Back Mount (Dual Guard)

Left-handed Orientation

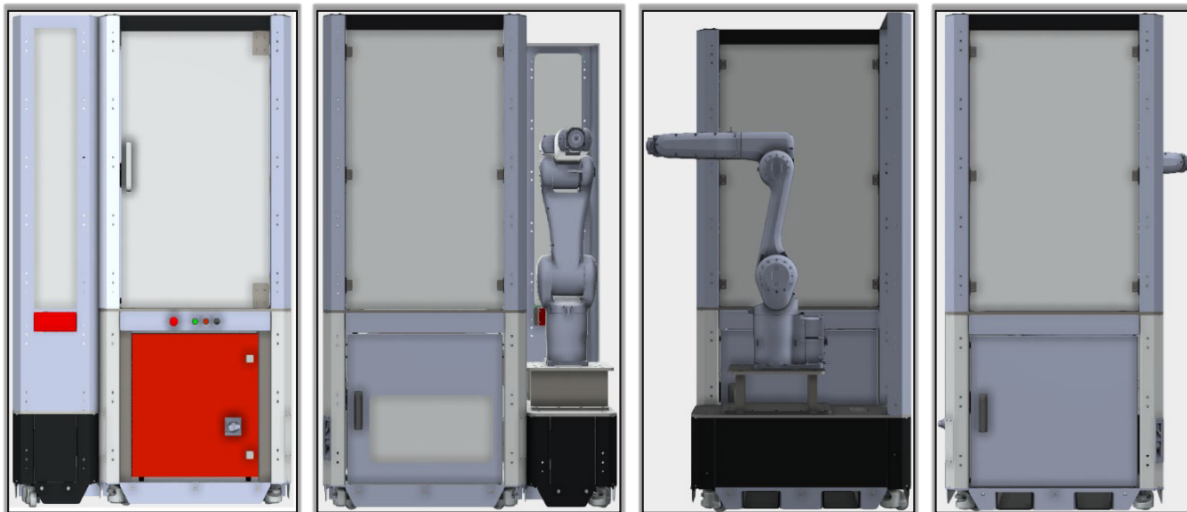


Figure 1: (From left to right) front view, back view, machine-side view, shop-side view

Right-handed Orientation

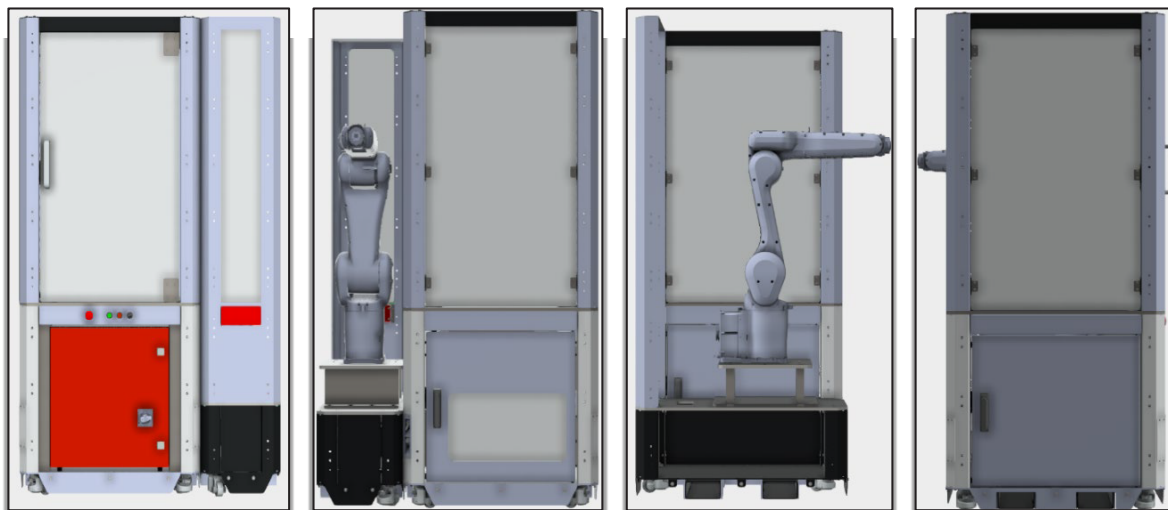


Figure 2: (From left to right) front view, back view, machine-side view, shop-side view

Explore Engineered Solutions



ARIA – (Automated Robotic Industrial Assistant) is an ideal and cost-effective solution to address labor shortages and productivity challenges across a multitude of industries. Unique in design, ARIA has a small footprint that enables use in confined spaces. ARIA can be implemented as a stand-alone system or into an existing automation cell with relative ease. Pre-programmed software packages enable ease of use with little to no robot programming knowledge.

Configured Drives – Designed using Mitsubishi Electric components to create standard and custom drive panel systems for HVAC, pump & fan, heavy-duty, or general applications.

Custom Panels – Complete panel systems designed and built to exact specifications for OEMs and systems integrators seeking a single-source solution. Utilizing Mitsubishi Electric's extensive engineering capability and product offering reduces supply chain complexity and assembly time by delivering a complete panel system that is tested and ready for installation.

Customized Products – Custom labeling, packed electromechanical solutions, and parameterization & programming services for OEMs requiring these value-added services.

Software Solutions – Remotely monitor and manage your Mitsubishi Electric controlled CNC machine through our CNC Manager, IMA Adapter, and IMA Mobile software for maximized productivity. Mitsubishi Electric also designs and creates software solutions for OEMs and systems integrators requiring tailored software per a given application requirement.

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Mitsubishi Electric's e-F @ctory concept utilizes both FA and IT technologies, through collaboration with e-F @ctory Alliance Partners, to reduce the total cost of development, production, and maintenance, with the aim of achieving manufacturing that is a "step ahead of the times".