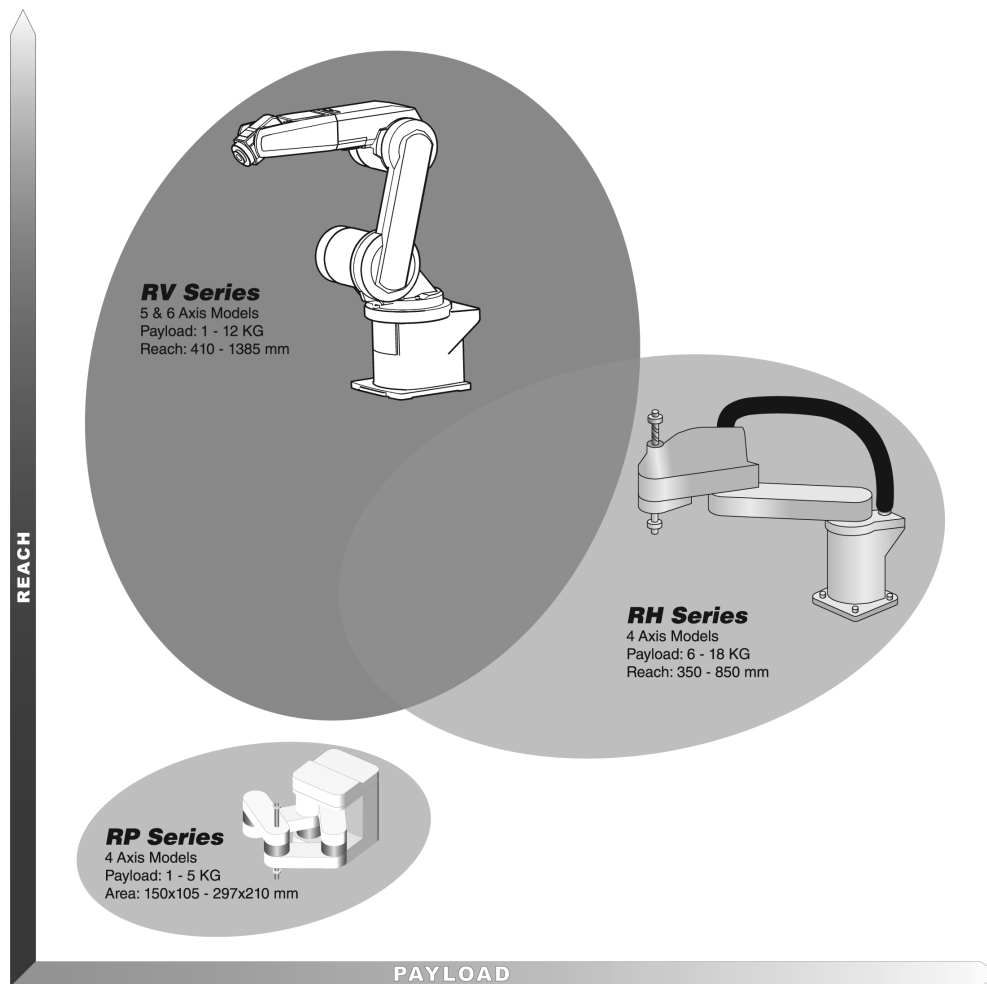


Robots



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Stock Product: Stock product is product MEAU makes every effort to have on hand for immediate shipment. There may be instances when we are out of stock due to unexpected large requirements. All stock product will be indicated in this book by an “S” in the Stocked Item columns/rows.

Non-Stock Product: Non-stock product is product supplied on an “as-needed” basis. Standard lead times of 12 - 16 weeks apply, product is non-returnable and non-cancelable. Product listed as non-stock may change to stock product subject to increases in sales and usage. All non-stock product will be indicated in this book by a dash “-” in the Stocked Item columns/rows.

MELFA Robots

Mitsubishi Electric's line of MELFA robots covers a wide spectrum of configurations and capacities that are ideal for small to medium robot applications. As part of the Mitsubishi Electric family of world class automation products, MELFA robots integrate directly to complete a single-source automation solution.

Quality and reliability have proven to be the standard for MELFA robots which have been globally accepted and performing with maximum up-time since 1980.

MELFA robots are built to the meticulous standards that have become synonymous with Mitsubishi Electric.

Available in 4, 5, or 6 axis configurations, all units come standard with an impressive list of features and utilities that simplify design and commissioning. MELFA 64 bit RISC processor controllers are compact but robust with great flexibility and communication options. The programming software is very comprehensive in its abilities including, simulation, CAD to program conversion, diagnosis and monitoring.

MELFA System Features Include:

- Payload capacities up to 18 Kg
- General environment ratings to IP65. Oil-mist and clean room models available.
- AC servo motors with absolute encoders and brakes
- Internal accessory wiring and piping
- Superior repeatability and cycle time
- Conveyor tracking function
- Simplified vision interface tools
- Additional axis control
- Sensorless collision detection
- Individual axis torque monitoring
- Load-based acceleration optimization
- Singularity point control routines
- Compliance control
- Multi-tasking program environment
- Position restoration tool
- Maintenance forecast function

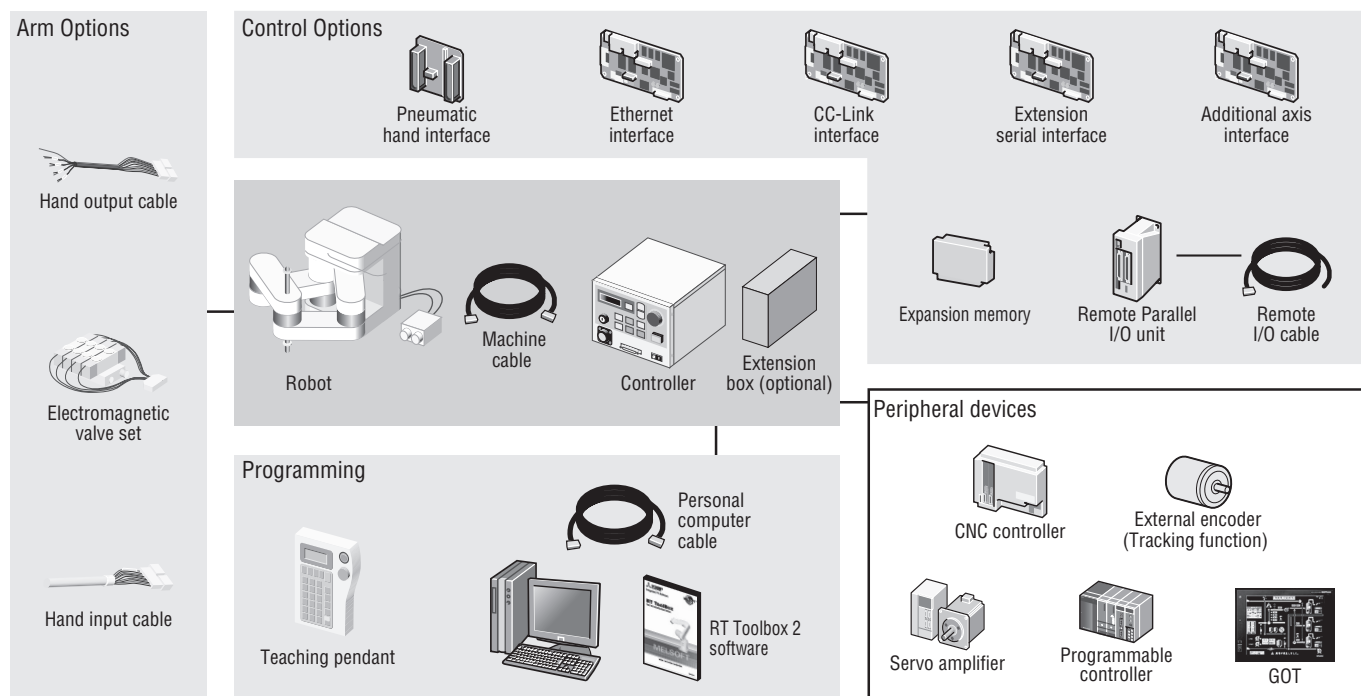


RV Series Vertically Articulated Robots

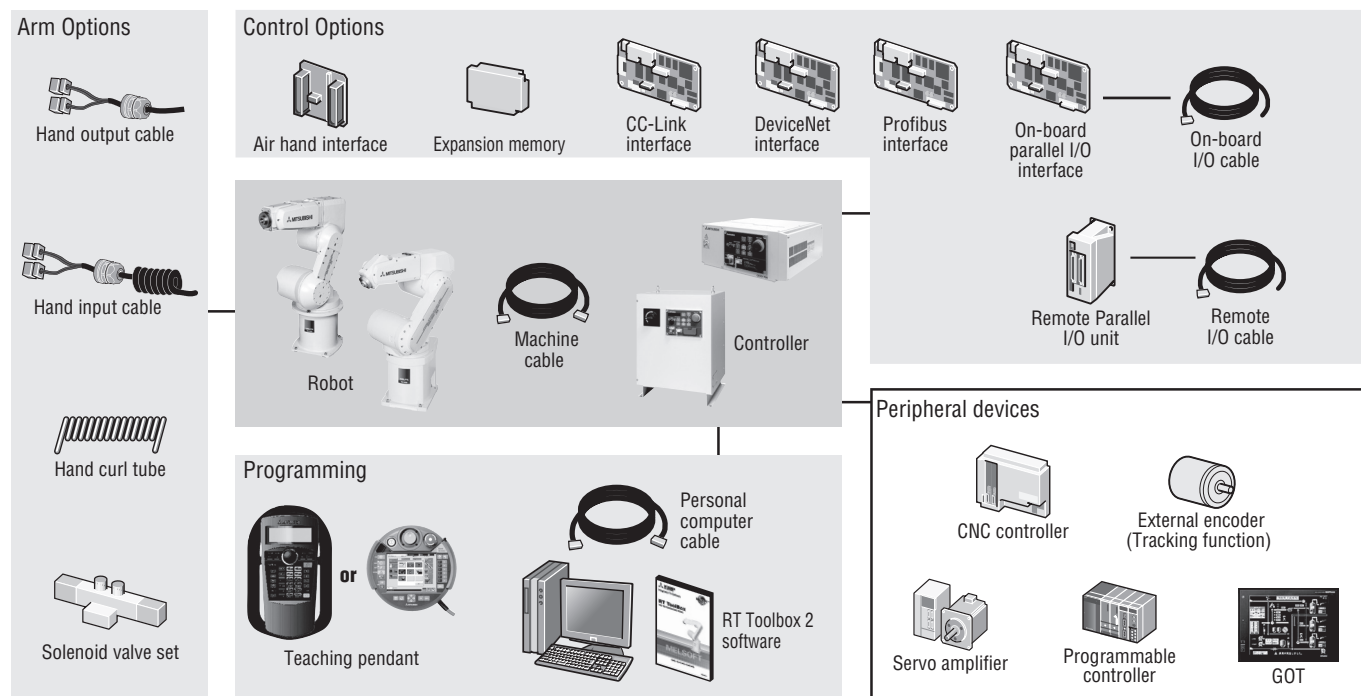
Mitsubishi's RV Series of 5 and 6 axis vertically articulated robots offer total flexibility for a wide range of general applications up to 12 kg. The RV-Series robots are among the fastest and most accurate in their class of small to mid-range robots. Their flexible mounting options, design, and agility make them suitable for all environments. Typical applications include: material handling, machine tending, inspection, pick and place, assembly, and packaging.



RV-A System Configuration



RV-SD System Configuration



General Specifications

Model Number	Stocked Item	Axes	Payload (kg)	Reach (mm)	Repeatability (mm)
RV-1A-S11	S	6	1.5	418	± 0.02
RV-2AJ-S11	S	5	2	410	± 0.02
RV-3SDJ _ _ _	—	5	3.5	641	± 0.02
RV-3SD _ _ _	S	6	3.5	642	± 0.02
RV-6SD _ _ _	S	6	6	695	± 0.02
RV-6SDL _ _ _	S	6	6	902	± 0.02
RV-12SD _ _ _	S	6	12	1086	± 0.05
RV-12SD _ _ _	S	6	12	1385	± 0.05

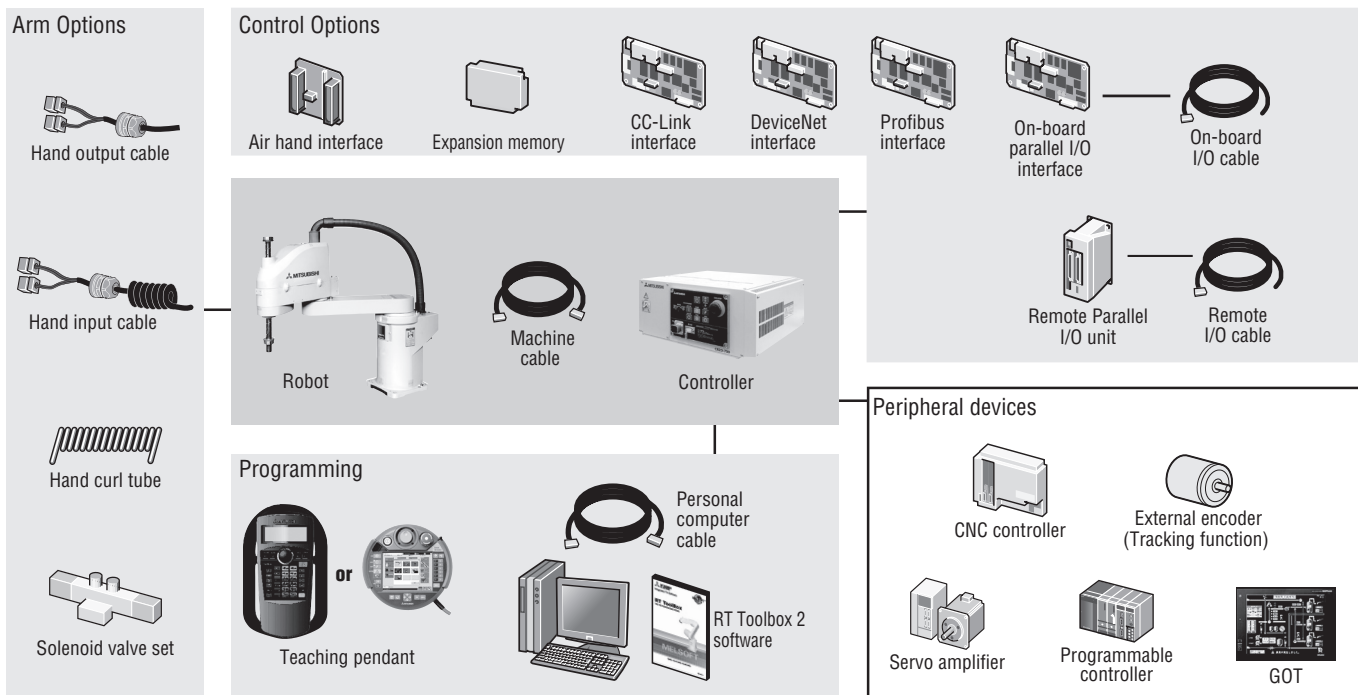
_ _ _ Indicates additional specifications for UL, clean, and oil mist types. Please consult with MEAU

RH Series SCARA Robots

The RH Series of SCARA robots are suited for high speed, high accuracy applications requiring only four degrees of freedom. RH robots are among the fastest and most accurate in their class. Payloads are 6, 12 or 18 kg with various reaches up to 850mm. Typical applications include: assembly, high speed pick and place, conveyor tracking applications, and clean-room operations.



RH-SD System Configuration



General Specifications

Model Number	Stocked Item	Axes / Degrees of Freedom	Maximum Payload (kg)	Maximum Reach Radius (mm)	Z Axis Stroke (mm)	Position Repeatability		
						X-Y Composite (mm)	Z (mm)	(deg.)
RH-6SDH3520 _ _ _	S	4	6	350	200	± .02	± .01	± .02
RH-6SDH4520 _ _ _	S	4	6	450	200	± .02	± .01	± .02
RH-6SDH5520 _ _ _	S	4	6	550	200	± .02	± .01	± .02
RH-12SDH5535 _ _ _	S	4	12	550	350	± .02	± .01	± .03
RH-12SDH7035 _ _ _	—	4	12	700	350	± .025	± .01	± .03
RH-12SDH8535 _ _ _	S	4	12	850	350	± .025	± .01	± .03
RH-18SDH8535 _ _ _	—	4	18	850	350	± .025	± .01	± .03

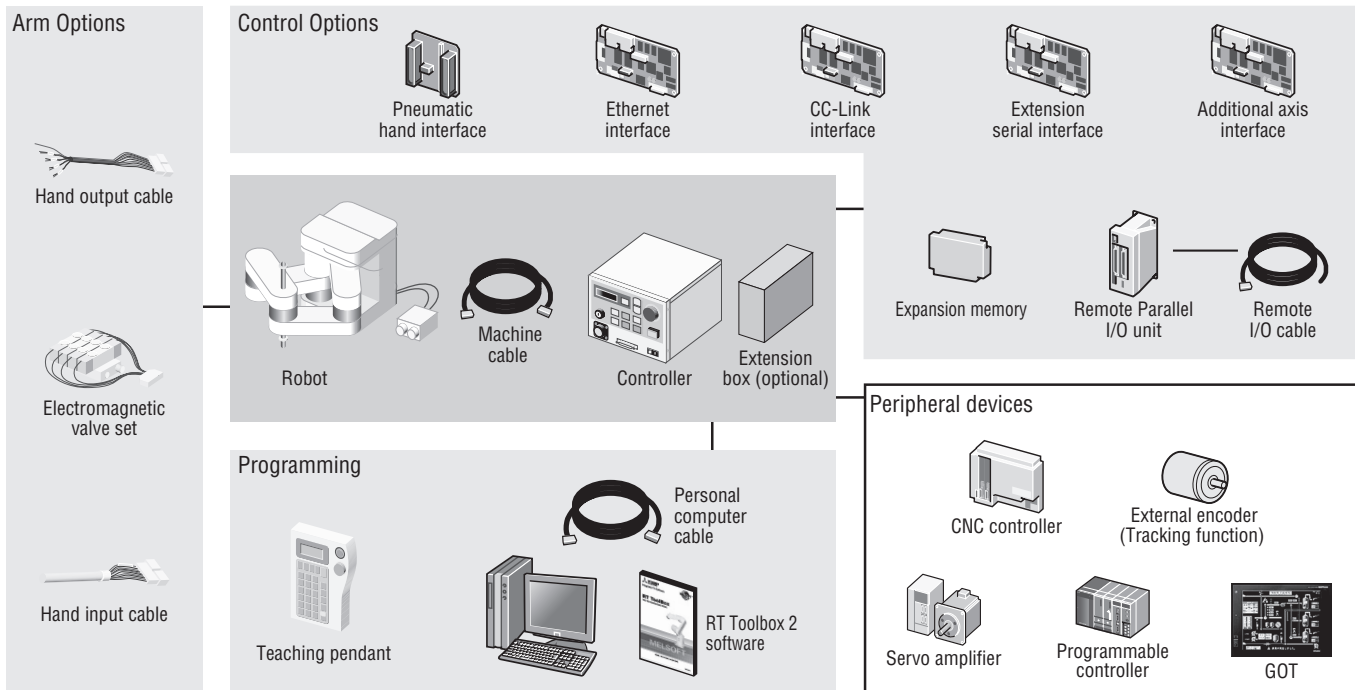
_ _ _ Indicates additional specifications for UL, clean, and oil mist types. Please consult with MEAU

RP Series Micro Assembly Robots

The RP Series utilizes a unique 5 joint, closed mechanical link design which provides a low mass, highly rigid arm. This design is specifically suited for high speed handling of small components. The incredibly small footprint allows them to be imbedded into small machines or work spaces. The RP has unmatched positional accuracy of ± 1 micron and repeatability of ± 5 micron. The RP is a Mitsubishi original design. Typical applications include: PCB insertion, micro-assembly, pick and place in confined spaces.



RP System Configuration



General Specifications

Model Number	Stocked Item	Axes	Payload (kg)	Work Envelope (mm)	Maximum Velocity			Cycle Time (Sec.)	Repeatability (mm)
					J1-J2	J3	J4		
RP-1AH-S11	—	4	1	150 x 105	480 deg. / S	800 mm / S	3000 deg. / S	0.28	± 0.005 mm
RP-3AH-S11	—	4	3	210 x 150	432 deg. / S	960 mm / S	1330 deg. / S	0.29	± 0.008 mm
RP-5AH-S11	—	4	5	300 x 210	432 deg. / S	960 mm / S	1330 deg. / S	0.29	± 0.01 mm

SD Model Options

Item	Model Number	Description	Notes	Stocked Item
Teach Pendants	R32TB	Teach Pendant, 7m cable	Standard Teaching and Operation	S
	R32TB-15	Teach Pendant 15m cable		S
	R56TB	Enhanced Teach Pendant 7m cable	Advanced Function Pendant	S
	R56TB-15	Enhanced Teach Pendant 15m cable		-
Software	RT-TOOLBOX 2 C1	Robot Programming and Setup SW	With Simulation Tool	S
	RT-TOOLBOX 2 LT-C1	Robot Programming and Setup SW-Lite Version	Without Simulation Tool	S
	MELFA-VISION-C1	Vision Interface and Setup SW Tool	Compatible with Cognes "In-Sight" sensors	S
	MELFA-WORKS-C1	Advanced Design and Integration SW Tool	Add on to Solid Works Required	S
PC Comm. Cable	2D-232CBL03M	PC to controller RS232 cable, 9 pin to 9 pin, 3m	For serial only / Controller has Ethernet port	S
CC-Link	2D-TZ576	CC-LINK I/F		S
DeviceNet	2D-TZ571	DeviceNet I/F		S
Profibus	2D-TZ577	Profibus I/F		S
Memory	2D-TZ454	Additional memory 2MB		S
Onboard I/O	2D-TZ368	Onboard I/O, 32/32, sink	Sink Type	S
	2D-TZ378	Onboard I/O, 32/32, source	Source Type	S
Hand Interface Card	2A-RZ365	Pneumatic hand interface	Sink Type	S
	2A-RZ375	Pneumatic hand interface	Source Type	S
Remote I/O	2A-RZ361	Remote I/O, 32/32 sink	Sink Type	S
	2A-RZ371	Remote I/O, 32/32 source	Source Type	S
Onboard I/O Cable	2D-CBL05	Onboard I/O cable, 5m	One end unfinished 5m length	S
	2D-CBL15	Onboard I/O cable, 15m	One end unfinished 10m length	S
Remote I/O Cable	2A-CBL05	One end untreated, 5m length	One end unfinished 5m length	-
	2A-CBL15	One end untreated, 15m length	One end unfinished 10m length	S
Hand I/O Cables	1S-GR35S-01	Hand Output Cable	4-Connection, RV-3, 6, 12	S
	1S-HC25C-01	Hand Input Cable	8-Connection, RV-3, 6, 12	S
	1S-GR35S-02	Hand Output Cable	4-Connection, RH	S
	1S-HC35C-02	Hand Input Cable	8-Connection, RH	S
Solenoid Valve Sets (*1)	1S-VD0x_-02	1 Valve Set with Output Cable	RV-3 / RV-6	S (2 & 4 valve models only)
	1S-VD0x_-01	1 Valve Set with Output Cable	RV-12	S (2 & 4 valve models only)
	1S-VD0xM_-04	1 Valve Set with Output Cable	RH-6	S (2 & 4 valve models only)
	1S-VD0xM_-03	1 Valve Set with Output Cable	RH-12 / RH-18	S (2 & 4 valve models only)
Hand Curl Tube	1N-ST0602C	ø6 - 1 Connection	RV-12S	-
	1N-ST0604C	ø6 - 2 Connections		S
	1N-ST0606C	ø6 - 3 Connections		-
	1N-ST0608C	ø6 - 4 Connections	RV-12S, RH-6, 12, 18S	S
	1E-ST0402C	ø4 - 1 Connection	RV-3S/6S	-
	1E-ST0404C	ø4 - 2 Connections		S
	1E-ST0406C	ø4 - 3 Connections		-
	1E-ST0408C	ø4 - 4 Connections		S
	1E-ST0408C-300	ø4 - 4 Connections, 300 mm	RH-6S	S
Optional Cable Sets	1S-05CBL-03	Cable Extension Set, Standard Flex 5M	RV-3 / RH-6	S
	1S-10CBL-03	Cable Extension Set, Standard Flex 10M		-
	1S-15CBL-03	Cable Extension Set, Standard Flex 15M		-
	1S-05LCBL-03	Cable Extension Set, High Flex 5M		S
	1S-10LCBL-03	Cable Extension Set, High Flex 10M		-
	1S-15LCBL-03	Cable Extension Set, High Flex 15M		-
	1S-02UCBL-03	Optional 2M Cable Set (not extension)		S
	1S-05CBL-01	Cable Extension Set, Standard Flex 5M	RV-6 / RH-6/ RH-18	S
	1S-10CBL-01	Cable Extension Set, Standard Flex 10M		-
	1S-15CBL-01	Cable Extension Set, Standard Flex 15M		-
	1S-05LCBL-01	Cable Extension Set, High Flex 5M		S
	1S-10LCBL-01	Cable Extension Set, High Flex 10M		-
	1S-15LCBL-01	Cable Extension Set, High Flex 15M		-
	1S-02CBL-1	Optional 2M Cable Set (not extension)		S
	1S-05CBL-02	Cable Extension Set, Standard Flex 5M	RV-12	S
	1S-10CBL-02	Cable Extension Set, Standard Flex 10M		-
	1S-15CBL-02	Cable Extension Set, Standard Flex 15M		-
	1S-05LCBL-02	Cable Extension Set, High Flex 5M		S
	1S-10LCBL-02	Cable Extension Set, High Flex 10M		-
	1S-15LCBL-02	Cable Extension Set, High Flex 15M		-

*Note 1: x = number of valves (1-4) ; _ = connection type, E = Source, No symbol represents Sink

A Model Options

Item	Model Number	Description	Notes	Stocked Item
Teach Pendants	R28TB	Teach pendant IP65, 7m cable	All A-Series robots	S
	R28TB-15	Teach pendant IP65, 15m cable		S
Software	RT-TOOLBOX 2 C1	Robot Programming and Setup SW	With Simulation Tool	S
	RT-TOOLBOX 2 LT-C1	Robot Programming and Setup SW-Lite Version	Without Simulation Tool	S
	MELFA-VISION-C1	Vision Interface and Setup SW Tool	Compatible with Cognes "In-Sight" sensors	S
	MELFA-WORKS-C1	Advanced Design and Integration SW Tool	Add on to Solid Works Required	S
PC Comm. Cable	RS-MAXY-CBL	PC to controller RS232 cable, 9 pin to 25 pin, 3m		S
Option Cards	2A-RZ581	Expansion serial interface	RS-232C/422, 1 channel each, serial encoder interface	S
	2A-HR575	CC-Link interface	CC-Link intelligent remote station (1 or 4 stations)	S
	2A-HR533	Ethernet interface	10 base-T 10Mbps	S
	2A-RZ541	Additional axis interface	Supplementary card for up to 8 extension axis	S
	2A-RZ577	PROFIBUS interface	PROFIBUS-DP Slave	S
Expansion	CR1-EB3	Option Expansion Box	For adding up to 3 option cards	S
Memory	2A-HR432	Extended memory	2MB / 27900 Teaching points	S
Hand Interface Card	2A-RZ365	Pneumatic hand interface	Sink Type	S
	2A-RZ375	Pneumatic hand interface	Source Type	S
Remote I/O	2A-RZ361	Remote I/O, 32/32 sink	Sink Type	S
	2A-RZ371	Remote I/O, 32/32 source	Source Type	S
Remote and Onboard I/O Cable	2A-CBL05	One end untreated, 5m length	One end unfinished 5m length	S
	2A-CBL15	One end untreated, 15m length	One end unfinished 10m length	S
Hand I/O Cables	1E-GR35S	4 Connection	Output RV-1A / 2AJ	S
	1A-HC20	1 Finished Connector	Input RV-1A / 2AJ	S
	1A-GR200-RP	Hand Output Cable, 200mm	Output RP	—
	1A-HC200-RP	Hand Input Cable, 200mm	Input RP	—
Solenoid Valve Sets	1E-VD01	1 Valve Set Sink Type	RV-1A / 2AJ	S
	1E-VD02	2 Valve Set Sink Type		S
	1E-VD01E	1 Valve Set Source Type		—
	1E-VD02E	2 Valve Set Source Type		—
	1A-VD01-RP	1 Valve Set Sink Type	RP	—
	1A-VD02-RP	2 Valve Set Sink Type		—
	1A-VD03-RP	3 Valve Set Sink Type		—
	1A-VD04-RP	4 Valve Set Sink Type		—
Hand Curl Tube	1E-ST0402C	2 Connection		S
	1E-ST0404C	4 Connection		S
Electric Hand Set	4A-HM01	Hand, Interface Card, Curl Cable, Mounting HW		S
Pneumatic Hand Set	4A-HP01	Hand, Interface Card, Curl Cable, Mounting HW	RV-1A / 2AJ only	—
Optional Cable Sets	1A-05CBL-1	Cable Set, Standard Flex 5M	Replaces standard cable set	—
	1A-10CBL-1	Cable Set, Standard Flex 10M		—
	1A-15CBL-1	Cable Set, Standard Flex 15M		—
	1A-05LCBL-1	Cable Set, High Flex 5M		—
	1A-10LCBL-1	Cable Set, High Flex 10M		—
	1A-15LCBL-1	Cable Set, High Flex 15M		—

Teach Pendants

R28TB

- Teach pendant for all A and S-Series robots
- 4 line x 16 character display
- Basic Teaching, Program Edit, Parameter Edit, and Movement
- 3-position switch for safety
- Built-in E-Stop switch
- Available with 7 meter or 15 meter cable



R32TB

- Teach pendant for all SD and SQ-Series robots
- 8 line x 24 character display
- New ergonomic design
- Basic Teaching, Program Edit, Parameter Edit, and Movement
- Right hand or left hand operation 3-position switch for safety and comfort
- Built-in E-Stop switch
- Available with 7 meter or 15 meter cable



R56TB

- Enhanced teach pendant for SD and SQ-series robots
- 6.5" VGA touch screen
- Enhanced on-screen editing and navigation
- Right hand or left hand operation 3-position switch for safety and comfort
- Built-in E-Stop switch
- Customizable screen capability
- Built-in USB port
- Available with 7 meter or 15 meter cable

