

RH-1FHR Series

Industrial robots

High-speed Scara robot for pick and place



High-speed 4 axis robots for fastest pick and place (cycle times of only 0.28 s)



Up to 150 picks/min. with conveyor tracking including hand open/close



Space saving and flexible installation method



Optional integrated vacuum valve and bellow for highest requirements in pharmaceutical and F&B application

High speed performance for high-quality applications

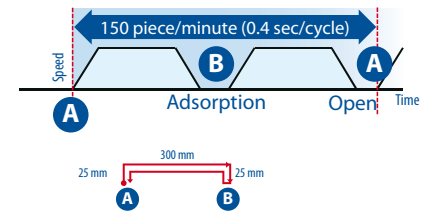


Typical application for the RH-1FHR series

Extremely fast

The RH-1FHR5515 robot of the RH-F series enables the highest speeds in his class, which results in a top class performance for pick and place. Thanks to new developments by Mitsubishi Electric, it was possible to raise the motor capacity and lower the arm weight with retaining the high arm rigidity. This leads to a motion improvement of 2 times compared to standard Scara robots. Up to 150 picks/min with conveyer tracking including hand open/close are possible.

The resulting reduced cycle time of only 0.28 seconds make for significantly increased productivity and improved con-



Continuous high-speed operation



The RH-F series is supported by high-performance standard controllers.

The extension of the RH-F series

Mitsubishi Electric has increased the RH-F series robot product line-up and can offer now a complete range of Scara robots. The RH-F series stands for high production speeds and efficient integration possibilities into existing systems and has a full range of connection options. Mitsubishi Electric SCARA robots are used wherever maximum precision is required. The innovative Mitsubishi Electric RH-F series robots are known for their wide-ranging applications, whether for fast palletising, accurate sorting or parts assembly.

The RH-1FHR5515 is an extremely fast robot dedicated for handling of small parts. The robot is well suited for packaging applications in various fields such as pharmaceutical, cosmetics, life science and food & beverage.

tinuous operation. The broad movement range ensures maximum flexibility and thus simplifies system planning. Effective access to the entire, almost circular working range has many advantages: it reduces cycle times by avoiding unnecessary movements and increases the tasks which the robot can perform in its working range.

Packed with many features

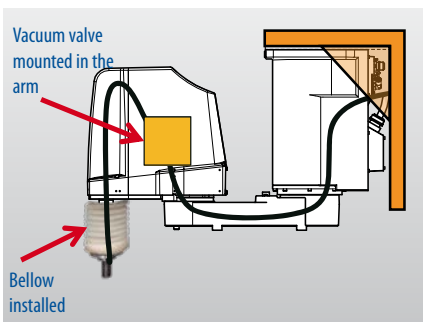
Straight from the factory, the RH-1FHR5515 offers many features which are normally only available as optional extras on comparable products. For example, every model has connections for pneumatic grippers, Ethernet, USB, tracking functions, camera interface, hand I/O, additional axis controller and an interface for GOT HMIs with freely programmable user interfaces. The RH-1FHR5515 has a maximum load capacity of 3 kg, which is suitable for most applications.

Flexible installation method

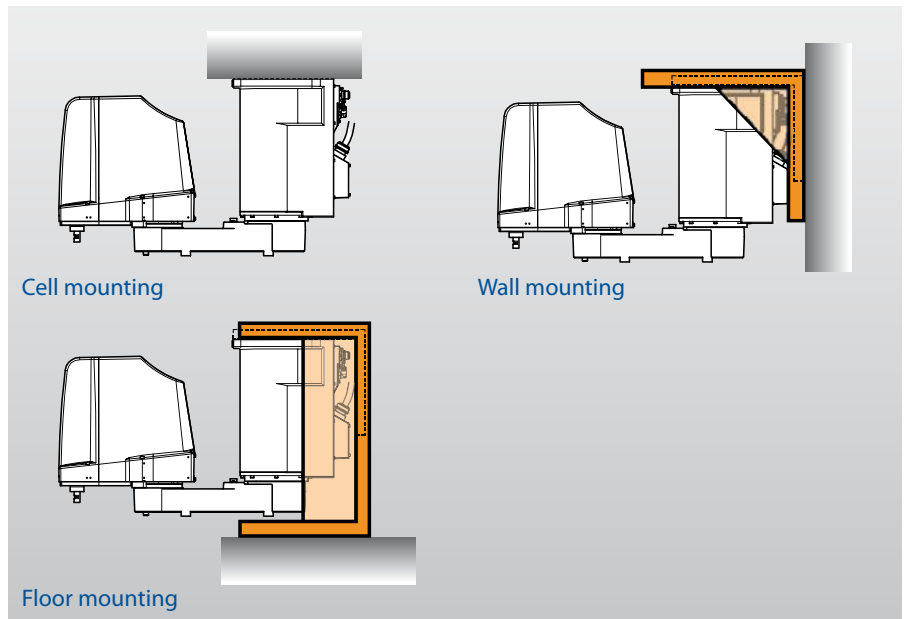
It makes no difference whether if a manufacturing system should be modernized or set up for the first time. The RH-1FHR5515 is a very space-saving robot and can be integrated directly and easily into a working cell. Alternatively a wall or floor mounting with the help of an optional frame is possible. The peripheral equipment can be placed conveniently directly under the robot. With this flexibility in mounting the robot can reach a bigger accessible workspace area compared to standard Scara robots.

Wide-ranging applications

The RH-1FHR5515 is a robust, high-quality robot with an outstanding price/performance ratio. It is suitable straight from the factory for a wide range of industrial applications and can be deployed in many industries. Examples include industrial sectors such as food and beverage, packaging, laboratory automation, automobile manufacturing and cell manufacturing. In addition, the RH-1FHR5515 can be easily and cost-effectively adapted to suit most requirements and situations. For example, a vacuum valve can be mounted into the arm for adsorption. To increase the IP rating from IP20 to IP65/ISO Class 5 and for the grease dispersion prevention a bellow can be installed.



Optional equipment can be added according to the usage



Flexible mounting methods of the RH-1FHR series

More safety

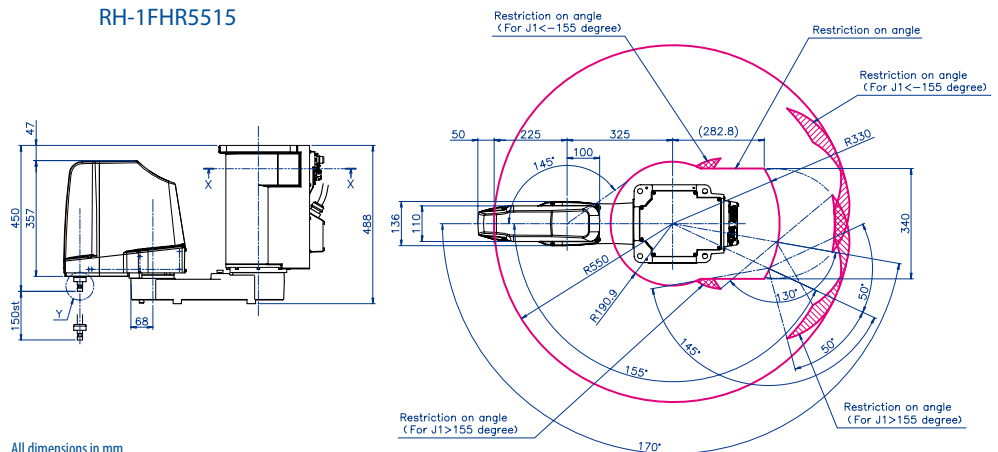
Many safety features are added to protect staff, hardware and programs. When for example several robots are used in one work cell, a CPU connection between the controllers ensures that individual robots are controlled in a co-ordinated manner. They can be operated individually as easily as in normal operation. In jog or automatic mode, an anti-collision function ensures that robots are stopped in good time before they can collide, thus preventing damage. This avoids additional expensive working time for carrying out repairs following a collision due to incorrect position information or wrongly set interlocks.

Easy programming

The RH-1FHR5515 can be quick and easy commissioned via a standard PC using the supplied RT ToolBox2 software. The RT ToolBox2 programming software's graphical interface enables imported 3D CAD files, program variables and robot simulations to be displayed quickly and easily. With the optional teaching box simple automatic operations are possible. A GOT (Graphic Operator Terminal) from Mitsubishi Electric enables a direct control via a touchscreen.

Movement range and dimensions

RH-1FHR5515



All dimensions in mm

Specifications

Robot		RH-1FHR5515	
Installation	On floor, ceiling mounting, wall mounting ^①		
Degrees of freedom	4		
Design	Horizontal articulated arm (SCARA)		
Drive system	AC servo motor		
Brake	J1, J2, J4: no brake / J3: with brake		
Rated. load capacity	kg	1	
Max. load capacity	kg	3	
Max. reach	mm	550	
Operating range	J1-axis	deg	±170
	J2-axis	deg	±145
	J3(Z)-axis	mm	150
	J4(θ)-axis	deg	±360
Maximum speed	J1-axis	deg/s	337.5
	J2-axis	deg/s	720
	J3(Z)-axis	mm/s	765
	J4(θ)-axis	deg/s	3000
Maximum composite speed	mm/s	6267	
Cycle time	s	0.28 (~150 picks/min with conveyer tracking motion)	
Position repeatability	mm	±0.012	
Weight	kg	49	
Tool wiring	Hand: 8 inputs/8 outputs 8 signal cables		
Tool pneumatic pipes	Primary: Ø6 x 2, Secondary: Ø4 x 8		
Protection class	IP20		
Compatible robot controller	CR750/751-D & CR750/751-Q + Q172DRCPU		

^① Floor and wall mounting possible with frame

Robot controller		CR750-Q	CR750-D
Programming language	MELFA-BASIC V		
Position determination	Teaching, manual data input (MDI)		
General-purpose I/O	up to 8192	up to 256	
	Dedicated I/O	Common I/O for multiple CPU	User-defined
External I/O	Gripper status signal inputs	8 inputs	
	External emergency stop	1 (redundant)	
	Door closed contact	1 (redundant)	
	Enabling switch	1 (redundant)	
	Emergency stop additional axes	1 (redundant)	
RS422	1 (Teaching Box)		
Ethernet	1 (Teaching Box)	1 (Teaching Box) 1 (spare) 10BASE-T/100BASE-TX	
USB	1 (USB port for PLC CPU)	1 (Mini-B connector, Ver. 2.0)	
Additional axis	up to 8 (SSCNETIII)		
Conveyor belt tracking encoder	Q173DPX (optional)	2	
Expansion slot	—	2	
Input voltage	Single phase 180 V to 253 V AC ^①		
Power consumption kVA ^②	2.0		
Ambient temperature	°C	0-40 (drive unit)/ 0-55 (robot CPU)	0-40
Dimensions (WxHxD)	mm	430x425x174	
Weight	kg	approx. 20	
Housing/protection class	Floor mounting/IP20		

^① The supply voltage should not vary by more than 10%.

^② Without switch-on current.

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