



Automation for a Changing World

Delta SCARA Robot



www.deltaww.com

 **DELTA**
Smarter. Greener. Together.

Smart Robot for Industry Upgrades

Current trends affecting manufacturing include short commodity cycles, small-volume and large-variety orders, and frequent changes on production lines for multiple items. In response, Delta has launched its new Selective Compliance Assembly Robot Arm (SCARA) that helps customers control production quality for high precision manufacturing. Delta's SCARA provides flexible and variable manufacturing for customization, solves labor shortages, enhances competitiveness, and strengthens response capacity.

Delta SCARA features compliance control functions without sensors, and offers excellent speed, linearity, verticality and repeatability to rapidly and precisely perform operations such as insertion, screw locking, assembly, load and unload, pick-and-place, stacking and packaging. The automatic process path planning function fulfills industry needs for conveyor tracking processes such as gluing, deburring, coating and soldering. With the aid of Delta's machine vision systems, it can perform smart identification, inspection and sorting to effectively reduce defect rate for consistent quality delivery.

When matched with control units and other peripheral devices such as servo systems, machine vision systems and linear modules, the SCARA becomes a highly integrated work station for industries such as consumer electronics, electrical/electronics, rubber and plastic, packaging, metal fabrication and others. It satisfies requirements for both single devices and workstation applications, and enables modularized production lines and multi-products production with consistently good quality. Delta SCARA is easily applied to production automation for higher flexibility in achieving smart and efficient production, and improving productivity, quality, and labor efficiency.

A new industrial revolution is moving towards smart manufacturing and smart factories. To meet customers' needs and to be ready for the industry's future, Delta continues to accumulate field applications and experience and to provide innovative and efficient robot solutions as part of our "Automation for a Changing World".



- ▶ **Compliance control function without sensors**
- ▶ **Excellent speed, linearity, verticality and repeatability**
- ▶ **Widely applied in various applications and industries**

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Successful Applications

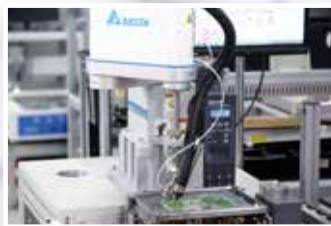
Delta SCARA has been successfully applied to improving production line efficiency and yield rates for consistent quality delivery.

Industry: Electrical/electronics, rubber and plastic, packaging, and metal fabrication

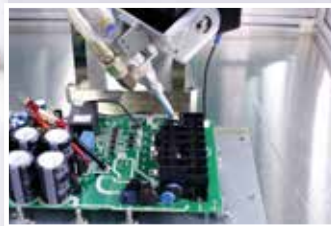
Applications: Insertion, screw locking, assembly, gluing, coating, soldering, load and unload, pick-and-place, stacking, packaging, and inspection



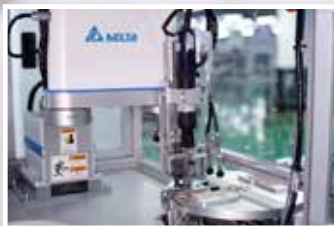
Product Inspection



Soldering



Coating and Gluing



Screw Locking



Touch Screen Examination

Product Features

Excellent speed, linearity, verticality and repeatability.



Motion Stroke (Back & Forth)

Z Axis : 25 mm

X / Y Axis : 300 mm

Payload (Kg)	Cycle Time (sec)
1	0.42
2	0.45
3	0.48

Arm Length : 400 mm
Max. Payload : 3 Kg
Repeatability : ± 0.01 mm

Compliance control functions without sensors to compensate for the deviation between workpieces and insertion holes.



Sensor-less compliance control realizes smooth insertion within the deviation of the motor torque range.

**Insertion performance may differ depending on workpiece hardness.*

Simple and Easy-to-Operate with Versatile Control Approaches

► Multiple Teaching Methods



PAD



Teaching Pendant



PC

► User-friendly Robotic Integration Software

1. Offers built-in standard testing modules for quick I/O points and motor testing, saving system test time
2. Provides a standard modular program designing process for easy robot motion programming, increasing maintainability and lowering maintenance cost
3. Integrates customer's UI tools to ensure the uniqueness and completeness of individual robotics systems

Simulation Module



Programming Module



Built-in Testing Module



Customized UI Module



* UI = User Interface

► Direct Teaching

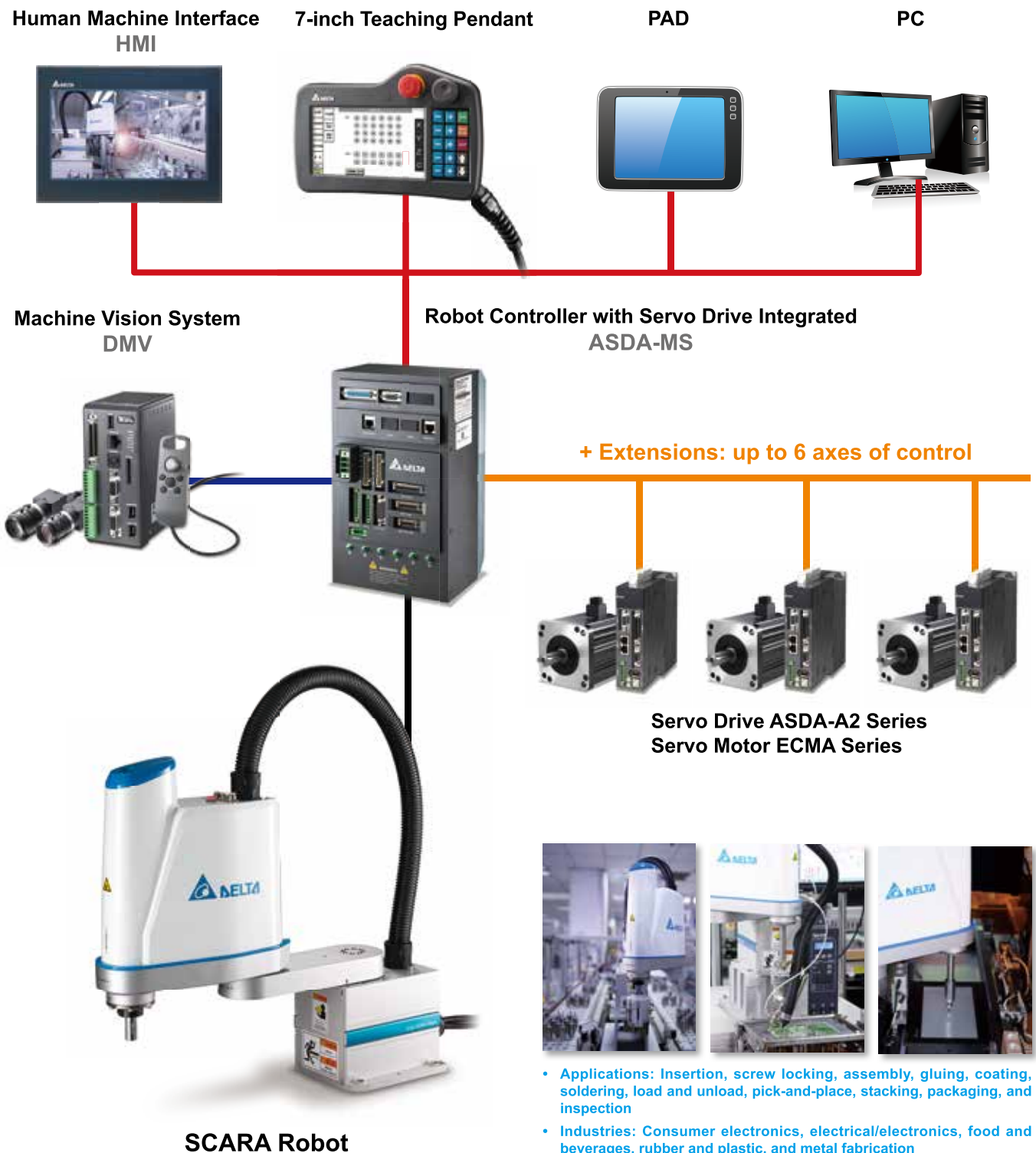


Points are directly taught by hand and recorded by SCARA.



Delta SCARA Robotic Workstation Solution

- ▶ The simple and highly flexible robotic workstation integrates control units and other peripheral devices and allows small-volume and large- variety manufacturing for multiple items.
- ▶ Easy integration with machine vision systems achieves smart identification, inspection and automatic adjustment for consistent quality delivery.



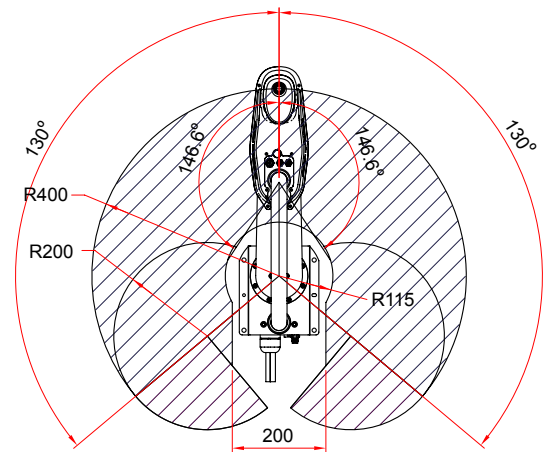
Specifications

DRS40L

Model		DRS40L
Number of Axes		4
Arm Length (X + Y)		400 mm
Rated / Max. Payload		1 Kg / 3 Kg
Maximum Speed	X-Y	4710 mm / sec
	Z	1250 mm / sec
	R	1875° / sec
Range of Motion	X (J1)	±130°
	Y (J2)	±146.6°
	Z	150 mm
	R	±360°
Standard Cycle Time*		0.42 sec
Repeatability	X	±0.01 mm
	Y	±0.01 mm
	Z	±0.01 mm
	R	±0.01°
Motor Output Power	X	200 W
	Y	200 W
	Z	100 W
	R	100 W
Rated / Max. Push Force (Z-Axis)		100 / 250N
Maximum Allowable Inertia Moment (R-Axis)		0.0091 / 0.075 Kg-m ²
User Wiring		15Pin D-Sub
User Tubing		ø4 mmx2, ø6 mmx1
Weight (Without Controller)		16 Kg

*When carrying a payload of 1Kg and reciprocating 25 mm in vertical and 300 mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45% ~ 90% RH (non-condensing).

**Actual cycle time may differ depending on operating conditions. Delta reserves the right to change specification information without prior notice.



X-axis mechanical stopper position : 133°
Y-axis mechanical stopper position : 148.3°

Ordering Information

D R S 40 L 3 S S 1 B N

Company / Product / Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Reduction Ratio	Generation	Controller Type	Teaching Pendant + Cable Length
D:DELTA R:Robot S:SCARA	40:400mm	L:Lite	3 : 3 Kg	S : Standard 150mm	1:16 Gear Ratio 1:48 Gear Ratio	1		
Controller Type		MS						
Robot Controller with Servo Drive Integrated		B						
							Cable Length	3M
							Teaching Pendant	
							Without Teaching Pendant	N



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*We reserve the right to change the information in this catalogue without prior notice.