

*Motoman YS-series 4-axis SCARA robots are ideal for high-speed handling and assembly systems; same controller as other Motoman® robots allows easy integration*



NXM100 CONTROLLER



PACKAGING

# YS650L

## High-Speed SCARA Robots

The YS650L 4-axis, SCARA robots offer high speed in a compact form that requires minimal installation space. The YS650L model features a reach of 650 mm, Z-axis stroke of 320 mm and 5 kg maximum payload.

The YS-series robots feature an IP20 rating and offer superior performance in applications such as assembly, part kitting, small part handling, case packing, lab automation, and magnetic media and semiconductor processing.

These robots easily integrate with existing robot applications to expand current automated processes. They are ideal for large, multi-process systems requiring pick-and-place capability.

YS-series robots feature the same NXM100 controller used with Motoman Robotics' small six-axis robots (HP3M-series and HP6M-series).

## NXM100 Controller

The compact NXM100 controller easily fits underneath conveyors or the controller cabinets can be stacked to provide floorspace savings. The high-performance NXM100 controller

delivers all of the same features of the full-sized NX100 controller in a much smaller "mid-size" cabinet. The NXM100 provides patented multiple robot control capability (up to FOUR robots with one pendant), open communication, and integrated cell control. It has the ability to fit one optional external axis servo amplifier for seventh axis control.

The NXM100 robot controller features a Windows® CE programming pendant with color touch screen; easy-to-use INFORM III programming language; a robust PC architecture; and built-in Ethernet. The NXM100 includes four levels of password protection. All operator controls are located on the pendant, allowing the control cabinet to be mounted remotely.

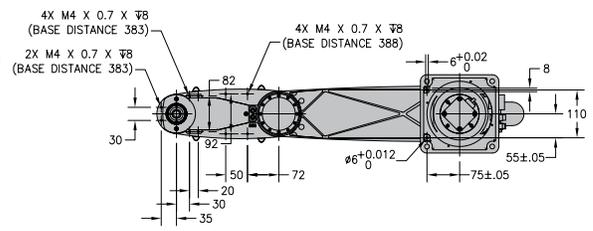
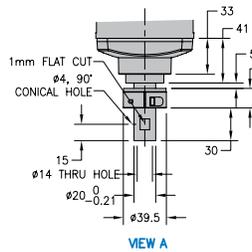
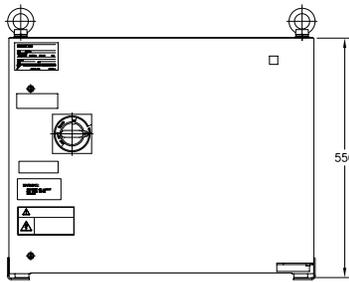
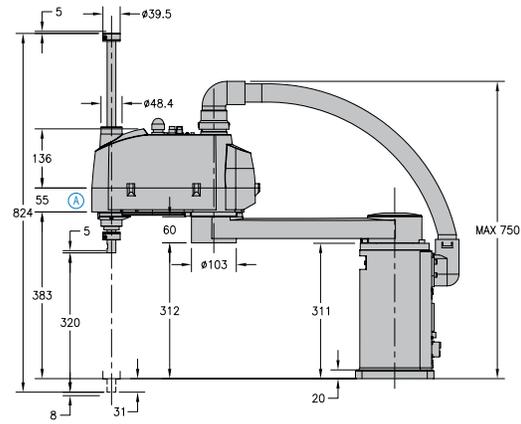
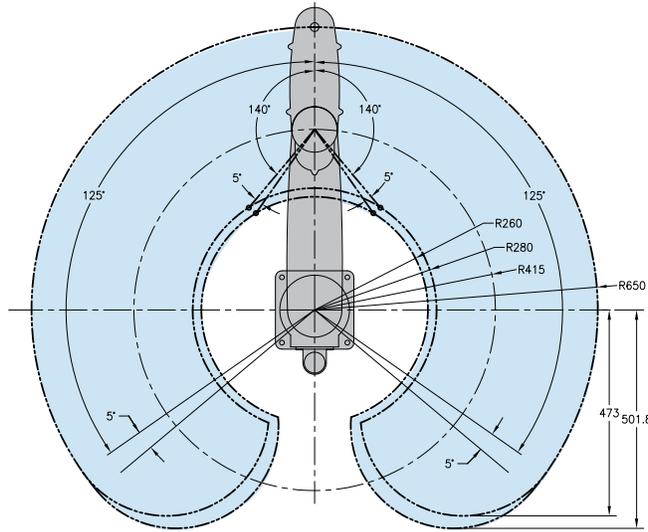
The NXM100 controller also offers unmatched connectivity, highly flexible Fieldbus support, and easy connection to an information infrastructure through standard network options for DeviceNet, ControlNet, Profibus-DP, EtherNet/IP, and many others.

## FEATURES & OPTIONS

- 5 kg payload
- High-speed "pick-and-place" motion
- Compact, mid-size NXM100 controller
- Proven Yaskawa servo drives
- MotoSim® EG simulation software (optional)
- MotoSight 3D vision software (optional)

# YS650L ROBOT

All dimensions are metric (mm) and for reference only. Please request detail drawings for all design/engineering requirements.



## YS650L SPECIFICATIONS

<b>Reach</b>	650 mm (25.6")	
<b>Environment</b>	Standard (IP20)	
<b>Range of Motion</b>	S-Axis + L-Axis S-Axis (1st horizontal arm) L-Axis (2nd horizontal arm) U-Axis (upper/lower) R-Axis (rotate)	650 mm ±125° ±140° 320 mm ±360°
<b>Axis Combination</b>	T1 + T2 + Z + R	
<b>Payload</b>	2 kg (at max speed), 5 kg (at reduced speed)	
<b>Maximum Speed</b>	S-Axis L-Axis U-Axis R-Axis	375 °/s 600 °/s 1,100 mm/s 1,870 °/s
<b>Repeatability</b>	S-Axis + L-Axis U-Axis R-Axis	±0.015 mm ±0.01 mm ±0.02°
<b>Max. Pressure</b>	150 N (15.5 kgf)	
<b>Allowable Moment of Inertia</b>	0.01 kg · m <sup>2</sup> (rated), 0.12 kg · m <sup>2</sup> (max)	
<b>Position Detection</b>	Absolute encoder	
<b>Air Supply</b>	(2) 6 mm, (1) 4 mm	
<b>Mass</b>	20 kg (44.1 lb.)	

NOTE: Actual maximum speed and moment of inertia may vary depending on actual payload.

## NXM100 CONTROLLER SPECIFICATIONS\*

<b>Structure</b>	Free-standing, enclosed type
<b>Dimensions (mm)</b>	700 (w) x 550 (h) x 650 (d) (27.6" x 21.7" x 25.6")
<b>Approximate Mass</b>	70 kg (154 lbs.)
<b>Cooling System</b>	Indirect cooling
<b>Ambient Temperature</b>	During operation: 0° C (32° F) to 45° C (113° F) During transmit and storage: -10° C (14° F) to +60° C (140° F)
<b>Relative Humidity</b>	90% max. non-condensing
<b>Primary Power Requirements</b>	3-phase, 200/220 VAC(+10% to -15%) at 50/60 Hz
<b>Grounding</b>	Grounding resistance: ≤100 ohms Separate ground required
<b>Digital I/O</b>	Standard I/O: 40 inputs/40 outputs consisting of 16 system inputs/16 system outputs, 24 user inputs/24 user outputs Enabled to 1,024 inputs/1,024 outputs
<b>Position Feedback</b>	Absolute encoder
<b>Drive Units</b>	Servo packs for AC servo motors
<b>Accel/Decel</b>	Software servo control
<b>Program Memory</b>	60,000 steps and 10,000 instructions
<b>Pendant Dim. (mm)</b>	199 (w) x 338 (h) x 60 (d) (7.8" x 13.3" x 2.4")
<b>Pendant Playback Buttons</b>	Teach, Play, Remote, Servo On, Start, Hold, Emergency Stop, Edit Lock (Play Mode Enabled on Controller)
<b>Concurrent I/O Ladder</b>	10,000 Instructions, 60,000 Steps
<b>Multi Tasking</b>	Up to 8 concurrent jobs
<b>Fieldbus</b>	DeviceNet Master/Slave, AB R/I/O, Profibus, Interbus-S, M-Net, CC Link, EtherNet IP/Slave
<b>Ethernet</b>	10 Base T/100 Base TX
<b>E-Stop</b>	Controlled stop
<b>Safety</b>	Dual-channel Emergency Stop Pushbuttons, 3-position Enable Switch built into pendant, Manual Brake Release (U-Axis Only) Meets ANSI/RIA R15.06-1999 safety standard

\*See NXM100 Controller data sheet (DS-305) for complete specifications

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