

# MOTOMAN NEWS RELEASE

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## MOTOMAN ES-SERIES "EXPERT SPOT" ROBOTS REVOLUTIONARY DESIGN OPTIMIZES SPOT WELDING PERFORMANCE



Dayton, Ohio — Motoman's six-axis ES-series "Expert Spot" welding robots make spot welding performance easy with fully integrated software and a revolutionary design that routes servo gun cables and utilities through the robot's upper arm. Plus, Motoman offers the industry's first one-year spot harness warranty.

ES-series robots are designed specifically to optimize spot welding performance and offer many benefits, including an expanded work envelope, the highest speed in their class, industry-leading cable durability, wider working envelope, and integrated software for spot welding guns with servo-motor drives.

The ES165N has a 165-kg. (363.8-lb.) payload, and the ES200N has a 200-kg. (441-lb.) payload. Both six-axis robots feature a 2,651-mm (104.4-in.) reach and a repeatability of  $\pm 0.2$  mm ( $\pm 0.008$ -in.) The work envelope extends behind the body, allowing tools to be placed behind the robot and providing easy access to the weld guns for maintenance. Shelf-mounted (ES165RN, ES200RN, ESR200-120) and heavier-payload (ES280N) versions are available to meet a wide variety of spot welding application requirements.

	ES165N	ES165RN	ES200N	ES200RN	ES200RN-120	ES280N
Payload	165 kg (363.8 lb)	165 kg (363.8 lb)	200 kg (441 lb)	200 kg (441 lb)	120 kg (264.6 lb)	280 kg (617.4 lb)
Horizontal Reach	2,651 mm (104.4")	3,140 mm (123.6")	2,651 mm (104.4")	3,140 mm (123.6")	4,004 mm (157.6")	2,446 mm (96.3")
Vertical Reach	3,372 mm (132.8")	4,782 mm (188.3")	3,372 mm (132.8")	4,782 mm (188.3")	6,512 mm (256.4")	2,962 mm (116.6")
Repeatability	$\pm 0.2$ mm/0.008"	$\pm 0.2$ mm/0.008"	$\pm 0.2$ mm/0.008"	$\pm 0.2$ mm/0.008"	$\pm 0.2$ mm/0.008"	$\pm 0.2$ mm/0.008"

Motoman's "Expert Spot" ES-series spot welding robots change the paradigm of "working envelope" (i.e. robot reach without process equipment) to a "process envelope" as the restrictions imposed by process equipment are removed, interference caused by the spot weld dress-out package is eliminated.

Cable life span is six or more times longer than that of traditional cables. Regular replacement interval for the internal cables is about 24,000 hours versus 2,000-4,000 hours for general-purpose spot welding robots with external cabling. This extreme durability reduces the need for spare parts and also reduces downtime. The new cabling design also improves the wrist moment allowance, which is sufficient for a large spot welding gun. Quick connectors allow fast, easy replacement of internal cables, which further reduces downtime. Safety improvements include a changeable mechanical stopper that can be installed on

three major axes, and S-axis zone limit switches that can be installed at the same time as the spot welding cable.

The Multiple Robot Control capability of the NX100 allows the ability to operate up to four robots from a single controller – offering a patented method of multiple robot control, as well as a single point of control from one programming pendant to maximize productivity. Multiple Robot Control reduces the risk of collision. Using a single controller versus four separate controllers also reduces integration costs due to less I/O and safety hardware, fewer wiring points, and reduced wiring and engineering labor.

The ES165N and ES200N offer many advantages for high-density installations. The internal cabling design of the ES165N and ES200N robots improves access into tight spaces, such as car bodies on automotive spot welding lines. One NX100 controls 36 axes, including four robots with servo guns. Additionally, using Multiple Robot Control, these robots can perform synchronous transfer of a large part, such as an auto body, to the next station using all four robots to lift and carry at the same time.

The ES165N and ES200N robots are controlled by Motoman's high-performance NX100 robot controller that features a Windows® CE programming pendant, fast processing, easy-to-use INFORM III programming language, and robust PC architecture. Many advanced welding features are built in to the programming pendant that features a color touch-screen display that can be configured as a custom HMI with buttons and status indicators. The NX100 controller offers integrated “soft” PLC functions, built-in password protection, dual-channel safety features, and unmatched connectivity through standard Ethernet and other network options: DeviceNet, ControlNet, Profibus-DP, and EtherNet/IP.

For more information on the ES165N and ES200N “Expert Spot” welding robots or other Motoman products and services, call 937.847.6200, write to Motoman Inc., 805 Liberty Lane, West Carrollton, Ohio, USA 45449, or visit the corporate website at [www.motoman.com](http://www.motoman.com).

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