

Specifications	MDX-540S	MDX-540
Cuttable material	Plastic resin and light metal	
XYZ-axis travels	500 mm (X) x 400 mm (Y) x 155 mm (Z) (19.6(X) x 15.7(Y) x 6.1(Z) in.)	
Distance from spindle nose to table	Maximum 254 mm (10 in.)	
Table size	550 mm (W) x 420 mm (D) (21.7(W) x 16.5(D) in.)	
Loadable workpiece weight	At acceleration of 0.2 G: maximum 12 kg (26 lb.), 0.1 G: 20 kg (44 lb.), 0.05 G: 20 kg (44 lb.)	
XYZ-axis drive system	AC servo motor, 80 W	AC servo motor, 60 W
Operating speed	Maximum 7.5 m/min (295 in./min)	
Acceleration	0.2 G, 0.1 G, 0.05 G	
Software resolution	RML-1 mode: 0.01 mm (0.0004 in.), NC-code mode: 0.001 mm (0.00004 in.)	
Mechanical resolution	0.001 mm (0.00004 in.)	
Positioning accuracy	±0.1 mm/300 mm (±0.004 in./12 in.), under no-load conditions	
Repeat accuracy	±0.02 mm (±0.0008 in.), under no-load conditions	±0.05 mm (±0.002 in.), under no-load conditions
Origin reproducibility (when the power is switched on/off)	±0.02 mm (±0.0008 in.)	±0.05 mm (±0.002 in.)
Spindle motor	DC brushless motor, maximum 400 W	
Spindle speed	400 to 12,000 rpm; 400 to 3,000 rpm for positioning and centering	
Tool chuck	Collet method, maximum tool diameter: 10 mm (0.4 in.)	
Control command sets	RML-1 and NC codes	
Interface	USB (compliant with Universal Serial Bus Specification Revision 1.1)	
Power supply	Voltage and frequency: AC 100 to 120 V/220 to 240 V ±10%, 50/60 Hz; Required power capacity: 7 A (100 to 120 V)/4 A (220 to 240 V)	
Power consumption	Approx. 700 W	
Acoustic noise level	During operation (no cutting): 65 dB (A) or less, During standby: 40 dB (A) or less (according to ISO 7779)	
Dimensions	765 mm (W) x 955 mm (D) x 858 mm (H) [30.1(W) x 37.6(D) x 33.8(H) in.]	745 mm (W) x 955 mm (D) x 858 mm (H) [29.3(W) x 37.6(D) x 33.8(H) in.]
Weight	102 kg (225 lb.)	
Operating temperature	5 to 40°C (41 to 104°F)	
Operating humidity	35 to 80% (no condensation)	
Included items	Handy panel, power cord, tool sensor, sensor cable, nut, nut wrench, wrench, hexagonal wrench, Roland Software CD-ROM, SRP Player CD-ROM, User's Manual, Roland Software Guide, SRP Player Installation and Setup Guide, NC Code Reference Manual	

Automatic Tool Changer (ZAT-540)	MDX-540SA	MDX-540A
XYZ-axis travels	400 mm (X) x 400 mm (Y) x 155 mm (Z) (15.7(X) x 15.7(Y) x 6.1(Z) in.)	
Number of tools housed	4	
Maximum tool length	110 mm (4.3 in.)	
Maximum tool diameter	10 mm (0.4 in.)	
Maximum tool weight	350 g (0.77 lb.)	
Tool-holder format	Taper shank: JBS4002 15T 7/24 taper. Pull stud: JBS4002 15P (45°), special	
Tool-selection method	Direct-changing type, fixed-address specification	
Compatible compressed air	0.7 to 1.0 MPa, 50 L/min or higher	
Spindle speed	400 to 12,000 rpm; 400 to 3,000 rpm for positioning and centering	
Dimensions	765 mm (W) x 955 mm (D) x 858 mm (H) [30.1(W) x 37.6(D) x 33.8(H) in.]	745 mm (W) x 955 mm (D) x 858 mm (H) [29.3(W) x 37.6(D) x 33.8(H) in.]
Weight (including main unit and ATC)	109 kg (240 lb.)	
Weight (ATC)	6.8 kg (15 lb.) (total weight including spindle, magazine, control box, etc.)	
Included items	Control box, magazine unit, ATC spindle, air cylinder, base plate, Z-origin sensor, spacer, cap screws, hexagonal wrenches, retaining bands, cable retainers, and user's manual	

\*When this unit is installed, the X-axis travels of the MDX-540 are as follows: \*Standard table, no rotary axis unit: 400 mm (15.7 in.)  
 \*Standard table, rotary axis unit present: 270 mm (10.6 in.)/325 mm (12.7 in.) (with expanded X-axis travel) \*T-slot table, no rotary axis unit: 400 mm (15.7 in.)  
 \*T-slot table, rotary axis unit present: 203 mm (7.9 in.)/258 mm (10.1 in.) (with expanded X-axis travel)

Rotary axis unit (ZCL-540) Specifications	
Supported workpiece	Resin (metal not supported)
Maximum angle of rotation	±21,474,836.47° (±59,652.3 turns)
Loadable workpiece size **	Items within the range of a 90 mm (3.5 in.) in radius from the center of the rotary axis by 371 mm (14.6 in.) long. The actual cuttable range is smaller than this.
Workpiece thickness holdable by workpiece chuck	15 to 100 mm (0.6 to 3.9 in.)
Loadable workpiece weight	Maximum 5 kg (11 lb.), maximum moment of inertia: 0.02 kgm <sup>2</sup> Center drill used: Maximum 1.5 kg (3.3 lb.)
Control method	Simultaneous 4-axis control
Feed rate	Feed rate Maximum 20 rpm
Software resolution	RML-1 mode: 0.1°, NC-code mode: 0.01°
Mechanical resolution	0.002°
Static precision	Backlash: 0.05°, Eccentricity: 0.3 mm (0.012 in.) or less
Dimensions	720 mm (W) x 100 mm (D) x 195 mm (H) [28.3 (W) x 3.9 (D) x 7.7 (H) in.]
Weight	6.5 kg (14.5 lb.) (total weight including drive unit, tailstock, base plates, etc.)
Included items	Drive unit, tailstock, base plates, live center, center drill, Y-origin sensor, Z-origin sensor, spacer, origin-detection pin, cap screws, T-slot nuts, hexagonal wrenches, retaining band, and user's manual

\*\* When the T-slot table is installed, the length is 297 mm (11.7 in.).  
 \* When this unit is installed, the X-axis travels of the MDX-540 are as follows: \*Standard table, no ATC unit: 285 mm (11.2 in.)/325 mm (12.7 in.) (with expanded X-axis travel) \*Standard table, ATC unit present: 270 mm (10.6 in.)/325 mm (12.7 in.) (with expanded X-axis travel) \*T-slot table, no ATC unit: 218 mm (8.5 in.)/258 mm (10.1 in.) (with expanded X-axis travel) \*T-slot table, ATC unit present: 203 mm (7.9 in.)/258 mm (10.1 in.) (with expanded X-axis travel)

### ISO 14001:2004 and ISO 9001:2008 Certified

Roland pursues both environmental protection and continuous quality improvement. Under the philosophy of preserving the environment and human health, Roland is actively working to abolish organic solvents in production, to reduce and recycle waste, to reduce power use, and to purchase recycled products. Roland constantly strives to provide the most highly reliable products available.



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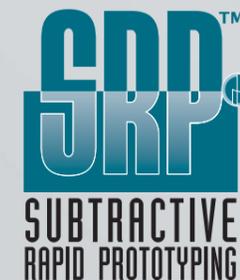
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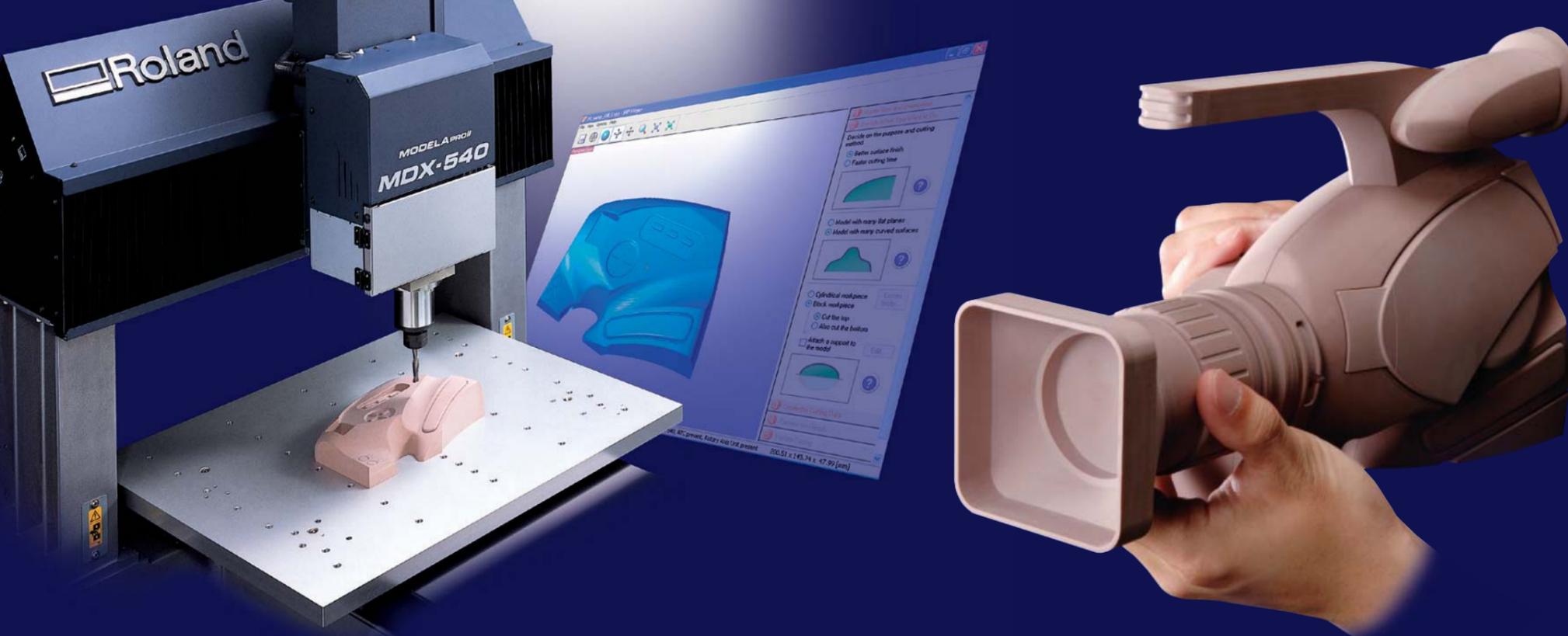
Imagine.



# MODELAPROII MDX-540/540S MDX-540A/540SA



**Introducing A Major Advancement in Rapid Prototyping**



# Create Precision Models and Prototypes Quickly and Easily In Your Office Environment Using Roland SRP® Technology

## MODELA PRO II MDX-540 Features:

- Precision benchtop milling machine produces high-quality parts and models using Roland's Subtractive Rapid Prototyping (SRP) technology
- Advanced S models utilizing higher accuracy ballscrews available for even greater precision
- Simple on-screen menus and operation panel make setup and production easier than ever
- Cutting area of 500 mm (X) x 400 mm (Y) x 155 mm (Z) (19.6 (X) x 15.7 (Y) x 6.1 (Z) in.) accommodates larger prototypes
- Advanced software optimizes your 3D CAD data for flawless molds and parts
- In-house milling shortens the design/development cycle and lowers product development costs



The MDX-540 mills even the most intricate details.

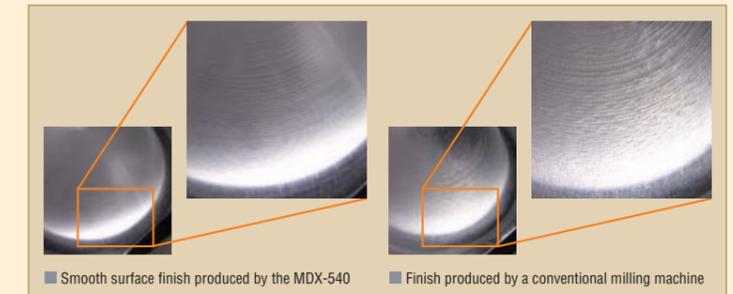
Generate smooth curves and surfaces without handwork.



## Unmatched Quality and Performance

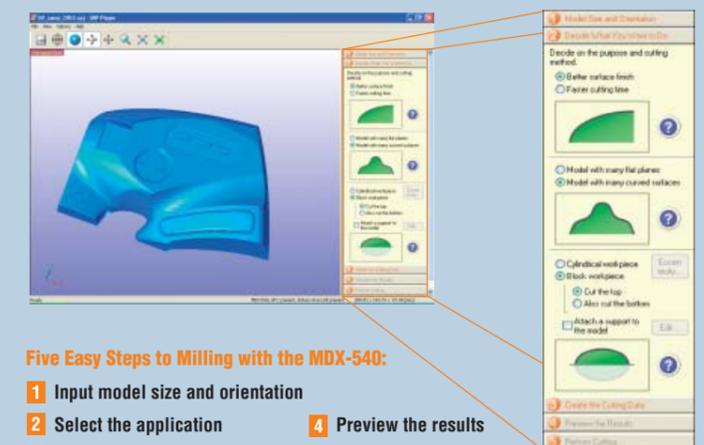
The new MDX-540 features numerous upgrades including a more rugged body design, faster arithmetic processing, improved smoothing functions, a streamlined worktable and more. Nearly every part and feature have been upgraded for superior all-around performance. Curved and rounded surfaces are smoother than ever for flawless finishes every time. The MDX-540 features a combination of Digital AC Servo motors and Feed Forward Processing (DAC-FFP) commonly used in larger, more expensive NC machines. This advanced technology ensures optimum torque and speed throughout the production process for powerful, high-speed milling.

\*Milling quality may vary depending on software resolution, materials used and other criteria.



## Advanced, Easy-To-Use Software

The introduction of Roland's MODELA PRO II and SRP Player software allow even novices to operate the MDX-540 for professional results. Every MDX-540 comes equipped with Roland SRP Player, which was developed exclusively for the MDX-540. Simply enter the required information into five setting groups and SRP Player does the rest, automatically determining the best tools and other details required to generate the optimum tool path. To prevent costly and time-consuming errors, SRP Player allows you to preview your job on-screen to confirm the cutting path for quality results every time.



### Five Easy Steps to Milling with the MDX-540:

- 1 Input model size and orientation
- 2 Select the application
- 3 Determine the cutting data
- 4 Preview the results
- 5 Produce the model

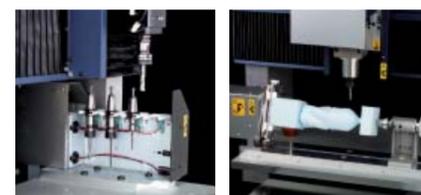
## User-Friendly Operation

Designed from the ground up for ease of use, the MDX-540 features a handy control panel that simplifies the setup and production processes by strategically grouping the most commonly used settings. Using a jog-dial, you can quickly and easily reposition tools and adjust spindle speeds without interrupting the milling process. For other settings, simply access the MDX-540's on-screen operation panel featuring clear, easy-to-navigate icons.



## Powerful Options for High Production Demands

Four powerful options let you build on your MDX-540 for even greater performance and unattended operation. These include an Automatic Tool Changer (ATC), rotary axis unit, T-slot table and safety cover. The optional ATC holds up to four tools while the rotary axis unit facilitates 360 degree and multiple-surface cuts.



■ Automatic Tool Changer(ATC) ■ Rotary axis unit

## Able to Mill a Wide Variety of Materials

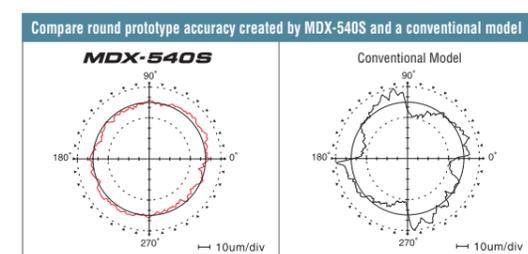
With the MDX-540, you can produce molds and parts for small lot production quickly and inexpensively from a wide range of materials, including chemical woods, resin, ABS and non-ferrous metals such as aluminum, brass and copper.\*

\* The MDX-540 cannot mill light metals with the rotary axis unit.



## "S" Models for Precision Applications

S models offer high quality milling for snap-fit prototypes, smooth surface finishes and other advanced applications. S models feature precision ballscrews that achieve repeat accuracy up to ±0.02 mm (±0.0008 in.) and minimize cutting marks. Choose from the standard MDX-540S and the MDX-540SA with ATC unit included.



Comparison results were obtained by milling acrylic cylinders with 40mm radius and 30mm height using both an MDX-540S and a conventional mill.

# MODELA PRO II



Photo: MDX-540 and safety cover

Standard SRP Model  
**MDX-540**  
Precision SRP Model  
**MDX-540S**

With Built-in ATC  
**MDX-540A**  
Precision Model with Built-in ATC  
**MDX-540SA**

Includes a factory-installed Automatic Tool Changer that has been tested for milling accuracy, allowing you to begin milling immediately without lengthy accuracy adjustments.

